

List Manual 07/2007

SINAMICS S

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SINAMICS S List Manual

Manual

Valid for

Drive

SINAMICS

Firmware version

2.5 SP1

Foreword

Parameters

Function Diagrams

Faults and Alarms

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6SL3 097-2AP00-0BP6

07/2007

Safety-related information

This manual contains information that must be observed to ensure your personal safety and to prevent property damage. Notices referring to your personal safety are highlighted in the manual by a safety alert symbol; notices referring to property damage only have no safety alert symbol. These notices shown below are graded according to the level of danger:



Danger

indicates that death or serious injury **will** result if proper precautions are not taken.



Alarm

indicates that death or serious injury **may** result if proper precautions are not taken.



Caution

with a safety alert symbol, indicates that minor personal injury **may** result if proper precautions are not taken.

Caution

without a safety alert symbol, indicates that property damage may result if proper precautions are not taken.

Caution

means an undesirable result or state can occur if the corresponding instruction is not followed.

If more than one level of danger exists, the warning notice for the highest level of danger is used. If a warning notice with a safety alert symbol is to indicate physical injury, the same warning may also contain information about damage to property.

Qualified personnel

The associated device/system may only be installed and used in conjunction with this documentation. Only **qualified personnel** should be allowed to commission and operate the device/system. For the purpose of the safety information in this documentation, a “qualified person” is someone who is authorized to energize, ground, and tag equipment, systems, and circuits in accordance with established safety procedures.

Intended use

Please note the following:



Alarm

This equipment is only allowed to be used for the applications described in the catalog and in the technical description, and only in conjunction with non-Siemens equipment and components recommended by Siemens.

This product can function correctly and safely only if it is transported, stored, set up, and installed correctly, and operated and maintained as recommended.

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Foreword

SINAMICS Documentation

The SINAMICS documentation is organized in 2 parts:

- General documentation/catalogs
- Manufacturer/service documentation

A current overview of the documentation in the available languages is provided in the Internet:

<http://www.siemens.com/motioncontrol>

Follow menu items - "Support" -> "Technical documentation" -> "Overview of publications".

The Internet version of DOConCD (DOConWEB) is available in the Internet:

<http://www.automation.siemens.com/doconweb>

Information on the range of training courses and FAQs (Frequently Asked Questions) are available in the Internet:

<http://www.siemens.com/motioncontrol>

Follow the menu item "Support".

Usage phases and their tools/documents (as an example)

Table Foreword-1 Usage phases and the available tools/documents

Usage phase	Tools/documents
Orientation	SINAMICS S Sales Documentation
Planning/configuration	SIZER configuration tool Configuration Manuals, Motors
Decision making/ordering	SINAMICS S Catalogs
Installation/assembly	<ul style="list-style-type: none">• SINAMICS S120 Equipment Manual for Control Units and Supplementary System Components• SINAMICS S120 Equipment Manual Power Modules Booksize• SINAMICS S120 Equipment Manual Power Modules in chassis format• SINAMICS S150 operating instructions

Table Foreword-1 Usage phases and the available tools/documents, continued

Usage phase	Tools/documents
Commissioning	<ul style="list-style-type: none">• STARTER parameterization and commissioning tool• SINAMICS S120 Getting Started• SINAMICS S120 Commissioning Manual• SINAMICS S120 CANopen Commissioning Manual• SINAMICS S120 Function Manual• SINAMICS S List Manual• SINAMICS S150 operating instructions
Usage/operation	<ul style="list-style-type: none">• SINAMICS S120 Commissioning Manual• SINAMICS S List Manual• SINAMICS S150 operating instructions
Maintenance/servicing	<ul style="list-style-type: none">• SINAMICS S120 Commissioning Manual• SINAMICS S List Manual• SINAMICS S150 operating instructions

Target group

This documentation is aimed at machine manufacturers, commissioning engineers, and service personnel who use SINAMICS.

Benefits

This documentation contains the comprehensive information about parameters, function diagrams and faults and alarms required to commission and service the system.

This manual should be used in addition to the other manuals and tools provided for the product.

Standard version

The scope of the functionality described in this document can differ from the scope of the functionality of the drive system that is actually supplied.

- Other functions not described in this documentation might be able to be executed in the drive system. However, no claim can be made regarding the availability of these functions when the equipment is first supplied or in the event of servicing.
- Functions can be described in the documentation that are not available in a particular product version of the drive system. The functionality of the supplied drive system should only be taken from the ordering documentation.
- Extensions or changes made by the machine manufacturer must be documented by the machine manufacturer.

For reasons of clarity, this documentation does not contain all of the detailed information on all of the product types. This documentation cannot take into consideration every conceivable type of installation, operation and service/maintenance.

Search tools

The following guides are provided to help you locate information in this manual:

1. Table of contents
 - General table of contents for the complete manual (after the preface).
 - Table of contents for function diagrams (Chapter 2.1).
2. List of abbreviations
3. References
4. Index

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Note:

For technical support telephone numbers for different countries, go to:

<http://www.siemens.com/automation/service&support>

Questions about the Manual

Please send any questions about the technical documentation (e.g. suggestions for improvement, corrections) to the following fax number or E-Mail address:

Fax: +49 (0) 9131 / 98 - 63315
E-Mail: motioncontrol.docu@siemens.com
Fax form: Refer to the feedback sheet at the end of the manual

Internet address for SINAMICS

<http://www.siemens.com/sinamics>

EC declaration of conformity

The EC Declaration of Conformity for the EMC Directive can be obtained from:

- Internet

<http://www.ad.siemens.de/csinfo>

Product/Order No.: 15257461

- Branch offices

For the responsible regional offices of the A&D MC business division of Siemens AG.

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Parameters

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1.1 Overview of parameters




1.1.1 Explanation of list of parameters

Basic structure of parameter descriptions

The data in the following example has been chosen at random. The table below shows all the information which can be included in the description of a parameter. Some of the information is optional.

The structure of the parameter list (See Section 1.2) is as follows:

----- **Start of example** -----

pxxxx[0...n]	BICO: Full parameter name / Abbreviated name				
Drive object (function module)	Changeable in: C1(x), C2(x), U, T	are calculated: CALC_MOD_REG		Access level: 2	
	Data type: Unsigned32 / Integer16	Dynamic index: CDS, p0170		Function diagram: 2080	
	P group: Cl.-lp. control	Unit Group: 7_1		Unit selection: p0505	
	Not for motor type: FEM			Expert list: 1	
	Min 0.00 [Nm]	Max 10.00 [Nm]		Factory setting 0.00 [Aeff]	
Description:	Text				
Values:	0: Name and meaning of value 0 1: Name and meaning of value 1 2: Name and meaning of value 2 etc.				
Recommendation:	Text				
Index:	[0] = Name and meaning of index 0 [1] = Name and meaning of index 1 [2] = Name and meaning of index 2 etc.				
Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Name and meaning of bit 0	Yes	No	8010
	01	Name and meaning of bit 1	Yes	No	-
	02	Name and meaning of bit 2	Yes	No	8012
		etc.			
Depends on:	Text See also: pxxxx, rxxxx See also: Fxxxxx, Axxxxx				
Danger:	Warning:	Caution:	Safety-related information with a safety alert symbol		
					
Caution:	Notice:		Safety-related information without a safety alert symbol		
Note:	Information which might be useful.				

----- **End of example** -----

pxxxx[0...n] Parameter number

The parameter number consists of a "p" or "r", followed by the parameter number and the index (optional).

Examples of number representation in the parameter list:

- p... Adjustable parameter (read and write parameter)
- r... Display parameter (read only)
- p0918 Adjustable parameter 918
- p0099[0...3] Adjustable parameter 99, indices 0 to 3
- p1001[0...n] Adjustable parameter 1001, indices 0 to n (n = configurable)
- r0944 Display parameter 944

Other examples of notation in the documentation:

- p1070[1] Adjustable parameter 1070, index 1
- p2098[1].3 Adjustable parameter 2098, index 1 bit 3
- r0945[2](3) Display parameter 945, index 2 of drive object 3
- p0795.4 Adjustable parameter 795, bit 4
- r2129.0...15 Display parameter 2129 with bit field (maximum 16 bit)

The following applies to adjustable parameters:

The "shipped" parameter value is specified under "Factory setting" with the relevant unit in square parenthesis. The value can be adjusted within the range defined by "Min" and "Max".

The term "linked parameterization" is used in cases where changes to adjustable parameters affect the settings of other parameters.

Linked parameterization can occur, for example, as a result of the following actions or parameters:

- Execute macros
p0015, p0700, p1000, p1500
- Set PROFIBUS telegram (BICO interconnection)
p0922
- Set component lists
p0230, p0300, p0301, p0400
- Calculate and preset automatically
p0112, p0340, p0578, p3900
- Restore factory settings
p0970

The following applies to display parameters:

The fields "Min", "Max" and "Factory setting" are specified with a dash "-" and the relevant unit in square parenthesis.

Note:

The parameter list can contain parameters that are not visible in the expert lists of the particular commissioning software (e.g. parameters for trace functions).

BICO: Full parameter name / Abbreviated name

The following abbreviations can be placed in front of the parameter name:

- **BI:** Binector input
This parameter is used for selecting the source of a digital signal.
- **BO:** Binector output
This parameter is available as a digital signal for interconnection with other parameters.
- **CI:** Connector input
This parameter is used for selecting the source of an analog signal.
- **CO:** Connector output
This parameter is available as an "analog" signal for interconnection with other parameters.
- **CO/BO:** Connector/Binector Output
This parameter is available as an "analog" and digital signal for interconnection with other parameters.

Note:

A connector input (CI) cannot be just interconnected with any connector output (CO, signal source).
When interconnecting a connector input using the commissioning software, only the corresponding possible signal sources are listed.

Drive object (function module)

A drive object (DO) is an independent, "self-contained" functional unit which possesses its own parameters and, in some cases, faults and alarms.

When carrying out commissioning using the commissioning software, you can select/deselect additional functions and their parameters by activating/deactivating function modules accordingly.

Note:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions

The parameter list specifies the associated drive object and function module for each individual parameter.

Examples:

- p1070 CI: Main setpoint
SERVO (extended setpoint), VECTOR
The parameter is available only in association with drive object SERVO and the "Extended setpoint channel" function module or with drive object VECTOR irrespective of activated function modules.
- p1055 BI: Jog bit 0
SERVO, VECTOR
The parameter is available in association with drive objects SERVO and VECTOR irrespective of activated function modules, i.e. it is available with every activated function module belonging to the drive object.

A parameter can belong to either one, several, or all drive objects.

The following information relating to "Drive object" and "Function module" can be displayed under the parameter number:

Table 1-1 Data in "Drive object (function module)" field

Drive object (function module)	Type	Meaning
All objects	-	This parameter belongs to all drive objects.
A_INF	10	Active Infeed closed-loop control Closed-loop-controlled, self-commutated infeed/regenerative feed-back unit for generating a constant DC-link voltage.
A_INF (parallel)	-	Active Infeed with "Parallel connection" function module (r0108.15).
A_INF (RKA)	-	Active Infeed with "Cooling system" function module (r0108.28).
A_INF (CBE)	-	Active Infeed with "CBE COMMUNICATION BOARD" function module (r0108.31).
B_INF	30	Basic Infeed closed-loop control Unregulated line infeed unit (without feedback) for rectifying the line voltage of the DC Link.
B_INF (parallel)	-	Basic Infeed with "Parallel connection" function module (r0108.15).
B_INF (RKA)	-	Basic Infeed with "Cooling system" function module (r0108.28).
B_INF (CBE)	-	Basic Infeed with "CBE COMMUNICATION BOARD" function module (r0108.31).
CU	-	Control Unit, all versions.
CU(CAN)	-	Control Unit with "CAN" function module.
CU_S	1	Control Unit SINAMICS S (SINAMICS S120/S150).
CU_S (CAN)	-	Control Unit SINAMICS S with "CAN" function module
CU_CX32	-	Controller Extension for boosting the processing performance.
CU_LINK	254	Object for Controller Extension 32 (CX32).
CU_I	-	Control Unit SINAMICS Integrated (SIMOTION D4xx only).
DMC20	150	DRIVE-CLiQ Hub Module Cabinet.

Table 1-1 Data in "Drive object (function module)" field, continued

Drive object (function module)	Type	Meaning
S_INF	20	Smart Infeed control Unregulated line infeed/feedback unit for generating the DC link voltage.
S_INF (parallel)	-	Smart Infeed with "Parallel connection" function module (r0108.15).
S_INF (CBE)	-	Smart Infeed with "CBE COMMUNICATION BOARD" function module (r0108.31).
SERVO	11	Servo drive.
SERVO (extended M_ctrl)	-	Servo drive with "Extended torque control" function module (r0108.1).
SERVO (position ctrl)	-	Servo drive with "Position control" function module (r0108.3).
SERVO (EPOS)	-	Servo drive with "Basic positioner" function module (r0108.4).
SERVO (APC)	-	Servo drive with "Advanced Positioning Control (APC)" function module (r0108.7).
SERVO (extended set-point)	-	Servo drive with "Extended setpoint channel" function module (r0108.8).
SERVO (Lin)	-	Servo drive with "Linear motor" function module (r0108.12).
SERVO (Safety red)	-	Servo drive with "Safety rotary axis" function module (r0108.13).
SERVO (ext. brake)	-	Servo drive with "Extended braking control" function module (r0108.14)
SERVO (Tech_ctrl)	-	Servo drive with "Technology controller" function module (r0108.16)
SERVO (extended reports)	-	Servo drive with "Extended messages/monitoring functions" function module (r0108.17)
SERVO (RKA)	-	Servo drive with "Cooling system" function module (r0108.28).
SERVO(CAN)	-	Servo drive with "CAN" function module (r0108.29).
SERVO (CBE)	-	Servo drive with "CBE COMMUNICATION BOARD" function module (r0108.31).
TB30	100	Terminal Board 30.
TM15	203	Terminal Module 15 (SIMOTION D4xx only).
TM15DI_DO	204	Terminal Module 15 (for SINAMICS).
TM17	202	Terminal Module 17 (SIMOTION D4xx only).
TM31	200	Terminal Module 31.
TM41	201	Terminal Module 41.
VECTOR	12	Vector drive.

Table 1-1 Data in "Drive object (function module)" field, continued

Drive object (function module)	Type	Meaning
VECTOR (n/M)	-	Vector drive with "Closed-loop speed/torque control" function module (r0108.2).
VECTOR (pos ctrl)	-	Vector drive with "Position control" function module (r0108.3).
VECTOR (EPOS)	-	Vector drive with "Basic positioner" function module (r0108.4).
VECTOR (ext. brake)	-	Vector drive with "Extended brake control" function module (r0108.14).
VECTOR (parallel)	-	Vector drive with "Parallel connection" function module (r0108.15).
VECTOR (Tech_ctrl)	-	Vector drive with "Technology controller" function module (r0108.16).
VECTOR (ext. mess.)	-	Vector drive with "Extended messages/monitoring functions" function module (r0108.17).
VECTOR (RKA)	-	Vector drive with "Cooling system" function module (r0108.28).
VECTOR(CAN)	-	Vector drive with "CAN" function module (r0108.29).
VECTOR (CBE)	-	Vector drive with "CBE COMMUNICATION BOARD" function module (r0108.31).

Note:

The drive object type is used to identify the drive objects in the drive system (e.g. r0107, r0975[1]).

Changeable in

The "-" sign indicates that the parameter can be changed in any object state and that the change will be effective immediately.

The letters "C1(x), C2(x), T, U" ((x): optional) mean that the parameter can be changed only in the specified drive object state and that the change will not take effect until the object switches to another state. This can be one or more states.

The following states may be specified:

- C1(x) Device commissioning C1: **Commissioning 1**
 Converter commissioning is in progress (p0009>0).
 Pulses cannot be enabled.
 The parameter can only be changed in the following device commissioning settings (p0009 > 0):
 - C1: Changeable for all settings p0009 > 0.
 - C1(x): Only changeable when p0009 = x.
 A modified parameter value does not take effect until converter commissioning mode is exited with p0009 = 0.
- C2(x) Drive object commissioning C2: **Commissioning 2**
 Drive commissioning is in progress (p0009 = 0 and p0010 > 0).
 Pulses cannot be enabled.
 The parameter can only be changed in the following drive commissioning settings (p0010 > 0):
 - C2: Changeable for all settings p0010 > 0.
 - C2(x): Only changeable when p0010 = x.
 A modified parameter value does not take effect until drive commissioning mode is exited with p0010 = 0.
- U Operation A: **Run**
 Pulses are enabled.
- T Ready T: **Ready to run**
 The pulses are not enabled and status "C1(x)" or "C2(x)" is not active.

Note:

Parameter p0009 is CU-specific (belongs to Control Unit).

Parameter p0010 is drive-specific (belongs to each drive object).

The operating status of individual drive objects is displayed in r0002.

Calculated

Specifies whether the parameter is influenced by automatic calculations.

The calculation attribute defines which activities influence the parameter.

The following attributes apply:

- CALC_MOD_ALL
 - p0340 = 1
 - Project download with commissioning software and send from p0340 = 3
- CALC_MOD_CON
 - p0340 = 1, 4
- CALC_MOD_EQU
 - p0340 = 1, 2
- CALC_MOD_LIM_REF
 - p0340 = 1, 3, 5
 - p0578 = 1
- CALC_MOD_REG
 - p0340 = 1, 3

Note:

For p3900 > 0, also p0340 = 1 is automatically called.

After p1910 = 1, p0340 = 3 is automatically called.

Access level

Specifies the access level required to be able to display and change the relevant parameter. The required access level can be set via p0003.

The system uses the following access levels:

1. Standard
2. Advanced
3. Expert
4. Service

Please contact your local Siemens office for the password for parameters with access level 4 (Service).

5. Macro (the parameter can only be changed via macro)

Note:

Parameter p0003 is CU-specific (belongs to Control Unit).

Data type

The information on the data type can consist of the following two pieces of information (separated by a slash):

- First information
Data type of the parameter
- Second information (only for binector or connector input)
Data type of the signal source to be interconnected (binector/connector output).

The possible data types of parameters are as follows:

- I8 Integer8 8-bit integer
- I16 Integer16 16-bit integer
- I32 Integer32 32-bit integer
- U8 Unsigned8 8 bits without sign
- U16 Unsigned16 16 bits without sign
- U32 Unsigned32 32 bits without sign
- Float FloatingPoint32 32-bit floating point number

Depending on the data type of the BICO input parameter (signal sink) and BICO output parameter (signal source) the following combinations are possible when creating BICO interconnections:

Table 1-2 Possible combinations of BICO interconnections

	BICO input parameter			
	CI parameter			BI parameter
BICO output parameter	Unsigned32 / Integer16	Unsigned32 / Integer32	Unsigned32 / FloatingPoint32	Unsigned32 / Binary
CO: Unsigned8	x	x	–	–
CO: Unsigned16	x	x	–	–
CO: Integer16	x	x	–	–
CO: Unsigned32	x	x	–	–
CO: Integer32	x	x	–	–
CO: FloatingPoint32	x	x	x ¹	–
BO: Unsigned8	–	–	–	x
BO: Unsigned16	–	–	–	x
BO: Integer16	–	–	–	x
BO: Unsigned32	–	–	–	x

Table 1-2 Possible combinations of BICO interconnections, continued

	BICO input parameter			
	CI parameter			BI parameter
BICO output parameter	Unsigned32 / Integer16	Unsigned32 / Integer32	Unsigned32 / FloatingPoint32	Unsigned32 / Binary
BO: Integer32	–	–	–	x
BO: FloatingPoint32	–	–	–	–
	Legend: x: BICO interconnection permitted –: BICO interconnection not permitted			

1 Exception:

BICO input parameters with data type "Unsigned32 / FloatingPoint32" can also be interconnected with the following BICO output parameters although these are not of the "FloatingPoint32" data type:

CO: r8850

CO: r8860

CO: r2050

CO: r2060

Dynamic index

For parameters with a dynamic index [0...n], the following information is specified here:

- Data set (if this is available).
- Parameter for the number of indices (n = number - 1).

The following information can be contained in this field:

- "CDS, p0170" (Command Data Set, CDS count)

Example:

p1070[0] → main setpoint [command data set 0]

p1070[1] → main setpoint [command data set 1], etc.

- "DDS, p0180" (Drive Data Set, DDS count)
- "EDS, p0140" (Encoder Data Set, EDS count)
- "MDS, p0130" (Motor Data Set, MDS count)
- "PDS, p0120" (Power unit Data Set, PDS count)
- "p2615" (traversing blocks count)

Note:

Information on the data sets can be taken from the following references:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions
Section "Data sets"

Function diagram

The parameter is included in this function diagram. The structure of the parameter function and its interrelationship with other parameters is shown in the specified function diagram.

Example:

Function diagram: 3060.3 3060: Function diagram number
 3: Signal path (optional)

P group (refers only to access via BOP (Basic Operator Panel))

Specifies the functional group to which the parameter belongs. The required parameter group can be set via p0004.

Note:

Parameter p0004 is CU-specific (belongs to Control Unit).

Unit, Unit Group and Unit Choice

The standard units of a parameter is specified in square brackets after the values for "Min", "Max" and "Factory setting".

For parameters where the units can be changed over, for "Unit Group" and "Unit Choice" it is specified as to which group this parameter belongs and with which parameter the units can be changed over.

Example:

Unit Group: 7_1, Unit Choice: p0505

The parameter belongs to Unit Group 7_1 and the units can be changed-over using p0505.

Note:

Detailed information on changing-over units can be taken from the following references:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions

References: /BA3/ SINAMICS S150 Operating Instructions

All of the Unit Groups that may occur and the possible Unit Choice is listed below.

Table 1-3 Unit Groups (p0100)

Unit group	Unit Choice for p0100=		Reference quantity for %
	0	1	
7_4	Nm	lbf ft	-
8_4	N	lbf	-

Table 1-3 Unit Groups (p0100), continued

Unit group	Unit Choice for p0100=		Reference quantity for %
	0	1	
14_2	W	HP	-
14_6	kW	HP	-
25_1	kgm ²	lb ft ²	-
27_1	kg	lb	-
28_1	Nm/A	lbf ft/A	-
29_1	N/Arms	lbf/Arms	-
30_1	m	ft	-

Table 1-4 Unit Groups (p0349)

Unit group	Unit Choice for p0349 =		Reference quantity for %
	1	2	
15_1	mH	%	$\frac{1000 \cdot p0304}{2 \cdot \pi \cdot \sqrt{3} \cdot p0305 \cdot p0310}$
16_1	Ohms	%	$\frac{p0304}{\sqrt{3} \cdot p0305}$

Table 1-5 Unit Groups (p0505)

Unit group	Unit Choice for p0505 =				Reference quantity for %
	1	2	3	4	
2_1	Hz	%	Hz	%	p2000
2_2	kHz	%	kHz	%	p2000
3_1	rpm	%	rpm	%	p2000
4_1	m/min	%	ft/min	%	p2000
4_2	m/min	m/min	ft/min	ft/min	-
5_1	Vrms	%	Vrms	%	p2001
5_2	V	%	V	%	p2001
5_3	V	%	V	%	p2001
6_1	mA rms	%	mA rms	%	p2002
6_2	Aeff	%	Aeff	%	p2002
6_3	mA	%	mA	%	p2002
6_4	A	%	A	%	p2002
6_5	A	%	A	%	p2002
7_1	Nm	%	lbf ft	%	p2003

Table 1-5 Unit Groups (p0505), continued

Unit group	Unit Choice for p0505 =				Reference quantity for %
	1	2	3	4	
7_2	Nm	Nm	lbf ft	lbf ft	-
7_3	Nm	%	lbf ft	%	1.0
8_1	N	%	lbf	%	p2003
8_2	N	N	lbf	lbf	-
8_3	N	%	lbf	%	1.0
14_1	W	%	HP	%	r2004
14_3	W	%	HP	%	r2004
14_4	W	%	HP	%	r2004
14_5	kW	%	HP	%	r2004
14_7	kW	%	HP	%	r2004
14_8	kW	%	HP	%	r2004
14_9	W	W	HP	HP	-
14_10	kW	kW	HP	HP	-
17_1	Nms/rad	%	lbf ft s/rad	%	p2000/p2003
18_1	V/A	%	V/A	%	p2002/p2001
19_1	A/V	%	A/V	%	p2001/p2002
21_1	°C	°C	°F	°F	-
21_2	K	K	°F	°F	-
22_1	m/s ²	m/s ²	ft/s ²	ft/s ²	-
22_2	m/s ²	%	ft/s ²	%	p2007
23_1	Vrms s/m	Vrms s/m	Vrms s/ft	Vrms s/ft	-
24_1	Ns/m	Ns/m	lbf s/ft	lbf s/ft	-
24_2	Ns/m	%	lbf s/ft	%	p2000/p2003
26_1	m/s ³	m/s ³	ft/s ³	ft/s ³	-
39_1	1/s ²	%	1/s ²	%	p2007

Table 1-6 Unit Group (p0595)

Unit group	Unit Choice for p0595 =		Reference quantity for %
	Value	Unit	
9_1	The values that can be set and the technological units are shown in p0595 (See Section 1.2).		

Parameter values

Min	Minimum value of the parameter [unit]
Max	Maximum value of the parameter [unit]
Factory setting	Shipped value (default) [unit]
	A different value may be displayed for certain parameters (e.g. p1800) at the initial commissioning stage. Reason: The setting of these parameters is determined by the operating environment of the Control Unit (e.g. depending on converter type, macro, Power Module).

Note:

For SINAMICS G150/G130/S150, the macros and their settings are provided in the following documentation:

References: /BAx/ x = 1, 2, 3
SINAMICS G150/G130/S150 Operating Instructions

Not for motor type

Specifies for which motor type this parameter has no significance.

ASM: Induction motor

FEM: Separately excited synchronous motor

PEM: Permanently excited synchronous motor

REL: Reluctance motor/SIEMOSYN-Motor

Expert List

Specifies whether this parameter is available in the expert list of the specified drive objects in the commissioning software.

1: Parameter does exist in the expert list.

0: Parameter does not exist in the expert list.

Notice:

The user shall assume full responsibility for using parameters marked "Expert list: 0" (Parameter does not exist in the expert list).

These parameters and their functionalities have not been tested and no further user documentation is available for them (e.g. function description). Moreover no support is ensured for these parameters by "Technical Support" (hotline).

Description

Explanation of the function of a parameter.

Values

Lists the possible values of a parameter.

Recommendation

Information about recommended settings.

Index

The name and meaning of each individual index is specified for indexed parameters.

The following applies to the values (min, max, factory setting) of indexed setting parameters:

- Min, Max:

The setting range and unit apply to all indices.

- Factory setting:

When all indices have the same factory setting, index 0 is specified with unit to represent all indices.

When the indices have different factory settings, they are all listed individually with unit.

Bit field

For parameters with bit fields, the following information is provided about each bit:

- Bit number and signal name
- Meaning with signal states 0 and 1
- Function diagram (optional)

The signal is shown on this function diagram.

Dependency

Conditions which need to be fulfilled in connection with this parameter. Also includes special effects which can occur between this parameter and others.

See also: List of other relevant parameters.

Safety-related information

Important information which must be heeded to avoid the risk of physical injury or property damage.

Information which must be observed to avoid problems.

Information which the user or operator may find useful.

Danger

The description of this safety-related information can be found at the beginning of this manual (see **Safety-related information**).

Alarm

The description of this safety-related information can be found at the beginning of this manual (see **Safety-related information**).

Caution

The description of this safety-related information can be found at the beginning of this manual (see **Safety-related information**).

Caution

The description of this safety-related information can be found at the beginning of this manual (see **Safety-related information**).

Caution

The description of this safety-related information can be found at the beginning of this manual (see **Safety-related information**).

Note

Information which the user or operator may find useful.

1.1.2 Numerical ranges of parameters

Note:

The following numerical ranges for the parameters represent a complete overview of SINAMICS.

The parameters for the product described in this List Manual are described in detail in Chapter 1.2.

Parameters are grouped into the following numerical ranges:

Table 1-7 Numerical Ranges of Parameters

Range		Description
of	to	
0000	0099	Operation and visualization
0100	0199	Commissioning
0200	0299	Power unit
0300	0399	Motor
0400	0499	Encoder
0500	0599	Technology and units
0600	0699	Thermal motor protection and motor model, maximum current
0700	0799	Command sources and terminals on Control Unit, measuring sockets
0800	0839	CDS, DDS data sets (e.g. switch over, copy)
0840	0879	Sequencer (e.g. source for ON/OFF1)
0880	0899	Control and status words
0900	0999	PROFIBUS/PROFIdrive
1000	1199	Setpoint channel
1200	1299	Functions (e.g. motor holding brake)
1300	1399	V/f control
1400	1799	Closed-loop control
1800	1899	Gating unit
1900	1999	Power unit and motor identification
2000	2099	Communication (PROFIBUS)
2100	2199	Faults and alarms, monitoring functions
2200	2399	Technology controller
2900	2930	Fixed values (e.g. per cent, torque)
3400	3699	Infeed control (Active Line Module)
3800	3899	Friction characteristic

Table 1-7 Numerical Ranges of Parameters, continued

Range		Description
of	to	
3900	3999	Management parameters
4000	4199	Terminal Boards, Terminal Modules (e.g. TB30, TM31)
4200	4399	Terminal Modules (e.g. TM15, TM17)
6000	6999	SINAMICS GM/SM/GL
7000	7499	Parallel connection of power units
7800	7899	EEPROM read/write parameters
8500	8599	Data and macro management
8600	8799	CAN bus
8800	8899	Communication Board
9300	9399	Safety Integrated
9400	9499	Parameter consistency and storage
9500	9899	Safety Integrated
9900	9949	Topology
9950	9999	Diagnostics (internal)
10000	10099	Safety Integrated
20000	20999	Freie Funktionsblöcke
21000	25999	Drive Control Chart (DCC)

1.2 List of parameters

Product: SINAMICS S, Version: 2503100, Language: eng

r0002	Control Unit operating display / CU op_display		
CU_CX32, CU_S	Can be changed: - Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0 Max 99	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Operating display for the Control Unit (CU).		
Values:	0: [00] Operation 10: [10] Ready 20: [20] Wait for run-up 31: [31] Commissioning software download active 33: [33] Remove topology error / acknowledge 34: [34] Exit the commissioning mode 35: [35] Carry out first commissioning 70: [70] Initialization 80: [80] Reset active 99: [99] Internal software error		
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.		
r0002	Infeed operating display / INF op_display		
A_INF, S_INF	Can be changed: - Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0 Max 250	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Operating display for the infeed.		
Values:	0: [00] Operation - everything enabled 21: [21] Ready - set "enable operation" = "1" (p0852) 31: [31] Rdy to power-up - pre-chrg running (p0857) 32: [32] Ready to power-up - set "ON/OFF1" = "0/1" (p0840) 41: [41] Power-on inhibit - set "ON/OFF1" = "0" (p0840) 42: [42] Power-on inhibit - set "OC/OFF2" = "1" (p0844, p0845) 44: [44] Power-on inhibit - connect 24 V to terminal EP (hardware) 45: [45] Power-on inhib - remove fault cause, acknowledge fault 46: [46] Power-on inhibit - exit comm mode (p0009, p0010) 60: [60] Infeed de-activated/not operational 250: [250] Device signals a topology error		
Dependency:	Refer to: r0046		
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.		
Note:	OC: Operating condition EP: Enable Pulses (pulse enable) COMM: Commissioning		

r0002 Drive operating display / Drv op_display

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-

Description: Operating display for the drive.

Values:

- 0: [00] Operation - everything enabled
- 10: [10] Operation - set "enable setpoint" = "1" (p1142, p1152)
- 11: [11] Operation - set "enable speed controller" = "1" (p0856)
- 12: [12] Operation - RFG frozen, set "RFG start" = "1" (p1141)
- 13: [13] Operation - set "enable RFG" = "1" (p1140)
- 14: [14] Oper. - MotID, excit. running and/or brake opens, SS2, SOS
- 15: [15] Operation - open brake (p1215)
- 16: [16] Oper - withdraw braking w/ OFF1 using "ON/OFF1" = "1"
- 17: [17] Oper - braking w/ OFF3 can only be interrupted w/ OFF2
- 18: [18] Operation - brake on fault remove fault acknowledge
- 19: [19] Operation - armature short-circuit active (p1230, p1231)
- 21: [21] Ready - set "enable operation" = "1" (p0852)
- 22: [22] Ready - de-magnetization running (p0347)
- 23: [23] Ready - set "infeed operation" = "1" (p0864)
- 31: [31] Ready to power-up - set "ON/OFF1" = "0/1" (p0840)
- 41: [41] Power-on inhibit - set "ON/OFF1" = "0" (p0840)
- 42: [42] Power-on inhibit - set "OC/OFF2" = "1" (p0844, p0845)
- 43: [43] Power-on inhibit - set "OC/OFF3" = "1" (p0848, p0849)
- 44: [44] Power-on inhibit - connect 24 V to terminal EP (hardware)
- 45: [45] Power-on inhib - remove fault cause, acknowledge fault
- 46: [46] Power-on inhibit - exit comm mode (p0009, p0010)
- 60: [60] Infeed de-activated/not operational
- 250: [250] Device signals a topology error

Dependency: Refer to: r0046

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

Note:

- OC: Operating condition
- EP: Enable Pulses (pulse enable)
- RFG: Ramp-function generator
- COMM: Commissioning
- MotID: Motor data identification
- SS2: Safe Stop 2
- SOS: Safe Operating Stop

r0002 Infeed operating display / INF op_display

B_INF	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-

Description: Operating display for the infeed.

Values:

- 0: [00] Operation - everything enabled
- 31: [31] Rdy to power-up - pre-chrg running (p0857)
- 32: [32] Ready to power-up - set "ON/OFF1" = "0/1" (p0840)
- 41: [41] Power-on inhibit - set "ON/OFF1" = "0" (p0840)
- 42: [42] Power-on inhibit - set "OC/OFF2" = "1" (p0844, p0845)
- 44: [44] Power-on inhibit - connect 24 V to terminal EP (hardware)
- 45: [45] Power-on inhib - remove fault cause, acknowledge fault

46: [46] Power-on inhibit - exit comm mode (p0009, p0010)
 60: [60] Infeed de-activated/not operational
 250: [250] Device signals a topology error

Dependency: Refer to: r0046

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

Note: OC: Operating condition
 COMM: Commissioning

r0002 TB30 operating display / TB30 op_display

TB30	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-

Description: Operating display for terminal board 30 (TB30).

Values: 0: [00] Module in cyclic operation
 40: [40] Module not in cyclic operation
 60: [60] Fault
 70: [70] Initialization
 80: [80] Reset active
 120: [120] Module de-activated
 250: [250] Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002 DMC operating display / DMC op_display

DMC20	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-

Description: Operating display for the DRIVE-CLiQ Hub Module Cabinet (DMC).

Values: 0: [00] Module in cyclic operation
 40: [40] Module not in cyclic operation
 50: [50] Alarm
 60: [60] Fault
 70: [70] Initialization
 120: [120] Module de-activated
 250: [250] Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002 TM31 operating display / TM31 op_display

TM31	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-

Description: Operating display for Terminal Module 31 (TM31).

Values: 0: [00] Module in cyclic operation
 40: [40] Module not in cyclic operation
 50: [50] Alarm
 60: [60] Fault
 70: [70] Initialization

120: [120] Module de-activated
250: [250] Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002 TM41 operating display / TM41 op_display			
TM41	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-
Description:	Operating display for Terminal Module 41 (TM41).		
Values:	0: [00] Operation - everything enabled 10: [10] Operation - set "enable setpoint" = "1" (p1142) 12: [12] Operation - RFG frozen, set "RFG start" = "1" (p1141) 13: [13] Operation - set "enable RFG" = "1" (p1140) 18: [18] Operation - brake on fault remove fault acknowledge 21: [21] Ready - set "enable operation" = "1" (p0852) 31: [31] Ready to power-up - set "ON/OFF1" = "0/1" (p0840) 41: [41] Power-on inhibit - set "ON/OFF1" = "1/0" (p0840) 42: [42] Power-on inhibit - set "OC/OFF2" = "1" (p0844) 43: [43] Power-on inhibit - set "OC/OFF3" = "1" (p0848) 45: [45] Power-on inhib - remove fault cause, acknowledge fault 46: [46] Power-on inhibit - exit comm mode (p0009, p0010) 120: [120] Module de-activated 250: [250] Device signals a topology error		
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.		
Note:	OC: Operating condition RFG: Ramp-function generator COMM: Commissioning		

r0002 TM17 operating display / TM17 op_display			
TM17	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-
Description:	Operating display for Terminal Module 17 (TM17).		
Values:	0: [00] Module in cyclic operation 40: [40] Module not in cyclic operation 50: [50] Alarm 60: [60] Fault 70: [70] Initialization 120: [120] Module de-activated 250: [250] Device signals a topology error		
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.		

r0002 TM15 operating display / TM15 op_display

TM15	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-
Description:	Operating display for Terminal Module 15 (TM15).		
Values:	0: [00] Module in cyclic operation 40: [40] Module not in cyclic operation 50: [50] Alarm 60: [60] Fault 70: [70] Initialization 120: [120] Module de-activated 250: [250] Device signals a topology error		
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.		

r0002 TM15DI/DO operating display / TM15D op_display

TM15DI_DO	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	250	-
Description:	Operating display for Terminal Module 15 (TM15).		
Values:	0: [00] Module in cyclic operation 40: [40] Module not in cyclic operation 50: [50] Alarm 60: [60] Fault 70: [70] Initialization 120: [120] Module de-activated 250: [250] Device signals a topology error		
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.		

r0002 TM54F operating display / TM54F op_display

TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	99	-
Description:	Operating display for Terminal Module 54F (TM54F).		
Values:	0: [00] Operation 10: [10] Ready 20: [20] Wait for run-up 31: [31] Commissioning software download active 33: [33] Remove topology error / acknowledge 34: [34] Exit the commissioning mode 35: [35] Carry out first commissioning 70: [70] Initialization 80: [80] Reset active 99: [99] Internal software error		
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.		

p0003			
BOP access level / BOP access level			
CU_CX32, CU_S	Can be changed: C1, U, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 4	Factory setting 1
Description:	Sets the access level for reading and writing parameters using the Basic Operator Panel (BOP) and Advanced Operator Panel (AOP).		
Values:	0: User-defined 1: Standard 2: Extended 3: Expert 4: Service		
Note:	Access level 0 (user-defined): Parameters from the user-defined list (p0013). Access level 1 (standard): Parameters for the simplest operator control possibility (e.g. p1120 = ramp-function generator, ramp-up time). Access level 2 (extended): Parameters to operate the basic functions of the drive unit. Access level 3 (experts): Expert know-how is required for these parameters (e.g. BICO parameterization). Access level 4 (service): For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950).		

p0004			
BOP display filter / BOP display filter			
CU_CX32, CU_S	Can be changed: C2(1), U, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: ASM		Expert list: 1
	Min 0	Max 99	Factory setting 0
Description:	Sets the display filter for parameters for Basic Operator Panel (BOP) and Advanced Operator Panel (AOP).		
Values:	0: All parameters 1: Displays, signals 2: Power unit 3: Motor 4: Encoder/pos enc 5: Technology/units 7: Digital inputs/outputs commands sequence control 8: Analog inputs/outputs 10: Setpoint channel/ramp-fct generator 12: Functions 13: V/f control 14: Control 15: Data sets 17: Basic positioner 18: Gating unit 19: Motor identification 20: Communication 21: Faults, alarms, monitoring functions 25: Closed-loop position control 28: Free function blocks 47: Trace and function generator 50: OA parameter 90: Topology		

95: Safety Integrated
 98: Command Data Sets (CDS)
 99: Drive Data Sets (DDS)

Dependency: Refer to: p0003

Note: Example:
 p0004 = 3: Only the parameters for the motor are displayed.

p0005[0...1] BOP operating display selection / BOP op_disp sel

A_INF, B_INF,
 CU_S, DMC20,
 SERVO, S_INF,
 TB30, TM15,
 TM15DI_DO, TM17,
 TM31, TM41,
 TM54F_MA,
 TM54F_SL, VEC-
 TOR

Can be changed: U, T
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 2
Func. diagram: -
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	65535	[0] 2 [1] 0

Description: Sets the parameter number and parameter index for display for p0006 = 2, 4 for the Basic Operator Panel (BOP).
 Examples for the SERVO drive object:
 p0005 = 21: Speed actual value smoothed (r0021)
 p0005 = 25: Drive output voltage smoothed (r0025)
 p0005 = 26: Speed actual value smoothed (r0026)
 p0005 = 27: Absolute current actual value, smoothed (r0027)

Index: [0] = Parameter number
 [1] = Parameter index

Dependency: Refer to: p0006

Note: Procedure:
 1.
 The parameter number to be displayed should be set in index 0. Only the monitoring parameters (only read parameters) can be set, that actually exist for the actual drive object.
 If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.
 2.
 The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.

p0006 BOP operating display mode / BOP op_disp mode

CU_S, DMC20,
 TB30, TM15,
 TM15DI_DO, TM17,
 TM31, TM41,
 TM54F_MA,
 TM54F_SL

Can be changed: U, T
Data type: Integer16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min	Max	Factory setting
4	4	4

Description: Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready" and "operation".

Values: 4: p0005

Dependency: Refer to: p0005

Note: Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object.
 Mode 4 is available for all drive objects.

p0006	BOP operating display mode / BOP op_disp mode		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 4	Factory setting 4
Description:	Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready" and "operation".		
Values:	0: Operation --> r0021, otherwise r0020 <--> r0021 1: Operation --> r0021, otherwise r0020 2: Operation --> p0005, otherwise p0005 <--> r0020 3: Operation --> r0002, otherwise r0002 <--> r0020 4: p0005		
Dependency:	Refer to: p0005		
Note:	Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object. Mode 4 is available for all drive objects.		
p0007	BOP background lighting / BOP lighting		
CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [s]	Max 2000 [s]	Factory setting 0 [s]
Description:	Sets the delay time until the background lighting of the Basic Operator Panel (BOP) is switched-off. If no keys are actuated, then the background lighting automatically switches itself off after this time has expired.		
Note:	p0007 = 0: Background lighting is always switched on (factory setting).		
p0008	BOP drive object after booting / BOP DO select		
CU_S	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 65535	Factory setting 1
Description:	Sets the required drive object that is active at the Basic Operator Panel (BOP) after booting.		
Note:	The value from p0008 initializes the display on the Basic Operator Panel (BOP) at the top left after booting. The drive object Control Unit is selected using the value 1.		
p0009	Device commissioning parameter filter / Dev comm par_filt		
CU_CX32, CU_S	Can be changed: C1, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 50	Factory setting 1
Description:	Sets the device and basic drive commissioning. By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps.		

Values:	0:	Ready
	1:	Device configuration
	2:	Defining the drive type/function module
	3:	Drive basis configuration
	4:	Data set basis configuration
	29:	Device download
	30:	Parameter reset
	50:	OA application configuration

Note:	<p>The drives can only be powered-up outside the device commissioning (the inverter enabled). In this case, p0009 must be 0 (Ready) and the individual drive objects must have already gone into operation (p0010).</p> <p>p0009 = 1: Device configuration</p> <p>At the first commissioning of the devices, after booting, the device is in the "device configuration" state. To start the internal automatic first commissioning of the drive unit, p0009 should be set to 0 (Ready) after the ID for the actual topology (r0098) was transferred into the ID for the target topology (p0099). To do this, it is sufficient to set a single index value of p0099[x] the same as r0098[x]. Before the device has been completely commissioned, no other parameter can be changed. After the first commissioning was carried out, in this state, when required, other basic device configuration parameters can be adapted (e.g. the basic sampling time in p0110).</p> <p>p0009 = 2: Defines the drive type / function module</p> <p>In this state, the drive object types and/or the function modules can be changed or selected for the individual drive objects. To do this, the drive object type can be set using p0107[0...15] and the function can be set using p0108[0...15] (refer to p0101[0...15]).</p> <p>p0009 = 3: Drive basis configuration</p> <p>In this state, after the device has been commissioned for the first time, basic changes can be made for the individual drive objects (e.g. sampling times in p0111, p0112, p0115 and the number of data sets in p0120, p0130, p0140, p0170, p0180).</p> <p>p0009 = 4: Data set basis configuration</p> <p>In this state, after the device has been commissioned for the first time, for the individual drive objects changes can be made regarding the assignment of the components (p0121, p0131, p0141, p0151, p0161) to the individual data sets and the assignment of the power unit, motor and encoder to the drive data sets (p0185, ...).</p> <p>p0009 = 29: Device download</p> <p>If a download is made using the commissioning software, the device is automatically brought into this state. After the download has been completed, p0009 is automatically set to 0 (ready). It is not possible to manually set p0009 to this value.</p> <p>p0009 = 30: Parameter reset</p> <p>In order to bring the complete unit into the "first commissioning" state or to load the parameters saved using p0977, to start, p0009 must be set to this value. p0976 can then be changed to the required value.</p> <p>p0009 = 50: OEM application configuration</p> <p>In this state, after the device has been commissioned for the first time, changes can be made for the individual drive objects regarding the activity (p4956) of the OEM applications.</p>		
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p0010	Infeed commissioning parameter filter / INF comm par_filt		
A_INF, B_INF, S_INF	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 30	Factory setting 1
Description:	Sets the parameter filter to commission an infeed unit. Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.		
Values:	0: Ready 1: Quick commissioning 2: Power unit commissioning 5: Technological application/units 29: Download 30: Parameter reset		
Note:	The drive can only be powered-up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.		

For p3900 not equal to 0, at the end of the quick commissioning, this parameter is automatically reset to 0.
 Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010	Drive, commissioning parameter filter / Drv comm. par_filt		
SERVO, VECTOR	Can be changed: C2(1), T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 2800, 2846 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the parameter filter to commission a drive. Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.		
Values:	0: Ready 1: Quick commissioning 2: Power unit commissioning 3: Motor commissioning 4: Encoder commissioning 5: Technological application/units 15: Data sets 17: Basic positioning commissioning 25: Commissioning the position control 29: Download 30: Parameter reset 95: Safety Integrated commissioning		
Note:	The drive can only be powered-up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0. For p3900 not equal to 0, at the end of the quick commissioning, this parameter is automatically reset to 0. Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.		

p0010	TB30 commissioning parameter filter / TB30 comm.par_filt		
TB30	Can be changed: C2(1), T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the parameter filter for commissioning a terminal board 30 (TB30). Setting this parameter filters-out the parameters that can be written into in the various commissioning steps. For the BOP, this setting also causes the read access operations to be filtered.		
Values:	0: Ready 29: Download 30: Parameter reset		
Dependency:	Refer to: p0970		
Note:	Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.		

p0010	TM31 commissioning parameter filter / TM31 comm par_filt		
TM31	Can be changed: C2(1), T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the parameter filter for commissioning a Terminal Module 31 (TM31). Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.		

For the BOP, this setting also causes the read access operations to be filtered.

Values: 0: Ready
29: Download
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM41 commissioning parameter filter / TM41 comm par_filt

TM41 **Can be changed:** C2(1), T **Calculated:** - **Access level:** 1
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0 30 0

Description: Sets the parameter filter for commissioning a Terminal Module 41 (TM41).
Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Values: 0: Ready
4: Encoder commissioning
5: Technological application/units
29: Download
30: Parameter reset

Dependency: Refer to: p0970

Note: Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM17 commissioning parameter filter / TM17 comm par_filt

TM17 **Can be changed:** C2(1), T **Calculated:** - **Access level:** 1
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0 30 0

Description: Sets the parameter filter for commissioning a Terminal Module 17 (TM17).
Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Values: 0: Ready
29: Download
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM15 commissioning parameter filter / TM15 comm par_filt

TM15 **Can be changed:** C2(1), T **Calculated:** - **Access level:** 1
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0 30 0

Description: Sets the parameter filter for commissioning a Terminal Module 15 (TM15).
Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Values: 0: Ready
29: Download
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM15DI/DO commissioning the parameterizing filter / TM15D com par_filt

TM15DI_DO	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 30	Factory setting 0

Description: Sets the parameter filter for commissioning a Terminal Module 15 (TM15).
Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Values: 0: Ready
29: Download
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM54F commissioning parameter filter / TM54F com par_filt

TM54F_MA	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 95	Factory setting 0

Description: Sets the parameter filter for commissioning a Terminal Module 54F (TM54F).
Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Values: 0: Ready
29: Download
30: Parameter reset
95: Safety Integrated commissioning

Dependency: Refer to: p0970

Note: Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0011 BOP password entry (p0013) / BOP passw ent p13

CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0

Description: Sets the password for the Basic Operator Panel (BOP).

Dependency: Refer to: p0012, p0013

p0012	BOP password acknowledgement (p0013) / BOP passw ackn p13		
CU_S	Can be changed: U, T Data type: Unsigned16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Acknowledges the password for the Basic Operator Panel (BOP).		
Dependency:	Refer to: p0011, p0013		
p0013[0...49]	BOP user-defined list / BOP list		
A_INF, B_INF, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VEC- TOR	Can be changed: U, T Data type: Unsigned16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the required parameters to read and write via the Basic Operator Panel (BOP). Activation: 1. p0003 = 3 (expert). 2. p0013[0...49] = requested parameter number 3. If required, enter p0011 = password in order to prevent non-authorized de-activation. 4. p0003 = 0 --> activates the selected user-defined list. De-activation/change: 1. p0003 = 3 (expert). 2. If required, p0012 = p0011, in order to be authorized to change or de-activate the list. 3. If required p0013[0...49] = required parameter number. 4. p0003 = 0 --> activates the modified user-defined list. 5. p0003 > 0 --> de-activates the user-defined list.		
Dependency:	Refer to: p0009, p0011, p0012, p0976		
Note:	The following parameters can be read and written on the Control Unit drive object: - p0003 (access stage) - p0009 (device commissioning, parameter filter) - p0012 (BOP password acknowledgement (p0013)) The following applies for the user-defined list: - password protection is only available on the drive object Control Unit and is valid for all of the drive objects. - p0013 cannot be included in the user-defined list for all drive objects. - p0003, p0009, p0011, p0012, p0976 cannot, for the drive object Control Unit, be included in the user-defined list. - the user-defined list can be cleared and de-activated "restore factory setting". A value of 0 means: Entry is empty.		

p0015	Macro drive unit / Macro drv unit		
CU_CX32, CU_S	Can be changed: C1 Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Max 999999 Factory setting 0
Description:	Runs the appropriate ACX file on the CompactFlash card. The selected ACX file must be located in the following directory: ... /PMACROS/DEVICE/P15/PMxxxxxx.ACX Example: p0015 = 6 --> the file PM000006.ACX is run.		
Dependency:	The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash card. Refer to: p0700, p1000, p1500, r8570		
Note:	The macros in the specified directory are displayed in r8570. r8570 is not in the Expert list of the commissioning software. Macros available as standard are described in the technical documentation of the particular product.		
p0015	Macro drive object / Macro DO		
A_INF, B_INF, SERVO, S_INF, TM15DI_DO, TM31, VECTOR	Can be changed: C2(1) Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Max 999999 Factory setting 0
Description:	Runs the appropriate ACX file on the CompactFlash card. The selected ACX file must be located in the following directory: ... /PMACROS/<drive object>/P15/PMxxxxxx.ACX Example: p0015 = 6 --> the file PM000006.ACX is run.		
Dependency:	The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash card. Refer to: p0700, p1000, p1500, r8570		
Notice:	No errors were issued during fast commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!		
Note:	The macros in the specified directory are displayed in r8570. r8570 is not in the Expert list of the commissioning software. Macros available as standard are described in the technical documentation of the particular product.		
r0018	Control Unit Firmware-Version / CU FW version		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Max - Factory setting -
Description:	Displays the firmware version of the Control Unit.		
Dependency:	Refer to: r0128, r0148, r0158, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

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r0021	CO: Actual speed smoothed / n_ist smooth		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 2 Func. diagram: 1580, 1680, 4710, 6799 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the smoothed actual value of the motor speed.		
Dependency:	Refer to: r0063		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The value displayed in r0021 is the smoothed value of r0063.		
r0021	CO: Actual velocity smoothed / v_act smooth		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 2 Func. diagram: 1580, 1680, 4710, 6799 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the smoothed actual value of the motor velocity.		
Dependency:	Refer to: r0063		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The value displayed in r0021 is the smoothed value of r0063.		
r0022	Speed actual value rpm smoothed / n_ist rpm smooth		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: - Max - [RPM]	Access level: 2 Func. diagram: 1580, 1680, 4710, 6799 Unit selection: - Expert list: 1 Factory setting - [RPM]
Description:	Displays the smoothed actual value of motor speed. r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over.		
Dependency:	Refer to: r0063		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The value displayed in r0022 is the smoothed value of r0063.		

r0022	Actual velocity smoothed / v_act smooth		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: - Max - [m/min]	Access level: 2 Func. diagram: 1580, 1680, 4710, 6799 Unit selection: - Expert list: 1 Factory setting - [m/min]
Description:	Displays the smoothed actual value of the motor velocity.		
Dependency:	Refer to: r0063		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The value displayed in r0022 is the smoothed value of r0063.		
r0024	CO: Line supply frequency smoothed / f_line smooth		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Hz]	Calculated: - Dynamic index: - Units group: - Max - [Hz]	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the smoothed line supply frequency.		
Dependency:	Refer to: r0066		
Note:	Smoothing time constant = 300 ms The signal is not suitable as process quantity and may only be used as display quantity. The line frequency is available smoothed (r0024) and unsmoothed (r0066). A positive sign of the frequency is obtained when the line supply phases U, V and W are connected with the correct phase sequence. A negative sign of the frequency is obtained when the 3 line phases are interchanged therefore designating a negative direction of the rotating field of the 3-phase line supply voltage.		
r0024	Output frequency smoothed / f_outp smooth		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Hz]	Calculated: - Dynamic index: - Units group: - Max - [Hz]	Access level: 3 Func. diagram: 1690, 5300, 5730, 6799 Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the smoothed converter frequency.		
Dependency:	Refer to: r0066		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The output frequency is available smoothed (r0024) and unsmoothed (r0066).		

r0025[0...3]	CO: Input voltage smoothed / V_inp smooth		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the smoothed actual value of the input voltage.		
Index:	[0] = Voltage at the input terminals of the power unit [1] = Voltage at the VSM and at the input terminals of the line filter [2] = Voltage of the voltage source from the line supply model [3] = Smoothed voltage of the voltage source from line supply model		
Dependency:	Refer to: r0072		
Note:	Smoothing time constant = 300 ms The signals are not suitable as process quantity and may only be used as display quantities. The input voltages are available smoothed (r0025) and unsmoothed (r0072). r0025[0]: Pulsed voltage at the line supply input terminals of the power unit. The value is calculated from the modulation depth r0074 and is therefore only correct in the closed-loop controlled mode and when the pulses are enabled. r0025[1]: Absolute voltage at the input terminals of the line filter or the connection point of a VSM. The value is calculated from the VSM measured values r3661 and r3662 and is therefore equal to 0 if a VSM is not connected. r0025[2]: Estimated value for the voltage of the voltage source that is calculated in the voltage model of the line supply PLL. r0025[3]: Smoothed display value of the filtered source voltage from r0072[3].		
r0025	CO: Output voltage smoothed / V_outp smooth		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 1690, 5730, 6799 Unit selection: - Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the smoothed output voltage of the power unit.		
Dependency:	Refer to: r0072		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The output voltage is available smoothed (r0025) and unsmoothed (r0072).		
r0026	CO: DC link voltage smoothed / Vdc smooth		
A_INF, B_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 5730, 6799, 8750, 8850, 8950 Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the smoothed actual value of the DC link voltage.		
Dependency:	Refer to: r0070		
Notice:	This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.		
Note:	A_INF, B_INF, S_INF: smoothing time constant = 300 ms		

The signal is not suitable as process quantity and may only be used as display quantity.

The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0026	CO: DC link voltage smoothed / Vdc smooth		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5730, 8750, 8850, 8950
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the smoothed actual value of the DC link voltage.		
Dependency:	Refer to: r0070		
Notice:	For SINAMICS S120 AC Drive (AC/AC) the following applies: When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) a valid measured value is not supplied. In this case, when an external 24V power supply is connected, a value of approx. 24 V is displayed in the display parameter.		
Note:	SERVO, VECTOR: Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).		
r0027	CO: Absolute actual current smoothed / I_act abs val smth		
A_INF, SERVO, S_INF, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5730, 6799, 8850, 8950
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed absolute actual current value.		
Dependency:	Refer to: r0068		
Notice:	This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.		
Note:	A_INF, S_INF, VECTOR: Smoothing time constant = 300 ms SERVO: Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).		
r0027	CO: Absolute actual current smoothed / I_act abs val smth		
B_INF	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8750
	P-Group: Displays, signals	Units group: 6_4	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the smoothed absolute actual current value.		
Dependency:	Refer to: r0068		
Notice:	This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.		
Note:	Smoothing time constant = 300 ms The signal is not suitable as process quantity and may only be used as display quantity. The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).		

r0028	Modulation depth smoothed / Modulat depth smth		
A_INF, SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [%] Description: Displays the smoothed actual value of the modulation depth. Dependency: Refer to: r0074 Note: A_INF: Smoothing time constant = 300 ms SERVO, VECTOR: Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The modulation depth is available smoothed (r0028) and unsmoothed (r0074).	Calculated: - Dynamic index: - Units group: - Max - [%] 	Access level: 3 Func. diagram: 5730, 6799, 8950 Unit selection: - Expert list: 1 Factory setting - [%]
r0029	Reactive current actual value smoothed / I_{react} smooth		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms] Description: Displays the smoothed actual value of the reactive current component. Note: Smoothing time constant = 300 ms The signal is not suitable as process quantity and may only be used as display quantity. The reactive current actual value is available smoothed (r0029) and unsmoothed (r0076).	Calculated: - Dynamic index: - Units group: - Max - [Arms] 	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Factory setting - [Arms]
r0029	Current actual value field-generating smoothed / I_d_act smooth		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms] Description: Displays the smoothed field-generating actual current. Dependency: Refer to: r0076 Note: SERVO: Smoothing time constant = 100 ms VECTOR: Smoothing time constant = 300 ms The signal is not suitable as process quantity and may only be used as display quantity. The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).	Calculated: - Dynamic index: - Units group: - Max - [Arms] 	Access level: 3 Func. diagram: 5730, 6799 Unit selection: - Expert list: 1 Factory setting - [Arms]
r0030	Active current actual value smoothed / I_{active} smooth		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms] Description: Displays the smoothed actual value of the active current components. Dependency: Refer to: r0078	Calculated: - Dynamic index: - Units group: - Max - [Arms] 	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Factory setting - [Arms]

Note: Smoothing time constant = 300 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The active current actual value is available smoothed (r0030) and unsmoothed (r0078).

r0030 Current actual value, torque-generating smoothed / Iq_act smooth			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5730, 6799
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed torque-generating actual current.		
Dependency:	Refer to: r0078		
Note:	SERVO: Smoothing time constant = 100 ms		
	VECTOR: Smoothing time constant = 300 ms		
	The signal is not suitable as process quantity and may only be used as display quantity.		
	The following applies for SERVO:		
	The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).		
	For VECTOR, the following applies:		
	The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).		

r0030 Current actual value force generating smoothed / Iq_act smooth			
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5730, 6799
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed force-generating actual current.		
Dependency:	Refer to: r0078		
Note:	SERVO: Smoothing time constant = 100 ms		
	VECTOR: Smoothing time constant = 300 ms		
	The signal is not suitable as process quantity and may only be used as display quantity.		
	The following applies for SERVO:		
	The force-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).		
	For VECTOR, the following applies:		
	The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).		

r0031 Actual torque smoothed / M_act smooth			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5730, 6799
	P-Group: Displays, signals	Units group: 7_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the smoothed torque actual value.		
Dependency:	Refer to: r0080		
Note:	Smoothing time constant = 100 ms		
	The signal is not suitable as process quantity and may only be used as display quantity.		
	The active current actual value is available smoothed (r0031) and unsmoothed (r0080).		

r0031 Force actual value smoothed / F_act smooth

SERVO (Lin)

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 5730, 6799**P-Group:** Displays, signals**Units group:** 8_2**Unit selection:** p0505**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

- [N]

- [N]

- [N]

Description: Displays the smoothed force setpoint.**Dependency:** Refer to: r0080**Note:** Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The active current actual value is available smoothed (r0031) and unsmoothed (r0080).

r0032 CO: Active power actual value smoothed / P_actv_act smthA_INF, B_INF,
SERVO, S_INF,
VECTOR**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 5730, 6799,
8750, 8850, 8950**P-Group:** Displays, signals**Units group:** 14_10**Unit selection:** p0505**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

- [kW]

- [kW]

- [kW]

Description: Displays the smoothed actual value of the active power.**Dependency:** Refer to: r0082**Notice:** This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.**Note:** Significance for the drive: Power output at the motor shaft

Significance for the infeed: Line power drawn

For A_INF, B_INF and S_INF the following applies:

The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082).

The following applies for SERVO:

The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

For VECTOR and VECTORMV, the following applies:

The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

r0033 Torque utilization smoothed / M_util smooth

SERVO, VECTOR

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 8012**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

- [%]

- [%]

- [%]

Description: Displays the smoothed torque/force utilization as a percentage.

The torque/force utilization is obtained from the required smoothed torque/force referred to the torque/force limit.

Note: Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The torque utilization is available smoothed (r0033) and unsmoothed (r0081).

For M_set total (r0079) > M_max offset (p1532), the following applies:

- demanded torque = M_set total - M_max offset

- actual torque limit = M_max upper effective (r1538) - M_max offset

For M_set total (r0079) <= M_max offset (p1532), the following applies:

- demanded torque = M_max offset - M_set total

- actual torque limit = M_max offset - M_max lower effective (r1539)

For the actual torque limit = 0, the following applies: r0033 = 100 %

For the actual torque limit < 0, the following applies: r0033 = 0 %

r0033	Force utilization smoothed / F_util smooth		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8012 Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the smoothed torque/force utilization as a percentage. The torque/force utilization is obtained from the required smoothed torque/force referred to the torque/force limit.		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The force utilization is available smoothed (r0033) and unsmoothed (r0081). For F_set total (r0079) > F_max offset (p1532), the following applies: - demanded torque = F_set total - F_max offset - actual force limit = F_max upper effective (r1538) - F_max offset For F_set total (r0079) ≤ F_max offset (p1532), the following applies: - demanded force = F_max offset - F_set total - actual force limit = F_max offset - F_max lower effective (r1539) For the actual force limit = 0, the following applies: r0033 = 100 % For the actual force limit < 0, the following applies: r0033 = 0 %		

r0035	CO: Temperature input / Temp input		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 21_1	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the temperature currently measured at X21 (booksize) or X41 (chassis). When using an Active Interface Module (p0220 = 41 ... 45) a bimetallic sensor must be connected-up to monitoring the temperature. The temperature sensor type is indicated using p0601 and cannot be changed when an Active Interface Module is being used. Temperature within permissible limit values: r0035 = -50°C Temperature outside the permissible limit values: r0035 = -250°C		
Dependency:	Refer to: A06260, F06261, F06262		
Notice:	The function in r0192.11 must be available in order to obtain a correct display.		
Note:	For r0035 equal to -200.0 °C, the following applies: - "no sensor available" selected in p0601! For r0035 equal to -300.0 °C, the following applies: - a KTY84 is selected in p0601 but is not connected! - the temperature display is not valid (temperature sensor error)!		

r0035	CO: Motor temperature / Motor temperature		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 21_1	Access level: 2 Func. diagram: 8016 Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the actual temperature in the motor.		
Note:	For r0035 not equal to -200.0 °C, the following applies: - this temperature display is valid. - a KTY sensor is connected. - for induction motors, the thermal motor model is activated (p0600 = 0 or p0601 = 0). For r0035 equal to -200.0 °C, the following applies: - this temperature display is not valid (temperature sensor error). - a PTC sensor is connected. - for synchronous motors, the thermal motor model is activated (p0600 = 0 or p0601 = 0).		

r0035	CO: Temperature input / Temp input		
B_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 21_1	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the temperature currently measured at X21 (booksize) or X41 (chassis). For a BLM with internal Braking Module, a bemetallc sensor must be connected-up to monitor the temperature of the braking resistor. The temperature sensor type is indicated using p0601 and cannot be changed for the existing internal Braking Module. Temperature within permissible limit values: r0035 = -50°C Temperature outside the permissible limit values: r0035 = -250°C		
Dependency:	Refer to: F06907, F06908		
Notice:	The function in r0192.11 must be available in order to obtain a correct display.		
Note:	For r0035 equal to -200.0 °C, the following applies: - "no sensor available" selected in p0601! For r0035 equal to -300.0 °C, the following applies: - a KTY84 is selected in p0601 but is not connected! - the temperature display is not valid (temperature sensor error)!		

r0036	Power unit overload I2t / PU overload I2t		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8014 Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the power unit overload determined using the I2t calculation. A current reference value is defined for the I2t monitoring of the power unit. It represents the current that can be conducted by the power unit without any influence of the switching losses (e.g. the continuously permissible current of the capacitors, inductances, busbars, etc.). If the I2t reference current of the power unit is not exceeded, then an overload (0 %) is not displayed. In the other case, the degree of thermal overload is calculated, whereby 100% results in a trip.		

Dependency: Refer to: p0290, p0294
Refer to: F30005

r0037[0...1] Control Unit temperature / CU temperature

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]

Description: Displays the Control Unit temperature.
An appropriate signal is output when 85°C is exceeded.

Index: [0] = Control Unit temperature actual
[1] = Control Unit temperature maximum

Dependency: Refer to: A01009

Note: The value of -200 indicates that there is no measuring signal.
Re r0037[0]:
Displays the currently measured Control Unit temperature.
Re r0037[1]:
Displays the highest measured Control Unit temperature. This value is saved on the module in a non-volatile fashion.

r0037[0...19] CO: Power unit temperatures / PU temperatures

A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8014
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]

Description: Displays the temperatures in the power unit.

Index: [0] = Maximum inverter
[1] = Maximum depletion layer
[2] = Maximum rectifier
[3] = Air intake
[4] = Electronics unit in the power unit
[5] = Inverter 1
[6] = Inverter 2
[7] = Inverter 3
[8] = Inverter 4
[9] = Inverter 5
[10] = Inverter 6
[11] = Rectifier 1
[12] = Rectifier 2
[13] = Depletion layer 1
[14] = Depletion layer 2
[15] = Depletion layer 3
[16] = Depletion layer 4
[17] = Depletion layer 5
[18] = Depletion layer 6
[19] = Cooling system, liquid intake

Note: The value of -200 indicates that there is no measuring signal.
r0037[0]: Maximum value of the inverter temperatures (r0037[5...10]).
r0037[1]: Maximum value of the depletion layer temperatures (r0037[13...18]).
r0037[2]: Maximum value of the rectifier temperatures (r0037[11...12]).

r0038 Power factor smoothed / Cos phi smooth

A_INF, S_INF, VECTOR

Can be changed: -**Data type:** Floating Point**P-Group:** Displays, signals**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 3**Func. diagram:** 6799, 8850, 8950**Unit selection:** -**Expert list:** 1**Factory setting**

-

Description:

Displays the smoothed actual power factor.

Note:

Smoothing time constant = 300 ms

The signal is not suitable as process quantity and may only be used as display quantity.

Significance for the motor: Motor power factor

Significance for the infeed: Power factor at the connection point (p3470, p3471)

p0045 Smoothing time constant, display values / T_smth display

SERVO, VECTOR

Can be changed: U, T**Data type:** Floating Point**P-Group:** -**Not for motor type:** -**Min**

0.00 [ms]

Calculated: -**Dynamic index:** -**Units group:** -**Max**

200.00 [ms]

Access level: 2**Func. diagram:** 4715, 5610, 5730, 6714, 8012**Unit selection:** -**Expert list:** 1**Factory setting**

1.00 [ms]

Description:

Sets the smoothing time constant for the following display values:

SERVO: r0078[1], r0079[1], r0081 (calculated from the quantities smoothed with p0045), r0082[1].

VECTOR: r0063[1], r0068[1], r0080[1], r0082[1].

r0046.0...29 CO/BO: Missing enable sig / Missing enable sig

A_INF, S_INF

Can be changed: -**Data type:** Unsigned32**P-Group:** Displays, signals**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 1**Func. diagram:** 8834, 8934**Unit selection:** -**Expert list:** 1**Factory setting**

-

Description:

Displays missing enable signals that are preventing the closed-loop infeed control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
03	Enable operation missing	Yes	No	-
08	EP terminals enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
19	Pulse enable internal missing	Yes	No	-
26	Infeed inactive or not operational	Yes	No	-
29	Cooling system ready signal missing	Yes	No	-

Dependency:

Refer to: r0002

Note:

The value r0046 = 0 indicates that all enable signals for the infeed are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.

- there is a power-on inhibit.

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.
- Bit 08 = 1 (enable signal missing), if:
 - the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).
- Bit 16 = 1 (enable signal missing), if:
 - there is an OFF1 fault response. The system is only enable if the fault is removed and was acknowledged and the power-on inhibit withdrawn with OFF1 = 0.
- Bit 17 = 1 (enable signal missing), if:
 - The commissioning mode is selected (p0009 > 0 or p0010 > 0) or there is an OFF2 fault response or the OFF1 signal source (p0840) is changed.
- Bit 19 = 1 (internal pulse enable missing), if:
 - synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.
- Bit 26 = 1 (enable signal missing), if:
 - the infeed is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).
- Bit 29 = 1 (enable signal missing), if:
 - the cooling system ready signal via BI: p0266[1] missing.

r0046.0...29**CO/BO: Missing enable sig / Missing enable sig**

B_INF

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 8734**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays missing enable signals that are preventing the closed-loop infeed control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
08	EP terminals enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
26	Infeed inactive or not operational	Yes	No	-
29	Cooling system ready signal missing	Yes	No	-

Dependency:

Refer to: r0002

Note:

The value r0046 = 0 indicates that all enable signals for the infeed are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.

- there is a power-on inhibit.

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enable if the fault is removed and was acknowledged and the power-on inhibit withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- The commissioning mode is selected (p0009 > 0 or p0010 > 0) or there is an OFF2 fault response or the OFF1 signal source (p0840) is changed.

Bit 26 = 1 (enable signal missing), if:

- the infeed is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 29 = 1 (enable signal missing), if:

- the cooling system ready signal via BI: p0266[1] missing.

r0046.0...31**CO/BO: Missing enable sig / Missing enable sig**

SERVO, VECTOR

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 2634**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays missing enable signals that are preventing the closed-loop drive control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
02	OFF3 enable missing	Yes	No	-
03	Enable operation missing	Yes	No	-
04	Armature short-circuit / DC current brake, enable missing	Yes	No	7014, 7016
05	STOP2 enable missing	Yes	No	-
06	STOP1 enable missing	Yes	No	-
08	EP terminals enable missing	Yes	No	-
09	Infeed enable missing	Yes	No	-
10	Ramp-function generator enable missing	Yes	No	-
11	Ramp-function generator start missing	Yes	No	-
12	Setpoint enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
18	OFF3 enable internal missing	Yes	No	-
19	Pulse enable internal missing	Yes	No	-
20	Armature short-circuit/DC current brake internal enable missing	Yes	No	7014, 7016
21	STOP2 enable internal missing	Yes	No	-
22	STOP1 enable internal missing	Yes	No	-
25	Function bypass active	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
27	Demagnetization not completed	Yes	No	-
28	Brake open missing	Yes	No	-
29	Cooling system ready signal missing	Yes	No	-
30	Speed controller inhibited	Yes	No	-
31	Jog setpoint active	Yes	No	-

Dependency:

Refer to: r0002

Note:

The value r0046 = 0 indicates that all enable signals for this drive are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.

- there is a power-on inhibit.

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 02 = 1 (enable signal missing), if:

- the signal source in p0848 or p0849 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.

Bit 04 = 1 (armature short-circuit active), if:

- the signal source in p1230 has a 1 signal

Bit 05, Bit 06: Being prepared

Bit 08 = 1 (enable signal missing), if:

- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).

Bit 09 = 1 (enable signal missing), if:

- the signal source in p0864 is a 0 signal.

Bit 10 = 1 (enable signal missing), if:

- the signal source in p1140 is a 0 signal.

Bit 11 = 1 (enable signal missing) if the speed setpoint is frozen, because:

- the signal source in p1141 is a 0 signal.
- the speed setpoint is entered from jogging and the two signal sources for jogging, bit 0 (p1055) and bit 1 (p1056) have a 1 signal.

Bit 12 = 1 (enable signal missing), if:

- the signal source in p1142 is a 0 signal.
- When activating the function module "basic positioner" (r0108.4 = 1), the signal source in p1142 is set to a 0 signal.

Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enable if the fault is removed and was acknowledged and the power-on inhibit withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- commissioning mode is selected (p0009 > 0 or p0010 > 0).
- there is an OFF2 fault response.
- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 18 = 1 (enable signal missing), if:

- OFF3 has still not be completed or an OFF3 fault response is present.

Bit 19 = 1 (internal pulse enable missing), if:

- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 20 = 1 (internal armature short-circuit active), if:

- the drive is not in the state "S4: Operation" or "S5x" (refer to function chart 2610).
- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:

The pulses have been enabled and the speed setpoint has still not been enabled, because:

- the holding brake opening time (p1216) has still not expired.
- The motor has still not been magnetized (induction motor).

Bit 22: Being prepared

Bit 26 = 1 (enable signal missing), if:

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 27 = 1 (enable signal missing), if:

- de-magnetizing has still not been completed (only for vector).

Bit 28 = 1 (enable signal missing), if:

- the holding brake is closed or has still not been opened.

Bit 29 = 1 (enable signal missing), if:

- the cooling system ready signal via BI: p0266[1] missing.

Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:

- A 0 signal is available via BI: p0856.
- the function generator with current input is active.
- the measuring function "current controller reference frequency characteristic" is active.
- the pole position identification is active.
- motor data identification is active (only certain steps).

Bit 31 = 1 (enable missing), if:

- the speed setpoint from jog 1 or 2 is entered.

r0046.0...31

CO/BO: Missing enable sig / Missing enable sig

SERVO (Lin)

Can be changed: -

Calculated: -

Access level: 1

Data type: Unsigned32

Dynamic index: -

Func. diagram: 2634

P-Group: Displays, signals

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays missing enable signals that are preventing the closed-loop drive control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
02	OFF3 enable missing	Yes	No	-
03	Enable operation missing	Yes	No	-
04	Armature short-circuit / DC current brake, enable missing	Yes	No	7014, 7016
05	STOP2 enable missing	Yes	No	-
06	STOP1 enable missing	Yes	No	-
08	EP terminals enable missing	Yes	No	-
09	Infeed enable missing	Yes	No	-
10	Ramp-function generator enable missing	Yes	No	-
11	Ramp-function generator start missing	Yes	No	-
12	Setpoint enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
18	OFF3 enable internal missing	Yes	No	-
19	Pulse enable internal missing	Yes	No	-
20	Armature short-circuit/DC current brake internal enable missing	Yes	No	7014, 7016
21	STOP2 enable internal missing	Yes	No	-
22	STOP1 enable internal missing	Yes	No	-
25	Function bypass active	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
27	Demagnetization not completed	Yes	No	-
28	Brake open missing	Yes	No	-
29	Cooling system ready signal missing	Yes	No	-
30	Velocity controller inhibited	Yes	No	-
31	Jog setpoint active	Yes	No	-

Dependency:

Refer to: r0002

Note:

The value r0046 = 0 indicates that all enable signals for this drive are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.

- there is a power-on inhibit.

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 02 = 1 (enable signal missing), if:

- the signal source in p0848 or p0849 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.

Bit 04 = 1 (armature short-circuit active), if:

- the signal source in p1230 has a 1 signal

Bit 05, Bit 06: Being prepared

Bit 08 = 1 (enable signal missing), if:

- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).

Bit 09 = 1 (enable signal missing), if:

- the signal source in p0864 is a 0 signal.

Bit 10 = 1 (enable signal missing), if:

- the signal source in p1140 is a 0 signal.

Bit 11 = 1 (enable signal missing) if the velocity setpoint is frozen, because:

- the signal source in p1141 is a 0 signal.
- the velocity setpoint is entered from jogging and the two signal sources for jogging, bit 0 (p1055) and bit 1 (p1056) have a 1 signal.

Bit 12 = 1 (enable signal missing), if:

- the signal source in p1142 is a 0 signal.
- When activating the function module "basic positioner" (r0108.4 = 1), the signal source in p1142 is set to a 0 signal.

Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enable if the fault is removed and was acknowledged and the power-on inhibit withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- commissioning mode is selected (p0009 > 0 or p0010 > 0).
- there is an OFF2 fault response.
- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 18 = 1 (enable signal missing), if:

- OFF3 has still not be completed or an OFF3 fault response is present.

Bit 19 = 1 (internal pulse enable missing), if:

- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 20 = 1 (internal armature short-circuit active), if:

- the drive is not in the state "S4: Operation" or "S5x" (refer to function chart 2610).
- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:

The pulses have been enabled and the velocity setpoint has still not been enabled, because:

- the holding brake opening time (p1216) has still not expired.
- The motor has still not been magnetized (induction motor).

Bit 22: Being prepared

Bit 26 = 1 (enable signal missing), if:

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 27 = 1 (enable signal missing), if:

- de-magnetizing has still not been completed (only for vector).

Bit 28 = 1 (enable signal missing), if:

- the holding brake is closed or has still not been opened.

Bit 29 = 1 (enable signal missing), if:

- the cooling system ready signal via BI: p0266[1] missing.

Bit 30 = 1 (velocity controller inhibited), if one of the following reasons is present:

- A 0 signal is available via BI: p0856.
- the function generator with current input is active.
- the measuring function "current controller reference frequency characteristic" is active.
- the pole position identification is active.
- motor data identification is active (only certain steps).

Bit 31 = 1 (enable missing), if:

- the velocity setpoint from jog 1 or 2 is entered.

r0047	Status, identification / Status ident		
SERVO	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	104	-
Description:	Displays the currently executed steps or the first step after the enable for the motor identification and pole position identification routines.		
Values:	0: No measurement 1: PolID: Wait for brake closing time 2: PolID: Measurement, step 1 3: PolID: Measurement, step 2 4: PolID: Measurement, step 3 5: PolID: Measurement, step 4 6: PolID: Measurement, stage 2 7: PolID: Measurement evaluation 8: PolID: Measurement end 11: MotID: Inductance measurement, step 1 12: MotID: Inductance measurement, step 2 13: MotID: Inductance measurement evaluation 14: MotID: Resistance measurement evaluation 15: MotID: Fine synchronization, step 1 16: MotID: Fine synchronization, step 2 17: MotID: Fine synchronization, step 3 18: MotID: Fine synchronization, end 20: MotID: Rotating inductance measurement, step 1 21: MotID: Rotating inductance measurement, step 2 22: MotID: Rotating inductance measurement, step 3 23: MotID: Rotating inductance measurement, step 4 24: MotID: Rotating Inductance measurement evaluation 25: MotID: Rotating Inductance measurement end 30: MotID: Induction motor measurement, step 1 31: MotID: Induction motor measurement, step 2 32: MotID: Induction motor measurement, step 3 33: MotID: Induction motor measurement, step 4 34: MotID: Induction motor measurement, step 5 35: MotID: Induction motor measurement, step 6 36: MotID: Induction motor measurement, step 7 37: MotID: Induction motor measurement, step 8 38: MotID: Induction motor measurement, step 9 40: MotID: Commutating angle, step 1 41: MotID: Commutating angle, step 2 42: MotID: Commutating angle, step 3 43: MotID: Commutating angle, step 4 45: MotID: Commutating angle rotating, step 1 46: MotID: Commutating angle rotating, step 2 47: MotID: Commutating angle rotating, step 3 48: MotID: Commutating angle rotating complete 50: MotID: kT determination, step 1 51: MotID: kT determination, step 2 52: MotID: kT determination, step 3 53: MotID: kT determination evaluation 54: MotID: kT determination end 60: MotID: Reluctance constant measurement, step 1 61: MotID: Reluctance motor measurement, step 2 62: MotID: Reluctance constant measurement, step 3 63: MotID: Reluctance constant measurement end 70: MotID: Moment of inertia measurement, step 1 71: MotID: Moment of inertia measurement, step 2		

72: MotID: Moment of inertia measurement, step 3
 73: MotID: Moment of inertia measurement end
 80: MotID: Magnetizing inductance measurement, step 1
 81: MotID: Magnetizing inductance measurement, step 2
 82: MotID: Magnetizing inductance measurement, step 3
 83: MotID: Magnetizing inductance measurement evaluation
 84: MotID: Main inductance measurement end
 90: MotID: Saturation characteristic. step 1
 91: MotID: Saturation characteristic. step 2
 92: MotID: Saturation characteristic. step 3
 93: MotID: Saturation characteristic evaluation 1
 94: MotID: Saturation characteristic evaluation 2
 95: MotID: Saturation characteristic end
 96: MotID: Converter model, step 1
 97: MotID: Converter model, step 2
 98: MotID: Converter model, step 3
 99: MotID: Converter model, step 4
 100: PolID: Motion-based, step 1
 101: PolID: Motion-based, step 2
 102: PolID: Motion-based, step 3
 103: PolID: Motion-based, step 4
 104: PolID: Motion-based, step 5

r0047 Motor data ident. routine and speed controller optimization / MotID and n_opt

VECTOR

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

300

-

Description:

Displays the actual status for the motor data identification (standstill measurement) and the speed/velocity controller optimization (rotating measurement).

Values:

0: No measurement
 115: Measurement q leakage inductance (part 2)
 120: Speed controller optimization, (vibration test)
 140: Calculate speed controller setting
 150: Measurement, moment of inertia
 170: Measurement, magnetizing current and saturation characteristic
 190: Speed encoder test
 195: Measurement q leakage inductance (part 1)
 200: Rotating measurement selected
 210: Pole position identification selected
 220: identification, leakage inductance
 230: Identification, rotor time constant
 240: Identification, stator inductance
 270: Identification, stator resistance
 290: Identification, valve lockout time
 300: Standstill measurement selected

r0049[0...3] Motor data set/encoder data set effective / MDS/EDS effective

SERVO, VECTOR

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** 8565**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the effective Motor Data Set (MDS) and the effective Encoder Data Sets (EDS).

Index:

[0] = Motor Data Set MDS effective
 [1] = Encoder1 Encoder Data Set EDS effective

[2] = Encoder 2 Encoder Data Set EDS effective

[3] = Encoder 3 Encoder Data Set EDS effective

Dependency: Refer to: p0186, p0187, p0188, p0189, r0838**Note:** Value 99 means the following: No encoder assigned (not configured).**r0050.0...3 CO/BO: Command Data Set CDS effective / CDS effective**A_INF, B_INF,
SERVO, S_INF,
TM41, VECTOR**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** 8560**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description: Displays the effective Command Data Set (CDS).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	CDS eff., bit 0	On	Off	-
	01	CDS eff., bit 1	On	Off	-
	02	CDS eff., bit 2	On	Off	-
	03	CDS eff., bit 3	On	Off	-

Dependency: Refer to: p0810, p0811, r0836**Note:** The Command Data Set selected using a binector input (e.g. p0810) is displayed using r0836.**r0051.0...4 CO/BO: Drive Data Set DDS effective / DDS effective**SERVO, TM41, VEC-
TOR**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** -**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description: Displays the effective Drive Data Set (DDS).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DDS eff., bit 0	On	Off	-
	01	DDS eff., bit 1	On	Off	-
	02	DDS eff., bit 2	On	Off	-
	03	DDS eff., bit 3	On	Off	-
	04	DDS eff., bit 4	On	Off	-

Dependency: Refer to: p0820, p0821, p0822, p0823, p0824, r0837**Note:** The drive data set changeover is suppressed when selecting the motor identification, during the rotating measurement, the encoder calibration and the friction characteristic record.**r0056.1...15 CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl**

SERVO

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 2526**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description: Displays the status word of the closed-loop control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	De-magnetizing completed	Yes	No	-
	04	Magnetizing completed	Yes	No	2701
	08	Field weakening active	Yes	No	-
	14	Vdc_max controller active	Yes	No	-
	15	Vdc_min controller active	Yes	No	-

r0056.0...15	CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2526
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Initialization completed	Yes	No	-
	01	De-magnetizing completed	Yes	No	-
	02	Pulse enable present	Yes	No	-
	03	Soft starting present	Yes	No	-
	04	Magnetizing completed	Yes	No	-
	06	Accelerating voltage active	Yes	No	-
	07	Frequency negative	Yes	No	6719
	08	Field weakening active	Yes	No	-
	09	Voltage limit active	Yes	No	-
	10	Slip limit active	Yes	No	6310
	11	Frequency limit active	Yes	No	6719
	12	Current limiting controller voltage output active	Yes	No	-
	13	Current/torque limiting	Active	Inactive	-
	14	Vdc_max controller active	Yes	No	6220, 6320
	15	Vdc_min controller active	Yes	No	6220, 6320

r0060	CO: Velocity setpoint before the setpoint filter / v_set before filt		
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2701, 2704, 5020, 6030, 6799
	P-Group: Displays, signals	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the actual velocity setpoint at the input of the velocity controller or V/f characteristic (after the interpolator).		

Dependency: Refer to: r0020

Note: The velocity setpoint is available smoothed (r0020) and unsmoothed (r0060).

r0061	CO: Speed actual value motor encoder / n_ist mot. encoder		
SERVO	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1580, 4710, 4715
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the speed sensed by the motor encoder (unsmoothed).		

r0061	CO: Velocity actual value, motor encoder / v_act mot encoder		
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1580, 4710, 4715
	P-Group: Displays, signals	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the velocity sensed by the motor encoder (unsmoothed).		

r0061[0...1]	CO: Speed actual value motor encoder / n_ist mot. encoder		
VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1580, 4710, 4715
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the speed sensed by the motor encoder (unsmoothed).		
Index:	[0] = Encoder 1 [1] = Encoder 2		

r0062	CO: Speed setpoint after the filter / n_set after filter		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1590, 1750, 5020, 5030, 5210, 6030
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the actual speed setpoint after the setpoint filters.		

r0062	CO: Velocity setpoint after the filter / v_set after filter		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 1590, 1750, 5020, 5030, 5210, 6030 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the actual velocity setpoint after the setpoint filters.		
r0063	CO: Speed actual value after actual value smoothing / n_ist smooth		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 1580, 1590, 4710, 5300 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the actual, smoothed actual speed for speed control.		
Dependency:	Refer to: r0021		
Note:	The speed actual value is calculated in sensorless operation. For operation with encoder, r0063 is smoothed with p1441. The speed actual value is available smoothed (r0021) and unsmoothed (r0063).		
r0063	CO: Actual velocity smoothed / v_act smooth		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 1580, 1590, 4710, 5300 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the actual, smoothed velocity actual value for velocity control.		
Dependency:	Refer to: r0021		
Note:	The velocity actual value is calculated in sensorless operation. For operation with encoder, r0063 is smoothed with p1441. The velocity actual value is available smoothed (r0021) and unsmoothed (r0063).		
r0063	CO: Speed actual value after actual value smoothing / n_ist smooth		
TM41	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the currently smoothed speed actual value.		
Note:	For Terminal Module 41 (TM41), this value is used to interconnect with standard telegram 3 and is always zero.		

r0063[0...2]	CO: Actual speed value / n_ist		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 1680, 4715 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the actual speed of the closed-loop speed control and the V/f control.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045 [2] = Calculated from f_set - f_slip		
Dependency:	Refer to: r0021		
Note:	The speed actual value is calculated in sensorless operation and for V/f control. For operation with encoder, r0063 is smoothed with p1441. The speed actual value r0063[0] is additionally displayed - smoothed with p0045 - in r0063[1]. The speed r0063[2] calculated from the output frequency and slip can only be compared with the speed actual value r0063[0] in the steady-state.		
r0064	CO: Speed controller system deviation / n_ctrl system dev		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 5040, 6040 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the actual system deviation of the speed controller.		
Note:	In the servo control mode with active reference model, the system deviation to the P component of the speed/velocity controller is displayed.		
r0064	CO: Velocity controller system deviation / v_ctrl system dev		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 4_1	Access level: 3 Func. diagram: 5040, 6040 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the actual system deviation of the velocity controller.		
Note:	In the servo control mode with active reference model, the system deviation to the P component of the velocity controller is displayed.		
r0065	Slip frequency / f_Slip		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 2_1	Access level: 3 Func. diagram: 6310, 6730 Unit selection: p0505 Expert list: 1 Factory setting - [Hz]
Description:	Displays the slip frequency for induction motors (ASM).		

r0066 CO: Line frequency / f_line

A_INF, S_INF

Can be changed: -**Data type:** Floating Point**P-Group:** Displays, signals**Not for motor type:** -**Min**

- [Hz]

Calculated: -**Dynamic index:** -**Units group:** 2_1**Max**

- [Hz]

Access level: 3**Func. diagram:** 8850, 8864, 8950, 8964**Unit selection:** p0505**Expert list:** 1**Factory setting**

- [Hz]

Description:

Displays the line frequency.

Dependency:

Refer to: r0024

Note:

The line frequency is available smoothed (r0024) and unsmoothed (r0066).

A positive sign of the frequency is obtained when the line supply phases U, V and W are connected with the correct phase sequence.

A negative sign of the frequency is obtained when the 3 line phases are interchanged therefore designating a negative direction of the rotating field of the 3-phase line supply voltage.

r0066 CO: Output frequency / f_outp

SERVO, VECTOR

Can be changed: -**Data type:** Floating Point**P-Group:** Displays, signals**Not for motor type:** -**Min**

- [Hz]

Calculated: -**Dynamic index:** -**Units group:** 2_1**Max**

- [Hz]

Access level: 3**Func. diagram:** 1690, 5300, 5730, 6310, 6730, 6731, 6799**Unit selection:** p0505**Expert list:** 1**Factory setting**

- [Hz]

Description:

Displays the Motor Module output frequency.

Dependency:

Refer to: r0024

Note:

The output frequency is available smoothed (r0024) and unsmoothed (r0066).

r0067[0...1] Absolute current value permissible / I_abs val perm

A_INF, S_INF

Can be changed: -**Data type:** Floating Point**P-Group:** Displays, signals**Not for motor type:** -**Min**

- [Arms]

Calculated: -**Dynamic index:** -**Units group:** 6_2**Max**

- [Arms]

Access level: 3**Func. diagram:** -**Unit selection:** p0505**Expert list:** 1**Factory setting**

- [Arms]

Description:

Displays the actual permissible absolute line-side current.

Index:

[0] = Motor mode

[1] = Regenerative mode

Dependency:

The permissible current is the minimum from the maximum converter current (r0209), the parameterized current limits (p3530 to p3533) as well as the maximum permissible current of line filter (r3534).

Refer to: p3530, p3531, r3534

r0067 Output current, maximum / I_outp max

SERVO, VECTOR

Can be changed: -**Data type:** Floating Point**P-Group:** Displays, signals**Not for motor type:** -**Min**

- [Arms]

Calculated: -**Dynamic index:** -**Units group:** 6_2**Max**

- [Arms]

Access level: 3**Func. diagram:** 5722, 6300, 6640, 6724**Unit selection:** p0505**Expert list:** 1**Factory setting**

- [Arms]

Description:

Displays the maximum output current of the Motor Module.

Dependency: The maximum output current is determined by the parameterized current limit and the motor and converter thermal protection.
Refer to: p0290, p0640

r0068	CO: Absolute current actual value / I_act abs val		
A_INF, SERVO, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 5730, 8014, 8850, 8950 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays actual absolute current.		
Dependency:	Refer to: r0027		
Notice:	Bei A_INF, S_INF the following applies: The value is updated with the current controller sampling time. The following applies for SERVO: The value is updated with a sampling time of 1 ms.		
Note:	Absolute current value = $\sqrt{I_q^2 + I_d^2}$ The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).		

r0068	CO: DC current in the DC link / Idc DC link		
B_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [A]	Calculated: - Dynamic index: - Units group: 6_4 Max - [A]	Access level: 3 Func. diagram: 8014, 8750 Unit selection: p0505 Expert list: 1 Factory setting - [A]
Description:	Displays the DC current in the DC link.		
Dependency:	Refer to: r0027		
Note:	The DC current in the DC link is available smoothed (r0027) and unsmoothed (r0068).		

r0068[0...1]	CO: Absolute current actual value / I_act abs val		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 6714, 6799, 8014 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays actual absolute current.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	Refer to: r0027		
Notice:	The value is updated with the current controller sampling time.		
Note:	Absolute current value = $\sqrt{I_q^2 + I_d^2}$ The absolute value of the current actual value is available smoothed (r0027 with 300 ms, r0068[1] with p0045) and unsmoothed (r0068[0]).		

r0069[0...6]	Phase current, actual value / I_phase act value		
A_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [A] Description: Displays the measured actual phase currents as peak value. Index: [0] = Phase U [1] = Phase V [2] = Phase W [3] = Phase U offset [4] = Phase V offset [5] = Phase W offset [6] = Total U, V, W Note: In indices 3 ... 5, the offset currents of the 3 phases, which are added to correct the phase currents, are displayed. The sum of the 3 corrected phase currents is displayed in index 6.	Calculated: - Dynamic index: - Units group: 6_5 Max - [A]	Access level: 3 Func. diagram: 1630, 5730, 6714, 6730, 6731, 8850, 8950 Unit selection: p0505 Expert list: 1 Factory setting - [A]
r0070	CO: Actual DC link voltage / Vdc_act		
A_INF, B_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [V] Description: Displays the measured actual value of the DC link voltage. Dependency: Refer to: r0026 Note: The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).	Calculated: - Dynamic index: - Units group: 5_2 Max - [V]	Access level: 3 Func. diagram: 1774, 8750, 8850, 8864, 8940, 8950, 8964 Unit selection: p0505 Expert list: 1 Factory setting - [V]
r0070	CO: Actual DC link voltage / Vdc_act		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [V] Description: Displays the measured actual value of the DC link voltage. Dependency: Refer to: r0026 Notice: For SINAMICS S120 AC Drive (AC/AC) the following applies: When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) a valid measured value is not supplied. In this case, when an external 24V power supply is connected, a value of approx. 24 V is displayed. Note: The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).	Calculated: - Dynamic index: - Units group: 5_2 Max - [V]	Access level: 3 Func. diagram: 5730 Unit selection: p0505 Expert list: 1 Factory setting - [V]

r0071	Maximum output voltage / V_output max		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Vrms]	Calculated: - Dynamic index: - Units group: 5_1 Max - [Vrms]	Access level: 3 Func. diagram: 1710, 6300, 6640, 6727 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the maximum output voltage.		
Dependency:	The maximum output voltage depends on the actual DC link voltage (r0070) and the maximum modulation depth (p1803).		
Note:	As the (driven) motor load increases, the maximum output voltage drops as a result of the reduction in DC-link voltage.		
r0072[0...3]	CO: Input voltage / V_input		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Vrms]	Calculated: - Dynamic index: - Units group: 5_1 Max - [Vrms]	Access level: 3 Func. diagram: 8850, 8950 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the actual power unit input voltage (Line Module).		
Index:	[0] = Voltage at the input terminals of the power unit [1] = Voltage at the VSM and at the input terminals of the line filter [2] = Voltage of the voltage source from the line supply model [3] = Smoothed voltage of the voltage source from line supply model		
Note:	The input voltages are available smoothed (r0025) and unsmoothed (r0072). r0072[0]: Displays the pulsed voltage at the line supply input terminals of the power unit. The value is calculated from the modulation depth (r0074) and is therefore only correct in the closed-loop controlled mode and when the pulses are enabled. r0072[1]: Displays the absolute voltage at the input terminals of the line filter or the connection point of a Voltage Sensing Module (VSM). The value is calculated from the VSM measured values r3661 and r3662 and is therefore equal to 0 if a VSM is not connected. r0072[2]: Displays the estimated value for the voltage of the voltage source that is calculated in the voltage model of the line supply PLL. (input quantities of the model are the measured values of the line currents and the DC link voltage as well as the characteristics of the line filter p0225, p0226 as well as the line inductance p3424). r0072[3]: Displays the smoothed value for the source voltage in r0072[2]. The PT1 smoothing time constant is set in p3472.		
r0072	CO: Output voltage / V_output		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Vrms]	Calculated: - Dynamic index: - Units group: 5_1 Max - [Vrms]	Access level: 3 Func. diagram: 1630, 5730, 6730, 6731, 6799 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the actual power unit output voltage (Motor Module).		
Dependency:	Refer to: r0025		
Note:	The output voltage is available smoothed (r0025) and unsmoothed (r0072).		

r0073	Maximum modulation depth / Modulat_depth max		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Modulation Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 6724 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the maximum modulation depth.		
Dependency:	Refer to: p1803		
r0074	CO: Modulat_depth / Modulat_depth		
A_INF, SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 5730, 6730, 6731, 6799, 8940, 8950 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the actual modulation depth.		
Dependency:	Refer to: r0028		
Note:	For space vector modulation, 100% corresponds to the maximum output voltage without overcontrol. Values above 100 % indicate an overcontrol condition - values below 100% have no overcontrol. The phase voltage (phase-to-phase, rms) is calculated as follows: $(r0074 * r0070) / (\sqrt{2} * 100 \%)$. The modulation depth is available smoothed (r0028) and unsmoothed (r0074).		
r0075	CO: Reactive current setpoint / Id_set		
A_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 8946 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the reactive current setpoint.		
Note:	The reactive current requirement of a line filter can be covered by the controlled infeed/regenerative feedback. The magnitude of the reactive current is determined by the capacitance of the line filter (p0221) that is automatically parameterized when a line filter is selected (p0220). For p0221 = 0, the controller does not generate reactive current for a line filter. Setpoint r0075 includes the reactive current for a line filter that depends on the actual operating point.		
r0075	CO: Current setpoint, field-generating / Id_set		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1630, 5714, 5722, 6714 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the field-generating current setpoint (Id_set).		
Note:	This value is irrelevant for the V/f control mode.		

r0076	CO: Reactive current actual value / I_{reactive_act}		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1774, 1775, 8850, 8946, 8950 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the reactive current actual value.		
Dependency:	Refer to: r0029		
Note:	The reactive current actual value is available smoothed (r0029) and unsmoothed (r0076).		
r0076	CO: Current actual value, field-generating / Id_act		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1630, 1710, 5714, 5730, 6714, 6799 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the field-generating current actual value (Id_act).		
Dependency:	Refer to: r0029		
Note:	This value is irrelevant for the V/f control mode. The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).		
r0077	CO: Active current setpoint / I_{q_set}		
A_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1774, 8940, 8946 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the active current setpoint (I _{q_set}).		
r0077	CO: Current setpoint, torque-generating / I_{q_set}		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1630, 1774, 5714, 6710, 6714, 6719 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the torque/force generating current setpoint.		
Note:	This value is irrelevant for the V/f control mode.		

r0077	CO: Current setpoint force-generating / Iq_set		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1630, 1774, 5714, 6710, 6714, 6719 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the torque/force generating current setpoint.		
Note:	This value is irrelevant for the V/f control mode.		
r0078	CO: Active current actual value / Iq_act		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1774, 1775, 8850, 8946, 8950 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the actual value for the active current.		
Dependency:	Refer to: r0030		
Note:	The active current actual value is available smoothed (r0030) and unsmoothed (r0078).		
r0078	CO: Current actual value, torque-generating / Iq_act		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1710, 6310, 6714, 6799 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the torque-generating current actual value (Iq_act).		
Dependency:	Refer to: r0030		
Note:	This value is irrelevant for the V/f control mode. The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).		
r0078[0...1]	CO: Current actual value, torque-generating / Iq_act		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1630, 5714, 5730 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the torque-generating current actual value (Iq_act).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	Refer to: r0030, p0045		
Note:	These values are irrelevant for the V/f control mode. The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).		

r0078[0...1]	CO: Current actual value, force-generating / Iq_act		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: 1630, 5714, 5730 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the force-generating current actual value (Iq_act).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	Refer to: r0030, p0045		
Note:	These values are irrelevant for the V/f control mode. The force-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).		
r0079[0...1]	CO: Torque setpoint total / M_set total		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 5610, 8012 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the speed controller (before clock cycle interpolation).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
r0079[0...1]	CO: Total force setpoint / F_set total		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: 5610, 8012 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the force setpoint at the output of the velocity controller (before clock cycle interpolation).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
r0079	CO: Torque setpoint total / M_set total		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 1700, 1710, 6030, 6060, 6710, 8012 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the speed controller (before clock cycle interpolation).		

r0080	CO: Torque actual value / M_act		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 5730 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the actual torque value.		
Dependency:	Refer to: r0031		
Note:	The torque actual value is available smoothed (r0031) and unsmoothed (r0080).		
r0080	CO: Force actual value / F_act		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: 5730 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the actual force value.		
Dependency:	Refer to: r0031		
Note:	The force actual value is available smoothed (r0031) and unsmoothed (r0080).		
r0080[0...1]	CO: Torque actual value / M_act		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 6714, 6799 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the actual torque value.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	Refer to: r0031		
Note:	The torque actual value is available smoothed (r0031 with 100 ms, r0080[1] with p0045) and unsmoothed (r0080[0]).		
r0081	CO: Torque utilization / M_Utilization		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 8012 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the torque utilization as a percentage. The torque utilization is obtained from the required smoothed torque referred to the torque limit.		
Dependency:	Refer to: r0033		
Note:	The torque utilization is available smoothed (r0033) and unsmoothed (r0081). The torque utilization is obtained from the required torque referred to the torque limit as follows: - Positive torque: $r0081 = ((r0079 + r1532) / (r1538 - r1532)) * 100 \%$ - Negative torque: $r0081 = ((-r0079 + r1532) / (-r1539 + r1532)) * 100 \%$		

For SERVO, the following applies:

The calculation of the torque utilization depends on the selected smoothing time constant (p0045).

r0081	CO: Force utilization / F_utilization		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8012 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the force utilization as a percentage.		
	The force utilization is obtained from the required smoothed force referred to the force limit.		
Dependency:	Refer to: r0033		
Note:	The force utilization is available smoothed (r0033) and unsmoothed (r0081). The calculation of the force utilization depends on the selected smoothing time constant (p0045).		
r0082	CO: Active power actual value / P_act		
A_INF, B_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 14_7	Access level: 3 Func. diagram: 8750, 8850, 8950 Unit selection: p0505 Expert list: 1 Factory setting - [kW]
Description:	Displays the instantaneous active power.		
Dependency:	Refer to: r0032		
Note:	The active power is available smoothed (r0032) and unsmoothed (r0082).		
r0082[0...2]	CO: Active power actual value / P_act		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 14_5	Access level: 3 Func. diagram: 5730 Unit selection: p0505 Expert list: 1 Factory setting - [kW]
Description:	Displays the instantaneous active power.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045 [2] = Power drawn		
Dependency:	Refer to: r0032		
Note:	The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).		
r0082[0...2]	CO: Active power actual value / P_act		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 14_5	Access level: 3 Func. diagram: 6714, 6799 Unit selection: p0505 Expert list: 1 Factory setting - [kW]
Description:	Displays the instantaneous active power.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		

[2] = Power drawn

Dependency:

Refer to: r0032

Note:

The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]). The unsmoothed, electric motor active power is displayed in r0082[2] without taking into account the motor losses.

r0083	CO: Flux setpoint / Flux setpoint		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the flux setpoint.		
r0084	CO: Flux actual value / Flux act val		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the flux actual value.		
r0084[0...1]	CO: Flux actual value / Flux act val		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 6726, 6730, 6731 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the flux actual value.		
Index:	[0] = Unsmoothed [1] = Smoothed		
Note:	The flux actual value (index 1) smoothed with p1585 is only displayed for separately-excited synchronous motors. In the following cases, the unsmoothed flux actual value is also displayed: <ul style="list-style-type: none"> - in the range of the current model. - during the pole position identification. - for I/f control. - for a stalled drive. 		
r0087	CO: Actual power factor / Cos phi act		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 6730, 6731, 6799 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual active power factor.		

r0088 CO: DC-link voltage setpoint / Vdc setpoint			
A_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [V]	Calculated: - Dynamic index: - Units group: 5_2 Max - [V]	Access level: 3 Func. diagram: 8940, 8964 Unit selection: p0505 Expert list: 1 Factory setting - [V]
Description: Displays the setpoint for the DC link voltage.			
<hr/>			
r0089[0...2] Actual phase voltage / U_phase act val			
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [V]	Calculated: - Dynamic index: - Units group: 5_3 Max - [V]	Access level: 3 Func. diagram: 6719 Unit selection: p0505 Expert list: 1 Factory setting - [V]
Description: Displays the actual phase voltage.			
Index: [0] = Phase U [1] = Phase V [2] = Phase W			
Note: The values are determined from the transistor power-on duration.			
<hr/>			
p0092 Clock synchronous operation pre-assignment/check / Clock sync op			
CU_S	Can be changed: C1(1) Data type: Integer16 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 1	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description: Setting to pre-assign/check the sampling times for the internal controller clock cycles for clock synchronous PROFIBUS operation. p0092 = 1: The controller clock cycles are set so that clock synchronous PROFIBUS operation is possible. If it is not possible to change the controller clock cycles of the clock synchronous PROFIBUS operation, then an appropriate message/signal is output. The pre-setting of the controller clock cycles can result in a de-rating of the Motor Module (e.g. p0115[0] = 400 µs -> 375 µs). p0092 = 0: The controller clock cycles are set without any restrictions by the clock synchronous PROFIBUS operation (as for up to version V2.3).			
Dependency: Refer to: r0110, p0115 Refer to: A01223, A01224			

p0092	Clock synchronous operation pre-assignment/check / Clock sync op		
CU_CX32	Can be changed: C1(1) Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Setting to pre-assign/check the sampling times for the internal controller clock cycles for clock synchronous PROFIBUS operation. p0092 = 1: The controller clock cycles are set so that clock synchronous PROFIBUS operation is possible. If it is not possible to change the controller clock cycles of the clock synchronous PROFIBUS operation, then an appropriate message/signal is output. The pre-setting of the controller clock cycles can result in a de-rating of the Motor Module (e.g. p0115[0] = 400 µs -> 375 µs). p0092 = 0: The controller clock cycles are set without any restrictions by the clock synchronous PROFIBUS operation (as for up to version V2.3).		
Dependency:	Refer to: r0110, p0115 Refer to: A01223, A01224		

r0093	CO: Pole position angle electrically normalized / Pole pos el norm		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the normalized electrical pole position angle.		
Dependency:	Refer to: r0094, p0431, r1778		
Notice:	For p1821 = 1 (rotating field reversal), the following applies: In order to adjust the encoder using the EMF method, the value, determined using the oscilloscope, must be inverted and then entered in p0431.		
Note:	For operation with encoder and pulse cancelation, the following applies: - the value is generated from r0094 + 180 °. - this angle can be used to adjust the encoders of synchronous motors. For pulse enable, the following applies: - the value indicates the transformation angle used by the control + 180 °. - this value is, contrary to r0094, also applicable (provides information) for sensorless operation and after a pole position identification routine.		

r0094	CO: Transformation angle / Transformat_angle		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the transformation angle.		
Note:	The transformation angle corresponds to the line supply angle.		

r0094	CO: Transformation angle / Transformat_angle		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [°]	Calculated: - Dynamic index: - Units group: - Max - [°]	Access level: 3 Func. diagram: 1580, 4710, 4715, 6714, 6730 Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Displays the transformation angle.		
Dependency:	Refer to: r0093, p0431, r1778		
Note:	The transformation angle corresponds to the electrical commutation angle. If no pole position identification is carried out (p1982), and the encoder is adjusted, the following applies: The encoder supplies the value and indicates the electrical angle of the flux position (d axis).		
p0097	Select drive object type / Select DO type		
CU_CX32, CU_S	Can be changed: C1(1) Data type: Integer16 P-Group: Topology Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 14	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Executes an automatic device configuration. In so doing, p0099, p0107 and p0108 are appropriately set.		
Values:	0: No selection 1: Drive object type SERVO 2: Drive object type VECTOR 3: SINAMICS GM (DFEMV & VECTORMV) 4: SINAMICS SM (AFEMV & VECTORMV) 5: SINAMICS GL (VECTORGL) 12: Drive object type VECTOR parallel circuit 13: Drive object type VECTORMV - GM parallel circuit 14: Drive object type VECTORMV - SM parallel circuit		
Dependency:	Refer to: r0098, p0099 Refer to: A01330		
Note:	For p0097 = 0, p0099 is automatically set to the factor setting. The setting p0097 = 1 is not possible for chassis-type power units as well as for SINAMICS G or SINAMICS GM. The setting p0097 = 12 is not possible for booksize power units.		
r0098[0...5]	Actual device topology / Device_act topo		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: Topology Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the automatically detected actual device topology in coded form.		
Index:	[0] = DRIVE-CLiQ socket X100 [1] = DRIVE-CLiQ socket X101 [2] = DRIVE-CLiQ socket X102 [3] = DRIVE-CLiQ socket X103 [4] = DRIVE-CLiQ socket X104 [5] = DRIVE-CLiQ socket X105		
Dependency:	Refer to: p0097, p0099		

Note: Topology coding: abcd efgh hex
a = number of Active Line Modules
b = number of Motor Modules
c = number of motors
d = number of encoders (or the line supply voltage sensing for Active Line Modules)
e = number of additional encoders (or the line supply voltage sensing for Active Line Modules)
f = number of Terminal Modules
g = number of terminal boards
h = reserved
if the value 0 is displayed in all indices, then components are not detected via DRIVE-CLiQ.
If a value F hex occurs at a position of the coding (abcd efgh hex), then an overflow has occurred.

p0099[0...5] Device target topology / Device_target topo			
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the device target topology in coded form (refer to r0098). The setting is made during commissioning.		
Index:	[0] = DRIVE-CLiQ socket X100 [1] = DRIVE-CLiQ socket X101 [2] = DRIVE-CLiQ socket X102 [3] = DRIVE-CLiQ socket X103 [4] = DRIVE-CLiQ socket X104 [5] = DRIVE-CLiQ socket X105		
Dependency:	The parameter can only be written into for p0097 = 0. To perform an automatic device configuration run, an index of the device target topology must be set to the value of the device actual topology in r0098 for acknowledgement. An index of the device actual topology with a value other than 0 must be selected. Refer to: p0097, r0098 Refer to: A01330		
Note:	The parameter can only be set to the values 0, the value of the actual device topology, the value of the actual device target topology and FFFFFFFF hex. If the value 0 is displayed in all of the indices, then the system has still not be commissioned. The value FFFFFFFF hex indicates that the topology was not generated by the automatic device configuration but was commissioned using the commissioning software (e.g. using parameter download).		

p0100 IEC/NEMA mot stds / IEC/NEMA mot stds			
SERVO, VECTOR	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: FEM		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Defines whether the motor and drive converter power settings (e.g. rated motor power - p0307) are expressed in [kW] or [hp]. Depending on the selection, the rated motor frequency (p0310) is either set to 50 Hz or 60 Hz. The following applies for IEC drives: The power factor (p0308) should be parameterized. The following applies for NEMA drives: The efficiency (p0309) should be parameterized.		
Values:	0: IEC-Motor (50 Hz, SI units) 1: NEMA motor (60 Hz, US units)		
Dependency:	If p0100 is changed, all of the rated motor parameters are reset. Only then are possible unit changeovers made.		

The units of all motor parameters are changed that are involved in the selection of IEC or NEMA (e.g. r0206, p0307, p0316, r0333, r0334, p0341, p0344, r1493, r1969).

Refer to: r0206, p0210, p0300, p0304, p0305, p0307, p0308, p0309, p0310, p0311, p0312, p0314, p0320, p0322, p0323, p0335, r0336, r0337, p0338, p1800

Note:

The parameter can only be changed for vector control (p0107).

The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).

p0101[0...15] Drive object numbers / DO numbers			
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 62	Factory setting 0
Description:	The parameter contains the object number via which every drive object can be addressed. The number of an existing drive object is entered into each index. The numbers are automatically assigned once and cannot longer be changed as long as the object has not been deleted. In the commissioning software, this object number cannot be entered using the Expert list, but is automatically assigned when inserting an object.		
Index:	[0] = Drive object number, Control Unit [1] = Drive object number, object 1 [2] = Drive object number, object 2 [3] = Drive object number, object 3 [4] = Drive object number, object 4 [5] = Drive object number, object 5 [6] = Drive object number, object 6 [7] = Drive object number, object 7 [8] = Drive object number, object 8 [9] = Drive object number, object 9 [10] = Drive object number, object 10 [11] = Drive object number, object 11 [12] = Drive object number, object 12 [13] = Drive object number, object 13 [14] = Drive object number, object 14 [15] = Drive object number, object 15		
Note:	Value = 0: No drive object is defined.		

r0102[0...1] Number of drive objects / DO count			
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of existing or existing and prepared drive objects.		
Index:	[0] = Existing drive objects [1] = Existing and prepared drive objects		
Dependency:	Refer to: p0101		
Note:	The numbers of the drive objects are in p0101. Index 0: Displays the number of drive objects that have already been set-up. Index 1: Displays the number of drive objects that have already been set-up and, in addition, the drive objects that still have to be set-up.		

p0103[0...15]	Application-specific view / Appl_spec view		
CU_CX32, CU_S	Can be changed: C1(2)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 999	Factory setting 0
Description:	The application-specific view of an existing drive object is entered into each index. The parameter cannot be changed.		
Dependency:	Refer to: p0107, r0107 Refer to: F01051		
Note:	The application-specific views are defined in files on the CompactFlash card with the following structure: PDxxxxyy.ACX xxx: Application-specific view (p0103) yyy: Type of drive object (p0107) Example: PD052011.ACX --> "011" stands for the drive object, type SERVO --> "052" is the number of the view for this drive object		
r0103	Application-specific view / Appl_spec view		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting -
Description:	Displays the application-specific view of the individual drive object.		
Dependency:	Refer to: p0107, r0107 Refer to: F01051		
p0105	Activate/de-activate drive object / DO act/de-act		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Setting to activate/de-activate a drive object.		
Values:	0: De-activate drive object 1: Activate drive object		
Dependency:	Refer to: r0106		
Notice:	The following applies when activating: If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be canceled.		

p0105	Activate/de-activate drive object / DO act/de-act		
A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: T Data type: Integer16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Setting to activate/de-activate a drive object.		
Values:	0: De-activate drive object 1: Activate drive object 2: Drive object, de-activate and not present		
Recommend.:	After inserting all of the components of a drive object, before activating, first wait for Alarm A01316.		
Dependency:	Refer to: r0106 Refer to: A01316		
Caution:	It is not permissible to de-activate drive objects with safety functions enabled.		
Notice:	The following applies when activating: If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be canceled.		
Note:	Setting a drive object to de-activate principally corresponds to the "parking axis" function. however, here, all of the DRIVE-CLiQ components, assigned to the drive object, are involved.		
r0106	Drive object active/inactive / DO act/inact		
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: - Data type: Integer16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting -
Description:	Displays the "active/inactive" state of a drive object.		
Values:	0: Drive object inactive 1: Drive object active		
Dependency:	Refer to: p0105		
p0107[0...15]	Drive object type / DO type		
CU_CX32, CU_S	Can be changed: C1(2) Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 254	Factory setting 0
Description:	The type of an existing drive object is entered into each index.		
Values:	0: - 1: SINAMICS S 2: SINAMICS G 3: SINAMICS I 4: SINAMICS CX32 5: SINAMICS GM 7: SINAMICS GL		

8:	SINAMICS G120
9:	SINAMICS S110
10:	ACTIVE INFEED CONTROL
11:	SERVO
12:	VECTOR
13:	VECTORMV
14:	VECTORGL
15:	VECTORG120
20:	SMART INFEED CONTROL
30:	BASIC INFEED CONTROL
40:	ACTIVE INFEED CONTROLMV
41:	BASIC INFEED CONTROLMV
100:	TB30 (Terminal Board)
150:	DMC (DRIVE-CLiQ Hub Module Cabinet)
200:	TM31 (Terminal Module)
201:	TM41 (Terminal Module)
202:	TM17 High Feature (Terminal Module)
203:	TM15 (Terminal Module)
204:	TM15 (Terminal Module for SINAMICS)
205:	TM54F - Master (Terminal Module)
206:	TM54F - Slave (Terminal Module)
254:	CU-LINK

Index:	[0] = Drive object time Control Unit
	[1] = Drive object type, object 1
	[2] = Drive object type, object 2
	[3] = Drive object type, object 3
	[4] = Drive object type, object 4
	[5] = Drive object type, object 5
	[6] = Drive object type, object 6
	[7] = Drive object type, object 7
	[8] = Drive object type, object 8
	[9] = Drive object type, object 9
	[10] = Drive object type, object 10
	[11] = Drive object type, object 11
	[12] = Drive object type, object 12
	[13] = Drive object type, object 13
	[14] = Drive object type, object 14
	[15] = Drive object type, object 15

Dependency:	Refer to: p0103, r0103
	Refer to: F01051

Caution:	If you change this parameter and exit the device commissioning mode, then the complete software will be set up again and all of the previous drive parameter settings are deleted.
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Note:	The number (p0101) and the associated drive object type are in the same index. For SINAMICS S a drive object type can only be changed between SERVO and VECTOR. If you change the parameter and exit drive start-up (p0009 from 2 to 0) the drive parameters are set up again.
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r0107	Drive object type / DO type		
A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VEC- TOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 254	Factory setting -
Description:	Displays the type of each drive object.		

Values:	0: -
	1: SINAMICS S
	2: SINAMICS G
	3: SINAMICS I
	4: SINAMICS CX32
	5: SINAMICS GM
	7: SINAMICS GL
	8: SINAMICS G120
	9: SINAMICS S110
	10: ACTIVE INFEED CONTROL
	11: SERVO
	12: VECTOR
	13: VECTORMV
	14: VECTORGL
	15: VECTORG120
	20: SMART INFEED CONTROL
	30: BASIC INFEED CONTROL
	40: ACTIVE INFEED CONTROLMV
	41: BASIC INFEED CONTROLMV
	100: TB30 (Terminal Board)
	150: DMC (DRIVE-CLiQ Hub Module Cabinet)
	200: TM31 (Terminal Module)
	201: TM41 (Terminal Module)
	202: TM17 High Feature (Terminal Module)
	203: TM15 (Terminal Module)
	204: TM15 (Terminal Module for SINAMICS)
	205: TM54F - Master (Terminal Module)
	206: TM54F - Slave (Terminal Module)
	254: CU-LINK
Dependency:	Refer to: p0103, r0103
	Refer to: F01051

p0108[0...15] Drive object, function module / DO function module			
CU_S	Can be changed: C1(2)	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0000 bin
Description:	The function module of an existing drive object is entered into each index.		
Index:	[0] = Function module Control Unit [1] = Function module object 1 [2] = Function module object 2 [3] = Function module object 3 [4] = Function module object 4 [5] = Function module object 5 [6] = Function module object 6 [7] = Function module object 7 [8] = Function module object 8 [9] = Function module object 9 [10] = Function module object 10 [11] = Function module object 11 [12] = Function module object 12 [13] = Function module object 13 [14] = Function module object 14 [15] = Function module object 15		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	18	Free function blocks	Activated	Not activated	-
	29	CAN	Activated	Not activated	-
	30	COMM BOARD	Activated	Not activated	-
	31	PROFINET	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

p0108[0...15] Drive object, function module / DO function module

CU_CX32	Can be changed: C1(2)	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: The function module of an existing drive object is entered into each index.

Index:
 [0] = Function module Control Unit
 [1] = Function module object 1
 [2] = Function module object 2
 [3] = Function module object 3
 [4] = Function module object 4
 [5] = Function module object 5
 [6] = Function module object 6
 [7] = Function module object 7
 [8] = Function module object 8
 [9] = Function module object 9
 [10] = Function module object 10
 [11] = Function module object 11
 [12] = Function module object 12
 [13] = Function module object 13
 [14] = Function module object 14
 [15] = Function module object 15

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	18	Free function blocks	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive object, function module / DO function module

A_INF	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	15	Parallel cct. config.	Activated	Not activated	-
	18	Free function blocks	Activated	Not activated	-
	19	Master/Slave	Activated	Not activated	-
	26	Braking Module external	Activated	Not activated	-
	28	Cooling system	Activated	Not activated	-
	31	PROFINET	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108	Drive object, function module / DO function module				
SERVO	Can be changed: -		Calculated: -	Access level: 2	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: -	
	P-Group: Closed-loop control		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	-	
Description:	Displays the activated function module for the particular drive object.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Expanded closed-loop torque control	Activated	Not activated	-
	03	Closed-loop position control	Activated	Not activated	-
	04	Basic positioner	Activated	Not activated	-
	07	Advanced Positioning Control (APC)	Activated	Not activated	-
	08	Extended setpoint channel	Activated	Not activated	-
	12	Linear motor	Activated	Not activated	-
	13	Safety rotary axis	Activated	Not activated	-
	14	Extended brake control	Activated	Not activated	-
	16	Techn controller	Activated	Not activated	-
	17	Extended messages/monitoring	Activated	Not activated	-
	18	Free function blocks	Activated	Not activated	-
	28	Cooling system	Activated	Not activated	-
	29	CAN	Activated	Not activated	-
	31	PROFINET	Activated	Not activated	-
Note:	A "function module" is a functional expansion of a drive object that can be activated when commissioning.				

r0108	Drive object, function module / DO function module			
VECTOR	Can be changed: -		Calculated: -	Access level: 2
	Data type: Unsigned32		Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	-
Description:	Displays the activated function module for the particular drive object.			
Bit field:	Bit	Signal name	1 signal	0 signal
	02	Closed-loop speed/torque control	Activated	Not activated
	03	Closed-loop position control	Activated	Not activated
	04	Basic positioner	Activated	Not activated
	13	Safety rotary axis	Activated	Not activated
	14	Extended brake control	Activated	Not activated
	15	Parallel cct. config.	Activated	Not activated
	16	Technology controller	Activated	Not activated
	17	Extended messages/monitoring	Activated	Not activated
	18	Free function blocks	Activated	Not activated
	28	Cooling system	Activated	Not activated
	29	CAN	Activated	Not activated
	31	PROFINET	Activated	Not activated
Note:	A "function module" is a functional expansion of a drive object that can be activated when commissioning.			

r0108 Drive object, function module / DO function module

B_INF, S_INF	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	15	Parallel cct. config.	Activated	Not activated	-
	18	Free function blocks	Activated	Not activated	-
	26	Braking Module external	Activated	Not activated	-
	28	Cooling system	Activated	Not activated	-
	31	PROFINET	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive object, function module / DO function module

TB30, TM15DI_DO, TM31, TM41	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	18	Free function blocks	Activated	Not activated	-
	31	PROFINET	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0110[0...2] Basis sampling times / t_basis

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00 [μs]	10000.00 [μs]	- [μs]

Description: Displays the basis sampling times.

The sampling times are set using p0112 and p0115. The values for the basis sampling times are determined as a result of these settings.

Index:
 [0] = Basis sampling time 0
 [1] = Basis sampling time 1
 [2] = Basis sampling time 2

r0111 Basis sampling time selection / t_basis sel

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, DMC20,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41, VEC-
TOR

Can be changed: -**Data type:** Integer16**P-Group:** Closed-loop control**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**
0**Max**
2**Factory setting**
-**Description:** Displays the selected basis sampling time for this drive object.**Dependency:** Refer to: r0110**p0112 Sampling times pre-setting p0115 / t_sample for p0115**

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: C1(3)**Data type:** Integer16**P-Group:** Closed-loop control**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**
0**Max**
5**Factory setting**
3**Description:**

Pre-assignment of the sampling times in p0115.

The clock cycles for the current controller / speed controller / flux controller / setpoint channel / position controller / positioning / technology controller are pre-assigned as follows:

SINAMICS S, servo drive:

p0112 = 1: 250 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs (for chassis drive units)

p0112 = 2: 125 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs

p0112 = 3: 125 / 125 / 125 / 4000 / 1000 / 4000 / 4000 µs

p0112 = 4: 62.5 / 62.5 / 62.5 / 1000 / 1000 / 2000 / 1000 µs

p0112 = 5: Not possible

SINAMICS S, Active Infeed (p0112 = 1 not for p0092 = 1):

p0112 = 1: 400 / - / - / 1600 µs

p0112 = 2: 250 / - / - / 2000 µs

p0112 = 3: 125 / - / - / 2000 µs

p0112 = 4: 125 / - / - / 1000 µs

p0112 = 5: 125 / - / - / 500 µs

SINAMICS S, Smart Infeed (p0112 = 1 not for p0092 = 1):

p0112 = 1: 400 / - / - / 1600 µs

p0112 = 2: 250 / - / - / 2000 µs

p0112 = 3: 250 / - / - / 2000 µs

p0112 = 4: 250 / - / - / 1000 µs

p0112 = 5: Not possible

SINAMICS S, Basic Infeed, booksize:

p0112 = 4: 250 / - / - / 2000 µs

SINAMICS S, Basic Infeed, chassis:

p0112 = 1: 2000 / - / - / 2000 µs

p0112 = 2: 2000 / - / - / 2000 µs

p0112 = 3: 2000 / - / - / 2000 µs

p0112 = 4: Not possible

p0112 = 5: Not possible

SINAMICS S/G, vector drive (p0112 = 1 not for p0092 = 1 and not for PM340):

p0112 = 1: 400 / 1600 / 1600 / 1600 / 3200 / 3200 / 3200 µs (for a rated pulse frequency of 1.25 / 2.5 kHz)

p0112 = 2: 250 / 1000 / 2000 / 1000 / 2000 / 4000 / 4000 µs

p0112 = 3: 250 / 1000 / 1000 / 1000 / 2000 / 4000 / 4000 µs (for a rated pulse frequency of 2 / 4 kHz)

SINAMICS S, vector drive:

p0112 = 4: 250 / 500 / 1000 / 500 / 1000 / 2000 / 2000 µs

p0112 = 5: 250 / 250 / 1000 / 250 / 1000 / 2000 / 1000 µs

Values:

0:	Expert
1:	xLow
2:	Low
3:	Standard
4:	High
5:	xHigh

Recommend.: When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.

Dependency: It is prohibited to select a parameter value from p0112 if the associated current controller clock cycle cannot set (e.g. p0112 = 1 is not possible for a vector drive and PM340 power unit).

Refer to: p0092

Note: For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted.
p0112 = 1 cannot be set for a power unit type PM340 (refer to r0203) for vector drives.

p0113 Pulse frequency, minimum selection / F_puls min sel

SERVO	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2.000 [kHz]	Max 4.000 [kHz]	Factory setting 4.000 [kHz]

Description: The current controller sampling time (p0115[0]) is pre-assigned by selecting the minimum pulse frequency.

Dependency: The parameter can only be changed with p0112 = 0 (expert).

The required pulse frequency can be set in p1800 after commissioning (p0009 = p0010 = 0).

Refer to: p0112, r0114, p0115, p1800

Note: The current controller sampling time (p0115[0]) is set to the inverse value of twice the minimum pulse frequency.
For p0113 = 2.0 kHz, p0115[0] = 250 µs is set, for p0113 = 4.0 kHz, p0115[0] = 125 µs is set. The current controller sampling time (p0115[0]), calculated from the pulse frequency, is set in a grid of 1.25 µs.
For a power unit type PM340 (refer to r0203), only the values 2.0 and 4.0 kHz can be set.

p0113 Pulse frequency, minimum selection / F_puls min sel

VECTOR	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.000 [kHz]	Max 2.000 [kHz]	Factory setting 2.000 [kHz]

Description: The current controller sampling time (p0115[0]) is pre-assigned by selecting the minimum pulse frequency.

Dependency: The parameter can only be changed with p0112 = 0 (expert).

The required pulse frequency can be set in p1800 after commissioning (p0009 = p0010 = 0).

Refer to: p0112, r0114, p0115, p1800

Note: The current controller sampling time (p0115[0]) is set to the inverse value of twice the minimum pulse frequency.
For p0113 = 1.0 kHz, p0115[0] = 500 µs is set, for p0113 = 2.0 kHz, p0115[0] = 250 µs is set. The current controller sampling time (p0115[0]), calculated from the pulse frequency, is set in a grid of 1.25 µs.
For a power unit type PM340 (refer to r0203), only the values 1.0 and 2.0 kHz can be set. 1.0 kHz can be set in order to achieve a current controller clock cycle of 500µs. However, in this case, the minimum pulse frequency p1800 is limited to 2 kHz.

r0114[0...9] Pulse frequency, minimum recommended / F_puls min recom			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [kHz]	Max - [kHz]	Factory setting - [kHz]
Description:	Displays the recommended values (indices 0 and 1) for the minimum pulse frequency (p0113). If the system rejects a change to p0113 because the value to be used lies outside the permitted value range, then instead, the recommended value from r0114 can be used.		
Index:	[0] = If only the actual drive is changed [1] = If all drives connected to the DRIVE-CLiQ line are changed [2] = 2. possible pulse frequency [3] = 3. possible pulse frequency [4] = 4. possible pulse frequency [5] = 5. possible pulse frequency [6] = 6. possible pulse frequency [7] = 7. possible pulse frequency [8] = 8. possible pulse frequency [9] = 9. possible pulse frequency		
Dependency:	Refer to: p0113		
Note:	After exiting commissioning (p0009 = p0010 = 0), the pulse frequencies calculated from the sampling time p115[0] are displayed in indices 1 to 9. If additional restrictions do not apply (e.g. due to having selected an output filter), these can be entered into p1800. The maximum pulse frequency of the power units was already taken into account in r0114. A value of 0 kHz does not define a recommended pulse frequency.		

p0115[0...0] Sampling time for supplementary functions / t_sample suppl fct			
CU_CX32, CU_S	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [μs]	Max 16000.00 [μs]	Factory setting 4000.00 [μs]
Description:	Sets the basis sampling time for supplementary functions on this object.		
Index:	[0] = Basis sampl. time		

p0115[0...0] Sampling time for supplementary functions / t_sample suppl fct			
TB30, TM15DI_DO, TM31	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [μs]	Max 16000.00 [μs]	Factory setting 4000.00 [μs]
Description:	Sets the sampling times for supplementary functions on this object.		
Index:	[0] = Basis sampl. time		
Note:	This parameter only applies for setting the sampling times of possible supplementary functions. A setting of the sampling times of the inputs/outputs must be set in P4099.		

p0115[0...0]	Sampling time for supplementary functions / t_sample suppl fct		
TM41	Can be changed: C1(3) Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0.00 [µs]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 16000.00 [µs]
			Factory setting 4000.00 [µs]
Description:	Sets the sampling times for supplementary functions on this object.		
Index:	[0] = Basis sampl. time		
Note:	This parameter only applies for setting the sampling times of possible supplementary functions. A setting of the sampling times of the inputs/outputs or the encoder emulation must be set in P4099.		
p0115[0...6]	Sampling times for internal control loops / t_sample int ctrl		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: C1(3) Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0.00 [µs]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 16000.00 [µs]
			Factory setting [0] 125.00 [µs] [1] 125.00 [µs] [2] 125.00 [µs] [3] 4000.00 [µs] [4] 1000.00 [µs] [5] 4000.00 [µs] [6] 4000.00 [µs]
Description:	Sets the sampling times for the control loops. The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).		
Recommend.:	When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.		
Index:	[0] = Current controller [1] = Speed controller [2] = Flux controller [3] = Setpoint channel [4] = Pos controller [5] = Positioning [6] = Technology controller		
Dependency:	The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms. Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. p0115[1] = N * p0115[0]; where N is a whole number). The sampling time of the speed controller p0115[1] can have as a maximum a value of 800% of the current controller sampling time p0115[0]. For servo drives, the maximum sampling time of the current controller is 250 µs and for vector drives, 500 µs. Refer to: r0110, r0111, p0112		
Note:	For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned. For the Active Line Module (ALM) and Smart Line Module (SLM), the current and DC link voltage controllers operate with the same sampling time. For ALM/SLM the maximum current controller clock cycle is 400 µs. For the Basic Line Module (BLM), the DC link voltage measurement operates in the current controller sampling time. For BLM booksize, only the current controller sampling time of 250µs is permitted. For BLM chassis, only the current controller sampling time of 2000µs is permitted.		

For a power unit type PM340 (refer to r0203), only current controller sampling times of 62.5 µs, 125 µs, 250µs and 500µs can be set. The minimum current controller clock cycle for vector drives and the maximum current controller clock cycle for servodrives is 250 µs.

p0115[0...6] Sampling times for internal control loops / t_sample int ctrl			
SERVO (Lin)	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 16000.00 [µs]	Factory setting [0] 125.00 [µs] [1] 125.00 [µs] [2] 125.00 [µs] [3] 4000.00 [µs] [4] 1000.00 [µs] [5] 4000.00 [µs] [6] 4000.00 [µs]
Description:	Sets the sampling times for the control loops. The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).		
Recommend.:	When changing the sampling times of the current and velocity controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.		
Index:	[0] = Current controller [1] = Velocity controller [2] = Flux controller [3] = Setpoint channel [4] = Pos controller [5] = Positioning [6] = Technology controller		
Dependency:	The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms. Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. p0115[1] = N * p0115[0]; where N is a whole number). The sampling time of the velocity controller p0115[1] can have as a maximum a value of 800% of the current controller sampling time p0115[0]. For servo drives, the maximum sampling time of the current controller is 250 µs and for vector drives, 500 µs. Refer to: r0110, r0111, p0112		
Note:	For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned. For the Active Line Module (ALM) and Smart Line Module (SLM), the current and DC link voltage controllers operate with the same sampling time. For ALM/SLM the maximum current controller clock cycle is 400 µs. For the Basic Line Module (BLM), the DC link voltage measurement operates in the current controller sampling time. For BLM booksize, only the current controller sampling time of 250µs is permitted. For BLM chassis, only the current controller sampling time of 2000µs is permitted. For a power unit type PM340 (refer to r0203), only current controller sampling times of 62.5 µs, 125 µs, 250µs and 500µs can be set. The minimum current controller clock cycle for vector drives and the maximum current controller clock cycle for servodrives is 250 µs.		

r0116[0...1] Drive object clock cycle recommended / DO_clock recom

A_INF, B_INF,
CU_CX32, CU_S,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41, VEC-
TOR

Can be changed: -**Data type:** Floating Point**P-Group:** Closed-loop control**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**

- [µs]

Max

- [µs]

Factory setting

- [µs]

Description:

Displays the recommended sampling time for the drive objects.

r00116[0] = recommended sampling time:

Recommended value which would then make the complete system operational.

r00116[1] = recommended sampling time:

Recommended value, which after changing other clock cycles on the DRIVE-CLiQ line, would result in an operational system.

Index:

[0] = Change, only for the actual drive object

[1] = Changing all objects on the DRIVE-CLiQ line

Dependency:

Refer to: p0115

p0117 Current controller computation dead time mode / I_ctrl t_dead mode

CU_CX32, CU_S

Can be changed: U, T**Data type:** Integer16**P-Group:** Closed-loop control**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 4**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**

0

Max

6

Factory setting

6

Description:

Sets the mode for the computation dead time of the current controller.

0: Offset (shifted) clocking, minimum computation dead time of each drive, automatic setting

1: Clocking at the same time, the dead time aligns itself to the dead time of the latest drive, automatic setting

2: Manual setting of the computation dead time, early transfer

3: Manual setting of the computation dead time, late transfer

4-6: As for 0-2, however, no early transfers are set for vectors

Dependency:

Refer to: p0118

Refer to: A02100

Note:

Re p0117 = 0:

The times when the setpoints become effective for the individual controls is automatically and individually determined. Another computation dead time is set for each control (closed-loop) (p0118). Current is impressed for the individual controls without any offset with respect to time (improved EMC compatibility).

Re p0117 = 1:

The latest closed-loop control determines when the setpoints for each of the individual controls become active. The same computation dead time is set for each control (p0118). Current is impressed (flows) for the individual controls without any offset with respect to time.

Re p0117 = 2:

The computation dead time is manually set. The user must optimize the value in p0118.

Re p0117 = 3:

Only for internal Siemens use.

Re p0117 = 4 - 6:

Behavior as for p0117 = 0 - 2, however for vectors, the earliest times are not determined.

The modified computation dead time mode is not effective until the drive unit is powered-up again.

p0118	Current controller computation dead time / I_ctrl t_dead		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [μs]	Max 2000.00 [μs]	Factory setting 0.00 [μs]
Description:	This parameter is preset as a function of the current controller sampling time (p0115[0]) and normally does not have to be changed.		
Dependency:	Refer to: p0117 Refer to: A02100		
Note:	For p0118 ≤ 0.005 μs, the current controller output is delayed by a complete current controller clock cycle (p0115[0]). After p0118 has been changed, we recommend that the current controller is adapted (p1715).		
p0120	Number of Power unit Data Sets (PDS) / PDS count		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 8	Factory setting 1
Description:	Sets the number of Power unit Data Sets (PDS). The value corresponds to the number of power units connected together for a parallel circuit configuration.		
Dependency:	Refer to: p0107, r0107		
Note:	This parameter is only significant for drive objects A_INFEED and VECTOR with a parallel circuit configuration.		
p0121[0...n]	Power unit component number / PU comp_no		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 199	Factory setting 0
Description:	The power unit data set is assigned to a power unit using this parameter. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a power unit.		
Dependency:	Refer to: p0107, r0107		
Note:	For parallel circuit configurations, the parameter index is assigned to a power unit.		
p0124[0...15]	Detection of main components using LED / Detection LED		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned8 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Detects the main components of the drive object selected via the index.		

p0124[0...n]	Power unit detection via LED / PU detection LED		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T Data type: Unsigned8 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Detects the power unit assigned to this drive and data set.		
Note:	While p0124 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate power unit. For parallel circuit configurations, the parameter index is assigned to a power unit.		
p0125[0...n]	Activate/de-activate power unit components / PU_comp act/de-act		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: C1(4), T Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Setting to activate/de-activate a power unit component.		
Values:	0: De-activate component 1: Activate component 2: Component, de-activate and not present		
Recommend.:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	Refer to: r0126 Refer to: A01317		
Caution:	It is not permissible to de-activate drive objects with safety functions enabled.		
Note:	The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited. For units connected in parallel, when one of the power units is deactivated, then the enable in p7001 is withdrawn.		
r0126[0...n]	Power unit components active/inactive / PU comp act/inact		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the "active/inactive" state of a power unit component.		
Values:	0: Component inactive 1: Component active		
Dependency:	Refer to: p0105, p0125, p0897		
r0127[0...n]	Power unit version EPROM data / PU EPROM version		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the version of the EPROM data of the power unit.		
Dependency:	Refer to: r0147, r0157		

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

r0128[0...n]	Power unit, firmware version / PU FW version		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the firmware version of the power unit.		
Dependency:	Refer to: r0018, r0148, r0158, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00. For parallel circuit configurations, the parameter index is assigned to a power unit.		

p0130	Number of Motor Data Sets (MDS) / MDS count		
SERVO, VECTOR	Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min 1	Max 16	Factory setting 1
Description:	Sets the number of Motor Data Sets (MDS).		

p0131[0...n]	Motor component number / Mot comp_no		
SERVO, VECTOR	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 199	Factory setting 0
Description:	The motor data set is assigned to a motor using this parameter. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a motor.		

p0139[0...2]	Copy Motor Data Set MDS / Copy MDS		
SERVO, VECTOR	Can be changed: C2(15) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min 0	Max 31	Factory setting 0
Description:	Copying a Motor Data Set (MDS) into another.		
Index:	[0] = Source motor data set [1] = Target motor data set [2] = Start copying		
Note:	Procedure: 1. In Index 0, enter which motor data set should be copied. 2. In Index 1, enter the motor data set data that is to be copied into. 3. Start copying: Set index 2 from 0 to 1. p0139[2] is automatically set to 0 when copying is completed.		

When copying, p0131 is not taken into account.

p0140	Number of Encoder Data Sets (EDS) / EDS count		
SERVO, VECTOR	Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the number of Encoder Data Sets (EDS).		
Note:	When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).		
p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no		
SERVO, VECTOR	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 4 Func. diagram: 4704, 8570 Unit selection: - Expert list: 1 Factory setting 0
Description:	This parameter is used to assign the encoder data set to an encoder evaluation (e.g. SMC). This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an encoder evaluation.		
Note:	If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical. For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).		
p0142[0...n]	Encoder component number / Encoder comp_no		
SERVO, VECTOR	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 4 Func. diagram: 4704 Unit selection: - Expert list: 1 Factory setting 0
Description:	This parameter is used to assign the encoder data set to an encoder. This assignment is made using the unique component number that was assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an encoder.		
Note:	If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical. For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).		
p0144[0...n]	Voltage sensing module detection via LED / VSM detection LED		
A_INF, S_INF	Can be changed: U, T Data type: Unsigned8 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Detects the Voltage Sensing Module (VSM) module assigned to this infeed.		

p0144[0...n]	Sensor Module detection via LED / SM detection LED		
SERVO, VECTOR	Can be changed: U, T Data type: Unsigned8 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Detects the Sensor Module assigned to this drive and data set.		
Note:	While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Sensor Module.		
p0145[0...n]	Voltage Sensing Module, activate/de-activate / VSM act/deact		
A_INF, S_INF	Can be changed: C1(4), T Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Setting to activate/de-activate a Voltage Sensing Module (VSM).		
Values:	0: De-activate component 1: Activate component 2: Component, de-activate and not present		
Recommend.:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	Refer to: r0146 Refer to: A01317		
Note:	For chassis infeeds, it is not possible to activate/de-activate the Voltage Sensing Module (VSM) via p0145. The VSM can only be activated/de-activated in the group with the appropriate infeed via p0125[0...n]. The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.		
p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact		
SERVO, VECTOR	Can be changed: C1(4), U, T Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Setting to activate/de-activate an encoder interface (Sensor Module).		
Values:	0: De-activate component 1: Activate component 2: Component, de-activate and not present		
Recommend.:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	Refer to: r0146 Refer to: A01317		
Note:	The de-activation of an encoder interface corresponds to the "parking encoder" function and has the same effect. The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.		

r0146[0...n]	Voltage Sensing Module, active/inactive / VSM act/inact		
A_INF, S_INF	Can be changed: - Data type: Integer16 P-Group: Data sets Not for motor type: - Min 0	Calculated: - Dynamic index: p0140 Units group: - Max 1	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the "active" or "inactive" state of a Voltage Sensing Module (VSM).		
Values:	0: Component inactive 1: Component active		
Dependency:	Refer to: p0105, p0145		
r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact		
SERVO, VECTOR	Can be changed: - Data type: Integer16 P-Group: Data sets Not for motor type: - Min 0	Calculated: - Dynamic index: EDS, p0140 Units group: - Max 1	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the "active" or "inactive" state of an encoder interface (Sensor Module).		
Values:	0: Component inactive 1: Component active		
Dependency:	Refer to: p0105, p0145, p0480, p0897		
r0147[0...n]	Voltage sensing module, EPROM data version / VSM EEPROM version		
A_INF, S_INF	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: p0140 Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the version of the EPROM data of the Voltage Sensing Module (VSM).		
r0147[0...n]	Sensor Module EPROM data version / SM EEPROM version		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: EDS, p0140 Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the version of the EPROM data of the Sensor Module.		
Dependency:	Refer to: r0127, r0157		

r0148[0...n]	Voltage Sensing Module firmware version / VSM FW version		
A_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the firmware version of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: r0018, r0128, r0158, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0148[0...n]	Sensor Module firmware version / SM FW version		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the firmware version of the Sensor Module.		
Dependency:	Refer to: r0018, r0128, r0158, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

p0150	Number of VSM data sets / VSM count		
VECTOR	Can be changed: C1(3)	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	2	1
Description:	Sets the number of VSM data sets		

p0151[0...n]	Voltage Sensing Module component number / VSM comp_no		
VECTOR	Can be changed: C1(4)	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: p0150	Func. diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	199	0
Description:	The VSM data set is assigned to a VSM evaluation using this parameter.		

p0151[0...1]	DRIVE-CLiQ Hub component number / Hub comp_no		
DMC20	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Using this parameter, the data set is assigned to a DRIVE-CLiQ Hub Module Cabinet (DMC). This unique component number is assigned when parameterizing the topology. Only component numbers of components that operate as hub can be entered into this parameter. This parameter has two indices, because there are two DRIVE-CLiQ nodes in the DMC20. [0] = 1. DRIVE-CLiQ node [1] = 2. DRIVE-CLiQ node		
p0151	Terminal Module component number / TM comp_no		
TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: 9550, 9552 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the component number for the Terminal Module. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a Terminal Module.		
p0154	DRIVE-CLiQ Hub detection via LED / Hub detection LED		
DMC20	Can be changed: U, T Data type: Unsigned8 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Detecting any assigned DRIVE-CLiQ Hub Module Cabinet (DMC).		
p0154	Terminal Module detection via LED / TM detection LED		
TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned8 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Detects the Terminal Module assigned to this drive and data set.		
Note:	While p0154 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Terminal Module.		

p0155[0...n]	Voltage Sensing Module, activate/de-activate / VSM act/deact		
VECTOR	Can be changed: C1(4), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: p0150	Func. diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Setting to activate/de-activate a Voltage Sensing Module (VSM).		
Values:	0: De-activate component 1: Activate component 2: Component, de-activate and not present		
Recommend.:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	Refer to: r0156 Refer to: A01317		

r0156[0...n]	Voltage Sensing Module, active/inactive / VSM act/inact		
VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: p0150	Func. diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting -
Description:	Displays the "active" or "inactive" state of a Voltage Sensing Module (VSM).		
Values:	0: Component inactive 1: Component active		
Dependency:	Refer to: p0155		

r0157[0...n]	Voltage sensing module, EPROM data version / VSM EPROM version		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: p0150	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the Voltage Sensing Module (VSM).		

r0157	DRIVE-CLiQ Hub EPROM data version / Hub EPROM version		
DMC20	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the DRIVE-CLiQ Hub Module Cabinet (DMC).		

r0157	Terminal Module EPROM data version / TM EPROM version		
TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned32 P-Group: Terminals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the version of the EPROM data of the Terminal Module.		
Dependency:	Refer to: r0127, r0147		

r0158[0...n]	Voltage Sensing Module firmware version / VSM FW version		
VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: p0150 Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the firmware version of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: r0018, r0128, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0158	DRIVE-CLiQ Hub, firmware version / Hub FW version		
DMC20	Can be changed: - Data type: Unsigned32 P-Group: Terminals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the firmware version of the DRIVE-CLiQ Hub Module Cabinet (DMC).		

r0158	Terminal Module Firmware Version / TM FW version		
TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned32 P-Group: Terminals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the firmware version of the Terminal Module.		
Dependency:	Refer to: r0018, r0128, r0148, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

p0161	Option board, component number / OptBoard comp_no		
TB30	Can be changed: C1(4)	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 9100
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 199	Factory setting 0
Description:	Sets the component number for the option board (e.g. terminal board 30). This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an option board.		
p0162	CU-Link slave component number / CX32 comp_no		
CU_LINK	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 199	Factory setting 0
p0170	Number of Command Data Sets (CDS) / CDS count		
A_INF, B_INF, S_INF, TM41	Can be changed: C1(3)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 1	Factory setting 1
Description:	Sets the number of Command Data Sets (CDS).		
Note:	It is possible to toggle between command parameters (BICO parameters) using this data set changeover.		
p0170	Number of Command Data Sets (CDS) / CDS count		
SERVO	Can be changed: C1(3)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the number of Command Data Sets (CDS).		
Note:	It is possible to toggle between command parameters (BICO parameters) using this data set changeover.		
p0170	Number of Command Data Sets (CDS) / CDS count		
VECTOR	Can be changed: C1(3)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2	Max 4	Factory setting 2
Description:	Sets the number of Command Data Sets (CDS).		
Note:	It is possible to toggle between command parameters (BICO parameters) using this data set changeover.		

p0180 Number of Drive Data Sets (DDS) / DDS count

SERVO, TM41, VECTOR

Can be changed: C1(3)**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** 8565**P-Group:** Data sets**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**
1**Max**
32**Factory setting**
1**Description:** Sets the number of Drive Data Sets (DDS).**p0186[0...n] Motor Data Sets (MDS) number / MDS number**

SERVO, VECTOR

Can be changed: C1(4)**Calculated:** -**Access level:** 3**Data type:** Unsigned8**Dynamic index:** DDS, p0180**Func. diagram:** 8575**P-Group:** Data sets**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**
0**Max**
15**Factory setting**
0**Description:** Using the parameter, each Drive Data Set (= index) is assigned the associated Motor Data Set (MDS).
The parameter value therefore corresponds to the number of the assigned motor data set.**p0187[0...n] Encoder 1 encoder data set number / Enc 1 EDS number**

SERVO, VECTOR

Can be changed: C1(4)**Calculated:** -**Access level:** 3**Data type:** Unsigned8**Dynamic index:** DDS, p0180**Func. diagram:** 1580, 8570**P-Group:** Data sets**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**
0**Max**
99**Factory setting**
99**Description:** Using the parameter, each Drive Data Set (= index) is assigned the associated Encoder Data Set (EDS) for encoder 1.

The parameter value therefore corresponds to the number of the assigned encoder data set.

Example:

Encoder data set 0 should be assigned to encoder 1 in drive data set 2.

--> p0187[2] = 0

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).**p0188[0...n] Encoder 2 encoder data set number / Enc 2 EDS number**

SERVO, VECTOR

Can be changed: C1(4)**Calculated:** -**Access level:** 3**Data type:** Unsigned8**Dynamic index:** DDS, p0180**Func. diagram:** 1580, 8570**P-Group:** Data sets**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**
0**Max**
99**Factory setting**
99**Description:** Using the parameter, each Drive Data Set (= index) is assigned the associated Encoder Data Set (EDS) for encoder 2.

The parameter value therefore corresponds to the number of the assigned encoder data set.

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).

p0189[0...n] Encoder 3 encoder data set number / Enc 3 EDS number

SERVO, VECTOR	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	Func. diagram: 1580, 8570
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 99	Factory setting 99

Description: Using the parameter, each Drive Data Set (= index) is assigned the associated Encoder Data Set (EDS) for encoder 3.

The parameter value therefore corresponds to the number of the assigned encoder data set.

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).

r0192 Power unit firmware properties / PU FW property

A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the properties supported by the power unit firmware.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Edge modulation possible	Yes	No	-
	01	Free telegram can be selected	Yes	No	-
	02	Smart mode possible for Active Line Module	Yes	No	-
	03	Safety Integrated possible for VECTOR	Yes	No	-
	06	Liquid cooling	Yes	No	-
	07	SERVO pulse frequency changeover, DDS-dependent	Yes	No	-
	08	Simulation operation possible	Yes	No	-
	09	Internal armature short-circuit possible	Yes	No	-
	10	Autonomous internal armature short-circuit possible	Yes	No	-
	11	Infeed temperature inputs X21:1, X21:2	Yes	No	-
	12	Integral normalized to half the gating unit clock cycle freq.	Yes	No	-
	13	Preparation thermal drive converter current limit	Yes	No	-

Notice: This information represents the characteristics/features of the power unit firmware. It does not provide information/data about the characteristics/features of the hardware (e.g. bit 06 = 1 means that although the firmware supports "liquid cooling", a power unit with liquid cooling does not have to be used).

Note: Re bit 09:
The Motor Module supports the internal armature short-circuit. The function is internally required for voltage protection (p1231 = 3).
Re bit 10:
The Motor Module supports the autonomous internal voltage protection. If the voltage protection function is internally activated (p1231 = 3) the Motor Module decides autonomously - using the DC link voltage - as to whether the short-circuit is activated.

r0194[0...n] VSM properties / VSM properties

A_INF, S_INF, VEC-TOR

Can be changed: -**Data type:** Unsigned32**P-Group:** Encoder**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** p0140**Units group:** -**Max**

-

Access level: 4**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

-

Description:

Displays the properties supported by the Voltage Sensing Module (VSM).

Bit field:**Bit** **Signal name**

00 Reserved

1 signal

Yes

0 signal

No

FP

-

r0197 Loader 1 version / Loader 1 version

CU_CX32, CU_S

Can be changed: -**Data type:** Unsigned32**P-Group:** Closed-loop control**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 1**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

-

Description:

Displays the version of loader 1 (first level loader).

Dependency:

Refer to: r0018, r0128, r0148, r0158, r0198

Note:

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0198 Loader 2 version / Loader 2 version

CU_CX32, CU_S

Can be changed: -**Data type:** Unsigned32**P-Group:** Closed-loop control**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

-

Description:

Displays the version of loader 2 (second level loader).

Dependency:

Refer to: r0018, r0128, r0148, r0158, r0197

Note:

Example:

The value 1010100 should be interpreted as V01.01.01.00.

p0199[0...24] Drive object name / DO name

All objects

Can be changed: C1**Data type:** Unsigned16**P-Group:** -**Not for motor type:** -**Min**

0

Calculated: -**Dynamic index:** -**Units group:** -**Max**

65535

Access level: 2**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

0

Description:

Freely assignable name for a drive object.

In the commissioning software, this name cannot be entered using the expert list, but is specified in the configuration assistant. The object name can be subsequently modified in the Project Navigator using standard Windows resources.

r0200[0...n]	Power unit, actual code number / PU code no. actual		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: - Min -	Calculated: - Dynamic index: PDS, p0120 Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the unique code number of the power unit.		
Note:	r0200 = 0: No power unit found For parallel circuit configurations, the parameter index is assigned to a power unit.		
p0201[0...n]	Power unit code number / PU code number		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: C2(2) Data type: Unsigned16 P-Group: Converter Not for motor type: - Min 0	Calculated: - Dynamic index: PDS, p0120 Units group: - Max 65535	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the actual code number from r0200 to acknowledge the power unit being used. When commissioned for the first time, the code number is automatically transferred from r0200 into p0201.		
Note:	The parameter is used to identify when the drive is being commissioned for the first time. The power unit commissioning can only be exited (p0201 = r0200), if the actual and acknowledged code numbers are identical (p0010 = 2). For parallel circuit configurations, the parameter index is assigned to a power unit.		
r0203[0...15]	CompactFlash card name / CF name		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the name of the CompactFlash card in the ASCII code. r0203[0]: Name character 1 ... r0203[15]: Name character 16 For the commissioning software, the ASCII characters are displayed uncoded.		
Notice:	An ASCII table (excerpt) can be found, for example, in the following List Manual:		
r0203[0...n]	Actual power unit type / PU actual type		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Integer16 P-Group: Converter Not for motor type: - Min 2	Calculated: - Dynamic index: PDS, p0120 Units group: - Max 300	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the type of power unit found.		
Values:	2: MICROMASTER 440 3: MICROMASTER 411 4: MICROMASTER 410 5: MICROMASTER 436		

6: MICROMASTER 440 PX
 7: MICROMASTER 430
 100: SINAMICS S
 101: SINAMICS S
 120: PM340 (SINAMICS S120)
 150: SINAMICS G
 200: SINAMICS GM
 250: SINAMICS SM
 300: SINAMICS GL

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

r0204[0...n] Power unit hardware properties / PU HW property

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** PDS, p0120 **Func. diagram:** -
P-Group: Converter **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Displays the properties supported by the power unit hardware.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Device type	DC/AC device	AC/AC device	-
	01	RFI filter available	Yes	No	-
	02	Active Line Module available	Yes	No	-
	03	Smart Line Module available	Yes	No	-
	04	Basic Line Module available with thyristor bridge	Yes	No	-
	05	Basic Line Module available with diode bridge	Yes	No	-
	06	Liquid cooling	Yes	No	-
	08	Internal Braking Module	Yes	No	-
	09	Different cooling type supported	Yes	No	-
	12	Safe Brake Control (SBC) supported	No	Yes	-

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

p0205 Power unit application / PU application

VECTOR

Can be changed: C2(1) **Calculated:** - **Access level:** 2
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: Converter **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1


Min **Max** **Factory setting**
 0 7 6

Description: Overloading the load duty cycles applies under the prerequisite that before and after the overload, the drive converter is operated with its base load current - in this case, a load duty cycle of 300 s is used as basis.
 For booksize drive units, the following applies:
 Only the setting p0205 = 0 can be selected. In this particular case, the base load current has a load duty cycle of 150 % for 60 s and 176 % for 30 s.
 For chassis drive units, the following applies:
 The base load current for a slight overload condition is based on a load duty cycle 110 % for 60 s and 150 % for 10 s.
 The base load current for a high overload condition is based on a load duty cycle 150 % for 60 s and 160 % for 10 s.

Values:
 0: Load duty cycle with high overload for vector drives
 1: Load duty cycle with low overload for vector drives
 6: S1 duty cycle for servo drives (feed drive)
 7: S6 duty cycle for servo drives (spindle drive)

Note: When the parameter is changed, all of the motor parameters and the control mode are pre-assigned according to the selected application. The parameter has not influence when calculating the thermal overload.
p0205 can only be changed to the settings that are saved in the power unit EEPROM.
Its value is not reset when factory values are restored (see p0010 = 30, p0970).

r0206[0...4]	Rated power unit power / PU P_{rated}		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: 14_6	Access level: 2 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]
Description:	Displays the rated power unit power for various load duty cycles.		
Index:	[0] = Rating plate [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 continuous duty cycle [4] = S6 load duty cycle		
Dependency:	The value is displayed in [kW] or [hp]. Refer to: p0100, p0205		
r0207[0...4]	Rated power unit current / PU PI_{rated}		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8014 Unit selection: - Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the rated power unit power for various load duty cycles.		
Index:	[0] = Rating plate [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 continuous duty cycle [4] = S6 load duty cycle		
Dependency:	Refer to: p0205		
r0208	Rated power unit line supply voltage / PU V_{rated}		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the rated line supply voltage of the power unit. r0208 = 400: 380 - 480 V +/-10 % r0208 = 500: 500 - 600 V +/-10 % r0208 = 690: 660 - 690 V +/-10 % For the Basic Line Module (BLM) the following applies: r0208 = 690 : 500 - 690 V +/-10 %		

p0209[0...4]	Power unit, maximum current / PU I_{max}		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8750, 8850, 8950
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum output current of the power unit.		
Index:	[0] = Catalog [1] = Load duty cycle with high overload [2] = Load duty cycle with low overload [3] = S1 load duty cycle [4] = S6 load duty cycle		
Dependency:	Refer to: p0205		
p0210	Drive unit line supply voltage / Supply voltage		
A_INF, S_INF	Can be changed: C2(1)	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8750, 8960
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 100 [Vrms]	Max 1000 [Vrms]	Factory setting 400 [Vrms]
Description:	Sets the drive unit supply voltage (3-ph. AC). The value corresponds to the rms value of the phase-to-phase rated line supply voltage.		
Dependency:	Refer to: p3400		
Warning:	 <p>If the infeed is continually in the controlled mode with high DC link voltages ($p3510 > 660$ V), depending on the particular application, this can damage the connected motors that have not been specified for these high voltages. Before an active infeed with a line supply voltage $p0210 > 415$ V goes into pulsed operation it must be ensured that all of the components connected to the DC link can be permanently operated with DC link voltages exceeding 660 V. Controlled operation of booksize power units for $p0210 > 415$ V is possible if the maximum steady-state DC link voltage ($p0280$) is increased as follows: $p0280 \geq 1.5 * p0210$ and $p0280 > 660$ V. In this case, the setpoint of the DC link voltage $p3510$ is not automatically adapted. We recommend $p3510 = 1.5 * p0210$. Closed-loop voltage controlled operation is active with $p3400.0 = 0$ and $p3400.3 = 1$.</p>		
Notice:	<p>For $p0210 > 415$ V for booksize power units with a supply voltage of 3-ph. 380 ... 480 V, the smart mode is automatically activated ($p3400.0 = 1$). In this case, the smart mode cannot be de-activated. This is because in the voltage controlled mode, the maximum steady-state DC link voltage ($p0280$) would be exceeded. For booksize power units with supply voltage of 3-ph. 380 ... 480 V AC, the following applies: 380 V $\leq p0210 \leq 400$ V --> Pre-assignment, setpoint for the DC link voltage: $p3510 = 600$ V 401 V $\leq p0210 \leq 415$ V --> Pre-assignment, setpoint for the DC link voltage: $p3510 = 625$ V 416 V $\leq p0210 \leq 480$ V --> Smart Mode with non-regulated DC link voltage: $p3510 = 1.35 * p0210$</p>		
Note:	<p>When pre-assigning the setpoint for the DC link voltage ($p3510$), the following is generally valid: $p3510 = 1.5 * p0210$ The voltage range for the supply voltage depends on the type and the voltage class of the power unit. Active Line Module, 400 V unit: 380 V $\leq p0210 \leq 480$ V Active Line Module, 690 V unit: 660 V $\leq p0210 \leq 690$ V Active Line Module, 500/690 V unit: 500 V $\leq p0210 \leq 690$ V Smart Line Module, 400 V unit: 380 V $\leq p0210 \leq 480$ V Smart Line Module, 690 V unit: 500 V $\leq p0210 \leq 690$ V</p>		

p0210 Drive unit line supply voltage / Supply voltage			
SERVO, VECTOR	Can be changed: C2(2), T Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1 [V]	Max 63000 [V]	Factory setting 600 [V]
Description:	Sets the drive unit supply voltage. AC/AC unit: The rms value of the phase-to-phase line supply voltage should be entered. DC/AC unit: The rated DC voltage of the connection busbar should be entered.		
Dependency:	Set p1254, p1294 (automatic detection of the Vdc switch-on levels) = 0. The switch-in thresholds of the Vdc_max controller are then directly determined using p0210.		
Caution:	If the line supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.		
Note:	Setting ranges for p0210 as a function of the rated power unit voltage: V _{rated} = 400 V: - p0210 = 380 ... 480 V (AC/AC), 510 ... 720 V (DC/AC) V _{rated} = 400 V (booksize): - p0210 = 380 ... 480 V (AC/AC), 510 ... 720 V, 270 ... 360 V (DC/AC) V _{rated} = 500 V: - p0210 = 500 ... 600 V (AC/AC), 675 ... 900 V (DC/AC) V _{rated} = 690 V: - p0210 = 660 ... 690 V (AC/AC), 890 ... 1035 V (DC/AC) The pre-charging switch-in threshold for the DC link voltage (Vdc) is calculated from p0210: Vdc _{pre} = p0210 * 0.82 * 1.35 (AC/AC) Vdc _{pre} = p0210 * 0.82 (DC/AC) The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power unit voltage: V _{rated} = 400 V: - V _{min} = p0210 * 0.78 (AC/AC), p0210 * 0.60 (DC/AC) V _{rated} = 500 V: - V _{min} = p0210 * 0.76 (AC/AC) V _{rated} = 690 V: - V _{min} = p0210 * 0.74 (AC/AC), p0210 * 0.57 (DC/AC)		
p0210 Drive unit line supply voltage / Supply voltage			
B_INF	Can be changed: C2(1) Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 8760 Unit selection: - Expert list: 1
	Min 200 [Vrms]	Max 1000 [Vrms]	Factory setting 400 [Vrms]
Description:	Sets the drive unit supply voltage (3-ph. AC). The value corresponds to the rms value of the phase-to-phase rated line supply voltage.		
Caution:	If the line supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.		
Notice:	When connected to 3-ph. 230 V AC (only booksize units) the following must be observed: - the undervoltage and overvoltage limits change (r0296, r0297). - when using the internal braking chopper from the Basic Line Modules (20 or 40 kW) the threshold when the braking chopper becomes active is reduced to 385 V. When using an external braking chopper, it must be ensured that a suitable activation threshold is used.		

- all of the components connected to this DC link must also be adapted to the low line supply voltage. It is especially important that the rated DC voltage of all of the drives connected to this DC link is set with p0210 (e.g. $p0210(\text{SERVO}) = 1.35 * p0210(\text{B_INF}) = 310 \text{ V}$).

- it is not possible to use a Control Supply Module (CSM) to generate a 24 V supply from the DC link, as the minimum, continuous DC link voltage may not lie below 430 V.

Note: The supply voltage range depends on the voltage class of the power unit.

400 V chassis units: $380 \text{ V} \leq p0210 \leq 480 \text{ V}$

690 V chassis units: $500 \text{ V} \leq p0210 \leq 690 \text{ V}$

400 V booksize units can also be connected to 3-ph. 230 V AC:

400 V booksize units: $200 \text{ V} \leq p210 \leq 240 \text{ V}$ or $380 \text{ V} \leq p0210 \leq 480 \text{ V}$

p0211**Rated line freq / Rated line freq**

A_INF, S_INF

Can be changed: T**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 8864, 8964**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

10 [Hz]

100 [Hz]

50 [Hz]

Description:

Sets the rated line frequency for the infeed.

Dependency:

Refer to: p3409

Notice:

For p3409 = 1, the following applies:

After operation has been enabled, the rated line supply frequency (p0211) is automatically set to a value of 50 Hz or 60 Hz corresponding to the currently measured frequency. This means that the parameter value of p0211 is, under certain circumstances, changed.

For p3409 = 0, the following applies:

The system does not change parameter p0211.

p0220[0...1]**Infeed line filter type / INF line filt type**

A_INF

Can be changed: C2(1)**Calculated:** -**Access level:** 3**Data type:** Integer16**Dynamic index:** -**Func. diagram:** 8950**P-Group:** Converter**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

45

0

Description:

Sets the line filter type for the Active Line Module (ALM).

Using the line filter type, the filter capacitance (p0221), the filter resistance (p0222) and the inductance (p0223) and the resistance (p0224) of the reactor are pre-assigned.

Values:

- 0: No line filter
- 1: Wideband Line Filter booksize 400 V 16 kW (6SL3000-0BE21-6AA0)
- 2: Wideband Line Filter booksize 400 V 36 kW (6SL3000-0BE23-6AA0)
- 3: Wideband Line Filter booksize 400 V 55 kW (6SL3000-0BE25-5AA0)
- 4: Wideband Line Filter booksize 400 V 80 kW (6SL3000-0BE28-0AA0)
- 5: Wideband Line Filter booksize 400 V 120 kW (6SL3000-0BE31-2AA0)
- 10: AIM F 400 V 132 kW 160 kW (6SL3300-7TE32-6Ax0)
- 11: AIM G 400 V 235 kW (6SL3300-7TE33-8Ax0)
- 12: AIM G 400 V 300 kW (6SL3300-7TE35-0Ax0)
- 13: AIM H 400 V 380 kW 500 kW (6SL3300-7TE38-4Ax0)
- 14: AIM J 400 V 630 kW 900 kW (6SL3300-7TE41-4Ax0)
- 15: AIM F 690 V 150 kW (6SL3300-7TH31-4Ax0)
- 16: AIM G 690 V 330 kW (6SL3300-7TH33-1Ax0)
- 17: AIM H 690 V 560 kW (6SL3300-7TH35-8Ax0)
- 18: AIM J 690 V 800 kW (6SL3300-7TH37-4Ax0)
- 19: AIM J 690 V 1100 kW 1400 kW (6SL3300-7TH41-3Ax0)
- 31: Basic Line Filter booksize 400 V 16 kW (6SL3000-0BE21-6DA0)
- 32: Basic Line Filter booksize 400 V 36 kW (6SL3000-0BE23-6DA0)
- 33: Basic Line Filter booksize 400 V 55 kW (6SL3000-0BE25-5DA0)

- 34: Basic Line Filter Booksize 400 V 80 kW (6SL3000-0BE28-0DAx)
 35: Basic Line Filter Booksize 400 V 120 kW (6SL3000-0BE31-2DAx)
 41: AIM 400 V 16 kW (6SL3100-0BE21-6AB0)
 42: AIM 400 V 36 kW (6SL3100-0BE23-6AB0)
 43: AIM 400 V 55 kW (6SL3100-0BE25-5AB0)
 44: AIM 400 V 80 kW (6SL3100-0BE28-0AB0)
 45: AIM 400 V 120 kW (6SL3100-0BE31-2AB0)

Index: [0] = Line filter
 [1] = Line filter, optional

Notice: When using an Active Interface Module (AIM), it is absolutely necessary that the terminals for the temperature switch between the Active Interface Module (X121.1/2) and the Active Line Module (X21.1/2) are connected.

Note: For booksize units, when using an Active Interface Module in p0220[0] it is also possible to use a Basic Filter that is parameterized in p0220[1].

The setting of the filter capacitance (p0221) and filter resistance (p0222) - derived from p0220[0, 1] - are required in the closed-loop voltage controlled mode to automatically compensate the filter reactive current.

For two power ratings, the same line filter is used for both power ratings.

AIM: Active Interface Module

p0221[0...1] Infeed filter capacitance / INF C_filter

A_INF	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8950
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [μF]	Max 100000.00 [μF]	Factory setting 0.00 [μF]

Description: Sets the filter capacitance of the line filter (connected in a delta configuration).

Index: [0] = Line filter
 [1] = Line filter, optional

Note: When a Siemens line filter is used (p0220) this parameter is automatically preset with the correct value.
 For a parallel circuit, the value corresponds to the capacitance of a power unit.
 Index 0 refers to the first line filter from p0220[0].
 Index 1 refers to the optional second line filter from p0220[1].

p0222[0...1] Infeed filter resistance / INF R_filter

A_INF	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00000 [Ohm]	Max 100.00000 [Ohm]	Factory setting 0.00000 [Ohm]

Description: Sets the filter resistance in series with the filter capacitance.

Index: [0] = Line filter
 [1] = Line filter, optional

Note: When a Siemens line filter is used (p0220) this parameter is automatically preset with the correct value.
 For a parallel circuit, the value corresponds to the resistance of a power unit.
 Index 0 refers to the first line filter from p0220[0].
 Index 1 refers to the optional second line filter from p0220[1].

p0223	Infeed inductance between filter and power unit / INF L filter/PU		
A_INF, S_INF	Can be changed: C2(1) Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Factory setting 2.100 [mH]
Description:	Sets the inductance between the filter and power unit.		
Note:	The parameter is automatically pre-assigned depending on the power unit being used and matches the specified Siemens commutating reactors. For a parallel circuit, the value corresponds to the inductance of a power unit.		
p0224	Infeed resistance between filter and power unit / INF R filter/PU		
A_INF, S_INF	Can be changed: C2(1) Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Factory setting 0.00100 [Ohm]
Description:	Sets the resistance between the filter and power unit		
Note:	The parameter is automatically pre-assigned depending on the power unit being used and matches the specified Siemens commutating reactors. For a parallel circuit, the value corresponds to the resistance of a power unit.		
p0225	Infeed inductance between line supply and filter / INF L line/filter		
A_INF, S_INF	Can be changed: C2(1) Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Factory setting 0.001 [mH]
Description:	Sets the inductance between line supply and filter.		
Note:	The value must be, for example, appropriately increased if an additional inductance (reactor or transformer is installed in front of the filter).		
p0226	Infeed resistance between line supply and filter / INF R line/filter		
A_INF, S_INF	Can be changed: C2(1) Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Factory setting 0.00 [Ohm]
Description:	Sets the resistance between the line supply and filter.		
Note:	The value must be, for example, appropriately increased if an additional resistor is installed in front of the filter.		

p0227	Infeed, DC-link capacitance, power unit / INF C		
A_INF, S_INF	Can be changed: C2(1) Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0.20 [mF]	Access level: 3 Func. diagram: 8850, 8950 Unit selection: - Expert list: 1 Max 1000.00 [mF]
			Factory setting 1.00 [mF]
Description:	Sets the total DC link capacitance.		
Note:	The total DC link capacitance of a DC link group comprises the sum of the sub-capacitances of all motor/infeed modules and the additional DC link capacitors.		
p0230	Drive filter type, motor side / Drv filt type		
VECTOR	Can be changed: C2(1, 2) Data type: Integer16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 4	Factory setting 0
Description:	Sets the type of the filter at the motor side.		
Values:	0: No filter 1: Motor reactor 2: du/dt filter 3: Sinusoidal filter, Siemens 4: Sinusoidal filter, third-party		
Dependency:	The following parameters are influenced using p0230: p0230 = 1: --> p0233 (power unit, motor reactor) = filter inductance p0230 = 3: --> p0233 (power unit, motor reactor) = filter inductance --> p0234 (power unit sinusoidal filter capacitance) = filter capacitance --> p0290 (power unit overload response) = inhibit pulse frequency reduction --> p1082 (maximum speed) = Fmax filter / pole pair number --> p1800 (pulse frequency) >= nominal pulse frequency of the filter --> p1802 (modulator modes) = space vector modulation without overcontrol p0230 = 4: --> p0290 (power unit overload response) = inhibit pulse frequency reduction --> p1802 (modulator modes) = space vector modulation without overcontrol The user must set the following parameters according to the data sheet of the sinusoidal filter and also the user must check whether they are permitted. --> p0233 (power unit, motor reactor) = filter inductance --> p0234 (power unit sinusoidal filter capacitance) = filter capacitance --> p1082 (maximum speed) = Fmax filter / pole pair number --> p1800 (pulse frequency) >= nominal pulse frequency of the filter Refer to: p0233, p0234, p0290, p1082, p1800, p1802		
Note:	if a filter type cannot be selected, then this filter type is not permitted for the Motor Module. p0230 = 2: Chassis-type power units with du/dt filter, depending on the rated pulse frequency, may only be operated with a maximum pulse frequency of p1800 = 2.5 kHz or 4 kHz. The output frequency is limited to 150 Hz. p0230 = 3: Sinusoidal filters with a rated pulse frequency of 1.25 or 2.5 kHz should only be operated with a current controller sampling rate p0115[0] = 400 µs, sinusoidal filters with a rated pulses frequency of 2 or 4 kHz with p0115[0] = 250 µs. The sinusoidal filter cannot be selected if the current controller sampling rate hasn't been appropriately set.		

p0233	Power unit motor reactor / PU mot reactor		
VECTOR	Can be changed: C2(2), U, T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [mH]	Max 1000.000 [mH]	Factory setting 0.000 [mH]
Description:	Enter the inductance of a filter connected at the power unit output.		
Dependency:	The parameter is automatically pre-assigned when selecting a filter via p0230. Refer to: p0230		
p0234	Power unit sinusoidal filter capacitance / PU sine filter C		
VECTOR	Can be changed: C2(2), U, T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [µF]	Max 1000.000 [µF]	Factory setting 0.000 [µF]
Description:	Enters the capacitance of a sinusoidal filter connected at the power unit output.		
Dependency:	The parameter is automatically pre-assigned when selecting a filter via (p0230). Refer to: p0230		
Note:	The parameter value includes the sum of all of the capacitances of a phase connected in series (phase - ground).		
p0235	Number of reactors connected in series / Qty L in series		
VECTOR	Can be changed: C2(1, 2) Data type: Unsigned8 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 3	Factory setting 1
Description:	Number of reactors connected at the power unit output.		
Dependency:	Refer to: p0230		
Caution:	If the number of motor reactors connected in series does not correspond to the parameter value, then this can result in an unfavorable control behavior.		
Note:	The parameter cannot be changed for chassis drive units and for p0230 = 1.		
p0249	Power unit cooling type / PU cool type		
SERVO, S_INF, VECTOR	Can be changed: C2(1, 2) Data type: Integer16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the cooling type for booksize compact power units. This therefore defines whether for these power units, the internal air cooling is shut down and instead, the "Cold-Plate" cooling type is used.		
Values:	0: Air cooling internal 1: Cold-Plate		
Note:	For booksize compact power units, there is a 4 at the 5th position in the Order No. The parameter is irrelevant for all other power unit types.		

p0251[0...n]	Operating hours counter power unit fan / PU fan t_oper		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [h]	Max 4294967295 [h]	Factory setting 0 [h]
Description:	Displays the power unit fan operating hours. The number of hours operated can only be reset to 0 in this parameter (e.g. after a fan has been replaced).		
Dependency:	Refer to: p0252		
p0252	Maximum operating time power unit fan / PU fan t_oper max		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [h]	Max 50000 [h]	Factory setting 40000 [h]
Description:	Sets the maximum operating time of the power unit fan. The pre-alarm (warning) is output 500 hours before this set value. The monitoring is de-activated with p0252 = 0.		
Dependency:	Refer to: p0251		
Note:	For chassis units, the maximum operating duration in the power unit parameter is set to 50000 via the factory setting.		
p0260	Cooling system, starting time 1 / RKA start time 1		
A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9795
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [s]	Max 60.0 [s]	Factory setting 5.0 [s]
Description:	Sets starting time 1 to monitor the cooling system after power on command. After powering-up, the following signals must be present within starting time 1: - "RKA powered-up" - "RKA liquid flow OK" When a fault occurs, an appropriate message is output.		
Dependency:	Refer to: F49152, F49153		
Note:	RKA: Cooling system		

p0261	Cooling system, starting time 2 / RKA start time 2		
A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)	Can be changed: U, T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9795 Unit selection: - Expert list: 1
	Min 0.0 [s]	Max 1200.0 [s]	Factory setting 180.0 [s]
Description:	Sets starting time 2 to monitor the cooling system after power on command. After powering-up, the following signals must be present within starting time 2: - "RKA conductivity, no fault" - "RKA conductivity, no alarm" When a fault occurs, an appropriate message is output.		
Dependency:	Refer to: p0266 Refer to: F49151, A49171		
p0262	Cooling system, fault conductivity delay time / RKA cond t_del		
A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)	Can be changed: U, T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9795 Unit selection: - Expert list: 1
	Min 0.0 [s]	Max 30.0 [s]	Factory setting 0.0 [s]
Description:	Sets the delay time for the fault F49151 "RKA: Conductive limit value exceeded" during operation. The fault is only output if, during operation, the conductivity exceeds the permissible fault threshold (p0269[1]) and the value remains for a longer time than is set in this parameter.		
Dependency:	Refer to: F49151		
p0263	Cooling system fault liquid flow, delay time / RKA flow t_del		
A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)	Can be changed: U, T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9795 Unit selection: - Expert list: 1
	Min 0.0 [s]	Max 20.0 [s]	Factory setting 3.0 [s]
Description:	Sets the delay time for the fault "RKA: Liquid flow too low". The fault is only output if the cause is present for a time longer than is set in this parameter.		
Dependency:	Refer to: F49153		

p0264	Cooling system, run-on time / RKA run-on time		
A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)	Can be changed: U, T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9795 Unit selection: - Expert list: 1
	Min 0.0 [s]	Max 180.0 [s]	Factory setting 30.0 [s]
Description:	Sets the run-up time of the cooling system after a power-off command.		

r0265.0...3		BO: Cooling system, control word / RKA ctrl word			
A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)	Can be changed: -	Calculated: -		Access level: 3	
	Data type: Unsigned8	Dynamic index: -		Func. diagram: -	
	P-Group: Commands	Units group: -		Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max		Factory setting
	-		-		-
Description:		Displays the control word for the cooling system.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Power-up cooling system	Power-up	Deactivating	-
	01	Message, converter off	Off	On	-
	02	Acknowledge faults	Acknowledgement	No acknowledgement	-
	03	Leakage sensing OK	No leaked liquid	Leaked liquid	-

p0266[0...7]	BI: Cooling system, feedback signals, signal source / RKA fdbk S_src		
A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal sources for the feedback signals from the cooling system.		
Index:	[0] = Cooling system powered-up [1] = Cooling system ready to be powered-up [2] = Cooling system, no alarm present [3] = Cooling system, no fault present [4] = Cooling system, no leaked liquid [5] = Cooling system liquid flow OK [6] = Cooling system, conductivity < fault threshold [7] = Cooling system, conductivity < alarm threshold		

r0267.0...7 BO: Cooling system status word / RKA ZSW

A_INF (Cooling system), B_INF (Cooling system), SERVO (Cooling system), S_INF (Cooling system), VECTOR (Cooling system)

Can be changed: -
Data type: Unsigned16
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min
-

Max
-

Factory setting
-

Description: Displays the status word of the cooling system.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	RKA powered-up	Yes	No	-
	01	RKA ready to be powered-up	Yes	No	-
	02	RKA no alarm present	Yes	No	-
	03	RKA no fault present	Yes	No	-
	04	RKA no leaked fluid	Yes	No	-
	05	RKA liquid flow OK	Yes	No	-
	06	RKA conductivity, no fault	Yes	No	9974
	07	RKA conductivity, no alarm	Yes	No	9974

Dependency: Refer to: p0266

p0278 DC link voltage undervoltage threshold reduction / Vdc V_under red

SERVO, VECTOR

Can be changed: T
Data type: Floating Point
P-Group: Converter
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min
-80 [V]

Max
0 [V]

Factory setting
0 [V]

Description: Sets the absolute value by which the threshold to initiate the undervoltage fault (F30003) is reduced.

Dependency: Refer to: p0210, r0296
Refer to: F30003

Notice: When using a Control Supply Module (CSM) for 24 V supply from the DC link, the minimum continuous DC link voltage may not lie below 430 V. DC link voltages in the range 300 ... 430 V are permissible up to a duration of 1 min.

Note: The resulting shutdown threshold can be read in r0296 and is dependent on the selected rated voltage (p0210) and the power unit being used.

p0279 DC link voltage offset alarm threshold / Vdc offs A thresh

A_INF, B_INF, S_INF

Can be changed: T
Data type: Floating Point
P-Group: Converter
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: 8760, 8864, 8964
Unit selection: -
Expert list: 1

Min
0 [V]

Max
100 [V]



Factory setting
0 [V]

Description: Sets the voltage threshold to initiate alarm A06810.

The value represents an offset so that the alarm threshold is obtained from the sum of r0296 and p0279.

Dependency: Refer to: p0210, r0296
Refer to: A06810

Note: The absolute value of the alarm threshold depends on the selected unit supply voltage (p0210).

p0280	DC link voltage maximum steady-state / Vdc_max stat		
A_INF	Can be changed: C2(1), T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8940, 8964 Unit selection: - Expert list: 1 Factory setting 660 [V]
Description:	Sets the maximum steady-state DC link voltage. When the DC link voltage setpoint reaches the threshold, alarm A06800 is output. The setpoint for the DC link voltage in p3510 is limited to the value in p0280. The voltage can be increased (boosted) using the modulation depth reserve controller. The modulation depth reserve (p3480) can be too low if p0210 (drive unit supply voltage) was incorrectly parameterized, a line overvoltage condition is present or a high reactive current is required.		
Dependency:	Refer to: p0210 Refer to: A06800		
Warning:	Before increasing the voltage limit for pulsed operation of a controlled booksize infeed with line supply voltages p0210 > 415 V it should be checked whether the motors, connected to the DC link, are specified for the higher motor voltages. The warning information associated with p0210 must be carefully observed.		
			
Caution:	All motors connected to the DC link must be rated for the maximum DC-link voltage set in this parameter.		
			
Notice:	For chassis power modules, for the extended line supply voltage range from 500 V to 690 V, the value in p0280 is automatically adapted if the line supply voltage in p0210 is changed. The individual parameter setting for p0280 is then lost and if necessary must be re-entered.		
Note:	A brief, dynamic increase of the DC link voltage does not result in an alarm. Pre-setting values: 380 ... 480 V booksize units: 660 V 380 ... 480 V chassis units: 750 V 500 ... 690 V chassis units: $0.875 * p0210 + 502$ V Maximum values: 380 ... 480 V booksize units: 785 V 380 ... 480 V chassis units: 785 V 500 ... 690 V chassis units: 1130 V		

p0281	Line supply overvoltage, warning threshold / V_l_over A thresh		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8860, 8960 Unit selection: - Expert list: 1 Factory setting 110 [%]
Description:	Sets the alarm threshold for a line supply overvoltage condition. The setting is made as a percentage of the drive unit supply voltage (p0210).		
Dependency:	Refer to: p0211, p0221, p0222, p0223, p0224, p0225, p0226		
Note:	If synchronizing voltages are not detected, the line supply voltage is estimated using a model. It is therefore important to ensure that drive unit data is correctly specified.		

p0282	Line supply undervoltage, alarm threshold / V_I_under A thresh		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8860, 8960 Unit selection: - Expert list: 1 Factory setting 85 [%]
Description:	Sets the alarm threshold for a line undervoltage condition. The setting is made as a percentage of the drive unit supply voltage (p0210).		
Dependency:	Refer to: p0222, p0224, p0225, p0226, p3421, p3422 Refer to: A06105		
Note:	If synchronizing voltages are not detected, the line supply voltage is estimated using a model. It is therefore important to ensure that drive unit data is correctly specified.		
p0283	Line supply undervoltage, shutdown (trip) threshold / V_I_under tr_thrs		
A_INF, S_INF	Can be changed: C2(1), T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8860, 8960 Unit selection: - Expert list: 1 Factory setting 75 [%]
Description:	Sets the trip threshold for the line supply undervoltage. The setting is made as a percentage of the drive unit supply voltage (p0210).		
Dependency:	Refer to: p0282 Refer to: F06100		
Notice:	For Active Line Modules booksize, the following applies: When operated without Active Interface Module (p0220 = 41 ... 45), the minimum shutdown threshold is 75 %.		
p0284	Line supply frequency exceeded, alarm threshold / f_I_exc A thresh		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8864, 8964 Unit selection: - Expert list: 1 Factory setting 110.0 [%]
Description:	Sets the alarm threshold for an excessively high line frequency.		
Dependency:	Set as a percentage of the rated line frequency. Refer to: p0211		
p0285	Line supply frequency fallen below, alarm threshold / f_I_under A thresh		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8864, 8964 Unit selection: - Expert list: 1 Factory setting 90.0 [%]
Description:	Sets the alarm threshold for an excessively low line frequency.		
Dependency:	Set as a percentage of the rated line frequency. Refer to: p0211		

p0287[0...1]			
Ground fault monitoring thresholds / Grnd flt thresh			
A_INF, SERVO, S_INF, VECTOR	Can be changed: T Data type: Floating Point P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 100.0 [%]	Factory setting [0] 6.0 [%] [1] 16.0 [%]
Description:	Sets the shutdown thresholds for the ground fault monitoring. The setting is made as a percentage of the maximum power unit current (r0209).		
Index:	[0] = Threshold for pulse inhibit [1] = Threshold for pulse enable		
Dependency:	Refer to: F30021		
Note:	De-activating the ground fault monitoring: - Sequence: --> p0287[1] = 0 --> p0287[0] = 0 - independent of the firmware version of the power unit. Sets the thresholds: - the prerequisite is at least firmware version 2.2 of the power unit.		
<hr/>			
r0289			
Maximum power unit output current / PU I_outp max			
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the actual, maximum output current of the power unit taking into account de-rating factors.		
<hr/>			
p0290			
Power unit overload response / PU overld response			
SERVO, VECTOR	Can be changed: T Data type: Integer16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8014 Unit selection: - Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	Sets the response to a thermal overload condition of the power unit. The following quantities can result in a response to thermal overload: - heatsink temperature (r0037.0) - chip temperature (r0037.1) - power unit overload I2T (r0036) Possible measures to avoid thermal overload: - reduce the output current (closed-loop speed/velocity or torque/force control) or the output frequency (V/f control). - reduce the pulse frequency (only for vector control). A reduction, if parameterized, is always realized after an appropriate alarm is output.		
Values:	0: Reduce output current or output frequency 1: No reduction, shutdown when overload threshold is reached 2: Reduce I_output or f_output and f_pulse (not using I2t) 3: Reduce the pulse frequency (not using I2t)		
Dependency:	If a sinusoidal filter is parameterized as output filter (p0230 = 3, 4), then only responses can be selected without pulse frequency reduction (p0290 = 0, 1). If a fault or alarm is present, then r2135.13 or r2135.15 is set.		

Refer to: r0036, r0037, p0108, r0108, p0230, r2135

Refer to: A05000, A05001, A07805

Caution:

If the thermal overload of the power unit is not sufficiently reduced by the actions taken, the drive is always shut down. This means that the power unit is always protected independent of the setting of this parameter.

Note:

The setting p0290 = 0, 2 is only practical if the load decreases with decreasing speed (e.g. for applications with variable torque such as for pumps and fans).

Under overload conditions, the current and torque limit are reduced, and therefore the motor is braked and forbidden speed ranges (e.g. minimum speed p1080 and suppression [skip] speeds p1091 ... p1094) can be passed through.

For p0290 = 2, 3, the I2t overload detection of the power unit does not influence the responses.

r0293**CO: Power unit alarm threshold model temperature / PU Tmodel_A_thresh**

SERVO, VECTOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: Converter

Units group: 21_1

Unit selection: p0505

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

- [°C]

- [°C]

- [°C]

Description:

Temperature alarm threshold for the difference from the chip and heatsink temperature in the thermal model.

Dependency:

Refer to: r0037

Refer to: F30024

Note:

The parameter is only relevant for chassis power units.

p0294**Power unit alarm with I2t overload / PU I2t alm thresh**

A_INF, SERVO,
S_INF, VECTOR

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: 8014

P-Group: Converter

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

10.0 [%]

100.0 [%]

95.0 [%]

Description:

Sets the alarm threshold for the I2t power unit overload.

Drive:

If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290.

Infeed:

When the threshold value is exceeded, only an overload alarm is output.

Dependency:

Refer to: r0036, p0290

Refer to: A07805

Note:

The I2t fault threshold is 100 %. If this value is exceeded, fault F30005 is output.

p0294**Power unit alarm with I2t overload / PU I2t alm thresh**

B_INF

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: 8014

P-Group: Converter

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

10.0 [%]

100.0 [%]

95.0 [%]

Description:

Sets the alarm threshold for the I2t power unit overload.

Dependency:

Refer to: r0036

Refer to: A07805

Note:

The parameter is only relevant for booksize units!

p0295	Fan run-on time / Fan run-on time		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [s]	Max 600 [s]	Factory setting 0 [s]
Description:	Sets the fan run-on time after the power unit has been powered-down. If, after the selected fan run-on time, the heatsink temperature has not fallen below a permanently saved threshold value, then the run-on time is extended until this temperature threshold is actually reached.		
r0296	DC link voltage undervoltage threshold / Vdc V_lower_thresh		
A_INF, B_INF, S_INF	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8750, 8760, 8850, 8864, 8950, 8964 Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	If the DC link voltage falls below the threshold specified here, the infeed is tripped due to a DC link undervoltage condition.		
Dependency:	Refer to: F30003		
r0296	DC link voltage undervoltage threshold / Vdc V_lower_thresh		
SERVO, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	If the DC link voltage falls below this threshold, the Motor Module is shut down due to a DC link undervoltage condition (F30003).		
Dependency:	Refer to: p0278 Refer to: F30003		
Note:	For booksize units, the following applies: The undervoltage threshold can be reduced with p0278.		
r0297	DC link voltage overvoltage threshold / Vdc V_upper_thresh		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8750, 8760, 8850, 8864, 8950, 8964 Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.		
Dependency:	Refer to: F30002		

p0300[0...n] Motor type selection / Mot type selection			
SERVO	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: 6310
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 10001	Factory setting 0
Description:	<p>Selects the motor type or start to read-in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000). The following applies for p0300 < 10000: The first digit of the parameter value always defines the general motor type and corresponds to the unlisted motor belonging to a motor list:</p> <p>1 = Rotating induction motor 2 = Rotating synchronous motor 3 = Linear induction motor (reserved) 4 = Linear synchronous motor</p> <p>The type information must be entered to filter motor-specific parameters and to optimize the operating characteristics and behavior. For example, for synchronous motors, power factor (p0308) is neither used nor displayed (in the BOP/AOP).</p>		
Values:	<p>0: No motor 1: Induction motor (rotating) 2: Synchronous motor (rotating, permanent-magnet) 4: Synchronous motor (linear, permanent-magnet) 102: 1PH2 induction motor 104: 1PH4 induction motor 107: 1PH7 induction motor 134: 1PM4 induction motor 136: 1PM6 induction motor 166: 1PL6 induction motor 206: 1FT6 synchronous motor 207: 1FT7 synchronous motor 236: 1FK6 synchronous motor 237: 1FK7 synchronous motor 261: 1FE1 synchronous motor 276: 1FS6 synchronous motor 283: 1FW3 synchronous motor 286: 1FW6 synchronous motor 291: 2SP1 synchronous motor 401: 1FN1 synchronous motor (linear) 403: 1FN3 synchronous motor (linear) 10000: Motor with DRIVE-CLiQ 10001: Motor with DRIVE-CLiQ 2nd data set</p>		
Dependency:	<p>When the motor type is changed, the code number in p0301 may be reset to 0.</p> <p>If p0300 is changed during quick commissioning (p0010 = 1), then the matching technological application (p0500) is automatically pre-assigned. This does not occur when commissioning the motor (p0010 = 3). If 10000 is written to p0300 for a parameter download, then p0500 is pre-assigned with Drive-CLiQ corresponding to the motor type.</p> <p>Refer to: p0301</p>		
Caution:	<p>If a catalog motor is selected (p0300 ≥ 100) and an associated motor code number (p0301), then the parameters, that are associated if this list, cannot be changed (write protection). The write protection is canceled if the motor type p0300 is set to a non-Siemens motor that matches p0301 (e.g. p0300 = 2 for p0301 = 2xxxx).</p>		
Notice:	<p>The list for motor codes /encoder codes can be found in the following literature:</p> <p>SINAMICS S List Manual</p>		
Note:	<p>With p0300 = 10000, for a motor with DRIVE-CLiQ, the motor parameters are automatically downloaded, with p0300 = 10001, the motor parameters of a second data set (if available).</p> <p>If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.</p> <p>A motor type with a value above p0300 ≥ 100 describes motors for which a motor parameter list exists.</p> <p>Motor types with a value below p0300 < 100 correspond to the selection of an unlisted motor. When appropriately selected, this means that the motor parameters are pre-assigned the settings for an unlisted motor.</p>		

This also applies for parameters for a motor with DRIVE-CLiQ. In this case p0300 can only be set to p0300 = 10000 or 10001 (read motor parameters) or to the corresponding non-Siemens motor (first digit of the motor code number) in order to be able to cancel the write protection.

p0300[0...n] Motor type selection / Mot type selection			
VECTOR	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: 6310
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 10001	Factory setting 0
Description:	<p>Selects the motor type or start to read-in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000 or 10001, if there is a second data set).</p> <p>The following applies for p0300 < 10000: The first digit of the parameter value always defines the general motor type and corresponds to the unlisted motor belonging to a motor list:</p> <ul style="list-style-type: none"> 1 = Rotating induction motor 2 = Rotating synchronous motor 3 = Linear induction motor (reserved) 4 = Linear synchronous motor 5 = Synchronous motor separately-excited 7 = SIEMOSYN motor 8 = Reluctance motor <p>The type information must be entered to filter motor-specific parameters and to optimize the operating characteristics and behavior. For example, for synchronous motors, power factor (p0308) is neither used nor displayed (in the BOP/AOP).</p>		
Values:	<ul style="list-style-type: none"> 0: No motor 1: Induction motor (rotating) 2: Synchronous motor (rotating, permanent-magnet) 5: Synchronous motor (separately excited) 7: SIEMOSYN motor 8: Reluctance motor 11: 1LA1 standard induction motor 12: 1LE2 standard induction motor (NEMA) 15: 1LA5 standard induction motor 16: 1LA6 standard induction motor 17: 1LA7 standard induction motor 18: 1LA8 standard induction motor 102: 1PH2 induction motor 104: 1PH4 induction motor 107: 1PH7 induction motor 134: 1PM4 induction motor 136: 1PM6 induction motor 166: 1PL6 induction motor 283: 1FW3 synchronous motor 10000: Motor with DRIVE-CLiQ 10001: Motor with DRIVE-CLiQ 2nd data set 		
Dependency:	<p>Motors, selection 206, 236, 237 cannot be operated (also not as motor with DRIVE-CLiQ).</p> <p>p0300 = 5 cannot be selected with SINAMICS G.</p> <p>When the motor type is changed, the code number in p0301 may be reset to 0.</p> <p>p0300 = 12 can only be selected for p0100 = 1 (NEMA).</p> <p>When selecting a motor type from the 1LA5 and 1LA7 series, parameters p0335, p0626, p0627 and p0628 of the thermal motor model are pre-assigned as a function of p0307 and p0311.</p> <p>Refer to: p0301</p>		
Caution:	<p>If a catalog motor is selected (p0300 ≥ 100) and an associated motor code number (p0301), then the parameters, that are associated if this list, cannot be changed (write protection). The write protection is canceled if the motor type p0300 is set to a non-Siemens motor that matches p0301 (e.g. p0300 = 2 for p0301 = 2xxxx).</p>		

Notice: The list for motor codes /encoder codes can be found in the following literature:
SINAMICS S List Manual

Note: With p0300 = 10000, for a motor with DRIVE-CLiQ, the motor parameters are automatically downloaded, with p0300 = 10001, the motor parameters of a second data set (if available).
If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.
A motor type with a value above p0300 >= 100 describes motors for which a motor parameter list exists.
Motor types with a value below p0300 < 100 correspond to the selection of an unlisted motor. When appropriately selected, this means that the motor parameters are pre-assigned the settings for an unlisted motor.
This also applies for parameters for a motor with DRIVE-CLiQ. In this case p0300 can only be set to p0300 = 10000 or 10001 (read motor parameters) or to the corresponding non-Siemens motor (first digit of the motor code number) in order to be able to cancel the write protection.

p0301[0...n] Motor code number selection / Mot code No. sel			
SERVO	Can be changed: C2(1, 3), U	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: FEM		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	The parameter is used to select a motor from a motor parameter list. When changing the code number (with the exception to the value 0), all of the motor parameters are pre-assigned from the internally available parameter lists.		
Dependency:	Only code numbers for motor types can be selected that correspond to the motor type selected in p0300. For 1PH2, 1PH4, 1PH7, 1PM4, 1PM6, 1FT6 motors, code numbers are also possible, whose fourth decimal position is greater by a value of 1 or 2 than the matching motor type in p0300. For 1FE1 motors, the third decimal position can be higher by a value of 1. Refer to: p0300		
Notice:	The list for motor codes /encoder codes can be found in the following literature: SINAMICS S List Manual		
Note:	The motor code number can only be changed if the matching list motor was first selected in p0300. For a motor with DRIVE-CLiQ, p0301 cannot be changed. In this case, p0301 is automatically written to the code number of the motor parameter read-in (r0302) if p0300 is set to 10000. When selecting a list motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected. If, for direct drives, the motor code number (p0301) is changed, this does not automatically result in the angular commutation offset being determined (p0431).		

p0301[0...n] Motor code number selection / Mot code No. sel			
SERVO (Lin)	Can be changed: C2(1, 3), U	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: FEM		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	The parameter is used to select a motor from a motor parameter list. When changing the code number (with the exception to the value 0), all of the motor parameters are pre-assigned from the internally available parameter lists.		
Dependency:	Only code numbers for motor types can be selected that correspond to the motor type selected in p0300. Refer to: p0300		
Notice:	The list for motor codes /encoder codes can be found in the following literature: SINAMICS S List Manual		
Note:	The motor code number can only be changed if the matching list motor was first selected in p0300. When selecting a list motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected.		

p0301[0...n]	Motor code number selection / Mot code No. sel			
VECTOR	Can be changed: C2(1, 3), U	Calculated: -	Access level: 1	
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -	
	P-Group: Motor	Units group: -	Unit selection: -	
	Not for motor type: FEM		Expert list: 1	
	Min 0	Max 65535	Factory setting 0	
Description:	The parameter is used to select a motor from a motor parameter list. When changing the code number (with the exception to the value 0), all of the motor parameters are pre-assigned from the internally available parameter lists.			
Dependency:	Only code numbers for motor types can be selected that correspond to the motor type selected in p0300. For 1PH2, 1PH4, 1PH7, 1PM4, 1PM6, 1FT6 motors, code numbers are also possible, whose fourth decimal position is greater by a value of 1 or 2 than the matching motor type in p0300. For 1FE1 motors, the third decimal position can be higher by a value of 1. Refer to: p0300			
Notice:	The list for motor codes /encoder codes can be found in the following literature: SINAMICS S List Manual			
Note:	The motor code number can only be changed if the matching list motor was first selected in p0300. For a motor with DRIVE-CLiQ, p0301 cannot be changed. In this case, p0301 is automatically written to the code number of the motor parameter read-in (r0302) if p0300 is set to 10000. When selecting a list motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected.			

r0302[0...n]	Motor code number of motor with DRIVE-CLiQ / Motor code Mot DLQ			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -	
	P-Group: Motor	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -	Max -	Factory setting -	
Description:	Displays the motor code number from the saved motor data from a motor with DRIVE-CLiQ.			
Note:	Drive commissioning can only be exited if the code number that was downloaded (r0302) matches the stored code number (p0301). If the numbers differ, then the motor data set should be re-loaded using p0300 = 10000. The motor data are always expected from the first encoder that is assigned to the drive data sets (refer to p0187 = encoder 1) data set number.			

r0303[0...n]	Motor status word from motor with DRIVE-CLiQ / Motor ZSW Drv-CLiQ				
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -		
	P-Group: Motor	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the status word of the automatic motor parameter sensing of a motor with DRIVE-CLiQ.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor data sets	Two	One	-
	01	Mot conn type	Delta	Star	-

p0304[0...n]	Rated motor voltage / Mot V_{rated}		
SERVO, VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Min 0 [Vrms]	Access level: 1 Func. diagram: 6300, 6724 Unit selection: - Expert list: 1 Max 20000 [Vrms]
Description:	Sets the rated motor voltage (rating plate).		
Dependency:	Refer to: p0349		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For synchronous motors (p0300 = 2xx), the parameter can be optionally input. The following applies for SERVO: For synchronous motors, the parameter is of no significance from a control-related perspective. For VECTOR, the following applies: if the rated voltage is entered for synchronous motors during the commissioning phase, then the stator leakage inductance (p0356, p0357) can be more accurately calculated (refer to p0340 and p3900).		
p0305[0...n]	Rated motor current / Mot I_{rated}		
SERVO, VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Min 0.00 [Arms]	Access level: 1 Func. diagram: 6300 Unit selection: - Expert list: 1 Max 10000.00 [Arms]
Description:	Sets the rated motor current (rating plate).		
Dependency:	Refer to: p0349		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Notice:	For VECTOR, the following applies: If the rated motor current exceeds twice the maximum drive converter current (r0209), then the maximum current is reduced due to the current harmonics that increase overproportionally (r0067). For VECTOR and SERVO, the following applies: If p0305 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0306[0...n]	Number of motors connected in parallel / Motor qty		
SERVO	Can be changed: C2(1, 3) Data type: Unsigned8 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Min 1	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Max 10
Description:	Number of motors that can be operated in parallel using one motor data set. Internally, an equivalent motor is calculated dependent on the number of motors entered. The following should be carefully observed for motors connected in series: The following rating plate data should only be entered for one motor: - resistances and inductances: p0350, p0352, p0353, p0354, p0356, p0357, p0358, p0360 - currents: p0305, p0318, p0320, p0323, p0325, p0329, p0338, p0391, p0392		
	Factory setting 1		

- torques/forces: p0312, p0319

- power ratings: p0307

- masses/moments of inertia: p0341, p0344

All other parameters take into account the replacement/equivalent motor (e.g. r0331, r0370, r0373, r0374).

Dependency:

Refer to: r0331, r0370, r0373, r0374, r0376, r0377, r0382

Caution:



The motors to be connected-up in parallel, must be of the same type.

The mounting regulations when connecting motors in parallel must be carefully maintained!

The number of motors set must correspond to the number of motors that are actually connected in parallel.

After changing p0306, it is imperative that the control parameters are adapted (e.g. using automatic calculation with p0340 = 1).

Notice:

If p0306 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).

Note:

Only possible for SERVO!

p0307[0...n]

Rated motor power / Mot P_{rated}

SERVO

Can be changed: C2(1, 3)

Calculated: -

Access level: 1

Data type: Floating Point

Dynamic index: MDS, p0130

Func. diagram: -

P-Group: Motor

Units group: 14_6

Unit selection: p0100

Not for motor type: -

Expert list: 1

Min

0.00 [kW]

Max

100000.00 [kW]

Factory setting

0.00 [kW]

Description:

Sets the rated motor power (rating plate).

Dependency:

IECdrives (p0100 = 0): Units kW

NEMA drives (p0100 = 1): Units hp

Refer to: p0100

Caution:

This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note:

The parameter is automatically preset for motors from the motor list (p0301).

p0307[0...n]

Rated motor power / Mot P_{rated}

VECTOR

Can be changed: C2(1, 3)

Calculated: -

Access level: 1

Data type: Floating Point

Dynamic index: MDS, p0130

Func. diagram: -

P-Group: Motor

Units group: 14_6

Unit selection: p0100

Not for motor type: -

Expert list: 1

Min

-100000.00 [kW]

Max

100000.00 [kW]

Factory setting

0.00 [kW]

Description:

Sets the rated motor power (rating plate).

Dependency:

IECdrives (p0100 = 0): Units kW

NEMA drives (p0100 = 1): Units hp

Refer to: p0100

Caution:

This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note:

The parameter is automatically preset for motors from the motor list (p0301).

For generators, a negative rated power should be entered.

p0308[0...n]	Rated motor power factor / Mot cos_phi_rated		
SERVO, VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.000
	Min 0.000	Max 1.000	
Description:	Sets the rated motor power factor (cos phi, rating plate). For a parameter value of 0.000, the power factor is internally calculated and displayed in r0332.		
Dependency:	This parameter is only available for IEC motors (p0100 = 0). Refer to: p0100, p0309, r0332		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx). The parameter is automatically preset for motors from the motor list (p0301).		
p0309[0...n]	Rated motor efficiency / Mot eta_rated		
VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [%]
	Min 0.0 [%]	Max 99.9 [%]	
Description:	Sets the rated motor efficiency (rating plate). For a parameter value of 0.0, the power factor is internally calculated and displayed in r0332.		
Dependency:	This parameter is only available for NEMA motors (p0100 = 1). Refer to: p0100, p0308, r0332		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx). The parameter is automatically preset for motors from the motor list (p0301).		
p0310[0...n]	Rated motor frequency / Mot f_rated		
SERVO	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [Hz]
	Min 0.00 [Hz]	Max 3000.00 [Hz]	
Description:	Sets the rated motor frequency (rating plate).		
Dependency:	The number of pole pairs (r0313) is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0. Refer to: p0311, r0313, p0314		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically pre-assigned for induction motors from the motor list (p0301). For synchronous motors, the parameter is not required and must therefore be pre-assigned zero. For p0310 = 0, it is not possible to calculate the pole pair; instead, it must be entered in p0314.		

p0310[0...n]	Rated motor frequency / Mot f_{rated}		
VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: 6300 Unit selection: - Expert list: 1 Factory setting 0.00 [Hz]
Description:	Sets the rated motor frequency (rating plate).		
Dependency:	The number of pole pairs (r0313) is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0. For VECTOR the following applies (p0107): The rated frequency is restricted to values between 1.00 Hz and 650.00 Hz. Refer to: p0311, r0313, p0314		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
p0311[0...n]	Rated motor speed / Mot n_{rated}		
SERVO, VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [RPM]
Description:	Sets the rated motor speed (rating plate). For VECTOR the following applies (p0107): For p0311 = 0, the rated motor slip of induction motors is internally calculated and displayed in r0330. It is especially important to correctly enter the rated motor speed for vector control and slip compensation for V/f control.		
Dependency:	If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically. Refer to: p0310, r0313, p0314		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0311[0...n]	Rated motor velocity / Mot v_{rated}		
SERVO (Lin)	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [m/min]
Description:	Sets the rated motor velocity (rating plate).		
Dependency:	The pole pair width is set in p0315. Refer to: p0310, r0313, p0314		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		

p0312[0...n]	Rated motor torque / Mot M_{rated}		
SERVO	Can be changed: C2(3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 7_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the rated motor torque (rating plate).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0312[0...n]	Rated motor force / Mot F_{rated}		
SERVO (Lin)	Can be changed: C2(3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 8_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the rated motor force (rating plate).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act		
SERVO	Can be changed: - Data type: Unsigned8 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 5300 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of motor pole pairs. The value is used for internal calculations. Values: r0313 = 1: 2-pole motor r0313 = 2: 4-pole motor etc.		
Dependency:	For p0314 > 0, the entered value is displayed in r0313. For p0314 = 0, the pole pair number (r0313) is automatically calculated from the rated frequency (p0310) and the rated speed (p0311). Refer to: p0310, p0311, p0314		
Note:	For the automatic calculation, the pole pair number is set to the value of 2 if the rated speed or the rated frequency is zero.		

r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act		
VECTOR	Can be changed: - Data type: Unsigned8 P-Group: Motor Not for motor type: - Min -	Calculated: - Dynamic index: MDS, p0130 Units group: - Max -	Access level: 2 Func. diagram: 5300 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the number of motor pole pairs. The value is used for internal calculations. Values: r0313 = 1: 2-pole motor r0313 = 2: 4-pole motor etc.		
Dependency:	For p0314 > 0, the entered value is displayed in r0313. For p0314 = 0, the pole pair number (r0313) is automatically calculated from the rated power (p0307), rated frequency (p0310) and rated speed (p0311). Refer to: p0307, p0310, p0311, p0314		
Note:	For the automatic calculation, the pole pair number is set to the value of 2 if the rated speed or the rated frequency is zero.		
p0314[0...n]	Motor pole pair number / Mot pole pair No.		
SERVO, VECTOR	Can be changed: C2(1, 3) Data type: Unsigned8 P-Group: Motor Not for motor type: - Min 0	Calculated: - Dynamic index: MDS, p0130 Units group: - Max 127	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the motor pole pair number. Values: p0314 = 1: 2-pole motor p0314 = 2: 4-pole motor etc.		
Dependency:	For p0314 = 0, the pole pair number is automatically calculated from the rated frequency (p0310) and the rated speed (p0311) and displayed in r0313.		
Notice:	For induction motors, the value need only be input if the rated data of a generator is entered therefore resulting in a negative rated slip. In this case, the number of pole pairs in r0313 is too low by 1 and must be manually corrected.		
p0315[0...n]	Motor pole pair width / MotPolePair width		
SERVO (Lin)	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: - Min 1.00 [mm]	Calculated: - Dynamic index: MDS, p0130 Units group: - Max 1000.00 [mm]	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 30.00 [mm]
Description:	Sets the pole pair width of the linear motor.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		

p0316[0...n]	Motor torque constant / Mot kT		
SERVO	Can be changed: C2(1, 3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 28_1	Access level: 1 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm/A]	Max 100.00 [Nm/A]	Factory setting 0.00 [Nm/A]
Description:	Sets the torque constant of the synchronous motor. p0316 = 0: The torque constant is calculated from the motor data. p0316 > 0: The selected value is used as torque constant.		
Dependency:	Refer to: r0334, r1937		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). This parameter is not used for induction motors (p0300 = 1xx).		
p0316[0...n]	Motor force constant / Mot kT		
SERVO (Lin)	Can be changed: C2(1, 3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 29_1	Access level: 1 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [N/Arms]	Max 1000.00 [N/Arms]	Factory setting 0.00 [N/Arms]
Description:	Sets the force constant of the synchronous motor. p0316 = 0: The force constant is calculated from the motor data. p0316 > 0: The selected value is used as force constant.		
Dependency:	Refer to: r0334, r1937		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0316[0...n]	Motor torque constant / Mot kT		
VECTOR	Can be changed: C2(1, 3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 28_1	Access level: 2 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm/A]	Max 100.00 [Nm/A]	Factory setting 0.00 [Nm/A]
Description:	Sets the torque constant of the synchronous motor. p0316 = 0: The torque constant is calculated from the motor data. p0316 > 0: The selected value is used as torque constant.		
Dependency:	Refer to: r0334		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). This parameter is not used for induction motors (p0300 = 1xx).		

p0317[0...n]	Motor voltage constant / Mot kE		
SERVO	Can be changed: C2(3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [Vrms]
Description:	Sets the voltage constant for synchronous motors. Units for rotating synchronous motors: Vrms/(1000 RPM), phase-to-phase		
Dependency:	Refer to: r1938		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). This parameter is not used for induction motors (p0300 = 1xx).		
p0317[0...n]	Motor voltage constant / Mot kE		
SERVO (Lin)	Can be changed: C2(3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [Vrms s/m]
Description:	Sets the voltage constant for synchronous motors. Units for linear synchronous motors: Vrms s/m, phase		
Dependency:	Refer to: r1938		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0318[0...n]	Motor stall current / Mot I_standstill		
SERVO	Can be changed: C2(3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [Arms]
Description:	Sets the stall current for synchronous motors (p0300 = 2xx).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). This parameter is not used for induction motors (p0300 = 1xx). This parameter value is not evaluated from a control-related perspective.		

p0319[0...n]	Motor stall torque / Mot M_standstill		
SERVO	Can be changed: C2(3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 7_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the standstill (stall) torque for rotating synchronous motors (p0300 = 2xx).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). This parameter is not used for induction motors (p0300 = 1xx). This parameter value is not evaluated from a control-related perspective.		
p0319[0...n]	Motor stall force / Mot F_standstill		
SERVO (Lin)	Can be changed: C2(3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 8_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [N]	Max 100000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the standstill (stall) force for linear synchronous motors (p0300 = 4xx).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). This parameter value is not evaluated from a control-related perspective.		
p0320[0...n]	Motor rated magnetization current/short-circuit current / Mot I_mag Rated		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0.000 [Arms]	Max 5000.000 [Arms]	Factory setting 0.000 [Arms]
Description:	Induction motors: Sets the rated motor magnetizing current. For p0320 = 0.000 the magnetizing current is internally calculated and displayed in r0331. Synchronous motors: Sets the rated motor short-circuit current.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). VECTOR: If, for induction motors, the magnetizing current p0320 is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance p0360 is changed so that the EMF r0337 remains constant.		

p0322[0...n]	Maximum motor speed / Mot n_max		
SERVO, VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [RPM]	Max 210000.0 [RPM]	Factory setting 0.0 [RPM]
Description:	Sets the maximum motor speed.		
Dependency:	Refer to: p1082		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0322[0...n]	Motor maximum velocity / Mot v_max		
SERVO (Lin)	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [m/min]	Max 1000.0 [m/min]	Factory setting 0.0 [m/min]
Description:	Sets the maximum motor velocity.		
Dependency:	Refer to: p1082		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0323[0...n]	Maximum motor current / Mot I_max		
SERVO	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0.00 [Arms]	Max 20000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Set the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Notice:	For VECTOR and SERVO, the following applies: If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).		
Note:	The parameter is automatically preset for motors from the motor list (p0301). The parameter has no effect for induction motors. For synchronous motors, a value must always be entered for the maximum motor current. p0323 is a motor data. The user-selectable current limit is entered into p0640.		

p0323[0...n]	Maximum motor current / Mot I_max		
VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0.00 [Arms]	Max 20000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Set the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Notice:	For VECTOR and SERVO, the following applies: If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).		
Note:	The parameter is automatically preset for motors from the motor list (p0301). The parameter has no effect for induction motors. The parameter has not effect for synchronous motors if a value of 0.0 is entered. The user-selectable current limit is entered into p0640.		
p0325[0...n]	Motor pole position identification current, 1st phase / Mot PolID I 1st ph		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [Arms]	Max 10000.000 [Arms]	Factory setting 0.000 [Arms]
Description:	Sets the current for the 1st phase of the two-stage technique for pole position identification routine. The current of the 2nd phase is set in p0329. The two-stage technique is selected with p1980 = 4.		
Dependency:	Refer to: p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990 Refer to: F07995		
Notice:	When the motor code (p0301) is changed, it is possible that p0325 is not pre-assigned. p0325 can be pre-assigned using p0340 = 3.		
Note:	The value is automatically pre-assigned for the following events: - For p0325 = 0 and automatic calculation of the closed-loop control parameters (p0340 = 1, 2, 3). - for quick commissioning (p3900 = 1, 2, 3).		
p0326[0...n]	Motor stall torque correction factor / Mot M_stall_corr		
SERVO	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 5 [%]	Max 300 [%]	Factory setting 60 [%]
Description:	Sets the correction factor for the stall torque/force at a 600 V DC link voltage.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		

p0326[0...n]	Motor stall force correction factor / Mot F_stall_corr		
SERVO (Lin)	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 60 [%]
Description:	Sets the correction factor for the stall force at a 600 V DC link voltage.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0327[0...n]	Optimum motor load angle / Mot phi_load_opt		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1 Factory setting 90.0 [°]
Description:	Sets the optimum load angle for synchronous motors with reluctance torque (e.g. 1FE ... motors). This parameter has no significance for induction motors. SERVO: The load angle is measured at 150% rated motor current. VECTOR: The load angle is measured at the rated motor current.		
Dependency:	Refer to: r1947		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For synchronous motors without reluctance torque, a angle of 90 degrees must be set. The parameter is automatically preset for motors from the motor list (p0301).		
p0328[0...n]	Motor reluctance torque constant / Mot kT_reluctance		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [mH]
Description:	Sets the reluctance torque constant for synchronous motors with reluctance torque (e.g. 1FE ... motors). This parameter has no significance for induction motors.		
Dependency:	Refer to: r1939		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For synchronous motors without reluctance torque, the value 0 must be set. The parameter is automatically preset for motors from the motor list (p0301).		

p0328[0...n]	Motor reluctance force constant / Mot kT_reluctance		
SERVO (Lin)	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [mH]
	Min -1000.00 [mH]	Max 1000.00 [mH]	
Description:	Sets the reluctance force constant for synchronous motors with reluctance force (e.g. 1FE ... motors). This parameter has no significance for induction motors.		
Dependency:	Refer to: r1939		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For synchronous motors without reluctance force, the value 0 must be set. The parameter is automatically preset for motors from the motor list (p0301).		
p0329[0...n]	Motor pole position identification current / Mot PolID current		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [Arms]
	Min 0.00 [Arms]	Max 10000.00 [Arms]	
Description:	Sets the current for the pole position identification routine. For a two-stage technique, the current is set for the second phase.		
Dependency:	Refer to: p0325, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990 Refer to: F07995		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
r0330[0...n]	Rated motor slip / Mot slip Rated		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Hz]
	Min - [Hz]	Max - [Hz]	
Description:	Displays the rated motor slip.		
Dependency:	The rated slip is calculated from the rated frequency, rated speed and number of pole pairs. Refer to: p0310, p0311, r0313		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

r0331[0...n]	Motor magnetizing current/short-circuit current actual / Mot I_mag_ratedAct		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: REL, FEM Min - [Arms]	Calculated: - Dynamic index: MDS, p0130 Units group: - Max - [Arms]	Access level: 3 Func. diagram: 5722, 6722, 6724 Unit selection: - Expert list: 1 Factory setting - [Arms]
Description:	Induction motor: Displays the rated magnetizing current from p0320. For p0320 = 0, the internally calculated magnetizing current is displayed. Synchronous motor: Displays the rated short-circuit current from p0320.		
Dependency:	If p0320 was not entered, then the parameter is calculated from the rating plate parameters.		
r0332[0...n]	Rated motor power factor / Mot cos_phi_rated		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL Min -	Calculated: - Dynamic index: MDS, p0130 Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the rated power factor for induction motors. For IEC motors, the following applies (p0100 = 0): For p0308 = 0, the internally-calculated power factor is displayed. For p0308 > 0, this value is displayed. For NEMA motors, the following applies (p0100 = 1): For p0309 = 0, the internally-calculated power factor is displayed. For p0309 > 0, this value is converted into the power factor and displayed.		
Dependency:	If p0308 is not entered, the parameter is calculated from the rating plate parameters.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0333[0...n]	Rated motor torque / Mot M_rated		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: - Min - [Nm]	Calculated: - Dynamic index: MDS, p0130 Units group: 7_4 Max - [Nm]	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1 Factory setting - [Nm]
Description:	Displays the rated motor torque.		
Note:	For induction and reluctance motors, r0333 is calculated from p0307 and p0311. For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328. The result can deviate from the input in p0312. If p0316 = 0, then r0333 = p0312 is displayed.		

r0333[0...n]	Rated motor force / Mot F_{rated}		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 8_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min - [N]	Max - [N]	Factory setting - [N]
Description:	Displays the rated motor force.		
Note:	For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328. The result can deviate from the input in p0312. If p0316 = 0, then r0333 = p0312 is displayed.		
r0334[0...n]	Motor-torque constant, actual / Mot kT act		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 28_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min - [Nm/A]	Max - [Nm/A]	Factory setting - [Nm/A]
Description:	Displays the torque constant of the synchronous motor used.		
Dependency:	Refer to: p0316		
Note:	This parameter is not used for induction motors (p0300 = 1xx). For synchronous motors, parameter r0334 = p0316 is displayed. if p0316 = 0, r0334 is calculated from p0305 and p0312.		
r0334[0...n]	Motor force constant, actual / Mot kT act		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 29_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min - [N/Arms]	Max - [N/Arms]	Factory setting - [N/Arms]
Description:	Displays the force constant of the synchronous motor used.		
Dependency:	Refer to: p0316		
Note:	For synchronous motors, parameter r0334 = p0316 is displayed. if p0316 = 0, r0334 is calculated from p0305 and p0312.		
p0335[0...n]	Motor cooling type / Motor cooling type		
SERVO, VECTOR	Can be changed: C2(1, 3), T Data type: Integer16 P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 128	Factory setting 0
Description:	Sets the motor cooling system used.		
Values:	0: Non-ventilated 1: Forced cooling 2: Liquid cooling 4: Non-ventilated and internal fan 5: Forced cooling and internal fan 6: Liquid cooling and internal fan 128: No fan		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.		

Caution: This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note: The parameter influences the thermal 3-mass motor model.
1LA1 and 1LA8 motors are characterized by the fact that they have an internal rotor fan. This "internal cooling" lies within the motor frame and is not visible. Air is not directly exchanged with the motor ambient air.
The parameter is automatically preset for motors from the motor list (p0301).
1LA7 motors, frame size 56 are operated without fan.

r0336[0...n]	Rated motor frequency actual / Mot f_{rated act}		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the rated frequency of the motor. For p0310 > 0, this value is displayed.		
Dependency:	Refer to: p0311, p0314		
Note:	For p0310 = 0 or for synchronous motors, the rated motor frequency r0336 is calculated from the rated speed and the pole pair number. For p0310 > 0, this value is displayed (not for synchronous motors).		

r0337[0...n]	Rated motor EMF / Mot EMF_{rated}		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Vrms]
Description:	Displays the rated EMF of the motor.		
Note:	EMF: Electromagnetic force		

r0337[0...n]	Rated motor EMF / Mot EMF_{rated}		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Vrms s/m]
Description:	Displays the rated EMF of the motor.		
Note:	EMF: Electromagnetic force		

p0338[0...n]	Motor limit current / Mot I_{limit}		
SERVO	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [Arms]
Description:	Sets the motor limit current for synchronous motors (for a 600 V DC link voltage). Using this current, the maximum torque is achieved at the rated speed (voltage limit characteristic).		

- Caution:** This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.
- Notice:** If p0338 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).
- Note:** The parameter is automatically preset for motors from the motor list (p0301).

r0339[0...n]		Rated motor voltage / Mot V_rated	
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the rated motor voltage		
Note:	For induction motors (p0300 = 1xx) the parameter is set to p0304. For synchronous motors, parameter r0339 = p0304 is displayed. If p0304 = 0, then r0339 is calculated from p0305 and p0316.		

p0340		Automatic calculation, control parameters / Calc auto par	
A_INF, S_INF	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 0
Description:	Setting to reset and automatically calculate filter and control (closed-loop) parameters.		
Values:	0: No calculation 1: Complete re-calculation. of control parameters with COMM data 2: Reset control parameters		
Notice:	The following parameters are influenced using p0340: p0340 = 1: --> All of the parameters influenced for p0340 = 2 --> p3421 = p0223, p0225 --> p3422 = p0227 --> p3424 = p0225 --> p3415, p3425, p3555, p3614, p3620, p3622 are reset to the factory setting dependent on the particular unit. p0340 = 2: --> p3560, p3562, p3564, p3603, p3615 and p3617 are reset to the factory setting. For S_INF, these control parameters are not available		
Note:	When existing the quick commissioning using p3900 > 0, p0340 is automatically set to 1. At the end of the calculations, p0340 is automatically set to 0.		

p0340[0...n]		Automatic calculation of motor/control parameters / Calc auto par		
SERVO, VECTOR	Can be changed: C2(3), T		Calculated: -	Access level: 2
	Data type: Integer16		Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min 0	Max 5	Factory setting 0	
Description:	Setting to automatically calculate motor parameters and V/f open-loop and closed-loop control parameters from the rating plate data.			

Values:	0: No calculation 1: Complete calculation 2: Calculation of equivalent circuit diagram parameters 3: Calculation of closed-loop control parameters 4: Calculation of controller parameters 5: Calculation of technological limits and threshold values
Notice:	<p>The following parameters are influenced using p0340: The parameters designated with (*) are, for list motors (p0300 > 100) not overwritten.</p> <p>SERVO:</p> <p>p0340 = 1: --> All of the parameters influenced for p0340 = 2, 3, 4, 5 --> p0341 (*) --> p0342, p0344, p0600, p0640, p1082, p2000, p2001, p2002, p2003</p> <p>p0340 = 2: --> p0350 (*), p0354 (*), p0356 (*), p0358 (*), p0360 (*) --> p0625 (matching p0350)</p> <p>p0340 = 3: --> All of the parameters influenced for p0340 = 4, 5 --> p0325 (is only calculated for p0325 = 0) --> p0348 (*) (is only calculated for p0348 = 0) --> p0441, p0442, p0443, p0444, p0445 (only for 1FT6, 1FK6, 1FK7 motors) --> p0492, p1082, p1980, p1319, p1326, p1327, p1612, p1752, p1755</p> <p>p0340 = 4: --> p1441, p1460, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1656, p1657, p1658, p1659, p1715, p1717 --> p1461 (for p0348 > p0322, p1461 is set to 100 %) --> p1463 (for p0348 > p0322, p1463 is set to 400 %)</p> <p>p0340 = 5: --> p1037, p1038, p1520, p1521, p1530, p1531, p2140 ... p2142, p2148, p2150, p2155, p2161, p2162, p2163, p2164, p2175, p2177, p2194, p3820 ... p3829</p> <p>VECTOR:</p> <p>p0340 = 1: --> All of the parameters influenced for p0340 = 2, 3, 4, 5 --> p0341 (*) --> p0342, p0344, p0600, p0640, p1082, p1231, p1232, p1349, p1441, p1442, p1576, p1577, p1609, p1619, p1620, p1621, p1654, p1726, p1825, p1828 ... p1832, p1909, p1959, p2000, p2001, p2002, p2003, p3927, p3928</p> <p>p0340 = 2: --> p0350 (*), p0354 ... p0361 (*), p0652 ... p0660 --> p0625 (matching p0350)</p> <p>p0340 = 3: --> All of the parameters influenced for p0340 = 4, 5 --> p0346, p0347, p0492, p0622, p1262, p1320 ... p1327, p1582, p1584, p1616, p1744, p1755, p1756, p2178</p> <p>p0340 = 4: --> p1290, p1292, p1293, p1299, p1338, p1339, p1340, p1341, p1345, p1346, p1460, p1461, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1600, p1628, p1629, p1630, p1643, p1703, p1715, p1717, p1740, p1756, p1757, p1760, p1761, p1764, p1767, p1781, p1783, p1785, p1786, p1795, p7036, p7037, p7038</p> <p>p0340 = 5: --> p260 ... p264, p1037, p1038, p1520, p1521, p1530, p1531, p1574, p1802, p1803, p2140, p2142, p2148, p2150, p2161, p2162, p2163, p2164, p2175, p2177, p2194, p3207, p3208, p3815, p3820 ... p3829</p> <p>Note:</p> <p>p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5 without overwriting the motor parameters from the Siemens motor lists (p0301 > 0). p0340 = 2 calculates the motor parameters (p0350 ... p0360), but only if it does involve a Siemens catalog motor (p0301 = 0). p0340 = 3 contains the calculations of p0340 = 4, 5. p0340 = 4 only calculates the controller parameters.</p>

p0340 = 5 only calculates the controller limits.

When existing the quick commissioning using p3900 > 0, p0340 is automatically set to 1.


At the end of the calculations, p0340 is automatically set to 0.

If the STARTER commissioning software (start-up tool) writes a 3 into p0340 when "downloading into the target device", then this corresponds to a "complete calculation of the motor/control parameters without equivalent circuit diagram data". The same calculations are carried out as for p0340 = 1, however, without the equivalent circuit diagram parameters of the motor (p0340 = 2), the motor moment of inertia (p0341) and the motor weight (p0344).

For third-party linear synchronous motors (p0300 = 4) equivalent circuit diagram data are not calculated (p0340 = 2).

p0341[0...n] Motor moment of inertia / Mot M_mom of inert			
SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 1700, 5042, 5210, 6030, 6031
	P-Group: Motor	Units group: 25_1	Unit selection: p0100
	Not for motor type: REL		Expert list: 1
	Min 0.000000 [kgm²]	Max 100000.000000 [kgm²]	Factory setting 0.000000 [kgm²]
Description:	Sets the motor moment of inertia (without load).		
Dependency:	This means that together with p0342, the rated starting time of the motor is calculated. Refer to: p0342, r0345		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). SERVO: p0341 * p0342 + p1498 influence the speed/torque pre-control in sensorless operation. VECTOR: The product p0341 * p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).		
p0341[0...n] Motor weight / Mot weight			
SERVO (Lin)	Can be changed: C2(3), U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 5042, 5210
	P-Group: Motor	Units group: 27_1	Unit selection: p0100
	Not for motor type: REL		Expert list: 1
	Min 0.000000 [kg]	Max 10000.000000 [kg]	Factory setting 0.000000 [kg]
Description:	Sets the high moments of inertia (without load).		
Dependency:	This means that together with p0342, the rated starting time of the motor is calculated. Refer to: p0342, r0345		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). SERVO: p0341 * p0342 + p1498 influence the speed/torque pre-control in sensorless operation.		

p0342[0...n]	Ratio between the total and motor moment of inertia / Mot MomInert Ratio		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 1700, 5042, 5210, 6030, 6031 Unit selection: - Expert list: 1 Factory setting 1.000
Description:	Sets the ratio between the total moment of inertia/mass (load + motor) and the intrinsic motor moment of inertia/mass (no load).		
Dependency:	This means that together with p0341, the rated starting (accelerating time) of the motor is calculated for a vector drive. Refer to: p0341, r0345, p1498		
Note:	SERVO: p0341 * p0342 + p1498 influence the speed/torque pre-control in sensorless operation. VECTOR: The product p0341 * p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).		
p0342[0...n]	Ratio between the total and motor force of inertia / Mot MomInert Ratio		
SERVO (Lin)	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 1700, 5042, 5210, 6030, 6031 Unit selection: - Expert list: 1 Factory setting 1.000
Description:	Sets the ratio between the total force of inertia/mass (load + motor) and the intrinsic motor force of inertia/mass (no load).		
Dependency:	This means that together with p0341, the rated starting (accelerating time) of the motor is calculated for a vector drive. Refer to: p0341, r0345, p1498		
Note:	SERVO: p0341 * p0342 + p1498 influence the velocity/force pre-control in sensorless operation. VECTOR: The product p0341 * p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).		
p0344[0...n]	Motor weight / Motor weight		
SERVO, VECTOR	Can be changed: C2(3), T Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 27_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1 Factory setting 0.0 [kg]
Description:	Sets the motor weight. The following applies for vector drives (refer to p0107): The parameter influences the thermal 3 mass model of the induction motor.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx). The parameter is automatically preset for motors from the motor list (p0301).		

r0345[0...n]			
Nominal motor starting time / Mot t_start_rated			
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [s]
Description:	Displays the rated motor starting time. This time corresponds to the time from standstill up to reaching the motor rated speed and the acceleration with motor rated torque (r0333).		
Dependency:	Refer to: r0313, r0333, r0336, p0341, p0342		
<hr/>			
p0346[0...n]			
Motor excitation build-up time / Mot t_excitation			
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.000 [s]
Description:	Sets the excitation build-up time of the motor. This involves the delay time between enabling the pulses and enabling the ramp-function generator. The induction motor is magnetized during this time.		
Caution:	For insufficient magnetization under load or if the acceleration rate is too high, then an induction motor can stall (refer to the note). This is especially true for sensorless vector control or V/f control.		
			
Notice:	If the parameter is set to 0 s for separately-excited synchronous motors (p0300 = 5), then an excitation current set-point is generated even if the drive is powered-down. In the base speed range, this is the no-load excitation current (p0389). In the field-weakening range, the value is reduced with the inverse value of the actual speed. An excitation current setpoint is not generated during de-magnetization (p0347) and if an encoder fault is detected.		
Note:	The parameter is calculated using p0340 = 1, 3. For induction motors, the result depends on the rotor time constant (r0384). If this time is excessively reduced, this can result in an inadequate magnetization of the induction motor. This is the case if the current limit is reached while building-up magnetization. For induction motors, the parameter cannot be set to 0 s (internal limit: 0.1 * r0384). For permanent-magnet synchronous motors and vector control, the value depends on the stator time constant (r0386). Here, it defines the time to establish the current for sensorless operation immediately after the pulses have been enabled.		
<hr/>			
p0347[0...n]			
Motor de-excitation time / Mot t_de-excitat.			
SERVO	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.000 [s]
Description:	Sets the de-magnetizing time (for induction motors) after the inverter pulses have been canceled. The inverter pulses cannot be switched-in (enabled) within this delay time. For SERVO, the de-excitation time is only used for the DC current brake.		
Note:	The parameter is calculated using p0340 = 1, 3. For induction motors, the result depends on the rotor time constant (r0384). if this time is shortened too much, then this can result in an inadequate de-magnetization of the induction motor and in an overcurrent condition when the pulses are subsequently enabled (only when the flying restart function is activated and the motor is rotating).		

p0347[0...n]	Motor de-excitation time / Mot t_de-excitat.		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.000 [s]
		Max 20.000 [s]	Factory setting 0.000 [s]
Description:	Sets the de-magnetizing time (for induction motors) after the inverter pulses have been canceled. The inverter pulses cannot be switched-in (enabled) within this delay time.		
Note:	The parameter is calculated using $p0340 = 1, 3$. For induction motors, the result depends on the rotor time constant (r0384). if this time is shortened too much, then this can result in an inadequate de-magnetization of the induction motor and in an overcurrent condition when the pulses are subsequently enabled (only when the flying restart function is activated and the motor is rotating).		
p0348[0...n]	Speed at the start of field weakening Vdc = 600 V / Mot n_field weaken		
SERVO	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1 Min 0.0 [RPM]
		Max 210000.0 [RPM]	Factory setting 0.0 [RPM]
Description:	Sets the speed at the start of field weakening for a DC link voltage of 600 V.		
Dependency:	Refer to: p0320, r0331		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0348[0...n]	Velocity at the start of field weakening Vdc = 600 V / Mot v_field weaken		
SERVO (Lin)	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1 Min 0.0 [m/min]
		Max 1000.0 [m/min]	Factory setting 0.0 [m/min]
Description:	Sets the velocity at the start of field weakening for a DC link voltage of 600 V.		
Dependency:	Refer to: p0320, r0331		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0349	System of units, motor equivalent circuit diagram data / Unit_sys mot ESB		
SERVO, VECTOR	Can be changed: C2(3) Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Min 1
		Max 2	Factory setting 1
Description:	Sets the actual system of units for motor equivalent circuit diagram data.		

Values: 1: System of units, physical
2: System of units, referred

Dependency: Refer to: p0304, p0305, p0310

Note: The reference parameter for resistances of the rated motor impedance $Z = p0304 / (1.732 * p0305)$ is in the % units system.
Inductances are converted into a resistance using the factor $2 * \pi * p0310$.
If a reference parameter (p0304, p305, p0310) is zero, then it is not possible to make a changeover to "referred" values (per unit values).

p0350[0...n] Motor stator resistance, cold / Mot R_stator cold

SERVO, VECTOR **Can be changed:** C2(3), U, T **Calculated:** CALC_MOD_EQU **Access level:** 2
Data type: Floating Point **Dynamic index:** MDS, p0130 **Func. diagram:** -
P-Group: Motor **Units group:** 16_1 **Unit selection:** p0349
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0.00000 [Ohm]	2000.00000 [Ohm]	0.00000 [Ohm]

Description: Sets the stator resistance of the motor at ambient temperature p0625.

Dependency: Refer to: p0625, r1912

Caution: This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is automatically preset for motors from the motor list (p0301).
The motor identification routine determines the stator resistance from the total stator resistance minus the cable resistance (p0352).

p0352[0...n] Cable resistance / Mot R_cable cold

SERVO **Can be changed:** C2(3), U, T **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** MDS, p0130 **Func. diagram:** -
P-Group: Motor **Units group:** 16_1 **Unit selection:** p0349
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0.00000 [Ohm]	120.00000 [Ohm]	0.00000 [Ohm]

Description: Resistance of the power cable between the Motor Module and motor.

Note: The parameter influences the temperature adaptation of the stator resistance.

The motor identification routine does not change the cable resistance. This is subtracted from the total measured stator resistance in order to calculate the stator resistance (p0350, p0352).

p0352[0...n] Cable resistance / Mot R_cable cold

VECTOR **Can be changed:** C2(3), U, T **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** MDS, p0130 **Func. diagram:** -
P-Group: Motor **Units group:** 16_1 **Unit selection:** p0349
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0.00000 [Ohm]	120.00000 [Ohm]	0.00000 [Ohm]

Description: Resistance of the power cable between the Motor Module and motor.

Dependency: Refer to: p7003

Notice: Parallel circuits with one winding system (p7003 = 0):

p0352 includes the feeder cable resistance of an individual Motor Module. The total feeder cable resistance is obtained from p0352 divided by the number of activated Motion Modules (refer to r0395).

Parallel circuits with multi-winding system (p7003 = 1):

p0352 includes the complete feeder cable resistance and is directly added to the stator resistance (refer to r0395).

Note: The parameter influences the temperature adaptation of the stator resistance.
The motor identification sets the cable resistance to 20% of the measured total resistance if p0352 is zero at the time that the measurement is made. If p0352 is not zero, then the value is subtracted from the measured total stator resistance to calculate stator resistance p0350. In this case, p0350 is a minimum of 10% of the measured value.
Exception:
For parallel circuit configurations with one winding system (p07003 = 0), the cable resistance is directly measured. It is important to note that only the component of an individual Motion Module is entered into p0352.

p0353[0...n] Motor series inductance / Mot L_series

SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: -		Expert list: 1
	Min 0.000 [mH]	Max 1000000.000 [mH]	Factory setting 0.000 [mH]

Description: Sets the series inductance.

Note: For the automatic calculation with p0340 = 1 or 3, the calculation of p0348 is influenced by p0353 if p0348 was 0.
For the automatic calculation with p0340 = 1, 3 or 4, the calculation of p1715 is influenced by p0353.

p0354[0...n] Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd

SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL		Expert list: 1
	Min 0.00000 [Ohm]	Max 300.00000 [Ohm]	Factory setting 0.00000 [Ohm]

Description: Sets the rotor/secondary section resistance of the motor at the ambient temperature p0625.

For separately-excited synchronous motors: Sets the damping resistance in the rotor direction (d-axis).

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).

Dependency: Refer to: p0625

Caution: This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

The parameter is automatically preset for motors from the motor list (p0301).

p0355[0...n] Motor damping resistance, q axis / Mot R_damp q

VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.00000 [Ohm]	Max 300.00000 [Ohm]	Factory setting 0.00000 [Ohm]

Description: Sets the damping resistance of the separately-excited synchronous motor quadrature to the rotor direction (q axis).
This parameter value is automatically calculated using the motor model (p0340 = 1, 2).

p0356[0...n]	Motor stator leakage inductance / Mot L_stator leak.		
SERVO	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Induction motor, separately-excited synchronous motor: Sets the rotor leakage inductance of the motor. Synchronous motor: Sets the stator quadrature axis inductance of the motor. This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0356[0...n]	Motor stator leakage inductance / Mot L_stator leak.		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Induction motor, separately-excited synchronous motor: Sets the rotor leakage inductance of the motor. Synchronous motor: Sets the stator quadrature axis inductance of the motor. This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301). If the stator leakage inductance (p0356) for induction motors is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance (p0360) is automatically adapted to the new EMF (r0337). After this, we recommend that the saturation characteristic measurement is repeated (p1960). For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is therefore ideally applicable for a low current.		
p0357[0...n]	Motor stator inductance, d axis / Mot L_stator d		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Sets the stator direct-axis inductance of the synchronous motor. This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).		
Note:	The parameter is not used for separately-excited synchronous motors (p0300 = 5). For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is ideal for a low current.		

p0358[0...n]	Motor rotor leakage inductance / damping inductance, d axis / Mot L_r leak / LDd		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Sets the rotor/secondary section leakage inductance of the motor. For separately-excited synchronous motors: Sets the damping inductance in the rotor direction (d-axis). This value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx). The parameter is automatically preset for motors from the motor list (p0301). VECTOR: If the stator leakage inductance (p0358) for induction motors is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance (p0360) is automatically adapted to the new EMF (r0337). After this, we recommend that the saturation characteristic measurement is repeated (p1960).		
p0359[0...n]	Motor damping inductance, q axis / Mot L_damp q		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Sets the damping inductance of the separately-excited synchronous motor quadrature to the rotor direction (q axis). This parameter value is automatically calculated using the motor model (p0340 = 1, 2).		
p0360[0...n]	Motor magnetizing inductance/magn. inductance, d axis saturated / Mot Lh/Lh d sat		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 10000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Sets the magnetizing inductance of the motor. For separately-excited synchronous motors: Sets the saturated magnetizing inductance in the rotor direction (d-axis). This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx). The parameter is automatically preset for motors from the motor list (p0301).		

p0361[0...n]	Motor magnetizing inductance q axis, saturated / Mot L_magn q sat		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 10000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Sets the saturated magnetizing inductance of the separately-excited synchronous motor quadrature to the rotor direction (q axis). This parameter value is automatically calculated using the motor model (p0340 = 1, 2).		
p0362[0...n]	Saturation characteristic flux 1 / Mot saturat.flux 1		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 60.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the y coordinate (flux) for the 1st value pair of the characteristic. Sets the first flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).		
Dependency:	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0366		
Note:	For induction motors, p0362 = 100 % corresponds to the rated motor flux. For separately-excited synchronous motors p0362 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).		
p0363[0...n]	Saturation characteristic flux 2 / Mot saturat.flux 2		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 85.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the y coordinate (flux) for the 2nd value pair of the characteristic. Sets the second flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).		
Dependency:	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0367		
Note:	For induction motors, p0363 = 100 % corresponds to the rated motor flux. For separately-excited synchronous motors p0363 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).		

p0364[0...n]	Saturation characteristic flux 3 / Mot saturat.flux 3		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 115.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the y coordinate (flux) for the 3rd value pair of the characteristic. Sets the third flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).		
Dependency:	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0368		
Note:	For induction motors, p0364 = 100 % corresponds to the rated motor flux. For separately-excited synchronous motors p0364 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).		
p0365[0...n]	Saturation characteristic flux 4 / Mot saturat.flux 4		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 125.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the y coordinate (flux) for the 4th value pair of the characteristic. Sets the fourth flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).		
Dependency:	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0369		
Note:	For induction motors, p0365 = 100 % corresponds to the rated motor flux. For separately-excited synchronous motors p0365 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).		
p0366[0...n]	Saturation characteristic I_mag 1 / Mot sat. I_mag 1		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 5.0 [%]	Max 800.0 [%]	Factory setting 50.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 1st value pair of the characteristic. Sets the first magnetizing current of the saturation characteristic as a [%] referred to the rated magnetizing current (r0331), for separately-excited synchronous motors referred to the no-load excitation current.		
Dependency:	The following applies for the magnetizing currents: p0366 < p0367 < p0368 < p0369 Refer to: p0362		

p0367[0...n]	Saturation characteristic I_mag 2 / Mot sat. I_mag 2		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 5.0 [%]	Max 800.0 [%]	Factory setting 75.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 2nd value pair of the characteristic. Sets the second magnetizing current of the saturation characteristic as a [%] referred to the rated magnetizing current (r0331), for separately-excited synchronous motors referred to the no-load excitation current.		
Dependency:	The following applies for the magnetizing currents: p0366 < p0367 < p0368 < p0369 Refer to: p0363		

p0368[0...n]	Saturation characteristic I_mag 3 / Mot sat. I_mag 3		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 5.0 [%]	Max 800.0 [%]	Factory setting 150.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 3rd value pair of the characteristic. Sets the third magnetizing current of the saturation characteristic as a [%] referred to the rated magnetizing current (r0331), for separately-excited synchronous motors referred to the no-load excitation current.		
Dependency:	The following applies for the magnetizing currents: p0366 < p0367 < p0368 < p0369 Refer to: p0364		

p0369[0...n]	Saturation characteristic I_mag 4 / Mot sat. I_mag 4		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 5.0 [%]	Max 800.0 [%]	Factory setting 210.0 [%]
Description:	The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 4th value pair of the characteristic. Sets the fourth magnetizing current of the saturation characteristic as a [%] referred to the rated magnetizing current (r0331), for separately-excited synchronous motors referred to the no-load excitation current.		
Dependency:	The following applies for the magnetizing currents: p0366 < p0367 < p0368 < p0369 Refer to: p0365		

r0370[0...n]	Motor stator resistance, cold / Mot R_stator cold		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the motor stator resistance at an ambient temperature p0625. The value does not include the cable resistance.		
Dependency:	Refer to: p0625		
r0372[0...n]	Cable resistance / Mot R_cable		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the cable resistance between the Motor Module and motor.		
Dependency:	Refer to: p0352		
r0373[0...n]	Motor rated stator resistance / Mot R_stator rated		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the rated motor stator resistance at rated temperature (sum from p0625 and p0627).		
Dependency:	Refer to: p0627		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0374[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the rotor/secondary section resistance of the motor for the ambient temperature p0625. For separately-excited synchronous motors: Displays the damping resistance in the rotor direction (d-axis).		
Dependency:	Refer to: p0625		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

r0375[0...n]	Motor damping resistance, q axis / Mot R_damp q		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: ASM, PEM, REL Min - [Ohm]	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1 Max - [Ohm]	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the damping resistance of the separately-excited synchronous motor quadrature to the rotor direction (q axis).		
r0376[0...n]	Rated motor rotor resistance / Mot R_rotor rated		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM Min - [Ohm]	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1 Max - [Ohm]	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the rated (nominal) rotor/secondary section resistance of the motor at the rated temperature (sum of p0625 and p0628).		
Dependency:	Refer to: p0628		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0377[0...n]	Motor leakage inductance, total / Mot L_leak total		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: - Min - [mH]	Calculated: - Dynamic index: MDS, p0130 Units group: 15_1 Max - [mH]	Access level: 4 Func. diagram: 6640 Unit selection: p0349 Expert list: 1 Factory setting - [mH]
Description:	Induction motor, separately-excited synchronous motor: Displays the stator leakage inductance of the motor including the series inductance (p0353) for servo drives and the motor reactor (p0233) for vector drives. Synchronous motor: Displays the stator quadrature axis inductance including the series inductance (p0353) for servo drives and the motor reactor (p0233) for vector drives.		
r0378[0...n]	Motor stator inductance, d axis / Mot L_stator_d		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM Min - [mH]	Calculated: - Dynamic index: MDS, p0130 Units group: 15_1 Max - [mH]	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [mH]
Description:	Displays the stator longitudinal inductance of the synchronous motor including the series inductance (p0353) and the motor reactor (p0233).		
Note:	The parameter is not used for separately-excited synchronous motors (p0300 = 5).		

r0380[0...n]	Motor damping inductance, d axis / Mot L_damping_d		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: 15_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [mH]
Description:	Displays the damping inductance of the separately-excited synchronous motor in the rotor direction (d-axis).		
r0381[0...n]	Motor damping inductance, q axis / Mot L_damping_q		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: 15_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [mH]
Description:	Displays the damping inductance of a separately-excited synchronous motor quadrature to the rotor direction (q axis).		
r0382[0...n]	Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: 15_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [mH]
Description:	Displays the magnetizing inductance of the motor. For separately-excited synchronous motors: Displays the saturated magnetizing inductance in the rotor direction (d-axis).		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0383[0...n]	Motor magnetizing inductance q axis, saturated / Mot L_magn q sat		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: 15_1	Access level: 4 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting - [mH]
Description:	Displays the saturated magnetizing inductance of a separately-excited synchronous motor quadrature to the rotor direction (q axis).		
r0384[0...n]	Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 4 Func. diagram: 6722 Unit selection: - Expert list: 1 Factory setting - [ms]
Description:	Displays the rotor time constant. For separately-excited synchronous motors: Displays the damping time constant in the rotor direction (d-axis).		

Note: The parameter is not used for synchronous motors.
The value is calculated from the sum of the inductances on the rotor side (p0358, p0360) divided by the rotor/damping resistance (p0354). The temperature adaptation of the rotor resistance for induction motors is not taken into account.

r0385[0...n]	Motor damping time constant, q axis / Mot T_Dq		
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the damping time constant of a separately-excited synchronous motor quadrature to the rotor direction (q axis).		
Note:	The value is calculated from the sum of the inductances on the damping side (p0359, p0361) divided by the damping resistance (p0355).		

r0386[0...n]	Motor stator leakage time constant / Mot T_stator leak		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the stator leakage time constant.		
Note:	The value is calculated from the sum of all leakage inductances (p0233*, p0353**, p0356, p0358) divided by the sum of all motor resistances (p0350, p0352*, p0354). The temperature adaptation of the resistances is not taken into account. * only applies for VECTOR (r0107). ** only applies for SERVO (r0107).		

r0387[0...n]	Motor stator leakage time constant, q axis / Mot T_Sleak / T_Sq		
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the stator leakage time constant quadrature to the rotor direction (q axis).		
Note:	The value is calculated from the sum of all leakage inductances (p0233, p0356, p0359) divided by the sum of all motor resistances (p0350, p0352, p0355). The temperature adaptation of the resistances is not taken into account.		

p0389[0...n]	Excitation rated no-load current / Exc I_noload_rated		
VECTOR	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 6727
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.00 [A]	Max 10000.00 [A]	Factory setting 0.00 [A]
Description:	Sets the rated no-load current (I_F0) for the excitation.		

p0390[0...n]	Rated excitation current / Exc I_{rated}		
VECTOR	Can be changed: C2(1, 3) Data type: Floating Point P-Group: Motor Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: - Min 0.00 [A]	Access level: 1 Func. diagram: 6727 Unit selection: - Expert list: 1 Max 10000.00 [A] Factory setting 0.00 [A]
Description:	Sets the rated current (I _F) for the excitation.		
p0391[0...n]	Current controller adaptation, starting point KP / I_{adapt} pt KP		
SERVO	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: - Dynamic index: MDS, p0130 Units group: - Min 0.00 [Arms]	Access level: 3 Func. diagram: 5714 Unit selection: - Expert list: 1 Max 6000.00 [Arms] Factory setting 0.00 [Arms]
Description:	Sets the starting point of the current-dependent current controller adaptation where the current controller gain p1715 is effective.		
Dependency:	Refer to: p0392, p0393, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.		
p0391[0...n]	Current controller adaptation, starting point KP / I_{adapt} pt KP		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: CALC_MOD_REG Dynamic index: MDS, p0130 Units group: - Min 0.00 [Arms]	Access level: 3 Func. diagram: 6714 Unit selection: - Expert list: 1 Max 6000.00 [Arms] Factory setting 0.00 [Arms]
Description:	Sets the starting point of the current-dependent current controller adaptation where the current controller gain p1715 is effective.		
Dependency:	Refer to: p0392, p0393, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
p0392[0...n]	Current controller adaptation, starting point KP adapted / I_{adapt} pt KP adap		
SERVO	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: REL	Calculated: - Dynamic index: MDS, p0130 Units group: - Min 0.00 [Arms]	Access level: 3 Func. diagram: 5714 Unit selection: - Expert list: 1 Max 6000.00 [Arms] Factory setting 0.00 [Arms]
Description:	Sets the starting point of the current-dependent current controller adaptation where the adapted current controller gain p1715 * p0393 is effective.		
Dependency:	Refer to: p0391, p0393, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		

Note: For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.

p0392[0...n] Current controller adaptation, starting point KP adapted / I_adapt pt KP adap			
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 6714
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [Arms]	Max 6000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the starting point of the current-dependent current controller adaptation where the adapted current controller gain p1715 * p0393 is effective.		
Dependency:	Refer to: p0391, p0393, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		

p0393[0...n] Current controller adaptation p gain adaptation / I_adapt Kp adapt			
SERVO	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 5714
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the factor for the current controller P gain in the adaptation range (current greater than p0392). The value is referred to p1715.		
Dependency:	Refer to: p0391, p0392, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.		

p0393[0...n] Current controller adaptation P gain scaling / I_adapt Kp scal			
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 6714
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the factor for the current controller P gain in the adaptation range (e.g. r0078 > p0392, if p0392 > p0391). The value is referred to p1715.		
Dependency:	Refer to: p0391, p0392, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.		

r0395[0...n]	Stator resistance, actual / R_stator active		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: - Min - [Ohm]	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1 Max - [Ohm]	Access level: 3 Func. diagram: 6300, 6730, 6731 Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the actual stator resistance (phase value). The parameter is influenced by the temperature model and includes the temperature-independent cable resistance.		
Dependency:	Refer to: p0350, p0352, p0620		
r0396[0...n]	Rotor resistance, actual / R_rotor active		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM Min - [Ohm]	Calculated: - Dynamic index: MDS, p0130 Units group: 16_1 Max - [Ohm]	Access level: 3 Func. diagram: 6730 Unit selection: p0349 Expert list: 1 Factory setting - [Ohm]
Description:	Displays the actual rotor/secondary section resistance (phase value). The parameter is influenced by the temperature model.		
Dependency:	Refer to: p0354, p0620		
Note:	This parameter is not used for synchronous motors (p0300 = 2xx).		
p0400[0...n]	Enc type selection / Enc type selection		
SERVO, VECTOR	Can be changed: C2(1, 4) Data type: Integer16 P-Group: Encoder Not for motor type: - Min 0	Calculated: - Dynamic index: EDS, p0140 Units group: - Max 10050	Access level: 1 Func. diagram: 1580, 4704 Unit selection: - Expert list: 1 Factory setting 0
Description:	Selects the encoder from the list of encoder types supported.		
Values:	0: No encoder 1001: Resolver 1 speed 1002: Resolver 2 speed 1003: Resolver 3 speed 1004: Resolver 4 speed 2001: 2048, 1 Vpp, A/B C/D R 2002: 2048, 1 Vpp, A/B R 2003: 256, 1 Vpp, A/B R 2004: 400, 1 Vpp, A/B R 2005: 512, 1 Vpp, A/B R 2010: 18000, 1 Vpp, A/B R distance-coded 2051: 2048, 1 Vpp, A/B, EnDat, Multiturn 4096 2052: 32, 1 Vpp, A/B, EnDat, Multiturn 4096 2053: 512, 1 Vpp, A/B, EnDat, Multiturn 4096 2054: 16, 1 Vpp, A/B, EnDat, Multiturn 4096 2055: 2048, 1 Vpp, A/B, EnDat, Singleturn 2081: 2048, 1 Vpp, A/B, SSI, Singleturn 2082: 2048, 1 Vpp, A/B, SSI, Multiturn 4096 2083: 2048, 1 Vpp, A/B, SSI, Singleturn, error bit 2084: 2048, 1 Vpp, A/B, SSI, Multiturn 4096, error bit 2110: 4000 nm, 1 Vpp, A/B R distance-coded 2111: 20000 nm, 1 Vpp, A/B R distance-coded		

2112: 40000 nm, 1 Vpp, A/B R distance-coded
 2151: 16000 nm, 1 Vpp, A/B, EnDat, resolution 100 nm
 3001: 1024 HTL A/B R
 3002: 1024 TTL A/B R
 3003: 2048 HTL A/B R
 3005: 1024 HTL A/B
 3006: 1024 TTL A/B
 3007: 2048 HTL A/B
 3008: 2048 TTL A/B
 3009: 1024 HTL A/B unipolar
 3011: 2048 HTL A/B unipolar
 3020: 2048 TTL A/B R, with sense
 3081: SSI, Singleturn, 24 V
 3082: SSI, Multiturn 4096, 24 V
 3090: 4096, HTL, A/B, SSI, Singleturn
 9999: User-defined
 10000: Identify encoder
 10050: Encoder with EnDat interface identified

Caution: An encoder type with p0400 < 9999 defines an encoder for which there is an encoder parameter list. When selecting a catalog encoder (p0400 < 9999) the parameters from the encoder parameter list cannot be changed (write protection). To remove write protection, the encoder type should be set to an unlisted encoder (p0400 = 9999).

Notice: The list for motor codes /encoder codes can be found in the following literature:
SINAMICS S List Manual

Note: The connected encoder can be identified by p0400 = 10000. This means that the encoder must support this and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface.

If an identification is not possible, then p0400 is set to 0.

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

When using an encoder with track A/B and zero pulse, as standard, fine synchronization is not set using the zero mark. If, for a synchronous motor, the fine synchronization is to be realized using a zero mark, then the following must be executed:

- set p0400 to 9999

- set p0404.15 to 1

Prerequisite:

Coarse synchronization must be selected (e.g. pole position identification) and the zero pulse of the encoder must either be mechanically or electronically (p0431) adjusted to the pole position.

p0401[0...n] Encoder type, OEM selection / Enc type OEM sel

SERVO, VECTOR	Can be changed: C2(1, 4)	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: 1580, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 32767	Factory setting 0

Description: Selects the encoder from the list of encoder types that the OEM supports.

Note: The connected encoder can be identified by p0400 = 10000. This means that the encoder must support this and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface.

If an identification is not possible, then p0400 is set to 0.

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

Using p0400 = 20000, the encoder type can be selected from the list of OEM encoders using p0401.

p0402[0...n]					
SERVO, VECTOR	Gearbox type selection / Gearbox type sel				
	Can be changed: C2(1, 4)	Calculated: -	Access level: 1		
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: -		
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	1	10000	9999		
Description: Selects the gearbox type to pre-set the inversion and the gearbox factor. Measuring gearbox factor = motor or load revolutions / encoder revolutions.					
Values: 1: Gearbox 1:1 not inverted 2: Gearbox 2:7 inverted 3: Gearbox 4:17 inverted 9999: Gearbox, user-defined 10000: Identify gearbox					
Dependency: Refer to: p0410, p0432, p0433					
Note: Re p0402 = 1: Automatic setting of p0410 = 0000 bin, p0432 = 1, p0433 = 1. Re p0402 = 2: Automatic setting of p0410 = 0011 bin, p0432 = 7, p0433 = 2 Re p0402 = 3: Automatic setting of p0410 = 0011 bin, p0432 = 17, p0433 = 4. Re p0402 = 9999: No automatic setting of p0410, p0432, p0433. The parameters should be manually set. Re p0402 = 10000: It is only possible to identify the gearbox type for a motor with DRIVE-CLiQ. Parameters p0410, p0432 and p0433 are set corresponding to the identified gearbox. If an identification is not possible, then p0402 is set to 9999.					
p0404[0...n]					
SERVO, VECTOR	Encoder configuration effective / Enc_config eff				
	Can be changed: C2(4)	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: 4704		
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description: Settings for the basic encoder properties.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-
	01	Abs value encoder	Yes	No	-
	02	Multiturn encoder	Yes	No	-
	03	Track A/B sq-wave	Yes	No	-
	04	Track A/B sinus	Yes	No	-
	05	Track C/D	Yes	No	-
	06	Hall sensor	Yes	No	-
	08	EnDat encoder	Yes	No	-
	09	SSI encoder	Yes	No	-
	12	Equidistant zero mark	Yes	No	-
	13	Irregular zero mark	Yes	No	-
	14	Distance-coded zero mark	Yes	No	-
	15	Commutation with zero mark	Yes	No	-
	16	Acceleration	Yes	No	-
	20	Voltage level 5 V	Yes	No	-
	21	Voltage level 24 V	Yes	No	-
	22	Remote sense (only SMC30)	Yes	No	-
	23	Resolver excit.	Yes	No	-

- Caution:** This parameter is automatically preset for encoders from the encoder list (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.
- Note:** ZM: Zero mark
SMC: Sensor Module Cabinet
If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:
The track A/B is adjusted to match the magnetic position of the motor.
Re bit 1, 2 (absolute encoder, multi-turn encoder):
These bits can only be selected for EnDat or SSI encoders.
Re bit 12 (equidistant zero mark):
The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution). The bit activates the monitoring of the zero mark clearance (p0425).
Re bit 13 (irregular zero mark):
The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark clearance is not monitored.
Re bit 14 (clearance-coded zero mark):
The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.
Re bit 15 (commutation with zero mark):
For clearance-coded zero marks, the following applies:
The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).
The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.
The fine synchronization is only started after two zero marks have been passed.

p0405[0...n]		Square-wave encoder track A/B / Sq-wave enc A/B			
SERVO, VECTOR	Can be changed: C2(4)		Calculated: -	Access level: 3	
	Data type: Unsigned32		Dynamic index: EDS, p0140	Func. diagram: 4704	
	P-Group: Encoder		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min	Max	Factory setting		
-	-	1111 bin			
Description:	Settings for the track A/B of a square-wave encoder. For square-wave encoders, p0404.3 must also be 1.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Signal	Bipolar	Unipolar	-
	01	Level	TTL	HTL	-
	02	Track monitoring	A/B <-> -A/B	None	-
	03	Zero pulse	Same as A/B track	24 V unipolar	-
	04	Switching threshold	High	Low	-
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.				

p0407[0...n]		Linear encoder grid division / Enc grid div	
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [nm]	Max 250000000 [nm]	Factory setting 16000 [nm]
Description:	Sets the grid division for a linear encoder.		

- Caution:** This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.
- Note:** The lowest permissible value is 250 nm.

p0408[0...n]		Rotary encoder pulse No. / Rot enc pulse No.	
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 16777215	Factory setting 2048
Description:	Sets the number of pulses for a rotary encoder.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	The number of pole pairs for a resolver is entered here. The smallest permissible value is 1 pulse.		


p0408	Rotary encoder pulse No. / Rot enc pulse No.		
TM41	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9674, 9676
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1000	Max 8192	Factory setting 2048
Description:	Sets the number of pulses for a rotary encoder.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		

p0410[0...n]	Encoder inversion actual value / Enc inv act value			
SERVO, VECTOR	Can be changed: C2(4)		Calculated: -	Access level: 3
	Data type: Unsigned16		Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min -		Max -	Factory setting 0000 bin
Description:	Setting to invert actual values.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Invert speed actual value	Yes	No
	01	Invert position actual value	Yes	No
Note:	The inversion influences the following parameters:			
	Bit 00: r0061, r0063 (exception: sensorless control), r0094			
	Bit 01: r0482, r0483			

p0410[0...n]	Encoder inversion actual value / Enc inv act value			
SERVO (Lin)	Can be changed: C2(4)	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	
Description:	Setting to invert actual values.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Invert velocity actual value	Yes	No
	01	Invert position actual value	Yes	No
Note:	The inversion influences the following parameters: Bit 00: r0061, r0063 (exception: sensorless control), r0094 Bit 01: r0482, r0483			

p0411[0...n]	Measuring gearbox, configuration / Meas grbx config			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	
Description:	Sets the configuration for position tracking of a measuring gearbox.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Measuring gearbox, activate position tracking	Yes	No
	01	Axis type	Linear axis	Rotary axis
	02	Measuring gearbox, reset position	Yes	No
Note:	For the following events, the non-volatile, saved position values are automatically reset: - when an encoder replacement has been identified. - when changing the configuration of the Encoder Data Set (EDS).			

p0412[0...n]	Measuring gearbox, rotary absolute gearbox, revolutions, virtual / Abs rot rev			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	4194303	4096	
Description:	Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the measuring gearbox.			
Dependency:	This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking (p0411.0 = 1).			
Note:	The resolution that is set must be able to be represented using r0483. For rotary axes/modulo axes, the following applies: This parameter is preset with p0421 and can be changed. For linear axes, the following applies: This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.			

p0413[0...n]	Measuring gearbox, position tracking tolerance window / Pos track window		
SERVO, VECTOR	Can be changed: C2(4) Data type: Floating Point P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00
Description:	Sets a tolerance window for position tracking. After the system is powered-up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated: Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value. Difference outside the tolerance window --> An appropriate message is output.		
Dependency:	Refer to: F31501, F32501, F33501		
Caution:	Rotation, e.g. through a complete encoder range is not detected.		
			
Note:	The value is entered in integer (complete) encoder pulses. For p0411.0 = 1, the value is automatically pre-assigned quarter of the encoder range. Example: Quarter of the encoder range = (p0408 * p0421) / 4 It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).		

p0418[0...n]	Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1		
SERVO, VECTOR	Can be changed: C2(4) Data type: Unsigned8 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: 4010, 4704 Unit selection: - Expert list: 1 Factory setting 11
Description:	Sets the fine resolution in bits of the incremental position actual values.		
Note:	The parameter applies for the following process data: - Gx_XIST1 - Gx_XIST2 for reference mark or flying measurement The fine resolution specifies the fraction between two encoder pulses. Depending on the physical measurement principle, an encoder pulse can be broken down into a different number of fractions (e.g. squarewave encoder: 2 bit = resolution 4, sin/cos encoder: Typical 11 bit = resolution 2048). For a squarewave encoder, with the factory setting, the least significant bits have the value zero, i.e. they do not supply any useful information. For especially high quality measuring systems, the fine resolution must be increased corresponding to the available accuracy.		

p0418	Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1		
TM41	Can be changed: C2(4) Data type: Unsigned8 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9674, 9676 Unit selection: - Expert list: 1 Factory setting 11
Description:	Sets the fine resolution in bits of the incremental position actual values.		

p0419[0...n]		Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -		Access level: 3	
	Data type: Unsigned8	Dynamic index: EDS, p0140		Func. diagram: 4704	
	P-Group: Encoder	Units group: -		Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min 2	Max 18		Factory setting 9	
Description:	Sets the fine resolution in bits of the absolute position actual values.				
Dependency:	Refer to: p0418				
Note:	This parameter applies to process data Gx_XIST2 when reading the absolute value.				

p0420[0...n]		Encoder connection / Encoder connection			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -		Access level: 3	
	Data type: Unsigned16	Dynamic index: EDS, p0140		Func. diagram: -	
	P-Group: Encoder	Units group: -		Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min -	Max -		Factory setting 0000 bin	
Description:	Selecting the encoder connection.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SUB-D	Yes	No	-
	01	Terminal	Yes	No	-

p0421[0...n]		Absolute encoder rotary multi-turn resolution / Enc abs multiturn			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -		Access level: 3	
	Data type: Unsigned16	Dynamic index: EDS, p0140		Func. diagram: 4704	
	P-Group: Encoder	Units group: -		Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min 0	Max 65535		Factory setting 4096	
Description:	Sets the number of rotations that can be resolved for a rotary absolute encoder.				
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.				

p0422[0...n]		Absolute encoder linear measuring step resolution / Enc abs meas step			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -		Access level: 3	
	Data type: Unsigned32	Dynamic index: EDS, p0140		Func. diagram: 4704	
	P-Group: Encoder	Units group: -		Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min 0 [nm]	Max 4294967295 [nm]		Factory setting 100 [nm]	
Description:	Sets the resolution of the absolute position for a linear absolute encoder.				
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.				
Note:	The serial protocol of an absolute encoder provides the position with a certain resolution , e.g. 100 nm. This value must be entered here.				

p0423[0...n]	Absolute encoder rotary single-turn resolution / Enc abs singleturn		
SERVO, VECTOR	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Min 0 Max 1073741823	Access level: 3 Func. diagram: 4704 Unit selection: - Expert list: 1 Factory setting 8192
Description:	Sets the number of measuring steps per revolution for a rotary absolute encoder. The resolution refers to the absolute position.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
p0424[0...n]	Encoder, linear zero mark distance / Enc lin ZM_dist		
SERVO, VECTOR	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Min 0 [mm] Max 65535 [mm]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 20 [mm]
Description:	Sets the distance between two zero marks for a linear encoder. This information is used for zero mark monitoring.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	For distance-coded zero marks, this means the basic distance.		
p0425[0...n]	Encoder, rotary zero mark distance / Enc rot dist ZM		
SERVO, VECTOR	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Min 0 Max 16777215	Access level: 3 Func. diagram: 4704, 8570 Unit selection: - Expert list: 1 Factory setting 2048
Description:	Sets the distance in pulses between two zero marks for a rotary encoder. This information is used for zero mark monitoring.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	For distance-coded zero marks, this means the basic distance.		
p0427[0...n]	Encoder SSI baud rate / Enc SSI baud rate		
SERVO, VECTOR	Can be changed: C2(4) Data type: Floating Point P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Min 0 [kHz] Max 65535 [kHz]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100 [kHz]
Description:	Sets the baud rate for an SSI encoder.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	SSI: Synchronous Serial Interface		

p0428[0...n] Encoder SSI monoflop time / Enc SSI t_monoflop				
SERVO, VECTOR	Can be changed: C2(4)		Calculated: -	Access level: 3
	Data type: Unsigned16		Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min 0 [µs]	Max 65535 [µs]	Factory setting 30 [µs]	
Description:	Sets the minimum delay time between two data transfers of the absolute value for an SSI encoder.			
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.			

p0429[0...n] Encoder SSI configuration / Enc SSI config				
SERVO, VECTOR	Can be changed: C2(4)		Calculated: -	Access level: 3
	Data type: Unsigned16		Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min -		Max -	Factory setting 0000 bin
Description:	Sets the configuration for an SSI encoder.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Transfer code	Binary code	Gray code
	02	Transfer absolute value twice	Yes	No
	06	Data line during the monoflop time	High level	Low level
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.			
Note:	Re bit 06: The quiescent signal level of the data line corresponds to the inverted, set level.			

p0430[0...n] Sensor Module configuration / SM config					
SERVO, VECTOR	Can be changed: C2(4)		Calculated: -		Access level: 3
	Data type: Unsigned32		Dynamic index: EDS, p0140		Func. diagram: -
	P-Group: Encoder		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
-		-		1110 0000 0000 1000 0000 0000 0000 0000 bin	
Description:	Sets the configuration of the Sensor Module.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	17	Burst oversampling	Yes	No	-
	19	Safety position actual value sensing	Yes	No	-
	20	Speed calculation mode (only SMC30)	Incremental diff	Flank time meas	-
	21	Zero mark tol	Yes	No	-
	22	Rot pos adapt	Yes	No	-
	27	Extrapolation of the SSI position value	Yes	No	-
	29	Phase correction	Yes	No	-
	30	Amplitude correction	Yes	No	-
	31	Offset correction	Yes	No	-

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p0433[0...n]	Gearbox factor, motor/load revolutions / Grbx_fact mot_rev		
SERVO, VECTOR	Can be changed: C2(4) Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the motor and load revolutions for the gearbox factor of the encoder evaluation. The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.		
Dependency:	This parameter can only be set for p0402 = 9999. Refer to: p0402, p0410, p0432		
Note:	Negative gearbox factors should be implemented with p0410.		
p0434[0...n]	Encoder SSI error bit / Enc SSI error bit		
SERVO, VECTOR	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the position and level of the error bit in the SSI protocol.		
Notice:	The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.		
Note:	Value = dcba ba: Position of the error bit in the protocol (0 ... 63). c: Level (0: Low level, 1: High level). d: Status of the evaluation (0: Off, 1: On with 1 error bit, 2: On with 2 error bits ... 9: On with 9 error bits). For several error error bits, the following applies: - the position specified under ba and the additional bits are assigned increasing consecutively. - the level set under c applies to all error bits. Example: p0434 = 1013 --> The evaluation is switched-in and the error bit is at position 13 with a low level. p0434 = 1113 --> The evaluation is switched-in and the error bit is at position 13 with a high level.		
p0435[0...n]	Encoder SSI alarm bit / Enc SSI alarm bit		
SERVO, VECTOR	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the position and level of the alarm bit in the SSI protocol.		
Notice:	The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.		
Note:	Value = dcba ba: Position of the alarm bit in protocol (0 ... 63). c: Level (0: Low level, 1: High level). d: State of the evaluation (0: Off, 1: On). Example: p0435 = 1014		

--> The evaluation is switched-in and the alarm bit is at position 14 with a low level.

p0435 = 1114

--> The evaluation is switched-in and the alarm bit is at position 14 with a high level.

p0436[0...n] Encoder SSI parity bit / Enc SSI parity bit			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the position and parity of the parity bit in the SSI protocol.		
Notice:	The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.		
Note:	Value = dcba ba: Position of the parity bit in the protocol (0 ... 63). c: Parity (0: even, 1: uneven). d: State of the evaluation (0: Off, 1: On). Example: p0436 = 1015 --> The evaluation is switched-in and the parity bit is at position 15 with even parity. p0436 = 1115 --> The evaluation is switched-in and the parity bit is at position 15 with uneven parity.		

p0440[0...n] Copy encoder serial number / Copy enc ser_no			
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Copies the actual serial number of the encoder belong to this encoder data set to p0441 ... p0445. Example: For p0440[0] = 1, the serial number of the encoder belonging EDS0 is copied to p0441[0] ... p0445[0].		
Values:	0: No action 1: Transfer serial number		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464, p1990		
Note:	For encoders with serial number, encoder replacement is monitored in order to request angular commutation calibration (adjustment) for motor encoders and absolute calibration for direct measuring systems with absolute value data. The serial number, which from then onwards is used for monitoring purposes, can be transferred using p0440. In the following cases, copying is automatically started in the following cases: 1.) When commissioning 1FT6, 1FK6, 1FK7 motors. 2.) When writing into p0431. 3.) For p1990 = 1. p0440 is automatically set to 0 when the copying has been completed. In order to permanently accept the copied values, it is necessary to save in a non-volatile fashion (p0977).		

p0441[0...n]	Encoder commissioning serial number part 1 / Enc comm ser_no 1		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 1 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		
p0442[0...n]	Encoder commissioning serial number part 2 / Enc comm ser_no 2		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 2 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		
p0443[0...n]	Encoder commissioning serial number part 3 / Enc comm ser_no 3		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 3 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		
p0444[0...n]	Encoder commissioning serial number part 4 / Enc comm ser_no 4		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 4 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		

p0445[0...n]	Encoder commissioning serial number part 5 / Enc comm ser_no 5		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 5 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		
p0446[0...n]	Encoder SSI number of bits before the absolute value / Enc SSI bit before		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the number of bits before the absolute value in the SSI protocol.		
Note:	For example, error bit, alarm bit or parity bit can be positioned at these bits.		
p0447[0...n]	Encoder SSI number of bits absolute value / Enc SSI bit val		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 25
Description:	Sets the number of bits for the absolute value in the SSI protocol.		
p0448[0...n]	Encoder SSI number of bits after the absolute value / Enc SSI bit after		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the number of bits after the absolute value in the SSI protocol.		
Note:	For example, error bit, alarm bit or parity bit can be positioned at these bits.		
p0449[0...n]	Encoder SSI number of bits, filler bits / Enc SSI fill bits		
SERVO, VECTOR	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 1
Description:	Sets the number of filler bits for double absolute value transfer in the SSI protocol.		
Dependency:	Refer to: p0429		

Note: This parameter is only of significance for p0429.2 = 1.

r0451[0...2] Commutation angle factor / Enc commut_factor

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 4710
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting

- - -

Description: Displays the relationship between the electrical and mechanical pole positions.

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Encoder 3

Note: A value of zero is displayed if an encoder is not present.

r0455[0...2] Encoder configuration recognized / Enc config act

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting

- - -

Description: Displays the detected encoder configuration.

In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Encoder 3

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-
	01	Abs value encoder	Yes	No	-
	02	Multiturn encoder	Yes	No	-
	03	Track A/B sq-wave	Yes	No	-
	04	Track A/B sinus	Yes	No	-
	05	Track C/D	Yes	No	-
	06	Hall sensor	Yes	No	-
	08	EnDat encoder	Yes	No	-
	09	SSI encoder	Yes	No	-
	12	Equidistant zero mark	Yes	No	-
	13	Irregular zero mark	Yes	No	-
	14	Distance-coded zero mark	Yes	No	-
	15	Commutation with zero mark	Yes	No	-
	16	Acceleration	Yes	No	-
	20	Voltage level 5 V	Yes	No	-
	21	Voltage level 24 V	Yes	No	-
	22	Remote sense (only SMC30)	Yes	No	-
	23	Resolver excit.	Yes	No	-

Dependency: Refer to: p0404

Note: ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

r0456[0...2] Encoder configuration supported / Enc config supp

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Contains the encoder configuration supported by the Sensor Module.

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Encoder 3

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-
	01	Abs value encoder	Yes	No	-
	02	Multiturn encoder	Yes	No	-
	03	Track A/B sq-wave	Yes	No	-
	04	Track A/B sinus	Yes	No	-
	05	Track C/D	Yes	No	-
	06	Hall sensor	Yes	No	-
	08	EnDat encoder	Yes	No	-
	09	SSI encoder	Yes	No	-
	12	Equidistant zero mark	Yes	No	-
	13	Irregular zero mark	Yes	No	-
	14	Distance-coded zero mark	Yes	No	-
	15	Commutation with zero mark	Yes	No	-
	16	Acceleration	Yes	No	-
	20	Voltage level 5 V	Yes	No	-
	21	Voltage level 24 V	Yes	No	-
	22	Remote sense (only SMC30)	Yes	No	-
	23	Resolver excit.	Yes	No	-

Dependency: Refer to: p0404

Note:
 ZM: Zero mark
 This parameter is only used for diagnostics.
 A value of zero is displayed if an encoder is not present.

r0458[0...2] Sensor Module properties / SM properties

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Sets the Sensor Module configuration.

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Encoder 3

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder data available	Yes	No	-
	01	Motor data available	Yes	No	-
	02	KTY84 connection available	Yes	No	-
	03	PTC connection available	Yes	No	-
	04	Module temperature available	Yes	No	-
	05	Absolute encoder p0408/p0421, no power of 2	Yes	No	-
	06	Sensor Module permits parking/unparking	Yes	No	-

07	Hall sensor can be combined with actual value inversion	Yes	No	-
08	External temperature evaluation being used	Yes	No	-
09	Encoder fault and its associated information available	Yes	No	-
10	Speed diagnostics in the Sensor Module	Yes	No	-
11				-
16	Pole position identification	Yes	No	-
17	Burst oversampling	Yes	No	-
19	Safety position actual value sensing	Yes	No	-
20	Extended speed calculation being used (only SMC30)	Yes	No	-
21	Zero mark tol	Yes	No	-
22	Rot pos adapt	Yes	No	-
27	SSI position value extrapolation	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Dependency: Refer to: p0600, p0601

Note: A value of zero is displayed if an encoder is not present.

r0458[0...2] Sensor Module properties / SM properties

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Sets the Sensor Module configuration.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder data available	Yes	No	-
	01	Motor data available	Yes	No	-
	02	KTY84 connection available	Yes	No	-
	03	PTC connection available	Yes	No	-
	04	Module temperature available	Yes	No	-
	05	Absolute encoder p0408/p0421, no power of 2	Yes	No	-
	06	Sensor Module permits parking/unparking	Yes	No	-
	07	Hall sensor can be combined with actual value inversion	Yes	No	-
	08	External temperature evaluation being used	Yes	No	-
	09	Encoder fault and its associated information available	Yes	No	-
	10	Velocity diagnostics in the Sensor Module	Yes	No	-
	11				-
	16	Pole position identification	Yes	No	-
	17	Burst oversampling	Yes	No	-
	19	Safety position actual value sensing	Yes	No	-
	20	Extended velocity calculation being used (only SMC30)	Yes	No	-
	21	Zero mark tol	Yes	No	-
	22	Rot pos adapt	Yes	No	-
	27	SSI position value extrapolation	Yes	No	-
	29	Phase correction	Yes	No	-
	30	Amplitude correction	Yes	No	-
	31	Offset correction	Yes	No	-

Dependency: Refer to: p0600, p0601

Note: A value of zero is displayed if an encoder is not present.

r0460[0...2]	Encoder serial number part 1 / Enc ser_no 1		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual serial number part 1 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464		
r0461[0...2]	Encoder serial number part 2 / Enc ser_no 2		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual serial number part 2 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464		
r0462[0...2]	Encoder serial number part 3 / Enc ser_no 3		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual serial number part 3 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464		
r0463[0...2]	Encoder serial number part 4 / Enc ser_no 4		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual serial number part 4 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464

r0464[0...2] Encoder serial number part 5 / Enc ser_no 5

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual serial number part 5 of the appropriate encoder.

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Encoder 3

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463

r0465[0...27] Encoder 1 identification number/serial number / Enc1 ID_no/Ser_no

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the serial number of encoder 1.

Index 0 = first character of the identification number

...

Index x = 20 hex (blank) --> separation between the identification number of serial number

Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number

Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number

Index x + 3 = first character of the serial number

...

Index y with contents = last character of the serial number

Dependency: Refer to: r0460, r0461, r0462, r0463, r0464

Notice: An ASCII table (excerpt) can be found, for example, in the following List Manual:

Note: The individual characters of the identification number/serial number are available coded as ASCII characters.

r0466[0...27] Encoder 2 identification number/serial number / Enc2 ID_no/Ser_no

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the serial number of encoder 2.

Index 0 = first character of the identification number

...

Index x = 20 hex (blank) --> separation between the identification number of serial number

Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number

Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number

Index x + 3 = first character of the serial number

...

Index y with contents = last character of the serial number

Dependency: Refer to: r0460, r0461, r0462, r0463, r0464

Notice: An ASCII table (excerpt) can be found, for example, in the following List Manual:
Note: The individual characters of the identification number/serial number are available coded as ASCII characters.

r0467[0...27]	Encoder 3 identification number/serial number / Enc3 ID_no/Ser_no		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the serial number of encoder 3. Index 0 = first character of the identification number ... Index x = 20 hex (blank) --> separation between the identification number of serial number Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number Index x + 3 = first character of the serial number ... Index y with contents = last character of the serial number		
Dependency:	Refer to: r0460, r0461, r0462, r0463, r0464		
Notice:	An ASCII table (excerpt) can be found, for example, in the following List Manual:		
Note:	The individual characters of the identification number/serial number are available coded as ASCII characters.		

r0477[0...2]	CO: Measuring gearbox, position difference / Meas grbx pos diff		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the position difference before the measuring gearbox between powering-down and powering-up.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: F31501, F32501, F33501		
Note:	The increments are displayed in the format the same as r0483. The position difference should be read in encoder increments.		

r0479[0...2]	CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics. In contrast to p0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

Caution:

After booting or after a data set changeover, under certain circumstances, the new value is only available at BICO sinks - that are interconnected to BICO source CO:r0479 - only after several 100ms as the connections must be updated in the background (contrary to other BICO sources, e.g. CO:r0482).
The value is immediately available when non-cyclically reading r0479 (e.g. via the expert list).

r0479 CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1

TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 9674
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics. In contrast to p0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

p0480[0...2] CI: Signal source for encoder control word Gn_STW / Enc S_src Gn_STW

SERVO, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 1580, 4720
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the encoder control word Gn_STW according to PROFIdrive.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established:
CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]

r0481[0...2] CO: Encoder status word Gn_ZSW / Enc Gn_ZSW

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 4010, 4704, 4730
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder status word Gn_ZSW according to PROFIdrive.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Function 1 active	Yes	No	-
	01	Function 2 active	Yes	No	-
	02	Function 3 active	Yes	No	-
	03	Function 4 active	Yes	No	-
	04	Value 1	Displayed in r0483	Does not exist	-
	05	Value 2	Displayed in r0483	Does not exist	-
	06	Value 3	Displayed in r0483	Does not exist	-
	07	Value 4	Displayed in r0483	Does not exist	-
	08	Measuring probe 1 deflected	Yes	No	-
	09	Measuring probe 2 deflected	Yes	No	-
	11	Encoder fault acknowledge active	Yes	No	-

13	Absolute value cyclically	Displayed in r0483	No	-
14	Parking encoder active	Yes	No	-
15	Encoder fault	Displayed in r0483	None	-

Notice: Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature:
SINAMICS S120 Function Manual

Note: Re bit 14:
Displays the acknowledgement for "activate parking encoder" (Gn_STW.14 = 1) or encoder position actual value (Gn_XIST1) invalid.
Re bit 14, 15:
r0481.14 = 1 and r0481.15 = 0 can have one of the following causes:
- the encoder is parked.
- the encoder is deactivated.
- the encoder is being commissioned.
- no parameterized encoder available.
- encoder data set is being changed over.
r0481.14 = 1 and r0481.15 = 1 has the following significance:
An encoder error has occurred and the encoder position actual value (Gn_XIST1) is invalid.

r0481 CO: Encoder status word Gn_ZSW / Enc Gn_ZSW

TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder status word Gn_ZSW according to PROFIdrive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Function 1 active	Yes	No	-
	01	Function 2 active	Yes	No	-
	02	Function 3 active	Yes	No	-
	03	Function 4 active	Yes	No	-
	04	Value 1	Displayed in r0483	Does not exist	-
	05	Value 2	Displayed in r0483	Does not exist	-
	06	Value 3	Displayed in r0483	Does not exist	-
	07	Value 4	Displayed in r0483	Does not exist	-
	08	Measuring probe 1 deflected	Yes	No	-
	09	Measuring probe 2 deflected	Yes	No	-
	11	Encoder fault acknowledge active	Yes	No	-
	13	Absolute value cyclically	Displayed in r0483	No	-
	14	Parking encoder active	Yes	No	-
	15	Encoder fault	Displayed in r0483	None	-

Notice: Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature:
SINAMICS S120 Function Manual

Note: For p4401 = 0, the following applies:
For Terminal Module 41 (TM41), this value is used to interconnect with standard telegram 3 and is always zero.
For p4401 = 1, the following applies:
r0481.0 indicates as to whether the zero mark synchronization is active.
r0481.4 indicates whether the zero mark of the incremental encoder was found.
r0481.14 indicates whether the output of track A/B is activated.

r0482[0...2]	CO: Encoder actual position value Gn_XACT1 / Enc Gn_XIST1		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1580, 2450, 3090, 4010, 4704, 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder actual position value Gn_XIST1 according to PROFIdrive.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Note:	- this value is reset when de-selecting the function "parking axis". - in this value, the measuring gearbox (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).		
r0482	CO: Encoder actual position value Gn_XACT1 / Enc Gn_XIST1		
TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9674
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder actual position value Gn_XIST1 according to PROFIdrive.		
r0483[0...2]	CO: Encoder actual position value Gn_XACT2 / Enc Gn_XIST2		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1580, 2450, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.		
Recommend.:	Possible causes of the error codes: Error code 4097 and 4098: Defective Control Unit hardware. Error codes 4099 and 4100: Too many measuring pulses have occurred.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Notice:	The encoder position actual value must be requested using the encoder control word Gn_STW.13.		
Note:	- in this value, the measuring gearbox (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1). - if GxZSW.15 = 1 (r0481), then an error code with the following significance is located in Gx_XIST2 (r0483): 1: Encoder fault 2: Reserved 3: Reserved 4: Abort, reference mark search 5: Abort, retrieve reference value 6: Abort, flying measurement 7: Abort, retrieve measured value 8: Abort, absolute value transfer		

3841: Function not supported
 4097: Abort, reference mark search due to an initialization error
 4098: Abort, flying measurement due to an initialization error
 4099: Abort, reference mark search due to a measuring error
 4100: Abort, flying measurement due to a measuring error

r0483	CO: Encoder actual position value Gn_XACT2 / Enc Gn_XIST2		
TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.		
Notice:	The encoder position actual value must be requested using the encoder control word Gn_STW.13.		
Note:	For Terminal Module 41 (TM41), this value is used to interconnect with standard telegram 3 and is always zero.		
r0484[0...2]	CO: Redundant coarse encoder position + CRC Gn_XIST1 / Enc red pos+CRC		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check). Upper 16 bits: CRC over the redundant coarse encoder position. Lower 16 bits: Redundant coarse encoder position. The count direction is opposite to r0482 (encoder position actual value Gn_XIST1). The value contains 2 bit fine resolution.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	The values are valid when the safety position actual value sensing is activated (p0430.19 = 1). Refer to: p0430		
Note:	This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".		
r0485[0...2]	CO: Measuring gearbox, encoder raw value incremental / Enc raw val incr		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the raw value of the incremental encoder actual value before the measuring gearbox.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

r0486[0...2]	CO: Measuring gearbox, encoder raw value absolute / Enc raw val abs			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the raw value of the absolute encoder actual value before the measuring gearbox.			
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3			

r0487[0...2]	Diagnostic encoder control word Gn_STW / Enc Gn_STW				
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1580, 4704, 4720, 4740		
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics.				
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Request function 1	Yes	No	-
	01	Request function 2	Yes	No	-
	02	Request function 3	Yes	No	-
	03	Request function 4	Yes	No	-
	04	Request command bit 0	Yes	No	-
	05	Request command bit 1	Yes	No	-
	06	Request command bit 2	Yes	No	-
	07	Mode flying measurement / search for reference	Flying measurement	Reference marks	-
	13	Request absolute value cyclic	Yes	No	-
	14	Request parking encoder	Yes	No	-
	15	Request acknowledge encoder fault	Yes	No	-
Notice:	Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature: SINAMICS S120 Function Manual				
Note:	The signal source for the encoder control word is set with p0480.				

p0488[0...2]	Measuring probe 1 input terminal / Meas probe 1 inp			
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: 4740	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	6	0	
Description:	Sets the input terminal to connect probe 1.			
Values:	0: No meas probe 1: DI/DO 9 (X122.8/X121.8) 2: DI/DO 10 (X122.10/X121.10) 3: DI/DO 11 (X122.11/X121.11) 4: DI/DO 13 (X132.8)			

	5: DI/DO 14 (X132.10)
	6: DI/DO 15 (X132.11)
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3
Dependency:	Refer to: p0489, p0490, p0728
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).
Note:	DI/DO: Bidirectional Digital Input/Output The terminal must be set as input (p0728). Refer to the encoder interface for PROFIdrive. If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0489[0...2]	Measuring probe 2 input terminal / Meas probe 2 inp		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	6	0
Description:	Sets the input terminal to connect probe 2.		
Values:	0: No meas probe 1: DI/DO 9 (X122.8/X121.8) 2: DI/DO 10 (X122.10/X121.10) 3: DI/DO 11 (X122.11/X121.11) 4: DI/DO 13 (X132.8) 5: DI/DO 14 (X132.10) 6: DI/DO 15 (X132.11)		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0488, p0490, p0728		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	DI/DO: Bidirectional Digital Input/Output The terminal must be set as input (p0728). Refer to the encoder interface for PROFIdrive. If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.		

p0490	Invert measuring probe or equivalent zero mark / Meas. probe invert		
CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin
Description:	Setting to invert the digital input signals to connect a measuring probe or an equivalent zero mark.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	09	DI/DO 9 (X122.8/X121.8)	Inverted	Not inverted	-
	10	DI/DO 10 (X122.10/X121.10)	Inverted	Not inverted	-
	11	DI/DO 11 (X122.11/X121.11)	Inverted	Not inverted	-
	13	DI/DO 13 (X132.8)	Inverted	Not inverted	-
	14	DI/DO 14 (X132.10)	Inverted	Not inverted	-
	15	DI/DO 15 (X132.11)	Inverted	Not inverted	-
Dependency:	Refer to: p0488, p0489, p0495, p0728				
Notice:	To the terminal designation: The second designation is only applicable for CU310.				
Note:	The terminal must be set as input. When the measuring probe or the equivalent zero mark is inverted, this has no effect on the status displays of the digital inputs (r0721, r0722, r0723). DI: Digital input, DO: Digital output				

p0490		Invert measuring probe or equivalent zero mark / Meas. probe invert			
CU_CX32	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Setting to invert the digital input signals to connect a measuring probe or an equivalent zero mark.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	09	DI/DO 9 (X122.8/X121.8)	Inverted	Not inverted	-
	10	DI/DO 10 (X122.10/X121.10)	Inverted	Not inverted	-
	11	DI/DO 11 (X122.11/X121.11)	Inverted	Not inverted	-
	13	DI/DO 13 (X132.8)	Inverted	Not inverted	-
	14	DI/DO 14 (X132.10)	Inverted	Not inverted	-
	15	DI/DO 15 (X132.11)	Inverted	Not inverted	-
Notice:	To the terminal designation: The second designation is only applicable for CU310.				
Note:	The terminal must be set as input. When the measuring probe or the equivalent zero mark is inverted, this has no effect on the status displays of the digital inputs (r0721, r0722, r0723). DI: Digital input, DO: Digital output				

p0491	Motor encoder fault response ENCODER / Fault resp ENCODER		
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 4	Factory setting 0
Description:	Sets the behavior for the ENCODER fault response (motor encoder). This means, for example, if an encoder fault occurs, sensorless operation can be automatically selected with a shutdown behavior that can be selected.		
Values:	0: Encoder fault results in OFF2 1: Enc fault results in sensorless oper. and oper. continues 2: Encoder fault results in sensorless operation and OFF1 3: Encoder fault results in sensorless operation and OFF3 4: Encoder fault results in an int. armature short-cct. / DC brake		
Dependency:	The following parameters are relevant for sensorless operation. Refer to: p0341, p0342, p1470, p1472, p1517, p1612, p1755 Refer to: F07575		

Caution:



For p0491 = 1.4 the following must be carefully observed:
In spite of the motor encoder fault that has occurred, the motor is still operated.

Note:

For a value 1, 2, 3, the following applies:
Encoderless operation must have been commissioned.
Refer to the status signal "sensorless operation due to a fault" (BO: r1407.13).
If, when setting r1407.13, a different drive data set is selected (e.g. interconnection from p0820), then the open-loop or closed-loop control type p1300 of this data set must match the original data set (e.g. p1300 = 21). Sensorless closed-loop controlled operation is kept when changing over.
For sensorless operation (p1404 = 0 or p1300 = 20), the following applies:
- The following condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$
- For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.

p0491

Motor encoder fault response ENCODER / Fault resp ENCODER

VECTOR

Can be changed: T **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: Encoder **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0	4	0

Description: Sets the behavior for the ENCODER fault response (motor encoder).
This means, for example, if an encoder fault occurs, sensorless operation can be automatically selected with a shutdown behavior that can be selected.

Values:

- 0: Encoder fault results in OFF2
- 1: Enc fault results in sensorless oper. and oper. continues
- 2: Encoder fault results in sensorless operation and OFF1
- 3: Encoder fault results in sensorless operation and OFF3
- 4: Encoder fault results in an int. armature short-cct. / DC brake

Dependency: The following parameters are relevant for sensorless operation.
Refer to: p0341, p0342, p1470, p1472, p1517, p1612, p1755
Refer to: F07575

Caution:



For p0491 = 1.4 the following must be carefully observed:
In spite of the motor encoder fault that has occurred, the motor is still operated.

Note:

For a value 1, 2, 3, the following applies:
Encoderless operation must have been commissioned.
Refer to the status signal "sensorless operation due to a fault" (BO: r1407.13).
Not possible for separately excited synchronous motors (p0300 = 5).

p0492

**Square-wave encoder, maximum speed difference per sampling cycle /
n_dif max/samp_cyc**

SERVO, VECTOR

Can be changed: U, T **Calculated:** CALC_MOD_REG **Access level:** 3
Data type: Floating Point **Dynamic index:** - **Func. diagram:** -
P-Group: Encoder **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0.0 [RPM]	210000.0 [RPM]	0.0 [RPM]

Description: Maximum permissible speed difference between two computation cycles when evaluating square-wave encoders.
When the value is exceeded, depending on p0491, either sensorless closed-loop speed/torque control is selected or the drive is powered-down.

Note: For a value of 0.0, the speed change monitoring is disabled.
 When half of the parameter value is exceeded, an alarm is already generated and the speed limiting is limited to this.
 The parameter is only pre-assigned for vector drives when selecting p0340 = 1, 3.

p0492	Square-wave encoder, max. velocity difference per sampling cycle / v_dif max/samp_cyc		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Encoder Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [m/min]	Max 1000.0 [m/min]	Factory setting 0.0 [m/min]
Description:	Maximum permissible velocity difference between two computation cycles when evaluating square-wave encoders. When the value is exceeded, depending on p0491, either a sensorless closed-loop velocity/force control is selected or the drive is powered-down.		
Note:	For a value of 0.0, the velocity change monitoring is disabled. When half of the parameter value is exceeded, an alarm is already generated and the velocity change is limited to this.		

p0495[0...2]	Equivalent zero mark, input terminal / Zero mark inp		
SERVO, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 4735 Unit selection: - Expert list: 1
	Min 0	Max 6	Factory setting 0
Description:	Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).		
Values:	0: No equivalent zero mark (evaluation of the encoder zero mark) 1: DI/DO 9 (X122.8/X121.8) 2: DI/DO 10 (X122.10/X121.10) 3: DI/DO 11 (X122.11/X121.11) 4: DI/DO 13 (X132.8) 5: DI/DO 14 (X132.10) 6: DI/DO 15 (X132.11)		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0490		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310. For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	Refer to the encoder interface for PROFIdrive. The terminal must be set as input. For p0495 = 0 (factory setting), the encoder zero mark is evaluated as zero mark. For p0495 > 0, the following applies: Depending on the direction of motion, the positive or negative edge at the appropriate input is evaluated. - increasing position actual values (r0482) --> the 0/1 edge is evaluated. - decreasing position actual values (r0482) --> the 1/0 edge is evaluated. Only one zero mark is supported. If function 2, 3 or 4 is selected, this results in an error message in Gn_ZSW. The inversion of the inputs via p0490 affects the function "referencing with equivalent zero mark". This is the reason that the edge evaluation is interchanged as a function of the direction of motion.		

An input can only be assigned to one encoder as measuring probe 1, 2 or equivalent zero mark. Exception: The same encoder can be simultaneously used as measuring probe and equivalent zero mark as both functions cannot be simultaneously requested.

p0496[0...2] Encoder diagnostic signal selection / Enc diag selection			
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 42	Factory setting 0
Description:	Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.		
Values:	0: Inactive 1: r0497: Mechanical revolution 10: r0498: Raw value, track A, r0499: Raw value, track B 11: r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2) 12: r0498: Fine position Phi, r0499: - 13: r0498: Offset correction X, r0499: Offset correction Y 14: r0498: Phase correction X, r0499: Amplitude correction Y 20: r0498: Raw value, track C, r0499: Raw value, track D 21: r0498: CD position X (-D/2), r0499: CD position Y (C/2) 22: r0498: CD position Phi, r0499: CD pos. Phi - mech. revolution 23: r0497: Zero mark status 30: r0497: Absolute position serial 31: r0497: Absolute position, incremental 32: r0497: Zero mark position 40: r0498: Raw temperature, r0499: Temperature in 0.1 °C 41: r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C 42: r0497: Resistance 2500 Ohm		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Note:	Re p0496 = 1: 360 ° <--> 2 ³² Re p0496 = 10, 20 (resolver): 2900 mV <--> 26214 dec Re p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec Re p0496 = 11, 21 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected Re p0496 = 13 (resolver): 2900 mV <--> 13107 dec Re p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected Re p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec Re p0496 = 12: 180 ° fine position <--> 32768 dec Re p0496 = 14: 100 % <--> 16384 dec Re p0496 = 22: 180 ° <--> 32768 dec Re p0496 = 23: Encoder zero mark <--> MSB set (detected during the zero mark or at least 1 current controller clock cycle) Re p0496 = 30: Rotary: 1 single-turn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec Re p0496 = 31: Absolute position, incremental in 1/4 encoder pulses Re p0496 = 32: Zero mark position in 1/4 encoder pulses Re p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768 Re p0496 = 42: 2500 Ohm <--> 2 ³²		

r0497[0...2]	Encoder diagnostic signal double word / Enc diag DW		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Trace signal for encoder diagnostics (double word representation). The output signal is selected in p0496.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
r0498[0...2]	Encoder diagnostic signal word low / Enc diag word low		
SERVO, VECTOR	Can be changed: - Data type: Integer16 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Trace signal for encoder diagnostics (low component). The output signal is selected in p0496.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
r0499[0...2]	Encoder diagnostic signal word high / Enc diag word high		
SERVO, VECTOR	Can be changed: - Data type: Integer16 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Trace signal for encoder diagnostics (high component). The output signal is selected in p0496.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
p0500	Technology application / Techn application		
SERVO	Can be changed: C2(1, 5), T Data type: Integer16 P-Group: Applications Not for motor type: - Min 100	Calculated: - Dynamic index: - Units group: - Max 102	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100
Description:	Sets the technology application. The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0578.		
Values:	100: Standard drive (SERVO) 101: Feed drive (limit current limitation) 102: Spindle drive (rated current limitation)		
Dependency:	Refer to: p1520, p1521, p1530, p1531, p2000, p2175, p2177		

Caution:



After changing over the technological application and then calculating the open-loop and closed-loop parameters, the behavior of the motor can have changed very significantly (e.g. the same setpoint results in a higher speed due to a different reference speed). For this reason extreme caution must be taken when the motor is started for the first time.

Note:

The calculation of parameters, dependent on the technological application can be called-up as follows:

- when exiting the quick commissioning using p3900 > 0
- when writing p0340 = 1, 3, 5
- when writing p0578 = 1

For p0500 = 100 and the calculation is initiated, the following parameters are set:


- p1520/p1521 = rated motor torque (r0333)
- p1530/p1531= $2 \cdot \pi \cdot r0333 \cdot p0311$ (rotary) or $r0333 \cdot p0311$ (linear)
- p2000 = rated motor speed (p0311)
- p2175 = factory setting
- p2177 = factory setting


For p0500 = 101 and the calculation is initiated, the following parameters are set:

- p1520/p1521 = torque at the maximum motor current (p0323)
- p1530/p1531= power at the maximum motor current (p0323) and rated motor speed (p0311)
- p2000 = rated motor speed (p0311)
- p2175 = maximum value
- p2177 = 0.2 s

For p0500 = 102 and the calculation is initiated, the following parameters are set:

- p1520/p1521 = rated motor torque (r0333)
- p1530/p1531= $2 \cdot \pi \cdot r0333 \cdot p0311$ (rotary) or $r0333 \cdot p0311$ (linear)
- p2000 = maximum motor speed (p0322) if p0322 is not equal to 0, otherwise rated motor speed (p0311)
- p2175 = factory setting
- p2177 = factory setting

p0500		Technology application / Techn application	
VECTOR	Can be changed: C2(1, 5), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Sets the technology application. The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0578.		
Values:	0: Standard drive (VECTOR) 1: Pumps and fans		
Dependency:	Refer to: p2175, p2177		
Caution:	After changing over the technological application and then calculating the open-loop and closed-loop parameters, the behavior of the motor can have changed very significantly (e.g. the same setpoint results in a higher speed due to a different reference speed). For this reason extreme caution must be taken when the motor is started for the first time.		
			
Note:	The calculation of parameters, dependent on the technological application can be called-up as follows: - when exiting the quick commissioning using p3900 > 0 - when writing p0340 = 1, 3, 5 - when writing p0578 = 1		

p0505	Selecting the system of units / Select unit sys		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: C2(5) Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Setting parameter of the actual system of units.		
Values:	1: System of units SI 2: System of units, referred/SI 3: US system of units 4: System of units, referred/US		
Dependency:	The parameter cannot be changed if the master control was fetched.		
Caution:	If a per unit representation is selected and if reference parameters (e.g. p2000) are subsequently changed, then the physical significance of some closed-loop control parameters will also be adapted where as a result, the closed-loop control behavior can change (refer to p1576, p1621, p1744, p1752, p1755 and p1609, p1612, p1619, p1620).		
			
Note:	Reference parameter for the unit system % are, for example, p2000 ... p2004. Depending on what has been selected, these are displayed using either SI or US units.		
p0528	Units system for controller gains / Units for Kp		
SERVO, TM41	Can be changed: C2(5) Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	For controller gains, sets the units system between physical/% (dependent on p505) and referred (without dimensions) representation types. For a physical/% representation, the dependent parameters can be changed-over between the physical and % representation type using p505.		
Values:	0: Physical/% representation (p505) 1: No dimensions (referred) representation type		
Note:	For SERVO (r0107) the following applies: The parameter is pre-assigned a value of 0. The parameter cannot be changed.		
p0528	Units system for controller gains / Units for Kp		
VECTOR	Can be changed: C2(5) Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	For controller gains, sets the units system between physical/% (dependent on p505) and referred (without dimensions) representation types. For a physical/% representation, the dependent parameters can be changed-over between the physical and % representation type using p505.		
Values:	0: Physical/% representation (p505) 1: No dimensions (referred) representation type		
Note:	For VECTOR (r0107) the following applies: The parameter is pre-assigned a value of 1. The parameter cannot be changed.		

p0570	Inhibit list: Number of effective values / Inhib list: Qty		
SERVO, VECTOR	Can be changed: U, T Data type: Unsigned8 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Number of parameters in the inhibit list p0571 that should be withdrawn from the automatic motor and closed-loop control parameter calculation (refer to p0340, p0578), starting from index 0.		
Note:	Defines the number of entries in p0571 that should be taken into account. This means that a value of 0 de-activates the complete list.		
p0571[0...49]	Inhibit list, motor/closed-loop control parameter calculation / Inhib list calc		
SERVO, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	The inhibit list contains parameters that should be withdrawn from the automatic motor and closed-loop control parameter calculation (p0340, p0578).		
Values:	0: No parameter 640: Current limit 1082: Maximum speed 1460: Speed controller P gain 1462: Speed controller integral action time 1470: Speed controller P gain, sensorless 1472: Speed controller integral action time sensorless 1520: Torque limit upper/motoring 1521: Torque limit lower/regenerative 1530: Power limit motoring 1531: Power limit regenerating		
Note:	p0570 defines the number of entries (starting at index 0) for which the inhibit should apply. p0572 can be used to define for which drive data sets the inhibit list should apply. If a motor data set is entered into a parameter number, then this is not overwritten as soon as only one drive data set refers to the motor data set (p0186).		
p0572[0...n]	Activate inhibit list / Act inhib list		
SERVO, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Enable ID as to whether the parameters of the inhibit list p0571 should be overwritten when calculating the motor and closed-loop control parameters for the particular drive data set (index = DDS).		
Values:	0: No 1: Yes		
Note:	0: The automatic calculation (p0340, p0578) also overwrites the parameters of list p0571. 1: The automatic calculation (p0340, p0578) does not overwrite the parameters of list p0571.		

p0573	Inhibit automatic reference value calculation / Calc ref inhib		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Inhibits the calculation of reference parameters (e.g. p2000) when automatically calculating the motor and control parameters (p0340, p3900).		
Values:	0: No 1: Yes		
Note:	0: The automatic calculation (p0340, p3900) overwrites the reference parameters. 1: The automatic calculation (p0340, p3900) does not overwrite the reference parameters.		
p0578[0...n]	Calculate parameters that are dependent on the technology/units / Calc techn par		
SERVO, VECTOR	Can be changed: C2(5), T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	This parameter is used to calculate all parameters that depend on the technology of the application (p0500). All of the parameters are calculated that can also be determined using p0340 = 5.		
Values:	0: No calculation 1: Complete parameterization		
Note:	At the end of the calculations, p0578 is automatically set to 0.		
p0580	Measuring probe, input terminal / MT input terminal		
SERVO	Can be changed: U, T Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 6	Factory setting 0
Description:	Sets the input terminal for the measuring probe for speed actual value measurement.		
Values:	0: No meas probe 1: DI/DO 9 (X122.8/X121.8) 2: DI/DO 10 (X122.10/X121.10) 3: DI/DO 11 (X122.11/X121.11) 4: DI/DO 13 (X132.8) 5: DI/DO 14 (X132.10) 6: DI/DO 15 (X132.11)		
Dependency:	Refer to: p0581, p0728 Refer to: A07498		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	DI/DO: Bidirectional Digital Input/Output The terminal must be set as input (p0728).		

If a parameter change is rejected, it should be checked as to whether the input terminal is already being used in p0488, p0489, p0495, p0680, p2517 or p2518.

p0581			
Meas probe, edge / MT edge			
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the edge to evaluate the measuring probe signal for speed actual value measurement. 0: 0/1 edge 1: 1/0 edge		
Dependency:	Refer to: p0580		
<hr/>			
p0582			
Measuring probe, pulses per revolution / MT pulses per rev			
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 12	Factory setting 1
Description:	Sets the number of pulses per revolution (e.g. for disks with holes).		
<hr/>			
p0583			
Measuring probe, maximum measuring time / MT t_meas max			
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.040 [s]	Max 10.000 [s]	Factory setting 10.000 [s]
Description:	Sets the maximum measuring time for the measuring probe. If a new pulse is not received before the maximum measuring time has expired, then the speed actual value in r0586 is set to zero. This timer stage is re-started with the next pulse.		
Dependency:	Refer to: r0586		
<hr/>			
r0586			
CO: Measuring probe, speed actual value / MT n_act			
SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the speed actual value measured using the BERO.		
Dependency:	Refer to: p0580, p0583		
Note:	For p0580 = 0 (no measuring probe), a value of zero is displayed here.		

r0586	CO: Measuring probe, velocity actual value / MT v_act		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity actual value measured using the BERO.		
Dependency:	Refer to: p0580, p0583		
Note:	For p0580 = 0 (no measuring probe), a value of zero is displayed here.		
r0587	CO: Measuring probe, measuring time measured / MT t_meas measured		
SERVO	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the time between the last two BERO pulses. The measuring time is specified as 32-bit value with a resolution of 1/48 µs. If a new pulse is not received before the maximum measured time in p0583 expires, then r0587 is set to the maximum measuring time.		
Dependency:	Refer to: p0580		
Note:	For p0580 = 0 (no measuring probe), a value of zero is displayed here.		
r0588	CO: Measuring probe, pulse counter / MT pulse counter		
SERVO	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the number of measuring pulses that have occurred (been received) up until now.		
Dependency:	Refer to: p0580		
Note:	After reaching 4294967295 ($2^{32} - 1$), the counter starts again at 0.		
r0589	Measuring probe, delay time / MT t_delay		
SERVO	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the time since the last measuring pulse was detected. The delay time is specified as 32-bit value with a resolution of 1/48 µs. When a measuring pulse occurs (is received) the delay time is reset and is limited to the maximum measuring time in p0583.		
Dependency:	Refer to: p0580		
Note:	For p0580 = 0 (no measuring probe), a value of zero is displayed here.		

p0595 Selecting technological units / Select tech units

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: C2(5)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 32	Factory setting 1

Description: Selects the units for the parameters of the technology controller.

Values:

- 1: %
- 2: 1 referred, no dimensions
- 3: Bar
- 4: °C
- 5: Pa
- 6: ltr/s
- 7: m³/s
- 8: ltr/min
- 9: m³/min
- 10: ltr/h
- 11: m³/h
- 12: kg/s
- 13: kg/min
- 14: kg/h
- 15: t/min
- 16: t/h
- 17: N
- 18: kN
- 19: Nm
- 20: psi
- 21: °F
- 22: gallon/s
- 23: inch³/s
- 24: gallon/min
- 25: inch³/min
- 26: gallon/h
- 27: inch³/h
- 28: lb/s
- 29: lb/min
- 30: lb/h
- 31: lbf
- 32: lbf ft


Dependency: Only units of parameters with unit group 9_1 can be changed over using this parameter.
Refer to: p0596


p0596 Reference quantity, technological units / Ref tech units

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.01	Max 340.28235E36	Factory setting 1.00

Description: Sets the reference quantity for the technological units. When changing-over using changeover parameter 595 to absolute units, all of the parameters involved refer to the reference quantity.

Dependency: Refer to: p0595

p0600[0...n]		Motor temperature sensor for monitoring / Mot temp_sensor		
SERVO	Can be changed:	C2(3), U, T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type:	Integer16	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group:	Motor	Units group: -	Unit selection: -
	Not for motor type:	-		Expert list: 1
	Min		Max	Factory setting
	0		11	1
Description:	Sets the sensor to monitor the motor temperature.			
Values:	0: No sensor 1: Temperature sensor via encoder 1 2: Temperature sensor via encoder 2 3: Temperature sensor via encoder 3 10: Temperature sensor via a BICO interconnection 11: Temperature sensor via Motor Module			
Dependency:	Refer to: r0458, p0601, p0603			
Caution:	If, for a selected temperature sensor (p0600 > 0), the motor temperature sensor is not connected but another encoder, then then the temperature adaptation of the motor resistances must be switched-out. Otherwise, in controlled-loop operation, torque errors will occur that will mean that the drive will not be able to be stopped.			
				
Notice:	The parameter is calculated in the drive using p0340 and is inhibited for p0340 > 0.			
Note:	Re p0600 = 10: The BICO interconnection should be executed via connector input CI: p0603. Re p0600 = 11: For SINAMICS S120 AC Drive (AC/AC) and using the Control Unit Adapter CUA31, the temperature sensor is connected at the adapter (X210).			

p0600[0...n]		Motor temperature sensor for monitoring / Mot temp_sensor		
VECTOR	Can be changed:	C2(3), U, T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type:	Integer16	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group:	Motor	Units group: -	Unit selection: -
	Not for motor type:	-		Expert list: 1
	Min		Max	Factory setting
	0		11	0
Description:	Sets the sensor to monitor the motor temperature.			
Values:	0: No sensor 1: Temperature sensor via encoder 1 2: Temperature sensor via encoder 2 3: Temperature sensor via encoder 3 10: Temperature sensor via a BICO interconnection 11: Temperature sensor via Motor Module			
Dependency:	Refer to: r0458, p0601, p0603			
Caution:	If, for a selected temperature sensor (p0600 > 0), the motor temperature sensor is not connected but another encoder, then then the temperature adaptation of the motor resistances must be switched-out. Otherwise, in controlled-loop operation, torque errors will occur that will mean that the drive will not be able to be stopped.			
				
Notice:	The parameter is calculated in the drive using p0340 and is inhibited for p0340 > 0.			
Note:	Re p0600 = 10: The BICO interconnection should be executed via connector input CI: p0603. Re p0600 = 11: For SINAMICS S120 AC Drive (AC/AC) and using the Control Unit Adapter CUA31, the temperature sensor is connected at the adapter (X210).			

p0601	Temperature sensor, sensor type / Temp_sens type		
A_INF, B_INF, S_INF	Can be changed: C2(3), U, T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 4	Factory setting 0
Description:	Sets the sensor type for the temperature measurement at input X21 (booksize) or X41 (chassis). The measured value is displayed in r0035.		
Values:	0: No sensor available 1: PTC thermistor 2: KTY84 4: Bimetallic switch		
Dependency:	Refer to: r0035		
Note:	The measured value display depends on the selected sensor type. Re p0601 = 1 (PTC): Tripping resistance = 1650 Ohm (lower resistance --> r0035 = -50 °C, higher resistance --> r0035 = 250 °C). Re p0601 = 2 (KTY84): Displays the temperature in °C. Re p0601 = 4 (bimetallic switch): Tripping resistance = 100 Ohm (lower resistance --> r0035 = -50 °C, higher resistance --> r0035 = 250 °C). When using the following components, a value of 4 is set as the factory setting and can no longer be changed: - Basic Line Module (BLM) with internal Braking Module. - Active Line Module (ALM) with line filter Active Interface Module (AIM, p0220[0] = 41 ... 45). In these cases, in addition to the temperature display, the temperature is also monitored.		
p0601[0...n]	Motor temperature sensor type / Mot temp_sensortyp		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 8016 Unit selection: - Expert list: 1
	Min 0	Max 10	Factory setting 2
Description:	Sets the sensor type for the motor temperature monitoring.		
Values:	0: No sensor available 1: PTC thermistor 2: KTY84 3: KTY84 and PTC (only for temperature sensor via encoder) 4: Bimetallic switch 10: Evaluation via several temperature channels		
Dependency:	Refer to: r0458, p0600		
Note:	PTC thermistor (p0601 = 1): Tripping resistance = 1650 Ohm. The temperature sensor for the temperature evaluation is set in p0600. For p0600 = 10 (temperature sensor via a BICO interconnection), the setting in p0601 has no significance. Re p0601 = 10: When evaluating using SME120 or SME125 (r0458.8 = 1), 4 temperature channels are available (parameterized using p4600, p4601, p4602, p4603). When evaluating using CU310 and CUA32, 2 temperature channels are available (encoder interface, parameteriza- tion via p4600 / terminal strip, parameterization via p4601).		

p0602	Par_circuit power unit number, temperature sensor / PU_No temp_sensor		
VECTOR (Parallel)	Can be changed: C2(3), U, T Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 10 Factory setting 0
Description:	Sets the power unit number to which the temperature sensor is connected. The value corresponds to the Power unit Data Set number (PDS) of the power unit. The number of power unit data sets is defined in p0120.		
p0603	CI: Motor temperature signal source / Mot temp S_src		
SERVO, VECTOR	Can be changed: C2(3), T Data type: Unsigned32 / FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8016 Unit selection: - Expert list: 1 Min - Max - Factory setting 0
Description:	Sets the signal source to evaluate the motor temperature via a BICO interconnection.		
Dependency:	Refer to: p0600		
Note:	Temperature sensor KTY: Valid temperature range -48 °C ... 248 °C. PTC temperature sensor: For the -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC. For the 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC. Note: When using a Terminal Module 31 (TM31), the following applies: - the sensor type used is set using p4100. - the temperature signal is interconnected using CO: r4105.		
p0604[0...n]	Motor overtemperature alarm threshold / Mot TempAlrmThresh		
SERVO	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 21_1	Access level: 2 Func. diagram: 8016 Unit selection: p0505 Expert list: 1 Min 0.0 [°C] Max 200.0 [°C] Factory setting 120.0 [°C]
Description:	Sets the alarm threshold for monitoring the motor temperature.		
Dependency:	Refer to: p0606		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
p0604[0...n]	Motor overtemperature alarm threshold / Mot TempAlrmThresh		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 21_1	Access level: 2 Func. diagram: 8016 Unit selection: p0505 Expert list: 1 Min 0.0 [°C] Max 200.0 [°C] Factory setting 130.0 [°C]
Description:	Sets the alarm threshold for monitoring the motor temperature.		
Dependency:	Refer to: p0606		

Caution: This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

p0605[0...n] Motor overtemperature fault threshold / MotTempFaultThresh

SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.0 [°C]	Max 200.0 [°C]	Factory setting 145.0 [°C]

Description: Sets the fault threshold to monitor the motor temperature.

Caution: This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is automatically preset for motors from the motor list (p0301).

p0606[0...n] Motor overtemperature timer / Mot TempTimeStage

SERVO	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 240.000 [s]

Description: Sets the timer stage for the alarm threshold for the motor temperature monitoring function.

This timer stage is started when the temperature alarm threshold (p0604) is exceeded.

If the timer stage expires before the temperature in the meantime falls below the alarm threshold, the fault F07011 is output.

If the temperature fault threshold (p0605) is prematurely exceeded before the timer stage has expired, then fault F07011 is immediately output. As long as the motor temperature has still not exceeded the fault threshold and the alarm thresholds have again been fallen below, the fault can be acknowledged.

Dependency: Refer to: p0604, p0605
Refer to: F07011, A07910

Note: With p0606 = 0 s, the timer stage is de-activated and only the fault threshold is effective.
KTY sensor: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded.
PTC sensor: The timer minimum value has no particular significance.

p0606[0...n] Motor overtemperature timer / Mot TempTimeStage

VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 0.000 [s]

Description: Sets the timer stage for the alarm threshold for the motor temperature monitoring function.

This timer stage is started when the temperature alarm threshold (p0604) is exceeded.

If the timer stage expires before the temperature in the meantime falls below the alarm threshold, the fault F07011 is output.

If the temperature fault threshold (p0605) is prematurely exceeded before the timer stage has expired, then fault F07011 is immediately output. As long as the motor temperature has still not exceeded the fault threshold and the alarm thresholds have again been fallen below, the fault can be acknowledged.

Dependency: Refer to: p0604, p0605
Refer to: F07011, A07910

Note: With p0606 = 0 s, the timer stage is de-activated and only the fault threshold is effective.
KTY sensor: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded.
PTC sensor: The timer minimum value has no particular significance.

p0607[0...n] Temperature sensor fault timer / Sensor fault time

SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 0.100 [s]

Description: Sets the timer stage between the output of alarm and fault for a temperature sensor fault.
If there is a sensor fault, this timer stage is started. If the sensor fault is still present after the timer stage has expired, a corresponding fault message is output.

Note: If the motor is an induction motor, the timer is switched off when setting the minimum value and no alarm is output. Temperature monitoring is then based on the thermal model.

p0610[0...n] Motor overtemperature response / Mot temp response

VECTOR	Can be changed: C2(3), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 1

Description: Sets the system response when the motor temperature reaches the alarm threshold.

Values:
0: No response only alarm no reduction of I_{max}
1: Alarm with reduction of I_{max} and fault
2: Alarm and fault no reduction of I_{max}

Dependency: Refer to: p0601, p0604, p0605
Refer to: F07011, A07910

Note: the I_{max} reduction is not executed for PTC (p0601 = 1).
The I_{max} reduction results in a lower output frequency.

p0616[0...n] Motor overtemperature alarm threshold 1 / Mot temp alarm 1

SERVO	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.0 [°C]	Max 200.0 [°C]	Factory setting 195.0 [°C]

Description: Sets the alarm threshold 1 for monitoring the motor temperature.

Note: The alarm threshold is not, as for p0604, coupled to the timer p0606.

p0616[0...n]	Motor overtemperature alarm threshold 1 / Mot temp alarm 1		
VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 21_1 Min 0.0 [°C]	Access level: 2 Func. diagram: 8016 Unit selection: p0505 Expert list: 1 Max 200.0 [°C] Factory setting 130.0 [°C]
Description:	Sets the alarm threshold 1 for monitoring the motor temperature.		
Note:	The alarm threshold is not, as for p0604, coupled to the timer p0606.		
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R		
SERVO	Can be changed: C2(3), U, T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Min 0	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Max 2 Factory setting 2
Description:	Sets the thermal adaptation of the stator/primary section resistance and rotor/secondary section resistance according to r0395 and r0396.		
Values:	0: No thermal adaptation of stator and rotor resistances 1: Resistances adapted to the temperatures of the thermal model 2: Resistances adapted to the measured stator winding temperature		
Note:	For p0620 = 1, the following applies: The stator resistance is adapted using the temperature in r0035 and the rotor resistance together with the model temperature in r0633. For p0620 = 2, the following applies: The stator resistance is adapted using the temperature in r0035. The rotor temperature to adapt the rotor resistance is calculated as follows from the stator temperature (r0035). $\theta_R = (r0628 + r0625) / (r0627 + r0625) * r0035$		
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R		
VECTOR	Can be changed: C2(3), U, T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: - Min 0	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Max 2 Factory setting 1
Description:	Sets the thermal adaptation of the stator/primary section resistance and rotor/secondary section resistance according to r0395 and r0396.		
Values:	0: No thermal adaptation of stator and rotor resistances 1: Resistances adapted to the temperatures of the thermal model 2: Resistances adapted to the measured stator winding temperature		
Note:	For p0620 = 1, the following applies: The stator resistance is adapted using the temperature in r0035 and the rotor resistance together with the model temperature in r0633. For p0620 = 2, the following applies: The stator resistance is adapted using the temperature in r0035. The rotor temperature to adapt the rotor resistance is calculated as follows from the stator temperature (r0035). $\theta_R = (r0628 + r0625) / (r0627 + r0625) * r0035$		

p0621[0...n]	Temperature identification after restart / Temp_ident restart		
VECTOR (n/M)	Can be changed: C2(3), T Data type: Integer16 P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 2	Factory setting 0
Description:	Configuration of the temperature identification after powering-up again. If the identification is selected, when powering-up for the first time after the system run-up, the stator resistance is measured and from this the temperature determined. The thermal model is then suitably initialized.		
Values:	0: No temperature identification 1: Temperature identification after restart 2: Temperature identification after each power-up		
p0622[0...n]	Motor excitation time for temp_ident after powering-up again / t_excit temp_id		
VECTOR (n/M)	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: CALC_MOD_REG Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 20.000 [s]	Factory setting 0.000 [s]
Description:	Sets the excitation time of the motor during the temperature identification after powering-up again (restart).		
r0623	Stator resistance after temperature identification / R_stator temp_id		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the identified stator resistance after the temperature identification run.		
p0625[0...n]	Motor ambient temperature / Mot T_ambient		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 21_1	Access level: 3 Func. diagram: 8016 Unit selection: p0505 Expert list: 1
	Min -40 [°C]	Max 80 [°C]	Factory setting 20 [°C]
Description:	Defines the ambient temperature of the motor to calculate the temperature model.		
Note:	The parameters for stator and rotor resistance (p0350, p0354) refer to this temperature.		
p0626[0...n]	Motor overtemperature, stator core / Mot T_over core		
SERVO, VECTOR	Can be changed: C2(3), U, T Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 21_2	Access level: 3 Func. diagram: 8016 Unit selection: p0505 Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 50 [K]
Description:	Defines the rated overtemperature of the stator core referred to the ambient temperature.		

Dependency: For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.
Refer to: p0625

p0627[0...n]	Motor overtemperature, stator winding / Mot T_{over stator}		
SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_2	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 80 [K]
Description:	Defines the rated overtemperature of the stator winding referred to the ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		

p0628[0...n]	Rotor winding overtemperature / Mot T_{over rotor}		
SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_2	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 100 [K]
Description:	Defines the rated overtemperature of the squirrel cage rotor referred to ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		

r0630[0...n]	Motor temperature model ambient temperature / MotMod T_{amb}		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the ambient temperature of the motor temperature model.		

r0631[0...n]	Motor temperature model, stator core temperature / MotMod T_{iron}		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the stator core temperature of the motor temperature model.		

r0632[0...n]	Motor temperature model, stator winding temperature / MotMod T_{copper}		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the stator winding temperature of the motor temperature model.		

r0633[0...n]	Motor temperature model, rotor temperature / MotTMod T_rotor		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor Not for motor type: PEM, REL, FEM Min - [°C]	Calculated: - Dynamic index: MDS, p0130 Units group: 21_1 Max - [°C]	Access level: 4 Func. diagram: 8016 Unit selection: p0505 Expert list: 1 Factory setting - [°C]
Description:	Displays the rotor temperature of the motor temperature model.		
p0640[0...n]	Current limit / Current limit		
SERVO, VECTOR	Can be changed: C2(1, 3), U, T Data type: Floating Point P-Group: Motor Not for motor type: - Min 0.00 [Arms]	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: - Max 10000.00 [Arms]	Access level: 2 Func. diagram: 5722, 6640 Unit selection: - Expert list: 1 Factory setting 0.00 [Arms]
Description:	Sets the current limit.		
Dependency:	Refer to: r0209, p0323		
Note:	<p>The parameter is part of the fast commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0305, p0323 and p0338.</p> <p>The current limit p0640 is limited to r0209 and p0323. The limit to p0323 is not realized if a value of zero is entered there.</p> <p>The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the Motor Module.</p> <p>The torque and power limits (p1520, p1521, p1530, p1531) matching the current limit are automatically calculated when exiting the quick commissioning using p3900 > 0 or using the automatic parameterization with p0340 = 3, 5.</p> <p>For VECTOR the following applies (p0107):</p> <p>p0640 is limited to 4.0 * p0305.</p> <p>p0640 is pre-assigned for the automatic self commissioning routine (e.g. to 1.5 * p0305, with p0305 = r0207[1]).</p> <p>p0640 must be entered when commissioning the system. This is the reason that p0640 is not calculated by the automatic parameterization when exiting the fast commissioning (p3900 > 0).</p> <p>For SERVO the following applies (p0107):</p> <p>p0640 is pre-assigned as follows using the automatic parameterization (p0340 = 1, p3900 > 0) taking into account the limits r0209 and r0323:</p> <ul style="list-style-type: none"> - for induction motors: p0640 = 1.5 * p0305 - for synchronous motors: p0640 = p0338 		
p0642[0...n]	Sensorless operation current reduction / Sensorl op I_red		
SERVO	Can be changed: C2(1, 3), U, T Data type: Floating Point P-Group: Motor Not for motor type: - Min 0.00 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 100.00 [%]	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100.00 [%]
Description:	Sets the reduction for the current limit in sensorless operation. The value is referred to p0640.		
Dependency:	Refer to: r0209, p0323, p0491, p0640, p1300, p1404		
Note:	If the motor is operated both with encoder as well as without encoder (sensorless operation) (e.g. p0491 is not equal to 0 or p1404 < p1082) then the maximum current can be reduced in sensorless operation. This reduces disturbing saturation-related motor data changes in sensorless operation.		

p0643[0...n] Overvoltage protection for synchronous motors / Overvolt_protect			
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the overvoltage protection for synchronous motors in the field-weakening range.		
Values:	0: No measure 1: Voltage Protection Module (VPM)		
Dependency:	Refer to: p0316, p1082, p1231, p9601, p9801 Refer to: F07432, F07906, F07907		
Notice:	When the speed limiting is removed, the user is responsible for implementing a suitable overvoltage protection.		
Note:	In the field-weakening range, synchronous motors can, when a fault condition exists, generate high DC link voltages. The following possibilities exist to protect the drive system from being destroyed due to overvoltage: - limit the maximum speed (p1082) without any additional protection. The maximum speed without protection is calculated as follows: Rotary motors: $p1082 \text{ [rpm]} \leq 11.695 * p0297/p0316 \text{ [Nm/A]}$ Linear motors: $p1082 \text{ [m/min]} \leq 73.484 * p0297/0316 \text{ [N/A]}$ - use a Voltage Protection Module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801). When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be canceled - this means that the terminals for the function "Safe Torque Off" must be connected to the VPM. - activating the internal voltage protection (IVP) with p1231 = 3.		

p0643[0...n] Overvoltage protection for synchronous motors / Overvolt_protect			
VECTOR (n/M)	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the overvoltage protection for synchronous motors in the field-weakening range.		
Values:	0: No measure 1: Voltage Protection Module (VPM)		
Dependency:	Refer to: p0316, p1082, p1231, p9601, p9801 Refer to: F07432, F07906, F07907		
Notice:	When the speed limiting is removed, the user is responsible for implementing a suitable overvoltage protection.		
Note:	In the field-weakening range, synchronous motors can, when a fault condition exists, generate high DC link voltages. The following possibilities exist to protect the drive system from being destroyed due to overvoltage: - limit the maximum speed (p1082) without any additional protection. The maximum speed without protection is calculated as follows: Rotary motors: $p1082 \text{ [rpm]} \leq 11.695 * p0297/p0316 \text{ [Nm/A]}$ Linear motors: $p1082 \text{ [m/min]} \leq 73.484 * p0297/0316 \text{ [N/A]}$ - use a Voltage Protection Module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801). When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be canceled - this means that the terminals for the function "Safe Torque Off" must be connected to the VPM. - activating the internal voltage protection (IVP) with p1231 = 3.		

p0645[0...n]	Motor-torque characteristic kT1 / Mot kT1		
SERVO (Exp M_ctrl)	Can be changed: C2(1, 3), U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min 0.00 [Nm/A]	Max 200.00 [Nm/A]	Factory setting 0.00 [Nm/A]
Description:	Sets the constant kT1 for the torque characteristic: $kT(iq)=kT1+kT3*iq^2+kT5*iq^4+kT7*iq^6$		
Dependency:	Refer to: p0646, p0647, p0648		
p0645[0...n]	Motor-torque characteristic kT1 / Mot kT1		
SERVO (Exp M_ctrl, Lin)	Can be changed: C2(1, 3), U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min 0.00 [N/Arms]	Max 200.00 [N/Arms]	Factory setting 0.00 [N/Arms]
Description:	Sets the constant kT1 for the torque characteristic: $kT(iq)=kT1+kT3*iq^2+kT5*iq^4+kT7*iq^6$		
Dependency:	Refer to: p0646, p0647, p0648		
p0646[0...n]	Motor-torque characteristic kT3 / Mot kT3		
SERVO (Exp M_ctrl)	Can be changed: C2(1, 3), U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Sets the constant kT3 for the torque characteristic: $kT(iq)=kT1+kT3*iq^2+kT5*iq^4+kT7*iq^6$		
Dependency:	Refer to: p0645, p0647, p0648		
p0647[0...n]	Motor-torque characteristic kT5 / Mot kT5		
SERVO (Exp M_ctrl)	Can be changed: C2(1, 3), U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Sets the constant kT5 for the torque characteristic: $kT(iq)=kT1+kT3*iq^2+kT5*iq^4+kT7*iq^6$		
Dependency:	Refer to: p0645, p0646, p0648		

p0648[0...n]	Motor-torque characteristic kT7 / Mot kT7		
SERVO (Exp M_ctrl)	Can be changed: C2(1, 3), U, T Data type: Floating Point P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Sets the constant kT7 for the torque characteristic: $kT(iq) = kT1 + kT3 \cdot iq^2 + kT5 \cdot iq^4 + kT7 \cdot iq^6$		
Dependency:	Refer to: p0645, p0646, p0647		
p0650[0...n]	Actual motor operating hours / Mot t_oper act		
SERVO, VECTOR	Can be changed: T Data type: Unsigned32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 [h]
Description:	Displays the operating hours for the corresponding motor. The motor operating time counter continues to run when the pulses are enabled. When the pulse enable is withdrawn, the counter is held and the value saved.		
Dependency:	The following prerequisites must be fulfilled in order to be able to save the operating hours counter in a non-volatile fashion: - firmware with V2.2 or higher. - Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM). Refer to: p0651 Refer to: A01590		
Note:	The operating hours counter in p0650 can only be reset to 0. In this case, p0651 is automatically set to 0. For p0651 = 0, the operating hours counter is disabled. The operating hours counter only runs for MDS0 and MDS1 (Motor Data Set).		
p0651[0...n]	Motor operating hours maintenance interval / Mot t_op maint		
SERVO, VECTOR	Can be changed: T Data type: Unsigned32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 [h]
Description:	Sets the service/maintenance intervals in hours for the appropriate motor. An appropriate fault is output when the operating hours set here are reached.		
Dependency:	Refer to: p0650 Refer to: A01590		
Note:	For p0651 = 0, the operating hours counter is disabled. The operating hours counter only runs for MDS0 and MDS1 (Motor Data Set).		

p0652[0...n]	Motor stator resistance, scaling / Mot R_stator scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the stator resistance.		
Dependency:	Refer to: p0350, r0370		
p0653[0...n]	Motor stator leakage inductance, scaling / Mot L_S_leak scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the stator leakage inductance.		
Dependency:	Refer to: p0356, r0377		
p0655[0...n]	Motor magnetizing inductance, d axis saturated scaling / Mot L_m d sat scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the magnetizing inductance in the direction of the rotor axis (d axis).		
Dependency:	Refer to: p0360, r0382		
p0656[0...n]	Motor magnetizing inductance, q axis, saturated scaling / Mot L_m q sat scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the magnetizing inductance quadrature to the rotor axis (q axis).		
Dependency:	Refer to: p0361, r0383		
p0657[0...n]	Motor damping inductance, d axis scaling / Mot L_damp d scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the damping inductance in the direction of the rotor axis (d axis).		
Dependency:	Refer to: p0358, r0380		

p0658[0...n]	Motor damping inductance, q axis scaling / Mot L_damp q scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the damping inductance quadrature to the rotor axis (q axis).		
Dependency:	Refer to: p0359, r0381		

p0659[0...n]	Motor damping resistance, d axis scaling / Mot R_damp d scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the damping resistance in the direction of the rotor axis (d axis).		
Dependency:	Refer to: p0354, r0374		

p0660[0...n]	Motor damping resistance, q axis scaling / Mot R_damp q scal		
VECTOR	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 4
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 10.0 [%]	Max 300.0 [%]	Factory setting 100.0 [%]
Description:	Factor to evaluate the damping resistance quadrature to the rotor axis (q axis).		
Dependency:	Refer to: p0355, r0375		

p0680[0...5]	Central measuring probe, input terminal / Cen meas inp		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 6	Factory setting 0
Description:	Sets the digital input used for the function "central measuring probe evaluation". p0680[0]: Digital input, measuring probe 1 p0680[1]: Digital input, measuring probe 2 p0680[2]: Digital input, measuring probe 3 p0680[3]: Digital input, measuring probe 4 p0680[4]: Digital input, measuring probe 5 p0680[5]: Digital input, measuring probe 6		
Values:	0: No meas probe 1: DI/DO 9 (X122.8/X121.8) 2: DI/DO 10 (X122.10/X121.10) 3: DI/DO 11 (X122.11/X121.11) 4: DI/DO 13 (X132.8) 5: DI/DO 14 (X132.10) 6: DI/DO 15 (X132.11)		

Dependency: Refer to: p0728

Notice: To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: Prerequisite: The DI/DO must be set as input (p0728.x = 0).
DI/DO: Bidirectional Digital Input/Output
If a parameter change is rejected, it should be checked as to whether the input terminal is already being used in p0488, p0489, p0495, p0580, p2517 or p2518.

p0681 **BI: Central measuring probe, synchronizing signal signal source / Cen meas sync_sig**

CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the synchronizing signal (SYN) of the function "central measuring probe evaluation".
The signal is used to synchronize the common system time between the master and slave.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0682 **CI: Central measuring probe, control word signal source / Cen meas STW S_src**

CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the control word of the function "central measuring probe evaluation".

p0684 **Central measuring probe evaluation technique / Cen meas eval**

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	0	0

Description: Sets the evaluation technique for the function "central measuring probe evaluation".

Values: 0: Measurement with handshake

r0685 **Central measuring probe, control word display / Cen meas STW disp**

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the control word for the function "central measuring probe evaluation".

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Falling edge, measuring probe 1	Yes	No	-
	01	Falling edge, measuring probe 2	Yes	No	-
	02	Falling edge, measuring probe 3	Yes	No	-
	03	Falling edge, measuring probe 4	Yes	No	-
	04	Falling edge, measuring probe 5	Yes	No	-
	05	Falling edge, measuring probe 6	Yes	No	-
	08	Rising edge, measuring probe 1	Yes	No	-
	09	Rising edge, measuring probe 2	Yes	No	-
	10	Rising edge, measuring probe 3	Yes	No	-
	11	Rising edge, measuring probe 4	Yes	No	-
	12	Rising edge, measuring probe 5	Yes	No	-
	13	Rising edge, measuring probe 6	Yes	No	-

r0686[0...5] CO: Central measuring probe, measuring time rising edge / CenMeas t_meas 0/1

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the measuring time for a rising edge at the digital input for the "central measuring probe evaluation" function.

The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

r0686[0]: Measuring time, rising edge measuring probe 1
r0686[1]: Measuring time, rising edge measuring probe 2
r0686[2]: Measuring time, rising edge measuring probe 3
r0686[3]: Measuring time, rising edge measuring probe 4
r0686[4]: Measuring time, rising edge measuring probe 5
r0686[5]: Measuring time, rising edge measuring probe 6

r0687[0...5] CO: Central measuring probe, measuring time falling edge / CenMeas t_meas 1/0

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the measuring time for a falling edge at the digital input for the "central measuring probe evaluation" function.

The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

r0687[0]: Measuring time, falling edge measuring probe 1
r0687[1]: Measuring time, falling edge measuring probe 2
r0687[2]: Measuring time, falling edge measuring probe 3
r0687[3]: Measuring time, falling edge measuring probe 4
r0687[4]: Measuring time, falling edge measuring probe 5
r0687[5]: Measuring time, falling edge measuring probe 6

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r0721	CU digital inputs, terminal actual value / CU DI actual value				
CU_S	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the actual value at the digital inputs. This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0). The input signal at terminal DI x is displayed in bit x of r0721.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1/X121.1)	High	Low	-
	01	DI 1 (X122.2/X121.2)	High	Low	-
	02	DI 2 (X122.3/X121.3)	High	Low	-
	03	DI 3 (X122.4/X121.4)	High	Low	-
	04	DI 4 (X132.1)	High	Low	-
	05	DI 5 (X132.2)	High	Low	-
	06	DI 6 (X132.3)	High	Low	-
	07	DI 7 (X132.4)	High	Low	-
	08	DI/DO 8 (X122.7/X121.7)	High	Low	-
	09	DI/DO 9 (X122.8/X121.8)	High	Low	-
	10	DI/DO 10 (X122.10/X121.10)	High	Low	-
	11	DI/DO 11 (X122.11/X121.11)	High	Low	-
	12	DI/DO 12 (X132.7)	High	Low	-
	13	DI/DO 13 (X132.8)	High	Low	-
	14	DI/DO 14 (X132.10)	High	Low	-
	15	DI/DO 15 (X132.11)	High	Low	-
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310.				
Note:	If a DI/DO is parameterized as output (p0728.x = 1), then r0721.x = 0 is displayed. DI: Digital input DI/DO: Bidirectional Digital Input/Output				

r0721	CX digital inputs, terminal actual value / CX DI actual value				
CU_CX32	Can be changed: -		Calculated: -	Access level: 2	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 2220, 2230, 2231	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min -	Max -	Factory setting -		
Description:	Displays the actual value at the digital inputs. This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0). The input signal at terminal DI x is displayed in bit x of r0721.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1)	High	Low	-
	01	DI 1 (X122.2)	High	Low	-
	02	DI 2 (X122.3)	High	Low	-
	03	DI 3 (X122.4)	High	Low	-
	08	DI/DO 8 (X122.7)	High	Low	-

09	DI/DO 9 (X122.8)	High	Low	-
10	DI/DO 10 (X122.10)	High	Low	-
11	DI/DO 11 (X122.11)	High	Low	-

r0722.0...15 CO/BO: CU digital inputs, status / CU DI status

CU_S

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133**P-Group:** Commands**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	High	Low	-
01	DI 1 (X122.2/X121.2)	High	Low	-
02	DI 2 (X122.3/X121.3)	High	Low	-
03	DI 3 (X122.4/X121.4)	High	Low	-
04	DI 4 (X132.1)	High	Low	-
05	DI 5 (X132.2)	High	Low	-
06	DI 6 (X132.3)	High	Low	-
07	DI 7 (X132.4)	High	Low	-
08	DI/DO 8 (X122.7/X121.7)	High	Low	-
09	DI/DO 9 (X122.8/X121.8)	High	Low	-
10	DI/DO 10 (X122.10/X121.10)	High	Low	-
11	DI/DO 11 (X122.11/X121.11)	High	Low	-
12	DI/DO 12 (X132.7)	High	Low	-
13	DI/DO 13 (X132.8)	High	Low	-
14	DI/DO 14 (X132.10)	High	Low	-
15	DI/DO 15 (X132.11)	High	Low	-

Dependency:

Refer to: r0723

Notice:

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note:

DI: Digital input

DI/DO: Bidirectional Digital Input/Output

r0722.0...11 CO/BO: CX digital inputs, status / CX DI status

CU_CX32

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 2220, 2230, 2231**P-Group:** Commands**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1)	High	Low	-
01	DI 1 (X122.2)	High	Low	-
02	DI 2 (X122.3)	High	Low	-
03	DI 3 (X122.4)	High	Low	-
08	DI/DO 8 (X122.7)	High	Low	-
09	DI/DO 9 (X122.8)	High	Low	-
10	DI/DO 10 (X122.10)	High	Low	-
11	DI/DO 11 (X122.11)	High	Low	-

r0723.0...15	BO: CU digital inputs, status inverted / CU DI status inv				
CU_S	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131 2132, 2133		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the inverted status of the digital inputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1/X121.1)	High	Low	-
	01	DI 1 (X122.2/X121.2)	High	Low	-
	02	DI 2 (X122.3/X121.3)	High	Low	-
	03	DI 3 (X122.4/X121.4)	High	Low	-
	04	DI 4 (X132.1)	High	Low	-
	05	DI 5 (X132.2)	High	Low	-
	06	DI 6 (X132.3)	High	Low	-
	07	DI 7 (X132.4)	High	Low	-
	08	DI/DO 8 (X122.7/X121.7)	High	Low	-
	09	DI/DO 9 (X122.8/X121.8)	High	Low	-
	10	DI/DO 10 (X122.10/X121.10)	High	Low	-
	11	DI/DO 11 (X122.11/X121.11)	High	Low	-
	12	DI/DO 12 (X132.7)	High	Low	-
	13	DI/DO 13 (X132.8)	High	Low	-
	14	DI/DO 14 (X132.10)	High	Low	-
	15	DI/DO 15 (X132.11)	High	Low	-
Dependency:	Refer to: r0722				
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310.				
Note:	DI: Digital input DI/DO: Bidirectional Digital Input/Output				

r0723.0...11	BO: CX digital inputs, status inverted / CX DI status inv				
CU_CX32	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2220, 2230, 2231		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the inverted status of the digital inputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1)	High	Low	-
	01	DI 1 (X122.2)	High	Low	-
	02	DI 2 (X122.3)	High	Low	-
	03	DI 3 (X122.4)	High	Low	-
	08	DI/DO 8 (X122.7)	High	Low	-
	09	DI/DO 9 (X122.8)	High	Low	-
	10	DI/DO 10 (X122.10)	High	Low	-
	11	DI/DO 11 (X122.11)	High	Low	-

p0728 CU, set input or output / CU DI or DO					
CU_S	Can be changed: T		Calculated: -		Access level: 1
	Data type: Unsigned32		Dynamic index: -		Func. diagram: 1510, 2030, 2031, 2130, 2131, 2132, 2133
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		0000 bin
Description: Sets the bidirectional digital inputs/outputs as an input or output.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.7/X121.7)	Output	Input	-
	09	DI/DO 9 (X122.8/X121.8)	Output	Input	-
	10	DI/DO 10 (X122.10/X121.10)	Output	Input	-
	11	DI/DO 11 (X122.11/X121.11)	Output	Input	-
	12	DI/DO 12 (X132.7)	Output	Input	-
	13	DI/DO 13 (X132.8)	Output	Input	-
	14	DI/DO 14 (X132.10)	Output	Input	-
	15	DI/DO 15 (X132.11)	Output	Input	-
Notice: To the terminal designation: The first designation is valid for CU320, the second for CU310.					
Note: DI/DO: Bidirectional Digital Input/Output					

p0728 CX set input or output / CX DI or DO					
CU_CX32	Can be changed: T		Calculated: -		Access level: 1
	Data type: Unsigned32		Dynamic index: -		Func. diagram: 2230, 2231
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		0000 bin
Description: Sets the bidirectional digital inputs/outputs as an input or output.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.7)	Output	Input	-
	09	DI/DO 9 (X122.8)	Output	Input	-
	10	DI/DO 10 (X122.10)	Output	Input	-
	11	DI/DO 11 (X122.11)	Output	Input	-

p0738 BI: CU, signal source for terminal DI/DO 8 / CU S_src DI/DO 8					
CU_S	Can be changed: U, T		Calculated: -		Access level: 1
	Data type: Unsigned32 / Binary		Dynamic index: -		Func. diagram: 1510, 2030, 2130
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		0
Description: Sets the signal source for terminal DI/DO 8 (X122.7).					
Notice: To the terminal designation: The first designation is valid for CU320, the second for CU310.					
Note: Prerequisite: The DI/DO must be set as an output (p0728.8 = 1). DI/DO: Bidirectional Digital Input/Output					

p0738	BI: CX signal source for terminal DI/DO 8 / CX S_src DI/DO 8		
CU_CX32	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2230
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 8 (X122.7).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.8 = 1). DI/DO: Bidirectional Digital Input/Output		
p0739	BI: CU, signal source for terminal DI/DO 9 / CU S_src DI/DO 9		
CU_S	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2030, 2130
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 9 (X122.8).		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.9 = 1). DI/DO: Bidirectional Digital Input/Output		
p0739	BI: CX signal source for terminal DI/DO 9 / CX S_src DI/DO 9		
CU_CX32	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2230
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 9 (X122.8).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.9 = 1). DI/DO: Bidirectional Digital Input/Output		
p0740	BI: CU, signal source for terminal DI/DO 10 / CU S_src DI/DO 10		
CU_S	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2031, 2131
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 10 (X122.10).		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.10 = 1). DI/DO: Bidirectional Digital Input/Output		

p0740	BI: CX signal source for terminal DI/DO 10 / CX S_src DI/DO 10		
CU_CX32	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2231
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 10 (X122.10).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.10 = 1). DI/DO: Bidirectional Digital Input/Output		
p0741	BI: CU, signal source for terminal DI/DO 11 / CU S_src DI/DO 11		
CU_S	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1510, 2031, 2131
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 11 (X122.11).		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.11 = 1). DI/DO: Bidirectional Digital Input/Output		
p0741	BI: CX signal source for terminal DI/DO 11 / CX S_src DI/DO 11		
CU_CX32	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2231
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 11 (X122.11).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.11 = 1). DI/DO: Bidirectional Digital Input/Output		
p0742	BI: CU, signal source for terminal DI/DO 12 / CU S_src DI/DO 12		
CU_S	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1510, 2132
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 12 (X132.7).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.12 = 1). DI/DO: Bidirectional Digital Input/Output		

p0743					
BI: CU, signal source for terminal DI/DO 13 / CU S_src DI/DO 13					
CU_S	Can be changed: U, T		Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary		Dynamic index: -	Func. diagram: 2132	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	0	
Description: Sets the signal source for terminal DI/DO 13 (X132.8).					
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.					
Note: Prerequisite: The DI/DO must be set as an output (p0728.13 = 1). DI/DO: Bidirectional Digital Input/Output					

p0744					
BI: CU, signal source for terminal DI/DO 14 / CU S_src DI/DO 14					
CU_S	Can be changed: U, T		Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary		Dynamic index: -	Func. diagram: 2133	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	0	
Description: Sets the signal source for terminal DI/DO 14 (X132.10).					
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.					
Note: Prerequisite: The DI/DO must be set as an output (p0728.14 = 1). DI/DO: Bidirectional Digital Input/Output					

p0745					
BI: CU, signal source for terminal DI/DO 15 / CU S_src DI/DO 15					
CU_S	Can be changed: U, T		Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary		Dynamic index: -	Func. diagram: 1510, 2133	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	0	
Description: Sets the signal source for terminal DI/DO 15 (X132.11).					
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.					
Note: Prerequisite: The DI/DO must be set as an output (p0728.15 = 1). DI/DO: Bidirectional Digital Input/Output					

r0747					
CU, digital outputs status / CU DO status					
CU_S	Can be changed: -		Calculated: -	Access level: 1	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 2130, 2131, 2132, 2133	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	-	
Description: Displays the status of digital outputs.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.7/X121.7)	High	Low	-
	09	DI/DO 9 (X122.8/X121.8)	High	Low	-
	10	DI/DO 10 (X122.10/X121.10)	High	Low	-
	11	DI/DO 11 (X122.11/X121.11)	High	Low	-
	12	DI/DO 12 (X132.7)	High	Low	-

13	DI/DO 13 (X132.8)	High	Low	-
14	DI/DO 14 (X132.10)	High	Low	-
15	DI/DO 15 (X132.11)	High	Low	-

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: Inversion using p0748 has been taken into account.

The setting of the DI/DO as either input or output is of no significance (p0728).

DI/DO: Bidirectional Digital Input/Output

r0747 CX digital outputs, status / CX DO status

CU_CX32	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of digital outputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.7)	High	Low	-
	09	DI/DO 9 (X122.8)	High	Low	-
	10	DI/DO 10 (X122.10)	High	Low	-
	11	DI/DO 11 (X122.11)	High	Low	-

p0748 CU, invert digital outputs / CU DO invert

CU_S	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2030, 2031, 2130, 2131, 2132, 2133
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital outputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.7/X121.7)	Inverted	Not inverted	-
	09	DI/DO 9 (X122.8/X121.8)	Inverted	Not inverted	-
	10	DI/DO 10 (X122.10/X121.10)	Inverted	Not inverted	-
	11	DI/DO 11 (X122.11/X121.11)	Inverted	Not inverted	-
	12	DI/DO 12 (X132.7)	Inverted	Not inverted	-
	13	DI/DO 13 (X132.8)	Inverted	Not inverted	-
	14	DI/DO 14 (X132.10)	Inverted	Not inverted	-
	15	DI/DO 15 (X132.11)	Inverted	Not inverted	-

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: DI/DO: Bidirectional Digital Input/Output

p0748 CX invert digital outputs / CX DO invert

CU_CX32	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2230, 2231
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital outputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.7)	Inverted	Not inverted	-
	09	DI/DO 9 (X122.8)	Inverted	Not inverted	-
	10	DI/DO 10 (X122.10)	Inverted	Not inverted	-
	11	DI/DO 11 (X122.11)	Inverted	Not inverted	-

p0771[0...2] CI: Test sockets signal source / TestSocketsSigSrce

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the signal to be output at the test sockets.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Can only be set when p0776 = 99.
Refer to: r0772, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0772[0...2] Test sockets output signal / TestSocketsSignalVal

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

Description: Displays the actual value of the signal to be output.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Refer to: p0771, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0774[0...2] Test sockets output voltage / TestSockets V_output

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [V]	- [V]	- [V]

Description: Displays the actual output voltage for the test sockets.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Refer to: p0771, r0772, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

p0776[0...2] Test socket mode / Test skt mode

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 96	Max 99	Factory setting 99
Description:	Sets the mode for the test sockets.		
Values:	96: Physical address (32-bit integer signal unsigned) 97: Physical address (32-bit integer signal) 98: Physical address (32-bit floating-point signal) 99: BICO signal		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784, r0786, p0788, p0789, r0790		

p0777[0...2] Test socket characteristic value x1 / Test skt char x1

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -100000.00 [%]	Max 100000.00 [%]	Factory setting 0.00 [%]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the first point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. Refer to: p0778, p0779, p0780, r0786		
Note:	The value 0.00 % corresponds to 2.49 V.		

p0778[0...2] Test socket characteristic value y1 / Test skt char y1

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [V]	Max 4.98 [V]	Factory setting 2.49 [V]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the first point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. Refer to: p0777, p0779, p0780, r0786		

p0779[0...2] Test socket characteristic value x2 / Test skt char x2			
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8134 Unit selection: - Expert list: 1
	Min -100000.00 [%]	Max 427.9E9 [%]	Factory setting 100.00 [%]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the second point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. Refer to: p0777, p0778, p0780, r0786		
Note:	The value 100.00 % corresponds to 4.98 V.		
p0780[0...2] Test socket characteristic value y2 / Test skt char y2			
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8134 Unit selection: - Expert list: 1
	Min 0.00 [V]	Max 4.98 [V]	Factory setting 4.98 [V]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the second point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. Refer to: p0777, p0778, p0779, r0786		
p0783[0...2] Test sockets offset / Test skt offset			
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8134 Unit selection: - Expert list: 1
	Min -4.98 [V]	Max 4.98 [V]	Factory setting 0.00 [V]
Description:	Sets an additional offset for the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = T2		
p0784[0...2] Test socket limit on/off / TestSktLim on/off			
CU_CX32, CU_S	Can be changed: U, T Data type: Integer16 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8134 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the limit for a signal to be output via test sockets.		

Values:	0: Limiting off 1: Limiting on
Index:	[0] = T0 [1] = T1 [2] = T2
Note:	Limiting on: If signals are output outside the permissible measuring range, the signal is limited to 4.98 V or to 0 V. Limiting off: If signals are output outside the permissible measuring range, this causes signal overflow. In the case of signal overflow, the signal jumps from 0 V to 4.98 V or from 4.98 V to 0 V.

r0786[0...2] Test socket normalization per volt / TestSktNorm/Volt

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the normalization of the signal to be output. A change in the output voltage by 1 volt corresponds to the value in this parameter. The units are determined by the interconnected test signal.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784		
Note:	Example: r0786[0] = 1500.0 and the measuring signal is r0063 (CO: Speed actual value smoothed [RPM]). A change of 1 V at the output of test socket T0 corresponds to 1500.0 [RPM].		

p0788[0...2] Test sockets physical address / Test skt PhyAddr

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin
Description:	Sets the physical address to output signals via the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Changes only become effective if p0776 does not equal 99. Refer to: p0789, r0790		

p0789[0...2] Test sockets physical address gain / TestSktPhyAddrGain

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-340.28235E36	340.28235E36	1.00000
Description:	Sets the gain of a signal output of a physical address via test sockets.		
Index:	[0] = T0 [1] = T1 [2] = T2		

Dependency: Changes only become effective if p0776 does not equal 99.
Refer to: p0788

r0790[0...2] Test sockets physical address signal value / TestSksPhyAddrVal			
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the actual value of a signal determined via a physical address.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Only effective when p0776 = 97 or p0776 = 96.
Refer to: p0788

p0795 CU digital inputs simulation mode / CU DI simulation			
CU_S	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0000 bin

Description: Sets the simulation mode for digital inputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1/X121.1)	Simulation	Terminal eval.	-
	01	DI 1 (X122.2/X121.2)	Simulation	Terminal eval.	-
	02	DI 2 (X122.3/X121.3)	Simulation	Terminal eval.	-
	03	DI 3 (X122.4/X121.4)	Simulation	Terminal eval.	-
	04	DI 4 (X132.1)	Simulation	Terminal eval.	-
	05	DI 5 (X132.2)	Simulation	Terminal eval.	-
	06	DI 6 (X132.3)	Simulation	Terminal eval.	-
	07	DI 7 (X132.4)	Simulation	Terminal eval.	-
	08	DI/DO 8 (X122.7/X121.7)	Simulation	Terminal eval.	-
	09	DI/DO 9 (X122.8/X121.8)	Simulation	Terminal eval.	-
	10	DI/DO 10 (X122.10/X121.10)	Simulation	Terminal eval.	-
	11	DI/DO 11 (X122.11/X121.11)	Simulation	Terminal eval.	-
	12	DI/DO 12 (X132.7)	Simulation	Terminal eval.	-
	13	DI/DO 13 (X132.8)	Simulation	Terminal eval.	-
	14	DI/DO 14 (X132.10)	Simulation	Terminal eval.	-
	15	DI/DO 15 (X132.11)	Simulation	Terminal eval.	-

Dependency: The setpoint for the input signals is specified using p0796.
Refer to: p0796, p9620

Notice: If a digital input is used as signal source for the function "STO" (BI: p9620) then it is not permissible to select the simulation mode and this is rejected.

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital input

DI/DO: Bidirectional Digital Input/Output

p0795 CX digital inputs, simulation mode / CX DI simulation

CU_CX32

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 2220, 2230, 2231**P-Group:** Commands**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**
0000 bin**Description:** Sets the simulation mode for digital inputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1)	Simulation	Terminal eval.	-
	01	DI 1 (X122.2)	Simulation	Terminal eval.	-
	02	DI 2 (X122.3)	Simulation	Terminal eval.	-
	03	DI 3 (X122.4)	Simulation	Terminal eval.	-
	08	DI/DO 8 (X122.7)	Simulation	Terminal eval.	-
	09	DI/DO 9 (X122.8)	Simulation	Terminal eval.	-
	10	DI/DO 10 (X122.10)	Simulation	Terminal eval.	-
	11	DI/DO 11 (X122.11)	Simulation	Terminal eval.	-

Dependency: Refer to: p9620**Notice:** If a digital input is used as signal source for the function "STO" (BI: p9620) then it is not permissible to select the simulation mode and this is rejected.**p0796 CU digital inputs simulation mode setpoint / CU DI simul setp**

CU_S

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133**P-Group:** Commands**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**
0000 bin**Description:** Sets the setpoint for the input signals in the digital input simulation mode.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1/X121.1)	High	Low	-
	01	DI 1 (X122.2/X121.2)	High	Low	-
	02	DI 2 (X122.3/X121.3)	High	Low	-
	03	DI 3 (X122.4/X121.4)	High	Low	-
	04	DI 4 (X132.1)	High	Low	-
	05	DI 5 (X132.2)	High	Low	-
	06	DI 6 (X132.3)	High	Low	-
	07	DI 7 (X132.4)	High	Low	-
	08	DI/DO 8 (X122.7/X121.7)	High	Low	-
	09	DI/DO 9 (X122.8/X121.8)	High	Low	-
	10	DI/DO 10 (X122.10/X121.10)	High	Low	-
	11	DI/DO 11 (X122.11/X121.11)	High	Low	-
	12	DI/DO 12 (X132.7)	High	Low	-
	13	DI/DO 13 (X132.8)	High	Low	-
	14	DI/DO 14 (X132.10)	High	Low	-
	15	DI/DO 15 (X132.11)	High	Low	-

Dependency: The simulation of a digital input is selected using p0795.

Refer to: p0795

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: DI: Digital input

DI/DO: Bidirectional Digital Input/Output

This parameter is not saved when data is backed-up (p0971, p0977).

p0796	CX digital inputs, simulation mode, setpoint / CX DI simul setp				
CU_CX32	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2020, 2030, 2031		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Sets the setpoint for the input signals in the digital input simulation mode.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1)	High	Low	-
	01	DI 1 (X122.2)	High	Low	-
	02	DI 2 (X122.3)	High	Low	-
	03	DI 3 (X122.4)	High	Low	-
	08	DI/DO 8 (X122.7)	High	Low	-
	09	DI/DO 9 (X122.8)	High	Low	-
	10	DI/DO 10 (X122.10)	High	Low	-
	11	DI/DO 11 (X122.11)	High	Low	-

p0799	CU inputs/outputs, sampling time / CU I/O t_sampl		
CU_S	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2020, 2030, 2031, 2120, 2121, 2130, 2131, 2132, 2133
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 5000.00 [µs]	Factory setting 4000.00 [µs]
Description:	Sets the sampling time for the inputs and outputs.		
Dependency:	The parameter can only be modified for p0009 = 3, 29. The sampling times can only be set as an integer multiple of the basic sampling time (p0110, p0111). Refer to: p0009, r0110, r0111		
Note:	The modified sampling time is not effective until the drive unit is powered-up again.		

p0799	CX inputs/outputs, sampling time / CX I/O t_sampl		
CU_CX32	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2220, 2230, 2231
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 5000.00 [µs]	Factory setting 4000.00 [µs]
Description:	Sets the sampling time for the inputs and outputs.		

p0806				
A_INF, B_INF, SERVO, S_INF, VECTOR	BI: Inhibit master control / PcCtrl inhibit			
	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description: Sets the signal source to block the master control.				
Dependency: Refer to: r0807				
Note: The master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).				
<hr/>				
r0807.0				
A_INF, B_INF, SERVO, S_INF, VECTOR	BO: Master control active / PcCtrl active			
	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description: Displays what has the master control. The drive can be controlled via the BICO interconnection or from external (e.g. the commissioning software).				
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Master control active	Yes	No
				FP
				5030
Dependency: Refer to: p0806				
Notice: The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.				
Note: Bit 0 = 0: BICO interconnection active Bit 0 = 1: Master control for PC/AOP The master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).				
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p0809[0...2]				
SERVO, VECTOR	Copy Command Data Set CDS / Copy CDS			
	Can be changed: T	Calculated: -	Access level: 2	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 8560	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	15	0	
Description: Copies one Command Data Set (CDS) into another.				
Index: [0] = Source Command Data Set [1] = Target command data set [2] = Start copying				
Note: Procedure: 1. In Index 0, enter which command data set should be copied. 2. In Index 1, enter the command data set that is to be copied into. 3. Start copying: Set index 2 from 0 to 1. p0809[2] is automatically set to 0 when copying is completed.				

p0810	BI: Command Data Set selection CDS bit 0 / CDS select., bit 0		
SERVO, VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 8560 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).		
Dependency:	Refer to: r0050, p0811, r0836		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For a command data set, selected using the binector inputs, is displayed in r0836. The currently effective command data set is displayed in r0050. A command data set can be copied using p0809.		
p0811	BI: Command data set selection CDS bit 1 / CDS select., bit 1		
VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 8560 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the Command Data Set bit 1 (CDS bit 1).		
Dependency:	Refer to: r0050, p0810, r0836		
Note:	For a command data set, selected using the binector inputs, is displayed in r0836. The currently effective command data set is displayed in r0050. A command data set can be copied using p0809.		
p0819[0...2]	Copy Drive Data Set DDS / Copy DDS		
SERVO, TM41, VECTOR	Can be changed: C2(15) Data type: Unsigned8 P-Group: Data sets Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 31	Access level: 2 Func. diagram: 8565 Unit selection: - Expert list: 1 Factory setting 0
Description:	Copies a Drive Data Set (DDS) into another.		
Index:	[0] = Source drive data set [1] = Target drive data set [2] = Start copying		
Note:	Procedure: 1. In Index 0, enter which drive data set is to be copied. 2. In Index 1, enter the drive data set data that is to be copied into. 3. Start copying: Set index 2 from 0 to 1. p0819[2] is automatically set to 0 when copying is completed.		

p0820[0...n] BI: Drive data set selection DDS bit 0 / DDS select., bit 0

SERVO, TM41, VEC-TOR	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0821[0...n] BI: Drive data set selection DDS bit 1 / DDS select., bit 1

SERVO, TM41, VEC-TOR	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to select the Drive Data Set, bit 1 (DDS, bit 1).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0822[0...n] BI: Drive data set selection DDS bit 2 / DDS select., bit 2

SERVO, TM41, VEC-TOR	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to select the Drive Data Set, bit 2 (DDS, bit 2).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0823[0...n] BI: Drive data set selection DDS bit 3 / DDS select., bit 3

SERVO, TM41, VEC-TOR	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to select the Drive Data Set, bit 3 (DDS, bit 3).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0824[0...n]	BI: Drive data set selection DDS bit 4 / DDS select., bit 4		
SERVO, TM41, VEC-TOR	Can be changed: C2(15), T Data type: Unsigned32 / Binary P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 8565 Unit selection: - Expert list: 1 Factory setting 0
	Min -	Max -	
Description:	Sets the signal source to select the Drive Data Set, bit 4 (DDS, bit 4).		
Dependency:	Refer to: r0051, r0837		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p0826[0...n]	Motor changeover, motor number / Mot_chng mot No.		
SERVO, VECTOR	Can be changed: C2(3), U Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 15	
Description:	Sets the freely-assignable motor number for the motor changeover.		
Dependency:	Refer to: p0827		
Caution:	When changing over motor data sets with the same motor number (e.g. star/delta changeover) and for a motor with brake, the motor brake remains open during the changeover.		
Note:	When the motor data sets are changed-over, the following applies: The same motor number signifies the same thermal model.		
p0827[0...n]	Motor changeover status word bit number / Mot_chg ZSW bitNo.		
SERVO, VECTOR	Can be changed: C2(3), U Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 15	
Description:	Sets the bit number for every motor data set. Example: p0827[0] = 0: For MDS0, r0830.0 is switched. p0827[1] = 5: For MDS1, r0830.5 is switched.		
Dependency:	Refer to: p0826, r0830		
Note:	A motor is only changed over (a new motor selected) after the pulses have been canceled. When the motor data sets are changed-over, the following applies: Bit numbers that are not identical, signify that the motor must be changed over.		
p0828[0...n]	BI: Motor changeover, feedback signal / Mot_chng fdbk sig		
SERVO, VECTOR	Can be changed: C2(3), T Data type: Unsigned32 / Binary P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 8575 Unit selection: - Expert list: 1 Factory setting 0
	Min -	Max -	
Description:	Sets the signal source for the feedback signal when changing over the motor. For p0833.0 = 1 the following applies:		

This feedback signal (0/1 edge) is required after a motor changeover to enable the pulses.

Dependency: Refer to: p0833

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

r0830.0...15 CO/BO: Motor changeover, status word / Mot_chngov ZSW

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8575
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the motor changeover.
These signals can be connected to digital outputs to change over the motor.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor selection, bit 0	High	Low	-
	01	Motor selection, bit 1	High	Low	-
	02	Motor selection, bit 2	High	Low	-
	03	Motor selection, bit 3	High	Low	-
	04	Motor selection, bit 4	High	Low	-
	05	Motor selection, bit 5	High	Low	-
	06	Motor selection, bit 6	High	Low	-
	07	Motor selection, bit 7	High	Low	-
	08	Motor selection, bit 8	High	Low	-
	09	Motor selection, bit 9	High	Low	-
	10	Motor selection, bit 10	High	Low	-
	11	Motor selection, bit 11	High	Low	-
	12	Motor selection, bit 12	High	Low	-
	13	Motor selection, bit 13	High	Low	-
	14	Motor selection, bit 14	High	Low	-
	15	Motor selection, bit 15	High	Low	-

Dependency: Refer to: p0827

p0831[0...15] BI: Motor changeover, contactor feedback / Mot_chg cont fdbk

SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 8575
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the feedback signal of the contactors when changing over motors.
There is a fixed inter-relationship between energizing the contactor and the feedback signal.
Example:
A changeover is to be made between MDS0 (motor 0) and MDS1 (motor 1). The contactors should be switched using bit 4 (contactor 0) and 5 (contactor 1). The changeover should be made with an interconnection of the feedback signal.
Implementation:
MDS0: p0827[0] = 4, interconnect output to switch contactor 0 to r0830.4, p0831[4] = "input, feedback signal, contactor 0"
MDS1: p0827[1] = 5, interconnect output to switch contactor 1 to r0830.5, p0831[5] = "input, feedback signal, contactor 1"
The following sequence applies when changing over from MDS0 to MDS1:
1. The status bit p0830.4 is deleted. When the feedback signal (p0831[4]) is connected, the system waits until the feedback signal "contactor open" is displayed. If the feedback signal is not connected, then the system waits for the switch-off interlocking time of 320 ms.

2. The status bit p0830.5 is set. If the feedback signal (p0831[5]) is connected, the system waits until the feedback signal "contactor closed" is displayed. If the feedback signal is not connected, then the system waits for the switch-on interlocking time of 160 ms.

Index:

[0] = Feedback signal contactor 0
 [1] = Feedback signal contactor 1
 [2] = Feedback signal contactor 2
 [3] = Feedback signal contactor 3
 [4] = Feedback signal contactor 4
 [5] = Feedback signal contactor 5
 [6] = Feedback signal contactor 6
 [7] = Feedback signal contactor 7
 [8] = Feedback signal contactor 8
 [9] = Feedback signal contactor 9
 [10] = Feedback signal contactor 10
 [11] = Feedback signal contactor 11
 [12] = Feedback signal contactor 12
 [13] = Feedback signal contactor 13
 [14] = Feedback signal contactor 14
 [15] = Feedback signal contactor 15

r0832.0...15 CO/BO: Mot. changeover, contactor feedback sig. status word / Mot_chng fdbk ZSW

SERVO, VECTOR

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 8575**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the status word of the contactor feedback signals when changing over a motor.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Feedback signal contactor 0	Closed	Opened	-
01	Feedback signal contactor 1	Closed	Opened	-
02	Feedback signal contactor 2	Closed	Opened	-
03	Feedback signal contactor 3	Closed	Opened	-
04	Feedback signal contactor 4	Closed	Opened	-
05	Feedback signal contactor 5	Closed	Opened	-
06	Feedback signal contactor 6	Closed	Opened	-
07	Feedback signal contactor 7	Closed	Opened	-
08	Feedback signal contactor 8	Closed	Opened	-
09	Feedback signal contactor 9	Closed	Opened	-
10	Feedback signal contactor 10	Closed	Opened	-
11	Feedback signal contactor 11	Closed	Opened	-
12	Feedback signal contactor 12	Closed	Opened	-
13	Feedback signal contactor 13	Closed	Opened	-
14	Feedback signal contactor 14	Closed	Opened	-
15	Feedback signal contactor 15	Closed	Opened	-

Dependency:

Refer to: p0831

p0833 Data set changeover configuration / DS_chng config

SERVO

Can be changed: C2(15), U**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 8575**P-Group:** Data sets**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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0000 bin

Description:

Sets the configuration for the motor and encoder changeover.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Contactorm changeover from the application/drive	application	Drive	-
	01	Pulse cancelation by application/drive	application	Drive	-
	02	Suppress drive parking for EDS changeover	Yes	No	-
Note:	<p>For VECTOR, the following applies:</p> <p>The "flying restart" function should be activated (p1200) when changing-over to a motor that is already running.</p> <p>Re bit 00:</p> <p>When the bit is set and the motor has to be changed over, then p0827 must be set differently in the appropriate motor data sets.</p> <p>Re bit 02:</p> <p>The bit defines whether, for an EDS changeover, the status signal Gn_ZSW.14 is suppressed (parking encoder active).</p>				

p0833 Data set changeover configuration / DS_chng config

VECTOR	Can be changed: C2(15), U	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8575
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0010 bin

Description: Sets the configuration for the motor and encoder changeover.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Contactorm changeover from the application/drive	application	Drive	-
	01	Pulse cancelation by application/drive	application	Drive	-
	02	Suppress drive parking for EDS changeover	Yes	No	-

Note: For VECTOR, the following applies:

The "flying restart" function should be activated (p1200) when changing-over to a motor that is already running.

Re bit 00:

When the bit is set and the motor has to be changed over, then p0827 must be set differently in the appropriate motor data sets.

Re bit 02:

The bit defines whether, for an EDS changeover, the status signal Gn_ZSW.14 is suppressed (parking encoder active).

r0835.0 CO/BO: Motor data set changeover status word / MDS_chngov ZSW

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8575
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for the motor data set changeover.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor data set changeover active	Active	Not active	8575

r0836.0...3 CO/BO: Command Data Set CDS selected / CDS selectedA_INF, B_INF,
SERVO, S_INF,
TM41, VECTOR**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** 1530, 8560**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the Command Data Set (CDS) selected using p0810 ... p0813.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	CDS select. bit 0	On	Off	-
01	CDS select. bit 1	On	Off	-
02	CDS select. bit 2	On	Off	-
03	CDS select. bit 3	On	Off	-

Dependency:

Refer to: r0050, p0810, p0811

Note:

The currently effective command data set is displayed in r0050.

r0837.0...4 CO/BO: Drive Data Set DDS selected / DDS selectedSERVO, TM41, VEC-
TOR**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** 8565**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the Drive Data Set (DDS) selected using p0820 ... p0824.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DDS select. bit 0	On	Off	-
01	DDS select. bit 1	On	Off	-
02	DDS select. bit 2	On	Off	-
03	DDS select. bit 3	On	Off	-
04	DDS select. bit 4	On	Off	-

Dependency:

Refer to: r0051, p0820, p0821, p0822, p0823, p0824

Note:

If there is only one data set, then a value of 0 is displayed in this parameter and not the selection via binector inputs.

r0838[0...3] Motor/encoder data set selected / MDS/EDS selected

SERVO, VECTOR

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** 8565**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the selected Motor Data Set (MDS) and the selected Encoder Data Sets (EDS).

Index:

[0] = Motor Data Set MDS selected
 [1] = Encoder 1 Encoder Data Set EDS selected
 [2] = Encoder 2 Encoder Data Set EDS selected
 [3] = Encoder 3 Encoder Data Set EDS selected

Dependency:


Refer to: r0049, p0186, p0187, p0188, p0189


Note:


Value 99 means the following: No encoder assigned (not configured).

p0839	Motor changeover contactor control delay time / Mot_chg ctrl t_del		
SERVO, VECTOR	Can be changed: C2(3), U	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 500 [ms]	Factory setting 0 [ms]
Description:	Sets the delay time for motor changeover. The delay time is taken into account in the following cases: - for feedback signal, previous contactor "Open". The new motor contactor is controlled (energized) after the delay time has expired. - for the feedback signal, new motor contactor "Closed". The pulses are enabled after the delay time has expired.		

p0840[0...n]	BI: ON/OFF1 / ON/OFF1		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2610, 8720, 8820, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for control word 1 bit 0 (ON/OFF1).		
Recommend.:	When the signal source is set, this does not trigger a response - but only a signal change of the source.		
Dependency:	Refer to: p1055, p1056		
Notice:	For BI: p0840 = 0 signal, the motor can be moved, jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that originally powered-up can also power-down again. The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For drives with closed-loop speed control (p1300 = 20, 21), the following applies: Bit 0 = 0: OFF1 (braking with the ramp-function generator, then pulse cancelation and power-on inhibit) For drives with closed-loop torque control (p1300 = 22, 23), the following applies: Bit 0 = 0: Immediate pulse cancelation For drives with closed-loop torque control (activated using p1501), the following applies: Bit 0 = 0: No dedicated braking response, but pulse cancelation when standstill is detected (p1226, p1227) For drives with closed-loop speed/torque control, the following applies: Bit 0 = 0/1: ON (pulses can be enabled) For active infeeds (Active Line Module and Smart Line Module) the following applies: Bit 0 = 0: OFF1 (reduce Vdc along the ramp, then pulse cancelation and pre-charging contactor/line contactor open) Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed, pulses can be enabled) For passive infeeds (Basic Line Module) the following applies: Bit 0 = 0: OFF1 (pre-charging contactor/line contactor open) Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed) r0863.1 of a drive can also be selected as signal source.		

p0840			
TM41	BI: ON/OFF1 / ON/OFF1		
	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for control word 1 bit 0 (ON/OFF1).		
Dependency:	Refer to: p1055, p1056		
Notice:	For BI: p0840 = 0 signal, the motor can be moved, jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that originally powered-up can also power-down again. The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 0 = 0: OFF1 (pulse cancelation and power-on inhibit) Bit 0 = 0/1: ON (pulses can be enabled)		
<hr/>			
p0844[0...n]			
A_INF, B_INF, SERVO, S_INF, VECTOR	BI: 1. OFF2 / 1. OFF2		
	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 8720, 8820, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the 1st OC/OFF2. The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).		
Caution:	When "master control from PC" is activated, this binector input is ineffective.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For drives, the following applies: Bit 1 = 0: OFF2 (immediate pulse cancelation and power-on inhibit) Bit 1 = 1: No OFF2 (enable is possible) For infeed units, the following applies: Bit 1 = 0: OFF2 (immediate pulse cancelation for active infeed modules and Smart Line Modules, pre-charging con- tactor/line contactor open and power-on inhibit) Bit 1 = 1: No OFF2 (enable is possible) OC: Operating condition		
<hr/>			
p0844			
TM41	BI: OFF2 / OFF2		
	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for control word 1, bit 1 (OC/OFF2).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 1 = 0: OFF2 (immediate pulse cancelation and power-on inhibit) Bit 1 = 1: No OFF2 (enable is possible) OC: Operating condition		

p0845[0...n] A_INF, B_INF, SERVO, S_INF, VECTOR	BI: 2. OFF2 / 2. OFF2 Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - Factory setting 1	Access level: 3 Func. diagram: 2501, 8720, 8820, 8920 Unit selection: - Expert list: 1
Description:	Sets the signal source for the 2nd OC/OFF2. The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).		
Note:	For drives, the following applies: Bit 1 = 0: OFF2 (immediate pulse cancelation and power-on inhibit) Bit 1 = 1: No OFF2 (enable is possible) For infeed units, the following applies: Bit 1 = 0: OFF2 (immediate pulse cancelation for active infeed modules and Smart Line Modules, pre-charging con- tactor/line contactor open and power-on inhibit) Bit 1 = 1: No OFF2 (enable is possible) OC: Operating condition		
p0848[0...n] SERVO, VECTOR	BI: 1. OFF3 / 1. OFF3 Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - Factory setting 1	Access level: 3 Func. diagram: 2501 Unit selection: - Expert list: 1
Description:	Sets the signal source for the 1st OC/OFF3. The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).		
Caution:	When "master control from PC" is activated, this binector input is ineffective.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse cancelation and power-on inhibit) Bit 2 = 1: No OFF3 (enable is possible) OC: Operating condition		
p0848 TM41	BI: OFF3 / OFF3 Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Factory setting 1	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
Description:	Sets the signal source for control word 1, bit 2 (OC/OFF3).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 2 = 0: OFF3 (pulse cancelation and power-on inhibit) Bit 2 = 1: No OFF3 (enable is possible) OC: Operating condition		

p0849[0...n]	BI: 2. OFF3 / 2. OFF3		
SERVO, VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2501 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the 2nd OC/OFF3.		
	The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).		
Note:	Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse cancelation and power-on inhibit) Bit 2 = 1: No OFF3 (enable is possible) OC: Operating condition		
p0852[0...n]	BI: Enable operation / Enable operation		
A_INF, SERVO, S_INF, VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2501, 8820, 8920 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for control word 1 bit 3 (enable operation)		
Caution:	When "master control from PC" is activated, this binector input is ineffective.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 3 = 0: Inhibit operation (cancel pulses) Bit 3 = 1: Enable operation (pulses can be enabled)		
p0852	BI: Enable operation / Enable operation		
TM41	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for control word 1 bit 3 (enable operation)		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 3 = 0: Inhibit operation (cancel pulses) Bit 3 = 1: Enable operation (pulses can be enabled)		
p0854[0...n]	BI: Master ctrl by PLC / Master ctrl by PLC		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2501, 8720, 8820, 8920 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for control word 1 bit 10 (master control by PLC).		

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Bit 10 = 0: No master control by PLC

Bit 10 = 1: Master control by PLC

This bit is used to initiate a response for the drives when the control fails (F07220). If there is not control available, then BI: p0854 should be set to a 1 signal.

p0855[0...n]	BI: Unconditionally release holding brake / Uncond open brake		
SERVO, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2701, 2707
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the command "unconditionally open holding brake".		
Dependency:	Refer to: p0858		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).		

p0856[0...n]	BI: Enable speed controller / Enable n_ctrl		
SERVO, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2701, 2707
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the command "enable speed controller" (r0898.12). 0 signal: Set the I component and speed controller output to zero. 1 signal: Enable speed controller.		
Dependency:	Refer to: r0898		
Note:	If "enable speed controller" is withdrawn, then if a brake being used, then it is closed. If "speed controller enable" is withdrawn, the pulses are not canceled.		

p0856[0...n]	BI: Enable velocity controller / Enable v_ctrl		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2701, 2707
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the command "enable speed controller" (r0898.12). 0 signal: Set the I component and speed controller output to zero. 1 signal: Enable speed controller.		
Dependency:	Refer to: r0898		
Note:	If "enable speed controller" is withdrawn, then if a brake being used, then it is closed. If "speed controller enable" is withdrawn, the pulses are not canceled.		

p0857	Power unit monitoring time / PU t_monit		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8760, 8864, 8964
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 100.0 [ms]	Max 60000.0 [ms]	Factory setting 6000.0 [ms]
Description:	Sets the monitoring time for the power unit. The following applies for infeeds and drives: The monitoring time is started after an 0/1 edge of the ON/OFF1 command. If the power unit does not return a READY signal within the monitoring time, then fault F06000 (infeeds) or F07802 (drives) is output. For drives, the following also applies: After the pulse enable (operation enabled, p0852), the monitoring time is re-started. If the infeed does not signal ready to the drive within the monitoring time (using BI: p0864 of the drive), fault F07840 is initiated.		
Dependency:	Refer to: F06000, F07802, F07840, F30027		
Notice:	The maximum time to pre-charge the DC link is monitored in the power unit and cannot be changed. The maximum duration of the pre-charging depends on the power class and the power unit design. The monitoring time for the pre-charging is started after the ON command (BI: p0840 = 0/1 signal). Fault F30027 is output when the maximum pre-charging duration is exceeded.		
Note:	The pre-assignment (default) value for p0857 depends on the power class and the design of the power unit. The monitoring time for the ready signal of the power unit includes the time to pre-charge the DC link and, if relevant, the de-bounce time of the contactors. If an excessively low value is entered into p0857, then after enable, this results in a fault.		
p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake		
SERVO	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2701, 2707
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 9719.13
Description:	Sets the signal source for the command "unconditionally close holding brake".		
Dependency:	Refer to: p0855		
Note:	The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake). For a 1 signal via BI: p0858, the command "unconditionally close the holding brake" is executed and internally a zero setpoint is entered.		
p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake		
VECTOR	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2701, 2707
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the command "unconditionally close holding brake".		
Dependency:	Refer to: p0855		
Note:	The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).		

For a 1 signal via BI: p0858, the command "unconditionally close the holding brake" is executed and internally a zero setpoint is entered.

p0860	BI: Line cont. fdbk sig / Line contact feedb		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2634, 8734, 8834, 8934
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 863.1
Description:	Sets the signal source for the feedback signal from the line contactor.		
Recommend.:	When the monitoring is activated (BI: p0860 not equal to r0863.1), then to control the line contactor, signal BO: r0863.1 of its own drive object should be used.		
Dependency:	Refer to: p0861, r0863 Refer to: F07300		
Notice:	The line contactor monitoring is de-activated if the control signal of the particular drive object is set as the signal source for the feedback signal of the line contactor (BI: p0860 = r0863.1).		
Note:	The state of the line contactor is monitored depending on signal BO: r0863.1. When the monitoring is activated (BI: p0860 not equal to r0863.1), fault F07300 is then also output if the contactor is closed before it is controlled using r0863.1.		
p0861	Line contactor monitoring time / LineContact t_mon		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2634, 8734, 8834, 8934
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 5000 [ms]	Factory setting 100 [ms]
Description:	Sets the monitoring time of the line contactor. This time starts each time that the line contactor switches (r0863.1). If a feedback signal is not received from the line contactor within the time, a message is output.		
Dependency:	Refer to: p0860, r0863 Refer to: F07300		
Note:	The monitoring function is disabled for the factory setting of p0860.		
p0862	Power unit ON delay / PU t_on		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2610, 8732, 8832, 8932
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 65000 [ms]	Factory setting 0 [ms]
Description:	Sets the delay time for the control command of the power unit and a line contactor, if used.		
Note:	This means that it is possible to realize a shifted (delayed) pre-charging or power-on using a single ON command. When the infeed units are active, before the line contactor is closed, an offset adjustment of the current measurement is carried out for a duration of 120 ms (p3491).		

r0863.0...2	CO/BO: Drive coupling status word / CoupleZSW/STW				
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -		Calculated: -		Access level: 2
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 2634, 8734, 8834, 8934
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the status and control words of the drive coupling.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Closed-loop control operation	Yes	No	8732, 8932
	01	Energize contactor	Yes	No	2610, 8734, 8934
	02	Infeed line supply failure	Yes	No	-
Dependency:	Refer to: p0864				
Note:	Bit 0 signals that the infeed is ready. Bit 1 is used to control an external line contactor. When the operating signal is transferred via BO: r0863.0 this allows several drives to start (run-up) staggered over time when they are simultaneously powered-up. To realize this, the following connections/interconnections are required: Drive 1: Internconnect BI: p0864 with BO: r0863.0 of the infeed Drive 2: Internconnect BI: p0864 with BO: r0863.0 of drive 1 Drive 3: Internconnect BI: p0864 with BO: r0863.0 of drive 2, etc. The first drive only transfers the operating signal to the next drive after it has reached its ready condition.				

p0864	BI: Infeed operation / INF operation				
SERVO, VECTOR	Can be changed: T		Calculated: -		Access level: 2
	Data type: Unsigned32 / Binary		Dynamic index: -		Func. diagram: 1773, 1774, 2610
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		0
Description:	Sets the signal source for the operating signal of the infeed (e.g. BO: r0863.0).				
Dependency:	Refer to: r0863				
Note:	The sequence control of a servo/vector drive requires this signal. The following applies for an infeed without DRIVE-CLiQ: For these infeeds, the "ready" signal is available via an output terminal. This signal must be connected to a digital input. The drives supplied from this infeed must use this signal as ready signal (BI: p0864 = digital input).				

r0873	CO/BO: Infeed, total operation / INF total oper				
B_INF, S_INF	Can be changed: -		Calculated: -		Access level: 2
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 8732, 8832
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the operational readiness of the infeeds when using Smart Line Module (SLM) and Basic Line Module (BLM) together (mixed operation).				

In order that signal BO: r0873 is available at one of the infeeds, then BI: p0874 of the one infeed must be interconnected to BO: r0863.0 of the other infeed.

Dependency:

Refer to: r0863, p0874

Note:

Mixed operation is not possible with the Active Line Module (ALM)!

p0874

BI: Smart/ Basic Line Module operation / SLM/BLM operation

B_INF, S_INF

Can be changed: T

Calculated: -

Access level: 2

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: 8732, 8832

P-Group: Commands

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description:

Setting to interconnect the ready signal for mixed operation of Smart Line Module (SLM) and Basic Line Module (BLM).

In order that signal BO: r0873 is available at one of the infeeds, then BI: p0874 of the one infeed must be interconnected to BO: r0863.0 of the other infeed.

Dependency:

Refer to: r0863, r0873

Note:

Mixed operation is not possible with the Active Line Module (ALM)!

p0895[0...n]

BI: Activate/de-activate power unit components / PU_comp act/de-act

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: T

Calculated: -

Access level: 1

Data type: Unsigned32 / Binary

Dynamic index: PDS, p0120

Func. diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

1

Description:

Sets the signal source to activate/de-activate a power unit component.

Dependency:

BI: p0895 = 0 signal

De-activating power unit components

BI: p0895 = 1 signal

Activating power unit components

Refer to: p0125, r0126

Refer to: A05054

Note:

The power unit is only de-activated when the pulses are canceled.

For units connected in parallel, when one of the power units is deactivated, then the enable in p7001 is withdrawn.

r0896.0

BO: Parking axis, status word / Parking axis, ZSW

SERVO, VECTOR

Can be changed: -

Calculated: -

Access level: 2

Data type: Unsigned8

Dynamic index: -

Func. diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the status word for the "parking axis" function.

Bit field:

Bit	Signal name
00	Parking axis active

1 signal
Yes

0 signal
No

FP
-

Dependency:

Refer to: p0897

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r0898.0...10		CO/BO: Control word sequence control infeed / STW seq_ctrl INF			
B_INF	Can be changed: -		Calculated: -		Access level: 2
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 8720
	P-Group: Displays, signals		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description: Displays control word 1 of the infeed.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	10	Master ctrl by PLC	Yes	No	-
Note: OC: Operating condition					

r0898.0...14		CO/BO: Control word sequence control / STW seq_ctrl			
SERVO, VECTOR	Can be changed: -		Calculated: -		Access level: 2
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 1530, 2501
	P-Group: Displays, signals		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description: Displays the control word of the sequence control.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	02	OC / OFF3	Yes	No	-
	03	Enable operation	Yes	No	-
	04	Enables the ramp-function generator	Yes	No	-
	05	Freeze ramp-function generator	No	Yes	-
	06	Enable speed setpoint	Yes	No	-
	07	Command open brake	Yes	No	-
	08	Jog 1	Yes	No	-
	09	Jog 2	Yes	No	-
	10	Master ctrl by PLC	Yes	No	-
	12	Speed controller enable	Yes	No	-
	14	Command close brake	Yes	No	-
Note: OC: Operating condition					

r0898.0...14		CO/BO: Control word sequence control / STW seq_ctrl			
SERVO (Lin)	Can be changed: -		Calculated: -		Access level: 2
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 1530, 2501
	P-Group: Displays, signals		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description: Displays the control word of the sequence control.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	02	OC / OFF3	Yes	No	-
	03	Enable operation	Yes	No	-
	04	Enables the ramp-function generator	Yes	No	-
	05	Freeze ramp-function generator	No	Yes	-
	06	Enable velocity setpoint	Yes	No	-

07	Command open brake	Yes	No	-
08	Jog 1	Yes	No	-
09	Jog 2	Yes	No	-
10	Master ctrl by PLC	Yes	No	-
12	Velocity controller enable	Yes	No	-
14	Command close brake	Yes	No	-

Note: OC: Operating condition

r0898.0...13 CO/BO: Control word sequence control / STW seq_ctrl

TM41	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 9678
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the control word of the sequence control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	02	OC / OFF3	Yes	No	-
	03	Enable operation	Yes	No	-
	04	Enables the ramp-function generator	Yes	No	-
	05	Start ramp-function generator	Yes	No	-
	06	Enable speed setpoint	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	13	Enable zero mark	Yes	No	-

Note: OC: Operating condition

r0899.3...15 CO/BO: Status word drive object 1 / ZSW DO1

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word from drive object 1 (Control Unit).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	03	Fault present	Yes	No	-
	07	Alarm present	Yes	No	-
	08	System time synchronized	Yes	No	-
	12	Slave sign-of-life bit 0	Yes	No	-
	13	Slave sign-of-life bit 1	Yes	No	-
	14	Slave sign-of-life bit 2	Yes	No	-
	15	Slave sign-of-life bit 3	Yes	No	-

r0899.0...12 CO/BO: Status word sequence control infeed / ZSW seq_ctrl INF

A_INF, S_INF	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 8826, 8926
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the infeed sequence control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready to power up	Yes	No	-
	01	Ready	Yes	No	-
	02	Operation enabled	Yes	No	-
	04	No OFF2 active	OFF2 inactive	OFF2 active	-
	06	Power-on inhibit	Yes	No	-
	09	Control requested	Yes	No	-
	11	Pre-charging compl	Yes	No	-
	12	Line contactor closed	Yes	No	8934

Note: Re bit 12:
The feedback signal of a line contactor (auxiliary contact) can be interconnected via BI: p0860.

r0899.0...12 CO/BO: Status word sequence control infeed / ZSW seq_ctrl INF

B_INF	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8726
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the infeed sequence control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready to power up	Yes	No	-
	01	Ready	Yes	No	-
	02	Operation enabled	Yes	No	-
	04	No OFF2 active	OFF2 inactive	OFF2 active	-
	06	Power-on inhibit	Yes	No	-
	09	Control requested	Yes	No	-
	11	Pre-charging compl	Yes	No	-
	12	Line contactor closed	Yes	No	-

Note: Re bit 0, 1, 2, 4, 6, 9:
For PROFIdrive, these signals are used for status word 1.

r0899.0...15 CO/BO: Status word sequence control / ZSW seq_ctrl

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2503
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the sequence control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready to power up	Yes	No	-
	01	Ready	Yes	No	-
	02	Operation enabled	Yes	No	-
	03	Jog active	Yes	No	-
	04	No coasting active	OFF2 inactive	OFF2 active	-
	05	No Quick Stop active	OFF3 inactive	OFF3 active	-
	06	Power-on inhibit active	Yes	No	-
	07	Drive ready	Yes	No	-
	08	Controller enable	Yes	No	-
	09	Control requested	Yes	No	-
	11	Pulses enabled	Yes	No	-
	12	Holding brake open	Yes	No	-
	13	Command close holding brake	Yes	No	-
	14	Pulse enable from the brake control	Yes	No	-
	15	Setpoint enable from the brake control	Yes	No	-

Note: Re bit 0, 1, 2, 4, 5, 6, 9:
For PROFIdrive, these signals are used for status word 1.
Re bit 13:
When the "Safe Brake Control" (SBC) is activated and selected, the brake is no longer controlled using this signal.
Re bit 14, 15:
These signals are only of significance when the "extended brake control" function module is activated (r0108.14 = 1).

r0899.0...15		CO/BO: Status word sequence control / ZSW seq_ctrl			
TM41	Can be changed: -		Calculated: -	Access level: 2	
	Data type: Unsigned16		Dynamic index: -	Func. diagram: 9680	
	P-Group: Displays, signals		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min	Max	Factory setting		
	-	-	-		
Description:		Displays the status word of the sequence control.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready to power up	Yes	No	-
	01	Ready	Yes	No	-
	02	Operation enabled	Yes	No	-
	04	Coast down active	No	Yes	-
	05	Quick Stop active	No	Yes	-
	06	Power-on inhibit	Yes	No	-
	09	Control requested	Yes	No	-
	13	Zero mark enabled	Yes	No	-
	14	Track A/B enabled	Yes	No	-
	15	Interface encoder emulation enabled	Yes	No	-

Note: Re bit 0, 1, 2, 6:
For PROFIdrive, these signals are used for status word 1.

p0915[0...35] TM17 PROFIdrive PZD setpoint assignment / TM17 PD PZD setp			
TM17	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	4265	[0] 4201
			[1] 4204
			[2] 4211
			[3] 4212
			[4] 0
			[5] 0
			[6] 0
			[7] 0
			[8] 0
			[9] 0
			[10] 0
			[11] 0
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 0
			[17] 0
			[18] 0
			[19] 0
			[20] 0
			[21] 0
			[22] 0
			[23] 0
			[24] 0
			[25] 0
			[26] 0
			[27] 0
			[28] 0
			[29] 0
			[30] 0
			[31] 0
			[32] 0
			[33] 0
			[34] 0
			[35] 0

Description: Is used to assign the process data received from the master (PZD, setpoints).

Values:

- 0: ZERO
- 4201: r4201 (system time for synchronization)
- 4204: r4204 (control digital output 0 ... 15)
- 4211: r4211 (edge mode digital input 0 ... 7)
- 4212: r4212 (edge mode digital input 8 ... 15)
- 4250: r4250 (set/resetting time digital output 0)
- 4251: r4251 (set/resetting time digital output 1)
- 4252: r4252 (set/resetting time digital output 2)
- 4253: r4253 (set/resetting time digital output 3)
- 4254: r4254 (set/resetting time digital output 4)

4255: r4255 (set/resetting time digital output 5)
4256: r4256 (set/resetting time digital output 6)
4257: r4257 (set/resetting time digital output 7)
4258: r4258 (set/resetting time digital output 8)
4259: r4259 (set/resetting time digital output 9)
4260: r4260 (set/resetting time digital output 10)
4261: r4261 (set/resetting time digital output 11)
4262: r4262 (set/resetting time digital output 12)
4263: r4263 (set/resetting time digital output 13)
4264: r4264 (set/resetting time digital output 14)
4265: r4265 (set/resetting time digital output 15)

Index:

[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36

Note:

Example:

The telegram for the setpoints should have the following process data (PZD) and assignments:

PZD 1 (r4201), PZD 2 (r4204), PZD 3 (r4250), PZD 4 (r4250)

The setpoint assignment must be realized as follows:

p0915[0] = 4201 - 16 bit

p0915[1] = 4204 - 16 bit

p0915[2] = 4250 - 32 bit - specified twice one after the other

p0915[3] = 4250 - 32 bit

p0915[4] = 0

...

p0915[35] = 0

p0915[0...29] TM15 PROFIdrive PZD setpoint assignment / TM15 PD PZD setp			
TM15	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	4273	[0] 4201
			[1] 4204
			[2] 4205
			[3] 4211
			[4] 4212
			[5] 4213
			[6] 0
			[7] 0
			[8] 0
			[9] 0
			[10] 0
			[11] 0
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 0
			[17] 0
			[18] 0
			[19] 0
			[20] 0
			[21] 0
			[22] 0
			[23] 0
			[24] 0
			[25] 0
			[26] 0
			[27] 0
			[28] 0
			[29] 0

Description: Is used to assign the process data received from the master (PZD, setpoints).

Values:

- 0: ZERO
- 4201: r4201 (system time for synchronization)
- 4204: r4204 (control digital output 0 ... 15)
- 4205: r4205 (control digital output 16 ... 23)
- 4211: r4211 (edge mode digital input 0 ... 7)
- 4212: r4212 (edge mode digital input 8 ... 15)
- 4213: r4213 (edge mode digital input 16 ... 23)
- 4250: r4250 (set/resetting time digital output 0)
- 4251: r4251 (set/resetting time digital output 1)
- 4252: r4252 (set/resetting time digital output 2)
- 4253: r4253 (set/resetting time digital output 3)
- 4254: r4254 (set/resetting time digital output 4)
- 4255: r4255 (set/resetting time digital output 5)
- 4256: r4256 (set/resetting time digital output 6)
- 4257: r4257 (set/resetting time digital output 7)
- 4258: r4258 (set/resetting time digital output 8)
- 4259: r4259 (set/resetting time digital output 9)

4260: r4260 (set/resetting time digital output 10)
4261: r4261 (set/resetting time digital output 11)
4262: r4262 (set/resetting time digital output 12)
4263: r4263 (set/resetting time digital output 13)
4264: r4264 (set/resetting time digital output 14)
4265: r4265 (set/resetting time digital output 15)
4266: r4266 (set/resetting time digital output 16)
4267: r4267 (set/resetting time digital output 17)
4268: r4268 (set/resetting time digital output 18)
4269: r4269 (set/resetting time digital output 19)
4270: r4270 (set/resetting time digital output 20)
4271: r4271 (set/resetting time digital output 21)
4272: r4272 (set/resetting time digital output 22)
4273: r4273 (set/resetting time digital output 23)

Index:

[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30

Note:

Example:

The telegram for the setpoints should have the following process data (PZD) and assignments:

PZD 1 (r4201), PZD 2 (r4204), PZD 3 (r4250)

The setpoint assignment must be realized as follows:

p0915[0] = 4201 - 16 bit

p0915[1] = 4204 - 16 bit

p0915[2] = 4250 - 16 bit

p0915[3] = 0

...

p0915[29] = 0

p0916[0...35] TM17 PROFIdrive PZD actual value assignment / TM17 PD PZD actVal			
TM17	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	4365	[0] 4301
			[1] 4304
			[2] 4311
			[3] 4312
			[4] 0
			[5] 0
			[6] 0
			[7] 0
			[8] 0
			[9] 0
			[10] 0
			[11] 0
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 0
			[17] 0
			[18] 0
			[19] 0
			[20] 0
			[21] 0
			[22] 0
			[23] 0
			[24] 0
			[25] 0
			[26] 0
			[27] 0
			[28] 0
			[29] 0
			[30] 0
			[31] 0
			[32] 0
			[33] 0
			[34] 0
			[35] 0

Description: Is used to assign the process data to be sent to the master (PZD, actual values).

Values:

- 0: ZERO
- 4301: r4301 (module synchronization)
- 4304: r4304 (status digital input 0 ... 15)
- 4311: r4311 (edge status digital input 0 ... 7)
- 4312: r4312 (edge status digital input 8 ... 15)
- 4350: r4350 (edge times digital input 0)
- 4351: r4351 (edge times digital input 1)
- 4352: r4352 (edge times digital input 2)
- 4353: r4353 (edge times digital input 3)
- 4354: r4354 (edge times digital input 4)
- 4355: r4355 (edge times digital input 5)
- 4356: r4356 (edge times digital input 6)
- 4357: r4357 (edge times digital input 7)
- 4358: r4358 (edge times digital input 8)
- 4359: r4359 (edge times digital input 9)
- 4360: r4360 (edge times digital input 10)
- 4361: r4361 (edge times digital input 11)
- 4362: r4362 (edge times digital input 12)
- 4363: r4363 (edge times digital input 13)
- 4364: r4364 (edge times digital input 14)
- 4365: r4365 (edge times digital input 15)

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19
- [19] = PZD 20
- [20] = PZD 21
- [21] = PZD 22
- [22] = PZD 23
- [23] = PZD 24
- [24] = PZD 25
- [25] = PZD 26
- [26] = PZD 27
- [27] = PZD 28
- [28] = PZD 29
- [29] = PZD 30
- [30] = PZD 31
- [31] = PZD 32
- [32] = PZD 33
- [33] = PZD 34
- [34] = PZD 35
- [35] = PZD 36

Note: Example:
The telegram for the actual values should have the following process data (PZD) and assignments:
PZD 1 (r4301), PZD 2 (r4304), PZD 3 (r4350), PZD 4 (r4350)
The setpoint assignment must be realized as follows:
p0916[0] = 4301 - 16 bit

p0916[1] = 4304 - 16 bit
 p0916[2] = 4350 - 32 bit - specified twice one after the other
 p0916[3] = 4350 - 32 bit
 p0916[4] = 0
 ...
 p0916[35] = 0

p0916[0...29]		TM15 PROFIdrive PZD actual value assignment / TM15 PD PZD actVal	
TM15	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	4373	[0] 4301
			[1] 4304
			[2] 4305
			[3] 4311
			[4] 4312
			[5] 4313
			[6] 0
			[7] 0
			[8] 0
			[9] 0
			[10] 0
			[11] 0
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 0
			[17] 0
			[18] 0
			[19] 0
			[20] 0
			[21] 0
			[22] 0
			[23] 0
			[24] 0
			[25] 0
			[26] 0
			[27] 0
			[28] 0
			[29] 0

Description: Is used to assign the process data to be sent to the master (PZD, actual values).

Values:
 0: ZERO
 4301: r4301 (module synchronization)
 4304: r4304 (status digital input 0 ... 15)
 4305: r4305 (status digital input 16 ... 23)
 4311: r4311 (edge status digital input 0 ... 7)
 4312: r4312 (edge status digital input 8 ... 15)
 4313: r4313 (edge status digital input 16 ... 23)
 4350: r4350 (edge times digital input 0)
 4351: r4351 (edge times digital input 1)
 4352: r4352 (edge times digital input 2)

4353: r4353 (edge times digital input 3)
4354: r4354 (edge times digital input 4)
4355: r4355 (edge times digital input 5)
4356: r4356 (edge times digital input 6)
4357: r4357 (edge times digital input 7)
4358: r4358 (edge times digital input 8)
4359: r4359 (edge times digital input 9)
4360: r4360 (edge times digital input 10)
4361: r4361 (edge times digital input 11)
4362: r4362 (edge times digital input 12)
4363: r4363 (edge times digital input 13)
4364: r4364 (edge times digital input 14)
4365: r4365 (edge times digital input 15)
4366: r4366 (edge times digital input 16)
4367: r4367 (edge times digital input 17)
4368: r4368 (edge times digital input 18)
4369: r4369 (edge times digital input 19)
4370: r4370 (edge times digital input 20)
4371: r4371 (edge times digital input 21)
4372: r4372 (edge times digital input 22)
4373: r4373 (edge times digital input 23)

Index:

[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30

Note:

Example:

The telegram for the actual values should have the following process data (PZD) and assignments:

PZD 1 (r4301), PZD 2 (r4304), PZD 3 (r4350)

The actual value assignment must be implemented as follows:

p0916[0] = 4301 - 16 bit
p0916[1] = 4304 - 16 bit
p0916[2] = 4350 - 16 bit
p0916[3] = 0
...
p0916[29] = 0

p0918 PROFIBUS address / PB address

CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1520, 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
1	126	126

Description: Displays or sets the PROFIBUS address for PROFIBUS interface (X126) on the Control Unit.
The address can be set as follows:
1) Using the DIP switch power-up the Control Unit.
--> p0918 can then only be read and displays the selected address.
--> A change only becomes effective after a POWER ON.
2) Using p0918
--> only if all of the DIP switches - from S1 to S7 - are either set to ON or OFF.
--> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".
--> A change only becomes effective after a POWER ON.

Note: Permissible PROFIBUS addresses: 1 ... 126
Address 126 is used for commissioning.
Every PROFIBUS address change only becomes effective after a POWER ON.

p0922 PROFIdrive telegram selection / PD Telegr_sel

CU_CX32, CU_S	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1520, 2420, 2423, 2448, 2449, 2458, 2459, 2481, 2483
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
390	999	999

Description: Sets the send and receive telegram.

Values: 390: SIEMENS telegram 390, PZD-2/2
391: SIEMENS telegram 391, PZD-3/7
392: SIEMENS telegram 392, PZD-3/15
999: Free telegram configuration with BICO

p0922 PROFIdrive telegram selection / PD Telegr_sel

A_INF, B_INF, S_INF	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1520, 2420, 2423, 2447, 2457, 2481, 2483
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
370	999	999

Description: Sets the send and receive telegram.

Values: 370: SIEMENS telegram 370, PZD-1/1
999: Free telegram configuration with BICO

Dependency: Refer to: F01505, F01506

Note: If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited.
The inhibited interconnections can only be changed again after setting value 999.

p0922	PROFIdrive telegram selection / PD Telegr_sel		
SERVO	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 1 Description: Sets the send and receive telegram. Values: 1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 3: Standard telegram 3, PZD-5/9 4: Standard telegram 4, PZD-6/14 5: Standard telegram 5, PZD-9/9 6: Standard telegram 6, PZD-10/14 102: SIEMENS telegram 102, PZD-6/10 103: SIEMENS telegram 103, PZD-7/15 105: SIEMENS telegram 105, PZD-10/10 106: SIEMENS telegram 106, PZD-11/15 116: SIEMENS telegram 116, PZD-11/19 999: Free telegram configuration with BICO Dependency: Refer to: p2038 Refer to: F01505, F01506 Note: For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.	Calculated: - Dynamic index: - Units group: - Max 999	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999
p0922	PROFIdrive telegram selection / PD Telegr_sel		
SERVO (Pos ctrl)	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 999 Description: Sets the send and receive telegram. Values: 999: Free telegram configuration with BICO Dependency: Refer to: p2038 Refer to: F01505, F01506 Note: For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.	Calculated: - Dynamic index: - Units group: - Max 999	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999

p0922	PROFIdrive telegram selection / PD Telegr_sel		
SERVO (EPOS)	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 7 Max 999	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999
Description:	Sets the send and receive telegram.		
Values:	7: Standard telegram 7, PZD-2/2 9: Standard telegram 9, PZD-6/5 110: SIEMENS telegram 110, PZD-12/7 999: Free telegram configuration with BICO		
Dependency:	Refer to: p2038 Refer to: F01505, F01506		
Note:	For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.		
p0922	PROFIdrive telegram selection / PD Telegr_sel		
VECTOR	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 1 Max 999	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999
Description:	Sets the send and receive telegram.		
Values:	1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 20: Standard telegram 20, PZD-2/6 352: SIEMENS telegram 352, PZD-6/6 999: Free telegram configuration with BICO		
Dependency:	Refer to: F01505, F01506		
Caution:	Telegrams 2, 3 and 4 are not suitable for sensorless vector control (p1300 = 20). For sensorless vector control, it is necessary that the setpoint speed is entered at the ramp-function generator input (e.g. p1070) and not after the ramp-function generator (p1155).		
Note:	If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.		
p0922	PROFIdrive telegram selection / PD Telegr_sel		
VECTOR (n/M)	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 1 Max 999	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999
Description:	Sets the send and receive telegram.		

Values:	1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 3: Standard telegram 3, PZD-5/9 4: Standard telegram 4, PZD-6/14 20: Standard telegram 20, PZD-2/6 352: SIEMENS telegram 352, PZD-6/6 999: Free telegram configuration with BICO
Dependency:	Refer to: F01505, F01506
Caution:	Telegrams 2, 3 and 4 are not suitable for sensorless vector control (p1300 = 20). For sensorless vector control, it is necessary that the setpoint speed is entered at the ramp-function generator input (e.g. p1070) and not after the ramp-function generator (p1155).
Note:	If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.

p0922	PROFIdrive telegram selection / PD Telegr_sel		
VECTOR (Pos ctrl)	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 999	Calculated: - Dynamic index: - Units group: - Max 999	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999
Description:	Sets the send and receive telegram.		
Values:	999: Free telegram configuration with BICO		
Dependency:	Refer to: F01505, F01506		
Caution:	Telegrams 2, 3 and 4 are not suitable for sensorless vector control (p1300 = 20). For sensorless vector control, it is necessary that the setpoint speed is entered at the ramp-function generator input (e.g. p1070) and not after the ramp-function generator (p1155).		
Note:	If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.		

p0922	PROFIdrive telegram selection / PD Telegr_sel		
VECTOR (EPOS)	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 7	Calculated: - Dynamic index: - Units group: - Max 999	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999
Description:	Sets the send and receive telegram.		
Values:	7: Standard telegram 7, PZD-2/2 9: Standard telegram 9, PZD-6/5 110: SIEMENS telegram 110, PZD-12/7 999: Free telegram configuration with BICO		
Dependency:	Refer to: F01505, F01506		
Caution:	Telegrams 2, 3 and 4 are not suitable for sensorless vector control (p1300 = 20). For sensorless vector control, it is necessary that the setpoint speed is entered at the ramp-function generator input (e.g. p1070) and not after the ramp-function generator (p1155).		
Note:	If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.		

p0922	PROFIdrive telegram selection / PD Telegr_sel		
TM41	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 3 Description: Sets the send and receive telegram. Values: 3: Standard telegram 3, PZD-5/9 999: Free telegram configuration with BICO Dependency: Refer to: F01505, F01506 Note: If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.	Calculated: - Dynamic index: - Units group: - Max 999	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2460, 2470 Unit selection: - Expert list: 1 Factory setting 999
p0922	PROFIdrive telegram selection / PD Telegr_sel		
TM15, TM17	Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 Description: Sets the send and receive telegram. Values: 0: Free telegram configuring with p0915/p0916	Calculated: - Dynamic index: - Units group: - Max 0	Access level: 1 Func. diagram: 2481, 2483 Unit selection: - Expert list: 1 Factory setting 0
p0925	PROFIdrive clock synchronous sign-of-life tolerance / PD SoL_tol		
CU_CX32, CU_S, SERVO, TM41, VECTOR (n/M)	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 Description: Sets the number of tolerated consecutive sign-of-life errors of the clock-cycle synchronous master. The sign-of-life signal is normally received in PZD4 (control word 2) from the master. Dependency: Refer to: p2045, r2065 Refer to: F01912 Note: The sign-of-life monitoring is disabled for p0925 = 65535.	Calculated: - Dynamic index: - Units group: - Max 65535	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting 1
r0930	PROFIdrive operating mode / PD operating mode		
SERVO, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Setpoints Not for motor type: - Min - Description: Displays the operating mode. 1: Closed-loop speed controlled operation with ramp-function generator 2: Closed-loop position controlled operation 3: Closed-loop speed controlled operation without ramp-function generator	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -

r0944 Counter for fault buffer changes / Fault buff change

All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays fault buffer changes. This counter is incremented every time the fault buffer changes.		
Recommend.:	Used to check whether the fault buffer has been read out consistently.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109		

r0945[0...63] Fault code / Fault code

All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the numbers of faults that have occurred.		
Dependency:	Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136		
Note:	<p>The buffer parameters are cyclically updated in the background (refer to status signal in r2139).</p> <p>Fault buffer structure (general principle):</p> <p>r0945[0], r0949[0], r0948[0], r2109[0] --> actual fault case, fault 1</p> <p>.</p> <p>.</p> <p>.</p> <p>r0945[7], r0949[7], r0948[7], r2109[7] --> actual fault case, fault 8</p> <p>r0945[8], r0949[8], r0948[8], r2109[8] --> 1st acknowledged fault case, fault 1</p> <p>.</p> <p>.</p> <p>.</p> <p>r0945[15], r0949[15], r0948[15], r2109[15] --> 1st acknowledged fault case, fault 8</p> <p>.</p> <p>.</p> <p>.</p> <p>r0945[56], r0949[56], r0948[56], r2109[56] --> 7th acknowledged fault case, fault 1</p> <p>.</p> <p>.</p> <p>.</p> <p>r0945[63], r0949[63], r0948[63], r2109[63] --> 7th acknowledged fault case, fault 8</p>		

r0946[0...65534] Fault code list / Fault code list

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	<p>Lists the fault codes stored in the drive unit.</p> <p>The indices can only be accessed with a valid fault code.</p>		

Dependency: The parameter assigned to the fault code is entered in r0951 under the same index.
Refer to: r0951

r0947[0...63] Fault number / Fault number

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
-	-	-	

Description: This parameter is identical to r0945.

r0948[0...63] Fault time received in milliseconds / t_fault rcv ms

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
- [ms]	- [ms]	- [ms]	

Description: Displays the system runtime in milliseconds when the fault occurred.

Dependency: Refer to: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136

Notice: The time comprises r2130 (days) and r0948 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r0949[0...63] Fault value / Fault value

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
-	-	-	

Description: Displays additional information about the fault that occurred (as integer number).

Dependency: Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r0951[0...65534] Fault number list / Fault number list

All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
-	-	-	

Description: Lists parameters assigned to a fault.

Dependency: Refer to: r0946

p0952			
Fault cases, counter / Fault cases qty			
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1710, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Number of fault situations that have occurred since the last reset.		
Dependency:	The fault buffer is deleted (cleared) by setting p0952 to 0. Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136		
<hr/>			
r0963			
PROFIBUS baud rate / PB baud rate			
CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting -
Values:	0: 9.6 kbit/s 1: 19.2 kbit/s 2: 93.75 kbit/s 3: 187.5 kbit/s 4: 500 kbit/s 6: 1.5 Mbit/s 7: 3 Mbit/s 8: 6 Mbit/s 9: 12 Mbit/s 10: 31.25 kbit/s 11: 45.45 kbit/s 255: Unknown		
<hr/>			
r0964[0...6]			
Device identification / Device ident.			
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the device identification.		
Index:	[0] = Company (Siemens = 42) [1] = Device type [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = Number of drive objects [6] = Firmware patch/hot fix		
Note:	Example: r0964[0] = 42 --> SIEMENS r0964[1] = 5000 --> SINAMICS S CU320 r0964[1] = 5200 --> SINAMICS G CU320 r0964[2] = 102 --> first part of the firmware version V01.02 (second part, refer under index 6) r0964[3] = 2003 --> year 2003 r0964[4] = 1401 --> 14th of January r0964[5] = 4 --> 4 drive objects		

r0964[6] = 600 --> second part, firmware version (complete version: V01.02.06.00)

r0965	PROFdrive profile number / PD profile number		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the PROFdrive profile number and profile version. Constant value = 0303 hex. Byte 1: Profile number = 03 hex = PROFdrive profile Byte 2: Profile version = 03 hex = Version 3		
p0969	System runtime relative / t_System relative		
CU_CX32, CU_S	Can be changed: T Data type: Unsigned32 P-Group: Displays, signals Not for motor type: - Min 0 [ms]	Calculated: - Dynamic index: - Units group: - Max 4294967295 [ms]	Access level: 3 Func. diagram: 1750, 8060 Unit selection: - Expert list: 1 Factory setting 0 [ms]
Description:	Displays the system runtime in ms since the last POWER ON.		
Note:	The value in p0969 can only be reset to 0. The value overflows after approx. 49 days.		
p0970	Reset infeed parameter / INF par reset		
A_INF, B_INF, S_INF	Can be changed: C2(30) Data type: Unsigned16 P-Group: Factory settings Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 100	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	The parameter is used to initiate that the parameters of an individual infeed unit are reset. The parameters of the basic commissioning (refer to p0009) are in this case not reset (p0107, p0108, p0121, p0170). These can only be reset using the factory setting of the complete drive unit (p0976). The sampling times (p0111, p0112, p0115) are only not reset if this results in a conflict with the basic clock cycle (p0110).		
Values:	0: Inactive 1: Starts a parameter reset 100: Starts a BICO interconnection reset		
Note:	A factory setting run can only be started if p0010 was first set to 30 (parameter reset). At the end of the calculations, p0970 is automatically set to 0.		
p0970	Reset drive parameters / Drive par reset		
SERVO, VECTOR	Can be changed: C2(30) Data type: Unsigned16 P-Group: Factory settings Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 100	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	The parameter is used to initiate that the parameters of an individual drive unit are reset.		

Parameters p0100, p0205 (only for VECTOR) and the parameters of the basic drive commissioning (p0009) are not reset (p0107, p0108, p0111, p0112, p0115, p0121, p0130, p0131, p0140, p0141, p0142, p0170, p0186 ... p0189). These can only be reset using the factory setting of the complete drive unit (p0976).

Values: 0: Inactive
1: Starts a parameter reset
100: Starts a BICO interconnection reset

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TB30 reset parameters / TB30 par reset

Can be changed: C2(30)	Calculated: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Func. diagram: -
P-Group: Factory settings	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min 0	Max 100	Factory setting 0

Description: The parameter is used to initiate that the parameters are reset on Terminal Board 30 (TB30).
The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle.
Parameter p0161 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Values: 0: Inactive
1: Starts a parameter reset
100: Starts a BICO interconnection reset

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM31 reset parameters / TM31 par reset

Can be changed: C2(30)	Calculated: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Func. diagram: -
P-Group: Factory settings	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min 0	Max 100	Factory setting 0

Description: The parameter is used to initiate that the parameters are reset on Terminal Module 31 (TM31).
The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle.
Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Values: 0: Inactive
1: Starts a parameter reset
100: Starts a BICO interconnection reset

Dependency: Refer to: p0010

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM41 reset parameters / TM41 par reset

Can be changed: C2(30)	Calculated: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Func. diagram: -
P-Group: Factory settings	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min 0	Max 100	Factory setting 0

Description: The parameter is used to initiate that the parameters are reset on Terminal Module 41 (TM41).
Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Values: 0: Inactive
1: Starts a parameter reset
100: Starts a BICO interconnection reset

Dependency: Refer to: p0010

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM17 reset parameter / TM17 par reset

TM17	Can be changed: C2(30)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
0	100	0

Description: The parameter is used to initiate that the parameters are reset on Terminal Module 17 (TM17).
Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Values: 0: Inactive
1: Starts a parameter reset
100: Starts a BICO interconnection reset

Dependency: Refer to: p0010

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM15 reset parameter / TM15 par reset

TM15	Can be changed: C2(30)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
0	100	0

Description: The parameter is used to initiate that the parameters are reset on Terminal Module 15 (TM15).
Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Values: 0: Inactive
1: Starts a parameter reset
100: Starts a BICO interconnection reset

Dependency: Refer to: p0010

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM15DI/DO reset parameter / TM15D par reset

TM15DI_DO	Can be changed: C2(30)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
0	100	0

Description: The parameter is used to initiate that the parameters are reset on Terminal Module 15 (TM15).
The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle.
Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Values: 0: Inactive
1: Starts a parameter reset
100: Starts a BICO interconnection reset

Dependency: Refer to: p0010

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970	TM54F reset parameters / TM54F par reset		
TM54F_MA	Can be changed: C2(30)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 100	Factory setting 0
Description:	The parameter is used to initiate that the parameters are reset on Terminal Module 54F (TM54F). Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).		
Values:	0: Inactive 1: Starts a parameter reset 100: Starts a BICO interconnection reset		
Note:	A factory setting run can only be started if p0010 was first set to 30 (parameter reset). At the end of the calculations, p0970 is automatically set to 0.		

p0971	Save drive object parameters / Save drv_obj		
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Saves the parameters of the particular drive object in the non-volatile memory (CompactFlash card).		
Values:	0: Inactive 1: Save drive object		
Dependency:	Refer to: p0977, p1960, p3845, r3996		
Caution:	The Control Unit power supply may only be powered-down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0). It is not permissible that the CompactFlash card is withdrawn while saving data.		
Notice:	Writing to parameters is inhibited while saving. The progress while saving is displayed in r3996.		
Note:	Starting from the particular drive object, the following parameters are saved: CU3xx: Device-specific parameters and PROFIBUS device parameters. Other objects: Parameters of the actual object and PROFIBUS device parameters. Prerequisite: In order that the parameter of a drive object, saved with p0971 = 1, is read the next time that the Control Unit is booted, then all parameters must, as a minimum, have first been saved once with p0977 = 1.		

p0972	Drive unit reset / Drv_unit reset		
CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	Sets the required procedure to execute a hardware reset for the drive unit.		

Values:

- 0: Inactive
- 1: Hardware-Reset immediate
- 2: Hardware reset preparation
- 3: Hardware reset after cyclic communication has failed

Danger:

It must be absolutely ensured that the system is in a safe condition.

It is not permissible that the CompactFlash card of the Control Unit is accessed.

Notice:

For SIMOTION or SINUMERIK with integrated SINAMICS, the hardware reset acts on the complete system and depends on the state of the control.

Note:

Re value = 1:

Reset is immediately executed and communications interrupted.

After communications have been established, check the reset operation (refer below).

Re value = 2:

Help to check the reset operation.

Firstly, set p0972 = 2 and then read back. Secondly, set p0972 = 1 (it is possible that this request is possibly no longer acknowledged). The communication is then interrupted.

After communications have been established, check the reset operation (refer below).

Re value = 3:

The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by a control for several drive units.

If the cyclic communication is active for both PROFIdrive interfaces, then the reset is executed after completing both cycle communications.

After communications have been established, check the reset operation (refer below).

To check the reset operation:

After the drive unit has been restarted and communications have been established, read p0972 and check the following:

p0972 = 0? --> The reset was successfully executed.

p0972 > 0? --> The reset was not executed.

r0975[0...10]**Drive object identification / DO identification**

All objects

Can be changed: -

Calculated: -

Access level: 2

Data type: Unsigned16

Dynamic index: -

Func. diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the identification of the drive object.

Index:

- [0] = Company (Siemens = 42)
- [1] = Drive object type
- [2] = Firmware version
- [3] = Firmware date (year)
- [4] = Firmware date (day/month)
- [5] = PROFIdrive drive object, type class
- [6] = PROFIdrive drive object, sub-type Class 1
- [7] = Drive object number
- [8] = Reserved
- [9] = Reserved
- [10] = Firmware patch/hot fix

Note:

Example:

r0975[0] = 42 --> SIEMENS

r0975[1] = 11 --> SERVO drive object type

r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)

r0975[3] = 2003 --> year 2003

r0975[4] = 1401 --> 14th of January

r0975[5] = 1 --> PROFIdrive drive object, type class

r0975[6] = 9 --> PROFIdrive drive object sub-type class 1
 r0975[7] = 2 --> drive object number = 2
 r0975[8] = 0 (reserved)
 r0975[9] = 0 (reserved)
 r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

p0976**Reset and load all parameters / Reset load all par**

CU_CX32, CU_S

Can be changed: C1(30)**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Factory settings**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

1013

0

Description:

Resets or downloads all parameters of the drive system.

Values:

0: Inactive
 1: Starts to reset all parameters to factory setting
 2: Starts to download param. saved in non-volatile way w/ p0977 = 1
 3: Start to download the volatile parameters from RAM
 10: Starts to download param. saved in non-volatile way w/ p0977=10
 11: Starts to download param. saved in non-volatile way w/ p0977=11
 12: Starts to download param. saved in non-volatile way w/ p0977=12
 20: Starts to download Siemens internal setting 20
 21: Starts to download Siemens internal setting 21
 22: Starts to download Siemens internal setting 22
 23: Starts to download Siemens internal setting 23
 24: Starts to download Siemens internal setting 24
 25: Starts to download Siemens internal setting 25
 26: Starts to download Siemens internal setting 26
 100: Starts to reset all BICO interconnections
 1011: Starts to download param. saved in volatile way w/ p0977 = 1011
 1012: Starts to download param. saved in volatile way w/ p0977 = 1012
 1013: Starts to download param. saved in volatile way w/ p0977 = 1013

Note:

After all of the parameters have been reset to their factory setting, the system must be commissioned for the first time again.

Resetting or loading is realized in the non-volatile memory.

Procedure:

1. Set p0009 = 30 (parameter reset).
 2. Set p0976 to "required value". The system is rebooted.
- p0976 is automatically set to 0 and p0009 is automatically set to 1 after this has been carried out.

p0977**Save all parameters / Save all par**

CU_CX32, CU_S

Can be changed: U, T**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Factory settings**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

1013

0

Description:

Saves all parameters of the drive system to the non-volatile memory (CompactFlash card).

Values:

0: Inactive
 1: Save in non-volatile fashion - downloaded at POWER ON
 10: Save as opt. in non-vol. fashion - downloaded w/ p0976=10
 11: Save as opt. in non-vol. fashion - downloaded w/ p0976=11
 12: Save as opt. in non-vol. fashion - downloaded w/ p0976=12
 20: Save in a non-volatile fashion as setting 20 (reserved)
 21: Save in a non-volatile fashion as setting 21 (reserved)
 22: Save in a non-volatile fashion as setting 22 (reserved)

- 23: Save in a non-volatile fashion as setting 23 (reserved)
 24: Save in a non-volatile fashion as setting 24 (reserved)
 25: Save in a non-volatile fashion as setting 25 (reserved)
 26: Save in a non-volatile fashion as setting 26 (reserved)
 1011: Save in volatile fashion, loaded with p0976=1011
 1012: Save in volatile fashion, loaded with p0976=1012
 1013: Save in volatile fashion, loaded with p0976=1013

Dependency: Refer to: p0976, p1960, p3845, r3996

Caution: The Control Unit power supply may only be powered-down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).

It is not permissible that the CompactFlash card is withdrawn while saving data.

Notice: Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

Note: Parameters saved with p0977 = 10, 11 or 12 can be downloaded again with p0976 = 10, 11 or 12.

p0978[0...16]**List of drive objects / List of the DO**

CU_CX32, CU_S

Can be changed: C1(1)**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** -**P-Group:** Topology**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

255

[0] 1

[1] 0

[2] 0

[3] 0

[4] 0

[5] 0

[6] 0

[7] 0

[8] 0

[9] 0

[10] 0

[11] 0

[12] 0

[13] 0

[14] 0

[15] 0

[16] 0

Description: This parameter is an image of p0101 in conformance with PROFIdrive.

Parameters p0101 and p0978 contain the following information:

1) The same number of drive objects

2) The same drive objects

In this sense, they are consistent.

Difference between p0101 and p0978:

p0978 can be re-sorted and a zero inserted in order to identify those drive objects that participate in the process data exchange and to define their sequence in the process data exchange. Drive objects that are listed after the first zero, are excluded from the process data exchange.

For p0978, in addition, the value 255 can be inserted a multiple number of times.

p0978[n] = 255 means: The drive object is visible for the PROFIBUS master and is empty (without any actual process data exchange). This allows cyclic communications of a PROFIBUS master with unchanged configuring to the drive units with a lower number of drive objects.

Dependency: Refer to: p0101, p0971, p0977

Note: p0978 cannot be changed when the drive system is first commissioned. The reason for this is that at this time the actual topology has still not been acknowledged (p0099 is still not equal to r0098 and p0009 is set to 0).

r0979[0...30] PROFIdrive encoder format / PD encoder format

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

Index:

- [0] = Header
- [1] = Type, encoder 1
- [2] = Resolution encod 1
- [3] = Shift factor G1_XACT1
- [4] = Shift factor G1_XACT2
- [5] = Distinguishable revolutions encoder 1
- [6] = Reserved
- [7] = Reserved
- [8] = Reserved
- [9] = Reserved
- [10] = Reserved
- [11] = Type, encoder 2
- [12] = Resolution encod 2
- [13] = Shift factor G2_XACT1
- [14] = Shift factor G2_XACT2
- [15] = Distinguishable revolutions encoder 2
- [16] = Reserved
- [17] = Reserved
- [18] = Reserved
- [19] = Reserved
- [20] = Reserved
- [21] = Type, encoder 3
- [22] = Resolution encod 3
- [23] = Shift factor G3_XACT1
- [24] = Shift factor G3_XACT2
- [25] = Distinguishable revolutions encoder 3
- [26] = Reserved
- [27] = Reserved
- [28] = Reserved
- [29] = Reserved
- [30] = Reserved

Note: Information about the individual indices can be taken from the following literature:
PROFIdrive Profile Drive Technology

r0979[0...10] PROFIdrive encoder format / PD encoder format

TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

Index:

- [0] = Header
- [1] = Type, encoder 1
- [2] = Resolution encod 1
- [3] = Shift factor G1_XACT1
- [4] = Shift factor G1_XACT2
- [5] = Distinguishable revolutions encoder 1
- [6] = Reserved

[7] = Reserved
 [8] = Reserved
 [9] = Reserved
 [10] = Reserved

Note: Information about the individual indices can be taken from the following literature:
 PROFIdrive Profile Drive Technology

r0980[0...199] List of existing parameters 1 / List avail par 1

A_INF, B_INF,
 CU_CX32, CU_LINK,
 CU_S, DMC20,
 SERVO, S_INF,
 TB30, TM15,
 TM15DI_DO, TM17,
 TM31, TM41, VEC-
 TOR

Can be changed: -
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 4
Func. diagram: -
Unit selection: -
Expert list: 0

Min	Max	Factory setting
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0981, r0989

Note: The existing parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.
 This list completely comprises the following parameters:
 r0980[0...99], r0981[0...99] ... r0989[0...99]
 The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0981[0...199] List of existing parameters 2 / List avail par 2

A_INF, B_INF,
 CU_CX32, CU_LINK,
 CU_S, DMC20,
 SERVO, S_INF,
 TB30, TM15,
 TM15DI_DO, TM17,
 TM31, TM41, VEC-
 TOR

Can be changed: -
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 4
Func. diagram: -
Unit selection: -
Expert list: 0

Min	Max	Factory setting
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0989

Note: The existing parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.
 This list completely comprises the following parameters:
 r0980[0...99], r0981[0...99] ... r0989[0...99]
 The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0989[0...199] List of existing parameters 10 / List avail par 10

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, DMC20,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41, VEC-
TOR

Can be changed: -
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 4
Func. diagram: -
Unit selection: -
Expert list: 0

Min

-

Max

-

Factory setting

-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0981

Note: The existing parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. This list completely comprises the following parameters:
r0980[0...99], r0981[0...99] ... r0989[0...99]
The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0990[0...99] List of modified parameters 1 / List chang. par 1

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, DMC20,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41, VEC-
TOR

Can be changed: -
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 0

Min

-

Max

-

Factory setting

-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: Refer to: r0991, r0999

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues. This list completely comprises the following parameters:
r0990[0...99], r0991[0...99] ... r0999[0...99]
The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0991[0...99] List of modified parameters 2 / List chang. par 2

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, DMC20,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41, VEC-
TOR

Can be changed: -
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 0

Min

-

Max

-

Factory setting

-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: Refer to: r0990, r0999

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues. This list completely comprises the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0999[0...99] List of modified parameters 10 / List chang. par 10			
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays those parameters with a value other than the factory setting for this drive.		
Dependency:	Refer to: r0990, r0991		
Note:	Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.		
	This list completely comprises the following parameters:		
	r0990[0...99], r0991[0...99] ... r0999[0...99]		
	The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).		
p1000[0...n] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set			
SERVO, VECTOR	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS, p0170	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	999999	0
Description:	Runs the appropriate ACX file on the CompactFlash card.		
	The Connector Inputs (CI) for the speed setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.		
	The selected ACX file must be located in the following directory:		
	... /PMACROS/<drive object>/P1000/PMxxxxxx.ACX		
Dependency:	Example:		
	p1000 = 6 --> the file PM000006.ACX is run.		
	The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash card.		
	Refer to: p0015, p0700, p1500, r8572		
Notice:	No errors were issued during fast commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!		
Note:	The macros in the specified directory are displayed in r8572. r8572 is not in the Expert list of the commissioning software.		
	Macros available as standard are described in the technical documentation of the particular product.		
	CI: Connector Input		

p1000[0...n]	Macro Connector Inputs (CI) for velocity setpoints / Macro CI v_set		
SERVO (Lin)	Can be changed: C2(1), T Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Runs the appropriate ACX file on the CompactFlash card. The Connector Inputs (CI) for the velocity setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected. The selected ACX file must be located in the following directory: ... /PMACROS/<drive object>/P1000/PMxxxxxx.ACX Example: p1000 = 6 --> the file PM000006.ACX is run.		
Dependency:	The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash card. Refer to: p0015, p0700, p1500, r8572		
Notice:	No errors were issued during fast commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!		
Note:	The macros in the specified directory are displayed in r8572. r8572 is not in the Expert list of the commissioning software. Macros available as standard are described in the technical documentation of the particular product. CI: Connector Input		
p1001[0...n]	CO: Fixed speed setpoint 1 / n_set_fixed 1		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 1021, 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 1.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1001[0...n]	CO: Fixed velocity setpoint 1 / n_set_fixed 1		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1	Access level: 2 Func. diagram: 1021, 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 1.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1002[0...n]	CO: Fixed speed setpoint 2 / n_set_fixed 2		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 2.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1002[0...n]	CO: Fixed velocity setpoint 2 / n_set_fixed 2		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 2.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1003[0...n]	CO: Fixed speed setpoint 3 / n_set_fixed 3		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 3.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1003[0...n]	CO: Fixed velocity setpoint 3 / n_set_fixed 3		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 3.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1004[0...n]	CO: Fixed speed setpoint 4 / n_set_fixed 4		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -210000.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 4.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1004[0...n]	CO: Fixed velocity setpoint 4 / n_set_fixed 4		
SERVO (Extended setp, Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -1000.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 4.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -210000.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 5.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1005[0...n]	CO: Fixed velocity setpoint 5 / n_set_fixed 5		
SERVO (Extended setp, Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -1000.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 5.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -210000.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 6.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1006[0...n]	CO: Fixed velocity setpoint 6 / n_set_fixed 6		
SERVO (Extended setp, Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -1000.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 6.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -210000.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 7.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1007[0...n]	CO: Fixed velocity setpoint 7 / n_set_fixed 7		
SERVO (Extended setp, Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3010
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -1000.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 7.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 8.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1008[0...n]	CO: Fixed velocity setpoint 8 / n_set_fixed 8		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 8.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1009[0...n]	CO: Fixed speed setpoint 9 / n_set_fixed 9		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 9.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1009[0...n]	CO: Fixed velocity setpoint 9 / n_set_fixed 9		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 9.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1010[0...n]	CO: Fixed speed setpoint 10 / n_set_fixed 10		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 10.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1010[0...n]	CO: Fixed velocity setpoint 10 / n_set_fixed 10		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 10.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1011[0...n]	CO: Fixed speed setpoint 11 / n_set_fixed 11		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 11.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1011[0...n]	CO: Fixed velocity setpoint 11 / n_set_fixed 11		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 11.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1012[0...n]	CO: Fixed speed setpoint 12 / n_set_fixed 12		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 12.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1012[0...n]	CO: Fixed velocity setpoint 12 / n_set_fixed 12		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 12.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1013[0...n]	CO: Fixed speed setpoint 13 / n_set_fixed 13		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets a value for the fixed speed / velocity setpoint 13.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1013[0...n]	CO: Fixed velocity setpoint 13 / n_set_fixed 13		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets a value for the fixed speed / velocity setpoint 13.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p1014[0...n] CO: Fixed speed setpoint 14 / n_set_fixed 14

SERVO (Extended setp), VECTOR

Can be changed: U, T**Data type:** Floating Point**P-Group:** Setpoints**Not for motor type:** -**Min**

-210000.000 [RPM]

Calculated: -**Dynamic index:** DDS, p0180**Units group:** 3_1**Max**

210000.000 [RPM]

Access level: 2**Func. diagram:** 3010**Unit selection:** p0505**Expert list:** 1**Factory setting**

0.000 [RPM]

Description: Sets a value for the fixed speed / velocity setpoint 14.**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024, r1197**Notice:** A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.**p1014[0...n] CO: Fixed velocity setpoint 14 / n_set_fixed 14**

SERVO (Extended setp, Lin)

Can be changed: U, T**Data type:** Floating Point**P-Group:** Setpoints**Not for motor type:** -**Min**

-1000.000 [m/min]

Calculated: -**Dynamic index:** DDS, p0180**Units group:** 4_1**Max**

1000.000 [m/min]

Access level: 2**Func. diagram:** 3010**Unit selection:** p0505**Expert list:** 1**Factory setting**

0.000 [m/min]

Description: Sets a value for the fixed speed / velocity setpoint 14.**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024, r1197**Notice:** A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.**p1015[0...n] CO: Fixed speed setpoint 15 / n_set_fixed 15**

SERVO (Extended setp), VECTOR

Can be changed: U, T**Data type:** Floating Point**P-Group:** Setpoints**Not for motor type:** -**Min**

-210000.000 [RPM]

Calculated: -**Dynamic index:** DDS, p0180**Units group:** 3_1**Max**

210000.000 [RPM]

Access level: 2**Func. diagram:** 1021, 3010**Unit selection:** p0505**Expert list:** 1**Factory setting**

0.000 [RPM]

Description: Sets a value for the fixed speed / velocity setpoint 15.**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024, r1197**Notice:** A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.**p1015[0...n] CO: Fixed velocity setpoint 15 / n_set_fixed 15**

SERVO (Extended setp, Lin)

Can be changed: U, T**Data type:** Floating Point**P-Group:** Setpoints**Not for motor type:** -**Min**

-1000.000 [m/min]

Calculated: -**Dynamic index:** DDS, p0180**Units group:** 4_1**Max**

1000.000 [m/min]

Access level: 2**Func. diagram:** 1021, 3010**Unit selection:** p0505**Expert list:** 1**Factory setting**

0.000 [m/min]

Description: Sets a value for the fixed speed / velocity setpoint 15.**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024, r1197**Notice:** A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.

p1020[0...n]	BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the fixed speed setpoint.		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1021, p1022, p1023, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
p1020[0...n]	BI: Fixed velocity setpoint selection Bit 0 / v_set_fixed Bit 0		
SERVO (Extended setp, Lin)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the fixed velocity setpoint.		
Dependency:	Selects the required fixed velocity setpoint using p1020 ... p1023. Displays the number of the actual fixed velocity setpoint in r1197. Sets a value for the fixed velocity setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1021, p1022, p1023, r1197		
Note:	If a fixed velocity setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
p1021[0...n]	BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the fixed speed setpoint.		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1022, p1023, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
p1021[0...n]	BI: Fixed velocity setpoint selection Bit 1 / v_set_fixed Bit 1		
SERVO (Extended setp, Lin)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the fixed velocity setpoint.		

Dependency: Selects the required fixed velocity setpoint using p1020 ... p1023.
Displays the number of the actual fixed velocity setpoint in r1197.
Sets a value for the fixed velocity setpoints 1 ... 15 using p1001 ... p1015.
Refer to: p1020, p1022, p1023, r1197

Note: If a fixed velocity setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1022[0...n] **BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2**

SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
-	-	0	

Description: Sets the signal source to select the fixed speed setpoint.

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.
Displays the number of the actual fixed speed setpoint in r1197.
Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.
Refer to: p1020, p1021, p1023, r1197

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1022[0...n] **BI: Fixed velocity setpoint selection Bit 2 / v_set_fixed Bit 2**

SERVO (Extended setp, Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
-	-	0	

Description: Sets the signal source to select the fixed velocity setpoint.

Dependency: Selects the required fixed velocity setpoint using p1020 ... p1023.
Displays the number of the actual fixed velocity setpoint in r1197.
Sets a value for the fixed velocity setpoints 1 ... 15 using p1001 ... p1015.
Refer to: p1020, p1021, p1023, r1197

Note: If a fixed velocity setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1023[0...n] **BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3**

SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
-	-	0	

Description: Sets the signal source to select the fixed speed setpoint.

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.
Displays the number of the actual fixed speed setpoint in r1197.
Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.
Refer to: p1020, p1021, p1022, r1197

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1023[0...n]	BI: Fixed velocity setpoint selection Bit 3 / v_set_fixed Bit 3		
SERVO (Extended setp, Lin)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - Factory setting 0	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1
Description:	Sets the signal source to select the fixed velocity setpoint.		
Dependency:	Selects the required fixed velocity setpoint using p1020 ... p1023. Displays the number of the actual fixed velocity setpoint in r1197. Sets a value for the fixed velocity setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1021, p1022, r1197		
Note:	If a fixed velocity setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
r1024	CO: Fixed speed setpoint effective / n_set_fixed eff		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 1550, 3010 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the selected and effective fixed speed setpoint. This setpoint is the output value for the fixed speed setpoints and must be appropriately interconnected (e.g. with the main setpoint).		
Recommend.:	Interconnect the signal with main setpoint (p1070).		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1070, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
r1024	CO: Fixed velocity setpoint effective / v_set_fixed eff		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 1550, 3010 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the selected and effective fixed velocity setpoint. This setpoint is the output value for the fixed velocity setpoints and must be appropriately interconnected (e.g. with the main setpoint).		
Recommend.:	Interconnect the signal with main setpoint (p1070).		
Dependency:	Selects the required fixed velocity setpoint using p1020 ... p1023. Displays the number of the actual fixed velocity setpoint in r1197. Sets a value for the fixed velocity setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1070, r1197		
Note:	If a fixed velocity setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		

p1030[0...n]	Motorized potentiometer configuration / Mop configuration				
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -		Access level: 3	
	Data type: Unsigned16	Dynamic index: DDS, p0180		Func. diagram: 3020	
	P-Group: Closed-loop control	Units group: -		Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min -	Max -		Factory setting 0110 bin	
Description:	Sets the configuration for the motorized potentiometer.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Data save active	Yes	No	-
	01	Automatic mode, ramp-function generator active	Yes	No	-
	02	Initial rounding-off active	Yes	No	-
	03	Save in NVRAM active	Yes	No	-
Note:	Re bit 00: 0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040. 1: The setpoint for the motorized potentiometer is saved after OFF and after ON set to the saved value. In order to save in a non-volatile fashion, bit 03 should be set to 1. Re bit 01: 0: Without ramp-function generator in the automatic mode (ramp-up/ramp-down time = 0). 1: With ramp-function generator in the automatic mode. For manual operation (0 signal via BI: p1041), the ramp-function generator is always active. Re bit 02: 0: Without initial rounding-off 1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed). The jerk for the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum speed (p1082). It is calculated as follows: $r = 0.01 \% * p1082 [1/s] / 0.13^2 [s^2]$ The jerk acts up until the maximum acceleration is reached ($a_{max} = p1082 [1/s] / p1047 [s]$), and then the drive continues to run linearly with a constant rate of acceleration. The higher the maximum acceleration (the lower that p1047 is), the longer the ramp-up time increases with respect to the set ramp-up time. Re bit 03: 0: Non-volatile data save de-activated. 1: The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for bit 00 = 1). The following prerequisites must be fulfilled in order to be able to save the setpoint in a non-volatile fashion: - Firmware with V2.3 or higher. - Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).				

p1035[0...n]	BI: Motorized potentiometer setpoint raise / Mop raise				
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -		Access level: 3	
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170		Func. diagram: 2442, 2505	
	P-Group: Setpoints	Units group: -		Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min -	Max -		Factory setting 0	
Description:	Sets the signal source to increase the setpoint for the motorized potentiometer				
Dependency:	Refer to: p1036				
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.				

p1035	BI: Enable zero marks / Enable ZM		
TM41	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to enable the zero marks.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1036[0...n]	BI: Motorized potentiometer lower setpoint / Mop lower		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 2442, 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to reduce the setpoint for the motorized potentiometer.		
Dependency:	Refer to: p1035		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1037[0...n]	Motorized potentiometer maximum speed / Mop n_max		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min -210000.000 [RPM]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1 Max 210000.000 [RPM]	Access level: 2 Func. diagram: 3020 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets the maximum speed/velocity for the motorized potentiometer.		
Note:	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value.		
p1037[0...n]	Motorized potentiometer maximum velocity / Mop n_max		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min -1000.000 [m/min]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 4_1 Max 1000.000 [m/min]	Access level: 2 Func. diagram: 3020 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets the maximum speed/velocity for the motorized potentiometer.		
Note:	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value.		

p1038[0...n]	Motorized potentiometer minimum speed / Mop n_min		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3020
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -210000.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets the minimum speed/velocity for the motorized potentiometer.		
Note:	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value.		
p1038[0...n]	Motorized potentiometer minimum velocity / Mop n_min		
SERVO (Extended setp, Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3020
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -1000.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets the minimum speed/velocity for the motorized potentiometer.		
Note:	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value.		
p1039[0...n]	BI: Motorized potentiometer inversion / Mop inversion		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 3020
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to invert the maximum or minimum speed/velocity for the motorized potentiometer.		
Dependency:	Refer to: p1037, p1038		
Note:	The inversion is only active during "motorized potentiometer raise" or "motorized potentiometer lower".		
p1040[0...n]	Motorized potentiometer starting value / Mop start value		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3020
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -210000.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered-up.		
Dependency:	Only effective if p1030.0 = 0. Refer to: p1030		

p1040[0...n]	Motorized potentiometer starting value / Mop start value		
SERVO (Extended setp, Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3020
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -1000.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered-up.		
Dependency:	Only effective if p1030.0 = 0. Refer to: p1030		
p1041[0...n]	BI: Motorized potentiometer manual/automatic / Mop manual/auto		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 3020
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to change over from manual to automatic when using a motorized potentiometer. In the manual mode, the setpoint is changed using two signals - raise and lower. In the automatic mode, the setpoint must be interconnected via a connector input.		
Dependency:	Refer to: p1030, p1035, p1036, p1042		
Note:	The effectiveness of the internal ramp-function generator can be set in automatic mode.		
p1042[0...n]	CI: Motorized potentiometer automatic setpoint / Mop auto setpoint		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 3020
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the setpoint of the motorized potentiometer in the automatic mode.		
Dependency:	Refer to: p1041		
p1043[0...n]	BI: Motorized potentiometer accept setpoint / Mop accept set val		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 3020
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the setting command to accept the setting value for the motorized potentiometer.		
Dependency:	Refer to: p1044		

p1044[0...n]	CI: Motorized potentiometer setting value / Mop setting value		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 3020
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the setting value for the motorized potentiometer.		
Dependency:	Refer to: p1043		
Note:	The value becomes effective for a 0/1 edge of the setting command.		
r1045	CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG		
SERVO (Extended setp), VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 3020
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [RPM]	- [RPM]	- [RPM]
Description:	Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator.		
r1045	CO: Mot. potentiom. velocity setp. in front of ramp-fct. gen. / Mop n_set bef RFG		
SERVO (Extended setp, Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 3020
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]
Description:	Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator.		
p1047[0...n]	Motorized potentiometer ramp-up time / Mop ramp-up time		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3020
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.000 [s]	1000.000 [s]	10.000 [s]
Description:	Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer. The setpoint is changed from the zero up to the speed/velocity limit (p1082) within this time (if no initial rounding-off has been activated).		
Dependency:	Refer to: p1030, p1048, p1082		
Note:	When the initial rounding-off is activated (p1030.2) the ramp-up time is correspondingly extended.		

p1048[0...n]	Motorized potentiometer ramp-down time / Mop ramp-down time		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3020 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 1000.000 [s]	Factory setting 10.000 [s]
Description:	Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer. The setpoint is changed from the speed/velocity limit (p1082) to zero within this time (if no initial rounding-off has been activated).		
Dependency:	Refer to: p1030, p1047, p1082		
Note:	The deceleration time is extended corresponding to the activated initial rounding-off (p1030.2).		
r1050	CO: Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 1550, 3020 Unit selection: p0505 Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Sets the effective setpoint after the internal motorized potentiometer ramp-function generator. This setpoint is the output value of the motorized potentiometer and must be appropriately interconnected onwards (e.g. with the main setpoint).		
Recommend.:	Interconnect the signal with main setpoint (p1070).		
Dependency:	Refer to: p1070		
Note:	For "With ramp-function generator", after an OFF1, OFF2, OFF3 or for a 0 signal via BI: p0852 (inhibit operation, cancel pulses) the ramp-function generator output (r1050) is set to the starting value (configuration via p1030.0).		
r1050	CO: Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 4_1	Access level: 3 Func. diagram: 1550, 3020 Unit selection: p0505 Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Sets the effective setpoint after the internal motorized potentiometer ramp-function generator. This setpoint is the output value of the motorized potentiometer and must be appropriately interconnected onwards (e.g. with the main setpoint).		
Recommend.:	Interconnect the signal with main setpoint (p1070).		
Dependency:	Refer to: p1070		
Note:	For "With ramp-function generator", after an OFF1, OFF2, OFF3 or for a 0 signal via BI: p0852 (inhibit operation, cancel pulses) the ramp-function generator output (r1050) is set to the starting value (configuration via p1030.0).		

p1055[0...n]	BI: Jog bit 0 / Jog bit 0		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2610, 3030
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for jog 1.		
Recommend.:	When the signal source is set, this does not trigger a response - but only a signal change of the source.		
Dependency:	Refer to: p0840, p1058		
Notice:	The drive is enabled for jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that was used to power-up can also be used to power-down again.		
p1056[0...n]	BI: Jog bit 1 / Jog bit 1		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2610, 3030
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for jog 2.		
Recommend.:	When the signal source is set, this does not trigger a response - but only a signal change of the source.		
Dependency:	Refer to: p0840, p1059		
Notice:	The drive is enabled for jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that was used to power-up can also be used to power-down again.		
p1058[0...n]	Jog 1 speed setpoint / Jog 1 n_set		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3030
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -210000.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.		
Dependency:	Refer to: p1055, p1056		
p1058[0...n]	Jog 1 velocity setpoint / Jog 1 n_set		
SERVO (Extended setp, Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3030
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min -1000.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.		
Dependency:	Refer to: p1055, p1056		

p1059[0...n]	Jog 2 speed setpoint / Jog 2 n_set		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min -210000.000 [RPM]	Access level: 2 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.		
Dependency:	Refer to: p1055, p1056		
p1059[0...n]	Jog 2 velocity setpoint / Jog 2 n_set		
SERVO (Extended setp, Lin)	Can be changed: T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min -1000.000 [m/min]	Access level: 2 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.		
Dependency:	Refer to: p1055, p1056		
p1063[0...n]	Speed limit setpoint channel / n_limit setp		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Min 0.000 [RPM]	Access level: 1 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 210000.000 [RPM]
Description:	Sets the speed limit/velocity limit effective in the setpoint channel.		
Dependency:	Refer to: p1082, p1083, p1085, p1086, p1088		
p1063[0...n]	Velocity limit setpoint channel / v_limit setp		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Min 0.000 [m/min]	Access level: 1 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 1000.000 [m/min]
Description:	Sets the speed limit/velocity limit effective in the setpoint channel.		
Dependency:	Refer to: p1082, p1083, p1085, p1086, p1088		
p1070[0...n]	CI: Main setpoint / Main setpoint		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: - Min -	Access level: 3 Func. diagram: 1550, 3030 Unit selection: - Expert list: 1 Factory setting 1024[0]
Description:	Sets the signal source for the main setpoint. Examples: r1024: Fixed speed setpoint effective		

r1050: Motor. potentiometer, setpoint after the ramp-function generator

Dependency: Refer to: p1071, r1073, r1078**Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1071[0...n]	CI: Main setpoint scaling / Main setp scal		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 3030
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for scaling the main setpoint.

r1073	CO: Main setpoint effective / Main setpoint eff		
SERVO (Extended setp), VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 3030
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [RPM]	- [RPM]	- [RPM]

Description: Displays the effective main setpoint. The value shown is the main setpoint after scaling.

r1073	CO: Main setpoint effective / Main setpoint eff		
SERVO (Extended setp, Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 3030
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

Description: Displays the effective main setpoint. The value shown is the main setpoint after scaling.

p1075[0...n]	CI: Suppl setpoint / Suppl setpoint		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1550, 3030
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the supplementary setpoint.**Dependency:** Refer to: p1076, r1077, r1078

p1076[0...n]	CI: Supplementary setpoint scaling / Suppl setp scal		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 3030
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for scaling the supplementary setpoint.

r1077	CO: Supplementary setpoint effective / Suppl setpoint eff		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.		
r1077	CO: Supplementary setpoint effective / Suppl setpoint eff		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.		
r1078	CO: Total setpoint effective / Total setpoint eff		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.		
r1078	CO: Total setpoint effective / Total setpoint eff		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.		
p1080[0...n]	Minimum speed / Minimum speed		
SERVO (Extended setp), VECTOR	Can be changed: C2(1), T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.000 [RPM]	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Max 19500.000 [RPM]	Access level: 1 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets the lowest possible speed/velocity. This value is not fallen below in operation.		
Note:	The parameter value applies for both motor directions of rotation. In exception cases, the motor can operate below this value (e.g. when reversing).		

p1080[0...n]	Minimum velocity / Minimum speed		
SERVO (Extended setp, Lin)	Can be changed: C2(1), T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1	Access level: 1 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets the lowest possible speed/velocity. This value is not fallen below in operation.		
Note:	The parameter value applies for both motor directions of rotation. In exception cases, the motor can operate below this value (e.g. when reversing).		
p1082[0...n]	Maximum speed / Maximum speed		
SERVO	Can be changed: C2(1), T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 1 Func. diagram: 3020, 3050, 3060, 3070, 3095, 5300 Unit selection: p0505 Expert list: 1
	Min 0.000 [RPM]	Max 210000.000 [RPM]	Factory setting 1500.000 [RPM]
Description:	Sets the highest possible speed.		
Dependency:	Refer to: p0115, p0322		
Note:	The parameter applies for both motor directions. The parameter has a limiting effect and is the reference quantity for all ramp-up and ramp-down times (e.g. down ramps, ramp-function generator, motor potentiometer). The parameter is part of the fast commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0311 and p0322. The following limits are always effective for p1082: $p1082 \leq p0322$, if $p0322 > 0$ $p1082 \leq 60 / (10.5 * p0115[0] * r0313)$ $p1082 \leq 60 * \text{maximum power unit pulse frequency} / (5.3 * r0313)$ For the automatic calculation ($p0340 = 1$) the value of the parameter is pre-assigned the maximum motor speed ($p0322$). If $p0322 = 0$, the rated motor speed ($p0311$) is used as default (pre-assignment) value. For induction motors that are not catalog motors ($p0301 = 0$), the synchronous no-load speed is used as default (pre-assignment) value ($p0310 * 60 / r0313$). For synchronous motors, the following additionally applies: In the automatic calculation ($p0340 = 1$), p1082 is limited to speeds for which the steady-state maximum current of the power unit is not sufficient as field current: $p1082 < p0348 / (1 - r0207 / r0331)$. On the other hand, an additional limit is effective, which prevents the EMF from exceeding the maximum DC link voltage. The effective assignment of the motor data set parameter (e.g. p0311) to the drive data set parameter p1082 when pre-assigning should be taken from p0186. p1082 is also available in the fast commissioning (p0010 = 1); this means that when exiting via $p3900 > 0$, the value is not changed.		
p1082[0...n]	Maximum velocity / Maximum speed		
SERVO (Lin)	Can be changed: C2(1), T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 4_1	Access level: 1 Func. diagram: 3020, 3050, 3060, 3070, 3095, 5300 Unit selection: p0505 Expert list: 1
	Min 0.000 [m/min]	Max 1000.000 [m/min]	Factory setting 1000.000 [m/min]
Description:	Sets the highest possible velocity.		
Dependency:	Refer to: p0115, p0322		

Note: The parameter applies for both motor directions. The parameter has a limiting effect and is the reference quantity for all ramp-up and ramp-down times (e.g. down ramps, ramp-function generator, motor potentiometer).
The parameter is part of the fast commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0311 and p0322.
The following limits are always effective for p1082:
 $p1082 \leq p0322$, if $p0322 > 0$
 $p1082 \leq 60 / (10.5 * p0115[0] * r0313)$
 $p1082 \leq 60 * \text{maximum power unit pulse frequency} / (5.3 * r0313)$
For the automatic calculation (p0340 = 1) the value of the parameter is pre-assigned the maximum motor speed (p0322). If p0322 = 0, the rated motor speed (p0311) is used as default (pre-assignment) value. For induction motors that are not catalog motors (p0301 = 0), the synchronous no-load speed is used as default (pre-assignment) value ($p0310 * 60 / r0313$).
For synchronous motors, the following additionally applies:
In the automatic calculation (p0340 = 1), p1082 is limited to speeds for which the steady-state maximum current of the power unit is not sufficient as field current: $p1082 < p0348 / (1 - r0207 / r0331)$. On the other hand, an additional limit is effective, which prevents the EMF from exceeding the maximum DC link voltage.
The effective assignment of the motor data set parameter (e.g. p0311) to the drive data set parameter p1082 when pre-assigning should be taken from p0186.
p1082 is also available in the fast commissioning (p0010 = 1); this means that when exiting via p3900 > 0, the value is not changed.

p1082[0...n]		Maximum speed / Maximum speed	
VECTOR	Can be changed: C2(1), T	Calculated: CALC_MOD_ALL	Access level: 1
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3020, 3050, 3060, 3070, 3095, 5300
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.000 [RPM]	Max 210000.000 [RPM]	Factory setting 1500.000 [RPM]
Description:	Sets the highest possible speed.		
Dependency:	Refer to: p0115, p0230, r0313, p0322, r0336		
Note:	The parameter applies for both motor directions. The parameter has a limiting effect and is the reference quantity for all ramp-up and ramp-down times (e.g. down ramps, ramp-function generator, motor potentiometer).		
	The parameter is part of the fast commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0311 and p0322.		
	The following limits are always effective for p1082:		
	$p1082 \leq p0322$, if $p0322 > 0$		
	$p1082 \leq 60 * \text{maximum}(15 * r0336, 650 \text{ Hz}) / r0313$		
	$p1082 \leq 60 * \text{maximum power unit pulse frequency} / (k * r0313)$		
	$k = 12$ for vector control ($r0108.2 = 1$), $k = 6.5$ for V/f control ($r0108.2 = 0$)		
	If a sinusoidal filter (p0230 = 3) is parameterized as output filter, then the maximum speed is limited corresponding to the maximum permissible filter output frequency (refer to the filter data sheet). For reactors and du/dt filters, it is limited to 150 Hz / r0313 (for chassis power units) or 120 Hz / r0313 (for booksize power units).		
	For the automatic calculation (p0340 = 1) the value of the parameter is pre-assigned the maximum motor speed (p0322). If p0322 = 0, the rated motor speed (p0311) is used as default (pre-assignment) value. For induction motors that are not catalog motors (p0301 = 0), the synchronous no-load speed is used as default (pre-assignment) value ($p0310 * 60 / r0313$).		
	For synchronous motors, the following additionally applies:		
	In the automatic calculation (p0340), p1082 is limited to speeds where the EMF does not exceed the DC link voltage.		
	The effective assignment of the motor data set parameter (e.g. p0311) to the drive data set parameter p1082 when pre-assigning should be taken from p0186.		
	p1082 is also available in the fast commissioning (p0010 = 1); this means that when exiting via p3900 > 0, the value is not changed.		

For vector control (p1300 = 20 ... 23) the maximum speed is limited to $60.0 / (8.333 * p0115[0] * r0313)$. This can be identified by a reduction in r1084. p1082 is not changed in this process due to the fact that the operating mode p1300 can be changed over.

p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [RPM]	Max 210000.000 [RPM]	Factory setting 210000.000 [RPM]
Description:	Sets the maximum speed for the positive direction.		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1083[0...n]	CO: Velocity limit positive direction / v_limit pos		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1	Access level: 2 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [m/min]	Max 1000.000 [m/min]	Factory setting 1000.000 [m/min]
Description:	Sets the maximum velocity for the positive direction.		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
r1084	Speed limit positive effective / n_limit pos eff		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 3050, 5030, 5210, 6640, 7020, 8010 Unit selection: p0505 Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the effective positive speed limit.		
Dependency:	Refer to: p1082, p1083, p1085		
r1084	Velocity limit positive effective / v_limit pos eff		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 4_1	Access level: 3 Func. diagram: 3050, 5030, 5210, 6640, 7020, 8010 Unit selection: p0505 Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the effective positive velocity limit.		
Dependency:	Refer to: p1082, p1083, p1085		

p1085[0...n]	CI: Speed limit in positive direction of rotation / n_limit pos		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 3050 Unit selection: - Expert list: 1 Factory setting 1083[0]
Description:	Sets the signal source for the speed limit of the positive direction.		
p1085[0...n]	CI: Velocity limit positive direction / v_limit pos		
SERVO (Extended setp, Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 3050 Unit selection: - Expert list: 1 Factory setting 1083[0]
Description:	Sets the signal source for the velocity limit of the positive direction.		
p1086[0...n]	CO: Speed limit negative direction of rotation / n_limit neg		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min -210000.000 [RPM]	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Max 0.000 [RPM]	Access level: 2 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting -210000.000 [RPM]
Description:	Sets the speed limit for the negative direction.		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1086[0...n]	CO: Velocity limit negative direction / v_limit neg		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min -1000.000 [m/min]	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Max 0.000 [m/min]	Access level: 2 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting -1000.000 [m/min]
Description:	Sets the velocity limit for the negative direction.		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
r1087	Speed limit negative effective / n_limit neg eff		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 3050, 5030, 5210, 6640, 7020, 8010 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the effective negative speed limit.		
Dependency:	Refer to: p1082, p1086, p1088		

r1087	Velocity limit negative effective / v_limit neg eff		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 3050, 5030, 5210, 6640, 7020, 8010 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the effective negative velocity limit.		
Dependency:	Refer to: p1082, p1086, p1088		
p1088[0...n]	Cl: Speed limit negative direction of rotation / n_limit neg		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 3050 Unit selection: - Expert list: 1 Factory setting 1086[0]
Description:	Sets the signal source for the speed/velocity limit of the negative direction.		
p1088[0...n]	Cl: Velocity limit negative direction / n_limit neg		
SERVO (Extended setp, Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 3050 Unit selection: - Expert list: 1 Factory setting 1086[0]
Description:	Sets the signal source for the speed/velocity limit of the negative direction.		
p1091[0...n]	Skip speed 1 / n_skip 1		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.000 [RPM]	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Max 210000.000 [RPM]	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [RPM]
Description:	Sets skip speed 1.		
Dependency:	Refer to: p1092, p1093, p1094, p1101		
Note:	The skip (suppression) speeds can be used to prevent the effects of mechanical resonance.		
p1091[0...n]	Skip velocity 1 / v_skip 1		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.000 [m/min]	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1 Max 1000.000 [m/min]	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting 0.000 [m/min]
Description:	Sets skip velocity 1.		
Dependency:	Refer to: p1092, p1093, p1094, p1101		
Note:	The skip (suppression) velocities can be used to prevent the effects of mechanical resonance.		

p1092[0...n]	Skip speed 2 / n_skip 2		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets skip speed 2.		
Dependency:	Refer to: p1091, p1093, p1094, p1101		
p1092[0...n]	Skip velocity 2 / v_skip 2		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets skip velocity 2.		
Dependency:	Refer to: p1091, p1093, p1094, p1101		
p1093[0...n]	Skip speed 3 / n_skip 3		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets skip speed 3.		
Dependency:	Refer to: p1091, p1092, p1094, p1101		
p1093[0...n]	Skip velocity 3 / v_skip 3		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [m/min]	Max 1000.000 [m/min]	Factory setting 0.000 [m/min]
Description:	Sets skip velocity 3.		
Dependency:	Refer to: p1091, p1092, p1094, p1101		
p1094[0...n]	Skip speed 4 / n_skip 4		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [RPM]	Max 210000.000 [RPM]	Factory setting 0.000 [RPM]
Description:	Sets skip speed 4.		
Dependency:	Refer to: p1091, p1092, p1093, p1101		

p1094[0...n] Skip velocity 4 / v_skip 4

SERVO (Extended setp, Lin)

Can be changed: U, T**Data type:** Floating Point**P-Group:** Setpoints**Not for motor type:** -**Min**
0.000 [m/min]**Calculated:** -**Dynamic index:** DDS, p0180**Units group:** 4_1**Max**
1000.000 [m/min]**Access level:** 3**Func. diagram:** 3050**Unit selection:** p0505**Expert list:** 1**Factory setting**
0.000 [m/min]**Description:** Sets skip velocity 4.**Dependency:** Refer to: p1091, p1092, p1093, p1101**p1101[0...n] Skip speed bandwidth / n_skip bandwidth**

SERVO (Extended setp), VECTOR

Can be changed: U, T**Data type:** Floating Point**P-Group:** Setpoints**Not for motor type:** -**Min**
0.000 [RPM]**Calculated:** -**Dynamic index:** DDS, p0180**Units group:** 3_1**Max**
210000.000 [RPM]**Access level:** 3**Func. diagram:** 3050**Unit selection:** p0505**Expert list:** 1**Factory setting**
0.000 [RPM]**Description:** Sets the bandwidth for the skip speeds/velocities 1 to 4.**Dependency:** Refer to: p1091, p1092, p1093, p1094**Note:** The setpoint (reference) speeds are skipped (suppressed) in the range of the skip speed +/-p1101. Steady-state operation is not possible in the skipped (suppressed) speed range. The skip (suppression) range is skipped.

Example:

p1091 = 600 and p1101 = 20

--> setpoint speeds between 580 and 620 [rpm] are skipped.

For the skip bandwidths, the following hysteresis behavior applies:

For a setpoint speed coming from below, the following applies:

r1170 < 580 [rpm] and 580 [rpm] <= r1114 <= 620 [rpm] --> r1119 = 580 [rpm]

For a setpoint speed coming from above, the following applies:

r1170 > 620 [rpm] and 580 [rpm] <= r1114 <= 620 [rpm] --> r1119 = 620 [rpm]

p1101[0...n] Skip velocity bandwidth / v_skip bandwidth

SERVO (Extended setp, Lin)

Can be changed: U, T**Data type:** Floating Point**P-Group:** Setpoints**Not for motor type:** -**Min**
0.000 [m/min]**Calculated:** -**Dynamic index:** DDS, p0180**Units group:** 4_1**Max**
1000.000 [m/min]**Access level:** 3**Func. diagram:** 3050**Unit selection:** p0505**Expert list:** 1**Factory setting**
0.000 [m/min]**Description:** Sets the bandwidth for the skip velocities 1 to 4.**Dependency:** Refer to: p1091, p1092, p1093, p1094**Note:** The setpoint velocities are skipped (suppressed) in the range of the skip velocity +/-p1101.

Steady-state operation is not possible in the skipped (suppressed) velocity range. The skip (suppression) range is skipped.

Example:

p1091 = 600 and p1101 = 20

--> setpoint velocities between 580 and 620 [rpm] are skipped.

For the skip bandwidths, the following hysteresis behavior applies:

For a setpoint velocity coming from below, the following applies:

r1170 < 580 [m/min] and 580 [m/min] <= r1114 <= 620 [m/min] --> r1119 = 580 [m/min]

For a setpoint velocity coming from above, the following applies:

r1170 > 620 [m/min] and 580 [m/min] <= r1114 <= 620 [m/min] --> r1119 = 620 [m/min]

p1110[0...n]	BI: Inhibit negative direction / Inhib neg dir rot		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - 	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to disable the negative direction.		
Dependency:	Refer to: p1111		
p1111[0...n]	BI: Inhibit positive direction / Inhib pos dir rot		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - 	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to disable the positive direction.		
Dependency:	Refer to: p1110		
r1112	CO: Speed setpoint after minimum limiting / n_set n. min_lim		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM] Max - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed / velocity setpoint after the minimum limiting.		
Dependency:	Refer to: p1091, p1092, p1093, p1094, p1101		
r1112	CO: Velocity setpoint after minimum limiting / n_set n. min_lim		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min] Max - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the speed / velocity setpoint after the minimum limiting.		
Dependency:	Refer to: p1091, p1092, p1093, p1094, p1101		
p1113[0...n]	BI: Direction reversal / Direction reversal		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - 	Access level: 3 Func. diagram: 2442, 2505 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the direction reversal of the setpoint.		
Dependency:	Refer to: r1198		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

r1114	CO: Setpoint after the direction of rotation limit / Setp after limit		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 1550, 3040, 3050 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed/velocity setpoint after the changeover and limiting the direction.		
r1114	CO: Setpoint after the direction limiting / Setp after limit		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 1550, 3040, 3050 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the speed/velocity setpoint after the changeover and limiting the direction.		
p1115	Ramp-function generator selection / RFG selection		
SERVO (Extended setp), VECTOR	Can be changed: T Data type: Integer16 P-Group: Setpoints Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 1	Access level: 3 Func. diagram: 1550, 3080 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the ramp-function generator type.		
Values:	0: Single ramp-function generator 1: Extended ramp-function generator		
Note:	Another ramp-function generator type can only be selected when the motor is at a standstill.		
r1119	CO: Ramp-function generator setpoint at the input / RFG setp at inp		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 1550, 1750, 3050, 3060, 3070, 8010 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the setpoint at the input of the ramp-function generator.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.		

r1119	CO: Ramp-function generator setpoint at the input / RFG setp at inp		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 1550, 1750, 3050, 3060, 3070, 8010 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the setpoint at the input of the ramp-function generator.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.		
p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time		
SERVO (Extended setp)	Can be changed: C2(1), U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.000 [s]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 999999.000 [s]	Access level: 1 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1 Factory setting 10.000 [s]
Description:	The ramp-function generator ramps-up the speed setpoint from standstill (setpoint = 0) up to the maximum speed (p1082) in this time.		
Dependency:	Refer to: p1082		
p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time		
SERVO (Extended setp, Lin)	Can be changed: C2(1), U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.000 [s]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 999999.000 [s]	Access level: 1 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1 Factory setting 10.000 [s]
Description:	The drive is accelerated from standstill (setpoint = 0) up to the maximum velocity (p1082) in this time.		
Dependency:	Refer to: p1082		
p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time		
VECTOR	Can be changed: C2(1), U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.000 [s]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 999999.000 [s]	Access level: 1 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1 Factory setting 10.000 [s]
Description:	The ramp-function generator ramps-up the speed setpoint from standstill (setpoint = 0) up to the maximum speed (p1082) in this time.		
Dependency:	Refer to: p1082		
Note:	The parameter is adapted during the rotating measurement (p1960 > 0). This is the reason that during the rotating measurement, the motor can accelerate faster than was originally parameterized.		

p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time		
SERVO, VECTOR	Can be changed: C2(1), U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3060, 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 999999.000 [s]	Factory setting 10.000 [s]
Description:	The ramp-function generator ramps-down the speed setpoint from the maximum speed (p1082) down to standstill (setpoint = 0) in this time. Further, the ramp-down time is always effective for OFF1.		
Dependency:	Refer to: p1082		
Note:	The following applies for SERVO: The ramp-function generator is only available when the function module "expanded setpoint channel" is active (r0108.8 = 1).		
p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time		
SERVO (Lin)	Can be changed: C2(1), U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3060, 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 999999.000 [s]	Factory setting 0.000 [s]
Description:	The drive is decelerated from the maximum velocity (p1082) down to standstill (setpoint = 0) in this time.		
Dependency:	Refer to: p1082		
Note:	The following applies for SERVO: The ramp-function generator is only available when the function module "expanded setpoint channel" is active (r0108.8 = 1).		
p1122[0...n]	BI: Bypass ramp-function generator / Bypass RFG		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for bypassing the ramp generator (ramp-up and ramp-down times = 0).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For VECTOR in sensorless operation, it is not permissible that the ramp-function generator is bypassed.		
p1130[0...n]	Ramp-function generator initial rounding-off time / RFG t_start_round		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 30.000 [s]	Factory setting 0.000 [s]
Description:	Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
Note:	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		

p1131[0...n]	Ramp-function generator final rounding-off time / RFG t_end_delay		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070 Unit selection: - Expert list: 1 Factory setting 0.000 [s]
Description:	Sets the final rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
Note:	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		
p1134[0...n]	Ramp-function generator rounding-off type / RFG round-off type		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the smoothed response to the OFF1 command or the reduced setpoint for the extended ramp-function generator.		
Values:	0: Cont. smoothing 1: Discont smoothing		
Dependency:	No effect up to initial rounding-off time (p1130) > 0 s.		
Note:	p1134 = 0 (continuous smoothing) If the setpoint is reduced while ramping-up, initially a final rounding-off is carried out and then the ramp-up completed. During the final rounding-off, the output of the ramp-function generator continues to go in the direction of the previous setpoint (overshoot). After the final rounding-off has been completed, the output goes toward the new setpoint. p1134 = 1 (discontinuous smoothing) If the setpoint is reduced while ramping-up, then the output goes immediately in the direction of the new setpoint. For the setpoint change there is no rounding-off.		
p1135[0...n]	OFF3 ramp-down time / RFG OFF3 t_ramp-dn		
SERVO	Can be changed: C2(1), U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1 Factory setting 0.000 [s]
Description:	Sets the ramp-down time from the maximum speed down to zero speed for the OFF3 command.		
Note:	This time can be exceeded if the DC-link voltage reaches its maximum value.		
p1135[0...n]	OFF3 ramp-down time / RFG OFF3 t_ramp-dn		
SERVO (Lin)	Can be changed: C2(1), U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1 Factory setting 0.000 [s]
Description:	Sets the ramp-down time from the maximum velocity down to zero speed for the OFF3 command.		
Note:	This time can be exceeded if the DC-link voltage reaches its maximum value.		

p1135[0...n]	OFF3 ramp-down time / RFG OFF3 t_ramp-dn		
VECTOR	Can be changed: C2(1), U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3060, 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 3.000 [s]
Description:	Sets the ramp-down time from the maximum speed down to zero speed for the OFF3 command.		
Note:	This time can be exceeded if the DC-link voltage reaches its maximum value.		
p1136[0...n]	OFF3 initial rounding-off time / RFG OFF3 t_strt_rnd		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3070, 3080
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 30.000 [s]	Factory setting 0.000 [s]
Description:	Sets the initial rounding-off time for OFF3 for the extended ramp generator.		
p1137[0...n]	OFF3 final rounding-off time / RFG OFF3 t_end_del		
SERVO (Extended setp), VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 30.000 [s]	Factory setting 0.000 [s]
Description:	Sets the final rounding-off time for OFF3 for the extended ramp generator.		
p1140[0...n]	BI: Enables the ramp-function generator / Enable RFG		
SERVO, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2442, 2443, 2501
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 4 (operating condition/disable ramp-function generator).		
Dependency:	Refer to: p1141, p1142		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 4 = 0: Inhibits the ramp-function generator (the ramp-function generator output is set to zero) Bit 4 = 1: Operating condition (the ramp-function generator can be enabled)		
p1140	BI: Enables the ramp-function generator / Enable RFG		
TM41	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 4 (operating condition/disable ramp-function generator).		

Dependency: Refer to: p1141, p1142
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: Bit 4 = 0: Inhibits the ramp-function generator (the ramp-function generator output is set to zero)
 Bit 4 = 1: Operating condition (the ramp-function generator can be enabled)

p1141[0...n]	BI: Start ramp-function generator / Start RFG		
SERVO, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2442, 2443, 2501
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for control word 1 bit 5 (enables ramp-function generator/ stops ramp-function generator)		
Dependency:	Refer to: p1140, p1142		
Notice:	The ramp-function generator is, independent of the status of the signal source, active in the following cases: - OFF1/OFF3. - ramp-function generator output within the suppression bandwidth. - ramp-function generator output below the minimum speed.		
Note:	Bit 5 = 0: Stop the ramp-function generator (the ramp-function generator output is frozen) Bit 5 = 1: Enable ramp-function generator		

p1141	BI: Start ramp-function generator / Start RFG		
TM41	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for control word 1 bit 5 (enables ramp-function generator/ stops ramp-function generator)		
Dependency:	Refer to: p1140, p1142		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 5 = 0: Stop the ramp-function generator (the ramp-function generator output is frozen) Bit 5 = 1: Enable ramp-function generator		

p1142[0...n]	BI: Enable speed setpoint / Enable n_set		
SERVO, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2441, 2442, 2443, 2501, 2711
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for control word 1 bit 6 (enables setpoint/disable setpoint).		
Dependency:	Refer to: p1140, p1141		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 6 = 0: Inhibits the setpoint (the ramp-function generator input is set to zero) Bit 6 = 1: Enable setpoint		

p1142[0...n]	BI: Enable velocity setpoint / Enable v_set		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2441, 2442, 2443, 2501, 2711
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 6 (enables setpoint/disable setpoint).		
Dependency:	Refer to: p1140, p1141		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 6 = 0: Inhibits the setpoint (the ramp-function generator input is set to zero) Bit 6 = 1: Enable setpoint		
p1142	BI: Enable speed setpoint / Enable n_set		
TM41	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9674
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 6 (enables setpoint/disable setpoint).		
Dependency:	Refer to: p1140, p1141		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 6 = 0: Inhibits the setpoint (the ramp-function generator input is set to zero) Bit 6 = 1: Enable setpoint		
p1143[0...n]	BI: Ramp-function generator, accept setting value / Accept RFG set val		
SERVO (Extended setp), VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for accepting the setting value of the ramp-function generator.		
Dependency:	The signal source for the ramp-function generator setting value is set using parameters. Refer to: p1144		
Note:	0/1 signal: The ramp-function generator output is immediately (without delay) set to the setting value of the ramp-function generator. 1 signal: The setting value of the ramp-function generator is effective. 1/0 signal: The input value of the ramp-function generator is effective. The ramp-function generator output is adapted to the input value using the ramp-up time or the ramp-down time. 0 signal: The input value of the ramp-function generator is effective.		

p1144[0...n]	CI: Ramp-function generator setting value / RFG setting value		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - Factory setting 0	Access level: 3 Func. diagram: 3070 Unit selection: - Expert list: 1
Description:	Sets the signal source for the ramp-function generator setting value.		
Dependency:	The signal source for accepting the setting value is set using parameters. Refer to: p1143		
p1145[0...n]	Ramp-function generator tracking intensity. / RFG track intens		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.0 Max 50.0	Calculated: - Dynamic index: DDS, p0180 Units group: - Factory setting 1.3	Access level: 3 Func. diagram: 3080 Unit selection: - Expert list: 1
Description:	Sets the ramp-function generator tracking. The output value of the ramp-function generator is tracked (corrected) corresponding to the maximum possible drive acceleration. The reference value is the deviation at the speed/velocity controller input that is necessary to ensure that the motor accelerates at the torque/force limit.		
Recommend.:	p1145 = 0.0: This value de-activates the ramp-function generator tracking. p1145 = 0.0 ... 1.0: Generally, these values are not practical. They cause the motor to accelerate below its torque limit. The lower the selected value, the greater the margin between the controller and torque limit when accelerating. p1145 > 1.0: The greater the value, the higher the permissible deviation between the speed setpoint and speed actual value.		
Note:	In the V/f mode, the ramp-function generator tracking is not active. For SERVO with V/f operation, the following applies: The complete ramp-function generator is not active, i.e. ramp-up and ramp-down time = 0.		
p1148[0...n]	Ramp-function gen., tolerance for ramp-up and ramp-down active / RFG tol HL/RL act		
SERVO (Extended setp), VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: - Min 0.00 [RPM] Max 1000.00 [RPM]	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1 Factory setting 19.80 [RPM]	Access level: 3 Func. diagram: 3060, 3070 Unit selection: p0505 Expert list: 1
Description:	Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active). If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.		
Dependency:	Refer to: r1199		

p1148[0...n]	Ramp-function gen., tolerance for ramp-up and ramp-down active / RFG tol HL/RL act		
SERVO (Extended setp, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1	Access level: 3 Func. diagram: 3060, 3070 Unit selection: p0505 Expert list: 1
	Min 0.00 [m/min]	Max 10.00 [m/min]	Factory setting 0.20 [m/min]
Description:	Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active). If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.		
Dependency:	Refer to: r1199		
r1149	CO: Ramp-function generator, acceleration / RFG acceleration		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 39_1	Access level: 3 Func. diagram: 3060, 3070 Unit selection: p0505 Expert list: 1
	Min - [1/s²]	Max - [1/s²]	Factory setting - [1/s²]
Description:	Displays the acceleration of the ramp-function generator.		
r1149	CO: Ramp-function generator, acceleration / RFG acceleration		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 22_2	Access level: 3 Func. diagram: 3060, 3070 Unit selection: p0505 Expert list: 1
	Min - [m/s²]	Max - [m/s²]	Factory setting - [m/s²]
Description:	Displays the acceleration of the ramp-function generator.		
r1150	CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 1550, 3060, 3070, 3080 Unit selection: p0505 Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the setpoint at the output of the ramp-function generator.		
r1150	CO: Ramp-function generator velocity setpoint at the output / RFG n_set at outp		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 4_1	Access level: 3 Func. diagram: 1550, 3060, 3070, 3080 Unit selection: p0505 Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the setpoint at the output of the ramp-function generator.		

p1151[0...n]					Ramp-function generator configuration / RFG config					
SERVO (Extended setp), VECTOR		Can be changed: U, T			Calculated: -			Access level: 2		
		Data type: Unsigned16			Dynamic index: DDS, p0180			Func. diagram: 3070		
		P-Group: Setpoints			Units group: -			Unit selection: -		
		Not for motor type: -						Expert list: 1		
		Min			Max			Factory setting		
		-			-			0000 bin		
Description:		Sets the configuration for the expanded ramp-function generator.								
Bit field:		Bit	Signal name	1 signal		0 signal		FP		
		00	Disable rounding-off at the zero cross-over	Yes		No		3070		
Caution:		Re bit 00 = 1: If the ramp-up time is longer than the ramp-down time (p1120 > p1121), then there is an acceleration step at the zero crossover. This can have a negative impact on the mechanical system.								
Note:		Re bit 00 = 1: When the direction change is changed there is no rounding-off before and after the zero crossover.								
<hr/>										
p1152					BI: Setpoint 2 enable / Setp 2 enable					
SERVO (Extended brk), VECTOR (Extended brk)		Can be changed: T			Calculated: -			Access level: 3		
		Data type: Unsigned32 / Binary			Dynamic index: -			Func. diagram: 2711		
		P-Group: Commands			Units group: -			Unit selection: -		
		Not for motor type: -						Expert list: 1		
		Min			Max			Factory setting		
		-			-			899.15		
Description:		Sets the signal source for "setpoint 2 enable".								
<hr/>										
p1155[0...n]					CI: Speed controller speed setpoint 1 / n_ctrl n_set 1					
SERVO, VECTOR		Can be changed: T			Calculated: -			Access level: 3		
		Data type: Unsigned32 / FloatingPoint32			Dynamic index: CDS, p0170			Func. diagram: 1550, 3080		
		P-Group: Setpoints			Units group: -			Unit selection: -		
		Not for motor type: -						Expert list: 1		
		Min			Max			Factory setting		
		-			-			0		
Description:		Sets the signal source for speed setpoint 1 of the speed controller.								
Dependency:		The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6. Refer to: r0898, p1140, p1142, p1160, r1170								
Notice:		The parameter may be protected as a result of p0922 or p2079 and cannot be changed.								
<hr/>										
p1155[0...n]					CI: Velocity controller, velocity setpoint 1 / v_ctrl n_set 1					
SERVO (Lin)		Can be changed: T			Calculated: -			Access level: 3		
		Data type: Unsigned32 / FloatingPoint32			Dynamic index: CDS, p0170			Func. diagram: 1550, 3080		
		P-Group: Setpoints			Units group: -			Unit selection: -		
		Not for motor type: -						Expert list: 1		
		Min			Max			Factory setting		
		-			-			0		
Description:		Sets the signal source for the velocity setpoint 1 of the speed controller.								
Dependency:		The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6. Refer to: r0898, p1140, p1142, p1160, r1170								
Notice:		The parameter may be protected as a result of p0922 or p2079 and cannot be changed.								

p1155	CI: TM41 incremental encoder emulation speed setpoint 1 / Enc_emulat n_set 1		
TM41	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 9674 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for speed setpoint 1 of the incremental encoder emulation.		
Dependency:	The effectiveness of this setpoint depends on control word 1 (STW1). Refer to: r0898		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1160[0...n]	CI: Speed controller speed setpoint 2 / n_ctrl n_set 2		
SERVO, VECTOR	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 1550, 3080 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for speed setpoint 2 of the speed controller.		
Dependency:	Refer to: p1155, r1170		
Note:	For OFF1/OFF3, the ramp-function generator ramp is effective. The ramp-function generator is set (SERVO: to the actual value, VECTOR: To the setpoint (r1170)) and stops the drive corresponding to the ramp-downtime (p1121 or p1135). While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator). When the function module "position control" (r0108.3 = 1) is activated, this connector input is interconnected as follows as standard: CI: p1160 = r2562		
p1160[0...n]	CI: Velocity controller, velocity setpoint 2 / v_ctrl n_set 2		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 1550, 3080 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for velocity setpoint 2 of the velocity controller.		
Dependency:	Refer to: p1155, r1170		
Note:	For OFF1/OFF3, the ramp-function generator ramp is effective. The ramp-function generator is set to the actual value and stops the drive corresponding to the ramp-downtime (p1121 or p1135). While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator). For the function module "position control" (r0108.3 = 1), this connector input is interconnected as follows as standard: CI: p1160 = r2562		

r1169	CO: Speed controller, speed setpoints 1 and 2 / n_ctrl n_set 1/2		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 3080 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed setpoint after the addition of the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).		
Dependency:	Refer to: p1155, p1160		
Note:	The value is only correctly displayed when the drive has been enabled.		
r1169	CO: Velocity controller, velocity setpoints 1 and 2 / v_ctrl n_set 1/2		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 3080 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity setpoint after the addition of the velocity setpoint 1 (p1155) and velocity setpoint 2 (p1160).		
Dependency:	Refer to: p1155, p1160		
Note:	The value is only correctly displayed when the drive has been enabled.		
r1170	CO: Speed controller, setpoint sum / n_ctrl setp sum		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 1550, 1590, 3080, 5020 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed setpoint after selecting the ramp-function generator and adding the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).		
Dependency:	Refer to: r1150, p1155, p1160		
r1170	CO: Velocity controller, setpoint sum / v_ctrl setp sum		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 1550, 1590, 3080, 5020 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity setpoint after selecting the ramp-function generator and adding the velocity setpoint 1 (p1155) and velocity setpoint 2 (p1160).		
Dependency:	Refer to: r1150, p1155, p1160		

p1189[0...n] Speed setpoint configuration / n_ctrl config

SERVO, VECTOR

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** DDS, p0180**Func. diagram:** 3080**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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0011 bin

Description: Sets the configuration for the speed setpoint.**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
00	Interpolation ramp-fct gen/speed controller active	Yes	No	3080
01	Interpol. op-loop ctrl /speed controller active	Yes	No	3080

Note:

Re bit 01:

The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and when the master receives a sign of life (STW 2.12 ... STW 2.15).

p1189[0...n] Velocity setpoint configuration / v_ctrl config

SERVO (Lin)

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** DDS, p0180**Func. diagram:** 3080**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

0011 bin

Description: Sets the configuration for the velocity setpoint.**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
00	Interpolation ramp-fct gen/velocity controller active	Yes	No	3080
01	Interpol. op-loop ctrl /velocity controller active	Yes	No	3080

Note:

Re bit 01:

The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and when the master receives a sign of life (STW 2.12 ... STW 2.15).

p1189 Incremental encoder emulation configuration / Enc_emulat config

TM41

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 9674**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

0010 bin

Description: Sets the configuration for the incremental encoder emulation.**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
01	Interpol. op-loop ctrl /speed controller active	Yes	No	9674

Note:

Re bit 01:

The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and when the master receives a sign of life (STW 2.12 ... STW 2.15).

p1190			
CI: DSC position deviation XERR / DSC XERR			
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 1550, 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the position deviation XERR for DSC (position controller output of the higher-level control).		
Dependency:	Clock cycle synchronous operation must be activated for DSC. The position controller gain factor (KPC), the position deviation (XERR) and the speed setpoint (N_SOLL_B) must be included in the setpoint telegram. At least the encoder interface (Gx_XIST1) must be included in the actual value telegram. The position actual value used for the internal position controller can be selected using p1192. Refer to: p1191, p1192		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	DSC: Dynamic Servo Control		

p1191			
CI: DSC position controller gain KPC / DSC KPC			
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 1550, 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the position controller gain KPC for DSC.		
Dependency:	Clock cycle synchronous operation must be activated for DSC. Refer to: p1190		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	DSC: Dynamic Servo Control		

p1192[0...n]			
DSC enc selection / DSC enc selection			
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	3	1
Description:	Sets the number of the encoder used for DSC.		
Values:	1: Encoder 1 (motor encoder) 2: Encoder 2 3: Encoder 3		
Note:	DSC: Dynamic Servo Control Value 1 corresponds to encoder 1 (motor encoder); the encoder data set is assigned via p0187. Value 2 corresponds to encoder 2; the encoder data set is assigned via p0188. Value 3 corresponds to encoder 3; the encoder data set is assigned via p0189.		

p1193[0...n]	DSC encoder adaptation factor / DSC encodAdaptFact		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.000	Access level: 3 Func. diagram: 3090 Unit selection: - Expert list: 1 Max 1000000.000 Factory setting 1.000
Description:	Sets the factor to adapt the encoder when using either encoder 2 or 3 for DSC. The factor sets the ratio of the pulse difference between the motor encoder and the selected encoder for the same distance moved through. This factor takes into account gear ratios, differences in the number of encoder pulses, etc.		
Dependency:	Refer to: p1192		
Note:	Example: Encoder 1: Motor encoder with 2048 pulses/revolution, ballscrew with 10 mm/revolution pitch Encoder 2: Linear scale with 20 µm grid division as direct measuring system p1193 = number of pulses, encoder 1 per motor revolution / number of pulses, encoder 2 per motor revolution p1193 = 2048 / (10 mm / 20 µm) = 4.096		
r1197	Fixed speed setpoint, actual number / n_set_fixed No act		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -	Access level: 3 Func. diagram: 3010 Unit selection: - Expert list: 1 Max - Factory setting -
Description:	Displays the number of the selected fixed speed/velocity setpoint.		
Dependency:	Refer to: p1020, p1021, p1022, p1023		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
r1197	Fixed velocity setpoint, actual number / n_set_fixed No act		
SERVO (Extended setp, Lin)	Can be changed: - Data type: Unsigned32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -	Access level: 3 Func. diagram: 3010 Unit selection: - Expert list: 1 Max - Factory setting -
Description:	Displays the number of the selected fixed speed/velocity setpoint.		
Dependency:	Refer to: p1020, p1021, p1022, p1023		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
r1198.0...15	CO/BO: Control word setpoint channel / STW setpoint chan		
SERVO (Extended setp), VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -	Access level: 3 Func. diagram: 1530, 2505 Unit selection: - Expert list: 1 Max - Factory setting -
Description:	Displays the control word for the setpoint channel.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fixed setpoint bit 0	Yes	No	-
	01	Fixed setpoint bit 1	Yes	No	-
	02	Fixed setpoint bit 2	Yes	No	-
	03	Fixed setpoint bit 3	Yes	No	-
	05	Inhibit negative direction	Yes	No	-
	06	Inhibit positive direction	Yes	No	-
	11	Direction reversal	Yes	No	-
	13	Motorized potentiometer raise	Yes	No	-
	14	Motorized potentiometer lower	Yes	No	-
	15	Bypass ramp-function generator	Yes	No	-

r1199.0...6 CO/BO: Ramp-function generator status word / RFG ZSW

SERVO (Extended setp), VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1550, 3080, 8010
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for the ramp-function generator (RFG).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ramp-up active	Yes	No	-
	01	Ramp-down active	Yes	No	-
	02	Ramp-function generator active	Yes	No	-
	03	Ramp-function generator set	Yes	No	-
	04	Ramp-function generator held	Yes	No	-
	05	Ramp-function generator tracking active	Yes	No	-
	06	Maximum limit active	Yes	No	-

Note: Re bit 02:
The bit is an OR logic operation - bit 00 and bit 01.

p1200[0...n] FlyRest oper mode / FlyRest op_mode

VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 1690
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	0	6	0

Description: Sets the operating mode for flying restart.

The flying restart allows the drive converter to be powered-up while the motor is still rotating. In so doing, the drive converter output frequency is changed until the actual motor speed/velocity is found.. The motor then accelerates up to the setpoint at the ramp generator setting.

Values:	0:	Flying restart inactive
	1:	Flying restart always active (start in setpoint direction)
	2:	FlyRestart active after on fault OFF2 (start in setp. dir.)
	3:	FlyRestart active after fault OFF2 (start in setp. direction)
	4:	Flying restart always active (start only in setpoint direction)
	5:	FlyRestart active after on fault OFF2 (start only in setp_dir)
	6:	FlyRestart active after fault OFF2 (start only in setp. dir.)

Dependency: A differentiation is made between flying restart for V/f control and for vector control (p1300).

Flying restart, V/f control: p1202, p1203, r1204

Flying restart for vector control: p1202, p1203, r1205

Notice: The "flying restart" function must be used in cases where the motor is possibly still running (e.g. after a brief line supply interruption) or is being driven by the load. The system might otherwise shut down as a result of overcurrent.

Note:

It does not make sense to use "flying restart" together with the "motor holding brake function" ($p1215 > 0$) because then the flying restart will always be realized with the motor stationary.

For $p1200 = 1, 4$, the following applies:

Flying restart is active after faults, OFF1, OFF2, OFF3.

For $p1200 = 2, 5$, the following applies:

The "power-on" is the first power-on operation after the drive system has been booted. This is practical for motors with a high-inertia load.

For $p1200 = 1, 2, 3$, the following applies: The search is made in both directions.

For $p1200 = 4, 5, 6$, the following applies: The search is only made in the setpoint direction.

For operation with encoder, the following applies:

$p1200 = 1, 4$ as well as $p1200 = 2, 5$ and $p1200 = 3, 6$ have the same meaning.

For V/f control ($p1300 > 20$), the following applies:

The speed can only be sensed for values above approx. 5% of the rated motor speed. For lower speeds, it is assumed that the motor is at a standstill.

If $p1200$ is changed while commissioning ($p0009, p0010 > 0$), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of $p1200$ have been changed by a parameter that was set when the drive was commissioned (e.g. $p0300$).

p1202[0...n]**FlyRest srch curr / FlyRest srch curr**

VECTOR

Can be changed: U, T**Calculated:** -**Access level:** 4**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** -**P-Group:** Functions**Units group:** -**Unit selection:** -**Not for motor type:** PEM, REL**Expert list:** 1**Min****Max****Factory setting**

10 [%]

400 [%]

100 [%]

Description:

Sets the search current for the "flying restart" function. The value is referred to the motor magnetizing current.

Dependency:

Refer to: r0331

Caution:

An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

**Note:**

Reducing the search current can improve the flying restart performance (if the system moment of inertia is not very high).

p1203[0...n]**Flying restart search rate factor / FlyRst v_Srch Fact**

VECTOR

Can be changed: U, T**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** -**P-Group:** Functions**Units group:** -**Unit selection:** -**Not for motor type:** PEM, REL**Expert list:** 1**Min****Max****Factory setting**

10 [%]

400 [%]

100 [%]

Description:

The value influences the rate at which the output frequency is changed during a flying restart. A higher value results in a longer search time.

Caution:

An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

For vector control, a value that is too low or too high can cause flying restart to become unstable.

**Note:**

The parameter factory setting is selected so that standard induction motors that are rotating can be found and restarted as quickly as possible (fast flying restart). With this pre-setting, the motor is not found, e.g. for motors, that are accelerated as a result of active loads we recommend that the search rate is reduced (by increasing $p1203$).

r1204.0...13 CO/BO: Flying restart, V/f control status / FlyRestrt Uf stat

VECTOR

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Functions**Units group:** -**Unit selection:** -**Not for motor type:** PEM, REL**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the status for checking and monitoring flying restart states in the V/f control mode.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Current impressed	Yes	No	-
01	No current flow	Yes	No	-
02	Voltage input	Yes	No	-
03	Voltage reduced	Yes	No	-
04	Start ramp-function generator	Yes	No	-
05	Wait for execution	Yes	No	-
06	Slope filter act	Yes	No	-
07	Positive gradient	Yes	No	-
08	Current < thresh	Yes	No	-
09	Current minimum	Yes	No	-
10	Search in the positive direction	Yes	No	-
11	Stop after positive direction	Yes	No	-
12	Stop after negative direction	Yes	No	-
13	No result	Yes	No	-

r1205.0...15 CO/BO: Flying restart, vector control status / FlyRestrtVectStat

VECTOR

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Functions**Units group:** -**Unit selection:** -**Not for motor type:** PEM, REL**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the status for checking and monitoring flying restart states in the vector control mode.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Save the angle of the speed adaptation circuit	Yes	No	-
01	Set speed adaptation circuit gain to 0	Yes	No	-
02	Enable Isd channel	Yes	No	-
03	Speed control switched-in	Yes	No	-
04	Quadrature arm switched-in	Yes	No	-
05	Special transformation active	Yes	No	-
06	Set I comp speed adaptation circuit to 0	Yes	No	-
07	Current control on	Yes	No	-
08	Isd_set = 0 A	Yes	No	-
09	Reserved	Yes	No	-
10	Search in the positive direction	Yes	No	-
11	Search Started	Yes	No	-
12	Current impressed	Yes	No	-
13	Search interrupted	Yes	No	-
14	Deviation of the speed adaptation circuit = 0	Yes	No	-
15	Speed control activated	Yes	No	-

Note:

Bits 0..9: Used by the control in internal sequences during the flying restart.
 Depending on the machine type (p0300), the number of active bits differs.
 Bits 10..15: Are used to monitor the flying restart sequence.
 For PEM, only bits 10, 11 and 15 are supported.

p1207	BI: AR connection following drive object / AR connection DO		
A_INF, B_INF, S_INF	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Modifies the pre-charging monitoring of the infeed. The active automatic restart (AR) of the following drive object can be interconnected using this binector input (BI: p1207 = r1214.2). This means that when the automatic restart is operational, the pre-charging monitoring of the infeed is de-activated and is only re-activated under the following conditions: - the absolute current in the DC link is greater than 2 % of the maximum current (r0209) of the infeed to provide protection against short-circuit in the DC link. - if a Voltage Sensing Module (VSM) is being used, the line supply voltage amplitude is greater than 3 % of the parameterized unit supply voltage (p0210) to protect the pre-charging resistors against continuous filter current when the line supply partially returns.		
Dependency:	Refer to: r0209, p0210, r1214		
p1208[0...1]	BI: AR modification infeed / AR modification		
SERVO, VECTOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to modify the automatic restart (AR). Interconnections between the automatic restart and infeed: With the following interconnection in the mode p1210 = 6, the automatic restart can respond to infeed faults: BI: p1208[0] = r2139.3 With the following interconnection, in the mode p1210 = 4, the automatic restart can respond to line supply failure of the infeed: BI: p1208[1] = r0863.2		
Index:	[0] = Infeed fault [1] = Infeed line supply failure		
Dependency:	Refer to: r0863, r2139		
p1210	Automatic restart, mode / AR mode		
A_INF, B_INF, S_INF	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the automatic restart mode (AR).		
Values:	0: Disables automatic restart 1: Acknowledges all faults without restarting 4: Restart after power failure without additional start attempts 6: Restart after fault with additional start attempts		
Dependency:	The automatic restart requires an active ON command, e.g. that is available at a digital input. If, for p1210 > 1, there is no active ON command, then the automatic restart is interrupted. When using an Advanced Operator Panel (AOP) in the LOCAL Mode, then there is no automatic restart.		

Refer to: p0840, p0857, p1267

Refer to: F30003

Danger:



If the automatic restart is activated (p1210 > 1) if there is an ON command (refer to p0840), the drive is powered-up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the CU board boots if the DC link voltage is again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

Caution:

A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

For p1210 > 1, the infeed is automatically started.

Note:

p1210 = 4:

An automatic restart is only executed if fault F06200 has occurred. If additional faults are present, then these faults are also acknowledged and when successful, starting continues. If the 24 V CU power supply fails, then this is interpreted as a line supply failure.

p1210 = 6:

An automatic restart is carried out if any fault has occurred.

p1210 = 1:

Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgement, then these are also automatically acknowledged again. A minimum time of p1212 + 1s must expire between a successful fault acknowledgement and a fault re-occurring if the signal ON/OFF1 (control word 1, bit 0) is at a HIGH signal level. If the signal ON/OFF1 is at a LOW signal level, then the time between a successful fault acknowledgement and a new fault must be at least 1s.

For p1210 = 1, fault F07320 is not generated if the acknowledgement attempt was not successful, for example, due to frequently occurring faults.

p1210

Automatic restart, mode / AR mode

SERVO, VECTOR

Can be changed: U, T

Calculated: -

Access level: 2

Data type: Integer16

Dynamic index: -

Func. diagram: -

P-Group: Functions

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

0

6

0

Description:

Sets the automatic restart mode (AR).

Values:

- 0: Disables automatic restart
- 1: Acknowledges all faults without restarting
- 4: Restart after power failure without additional start attempts
- 6: Restart after fault with additional start attempts

Dependency:

The automatic restart requires an active ON command, e.g. that is available at a digital input.

If, for p1210 > 1, there is no active ON command, then the automatic restart is interrupted.

When using an Advanced Operator Panel (AOP) in the LOCAL Mode, then there is no automatic restart.

Refer to: p0840, p0857, p1267

Refer to: F30003

Danger:



If the automatic restart is activated (p1210 > 1) if there is an ON command (refer to p0840), the drive is powered-up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the CU board boots if the DC link voltage is again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

Caution:

A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

For p1210 > 1, the motor is automatically started.

Note:

For brief line supply failures, the motor shaft can still be rotating when restarting. In order to restart while the motor shaft is still rotating, the "flying restart" function should be activated using p1200.

p1210 = 4:

An automatic restart is only carried out if Fault F30003 occurred at the Motor Module or a high signal is present at the binector input p1208[1]. If additional faults are present, then these faults are also acknowledged and when successful, starting continues. If the 24 V CU power supply fails, then this is interpreted as a line supply failure.

p1210 = 6:

An automatic restart is carried out if any fault has occurred or there is a high signal at binector input p1208[0].

p1210 = 1:

Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgement, then these are also automatically acknowledged again. A minimum time of p1212 + 1s must expire between a successful fault acknowledgement and a fault re-occurring if the signal ON/OFF1 (control word 1, bit 0) is at a HIGH signal level. If the signal ON/OFF1 is at a LOW signal level, then the time between a successful fault acknowledgement and a new fault must be at least 1s.

For p1210 = 1, fault F07320 is not generated if the acknowledgement attempt was not successful, for example, due to frequently occurring faults.

p1211 Automatic restart, start attempts / AR start attempts			
A_INF, B_INF, S_INF	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 10	Factory setting 3
Description:	Sets the absolute number of start attempts for the automatic restart function when any faults are automatically acknowledged (p1210 = 6).		
Dependency:	The setting of this parameter is always effective for p1210 = 6. For p1210 = 4, the parameter only has an influence if an additional line phase failure (F6200) occurs at the start attempt. Refer to: p1210, r1214 Refer to: F07320		
Caution:	A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).		
Notice:	After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.		
Note:	A starting attempt starts immediately when a fault occurs. The restart attempt is considered to have been completed if the infeed is powered-up and an additional delay time of 1 s has expired. As long as a fault is present, an acknowledge command is generated in the time intervals of p1212 / 2. When successfully acknowledged, the start counter is decremented. If, after this, a fault re-occurs before a restart has been completed, then acknowledgement starts again from the beginning. Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt (i.e. a fault/error has no longer occurred up to the end of the power-up operation) the start counter is again reset to the parameter value after 1 s. If faults re-occur, the parameterized number of start attempts is again available. At least one start attempt is always carried out. After a line supply failure, acknowledgement is immediate and when the line supply returns, the system is powered-up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.		

p1211 Automatic restart, start attempts / AR start attempts			
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 10	Factory setting 3
Description:	Sets the absolute number of start attempts for the automatic restart function when any faults are automatically acknowledged (p1210 = 6).		
Dependency:	The setting of this parameter is always effective for p1210 = 6. For p1210 = 4, the parameter only has an influence if an additional undervoltage fault occurs at the start attempt. Refer to: p1210, r1214 Refer to: F07320		
Caution:	A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).		
Notice:	After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.		

Note: A starting attempt starts immediately when a fault occurs. The start attempt is considered to be completed if the motor was magnetized ($r0056.4 = 1$) and an additional delay time of 1 s has expired.

As long as a fault is present, an acknowledge command is generated in the time intervals of $p1212 / 2$. When successfully acknowledged, the start counter is decremented. If, after this, a fault re-occurs before a restart has been completed, then acknowledgement starts again from the beginning.

Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt, i.e. a fault/error has no longer occurred up to the end of the magnetizing phase, the start counter is again reset to the parameter value after 1 s. If a fault re-occurs - the parameterized number of start attempts is again available.

At least one start attempt is always carried out.

After a line supply failure, acknowledgement is immediate and when the line supply returns, the system is powered-up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.

p1212		Automatic restart, delay time start attempts / AR t_wait start				
A_INF, B_INF, S_INF	Can be changed:	U, T	Calculated:	-	Access level:	3
	Data type:	Floating Point	Dynamic index:	-	Func. diagram:	-
	P-Group:	Functions	Units group:	-	Unit selection:	-
	Not for motor type:	-			Expert list:	1
	Min	0.1 [s]	Max	600.0 [s]	Factory setting	1.0 [s]
Description:	Sets the delay time up to restart.					
Dependency:	This parameter setting is active for p1210 = 4, 6. For p1210 = 1, the following applies: Faults are only acknowledged, no restart. Refer to: p1210, r1214					
Caution:	A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).					
Note:	The faults are automatically acknowledged and the system is powered-up again after half of the waiting time has expired and after the full waiting time has expired.					

p1212		Automatic restart, delay time start attempts / AR t_wait start				
SERVO, VECTOR	Can be changed:	U, T	Calculated:	-	Access level:	3
	Data type:	Floating Point	Dynamic index:	-	Func. diagram:	-
	P-Group:	Functions	Units group:	-	Unit selection:	-
	Not for motor type:	-			Expert list:	1
	Min	0.1 [s]	Max	600.0 [s]	Factory setting	1.0 [s]
Description:	Sets the delay time up to restart.					
Dependency:	This parameter setting is active for p1210 = 4, 6. For p1210 = 1, the following applies: Faults are only automatically acknowledged in half of the waiting time, no restart. Refer to: p1210, r1214					
Caution:	A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).					
Note:	The faults are automatically acknowledged after half of the waiting time has expired and the full waiting time. If the cause of a fault is not removed in the first half of the delay time, then it is no longer possible to acknowledge in the waiting time.					

p1213	Automatic restart, monitoring time line supply return / AR t_mon line sup		
A_INF, B_INF, S_INF	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [s]
Description:	Sets the monitoring time of the automatic restart (AR).		
Dependency:	Refer to: p1210, r1214		
Caution:	A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).		
Notice:	After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.		
Note:	<p>The monitoring time starts when the faults are detected. If the automatic acknowledgements are not successful, the monitoring time runs again. After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart can be re-activated.</p> <p>The monitoring is de-activated with p1213 = 0. If the time in p1213 is set lower than in p1212, then fault F07320 is also generated at each restart.</p> <p>The monitoring time must extended, if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present).</p>		
p1213	Automatic restart, monitoring time line supply return / AR t_mon line sup		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [s]
Description:	Sets the monitoring time of the automatic restart (AR).		
Dependency:	Refer to: p1210, r1214		
Caution:	A change is only accepted and made if the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).		
Notice:	After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.		
Note:	<p>The monitoring time starts when the faults are detected. If the automatic acknowledgements are not successful, the monitoring time runs again. If, after the monitoring time has expired, the drive has still not successfully started again (flying restart and magnetization of the motor must have been completed: r0056.4 = 1), then fault F07320 is output.</p> <p>The monitoring is de-activated with p1213 = 0. If p1213 is set lower than the sum of p1212, the magnetizing time p0346 and the additional delay time due to the flying restart, then fault F07320 is generated at each restart. If, for p1210 = 1, the time in p1213 is set lower than in p1212, then fault F07320 is also generated at each restart.</p> <p>The monitoring time must extended, if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present).</p>		
r1214.0...15	CO/BO: Automatic restart, status / AR status		
A_INF, B_INF, S_INF	Can be changed: - Data type: Unsigned16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Automatic restart (AR) status word.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Initialization	Yes	No	-
	01	Wait for alarm	Yes	No	-
	02	Auto restart active	Yes	No	-
	03	Setting the acknowledgement command	Yes	No	-
	04	Acknowledge alarms	Yes	No	-
	05	Restart	Yes	No	-
	06	Delay time running after automatic power-up	Yes	No	-
	07	Fault	Yes	No	-
	12	Start count. bit 0	On	Off	-
	13	Start count. bit 1	On	Off	-
	14	Start count. bit 2	On	Off	-
	15	Start count. bit 3	On	Off	-

Note:

Re bit 00:
Status to display the single initialization after POWER ON.

Re bit 01:
State in which the automatic restart function waits for faults (initial state).

Re bit 02:
General display that a fault has been identified and that the restart or acknowledgement has been initiated.

Re bit 03:
Displays the acknowledge command within the "acknowledge alarms" status (bit 4 = 1). For bit 5 = bit 6 = 1, the acknowledge command is continually displayed.

Re bit 04:
State in which the faults that are present are acknowledged. The status is exited again after successful acknowledgement. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgement command (bit 3 = 1).

Re bit 05:
State in which the drive is automatically powered-up (only for p1210 = 4, 6).

Re bit 06:
State in which the system waits after having been powered-up, to the end of the start attempt.
For p1210 = 1, this signal is directly set after the faults have been successfully acknowledged.

Re bit 07:
State, which is assumed after a fault occurs within the automatic restart function.

Re bits 12 ... 15:
Actual state of the start counter (binary coded).

r1214.0...15	CO/BO: Automatic restart, status / AR status		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Automatic restart (AR) status word.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Initialization	Yes	No	-
	01	Wait for alarm	Yes	No	-
	02	Auto restart active	Yes	No	-
	03	Setting the acknowledgement command	Yes	No	-
	04	Acknowledge alarms	Yes	No	-
	05	Restart	Yes	No	-
	06	Delay time running after automatic power-up	Yes	No	-
	07	Fault	Yes	No	-
	12	Start count. bit 0	On	Off	-

13	Start count. bit 1	On	Off	-
14	Start count. bit 2	On	Off	-
15	Start count. bit 3	On	Off	-

Note:

Re bit 00:

Status to display the single initialization after POWER ON.

Re bit 01:

State in which the automatic restart function waits for faults (initial state).

Re bit 02:

General display that a fault has been identified and that the restart or acknowledgement has been initiated.

Re bit 03:

Displays the acknowledge command within the "acknowledge alarms" status (bit 4 = 1). For bit 5 = bit 6 = 1, the acknowledge command is continually displayed.

Re bit 04:

State in which the faults that are present are acknowledged. The status is exited again after successful acknowledgement. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgement command (bit 3 = 1).

Re bit 05:

State in which the drive is automatically powered-up (only for p1210 = 4, 6).

Re bit 06:

State in which the system waits after having been powered-up, to the end of the start attempt (to the end of the magnetization process).

For p1210 = 1, this signal is directly set after the faults have been successfully acknowledged.

Re bit 07:

State, which is assumed after a fault occurs within the automatic restart function.

Re bits 12 ... 15:

Actual state of the start counter (binary coded).

p1215**Motor holding brake configuration / Brake config**

SERVO, VECTOR

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Integer16**Dynamic index:** -**Func. diagram:** 2701, 2707, 2711**P-Group:** Functions**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

3

0

Description:

Sets the holding brake configuration.

Values:

- 0: No motor holding brake being used
- 1: Motor holding brake acc. to sequence control
- 2: Motor holding brake always open
- 3: Motor holding brake like sequence control, connection via BICO

Dependency:

Refer to: p1216, p1217, p1226, p1227, p1228, p1278

Caution:

For the setting p1215 = 0, if a brake is used, it remains closed. If the motor moves, this will destroy the brake.

Notice:

If p1215 was set to 1 or if p1215 was set to 3, then when the pulses are canceled, the brake is closed even if the motor is still rotating. Pulse cancelation can either be caused by a 0 signal at p0844, p0845 or p0852 or as a result of a fault with OFF2 response. If this is not desirable (e.g. for a flying restart), then the brake can be kept open using a 1 signal at p0855.

Note:

If the configuration is set to "no holding brake present" when booting, then the motor holding brake will be automatically identified. If a motor holding brake is detected, the configuration is set to "motor holding brake as for sequence control".

If a holding brake integrated in the motor is used, then it is not permissible that p1215 is set to 3.

if an external motor holding brake is being used, then p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

When the function module "extended brake control" is activated (r0108.14 = 1), r1229.1 should be interconnected as control signal.

The parameter can only be set to zero when the pulses are inhibited.

The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = 1, p9802 = 1) is not practical if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

p1216 Motor holding brake, opening time / Brake t_{open}			
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2701, 2711
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 100 [ms]
Description:	Sets the time to open the motor holding brake. After controlling the holding brake (opens), the speed/velocity setpoint remains at zero for this time. After this, the speed/velocity setpoint is enabled.		
Recommend.:	This time should be set longer than the actual opening time of the brake. This ensures that the drive cannot accelerate when the brake is applied.		
Dependency:	Refer to: p1215, p1217		

p1217 Motor holding brake closing time / Brake t_{close}			
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2701, 2711
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 100 [ms]
Description:	Sets the time to apply the motor holding brake. After OFF1 or OFF3 and the holding brake is controlled (the brake closes), then the drive remains closed-loop controlled for this time stationary with a speed setpoint/velocity setpoint of zero. The pulses are canceled when the time expires.		
Recommend.:	This time should be set longer than the actual closing time of the brake. This ensures that the pulses are only canceled after the brake has closed.		
Dependency:	Refer to: p1215, p1216		
Notice:	If the selected closing time is too short with respect to the actual closing time of the brake, then the load can sag. If the closing time is selected to be too long with respect to the actual closing time of the brake, the control works against the brake and therefore reduces its lifetime.		

p1218[0...1] BI: Open motor holding brake / Open brake			
SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2707
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for a conditional opening of the motor holding brake.		
Dependency:	Refer to: p1215		
Note:	[0]: Signal, open brake, AND logic operation, input 1 [1]: Signal, open brake, AND logic operation, input 2		

p1219[0...3] BI: Immediately close motor holding brake / Close brake

SERVO (Extended brk), VECTOR (Extended brk)

Can be changed: T**Data type:** Unsigned32 / Binary**P-Group:** Functions**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 2**Func. diagram:** 2707**Unit selection:** -**Expert list:** 1**Factory setting**

[0] 0

[1] 0

[2] 0

[3] 1229.9

Description:

Sets the signal source for an unconditional (immediate) closing of the motor holding brake.

Dependency:

Refer to: p1215, p1275

Note:

[0]: Signal, immediately close brake, inversion via p1275.0

[1]: Signal, immediately close brake, inversion via p1275.1

[2]: Signal, immediately close brake

[3]: Signal, immediately close brake - refer to the factory setting

These four signals form an OR logic operation.

p1220 CI: Open motor holding brake, signal source, threshold / Open brake thresh

SERVO (Extended brk), VECTOR (Extended brk)

Can be changed: T**Data type:** Unsigned32 / FloatingPoint32**P-Group:** Functions**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 2**Func. diagram:** 2707**Unit selection:** -**Expert list:** 1**Factory setting**

1

Description:

Sets the signal source for the command "open brake".

Dependency:

Refer to: p1215, p1221, r1229, p1277

p1221 Open motor holding brake, threshold / Open brake thresh

SERVO (Extended brk), VECTOR (Extended brk)

Can be changed: U, T**Data type:** Floating Point**P-Group:** Functions**Not for motor type:** -**Min**

0.00 [%]

Calculated: -**Dynamic index:** -**Units group:** -**Max**

200.00 [%]

Access level: 2**Func. diagram:** 2707**Unit selection:** -**Expert list:** 1**Factory setting**

0.00 [%]

Description:

Sets the threshold value for the command "open brake".

Dependency:

Refer to: p1220, r1229, p1277

p1222 BI: Motor holding brake feedback signal brake closed / Brake feedb closed

SERVO (Extended brk), VECTOR (Extended brk)

Can be changed: T**Data type:** Unsigned32 / Binary**P-Group:** Functions**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 2**Func. diagram:** 2711**Unit selection:** -**Expert list:** 1**Factory setting**

0

Description:

Sets the signal source for the feedback signal "brake closed".

For motor holding brakes with feedback signal, the signal "brake closed" can be activated using p1275.5 = 1.

Dependency:

Refer to: p1223, p1275

Note:

1 signal: Brake closed.

When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1223).

For r1229.5 = 1, OFF/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective.

p1223	BI: Motor holding brake feedback signal brake open / Brake feedb open		
SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2711 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the feedback signal "brake open".		
Dependency:	For motor holding brakes with feedback signal, the signal "brake open" can be activated using p1275.5 = 1.		
Note:	Refer to: p1222, p1275 1 signal: Brake open. When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1222).		
p1224[0...3]	BI: Close motor holding brake at standstill / Brk close standst		
SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2704 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for close brake at standstill.		
Dependency:	Refer to: p1275		
Note:	[0]: Signal, close brake at standstill, inversion via p1275.2 [1]: Signal, close brake at standstill, inversion via p1275.3 [2]: Signal, close brake at standstill [3]: Signal, close brake at standstill These four signals form an OR logic operation.		
p1225	CI: Standstill detection, threshold value / Standstill thresh		
SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2704 Unit selection: - Expert list: 1 Factory setting 63[0]
Description:	Sets the signal source "threshold value" for the standstill identification.		
Dependency:	Refer to: p1226, p1228, r1229		

p1226	Threshold for zero speed detection / n_standst n_thresh		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 2 Func. diagram: 2701, 2704 Unit selection: p0505 Expert list: 1 Factory setting 20.0 [RPM]
Description:	Sets the speed threshold for the standstill identification. Acts on the actual value and setpoint monitoring. When braking with OFF1 or OFF3, when the threshold is fallen below, standstill is identified. The following applies when the brake control is activated: When the threshold is fallen below, the brake control is started and the system waits for the brake closing time in p1217. The pulses are then canceled. if the brake control is not activated, the following applies: When the threshold is fallen below, the pulses are canceled and the drive coasts down.		
Dependency:	Refer to: p1215, p1216, p1217, p1227		
Note:	Standstill is detected if the actual speed drops below the speed threshold in p1226 or if the monitoring time (p1227) - started when speed setpoint <= speed threshold (p1226) - has expired. The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the speed threshold is too low.		
p1226	Standstill detection, velocity threshold / v_standst v_thresh		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: 4_1	Access level: 2 Func. diagram: 2701, 2704 Unit selection: p0505 Expert list: 1 Factory setting 0.2 [m/min]
Description:	Sets the velocity threshold for the standstill identification. Acts on the actual value and setpoint monitoring. When braking with OFF1 or OFF3, when the threshold is fallen below, standstill is identified. The following applies when the brake control is activated: When the threshold is fallen below, the brake control is started and the system waits for the brake closing time in p1217. The pulses are then canceled. if the brake control is not activated, the following applies: When the threshold is fallen below, the pulses are canceled and the drive coasts down.		
Dependency:	Refer to: p1215, p1216, p1217, p1227		
Note:	Standstill is detected if the actual velocity drops below the velocity threshold in p1226 or if the monitoring time (p1227) - started when the velocity setpoint <= velocity threshold (p1226) - has expired. The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the velocity threshold is too low.		
p1227	Zero speed detection monitoring time / n_standst t_monit		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2701, 2704 Unit selection: - Expert list: 1 Factory setting 4.000 [s]
Description:	Sets the monitoring time for the standstill identification. When braking with OFF1 or OFF3, standstill is identified after this time has expired, after the setpoint speed has fallen below p1226 (also refer to p1145).		

After this, the brake control is started, the system waits for the closing time in p1217 and then the pulses are canceled.

Dependency: Refer to: p1215, p1216, p1217, p1226

Notice: For p1145 > 0.0, the setpoint is not equal to zero dependent on the selected value. This can therefore cause the monitoring time in p1227 to be exceeded. In this case, for a driven motor, the pulses are not canceled.

Note: Standstill (zero speed) is detected if, during the complete monitoring time (p1227), the speed setpoint falls below the speed threshold (p1226).
For p1227 = 300.000 s, the following applies:
The monitoring is deactivated.
For p1227 = 0.000 s, the following applies:
With OFF1 or OFF3 and a ramp-down time = 0, the pulses are immediately canceled and the motor "coasts" down.

p1228		Pulse cancellation delay time / Pulse canc t_del	
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2701, 2704
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 10.000 [s]	Factory setting 0.000 [s]
Description:	Sets the delay time for pulse cancellation. After OFF1 or OFF3 and zero speed detection, the system waits for this time to expire and the pulses are then canceled.		
Dependency:	Refer to: p1226, p1227		
Note:	Standstill (zero speed) is detected if, during the complete delay time (p1228), the speed actual value falls below the speed threshold (p1226).		

r1229.1...11		CO/BO: Motor holding brake status word / Brake ZSW			
SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: -		Calculated: -		Access level: 2
	Data type: Unsigned32		Dynamic index: -		Func. diagram: -
	P-Group: Functions		Units group: -		Unit selection: -
	Not for motor type: -		Expert list: 1		
	Min		Max		Factory setting
	-		-		-
Description:		Displays the status word for the motor holding brake.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Command open brake (continuous signal)	Yes	No	2711
	03	Pulse enable, expanded brake control	Yes	No	2711
	04	Brake does not open	Yes	No	2711
	05	Brake does not close	Yes	No	2711
	06	Brake threshold exceeded	Yes	No	2707
	07	Brake threshold fallen below	Yes	No	2704
	08	Brake monitoring time expired	Yes	No	2704
	09	Pulse enable request missing/n_ctrl inhibited	Yes	No	2707
	10	Brake OR logic operation result	Yes	No	2707
	11	Brake AND logic operation result	Yes	No	2707

p1230[0...n]	BI: Armature short-circuit / DC brake activation / ASC act		
SERVO, VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: - Min - Max -	Calculated: - Dynamic index: CDS, p0170 Units group: - Factory setting 0	Access level: 1 Func. diagram: 7014, 7016, 7017 Unit selection: - Expert list: 1
Description:	Sets the signal source to activate the armature short-circuit or DC brake.		
Dependency:	Refer to: p1231, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239		
Note:	1 signal: Armature short-circuit/DC brake is deactivated. 0 signal: Armature short-circuit/DC brake is deactivated.		

p1231[0...n]	Armature short-circuit / DC brake configuration / ASC config		
SERVO, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: - Min 0 Max 4	Calculated: - Dynamic index: MDS, p0130 Units group: - Factory setting 0	Access level: 1 Func. diagram: 7017 Unit selection: - Expert list: 1
Description:	Setting to activate various types of armature short-circuit configurations / DC brake.		
Values:	0: No function 1: External armature short-circuit with contactor feedback signal 2: Ext. armature short-circuit without contactor feedback signal 3: Internal voltage protection 4: Internal armature short-circuit / DC brake		
Dependency:	Refer to: p0300, p1230, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239		
Danger:	Re p1231 = 1, 2: - only short-circuit proof motors may be used and suitable resistors must be used to short-circuit the motor. Re p1231 = 3: - when the internal voltage protection is active, after pulse cancelation, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)! - it is only permissible to use motors that are short-circuit proof (p0320 < p0323). - the Motor Module must be able to continually conduct 180% short-circuit current (r0331) of the motor (r0289). - the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor. - if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components. - if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module. - if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor). Re p1231 = 4: - Synchronous motors (p0300 = 2xx, 4xx) must be short-circuit proof (p0320 < p0323).		
Note:	Re p1231 = 1, 2: The external armature short-circuit can only be selected for synchronous motors (p0300). In this case, control bit BO: r1239.0 must be interconnected to control the external contactor (e.g. to a digital input).		



Re p1231 = 3:

The internal voltage protection (using an internal armature short-circuit) can only be selected for synchronous motors (p0300) and Motor Modules in booksize format. Further, it is not permissible that Safety is active (i.e. p9501 = 0 and p9601 = 0). The internal voltage protection prevents the DC link capacitance from being charged if there is no possibility of regenerating the EMF of a motor operated in the field-weakening mode. The Motor Module must support this function (r0192.9 = 1).

a) If the Motor Module does not support the autonomous, internal armature short-circuit (r0192.10 = 0), the armature short-circuit is activated as soon as the activation criterion is fulfilled (refer below):

b) If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module automatically decides - using the DC link voltage - as to whether the short-circuit should be activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn. This therefore ensures that the required input voltage for the Control Supply Module is maintained.

Re p1231 = 4:

The function is activated as soon as the activation criteria is fulfilled.

- the function can be initiated by an OFF2 response.

a) for synchronous motors (p0300 = 2xx, 4xx), the internal armature short-circuit is initiated.

- the Motor Module must support this function (r0192.9 = 1).

b) for induction motors (p0300 = 1xx), the DC brake is initiated.

Activation criteria (one of the following criteria is fulfilled):

- the signal at BI: p1230 (DC brake activation) is 1.

- the drive is not in the state "S4: Operation" or in S5x (refer to function chart 2610).

- the internal pulse enable is missing (r0046.19 = 0).

Note:

ASC: Armature Short-Circuit

IVP: Internal Voltage Protection

UPS: Uninterruptible Power Supply

CSM: Control Supply Module

DC Brake

p1232[0...n]		DC braking, braking current / DCBRK I_brake	
SERVO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 7017
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the braking current for DC braking.		
Dependency:	Refer to: p1230, p1231, p1233, p1234, r1239		
Note:	A change to the braking current becomes effective the next time that the DC brake is powered-up.		

p1232[0...n]		DC braking, braking current / DCBRK I_brake	
VECTOR	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 1
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: 7017
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the braking current for DC braking.		
Dependency:	Refer to: p1230, p1231, p1233, p1234, r1239, p1345, p1346		
Note:	A change to the braking current becomes effective the next time that the DC brake is powered-up. For the current controller, the settings of parameters p1345 and p1346 (Imax limiting controller) are used.		

p1233[0...n] DC braking time / DCBRK time

SERVO, VECTOR

Can be changed: U, T**Data type:** Floating Point**P-Group:** Functions**Not for motor type:** PEM, REL, FEM**Min**

0.0 [s]

Calculated: -**Dynamic index:** MDS, p0130**Units group:** -**Max**

3600.0 [s]

Access level: 1**Func. diagram:** 7017**Unit selection:** -**Expert list:** 1**Factory setting**

1.0 [s]

Description: Sets the DC braking time (duration).**Dependency:** Refer to: p1230, p1231, p1232, p1234, r1239**p1234[0...n] Speed at the start of DC braking / DCBRK n_start**

SERVO, VECTOR

Can be changed: U, T**Data type:** Floating Point**P-Group:** Functions**Not for motor type:** PEM, REL, FEM**Min**

0.00 [RPM]

Calculated: -**Dynamic index:** MDS, p0130**Units group:** -**Max**

210000.00 [RPM]

Access level: 1**Func. diagram:** 7017**Unit selection:** -**Expert list:** 1**Factory setting**

210000.00 [RPM]

Description: Sets the starting speed for DC braking.

If the actual speed falls below this threshold, then DC braking is activated.

Dependency: Refer to: p1230, p1231, p1232, p1233, r1239**p1234[0...n] DC braking, starting velocity / DCBRK v_start**

SERVO (Lin)

Can be changed: U, T**Data type:** Floating Point**P-Group:** Functions**Not for motor type:** PEM, REL, FEM**Min**

0.00 [m/min]

Calculated: -**Dynamic index:** MDS, p0130**Units group:** -**Max**

1000.00 [m/min]

Access level: 1**Func. diagram:** 7017**Unit selection:** -**Expert list:** 1**Factory setting**

1000.00 [m/min]

Description: Sets the starting speed for DC braking.

If the actual velocity falls below this threshold, then DC braking is activated.

Dependency: Refer to: p1230, p1231, p1232, p1233, r1239**p1235[0...n] BI: External armature short-circuit, contactor feedback signal / ASC ext feedback**

SERVO, VECTOR

Can be changed: T**Data type:** Unsigned32 / Binary**P-Group:** Functions**Not for motor type:** -**Calculated:** -**Dynamic index:** CDS, p0170**Units group:** -**Max**

-

Access level: 1**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

0

Description: Sets the signal source for the contactor feedback signal for external armature short-circuit.**Dependency:** Refer to: p1230, p1231, p1236, p1237, r1239**Notice:** In order that the pulses are not enabled when the contactor is closed, the contactor feedback signal must lag by a sufficiently long time when opening the contactor.**Note:** 1 signal: The contactor is closed.

0 signal: The contactor is open.

p1236[0...n]	Ext. armature short-cct., contactor feedback signal monit. time / ASC ext t_monit		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 200 [ms]
Description:	Sets the monitoring time of the contactor feedback signal for the external armature short-circuit configuration. If the contactor feedback signal (p1235) is parameterized, then the appropriate feedback signal (r1239.1) is expected within this monitoring time after either opening or closing the contactor.		
Dependency:	Refer to: p1230, p1231, p1235, p1237, r1239 Refer to: A07904, F07905		
p1237[0...n]	External armature short-circuit, waiting time when opening / ASC ext t_wait		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 200 [ms]
Description:	Sets the delay time when opening the contactor of the external armature short-circuit. If no contactor feedback signal has been selected (p1235), then the system waits for this time before the pulses are switched-in.		
Dependency:	Refer to: p1230, p1231, p1235, p1236, r1239		
Notice:	This delay time must be at least long enough so that the contactor contacts reliably open before the pulses are switched-in. The delay time must be greater than the contactor response time. The Motor Module can be damaged if the delay time is too short.		
r1238	CO: Armature short-circuit, external state / EASC state		
SERVO, VECTOR	Can be changed: - Data type: Integer16 P-Group: Functions Not for motor type: ASM	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 2610 Unit selection: - Expert list: 1
	Min 0	Max 6	Factory setting -
Description:	Displays the state for the external armature short-circuit.		
Values:	0: Powered-down 1: Ready 2: active 3: Active - feedback signal "Closed" OK 4: Active - feedback signal "Closed" missing 5: Prompt to remove the armature short-circuit 6: Active - feedback signal "Open" missing		
Dependency:	Refer to: p1230, p1231, p1235, p1236, p1237, r1239 Refer to: A07904, F07905		
Note:	Activation criteria (one of the following criteria is fulfilled): - the signal at BI: p1230 (armature short-circuit activation) is 0. - the drive is not in the state "S4: Operation" or in S5x (refer to function chart 2610). - the internal pulse enable is missing (r0046.19 = 0). Re state "switched-out" (r1238 = 0): - the external armature short-circuit can be selected with p1231 = 1.		

Re state "ready" (r1238 = 1):

- as soon as the activation criteria is fulfilled, then a transition is made into the state "active" (r1238 = 2).

Regarding the state "active" (r1238 = 2), "active - feedback signal "Closed" OK" (r1238 = 3), "active - feedback signal "Closed" missing" (r1238 = 4):

- the control signal to close contactor r1239.0 is set to "1" (closed) and the pulses are canceled.

- if a contactor feedback signal is not connected (BI: p1235 = 0 signal), then a transition is immediately made into state 3.

- if a contactor feedback signal is connected, then a transition is made into state 3 if the feedback signal at BI: p1235 goes to "1" (closed) within the monitoring time (p1236).

- otherwise, a transition is made into state 4.

Re state "prompt to remove the armature short-circuit" (r1238 = 5):

- the activation criteria is no longer fulfilled. An attempt is made to again remove the armature short circuit.

- the control signal to close the contactor r1239.0 is set to "0" (open) and the pulses remain canceled.

- if a contactor feedback signal is not connected (BI: p1235 = 0 signal), the system waits for the delay time (p1237) to expire until a transition is made into state 1.

- if a contactor feedback signal is connected, the system waits until the feedback signal at BI: p1235 goes to "0" (open) until a transition is made into state 1. If this does not occur within the monitoring time (p1236), then a transition is made into state 6.

Re state "active - feedback signal "Open" missing" (r1238 = 6):

- this error state can be exited by de-selecting the external armature short-circuit (p1231 = 0).

r1239.0...10 CO/BO: Armature short-circuit / DC brake status word / ASC ZSW

SERVO, VECTOR

Can be changed: -

Calculated: -

Access level: 1

Data type: Unsigned32

Dynamic index: -

Func. diagram: -

P-Group: Functions

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the status word for armature short-circuit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	External armature short-circuit	Active	Inactive	-
01	External armature short-circuit, contactor feedback signal	Closed	Open	-
02	External armature short-circuit ready	Yes	No	-
03	External armature short-circuit with contactor feedback signal	Yes	No	-
04	Internal armature short-circuit	Active	Inactive	-
05	Int. armature short-circuit, feedback signal from power unit	Active	Inactive	-
06	Internal armature short-circuit ready	Yes	No	-
08	DC brake active	Active	Inactive	7017
10	DC brake ready	Yes	No	7017

Dependency:

Refer to: p1230, p1231, p1232, p1233, p1234, p1235, p1236, p1237

Note:

External armature short-circuit (bits 0 ... 3):

Re bit 00:

Using this signal, the motor is short-circuited through an external contactor circuit. This means that this BO: p1239.0 must be interconnected e.g. to a digital output.

Re bit 01:

This signal indicates the state of the contactor to establish the armature short-circuit. To do this, BI: p1235 must be interconnected to a digital input.

Re bit 02:

The external armature short-circuit configuration is ready and is activated as soon as the activation criteria is fulfilled.

Re bit 03:

1: A feedback signal from an external contactor was parameterized in BI: p1235.

Internal voltage protection / internal armature short-circuit (bits 4 ... 6):

Re bit 04:

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).

The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).

The Motor Module decides independent as to whether the armature short-circuit is activated. In this case, the following applies: r1239.4 = r1239.5.

c) Internal armature short-circuit (p1231 = 4) was selected.

The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.

Re bit 05:

The Motor Module signals that the motor is short-circuited in the Motor Module through the power semiconductors.

Re bit 06:

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).

The internal voltage protection is ready and is activated as soon as the activation criteria is fulfilled.

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).

The internal voltage protection is ready and the Motor Module decides autonomously - using the DC link voltage - as to whether the short-circuit is activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn.

c) Internal armature short-circuit (p1231 = 4) was selected.

The internal armature short-circuit is ready and is activated as soon as the activation criteria is fulfilled.

Activation criteria (one of the following criteria is fulfilled):

- the signal at BI: p1230 (armature short-circuit activation) is 1.
- the drive is not in the state "S4: Operation" or in S5x (refer to function chart 2610).
- the internal pulse enable is missing (r0046.19 = 0).

p1240[0...n]		Vdc controller or Vdc monitoring configuration / Vdc_ctrl config	
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5650
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0	Max 9	Factory setting 0
Description:	Sets the configuration of the controller or monitoring for the DC link voltage (Vdc).		
Values:	0: Inhib Vdc ctrl 1: Enables Vdc_max controller 2: Enables Vdc_min controller (kinetic buffering) 3: Enables Vdc_min controller and Vdc_max controller 4: Activates Vdc_max monitoring 5: Activates Vdc_min monitoring 6: Activates Vdc_min monitoring and Vdc_max monitoring 7: Enable Vdc_max controller without accelerating 8: Enable Vdc_min controller without braking 9: Enable Vdc_min and Vdc_max controller w/o braking/accelerating		
Dependency:	Refer to: p1244, p1248, p1250, p1532		
Notice:	During a few steps of the rotating measurement (p1960 = 1) the Vdc_min controller and/or Vdc_max controller is disabled.		
Note:	p1240 = 1, 3: When the upper DC link voltage threshold is reached (p1244), then the following applies: - the Vdc_max controller limits the regenerative energy in order that the DC link voltage is kept below the maximum DC link voltage when braking.		

- when other drives regenerate into the DC link, then the Vdc_max controller causes the motor to accelerate.

p1240 = 2, 3:

When the lower DC link voltage threshold is reached (p1248), the following applies:

- the Vdc_min controller limits the energy taken from the DC link in order to keep the DC link voltage above the minimum DC link voltage when accelerating.

- the motor is braked in order to use its kinetic energy to buffer the DC link.

p1240 = 4, 5, 6:

When the threshold in p1244 or p1248 is reached, the DC link voltage monitoring initiates a fault with a response and therefore reduces additional negative effects on the DC link voltage.

p1240 = 7, 9:


As for p1240 = 1, 3. However, the motor is prevented from accelerating due to the fact that other drives are regenerating. The effective lower torque limit cannot exceed the offset of the torque limit (p1532).

p1240 = 8, 9:

As for p1240 = 2, 3. However, the motor is prevented from braking due to the fact that the DC link voltage has been lowered. The effective upper torque limit cannot be less than the offset of the torque limit (p1532).

p1240[0...n]			
Vdc controller or Vdc monitoring configuration / Vdc_ctrl config			
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 6220
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	0	6	1
Description:	Sets the controller configuration of the DC link voltage (Vdc controller) in the closed-loop control mode.		
Values:	0: Inhib Vdc ctrl 1: Enables Vdc_max controller 2: Enables Vdc_min controller (kinetic buffering) 3: Enables Vdc_min controller and Vdc_max controller 4: Activates Vdc_max monitoring 5: Activates Vdc_min monitoring 6: Activates Vdc_min monitoring and Vdc_max monitoring		
Dependency:	Refer to: p1245 Refer to: A07400, A07401, A07402, F07403, F07404, F07405, F07406		
Notice:	An excessively high value in p1245 can possibly negatively influence the normal operation of the drive.		
Note:	p1240 = 1, 3: When the DC link voltage limit, specified for the Motor Module is reached, the following applies: - the Vdc_max controller limits the regenerative energy in order that the DC link voltage is kept below the maximum DC link voltage when braking. - the ramp-down times are automatically increased. p1240 = 2, 3: When the switch-in threshold of the Vdc_min controller is reached (p1245), the following applies: - the Vdc_min controller limits the energy taken from the DC link in order to keep the DC link voltage above the minimum DC link voltage when accelerating. - the motor is braked in order to use its kinetic energy to buffer the DC link. p1240 = 4, 5, 6: When the threshold in r1242 or r1246 is reached, the DC link voltage monitoring initiates a fault (F07403 or F07404) with a response and therefore reduces additional negative effects on the DC link voltage.		

r1242	Vdc_max controller switch-in level / Vdc_max on_level		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 6220 Unit selection: - Expert list: 1 Factory setting - [V]
Description:	Displays the switch-in level for the Vdc_max controller. If p1254 = 0 (automatic sensing of the switch-in level = off), then the following applies: AC/AC device: $r1242 = 1.15 * \sqrt{2} * V_{mains} = 1.15 * \sqrt{2} * p0210$ (supply voltage) DC/AC device: $r1242 = 1.15 * U_{dc} = 1.15 * p0210$ (supply voltage) If p1254 = 1 (automatic sensing of the switch-in level = on), then the following applies: $r1242 = V_{dc_max} - 50.0 \text{ V}$ (V_{dc_max} : Overvoltage threshold of the power unit)		
p1243[0...n]	Vdc_max controller dynamic factor / Vdc_max dyn_factor		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6220 Unit selection: - Expert list: 1 Factory setting 100 [%]
Description:	Sets the dynamic factor for the DC link voltage controller (Vdc_max controller). 100 % means that p1250, p1251 and p1252 (gain, integral time and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization. If subsequent optimization is required, then this can be realized using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1243. If several modules are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the module involved.		
Note:	The pre-setting of the dynamic factor is based on the power units connected at DRIVE-CLiQ. It is assumed that the power unit, connected via DRIVE-CLiQ is also electrically connected to the DC link. If this is not the case, then the dynamic factor must be optimized manually.		
p1244[0...n]	DC link voltage threshold upper / Vdc upper thresh		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5650 Unit selection: - Expert list: 1 Factory setting 750 [V]
Description:	Sets the upper threshold for the DC link voltage. For p1240 = 1, 3, 7, 9, this threshold is used as limit setpoint for the Vdc_max controller. For p1240 = 4, 6, for DC link voltages above this threshold, an appropriate fault is output.		
Dependency:	Refer to: p1240, p1248, p1250		
Note:	For $p1244 < 1.07 * \text{"parameterized DC link voltage"}$ input of values is rejected. For p0204.0 = 1, the following applies: "Parameterized DC link voltage" = p0210 For p0204.0 = 0, the following applies: "Parameterized DC link voltage" = $p0210 * 1.4142$		

p1245[0...n]	Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 76 [%]
Description:	Sets the switch-in level for the Vdc-min controller (kinetic buffering). The value is obtained as follows: AC/AC device: $p1245[V] = p1245[\%] * \sqrt{2} * p0210$ DC/AC device: $p1245[V] = p1245[\%] * p0210$		
Dependency:	Refer to: p0210		
Warning:	An excessively large value may adversely influence normal drive operation. The values up to 150 % are intended for operating modes p1240 = 5, 6.		
			
Note:	For SINAMICS GM/SM, the following applies: Minimum value = 0.75, Maximum value = 0.90		
r1246	Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 6220 Unit selection: - Expert list: 1 Factory setting - [V]
Description:	Displays the switch-in level for the Vdc_min controller (kinetic buffering).		
p1247[0...n]	Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6220 Unit selection: - Expert list: 1 Factory setting 100 [%]
Description:	Sets the dynamic factor for the Vdc-min controller (kinetic buffering). 100 % means that p1250, p1251 and p1252 (gain, integral time and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization. If subsequent optimization is required, then this can be realized using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1247. If several modules are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the module involved.		
Note:	The pre-setting of the dynamic factor is based on the power units connected at DRIVE-CLiQ. It is assumed that the power unit, connected via DRIVE-CLiQ is also electrically connected to the DC link. If this is not the case, then the dynamic factor must be optimized manually.		

p1248[0...n]	DC link voltage threshold lower / Vdc lower thresh		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5650 Unit selection: - Expert list: 1
	Min 100 [V]	Max 1000 [V]	Factory setting 450 [V]
Description:	Sets the lower threshold for the DC link voltage. For p1240 = 2, 3, 8, 9, this threshold is used as limit setpoint for the Vdc_min controller. For p1240 = 5, 6, for DC link voltages below this threshold, an appropriate fault is output.		
Dependency:	Refer to: p1240, p1244, p1250		
Note:	For p1248 > 0.93 * "parameterized DC link voltage" input of values is rejected. For p0204.0 = 1, the following applies: "Parameterized DC link voltage" = p0210 For p0204.0 = 0, the following applies: "Parameterized DC link voltage" = p0210 * 1.4142		
p1249[0...n]	Vdc_max controller speed threshold / Vdc_max n_thresh		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min 0.0 [RPM]	Max 210000.0 [RPM]	Factory setting 10.0 [RPM]
Description:	Sets the lower speed threshold for the Vdc_max controller. When this speed threshold is fallen below, the Vdc_max control is switched-out and the speed is controlled using the ramp-function generator.		
Note:	For fast braking where the ramp-function generator tracking was active, it is possible to prevent the drive rotating in the opposite direction by increasing the speed threshold and setting a final rounding-off time in the ramp-function generator (p1131). This is supported using a dynamic setting of the speed controller.		
p1250[0...n]	Vdc controller proportional gain / Vdc_ctrl Kp		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 19_1	Access level: 3 Func. diagram: 5650 Unit selection: p0505 Expert list: 1
	Min 0.00 [A/V]	Max 10.00 [A/V]	Factory setting 1.00 [A/V]
Description:	Sets the proportional gain for the Vdc controller (DC link voltage controller).		
Dependency:	Refer to: p1240, p1244, p1248		
p1250[0...n]	Vdc controller proportional gain / Vdc_ctrl Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00	Max 100.00	Factory setting 1.00
Description:	Sets the proportional gain for the Vdc controller (DC link voltage controller).		
Dependency:	The effective proportional gain is obtained taking into account p1243 (Vdc_max controller dynamic factor).		

Note: The gain factor is proportional to the capacitance of the DC link. The parameter is preset to a value that is optimally adapted to the capacitance of the individual Motor Module. The capacitances of the other power units, which are connected to the DC link, can be taken into account using the dynamic factor (p1247 or p1243).

p1251[0...n]	Vdc controller integral time / Vdc_ctrl Tn		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6220
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 0 [ms]
Description:	Sets the integral time for the Vdc controller (DC link voltage controller).		
Dependency:	The effective integral time is obtained taking into account p1243 (Vdc_max controller dynamic factor).		
Note:	An integral time is normally not required for single axis drives. For multi-axis drives on the other hand, it may be possible to compensate for interference from other axes using the integral time (integral component) . An integral time of 0 (default) de-activates the controller.		

p1252[0...n]	Vdc controller rate time / Vdc_ctrl t_rate		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6220
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 0 [ms]
Description:	Sets the rate time constant for the Vdc controller (DC link voltage controller).		
Dependency:	The effective rate time is obtained taking into account p1243 (Vdc_max controller dynamic factor).		
Note:	During controlled operation this parameter has no effect.		

p1254	Vdc_max controller automatic ON level detection / Vdc_max SenseOnLev		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller.		
Values:	0: Automatic detection disabled 1: Automatic detection enabled		

p1255[0...n]	Vdc_min controller time threshold / Vdc_min t_thresh		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000 [s]	Max 10000.000 [s]	Factory setting 0.000 [s]
Description:	Sets the time threshold for the Vdc_min controller (kinetic buffering). If this value is exceeded a fault is output; the required response can be parameterized . Prerequisite: p1256 = 1.		
Dependency:	Refer to: F07406		

p1256[0...n]	Vdc_min controller response (kinetic buffering) / Vdc_min response		
VECTOR (n/M)	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the response for the Vdc_min controller (kinetic buffering).		
Values:	0: Buffer Vdc until undervoltage, n<p1257 -> F07405 1: Buff. Vdc until undervolt., n<p1257 -> F07405, t>p1255 -> F07406		
Dependency:	Refer to: F07405, F07406		
p1257[0...n]	Vdc_min controller speed threshold / Vdc_min n_thresh		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 50.0 [RPM]
Description:	Sets the speed threshold for the Vdc-min controller (kinetic buffering). If this value is exceeded a fault is output; the required response can be parameterized .		
r1258	CO: Vdc controller output / Vdc_ctrl output		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: - Units group: 6_2	Access level: 3 Func. diagram: 6220 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the actual output of the Vdc controller (DC link voltage controller)		
Note:	The regenerative power limit p1531 is used for vector control to pre-control the Vdc_max controller. The lower the power limit is set, the lower the correction signals of the controller when the voltage limit is reached.		
p1260	Bypass configuration / Bypass config		
VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Selecting the bypass functionality.		
Values:	0: Bypass function de-activated 1: Bypass with synchronization and overlap 2: Bypass with synchronization without overlap 3: Bypass without synchronization		
Dependency:	The bypass functionality is enabled together with the function module "technology controller (r0108.16). For p1260 = 2 (bypass with synchronization without overlap) and p1260 = 3 (bypass without synchronization), then the "flying restart" function must be activated (p1200).		

Note: If the bypass function is selected ((p1260 > 0), then when the power unit restarts after POWER OFF, the state of the bypass switch is evaluated. This means that after the ramp-up, it is possible to directly change into the standby mode. This is only possible for p1267 = 0 (bypass using the control signal) and if the control command after the system has been motor is still available (p1266). This function has a high priority than the automatic restart function (p1210).

The bypass function can only be switched-out again (p1260 = 0) if the bypass is not active or the bypass function has a fault.

r1261.0...9 CO/BO: Bypass control/status word / Bypass STW / ZSW

VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Control and feedback signals of the bypass switch.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Command switch motor - drive	Close	Open	-
	01	Command switch motor - line supply	Close	Open	-
	02	Synchronization requested	Yes	No	-
	03	Staging status	Active	Not active	-
	05	Feedback signal switch motor - drive	Closed	Opened	-
	06	Feedback signal switch motor - line supply	Closed	Opened	-
	07	Bypass command (from p1266)	Yes	No	-
	08	Feedback signal synchronization completed (from p1268)	Yes	No	-
	09	Staging requested (from p2369)	Yes	No	-

Dependency: Refer to: p2369

Note: Control bits 0 and 1 should be interconnected to the signal outputs via which the switches in the motor feeder cables should be controlled. These should be selected/dimensioned for switching under load.

p1262[0...n] Bypass dead time / Bypass t_dead

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.000 [s]	20.000 [s]	1.000 [s]

Description: Sets the dead time for non-synchronized bypass.

Note: This parameter is used to define the changeover time of the contactors. It should not be shorter than the de-magnetization time of the motor (p0347).

p1263 Debypass delay time / Debypass t_del

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.000 [s]	300.000 [s]	1.000 [s]

Description: Sets the delay time to switch back to converter operation for a non-synchronized bypass.

p1264 Bypass delay time / Bypass t_del

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 300.000 [s]	Factory setting 1.000 [s]

Description: Sets the delay time for switching to converter operation for a non-synchronized bypass.

p1265 Bypass speed threshold / Bypass n_thresh

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0 [RPM]	Max 210000 [RPM]	Factory setting 1480 [RPM]

Description: Sets the bypass speed threshold.

Note: When selecting p1260 = 3 and p1267.1 = 1, the bypass is automatically activated when this motor speed is reached.

p1266 BI: Bypass, control command / Bypass command

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Input for the command to the bypass.

p1267 Bypass changeover source configuration / Chngov_src config

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0000 bin

Description: Sets the cause that should initiate the bypass.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bypass for signal (BI: p1266)	Yes	No	-
	01	Bypass when reaching the speed threshold	Yes	No	-

Note: The parameter only has an effect for a non-synchronized bypass.

p1267 bit 0 = 1:

The bypass is initiated by setting a binary signal. When the command is reset, after the debypass delay time (p1263) has expired, operation at the Motor Module is re-selected.

p1267 bit 1 = 1:

When the speed threshold entered in p1265 is reached, the bypass is switched-in. The system only switches back when the speed setpoint again falls below the threshold value.

p1268	BI: Bypass, feedback synchronization completed / FdbkSig sync compl		
VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 3819.2
Description:	Input for the feedback signal that synchronization was successfully completed.		
Dependency:	Refer to: r3819		
p1269[0...1]	BI: Bypass switch feedback signal / Bypass FS		
VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the feedback signal of the bypass switch.		
Index:	[0] = Switch motor - drive [1] = Switch motor - line supply		
p1272	Simulation mode / Simulation mode		
VECTOR	Can be changed: T Data type: Integer16 P-Group: Functions Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 1	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	In the simulation mode, the closed-loop control or V/f control can be operated without motor. The simulation mode is used to test the power unit. Even though the DC link voltage is missing, the pulses are enabled when powering-up. The DC link pre-charging is bypassed and the undervoltage detection is disabled. Closed-loop speed control with an encoder is possible if the torque setpoint (r0079) is used in order to operate a second drive in the closed-loop torque controlled mode.		
Values:	0: Off 1: On		
Dependency:	The following functions are de-activated in the simulation mode: - motor data identification routine - motor data identification routine, rotating without encoder - pole position identification routine For V/f control and sensorless vector control, flying restart is not carried out (refer to p1200). Refer to: r0192, p1900, p1910, p1960, p1990 Refer to: A07825, F07826		
Note:	Simulation operation is only possible for DC link voltages below 40 V. In order that the closed-loop control can be calculated, the displayed DC link voltage (r0026, r0070) is set to the rated DC link voltage (refer to p0210). Closed-loop current control and motor model are switched-out (disabled) - the same is true for the speed controller for sensorless closed-loop speed control. When fault messages occur, the parameter is not automatically reset. This function is not implemented for SINAMICS GM.		

p1274[0...1] Bypass switch monitoring time / Switch t_monit

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 5000 [ms]	Factory setting 1000 [ms]
Description:	Sets the bypass switch monitoring time.		
Index:	[0] = Switch motor - drive [1] = Switch motor - line supply		
Note:	The monitoring is de-activated with p1274 = 0 ms.		

p1275 Motor holding brake control word / Brake STW

SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Functions	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Sets the control word for the motor holding brake.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Inverting BI: 1219[0]	Yes	No	2707
	01	Inverting BI: 1219[1]	Yes	No	2707
	02	Inverting BI: 1224[0]	Yes	No	2704
	03	Inverting BI: 1224[1]	Yes	No	2704
	05	Brake with feedback	Yes	No	2711

p1276 Motor holding brake, standstill detection, bypass / Brk standst bypass

SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2704
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 300.000 [s]	Factory setting 300.000 [s]
Description:	Sets the delay time for closing the brake at standstill. After this time has expired, if the "close brake at standstill" or OFF1/OFF3 is present, the brake is closed and the pulses are canceled. For p1276 = 300.000 s, the timer is de-activated - this means that the timer output is always zero.		

p1277 Motor holding brake, braking threshold delay exceeded / Del thresh exceed.

SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2707
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 300.000 [s]	Factory setting 0.000 [s]
Description:	Sets the delay time for the signal "braking threshold exceeded" (BO: r1229.6).		
Dependency:	Refer to: p1220, p1221, r1229		

p1278 Brake control, diagnostics evaluation / Brake diagnostics			
SERVO, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the brake control type (with or without diagnostics evaluation). Example for brake control with diagnostics evaluation. - brake control in the Motor Modules in booksize format - Safe Brake Relay for AC Drive Example for brake control without diagnostics evaluation. - Brake Relay for AC Drive		
Values:	0: Brake control with diagnostics evaluation 1: Brake control without diagnostics evaluation		
Note:	If the configuration of the motor holding brake (p1215) is set to "no holding brake present" when booting, then an automatic identification of the motor holding brake will be carried out. If a brake control is detected without diagnostics evaluation (e.g. Brake Relay for AC Drive), then the parameter is set to "brake control without diagnostics evaluation". It is not permissible to parameterize "brake control without diagnostics evaluation" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).		

p1279[0...3] BI: Motor holding brake, OR/AND logic operation / Brake OR AND			
SERVO (Extended brk), VECTOR (Extended brk)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2707 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the OR/AND logic operation.		
Dependency:	Refer to: r1229		
Note:	[0]: OR logic operation, input 1 --> the result is displayed in r1229.10. [1]: OR logic operation, input 2 --> the result is displayed in r1229.10. [2]: AND logic operation, input 1 --> the result is displayed in r1229.11. [3]: AND logic operation, input 2 --> the result is displayed in r1229.11.		

p1280[0...n] Vdc controller or Vdc monitoring configuration (V/f) / Vdc_ctr config V/f			
VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1690, 6320 Unit selection: - Expert list: 1
	Min 0	Max 6	Factory setting 1
Description:	Sets the configuration of the controller for the DC link voltage (Vdc controller) in the V/f operating mode.		
Values:	0: Inhib Vdc ctrl 1: Enables Vdc_max controller 2: Enables Vdc_min controller (kinetic buffering) 3: Enables Vdc_min controller and Vdc_max controller 4: Activates Vdc_max monitoring 5: Activates Vdc_min monitoring 6: Activates Vdc_min monitoring and Vdc_max monitoring		

Note: p1240 = 4, 5, 6:
When the threshold in r1282 or r1286 is reached, the DC link voltage monitoring initiates a fault (F07403 or F07404) with a response and therefore reduces additional negative effects on the DC link voltage.

r1282 Vdc_max controller switch-in level (V/f) / Vdc_max on_level			
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 6320
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	<p>Displays the switch-in level for the Vdc_max controller.</p> <p>If p1294 = 0 (automatic sensing of the switch-in level = off), then the following applies: AC/AC device: $r1282 = 1.15 * \sqrt{2} * V_{\text{mains}} = 1.15 * \sqrt{2} * p0210$ (supply voltage) DC/AC device: $r1282 = 1.15 * V_{\text{dc}} = 1.15 * p0210$ (supply voltage)</p> <p>If p1294 = 1 (automatic sensing of the switch-in level = on), then the following applies: $r1282 = V_{\text{dc_max}} - 50.0 \text{ V}$ ($V_{\text{dc_max}}$: Overvoltage threshold of the power unit)</p>		

p1283[0...n] Vdc_max controller dynamic factor (V/f) / Vdc_max dyn_factor			
VECTOR	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [%]	Max 10000 [%]	Factory setting 100 [%]
Description:	<p>Sets the dynamic factor for the DC link voltage controller ($V_{\text{dc_max}}$ controller).</p> <p>100 % means that p1290, p1291 and p1292 (gain, integral time and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization.</p> <p>If subsequent optimization is required, then this can be realized using the dynamic factor. In this case p1290, p1291, p1292 are weighted with the dynamic factor p1283.</p> <p>If several modules are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the module involved.</p>		
Note:	The pre-setting of the dynamic factor is based on the power units connected at DRIVE-CLiQ. It is assumed that the power unit, connected via DRIVE-CLiQ is also electrically connected to the DC link. If this is not the case, then the dynamic factor must be optimized manually.		

p1285[0...n] Vdc_min controller switch-in level (kinetic buffering) (V/f) / Vdc_min on_level			
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 65 [%]	Max 150 [%]	Factory setting 76 [%]
Description:	<p>Sets the switch-in level for the Vdc-min controller (kinetic buffering).</p> <p>The value is obtained as follows: AC/AC unit: $p1286[\text{V}] = p1285[\%] * \sqrt{2} * p0210$ DC/AC unit: $p1286[\text{V}] = p1285[\%] * p0210$</p>		
Warning:	An excessively large value may adversely influence normal drive operation. The values up to 150 % are intended for operating modes p1240 = 5, 6.		



r1286	Vdc_min controller switch-in level (kinetic buffering) (V/f) / Vdc_min on_level		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 6320 Unit selection: - Expert list: 1 Factory setting - [V]
Description:	Displays the switch-in level for the Vdc_min controller (kinetic buffering).		
p1287[0...n]	Vdc_min controller dynamic factor (kinetic buffering) (V/f) / Vdc_min dyn_factor		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100 [%]
Description:	Sets the dynamic factor for the Vdc-min controller (kinetic buffering). 100 % means that p1290, p1291 and p1292 (gain, integral time and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization. If subsequent optimization is required, then this can be realized using the dynamic factor. In this case p1290, p1291, p1292 are weighted with the dynamic factor p1287. If several modules are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the module involved.		
Note:	The pre-setting of the dynamic factor is based on the power units connected at DRIVE-CLiQ. It is assumed that the power unit, connected via DRIVE-CLiQ is also electrically connected to the DC link. If this is not the case, then the dynamic factor must be optimized manually.		
p1289[0...n]	Vdc_max controller speed threshold (V/f) / Vdc_max n_thresh		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 10.0 [RPM]
Description:	Sets the lower speed threshold for the Vdc_max controller. When this speed threshold is fallen below, the Vdc_max control is switched-out and the speed is controlled using the ramp-function generator.		
p1290[0...n]	Vdc controller proportional gain (V/f) / Vdc_ctrl Kp		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6320 Unit selection: - Expert list: 1 Factory setting 1.00
Description:	Sets the proportional gain for the Vdc controller (DC link voltage controller).		
Note:	The gain factor is proportional to the capacitance of the DC link. The parameter is preset to a value that is optimally adapted to the capacitance of the individual Motor Module. The capacitances of the other power units, which are connected to the DC link, can be taken into account using the dynamic factor (p1287 or p1283).		

p1291[0...n]	Vdc controller integral time (V/f) / Vdc_ctrl Tn		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6320 Unit selection: - Expert list: 1 Factory setting 40 [ms]
Description:	Sets the integral time for the Vdc controller (DC link voltage controller).		
p1292[0...n]	Vdc controller rate time (V/f) / Vdc_ctrl t_rate		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6320 Unit selection: - Expert list: 1 Factory setting 10 [ms]
Description:	Sets the rate time constant for the Vdc controller (DC link voltage controller).		
p1293[0...n]	Vdc controller output limit (V/f) / Vdc_ctrl outp_lim		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6320 Unit selection: - Expert list: 1 Factory setting 10.0 [Hz]
Description:	Sets the output limit for the Vdc controller (DC link voltage controller).		
p1294	Vdc_max controller automatic detection ON signal level (V/f) / Vdc_max SenseOnLev		
VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller.		
Values:	0: Automatic detection disabled 1: Automatic detection enabled		
p1295[0...n]	Vdc_min controller time threshold (V/f) / Vdc_min t_thresh		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.000 [s]
Description:	Sets the time threshold for the Vdc_min controller (kinetic buffering). If this value is exceeded a fault is output; the required response can be parameterized . Prerequisite: p1296 = 1.		

p1296[0...n]	Vdc_min controller response (kinetic buffering) (V/f / Vdc_min response)		
VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the response for the Vdc_min controller (kinetic buffering).		
Values:	0: Buffer Vdc until undervoltage, n<p1297 -> F07405 1: Buff. Vdc until undervolt., n<p1297 -> F07405, t>p1295 -> F07406		
p1297[0...n]	Vdc_min controller speed threshold (V/f) / Vdc_min n_thresh		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 50.0 [RPM]
Description:	Sets the speed threshold for the Vdc-min controller (kinetic buffering). If this value is exceeded a fault is output; the required response can be parameterized .		
r1298	CO: Vdc controller output (V/f) / Vdc_ctrl output		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 6320 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the actual output of the Vdc controller (DC link voltage controller)		
p1300[0...n]	Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode		
SERVO	Can be changed: C2(1), T Data type: Integer16 P-Group: V/f open-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 1590, 1690, 5060, 6300 Unit selection: - Expert list: 1 Factory setting 21
Description:	Sets the open and closed loop control mode of a drive.		
Values:	20: Speed control (sensorless) 21: Speed control (with encoder) 23: Torque control (with encoder)		
Dependency:	Closed-loop speed or torque control (with encoder) cannot be selected if the encoder type is not entered (p0400). Refer to: p0108, r0108, p0300, p0311, p0400, p1501		
Note:	The closed-loop torque control can only be changed over in operation (p1300 = 20, 21) by selecting the closed-loop speed control (p1501). At the changeover, the setting of p1300 does not change. In this case, the actual state is displayed in r1407, bit 2 and bit 3. For sensorless operation (p1404 = 0 or p1300 = 20), the following applies: - The following condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$ - For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.		

p1300[0...n] Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode			
VECTOR	Can be changed: C2(1), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 1590, 1690, 5060, 6300
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 23	Factory setting 20
Description:	Sets the open and closed loop control mode of a drive.		
Values:	0: V/f control with linear characteristic 1: V/f control with linear characteristic and FCC 2: V/f control with parabolic characteristic 3: V/f control with parameterizable characteristic 5: V/f control for drives requiring a precise freq. (e.g. textiles) 6: V/f control for drives requiring a precise frequency with FCC 18: I/f control with fixed current 19: V/f control with independent voltage setpoint 20: Speed control (sensorless) 21: Speed control (with encoder) 22: Torque control (sensorless) 23: Torque control (with encoder)		
Dependency:	Closed-loop speed or torque control (with encoder) cannot be selected if the encoder type is not entered (p0400). Closed-loop speed or torque control can be selected if the closed-loop speed/torque control was selected as operating mode (p0108 bit 2). Only operation with V/f characteristic is possible if the rated motor speed is not entered (p0311). A reluctance motor can only be operated in a V/f control mode (p1300 < 20). Refer to: p0108, r0108, p0300, p0311, p0400, p1501		
Note:	The closed-loop torque control can only be changed over in operation (p1300 = 20, 21) by selecting the closed-loop speed control (p1501). At the changeover, the setting of p1300 does not change. In this case, the actual state is displayed in r1407, bit 2 and bit 3. For the open-loop control modes p1300 = 5 and 6 (textile sector), the slip compensation p1335 and the resonance damping p1338 are internally switched-out (disabled) in order to be able to precisely set the output frequency. Separately-excited synchronous motors can only be operated in the modes p1300 = 21 and 23 - or for diagnostic purposes in the modes p1300 = 0, 3 and 18. For I/f control (p1300 = 18), the current amplitude can be set using p1609. Both for V/f as well as for I/f control only a small load may be applied to the separately-excited synchronous motor because the excitation current is not calculated as a function of the load. During operation (the pulses enabled) the open-loop/closed-loop control mode cannot be changed by changing-over drive data sets. p1300 is pre-assigned depending on r0108.2 and p0187.		
p1310[0...n] Voltage boost permanent / V_boost perm			
VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 1690, 6300
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [%]	Max 250.0 [%]	Factory setting 50.0 [%]
Description:	Defines the voltage boost as a [%] referred to the rated motor current (p0305). The magnitude of the permanent voltage boost is reduced with increasing frequency so that at the rated motor frequency, the rated motor voltage is present. The magnitude of the boost in Volt at a frequency of zero is defined as follows: Voltage boost [V] = p0305 (rated motor current [A]) x p0350 (stator/primary section resistance [ohm]) x p1310 (permanent voltage boost [%]) / 100 % At low output frequencies, there is only a low output voltage in order to maintain the motor flux. However, the output voltage can be too low in order to achieve the following:		

- magnetize the induction motor.
- hold the load.
- compensate for losses in the system.

This is the reason that the output voltage can be increased using p1310.

The voltage boost can be used for both linear as well as square-law V/f characteristics and is calculated as follows:

Voltage boost = p0305 (rated motor current x p0350 (stator/primary section resistance) x p1310 (permanent voltage boost)

Dependency: Setting in p0640 (motor overload factor [%]) limits the boost.

For vector control, the permanent voltage boost (p1310) has no effect as the drive converter automatically sets the optimum operating conditions.

Refer to: p1300, p1311, r1315

Notice: The voltage boost increases the motor temperature (particularly at zero speed).

Note: The voltage boost is only effective for V/f control (p1300).

The boost values are combined with one another if the permanent voltage boost (p1310) is used in conjunction with other boost parameters (acceleration boost (p1311)).

However, these parameters are assigned the following priorities: p1310 > p1311

p1311[0...n]		Voltage boost at acceleration / V_boost accelerate	
VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 1690, 6300
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [%]	Max 250.0 [%]	Factory setting 0.0 [%]
Description:	p1311 only results in a voltage boost when accelerating and generates a supplementary torque/force to accelerate the load.		
	The voltage boost becomes effective for a positive setpoint increase and disappears as soon as the setpoint has been reached.		
	The magnitude of the boost in Volt at a frequency of zero is defined as follows:		
	Voltage boost [V] = p0305 (rated motor current [A]) x p0350 (stator/primary section resistance [ohm]) x p1310 (permanent voltage boost [%]) / 100 %		
	Setting in p0640 (motor overload factor [%]) limits the boost.		
Dependency:	Refer to: p1300, p1310, r1315		
Notice:	The voltage boost results in a higher motor temperature increase.		
Note:	The voltage boost when accelerating can improve the response to small, positive setpoint changes.		
	Assigning priorities for the voltage boosts: refer to p1310		

r1315		Voltage boost total / V_boost total	
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 6300
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the total resulting voltage boost in volt (p1310 + p1311).		

p1317[0...n]	V/f control diagnostics activation / Uf diagn act		
SERVO	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5718 Unit selection: - Expert list: 1 Factory setting 0
Description:	Activates the V/f control with linear characteristic for diagnostic purposes. 0: Operation as set in p1300. 1: Activates the V/f control.		
Values:	0: Off (p1300 eff) 1: On		
Dependency:	Refer to: p1318, p1319, p1326, p1327		
p1318[0...n]	V/f control ramp-up/ramp-down time / Uf t_rmp-up_rmp-dn		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5300 Unit selection: - Expert list: 1 Factory setting 10.000 [s]
Description:	Sets the ramp-up and ramp-down time for the V/f control. The ramp-function generator requires this time to reach the maximum speed (p1082) from zero.		
Dependency:	Refer to: p1317, p1319, p1326, p1327		
Note:	This ramp is used for stall protection and operates independently of any ramp-function generator that might have been configured.		
p1319[0...n]	V/f control voltage at zero frequency / Uf V at f=0 Hz		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5300 Unit selection: - Expert list: 1 Factory setting 0.0 [Vrms]
Description:	The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327. This parameter specifies the voltage for a frequency of 0 Hz.		
Dependency:	Activates the V/f control using p1317. Refer to: p1317, p1326, p1327		
Note:	Linear interpolation is carried out between the points 0 Hz / p1319 and p1326 / p1327.		
p1320[0...n]	V/f control programmable characteristic frequency 1 / Uf char f1		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6300 Unit selection: - Expert list: 1 Factory setting 0.00 [Hz]
Description:	The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the first point along the characteristic.		

Dependency: Selects the freely programmable characteristic using p1300 = 3.
The following applies to the frequency values: p1320 ≤ p1322 ≤ p1324 ≤ p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point.
Refer to: p1300, p1310, p1311, p1321, p1322, p1323, p1324, p1325, p1326, p1327

Note: Linear interpolation is carried out between the points 0 Hz / p1310, p1320 / p1321 ... p1326 / p1327.
The voltage boost when accelerating (p1311) is also applied to the freely programmable V/Hz characteristic.

p1321[0...n] V/f control programmable characteristic voltage 1 / Uf char U1

VECTOR **Can be changed:** U, T **Calculated:** CALC_MOD_ALL **Access level:** 3
Data type: Floating Point **Dynamic index:** DDS, p0180 **Func. diagram:** 6300
P-Group: V/f open-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0.0 [Vrms] 10000.0 [Vrms] 0.0 [Vrms]

Description: The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310.
This parameter specifies the voltage of the first point along the characteristic.

Dependency: Selects the freely programmable characteristic using p1300 = 3.

Refer to: p1310, p1311, p1320, p1322, p1323, p1324, p1325, p1326, p1327

Note: Linear interpolation is carried out between the points 0 Hz / p1310, p1320 / p1321 ... p1326 / p1327.
The voltage boost when accelerating (p1311) is also applied to the freely programmable V/Hz characteristic.

p1322[0...n] V/f control programmable characteristic frequency 2 / Uf char f2

VECTOR **Can be changed:** U, T **Calculated:** CALC_MOD_ALL **Access level:** 3
Data type: Floating Point **Dynamic index:** DDS, p0180 **Func. diagram:** 6300
P-Group: V/f open-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0.00 [Hz] 3000.00 [Hz] 0.00 [Hz]

Description: The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310.
This parameter specifies the voltage of the second point along the characteristic.

Dependency: The following applies to the frequency values: p1320 ≤ p1322 ≤ p1324 ≤ p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point.

Refer to: p1310, p1311, p1320, p1321, p1323, p1324, p1325, p1326, p1327

p1323[0...n] V/f control programmable characteristic voltage 2 / Uf char U2

VECTOR **Can be changed:** U, T **Calculated:** CALC_MOD_ALL **Access level:** 3
Data type: Floating Point **Dynamic index:** DDS, p0180 **Func. diagram:** 6300
P-Group: V/f open-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0.0 [Vrms] 10000.0 [Vrms] 0.0 [Vrms]

Description: The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310.
This parameter specifies the voltage of the second point along the characteristic.

Dependency: Refer to: p1310, p1311, p1320, p1321, p1322, p1324, p1325, p1326, p1327

p1324[0...n]	V/f control programmable characteristic frequency 3 / Uf char f3		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6300 Unit selection: - Expert list: 1 Min 0.00 [Hz]
		Max 3000.00 [Hz]	Factory setting 0.00 [Hz]
Description:	The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the third point along the characteristic.		
Dependency:	The following applies to the frequency values: p1320 ≤ p1322 ≤ p1324 ≤ p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point. Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1325, p1326, p1327		
p1325[0...n]	V/f control programmable characteristic voltage 3 / Uf char U3		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6300 Unit selection: - Expert list: 1 Min 0.0 [Vrms]
		Max 10000.0 [Vrms]	Factory setting 0.0 [Vrms]
Description:	The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the third point along the characteristic.		
Dependency:	Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1326, p1327		
p1326[0...n]	V/f control programmable characteristic frequency 4 / Uf char f4		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5300, 6300 Unit selection: - Expert list: 1 Min 0.00 [Hz]
		Max 10000.00 [Hz]	Factory setting 0.00 [Hz]
Description:	In the servo control mode the following applies: The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327. For vector control, the following applies: The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the fourth point along the characteristic.		
Dependency:	In the servo control mode the following applies: Activates the V/f control using p1317. For vector control, the following applies: Selects the freely programmable characteristic using p1300 = 3. The following applies to the frequency values: p1320 ≤ p1322 ≤ p1324 ≤ p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point. Refer to: p1310, p1311, p1317, p1319, p1320, p1321, p1322, p1323, p1324, p1325, p1327		
Note:	In the servo control mode the following applies: Linear interpolation is carried out between the points 0 Hz / p1319 and p1326 / p1327. For vector control, the following applies: Linear interpolation is carried out between the points 0 Hz / p1310, p1320 / p1321 ... p1326 / p1327. For output frequencies above p1326, the characteristic is extrapolated with the gradient between the characteristic points p1324/p1325 and p1326/p1327. The voltage boost when accelerating (p1311) is also applied to the freely programmable V/Hz characteristic.		

p1327[0...n]	V/f control programmable characteristic voltage 4 / Uf char U4		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5300, 6300 Unit selection: - Expert list: 1 Min 0.0 [Vrms]
		Max 10000.0 [Vrms]	Factory setting 0.0 [Vrms]
Description:	In the servo control mode the following applies: The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327. For vector control, the following applies: The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the fourth point along the characteristic.		
Dependency:	In the servo control mode the following applies: Activates the V/f control using p1317. For vector control, the following applies: Selects the freely programmable characteristic using p1300 = 3. Refer to: p1310, p1311, p1317, p1319, p1320, p1321, p1322, p1323, p1324, p1325, p1326		
Note:	In the servo control mode the following applies: Linear interpolation is carried out between the points 0 Hz / p1319 and p1326 / p1327. For vector control, the following applies: Linear interpolation is carried out between the points 0 Hz / p1310, p1320 / p1321 ... p1326 / p1327. The voltage boost when accelerating (p1311) is also applied to the freely programmable V/Hz characteristic.		
p1330[0...n]	CI: V/Hz control independent voltage setpoint / Vf V_set independ.		
VECTOR	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: V/f open-loop control Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min -
		Max -	Factory setting 0
Description:	Sets the signal source for the voltage setpoint for V/f control with an independent voltage setpoint (p1300 = 19).		
Dependency:	Selects the V/f control with independent voltage setpoint via p1300 = 19. Refer to: p1300		
p1335[0...n]	Slip compensation, scaling / Slip comp scal		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 1690, 6310 Unit selection: - Expert list: 1 Min 0.0 [%]
		Max 600.0 [%]	Factory setting 0.0 [%]
Description:	Sets the setpoint for slip compensation in [%] referred to r0330 (motor rated slip). p1335 = 0.0 %: Slip compensation de-activated. p1335 = 100.0 %: The slip is completely compensated.		
Dependency:	Prerequisite for a precise slip compensation for p1335 = 100 % are the precise motor parameters (p0350 ... p0360). If the parameters are not precisely known, a precise compensation can be achieved by varying p1335.		
Note:	The purpose of slip compensation is to maintain a constant motor speed regardless of the applied load. The fact that the motor speed decreases with increasing load is a typical characteristic of induction motors. For synchronous motors, this effect does not occur and the parameter has no effect in this case. For the open-loop control modes p1300 = 5 and 6 (textile sector), the slip compensation is internally disabled in order to be able to precisely set the output frequency.		

If p1335 is changed while commissioning (p0009, p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1335 have been changed by a parameter that was set when the drive was commissioned (e.g. p0300).

p1336[0...n]	Slip compensation limit value / Slip comp lim val		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 6310 Unit selection: - Expert list: 1 Factory setting 250.00 [%]
Description:	Sets the limit value for slip compensation in [%] referred to r0330 (motor rated slip).		
r1337	Actual slip compensation / Slip comp act val		
VECTOR	Can be changed: - Data type: Floating Point P-Group: V/f open-loop control Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 6310 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the actual compensated slip [%] referred to r0330 (rated motor slip).		
Dependency:	p1335 > 0 %: Slip compensation active. Refer to: p1335		
p1338[0...n]	V/f mode resonance damping gain / Vf Res_damp gain		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1690, 6310 Unit selection: - Expert list: 1 Factory setting 0.00
Description:	Sets the controller gain for resonance damping for V/f control.		
Dependency:	Refer to: p1300, p1339, p1349		
Note:	The resonance damping function dampens active current oscillations that frequency occur under no-load conditions. The resonance damping is active in a range of approximately 5 ... 90 % of the rated motor frequency (p0310), but up to a maximum of 45 Hz. For the open-loop control modes p1300 = 5 and 6 (textile sectors), the resonance damping is internally disabled in order that the output frequency can be precisely set.		
p1339[0...n]	V/f mode resonance damping filter time constant / Vf Res_damp T		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6310 Unit selection: - Expert list: 1 Factory setting 20.00 [ms]
Description:	Sets the filter time constant of the controller for resonance damping with V/f control.		
Dependency:	Refer to: p1300, p1338, p1349		

p1340[0...n]	I_max frequency controller proportional gain / I_max_ctrl Kp		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1690 Unit selection: - Expert list: 1 Min 0.000
		Max 0.500	Factory setting 0.000
Description:	Sets the proportional gain of the I_max voltage controller. The I_max controller reduces the drive converter/inverter output current if the maximum current (r0067) is exceeded. In the V/f operating modes (p1300) for the I_max control, one controller is used that acts on the output frequency and one controller that acts on the output voltage. The frequency controller reduces the current by decreasing the converter output frequency. The frequency is reduced down to a minimum value (equaling twice rated slip). If the overcurrent condition cannot be successfully resolved using this measure, then the drive converter output voltage is reduced using the I_max voltage controller. Once the overcurrent condition has been resolved, the drive is accelerated along the ramp set in p1120 (ramp-up time).		
Dependency:	In the V/f modes (p1300) for textile applications and for external voltage setpoints, only the I_max voltage controller is used.		
Notice:	When de-activating the I_max controller, the following must be carefully observed: When the maximum current (r0067) is exceeded, the output current is no longer reduced, however, overcurrent alarm messages are generated. The drive is shut down if the overcurrent limit (r0209) is exceeded.		
Note:	The I_max limiting controller becomes ineffective if the ramp-function generator is de-activated with p1122 = 1. p1341 = 0: I_max frequency controller de-activated and I_max voltage controller activated over the complete speed range.		
p1341[0...n]	I_max frequency controller integral time / I_max_ctrl Tn		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1690 Unit selection: - Expert list: 1 Min 0.000 [s]
		Max 50.000 [s]	Factory setting 0.300 [s]
Description:	Sets the integral time for the I_max frequency controller.		
Dependency:	Refer to: p1340		
r1343	I_max controller frequency output / I_max_ctrl f_outp		
VECTOR	Can be changed: - Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 1690 Unit selection: p0505 Expert list: 1 Min - [RPM]
		Max - [RPM]	Factory setting - [RPM]
Description:	Displays the effective frequency limit.		
Dependency:	Refer to: p1340		

r1344	I_max controller voltage output / I_max_ctrl V_outp		
VECTOR	Can be changed: - Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1	Access level: 3 Func. diagram: 1690 Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the amount by which the converter output voltage is reduced.		
Dependency:	Refer to: p1340		
p1345[0...n]	I_max voltage controller proportional gain / I_max_V_ctrl Kp		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1690 Unit selection: - Expert list: 1
	Min 0.000	Max 100000.000	Factory setting 0.000
Description:	Sets the proportional gain for the I_max voltage controller.		
Dependency:	Refer to: p1340		
Note:	The controller settings are also used in the current controller of the DC brake (refer to p1232).		
p1346[0...n]	I_max voltage controller integral time / I_max_V_ctrl Tn		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1690 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 50.000 [s]	Factory setting 0.030 [s]
Description:	Sets the integral time for the I_max voltage controller.		
Dependency:	Refer to: p1340		
Note:	p1346 = 0: Integral time of the I_max voltage controller de-activated. The controller settings are also used in the current controller of the DC brake (refer to p1232).		
p1349[0...n]	V/f mode resonance damping maximum frequency / Uf res_damp F_max		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6310 Unit selection: - Expert list: 1
	Min 0.00 [Hz]	Max 3000.00 [Hz]	Factory setting 0.00 [Hz]
Description:	Sets the maximum output frequency above which the resonance damping for V/f control is de-activated.		
Dependency:	Refer to: p1338, p1339		
Note:	For p1349 = 0, the changeover limit is automatically set to 95 % of the rated motor frequency - however, to a max. of 45 Hz.		

p1350[0...n]	Soft starting / Soft starting		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 1690
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets whether the voltage is continuously increased during the magnetizing phase (p1350 = 1, On) or whether it jumps directly to the voltage boost (p1350 = 0, Off).		
Values:	0: Off 1: On		
Note:	The settings for this parameter have the following advantages and disadvantages: 0 = off (jump directly to voltage boost) Advantage: Flux is established quickly -> torque is quickly available Disadvantage: The motor can move while it is being magnetized 1 = on (voltage is continually established) Advantage: The motor is unlikely to rotate Disadvantage: The flux is established slower -> torque is available later		
p1356[0...n]	Cl: V/f control, angular setpoint / Uf ang setpoint		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: -
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the differential angular generation for V/f control.		
p1358[0...n]	Angular difference, symmetrizing, actual angle / Sym act angle		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the dead time for the symmetrizing of the actual angle value for the differential angular generation. The selected multiplier refers to the current controller clock cycle (dead time= p1358 * p0115[0]).		
r1359	CO: Angular difference / Angular difference		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the output of the differential angular generation.		
Note:	The difference between the setpoint angle, read-in in p1356 and the actual value of the V/f control delayed with p1358 is displayed.		

p1400[0...n] Speed control configuration / n_ctrl config					
SERVO	Can be changed: U, T		Calculated: -	Access level: 2	
	Data type: Unsigned16		Dynamic index: DDS, p0180	Func. diagram: 1590, 5490	
	P-Group: Closed-loop control		Units group: -	Unit selection: -	
	Not for motor type: REL			Expert list: 1	
	Min	Max	Factory setting		
	-	-	0000 0011 1010 0000 bin		
Description: Sets the configuration for the closed-loop speed control.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	03	Reference model speed setpoint, I component	On	Off	5030
	04	Torque limiting active in motoring/regenerating mode	Yes	No	-
	05	Kp/Tn adaptation active	Yes	No	-
	07	Interpolation speed pre-control active	Yes	No	-
	08	Interpolation torque setpoint active	Yes	No	-
	09	Damping for sensorless open-loop controlled oper.	Yes	No	-
	10	Speed pre-control	For balancing	For setp_filter 2	-
	11	Sensorless oper. speed actual value starting value	Setpoint	0.0	-
	12	Sensorless operation changeover	Steady-state	When accelerating	-
	13	Motoring/regenerating depending on	Speed setpoint	Actual speed value	-
Note:	Re bit 07:				
	The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and when the master receives a sign of life (STW 2.12 ... STW 2.15). Further, for active Dynamic Servo Control (DSC) an additional dead time of one speed controller clock cycle is obtained.				
	Re bit 11:				
	If the motor rotates when the pulses are enabled, then we recommend p1400.11 = 1 (starting value = setpoint) with the matching sign.				
	If the motor remains stationary (zero speed) when the pulses are enabled, then we recommend p1400.11 = 0 (starting value = 0.0).				
	Re bit 12:				
If a changeover is made from operation with encoder to sensorless (without encoder) operation while accelerating (with the threshold from p1404), then we recommend p1400.12 = 0.					
If the changeover is made from operation with encoder to sensorless (without encoder) at constant speed/velocity (e.g. with a DDS changeover or if there is an encoder fault via p0491) then we recommend p1400.12 = 1.					

p1400[0...n]	Velocity control, configuration / v_ctrl config			
SERVO (Lin)	Can be changed: U, T		Calculated: -	Access level: 2
	Data type: Unsigned16		Dynamic index: DDS, p0180	Func. diagram: 1590, 5490
	P-Group: Closed-loop control		Units group: -	Unit selection: -
	Not for motor type: REL			Expert list: 1
	Min -	Max -	Factory setting 0000 0011 1010 0000 bin	
Description:	Sets the configuration for the closed-loop velocity control.			
Bit field:	Bit	Signal name	1 signal	0 signal
	03	Reference model velocity setpoint I component	On	Off
	04	Force limiting active in motoring/regenerating mode	Yes	No
	05	Kp/Tn adaptation active	Yes	No
	07	Interpolation velocity controller pre-control active	Yes	No
	08	Interpolation force setpoint active	Yes	No
				FP 5030
				-
				-
				-
				-

09	Damping for sensorless open-loop controlled oper.	Yes	No	-
10	Velocity pre-control	For balancing	For setp_filter 2	-
11	Sensorless oper. velocity actual value starting value	Setpoint	0.0	-
12	Sensorless operation changeover	Steady-state	When accelerating	-
13	Motoring/regenerating depending on	Speed setpoint	Actual speed value	-

Note:

Re bit 07:

The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and when the master receives a sign of life (STW 2.12 ... STW 2.15). Further, for active Dynamic Servo Control (DSC) an additional dead time of one velocity controller clock cycle is obtained.

Re bit 11:

If the motor rotates when the pulses are enabled, then we recommend p1400.11 = 1 (starting value = setpoint) with the matching sign.

If the motor remains stationary (zero speed) when the pulses are enabled, then we recommend p1400.11 = 0 (starting value = 0.0).

Re bit 12:

If a changeover is made from operation with encoder to sensorless (without encoder) operation while accelerating (with the threshold from p1404), then we recommend p1400.12 = 0.

If the changeover is made from operation with encoder to sensorless (without encoder) at constant speed/velocity (e.g. with a DDS changeover or if there is an encoder fault via p0491) then we recommend p1400.12 = 1.

p1400[0...n]		Speed control configuration / n_ctrl config			
VECTOR (n/M)	Can be changed: U, T		Calculated: -		Access level: 2
	Data type: Unsigned16		Dynamic index: DDS, p0180		Func. diagram: 6490
	P-Group: Closed-loop control		Units group: -		Unit selection: -
	Not for motor type: REL				Expert list: 1
	Min		Max		Factory setting
	-		-		1000 0000 0010 0001 bin
Description:		Sets the configuration for the closed-loop speed control.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Automatic Kp/Tn adaptation active	Yes	No	-
	01	Sensorless vector control freeze I comp	Yes	No	-
	02	Acceleration pre-control source	External (p1495)	Internal (n_set)	6031
	03	Reference model speed setpoint, I component	On	Off	6031
	05	Kp/Tn adaptation active	Yes	No	-
	06	Free Tn adaptation active	Yes	No	-
	14	Torque pre-control	Always active	For n_ctrl enab	-
	15	Sensorless vector control, speed pre-control	Yes	No	-
Note:		Re bit 01: When the bit is set, the I component of the speed controller is kept when changing into the open-loop controlled mode.			

p1401[0...n]		Flux control configuration / F_ctrl config			
VECTOR (n/M)	Can be changed: U, T		Calculated: -		Access level: 3
	Data type: Unsigned16		Dynamic index: DDS, p0180		Func. diagram: 6491, 6722
	P-Group: Closed-loop control		Units group: -		Unit selection: -
	Not for motor type: PEM, REL				Expert list: 1
	Min		Max		Factory setting
	-		-		1110 bin
Description:		Sets the configuration for flux setpoint control			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Flux setpoint soft starting active	Yes	No	-
	01	Flux setpoint differentiation active	Yes	No	-
	02	Flux build-up control active	Yes	No	-

03	Flux characteristic, load-dependent	Yes	no	-
04	Flux controller (ASM with encoder)	Yes	No	-
05	Flux impression (ASM with encoder)	with model chngov	from 30% n _{rated}	-

Note:

Re bit 0 (not for permanent-magnet synchronous motors):

Initially, the flux is only established with a low rate of rise when magnetizing the induction motor. The flux setpoint p1570 is reached again at the end of the magnetization time p0346.

Re bit 1 (not for permanent-magnet synchronous motors):

The flux differentiation can be switched-out if a significant ripple occurs in the field-generating current setpoint (r0075) when entering the field weakening range. However, this is not suitable for fast acceleration operations because then, the flux decays more slowly and the voltage limiting responds.

Re bit 2 (not for permanent-magnet synchronous motors):

The flux build-up control operates during the magnetization phase p0346 of the induction motor. If it is switched-out, a constant current setpoint is impressed and the flux is built-up corresponding to the rotor time constant.

Re bit 3:

The load-dependent calculation of the flux characteristic is only available for separately-excited synchronous motors.

re bit 4 (only for vector control with encoder):

The flux controller does not operate in the range of the current model and not in the range of the flux impression (also refer to p1750 bit 4).

Re bit 5 (only for vector control with encoder):

Extremely rugged control operation is possible by directly toggling between the current model and flux impression. We therefore recommend that, in addition, the time-controlled model change is switched-in (p1750 bit 4 = 1) or the model changeover limits are significantly increased (p1752 > 0.35 * p0311; p1753 = 5 %)

p1402[0...n] Closed-loop current control and motor model configuration / I_ctrl config

SERVO

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: -
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	0100 bin

Description:

Sets the configuration for the closed-loop control and the motor model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Park encoder for n _{ist} > p1404	Yes	No	-
02	Current controller adaptation active	Yes	No	-
04	Torque-speed pre-control with encoder	Yes	No	-

Note:

Re bit 01:

When the bit is set, the encoder is parked as soon as the actual speed is greater than the changeover speed (p1404). The encoder state is displayed in r0487.14.

Re bit 02:

The current controller adaptation (p0391 ... p0393) is only calculated when the bit is set.

p1402[0...n] Closed-loop current control and motor model configuration / I_ctrl config

SERVO (Lin)

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: -
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	0100 bin

Description:

Sets the configuration for the closed-loop control and the motor model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Park encoder for v _{act} > p1404	Yes	No	-
02	Current controller adaptation active	Yes	No	-
04	Force-velocity pre-control with encoder	Yes	No	-

Note: Re bit 01:
When the bit is set, the encoder is parked as soon as the actual velocity is greater than the changeover velocity (p1404). The encoder state is displayed in r0487.14.
Re bit 02:
The current controller adaptation (p0391 ... p0393) is only calculated when the bit is set.

p1402[0...n] Closed-loop current control and motor model configuration / I_ctrl config

VECTOR (n/M) **Can be changed:** U, T **Calculated:** CALC_MOD_REG **Access level:** 3
Data type: Unsigned16 **Dynamic index:** DDS, p0180 **Func. diagram:** -
P-Group: Closed-loop control **Units group:** - **Unit selection:** -
Not for motor type: REL **Expert list:** 1
Min **Max** **Factory setting**
 - - 0001 bin

Description: Sets the configuration for the closed-loop control and the motor model.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Speed-following error correction active	Yes	No	-
	02	Current controller adaptation active	Yes	No	-

Note: Re bit 00:
When the bit is set, the speed following error is compensated that is obtained as a result of the smoothing time constant in p1441.
Re bit 02:
The current controller adaptation (p0391 ... p0393) is only calculated when the bit is set.

p1404[0...n] Sensorless operation changeover speed / Sensorl op n_chgov

SERVO **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** DDS, p0180 **Func. diagram:** 1590, 5060
P-Group: Closed-loop control **Units group:** 3_1 **Unit selection:** p0505
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 0.0 [RPM] 210000.0 [RPM] 210000.0 [RPM]

Description: Sets the speed to change over between operation with and without encoder. Above this speed, the drive system is automatically operated in the sensorless mode.

Note: The changeover speed applies when changing over between operation with and without encoder.
 Separate speed controllers should be set when operating with and without encoder.
 Operation with encoder: p1460 (Kp), p1462 (Tn), p1461, p1463, p1457, p1458 (parameters for speed controller adaptation)
 Operation without encoder: p1470 (Kp), p1472 (Tn)
 For sensorless operation (p1404 = 0 or p1300 = 20), the following applies:
 - The condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$
 - For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.

p1404[0...n] Sensorless operation changeover velocity / Sensorl op v_chgov

SERVO (Lin) **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** DDS, p0180 **Func. diagram:** 1590, 5060
P-Group: Closed-loop control **Units group:** 4_1 **Unit selection:** p0505
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 0.0 [m/min] 1000.0 [m/min] 1000.0 [m/min]

Description: Sets the velocity to change over between operation with and without encoder. Above this velocity, the drive system is automatically operated in the sensorless mode.

Note: The changeover speed applies when changing over between operation with and without encoder.
 Separate speed controllers should be set when operating with and without encoder.

Operation with encoder: p1460 (Kp), p1462 (Tn), p1461, p1463, p1457, p1458 (parameters for speed controller adaptation)

Operation without encoder: p1470 (Kp), p1472 (Tn)

For sensorless operation (p1404 = 0 or p1300 = 20), the following applies:

- The condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$
- For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.

For sensorless operation (p1404 = 0 or p1300 = 20), the following applies:

- The condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$
- For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.

r1406.8...12					CO/BO: Control word speed controller / STW n_ctrl				
SERVO	Can be changed: -			Calculated: -		Access level: 3			
	Data type: Unsigned16			Dynamic index: -		Func. diagram: 1530, 2520			
	P-Group: Closed-loop control			Units group: -		Unit selection: -			
	Not for motor type: REL					Expert list: 1			
	Min		Max		Factory setting				
	-		-		-				
Description:					Displays the control word of the speed controller.				
Bit field:	Bit	Signal name		1 signal	0 signal		FP		
	08	Travel to fixed stop active		Yes	No		-		
	12	Torque control active		Yes	No		-		

r1406.8...12					CO/BO: Control word, velocity controller / STW v_ctrl				
SERVO (Lin)	Can be changed: -			Calculated: -		Access level: 3			
	Data type: Unsigned16			Dynamic index: -		Func. diagram: 1530, 2520			
	P-Group: Closed-loop control			Units group: -		Unit selection: -			
	Not for motor type: REL					Expert list: 1			
	Min		Max		Factory setting				
	-		-		-				
Description:					Displays the control word of the velocity controller.				
Bit field:	Bit	Signal name		1 signal	0 signal		FP		
	08	Travel to fixed stop active		Yes	No		-		
	12	Force control active		Yes	No		-		

r1406.4...15					CO/BO: Control word speed controller / STW n_ctrl				
VECTOR (n/M)	Can be changed: -			Calculated: -		Access level: 3			
	Data type: Unsigned16			Dynamic index: -		Func. diagram: -			
	P-Group: Closed-loop control			Units group: -		Unit selection: -			
	Not for motor type: REL					Expert list: 1			
	Min		Max		Factory setting				
	-		-		-				
Description:					Displays the control word of the speed controller.				
Bit field:	Bit	Signal name		1 signal	0 signal		FP		
	04	Holds speed controller I component		Yes	No		6040		
	05	Sets speed controller I component		Yes	No		6040		
	08	Travel to fixed stop		Yes	No		8012		
	11	Enables droop		Yes	No		6030		
	12	Torque control active		Yes	No		6060		
	15	Set speed adaptation controller I component		Yes	No		-		

r1407.0...13 CO/BO: Status word speed controller / ZSW n_ctrl

SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2522
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the speed controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	V/f control active	Yes	No	-
	01	Sensorless operation active	Yes	No	-
	02	Torque control active	Yes	No	-
	04	Speed setpoint from DSC	Yes	No	2522
	05	Speed controller I component frozen	Yes	No	-
	06	Speed controller I component set	Yes	No	-
	07	Torque limit reached	Yes	No	5610
	08	Upper torque limit active	Yes	No	5610
	09	Lower torque limit active	Yes	No	5610
	11	Speed setpoint limited	Yes	No	-
	13	Sensorless operation due to a fault	Yes	No	-

Note: Re bit 04:
The following conditions must be fulfilled to set to 1:
- CI: p1190 and CI: p1191 must be interconnected with a signal source that is not equal to zero.
- it is not permissible that OFF1, OFF3 or STOP2 are active.
- it is not permissible that the motor data identification is active.
- it is not permissible that the master control is active.
The following conditions can mean that the DSC function is not active in spite of the fact that the bit is set:
- clock-cycle synchronous operation is not selected (r2054 not equal to 4).
- the PROFIBUS is not clock-cycle synchronous (r2064[0] not equal to 1).
- DSC is not switched-in on the control side; this means that KPC = 0 is transferred as value at CI: p1191.

r1407.0...13 CO/BO: Status word, velocity controller / ZSW v_ctrl

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2522
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the velocity controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	V/f control active	Yes	No	-
	01	Sensorless operation active	Yes	No	-
	02	Force control active	Yes	No	-
	04	Velocity setpoint from DSC	Yes	No	2522
	05	Velocity controller I component frozen	Yes	No	-
	06	Velocity controller I component set	Yes	No	-
	07	Force limit reached	Yes	No	5610
	08	Upper force limit active	Yes	No	5610
	09	Lower force limit active	Yes	No	5610
	11	Velocity setpoint limited	Yes	No	-
	13	Sensorless operation due to a fault	Yes	No	-

Note: Re bit 04:
The following conditions must be fulfilled to set to 1:
- CI: p1190 and CI: p1191 must be interconnected with a signal source that is not equal to zero.

- it is not permissible that OFF1, OFF3 or STOP2 are active.
- it is not permissible that the motor data identification is active.
- it is not permissible that the master control is active.

The following conditions can mean that the DSC function is not active in spite of the fact that the bit is set:

- clock-cycle synchronous operation is not selected (r2054 not equal to 4).
- the PROFIBUS is not clock-cycle synchronous (r2064[0] not equal to 1).
- DSC is not switched-in on the control side; this means that KPC = 0 is transferred as value at CI: p1191.

r1407.0...14**CO/BO: Status word speed controller / ZSW n_ctrl**

VECTOR (n/M)

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 1530, 2522**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the status word of the speed controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	V/f control active	Yes	No	-
01	Sensorless operation active	Yes	No	-
02	Torque control active	Yes	No	6030
03	Speed control active	Yes	No	6040
05	Speed controller I component frozen	Yes	No	6040
06	Speed controller I component set	Yes	No	6040
07	Torque limit reached	Yes	No	6060
08	Upper torque limit active	Yes	No	-
09	Lower torque limit active	Yes	No	-
10	Droop enabled	Yes	No	6030
11	Speed setpoint limited	Yes	No	6030
12	Ramp-function generator set	Yes	No	-
13	Sensorless operation due to a fault	Yes	No	-
14	I/f control active	Yes	No	-

r1408.0...9**CO/BO: Status word closed-loop current control / ZSW curr ctrl**

SERVO

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 2530, 5040**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the status word of the closed-loop current control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	CI-loop curr ctrl	Active	Not active	-
04	Limit Vd	Active	Not active	-
05	Limit Vq	Active	Not active	-
06	Positive limiting Iq	Active	Not active	-
07	Negative limiting Iq	Active	Not active	-
08	Limit iq_set	Active	Not active	-
09	Limit id_set	Active	Not active	-

Note:

The selected current limit is taken into account by the upstream torque limiting; this is the reason that bits 6, 7 and 8 are only set for overshoots due to the current setpoint filter.

r1408.0...12		CO/BO: Status word closed-loop current control / ZSW curr ctrl			
VECTOR (n/M)	Can be changed: -		Calculated: -		Access level: 3
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 2530
	P-Group: Closed-loop control		Units group: -		Unit selection: -
	Not for motor type: REL				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the status word of the closed-loop current control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Current ctrl act	Active	Not active	-
	01	Id control, I-component limiting	Active	Not active	-
	03	Voltage limiting	Active	Not active	-
	10	Speed adaptation, limiting	Active	Not active	-
	11	Speed adaptation, speed deviation	Out tolerance	In tolerance	6719
	12	Motor stalled	Yes	No	6719, 8018

p1412[0...n]		Speed setpoint filter, dead time / n_set dead time			
TM41	Can be changed: U, T		Calculated: -		Access level: 3
	Data type: Floating Point		Dynamic index: DDS, p0180		Func. diagram: 9674
	P-Group: Closed-loop control		Units group: -		Unit selection: -
	Not for motor type: REL				Expert list: 1
	Min		Max		Factory setting
	0.000 [ms]		1.000 [ms]		0.000 [ms]
Description:	Sets the delay of the speed setpoint for the incremental encoder emulation.				

p1414[0...n]		Speed setpoint filter activation / n_set_filt active			
SERVO	Can be changed: U, T		Calculated: -		Access level: 3
	Data type: Unsigned16		Dynamic index: DDS, p0180		Func. diagram: 5020
	P-Group: Closed-loop control		Units group: -		Unit selection: -
	Not for motor type: REL				Expert list: 1
	Min		Max		Factory setting
	-		-		0000 bin
Description:	Activates the speed setpoint filters 1 and 2.				
Recommend.:	If only one filter is required, filter 1 should be activated and filter 2 deactivated, to avoid excessive processing time.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1	Yes	No	-
	01	Activate filter 2	Yes	No	-
Dependency:	The speed setpoint filter is parameterized using p1415 ... p1420 and p1421 ... p1426.				

p1414[0...n]		Velocity setpoint filter activation / v_set_filt active			
SERVO (Lin)	Can be changed: U, T		Calculated: -		Access level: 3
	Data type: Unsigned16		Dynamic index: DDS, p0180		Func. diagram: 5020
	P-Group: Closed-loop control		Units group: -		Unit selection: -
	Not for motor type: REL				Expert list: 1
	Min		Max		Factory setting
	-		-		0000 bin
Description:	Activates the velocity setpoint filters 1 and 2.				
Recommend.:	If only one filter is required, filter 1 should be activated and filter 2 deactivated, to avoid excessive processing time.				

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1	Yes	No	-
	01	Activate filter 2	Yes	No	-

Dependency: The velocity setpoint filter is parameterized using p1415 ... p1420 and p1421 ... p1426.

p1414[0...n] Speed setpoint filter activation / n_set_filt active

TM41	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 9674
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Activates speed setpoint filter 1 for the incremental encoder emulation.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1	Yes	No	9674

Dependency: The speed setpoint filter can be parameterized using p1417 and p1418.
Refer to: p1417, p1418

p1415[0...n] Speed setpoint filter 1 type / n_set_filt 1 typ

SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	0	2	0

Description: Sets the type for speed setpoint filter 1.

Values:
0: Low pass: PT1
1: Low pass: PT2
2: General 2nd-order filter

Dependency:
PT1 low pass: p1416
PT2 low pass: p1417, p1418
General filter: p1417 - p1420

p1415[0...n] Velocity setpoint filter 1 type / n_set_filt 1 typ

SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	0	2	0

Description: Sets the type for speed setpoint filter 1.

Values:
0: Low pass: PT1
1: Low pass: PT2
2: General 2nd-order filter

Dependency:
PT1 low pass: p1416
PT2 low pass: p1417, p1418
General filter: p1417 - p1420

p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.00 [ms]	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the time constant for the speed setpoint filter 1 (PT1).		
Dependency:	Refer to: p1414, p1415		
Note:	For SERVO (p0107) the following applies: This parameter is only effective if the speed filter is set as a PT1 low pass.		
p1416[0...n]	Velocity setpoint filter 1 time constant / v_set_filt 1 T		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.00 [ms]	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the time constant for the velocity setpoint filter 1 (PT1).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the velocity filter is set as a PT1 low pass.		
p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.00 [ms]	Access level: 3 Func. diagram: 6030 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the time constant for the speed setpoint filter 1 (PT1).		
Note:	For SERVO (p0107) the following applies: This parameter is only effective if the speed filter is set as a PT1 low pass.		
p1417[0...n]	Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.5 [Hz]	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for the speed setpoint filter 1 (PT2, general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		

p1417[0...n]	Velocity setpoint filter 1 denominator natural frequency / v_set_filt 1 fn_d		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for velocity setpoint filter 1 (PT2, general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1417[0...n]	Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d		
TM41	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 9674
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for the speed setpoint filter 1 (PT2) of the incremental encoder emulation.		
Dependency:	Refer to: p1414		
Note:	This parameter is only effective if the speed setpoint filter in p1414 is activated. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1418[0...n]	Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d		
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700
Description:	Sets the denominator damping for the speed setpoint filter 1 (PT2, general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.		
p1418[0...n]	Velocity setpoint filter 1 denominator damping / v_set_filt 1 D_d		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700
Description:	Sets the denominator damping for the velocity setpoint filter 1 (PT2, general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter.		

p1418[0...n]	Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d		
TM41	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 9674 Unit selection: - Expert list: 1 Min 0.001
		Max 1.000	Factory setting 0.700
Description:	Sets the denominator damping for the speed setpoint filter 1 (PT2) of the incremental encoder emulation.		
Dependency:	Refer to: p1414		
Note:	This parameter is only effective if the speed setpoint filter in p1414 is activated.		
p1419[0...n]	Speed setpoint filter 1 numerator natural frequency / n_set_filt 1 fn_n		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Min 0.5 [Hz]
		Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for speed setpoint filter 1 (general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is set as a general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1419[0...n]	Velocity setpoint filter 1 numerator natural frequency / v_set_filt 1 fn_n		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Min 0.5 [Hz]
		Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for velocity setpoint filter 1 (general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the velocity filter is set as a general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1420[0...n]	Speed setpoint filter 1 numerator damping / n_set_filt 1 D_n		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Min 0.000
		Max 10.000	Factory setting 0.700
Description:	Sets the numerator damping for speed setpoint filter 1 (general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is set as a general filter.		

p1420[0...n]	Velocity setpoint filter 1 numerator damping / v_set_filt 1 D_n		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the numerator damping for velocity setpoint filter 1 (general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the velocity filter is set as a general filter.		
p1421[0...n]	Speed setpoint filter 2 type / n_set_filt 2 typ		
SERVO	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the type for speed setpoint filter 2.		
Values:	0: Low pass: PT1 1: Low pass: PT2 2: General 2nd-order filter		
Dependency:	PT1 low pass: p1422 PT2 low pass: p1423, p1424 General filter: p1423 - p1426		
p1421[0...n]	Velocity setpoint filter 2 type / n_set_filt 2 typ		
SERVO (Lin)	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the type for speed setpoint filter 2.		
Values:	0: Low pass: PT1 1: Low pass: PT2 2: General 2nd-order filter		
Dependency:	PT1 low pass: p1422 PT2 low pass: p1423, p1424 General filter: p1423 - p1426		
p1422[0...n]	Speed setpoint filter 2 time constant / n_set_filt 2 T		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the time constant for the speed setpoint filter 2 (PT1).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the speed filter is set as a PT1 low pass.		

p1422[0...n]	Velocity setpoint filter 2 time constant / v_set_filt 2 T		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the time constant for the velocity setpoint filter 2 (PT1).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the velocity filter is set as a PT1 low pass.		
p1423[0...n]	Speed setpoint filter 2 denominator natural frequency / n_set_filt 2 fn_d		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for speed setpoint filter 2 (PT2, general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1423[0...n]	Velocity setpoint filter 2 denominator natural frequency / v_set_filt 2 fn_d		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for velocity setpoint filter 2 (PT2, general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1424[0...n]	Speed setpoint filter 2 denominator damping / n_set_filt 2 D_d		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the denominator damping for speed setpoint filter 2 (PT2, general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.		

p1424[0...n]	Velocity setpoint filter 2 denominator damping / v_set_filt 2 D_d		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the denominator damping for velocity setpoint filter 2 (PT2, general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter.		
p1425[0...n]	Speed setpoint filter 2 numerator natural frequency / n_set_filt 2 fn_n		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for speed setpoint filter 2 (general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the speed filter is set as a general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1425[0...n]	Velocity setpoint filter 2 numerator natural frequency / v_set_filt 2 fn_n		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for velocity setpoint filter 2 (general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the velocity filter is set as a general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1426[0...n]	Speed setpoint filter 2 numerator damping / n_set_filt 2 D_n		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the numerator damping for speed setpoint filter 2 (general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the speed filter is set as a general filter.		

p1426[0...n]	Velocity setpoint filter 2 numerator damping / v_set_filt 2 D_n		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700
Description:	Sets the numerator damping for velocity setpoint filter 2 (general filter).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the velocity filter is set as a general filter.		
p1428[0...n]	Speed pre-control balancing dead time / n_prectrBal t_dead		
SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5030, 5042, 5210, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0	Max 2.0	Factory setting 0.0
Description:	Sets the dead time to symmetrize the speed setpoint for active torque pre-control. The selected multiplier refers to the speed controller clock cycle (dead time= p1428 * p0115[1]).		
Dependency:	In conjunction with p1429, this parameter can simulate the characteristics of how the torque is established (dynamic response of closed current control loop). For VECTOR (r0107) the following applies: The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, a fixed dead time is used. Refer to: p1429, p1511		
p1428[0...n]	Velocity pre-control balancing dead time / n_prectrBal t_dead		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5030, 5042, 5210
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0	Max 2.0	Factory setting 0.0
Description:	Sets the dead time to symmetrize the velocity setpoint for active force pre-control. The selected multiplier refers to the velocity controller clock cycle (dead time= p1428 * p0115[1]).		
Dependency:	In conjunction with p1429, this parameter can simulate the characteristics of how the force is established (dynamic response of closed current control loop). Refer to: p1429, p1511		
p1429[0...n]	Speed pre-control balancing time constant / n_prectr bal T		
SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5030, 5042, 5210, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the time constant (PT1) for symmetrizing the speed setpoint for active torque pre-control.		

Dependency: In conjunction with p1428, this parameter can simulate the characteristics of how torque is established (dynamic response of the closed current control loop).
For VECTOR (r0107) the following applies:
The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, time constant p1442 (or p1452 for sensorless vector control) is used.
Refer to: p1428, p1511

p1429[0...n]	Velocity pre-control balancing time constant / n_prectr bal T		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.00 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 10000.00 [ms]	Access level: 3 Func. diagram: 5030, 5042, 5210 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the time constant (PT1) for symmetrizing the velocity setpoint for active force pre-control.		
Dependency:	In conjunction with p1428, this parameter can simulate the characteristics of how the force is established (dynamic response of closed current control loop). Refer to: p1428, p1511		

p1430[0...n]	CI: Speed pre-control / n_prectrl		
SERVO	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 1550, 1590, 5020 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for speed pre-control channel (speed pre-control or torque pre-control).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p1430[0...n]	CI: Velocity pre-control / v_prectrl		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 1550, 1590, 5020 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the velocity pre-control channel (velocity pre-control or force pre-control).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

r1432	CO: Speed pre-control after symmetrizing / n_prectr after sym		
SERVO	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 5030 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed pre-control value after symmetrizing for the torque build-up (emulates the closed current control loop).		
Dependency:	Symmetrizing can be parameterized with p1428 and/or p1429.		

r1432	CO: Velocity pre-control after symmetrizing / n_prectr after sym		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 5030 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity pre-control value after symmetrizing for the force build-up (emulates the closed current control loop).		
Dependency:	Symmetrizing can be parameterized with p1428 and/or p1429.		
p1433[0...n]	Speed controller reference model natural frequency / n_ctrl RefMod fn		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.0 [Hz]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 8000.0 [Hz]	Access level: 3 Func. diagram: 5030, 6031 Unit selection: - Expert list: 1 Factory setting 0.0 [Hz]
Description:	Sets the natural frequency of a PT2 element for the reference model of the speed controller.		
Recommend.:	The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.		
Dependency:	Together with p1434 and p1435, the characteristics (in the time domain) of the closed-loop speed control (P) can be emulated. For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1. For sensorless vector control (p1300 = 20) the reference model is disabled in open-loop speed controlled operation (refer to p1755). Refer to: p1434, p1435		
p1433[0...n]	Velocity controller reference model natural frequency / v_ctrl RefMod fn		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.0 [Hz]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 8000.0 [Hz]	Access level: 3 Func. diagram: 5030, 6031 Unit selection: - Expert list: 1 Factory setting 0.0 [Hz]
Description:	Sets the natural frequency of a PT2 element for the reference model of the velocity controller.		
Recommend.:	The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual velocity value) are virtually identical when the I-component of the velocity controller is disabled.		
Dependency:	Together with p1434 and p1435, the characteristics (in the time domain) of the closed-loop velocity control (P) can be emulated. Refer to: p1434, p1435		
p1434[0...n]	Speed controller reference model damping / n_ctrl RefMod D		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.000	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 5.000	Access level: 3 Func. diagram: 5030, 6031 Unit selection: - Expert list: 1 Factory setting 1.000
Description:	Sets the damping of a PT2 element for the reference model of the speed controller.		

Recommend.: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.

Dependency: In conjunction with p1433 and p1435, the characteristics (in time) of the P-controlled speed control loop can be emulated.
For VECTOR (r0107) the following applies:
The reference model is activated with p1400.3 = 1.
Refer to: p1433, p1435

p1434[0...n] Velocity controller reference model damping / v_ctrl RefMod D			
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 5.000	Factory setting 1.000
Description: Sets the damping of a PT2 element for the reference model of the velocity controller.			
Recommend.: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual velocity value) are virtually identical when the I-component of the velocity controller is disabled.			
Dependency: Together with p1433 and p1435, the characteristics (in the time domain) of the P-controlled velocity control loop can be emulated. Refer to: p1433, p1435			

p1435[0...n] Speed controller reference model dead time / n_ctrRefMod t_dead			
SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00	Max 2.00	Factory setting 0.00
Description: Sets the "fractional" dead time for the reference model of the speed controller. This parameter emulates the computation dead time of the proportionally controlled speed control loop. The selected multiplier refers to the speed controller clock cycle (dead time= p1435 * p0115[1]).			
Recommend.: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.			
Dependency: In conjunction with p1433 and p1434, the characteristics (in time) of the P-controlled speed control loop can be emulated. For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1. Refer to: p0115, p1433, p1434			

p1435[0...n] Velocity controller reference model dead time / v_ctrRefMod t_dead			
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00	Max 2.00	Factory setting 0.00
Description: Sets the "fractional" dead time for the reference model of the velocity controller. This parameter emulates the computation dead time of the proportionally controlled velocity control loop. The selected multiplier refers to the velocity controller clock cycle (dead time= p1435 * p0115[1]).			
Recommend.: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual velocity value) are virtually identical when the I-component of the velocity controller is disabled.			

Dependency: Together with p1433 and p1434, the characteristics (in the time domain) of the P-controlled velocity control loop can be emulated.
Refer to: p0115, p1433, p1434

r1436	CO: Speed controller reference model speed setpoint output / RefMod n_set outp		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 5030, 6031 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed setpoint at the output of the reference model.		
Dependency:	For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1.		

r1436	CO: Velocity controller, reference model velocity_setpoint output / RefMod v_set outp		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 5030, 6031 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity setpoint at the output of the reference model.		
Dependency:	For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1.		

p1437[0...n]	CI: Speed controller, reference model I component input / n_ctrRefMod I_comp		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 6031 Unit selection: - Expert list: 1 Factory setting 1436[0]
Description:	Sets the signal source for speed setpoint for the integral component of the speed controller.		
Dependency:	The reference model is activated with p1400.3 = 1. Refer to: p1400		
Caution:	It should be ensured that a speed setpoint is selected as signal source that corresponds to the setpoint for the P component of the speed controller.		

r1438	CO: Speed controller, speed setpoint / n_ctrl n_set		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 1550, 1590, 1700, 5030, 5040, 5042, 5210, 5300, 5620, 6031, 6040 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed setpoint after setpoint limiting for the P component of the speed controller. For V/f operation, the value that is displayed is of no relevance.		
Dependency:	Refer to: r1439		

Note: In the standard state (the reference model is de-activated), r1438 = r1439.

r1438			
CO: Velocity controller, velocity setpoint / v_ctrl v_set			
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1550, 1590, 5030, 5040, 5042, 5210, 5300, 5620
	P-Group: Closed-loop control	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the speed setpoint after setpoint limiting for the P component of the velocity controller. For V/f operation, the value that is displayed is of no relevance.		
Dependency:	Refer to: r1439		
Note:	In the standard state (the reference model is de-activated), r1438 = r1439.		
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r1439			
Speed setpoint, I component / n_set I_comp			
SERVO, VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5030, 5040, 6031
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the speed setpoint for the I component of the speed controller (output of the reference model after the setpoint limiting).		
Dependency:	Refer to: r1438		
Note:	In the standard state (the reference model is de-activated), r1438 = r1439.		
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r1439			
Velocity setpoint, I component / v_set I_comp			
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5030, 5040, 6031
	P-Group: Closed-loop control	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the velocity setpoint for the I component of the velocity controller (output of the reference model after the setpoint limiting).		
Dependency:	Refer to: r1438		
Note:	In the standard state (the reference model is de-activated), r1438 = r1439.		
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p1441[0...n]			
Actual speed smoothing time / n_ist T_smooth			
SERVO	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 4710, 4715
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 50.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the smoothing time constant (PT1) for the speed actual value.		
Dependency:	Refer to: r0063		

Note: The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.
After this parameter has been changed, we recommend that the speed controller is adapted and/or the speed controller settings checked Kp (p1460) and Tn (p1462).

p1441[0...n]	Actual velocity, smoothing time / v_act T_smooth		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 4710, 4715
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 50.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the smoothing time constant (PT1) for the velocity actual value.		
Dependency:	Refer to: r0063		
Note:	The speed actual value should be smoothed for encoders with a low pulse number or for resolvers. After this parameter has been changed, we recommend that the velocity controller is adapted and/or the velocity controller settings checked Kp (p1460) and Tn (p1462).		

p1441[0...n]	Actual speed smoothing time / n_ist T_smooth		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 4710, 4715
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the smoothing time constant (PT1) for the speed actual value.		
Dependency:	Refer to: r0063		
Notice:	Smoothing times above 20 ms are only possible if the drive is accelerated or braked with the appropriately long ramp-up/ramp-down times. Otherwise, significant torque errors can occur and there is the danger that the drive is powered-down (tripped) with F07902 (motor stalled).		
Note:	The speed actual value should be smoothed for encoders with a low pulse number or for resolvers. After this parameter has been changed, we recommend that the speed controller is adapted and/or the speed controller settings checked Kp (p1460) and Tn (p1462).		

p1442[0...n]	Speed controller speed actual value smoothing time / n_ctr n_act T_smth		
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6040
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 32000.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the smoothing time for the actual speed value of the speed controller for closed-loop control with encoder.		
Note:	The smoothing must be increased if there is gear backlash. For longer smoothing times, the integral time of the speed controller must also be increased (e.g. using p0340 = 4).		

r1444	Speed controller, speed setpoint steady-state (static) / n_ctrl n_set stat		
SERVO, VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5030
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the sum of all speed setpoints that are present.		

The following sources are available for the displayed setpoint:

- setpoint at the ramp-function generator input (r1119).
- speed setpoint 1 (p1155).
- speed setpoint 2 (p1160).
- speed setpoint for the speed pre-control (p1430).
- setpoint from DSC (for DSC active).
- setpoint via PC (for master control active, p3983).

Dependency: Refer to: r1119, p1155, p1160, p1430

r1444	Velocity controller, velocity setpoint, total / v_ctrl v_set stat		
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5030
	P-Group: Closed-loop control	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]

Description: Displays the sum of all velocity setpoints that are present.
The following sources are available for the displayed setpoint:

- setpoint at the ramp-function generator input (r1119).
- velocity setpoint 1 (p1155).
- velocity setpoint 2 (p1160).
- velocity setpoint for the velocity pre-control (p1430).
- setpoint from DSC (for DSC active).
- setpoint via PC (for master control active, p3983).

Dependency: Refer to: r1119, p1155, p1160, p1430

r1445	CO: Actual speed, smoothed / n_ist smooth		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 6040
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]

Description: Displays the actual, smoothed actual speed for speed control.

p1452[0...n]	Speed controller speed actual value smoothing time (SLVC) / n_C n_act T_s SLVC		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6040
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 32000.00 [ms]	Factory setting 10.00 [ms]

Description: Sets the smoothing time for the actual speed of the speed controller for sensorless closed-loop speed control.
Note: The smoothing must be increased if there is gear backlash. For longer smoothing times, the integral time of the speed controller must also be increased (e.g. using p0340 = 4).

r1454	CO: Speed controller system deviation I component / n_ctrl sys_dev Tn		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 5040 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the system deviation of the I component of the speed controller. When the reference model is inactive (p1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).		
r1454	CO: Velocity controller system deviation I component / v_ctrl sys_dev Tn		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 5040 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the system deviation of the I component of the velocity controller. When the reference model is inactive (p1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).		
p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctrl Adpt_sig Kp		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the source for the adaptation signal to additionally adapt the P gain of the speed controller.		
Dependency:	Refer to: p1456, p1457, p1458, p1459		
p1455[0...n]	CI: Velocity controller, P gain adaptation signal / v_ctrl Adpt_sig Kp		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the source for the adaptation signal to additionally adapt the P gain of the velocity controller.		
Dependency:	Refer to: p1456, p1457, p1458, p1459		

p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow.		
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the speed controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1457, p1458, p1459		
p1456[0...n]	Velocity controller P gain adaptation, lower starting point / v_ctrl AdaptKpLow.		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the velocity controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1457, p1458, p1459		
p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow.		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the speed controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1457, p1458, p1459		
Note:	If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.		
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up.		
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the speed controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1456, p1458, p1459		

p1457[0...n]	Velocity controller P gain adaptation upper starting point / v_ctrl AdaptKp up.		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the velocity controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1456, p1458, p1459		
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up.		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the speed controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1456, p1458, p1459		
Note:	If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.		
p1458[0...n]	Adaptation factor, lower / Adapt_factor lower		
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/velocity controller.		
Dependency:	Refer to: p1455, p1456, p1457, p1459		
p1458[0...n]	Adaptation factor, lower / Adapt_factor lower		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/velocity controller.		
Dependency:	Refer to: p1455, p1456, p1457, p1459		
Note:	If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.		

p1459[0...n]	Adaptation factor, upper / Adapt_factor upper		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.0 [%]	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
Description:	Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller.		
Dependency:	Refer to: p1455, p1456, p1457, p1458		
p1459[0...n]	Adaptation factor, upper / Adapt_factor upper		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.0 [%]	Access level: 3 Func. diagram: 6050 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
Description:	Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller.		
Dependency:	Refer to: p1455, p1456, p1457, p1458		
Note:	If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.		
p1460[0...n]	Speed controller P gain adaptation speed, lower / n_ctrl Kp n lower		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 17_1 Min 0.000 [Nms/rad]	Access level: 2 Func. diagram: 5040, 5042 Unit selection: p0505 Expert list: 1 Factory setting 0.300 [Nms/rad]
Description:	Sets the P gain of the speed controller before the adaptation speed range (0 ... p1464). This value corresponds to the basic setting of the P gain of the speed controller without adaptation (p1461 = 100 %).		
Dependency:	Refer to: p1461, p1464, p1465		
Note:	When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.		
p1460[0...n]	Velocity controller, P gain adaptation velocity, lower / v_ctrl Kp n lower		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 24_2 Min 0.000 [Ns/m]	Access level: 2 Func. diagram: 5040, 5042 Unit selection: p0505 Expert list: 1 Factory setting 10.000 [Ns/m]
Description:	Sets the P gain of the velocity controller before the adaptation velocity range (0 ... p1464). This value corresponds to the basic setting of the P gain of the velocity controller without adaptation (p1461 = 100 %).		
Dependency:	Refer to: p1461, p1464, p1465		
Note:	When automatically calculating the velocity controller, only the motor inertia is taken into account (p0341). For higher inertias (p0342 > 1 or p1498 > 0) we recommend that the velocity controller gain is checked.		

p1460[0...n]	Speed controller P gain adaptation speed, lower / n_ctrl Kp n lower		
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 1700, 6040
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 999999.000	Factory setting 0.300
Description:	Sets the P gain of the speed controller before the adaptation speed range (0 ... p1464). This value corresponds to the basic setting of the P gain of the speed controller without adaptation (p1461 = 100 %).		
Dependency:	For p0528 = 1, the speed controller gain is represented without any dimensions. Refer to: p1461, p1464, p1465		
p1461[0...n]	Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper		
SERVO	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the P gain of the speed controller for the upper adaptation speed range (> p1465). The entry is made referred to the P gain for the lower adaptation speed range of the speed controller (% referred to p1460).		
Dependency:	Refer to: p1460, p1464, p1465		
Note:	When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.		
p1461[0...n]	Velocity controller, P gain adaptation velocity, upper / v_ctrl Kp n upper		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the P gain of the velocity controller for the upper adaptation velocity range (> p1465). The entry is made referred to the P gain for the lower adaptation velocity range of the velocity controller (% referred to p1460).		
Dependency:	Refer to: p1460, p1464, p1465		
Note:	When automatically calculating the velocity controller, only the motor inertia is taken into account (p0341). For higher inertias (p0342 > 1 or p1498 > 0) we recommend that the velocity controller gain is checked.		
p1461[0...n]	Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper		
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the P gain of the speed controller for the upper adaptation speed range (> p1465). The entry is made referred to the P gain for the lower adaptation speed range of the speed controller (% referred to p1460).		
Dependency:	Refer to: p1460, p1464, p1465		
Note:	If the upper transition point p1465 of the speed controller adaptation is set to lower values than the lower transition p1464, then the controller gain below p1465 is adapted with p1461. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.		

p1462[0...n]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.00 [ms]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 100000.00 [ms]	Access level: 2 Func. diagram: 1700, 5040, 5042, 6040 Unit selection: - Expert list: 1 Factory setting 20.00 [ms]
Description:	Sets the integration time of the speed controller before the adaptation speed range (0 ... p1464). This value corresponds to the basic setting of the integral time of the speed controller without adaptation (p1461 = 100 %).		
Dependency:	Refer to: p1463, p1464, p1465		
p1462[0...n]	Velocity contr. integral act. time adaptation velocity lower / v_ctrl Tn n lower		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.00 [ms]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 100000.00 [ms]	Access level: 2 Func. diagram: 5040, 5042 Unit selection: - Expert list: 1 Factory setting 20.00 [ms]
Description:	Sets the integration time of the velocity controller before the adaptation velocity range (0 ... p1464). This value corresponds to the basic setting of the integral time of the velocity controller without adaptation (p1461 = 100 %).		
Dependency:	Refer to: p1463, p1464, p1465		
p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.0 [%]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 200000.0 [%]	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
Description:	Sets the integral time of the speed controller after the adaptation speed range (> p1465). The entry is made referred to the integral time for the lower adaptation speed range of the speed controller (% referred to p1462).		
Dependency:	Refer to: p1462, p1464, p1465		
p1463[0...n]	Velocity contr. integral act. time adaptation velocity upper / v_ctrl Tn n upper		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.0 [%]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 200000.0 [%]	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
Description:	Sets the integral time of the velocity controller after the adaptation velocity range (> p1465). The entry is made referred to the integral time for the lower adaptation velocity range of the velocity controller (% referred to p1462).		
Dependency:	Refer to: p1462, p1464, p1465		

p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6050 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the integral time of the speed controller after the adaptation speed range (> p1465). The entry is made referred to the integral time for the lower adaptation speed range of the speed controller (% referred to p1462).		
Dependency:	Refer to: p1462, p1464, p1465		
Note:	If the upper transition point p1465 of the speed controller adaptation is set to lower values than the lower transition point p1464, then the controller integral time below p1465 is adapted with p1463. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.		
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 5050 Unit selection: p0505 Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 0.00 [RPM]
Description:	Sets the lower adaptation speed of the speed controller. No adaptation is effective below this speed.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1465		
p1464[0...n]	Velocity controller adaptation velocity, lower / v_ctrl n lower		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 4_1	Access level: 3 Func. diagram: 5050 Unit selection: p0505 Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 0.00 [m/min]
Description:	Sets the lower adaptation velocity of the velocity controller. No adaptation is effective below this velocity.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1465		
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 6050 Unit selection: p0505 Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 0.00 [RPM]
Description:	Sets the lower adaptation speed of the speed controller. No adaptation is effective below this speed.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1465		
Note:	If the upper transition point p1465 of the speed controller adaptation is set to values less than the lower transition point p1464, then the controller below p1465 is adapted with p1461 or p1463. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.		

p1465[0...n]	Speed controller adaptation speed, upper / n_ctrl n upper		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 5050 Unit selection: p0505 Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 210000.00 [RPM]
Description:	Sets the upper adaptation speed of the speed controller. No adaptation is effective above this speed. For P gain, p1460 * p1461 is effective. For the integral time, p1462 * p1463 is effective.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1464		
p1465[0...n]	Velocity controller adaptation velocity, upper / v_ctrl n upper		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 4_1	Access level: 3 Func. diagram: 5050 Unit selection: p0505 Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 1000.00 [m/min]
Description:	Sets the upper adaptation velocity of the velocity controller. No adaptation is effective above this velocity. For P gain, p1460 * p1461 is effective. For the integral time, p1462 * p1463 is effective.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1464		
p1465[0...n]	Speed controller adaptation speed, upper / n_ctrl n upper		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 6050 Unit selection: p0505 Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 210000.00 [RPM]
Description:	Sets the upper adaptation speed of the speed controller. No adaptation is effective above this speed. For P gain, p1460 * p1461 is effective. For the integral time, p1462 * p1463 is effective.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1464		
Note:	If the upper transition point p1465 of the speed controller adaptation is set to values less than the lower transition point p1464, then the controller below p1465 is adapted with p1461 or p1463. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.		
p1466[0...n]	CI: Speed controller P-gain scaling / n_ctrl Kp scal		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the scaling of the P gain of the speed controller. This also makes the effective P gain (including adaptations) scalable.		

p1466[0...n]	CI: Velocity controller P gain scaling / v_ctrl Kp scal		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the scaling of the P gain of the velocity controller. This also makes the effective P gain (including adaptations) scalable.		
r1468	Speed controller P-gain effective / n_ctrl Kp eff		
SERVO	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nms/rad]	Calculated: - Dynamic index: - Units group: 17_1 Max - [Nms/rad]	Access level: 3 Func. diagram: 5040, 5042, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [Nms/rad]
Description:	Displays the effective P gain of the speed controller.		
r1468	Velocity controller, P gain effective / v_ctrl Kp eff		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Ns/m]	Calculated: - Dynamic index: - Units group: 24_2 Max - [Ns/m]	Access level: 3 Func. diagram: 5040, 5042, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [Ns/m]
Description:	Displays the effective P gain of the velocity controller.		
r1468	CO: Speed controller P-gain effective / n_ctrl Kp eff		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 6040 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the effective P gain of the speed controller.		
Dependency:	For p0528 = 1, the speed controller gain is represented without any dimensions. In this case, connector output signal r1468 is increased by a factor of 100 in order to improve the resolution.		
r1469	Speed controller integral time effective / n_ctrl Tn eff		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [ms]	Calculated: - Dynamic index: - Units group: - Max - [ms]	Access level: 3 Func. diagram: 5040, 5042, 6040 Unit selection: - Expert list: 1 Factory setting - [ms]
Description:	Displays the effective integral time of the speed controller.		

r1469 Velocity controller integral time effective / v_ctrl Tn eff			
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: - Min - [ms]	Access level: 3 Func. diagram: 5040, 5042 Unit selection: - Expert list: 1 Factory setting - [ms]
Description: Displays the effective integral time of the velocity controller.			

p1470[0...n] Speed controller sensorless operation P-gain / n_ctrl SLVC Kp			
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 17_1 Min 0.000 [Nms/rad]	Access level: 2 Func. diagram: 5210 Unit selection: p0505 Expert list: 1 Factory setting 0.300 [Nms/rad]
Description: Sets the P gain for sensorless operation for the speed controller.			
Note: When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.			

p1470[0...n] Velocity controller sensorless operation P-gain / v_ctrl SLVC Kp			
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 24_2 Min 0.000 [Ns/m]	Access level: 2 Func. diagram: 5210 Unit selection: p0505 Expert list: 1 Factory setting 10.000 [Ns/m]
Description: Sets the P gain for sensorless operation for the velocity controller.			
Note: When automatically calculating the velocity controller, only the motor inertia is taken into account (p0341). For higher inertias (p0342 > 1 or p1498 > 0) we recommend that the velocity controller gain is checked.			

p1470[0...n] Speed controller sensorless operation P-gain / n_ctrl SLVC Kp			
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 0.000	Access level: 2 Func. diagram: 6040, 6050 Unit selection: - Expert list: 1 Factory setting 0.300
Description: Sets the P gain for sensorless operation for the speed controller.			
Dependency: For p0528 = 1, the speed controller gain is represented without any dimensions.			
Note: The product p0341 * p0342 is taken into account when automatically calculating the speed controller (p0340 = 1, 3, 4).			

p1472[0...n]	Speed controller sensorless operation integral time / n_ctrl SLVC Tn		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 5210 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 100000.0 [ms]	Factory setting 20.0 [ms]
Description:	Set the integral time for sensorless operation for the speed controller.		
p1472[0...n]	Velocity controller sensorless operation integral time / v_ctrl SLVC Tn		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 5210 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 100000.0 [ms]	Factory setting 20.0 [ms]
Description:	Set the integral time for sensorless operation for the velocity controller.		
p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2520, 5040, 5042, 5210, 6040 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to hold the integrator for the speed controller.		
p1476[0...n]	BI: Velocity controller, hold integrator / v_ctrl integ stop		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2520, 5040, 5042, 5210 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to hold the integrator for the velocity controller.		
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2520, 5040, 5042, 5210, 6040 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to set the integrator setting value (p1478).		
Dependency:	Refer to: p1478, p1479		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

p1477[0...n]	BI: Set velocity controller integrator value / v_ctrl integ set		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2520, 5040, 5042, 5210
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to set the integrator setting value (p1478).		
Dependency:	Refer to: p1478, p1479		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).		

p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal		
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5040, 5042, 5210
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the integrator setting value for the velocity controller. The signal to set this integrator setting value is interconnected via p1477.		
Dependency:	Refer to: p1477, p1479		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).		

p1478[0...n]	CI: Velocity controller, integrator value / v_ctrl integ_setVal		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5040, 5042, 5210
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the integrator setting value for the velocity controller. The signal to set this integrator setting value is interconnected via p1477.		
Dependency:	Refer to: p1477, p1479		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).		

p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 6040 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the integrator setting value for the velocity controller. The signal to set this integrator setting value is interconnected via p1477.		
Dependency:	The setting value of the speed controller integrator is weighted with the scaling factor of the signal source in p1479. If p1478 is interconnected to the integral output of the speed controller (r1482), then after the magnetizing time (r0346) and if the speed controller is enabled, the integral component of the controller is set to the last value before the pulse inhibit. This value is set if no setting command (p1477) is interconnected or, at the instant that the pulses were inhibited, a setting command is available, which is not de-activated up to the next time that the pulses are inhibited. For sensorless vector control, in addition p1400.1 should be set to 1 so that when the drive is stopped, the integral component of the speed controller is not controlled down to zero. In order that when setting the integrator output, only the static torque is detected, we recommend that the accelerating torque is completely pre-controlled (e.g. p1496). If p1478 is interconnected to another output other than r1482, then after magnetization and speed controller enable, the integral output is set once if the setting command is not interconnected (p1477 = 0). Refer to: p1477, p1479		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1479[0...n]	CI: Speed controller integrator setting value scaling / n_ctrl I_val scal		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5040, 5210, 6040 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for scaling the integrator setting value (p1478) of the speed controller.		
Dependency:	Refer to: p1477, p1478		
r1480	CO: Speed controller PI torque output / n_ctrl PI-M_output		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 1590, 5040, 5042, 5060, 5210, 6060 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the PI speed controller.		

r1480	CO: Velocity controller PI force output / v_ctrl PI-F_output		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: 1590, 5040, 5042, 5060, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the force setpoint at the output of the PI velocity controller.		
r1481	CO: Speed controller P torque output / n_ctrl P-M_output		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 5040, 5042, 5210, 6040 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the P speed controller.		
r1481	CO: Velocity controller P force output / v_ctrl P-F_output		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: 5040, 5042, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the force setpoint at the output of the P velocity controller.		
r1482	CO: Speed controller I torque output / n_ctrl I-M_output		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 5040, 5042, 5210, 6030, 6040 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the I speed controller.		
r1482	CO: Velocity controller I force output / v_ctrl I-F_output		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: 5040, 5042, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the force setpoint at the output of the I velocity controller.		

p1488[0...n]	Droop input source / Droop input,source		
VECTOR (n/M)	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6030 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the source for droop feedback.		
Values:	0: Droop feedback not connected 1: Droop from torque setpoint 2: Droop from speed controller output 3: Droop from integral output, speed controller		
Dependency:	Refer to: p1489, r1490, p1492		
p1489[0...n]	Droop feedback scaling / Droop scaling		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6030 Unit selection: - Expert list: 1 Factory setting 0.050
Description:	Sets the scaling for the droop feedback		
Dependency:	Refer to: p1488, r1490, p1492		
Note:	Example: A value of 0.05 means that for a torque equal to the rated motor torque, the rated motor speed is reduced by 5 %.		
r1490	CO: Droop feedback speed reduction / Droop n_reduction		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 6030 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the output signal of the droop calculation. The droop feedback result is subtracted from the speed setpoint when activated (p1492).		
Dependency:	Refer to: p1488, p1489, p1492		
p1492[0...n]	BI: Droop feedback enable / Enables droop		
VECTOR (n/M)	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Enables the droop to be applied to the speed/velocity setpoint.		
Dependency:	Refer to: p1488, p1489, r1490		
Note:	Even when not enabled, the droop speed is calculated but not subtracted from the setpoint speed. This makes it possible to subtract the result of this calculation from the speed of another drive.		

r1493	CO: Moment of inertia, total / Mom of inert total		
SERVO	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: FEM	Calculated: - Dynamic index: - Units group: 25_1	Access level: 3 Func. diagram: 5042, 5210 Unit selection: p0100 Expert list: 1
	Min - [kgm²]	Max - [kgm²]	Factory setting - [kgm²]
Description:	Displays the parameterized total moment of inertia ((p0341 * p0342) + p1498) without evaluation by the scaling via p1497.		
Dependency:	Refer to: p1300, p1402, p1404, p1497		
Note:	The parameterized total moment of inertia, taking into account p1497, influences the torque pre-control. In sensorless operation or when the torque-speed pre-control with encoder (p1402.4 = 1) is activated, then torque-speed pre-control is activated.		
r1493	CO: Load mass / Load mass		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: FEM	Calculated: - Dynamic index: - Units group: 27_1	Access level: 3 Func. diagram: 5042, 5210 Unit selection: p0100 Expert list: 1
	Min - [kg]	Max - [kg]	Factory setting - [kg]
Description:	Displays the parameterized total weight ((p0341 * p0342) + p1498) without evaluation by the scaling via p1497.		
Dependency:	Refer to: p1300, p1402, p1404, p1497		
Note:	The parameterized total weight, taking into account p1497, influences the force-velocity pre-control in sensorless operation or when activated, force-velocity pre-control with encoder (p1402.4).		
r1493	CO: Moment of inertia, total / Mom of inert total		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: FEM	Calculated: - Dynamic index: - Units group: 25_1	Access level: 3 Func. diagram: 6031 Unit selection: p0100 Expert list: 1
	Min - [kgm²]	Max - [kgm²]	Factory setting - [kgm²]
Description:	Total moment of inertia without evaluation by scaling using p1497.		
p1494[0...n]	Speed controller integrator feedback time constant / n_ctr integ_fdbk T		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 5040, 5042, 5210 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the time constant of the PT1 filter for integrator feedback. The integrator of the speed/velocity controller is re-parameterized to become a PT1 filter through a feedback element (1st Order low pass filter characteristics). The following applies: p1494 < 0.25 (2 * p0115[1]) --> the PT1 filter is not active - the pure integrator is effective. p1494 >= 0.25 (2 * p0115[1]) --> the PT1 filter is active and has replaced the pure integrator.		

Note: Applications:
 Motion at zero setpoint and dominant stiction can be suppressed but this has a negative impact on the remaining setpoint-actual value difference. This can be used, for example, to avoid oscillation of a position-controlled axis at standstill (stick-slip effect) or overshoot when traversing (moving) in micrometer steps.
 Also prevents tension/stressing for axes that are mechanically and rigidly coupled with one another (e.g. for synchronous spindles, master - slave axes).

p1494[0...n]	Velocity controller integrator feedback time constant / v_ctr integ_fdbk T		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5040, 5042, 5210
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 0.00 [ms]

Description: Sets the time constant of the PT1 filter for integrator feedback.
 The integrator of the speed/velocity controller is re-parameterized to become a PT1 filter through a feedback element (1st Order low pass filter characteristics).

The following applies:

$p1494 < 0.25 (2 * p0115[1])$ --> the PT1 filter is not active - the pure integrator is effective.

$p1494 \geq 0.25 (2 * p0115[1])$ --> the PT1 filter is active and has replaced the pure integrator.

Note: Applications:
 Motion at zero setpoint and dominant stiction can be suppressed but this has a negative impact on the remaining setpoint-actual value difference. This can be used, for example, to avoid oscillation of a position-controlled axis at standstill (stick-slip effect) or overshoot when traversing (moving) in micrometer steps.
 Also prevents tension/stressing for axes that are mechanically and rigidly coupled with one another (e.g. for synchronous spindles, master - slave axes).

p1495[0...n]	CI: Acceleration pre-control / a_prectrl		
VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for the acceleration pre-control.

Dependency: The signal source for the acceleration is activated with $p1400.2 = 1$.
 For $p1400.2 = 0$, the acceleration pre-control is calculated from the speed setpoint change from r0062.
 For $p1400.2 = 0$ and activate reference model ($p1400.3 = 1$) the acceleration pre-control is switched-out.
 Refer to: p1400, p1496

Note: If the acceleration is entered as external signal, then the accelerating torque is calculated as follows (r1518):
 $r1518 = \text{acceleration (\% of p2007)} / 100 \% * (p2007 * 60 \text{ s}) / p0311 * r0345 / 1 \text{ s} * r0333$

p1496[0...n]	Acceleration pre-control scaling / a_before scaling		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0 [%]	Max 10000.0 [%]	Factory setting 0.0 [%]

Description: Sets the scaling for the acceleration pre-control of the speed/velocity controller.

Dependency: When the reference model is activate (p1400.3 = 1) and for an internal acceleration pre-control (p1400.2 = 0), the acceleration pre-control is switched-out (disabled). The reference model (p1400.3 = 1) and external acceleration pre-control (p1400.2 = 1) can be operated together.
Refer to: p0341, p0342

Note: The parameter is set to 100% by the rotating measurement (refer to p1960).
The acceleration pre-control may not be used if the speed setpoint manifests significant ripple (e.g. analog setpoint) and the rounding-off in the speed ramp-function generator is disabled.
We also recommend that the pre-control mode is not used if there is gearbox backlash.

p1497[0...n]	CI: Moment of inertia, scaling / M_mom inert scal		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 5042, 5210, 6030, 6031
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1

Description: Sets the signal source for scaling the moment of inertia.

p1497[0...n]	CI: Motor weight scaling / Mot_weight scal		
SERVO (Lin)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 5042, 5210
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1

Description: Sets the signal source for scaling the motor weight.

p1498[0...n]	Load moment of inertia / Load mom of inert		
SERVO	Can be changed: U, T Data type: Floating Point	Calculated: - Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5042, 5210
	P-Group: Closed-loop control Not for motor type: -	Units group: 25_1	Unit selection: p0100 Expert list: 1
	Min 0.00000 [kgm²]	Max 100000.00000 [kgm²]	Factory setting 0.00000 [kgm²]

Description: Sets the load moment of inertia.

Note: (p0341 * p0342) + p1498 influence the speed/torque pre-control in sensorless operation.

p1498[0...n]	Load mass / Load mass		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point	Calculated: - Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5042, 5210
	P-Group: Closed-loop control Not for motor type: -	Units group: 27_1	Unit selection: p0100 Expert list: 1
	Min 0.00000 [kg]	Max 10000.00000 [kg]	Factory setting 0.00000 [kg]

Description: Sets the load mass.

Note: (p0341 * p0342) + p1498 influence the velocity/force pre-control in sensorless operation.

p1499[0...n]	Accelerating for torque control, scaling / a for M_ctrl scal		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.0 [%]	Max 400.0 [%]	Factory setting 100.0 [%]
Description:	Sets the scaling for the acceleration integrator at low speeds (only for sensorless torque control).		
Dependency:	Refer to: p0341, p0342		
p1500[0...n]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set		
SERVO, VECTOR	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS, p0170	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0	Max 999999	Factory setting 0
Description:	<p>Runs the appropriate ACX file on the CompactFlash card.</p> <p>The Connector Inputs (CI) for the torque setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.</p> <p>The selected ACX file must be located in the following directory: ... /PMACROS/<drive object>/P1500/PMxxxxxx.ACX</p> <p>Example: p1500 = 6 --> the file PM000006.ACX is run.</p>		
Dependency:	<p>The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash card.</p> <p>Refer to: p0015, p0700, p1000, r8573</p>		
Notice:	No errors were issued during fast commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!		
Note:	<p>The macros in the specified directory are displayed in r8573. r8573 is not in the Expert list of the commissioning software.</p> <p>Macros available as standard are described in the technical documentation of the particular product.</p> <p>CI: Connector Input</p>		
p1500[0...n]	Macro Connector Inputs (CI) for force setpoints / Macro CI F_set		
SERVO (Lin)	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS, p0170	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0	Max 999999	Factory setting 0
Description:	<p>Runs the appropriate ACX file on the CompactFlash card.</p> <p>The Connector Inputs (CI) for the torque setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.</p> <p>The selected ACX file must be located in the following directory: ... /PMACROS/<drive object>/P1500/PMxxxxxx.ACX</p> <p>Example: p1500 = 6 --> the file PM000006.ACX is run.</p>		
Dependency:	<p>The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash card.</p> <p>Refer to: p0015, p0700, p1000, r8573</p>		
Notice:	No errors were issued during fast commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!		

Note: The macros in the specified directory are displayed in r8573. r8573 is not in the Expert list of the commissioning software.
 Macros available as standard are described in the technical documentation of the particular product.
 CI: Connector Input

p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl		
SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2520, 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for toggling between speed and torque control.		
Dependency:	The input connectors to enter the torque are provided using p1511, p1512 and p1513. Refer to: p1300		
Caution:	If the closed-loop torque control is not activated (p1300) and a change is made to closed-loop torque control (p1501), OFF1 (p0840) does not have its own braking response but pulse cancelation when standstill is detected (p1226, p1227).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	0 signal: Closed-loop speed control 1 signal: Closed-loop torque control		
p1501[0...n]	BI: Changeover velocity/force control / Changeov n/F_ctrl		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2520, 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for toggling between velocity and force control.		
Dependency:	The input connectors to enter the force are provided using p1511, p1512 and p1513. Refer to: p1300		
Caution:	If the closed-loop force control is not activated (p1300) and a change is made to closed-loop force control (p1501), OFF1 (p0840) does not have its own braking response but pulse cancelation when standstill is detected (p1226, p1227).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	0 signal: Velocity control 1 signal: Force control		
p1503[0...n]	CI: Torque setpoint / M_set		
VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the torque setpoint for torque control.		
Note:	A change is made to closed-loop torque control if, in p1300, closed-loop torque control was selected or if the selection was made using the changeover source in p1501. it is also possible to change over in operation using p1501.		



r1508	CO: Torque setpoint before supplementary torque / M_set bef. M_suppl		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 7_1	Access level: 2 Func. diagram: 6060, 6722 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque setpoint before entering the supplementary torque. For closed-loop speed control, r1508 corresponds to the speed controller output; for closed-loop torque control, r1508 corresponds to the torque setpoint of the signal source assigned in p1503.		
r1509	CO: Torque setpoint before torque limiting / M_set before M_lim		
SERVO	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 7_1	Access level: 3 Func. diagram: 1590, 5060, 5610 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the total torque setpoint before the torque limiting (sum from the controller output, supplementary torque and if required, the pre-control torque, sensorless operation). In the closed-loop speed controlled mode, p1509 = p1480 + r1515 + pre-controlled torque, sensorless operation. p1509 and p1515 are identical for the closed-loop torque control.		
r1509	CO: Force setpoint before force limiting / F_set before F_lim		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 8_1	Access level: 3 Func. diagram: 1590, 5060, 5610 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the total torque setpoint before the force limiting (sum from the controller output, supplementary force and if required, the pre-control force, sensorless operation). In the closed-loop speed controlled mode, p1509 = p1480 + r1515 + pre-control force, sensorless operation. p1509 and p1515 are identical for the closed-loop force control.		
p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 5060, 6060 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for supplementary torque 1.		

p1511[0...n]	CI: Supplementary force 1 / F_suppl 1		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5060, 6060 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for supplementary force 1.		
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5060, 6060 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for scaling the supplementary torque 1.		
p1512[0...n]	CI: Supplementary force 1 scaling / F_suppl 1 scal		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5060, 6060 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for scaling the supplementary force 1.		
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5060, 6060 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for supplementary torque 2.		
p1513[0...n]	CI: Supplementary force 2 / F_suppl 2		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5060, 6060 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for supplementary force 2.		

p1514[0...n]	Supplementary torque 2 scaling / M_suppl 2 scal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min -2000.0 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2000.0 [%]	Access level: 3 Func. diagram: 6060 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
Description:	Sets the scaling for supplementary torque 2.		
r1515	Supplementary torque total / M_suppl total		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 2 Func. diagram: 5040, 5060 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the total supplementary torque. The displayed value is the sum of supplementary torque values 1 and 2 (refer to p1511, p1512, p1513, p1514).		
r1515	Supplementary force, total / F_suppl total		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 2 Func. diagram: 5040, 5060 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the total supplementary force. The displayed value is the sum of supplementary forces 1 and 2 ($p1515 = p1511 * p1512 + p1513$).		
r1516	CO: Supplementary and accelerating torque / M_suppl + M_accel		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 2 Func. diagram: 5060 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the total supplementary torque and the accelerating torque. The displayed value is the sum of the smoothed supplementary torque and the accelerating torque ($p1516 = p1518[1] + p1515$).		
p1517[0...n]	Accelerating torque smoothing time constant / M_accel T_smooth		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.00 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 100.00 [ms]	Access level: 3 Func. diagram: 5042, 5210, 6060 Unit selection: - Expert list: 1 Factory setting 4.00 [ms]
Description:	Sets the smoothing time constant of the accelerating torque.		


Note: For servo drives, the parameter is only effective in sensorless operation.
For vector drives, the acceleration pre-control is inhibited if the smoothing is set to the maximum value.

p1517[0...n] Acceleration force smoothing time constant / F_accel T_smooth			
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.00 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 100.00 [ms]	Access level: 3 Func. diagram: 5042, 5210 Unit selection: - Expert list: 1 Factory setting 4.00 [ms]
Description:	Sets the smoothing time constant of the accelerating force.		
Note:	For servo drives, the parameter is only effective in sensorless operation.		
<hr/>			
r1518[0...1] CO: Accelerating torque / M_accel			
SERVO	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 5042, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the accelerating torque to pre-control the speed controller for torque-speed pre-control (p1402.4 = 1 or in sensorless operation).		
Index:	[0] = Unsmoothed [1] = Smoothed		
Dependency:	Refer to: p0341, p0342, p1300, p1402, r1493, p1497, p1498		
<hr/>			
r1518[0...1] CO: Accelerating force / F_accel			
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: 5042, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the accelerating torque to pre-control the velocity controller for force- velocity pre-control (p1402.4 = 1 or in sensorless operation).		
Index:	[0] = Unsmoothed [1] = Smoothed		
Dependency:	Refer to: p0341, p0342, p1300, p1402, r1493, p1497, p1498		
<hr/>			
r1518[0...1] CO: Accelerating torque / M_accel			
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: 6060 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the accelerating torque for pre-control of the speed controller.		
Index:	[0] = Unsmoothed [1] = Smoothed		
Dependency:	Refer to: p0341, p0342, p1496		

p1520[0...n]	CO: Torque limit upper/motoring / M_max upper/mot		
SERVO	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the fixed upper torque limit or the torque limit when motoring.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p0500, p1521, p1522, p1523, p1532, r1538, r1539 For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.		
Danger:			
			
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
Note:	For VECTOR the following applies (p0107): The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).		
p1520[0...n]	CO: Force limit upper/motoring / F_max upper/mot		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 20000000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the fixed upper or force limit when motoring.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p0500, p1521, p1522, p1523, p1532, r1538, r1539 For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.		
Danger:			
			
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
Note:	For VECTOR the following applies (p0107): The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).		
p1520[0...n]	CO: Torque limit upper / M_max upper		
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6630
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the fixed, upper torque limit.		


Dependency: Refer to: p1521, p1522, p1523, r1538, r1539


Danger: Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.





Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.


Note: The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).

p1521[0...n] CO: Torque limit lower/regenerative / M_max lower/regen			
SERVO	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -20000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the fixed lower torque limit or the torque limit when regenerating.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p0500, p1520, p1522, p1523, p1532		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values when setting the lower torque limit (p1521 < 0) can result in the motor accelerating in an uncontrollable fashion.		
			
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
Note:	For VECTOR the following applies (p0107): The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).		

p1521[0...n] CO: Force limit lower/regenerative / F_max lower/regen			
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -20000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the fixed lower or force limit when regenerating.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p0500, p1520, p1522, p1523, p1532		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values when setting the lower torque limit (p1521 < 0) can result in the motor accelerating in an uncontrollable fashion.		
			
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
Note:	For VECTOR the following applies (p0107): The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).		

p1521[0...n]			
VECTOR (n/M)	CO: Torque limit lower / M_max lower		
	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -20000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the fixed, lower torque limit.		
Dependency:	Refer to: p1520, p1522, p1523, p1532		
Danger:	Positive values when setting the lower torque limit (p1521 < 0) can result in the motor accelerating in an uncontrollable fashion.		
			
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
Note:	The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).		

p1522[0...n]			
SERVO	CI: Torque limit upper/motoring / M_max upper/mot		
	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1520[0]
Description:	Sets the signal source for the upper or torque/force limit when motoring.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1523, p1532		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			

p1522[0...n]			
SERVO (Lin)	CI: Force limit upper/motoring / F_max upper/mot		
	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1520[0]
Description:	Sets the signal source for the upper or torque/force limit when motoring.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1523, p1532		
Danger:	For p1400.4 = 0 (torque/force limiting, upper/lower) the following applies: Negative values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			

p1522[0...n]	CI: Torque limit upper / M_max upper		
VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	1520[0]

Description: Sets the signal source for the upper torque limit.

Dependency: Refer to: p1520, p1521, p1523

Danger: Negative values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.



p1523[0...n]	CI: Torque limit lower/regenerative / M_max lower/regen		
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	1521[0]

Description: Sets the signal source for the lower or torque/force limit when regenerating.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / generating
Refer to: p1520, p1521, p1522, p1532

Danger: For p1400.4 = 0 (torque limiting, upper/lower) the following applies:

Positive values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.



p1523[0...n]	CI: Force limit lower/regenerative / F_max lower/regen		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	1521[0]

Description: Sets the signal source for the lower or torque/force limit when regenerating.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / generating
Refer to: p1520, p1521, p1522, p1532

Danger: For p1400.4 = 0 (torque/force limiting, upper/lower) the following applies:

Positive values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.



p1523[0...n]	CI: Torque limit lower / M_max lower		
VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	1521[0]

Description: Sets the signal source for the lower torque limit.

Dependency: Refer to: p1520, p1521, p1522

Danger: Positive values, that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.



p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot scal		
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the upper torque limit or the torque limit when motoring.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / generating

Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.

Note: This parameter can be freely interconnected.
The value has the above significance if it is interconnected from connector input p1528.

p1524[0...n]	CO: Force limit upper/motoring scaling / F_max up/mot scal		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the upper force limit or the force limit when motoring.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / generating

Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.

Note: This parameter can be freely interconnected.
The value has the above significance if it is interconnected from connector input p1528.

p1524[0...n]	CO: Torque limit upper scaling / M_max upper scal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min -2000.0 [%] Description: Sets the scaling for the upper torque limit. Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set. Note: This parameter can be freely interconnected. The value has the above significance if it is interconnected from connector input p1528.	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2000.0 [%]	Access level: 3 Func. diagram: 5620, 5630, 6630 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
p1525[0...n]	CO: Torque limit lower/regenerating scaling / M_max low/gen scal		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min -2000.0 [%] Description: Sets the scaling for the lower torque limit or the torque limit when regenerating. Dependency: p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set. Note: This parameter can be freely interconnected. The value has the above significance if it is interconnected from connector input p1528.	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2000.0 [%]	Access level: 3 Func. diagram: 5620, 5630, 6630 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
p1525[0...n]	CO: Force limit lower/regenerative scaling / F_max low/gen scal		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min -2000.0 [%] Description: Sets the scaling for the lower force limit or the force limit when regenerating. Dependency: p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set. Note: This parameter can be freely interconnected. The value has the above significance if it is interconnected from connector input p1528.	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2000.0 [%]	Access level: 3 Func. diagram: 5620, 5630, 6630 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
p1525[0...n]	CO: Torque limit lower scaling / M_max lower scal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min -2000.0 [%] Description: Sets the scaling for the lower torque limit.	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2000.0 [%]	Access level: 3 Func. diagram: 6630 Unit selection: - Expert list: 1 Factory setting 100.0 [%]

Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.
Note: This parameter can be freely interconnected.
The value has the above significance if it is interconnected from connector input p1528.

r1526	Torque limit upper/motoring without offset / M_max up. w/o offs		
SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the upper torque limit of all torque limits without offset.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1522, p1523, p1528, p1529		

r1526	Force limit upper/motoring without offset / F_max up. w/o offs		
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [N]	Max - [N]	Factory setting - [N]
Description:	Displays the upper force limit of all force limits without offset.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1522, p1523, p1528, p1529		


r1526	Torque limit upper without offset / M_max up. w/o offs		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the upper torque limit of all torque limits without offset.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529		




r1527	Torque limit lower/regenerative without offset / M_max low w/o offs		
SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the lower torque limit of all torque limits without offset.		



Dependency: p1400 bit 4 = 0: Upper / lower
 p1400 bit 4 = 1: Motoring / generating
 Refer to: p1520, p1521, p1522, p1523, p1528, p1529

r1527	Force limit lower/regenerative without offset / F_max low w/o offs		
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [N]	Max - [N]	Factory setting - [N]
Description:	Displays the lower force limit of all force limits without offset.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1522, p1523, p1528, p1529		

r1527	Torque limit lower without offset / M_max low w/o offs		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the lower torque limit of all torque limits without offset.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529		

p1528[0...n]	CI: Torque limit upper/motoring scaling / M_max up/mot scal		
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 3617, 5620, 5630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1524[0]
Description:	Sets the signal source for the scaling of the upper or motoring torque limit in p1522.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p1528[0...n]	CI: Force limit upper/motoring scaling / F_max up/mot scal		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 3617, 5620, 5630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1524[0]
Description:	Sets the signal source for the scaling of the upper or motoring force limit in p1522.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1528[0...n]	CI: Torque limit upper scaling / M_max upper scal		
VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1524[0]
Description:	Sets the signal source for the scaling of the upper torque limit in p1522.		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1529[0...n]	CI: Torque limit lower/regenerating scaling / M_max low/gen scal		
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 3617, 5620, 5630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1525[0]
Description:	Sets the signal source for the scaling of the lower torque limit or the regenerative torque limit in p1523.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p1529[0...n]	Cl: Force limit lower/regenerative scaling / F_max low/gen scal		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 1610, 3617, 5620, 5630 Unit selection: - Expert list: 1 Factory setting 1525[0]
Description:	Sets the signal source for the scaling of the lower force limit or the regenerative force limit in p1523.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1529[0...n]	Cl: Torque limit lower scaling / M_max lower scal		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 6630 Unit selection: - Expert list: 1 Factory setting 1525[0]
Description:	Sets the signal source for the scaling of the lower torque limit in p1523.		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values. that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1530[0...n]	Power limit motoring / P_max mot		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min 0.00 [kW]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 14_5 Max 100000.00 [kW]	Access level: 2 Func. diagram: 5640, 6640 Unit selection: p0505 Expert list: 1 Factory setting 0.00 [kW]
Description:	Sets the power limit when motoring.		
Dependency:	Refer to: p0500, p1531		
Note:	For VECTOR the following applies (p0107): The power limit is limited to 300% rated motor power.		

p1531[0...n]	Power limit regenerating / P_max gen		
SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5640, 6640
	P-Group: Closed-loop control	Units group: 14_5	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -100000.00 [kW]	Max -0.01 [kW]	Factory setting -0.01 [kW]
Description:	Sets the regenerative power limit.		
Dependency:	Refer to: p0500, p1530		
Note:	For VECTOR the following applies (p0107): The power limit is limited to 300% rated motor power.		
p1532[0...n]	CO: Torque limit offset / M_max offset		
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 8012
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -100000.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the torque offset for the torque limit.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p1532[0...n]	CO: Force offset, force limit / F_max offset		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 8012
	P-Group: Closed-loop control	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -100000.00 [N]	Max 100000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the force offset for the force limit.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
r1533	Current limit torque-generating total / Iq_max total		
SERVO, VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5640, 5722, 6640
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum torque/force generating current as a result if all current limits.		

r1533 Current limit force-generating total / Iq_max total

SERVO (Lin)

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 5640, 5722, 6640**P-Group:** Displays, signals**Units group:** 6_2**Unit selection:** p0505**Not for motor type:** -**Expert list:** 1**Min**
- [Arms]**Max**
- [Arms]**Factory setting**
- [Arms]**Description:**

Displays the maximum torque/force generating current as a result if all current limits.

r1534 CO: Torque limit upper total / M_max upper total

SERVO

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 1610, 5620, 5630, 5640**P-Group:** Closed-loop control**Units group:** 7_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min**
- [Nm]**Max**
- [Nm]**Factory setting**
- [Nm]**Description:**

Displays the upper torque limit of all torque limits.

Dependency:

Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532

r1534 CO: Force limit upper, total / F_max upper total

SERVO (Lin)

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 1610, 5620, 5630, 5640**P-Group:** Closed-loop control**Units group:** 8_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min**
- [N]**Max**
- [N]**Factory setting**
- [N]**Description:**

Displays the upper force limit of all force limits.

Dependency:

Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532

r1535 CO: Torque limit lower total / M_max lower total

SERVO

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 1610, 5620, 5630, 5640**P-Group:** Closed-loop control**Units group:** 7_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min**
- [Nm]**Max**
- [Nm]**Factory setting**
- [Nm]**Description:**

Displays the lower torque limit of all torque limits.

Dependency:

Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532

r1535	CO: Force limit lower, total / F_max lower total		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: 1610, 5620, 5630, 5640 Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the lower force limit of all force limits.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532		
r1536	Current limit maximum torque-generating current / Isq_max		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 4 Func. diagram: 6640, 6710 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the maximum limit for the torque-generating current component.		
r1537	Current limit minimum torque-generating current / Isq_min		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 4 Func. diagram: 6640, 6710 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the minimum limit for the torque-generating current component.		
r1538	CO: Upper effective torque limit / M_max upper eff		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 2 Func. diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040, 6060, 6640, 8012 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the actually effective upper torque limit.		
Note:	The effective upper torque limit is reduced with respect to the upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased. For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960). The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.		

r1538	CO: Upper force limit effective / F_max upper eff		
SERVO (Lin)	Can be changed: - Data type: Floating Point	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040, 6060, 6640, 8012 Unit selection: p0505 Expert list: 1 Factory setting - [N]
	P-Group: Closed-loop control Not for motor type: REL	Units group: 8_1	
	Min - [N]	Max - [N]	
Description:	Displays the actually effective upper force limit.		
Note:	The effective, upper force limit is reduced with respect to the selected upper force limit p1520 if the current limit p0640 is reduced. The force limit p1520 can be re-calculated using p0340 = 1, 3 or 5.		
r1539	CO: Lower effective torque limit / M_max lower eff		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040, 6060, 6640, 8012 Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	
	Min - [Nm]	Max - [Nm]	
Description:	Displays the actually effective lower torque limit.		
Note:	The effective lower torque limit is reduced with respect to the selected lower torque limit p1521 if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased. For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960). The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.		
r1539	CO: Lower force limit effective / F_max lower eff		
SERVO (Lin)	Can be changed: - Data type: Floating Point	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040, 6060, 6640, 8012 Unit selection: p0505 Expert list: 1 Factory setting - [N]
	P-Group: Closed-loop control Not for motor type: REL	Units group: 8_1	
	Min - [N]	Max - [N]	
Description:	Displays the actually effective lower force limit.		
Note:	The effective, lower force limit is reduced with respect to the selected lower force limit p1521 if the current limit p0640 is reduced. The force limit p1520 can be re-calculated using p0340 = 1, 3 or 5.		
p1540[0...n]	CI: Torque limit speed controller upper scaling / M_max n-ctr upScal		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 6060 Unit selection: - Expert list: 1 Factory setting 1
	Min -	Max -	
Description:	Sets the signal source for the scaling of the upper torque limiting to limit the speed controller output.		

p1541[0...n]	CI: Torque limit. speed controller lower scaling / M_max nctr lowScal		
VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the scaling of the lower torque limiting to limit the speed controller output.		
p1542[0...n]	CI: Travel to fixed stop torque reduction / TfS M_red		
SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5610
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the torque/force reduction when traversing to a fixed stop. This value is converted into a factor and is interconnected to the scaling of the torque/force limits.		
Dependency:	Refer to: p1528, p1529, r1543, p1544, p1545		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1542[0...n]	CI: Travel to fixed stop force reduction / TfS F_red		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5610
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the torque/force reduction when traversing to a fixed stop. This value is converted into a factor and is interconnected to the scaling of the torque/force limits.		
Dependency:	Refer to: p1528, p1529, r1543, p1544, p1545		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
r1543	CO: Travel to fixed stop torque scaling / TfS M scal		
SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 5610
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
Description:	Displays the internally converted factor to interconnect to the scaling of the torque/force limits.		
Dependency:	Refer to: p1528, p1529, p1542, p1544, p1545		

r1543	CO: Travel to fixed stop force scaling / TfS F scal		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 5610 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the internally converted factor to interconnect to the scaling of the torque/force limits.		
Dependency:	Refer to: p1528, p1529, p1542, p1544, p1545		
p1544	Travel to fixed stop evaluation, torque reduction / TfS M_red eval		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 0 [%]	Calculated: - Dynamic index: - Units group: - Max 65535 [%]	Access level: 3 Func. diagram: 5610 Unit selection: - Expert list: 1 Factory setting 100 [%]
Description:	Sets the evaluation for the torque/force reduction when traversing to a fixed stop.		
Dependency:	Refer to: p1528, p1529, p1542, r1543, p1545		
Note:	4000 hex (16384 dec) in the MOMRED control word corresponds to a reduction by the percentage specified in this parameter.		
p1544	Travel to fixed stop evaluation force reduction / TfS F_red eval		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 0 [%]	Calculated: - Dynamic index: - Units group: - Max 65535 [%]	Access level: 3 Func. diagram: 5610 Unit selection: - Expert list: 1 Factory setting 100 [%]
Description:	Sets the evaluation for the torque/force reduction when traversing to a fixed stop.		
Dependency:	Refer to: p1528, p1529, p1542, r1543, p1545		
Note:	4000 hex (16384 dec) in the MOMRED control word corresponds to a reduction by the percentage specified in this parameter.		
p1545[0...n]	BI: Activates travel to a fixed stop / TfS activation		
SERVO	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 2520, 3617 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to activate/de-activate the "travel to fixed stop" function 1: Travel to fixed stop is active 0: Travel to fixed stop is inactive		
Dependency:	Refer to: p1542, r1543, p1544		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	When traveling to fixed stop, the fault F07900 "motor blocked" is suppressed. When the function module "position positioner" (r0108.4 = 1) is activated, this binector input is interconnected as follows as standard: BI: p1545 = r2683.14		

p1545[0...n]	BI: Activates travel to a fixed stop / TfS activation		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 2520, 3617 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to activate/de-activate the "travel to fixed stop" function 1: Travel to fixed stop is active 0: Travel to fixed stop is inactive		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	When traveling to fixed stop, the fault F07900 "motor blocked" is suppressed. When the function module "position positioner" (r0108.4 = 1) is activated, this binector input is interconnected as follows as standard: BI: p1545 = r2683.14		
p1546	Speed threshold motoring/regenerating / n_thresh mot/regen		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 0.0 [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max 210000.0 [RPM]	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 20.0 [RPM]
Description:	Sets the speed threshold for the motoring/regenerating limit. For speeds where the absolute value is less than p1546, then the following applies: - For p1400.13 = 0: Motoring limit (speed threshold is compared to the speed actual value). - For p1400.13 = 1: Regenerative limiting (speed threshold is compared to the speed setpoint).		
p1546	Velocity threshold motoring/regenerating / v_thresh mot/regen		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 0.0 [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max 1000.0 [m/min]	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 0.2 [m/min]
Description:	Sets the velocity threshold for the motoring/regenerating limit. For velocities where the absolute value is less than p1546, then the following applies: - For p1400.13 = 0: Motoring limit (velocity threshold is compared to the velocity actual value). - For p1400.13 = 1: Regenerative limiting (velocity threshold is compared to the velocity setpoint).		
r1547[0...1]	CO: Torque limit for speed controller output / M_max outp n_ctrl		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque limit to limit the speed controller output.		
Index:	[0] = Upper limit [1] = Lower limit		

r1548[0...1]	CO: Stall current limit torque-generating maximum / Isq_max stall		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 4 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the limit for the torque-generating current component using the stall calculation, the current limit of the Motor Module as well as the parameterization in p0640.		
Index:	[0] = Upper limit [1] = Lower limit		
r1549	CO: Stall power actual value / P_stall		
SERVO	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: - Min - [kW]	Calculated: - Dynamic index: - Units group: 14_5 Max - [kW]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [kW]
Description:	Displays the instantaneous stall power.		
Dependency:	Refer to: p0326		
p1550[0...n]	BI: Transfer actual torque as torque offset / Accept act torque		
SERVO	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 9718.23
Description:	For a positive edge, the actual torque (r0079[0]) at this instant in time is used instead of the torque offset from p1532 as long as p1550 remains at 1.		
p1550[0...n]	BI: Transfer actual force as force offset / Accept act force		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 9718.23
Description:	For a positive edge, the actual force (r0079[0]) at this instant in time is used instead of the force offset from p1532 as long as p1550 remains at 1.		

p1551[0...n]	BI: Torque limit variable/fixed signal source / M_lim var/fixS_src		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5620, 5630, 6060, 6630 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source to change over the torque limits between variable and fixed torque limit. 1 signal from BI: p1551: The variable torque limit applies (fixed torque limit + scaling). 0 signal from BI: p1551: The fixed torque limit applies. Example: In order that for a Quick Stop (OFF3) the fixed torque limit is effective, BI: p1551 must be interconnected to r0899.5.		
p1551[0...n]	BI: Force limit variable/fixed signal source / F_lim var/fixS_src		
SERVO (Lin)	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 5620, 5630, 6060, 6630 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source to change over the force limits between variable and fixed force limit. 1 signal from BI: p1551: The variable force limit applies (fixed force limit + scaling). 0 signal from BI: p1551: The fixed force limit applies. Example: In order that for a Quick Stop (OFF3) the fixed force limit is effective, BI: p1551 must be interconnected to r0899.5.		
p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up offs scal		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 6060 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the scaling of the upper torque limiting to limit the speed controller output without taking into account the current and power limits.		
p1552[0...n]	CI: Force limit upper scaling without offset / F_max up offs scal		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 6060 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the scaling of the upper force limiting to limit the velocity controller output without taking into account the current and power limits.		

p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low offsCal		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 6060 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the scaling of the lower torque limiting to limit the speed controller output without taking into account the current and power limits.		
p1554[0...n]	CI: Force limit lower scaling without offset / F_max low offsCal		
SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 6060 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the scaling of the lower force limiting to limit the velocity controller output without taking into account the current and power limits.		
p1555[0...n]	CI: Power limit / P_max		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 6640 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the motoring and negative regenerative power limit.		
Dependency:	Refer to: p1530, p1531		
Note:	The resulting power limit when motoring is the minimum from p1530 and the signal that is read-in, the resulting regenerative power limit is the maximum from p1531 and the negative signal that is read-in.		
p1556[0...n]	Power limit scaling / P_max_scale		
VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 6640 Unit selection: - Expert list: 1 Factory setting 0.00
Description:	Sets the scaling of the signal source for the motoring and negative regenerative power limit. 0 signifies no power limiting.		
p1569[0...n]	CI: Supplementary torque 3 / M_suppl 3		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7010 Unit selection: - Expert list: 1 Factory setting 3841[0]
Description:	Sets the signal source for supplementary torque 3.		

Dependency: Refer to: p3842

Notice: The signal input is after the torque limit (r1538, r1539). For vector drives, the signals that are entered are only limited by the current and power limits.

Note: The signal input is preferably used to enter the friction characteristic. The friction compensation is also effective if the speed controller output reaches its torque limits, but the current limits have still not been reached (this only applies to vector drives).

p1569[0...n] CI: Supplementary force 3 / F_suppl 3

SERVO (Lin)

Can be changed: T

Calculated: -

Access level: 2

Data type: Unsigned32 / FloatingPoint32

Dynamic index: CDS, p0170

Func. diagram: 7010

P-Group: Functions

Units group: -

Unit selection: -

Not for motor type: REL

Expert list: 1

Min

Max

Factory setting

-

-

3841[0]

Description: Sets the signal source for supplementary force 3.

Dependency: Refer to: p3842

Notice: The signal input is after the force limit (r1538, r1539). For vector drives, the signals that are entered are only limited by the current and power limits.

Note: The signal input is preferably used to enter the friction characteristic. The friction compensation is also effective if the velocity controller output reaches its force limits, but the current limits have still not been reached (this only applies to vector drives).

p1570[0...n] CO: Flux setpoint / Flux setpoint

VECTOR (n/M)

Can be changed: U, T

Calculated: -

Access level: 2

Data type: Floating Point

Dynamic index: DDS, p0180

Func. diagram: 6722

P-Group: Closed-loop control

Units group: -

Unit selection: -

Not for motor type: PEM, REL

Expert list: 1

Min

Max

Factory setting

50.0 [%]

200.0 [%]

100.0 [%]

Description: Sets the flux setpoint referred to rated motor flux.

Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

Note: For p1570 > 100 %, the flux setpoint increases as a function of the load from 100 % (no-load operation) to the setting in p1570 (above rated motor torque).

p1571[0...n] CI: Supplementary flux setpoint / Suppl flux setp

VECTOR (n/M)

Can be changed: T

Calculated: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: CDS, p0170

Func. diagram: 6060

P-Group: Closed-loop control

Units group: -

Unit selection: -

Not for motor type: ASM, PEM, REL

Expert list: 1

Min

Max

Factory setting

-

-

0

Description: Sets the signal source for the supplementary flux setpoint.

Notice: Low flux setpoints can cause the drive to stall at higher loads. This is the reason that the flux setpoint should only be adapted for slow load changes.

Note: The supplementary flux setpoint is limited to +/- 50 %.

p1572[0...n]	Supplementary flux setpoint / Suppl flux setp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [%]
Description:	Sets the supplementary flux setpoint for the flux controller. The value is referred to the rated motor flux.		
Notice:	The parameter should be set back to 0% again for normal closed-loop control operation.		
Note:	The parameter is used to optimize the flux controller. The current model is not influenced by the setting.		
p1574[0...n]	Voltage reserve dynamic / V_reserve dyn		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 5_1	Access level: 3 Func. diagram: 6723, 6724 Unit selection: p0505 Expert list: 1 Factory setting 10.0 [Vrms]
Description:	Sets a dynamic voltage reserve.		
Note:	In the field weakening range, it must be expected that the control dynamic performance is somewhat restricted due to the limited possibilities of controlling/adjusting the voltage. This can be improved by increasing the voltage margin (reserve). Increasing the reserve reduces the steady-state maximum output voltage (r0071).		
p1576[0...n]	Flux boost, adaptation speed, lower / Flux boost n lower		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 0.00 [RPM]
Description:	Sets the lower adaptation speed of the flux boost. Below this speed, p1570 is set as reference (setpoint) flux.		
p1577[0...n]	Flux boost adaptation speed, upper / Flux boost n upper		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 200.0 [%]
Description:	Sets the upper adaptation speed of the flux boost. Above this speed, the rated motor flux (100%) is set as reference (setpoint) flux.		
Dependency:	The parameter value refers to the lower adaptation speed of the flux boost. Refer to: p1576		

p1580[0...n]	Efficiency optimization / Efficiency opt.		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 6722 Unit selection: - Expert list: 1 Factory setting 0 [%]
Description:	Sets the efficiency optimization. When optimizing the efficiency, the flux setpoint of the closed-loop control is adapted as a function of the load.		
Note:	For p1580 = 100 %, under no-load operating conditions, the flux setpoint is reduced to 50 % of the rated motor flux. It only makes sense to activate this function if the dynamic response requirements of the speed controller are low. In order to avoid oscillations, if required, the speed controller parameters should be adapted (increase Tn, reduce Kp). Further, the smoothing time of the flux setpoint filter (p1582) should be increased.		
p1582[0...n]	Flux setpoint smoothing time / Flux setp T_smth		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6722 Unit selection: - Expert list: 1 Factory setting 15 [ms]
Description:	Sets the smoothing time for the flux setpoint.		
r1583	Flux setpoint smoothed / Flux setp smooth		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: 6722, 6723 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the smoothed flux setpoint. The value is referred to the rated motor flux.		
p1584[0...n]	Field weakening operation, flux setpoint smoothing time / Field weak T_smth		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6722 Unit selection: - Expert list: 1 Factory setting 0 [ms]
Description:	Sets the smoothing time for the flux setpoint in the field-weakening range		
Recommend.:	Smoothing should be especially used if there is no regenerative feedback into the line supply. This means that the DC link voltage can quickly increase in regenerative operation		
Note:	Only the flux setpoint rise is smoothed		

p1585[0...n]	Flux actual value, smoothing time / Flux actVal T_smth		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0 [ms]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 1000 [ms] Factory setting 0 [ms]
Description:	Sets the smoothing time for the flux actual value.		
p1586[0...n]	Field weakening characteristic, scaling / Field weak scal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 80.0 [%]	Access level: 3 Func. diagram: 6722, 6724 Unit selection: - Expert list: 1 Max 120.0 [%] Factory setting 100.0 [%]
Description:	Scaling of the pre-control characteristic for the start of field weakening. For values above 100% and for partial load situations, the field weakening starts at higher speeds.		
Note:	If the start of field weakening is shifted to lower speeds, then the voltage reserve is increased for partial load situations. If the start of field weakening is shifted to higher speeds, the voltage reserve is appropriately reduced so that for fast load changes, it can be expected that this will have a negative impact on the dynamic performance.		
r1589	Field-weakening current, pre-control value / FieldWkCurrPrectrl		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: - Units group: 6_2 Min - [Arms]	Access level: 4 Func. diagram: 6724 Unit selection: p0505 Expert list: 1 Max - [Arms] Factory setting - [Arms]
Description:	Displays the pre-control value for the field weakening current.		
p1590[0...n]	Flux controller P gain / Flux controller Kp		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 0.0 [A/Vs]	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1 Max 999999.0 [A/Vs] Factory setting 10.0 [A/Vs]
Description:	Sets the proportional gain of the flux controller.		
Note:	For synchronous motors, this parameters has no effect. The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned. When calculating controller parameter (p0340 = 4), this value is re-calculated.		

p1590[0...n]	Flux controller P gain / Flux controller Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 0.0	Access level: 4 Func. diagram: 6723 Unit selection: - Expert list: 1 Max 999999.0 Factory setting 10.0
Description:	Sets the proportional gain of the flux controller.		
Note:	The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned. When calculating controller parameter (p0340 = 4), this value is re-calculated.		
p1592[0...n]	Flux controller integral.action time / Flux controller Tn		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 0 [ms]	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1 Max 10000 [ms] Factory setting 30 [ms]
Description:	Sets the integral time of the flux controller.		
Note:	For synchronous motors, this parameters has no effect. The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned. When calculating controller parameter (p0340 = 4), this value is re-calculated.		
p1592[0...n]	Flux controller integral.action time / Flux controller Tn		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 0 [ms]	Access level: 4 Func. diagram: 6723 Unit selection: - Expert list: 1 Max 10000 [ms] Factory setting 30 [ms]
Description:	Sets the integral time of the flux controller.		
Note:	The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned. When calculating controller parameter (p0340 = 4), this value is re-calculated.		
r1593[0...1]	CO: Field weakening controller / flux controller output / Field/FI_ctrl outp		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 6_2 Min - [Arms]	Access level: 4 Func. diagram: 6723, 6724, 6726 Unit selection: p0505 Expert list: 1 Max - [Arms] Factory setting - [Arms]
Description:	Displays the output of the field weakening controller (synchronous motor) or the output of the flux controller (separately-excited synchronous motor, induction motor).		
Index:	[0] = PI output [1] = I output		

p1594[0...n]	Field-weakening controller, P gain / Field_ctrl Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.00	Access level: 4 Func. diagram: 6724 Unit selection: - Expert list: 1 Max 1000.00 Factory setting 0.00
Description:	Sets the P gain of the field-weakening controller.		
p1596[0...n]	Field weakening controller integral-action time / Field_ctrl Tn		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 10 [ms]	Access level: 3 Func. diagram: 6723, 6724 Unit selection: - Expert list: 1 Max 10000 [ms] Factory setting 50 [ms]
Description:	Sets the integral-action time of the field-weakening controller.		
r1597	CO: Field weakening controller output / Field_ctrl output		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: - Min - [%]	Access level: 4 Func. diagram: 6723 Unit selection: - Expert list: 1 Max - [%] Factory setting - [%]
Description:	Displays the output of the field weakening controller. The value is referred to the rated motor flux.		
r1598	CO: Total flux setpoint / Flux setp total		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: - Min - [%]	Access level: 3 Func. diagram: 6714, 6723 Unit selection: - Expert list: 1 Max - [%] Factory setting - [%]
Description:	Displays the effective flux setpoint. The value is referred to the rated motor flux.		
p1599[0...n]	Flux controller, excitation current difference / Flux ctr I_excDiff		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.0 [%]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 100.0 [%] Factory setting 3.0 [%]
Description:	Sets the permissible difference between the actual excitation current and the excitation current setpoint. The excitation current flux controller is active within this difference. If the difference lies outside the specified limit value, then the I component of the excitation current flux controller is kept. Instead of this, for the flux controller of the field-generating current, an additional I controller is switched-in (integral time according to p1592).		

If the difference again lies within the bandwidth, the I component of the excitation current flux controller is re-activated and the I component of the flux controller of the field-generating current is reduced as an exponential function with respect to time. The reduction of the I component over time depends on the rotor time constant (r0384).

p1600[0...n]	P flux controller, P gain / P flux ctrl Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 10.0
Description:	Sets the proportional gain of the P flux controller for separately-excited synchronous motors.		
Note:	The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned. When calculating controller parameter (p0340 = 4), this value is re-calculated.		
r1602	CO: Flux controller P output / Flux ctrl P outp		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: - Units group: 6_2	Access level: 4 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the output of the P flux controller for separately-excited synchronous motors (FEM).		
p1609[0...n]	Current setpoint for I/f operation / I_set I/f oper		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 6_2	Access level: 3 Func. diagram: 6727 Unit selection: p0505 Expert list: 1 Factory setting 0.00 [Arms]
Description:	Sets the stator current setpoint for operation of separately-excited synchronous motors (FEM) in the operating mode I/f (p1300 = 18).		
p1610[0...n]	Torque setpoint static (SLVC) / M_set static		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 50.0 [%]
Description:	Sets the static torque setpoint for sensorless vector control (SLVC). This parameter is entered as a percentage referred to the rated motor torque (r0333). For sensorless vector control, when the motor model is shut down, an absolute current is impressed. p1610 represents the maximum load that occurs at a constant setpoint speed.		
Notice:	p1610 should always be set to at least 10 % higher than the maximum steady-state load that can occur.		
Note:	For p1610 = 0%, a current setpoint is calculated that corresponds to the no-load case (rated magnetizing current). For p1610 = 100 %, a current setpoint is calculated that corresponds to the rated motor torque.		

p1611[0...n]	Supplementary accelerating torque (SLVC) / M_suppl_accel		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 6722 Unit selection: - Expert list: 1 Factory setting 0.0 [%]
Description:	Enters the dynamic torque setpoint for the low-speed range for sensorless vector control (SLVC). This parameter is entered as a percentage referred to the rated motor torque (r0333).		
Note:	When accelerating and braking p1611 is added to p1610 and the resulting total torque is converted into an appropriate current setpoint and controlled. For pure accelerating torques, it is always favorable to use the torque pre-control of the speed controller (p1496).		
p1612[0...n]	Current setpoint, open-loop control, sensorless / I_setCtrSensorless		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: 6_2	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 0.00 [Arms]
Description:	Sets the current setpoint for controlled (open-loop) sensorless operation.		
Note:	The value is effective at speeds less than p1755 and represents a reserve for a possibly existing load torque or torque error in the moment of inertia.		
p1616[0...n]	Current setpoint smoothing time / I_set T_smooth		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6722 Unit selection: - Expert list: 1 Factory setting 40 [ms]
Description:	Sets the smoothing time for the current setpoint. The current setpoint is generated from p1610 and p1611.		
Note:	This parameter is only effective in the range where current is impressed for sensorless vector control.		
r1618	Current model controller, pre-control / I_mod_ctrl prectrl		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: - Units group: 6_2	Access level: 4 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the pre-control value of the current model controller. It involves a magnetizing current in the de-direction.		

p1619[0...n]	Setpoint/actual value tracking threshold / SetAct track thrsh		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 6_2	Access level: 3 Func. diagram: 6727 Unit selection: p0505 Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Threshold for setpoint - actual value tracking of the stator current in the q direction of the current model.		
p1620[0...n]	Stator current, minimum / I_stator min		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 6_2	Access level: 3 Func. diagram: 6727 Unit selection: p0505 Expert list: 1
	Min -10000.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the minimum stator current for separately-excited synchronous motors (FEM). A negative value means that the field-generating stator current (d-axis) has a negative sign. The valid value is internally limited to 50% of the rated motor current (p0305).		
p1621[0...n]	Changeover speed, inner cos phi = 1 / n_chngov cos phi=1		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 6727 Unit selection: p0505 Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 0.00 [RPM]
Description:	Sets the speed where a change is made from the inner to the outer cos phi = 1. If the value that is entered exceeds the rated speed, then a change is made to the inner cos phi = 1 over the complete speed range.		
p1622[0...n]	Field-generating current setpoint smoothing time constant / Id_setp T_smth		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1
	Min 0.1 [ms]	Max 200.0 [ms]	Factory setting 20.0 [ms]
Description:	Sets the smoothing time constant for the setpoint of the field-generating current components. The current filtered in this way is included in the calculation of the cos phi.		
r1623	Field-generating current setpoint (steady-state) / Id_set stationary		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: 6_2	Access level: 4 Func. diagram: 6723 Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the steady-state field generating current setpoint (Id_set).		

r1624	Field-generating current setpoint, total / I_d_setp total		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: REL Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 4 Func. diagram: 6640, 6723, 6724, 6727 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the limited field-generating current setpoint (I _d _set). This value comprises the steady-state field-generating current setpoint r1623 and a dynamic component that is only set when changes are made to the flux setpoint.		
p1625[0...n]	Excitation current setpoint calibration / I_{exc}_setp cal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min 10.0 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 200.0 [%]	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Factory setting 100.0 [%]
Description:	Gain factor to weight the excitation current setpoint.		
r1626	CO: Excitation current setpoint / I_{exc}_setp		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the calculated excitation current setpoint.		
Dependency:	Refer to: p0390		
r1627	CO: Current model load angle / I_{mod}_load angle		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min - [°]	Calculated: - Dynamic index: - Units group: - Max - [°]	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Displays the load angle of the current model.		
p1628[0...n]	Current model controller, dynamic factor / I_{mod}_ctr dyn_fact		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: ASM, PEM, REL Min 1 [%]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 400 [%]	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Factory setting 50 [%]
Description:	Dynamic factor of the model controller in the current model		

p1629[0...n]	Current model controller P gain / I_mod_ctrl Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 0.000	Access level: 4 Func. diagram: 6727 Unit selection: - Expert list: 1 Max 100000.000 Factory setting 0.000
Description:	Sets the proportional gain of the current model controller. This value is automatically preset using p3900 or p0340 when commissioning has been completed.		
p1630[0...n]	Current model controller integral time / I_ctrl Tn		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 0.00 [ms]	Access level: 4 Func. diagram: 6727 Unit selection: - Expert list: 1 Max 10000.00 [ms] Factory setting 0.00 [ms]
Description:	Sets the proportional gain of the current model controller. This value is automatically preset using p3900 or p0340 when commissioning has been completed.		
r1631	Current model controller, P gain effective / I_mod ctrl Kp eff		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: - Units group: - Min -	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Max - Factory setting -
Description:	Displays the effective P gain of the current model controller.		
r1632	Current model controller integral time effective / I_mod_ctrl Tn eff		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: - Units group: - Min - [ms]	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Max - [ms] Factory setting - [ms]
Description:	Displays the effective integral time of the current model controller.		
r1633	Current model, flux setpoint / I_mod flux setp		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: - Units group: - Min - [%]	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Max - [%] Factory setting - [%]
Description:	Displays the effective flux setpoint of the current model. The value is referred to the rated motor flux.		

r1634 Current model, flux actual value / I_mod flux act val

VECTOR (n/M)

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 6727**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** ASM, PEM, REL**Expert list:** 1**Min****Max****Factory setting**

- [%]

- [%]

- [%]

Description:

Displays the effective flux actual value of the current model. The value is referred to the rated motor flux.

r1635 Current model controller, I component / I_mod_ctrl I_comp

VECTOR (n/M)

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 6727**P-Group:** Closed-loop control**Units group:** 6_2**Unit selection:** p0505**Not for motor type:** ASM, PEM, REL**Expert list:** 1**Min****Max****Factory setting**

- [Arms]

- [Arms]

- [Arms]

Description:

Displays the I component of the current model controller.

r1636 Current model controller output / I_mod_ctrl outp

VECTOR (n/M)

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 6727**P-Group:** Closed-loop control**Units group:** 6_2**Unit selection:** p0505**Not for motor type:** ASM, PEM, REL**Expert list:** 1**Min****Max****Factory setting**

- [Arms]

- [Arms]

- [Arms]

Description:

Displays the output of the current model controller.

r1637 Current model, magnetizing current, d axis / I_mod I_mag d-ax

VECTOR (n/M)

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 6727**P-Group:** Closed-loop control**Units group:** 6_2**Unit selection:** p0505**Not for motor type:** ASM, PEM, REL**Expert list:** 1**Min****Max****Factory setting**

- [Arms]

- [Arms]

- [Arms]

Description:

Displays the magnetizing current of the current model in the d-axis.

r1638 Current model, magnetizing current, q axis / I_mod I_mag q-ax

VECTOR (n/M)

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 6727**P-Group:** Closed-loop control**Units group:** 6_2**Unit selection:** p0505**Not for motor type:** ASM, PEM, REL**Expert list:** 1**Min****Max****Factory setting**

- [Arms]

- [Arms]

- [Arms]

Description:

Displays the magnetizing current of the current model in the q-axis.

r1639	CO: Current model Isq after actual value tracking / I_mod Isq track		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 4 Func. diagram: 6727 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the stator current in the q axis after current actual value tracking.		
p1640[0...n]	CI: Excitation current actual value / I_exc_act val		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 6727 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the excitation current actual value		
r1641	Excitation current actual value / I_exc_act val		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 3 Func. diagram: 6727, 6497 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the excitation current actual value that is read-in.		
Dependency:	Refer to: p0390		
p1642[0...n]	Minimum excitation current / Min I_exc		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min 0.1 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 50.0 [%]	Access level: 4 Func. diagram: 6727 Unit selection: - Expert list: 1 Factory setting 5.0 [%]
Description:	Sets the minimum excitation current. This means that negative excitation currents can be avoided.		
p1643[0...n]	Gain factor, minimum excitation current closed-loop control / Min I_exc Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min 0.00	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 5.00	Access level: 4 Func. diagram: 6727 Unit selection: - Expert list: 1 Factory setting 0.40
Description:	Sets the gain factor for the minimum excitation current, closed-loop control. This is active if the excitation current is below 75% of p1642.		
Dependency:	Refer to: p1642		

r1644	Excitation current monitoring output / I_exc_monit outp		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 4 Func. diagram: 6727 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the output of the excitation current monitoring for separately excited synchronous motors.		
p1645[0...6]	BI: Excitation feedback signals signal source / Exc FS S_src		
VECTOR (n/M)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: ASM, PEM, REL Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 6495 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the individual feedback signals from the excitation.		
Index:	[0] = Excitation ready to be powered-up [1] = Excitation ready [2] = Excitation operational [3] = Excitation group signal fault [4] = Excitation, group signal alarm [5] = Not used [6] = Not used		
Dependency:	Refer to: r1649		
p1646	Excitation monitoring time / Excit t_monit		
VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Commands Not for motor type: ASM, PEM, REL Min 2.0 [s]	Calculated: - Dynamic index: - Units group: - Max 1300.0 [s]	Access level: 2 Func. diagram: 6495 Unit selection: - Expert list: 1 Factory setting 20.0 [s]
Description:	Sets the monitoring time of the excitation.		
	After an ON command, the feedback signal must be received within this monitoring time.		
Note:	After the on command for the excitation (r1648.0 = 1), its feedback signal must be available at r1649.1 within this monitoring time (BI: p1645[1]). The same monitoring time is effective after the excitation is enabled for operation (r1648.3 = 1) up to the feedback signal "excitation in operation" (r1649.2 = 1, BI: p1645[2]).		
p1647	Excitation switch-out delay time / Exc t_off		
VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Commands Not for motor type: ASM, PEM, REL Min 0.5 [s]	Calculated: - Dynamic index: - Units group: - Max 5.0 [s]	Access level: 2 Func. diagram: 6495 Unit selection: - Expert list: 1 Factory setting 0.8 [s]
Description:	Sets the switch-off delay time to shut-down the excitation equipment.		
Note:	The delay time starts if, when powering-down, r0863.0 = 0. r1648.0 and r1648.3 are reset at the end of the delay time.		

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r1651	CO: Torque setpoint, function generator / M_set FG		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [Nm]	Calculated: - Dynamic index: - Units group: 7_1 Max - [Nm]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Nm]
Description:	Displays the torque setpoint of the function generator.		
r1651	CO: Force setpoint, function generator / F_set FG		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [N]	Calculated: - Dynamic index: - Units group: 8_1 Max - [N]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [N]
Description:	Displays the force setpoint of the function generator.		
p1653[0...n]	Current setpoint torque-generating minimum smoothing time / Isq_s T_smth_min		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL Min 0.1 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 20.0 [ms]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.1 [ms]
Description:	Sets the minimum smoothing time constant for the setpoint of the torque-generating current components.		
p1654[0...n]	Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL Min 0.1 [ms]	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: - Max 50.0 [ms]	Access level: 4 Func. diagram: 6710 Unit selection: - Expert list: 1 Factory setting 4.8 [ms]
Description:	Sets the smoothing time constant for the setpoint of the torque-generating current components.		
Note:	The smoothing time does not become effective until the field-weakening range is reached.		
p1655[0...1]	CI: Current setpoint filter natural frequency tuning / I_set_filt f_n		
VECTOR (n/M)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 6710 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for tuning the natural frequency of the current setpoint filter.		
Index:	[0] = Filter 1 [1] = Filter 2		

p1656[0...n]		Activates current setpoint filter / I_set_filt active			
SERVO	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 5710		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0001 bin		
Description:		Activates current setpoint filters 1 to 4.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Filter 1	Active	Inactive	-
	01	Filter 2	Active	Inactive	-
	02	Filter 3	Active	Inactive	-
	03	Filter 4	Active	Inactive	-
Dependency:		The current setpoint filters are parameterized with p1656 to p1676.			
Note:		If not all of the filters are required, then the filters should be used consecutively starting from filter 1.			

p1656[0...n]		Activates current setpoint filter / I_set_filt active			
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 6710		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: REL		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0001 bin		
Description:		Activates current setpoint filters 1 to 2.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Filter 1	Active	Inactive	-
	01	Filter 2	Active	Inactive	-
Dependency:		The current setpoint filters are parameterized with p1656 to p1666.			
Note:		If not all of the filters are required, then the filters should be used consecutively starting from filter 1.			

p1657[0...n]		Current setpoint filter 1 type / I_set_filt 1 Typ			
SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3		
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: REL		Expert list: 1		
	Min	Max	Factory setting		
	1	2	1		
Description:		Sets the current setpoint filter 1 as low pass (PT2) or as extended general 2nd-order filter.			
Values:		1: Low pass: PT2 2: General 2nd-order filter			
Dependency:		The current setpoint filters are parameterized with p1656 to p1676.			
Note:		For an extended general 2nd order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed. The denominator damping can be determined from the equation for the 3 dB bandwidth: $f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$			

p1658[0...n]	Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_n		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710, 6710 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 1 (PT2, general filter).		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1659[0...n]	Current setpoint filter 1 denominator damping / I_set_filt 1 D_n		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710, 6710 Unit selection: - Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700
Description:	Sets the denominator damping for current setpoint filter 1.		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1660[0...n]	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_z		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710, 6710 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 1 (general filter).		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1661[0...n]	Current setpoint filter 1 numerator damping / I_set_filt 1 D_z		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710, 6710 Unit selection: - Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700
Description:	Sets the numerator damping for current setpoint filter 1.		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1662[0...n]	Current setpoint filter 2 type / I_set_filt 2 Typ		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710, 6710 Unit selection: - Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the current setpoint filter 2 as low pass (PT2) or as extended general 2nd-order filter.		
Values:	1: Low pass: PT2 2: General 2nd-order filter		

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

Note: For an extended general 2nd order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed. The denominator damping can be determined from the equation for the 3 dB bandwidth: $f_{3dB \text{ bandwidth}} = 2 * D_{\text{denominator}} * f_{\text{bandstop frequency}}$

p1663[0...n] Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_n

SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 2 (PT2, general filter).

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1664[0...n] Current setpoint filter 2 denominator damping / I_set_filt 2 D_n

SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700

Description: Sets the denominator damping for current setpoint filter 2.

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1665[0...n] Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_z

SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 2 (general filter).

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1666[0...n] Current setpoint filter 2 numerator damping / I_set_filt 2 D_z

SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700

Description: Sets the numerator damping for current setpoint filter 2.

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1667[0...n]	Current setpoint filter 3 type / I_set_filt 3 Typ		
SERVO	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the current setpoint filter 3 as low pass (PT2) or as extended general 2nd-order filter.		
Values:	1: Low pass: PT2 2: General 2nd-order filter		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1668[0...n]	Current setpoint filter 3 denominator natural frequency / I_set_filt 3 fn_n		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710 Unit selection: - Expert list: 1 Factory setting 1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 3 (PT2, general filter).		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1669[0...n]	Current setpoint filter 3 denominator damping / I_set_filt 3 D_n		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the denominator damping for current setpoint filter 3.		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1670[0...n]	Current setpoint filter 3 numerator natural frequency / I_set_filt 3 fn_z		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710 Unit selection: - Expert list: 1 Factory setting 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 3 (general filter).		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1671[0...n]	Current setpoint filter 3 numerator damping / I_set_filt 3 D_z		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the numerator damping for current setpoint filter 3.		

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1672[0...n] Current setpoint filter 4 type / I_set_filt 4 Typ

SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 2	Factory setting 1

Description: Sets the current setpoint filter 4 as low pass (PT2) or as extended general 2nd-order filter.

Values:
1: Low pass: PT2
2: General 2nd-order filter

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1673[0...n] Current setpoint filter 4 denominator natural frequency / I_set_filt 4 fn_n

SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 4 (PT2, general filter).

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1674[0...n] Current setpoint filter 4 denominator damping / I_set_filt 4 D_n

SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700

Description: Sets the denominator damping for current setpoint filter 4.

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1675[0...n] Current setpoint filter 4 numerator natural frequency / I_set_filt 4 fn_n

SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 4 (general filter).

Dependency: The current setpoint filters are parameterized with p1656 to p1676.

p1676[0...n]	Current setpoint filter 4 numerator damping / I_set_filt 4 D_z		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5710 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the numerator damping for current setpoint filter 4.		
Dependency:	The current setpoint filters are parameterized with p1656 to p1676.		
p1699	Filter data acceptance / Filt data accept		
SERVO, VECTOR (n/M)	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Activates data acceptance for parameter changes for the filter. p1699 = 0: The new filter data are immediately accepted. p1699 = 1: The new filter data are only accepted when this parameter is reset.		
Dependency:	Refer to: p1414, p1415, p1416, p1417, p1418, p1419, p1420, p1421, p1422, p1423, p1424, p1425, p1426, p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1665, p1666, p1667, p1668, p1669, p1670, p1671, p1672, p1673, p1674, p1675, p1676		
p1701[0...n]	Current controller reference model dead time / I_ctrRefMod t_dead		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5714 Unit selection: - Expert list: 1 Factory setting 1.0
Description:	Sets the fractional dead time for the current controller reference model.		
Note:	This parameter emulates the computation dead time of the proportionally controlled current control loop.		
	Dead time = p1701 * p0115[0]		
p1702[0...n]	Isd current controller pre-control scaling / Isd_ctr_prectrScal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: 6714 Unit selection: - Expert list: 1 Factory setting 70.0 [%]
Description:	Sets the scaling of the dynamic current controller pre-control for the flux-generating current component Isd.		
Note:	The parameter is effective for permanent and separately-excited synchronous motors.		

p1703[0...n]	Isq current controller pre-control scaling / Isq_ctr_prectrScal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: 6714 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200.0 [%]	Factory setting 70.0 [%]
Description:	Sets the scaling of the dynamic current controller pre-control for the torque/force-generating current component Isq.		
p1704[0...n]	EMF scaling of the Isq current controller pre-control / EMF scal Isq_ctrl		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200.0 [%]	Factory setting 100.0 [%]
Description:	Sets the scaling of the EMF pre-control for the Isq current controller.		
p1705[0...n]	Flux setpoint/actual value tracking threshold / Flux track thresh		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 100.0 [%]	Factory setting 100.0 [%]
Description:	Threshold for the setpoint - actual value tracking of the EMF pre-control of the Isq current controller.		
p1715[0...n]	Current controller P gain / I_ctrl Kp		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 18_1	Access level: 3 Func. diagram: 5714, 6714 Unit selection: p0505 Expert list: 1
	Min 0.000 [V/A]	Max 100000.000 [V/A]	Factory setting 0.000 [V/A]
Description:	Sets the proportional gain of the current controller for the lower adaptation current range. This value is automatically preset using p3900 or p0340 when commissioning has been completed.		
Dependency:	p0391, p0392 and p0393 are only available for SERVO. Refer to: p0391, p0392, p0393		
Note:	For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.		
p1715[0...n]	Current controller P gain / I_ctrl Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5714, 6714 Unit selection: - Expert list: 1
	Min 0.000	Max 100000.000	Factory setting 0.000
Description:	Sets the proportional gain of the current controller for the lower adaptation current range. This value is automatically preset using p3900 or p0340 when commissioning has been completed.		

Dependency: p0391, p0392 and p0393 are only available for SERVO.

Refer to: p0391, p0392, p0393

Note: For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.

p1717[0...n]	Current controller integral-action time / I_ctrl Tn		
SERVO, VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 5714, 6714
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 2.00 [ms]

Description: Sets the integral-action time of the current controller.

Dependency: Refer to: p1715

r1718	CO: Isq controller output / Isq_ctrl outp		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 6714
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]

Description: Displays the actual output of the Isq current controller (torque/force generating current, PI controller). The value contains the proportional and integral components of the PI controller.

r1719	Isq controller integral component / Isq_ctrl I_comp		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]

Description: Displays the integral component of the Isq current controller (torque/force-generating current, PI controller).

r1723	CO: Isd controller output / Isd_ctrl outp		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 6714
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]

Description: Displays the actual output of the Isd current controller (flux-generating current, PI controller). The value contains the proportional and integral components of the PI controller.

r1724	Isd controller integral component / Isd_ctrl I_comp		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]

Description: Displays the integral component of the Isd current controller (flux-generating current, PI controller).

r1725	Isd controller integral component limit / Isd_ctrl I_limit		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 5_1 Min - [Vrms]	Access level: 4 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the limit value for the integral component of the Isd current controller.		
p1726[0...n]	Quadrature arm decoupling, scaling / Transv_decpl scal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: - Min 0.0 [%]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 75.0 [%]
Description:	Sets the scaling of the quadrature arm decoupling		
Note:	This parameter is ineffective for sensorless vector control. In this case, p1727 is always used. If p1726 is set to 0, then the quadrature de-coupling is de-activated. The integral component of the Isd current controller remains effective if the complete speed control range. For the closed-loop control of synchronous motors p1726 is used to scale the current controller de-coupling.		
p1727[0...n]	Quadrature arm decoupling at voltage limit scaling / TrnsvDecplVmaxScal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.0 [%]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 50.0 [%]
Description:	Sets the scaling of quadrature arm decoupling when the voltage limit is reached.		
r1728	De-coupling voltage, in-line axis / V_dir-axis_decoupl		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 5_1 Min - [Vrms]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the actual output of the quadrature channel de-coupling for the d axis.		
r1729	De-coupling voltage, quadrature axis / V_quad_decoupl		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 5_1 Min - [Vrms]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the actual output of the quadrature channel de-coupling for the q axis.		

r1732	CO: Direct-axis voltage setpoint / Direct V set		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Vrms]	Calculated: - Dynamic index: - Units group: 5_1 Max - [Vrms]	Access level: 3 Func. diagram: 1630, 5714, 6714, 5718 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the direct-axis voltage setpoint Ud.		
r1733	CO: Quadrature-axis voltage setpoint / Quad V set		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL Min - [Vrms]	Calculated: - Dynamic index: - Units group: 5_1 Max - [Vrms]	Access level: 3 Func. diagram: 1630, 5714, 5718, 6714, 6719 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the quadrature-axis component of voltage setpoint Uq.		
p1740[0...n]	Gain resonance damping for sensorless closed loop control / Gain res_damp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM Min 0.000	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 10.000	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.025
Description:	Defines the gain of the controller for resonance damping for operation with sensorless vector control in the range that current is impressed.		
p1744[0...n]	Motor model speed threshold stall detection / MotMod n_thr stall		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM Min 0.00 [RPM]	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: 3_1 Max 210000.00 [RPM]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 100.00 [RPM]
Description:	Sets the speed threshold value to detect a stalled motor. If the adaptation controller output exceeds the parameterized speed difference, then bit 11 in status word p1408 is set.		
Dependency:	If a stalled drive is detected (p1408.11 set), fault 7902 is output after the delay time in p2178. Refer to: p2178		
Note:	Speed monitoring is only effective in operation with a speed encoder (refer to p1300).		

p1745[0...n]	Motor model error threshold stall detection / MotMod ThreshStall				
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3		
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 0.0 [%]	Max 1000.0 [%]	Factory setting 5.0 [%]		
Description:	Sets the fault threshold in order to detect a motor that has stalled. If the error signal (r1746) exceeds the parameterized error threshold, then bit 12 in status word p1408 is set.				
Dependency:	If a stalled drive is detected (p1408.12 set), fault 7902 is output after the delay time set in p2178. Refer to: p2178				
Note:	Monitoring is only effective in the low-speed range (below p1755 * (100% - p1756)).				
r1746	Motor model error signal stall detection / MotMod sig stall				
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4		
	Data type: Floating Point	Dynamic index: -	Func. diagram: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: PEM, REL		Expert list: 1		
	Min - [%]	Max - [%]	Factory setting - [%]		
Description:	Signal to initiate stall detection				
Note:	The signal is not calculated while magnetizing and only in the low speed range (below p1755 * (100 % - p1756)).				
p1750[0...n]	Motor model configuration / MotMod config				
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned8	Dynamic index: DDS, p0180	Func. diagram: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: PEM, REL, FEM		Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Sets the configuration of the motor model.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Controlled start	Yes	No	-
	01	Controlled through 0 Hz	Yes	No	-
	02	Maintain closed-loop control operation for sufficient mot load	Yes	No	-
	03	Motor model Lh_pre=f(PsiEst)	Yes	No	-
	04	Model changeover	time controlled	freq controlled	-
Note:	Bit 4: The time-controlled motor changeover is only effective for vector control with encoder.				
r1751	Motor model status / MotMod status				
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: PEM, REL, FEM		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the status of the motor model.				

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Controlled operation	Active	Inactive	-
	01	Set ramp-function generator	Active	Inactive	-
	02	Stop RsLh adaptation	Yes	No	-
	03	Feedback	Active	Inactive	-
	04	Encoder operation	Active	Inactive	-
	05	Holding angle	Yes	No	-
	06	Acceleration criteria	Active	Inactive	-
	07	Set angular integrator PEM	No	Yes	-
	08	Stop Kt adaptation PEM	No	Yes	-
	09	PollID active PEM SLVC	No	Yes	-
	10	I injection PEM	No	Yes	-
	11	Speed controller output cannot be set to zero	Yes	No	-
	12	Rs adapt waits	Yes	No	-
	13	Motor operation	Yes	No	-
	14	Stator frequency sign	Positive	Negative	-
	15	Torque sign	Motor mode	Regenerative mode	-

p1752[0...n] Motor model changeover speed operation with encoder / MotMod n_chgov enc

SERVO	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.0 [RPM]	Max 210000.0 [RPM]	Factory setting 210000.0 [RPM]

Description: Sets the speed to change over the motor model for operation with encoder.

Dependency: Refer to: p1756

Note: Induction motor (ASM):
The motor model is influenced for speeds/velocities greater than p1752.
Synchronous motor (SRM):
A monitoring (F07412) is activated for speeds/velocities greater than p1752.
The motor model is additionally influenced when kT adaptation is activated (p1780.3 = 1).

p1752[0...n] Motor model with encoder changeover velocity / MotMod v_chgov enc

SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.0 [m/min]	Max 1000.0 [m/min]	Factory setting 1000.0 [m/min]

Description: Sets the velocity to change over the motor model for operation with encoder.

Dependency: Refer to: p1756

Note: Induction motor (ASM):
The motor model is influenced for speeds/velocities greater than p1752.
Synchronous motor (SRM):
A monitoring (F07412) is activated for speeds/velocities greater than p1752.
The motor model is additionally influenced when kT adaptation is activated (p1780.3 = 1).

p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Min 0.0 [RPM]
		Max 210000.0 [RPM]	Factory setting 210000.0 [RPM]
Description:	Sets the speed to change over the motor model for operation with encoder.		
Dependency:	Refer to: p1756		
p1753[0...n]	Motor model changeover speed hysteresis operation with encoder / MotMod n_chgovHysE		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 90.0 [%]	Factory setting 0.0 [%]
Description:	Sets the hysteresis for the changeover speed of the motor model for operation with speed encoder.		
Dependency:	Refer to: p1752		
Note:	The value refers to p1752.		
p1754[0...n]	Flux angle difference smoothing time / Angle diff T_smth		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, PEM, REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.1 [ms]	Max 100.0 [ms]	Factory setting 5.0 [ms]
Description:	Sets the smoothing time constant to filter the main flux angle difference from the voltage and current models. The filtered value is included in the calculation of the total flux angle.		
p1755[0...n]	Motor model changeover speed sensorless operation / MotMod n_chgSnsorl		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min 0.0 [RPM]	Max 210000.0 [RPM]	Factory setting 210000.0 [RPM]
Description:	Sets the speed to change over the motor model to sensorless operation (without encoder).		
Dependency:	Refer to: p1756		
Note:	The changeover speed applies for the changeover between open-loop and closed-loop control mode.		

p1755[0...n]	Motor model changeover velocity sensorless operation / MotMod v_chgSnsorl		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: 4_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Min 0.0 [m/min]
		Max 1000.0 [m/min]	Factory setting 1000.0 [m/min]
Description:	Sets the velocity to change over the motor model to sensorless operation (without encoder).		
Dependency:	Refer to: p1756		
Note:	The changeover velocity applies for the changeover between open-loop and closed-loop control mode.		
p1755[0...n]	Motor model changeover speed sensorless operation / MotMod n_chgSnsorl		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Min 0.0 [RPM]
		Max 210000.0 [RPM]	Factory setting 210000.0 [RPM]
Description:	Sets the speed to change over the motor model to sensorless operation (without encoder).		
Dependency:	Refer to: p1756		
Notice:	The changeover speed represents the steady-state minimum speed up to which the motor model can be used in steady-state operation without encoder (sensorless operation).		
	If the stability is not adequate close to the changeover speed, it may make sense to increase the parameter value.		
Note:	The changeover speed applies for the changeover between open-loop and closed-loop control mode.		
p1756	Motor model changeover speed hysteresis / MotMod n_chgov hys		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.0 [%]
		Max 90.0 [%]	Factory setting 5.0 [%]
Description:	Sets the hysteresis for the changeover speed/velocity of the motor model.		
Dependency:	Refer to: p1752, p1755		
Note:	The value is entered relative to p1404, p1752 or p1755.		
p1756	Motor model changeover velocity hysteresis / MotMod v_chgov hys		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.0 [%]
		Max 90.0 [%]	Factory setting 5.0 [%]
Description:	Sets the hysteresis for the changeover speed/velocity of the motor model.		
Dependency:	Refer to: p1752, p1755		
Note:	The value is entered relative to p1404, p1752 or p1755.		

p1756	Motor model changeover speed hysteresis sensorless operation / MotMod n_chgov hys		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_REG Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 50.0 [%]
	Min 0.0 [%]	Max 95.0 [%]	
Description:	Sets the hysteresis for the changeover speed of the motor model for sensorless operation.		
Dependency:	Refer to: p1755		
Note:	The parameter value refers to p1755.		
p1757[0...n]	Motor model w/o enc. op./cl.-loop controlled stab. controller Kp / MotMod w/o enc Kp		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.70
	Min 0.01	Max 10.00	
Description:	Sets the gain of the transient response controller when the motor model changes over from open-loop controlled operation to closed-loop controlled operation.		
Note:	Only for ASM and PSM in sensorless operation: The settling range starts at $0.5 * p1755 * p1756$. For ASM it ends at $p1755 * p1756$ or at p1755, if p1759 is at the maximum value. For PSM it always ends at $p1755 * p1756$.		
p1758[0...n]	Motor model changeover delay time closed/open-loop control / MotMod t_cl_op		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1000 [ms]
	Min 100 [ms]	Max 10000 [ms]	
Description:	Sets the minimum time for falling below the changeover speed when changing from closed-loop controlled operation to open-loop controlled operation.		
Dependency:	Refer to: p1755, p1756		
p1759[0...n]	Motor model changeover delay time open/closed loop control / MotMod t_op_cl		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 [ms]
	Min 0 [ms]	Max 2000 [ms]	
Description:	Sets the minimum time for exceeding the changeover speed when changing from open-loop controlled operation to closed-loop controlled operation.		
Dependency:	Refer to: p1755, p1756		

p1760[0...n] Motor model with encoder speed adaptation Kp / MotMod wE n_ada Kp

VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL, FEM		Expert list: 1
	Min 0.000	Max 100000.000	Factory setting 1000.000

Description: Sets the proportional gain of the controller for speed adaptation with encoder

p1761[0...n] Motor model with encoder speed adaptation Tn / MotMod wE n_ada Tn

VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL, FEM		Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 4 [ms]

Description: Sets the integral-action time of the controller for speed adaptation with encoder

r1762 Motor model deviation component 1 / MotMod dev comp 1

VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL, FEM		Expert list: 1
	Min -	Max -	Factory setting -

Description: Induction motor (ASM):
Displays the referred imaginary system deviation for the adaptation circuit of the motor model.
Permanent magnet synchronous motor (PEM):
Displays the system deviation referred to PI for the speed adaptation.

r1763 Motor model deviation component 2 / MotMod dev comp 2

VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL, FEM		Expert list: 1
	Min -	Max -	Factory setting -

Description: Induction motor (ASM):
Displays the referred real system deviation for the adaptation circuit of the motor model.
Permanent magnet synchronous motor (PEM):
Not used.

p1764[0...n] Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp

VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6730
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL, FEM		Expert list: 1
	Min 0.000	Max 100000.000	Factory setting 1000.000

Description: Sets the proportional gain of the controller for speed adaptation without encoder.

r1765	Motor model, speed adaptation Kp effective / MotM n_ada Kp act		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the effective proportional gain of the controller for the speed adaptation.		
p1767[0...n]	Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM Min 1 [ms]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Max 200 [ms]	Access level: 3 Func. diagram: 6730 Unit selection: - Expert list: 1 Factory setting 4 [ms]
Description:	Sets the integral time of the controller for speed adaptation without encoder		
r1768	Motor model, speed adaptation Vi effective / MotM n_ada Vi act		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the effective gain of the integral component of the controller for speed adaptation.		
r1770	Motor model speed adaptation proportional component / MotMod n_adapt Kp		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 6730 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the P component of the controller for speed adaptation.		
r1771	Motor model speed adaptation I comp. / MotMod n_adapt Tn		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL, FEM Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 6730 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the I component of the controller for speed adaptation.		

p1774[0...n] Motor model, offset voltage compensation alpha / MotMod offs comp A			
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -5.000 [V]	Max 5.000 [V]	Factory setting 0.000 [V]
Description:	Sets the offset voltage in the alpha direction; this compensates the offset voltages of the drive converter/inverter at low speeds. The value is valid for the rated (nominal) pulse frequency of the Motor Module.		
Note:	The value is pre-set during the rotating measurement.		
<hr/>			
p1775[0...n] Motor model, offset voltage compensation beta / MotMod offs comp B			
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -5.000 [V]	Max 5.000 [V]	Factory setting 0.000 [V]
Description:	Sets the offset voltage in the beta direction; this compensates the offset voltages of the drive converter/inverter at low speeds. The value is valid for the rated (nominal) pulse frequency of the Motor Module.		
Note:	The value is pre-set during the rotating measurement.		
<hr/>			
r1778 Motor model flux angle difference / MotMod ang. diff.			
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Induction motor (ASM): Displays the difference between the motor model flux angle and the transformation angle. Permanent magnet synchronous motor (PEM): Displays the difference between the motor model angle and the encoder angle.		
<hr/>			
r1779 Motor model absolute flux / MotMod abs flux			
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the absolute value of the flux of the motor model.		

- the voltage emulation errors should be identified with the Motor Module in the warm state.
 - the motor temperature (r0035) should not change significantly (i.e. it should not be identified immediately after a load duty cycle).
- Re $kT(iq)$ characteristic ($p1780.9 = 1$):
- for the $kT(iq)$ characteristic $kT(iq) = kT + kT3 * iq^2 + kT5 * iq^4 + kT7 * iq^6$ the parameters must first be identified ($p1959.6 = 1$) (kT : p0316, $kT3$: p0646, $kT5$: p0647, $kT7$: p0647).

p1780[0...n] Motor model adaptation configuration / MotMod adapt conf					
VECTOR	Can be changed: U, T		Calculated: -	Access level: 3	
	Data type: Unsigned16		Dynamic index: DDS, p0180	Func. diagram: -	
	P-Group: Closed-loop control		Units group: -	Unit selection: -	
	Not for motor type: REL			Expert list: 1	
	Min	Max	Factory setting		
	-	-	0111 1100 bin		
Description:	Sets the configuration for the adaptation circuit of the motor model.				
	Induction motor (ASM): Rs, Rr (only for operation with encoder), Lh and offset compensation.				
	Permanent magnet synchronous motor (PEM): kT				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Select motor model ASM Rs adaptation	Yes	No	-
	02	Select motor model ASM Lh adaptation	Yes	No	-
	03	Select motor model PEM kT adaptation	Yes	No	-
	04	Select motor model, offset adaptation	Yes	No	-
	05	Select ASM Rr adaptation (only with encoder)	Yes	No	-
	06	Select pole wheel identification PEM sensorless	Yes	No	-
	07	Select T(valve) with Rs adaptation	Yes	No	-
Note:	ASM: Induction motor				
	PEM: Permanent magnet synchronous motor				
	The following applies for the VECTOR closed-loop control type:				
When selecting the compensation of the valve interlocking via Rs (bit 7), the compensation in the gating unit is deactivated and is instead taken into account in the motor model.					

p1781[0...n] Motor model Rs adaptation integral time / MotMod Rs Tn			
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min	Max	Factory setting
	10 [ms]	10000 [ms]	100 [ms]
Description:	Sets the integral time for the Rs adaptation of the motor model for an induction motor (ASM).		

r1782[0...n] Motor model Rs adaptation corrective value / MotMod Rs corr			
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min	Max	Factory setting
	- [Ohm]	- [Ohm]	- [Ohm]
Description:	Displays the corrective value for the Rs adaptation of the motor model for an induction motor (ASM).		

p1783[0...n]	Motor model Rs adaptation Kp / MotMod Rs Kp		
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.000	Max 1.000	Factory setting 0.100
Description:	Sets the proportional gain for the Rs adaptation of the motor model for an induction motor (ASM).		

p1785[0...n]	Motor model Lh adaptation Kp / MotMod Lh Kp		
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.000	Max 1.000	Factory setting 0.100
Description:	Sets the proportional gain for the Lh adaptation of the motor model for an induction motor (ASM).		

p1786[0...n]	Motor model Lh adaptation integral time / MotMod Lh Tn		
VECTOR (n/M)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 10 [ms]	Max 10000 [ms]	Factory setting 100 [ms]
Description:	Sets the integral time for the Lh adaptation of the motor model for an induction motor (ASM).		

r1787[0...n]	Motor model Lh adaptation corrective value / MotMod Lh corr		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the corrective value for the Lh adaptation of the motor model for an induction motor (ASM).		

r1789	Motor model Rs adaptation switch-in frequency / MotMod Rs f_on		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the power-on stator frequency for the Rs adaptation for the induction motor (ASM).		

r1790	Motor model Rs adaptation power-on slip / MotMod Rs fslip		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: - Units group: - Min - [Hz]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the power-on slip frequency for the Rs adaptation for the induction motor (ASM).		
r1791	Motor model Lh adaptation power-on frequency / MotMod Lh f_on		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: - Units group: - Min - [Hz]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the power-on stator frequency/ primary section frequency for the Lh adaptation for the induction motor (ASM).		
r1792	Motor model Lh adaptation power-on slip / MotMod Lh fslip		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: - Units group: - Min - [Hz]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the power-on slip frequency for the Lh adaptation for the induction motor (ASM).		
p1795[0...n]	Motor model kT adaptation smoothing time / MotMod kT T_smth		
SERVO (Exp M_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 1 [ms]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100 [ms]
Description:	Sets the smoothing time of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).		
Dependency:	Refer to: p1780, r1797		
p1795[0...n]	Motor model PEM kT adaptation integral time / MotMod kT Tn		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Min 10 [ms]	Access level: 3 Func. diagram: 6731 Unit selection: - Expert list: 1 Factory setting 100 [ms]
Description:	Sets the integral time of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).		

r1797	Motor model kT adaptation corrective value / MotMod kT corr		
SERVO (Exp M_ctrl)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min - [Nm/A]	Max - [Nm/A]	Factory setting - [Nm/A]
Description:	Displays the corrective value of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).		
Dependency:	Refer to: p1780, p1795		
r1797	Motor model kT adaptation corrective value / MotMod kT corr		
SERVO (Exp M_ctrl, Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min - [N/Arms]	Max - [N/Arms]	Factory setting - [N/Arms]
Description:	Displays the corrective value of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).		
Dependency:	Refer to: p1780, p1795		
r1797[0...n]	Motor model kT adaptation corrective value / MotMod kT corr		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6731
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min - [Nm/A]	Max - [Nm/A]	Factory setting - [Nm/A]
Description:	Displays the corrective value of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).		
p1800[0...n]	Pulse frequency / Pulse frequency		
SERVO	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.000 [kHz]	Max 16.000 [kHz]	Factory setting 4.000 [kHz]
Description:	Sets the drive converter switching frequency. This parameter is preset to the rated converter value when the drive is first commissioned.		
Dependency:	The pulse frequency can, depending on the current controller sampling time (p0115[0]) assume the following values. a) $p1800 = 1000 / (p0115[0] * n)$ with $n = 2, 3, 4$ b) $p1800 = 1000 * n / p0115[0]$ with $n = 1, 2, 3, 4, \dots$ Example: $p0115[0] = 125 \mu s \rightarrow p1800 = 2, 2.6, 4 \text{ kHz}$ (from equation a) $p0115[0] = 125 \mu s \rightarrow p1800 = 8, 16 \text{ kHz}$ (from equation b) Possible setting values can be taken from r0114 (if p0009 = p0010 = 0). Refer to: r0110, r0111, p0112, p0113, r0114, p0115, p0230, p1817		

Note: The maximum possible pulse frequency is also determined by the power unit being used.
 When the pulse frequency is increased, depending on the particular power unit, the maximum output current can be reduced (de-rating, refer to r0067).
 If p1800 is changed while commissioning (p0009, p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1800 have been changed by a parameter that was set when the drive was commissioned (e.g. p1082).
 For sensorless operation (p1404 = 0 or p1300 = 20), the following conditions apply:
 $p1800 = 1 / (2 * p0115[0])$ or
 $p1800 \geq n / p0115[0]$, $n = 1, 2, \dots$
 For motors with a low power rating (< 300 W) we recommend that p1800 is set acc. to the second condition.

p1800[0...n]		Pulse frequency / Pulse frequency	
VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.000 [kHz]	Max 16.000 [kHz]	Factory setting 4.000 [kHz]
Description:	Sets the drive converter switching frequency. This parameter is preset to the rated converter value when the drive is first commissioned.		
Dependency:	The pulse frequency can, depending on the current controller sampling time (p0115[0]) assume the following values. a) $p1800 = 1000 / (p0115[0] * 2)$ and b) $p1800 = 1000 * n / p0115[0]$ with $n = 1, 2, 3, \dots$ Example: $p0115[0] = 250 \mu s \rightarrow p1800 = 2, 4, 8, 12, 16 \text{ kHz}$ Possible setting values can be taken from r0114 (if p0009 = p0010 = 0). Refer to: r0110, r0111, p0112, p0113, r0114, p0115, p0230, p1817		
Note:	The maximum possible pulse frequency is also determined by the power unit being used. When the pulse frequency is increased, depending on the particular power unit, the maximum output current can be reduced (de-rating, refer to r0067). If a sinusoidal filter is parameterized as output filter (p0230 = 3), then the pulse frequency cannot be changed below the minimum value required for the filter. If p1800 is changed while commissioning (p0009, p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1800 have been changed by a parameter that was set when the drive was commissioned (e.g. p1082).		
r1801		Actual pulse frequency / Pulse freq actual	
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [kHz]	Max - [kHz]	Factory setting - [kHz]
Description:	Displays the actual converter switching frequency.		
Note:	The selected pulse frequency (p1800) may be reduced if the drive converter has overload condition (p0290). The following applies for vector drives (p0107): The pulse frequency can also be reduced when changing-over the modulator to an optimized pulse pattern. This is used to avoid overdriving.		

p1802[0...n] Modulator mode / Modulator mode			
VECTOR	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 9	Factory setting 0
Description:	Sets the modulator mode.		
Values:	0: Automatic changeover SVM/FLB 1: Flat top modulation (FLB) 2: Space vector modulation (SVM) 3: SVM without overmodulation 4: SVM/FLB without overcontrol 5: SVM with pulse frequency reduction 6: SVM/FLB with pulse frequency reduction 7: No edge modulation up to 100 Hz 8: No edge modulation up to 60 Hz 9: Edge modulation		
Dependency:	If a sinusoidal filter is parameterized as output filter (p0230 = 3, 4), or if the power unit firmware is not able to calculate edge modulation (r0192 bit0 = 0), then only space vector modulation without overcontrol can be set as modulation type (p1802 = 3). Refer to: r0192, p0230, p7003		
Notice:	If the edge modulation is enabled (p1802 > 6), then the current actual value correction should be activated (p1840.0 = 0), if the Motor Module is connected to a controlled (regulated) DC link (Active Infeed).		
Note:	When modulation modes are enabled that could lead to overmodulation (p1802 = 0, 1, 2, 5, 6), the modulation depth must be limited using p1803 (pre-assignment, p1803 = 98%). The higher the overmodulation, the greater the current ripple and torque ripple. When changing p1802[x], the values for all of the other existing indices are also changed. p1802 = 7, 8 should be used if the drive is operated below 100 Hz or 60 Hz, and it is necessary to avoid changing over to edge modulation. Above these output frequencies, the modulation depth remains limited so that there the full output voltage of the edge modulation is not reached.		
p1803[0...n] Maximum modulation depth / Modulat depth max			
VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 6723
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 20.0 [%]	Max 150.0 [%]	Factory setting 100.0 [%]
Description:	Defines the maximum modulation depth.		
Note:	p1803 = 100 % is the overcontrol limit for space vector modulation (or an ideal drive converter without any switching delay). If an optimized pulse pattern is enabled (edge modulation), then the modulation depth is limited to below the output frequency of 28 Hz as there is no optimized pulse pattern in this range.		

p1804[0...n]	Filter time constant smoothed modulation index / T_filt mod_idxSmth		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 10.0 [ms]
Description:	Filter time constant for the smoothed modulation index to change over the modulator mode.		
p1806[0...n]	Filter time constant Vdc correction / T_filt Vdc_corr		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [ms]
Description:	Sets the filter time constant of the DC link voltage used to calculate the modulation depth.		
r1807	Actual DC-link voltage to calculate the modulation depth / VdcActValMod_depth		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_2	Access level: 4 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [V]
Description:	DC link voltage that is used to convert the setpoint voltage into an equivalent modulation depth.		
Note:	p1737 can be used for filtering.		
r1808	DC link voltage actual value for V_max calculation / Vdc act val V_max		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_2	Access level: 4 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [V]
Description:	DC link voltage used to determine the maximum possible output voltage.		
r1809	Modulator mode actual / Modulator mode act		
VECTOR	Can be changed: - Data type: Integer16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the effective modulator mode.		

Values:	1:	Flat top modulation (FLB)
	2:	Space vector modulation (SVM)
	3:	Edge modulation from 28 Hz; 23:3
	4:	Edge modulation from 28 Hz; 19:1
	5:	Edge modulation from 60 Hz; 17:3
	6:	Edge modulation from 60 Hz; 17:1
	7:	Edge modulation from 100 Hz; 9:2
	8:	Edge modulation from 100 Hz; 9:1

p1817 Minimum ratio, pulse frequency to the output frequency / Min f_puls / f_max

VECTOR	Can be changed: C2(2)	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	8.3	15.0	12.0

Description: Sets the minimum ratio between the pulse frequency and the output frequency.

Notice: If the ratio between the pulse frequency and the output frequency is reduced, then oscillations can occur in the output current that can result in significant levels of current ripple with the appropriate negative effects.

Note: When the maximum speed is changed, the pulse frequency p1800 is automatically limited to this minimum ratio. It is not permissible to reduce the pulse frequency if this would result in this ratio being fallen below.

p1820[0...n] Direction reversal output phases / Dir_rev outp_ph

VECTOR	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Sets the direction reversal for the Motor Module output phases without changing the speed setpoint.

Values:
 0: Off
 1: On

Note: This setting can only be changed when the pulses are inhibited.
 When a speed encoder is being used, it may be necessary to also invert the encoder actual value (p0410).

p1821[0...n] Direction reversal rotating field / Dir_rev rot_field

SERVO, VECTOR	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Sets the direction of reversal of the motor.

Values:
 0: No direction of reversal
 1: Direction reversal

Dependency: Refer to: F07434

Notice: For a drive data set changeover with differently set direction reversal and pulse enable, an appropriate fault is output.

Note: If the parameter is changed, it reverses the direction of rotation of the motor without changing the setpoint.
 For direction of rotation reversal, the rotating field direction of the current controller is reversed. The speed actual value (e.g. r0063) is also reversed so that the control sense is kept and internally causing the direction of rotation to be reversed with the same setpoint.
 Further, the position actual values of the actual encoder are reversed (e.g. r0482[0...2]).

p1825 Converter valve threshold voltage / Threshold voltage			
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Modulation Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [Vrms]	Max 100.0 [Vrms]	Factory setting 0.6 [Vrms]
Description:	Sets the threshold voltage drop of the valves (power semiconductor devices) to be compensated.		
Note:	The value is automatically calculated in the motor data identification routine.		
<hr/>			
p1827 Infeed compensation valve lockout time operating mode / INFcomp t_lockMode			
A_INF, S_INF	Can be changed: U, T Data type: Integer16 P-Group: Modulation Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the operating mode for the compensation of the valve lockout time.		
Values:	0: Compensation valve lockout time de-activated 1: Compensation valve lockout time activated		
Note:	The compensation is always active, independent of the value of this parameter if the closed-loop control is activated to suppress circulating currents (p7035) for power units are connected in parallel.		
<hr/>			
p1828 Compensation valve lockout time phase U / Comp t_lock ph U			
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Modulation Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [μs]	Max 1000000.00 [μs]	Factory setting 0.00 [μs]
Description:	Sets the valve lockout time to compensate for phase U.		
Note:	The value is automatically calculated in the motor data identification routine. For type PM340 power units, the parameter is limited to 3.98 μs.		
<hr/>			
p1829 Compensation valve lockout time phase V / Comp t_lock ph V			
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Modulation Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [μs]	Max 1000000.00 [μs]	Factory setting 0.00 [μs]
Description:	Sets the valve lockout time to compensate for phase V.		
Note:	For type PM340 power units, the parameter is limited to 3.98 μs.		

p1830 Compensation valve lockout time phase W / Comp t_lock ph W					
VECTOR	Can be changed: U, T		Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Floating Point		Dynamic index: -	Func. diagram: -	
	P-Group: Modulation		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min 0.00 [µs]		Max 1000000.00 [µs]	Factory setting 0.00 [µs]	
Description:	Sets the valve lockout time to compensate for phase W.				
Note:	For type PM340 power units, the parameter is limited to 3.98 µs.				
p1832 Dead time compensation current level / t_dead_comp I_lev					
VECTOR	Can be changed: U, T		Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Floating Point		Dynamic index: -	Func. diagram: -	
	P-Group: Modulation		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min 0.0 [Arms]		Max 10000.0 [Arms]	Factory setting 0.0 [Arms]	
Description:	Above the current level, the dead time - resulting from the converter switching delays - is compensated by a previously calculated, constant value . If the relevant phase current setpoint falls below the absolute value defined by p1832, the corrective value for this phase is continuously reduced.				
Dependency:	The factor setting of p1832 is automatically set to 0.02 * rated drive converter current (r0207). If the actual operating frequency exceeds the value of p1831, then p1832 is not applied!				
r1837 Gating unit configuration / Gating unit config					
VECTOR	Can be changed: -		Calculated: -	Access level: 3	
	Data type: Unsigned16		Dynamic index: -	Func. diagram: -	
	P-Group: Modulation		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min -		Max -	Factory setting -	
Description:	Display for the configuration of the gating unit driver.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Modulation depth for a flying restart	Limited	Not limited	-
	01	Modulation depth for Vdc closed-loop control	Limited	Not limited	-
	02	Vdc_min controller	Active	Not active	-
	03	Motor data identification routine	Active	Not active	-
	04	Current offset calculation	Active	Not active	-
	05	Simulation oper	Active	Not active	-
	06	Direction reversal output phases	Active	Not active	-
	07	Direction reversal (including speed encoder)	Active	Not active	-
	08	Synchronization (bypass)	Active	Not active	-
p1840[0...n] Actual value correction configuration / AVC config					
VECTOR	Can be changed: T		Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Unsigned16		Dynamic index: DDS, p0180	Func. diagram: -	
	P-Group: Modulation		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min -		Max -	Factory setting 0000 bin	
Description:	Configuration of the actual value correction				

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value correction de-activated	Yes	No	-
	01	Compares the integrals from modulator and setpoint	Yes	No	-

Dependency: Refer to: p1802

Note: During operation (the pulses enabled) the configuration cannot be changed by changing-over drive data sets.

r1841 Actual value correction status word / AVC status

VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Status of the actual value correction

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Hardware for the actual value correction detected	Yes	No	-
	01	Automatic shutdown (too many switching instants)	Yes	No	-
	02	Integral normalized to half the gating unit clock cycle freq.	Yes	No	-
	03	Actual value correction temporarily suppressed	Yes	No	-
	15	Actual value correction active	Yes	No	-

p1845[0...n] Actual value correction evaluation factor Lsig / ActV_corr FactLsig

VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00	10.00	1.00

Description: Sets the weighting factor for the leakage inductance of the L-R element of the actual value correction.

p1846[0...n] Actual value correction damping factor / ActV_corr D_factor

VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00	10.00	1.00

Description: Sets the damping factor for the actual value correction.
The factor multiplies the T0/Tsig ratio in the feedback branch of the LR element

r1848[0...5] Actual value correction phase currents / ActVal_corr I_corr

VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays phase correction currents as well as the drive converter phase currents

Index:

- [0] = Harmonics, phase U
- [1] = Harmonics, phase V
- [2] = Harmonics, phase W
- [3] = Measured value phase U
- [4] = Measured value phase V
- [5] = Measured value phase W

r1849[0...5]	Actual value correction phase voltages / ActVal_corr V_corr		
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the phase correction voltages and the drive converter phase voltages

Index:

- [0] = Harmonics, phase U
- [1] = Harmonics, phase V
- [2] = Harmonics, phase W
- [3] = Measured value phase U
- [4] = Measured value phase V
- [5] = Measured value phase W

p1900	Motor data identification and rotating measurement / Mot ID rot meas		
VECTOR	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	2	2

Description:

Sets the motor data identification and speed controller optimization.

p1900 = 0:
Function inhibited.

p1900 = 1:
Induction motors --> set p1910 = 1 and p1960 = 0, 1, 2 depending on p1300
Permanent-magnet or separately-excited synchronous motors --> set p1910 = 1, p1990 = 1 and p1960 = 0, 1, 2 depending on p1300
When the drive enable signals are present, a motor data identification routine is carried out at standstill with the next power-on command. Current flows through the motor which means that it can align itself by up to a quarter of a revolution.
For permanent-magnet or separately-excited synchronous motors, the encoder is adjusted with the next power-on command. The motor must be free to rotate and rotates through 1.5 revolutions of the motor encoder.
With the following power-on command, a rotating motor data identification routine is carried out - and in addition, a speed controller optimization by making measurements at different motor speeds.

p1900 = 2:
Induction motors --> set p1910 = 1 and p1960 = 0
Permanent-magnet or separately-excited synchronous motors --> set p1910 = 1, p1990 = 1 and p1960 = 0
When the drive enable signals are present, a motor data identification routine is carried out at standstill with the next power-on command. Current flows through the motor which means that it can align itself by up to a quarter of a revolution.
For permanent-magnet or separately-excited synchronous motors, the encoder is adjusted with the next power-on command. The motor must be free to rotate and rotates through 1.5 revolutions of the motor encoder.

Values:

- 0: Inhibited
- 1: Motor data identification for rotating motor
- 2: Motor data identification at standstill

- Dependency:** In the simulation mode, the parameter cannot be written into. When selecting the motor data identification routine, the drive data set changeover is suppressed.
Refer to: p1272, p1300, p1910, p1960, p1990
Refer to: A07980, A07981, F07982, F07983, F07984, F07985, F07986, A07987, F07988, F07990, A07991
- Notice:** In order to permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).
- Note:** An appropriate alarm is output when the parameter is set.
The power-on command must remain set during a measurement and after the measurement has been completed, the drive automatically resets it.
The duration of the measurements can lie between 0.3 s and several minutes. This time is, for example, influenced by the motor size and the mechanical conditions.
p1900 is automatically set to 0 after the motor data identification routine has been completed.

p1909[0...n] Motor data identification control word / MotID STW					
SERVO	Can be changed: T		Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Unsigned16		Dynamic index: MDS, p0130	Func. diagram: -	
	P-Group: Motor identification		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min	Max	Factory setting		
	-	-	0010 0111 0000 0000 bin		
Description:	Sets the configuration of the motor data identification.				
Recommend.:	For the stationary motor data identification, if a motor holding brake is being used it should be opened and the motor finely synchronized before the measurement. This should only be done if it can be safely carried out and no external forces can act on the motor. This determine the angular commutation offset (p1909.13, p0431).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Measure D inductance	Yes	No	-
	09	Measure Q inductance	Yes	No	-
	10	Magnetizing field inductance and measure rotor resistance	Yes	No	-
	13	Measure commutation angle and direction of rotation	Yes	No	-
	14	Determining the voltage emulation error	Yes	No	-
Dependency:	Refer to: p1910, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953				
Note:	For an induction motor (ASM), the following bits are effective: 8, 9, 10, 13				
	For a synchronous motor (SRM), the following bits are effective: 8, 9, 13, 14				
	Re bit 14:				
	- after successfully determining the voltage emulation error, the display of the phase voltage actual values r0089 and the active power actual value r0082 and the torque actual value r0080 are significantly more accurate.				
	- the voltage emulation errors should be identified with the Motor Module in the warm state.				
	- the motor temperature (r0035) should not change significantly (i.e. it should not be identified immediately after a load duty cycle).				

p1909[0...n] Motor data identification control word / MotID STW			
SERVO (Exp M_ctrl)	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0110 0111 0000 0000 bin
Description:	Sets the configuration of the motor data identification.		
Recommend.:	For the stationary motor data identification, if a motor holding brake is being used it should be opened and the motor finely synchronized before the measurement. This should only be done if it can be safely carried out and no external forces can act on the motor. This determine the angular commutation offset (p1909.13, p0431).		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Measure D inductance	Yes	No	-
	09	Measure Q inductance	Yes	No	-
	10	Magnetizing field inductance and measure rotor resistance	Yes	No	-
	13	Measure commutation angle and direction of rotation	Yes	No	-
	14	Determining the voltage emulation error	Yes	No	-
Dependency:	Refer to: p1910, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953				
Note:	For an induction motor (ASM), the following bits are effective: 8, 9, 10, 13				
	For a synchronous motor (SRM), the following bits are effective: 8, 9, 13, 14				
	Re bit 14:				
	- after successfully determining the voltage emulation error, the display of the phase voltage actual values r0089 and the active power actual value r0082 and the torque actual value r0080 are significantly more accurate.				
	- the voltage emulation errors should be identified with the Motor Module in the warm state.				
	- the motor temperature (r0035) should not change significantly (i.e. it should not be identified immediately after a load duty cycle).				

p1909[0...n]	Motor data identification control word / MotID STW			
VECTOR	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -	
	P-Group: Motor identification	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	


Description: Sets the configuration of the motor data identification.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Stator inductance estimate no measurement	Yes	No	-
	01	Cl-loop current control w/ dead-beat controller	Yes	No	-
	02	Rotor time constant estimate no measurement	Yes	No	-
	03	Leakage inductance estimate no measurement	Yes	No	-
	04	Activates the identification dynamic leakage inductance	Yes	No	-
	05	Determine Tr and Lsig evaluation in the time range	Yes	No	-
	06	Activates vibration damping	Yes	No	-
	07	De-activates the vibration detection	Yes	No	-
	11	De-activate pulse measurement Lq Ld	Yes	No	-
	12	De-activate rotor resistance Rr measurement	Yes	No	-
	15	Only measure stator resistance and valve voltage error	Yes	No	-

Note: Note for PEM:

Without de-selection in bit 11, in the closed-loop control mode, the direct inductance LD and the quadrature inductance Lq are measured at a low current.

When de-selecting with bit 11 or in the V/f mode, the stator inductance is measured at half the rated motor current. If the stator inductance is not measured but is to be estimated, then bit 0 should be set and bit 11 should be de-selected.

p1910	Motor data identification routine, stationary (standstill) / MotID standstill		
SERVO	Can be changed: T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Setting to control the motor data identification with the motor stationary.		
Values:	-3: Accept identified parameters -2: Acknowledge encoder inversion actual value (F07993) -1: Start motor data identification without acceptance 0: Inactive/inhibit 1: Start motor data identification with acceptance		
Recommend.:	For motors with brakes, the brake should be opened before carrying out the stationary motor data identification routine (p1215 = 2) as long as this can be done without incurring any danger. The commutation angle and the direction of rotation are also determined.		
Dependency:	Refer to: p1909, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953 Refer to: F07990, A07991, F07993		
Caution:	For motors without brake or with the brake open (p1215 = 2), for the stationary (zero speed) measurement, the motor may rotate slightly.		
			
Note:	Motor data identification can only be selected when the pulses of all of the drive objects of the Control Unit have been canceled. After selection, all of the other drive objects of the Control Unit are interlocked so that they cannot be powered-up until the motor data identification has been completed or de-selected. After a started motor identification is ended, the parameter is automatically reset to 0. A motor data identification that is presently be carried out can be terminated with p1910 = 0.		

p1910	Motor data identification selection / MotID selection		
VECTOR	Can be changed: T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the motor data identification routine. The motor data identification routine is carried out after the next power-on command. p1910 = 1: All motor data and the drive converter characteristics are identified and then transferred to the following parameters: p0350, p0354, p0356, p0357, p0358, p0360, p1825, p1828, p1829, p1830 After this, the control parameter p0340 = 3 is automatically calculated.		
Values:	0: Inhibited 1: Complete identification (ID) and acceptance of motor data 2: Complete identification (ID) of motor data without acceptance 3: ID of the saturation characteristic and acceptance 4: ID of the saturation characteristic without acceptance 5: ID of dynamic leakage inductance Lsig (r1920) without acceptance 6: ID of lockout time (r1926) without acceptance 7: ID of stator resistance Rs (r1912) without acceptance 8: ID of stator inductance Ls (r1915) and Rr (r1927) w/o acceptance 9: ID of rotor time constant Tr (r1913) without acceptance 10: ID of static leakage inductance Lsig (r1914) without acceptance 20: Voltage vector input		

Dependency:	<p>"Quick commissioning" must be carried out (p0010 = 1) before executing the motor data identification routine!</p> <p>In the simulation mode, the parameter cannot be written into. When selecting the motor data identification routine, the drive data set changeover is suppressed.</p> <p>Refer to: p1272, p1900</p>		
Caution:	<p>After the motor data identification (p1910 > 0) has been selected, alarm A07991 is output and a motor data identification routine is carried out as follows at the next power-on command:</p> <ul style="list-style-type: none"> - current flows through the motor and a voltage is present at the drive converter output terminals. - during the identification routine, the motor shaft can rotate through a maximum of half a revolution. - however, no torque torque is generated. 		
Notice:	In order to permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).		
Note:	<p>When setting p1910, the following should be observed:</p> <p>1. "With transfer" means:</p> <p>The parameters specified in the description are overwritten with the identified values and therefore have an influence on the controller setting.</p> <p>2. "Without transfer" means:</p> <p>The identified parameters are only displayed in the range r1912 ... r1926. The controller settings remain unchanged.</p>		

p1911	Number of phases to be identified / Qty ph to ident		
VECTOR	Can be changed: T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 3	Factory setting 1
Description:	Sets the number of phases to be identified.		
Values:	1: 1 phase U 2: 2 phases U, V 3: 3 phases U, V, W		
Note:	When identifying with several phases, the accuracy increases and also the time it takes to make the measurement.		

r1912	Stator resistance identified / R_stator ident		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the identified stator resistance.		
Dependency:	Refer to: p1909, p1910, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953		

r1912[0...2]	Identified stator resistance / R_stator ident		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the identified stator resistance.		

Index: [0] = Phase U
[1] = Phase V
[2] = Phase W

r1913 Rotor time constant identified / T_rotor ident

SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: PEM		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]

Description: Displays the identified rotor time constant.

Dependency: Refer to: p1909, p1910, r1912, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953

r1913[0...2] Identified rotor time constant / T_rotor ident

VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: PEM		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]

Description: Displays the identified rotor time constant.

Index: [0] = Phase U
[1] = Phase V
[2] = Phase W

r1914[0...2] Identified total leakage inductance / L_total_leak ident

VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]

Description: Displays the identified total leakage inductance.

Index: [0] = Phase U
[1] = Phase V
[2] = Phase W

r1915 Stator inductance identified / L_stator ident

SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]

Description: Displays the identified stator inductance.

Dependency: Refer to: p1909, p1910, r1912, r1913, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953

r1915[0...2]	Identified nominal stator inductance / L_stator ident		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the nominal stator inductance identified.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		
r1916[0...2]	Identified stator inductance 1 / L_stator 1 ident		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the nominal stator inductance identified for the 1st point of the saturation characteristic.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		
r1917[0...2]	Identified stator inductance 2 / L_stator 2 ident		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the nominal stator inductance identified for the 2nd point of the saturation characteristic.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		
r1918[0...2]	Identified stator inductance 3 / L_stator 3 ident		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the nominal stator inductance identified for the 3rd point of the saturation characteristic.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1919[0...2]	Identified stator inductance 4 / L_stator 4 ident		
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the nominal stator inductance identified for the 4th point of the saturation characteristic.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1920[0...2]	Identified dynamic leakage inductance / L_leak dyn ident		
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified dynamic total leakage inductance.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1921[0...2]	Identified dynamic leakage inductance 1 / L_leak 1 dyn id		
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1922[0...2]	Identified dynamic leakage inductance 2 / L_leak 2 dyn id		
VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1923[0...2] Identified dynamic leakage inductance 3 / L_leak 3 dyn id

VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1924[0...2] Identified dynamic leakage inductance 4 / L_leak 4 dyn id

VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1925 Threshold voltage identified / V_threshold ident

SERVO	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the identified threshold voltage of the power unit.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953		

r1925[0...2] Identified threshold voltage / V_threshold ident

VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the identified IGBT threshold voltage.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1926[0...2]	Identified active valve lockout time / t_lock_valve id		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [µs]
Description:	Displays the identified effective valve lockout time.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		
r1927	Rotor resistance identified / R_rotor ident		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Ohm]
Description:	Displays the identified rotor resistance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1925, r1932, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953		
r1927[0...2]	Identified rotor resistance / R_rotor ident		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Ohm]
Description:	Displays the identified rotor resistance		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		
r1929[0...2]	Identified cable resistance / R_cable ident		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Ohm]
Description:	Displays the identified cable resistance.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

r1932[0...19]	d inductance identified / Ld ident		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the identified (differential) d-inductance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1925, r1927, r1933, r1934, r1935, r1936, r1950, r1951, p1952, p1953		
Note:	The Ld characteristic consists of the value pairs from p1932 and p1933 with the same index. This value corresponds to the value of the total leakage inductance (r0377).		
r1933[0...19]	d inductance identification current / Ld I_ident		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Arms]
Description:	Displays the identification current of the d inductance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1925, r1927, r1932, r1934, r1935, r1936, r1950, r1951, p1952, p1953		
Note:	The Ld characteristic consists of the value pairs from p1932 and p1933 with the same index.		
r1934[0...9]	q inductance identified / Lq ident		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the identified (differential) q-inductance.		
Dependency:	Refer to: p1909, p1910, r1932, r1933		
Note:	The Lq characteristic consists of the value pairs from p1934 and p1935 with the same index. This value corresponds to the value of the total leakage inductance (r0377).		
r1934[0...9]	q inductance identified / Lq ident		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the identified (differential) q-inductance.		
Dependency:	Refer to: r1935, p1959, p1960		
Note:	The Lq characteristic consists of the value pairs from p1934 and p1935 with the same index. This value corresponds to the value of the total leakage inductance (r0377).		

r1935[0...20] Identification current / I_ident			
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Arms]
Description:	Displays the identification current for the identification of the q-inductance ([0...9]) as well as the torque constant ([10]) and the torque characteristic ([11...20]).		
Index:	[0] = q inductance identification current measuring point 1 [1] = q inductance identification current measuring point 2 [2] = q inductance identification current measuring point 3 [3] = q inductance identification current measuring point 4 [4] = q inductance identification current measuring point 5 [5] = q inductance identification current measuring point 6 [6] = q inductance identification current measuring point 7 [7] = q inductance identification current measuring point 8 [8] = q inductance identification current measuring point 9 [9] = q inductance identification current measuring point 10 [10] = Torque constant identification current [11] = Torque characteristic identification current measuring point 1 [12] = Torque characteristic identification current measuring point 2 [13] = Torque characteristic identification current measuring point 3 [14] = Torque characteristic identification current measuring point 4 [15] = Torque characteristic identification current measuring point 5 [16] = Torque characteristic identification current measuring point 6 [17] = Torque characteristic identification current measuring point 7 [18] = Torque characteristic identification current measuring point 8 [19] = Torque characteristic identification current measuring point 9 [20] = Torque characteristic identification current measuring point 10		
Dependency:	Refer to: p1909, p1910, r1934, p1959, p1960		
Note:	- the Lq characteristic consists of the value pairs from r1934 and r1935 with the same index. - the torque constant is identified with the current r1935[10] and displayed in r1937[0]. If the reluctance torque constant is identified (p1959.7 = 1), the torque constant is identified with 150% rated current (p0305), otherwise with 100% rated current. - the torque characteristic (r1937[1...10]) is identified in the range between the rated current (p0305) and the maximum current (p0640) (r1935[11...20]).		

r1935[0...20] Identification current / I_ident			
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Arms]
Description:	Displays the identification current for the identification of the q-inductance ([0...9]) as well as the force constant ([10]) and the force characteristic ([11...20]).		
Index:	[0] = q inductance identification current measuring point 1 [1] = q inductance identification current measuring point 2 [2] = q inductance identification current measuring point 3 [3] = q inductance identification current measuring point 4 [4] = q inductance identification current measuring point 5 [5] = q inductance identification current measuring point 6 [6] = q inductance identification current measuring point 7 [7] = q inductance identification current measuring point 8 [8] = q inductance identification current measuring point 9 [9] = q inductance identification current measuring point 10		

[10] = Force constant identification current
 [11] = Force characteristic identification current measuring point 1
 [12] = Force characteristic identification current measuring point 2
 [13] = Force characteristic identification current measuring point 3
 [14] = Force characteristic identification current measuring point 4
 [15] = Force characteristic identification current measuring point 5
 [16] = Force characteristic identification current measuring point 6
 [17] = Force characteristic identification current measuring point 7
 [18] = Force characteristic identification current measuring point 8
 [19] = Force characteristic identification current measuring point 9
 [20] = Force characteristic identification current measuring point 10

Dependency:

Refer to: p1909, p1910, r1934, p1959, p1960

Note:

- the Lq characteristic consists of the value pairs from r1934 and r1935 with the same index.
 - the force constant is identified with the current r1935[10] and displayed in r1937[0]. If the reluctance force constant is identified (p1959.7 = 1), the force constant is identified with 150% rated current (p0305), otherwise with 100% rated current.
 - the force characteristic (r1937[1...10]) is identified in the range between the rated current (p0305) and the maximum current (p0640) (r1935[11...20]).

r1935[0...9]**q inductance identification current / Lq I_ident**

VECTOR (n/M)

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** -**P-Group:** Motor identification**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

- [Arms]

- [Arms]

- [Arms]

Description:

Displays the identification current to identify the q inductance ([0...9]).

Dependency:

Refer to: r1934, p1959, p1960

Note:

The Lq characteristic consists of the value pairs from r1934 and r1935 with the same index.

r1936**Magnetizing inductance identified / L_H ident**

SERVO

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** -**P-Group:** Motor identification**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

- [mH]

- [mH]

- [mH]

Description:

Displays the identified magnetizing inductance (gamma equivalent circuit diagram).

Dependency:

Refer to: p1909, p1910, r1913, r1915, r1927, p1959, p1960, r1962, r1963

Note:

This value corresponds to the value of the transformed magnetizing inductance (r0382).

r1937[0...10]**Torque constant identified / kT ident**

SERVO

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** -**P-Group:** Motor identification**Units group:** 28_1**Unit selection:** p0100**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

- [Nm/A]

- [Nm/A]

- [Nm/A]

Description:

Displays the identified torque constant/torque characteristic over the q current.

Index:

[0] = Torque constant identified
 [1] = Torque characteristic identified measuring point 1
 [2] = Torque characteristic identified measuring point 2
 [3] = Torque characteristic identified measuring point 3
 [4] = Torque characteristic identified measuring point 4
 [5] = Torque characteristic identified measuring point 5

[6] = Torque characteristic identified measuring point 6
 [7] = Torque characteristic identified measuring point 7
 [8] = Torque characteristic identified measuring point 8
 [9] = Torque characteristic identified measuring point 9
 [10] = Torque characteristic identified measuring point 10

Dependency:

Refer to: r1938, r1939, p1959, p1960, r1969

Note:

- the value in r1937[0] corresponds to the torque constant (p0316) and was identified with the current in r1935[10]. If the reluctance torque is identified (p1959.7 = 1), the torque constant is identified with 150% rated current (p0305), otherwise with 100% rated current.

- if indices r1937[1...10] are not equal to zero, they show the values of the torque characteristic identified for the current in r1935[11...20]. The torque characteristic is identified in the range between rated current (p0305) and maximum current (p0640).

r1937[0...10]**Forced constant identified / kT ident**

SERVO (Lin)

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: Motor identification

Units group: 29_1

Unit selection: p0100

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

- [N/Arms]

- [N/Arms]

- [N/Arms]

Description:

Displays the identified force constant.

Index:

[0] = Forced constant identified
 [1] = Force characteristic identified measuring point 1
 [2] = Force characteristic identified measuring point 2
 [3] = Force characteristic identified measuring point 3
 [4] = Force characteristic identified measuring point 4
 [5] = Force characteristic identified measuring point 5
 [6] = Force characteristic identified measuring point 6
 [7] = Force characteristic identified measuring point 7
 [8] = Force characteristic identified measuring point 8
 [9] = Force characteristic identified measuring point 9
 [10] = Force characteristic identified measuring point 10

Dependency:

Refer to: r1938, r1939, p1959, p1960, r1969

Note:

- the value in r1937[0] corresponds to the force constant (p0316) and was identified with the current in r1935[10]. If the reluctance force constant is identified (p1959.7 = 1), the force constant is identified with 150% rated current (p0305), otherwise with 100% rated current.

r1938**Voltage constant identified / kE ident**

SERVO

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: Motor identification

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

- [Vrms]

- [Vrms]

- [Vrms]

Description:

Displays the identified voltage constant.

Dependency:

Refer to: r1937, r1939, p1959, p1960, r1969

Note:

This value corresponds to the voltage constant (p0317).

r1938	Voltage constant identified / kE ident		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: - Min - [Vrms s/m]	Calculated: - Dynamic index: - Units group: - Max - [Vrms s/m]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Vrms s/m]
Description:	Displays the identified voltage constant.		
Dependency:	Refer to: r1937, r1939, p1959, p1960, r1969		
Note:	This value corresponds to the voltage constant (p0317).		
r1939	Reluctance torque constant identified / kT_reluct ident		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: - Min - [mH]	Calculated: - Dynamic index: - Units group: - Max - [mH]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the identified reluctance torque constant.		
Dependency:	Refer to: r1937, r1938, p1959, p1960, r1969		
Note:	This value corresponds to the reluctance torque constant (p0328).		
r1939	Reluctance force constant identified / kT_reluct ident		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: - Min - [mH]	Calculated: - Dynamic index: - Units group: - Max - [mH]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the identified reluctance force constant.		
Dependency:	Refer to: r1937, r1938, p1959, p1960, r1969		
Note:	This value corresponds to the reluctance force constant (p0328).		
r1947	Optimum load angle identified / phi_load ident		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: - Min - [°]	Calculated: - Dynamic index: - Units group: - Max - [°]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Displays the identified, optimum load angle.		
Note:	This value corresponds to the optimum load angle (p0327).		

r1948 Magnetizing current identified / I_mag ident

SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the identified magnetizing current.		
Dependency:	Refer to: r1936, p1959, p1960		
Note:	This value corresponds to the magnetizing current (p0320 / r0331).		

r1950[0...19] Voltage emulation error voltage values / V_error V_values

SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].		
Dependency:	Refer to: r1951		

r1951[0...19] Voltage emulation error current values / V_error I_error

SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].		
Dependency:	Refer to: r1950		

p1952[0...n] Voltage emulation error final value / V_error final val

SERVO (Exp M_ctrl)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [V]	Max 100.000 [V]	Factory setting 0.000 [V]
Description:	Sets the final value to compensate the voltage emulation error.		
Dependency:	Refer to: p1953		
Note:	The voltage emulation error is calculated and compensated for every phase according to the following formula: $u_error = u0 * i / (abs(i) - i0)$ u0: This is set in p1952. i0: This is set in p1953. i: Phase current to which the emulation error u_error belongs.		

p1953[0...n]	Voltage emulation error current offset / V_error I_offset		
SERVO (Exp M_ctrl)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [A]	Max 100.000 [A]	Factory setting 0.000 [A]
Description:	Sets the current offset to compensate the voltage emulation error.		
Dependency:	Refer to: p1952		
Note:	<p>The voltage emulation error is calculated and compensated for every phase according to the following formula: $u_error = u0 * i / (abs(i)-i0)$ u0: This is set in p1952. i0: This is set in p1953. i: Phase current to which the emulation error u_error belongs.</p>		
p1958[0...n]	Rotating measurement ramp-up/ramp-down time / MotID t_up_down		
SERVO	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1.00 [s]	Max 999999.00 [s]	Factory setting -1.00 [s]
Description:	<p>Sets the ramp-up/ramp-down time for the rotating measurement.</p> <p>The following applies for negative values:</p> <p>When the function module "extended setpoint channel" is activated (r0108.8 = 1), the maximum of the ramp-up/ramp-down time of the setpoint channel becomes effective. When this function module is inactive, then no ramp-up/ramp-down time is effective.</p> <p>The following applies for positive values:</p> <p>The selected ramp-up/ramp-down time becomes effective.</p>		
Recommend.:	<p>A ramp-up/ramp-down time should not be activated for the motor data identification (p1958 = 0) as long as this can be safely done without incurring any danger. This means that the identification is complete and more accurate. When the ramp-up/ramp-down time is activated, the following steps of the rotating motor data identification are not executed:</p> <ul style="list-style-type: none"> - p1959.5 (identifying the q inductance) - p1959.7 (identifying the reluctance torque constant) 		
Dependency:	Refer to: p1959, p1960		
p1959[0...n]	Rotating measurement configuration / Rot meas config		
SERVO	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 0000 0110 1110 0110 bin
Description:	Sets the configuration of the rotating measurement.		
Recommend.:	<p>A direction inhibit should not be activated for the rotating measurement (p1959.14 = 1 and p1959.15 = 1) as long as this can be done without incurring any danger. This means that the identification is complete and more accurate. When the direction inhibit is activated, the reluctance torque constant (p1959.7) is not identified and the angular commutation offset (p1959.10, p0431) is inaccurately determined. The reluctance torque constant (p1959.7) is also not identified in sensorless operation.</p>		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Identifying the saturation characteristic	Yes	No	-
	02	Identifying the moment of inertia	Yes	No	-
	05	Identifying the q inductance	Yes	No	-
	06	Identifying the torque constant	Yes	No	-
	07	Identifying the reluctance torque constant	Yes	No	-
	08	Identifying the q inductance at the test stand	Yes	No	-
	09	Identifying the magnetizing current / magnetizing inductance	Yes	No	-
	10	Identifying the commutation angle and direction of rotation	Yes	No	-
	14	Clockwise direction of rotation permitted	Yes	No	-
	15	Counter-clockwise direction of rotation permitted	Yes	No	-
Dependency:	Refer to: p1958, p1960				
Notice:	<p>The step p1959.8 (identify q inductance on the test stand) may only be selected if the drive can be kept at zero speed or at a fixed speed either using a test stand or other mechanical measures.</p> <p>During steps p1959.2 (identifying the moment of inertia) and p1959.6 (identifying the torque constant) the Vdc_min controller is disabled (p1240).</p> <p>During step p1959.7 (identifying the reluctance torque constant) the Vdc_min controller and Vdc_max controller are disabled (p1240).</p>				
Note:	<p>For an induction motor (ASM), the following bits are effective: 1, 2, 5, 8, 9, 10, 14, 15</p> <p>For a synchronous motor (SRM), the following bits are effective: 2, 5, 6, 7, 8, 10, 14, 15</p> <p>Re bit 05:</p> <p>For "motor holding brake the same as sequence control" (p1215 = 1 or 3), the Lq characteristic is only measured up to approximately the rated motor current (p0305) instead of up to the current limit (p0640). Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.</p> <p>Re bit 10:</p> <p>If the motor holding brake is set just the same as the sequence control (p1215 = 1 or 3), the commutation angle and the direction of rotation are not measured. Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.</p> <p>Re bit 14 and 15:</p> <p>The following applies for bit 14 and 15 = 0:</p> <p>When the function module "extended setpoint channel" is activated (r0108.8 = 1), the direction inhibit of the setpoint channel becomes effective. No direction of inhibit is effective if the function module is inactive.</p> <p>The following applies for minimum bit 14 = 1 or bit 15 = 1:</p> <p>The direction inhibit set in p1959 becomes effective.</p>				

p1959[0...n] Rotating measurement configuration / Rot meas config					
SERVO (Lin)	Can be changed: T		Calculated: CALC_MOD_ALL		Access level: 3
	Data type: Unsigned16		Dynamic index: MDS, p0130		Func. diagram: -
	P-Group: Motor identification		Units group: -		Unit selection: -
	Not for motor type: REL				Expert list: 1
	Min		Max		Factory setting
	-		-		0000 0110 1110 0110 bin
Description:	Sets the configuration of the rotating measurement.				
Recommend.:	<p>A direction inhibit should not be activated for the rotating measurement (p1959.14 = 1 and p1959.15 = 1) as long as this can be done without incurring any danger. This means that the identification is complete and more accurate. When the direction inhibit is activated, the reluctance force constant (p1959.7) is not identified and the angular commutation offset (p1959.10, p0431) is inaccurately determined. The reluctance force constant (p1959.7) is also not identified in sensorless operation.</p>				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Identifying the saturation characteristic	Yes	No	-
	02	Identifying the force of inertia	Yes	No	-
	05	Identifying the q inductance	Yes	No	-
	06	Identifying the force constant	Yes	No	-

07	Identifying the reluctance force constant	Yes	No	-
08	Identifying the q inductance at the test stand	Yes	No	-
09	Identifying the magnetizing current / magnetizing inductance	Yes	No	-
10	Identifying the commutation angle and direction of rotation	Yes	No	-
14	Clockwise direction of rotation permitted	Yes	No	-
15	Counter-clockwise direction of rotation permitted	Yes	No	-

Dependency: Refer to: p1958, p1960

Notice: The step p1959.8 (identify q inductance on the test stand) may only be selected if the drive can be kept at zero speed or at a fixed velocity either using a test stand or other mechanical measures.
During steps p1959.2 (identifying the moment of inertia) and p1959.6 (identifying the force constant) the Vdc_min controller is disabled (p1240).
During step p1959.7 (identifying the reluctance force constant) the Vdc_min controller and Vdc_max controller are disabled (p1240).

Note: For an induction motor (ASM), the following bits are effective: 1, 2, 5, 8, 9, 10, 14, 15
For a synchronous motor (SRM), the following bits are effective: 2, 5, 6, 7, 8, 10, 14, 15

Re bit 05:

For "motor holding brake the same as sequence control" (p1215 = 1 or 3), the Lq characteristic is only measured up to approximately the rated motor current (p0305) instead of up to the current limit (p0640). Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.

Re bit 10:

If the motor holding brake is set just the same as the sequence control (p1215 = 1 or 3), the commutation angle and the direction of rotation are not measured. Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.

Re bit 14 and 15:

The following applies for bit 14 and 15 = 0:

When the function module "extended setpoint channel" is activated (r0108.8 = 1), the direction inhibit of the setpoint channel becomes effective. No direction of inhibit is effective if the function module is inactive.

The following applies for minimum bit 14 = 1 or bit 15 = 1:

The direction inhibit set in p1959 becomes effective.

p1959[0...n]	Rotating measurement configuration / Rot meas config		
VECTOR (n/M)	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0001 1111 bin

Description: Sets the configuration of the rotating measurement.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enc test active	Yes	No	-
	01	Saturation characteristic identification	Yes	No	-
	02	Moment of inertia identification	Yes	No	-
	03	Recalculates the speed controller parameters	Yes	No	-
	04	Speed controller optimization, (vibration test)	Yes	No	-
	05	q leakage inductance ident. (for current controller adaptation)	Yes	No	-

Dependency: Refer to: F07988

Note: The encoder is only tested if the rotating measurement with encoder is selected (p1960 = 2).

The following parameters are influenced for the individual optimization steps:

Bit 00: None

Bit 01: p0320, p0360, p0362 ... p0369

Bit 02: p0341, p0342

Bit 03: p1400.0, p1458, p1459, p1460, p1462, p1463, p1470, p1472, p1496


Bit 04: Dependent on p1960

Bit 05: p0391, p0392, p0393, p1402.2 only for induction motors


p1960 = 1, 3: p1400.0, p1458, p1459, p1470, p1472, p1496

p1960 = 2, 4: p1458, p1459, p1460, p1461, p1462, p1463, p1496

The identification of the q leakage inductance can only be carried out for unloaded or motors with only a low load (load approx. 30% below the rated motor torque). Only then is a current controller adaptation (p0391 ... p0393) parameterized if the q-leakage inductance under no-load conditions is at least 30 % higher than the total leakage inductance (p0356, p0358).

p1960		Rotating measurement selection / Rot meas sel	
SERVO	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-3	1	0
Description:	Activates the rotating measurement.		
Values:	-3: Accept identified parameters -2: Acknowledge encoder inversion actual value (F07993) -1: Start motor data identification without acceptance 0: Inactive/inhibit 1: Start motor data identification with acceptance		
Recommend.:	Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger. The commutation angle and the direction are also determined.		
Dependency:	Refer to: r1934, r1935, r1936, r1937, r1938, r1939, r1947, r1948, p1958, p1959, r1962, r1963, r1969 Refer to: F07990, A07991, F07993		
Danger:	For the rotating measurement, the motor is accelerated up to the maximum speed. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective. The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).		
			
Caution:	In order to permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).		
Note:	The rotating measurement can only be selected when the pulses of all of the drive objects of the Control Unit have been canceled. After selection, all of the other drive objects of the Control Unit are interlocked so that they cannot be powered-up until the rotating measurement has been completed or de-selected. When the rotating measurement is activated (p1960 = 1), it is not possible to save the parameters (p0971, p0977).		

p1960		Velocity controller optimization selection / Rot meas sel	
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-3	1	0
Description:	Activates the rotating measurement.		
Values:	-3: Accept identified parameters		
	-2: Acknowledge encoder inversion actual value (F07993)		
	-1: Start motor data identification without acceptance		
	0: Inactive/inhibit		
	1: Start motor data identification with acceptance		

- Recommend.:** Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger. The commutation angle and the direction are also determined.
- Dependency:** Refer to: r1934, r1935, r1936, r1937, r1938, r1939, r1947, r1948, p1958, p1959, r1962, r1963, r1969
Refer to: F07990, A07991, F07993
- Danger:**  For the rotating measurement, the motor is accelerated up to the maximum speed. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective.
The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).
- Caution:** In order to permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).
- Note:** The rotating measurement can only be selected when the pulses of all of the drive objects of the Control Unit have been canceled. After selection, all of the other drive objects of the Control Unit are interlocked so that they cannot be powered-up until the rotating measurement has been completed or de-selected.
When the rotating measurement is activated (p1960 = 1), it is not possible to save the parameters (p0971, p0977).

p1960		Rotating measurement selection / Rot meas sel		
VECTOR	Can be changed:	T	Calculated:	-
	Data type:	Integer16	Dynamic index:	-
	P-Group:	Motor identification	Units group:	-
	Not for motor type:	REL	Access level:	2
	Min	0	Max	4
				</

Depending on whether the speed controller optimization is carried out with or without encoder, different Kp/Tn adaptations of the speed controller are set (p1464, p1465). If the drive should be controlled with as well as without speed encoder, then we recommend the use of two drive data sets (p0180). These can then be executed with different speed controller adaptations.

p1961	Saturation characteristic speed to determine / Sat_char n determ		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 40 [%]
Description:	Sets the speed to determine the saturation characteristic and the encoder test. The percentage value is referred to p0310 (rated motor frequency).		
Dependency:	Refer to: p0310, p1959 Refer to: F07983		
Note:	The saturation characteristics should be determined at an operating point with the lowest possible load.		
r1962[0...9]	Saturation characteristic magnetizing current identified / Sat_char I_mag		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the magnetizing currents of the identified saturation characteristic. The values are referred to r0331.		
Dependency:	Refer to: p1959, p1960, r1963		
Note:	The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.		
r1962[0...4]	Saturation characteristic, magnetizing current / Sat_char I_mag		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the magnetizing currents of the identified saturation characteristic. The values are referred to r0331. After they have been determined, the values are transferred to p0366 ... p0369.		
Index:	[0] = Value 1 [1] = Value 2 [2] = Value 3 [3] = Value 4 [4] = Value 5		
Dependency:	Refer to: r0331		

r1963[0...9]	Saturation characteristic stator flux identified / Sat_char flux		
SERVO	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the stator flux of the identified saturation characteristic. The values are referred to the stator flux at the magnetizing current (r0331).		
Dependency:	Refer to: p1959, p1960, r1962		
Note:	The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.		

r1963[0...4]	Saturation characteristic, magnetizing inductance / Sat_char L_main		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the magnetizing inductances of the identified saturation characteristic. The values are referred to r0382.		
Index:	[0] = Value 1 [1] = Value 2 [2] = Value 3 [3] = Value 4 [4] = Value 5		
Dependency:	Refer to: r0382		

r1964[0...4]	Saturation characteristic, rotor flux / Sat_char rot flux		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the rotor flux values of the identified saturation characteristic. After they have been determined, the values are transferred to p0362 ... p0365.		
Index:	[0] = Value 1 [1] = Value 2 [2] = Value 3 [3] = Value 4 [4] = Value 5		

p1965	Speed_ctrl_opt speed / n_opt speed		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 40 [%]
Description:	Sets the speed for the identification of the moment of inertia and the vibration test. Induction motor:		

The percentage value is referred to p0310 (rated motor frequency).

Synchronous motor:

The percentage value is referred to the minimum from p0310 (rated motor frequency) and p1082 (maximum speed).

Dependency: Refer to: p0310, p1959
Refer to: F07984, F07985

Note: In order to calculate the inertia, sudden speed changes are carried out - the specified value corresponds to the lower speed setpoint. This value is increased by 20 % for the upper speed value. The q leakage inductance (refer to p1959 bit 5) is determined at zero speed and at 50% of p1965 - however, with a maximum output frequency of 15 Hz and at a minimum of 10% of the rated motor speed.

p1967	Speed_ctrl_opt dynamic factor / n_opt dyn_factor		
VECTOR (n/M)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 1 [%]	Max 400 [%]	Factory setting 100 [%]
Description:	Sets the dynamic response factor for speed controller optimization.		
Dependency:	Refer to: p1959 Refer to: F07985		
Note:	For a rotating measurement, this parameter can be used to optimize the speed controller. p1967 = 100 % --> speed controller optimization according to a symmetric optimum. p1967 > 100 % --> optimization with a higher dynamic response (Kp higher, Tn lower).		

r1968	Speed_ctrl_opt dynamic factor actual / n_opt dyn_fact act		
VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: PEM, REL		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the dynamic factor which is actually achieved for the vibration test		
Dependency:	Refer to: p1959, p1967 Refer to: F07985		
Note:	This dynamics factor only refers to the control mode of the speed controller set in p1960.		

r1969	Moment of inertia identified / M_inertia ident		
SERVO	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: 25_1	Unit selection: p0100
	Not for motor type: REL		Expert list: 1
	Min - [kgm²]	Max - [kgm²]	Factory setting - [kgm²]
Description:	Displays the identified moment of inertia.		
Dependency:	Refer to: p0341, p0342, p1498, p1959, p1960		

r1969	High load inertia identified / High load inert id		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: REL Min - [kg]	Calculated: - Dynamic index: - Units group: 27_1 Max - [kg]	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1 Factory setting - [kg]
Description:	Displays the identified high load inertia.		
Dependency:	Refer to: p0341, p0342, p1498, p1959, p1960		
r1969	Speed_ctrl_opt moment of inertia determined / n_opt M_inert det		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL Min - [kgm²]	Calculated: - Dynamic index: - Units group: 25_1 Max - [kgm²]	Access level: 4 Func. diagram: - Unit selection: p0100 Expert list: 1 Factory setting - [kgm²]
Description:	Displays the determined moment of inertia of the drive. After it has been determined, the value is transferred to p0341, p0342.		
Dependency:	Refer to: p0341, p0342, p1959 Refer to: F07984		
r1970[0...1]	Speed_ctrl_opt vibration test vibration frequency determined / n_opt f_vibration		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL Min - [Hz]	Calculated: - Dynamic index: - Units group: - Max - [Hz]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the vibration frequencies determined by the vibration test.		
Index:	[0] = Frequency low [1] = Frequency high		
Dependency:	Refer to: p1959 Refer to: F07985		
r1971[0...1]	Speed_ctrl_opt vibration test standard deviation determined / n_opt std. deviat.		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL Min - [Hz]	Calculated: - Dynamic index: - Units group: - Max - [Hz]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the standard deviations of the vibration frequencies determined by the vibration test		
Index:	[0] = Standard deviation of low frequency [1] = Standard deviation of high frequency		
Dependency:	Refer to: p1959 Refer to: F07985		

r1972[0...1]	Speed_ctrl_opt vibration test number of periods determined / n_opt period qty		
VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the number of periods determined by the vibration test.		
Index:	[0] = No. of periods of the low frequency [1] = No. of periods of the high frequency		
Dependency:	Refer to: p1959 Refer to: F07985		
r1973[0...1]	Encoder, pulse number identified / Pulse No. ident		
SERVO	Can be changed: - Data type: Integer32 P-Group: Motor identification Not for motor type: REL Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Index 0: For rotating motors, displays the identified encoder pulse number (per revolution). For linear motors: Encoder pulse number per meter. Grid division = 1/p1973 [meter]. Index 1: For linear motors: identified grid division in nm. No significance for rotating motors.		
Index:	[0] = Rotating motor encoder pulse number [1] = Linear motor, grid division in nm		
Notice:	Due to the measuring accuracy (approx. 5%) only the approximate value is shown in p1973 and may not be directly transferred into p0407 or p0408. An incorrect pole pair number (r0313, p0314) or pole pair width (p0315) results in an incorrect value in p1973.		
Note:	A negative signal indicates an incorrect polarity of the encoder signal.		
r1973	Rotating measurement, encoder test pulse number determined / n_opt pulse No.		
VECTOR (n/M)	Can be changed: - Data type: Integer32 P-Group: Motor identification Not for motor type: PEM, REL Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the number of pulses determined during the vibration test.		
Note:	A negative signal indicates an incorrect polarity of the encoder signal.		
r1979.0...11	BO: Speed_ctrl_opt status / n_opt status		
VECTOR (n/M)	Can be changed: - Data type: Unsigned16 P-Group: Motor identification Not for motor type: REL Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the status to check and monitor the states of speed controller optimization.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Speed controller optimization activated	Yes	No	-
	01	Speed controller optimization completed	Yes	No	-
	02	Speed controller optimization interrupted	Yes	No	-
	04	Enc test active	Yes	No	-
	05	Saturation char. identification active	Yes	No	-
	06	Moment of inertia identification active	Yes	No	-
	07	Recalc. speed controller parameters active	Yes	No	-
	08	Speed controller vibration test active	Yes	No	-
	09	Magnetizing induction adapt. active	Yes	No	-
	10	Operation with encoder after sensorless operation	Yes	No	-
	11	q-leakage inductance identification	Yes	No	-

p1980[0...n]	Pole position identification technique / PolID technique		
SERVO	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 99	Factory setting 99
Description:	Sets the pole position identification technique.		
Values:	0: Saturation-based 1st+ 2nd harmonics 1: Saturation-based 1st harmonics 4: Saturation-based, 2-stage 10: Motion-based 99: No technique selected		
Dependency:	Refer to: p0325, p0329, p1981, p1982, p1983, r1984, r1985, r1987		
Notice:	If the incorrect technique is applied, this can cause the motor to accelerate in an uncontrolled fashion.		
Note:	When commissioning a list motor, the technique is automatically selected depending on the motor type being used. The following applies for 1FN3 motors: A technique with 2nd harmonic may not be used (do not use p1980 = 0, 4). For 1FN7 motors, the following applies: A two-stage technique may not be used (do not use p1980 = 4). The automatically set value in p0329 may not be changed.		

p1980[0...n]	Pole position identification technique / PolID technique		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: ASM		Expert list: 1
	Min 1	Max 10	Factory setting 4
Description:	Sets the pole position identification technique.		
Values:	1: Voltage pulsing, first harmonic 4: Voltage pulsing, 2-stage 10: DC current impression		
Dependency:	In the simulation mode, the parameter cannot be written into. Refer to: p1272		
Note:	Voltage pulse technique (p1980 = 1, 4) cannot be applied to separately-excited synchronous motors (p0300 = 5) and for operation with sinusoidal output filters (p0230).		

p1981[0...n]	Pole position identification maximum distance / PolID distance max		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0 [°]
		Max 90 [°]	Factory setting 10 [°]
Description:	Sets the maximum distance (electrical angle) when carrying out the pole position identification routine. If this distance (travel) is exceeded, an appropriate fault is output.		
Dependency:	Refer to: p0325, p0329, p1980, p1982, p1983, r1984, r1985, r1987, p1990 Refer to: F07995		
p1982[0...n]	Pole position identification selection / PolID selection		
SERVO	Can be changed: T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0
		Max 2	Factory setting 0
Description:	Activates the pole position identification routine to determine the commutation angle and to carry out a plausibility check.		
Values:	0: Pole position identification off 1: Pole position identification for commutation 2: Pole position identification for plausibility check		
Recommend.:	Re p1982 = 1: This is used for synchronous motors with motor encoder without absolute data. The information/data regarding the absolute commutation angle is supplied via a track C/D, Hall sensors, an absolute encoder or from the pole position identification routine. Re p1982 = 2: This is used for synchronous motor with motor encoder with absolute data to check this data.		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1983, r1984, r1985, r1987, p1990		
p1982[0...n]	Pole position identification selection / PolID selection		
VECTOR	Can be changed: T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0
		Max 2	Factory setting 0
Description:	Activates the pole position identification routine to determine the commutation angle and to carry out a plausibility check.		
Values:	0: Pole position identification off 1: Pole position identification for commutation 2: Pole position identification for plausibility check		
Recommend.:	Re p1982 = 1: This is used for synchronous motors with motor encoder without absolute data. The information/data regarding the absolute commutation angle is supplied via a track C/D, Hall sensors, an absolute encoder or from the pole position identification routine. Re p1982 = 2: This is used for synchronous motor with motor encoder with absolute data to check this data. For VECTOR, the following applies:		

With p1982 = 2, each time the pulses are enabled it is checked as to whether the absolute position supplied from the encoder does not exceed a deviation of 45 degrees to the identified pole wheel position.

For separately excited synchronous motors (p0300 = 5) it is not possible to select pole position identification if an encoder is used with position information (e.g. SSI encoder).

Dependency:

Refer to: p0325, p0329, p1980, p1981, p1983, r1984, r1985, r1987, p1990

Note:

For sensorless operation, the pole position identification routine is selected with p1780.6

p1983	Pole position identification, test / PolID test		
SERVO	Can be changed: U, T Data type: Unsigned16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Start the pole position identification routine for test purposes. p1983 = 1: Start - is automatically set to zero after being carried out.		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, r1984, r1985, r1987, p1990		
Notice:	For p1983 = 1 and if the pulses are not enabled, then the function is only executed the next time that the pulses are enabled.		
Note:	When this test is executed, it does not influence the commutation angle.		
r1984	Pole position identification, angular difference / PolID ang diff		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Displays the angular difference between the actual electrical commutation angle and the angle determined by the pole position identification.		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1985, r1987, p1990		
Note:	When the pole position identification routine is executed several times using p1983, then using this value, then the spread of the measured values can be determined using this value. At the same position, the spread should be less than 2 degrees electrical.		
r1985	Pole position identification, saturation characteristic / PolID sat_char		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Arms]
Description:	Displays the saturation characteristic of the pole position identification routine. The values for the characteristic of the last saturation-based pole position identification routine are output every 1 ms in order to record signals (e.g. trace).		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1987, p1990		

r1987	Pole position identification trigger characteristic / PolID trig_char		
SERVO, VECTOR (n/M)	Can be changed: - Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min - [%] Max - [%] Factory setting - [%]
Description:	<p>Displays the trigger characteristic of the pole position identification routine.</p> <p>The values for the characteristic of the last pole position identification routine are output every 1 ms in order to record signals (e.g. trace).</p> <p>The values for the trigger characteristic and the saturation characteristic are always output in synchronism from a time perspective.</p>		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1985		
Note:	<p>The following information and data can be taken from the trigger characteristic.</p> <ul style="list-style-type: none"> - the value -100% marks the angle at the start of the measurement. - the value +100 % marks the commutation angle determined from the pole position identification routine. 		
p1990	Encoder adjustment, determine angular commutation offset / Enc_adj det ang		
SERVO	Can be changed: U, T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 1 Factory setting 0
Description:	<p>This function is only required for synchronous motors and can be started when commissioning for the first time or after replacing an encoder. The function acts on the active motor data set.</p> <p>When adjusting the encoder, the angular commutation offset is determined and transferred into p0431. Alarm A07971 is output while the angular commutation offset is being determined. p1990 is automatically set to 0 after the angular commutation offset has been determined.</p> <p>p1990 = 0: Deactivated p1990 = 1: Activated with transfer</p>		
Dependency:	<p>Refer to: p0325, p0329, p0431, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1999</p> <p>Refer to: A07971</p>		
Caution:	<p>In order to prevent an incorrect orientation of the electrical pole position (uncontrolled motor movement), the automatically determined angular commutation offset (p0431) should, for reasons of safety, be checked using one of the following recommendations:</p> <p>Recommendation 1: Set encoderless operation (p1300 = 20 or p1404 = 0), deselect pole position identification (p1982=0), operate under no-load conditions with a speed > p1755, read the angular error in r1778; the result in r1778 should be approximately 0, for r1778 > 2 degrees, add the value to p0431 - taking into account the sign - and enter in p0431.</p> <p>Recommendation 2: Set the current limit to 0 (p0640 = 0), activate travel to fixed stop (p1545 = 1), record r0089[0] (phase voltage) and r0093 (electrically normalized pole position) (e.g. trace) while the motor is externally moved; in this case, the rising zero crossover of the phase voltage must coincide with the 360 ° --> 0 ° step (jump) from r0093.</p> <p>Recommendation 3: Measure the phase voltage V (measure phase U with respect to the virtual star point using 3 resistors) and r0093 (electrically normalized pole position); the rising zero crossover of the phase voltage must coincide with the 360 ° --> 0 ° step (jump) of r0093.</p> <p>Recommendation 4: Determine the average value from several results of a pole position identification routine executed as test (p1983) at various electrical angles and add the value to p0431 - taking into account the sign and enter into p0431.</p>		
Notice:	For p1990 = 1 and with the pulses not enabled, the function is only executed the next time that the pulses are enabled.		

Note: If fault F07414 is present, the following applies:
First set p1990 to 1, then acknowledge the fault and then issue the enable signals.

p1990 Encoder adjustment, determine angular commutation offset / Enc_adj det ang

VECTOR

Can be changed: T**Calculated:** -**Access level:** 2**Data type:** Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** Motor identification**Units group:** -**Unit selection:** -**Not for motor type:** ASM**Expert list:** 1**Min****Max****Factory setting**

0

2

0

Description:

This function is only required for synchronous motors and can be started when commissioning for the first time or after replacing an encoder. The function acts on the active motor data set.

Alarm A07971 is output while the angular commutation offset is being determined. p1990 is automatically set to 0 after the angular commutation offset has been determined.

For p1990 = 1 (encoder adjustment with transfer), the following applies:

The angular commutation offset is determined and transferred into p0431.

For p1990 = 2 (encoder adjustment for checking), the following applies:

The angular commutation offset is determined and is not transferred into p0431. For a deviation of more than 6 ° electrical, fault F07413 is output.

Values:

0: Deactivated

1: Activated with transfer

2: Activated for checking

Dependency:

In the simulation mode, the parameter cannot be written into.

When selecting the encoder adjustment, the changeover of the drive data sets is suppressed.

Refer to: p0325, p0329, p0431, p1272, p1900

Caution:

When the encoder is being adjusted, the motor must be operated without a load - and if a motor holding brake is being used, this must be opened.

p1991[0...n] Motor changeover, angular commutation correction / Ang_com corr

SERVO, VECTOR

Can be changed: T**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** MDS, p0130**Func. diagram:** -**P-Group:** -**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-180 [°]

180 [°]

0 [°]

Description:

Sets the angle that is added to the commutating angle.

Caution:

If the angular correction is not correctly set, when changing over and with closed-loop torque control, the motor can accelerate to high speeds in spite of the fact that a setpoint of zero has been entered.

r1992 Pole position identification diagnostics / PolID diag

SERVO

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** -**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays diagnostics information for the pole position identification routine.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Critical encoder fault occurred	Yes	No	-
	02	Enc parking active	Yes	No	-
	05	Encoder fault Class 1	Yes	No	-
	06	Encoder fault Class 2	Yes	No	-
	07	Pole position identification for encoder carried out	Yes	No	-
	08	Fine synchronization carried out	Yes	No	-
	09	Coarse synchronization carried out	Yes	No	-
	10	Commutation information available	Yes	No	-
	11	Speed information available	Yes	No	-
	12	Position information available	Yes	No	-
	15	Zero mark passed	Yes	No	-

r1992 Pole position identification diagnostics / PolID diag

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays diagnostics information for the pole position identification routine.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Critical encoder fault occurred	Yes	No	-
	02	Enc parking active	Yes	No	-
	05	Encoder fault Class 1	Yes	No	-
	06	Encoder fault Class 2	Yes	No	-
	07	Pole position identification for encoder carried out	Yes	No	-
	08	Fine synchronization carried out	Yes	No	-
	09	Coarse synchronization carried out	Yes	No	-
	10	Commutation information available	Yes	No	-
	11	Velocity information available	Yes	No	-
	12	Position information available	Yes	No	-
	15	Zero mark passed	Yes	No	-

p1993[0...n] Pole position identification current, motion-based / PolID I mot_bas

SERVO	Can be changed: U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00 [Arms]	20000.00 [Arms]	0.00 [Arms]

Description: Sets the current when executing the motion-based pole position identification.


Dependency: Refer to: p1980, p1982, p1994

p1994[0...n] Pole position identification rise time motion-based / PolID T mot_bas

SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0 [ms]	2500 [ms]	100 [ms]

Description: Sets the rise time of the current when executing the motion-based pole position identification.

Dependency: Refer to: p1980, p1982, p1993

p1995[0...n]	Pole position identification gain, motion-based / PolID kp mot_bas		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: MDS, p0130 Units group: 17_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Min 0.000 [Nms/rad]
		Max 999999.000 [Nms/rad]	Factory setting 0.300 [Nms/rad]
Description:	Sets the gain when executing the motion-based pole position identification.		
p1995[0...n]	Pole position identification gain, motion-based / PolID kp mot_bas		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: MDS, p0130 Units group: 24_2	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Min 0.000 [Ns/m]
		Max 999999.000 [Ns/m]	Factory setting 10.000 [Ns/m]
Description:	Sets the gain when executing the motion-based pole position identification.		
p1996[0...n]	Pole position identification, integral time motion-based / PolID Tn mot_bas		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 1.0 [ms]
		Max 500.0 [ms]	Factory setting 2.0 [ms]
Description:	Sets the integral time when executing the motion-based pole position identification.		
p1997[0...n]	Pole position identification, smoothing time motion-based / PolID t_sm mot_bas		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.0 [ms]
		Max 50.0 [ms]	Factory setting 0.0 [ms]
Description:	Sets the smoothing time when executing the motion-based pole position identification.		
p1999[0...n]	Ang. commutation offset calibr. and pole position ID - scaling / ComOffsCalib scal		
VECTOR (n/M)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 10 [%]
		Max 5000 [%]	Factory setting 100 [%]
Description:	Sets the scaling for the runtime of the automatic encoder calibration and the current-impressing technique for the pole position identification routine.		
Dependency:	Refer to: p0341, p0342		
Caution:	For P1999 > 100% (setting, large moments of inertia) : There is no locked rotor monitoring (A7970.2). The plausibility check of the encoder signal (A7970.4) only checks the sign.		
			

Note: For high moments of inertia, it is practical to scale the runtime of the calibration higher.

p2000	Reference frequency / Ref freq		
A_INF, B_INF, S_INF	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.10 [Hz]	Max 1000.00 [Hz]	Factory setting 50.00 [Hz]
Description:	<p>Sets the reference quantity for the frequency.</p> <p>All frequencies specified as relative value are referred to this reference quantity.</p> <p>The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.</p> <p>The following applies: Reference frequency (in Hz)</p>		
p2000	Reference speed reference frequency / Ref_n Ref_f		
SERVO	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 6.00 [RPM]	Max 210000.00 [RPM]	Factory setting 3000.00 [RPM]
Description:	<p>Sets the reference quantity for speed and frequency.</p> <p>All speeds or frequencies specified as relative value are referred to this reference quantity.</p> <p>The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.</p> <p>The following applies: Reference frequency (in Hz) = reference speed (in (RPM) / 60)</p>		
Dependency:	Refer to: p0500, p2001, p2002, p2003, r2004		
Note:	<p>For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.</p> <p>If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.</p> <p>Example 1:</p> <p>The signal of an analog input (e.g. r4055[0]) is connected to a speed setpoint (e.g. p1070[0]). The actual percentage input value is cyclically converted into the absolute speed setpoint using the reference speed (p2000).</p> <p>Example 2:</p> <p>The setpoint from PROFIBUS (r2050[1]) is connected to a speed setpoint (e.g. p1070[0]). The current input value is cyclically converted into a percentage value via the pre-specified normalization 4000 hex. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).</p>		
p2000	Reference velocity, reference frequency / Ref_v Ref_f		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.60 [m/min]	Max 600.00 [m/min]	Factory setting 120.00 [m/min]
Description:	<p>Sets the reference quantity for velocity and frequency.</p> <p>All velocities or frequencies specified as relative value are referred to this reference quantity.</p> <p>The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.</p> <p>The following applies: Reference frequency (in Hz) = reference velocity (in (m/min) / 60)</p>		
Dependency:	Refer to: p0500, p2001, p2002, p2003, r2004		

Note: For the automatic calculation ($p0340 = 1$, $p3900 > 0$) an appropriate pre-assignment is only made if the parameter is at the factory setting.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example 1:
The signal of an analog input (e.g. $r4055[0]$) is connected to a velocity setpoint (e.g. $p1070[0]$). The actual percentage input value is cyclically converted into the absolute velocity setpoint using the reference velocity ($p2000$).

Example 2:
The setpoint from PROFIBUS ($r2050[1]$) is connected to a velocity setpoint (e.g. $p1070[0]$). The current input value is cyclically converted into a percentage value via the pre-specified normalization 4000 hex. This percentage value is converted to the absolute velocity setpoint via reference velocity ($p2000$).

p2000	Reference speed reference frequency / Ref_n Ref_f		
TM41, VECTOR	Can be changed: T Data type: Floating Point P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 6.00 [RPM]	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Max 210000.00 [RPM]
			Factory setting 3000.00 [RPM]
Description:	Sets the reference quantity for speed and frequency. All speeds or frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The following applies: Reference frequency (in Hz) = reference speed (in (RPM) / 60)		
Dependency:	Refer to: p2001, p2002, p2003, r2004		
Note:	For the automatic calculation ($p0340 = 1$, $p3900 > 0$) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using $p0573 = 1$. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. Example 1: The signal of an analog input (e.g. $r4055[0]$) is connected to a speed setpoint (e.g. $p1070[0]$). The actual percentage input value is cyclically converted into the absolute speed setpoint using the reference speed ($p2000$). Example 2: The setpoint from PROFIBUS ($r2050[1]$) is connected to a speed setpoint (e.g. $p1070[0]$). The current input value is cyclically converted into a percentage value via the pre-specified normalization 4000 hex. This percentage value is converted to the absolute speed setpoint via reference speed ($p2000$).		

p2001	Reference voltage / Reference voltage		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: T Data type: Floating Point P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 10 [Vrms]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 100000 [Vrms]
			Factory setting 1000 [Vrms]
Description:	Sets the reference quantity for voltages. All voltages specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Note:	For the automatic calculation ($p0340 = 1$, $p3900 > 0$) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using $p0573 = 1$. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. For infeed units, the parameterized device supply voltage ($p0210$) is pre-assigned as the reference quantity. Example:		

The actual value of the DC link voltage (r0070) is connected to a test socket (e.g. p0771[0]). The actual voltage value is cyclically converted into a percentage of the reference voltage (p2001) and output according to the parameterized scaling.

p2002		Reference current / Reference current	
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.10 [Arms]	Max 100000.00 [Arms]	Factory setting 100.00 [Arms]
Description:	Sets the reference quantity for currents. All currents specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Notice:	If various DDS are used with different motor data, then the reference quantities remain the same as these are not changed over with the DDS. The resulting conversion factor should, e.g. for trace records, be taken into account. Example: p2002 = 100 A Reference quantity 100 A corresponds to 100 % p305[0] = 100 A Rated motor current 100 A for MDS 0 in DDS 0 --> 100 % corresponds to 100 % of the rated motor current p305[1] = 50 A Rated motor current 50 A for MDS 1 in DDS 1 --> 100 % corresponds to 200 % of the rated motor current		
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. For infeed units, the rated line current, that is obtained from the rated power and parameterized rated line supply voltage (p2002 = r0206 / p0210 / 1.73) is pre-assigned as the reference quantity. Example: The actual value of a phase current (r0069[0]) is connected to a test socket (e.g. p0771[0]). The actual current value is cyclically converted into a percentage of the reference current (p2002) and output according to the parameterized scaling.		

p2003		Reference torque / Reference torque	
SERVO, TM41, VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: 7_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.01 [Nm]	Max 20000000.00 [Nm]	Factory setting 1.00 [Nm]
Description:	Sets the reference quantity for torques. All torques specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. Example: The actual value of the total torque (r0079)) is connected to a test socket (e.g. p0771[0]). The actual torque is cyclically converted into a percentage of the reference torque (p2003) and output according to the parameterized scaling.		

p2003	Reference force / Reference force		
SERVO (Lin)	Can be changed: T Data type: Floating Point P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: 8_2 Min 0.01 [N]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 100.00 [N]
Description:	Sets the reference quantity for forces. All forces specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is at the factory setting. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. Example: The actual value of the total force (r0079[0]) is connected to a test socket (e.g. p0771[0]). The actual force is cyclically converted into a percentage of the reference force (p2003) and output according to the parameterized scaling.		
r2004	Reference power / Reference power		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: - Data type: Floating Point P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: 14_10 Min - [kW]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [kW]
Description:	Displays the reference quantity for power ratings. All power ratings specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Dependency:	This value is calculated as follows: Infeed: Calculated from voltage times current. Closed-loop control: Calculated from torque times speed. Refer to: p2000, p2001, p2002, p2003		
Note:	If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. The reference power is calculated as follows: - $2 * \pi * \text{reference speed} / 60 * \text{reference torque (motor)}$ - $\text{reference voltage} * \text{reference current} * \text{root}(3) \text{ (infeed)}$		
p2005	Reference angle / Reference angle		
SERVO, TM41, VECTOR	Can be changed: T Data type: Floating Point P-Group: Communications Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Min 90.00 [°]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 90.00 [°]
Description:	Sets the reference quantity for angle. All angles specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.		

p2007	Reference acceleration / Ref accel			
SERVO, TM41, VEC-TOR	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Floating Point	Dynamic index: -	Func. diagram: -	
	P-Group: Communications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0.01 [1/s²]	Max 500000.00 [1/s²]	Factory setting 0.01 [1/s²]	
Description:	Sets the reference quantity for acceleration rates. All acceleration rates specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.			
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. The reference acceleration is calculated as follows: Reference speed (p2000) converted from 1/min to 1/s divided by 1 s --> p2007 = p2000 [rpm] / (60 [s/min] * 1 [s])			

p2007	Reference acceleration / Ref accel			
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Floating Point	Dynamic index: -	Func. diagram: -	
	P-Group: Communications	Units group: 22_1	Unit selection: p0505	
	Not for motor type: -		Expert list: 1	
	Min 0.01 [m/s²]	Max 10000.00 [m/s²]	Factory setting 0.01 [m/s²]	
Description:	Sets the reference quantity for acceleration rates. All acceleration rates specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.			
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. The reference acceleration is calculated as follows: Reference speed (p2000) converted from 1/min to 1/s divided by 1 s --> p2007 = p2000 [rpm] / (60 [s/min] * 1 [s])			

r2032	Master control, control word effective / PcCtrl STW eff				
A_INF, B_INF, S_INF	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the effective control word 1 (STW1) of the drive for the master control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	03	Enable operation	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	10	Master ctrl by PLC	Yes	No	-
Notice:	The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.				

Note: The master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).
OC: Operating condition

r2032 Master control, control word effective / PcCtrl STW eff				
SERVO, VECTOR	Can be changed: -		Calculated: -	Access level: 2
	Data type: Unsigned16		Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	-
Description: Displays the effective control word 1 (STW1) of the drive for the master control.				
Bit field:	Bit	Signal name	1 signal	0 signal
	00	ON/OFF1	Yes	No
	01	OC / OFF2	Yes	No
	02	OC / OFF3	Yes	No
	03	Enable operation	Yes	No
	04	Enables the ramp-function generator	Yes	No
	05	Start ramp-function generator	Yes	No
	06	Enable speed setpoint	Yes	No
	07	Acknowledge fault	Yes	No
	08	Jog bit 0	Yes	No
	09	Jog bit 1	Yes	No
	10	Master ctrl by PLC	Yes	No
				FP
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r2032 Master control, control word effective / PcCtrl STW eff				
SERVO (Lin)	Can be changed: -		Calculated: -	Access level: 2
	Data type: Unsigned16		Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	-
Description: Displays the effective control word 1 (STW1) of the drive for the master control.				
Bit field:	Bit	Signal name	1 signal	0 signal
	00	ON/OFF1	Yes	No
	01	OC / OFF2	Yes	No
	02	OC / OFF3	Yes	No
	03	Enable operation	Yes	No
	04	Enables the ramp-function generator	Yes	No
	05	Start ramp-function generator	Yes	No
	06	Enable velocity setpoint	Yes	No
	07	Acknowledge fault	Yes	No
	08	Jog bit 0	Yes	No
	09	Jog bit 1	Yes	No
	10	Master ctrl by PLC	Yes	No
				FP
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p2037	PROFIdrive STW1.10 = 0 mode / PD STW1.10=0 mode		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the processing mode for PROFIdrive STW1.10 "master control by PLC". Generally, control word 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.		
Values:	0: Freeze setpoints and continue to process sign-of-life 1: Freeze setpoints and sign-of-life 2: Setpoints are not frozen		
Recommend.:	Do not change the setting p2037 = 0.		
Note:	If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.		
p2038	PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode		
SERVO, VECTOR	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the interface mode of the PROFIdrive control and status words. When selecting a telegram via p0922 (p2079), this parameter influences the device-specific assignment of the bits in the control and status words.		
Values:	0: SINAMICS 1: SIMODRIVE 611 universal 2: VIK-NAMUR		
Dependency:	Refer to: p0922, p2079		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For p0922 (p2079) = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.		
p2038	PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode		
SERVO (EPOS), SERVO (Pos ctrl), VECTOR (EPOS), VECTOR (Pos ctrl)	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Displays the interface mode of the PROFIdrive control and status words.		
Values:	0: SINAMICS		
Dependency:	Refer to: p0922, p2079		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For p0922 (p2079) = 7, 9, 110, p2038 is automatically set to 0 and cannot be changed.		

p2039 Select debug monitor interface / Sel. debug monitor

CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: The serial interface for the debug monitor is COM1 (X140) or COM2 (internal).
Value = 0: COM2 (internal)
Value = 1: COM1 (X140), PPI is de-activated

p2040 COMM INT monitoring time / C INT t_monit

CU_CX32, CU_LINK	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 65535000 [ms]	Factory setting 20 [ms]

Description: Sets the monitoring time to monitor the process data received via COMM BOARD. If no process data is received within this time, an appropriate message is output.

Dependency: Refer to: F08501

Note: 0: The monitoring is deactivated.

p2041[0...4] PROFIBUS detail settings / PB detail

CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0

p2042 PROFIBUS Ident Number / PB Ident No.

CU_S	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Sets the PROFIBUS Ident Number (PNO-ID).
SINAMICS can be operated with various identities on PROFIBUS. This allows the use of a PROFIBUS GSD that is independent of the device (e.g. PROFIdrive VIK-NAMUR with Ident Number 3AA0 hex).

Values:
0: SINAMICS S/G
1: VIK-NAMUR

Note: A new setting only becomes effective after POWER ON, reset or download.

r2043.0...1	BO: PROFIdrive PZD state / PD PZD state				
CU_CX32, CU_S	Can be changed: -		Calculated: -		Access level: 3
	Data type: Unsigned8		Dynamic index: -		Func. diagram: 2410
	P-Group: Communications		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the PROFIdrive PZD state.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Setpoint failure	Yes	No	-
	01	Clock cycle synchronous operation active	Yes	No	-
Dependency:	Refer to: p2044				
Note:	When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.				

p2044	PROFIdrive fault delay / PD fault delay				
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T		Calculated: -		Access level: 3
	Data type: Floating Point		Dynamic index: -		Func. diagram: 2410
	P-Group: Communications		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	0 [s]		100 [s]		0 [s]
Description:	Sets the delay time to initiate fault F01910 after a setpoint failure. The time until the fault is initiated can be used by the application. This means that is is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).				
Dependency:	Refer to: r2043 Refer to: F01910				

p2045	CI: PROFIdrive clock-cyc. synchr. master sign-of-life, signal source / PD mast-SoL S_src				
CU_CX32, CU_S, SERVO, TM41, VEC- TOR (n/M)	Can be changed: T		Calculated: -		Access level: 3
	Data type: Unsigned32 / Integer16		Dynamic index: -		Func. diagram: 2410
	P-Group: Communications		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		0
Description:	Connector input for the sign-of-life of the clock synchronous PROFIBUS/PROFINET master. The sign-of-life is expected at bits 12 to 15. Bits 0 to 11 are not evaluated. The sign-of-life signal is normally received in PZD4 (control word 2) from the PROFIBUS/PROFINET master.				
Dependency:	Refer to: p0925, r2065				
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.				

p2047 PROFIBUS additional monitoring time / PB suppl t_monit

CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 2000 [ms]	Factory setting 0 [ms]
Description:	Sets the additional monitoring time to monitor the process data received via PROFIBUS. If no process data is received within this time, an appropriate message is output.		
Dependency:	Refer to: F01910		

p2048 IF1 PROFIdrive PZD sampling time / IF1 PZD t_sample

CU_CX32, CU_S	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.00 [ms]	Max 16.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the sampling time for the cyclic interface 1 (IF1).		
Note:	For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).		

r2050[0...4] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

A_INF, B_INF, CU_CX32, CU_S, S_INF, TB30, TM15DI_DO, TM31	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		
Note:	IF1: Interface 1		

r2050[0...15] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

SERVO, TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2440, 2460
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8		

[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: r2060
Note: IF1: Interface 1

r2050[0...31] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

VECTOR	Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2440, 2460 Unit selection: - Expert list: 1 Factory setting -
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Description: Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.

Index:

[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: Refer to: r2060
Note: IF1: Interface 1

p2051[0...14]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	IF1: Interface 1		
p2051[0...7]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
A_INF, B_INF, S_INF	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	IF1: Interface 1		
p2051[0...18]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
SERVO, TM41	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 2470
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.		

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19

Dependency: Refer to: p2061

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2051[0...31] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

VECTOR	Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2470 Unit selection: - Expert list: 1 Factory setting 0
	Min -	Max -	

Description: Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19
- [19] = PZD 20
- [20] = PZD 21
- [21] = PZD 22
- [22] = PZD 23
- [23] = PZD 24
- [24] = PZD 25
- [25] = PZD 26
- [26] = PZD 27
- [27] = PZD 28
- [28] = PZD 29

[29] = PZD 30

[30] = PZD 31

[31] = PZD 32

Dependency: Refer to: p2061**Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.**Note:** IF1: Interface 1

p2051[0...4] CI: IF1 PROFIdrive PZD send word / IF1 PZD send wordTB30, TM15DI_DO,
TM31**Can be changed:** U, T**Calculated:** -**Access level:** 3**Data type:** Unsigned32 / Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

0

Description: Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.**Index:**
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5**Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.**Note:** IF1: Interface 1

r2053[0...14] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

CU_CX32, CU_S

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.**Index:**
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15**Bit field:****Bit Signal name****1 signal****0 signal****FP**

00 Bit 0

On

Off

-

01 Bit 1

On

Off

-

02 Bit 2

On

Off

-

03 Bit 3

On

Off

-

04 Bit 4

On

Off

-

05 Bit 5

On

Off

-

06 Bit 6

On

Off

-

07 Bit 7

On

Off

-

08 Bit 8

On

Off

-

09 Bit 9

On

Off

-

10	Bit 10	On	Off	-
11	Bit 11	On	Off	-
12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2053[0...7] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

A_INF, B_INF, S_INF

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2053[0...18] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

SERVO, TM41

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 2450, 2470
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6

[6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17
 [17] = PZD 18
 [18] = PZD 19

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: p2051, p2061

Note: IF1: Interface 1

r2053[0...31] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2450, 2470
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

Index:

[0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17
 [17] = PZD 18
 [18] = PZD 19

[19] = PZD 20
 [20] = PZD 21
 [21] = PZD 22
 [22] = PZD 23
 [23] = PZD 24
 [24] = PZD 25
 [25] = PZD 26
 [26] = PZD 27
 [27] = PZD 28
 [28] = PZD 29
 [29] = PZD 30
 [30] = PZD 31
 [31] = PZD 32

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: p2051, p2061

Note: IF1: Interface 1

r2053[0...4] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

TB30, TM15DI_DO,
TM31

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Func. diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-

13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2054 PROFIBUS status / PB status

CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	4	-

Description: Status display for the PROFIBUS interface.

Values:

- 0: Off
- 1: No connection (search for baud rate)
- 2: Connection O. K. (baud rate found)
- 3: Cyclic connection with master (data exchange)
- 4: Cyclic data O. K.

Note: Re r2054 = 3:
In state 3 (the LED flashes green), a cyclic connection has been established to the PROFIBUS master; however, one of the following prerequisites is missing for cyclic operation:

- No setpoints are being received as the PROFIBUS master is in the STOP condition.

Only for clock-cycle synchronous operation, the following applies:

- The drive is not in synchronism as the global control (GC) has an error.

Re r2054 = 4:
In the status 4 (LED green), the cyclic connection to the PROFIBUS master has been established and setpoints are being received. The clock cycle synchronization is OK, the global control (GC) is error-free.
This state does not provide any statement regarding the quality of the clock cycle synchronous sign-of-life characters on the drive objects.

r2054 COMM INT state / C INT state

CU_CX32, CU_LINK	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	-

Description: Status display for the internal communications interface.

Values:

- 0: No initialization
- 1: Fatal fault
- 2: Initialization
- 3: Send configuration
- 4: Receive configuration
- 5: Non-cyclic communication
- 6: Cyclic communications but no setpoints (stop/no clock cycle)
- 255: Cyclic communication

r2055[0...2]	PROFIBUS diagnostics standard / PB diag standard		
CU_S	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting -
Description:	Diagnostics display for the PROFIBUS interface.		
Index:	[0] = Master bus address [1] = Master input total length bytes [2] = Master output total length bytes		
r2056[0...19]	PROFIBUS diagnostics expert / PB diag experts		
CU_S	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
r2057	PROFIBUS address switch diagnostics / PB addr diagn		
CU_S	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the setting of the PROFIBUS address switch "DP ADDRESS" on the Control Unit.		
Dependency:	Refer to: p0918		
r2058[0...139]	COMM INT receive configuration data / C INT E_config_dat		
CU_CX32, CU_LINK	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the configuration data received via COMM BOARD.		
r2059[0...7]	COMM INT identification data / C INT ident_dat		
CU_CX32, CU_LINK	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the identification data of the COMM BOARD.		
Note:	Index 0: CB data structure version (e.g.: 100 = V1.00). Index 1: CB driver version (e.g.: 100 = V1.00). Index 2: Company, (e.g.: 42 = Siemens).		

Index 3: Device type

Index 4: Firmware version.

Index 5: Firmware date (year).

Index 6: Firmware date (day/month).

r2060[0...14] CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW			
SERVO, TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 2440, 2460
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output to interconnect PZD (setpoints) with double word format received from the PROFIBUS master.		
Index:	[0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16		
Dependency:	Refer to: r2050		
Note:	IF1: Interface 1		

r2060[0...30] CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW			
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 2440, 2460
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output to interconnect PZD (setpoints) with double word format received from the PROFIBUS master.		
Index:	[0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16 [15] = PZD 16 + 17 [16] = PZD 17 + 18 [17] = PZD 18 + 19		

[18] = PZD 19 + 20
 [19] = PZD 20 + 21
 [20] = PZD 21 + 22
 [21] = PZD 22 + 23
 [22] = PZD 23 + 24
 [23] = PZD 24 + 25
 [24] = PZD 25 + 26
 [25] = PZD 26 + 27
 [26] = PZD 27 + 28
 [27] = PZD 28 + 29
 [28] = PZD 29 + 30
 [29] = PZD 30 + 31
 [30] = PZD 31 + 32

Dependency: Refer to: r2050

Note: IF1: Interface 1

p2061[0...14] CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW

SERVO, TM41

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Unsigned32 / Integer32

Dynamic index: -

Func. diagram: 2470

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description: Selects the PZD (actual values) with double word format to be sent to the PROFIBUS master.

Index:

[0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16

Dependency: Refer to: p2051

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2061[0...30] CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW

VECTOR

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Unsigned32 / Integer32

Dynamic index: -

Func. diagram: 2470

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description: Selects the PZD (actual values) with double word format to be sent to the PROFIBUS master.

Index:

[0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7

[6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16
 [15] = PZD 16 + 17
 [16] = PZD 17 + 18
 [17] = PZD 18 + 19
 [18] = PZD 19 + 20
 [19] = PZD 20 + 21
 [20] = PZD 21 + 22
 [21] = PZD 22 + 23
 [22] = PZD 23 + 24
 [23] = PZD 24 + 25
 [24] = PZD 25 + 26
 [25] = PZD 26 + 27
 [26] = PZD 27 + 28
 [27] = PZD 28 + 29
 [28] = PZD 29 + 30
 [29] = PZD 30 + 31
 [30] = PZD 31 + 32

Dependency: Refer to: p2051

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

r2063[0...14] IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW				
SERVO, TM41	Can be changed: -		Calculated: -	Access level: 3
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 2450, 2470
	P-Group: Communications		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	-
Description:	Displays the PZD (actual values) with double word format sent to the PROFIBUS/PROFINET master.			
Index:	[0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Bit 0	On	Off
	01	Bit 1	On	Off
	02	Bit 2	On	Off
	03	Bit 3	On	Off
	04	Bit 4	On	Off
	05	Bit 5	On	Off
	06	Bit 6	On	Off
				FP
				-
				-
				-
				-
				-
				-

07	Bit 7	On	Off	-
08	Bit 8	On	Off	-
09	Bit 9	On	Off	-
10	Bit 10	On	Off	-
11	Bit 11	On	Off	-
12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-
16	Bit 16	On	Off	-
17	Bit 17	On	Off	-
18	Bit 18	On	Off	-
19	Bit 19	On	Off	-
20	Bit 20	On	Off	-
21	Bit 21	On	Off	-
22	Bit 22	On	Off	-
23	Bit 23	On	Off	-
24	Bit 24	On	Off	-
25	Bit 25	On	Off	-
26	Bit 26	On	Off	-
27	Bit 27	On	Off	-
28	Bit 28	On	Off	-
29	Bit 29	On	Off	-
30	Bit 30	On	Off	-
31	Bit 31	On	Off	-

Note: IF1: Interface 1

r2063[0...30] IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW

VECTOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Func. diagram: 2450, 2470

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the PZD (actual values) with double word format sent to the PROFIBUS/PROFINET master.

Index:

[0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16
 [15] = PZD 16 + 17
 [16] = PZD 17 + 18
 [17] = PZD 18 + 19
 [18] = PZD 19 + 20
 [19] = PZD 20 + 21
 [20] = PZD 21 + 22
 [21] = PZD 22 + 23
 [22] = PZD 23 + 24
 [23] = PZD 24 + 25
 [24] = PZD 25 + 26
 [25] = PZD 26 + 27

[26] = PZD 27 + 28

[27] = PZD 28 + 29

[28] = PZD 29 + 30

[29] = PZD 30 + 31

[30] = PZD 31 + 32

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
	16	Bit 16	On	Off	-
	17	Bit 17	On	Off	-
	18	Bit 18	On	Off	-
	19	Bit 19	On	Off	-
	20	Bit 20	On	Off	-
	21	Bit 21	On	Off	-
	22	Bit 22	On	Off	-
	23	Bit 23	On	Off	-
	24	Bit 24	On	Off	-
	25	Bit 25	On	Off	-
	26	Bit 26	On	Off	-
	27	Bit 27	On	Off	-
	28	Bit 28	On	Off	-
	29	Bit 29	On	Off	-
	30	Bit 30	On	Off	-
	31	Bit 31	On	Off	-

Note: IF1: Interface 1

r2064[0...7] PROFIdrive diagnostics clock synchronous mode / PD diag clock sync

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the last parameter received from the PROFIBUS/PROFINET master for clock synchronism.
The parameters for clock synchronism are created when configuring the bus and are transferred at the start of cyclic operation from the master to the slave.

Index: [0] = Clock synchronous mode activated
[1] = Bus cycle time (Tdp) [μs]
[2] = Master cycle time (Tmapc) [μs]
[3] = Instant of actual value acquisition (Ti) [μs]
[4] = Instant of setpoint acquisition (To) [μs]
[5] = Data exchange interval (Tdx) [μs]
[6] = PLL window (Tpll-w) [1/12 μs]
[7] = PLL delay time (Tpll-d) [1/12 μs]

r2065				PROFIdrive master sign-of-life, diagnostics / PD mast-SoL diag			
CU_CX32, CU_S, SERVO, TM41, VEC- TOR (n/M)	Can be changed: -		Calculated: -		Access level: 3		
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 2410		
	P-Group: Communications		Units group: -		Unit selection: -		
	Not for motor type: -				Expert list: 1		
	Min -		Max -		Factory setting -		
Description:				Displays how often the sign-of-life from the clock synchronous PROFIBUS/PROFINET master failed. An appropriate fault is output when the tolerance, specified in p0925, is exceeded.			
Dependency:				Refer to: F01912			
p2066				SYNC automatic warm restart / SYNC warm restart			
CU_CX32, CU_S	Can be changed: U, T		Calculated: -		Access level: 3		
	Data type: Unsigned16		Dynamic index: -		Func. diagram: -		
	P-Group: Communications		Units group: -		Unit selection: -		
	Not for motor type: -				Expert list: 0		
	Min 0		Max 1		Factory setting 0		
Description:				Activates an automatic warm restart after changing the DP clock cycle has been changed. p2066 = 0: An attempt to change the DP clock cycle is rejected, and Alarm A01902 is output with alarm value = 9. In order that the DP clock cycle becomes effective, a warm restart or POWER ON must be carried out. p2066 = 1: When the DP clock cycle is changed, an automatic warm restart is initiated (p0009 = 30, p0976 = 3). After booting the modified DP clock cycle becomes effective. The automatic warm restart is only carried out if for all of the drives the pulses have been canceled. Otherwise p0009 = 30 cannot be executed and an attempt to change the DP clock cycle is rejected as for p2066 = 0.			
Dependency:				Refer to: A01902			
r2074[0...4]				IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv			
A_INF, B_INF, CU_CX32, CU_S, S_INF, TB30, TM15DI_DO, TM31	Can be changed: -		Calculated: -		Access level: 3		
	Data type: Unsigned16		Dynamic index: -		Func. diagram: -		
	P-Group: Communications		Units group: -		Unit selection: -		
	Not for motor type: -				Expert list: 1		
	Min -		Max -		Factory setting -		
Description:				Displays the PROFIBUS address of the sender from which the process data (PZD) is received.			
Index:				[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5			
Note:				IF1: Interface 1 Value range: 0 - 125: Bus address of the sender 255: Not occupied			

r2074[0...15]	IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv		
SERVO, TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFIBUS address of the sender from which the process data (PZD) is received.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16		
Note:	IF1: Interface 1 Value range: 0 - 125: Bus address of the sender 255: Not occupied		

r2074[0...31]	IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFIBUS address of the sender from which the process data (PZD) is received.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20		

[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Note: IF1: Interface 1
Value range:
0 - 125: Bus address of the sender
255: Not occupied

r2075[0...4] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

A_INF, B_INF,
CU_CX32, CU_S,
S_INF, TB30,
TM15DI_DO, TM31

Can be changed: -
Data type: Unsigned16
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min	Max	Factory setting
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (master output).

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
255: Not occupied

r2075[0...15] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

SERVO, TM41

Can be changed: -
Data type: Unsigned16
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min	Max	Factory setting
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (master output).

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14

Note: [14] = PZD 15
 [15] = PZD 16
 IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 255: Not occupied

r2075[0...31] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (master output).

Index: [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17
 [17] = PZD 18
 [18] = PZD 19
 [19] = PZD 20
 [20] = PZD 21
 [21] = PZD 22
 [22] = PZD 23
 [23] = PZD 24
 [24] = PZD 25
 [25] = PZD 26
 [26] = PZD 27
 [27] = PZD 28
 [28] = PZD 29
 [29] = PZD 30
 [30] = PZD 31
 [31] = PZD 32

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 255: Not occupied

r2076[0...14] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15

Note:
 IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 255: Not occupied

r2076[0...7] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

A_INF, B_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8

Note:
 IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 255: Not occupied

r2076[0...18] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

SERVO, TM41

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:

[0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17
 [17] = PZD 18
 [18] = PZD 19

Note:

IF1: Interface 1

Value range:

0 - 242: Byte offset

255: Not occupied

r2076[0...31] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

VECTOR

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:

[0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17

[17] = PZD 18
 [18] = PZD 19
 [19] = PZD 20
 [20] = PZD 21
 [21] = PZD 22
 [22] = PZD 23
 [23] = PZD 24
 [24] = PZD 25
 [25] = PZD 26
 [26] = PZD 27
 [27] = PZD 28
 [28] = PZD 29
 [29] = PZD 30
 [30] = PZD 31
 [31] = PZD 32

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 255: Not occupied

r2076[0...4] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

TB30, TM15DI_DO, TM31	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 255: Not occupied

r2077[0...15] PROFIBUS diagnostics peer-to-peer data transfer addresses / PB diag peer addr

CU_CX32, CU_S	Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the addresses of the slaves (peers) where peer-to-peer data transfer has been configured via PROFIBUS.

p2079 PROFIdrive PZD telegram selection extended / PD PZD telegr ext			
p2079 CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 390	Max 999	Factory setting 999
Description:	<p>Sets the send and receive telegram.</p> <p>Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.</p> <p>For p0922 < 999 the following applies:</p> <p>p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.</p> <p>For p0922 = 999 the following applies:</p> <p>p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.</p> <p>For p0922 = 999 and p2079 < 999 the following applies:</p> <p>The interconnections contained in the telegram are inhibited. However, the telegram can be extended.</p>		
Values:	<p>390: SIEMENS telegram 390, PZD-2/2</p> <p>391: SIEMENS telegram 391, PZD-3/7</p> <p>392: SIEMENS telegram 392, PZD-3/15</p> <p>999: Free telegram configuration with BICO</p>		

p2079 PROFIdrive PZD telegram selection extended / PD PZD telegr ext			
p2079 A_INF, B_INF, S_INF	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 370	Max 999	Factory setting 999
Description:	<p>Sets the send and receive telegram.</p> <p>Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.</p> <p>For p0922 < 999 the following applies:</p> <p>p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.</p> <p>For p0922 = 999 the following applies:</p> <p>p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.</p> <p>For p0922 = 999 and p2079 < 999 the following applies:</p> <p>The interconnections contained in the telegram are inhibited. However, the telegram can be extended.</p>		
Values:	<p>370: SIEMENS telegram 370, PZD-1/1</p> <p>999: Free telegram configuration with BICO</p>		
Dependency:	Refer to: p0922		

p2079	PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
SERVO	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 1	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 999 Factory setting 999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.		
Values:	1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 3: Standard telegram 3, PZD-5/9 4: Standard telegram 4, PZD-6/14 5: Standard telegram 5, PZD-9/9 6: Standard telegram 6, PZD-10/14 102: SIEMENS telegram 102, PZD-6/10 103: SIEMENS telegram 103, PZD-7/15 105: SIEMENS telegram 105, PZD-10/10 106: SIEMENS telegram 106, PZD-11/15 116: SIEMENS telegram 116, PZD-11/19 999: Free telegram configuration with BICO		
Dependency:	Refer to: p0922		
p2079	PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 999	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 999 Factory setting 999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.		
Values:	999: Free telegram configuration with BICO		
Dependency:	Refer to: p0922		

p2079		PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Communications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 7	Max 999	Factory setting 999	
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.			
Values:	7: Standard telegram 7, PZD-2/2 9: Standard telegram 9, PZD-6/5 110: SIEMENS telegram 110, PZD-12/7 999: Free telegram configuration with BICO			
Dependency:	Refer to: p0922			

p2079		PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
VECTOR	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Communications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 1	Max 999	Factory setting 999	
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.			
Values:	1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 20: Standard telegram 20, PZD-2/6 352: SIEMENS telegram 352, PZD-6/6 999: Free telegram configuration with BICO			
Dependency:	Refer to: p0922			

p2079	PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
VECTOR (n/M)	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 1 Max 999 Factory setting 999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.		
Values:	1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 3: Standard telegram 3, PZD-5/9 4: Standard telegram 4, PZD-6/14 20: Standard telegram 20, PZD-2/6 352: SIEMENS telegram 352, PZD-6/6 999: Free telegram configuration with BICO		
Dependency:	Refer to: p0922		

p2079	PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
TM41	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 3 Max 999 Factory setting 999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.		
Values:	3: Standard telegram 3, PZD-5/9 999: Free telegram configuration with BICO		
Dependency:	Refer to: p0922		

p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1			
A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TB30, TM15DI_DO, TM31, TM41, VEC- TOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2472 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form status word 1.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p2088, r2089		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p2081[0...15] BI: Binector-connector converter status word 2 / Bin/con ZSW2			
A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TB30, TM15DI_DO, TM31, TM41, VEC- TOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2472 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form status word 2.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p2088, r2089		

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For clock synchronous operation, bit 12 to 15 to transfer the sign-of-life are reserved in status word 2 - and may not be freely interconnected.

p2082[0...15] BI: Binector-connector converter status word 3 / Bin/con ZSW3			
A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TB30, TM15DI_DO, TM31, TM41, VEC- TOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Selects bits to be sent to the PROFIBUS/PROFINET master.
The individual bits are combined to form free status word 3.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2083[0...15] BI: Binector-connector converter status word 4 / Bin/con ZSW4			
A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TB30, TM15DI_DO, TM31, TM41, VEC- TOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Selects bits to be sent to the PROFIBUS/PROFINET master.
The individual bits are combined to form free status word 4.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13

[14] = Bit 14

[15] = Bit 15

Dependency: Refer to: p2088, r2089

p2088[0...3] Invert binector-connector converter status word / Bin/con ZSW inv			
A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TB30, TM15DI_DO, TM31, TM41, VEC- TOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min

-

Max

-

Factory setting

0000 bin

Description: Setting to invert the individual binector inputs of the binector connector converter.

Index:

[0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: p2080, p2081, p2082, p2083, r2089

r2089[0...3] CO: Send binector-connector converter status word / Bin/con ZSW send			
A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TB30, TM15DI_DO, TM31, TM41, VEC- TOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Connector output to interconnect the status words to a PZD send word.

Index:

[0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-

07	Bit 7	On	Off	-
08	Bit 8	On	Off	-
09	Bit 9	On	Off	-
10	Bit 10	On	Off	-
11	Bit 11	On	Off	-
12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Dependency: Refer to: p2051, p2080, p2081, p2082, p2083

Note: r2089 together with p2080 to p2083 forms four binector-connector converters.

r2090.0...15 BO: IF1 PROFIBUS PZD1 receive bit-serial / IF1 PZD1 recv bitw

A_INF, B_INF,
CU_CX32, CU_S,
SERVO, S_INF,
TB30, TM15DI_DO,
TM31, TM41, VEC-
TOR

Can be changed: -

Data type: Unsigned16

P-Group: Communications

Not for motor type: -

Calculated: -

Dynamic index: -

Units group: -

Access level: 3

Func. diagram: 2460

Unit selection: -

Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIBUS master.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2091.0...15 BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 recv bitw

A_INF, B_INF,
CU_CX32, CU_S,
SERVO, S_INF,
TB30, TM15DI_DO,
TM31, TM41, VEC-
TOR

Can be changed: -

Data type: Unsigned16

P-Group: Communications

Not for motor type: -

Calculated: -

Dynamic index: -

Units group: -

Access level: 3

Func. diagram: 2460

Unit selection: -

Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIBUS master.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2092.0...15 BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw

SERVO, TM41, VEC-
TOR

Can be changed: -	Calculated: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Func. diagram: 2460
P-Group: Communications	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	-

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIBUS master.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2093.0...15 BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw

SERVO, TM41, VEC-
TOR

Can be changed: -	Calculated: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Func. diagram: 2460
P-Group: Communications	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIBUS master.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2094.0...15 **BO: Connector-binector converter binector output / Con/bin outp**

A_INF, B_INF,
CU_CX32, CU_S,
SERVO, S_INF,
TB30, TM15DI_DO,
TM31, TM41, VEC-
TOR

Can be changed: -

Data type: Unsigned16

P-Group: Communications

Not for motor type: -

Calculated: -

Dynamic index: -

Units group: -

Access level: 3

Func. diagram: 2460

Unit selection: -

Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIBUS/PROFINET master .

The PZD is selected via p2099[0].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: p2099

r2095.0...15**BO: Connector-binector converter binector output / Con/bin outp**

A_INF, B_INF,
CU_CX32, CU_S,
SERVO, S_INF,
TB30, TM15DI_DO,
TM31, TM41, VEC-
TOR

Can be changed: -**Data type:** Unsigned16**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 2460**Unit selection:** -**Expert list:** 1**Min**

-

Max

-

Factory setting

-

Description:

Binector output for bit-serial interconnection of a PZD word received from the PROFIBUS/PROFINET master.
The PZD is selected via p2099[1].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	On	Off	-
01	Bit 1	On	Off	-
02	Bit 2	On	Off	-
03	Bit 3	On	Off	-
04	Bit 4	On	Off	-
05	Bit 5	On	Off	-
06	Bit 6	On	Off	-
07	Bit 7	On	Off	-
08	Bit 8	On	Off	-
09	Bit 9	On	Off	-
10	Bit 10	On	Off	-
11	Bit 11	On	Off	-
12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Dependency:

Refer to: p2099

p2098[0...1]**Inverter connector-binector converter binector output / Con/bin outp inv**

A_INF, B_INF,
CU_CX32, CU_S,
SERVO, S_INF,
TB30, TM15DI_DO,
TM31, TM41, VEC-
TOR

Can be changed: U, T**Data type:** Unsigned16**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 2460**Unit selection:** -**Expert list:** 1**Min**

-

Max

-

Factory setting

0000 bin

Description:

Setting to invert the individual binector outputs of the connector-binector converter.

Using p2098[0], the signals of CI: p2099[0] are influenced.

Using p2098[1], the signals of CI: p2099[1] are influenced.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Inverted	Not inverted	-
01	Bit 1	Inverted	Not inverted	-
02	Bit 2	Inverted	Not inverted	-
03	Bit 3	Inverted	Not inverted	-
04	Bit 4	Inverted	Not inverted	-
05	Bit 5	Inverted	Not inverted	-
06	Bit 6	Inverted	Not inverted	-
07	Bit 7	Inverted	Not inverted	-
08	Bit 8	Inverted	Not inverted	-
09	Bit 9	Inverted	Not inverted	-
10	Bit 10	Inverted	Not inverted	-
11	Bit 11	Inverted	Not inverted	-
12	Bit 12	Inverted	Not inverted	-

13	Bit 13	Inverted	Not inverted	-
14	Bit 14	Inverted	Not inverted	-
15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: r2094, r2095, p2099

p2099[0...1] CI: Connector-binector converter signal source / Con/bin S_src

A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TB30, TM15DI_DO, TM31, TM41, VEC-TOR

Can be changed: U, T **Calculated:** - **Access level:** 3
Data type: Unsigned32 / Integer16 **Dynamic index:** - **Func. diagram:** 2460
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the connector-binector converter.
A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: Refer to: r2094, r2095

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted.
p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters:
Connector input p2099[0] to binector output in r2094.0...15
Connector input p2099[1] to binector output in r2095.0...15

p2100[0...19] Setting the fault number for fault response / F_no F response

All objects

Can be changed: U, T **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 1750, 8075
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0	65535	[0] 0
		[1] 0
		[2] 0
		[3] 0
		[4] 0
		[5] 0
		[6] 0
		[7] 0
		[8] 0
		[9] 0
		[10] 0
		[11] 0
		[12] 0
		[13] 0
		[14] 0
		[15] 0
		[16] 0
		[17] 0
		[18] 0
		[19] 0

Description: Selects the faults for which the fault response should be changed

Dependency: The fault is selected and the required response is set under the same index.
Refer to: p2101

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:

- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

p2101[0...19] Setting the fault response / Fault response			
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	0	[0] 0
			[1] 0
			[2] 0
			[3] 0
			[4] 0
			[5] 0
			[6] 0
			[7] 0
			[8] 0
			[9] 0
			[10] 0
			[11] 0
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 0
			[17] 0
			[18] 0
			[19] 0
Description:	Sets the fault response for the selected fault.		
Values:	0: NONE		
Dependency:	The fault is selected and the required response is set under the same index.		

p2101[0...19] Setting the fault response / Fault response			
A_INF, B_INF, S_INF	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	2	[0] 0
			[1] 0
			[2] 0
			[3] 0
			[4] 0
			[5] 0
			[6] 0
			[7] 0
			[8] 0
			[9] 0
			[10] 0
			[11] 0
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 0
			[17] 0
			[18] 0
			[19] 0
Description: Sets the fault response for the selected fault.			
Values: 0: NONE			
1: OFF1			
2: OFF2			
Dependency: The fault is selected and the required response is set under the same index.			

p2101[0...19] Setting the fault response / Fault response

SERVO, TM41, VEC-TOR

Can be changed: U, T**Data type:** Integer16**P-Group:** Messages**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 1750, 8075**Unit selection:** -**Expert list:** 1**Min**

0

Max

7

Factory setting

[0] 0

[1] 0

[2] 0

[3] 0

[4] 0

[5] 0

[6] 0

[7] 0

[8] 0

[9] 0

[10] 0

[11] 0

[12] 0

[13] 0

[14] 0

[15] 0

[16] 0

[17] 0

[18] 0

[19] 0

Description: Sets the fault response for the selected fault.

Values:

- 0: NONE
- 1: OFF1
- 2: OFF2
- 3: OFF3
- 4: STOP1 (being developed)
- 5: STOP2
- 6: IASC / DC BRAKE
- 7: ENCODER (p0491)

Dependency: The fault is selected and the required response is set under the same index.
Refer to: p2100

Notice: It is not possible to re-parameterize the response to a specific fault for faults that are already present (queued).

Note:

OFF1:
Braking along the ramp-function generator down ramp followed by a pulse inhibit.

OFF2:
Internal/external pulse inhibit.

OFF3:
Braking along the OFF3 down ramp followed by a pulse inhibit.

STOP2:
n_set = 0

The fault response can only be changed for faults with the appropriate identification.

IASC / DC BRAKE:

- a) For synchronous motors (p0300 = 2xx, 4xx), an internal armature short-circuit is executed.
- b) For induction motors (p0300 = 1xx)

Example:
F12345 and fault response = NONE (OFF1, OFF2) --> The NONE fault response can be changed to either OFF1 or OFF2.

p2102	BI: Acknowledge all faults / Ackn all faults		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2546, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to acknowledge all faults at all drive objects of the drive system.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2103	BI: 1. Acknowledge faults / 1. Acknowledge		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the first signal source to acknowledge faults.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2103[0...n]	BI: 1. Acknowledge faults / 1. Acknowledge		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2441, 2442, 2443, 2448, 2475, 2546, 8060, 9220
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the first signal source to acknowledge faults.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2104	BI: 2. Acknowledge faults / 2. Acknowledge		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the second signal source to acknowledge faults.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		

p2104[0...n]	BI: 2. Acknowledge faults / 2. Acknowledge		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546, 8060 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the second signal source to acknowledge faults.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2105	BI: 3. Acknowledge faults / 3. Acknowledge		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the third signal source to acknowledge faults.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546, 8060 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the third signal source to acknowledge faults.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2106	BI: External fault 1 / External fault 1		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external fault 1.		
Dependency:	Refer to: F07860		
Note:	An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects.		

p2106[0...n]	BI: External fault 1 / External fault 1		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2546
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external fault 1.		
Dependency:	Refer to: F07860		
Note:	An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects.		

p2107	BI: External fault 2 / External fault 2		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external fault 2.		
Dependency:	Refer to: F07861		
Note:	An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects.		

p2107[0...n]	BI: External fault 2 / External fault 2		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2546
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external fault 2.		
Dependency:	Refer to: F07861		
Note:	An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects.		

p2108	BI: External fault 3 / External fault 3		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		

Dependency: Refer to: p3110, p3111, p3112

Refer to: F07862

Note: An external fault is triggered with a 1/0 signal.

If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108[0...n]	BI: External fault 3 / External fault 3		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2546
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated

- BI: p3111

- BI: p3112 negated

Dependency: Refer to: p3110, p3111, p3112

Refer to: F07862

Note: An external fault is triggered with a 1/0 signal.

If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

r2109[0...63]	Fault time removed in milliseconds / t_flt resolved ms		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault was removed.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the fault buffer and the assignment of the indices is shown in r0945.

r2110[0...63]	Alarm number / Alarm number		
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: This parameter is identical to r2122.

p2111 Alarm counter / Alarm counter			
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Number of alarms that have occurred after the last reset.		
Dependency:	When p2111 is set to 0, the following is initiated: - all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63]. - the alarm buffer [0...7] is deleted. Refer to: r2110, r2122, r2123, r2124, r2125		
Note:	The parameter is reset to 0 at POWER ON.		
p2112 BI: External alarm 1 / External alarm 1			
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external alarm 1.		
Dependency:	Refer to: A07850		
Note:	An external alarm is triggered with a 1/0 signal.		
p2112[0...n] BI: External alarm 1 / External alarm 1			
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2546
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external alarm 1.		
Dependency:	Refer to: A07850		
Note:	An external alarm is triggered with a 1/0 signal.		
r2114[0...1] System runtime / System runtime			
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the total system runtime for the drive unit. The time comprises r2114[0] (milliseconds) and r2114[1] (days). After r2114[0] has reached a value of 86.400.000 ms (24 hours) this value is reset and r2114[1] is incremented.		
Index:	[0] = Milliseconds [1] = Days		
Dependency:	Refer to: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146		

Note: The time in r2114 is used to display the fault and alarm times.
 When the electronics power supply is switched-out, the counter value is saved.
 After the drive unit is powered-up, the counter continues to run with the value that was saved the last time that the drive unit was powered-down.

p2116	BI: External alarm 2 / External alarm 2		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external alarm 2.		
Dependency:	Refer to: A07851		
Note:	An external alarm is triggered with a 1/0 signal.		
p2116[0...n]	BI: External alarm 2 / External alarm 2		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external alarm 2.		
Dependency:	Refer to: A07851		
Note:	An external alarm is triggered with a 1/0 signal.		
p2117	BI: External alarm 3 / External alarm 3		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external alarm 3.		
Dependency:	Refer to: A07852		
Note:	An external alarm is triggered with a 1/0 signal.		
p2117[0...n]	BI: External alarm 3 / External alarm 3		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external alarm 3.		
Dependency:	Refer to: A07852		
Note:	An external alarm is triggered with a 1/0 signal.		

p2118[0...19]	Sets the message number for message type. / Msg_no Msg_type		
All objects	Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 1750, 8075 Unit selection: - Expert list: 1 Factory setting 0
Description:	Selects faults or alarms for which the message type should be changed.		
Dependency:	Selects the fault or alarm selection and sets the required type of message realized under the same index. Refer to: p2119		
Notice:	It is not possible to re-parameterize the message type in the following cases: - if there is no existing message number. - if a message is present.		
p2119[0...19]	Setting the message type / Message type		
All objects	Can be changed: U, T Data type: Integer16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 1750, 8075 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the message type for the selected fault or alarm.		
Values:	1: Fault (F) 2: Alarm (A) 3: No message (N)		
Dependency:	Selects the fault or alarm selection and sets the required type of message realized under the same index. Refer to: p2118		
Notice:	It is not possible to re-parameterize the message type for the existing faults or alarms.		
Note:	The message type can only be changed for messages with the appropriate identification. Example: F12345(A) --> Fault F12345 can be changed to alarm A12345. In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.		
r2120	Sum of fault and alarm buffer changes / Sum buffer changed		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: 8065 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the sum of all of the fault and alarm buffer changes in the drive unit.		
Dependency:	Refer to: r0944, r2121		

r2121 Counter, alarm buffer changes / Alrm buff changed

All objects

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 8065**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

This counter is incremented every time the alarm buffer changes.

Dependency:Refer to: r2110, r2122, r2123, r2124, r2125

r2122[0...63] Alarm code / Alarm code

All objects

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 1750, 8065**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the number of alarms that have occurred.

Dependency:

Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146

Note:

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

Alarm buffer structure (general principle):

r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)

.

.

.

r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)

When the alarm buffer is full, the alarms that have gone are entered into the alarm history:

r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)

.

.

.

r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2123[0...63] Alarm time received in milliseconds / t_alarm recv ms

All objects

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 1750, 8065**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

- [ms]

- [ms]

- [ms]

Description:

Displays the system runtime in milliseconds when the alarm occurred.

Dependency:

Refer to: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146

Notice:

The time comprises r2145 (days) and r2123 (milliseconds).

Note:

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2124[0...63]	Alarm value / Alarm value		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays additional information about the active alarm (as integer number).		
Dependency:	Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122.		
r2125[0...63]	Alarm time removed in milliseconds / t_alarm res ms		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]
Description:	Displays the system runtime in milliseconds when the alarm was cleared.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146		
Notice:	The time comprises r2146 (days) and r2125 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122.		
p2126[0...19]	Setting fault number for acknowledge mode / Fault_no ackn_mode		
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	65535	0
Description:	Selects the faults for which the acknowledge mode is to be changed		
Dependency:	Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2127		
Notice:	It is not possible to re-parameterize the acknowledge mode of a fault in the following cases: - if there is no existing fault number. - the message type is not "fault" (F). - when a fault is present.		
p2127[0...19]	Sets acknowledgement mode / Acknowledge mode		
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	3	1
Description:	Sets the acknowledge mode for selected fault.		

Values:	1: Acknowledgement only using POWER ON 2: IMMEDIATE acknowledged after the fault cause has been removed 3: Acknowledgement only for PULSE INHIBIT
Dependency:	Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2126
Notice:	It is not possible to re-parameterize the acknowledge mode of a fault in the following cases: - if there is no existing fault number. - the message type is not "fault" (F). - when a fault is present.
Note:	The acknowledge mode can only be changed for faults with the appropriate identification. Example: F12345 and acknowledge mode = POWER ON (IMMEDIATELY) --> The acknowledge mode can be changed from POWER ON to IMMEDIATELY.

p2128[0...15] Selecting fault/alarm code for trigger / Message trigger

All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8070
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Selects faults or alarms which can be used as trigger.		
Dependency:	Refer to: r2129		

r2129.0...15	CO/BO: Trigger word for faults and alarms / Trigger word
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All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 8070
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting

Description: Trigger signal for the selected faults and alarms

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Trigger signal p2128[0]	On	Off	-
	01	Trigger signal p2128[1]	On	Off	-
	02	Trigger signal p2128[2]	On	Off	-
	03	Trigger signal p2128[3]	On	Off	-
	04	Trigger signal p2128[4]	On	Off	-
	05	Trigger signal p2128[5]	On	Off	-
	06	Trigger signal p2128[6]	On	Off	-
	07	Trigger signal p2128[7]	On	Off	-
	08	Trigger signal p2128[8]	On	Off	-
	09	Trigger signal p2128[9]	On	Off	-
	10	Trigger signal p2128[10]	On	Off	-
	11	Trigger signal p2128[11]	On	Off	-
	12	Trigger signal p2128[12]	On	Off	-
	13	Trigger signal p2128[13]	On	Off	-
	14	Trigger signal p2128[14]	On	Off	-
	15	Trigger signal p2128[15]	On	Off	-

Dependency: If one of the faults or alarms selected in p2128[n] occurs, then the particular bit of this binector output is set.
Refer to: p2128

Note: CO: r2129 = 0 --> None of the selected messages has occurred.
CO: r2129 > 0 --> At least one of the selected messages has occurred.

r2130[0...63]	Fault time received in days / t_fault recv days		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 8060 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the system runtime in days when the fault occurred.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136		
Notice:	The time comprises r2130 (days) and r0948 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		
r2131	CO: Actual fault code / Actual fault code		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 8060 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the code of the oldest active fault.		
Note:	0: No fault present.		
r2132	CO: Actual alarm code / Actual alarm code		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 8065 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the code of the last alarm that occurred.		
Note:	0: No alarm present.		
r2133[0...63]	Fault value for float values / Fault val float		
All objects	Can be changed: - Data type: Floating Point P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 8060 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays additional information about the fault that occurred for float values.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		

r2134[0...63] Alarm value for float values / Alarm value float

All objects

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** 8065**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays additional information about the active alarm for float values.

Dependency:

Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146

Note:

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2135.0...15 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, DMC20,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41,
TM54F_MA,
TM54F_SL**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 1530, 2548**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the second status word of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fault encoder 1	Yes	No	-
01	Fault encoder 2	Yes	No	-
02	Fault encoder 3	Yes	No	-
10	Fault transformer overtemperature	Yes	No	-
11	Alarm transformer overtemperature	Yes	No	-
12	Fault motor overtemperature	Yes	No	-
13	Fault thermal overload power unit	Yes	No	-
14	Alarm motor overtemperature	Yes	No	-
15	Alarm power unit thermal overload	Yes	No	-

r2135.0...15 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2

VECTOR

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 1530, 2548**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the second status word of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fault encoder 1	Yes	No	-
01	Fault encoder 2	Yes	No	-
02	Fault encoder 3	Yes	No	-
12	Fault motor overtemperature	Yes	No	-
13	Fault thermal overload power unit	Yes	No	-
14	Alarm motor overtemperature	Yes	No	-
15	Alarm power unit thermal overload	Yes	No	-

r2136[0...63] Fault time removed in days / t_flt resolv. days

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the system runtime in days when the fault was removed.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2138.7...15 CO/BO: Control word faults/alarms / STW fault/alarm

All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2546
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the control word of the faults and alarms.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	07	Acknowledge fault	Yes (0/1 edge)	No	-
	10	External alarm 1 (A07850)	No	Yes (1/0 edge)	-
	11	External alarm 2 (A07851)	No	Yes (1/0 edge)	-
	12	External alarm 3 (A07852)	No	Yes (1/0 edge)	-
	13	External fault 1 (F07860)	No	Yes (1/0 edge)	-
	14	External fault 2 (F07861)	No	Yes (1/0 edge)	-
	15	External fault 3 (F07862)	No	Yes (1/0 edge)	-

Dependency: Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2139.0...8 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1

All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2548
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the first status word of faults and alarms.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ackn. running	Yes	No	-
	03	Fault present	Yes	No	-
	05	Safety message present	Yes	No	-
	06	Internal message 1 present	Yes	No	-
	07	Alarm present	Yes	No	-
	08	Internal message 2 present	Yes	No	-

Note: Re bit 03, 05, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present"/"alarm present" has occurred, a change in the buffer was also detected (r0944, r9744, r2121).

p2140[0...n]	Hysteresis speed 2 / n_hysteresis 2		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 300.00 [RPM]	Factory setting 90.00 [RPM]
Description:	Sets the hysteresis speed (bandwidth) for the following signals: " n_act <= speed threshold value 2" (BO: r2197.1) " n_act > speed threshold value 2" (BO: r2197.2)		
Dependency:	Refer to: p2155, r2197		
p2140[0...n]	Hysteresis velocity 2 / v_hysteresis 2		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 10.00 [m/min]	Factory setting 0.90 [m/min]
Description:	Sets the hysteresis velocity (bandwidth) for the following signals: " n_act <= speed threshold value 2" (BO: r2197.1) " n_act > speed threshold value 2" (BO: r2197.2)		
Dependency:	Refer to: p2155, r2197		
p2141[0...n]	Speed threshold 1 / n_thresh val 1		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 5.00 [RPM]
Description:	Sets the speed threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).		
Dependency:	Refer to: p2142, r2199		
p2141[0...n]	Velocity threshold value 1 / v_thresh val 1		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 0.05 [m/min]
Description:	Sets the velocity threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).		
Dependency:	Refer to: p2142, r2199		

p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 300.00 [RPM]	Factory setting 2.00 [RPM]
Description:	Sets the hysteresis speed (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).		
Dependency:	Refer to: p2141, r2199		
p2142[0...n]	Hysteresis velocity 1 / v_hysteresis 1		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 10.00 [m/min]	Factory setting 0.02 [m/min]
Description:	Sets the hysteresis velocity (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).		
Dependency:	Refer to: p2141, r2199		
p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8012
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the negated enable (0 = enable) of the motor stall monitoring.		
Dependency:	Refer to: p2163, p2164, p2166, r2197, r2198 Refer to: F07900		
Note:	If the enable signal is connected to r2197.7 then the stall signal is suppressed if there is no speed setpoint - actual value deviation.		
r2145[0...63]	Alarm time received in days / t_alarm rcv days		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the system runtime in days when the alarm occurred.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146		
Notice:	The time comprises r2145 (days) and r2123 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		

r2146[0...63]	Alarm time removed in days / t_alarm res days		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the system runtime in days when the alarm was cleared.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145		
Notice:	The time comprises r2146 (days) and r2125 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		
p2147	Delete fault buffer of all drive objects / Del fault buffer		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: 8060
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description:	Is used to delete (clear) the fault buffer of all of the existing drive objects.		
Values:	0: Inactive 1: Start to delete the fault buffer of all drive objects		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136		
Note:	p2147 is automatically set to 0 after execution.		
p2148[0...n]	BI: Ramp-function generator active / HLG active		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the signal "ramp-function generator active" for the following signals/messages: "Speed setpoint - actual value deviation within tolerance t_on" (BO: r2199.4) "Ramp-up/ramp-down completed" (BO: r2199.5)		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The binector input is automatically pre-assigned to r1199.2. The following applies for SERVO: The pre-assignment is only made when the function module "setpoint channel" is activated (r0108.8 = 1).		
p2149[0...n]	Monitoring configuration / Monit config		
SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin
Description:	Configuration word for signals and monitoring functions.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable alarm A07903	Yes	No	8010
	01	Load monitoring only in the 1st quadrants	Yes	No	8010
	15	Automatic parameterization carried out (p0340 = 1, p3900 > 0)	Yes	No	-
Dependency:	Refer to: r2197 Refer to: A07903				
Note:	Re bit 00: Alarm A07903 is output when the bit is set with p2197.7 = 0 (n_set <> n_act). Re bit 01: When the bit is set, the load monitoring is only carried out in the 1st quadrant as a result of the positive characteristic parameters (p2182 ... p2190). Re bit 15: The bit indicates as to whether the automatic parameterization (p0340 = 1, p3900 > 0) for the parameters of the extended monitoring functions was carried out. If the bit is not set, e.g. when activating the configuration (refer to p0108.15), the parameterization is automatically carried out when booting even if r3925.0 is already 1.				

p2149[0...n] Monitoring configuration / Monit config					
VECTOR	Can be changed: U, T		Calculated: -	Access level: 3	
	Data type: Unsigned16		Dynamic index: DDS, p0180	Func. diagram: 8010	
	P-Group: Messages		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min -		Max -		Factory setting 0001 bin
Description: Configuration word for signals and monitoring functions.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable alarm A07903	Yes	No	8010
	01	Load monitoring only in the 1st quadrants	Yes	No	8010
	15	Automatic parameterization carried out (p0340 = 1, p3900 > 0)	Yes	No	-
Dependency: Refer to: r2197 Refer to: A07903					
Note: Re bit 00: Alarm A07903 is output when the bit is set with p2197.7 = 0 (n_set <> n_act). Re bit 01: When the bit is set, the load monitoring is only carried out in the 1st quadrant as a result of the positive characteristic parameters (p2182 ... p2190). Re bit 15: The bit indicates as to whether the automatic parameterization (p0340 = 1, p3900 > 0) for the parameters of the extended monitoring functions was carried out. If the bit is not set, e.g. when activating the configuration (refer to p0108.15), the parameterization is automatically carried out when booting even if r3925.0 is already 1.					

p2150[0...n] Hysteresis speed 3 / n_hysteresis 3				
SERVO, VECTOR	Can be changed: U, T		Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point		Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages		Units group: 3_1	Unit selection: p0505
	Not for motor type: -			Expert list: 1
	Min 0.00 [RPM]	Max 300.00 [RPM]		Factory setting 2.00 [RPM]
Description:	Sets the hysteresis speed (bandwidth) for the following signals: "n_act < speed threshold value 3" (BO: r2199.0) "n_set >= 0" (BO: r2198.5) "n_act >= 0" (BO: r2197.3)			

Dependency: Refer to: p2161, r2197, r2199

p2150[0...n] Hysteresis velocity 3 / v_hysteresis 3

SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 3.00 [m/min]	Factory setting 0.02 [m/min]

Description: Sets the hysteresis velocity (bandwidth) for the following signals:

"|n_act| < speed threshold value 3" (BO: r2199.0)

"n_set >= 0" (BO: r2198.5)

"n_act >= 0" (BO: r2197.3)

Dependency: Refer to: p2161, r2197, r2199

p2151[0...n] CI: Speed setpoint for messages/signals / n_set for msg

SERVO	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1438[0]

Description: Sets the signal source for the speed setpoint for the following messages:

"Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7)

"Ramp-up/ramp-down completed" (BO: r2199.5)

"|n_set| < p2161" (BO: r2198.4)

"n_set > 0" (BO: r2198.5)

Dependency: Refer to: r2197, r2198, r2199

p2151[0...n] CI: Velocity setpoint for messages/signals / v_set for msg

SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1438[0]

Description: Sets the signal source for the velocity setpoint for the following messages:

"Velocity setpoint - actual value deviation within tolerance t_off" (BO: r2197.7)

"Ramp-up/ramp-down completed" (BO: r2199.5)

"|v_set| < p2161" (BO: r2198.4)

"v_set > 0" (BO: r2198.5)

Dependency: Refer to: r2197, r2198, r2199

p2151[0...n]	CI: Speed setpoint for messages/signals / n_set for msg		
VECTOR	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 8010 Unit selection: - Expert list: 1 Factory setting 1170[0]
Description:	Sets the signal source for the speed setpoint for the following messages: "Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7) "Ramp-up/ramp-down completed" (BO: r2199.5) " n_set < p2161" (BO: r2198.4) "n_set > 0" (BO: r2198.5)		
Dependency:	Refer to: r2197, r2198, r2199		
p2153[0...n]	Speed actual value filter time constant / n_act_filt T		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: - Min 0 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 1000000 [ms]	Access level: 3 Func. diagram: 8010 Unit selection: - Expert list: 1 Factory setting 0 [ms]
Description:	Sets the time constant of the PT1 element to smooth the speed / velocity actual value. The smoothed actual speed/velocity is compared with the threshold values and is only used for messages and signals.		
Dependency:	Refer to: r2169		
p2153[0...n]	Velocity actual value filter time constant / v_act_filt T		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: - Min 0 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 1000000 [ms]	Access level: 3 Func. diagram: 8010 Unit selection: - Expert list: 1 Factory setting 0 [ms]
Description:	Sets the time constant of the PT1 element to smooth the speed / velocity actual value. The smoothed actual speed/velocity is compared with the threshold values and is only used for messages and signals.		
Dependency:	Refer to: r2169		
p2154[0...n]	CI: Speed setpoint 2 / n_set 2		
SERVO, VECTOR	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 8010 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for speed setpoint 2. The sum of CI: p2151 and CI: p2154 is used for the following messages/signals: "Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7) "Speed setpoint - actual value deviation within tolerance t_on" (BO: r2199.4) "Ramp-up/ramp-down completed" (BO: r2199.5)		

Dependency: Refer to: p2151, r2197, r2199

p2154[0...n] CI: Velocity setpoint 2 / v_set 2

SERVO (Lin)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 8010 Unit selection: - Expert list: 1 Factory setting 0
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Description: Sets the signal source for the velocity setpoint 2.
 The sum of CI: p2151 and CI: p2154 is used for the following messages/signals:
 "Velocity setpoint - actual value deviation within tolerance t_off" (BO: r2197.7)
 "Velocity setpoint - actual value deviation within tolerance t_on" (BO: r2199.4)
 "Ramp-up/ramp-down completed" (BO: r2199.5)

Dependency: Refer to: p2151, r2197, r2199

p2155[0...n] Speed threshold 2 / n_thresh val 2

SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: - Min 0.00 [RPM]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1 Max 210000.00 [RPM]	Access level: 3 Func. diagram: 8010 Unit selection: p0505 Expert list: 1 Factory setting 900.00 [RPM]
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Description: Sets the speed threshold value for the following messages:
 "|n_act| <= speed threshold value 2" (BO: r2197.1)
 "|n_act| > speed threshold value 2" (BO: r2197.2)

Dependency: Refer to: p2140, r2197

p2155[0...n] Velocity threshold value 2 / v_thresh val 2

SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: - Min 0.00 [m/min]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 4_1 Max 1000.00 [m/min]	Access level: 3 Func. diagram: 8010 Unit selection: p0505 Expert list: 1 Factory setting 9.00 [m/min]
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Description: Sets the velocity threshold value for the following messages:
 "|v_act| <= velocity threshold value 2" (BO: r2197.1)
 "|v_act| > velocity threshold value 2" (BO: r2197.2)

Dependency: Refer to: p2140, r2197

p2156[0...n] On delay, comparison value reached / t_on cmp val rchd

SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: - Min 0.0 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 10000.0 [ms]	Access level: 2 Func. diagram: 8010 Unit selection: - Expert list: 1 Factory setting 0.0 [ms]
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Description: Sets the switch-in delay time for the signal "comparison value reached" (BO: r2199.1).

Dependency: Refer to: p2141, p2142, r2199

p2161[0...n]	Speed threshold 3 / n_thresh val 3		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 5.00 [RPM]
Description:	Sets the speed threshold value for the signal " n_act < speed threshold value 3" (BO: r2199.0).		
Dependency:	Refer to: p2150, r2199		
p2161[0...n]	Velocity threshold value 3 / v_thresh val 3		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 0.05 [m/min]
Description:	Sets the velocity threshold value for the signal " v_act < velocity threshold value 3" (BO: r2199.0).		
Dependency:	Refer to: p2150, r2199		
p2162[0...n]	Hysteresis speed n_act > n_max / Hyst n_act>n_max		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 60000.00 [RPM]	Factory setting 0.00 [RPM]
Description:	Sets the hysteresis speed (bandwidth) for the signal "n_act > n_max" (BO: r2197.6).		
Dependency:	Refer to: r1084, r1087, r2197		
Notice:	For p0322 = 0, the following applies: p2162 <= 0.1 * p0311 For p0322 > 0, the following applies: p1082 + p2162 <= 1.02 * p0322 If one of the conditions is violated, p2162 is appropriately and automatically reduced when exiting the commissioning mode.		
Note:	For a negative speed limit (r1087) the hysteresis is effective below the limit value and for a positive speed limit (r1084) above the limit value.		
p2162[0...n]	Hysteresis velocity v_act > v_max / Hyst v_act>v_max		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 6.00 [m/min]
Description:	Sets the hysteresis velocity (bandwidth) for the signal "v_act > v_max" (BO: r2197.6).		
Dependency:	Refer to: r1084, r1087, r2197		

Notice: For p0322 = 0, the following applies: $p2162 \leq 0.1 \cdot p0311$
 For p0322 > 0, the following applies: $p1082 + p2162 \leq 1.02 \cdot p0322$
 If one of the conditions is violated, p2162 is appropriately and automatically reduced when exiting the commissioning mode.

Note: For a negative velocity limit (r1087) the hysteresis is effective below the limit value and for a positive velocity limit (r1084) above the limit value.

p2163[0...n] Speed threshold 4 / n_thresh val 4			
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 90.00 [RPM]
Description:	Sets the speed threshold value for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
Dependency:	Refer to: p2164, p2166, r2197		
<hr/>			
p2163[0...n] Velocity threshold value 4 / v_thresh val 4			
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 0.90 [m/min]
Description:	Sets the velocity threshold value for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
Dependency:	Refer to: p2164, p2166, r2197		
<hr/>			
p2164[0...n] Hysteresis speed 4 / n_hysteresis 4			
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 200.00 [RPM]	Factory setting 2.00 [RPM]
Description:	Sets the hysteresis speed (bandwidth) for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
Dependency:	Refer to: p2163, p2166, r2197		
<hr/>			
p2164[0...n] Hysteresis velocity 4 / v_hysteresis 4			
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 10.00 [m/min]	Factory setting 0.02 [m/min]
Description:	Sets the hysteresis velocity (bandwidth) for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		

Dependency: Refer to: p2163, p2166, r2197

p2166[0...n]	Off delay $n_act = n_set / t_del_off\ n_i=n_so$		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 10000.0 [ms]	Factory setting 200.0 [ms]
Description:	Sets the power-off delay time for the "speed setpoint - actual value deviation in tolerance t_off " signal/message (BO: r2197.7).		
Dependency:	Refer to: p2163, p2164, r2197		

p2167[0...n]	Switch-on delay $n_act = n_set / t_on\ n_act=n_set$		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 10000.0 [ms]	Factory setting 200.0 [ms]
Description:	Sets the switch-in delay for the "speed setpoint - actual value deviation in tolerance t_on " signal/message (BO: r2199.4).		

r2169	CO: Speed actual value smoothed signals / n_act smth message		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1750, 8010, 8012, 8013
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the smoothed actual speed for messages/signals.		
Dependency:	Refer to: p2153		

r2169	CO: Velocity actual value, smoothed signals / v_act smth message		
SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1750, 8010, 8012, 8013
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the smoothed actual velocity for messages/signals.		
Dependency:	Refer to: p2153		

p2174[0...n]	Torque threshold value 1 / M_thresh val 1		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 5.13 [Nm]
Description:	Sets the torque threshold value for the signal "Torque setpoint < torque threshold value 1" (BO: r2198.10).		
Dependency:	Refer to: p2195, r2198		

p2174[0...n]	Force threshold value 1 / F_thresh val 1		
SERVO (Lin)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: 8_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [N]	Max 20000000.00 [N]	Factory setting 1000.00 [N]
Description:	Sets the force threshold value for the signal "Torque setpoint < torque threshold value 1" (BO: r2198.10).		
Dependency:	Refer to: p2195, r2198		

p2175[0...n]	Motor locked speed threshold / Mot lock n_thresh		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 120.00 [RPM]
Description:	Sets the speed threshold for the message "Motor locked" (BO: r2198.6).		
Dependency:	Refer to: p0500, p2177, r2198		

p2175[0...n]	Motor locked, velocity threshold / Mot lock v_thresh		
SERVO (Lin)	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 1.20 [m/min]
Description:	Sets the velocity threshold for the message "Motor locked" (BO: r2198.6).		
Dependency:	Refer to: p0500, p2177, r2198		

p2177[0...n]	Motor locked delay time / Mot lock t_del		
SERVO, VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 65.000 [s]	Factory setting 1.000 [s]
Description:	Sets the delay time for the message "Motor locked" (BO: r2198.6). If "Motor locked" is identified within this time, then ZSW2.6 is set and an appropriate fault is output.		
Dependency:	Refer to: p0500, p2175, r2198		
p2178[0...n]	Motor stalled delay time / Mot stall t_del		
VECTOR	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 10.000 [s]	Factory setting 0.010 [s]
Description:	Sets the delay time for the message "Motor stalled" (BO: r2198.7). If "Motor stalled" is identified within this time, then ZSW2.7 is set and an appropriate fault is output.		
Dependency:	Refer to: r2198		
p2181[0...n]	Load monitoring response / Load monit resp		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 6	Factory setting 0
Description:	Sets the response when evaluating the load monitoring.		
Values:	0: Load monitoring disabled 1: A07920 for torque/speed too low 2: A07921 for torque/speed too high 3: A07922 for torque/speed out of tolerance 4: F07923 for torque/speed too low 5: F07924 for torque/speed too high 6: F07925 for torque/speed out of tolerance		
Dependency:	Refer to: p2182, p2183, p2184, p2185, p2186, p2187, p2188, p2189, p2190, r2198 Refer to: A07920, A07921, A07922, F07923, F07924, F07925		
Note:	The response to the faults F07923 ... F07925 can be set.		

p2182[0...n]	Load monitoring speed threshold value 1 / n_thresh 1		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 8013 Unit selection: p0505 Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 150.00 [RPM]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_thresh 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_thresh 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_thresh 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2183, p2184, p2185, p2186 Refer to: A07926		

p2182[0...n]	Load monitoring velocity threshold 1 / n_thresh 1		
SERVO (Extended msg, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 4_1	Access level: 3 Func. diagram: 8013 Unit selection: p0505 Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 0.05 [m/min]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_thresh 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_thresh 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_thresh 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2183, p2184, p2185, p2186 Refer to: A07926		

p2183[0...n]	Load monitoring speed threshold value 2 / n_thresh 2		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 8013 Unit selection: p0505 Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 900.00 [RPM]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_thresh 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_thresh 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_thresh 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2182, p2184, p2187, p2188 Refer to: A07926		

p2183[0...n] Load monitoring velocity threshold 2 / n_thresh 2			
SERVO (Extended msg, Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 0.05 [m/min]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2182, p2184, p2187, p2188 Refer to: A07926		

p2184[0...n] Load monitoring speed threshold value 3 / n_thresh 3			
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 1500.00 [RPM]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2182, p2183, p2189, p2190 Refer to: A07926		

p2184[0...n] Load monitoring velocity threshold 3 / n_thresh 3			
SERVO (Extended msg, Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [m/min]	Max 1000.00 [m/min]	Factory setting 0.05 [m/min]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2182, p2183, p2189, p2190 Refer to: A07926		

p2185[0...n]	Load monitoring torque threshold 1, upper / M_thresh 1 upper		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 10000000.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2185 > p2186 Refer to: p2182, p2186 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		

p2185[0...n]	Load monitoring force threshold 1, upper / M_thresh 1 upper		
SERVO (Extended msg, Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 8_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [N]	Max 100000.00 [N]	Factory setting 100000.00 [N]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2185 > p2186 Refer to: p2182, p2186 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		

p2186[0...n]	Load monitoring torque threshold 1, lower / M_thresh 1 lower		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2186 < p2185 Refer to: p2182, p2185 Refer to: A07926		
Note:	The lower envelope curve is defined by p2186, p2188 and p2190.		

p2186[0...n]	Load monitoring force threshold 1, lower / M_thresh 1 lower		
SERVO (Extended msg, Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 8_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [N]	Max 100000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2186 < p2185 Refer to: p2182, p2185 Refer to: A07926		

Note: The lower envelope curve is defined by p2186, p2188 and p2190.

p2187[0...n]	Load monitoring torque threshold 2, upper / M_thresh 2 upper		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 10000000.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2187 > p2188 Refer to: p2183, p2188 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		

p2187[0...n]	Load monitoring force threshold 2, upper / M_thresh 2 upper		
SERVO (Extended msg, Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 8_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [N]	Max 100000.00 [N]	Factory setting 100000.00 [N]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2187 > p2188 Refer to: p2183, p2188 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		

p2188[0...n]	Load monitoring torque threshold 2, lower / M_thresh 2 lower		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2188 < p2187 Refer to: p2183, p2187 Refer to: A07926		
Note:	The lower envelope curve is defined by p2186, p2188 and p2190.		

p2188[0...n]	Load monitoring force threshold 2, lower / M_thresh 2 lower		
SERVO (Extended msg, Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 8_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [N]	Max 100000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		

Dependency: The following applies: p2188 < p2187
Refer to: p2183, p2187
Refer to: A07926

Note: The lower envelope curve is defined by p2186, p2188 and p2190.

p2189[0...n] Load monitoring torque threshold 3, upper / M_thresh 3 upper			
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 10000000.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2189 > p2190 Refer to: p2184, p2190 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		

p2189[0...n] Load monitoring force threshold 3, upper / M_thresh 3 upper			
SERVO (Extended msg, Lin)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 8_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [N]	Max 100000.00 [N]	Factory setting 100000.00 [N]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2189 > p2190 Refer to: p2184, p2190 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		

p2190[0...n] Load monitoring torque threshold 3, lower / M_thresh 3 lower			
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2190 < p2189 Refer to: p2184, p2189 Refer to: A07926		
Note:	The lower envelope curve is defined by p2186, p2188 and p2190.		

p2190[0...n]	Load monitoring force threshold 3, lower / M_thresh 3 lower		
SERVO (Extended msg, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 8_1	Access level: 3 Func. diagram: 8013 Unit selection: p0505 Expert list: 1
	Min 0.00 [N]	Max 100000.00 [N]	Factory setting 0.00 [N]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2190 < p2189 Refer to: p2184, p2189 Refer to: A07926		
Note:	The lower envelope curve is defined by p2186, p2188 and p2190.		
p2192[0...n]	Load monitoring delay time / Load monit t_del		
SERVO (Extended msg), VECTOR (Extended msg)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 8013 Unit selection: - Expert list: 1
	Min 0.00 [s]	Max 65.00 [s]	Factory setting 10.00 [s]
Description:	Sets the delay time to evaluate the load monitoring.		
p2194[0...n]	Torque threshold value 2 / M_thresh val 2		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 8012 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 90.00 [%]
Description:	Sets the torque/force threshold value for the signal "Torque utilization < torque threshold value 2" (BO: r2199.11). The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.		
Dependency:	Refer to: r0033, p2195, r2199		
p2194[0...n]	Force threshold value 2 / F_thresh val 2		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 8012 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 90.00 [%]
Description:	Sets the torque/force threshold value for the signal "Torque/force utilization < torque/force threshold value 2" (BO: r2199.11). The message "torque/force setpoint < p2174" (BO: r2198.10) and "torque/force utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.		
Dependency:	Refer to: r0033, p2195, r2199		

p2195[0...n] Torque utilization switch-off delay / M_util t_off

SERVO, VECTOR

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** 8012**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

0.0 [ms]

Max

1000.0 [ms]

Factory setting

800.0 [ms]

Description:

Sets the power-down delay time for the negated signal "run-up completed".

The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.

Dependency:

Refer to: p2174, p2194

p2195[0...n] Force utilization switch-off delay / F_util t_off

SERVO (Lin)

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** 8012**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

0.0 [ms]

Max

1000.0 [ms]

Factory setting

800.0 [ms]

Description:

Sets the power-down delay time for the negated signal "run-up completed".

The message "force setpoint < p2174" (BO: r2198.10) and "force utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.

Dependency:

Refer to: p2174, p2194

r2197.1...7 CO/BO: Status word monitoring 1 / ZSW monitor 1

SERVO, VECTOR

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 1530, 2534**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

-

Max

-

Factory setting

-

Description:

Displays the first status word for monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	n_act <= speed threshold value 2	Yes	No	8010
02	n_act > speed threshold value 2	Yes	No	8010
03	n_act >= 0	Yes	No	8010
06	n_act > n_max	Yes	No	8010
07	Speed setp - act val deviation in tolerance t_off	Yes	No	8010

Note:

Re bit 01, 02:

The threshold value is set in p2155 and the hysteresis in p2140.

Re bit 03:

The hysteresis is set in p2150.

Re bit 06:

The hysteresis is set in p2162.

Re bit 07:

The threshold value is set in p2163 and the hysteresis is set in p2164.

r2197.1...7 CO/BO: Status word monitoring 1 / ZSW monitor 1

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2534
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the first status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	v_act <= velocity threshold value 2"	Yes	No	8010
	02	v_act > velocity threshold value 2	Yes	No	8010
	03	n_act >= 0	Yes	No	8010
	06	n_act > n_max	Yes	No	8010
	07	Velocity setpoint - actual value deviation in tolerance t_off	Yes	No	8010

Note: Re bit 01, 02:
The threshold value is set in p2155 and the hysteresis in p2140.
Re bit 03:
The hysteresis is set in p2150.
Re bit 06:
The hysteresis is set in p2162.
Re bit 07:
The threshold value is set in p2163 and the hysteresis is set in p2164.

r2198.4...12 CO/BO: Status word monitoring 2 / ZSW monitor 2

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2536
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the second status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	n_set < p2161	Yes	No	8010
	05	n_set > 0	Yes	No	8010
	06	Motor locked	Yes	No	8012
	07	Motor stalled	Yes	No	8012
	10	Torque setpoint < torque threshold value 1	Yes	No	8012
	11	Load monitoring signals an alarm	Yes	No	8013
	12	Load monitoring signals a fault condition	Yes	No	8013

Note: Re bit 10:
The torque threshold value 1 is set in p2174.
Re bit 07:
For servo drives, bit 07 is not used and is always inactive.

r2198.4...12 CO/BO: Status word monitoring 2 / ZSW monitor 2

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2536
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the second status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	n_set < p2161	Yes	No	8010
	05	n_set > 0	Yes	No	8010
	06	Motor locked	Yes	No	8012
	07	Motor stalled	Yes	No	8012
	10	Force setpoint < force threshold value 1	Yes	No	8012
	11	Load monitoring signals an alarm	Yes	No	8013
	12	Load monitoring signals a fault condition	Yes	No	8013

Note: Re bit 10:
The force threshold value 1 is set in p2174.
Re bit 07:
For servo drives, bit 07 is not used and is always inactive.

r2199.0...11 CO/BO: Status word monitoring 3 / ZSW monitor 3

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2536
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the third status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	n_act < speed threshold value 3	Yes	No	8010
	01	f or n comparison value reached or exceeded	Yes	No	8010
	04	Speed setp - act val deviation in tolerance t_on	Yes	No	8010
	05	Ramp-up/ramp-down completed	Yes	No	8010
	06	Current below the zero current threshold	Yes	No	-
	11	Torque utilization < torque threshold value 2	Yes	No	8012

Note: Re bit 00:
The speed threshold value 3 is set in p2161.
Re bit 01:
The comparison value is set in p2141.
Re bit 11:
The torque threshold value 2 is set in p2194.

r2199.0...11 CO/BO: Status word monitoring 3 / ZSW monitor 3

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2536
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the third status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	v_act < velocity threshold value 3	Yes	No	8010
	01	f or v comparison value reached or exceeded	Yes	No	8010
	04	Velocity setpoint - actual value deviation in tolerance t_on	Yes	No	8010
	05	Ramp-up/ramp-down completed	Yes	No	8010
	06	Current below the zero current threshold	Yes	No	-
	11	Force utilization < force threshold value 2	Yes	No	8012

Note:

Re bit 00:
The velocity threshold value 3 is set in p2161.

Re bit 01:
The comparison value is set in p2141.

Re bit 11:
The force threshold value 2 is set in p2194.

p2200[0...n] BI: Technology controller enable / Tec_ctrl enable

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to switch-in/switch-out the technology controller.
The technology controller is switched-in with a 1 signal.

p2201[0...n] CO: Technology controller, fixed value 1 / Tec_ctrl fix val 1

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-200.00 [%]	200.00 [%]	10.00 [%]

Description: Sets the value for fixed value 1 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.

p2202[0...n] CO: Technology controller, fixed value 2 / Tec_ctrl fix val 2

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-200.00 [%]	200.00 [%]	20.00 [%]

Description: Sets the value for fixed value 2 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.

p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctrl fix val 3		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 30.00 [%]
Description:	Sets the value for fixed value 3 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctrl fix val 4		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 40.00 [%]
Description:	Sets the value for fixed value 4 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctrl fix val 5		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 50.00 [%]
Description:	Sets the value for fixed value 5 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctrl fix val 6		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 60.00 [%]
Description:	Sets the value for fixed value 6 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctrl fix val 7		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 70.00 [%]
Description:	Sets the value for fixed value 7 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctrl fix val 8		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 80.00 [%]
Description:	Sets the value for fixed value 8 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctrl fix val 9		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 90.00 [%]
Description:	Sets the value for fixed value 9 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctrl fix val10		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 100.00 [%]
Description:	Sets the value for fixed value 10 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctrl fix val11		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 110.00 [%]
Description:	Sets the value for fixed value 11 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctrl fix val12		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 120.00 [%]
Description:	Sets the value for fixed value 12 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctrl fix val13		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 130.00 [%]
Description:	Sets the value for fixed value 13 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctrl fix val14		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 140.00 [%]
Description:	Sets the value for fixed value 14 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		

p2215[0...n] CO: Technology controller, fixed value 15 / Tec_ctrl fix val15

SERVO (Tech_ctrl), VECTOR (Tech_ctrl) **Can be changed:** U, T **Calculated:** - **Access level:** 2
Data type: Floating Point **Dynamic index:** DDS, p0180 **Func. diagram:** 7950
P-Group: Technology **Units group:** 9_1 **Unit selection:** p0595
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
-200.00 [%] 200.00 [%] 150.00 [%]

Description: Sets the value for fixed value 15 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.

p2220[0...n] BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0

SERVO (Tech_ctrl), VECTOR (Tech_ctrl) **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Unsigned32 / Binary **Dynamic index:** CDS, p0170 **Func. diagram:** 7950
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
- - 0

Description: Sets the signal source to select the fixed value of the technology controller.

Dependency: Refer to: p2221, p2222, p2223

p2221[0...n] BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1

SERVO (Tech_ctrl), VECTOR (Tech_ctrl) **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Unsigned32 / Binary **Dynamic index:** CDS, p0170 **Func. diagram:** 7950
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
- - 0

Description: Sets the signal source to select the fixed value of the technology controller.

Dependency: Refer to: p2220, p2222, p2223

p2222[0...n] BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2

SERVO (Tech_ctrl), VECTOR (Tech_ctrl) **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Unsigned32 / Binary **Dynamic index:** CDS, p0170 **Func. diagram:** 7950
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
- - 0

Description: Sets the signal source to select the fixed value of the technology controller.

Dependency: Refer to: p2220, p2221, p2223

p2223[0...n] BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3

SERVO (Tech_ctrl), VECTOR (Tech_ctrl) **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Unsigned32 / Binary **Dynamic index:** CDS, p0170 **Func. diagram:** 7950
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
- - 0

Description: Sets the signal source to select the fixed value of the technology controller.

Dependency: Refer to: p2220, p2221, p2222

r2224	CO: Technology controller, fixed value effective / Tec_ctr FixVal eff				
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7950		
	P-Group: Technology	Units group: 9_1	Unit selection: p0595		
	Not for motor type: -		Expert list: 1		
	Min - [%]	Max - [%]	Factory setting - [%]		
Description:	Displays the selected and effective fixed value of the technology controller.				
Dependency:	Refer to: r2229				
r2229	Technology controller current number / Tec_ctrl No. act				
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 7950		
	P-Group: Technology	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the number of the selected fixed setpoint of the technology controller.				
Dependency:	Refer to: r2224				
p2230[0...n]	Technology controller motorized potentiometer configuration / Tec_ctr mop config				
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: 7954		
	P-Group: Technology	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 0110 bin		
Description:	Sets the configuration for the motorized potentiometer of the technology controller.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Data save active	Yes	No	-
	02	Initial rounding-off active	Yes	No	-
	03	Non-volatile data save active for p2230.0 = 1	Yes	No	-
Dependency:	Refer to: r2231, p2240				
Note:	Re bit 00: 0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p2240. 1: The setpoint for the motorized potentiometer is saved and after ON is entered using r2231. In order to save in a non-volatile fashion, bit 03 should be set to 1. Re bit 02: 0: Without initial rounding-off 1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed). The jerk for the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum value (p2237). It is calculated as follows: $r = 0.01 \% * p2237 [\%] / 0.13^2 [s^2]$. The jerk acts up until the maximum acceleration is reached ($a_{max} = p2237 [\%] / p2247 [s]$), and then the drive continues to run linearly with a constant rate of acceleration. The higher the maximum acceleration (the lower that p2247 is), the longer the ramp-up time increases with respect to the set ramp-up time. Re bit 03: 0: Non-volatile data save de-activated. 1: The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for p2230.0 = 1). The following prerequisites must be fulfilled in order to be able to save the setpoint in a non-volatile fashion: - Firmware with V2.3 or higher.				

- Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).

r2231	Technology controller motorized potentiometer setpoint memory / Tec_ctrl mop mem		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: - Data type: Floating Point P-Group: Technology Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: 9_1 Max - [%]	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1 Factory setting - [%]
Description:	Displays the setpoint memory for the motorized potentiometer of the technology controller. For p2230.0 = 1, the last setpoint that was saved is entered after ON.		
Dependency:	Refer to: p2230		
p2235[0...n]	BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 7954 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to increase the setpoint for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2236		
p2236[0...n]	BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 7954 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to reduce the setpoint for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2235		
p2237[0...n]	Technology controller motorized potentiometer maximum value / Tec_ctrl mop max		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Technology Not for motor type: - Min -200.00 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1 Max 200.00 [%]	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1 Factory setting 100.00 [%]
Description:	Sets the maximum value for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2238		

p2238[0...n]	Technology controller motorized potentiometer minimum value / Tec_ctrl mop min		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7954
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting -100.00 [%]
Description:	Sets the minimum value for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2237		
p2240[0...n]	Technology controller motorized potentiometer starting value / Tec_ctrl mop start		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7954
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 0.00 [%]
Description:	Sets the starting value for the motorized potentiometer of the technology controller. For p2230.0 = 0, this setpoint is entered after ON.		
Dependency:	Refer to: p2230		
r2245	CO: Technology controller mot. potentiometer setpoint before RFG / Tec_ctr mop befRFG		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7954
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator of the technology controller.		
Dependency:	Refer to: r2250		
p2247[0...n]	Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7954
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [s]	Max 1000.0 [s]	Factory setting 10.0 [s]
Description:	Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2248		
Note:	The time is referred to 100 %. When the initial rounding-off is activated (p2230.2 = 1) the ramp-up is correspondingly extended.		

p2248[0...n]	Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_rdown		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 7954 Unit selection: - Expert list: 1 Factory setting 10.0 [s]
Description:	Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2247		
Note:	The time is referred to 100 %. When the initial rounding-off is activated (p2230.2 = 1) the ramp-down is correspondingly extended.		
r2250	CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctr mop aftRFG		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: - Data type: Floating Point P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1 Factory setting - [%]
Description:	Displays the effective setpoint after the internal ramp-function generator for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: r2245		
p2253[0...n]	CI: Technology controller setpoint 1 / Tec_ctrl setp 1		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the setpoint 1 of the technology controller.		
Dependency:	Refer to: p2254, p2255		
p2254[0...n]	CI: Technology controller setpoint 2 / Tec_ctrl setp 2		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the setpoint 2 of the technology controller.		
Dependency:	Refer to: p2253, p2256		

p2255 Technology controller setpoint 1 scaling / Tec_ctrl set1 scal

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]
Description:	Sets the scaling for the setpoint 1 of the technology controller.		
Dependency:	Refer to: p2253		

p2256 Technology controller setpoint 2 scaling / Tec_ctrl set2 scal

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]
Description:	Sets the scaling for the setpoint 2 of the technology controller.		
Dependency:	Refer to: p2254		

p2257 Technology controller, ramp-up time / Tec_ctrl t_ramp-up

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [s]	Max 650.00 [s]	Factory setting 1.00 [s]
Description:	Sets the ramp-up time of the technology controller.		
Dependency:	Refer to: p2258		
Note:	The ramp-up time is referred to 100 %.		

p2258 Technology controller ramp-down time / Tec_ctrl t_ramp-dn

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [s]	Max 650.00 [s]	Factory setting 1.00 [s]
Description:	Sets the ramp-down time of the technology controller.		
Dependency:	Refer to: p2257		
Note:	The ramp-down time is referred to 100 %.		

r2260	CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: - Data type: Floating Point P-Group: Technology Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: 9_1 Max - [%]	Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting - [%]
Description:	Sets the setpoint after the ramp-function generator of the technology controller.		
p2261	Technology controller setpoint filter time constant / Tec_ctrl set T		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Technology Not for motor type: - Min 0.00 [s]	Calculated: - Dynamic index: - Units group: - Max 60.00 [s]	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0.00 [s]
Description:	Sets the time constant for the setpoint filter (PT1) of the technology controller.		
r2262	CO: Technology controller setpoint after filter / Tec_ctr set aftFlt		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: - Data type: Floating Point P-Group: Technology Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: 9_1 Max - [%]	Access level: 3 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting - [%]
Description:	Displays the smoothed setpoint after the setpoint filter (PT1) of the technology controller.		
p2263	Technology controller type / Tec_ctrl type		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: T Data type: Integer16 P-Group: Technology Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 1	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the technology controller type.		
Values:	0: D component in the actual value signal 1: D component in the fault signal		
p2264[0...n]	CI: Technology controller actual value / Tec_ctrl act val		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the actual value of the technology controller.		

p2265	Technology controller actual value filter time constant / Tec_ctrl act T		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [s]	Max 60.00 [s]	Factory setting 0.00 [s]
Description:	Sets the time constant for the actual value filter (PT1) of the technology controller.		
r2266	CO: Technology controller actual value after filter / Tec_ctr act aftFlt		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the smoothed actual value after the filter (PT1) of the technology controller		
r2273	CO: Technology controller error / Tec_ctrl error		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the error (system deviation) between the setpoint and actual value of the technology controller.		
Dependency:	Refer to: p2263		
p2274	Technology controller differentiation, time constant / Tec_ctrl T diff		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 60.000 [s]	Factory setting 0.000 [s]
Description:	Sets the time constant for the differentiation (D component) of the technology controller.		
Note:	p2274 = 0: Differentiation is disabled.		
p2280	Technology controller proportional gain / Tec_ctrl Kp		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000	Max 1000.000	Factory setting 1.000
Description:	Sets the proportional gain (P component) of the technology controller.		
Note:	p2280 = 0: The proportional gain is disabled.		

p2285	Technology controller integral time / Tec_ctrl Tn		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 60.000 [s]	Factory setting 0.000 [s]
Description:	Sets the integral time (I component, integrating time constant) of the technology controller.		
Note:	p2285 = 0: The integral time is disabled.		

p2289[0...n]	CI: Technology controller pre-control signal / Tec_ctrl prectrl		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the pre-control signal of the technology controller.		

p2291	CO: Technology controller maximum limiting / Tec_ctrl max_limit		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 100.00 [%]
Description:	Sets the maximum limit of the technology controller.		
Dependency:	Refer to: p2292		
Caution:	The maximum limit must always be greater than the minimum limit (p2291 > p2292).		



p2292	CO: Technology controller minimum limiting / Tec_ctrl min_lim		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 0.00 [%]
Description:	Sets the minimum limit of the technology controller.		
Dependency:	Refer to: p2291		
Caution:	The maximum limit must always be greater than the minimum limit (p2291 > p2292).		



p2293	Technology controller ramp-up/ramp-down time / Tec_ctrl ramp up/dn		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [s]	Max 100.00 [s]	Factory setting 1.00 [s]
Description:	Sets the ramp-up and ramp-down time for the maximum and minimum limiting (p2291 and p2292) of the technology controller.		
Dependency:	Refer to: p2291, p2292		
Note:	The ramp-up/ramp-down times are referred to 100 %.		
r2294	CO: Technology controller output signal / Tec_ctrl outp_sig		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the output signal of the technology controller.		
Dependency:	Refer to: p2295		
p2295	CO: Technology controller output scaling / Tec_ctrl outp_scal		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -100.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]
Description:	Sets the scaling for the output signal of the technology controller.		
p2296[0...n]	CI: Technology controller output scaling / Tec_ctrl outp_scal		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 2295[0]
Description:	Sets the signal source for the scaling value of the technology controller.		
Dependency:	Refer to: p2295		
p2297[0...n]	CI: Technology controller maximum limiting / Tec_ctrl max_limit		
SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 2291[0]
Description:	Sets the signal source for the maximum limiting of the technology controller.		
Dependency:	Refer to: p2291		

p2298[0...n] CI: Technology controller minimum limiting / Tec_ctrl min_lim

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2292[0]

Description: Sets the signal source for the minimum limiting of the technology controller.

Dependency: Refer to: p2292

r2349.0...3 CO/BO: Technology controller status word / Tec_ctrl stat word

SERVO (Tech_ctrl), VECTOR (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the technology controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Technology controller de-activated	Yes	No	-
	01	Technology controller limited	Yes	No	-
	02	Technology controller, motorized potentiometer limited max.	Yes	No	-
	03	Technology controller, motorized potentiometer limited min.	Yes	No	-

p2369 BI: Staging control word / Staging STW

VECTOR (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to select the "staging" function.

p2502[0...n] LR encoder assignment / Encoder assignment

SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: C2(25)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	3	1

Description: Sets the assigned encoder.

The actual value preprocessing and the closed-loop position control are carried out using the assigned encoder.

Values:	0: No encoder
	1: Encoder 1
	2: Encoder 2
	3: Encoder 3

Dependency: Refer to: p0187, p0188, p0189


Notice: For the setting p2502 = 0 (no encoder), closed-loop position control is not possible. This setting is only practical as supportive measure to implement sensorless closed-loop speed control (e.g. if the motor encoder is defective).

Note: The assigned encoder (p2502 = 1, 2, 3) must be allocated an encoder data set (p0187, p0188, p0189).

p2503[0...n]	LR length unit LU per 10 mm / LU per 10 mm		
SERVO (APC, Pos ctrl), VECTOR (Pos ctrl)	Can be changed: C2(25)	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [LU]	Max 2147483647 [LU]	Factory setting 10000 [LU]
Description:	Sets the neutral length units LU per 10 mm. Therefore, for a linear scale, a reference is established between the physical arrangement and the neutral length units LU used in the drive. Example: Linear scale, 10 mm should be broken down to units of μm (i.e. 1 LU = 1 μm). --> p2503 = 10000		
Note:	The assignment to the grid spacing can be achieved using this for a rotary axis with linear encoder.		

p2504[0...n]	LR motor/load motor revolutions / Mot/load motor rev		
SERVO (APC, Pos ctrl), VECTOR (Pos ctrl)	Can be changed: C2(25)	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: 4010, 4704, 4711
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 1048576	Factory setting 1
Description:	Sets the motor revolutions for the gearbox factor between the motor shaft and load shaft. Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)		
Dependency:	Refer to: p0432, p0433, p2505		
Note:	The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.		

p2505[0...n]	LR motor/load motor revolutions / Mot/load motor rev		
SERVO (APC, Pos ctrl), VECTOR (Pos ctrl)	Can be changed: C2(25)	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: DDS, p0180	Func. diagram: 4010, 4704, 4711
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1048576	Max 1048576	Factory setting 1
Description:	Sets the load revolutions for the gearbox factor between the motor shaft and load shaft. Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)		
Dependency:	Refer to: p0432, p0433, p2504		
Note:	The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.		


p2506[0...n] LR length unit LU per load revolution / LU per load rev			
SERVO (APC, Pos ctrl), VECTOR (Pos ctrl)	Can be changed: C2(25)	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [LU]	Max 2147483647 [LU]	Factory setting 10000 [LU]
Description:	Sets the neutral length units LU per load revolution. Therefore, for a rotary encoder, a reference is established between the physical arrangement and the neutral length units LU used in the drive. Example: Rotary encoder, ballscrew with 10 mm/revolution, 10 mm should be broken down to units of μm (i.e. 1 LU = 1 μm). --> One load revolution corresponds to 10000 LU --> p2506 = 10000		
Note:	The position controller can only process position setpoints in the interpolator clock cycle (IPO clock cycle) in integer length units (LU, Length Unit). This is the reason that speed setpoints that are not a multiple integer of 1 LU per IPO clock cycle can only be realized as an average. The result speed setpoint steps are especially noticeable for a high loop gain or when the pre-control is active. Increasing p2506 counteracts this behavior.		
p2507[0...n] LR absolute encoder adjustment status / Abs_enc_adj stat			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 3	Factory setting 1
Description:	Activating the adjustment and display of the status of the adjustment for absolute encoders.		
Values:	0: Error occurred while adjusting 1: Absolute encoder not adjusted 2: Absolute encoder not adjusted and encoder adjustment initiated 3: Absolute encoder adjusted		
Dependency:	Refer to: p2525, p2598, p2599		
	Caution:		
	For rotating absolute encoders, when adjusting, a range is set-up symmetrical around zero with half of the encoder range, within which, the position must be re-established after powering-down/powering-up. In this range, it is only permissible that the encoder overflows.		
	After the adjustment has been completed, it must be guaranteed that the range is not exited. The reason for this is that outside the range, there is no clear reference any longer between the encoder actual value and mechanical system.		
	If the reference point (CI: p2598) lies in this range, then the position actual value is set when adjusting to the reference point. Otherwise, adjustment is canceled with F7443.		
	There is no overflow for linear absolute encoders. This means that after the adjustment, the position can be re-established in the complete traversing range after powering-down/powering-up. When adjusting, the position actual value is set to the reference point.		
	In order to permanently accept the values, the offset of the encoder adjustment (p2525) must be saved in a non-volatile fashion (p0971, p0977).		
Note:	The encoder adjustment is initiated with p2507 = 2. The status is displayed using the other values. This adjustment can only be initiated for an absolute encoder.		



p2508[0...3]	BI: LR activate reference mark search / Ref_mark act		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the function "activate reference mark search".		
Index:	[0] = Cl.-loop pos ctrl [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p0490, p0495, p2502, p2509, r2684 Refer to: A07495		
Notice:	When activating the function "set position actual value" while the function "reference mark search" is activated, then the function "reference mark search" is automatically de-activated.		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2508[0] = r2684.0 The function can only be activated using a 0/1 signal if no reference function is active (refer to r2526.2). If "reference mark search" and "measuring probe evaluation" are simultaneously activated, then no function is activated and the actual function is interrupted.		

p2509[0...3]	BI: LR activating measuring probe evaluation / MT_eval act		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the function "activating the measuring probe evaluation". 0/1 signal: The function "activate measuring probe evaluation" is started.		
Index:	[0] = Cl.-loop pos ctrl [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p0488, p0489, p0490, p2502, p2508, p2510, p2511, p2517, p2518 Refer to: A07495		
Notice:	When the "set position actual value" is activated while the function "measuring probe evaluation" is activated, then the function "measuring probe evaluation" is automatically de-activated.		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2509[0] = r2684.1 The function can only be activated using a 0/1 signal if no reference function is active (refer to r2526.2). If "reference mark search" and "measuring probe evaluation" are simultaneously activated, then no function is activated and the actual function is interrupted.		

p2510[0...3]	BI: LR selecting measuring probe evaluation / MT_eval select		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3615, 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the measuring probe. 1 signal = measuring probe 2 is activated for BI: p2509 = 0/1 edge. 0 signal = measuring probe 1 is activated for BI: p2509 = 0/1 edge.		
Index:	[0] = Cl.-loop pos ctrl [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, p2509, p2511		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2509[0] = r2684.1 The measuring probe is selected at the 0/1 signal transition at r2684.1 (flying referencing active).		
p2511[0...3]	BI: LR measuring probe evaluation edge / MT_eval edge		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3615, 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the edge evaluation of the measuring probe. 1 signal = falling edge of the measuring probe (p2510) is activated for BI: p2509 = 0/1 edge. 0 signal = rising edge of the measuring probe (p2510) is activated for BI: p2509 = 0/1 edge.		
Index:	[0] = Cl.-loop pos ctrl [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, p2509, p2510		
p2512[0...3]	BI: LR pos. actual value preprocessing activate corr. value (edge) / ActVal_prepCorrAct		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4010, 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the function "activate position actual value preprocessing, corrective value (edge)". 0/1 signal: The corrective value available through CI: p2513 is activated.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, p2513, r2684		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2512[0] = r2684.7		

p2513[0...3]	CI: LR Position actual value preprocessing, corrective value / Act val_prep corr		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4010, 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the corrective value for position actual value preprocessing.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, p2512, r2521, r2685		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: CI: p2513[0] = r2685 For BI: p2512[0] = 0/1 signal, the position actual value (CO: r2521[0]) is corrected corresponding to the value via CI: p2513[0]. In so doing, the sign of the corrective value present is taken into account.		
p2514[0...3]	BI: LR activate position actual value setting / s_act setting act		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to activate the function "set position actual value".		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, p2515 Refer to: A07495, A07497		
Warning:	As long as the position actual value is set, encoder increments that are received are not evaluated. In this state, any position difference cannot be corrected!		
			
Notice:	When the function "set position actual value" is activated while the function "reference mark search" or "measuring probe evaluation" is activated, then the corresponding function is de-activated.		
Note:	BI: p2514 = 1 signal: The position actual value is set to the setting value in CI: p2515. Alarm A07497 "position setting value activated" is output. Encoder increments that are received in the meantime, are not taken into account. BI: p2514 = 1/0 signal: The position actual value preprocessing is activated and is based on the setting value.		
p2515[0...3]	CI: LR position actual setting, setting value / s_act set setVal		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the setting value of the function "setting position actual value".		

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Encoder 3

Dependency: Refer to: p2502, p2514

p2516[0...3] CI: LR position offset / Position offset

SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T Data type: Unsigned32 / Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4010 Unit selection: - Expert list: 1 Factory setting 0
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Description: Sets the signal source for the position offset.

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Encoder 3

Dependency: Refer to: p2502, r2667

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: CI: p2516[0] = r2667

p2517[0...2] LR direct measuring probe 1 / Direct MT 1

SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Integer16 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
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Description: Sets the input terminal for direct measuring probe 1.

The direct measuring probe can neither be parameterized as non-cyclic (value 1 ... 6) nor as cyclic (value 11 ... 16) measuring probe.

After it has been activated via BI: p2509 = 0/1 signal, the non-cyclic measuring probe measures once and can be used with EPOS.

After it has been activated via the p2509 = 1 signal, the cyclic measuring probe measures cyclically and cannot be used with EPOS.

In order to process signals faster, the direct measuring probe bypasses the handshake technique via the encoder control and status word.

Values:

0:	No meas probe
1:	DI/DO 9 (X122.8/X121.8)
2:	DI/DO 10 (X122.10/X121.10)
3:	DI/DO 11 (X122.11/X121.11)
4:	DI/DO 13 (X132.8)
5:	DI/DO 14 (X132.10)
6:	DI/DO 15 (X132.11)
11:	DI/DO 9 cyclic
12:	DI/DO 10 cyclic
13:	DI/DO 11 cyclic
14:	DI/DO 13 cyclic
15:	DI/DO 14 cyclic
16:	DI/DO 15 cyclic

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0490, p0728, p2509, p2510, p2511

- Notice:** To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).
- Note:** DI/DO: Bidirectional Digital Input/Output
The terminal must be set as input (p0728).
If parameter change is rejected, it should be checked as to whether the input terminal is not already being used in p0488, p0489, p0495, p0580 or p0680.
Direct measurement via p2517 has a higher priority than measurements via p0488.
For the direct measuring probe evaluation, the DP clock cycle must be integer multiple of the position controller clock cycle.

p2518[0...2]	LR direct measuring probe 2 / Direct MT 2		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 16	Factory setting 0
Description:	<p>Sets the input terminal for direct measuring probe 2.</p> <p>The direct measuring probe can neither be parameterized as non-cyclic (value 1 ... 6) nor as cyclic (value 11 ... 16) measuring probe.</p> <p>After it has been activated via BI: p2509 = 0/1 signal, the non-cyclic measuring probe measures once and can be used with EPOS.</p> <p>After it has been activated via the p2509 = 1 signal, the cyclic measuring probe measures cyclically and cannot be used with EPOS.</p> <p>In order to process signals faster, the direct measuring probe bypasses the handshake technique via the encoder control and status word.</p>		
Values:	<p>0: No meas probe</p> <p>1: DI/DO 9 (X122.8/X121.8)</p> <p>2: DI/DO 10 (X122.10/X121.10)</p> <p>3: DI/DO 11 (X122.11/X121.11)</p> <p>4: DI/DO 13 (X132.8)</p> <p>5: DI/DO 14 (X132.10)</p> <p>6: DI/DO 15 (X132.11)</p> <p>11: DI/DO 9 cyclic</p> <p>12: DI/DO 10 cyclic</p> <p>13: DI/DO 11 cyclic</p> <p>14: DI/DO 13 cyclic</p> <p>15: DI/DO 14 cyclic</p> <p>16: DI/DO 15 cyclic</p>		
Index:	<p>[0] = Encoder 1</p> <p>[1] = Encoder 2</p> <p>[2] = Encoder 3</p>		
Dependency:	Refer to: p0490, p0728, p2509, p2510, p2511		
Notice:	<p>To the terminal designation: The first designation is valid for CU320, the second for CU310. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).</p>		
Note:	<p>DI/DO: Bidirectional Digital Input/Output</p> <p>The terminal must be set as input (p0728).</p> <p>If parameter change is rejected, it should be checked as to whether the input terminal is not already being used in p0488, p0489, p0495, p0580 or p0680.</p> <p>Direct measurement via p2518 has a higher priority than measurements via p0489.</p>		

For the direct measuring probe evaluation, the DP clock cycle must be integer multiple of the position controller clock cycle.

p2519[0...n]	LR position actual value preprocessing config. DDS changeover / s_act config DDS				
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 4		
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: -		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 0	Max 5	Factory setting 1		
Description:	Sets the behavior of the position actual value preprocessing for the position controller for a DDS changeover. Re p2519 = 1: In the following cases, for a DDS changeover, the actual position actual value becomes invalid and the reference point is reset: - the EDS effective for the closed-loop position control changes. - the encoder assignment changes (p2502). - the mechanical relationships change (p2503 ... p2506). - the direction of rotation changes (p1821). For absolute encoders, the status of the adjustment (p2507) is also reset if the same absolute encoder remains selected for the closed-loop position control, but the mechanical relationships or the direction of rotation have changed. In the run state, in addition, a fault message (F07494) is generated.				
Notice:	The remaining setting values are intended for expanded functionality.				
Note:	The behavior for a DDS changeover is determined using the value of p2519 in the target data set.				
<hr/>					
r2520[0...2]	CO: LR Position actual value preprocessing, encoder control word / ActVal_prep STW				
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 4010		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the encoder control word generated by the position actual value preprocessing.				
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Request function 1	Yes	No	-
	01	Request function 2	Yes	No	-
	02	Request function 3	Yes	No	-
	03	Request function 4	Yes	No	-
	04	Request command bit 0	Yes	No	-
	05	Request command bit 1	Yes	No	-
	06	Request command bit 2	Yes	No	-
	07	Mode flying measurement / search for reference	Flying measurement	Reference marks	-
	13	Request absolute value cyclic	Yes	No	-
	14	Request parking encoder	Yes	No	-
	15	Request acknowledge encoder fault	Yes	No	-
Dependency:	Refer to: p0480				
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]				

r2521[0...3]	CO: LR position actual value / s_act		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the actual position actual value determined by the position actual value preprocessing.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, r2526		
Note:	r2526.0 = 1 --> The position actual value in r2521[0] for the position control is valid. r2527.0 = 1 --> The position actual value in r2521[1] for encoder 1 is valid. r2528.0 = 1 --> The position actual value in r2521[2] for encoder 2 is valid. r2529.0 = 1 --> The position actual value in r2521[3] for encoder 3 is valid.		
r2522[0...3]	CO: LR velocity actual value / v_act		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [1000 LU/min]	Max - [1000 LU/min]	Factory setting - [1000 LU/min]
Description:	Displays the velocity actual value determined by the position actual value preprocessing.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, r2526		
Note:	r2526.0 = 1 --> The velocity actual value in r2522[0] for the position control is valid. r2527.0 = 1 --> The velocity actual value in r2522[1] for encoder 1 is valid. r2528.0 = 1 --> The velocity actual value in r2522[2] for encoder 2 is valid. r2529.0 = 1 --> The velocity actual value in r2522[3] for encoder 3 is valid.		
r2523[0...3]	CO: LR measured value / Measured value		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the value determined by the function "reference mark search" and "measuring probe evaluation".		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Encoder 3		
Dependency:	Refer to: p2502, r2526		

Note: r2526.2 = 1 --> The measured value in r2523[0] for the position control is valid.
r2527.2 = 1 --> The measured value in r2523[1] for encoder 1 is valid.
r2528.2 = 1 --> The measured value in r2523[2] for encoder 2 is valid.
r2529.2 = 1 --> The measured value in r2523[3] for encoder 3 is valid.

r2524					
CO: LR LU/revolution / LU/revolution					
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -		Calculated: -		Access level: 1
	Data type: Floating Point		Dynamic index: -		Func. diagram: 4010, 4015
	P-Group: Closed loop position control		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min - [LU]		Max - [LU]		Factory setting - [LU]
Description:	Displays the internal length units LU/motor revolution.				
Dependency:	Refer to: p0404				

r2524					
CO: LR LU/mm / LU/mm					
SERVO (Lin, Pos ctrl)	Can be changed: -		Calculated: -		Access level: 1
	Data type: Floating Point		Dynamic index: -		Func. diagram: 4010, 4015
	P-Group: Closed loop position control		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min - [LU]		Max - [LU]		Factory setting - [LU]
Description:	Displays the internal length units LU/mm.				
Dependency:	Refer to: p0404				

p2525[0...n]					
CO: LR encoder adjustment, offset / Enc_adj offset					
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T		Calculated: -		Access level: 4
	Data type: Unsigned32		Dynamic index: EDS, p0140		Func. diagram: 4010
	P-Group: Closed loop position control		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min 0 [LU]		Max 4294967295 [LU]		Factory setting 0 [LU]
Description:	For the absolute encoder adjustment, a drive determines the position offset.				
Dependency:	Refer to: p0404				
Note:	The position offset is only relevant for absolute encoders. The drive determines it when making the adjustment and the user should not change it.				

r2526.0...9					
CO/BO: LR status word / ZSW					
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -		Calculated: -		Access level: 1
	Data type: Unsigned16		Dynamic index: -		Func. diagram: -
	P-Group: Closed loop position control		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min -		Max -		Factory setting -
Description:	Displays the status word of the position controller.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Pos act val valid	Yes	No	4010
	01	Referencing active	Yes	No	4010
	02	Meas val valid	Yes	No	3615, 4010
	03	Closed-loop position control active	Yes	No	4015
	04	Fixed stop reached	Yes	No	3617

05	Fixed stop outside window	Yes	No	3617
06	Position controller output limited	Yes	No	4015
07	Request tracking mode	Yes	No	-
08	Clamping active when traveling to fixed stop	Yes	No	-
09	Setting value for adjustment valid	Yes	No	-

Dependency: Refer to: r2521, r2522, r2523

Note: Re bit 04:
The signal is influenced via p2634.
Re bit 05:
The signal is influenced via p2635.

r2527.0...2 CO/BO: LR actual value sensing status word encoder 1 / ActValSensZSW enc1

SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the position actual value sensing for encoder 1.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Pos act val valid	Yes	No	-
	01	Referencing active	Yes	No	-
	02	Meas val valid	Yes	No	-

r2528.0...2 CO/BO: LR actual value sensing status word encoder 2 / ActValSensZSW enc2

SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the position actual value sensing for encoder 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Pos act val valid	Yes	No	-
	01	Referencing active	Yes	No	-
	02	Meas val valid	Yes	No	-

r2529.0...2 CO/BO: LR actual value sensing status word encoder 3 / ActValSensZSW enc3

SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the position actual value sensing for encoder 3.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Pos act val valid	Yes	No	-
	01	Referencing active	Yes	No	-
	02	Meas val valid	Yes	No	-

p2530			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	CI: LR position setpoint / s_set		
	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description: Sets the signal source for the position setpoint of the position controller.			
Dependency: Refer to: r2665			
Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2530 = r2665			
<hr/>			
p2531			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	CI: LR velocity setpoint / v_set		
	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description: Sets the signal source for the velocity setpoint of the position controller.			
Dependency: Refer to: r2666			
Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2531 = r2666			
<hr/>			
p2532			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	CI: LR position actual value / s_act		
	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2521[0]
Description: Sets the signal source for the position actual value of the position controller.			
Dependency: Refer to: r2521			
<hr/>			
p2533[0...n]			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	LR position setpoint filter, time constant / s_set_filt T		
	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00 [ms]	1000.00 [ms]	0.00 [ms]
Description: Sets the time constant for the position setpoint filter (PT1).			
Note: The effective Kv factor (position loop gain) is reduced with the filter. This allows a softer control behavior with improved tolerance with respect to noise/disturbances.			
Applications:			
- reduces the pre-control dynamic response.			
- jerk limiting.			

p2534[0...n]	LR speed pre-control factor / n_prectrl fact		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min 0.00 [%] Description: Setting to activate and weight the speed pre-control value. Value = 0 % --> The pre-control is de-activated. Dependency: Refer to: p2535, p2536, r2563 Note: When the axis control loop is optimally set as well as a precisely determined equivalent time constant of the speed control loop, the pre-control factor is 100%.	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 200.00 [%] Factory setting 0.00 [%]	Access level: 1 Func. diagram: 4015, 4025 Unit selection: - Expert list: 1
p2535[0...n]	LR speed pre-control balancing filter dead time / n_prectrl t_dead		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min 0.00 Description: Sets the "fractional" dead time to emulate the timing behavior of the speed control loop. The selected multiplier refers to the position controller clock cycle (deadtime= p2535 * p0115[4]). Dependency: Refer to: p0115, p2536 Notice: When speed pre-control is active (p2534 > 0 %), the following applies: In addition to the set dead time (p2535), internally two position controller clock cycles are effective. When speed pre-control is inactive (p2534 = 0 %), the following applies: No dead time is effective (p2535 and internal). Note: Together with p2536, the timing behavior of the closed-loop control loop can be emulated.	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2.00 Factory setting 0.00	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
p2536[0...n]	LR speed pre-control, symmetrizing filter PT1 / n_prectrl filt PT1		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min 0.00 [ms] Description: Sets a PT1 filter to emulate the timing behavior of the closed-speed control loop. Dependency: Refer to: p2535 Notice: When speed pre-control is inactive (p2534 = 0 %), the following applies: If a PT1 filter has been set, it is not effective. Note: Together with p2535, the timing behavior of the closed-loop control loop can be emulated.	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 100.00 [ms] Factory setting 0.00 [ms]	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
p2537	CI: LR position controller adaptation / Adaptation		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed loop position control Not for motor type: - Min - Description: Sets the signal source for the adaptation of the proportional gain of the position controller.	Calculated: - Dynamic index: - Units group: - Max - Factory setting 1	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1

Dependency: Refer to: p2538

p2538[0...n]	LR proportional gain / Kp		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [1000/min]	Max 300.000 [1000/min]	Factory setting 1.000 [1000/min]
Description:	Sets the proportional gain (P gain, position loop gain, Kv factor) of the position controller.		
Dependency:	Refer to: p2537, p2539, p2555, r2557, r2558		
Note:	The proportional gain is used define at which traversing velocity which following error is obtained (without pre-control)		
	Low proportional gain:		
	Slow response to a setpoint - actual value difference, the following error becomes large.		
	High proportional gain:		
	Fast response to the setpoint - actual value difference, the following error becomes small.		

p2539[0...n]	LR integral time / Tn		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 0.00 [ms]
Description:	Setting to activate the integral time of the position controller.		
	Value = 0 ms --> The I component of the position controller is de-activated.		
Dependency:	Refer to: p2538, r2559		

p2540	CO: LR position controller output, speed limit / LR_outp limit		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.000 [RPM]	Max 210000.000 [RPM]	Factory setting 210000.000 [RPM]
Description:	Sets the speed limit of the position controller output.		
Dependency:	Refer to: p2541		

p2540	CO: LR position controller output, velocity limit / LR_outp limit		
SERVO (Lin, Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.000 [m/min]	Max 1000.000 [m/min]	Factory setting 1000.000 [m/min]
Description:	Sets the velocity limit of the position controller output.		
Dependency:	Refer to: p2541		

p2541	CI: LR position controller output, speed limit signal source / LR_outp lim S_src		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 2540[0]
Description:	Sets the signal source for the position controller output limit.		
Dependency:	Refer to: p2540		
p2542	LR standstill window / Standstill window		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4020
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [LU]	Max 2147483647 [LU]	Factory setting 200 [LU]
Description:	Sets the standstill window for the standstill monitoring function. After the standstill monitoring time expires, it is cyclically checked as to whether the difference between the setpoint and actual position is located within the standstill window and if required an appropriate fault is output. Value = 0 --> The standstill monitoring is de-activated.		
Dependency:	Refer to: p2543, p2544 Refer to: F07450		
Note:	The following applies for the setting of the standstill and positioning window: Standstill window (p2542) >= positioning window (p2544)		
p2543	LR standstill monitoring time / t_standstill monit		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 4020
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 200.00 [ms]
Description:	Sets the standstill monitoring time for the standstill monitoring function. After the standstill monitoring time expires, it is cyclically checked as to whether the difference between the setpoint and actual position is located within the standstill window and if required, an appropriate fault is output.		
Dependency:	Refer to: p2542, p2545 Refer to: F07450		
Note:	The following applies for the setting of the standstill and positioning monitoring time: Standstill monitoring time (p2543) <= positioning monitoring time (p2545)		
p2544	LR positioning window / Pos_window		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4020
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [LU]	Max 2147483647 [LU]	Factory setting 40 [LU]
Description:	Sets the positioning window for the positioning monitoring function.		

After the positioning monitoring time expires, it is checked once as to whether the difference between the setpoint and actual position lies within the positioning window and if required an appropriate fault is output.

Value = 0 --> The positioning monitoring function is de-activated.

Dependency: Refer to: p2542, p2545, r2684

Refer to: F07451

Note: The following applies for the setting of the standstill and positioning window:

Standstill window (p2542) >= positioning window (p2544)

p2545 LR positioning monitoring time / t_pos_monit

SERVO (Pos ctrl),
VECTOR (Pos ctrl)

Can be changed: U, T

Calculated: -

Access level: 1

Data type: Floating Point

Dynamic index: -

Func. diagram: 4020

P-Group: Closed loop position control

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

0.00 [ms]

Max

100000.00 [ms]

Factory setting

1000.00 [ms]

Description: Sets the positioning monitoring time for the positioning monitoring.

After the positioning monitoring time expires, it is checked once as to whether the difference between the setpoint and actual position lies within the positioning window and if required an appropriate fault is output.

Dependency: Refer to: p2543, p2544, r2684

Refer to: F07451

Note: The following applies for the setting of the standstill and positioning monitoring time:

Standstill monitoring time (p2543) <= positioning monitoring time (p2545)

p2546[0...n] LR dynamic following error monitoring tolerance / s_delta_monit tol

SERVO (Pos ctrl),
VECTOR (Pos ctrl)

Can be changed: U, T

Calculated: -

Access level: 1

Data type: Unsigned32

Dynamic index: DDS, p0180

Func. diagram: 4025

P-Group: Closed loop position control

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

0 [LU]

Max

2147483647 [LU]

Factory setting

1000 [LU]

Description: Sets the tolerance for the dynamic following error monitoring.

If the dynamic following error (r2563) exceeds the selected tolerance, then an appropriate fault is output.

Value = 0 --> The dynamic following error monitoring is de-activated.

Dependency: Refer to: r2563, r2684

Refer to: F07452

Note: The tolerance bandwidth is intended to prevent the dynamic following error monitoring incorrectly responding due to operational control sequences (e.g. during load surges).

p2547 LR cam switching position 1 / Cam position 1

SERVO (Pos ctrl),
VECTOR (Pos ctrl)

Can be changed: U, T

Calculated: -

Access level: 1

Data type: Integer32

Dynamic index: -

Func. diagram: 4025

P-Group: Closed loop position control

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

-2147483648 [LU]

Max

2147483647 [LU]

Factory setting

0 [LU]

Description: Sets the cam switching position 1.


Dependency: Refer to: p2548, r2683

Caution: Only after the axis has been referenced can it be guaranteed that the cam switching signals when output have a "true" position reference.



Note: Position actual value <= cam switching position 1 --> r2683.8 = 1 signal

Position actual value > cam switching position 1 --> r2683.8 = 0 signal

p2548			
LR cam switching position 2 / Cam position 2			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4025
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147483648 [LU]	Max 2147483647 [LU]	Factory setting 0 [LU]
Description:	Sets the cam switching position 2.		
Dependency:	Refer to: p2547, r2683		
Caution:	Only after the axis has been referenced can it be guaranteed that the cam switching signals when output have a "true" position reference.		
			
Note:	Position actual value <= cam switching position 2 --> r2683.9 = 1 signal Position actual value > cam switching position 2 --> r2683.9 = 0 signal		
<hr/>			
p2549			
BI: LR enable 1 / Enable 1			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 899.2
Description:	Sets the signal source for enable 1 of the position controller.		
Dependency:	Refer to: r0899, p2550		
Note:	The position controller is enabled by ANDing BI: p2549 and BI: p2550.		
<hr/>			
p2550			
BI: LR enable 2 / Enable 2			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the position controller enable 2.		
Dependency:	Refer to: p2549		
Note:	The position controller is enabled by ANDing BI: p2549 and BI: p2550. When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2550 = 1		
<hr/>			
p2551			
BI: LR setpoint signal present / Sig s_set pres			
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4020
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the "setpoint present" signal. BI: p2551 = 1 signal: The end of the positioning operation on the setpoint side is signaled and the positioning and standstill monitoring activated.		

BI: p2551 = 0 signal:

The start of a positioning operation or tracking mode on the setpoint side is signaled and the positioning and standstill monitoring de-activated.

Dependency:

Refer to: p2554, r2683

Note:

When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2551 = r2683.2

p2552**BI: LR signal travel to fixed stop active / Signal TfS act**

SERVO (Pos ctrl),
VECTOR (Pos ctrl)

Can be changed: T

Calculated: -

Access level: 1

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: 4025

P-Group: Closed loop position control

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description:

Sets the signal source for the signal "travel to fixed stop active".

BI: p2552 = 1 signal:

The activity associated with travel to fixed stop is signaled and the detection of the fixed stop is started via the maximum following error (p2634).

Dependency:

Refer to: r2683

Note:

When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2552 = r2683.14

p2553**BI: LR signal fixed stop reached / Signal fixed stop**

SERVO (Pos ctrl),
VECTOR (Pos ctrl)

Can be changed: T

Calculated: -

Access level: 1

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: 4025

P-Group: Closed loop position control

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description:

Sets the signal source for the signal "fixed stop reached".

BI: p2553 = 1 signal:

When the fixed stop is reached, this is signaled and the fixed stop monitoring window is activated.

Dependency:

Refer to: r2683

Note:

When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2553 = r2683.12

p2554**BI: LR signal traversing command active / Sig trav_cmnd act**

SERVO (Pos ctrl),
VECTOR (Pos ctrl)

Can be changed: T

Calculated: -

Access level: 1

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: 4020

P-Group: Closed loop position control

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description:

Sets the signal source for the signal "traversing command active".

BI: p2554 = 1 signal:

It is signaled that positioning is active and therefore the positioning monitoring is not activated with the signal "setpoint present" (p2551).

Dependency:

Refer to: p2551, r2684

Note:

When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2554 = r2684.15

p2555	CI: LR LU/revolution LU/mm / LU/rev LU/mm		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed loop position control Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 4015 Unit selection: - Expert list: 1 Factory setting 2524[0]
Description:	Sets the signal source for the reference of the internal length units LU to motor revolution for rotary encoders and to mm for linear encoders.		
Dependency:	Refer to: p0404, r2524		
Note:	The signal value is used to convert the length unit to the speed or velocity setpoint.		
r2556	CO: LR position setpoint after setpoint smoothing / s_set after interp		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Integer32 P-Group: Closed loop position control Not for motor type: - Min - [LU]	Calculated: - Dynamic index: - Units group: - Max - [LU]	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1 Factory setting - [LU]
Description:	Displays the position setpoint after the setpoint smoothing.		
r2557	CO: LR position controller input, system deviation / LR_inp sys dev		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Integer32 P-Group: Closed loop position control Not for motor type: - Min - [LU]	Calculated: - Dynamic index: - Units group: - Max - [LU]	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1 Factory setting - [LU]
Description:	Displays the difference between the position setpoint and the position actual value at the position controller input.		
r2558	CO: LR position controller output, P component / LR_outp P comp		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the P component at the output of the position controller for the speed setpoint.		
r2558	CO: LR position controller output, P component / LR_outp P comp		
SERVO (Lin, Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the P component at the output of the position controller for the velocity setpoint.		

r2559	CO: LR position controller output, I component / LR_outp I comp		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the I component at the output of the position controller for the speed setpoint.		
r2559	CO: LR position controller output, I component / LR_outp I comp		
SERVO (Lin, Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the I component at the output of the position controller for the velocity setpoint.		
r2560	CO: LR speed setpoint / n_set		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed setpoint after limiting (CI: p2541).		
r2560	CO: LR velocity setpoint / v_set		
SERVO (Lin, Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity setpoint after limiting (CI: p2541).		
r2561	CO: LR speed pre-control value / n_prectrl val		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speed setpoint due to the pre-control.		

r2561	CO: LR velocity pre-control value / v_prectrl val		
SERVO (Lin, Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity setpoint due to the pre-control.		
r2562	CO: LR total speed setpoint / n_set total		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the total speed setpoint This value is obtained from the sum of the speed pre-control and position controller output.		
Dependency:	Refer to: r2560, r2561		
r2562	CO: LR velocity setpoint, total / v_set total		
SERVO (Lin, Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the total velocity setpoint. This value is obtained from the sum of the velocity pre-control and position controller output.		
Dependency:	Refer to: r2560, r2561		
r2563	CO: LR following error dynamic model / Follow error dyn		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: - Data type: Integer32 P-Group: Closed loop position control Not for motor type: - Min - [LU]	Calculated: - Dynamic index: - Units group: - Max - [LU]	Access level: 1 Func. diagram: 4025 Unit selection: - Expert list: 1 Factory setting - [LU]
Description:	Displays the dynamic following error. This value is the deviation, corrected by the velocity-dependent component, between the position setpoint and the position actual value.		
Note:	For p2534 >= 100 % (pre-control activated) the following applies: The dynamic following error (r2563) corresponds to the system deviation (r2557) at the position controller input. For 0 % < p2534 < 100 % (pre-control activated) or p2534 = 0 % (pre-control de-activated) the following applies: The dynamic following error (r2563) is the deviation between the measured position actual value and a value that is calculated from the position setpoint via a PT1 model. This compensates the system-related velocity-dependent system deviation for a P controller.		

r2564	CO: LR torque pre-control value / M_prectrl val		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque pre-control value.		
Dependency:	Refer to: p1511, p1512		
Note:	The torque pre-control value is the derivation over time of the speed pre-control value and is referred to a moment of inertia of 1 kgm ² /2 PI. When using the pre-control, then this should be evaluated corresponding to the actual moment of inertia.		
r2564	CO: LR force pre-control value / F_prectrl val		
SERVO (Lin, Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: 8_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [N]	Max - [N]	Factory setting - [N]
Description:	Displays the force pre-control value.		
Dependency:	Refer to: p1511, p1512		
Note:	The force pre-control value is the derivation over time of the velocity pre-control value and is referred to a high inertia mass of 1000.0 kg. When using the pre-control, then this should be evaluated corresponding to the actual mass.		
r2565	CO: LR actual following error / Following err act		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the actual following error.		
Notice:	<p>This value is the deviation between the position setpoint - after fine interpolation - and the position actual value.</p> <p>When speed pre-control is active (p2534 > 0 %), the following applies: To calculate this value, the position setpoint is delayed by two position controller clock cycles.</p> <p>When speed pre-control is inactive (p2534 = 0 %), the following applies: To calculate this value, the position setpoint is delayed by two position controller clock cycles.</p>		
r2566	LR speed input pre-control / n_inp_prectrl		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 4015
	P-Group: Closed loop position control	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the speed at the input of the pre-control channel.		
Note:	This display parameter is used for diagnostics even when the pre-control is inactive (p2534 = 0%).		

r2566	LR velocity input pre-control / v_inp_prectrl		
SERVO (Lin, Pos ctrl)	Can be changed: - Data type: Floating Point P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 4_1 Min - [m/min]	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocity at the input of the pre-control channel.		
Note:	This display parameter is used for diagnostics even when the pre-control is inactive (p2534 = 0%).		
p2567[0...n]	LR torque pre-control moment of inertia / M_prectr M_inertia		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 25_1 Min 0.000000 [kgm²]	Access level: 3 Func. diagram: 4015 Unit selection: p0100 Expert list: 1 Factory setting 0.159155 [kgm²]
Description:	Sets the moment of inertia for the torque pre-control.		
Dependency:	Refer to: p2534, r2564		
Note:	When calculating the torque pre-control value (r2654), the time derivation of the speed pre-control value is multiplied by 2 PI * p2567. For reasons associated with the compatibility to earlier firmware versions, the factory setting for p2567 = 1 kgm²/2 PI. This means that CO: r2564 remains as standard the derivation over time of the speed pre-control value and is referred, as before, to a moment of inertia of 1 kgm²/2 PI. For torque pre-control, the moment of inertia can now be directly entered into p2567 (instead of subsequently evaluating the pre-control value).		
p2567[0...n]	LR force pre-control mass / F_prectrl mass		
SERVO (Lin, Pos ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 27_1 Min 0.000000 [kg]	Access level: 3 Func. diagram: 4015 Unit selection: p0100 Expert list: 1 Factory setting 1.000000 [kg]
Description:	Sets the mass for the force pre-control.		
Dependency:	Refer to: p2534, r2564		
Note:	When calculating the force pre-control value (r2654), the derivation over time of the speed pre-control value is multiplied by p2567. For reasons associated with the compatibility to earlier software releases, the factory setting for p2567 = 1 kg. This means that CO: r2564 remains, as standard, the derivation over time of the velocity pre-control value and refers, as before, to a weight of 1 kg. For force pre-control, the mass can now be directly entered into p2567 (instead of subsequently evaluating the pre-control value).		
p2568	BI: EPOS STOP cam activation / STOP cam act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to activate the function "STOP cam".		

BI: p2568 = 1 signal

--> The evaluation of the STOP cam minus (BI: p2569) and STOP cam plus (BI: p2570) is active.

Dependency:

Refer to: p2569, p2570

Note:

The traversing range can also be limited using software limit switches.

p2569**BI: EPOS STOP cam minus / STOP cam minus**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: T

Calculated: -

Access level: 1

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: 3630

P-Group: Basic positioner

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

1

Description:

Sets the signal source for the STOP cam in the negative direction of travel.

Recommend.:

Set the OFF3 ramp-down time (p1135), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available.

Sets message 07491 as alarm (A07491):

Set the maximum deceleration (p2573), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available.

Dependency:

Refer to: p1135, p2568, p2570, p2573, r2684

Refer to: F07491

Caution:

The STOP cams are low active.

Sets message 07491 as fault (F07491):

For a 0 signal, the axis is stopped with the OFF3 ramp-down time (p1135), status signal r2684.13 is set to 1, saved and the appropriate fault is output. After the fault has been acknowledged, only motion moving away from the STOP cam is permitted.

For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.13 is set to 0.

Sets message 07491 as alarm (A07491):

For a 0 signal, the axis is stopped with the maximum deceleration (p2573), status signal r2684.13 is set to 1, saved and the appropriate alarm is output. Only motion away from the STOP cam is permitted.

For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.13 is set to 0 and the alarm is deleted.

p2570**BI: EPOS STOP cam plus / STOP cam plus**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: T

Calculated: -

Access level: 1

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: 3630

P-Group: Basic positioner

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

1

Description:

Sets the signal source for the STOP cam in the positive direction of travel.

Recommend.:

Set the OFF3 ramp-down time (p1135), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available.

Sets message 07492 as alarm (A07492):

Set the maximum deceleration (p2573), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available.

Dependency:

Refer to: p1135, p2568, p2569, p2573, r2684

Refer to: F07492

Caution:

The STOP cams are low active.

Sets message 07492 as fault (F07492):

For a 0 signal, the axis is stopped with the OFF3 ramp-down time (p1135), status signal r2684.14 is set to 1, saved and the appropriate fault is output. After the fault has been acknowledged, only motion moving away from the STOP cam is permitted.

For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.14 is set to 0.

Sets message 07492 as alarm (A07492):

For a 0 signal, the axis is stopped with the maximum deceleration (p2573), status signal r2684.14 is set to 1, saved and the appropriate alarm is output. Only motion away from the STOP cam is permitted.

For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.14 is set to 0 and the alarm is deleted.

p2571	EPOS maximum velocity / v_max		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 30000 [1000 LU/min]
Description:	Sets the maximum velocity for the function module "basic positioner" (r0108.4).		
Dependency:	Refer to: r1084, r1087, p2503, p2504, p2505, p2506		
Note:	The maximum velocity is active in all of the operating modes of the basic positioner. The maximum velocity for the basic positioner should be aligned with the maximum speed/velocity of the speed/velocity controller: Rotary encoders: $p2571[1000 \text{ LU/min}] = \min(r1084 , r1087)[1/\text{min}] \times p2505/p2504 \times p2506/1000$ Linear encoders: $p2571[1000 \text{ LU/min}] = \min(r1084 , r1087)[\text{m/min}] \times p2503/10[\text{m}]$		
p2572	EPOS maximum acceleration / a_max		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min 1 [1000 LU/s²]	Max 2000000 [1000 LU/s²]	Factory setting 100 [1000 LU/s²]
Description:	Sets the maximum acceleration for the function module "basic positioner" (r0108.4).		
Dependency:	Refer to: p2619, p2644		
Note:	The maximum acceleration appears to exhibit jumps (without jerk). "Traversing blocks" operating mode: The programmed acceleration override (p2619) acts on the maximum acceleration. "Direct setpoint input/MDI" mode: The acceleration override is effective (p2644, 4000 hex = 100 %). "Jog" and "search for reference" modes No acceleration override is active. The axis starts with the maximum acceleration.		
p2573	EPOS maximum deceleration / -a_max		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min 1 [1000 LU/s²]	Max 2000000 [1000 LU/s²]	Factory setting 100 [1000 LU/s²]
Description:	Sets the maximum deceleration for the function module "basic positioner" (r0108.4).		
Dependency:	Refer to: p2620, p2645		

Note: The maximum deceleration appears to exhibit jumps (without jerk).
 "Traversing blocks" operating mode:
 The programmed deceleration override (p2620) acts on the maximum deceleration.
 "Direct setpoint input/MDI" mode:
 The deceleration override is effective (p2645, 4000 hex = 100 %).
 "Jog" and "search for reference" modes
 No deceleration override is effective. The axis breaks with the maximum deceleration.

p2574	EPOS jerk limiting / Jerk lim		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1
	Min 1 [1000 LU/s ³]	Max 100000000 [1000 LU/s ³]	Factory setting 10000 [1000 LU/s ³]
Description:	Sets the jerk limiting		
Dependency:	Refer to: p2572, p2573, p2575		
Note:	The jerk limiting is internally converted into a jerk time as follows: $\text{Jerk time } T_r = \max(p2572, p2573) / p2574$ The jerk time is internally limited to 1000 ms and is rounded-off to an integer multiple of the sampling time positioning (p0115[5]). The jerk time is valid for the acceleration and deceleration phases also for unequal maximum acceleration (p2572) and maximum deceleration (p2573). For unequal maximum acceleration and maximum deceleration, the motion is not optimal from a time perspective as the jerk limit cannot be used for the lower of the two values. If, in the traversing profile, the acceleration time without jerk limiting is less than the jerk time T_r , then the motion with jerk limiting is not optimum from a time perspective. For traversing motion with a direct transition between acceleration and deceleration (i.e. jerk time is greater than the constant velocity phase), jerk can increase up to twice the parameterized jerk. CONTINUE_FLYING with direction reversal acts internally just like a CONTINUE_WITH_STOP without the "position reached" being set. Without jerk limiting, this behavior can hardly be noticed as, when reversing, the position setpoint is only kept at zero for one interpolator clock cycle. For block change enable CONTINUE_WITH_STOP, jerk limiting results in a longer delay time.		

p2575	BI: EPOS jerk limiting activation / Jerk limit act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to activate the jerk limiting. Activating/de-activating: - using BI: p2575 = 1 signal or 0 signal. - using the command JERK in the traversing block (only for BI: p2575 = 0 signal).		
Dependency:	Refer to: p2574		
Note:	A change of the signal state at the binector input is only accepted at zero speed.		

p2576	EPOS modulo correction, modulo range / Modulo corr range		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: - Min 1 [LU]	Calculated: - Dynamic index: - Units group: - Max 2147482647 [LU]	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting 360000 [LU]
Description:	Sets the modulo range for axes with modulo correction.		
Dependency:	Refer to: p2577		
p2577	BI: EPOS modulo correction activation / Modulo corr act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3630, 3635 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to activate modulo correction.		
Dependency:	Refer to: p2576		
Note:	When the signal state changes at the binector input, this only becomes effective in the "ready to power-up" state. Selecting modulo correction: The actual position setpoint in the modulo range is corrected. The position actual value differs from the position setpoint by the following error and can also leave the modulo range. De-selecting modulo correction: It is based on the actual position actual value.		
p2578	CI: EPOS software limit switch minus signal source / SW limSw Min S_src		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Integer32 P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1 Factory setting 2580[0]
Description:	Sets the signal source for the software limit switch minus.		
Dependency:	Refer to: p2579, p2580, p2581, p2582 Refer to: A07469, A07477, A07479, F07481		
Notice:	A change to the software limit switch becomes immediately effective.		
Note:	If the software limit switch is changed, then this results in the positions in the traversing blocks being checked. The following applies for the setting of the software limit switch: Software limit switch minus < software limit switch plus		
p2579	CI: EPOS software limit switch plus signal source / SW limSwPlus S_src		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Integer32 P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1 Factory setting 2581[0]
Description:	Sets the signal source for the software limit switch plus.		

Dependency:	Refer to: p2578, p2580, p2581, p2582 Refer to: A07470, A07478, A07480, F07482
Notice:	A change to the software limit switch becomes immediately effective. If the software limit switch is changed, then this results in the positions in the traversing blocks being checked.
Note:	The following applies for the setting of the software limit switch: Software limit switch minus < software limit switch plus

p2580	CO: EPOS software limit switch minus / SW limSwitch minus		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting -2147482648 [LU]
Description:	Sets the software limit switch in the negative direction of travel.		
Dependency:	Refer to: p2578, p2579, p2581, p2582		

p2581	CO: EPOS software limit switch plus / SW lim switch plus		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 2147482647 [LU]
Description:	Sets the software limit switch in the positive direction of travel.		
Dependency:	Refer to: p2578, p2579, p2580, p2582		

p2582	BI: EPOS software limit switch activation / SW lim sw act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to activate the "software limit switch".

Dependency: Refer to: p2578, p2579, p2580, p2581

Caution: Software limit switch effective:



- axis is referenced (r2684.11 = 1) and BI: p2582 = 1 signal.

Software limit switch ineffective:

- modulo correction active (BI: p2577 = 1 signal).

- search for reference is executed.

Notice: Target position for relative positioning outside software limit switch:

The traversing block is started and the axis comes to a standstill at the software limit switch. An appropriate alarm is output and the traversing block is interrupted. Traversing blocks with valid position can be activated.

Target position for absolute positioning outside software limit switch:

In the "traversing blocks" mode, the traversing block is not started and an appropriate fault is output.

Axis outside the valid traversing range:

If the axis is already outside the valid traversing range, then an appropriate fault is output. The fault can be acknowledged at standstill. Traversing blocks with valid position can be activated.

Note: The traversing range can also be limited using STOP cams.

p2583	EPOS backlash compensation / Backlash comp		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting 0 [LU]
Description:	Min -200000 [LU] Max 200000 [LU]		
	Sets the amount of play (backlash) for positive or negative play. 0: The backlash compensation is de-activated. >0: Positive backlash (normal case) When the direction is reversed, the encoder actual value leads the actual value. <0: Negative backlash When the direction is reversed, the actual value leads the encoder actual value.		
Dependency:	If a stationary axis is referenced by setting the reference point, or an adjusted with absolute encoder is powered-up, then the setting of p2604 is relevant for entering the compensation value. p2604 = 1: Traveling in the positive direction -> A compensation value is immediately entered. Traveling in the negative direction -> A compensation value is not entered p2604 = 0: Traveling in the positive direction -> A compensation value is not entered Traveling in the negative direction -> A compensation value is immediately entered. When again setting the reference point (a referenced axis) or for "flying referencing", p2604 is not relevant but instead the history of the axis. Refer to: p2604, r2667		
p2585	EPOS jog 1 setpoint velocity / Jog 1 v_set		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610 Unit selection: - Expert list: 1 Factory setting -300 [1000 LU/min]
Description:	Min -40000000 [1000 LU/min] Max 40000000 [1000 LU/min]		
Dependency:	Sets the setpoint velocity for jog 1. Refer to: p2587, p2589, p2591		
p2586	EPOS jog 2 setpoint velocity / Jog 2 v_set		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610 Unit selection: - Expert list: 1 Factory setting 300 [1000 LU/min]
Description:	Min -40000000 [1000 LU/min] Max 40000000 [1000 LU/min]		
Dependency:	Sets the setpoint velocity for jog 2. Refer to: p2588, p2590, p2591		

p2587	EPOS jog 1 traversing distance / Jog 1 distance		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610 Unit selection: - Expert list: 1 Factory setting 1000 [LU]
Description:	Sets the traversing distance for incremental jog 1.		
Dependency:	Refer to: p2585, p2589, p2591		
Note:	Incremental jog 1 is started with BI: p2591 = 1 signal and BI: p2589 = 0/1 signal. With BI: p2589 = 0 signal, incremental jog is interrupted.		
p2588	EPOS jog 2 traversing distance / Jog 2 distance		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610 Unit selection: - Expert list: 1 Factory setting 1000 [LU]
Description:	Sets the traversing distance for incremental jog 2.		
Dependency:	Refer to: p2586, p2590, p2591		
Note:	Incremental jog 2 is started with BI: p2591 = 1 signal and BI: p2590 = 0/1 signal. With BI: p2590 = 0 signal, incremental jogging is interrupted.		
p2589	BI: EPOS jog 1 signal source / Jog 1 S_src		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610, 3625 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for jog 1.		
Dependency:	When jogging, the axis is accelerated or braked with the maximum acceleration/deceleration (p2572/p2573). BI: p2591 = 0 signal The axis endlessly moves with the setpoint velocity, jog 1 (p2585). BI: p2591 = 1 signal The axis traverses through a parameterized distance (p2585) with the setpoint velocity, jog 1 (p2587). Refer to: p2572, p2573, p2585, p2587, p2591		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p2590	BI: EPOS jog 2 signal source / Jog 2 S_src		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610, 3625 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for jog 2.		

Dependency: When jogging, the axis is accelerated or braked with the maximum acceleration/deceleration (p2572/p2573).
 BI: p2591 = 0 signal
 The axis endlessly moves with the setpoint velocity, jog 2 (p2586).
 BI: p2591 = 1 signal
 The axis traverses through a parameterized distance (p2586) with the setpoint velocity, jog 2 (p2588).
 Refer to: p2572, p2573, p2586, p2588, p2591

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2591 **BI: EPOS jogging incremental / Jog incr**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: T	Calculated: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3610
P-Group: Basic positioner	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	0

Description: Sets the signal source for jogging incremental.

Dependency: Refer to: p2585, p2586, p2587, p2588, p2589, p2590

p2595 **BI: EPOS referencing start / Ref start**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: T	Calculated: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3612, 3625
P-Group: Basic positioner	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	0

Description: Sets the signal source to start the "search for reference" or "flying referencing".
 BI: p2595 = 0/1 signal
 Referencing is started.
 BI: p2595 = 1/0 signal
 Referencing is interrupted.

Dependency: Refer to: p2597, p2598, p2599, r2684

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Search for reference (BI: p2597 = 0 signal):
 The reference point approach can only be activated (0/1 edge) after traversing motion that is being processed has been completed.
 With the start, where relevant, the state signal "reference point set" (r2684.11) is reset.
 Flying referencing (BI: p2597 = 1 signal):
 With the start, the state signal "reference point set" (r2684.11) is not reset.

p2596 **BI: EPOS set reference point / Set ref_pt**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: T	Calculated: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3612
P-Group: Basic positioner	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the "set reference point".

Dependency: Refer to: p2598, p2599, r2684

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Reference point setting is effective in the following operating states:

- in the basic state.
- for FIXED STOP with progress condition END (corresponds to the initial state).
- for traversing block interrupted via BI: p2640 = 0 signal (intermediate stop).
- for EPOS not enabled (BI: p2656 = 0 signal) and position actual value valid (BI: p2658 = 1 signal).

p2597	BI: EPOS referencing type selection / Ref_typ select		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3612, 3614, 3625
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select referencing type. 1 signal: Flying referencing 0 signal: Search for reference		
Dependency:	Refer to: p2595		
Note:	Referencing is activated as follows: - Select the referencing type (BI: p2597) - Start referencing (BI: p2595 = 0/1 signal)		

p2598[0...3]	CI: EPOS reference point coordinate, signal source / Ref_pt coord S_src		
SERVO (EPOS, Pos ctrl), VECTOR (EPOS, Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3612
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	[0] 2599[0]
			[1] 0
			[2] 0
			[3] 0

Description: Sets the signal source for the reference point coordinate.
This value is used as reference for the following referencing operations:

- search for reference
- set reference point
- flying referencing
- absolute value adjustment

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Encoder 3

Dependency: Refer to: p2502, p2507, p2595, p2596, p2597, p2599


Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following applies:
Incremental measuring system:
After the reference point is reached, the drive accepts the actual axis position from the position received via the connector input CI: p2598[0].
Absolute encoder:
When adjusting the encoder, the position received via the connector input is set as the actual axis position. The position offset to the actual encoder value is displayed in p2525.

p2599	CO: EPOS reference point coordinate value / Ref_pt coord val		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the position value for the reference point coordinate. This value is set as the actual axis position after referencing or adjustment.		
Dependency:	Refer to: p2507, p2525, p2595, p2596, p2597, p2598		
p2600	EPOS search for reference, reference point offset / Ref_pt offset		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the reference point offset for search for reference.		
Dependency:	Refer to: p2598		
p2601	EPOS flying referencing, inner window / Inner window		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3614 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the inner window for flying referencing. Value = 0: The evaluation of the inner window is de-activated.		
Dependency:	Refer to: p2597, p2602, r2684		
Notice:	The inner window must be set so that it is smaller than the outer window.		
Note:	If the difference between the reference point coordinate and detected actual position is less than the inner window, then no correction is executed for a referenced axis. If the difference between the reference point coordinate and detected actual position is greater than the inner window and less than the outer window (p2602), then a correction is executed for a referenced axis.		
p2602	EPOS flying referencing, outer window / Outer window		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3614 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the outer window for flying referencing. Value = 0: The evaluation of the outer window is de-activated.		
Dependency:	Refer to: p2597, r2684 Refer to: A07489		

Notice: The inner window must be set so that it is smaller than the outer window.

Note: If the difference between the reference point coordinate and detected actual position is greater than the outer window, then no correction is executed for the referenced axis. Further, an appropriate message is output and r2684.3 is set to 1.

p2603	EPOS flying referencing, positioning mode, relative / Pos_mode relative		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the relative positioning mode for flying referencing. Value = 1: The corrected setpoint is not calculated into the traversing distance. Value = 0: The corrected setpoint is calculated into the traversing distance.		
Dependency:	Refer to: p2597, p2623, p2648		
Caution:	For p2603 = 0 the direction can change.		
p2604	BI: EPOS search for reference, start direction / Srch for ref dir		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal sources for the start direction of the search for reference. 1 signal: Start in the negative direction. 0 signal: Start in the positive direction.		
Dependency:	Refer to: p2583, p2595, p2597		
p2605	EPOS search for reference, approach velocity, reference cam / v_appr ref_cam		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1 Factory setting 5000 [1000 LU/min]
Description:	Sets the approach velocity to the reference cam for the search for reference.		
Dependency:	The search for reference only starts with the approach velocity to the reference cam when there is a reference cam (p2607 = 1). Refer to: p2595, p2597, p2604, p2606, p2607		
Note:	When traversing to the reference cam, the velocity override is effective. If, at the start of the search for reference, the axis is already at the reference cam, then the axis immediately starts to traverse to the zero mark.		

p2606	EPOS search for reference, reference cam, maximum distance / Ref_cam max s		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 2147482647 [LU]
Description:	Sets the maximum distance after the start of the search for reference when traversing to the reference cam.		
Dependency:	Refer to: p2595, p2597, p2604, p2605, p2607 Refer to: F07458		
Note:	When using a reversing cam, the maximum distance must be set appropriately long.		
p2607	EPOS search for reference, reference cam present / Ref_cam pres		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned8 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Sets whether or not a reference cam is present for the search for reference. Value = 1: Reference cam present. Value = 0: No reference cam present.		
Dependency:	Refer to: p2595, p2597, p2604, p2605, p2606		
p2608	EPOS search for reference, approach velocity, zero mark / v_appr ref_ZM		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 300 [1000 LU/min]
Description:	Sets the approach velocity after detecting the reference cam to search for the zero mark for the the search for reference.		
Dependency:	If there is no reference cam (p2607 = 0), the search for reference immediately starts with the axis traversing to the zero mark. Refer to: p2595, p2597, p2604, p2607, p2609, p2610		
Caution:	 If the reference cam is not adjusted so that at each search for reference the same zero mark for synchronization is detected, then an "incorrect" axis reference point is obtained. After the reference cam has been left, the search for the zero mark is activated with a time delay due to internal factors. This is the reason that the reference cam should be adjusted in this center between two zero marks and the approach velocity should be adapted to the distance between two zero marks.		
Note:	The velocity override is not effective when traversing to the zero mark.		
p2609	EPOS search for reference, max. distance ref. cam and zero mark / Max s ref_cam ZM		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 20000 [LU]
Description:	Sets the maximum distance after leaving the reference cam when traversing to the zero mark.		

Dependency: Refer to: p2595, p2597, p2604, p2607, p2608, p2610
Refer to: F07459

p2610	EPOS search for ref., tol. bandwidth for distance to zero mark / Tol_band to ZM		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 3612
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 2147482647 [LU]

Description: Sets the tolerance bandwidth for the distance to the zero mark
The zero mark is evaluated within the maximum distance between the reference cam and zero mark (p2609) minus the tolerance bandwidth for the distance to the zero mark (p2610).

Dependency: Refer to: p2609

p2611	EPOS search for reference, approach velocity, reference point / v_appr ref_pt		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 3612
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 300 [1000 LU/min]

Description: Sets the approach velocity after detecting the zero mark to approach the reference point.

Dependency: Refer to: p2595, p2597, p2604, p2607, p2609, p2610

Note: When traversing to the reference point, the velocity override is not effective.

p2612	BI: EPOS search for reference, reference cam / Ref_cam		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3612
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for the reference cam.

Dependency: Refer to: p2607

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2613	BI: EPOS search for reference reversing cam minus / Rev minus		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3612
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1

Description: Sets the signal source for the reversing cam in the negative direction of travel.

1 signal: Reversing cam not reached.

0 signal: Reversing cam reached.

Dependency: Refer to: p2614

Note: If, during the search for reference from the reversing cam minus and plus, a 0 signal is detected, then the axis remains stationary (at standstill).

p2614	BI: EPOS search for reference reversing cam plus / Rev plus		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the reversing cam in the negative direction of travel. 1 signal: Reversing cam not reached. 0 signal: Reversing cam reached.		
Dependency:	Refer to: p2613		
Note:	If, during the search for reference from the reversing cam minus and plus, a 0 signal is detected, then the axis remains stationary (at standstill).		
p2615	EPOS maximum number of traversing blocks / Trav_block qty max		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: C2(17) Data type: Unsigned8 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting 64
Description:	Sets the maximum number of traversing blocks that are available.		
Dependency:	Refer to: p2616, p2617, p2618, p2619, p2620, p2621, p2622, p2623, p2624		
p2616[0...n]	EPOS traversing block, block number / Trav_blk, blkNo.		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting -1
Description:	Sets a block number. -1: Invalid block number. These blocks are not taken into account. 0 ... 63: Valid block number.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2617, p2618, p2619, p2620, p2621, p2622, p2623, p2624		
p2617[0...n]	EPOS traversing block position / Trav_block pos		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting 0 [LU]
Description:	Sets the target position for the traversing block.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2618, p2619, p2620, p2621, p2622, p2623, p2624		
Note:	The target position is approached in either relative or absolute terms depending on p2623.		

p2618[0...n]	EPOS traversing block velocity / Trav_block v		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: p2615	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 600 [1000 LU/min]
Description:	Sets the velocity for the traversing block.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2617, p2619, p2620, p2621, p2622, p2623, p2624, p2646		
Note:	The velocity can be influenced using the velocity override (p2646).		
p2619[0...n]	EPOS traversing block acceleration override / Trav_block a_over		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: p2615	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.0 [%]	Max 100.0 [%]	Factory setting 100.0 [%]
Description:	Sets the acceleration override for the traversing block. The override refers to the maximum acceleration (p2572).		
Dependency:	The number of indices depends on p2615. Refer to: p2572, p2615, p2616, p2617, p2618, p2620, p2621, p2622, p2623, p2624		
p2620[0...n]	EPOS traversing deceleration override / Trav_block -a_over		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: p2615	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.0 [%]	Max 100.0 [%]	Factory setting 100.0 [%]
Description:	Sets the deceleration override for the traversing block. The override refers to the maximum deceleration (p2573).		
Dependency:	The number of indices depends on p2615. Refer to: p2573, p2615, p2616, p2617, p2618, p2619, p2621, p2622, p2623, p2624		
Notice:	If, when calculating the traversing profile, it is identified that the target position of the next block with the programmed deceleration override will not be reached without direction reversal (flying block change), then the old (current) deceleration override remains effective.		
p2621[0...n]	EPOS traversing block task / Trav_block task		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: p2615	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 9	Factory setting 1
Description:	Sets the required task for the traversing block.		
Values:	1: POSITIONING 2: FIXED STOP 3: ENDLESS_POS 4: ENDLESS_NEG		

5: WAITING
 6: GOTO
 7: SET_O
 8: RESET_O
 9: JERK

Dependency: The number of indices depends on p2615.
 Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2622, p2623, p2624

p2622[0...n] EPOS traversing block task parameter / Trav_blk task_par			
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: p2615	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147483648	Max 2147483647	Factory setting 0
Description:	Sets additional information/data of the appropriate task for the traversing block.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2621, p2623, p2624		
Note:	The following should be set depending on the task: FIXED STOP: Clamping torque and clamping force (rotary 0...65536 [0.01 Nm], linear 0...65536 [N]) WAIT: Delay time [ms] GOTO: Block number SET_O: 1, 2 or 3 - set direct output 1, 2 or 3 (both) RESET_O: 1, 2 or 3 - set direct output 1, 2 or 3 (both) JERK: 0 - de-activate, 1 - activate		

p2623[0...n] EPOS traversing block, task mode / Trav_block mode			
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: p2615	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the influence of the task for the traversing block. Value = 0000 cccc bbbb aaaa cccc: Positioning mode cccc = 0000 --> ABSOLUTE cccc = 0001 --> RELATIVE cccc = 0010 --> ABS_POS (only for a rotary axis with modulo correction) cccc = 0011 --> ABS_NEG (only for a rotary axis with modulo correction) bbbb: Progression condition bbbb = 0000 --> END bbbb = 0001 --> CONTINUE WITH STOP bbbb = 0010 --> CONTINUE FLYING bbbb = 0011 --> CONTINUE EXTERNAL bbbb = 0100 --> CONTINUE EXTERNAL WAIT bbbb = 0101 --> CONTINUE EXTERNAL ALARM aaaa: IDs aaaa = 0001 --> Skip block		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2621, p2622, p2624		

p2624	EPOS traversing block, sorting / Trav_block sort		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Unsigned16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the traversing blocks for sorting corresponding to their block number. p2624 = 0 --> 1: The sorting is started and the parameters are automatically reset to 0 after the sorting operation has been completed.		
Dependency:	Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2621, p2622, p2623		
Note:	After sorting, the traversing blocks are written at the beginning of the memory in increasing sequence without any gaps.		
p2625	BI: EPOS traversing block selection, bit 0 / Trav_blk sel bit 0		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 0.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2626, p2627, p2628, p2629, p2630		
p2626	BI: EPOS traversing block selection, bit 1 / Trav_blk sel bit 1		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 1.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2627, p2628, p2629, p2630		
p2627	BI: EPOS traversing block selection, bit 2 / Trav_blk sel bit 2		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 2.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2628, p2629, p2630		

p2628	BI: EPOS traversing block selection, bit 3 / Trav_blk sel bit 3		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 3.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2627, p2629, p2630		
p2629	BI: EPOS traversing block selection, bit 4 / Trav_blk sel bit 4		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 4.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2627, p2628, p2630		
p2630	BI: EPOS traversing block selection, bit 5 / Trav_blk sel bit 5		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 5.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2627, p2628, p2629		
p2631	BI: EPOS activate traversing task (0 -> 1) / Trav_task act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for "activating traversing task". BI: p2631 = 0/1 signal The traversing task, selected using BI: p2625 ... p2630, is started.		
Dependency:	Refer to: p2625, p2626, p2627, p2628, p2629, p2630, p2640, p2641		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: To start a traversing block, the axis must be referenced (r2684.11 = 1).
 The status signal r2684.12 = 0/1 signal is used for acknowledgement.
 A traversing task can be influenced using the following signals:
 - intermediate stop via BI: p2640.
 - reject traversing task via BI: p2641.

p2632	EPOS external block change evaluation / Ext BlckChg eval		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Integer16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3615 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the mode to evaluate "external block change".		
Values:	0: External block change via the measuring probe 1: External block change via BI: p2633		
Dependency:	Refer to: p2623, p2633, r2677, r2678		
Note:	In the mode "external block change via measuring probe (p2632 = 0), the following applies: When starting a traversing block with the block change enable CONTINUE_EXTERNAL, CONTINUE_EXTERNAL_WAIT and CONTINUE_EXTERNAL_ALARM an activated "flying referencing" is inter- rupted. After ending the block, "flying referencing" must be re-activated via BI: p2595 = 0/1 signal.		
p2633	BI: EPOS external block change (0 -> 1) / Ext BlckChg (0->1)		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3615, 3640 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for "external block change". BI: p2633 = 0/1 signal		
Dependency:	The evaluation of the signal is only active p2632 = 1. Refer to: p2623, p2632, p2640, p2641, r2677, r2678		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	A 0/1 edge initiates a flying block change in the subsequent traversing block. When the external block change is identified, the actual position is saved in r2678. A traversing task can be influenced using the following signals: - intermediate stop via BI: p2640. - reject traversing task via BI: p2641.		
p2634[0...n]	EPOS fixed stop maximum following error / Following err max		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 3617, 4025 Unit selection: - Expert list: 1 Factory setting 1000 [LU]
Description:	Sets the following error to detect the "fixed stop reached" state (r2526.4).		
Dependency:	Refer to: r2526, p2621, r2675		
Note:	The state "fixed stop reached" is detected if the following error exceeds the theoretically calculated following error value by p2634.		

p2635	EPOS fixed stop monitoring window / Fixed stop monit		
SERVO (Pos ctrl), VECTOR (Pos ctrl)	Can be changed: U, T Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3617, 4025 Unit selection: - Expert list: 1 Factory setting 100 [LU]
Description:	Sets the monitoring window of the actual position after the fixed stop is reached.		
Dependency:	Refer to: r2526, r2683 Refer to: F07484		
Note:	If, after the fixed stop is reached, the end stop shifts in either the positive or negative direction by more than the value set here, then BO: r2526.5 is set to 1 and an appropriate message is output.		
p2637	BI: EPOS fixed stop reached / Fixed stop reached		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616, 3617 Unit selection: - Expert list: 1 Factory setting 2526.4
Description:	Sets the signal source for the feedback signal "fixed stop reached". BI: p2637 = 1 signal Fixed stop is reached. BI: p2637 = 0 signal Fixed stop is not reached.		
Dependency:	Refer to: r2526, p2634		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The identification of "fixed stop reached" is, for the factory setting, dependent on the signal BO: r2526.4 (fixed stop reached). This signal is influenced via p2634 (EPOS fixed stop, maximum following error).		
p2638	BI: EPOS fixed stop outside the monitoring window / Fixed stop outside		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 3616, 3617 Unit selection: - Expert list: 1 Factory setting 2526.5
Description:	Sets the signal source for the feedback signal "fixed stop outside the monitoring window". BI: p2638 = 1 signal Fixed stop is located outside the monitoring window. BI: p2638 = 0 signal Fixed stop is inside the monitoring window.		
Dependency:	Refer to: r2526, p2635		
Note:	The identification of "fixed stop outside the monitoring window" is, for the factory setting, dependent on signal BO: r2526.5 (fixed stop outside window). This signal is influenced via p2635 (EPOS fixed stop monitoring window).		

p2639	BI: EPOS torque limit reached / M_limit reached		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1407.7
Description:	Sets the signal source for the feedback signal "torque limit reached" when traversing to fixed stop. BI: p2639 = 1 signal Torque limit is reached. BI: p2639 = 0 signal Torque limit is not reached.		
Dependency:	Refer to: r1407		
Note:	The feedback signal from "torque limit reached" is, for the factory setting, dependent on the signal BO: r1407.7 (torque limit reached).		
p2640	BI: EPOS intermediate stop (0 signal) / Intermediate stop		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3625
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the "no intermediate stop/intermediate stop". BI: p2640 = 1 signal No intermediate stop. BI: p2640 = 0 signal Intermediate stop.		
Dependency:	Refer to: p2631, p2641, p2647, p2649		
Caution:	For BI: p2649 = 1 signal, the following applies: Motion starts without any explicit control signal.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	This signal is only effective in the modes "traversing blocks" and "direct setpoint input/MDI". When activating the intermediate stop, the axis brakes with the parameterized deceleration (p2620 or p2645).		
p2641	BI: EPOS reject traversing task (0 signal) / Trav_task reject		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3625
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for "do not reject traversing task/reject traversing task". BI: p2641 = 1 signal Do not reject traversing task. BI: p2641 = 0 signal Reject traversing task.		
Dependency:	Refer to: p2631, p2640, p2647, p2649		
Caution:	For BI: p2649 = 1 signal, the following applies: Motion starts without any explicit control signal.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: This signal is only effective in the modes "traversing blocks" and "direct setpoint input/MDI".
When activating reject traversing tasks, then the axis brakes with the maximum deceleration (p2573).

p2642	CI: EPOS direct setpoint input/MDI position setpoint / MDI s_set		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2690[0]
Description:	Sets the signal source for the position setpoint in the mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2648, p2649, p2650, p2690		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Depending on p2649, the position setpoint is either transferred continuously or edge-triggered. The position setpoint input is interpreted as length unit [LU].		

p2643	CI: EPOS direct setpoint input/MDI velocity setpoint / MDI v_set		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2691[0]
Description:	Sets the signal source for the velocity setpoint in the "direct setpoint input/MDI mode".		
Dependency:	Refer to: p2649, p2650, p2691		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Depending on p2649, the velocity setpoint is either transferred continuously or edge-triggered. The velocity setpoint input is interpreted as [1000 LU/min].		

p2644	CI: EPOS direct setpoint input/MDI acceleration override / MDI a_over		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2692[0]
Description:	Sets the signal source for the acceleration override in the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2649, p2650, p2692		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Depending on p2649, the acceleration override is either transferred continuously or edge-triggered. The signal value 4000 hex (16384 dec) corresponds to 100 %.		

p2645	CI: EPOS direct setpoint input/MDI deceleration override / MDI -a_over		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2693[0]
Description:	Sets the signal source for the deceleration override in the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2649, p2650, p2693		

Notice: If, when calculating the traversing profile, it is identified that the target position with the programmed deceleration override cannot be reached without reversing the direction, then when accepting the dynamic values, the larger deceleration override is accepted and becomes effective.

The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Depending on p2649, the deceleration override is either transferred continuously or edge-triggered.
The signal value 4000 hex (16384 dec) corresponds to 100 %.

p2646	CI: EPOS velocity override / v_over		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the velocity override. This velocity override is effective in the following operating modes "direct setpoint input/MDI", "traversing blocks", "jogging" and "search for reference" (when approaching the reference cam).		
Dependency:	Refer to: p2571, p2585, p2586, p2605, p2618, p2643, r2681		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The effective override (r2681) can differ from the specified override due to limits (e.g. maximum velocity).		

p2647	BI: EPOS direct setpoint input/MDI selection / MDI selection		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3640
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for selecting the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2640, p2641, p2642, p2643, p2644, p2645, p2646, p2648, p2649, p2650, p2651, p2652, p2653		
Note:	In this mode, using BI: p2653 it is possible to make a flying changeover between setting-up and positioning. In this mode, even if the axis is not referenced (r2684.11 = 0) relative positioning is possible.		

p2648	BI: EPOS direct setpoint input/MDI positioning type / MDI pos_type		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the positioning type in the mode "direct setpoint input/MDI". BI: p2648 = 1 signal Absolute positioning is selected. BI: p2648 = 0 signal Relative positioning is selected.		
Dependency:	Refer to: p2649, p2650, p2654 Refer to: A07461, F07488		
Notice:	Absolute positioning: To traverse, the reference point must be set (r2684.11 = 1). Relative positioning: To traverse, it is not necessary that the reference point is set.		
Note:	Depending on p2649, the positioning type is either transferred continuously or edge-triggered.		

p2649	BI: EPOS direct setpoint input/MDI transfer type selection / MDI trans_type sel		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to define how values are transferred in the operating mode "direct setpoint input/MDI". BI: p2649 = 1 signal Values are continually transferred (refer to parameter under dependency). BI: p2649 = 0 signal The values are transferred for BI: p2650 = 0/1 signal.		
Dependency:	Refer to: p2642, p2643, p2644, p2645, p2648, p2650, p2651, p2652		
Caution:	For BI: p2649 = 1 signal, the following applies: Motion starts without any explicit control signal.		
Note:	p2649 can only be changed for p0922 (p2079) = 999.		
p2650	BI: EPOS direct setpoint input/MDI setpoint acceptance edge / MDI setp_accept		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to accept the values for edge-triggered selection (BI: p2649 = 0 signal) in the operating mode "direct setpoint input/MDI". BI: p2650 = 0/1 signal and BI: p2649 = 0 signal Values are accepted, edge-triggered (refer to parameter under dependency).		
Dependency:	Refer to: p2640, p2641, p2642, p2643, p2644, p2645, p2648, p2649, p2651, p2652, r2684		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The status signal r2684.12 = 0/1 signal is used for acknowledgement. The operating mode "direct setpoint input/MDI" can be influenced via the following signals: - intermediate stop via BI: p2640. - reject traversing task via BI: p2641.		
p2651	BI: EPOS direct setpoint input/MDI direction selection, positive / MDI dir_sel pos		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the positive direction selection in the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2576, p2648, p2649, p2650, p2652, p2653, p2654		
Note:	The following applies for "setting-up": - the traversing direction can be entered using this binector input. - if both directions (p2651, p2652) are selected, then the axis remains stationary (zero speed). - if both directions (p2561, p2652) are de-selected, then the axis remains stationary (zero speed). The following applies for "positioning": Using binector inputs p2651 and p2652, when the modulo correction (BI: p2576 = 1 signal) is activated and for absolute positioning (BI: p2648 = 1 signal), the traversing direction is specified as follows:		

BI: p2651 / BI: p2652
 0 signal / 0 signal: Absolute positioning through the shortest distance.
 1 signal / 0 signal: Absolute positioning in the positive direction.
 0 signal / 1 signal: Absolute positioning in the negative direction.
 1 signal / 1 signal: Absolute positioning through the shortest distance.

p2652	BI: EPOS direct setpoint input/MDI direction selection, negative / MDI dir_sel neg		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the negative direction selection in the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2576, p2648, p2649, p2650, p2651, p2653, p2654		
Note:	<p>The following applies for "setting-up":</p> <ul style="list-style-type: none"> - the traversing direction can be entered using this binector input. - if both directions (p2651, p2652) are selected, then the axis remains stationary (zero speed). - if both directions (p2561, p2652) are de-selected, then the axis remains stationary (zero speed). <p>The following applies for "positioning":</p> <p>Using binector inputs p2651 and p2652, when the modulo correction (BI: p2576 = 1 signal) is activated and for absolute positioning (BI: p2648 = 1 signal), the traversing direction is specified as follows:</p> <p>BI: p2651 / BI: p2652 0 signal / 0 signal: Absolute positioning through the shortest distance. 1 signal / 0 signal: Absolute positioning in the positive direction. 0 signal / 1 signal: Absolute positioning in the negative direction. 1 signal / 1 signal: Absolute positioning through the shortest distance.</p>		

p2653	BI: EPOS direct setpoint input/MDI setting-up selection / MDI setting-up sel		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	<p>Sets the signal source for setting-up in the operating mode "direct setpoint input/MDI".</p> <p>BI: p2653 = 1 signal Setting-up selected.</p> <p>BI: p2653 = 0 signal Positioning selected.</p>		
Dependency:	Refer to: p2651, p2652		
Note:	<p>In the operating mode "direct setpoint input/MDI", it is possible to make a flying changeover between setting-up and positioning.</p> <p>For "setting-up" (BI: p2653 = 1 signal) the following applies: - A traversing direction must be selected using BI: p2651, BI: p2652.</p>		

p2654	CI: EPOS direct setpoint input/MDI mode adaptation / MDI mode adapt		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Integer16 P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3620 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to interconnect the MDI mode to the operating mode "direct setpoint input MDI" via PROFIBUS telegram 110. CI: p2654 = 0 The binector inputs listed below are evaluated. CI: p2654 > 0 The following binector inputs are not evaluated: - BI: p2648 (positioning type) - BI: p2651 (direction selection, positive) - BI: p2652 (direction selection, negative) In this case, the following definitions apply: Signal via CI: p2654 = xx0x hex -> absolute Signal via CI: p2654 = xx1x hex -> relative Signal via CI: p2654 = xx2x hex -> abs_pos (only for modulo correction) Signal via CI: p2654 = xx3x hex -> abs_neg (only for modulo correction)		
Dependency:	Refer to: p2648, p2651, p2652		
p2655[0...1]	BI: EPOS select tracking mode / Sel tracking mode		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting [0] 1 [1] 2526.7
Description:	Sets the signal source to select tracking mode. BI: p2655[0] or BI: p2655[1] = 1 signal Tracking mode after withdrawing the enable signal from EPOS (BI: p2656 = 0 signal). BI: p2655[0] and BI: p2655[1] = 0 signal No tracking mode after withdrawing the enable signal from EPOS (BI: p2656 = 0 signal).		
Dependency:	Refer to: p2656		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For the following events, independent of the signal that is present, tracking mode is selected: - after booting. - after a 0/1 signal at BI: p2658 (EPOS position actual value, valid feedback signal). - while a fault is present.		

p2656	BI: EPOS enable basic positioner / EPOS enable		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting 2526.3
Description:	Sets the signal source to enable the basic positioner. BI: p2656 = 1 signal The basic positioner is enabled. BI: p2656 = 0 signal The basic positioner is not enabled.		
Dependency:	Refer to: r2526, p2655		
p2657	CI: EPOS position actual value/position setting value / Pos act/set value		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Integer32 P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting 2521[0]
Description:	Sets the signal source for the position actual value/position setting value.		
Dependency:	Refer to: r2521, p2658		
Note:	In the tracking mode, the position setpoint is taken from this connector input.		
p2658	BI: EPOS pos. actual value valid, feedback signal / Pos valid feedback		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting 2526.0
Description:	Sets the signal source for the feedback signal "position actual value is valid". BI: p2658 = 1 signal The position actual value received via CI: p2657 is valid. BI: p2658 = 0 signal The position actual value received via CI: p2657 is invalid.		
Dependency:	Refer to: r2526, p2657		
Note:	While a 0 signal is present, the position setpoint (p2665) is held at the value of 0.		

p2659	BI: EPOS referencing active feedback signal / Ref act fdbk		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3612 Unit selection: - Expert list: 1 Factory setting 2526.1
Description:	Sets the signal source for the feedback signal "referencing active". BI: p2659 = 1 signal Referencing is active. BI: p2659 = 0 signal Referencing is not active.		
Dependency:	Refer to: r2526		
p2660	CI: EPOS measured value referencing / Meas val ref		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Integer32 P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3612 Unit selection: - Expert list: 1 Factory setting 2523[0]
Description:	Sets the signal source for the measured value for the function "referencing".		
Dependency:	Refer to: r2523		
p2661	BI: EPOS measured value valid, feedback signal / MeasVal valid fdbk		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3612, 3615 Unit selection: - Expert list: 1 Factory setting 2526.2
Description:	Sets the signal source for the feedback signal "measured value valid". BI: p2661 = 1 signal The measured value received via CI: p2660 is valid. BI: p2661 = 0 signal The measured value received via CI: p2660 is invalid.		
Dependency:	Refer to: r2526, p2660		
p2662	BI: EPOS adjustment value valid feedback signal / Adj val valid FS		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 2526.9
Description:	Sets the signal source for the feedback signal "adjustment value valid". BI: p2662 = 1 signal The adjustment value received via CI: p2660 is valid. BI: p2662 = 0 signal The adjustment value received via CI: p2660 is not valid.		

Dependency: Refer to: r2526, p2660

p2663	BI: EPOS clamping active feedback signal / Clamping active FS		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 2526.8
Description:	Sets the signal source for the feedback signal "clamping active for travel to fixed stop". BI: p2663 = 1 signal Clamping is active BI: p2663 = 0 signal Clamping is not active.		
Dependency:	Refer to: r2526		
Note:	The feedback signal from "terminals active" is, for the factory setting, dependent on the signal BO: r2526.8 (terminals active when moving to a fixed stop).		

r2665	CO: EPOS position setpoint / s_set		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the actual absolute position setpoint.		
Dependency:	Refer to: p2530		
Note:	As standard, the following BICO interconnection is established: CI: p2530 = r2665		

r2666	CO: EPOS velocity setpoint / v_set		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [1000 LU/min]	Max - [1000 LU/min]	Factory setting - [1000 LU/min]
Description:	Displays the actual velocity setpoint.		
Dependency:	Refer to: p2531		
Note:	As standard, the following BICO interconnection is established: CI: p2531 = r2666		

r2667	CO: EPOS backlash compensation value / Backlash value		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the currently effective value for backlash compensation.		
Dependency:	Refer to: p2516		
Note:	As standard, the following BICO interconnection is established: CI: p2516 = r2667		

r2669	CO: EPOS actual operating mode / Op mode act			
SERVO (EPOS), VECTOR (EPOS)	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Integer32	Dynamic index: -	Func. diagram: 3625, 3630	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the actual, active operating mode. Value = 00 hex -> no operating mode active Value = 01 hex -> jogging active Value = 02 hex -> search for reference active Value = 04 hex -> traversing blocks active Value = 08 hex -> Positioning for direct setpoint input/MDI active Value = 10 hex -> Setting-up for direct setpoint input/MDI active Value = 20 hex -> flying referencing active			
Dependency:	Refer to: p2589, p2590, p2595, p2631, p2647, p2653			

r2670.0...15	CO/BO: EPOS status word, active traversing block / ZSW act trav_block				
SERVO (EPOS), VECTOR (EPOS)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 3615, 3625, 3650		
	P-Group: Basic positioner	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word for the active traversing block. r2670.0: Active traversing block, bit 0 ... r2670.5: Active traversing block, bit 5 r2670.15: MDI active				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Active traversing block, bit 0	Active	Not active	-
	01	Active traversing block, bit 1	Active	Not active	-
	02	Active traversing block, bit 2	Active	Not active	-
	03	Active traversing block, bit 3	Active	Not active	-
	04	Active traversing block, bit 4	Active	Not active	-
	05	Active traversing block, bit 5	Active	Not active	-
	15	MDI active	Active	Not active	-
Dependency:	Refer to: p2631, p2647				
Note:	Re bit 00 ... 05: Displays the active traversing block in the traversing blocks operating mode. Re bit 15: For a 1 signal, the operating mode - direct setpoint input/MDI - is active				

r2671	CO: EPOS actual position setpoint / s_set act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Integer32	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 3610, 3616, 3620
	P-Group: Basic positioner Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the position setpoint presently being processed.		
Note:	A position of zero is displayed for non position-related tasks (e.g. ENDLESS_POS, ENDLESS_NEG).		
r2672	CO: EPOS actual velocity setpoint / v_set act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Integer32	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 3610, 3612, 3616, 3620
	P-Group: Basic positioner Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [1000 LU/min]	Max - [1000 LU/min]	Factory setting - [1000 LU/min]
Description:	Displays the velocity setpoint presently being processed.		
r2673	CO: EPOS actual acceleration override / a_over act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Floating Point	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 3610, 3612, 3616, 3620
	P-Group: Basic positioner Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the acceleration override presently being processed.		
Note:	An override of 100% is effective in the "jogging" and "search for reference" operating modes.		
r2674	CO: EPOS actual deceleration override / -a_over act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Floating Point	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 3610, 3612, 3616, 3620
	P-Group: Basic positioner Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the deceleration override presently being processed.		
Note:	An override of 100% is effective in the "jogging" and "search for reference" operating modes.		

r2675	CO: EPOS actual task / Task act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Integer16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the task that is presently being processed.		
Values:	0: Inactive 1: POSITIONING 2: FIXED STOP 3: ENDLESS_POS 4: ENDLESS_NEG 5: WAITING 6: GOTO 7: SET_O 8: RESET_O 9: JERK		
Dependency:	Refer to: p2621		
r2676	CO: EPOS actual task parameter / Task para act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the task parameter presently being processed in the "traversing blocks" operating mode.		
Dependency:	Refer to: p2622		
Note:	The following is displayed depending on the task: FIXED STOP: Clamping torque (0 ... 65536 [0.01 Nm]) or clamping force (0 ... 65536 [N]) WAIT: Delay time [ms] GOTO: Block number SET_O: 1, 2, 3 --> direct output 1, 2 or 3 (both) is set RESET_O: 1, 2, 3 --> direct output 1, 2 or 3 (both) is set JERK: 0 --> deactivate, 1 --> activate		
r2677	CO: EPOS actual task mode / Task mode act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Unsigned16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the task mode presently being processed.		
Dependency:	Refer to: p2623		

r2678	CO: EPOS external block change / Ext BlckChg s_act		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: - Min - [LU]	Calculated: - Dynamic index: - Units group: - Max - [LU]	Access level: 1 Func. diagram: 3615, 3616, 3620 Unit selection: - Expert list: 1 Factory setting - [LU]
Description:	Displays the actual position for the following events: - external block change via measuring probe (p2632 = 0, BI: p2661 = 0/1 signal). - external block change via BI: p2633 (p2632 = 1, BI: p2633 = 0/1 signal). - activate traversing task (BI: p2631 = 0/1 signal).		
Dependency:	Refer to: p2631, p2632, p2633, p2661		
r2680	CO: EPOS clearance, reference cam and zero mark / Clearance cam/ZM		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: - Min - [LU]	Calculated: - Dynamic index: - Units group: - Max - [LU]	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1 Factory setting - [LU]
Description:	Displays the clearance determined between the reference cam and zero mark in the search for reference.		
r2681	CO: EPOS velocity override effective / v_over effective		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Floating Point P-Group: Basic positioner Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the currently effective velocity override.		
Dependency:	Refer to: p2571, p2646		
Note:	The effective override can differ from the specified override due to limits (e.g. p2571, maximum velocity).		
r2682	CO: EPOS residual distance to go / Residual distance		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: - Min - [LU]	Calculated: - Dynamic index: - Units group: - Max - [LU]	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1 Factory setting - [LU]
Description:	Displays the actual residual distance. The remaining distance is the distance to still to be moved through up to the end of the current positioning task.		
Dependency:	Refer to: r2665, r2671, r2678		

r2683.0...14 CO/BO: EPOS status word 1 / PosZSW1SERVO (Pos ctrl),
VECTOR (Pos ctrl)**Can be changed:** -**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 3645**P-Group:** Closed loop position control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description: Displays status word 1 for the basic positioner (EPOS).**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
00	Tracking mode active	Yes	No	3635
01	Velocity limiting active	Yes	No	3630
02	Setpoint available	Yes	No	3635
04	Axis moves forwards	Yes	No	3635
05	Axis moves backwards	Yes	No	3635
06	Software limit switch minus reached	Yes	No	3635
07	Software limit switch plus reached	Yes	No	3635
08	Position actual value <= cam switching position 1	Yes	No	4025
09	Position actual value <= cam switching position 2	Yes	No	4025
10	Direct output 1 via traversing block	Yes	No	3616
11	Direct output 2 via traversing block	Yes	No	3616
12	Fixed stop reached	Yes	No	3616, 3617
13	Fixed stop clamping torque reached	Yes	No	3616, 3617
14	Travel to fixed stop active	Yes	No	3616, 3617

Dependency: Refer to: r2684**Note:** Re bit 02, 04, 05, 06, 07:

This signals designate the state after jerk limiting.

Re bit 08, 09:

These signals are generated in the "closed-loop position control" function module.

r2684.0...15 CO/BO: EPOS status word 2 / PosZSW2SERVO (Pos ctrl),
VECTOR (Pos ctrl)**Can be changed:** -**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 3646**P-Group:** Closed loop position control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description: Displays status word 2 for the basic positioner (EPOS).**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
00	Search for reference active	Active	Not active	3612
01	Flying referencing active	Active	Not active	3614
02	Referencing active	Active	Not active	-
03	Printing mark outside outer window	Yes	No	3614
04	Axis accelerating	Yes	No	3635
05	Axis decelerating	Yes	No	3635
06	Jerk limiting active	Yes	No	-
07	Activate correction	Yes	No	3635
08	Following error in tolerance	Yes	No	-
09	Modulo correction active	Yes	No	-
10	Target position reached	Yes	No	4020
11	Reference point set	Yes	No	3612, 3614

12	Acknowledgement, traversing block activated	Yes	No	3616, 3620
13	STOP cam minus active	Yes	No	3630
14	STOP cam plus active	Yes	No	3630
15	Traversing command active	Yes	No	3635

Note:

Re bit 02:

The "referencing active" signal is an OR logic operation of "search for reference active" and "flying referencing active".

Re bit 00 ... 07 and 11 ... 14:

These signals are generated in the function module "basic positioner".

Re bit 08:

The signal is generated in the "closed-loop position control" function module.

r2685**CO: EPOS corrective value / Corrective value**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: -

Calculated: -

Access level: 1

Data type: Integer32

Dynamic index: -

Func. diagram: 3635

P-Group: Basic positioner

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

- [LU]

- [LU]

- [LU]

Description:

Displays the corrective value for the position actual value.

Dependency:

Refer to: r2684

Note:

As standard, the following BICO interconnection is established: CI: p2513 = r2685

Using this value, e.g. modulo corrections are carried out.

r2686[0...1]**CO: EPOS torque limiting effective / M_limit eff**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: 3616, 3617

P-Group: Basic positioner

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

- [%]

- [%]

- [%]

Description:

Displays the effective torque limiting.

r2686[0]: Displays the effective upper torque limiting when traversing to fixed stop (referred to CI: p1522, CI: p1523).

r2686[1]: Displays the effective lower torque limiting when traversing to fixed stop (referred to CI: p1522, CI: p1523).

Dependency:

Refer to: p1520, p1521, p1522, p1523, r2676

Note:

As standard, the following BICO interconnections are established:

CI: p1528 = r2686[0]

CI: p1529 = r2686[1]

r2687**CO: EPOS torque setpoint / M_set**

SERVO (EPOS),
VECTOR (EPOS)

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: 3616, 3617

P-Group: Basic positioner

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

- [Nm]

- [Nm]

- [Nm]

Description:

Displays the effective torque setpoint when reaching the fixed stop (referred to CI: p1522, CI: p1523).

Dependency:

Refer to: p1520, p1521, p1522, p1523, r2676

r2687 CO: EPOS force setpoint / F_set

SERVO (EPOS, Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 3616, 3617
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [N]	Max - [N]	Factory setting - [N]
Description:	Displays the effective force setpoint when reaching the fixed stop (referred to CI: p1522, CI: p1523).		
Dependency:	Refer to: p1520, p1521, p1522, p1523, r2676		

p2690 CO: EPOS position fixed setpoint / Pos fixed value

SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets a fixed setpoint for the position.		
Dependency:	Refer to: p2642, p2648		
Note:	As standard, the following BICO interconnection is established: CI: p2642 = r2690		

p2691 CO: EPOS velocity fixed setpoint / v fixed value

SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 600 [1000 LU/min]
Description:	Sets a fixed setpoint for the velocity.		
Dependency:	Refer to: p2643		
Note:	As standard, the following BICO interconnection is established: CI: p2643 = r2691		

p2692 CO: EPOS acceleration override, fixed setpoint / a_over fixed val

SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.100 [%]	Max 100.000 [%]	Factory setting 100.000 [%]
Description:	Sets a fixed setpoint for the acceleration override.		
Dependency:	Refer to: p2572, p2644		
Note:	As standard, the following BICO interconnection is established: CI: p2644 = r2692 The percentage value refers to the maximum acceleration (p2572).		

p2693	CO: EPOS deceleration override, fixed setpoint / -a_over fixed val		
SERVO (EPOS), VECTOR (EPOS)	Can be changed: U, T Data type: Floating Point P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3618 Unit selection: - Expert list: 1
	Min 0.100 [%]	Max 100.000 [%]	Factory setting 100.000 [%]
Description:	Sets a fixed setpoint for the deceleration override.		
Dependency:	Refer to: p2573, p2645		
Note:	As standard, the following BICO interconnection is established: CI: p2645 = r2693 The percentage value refers to the maximum deceleration (p2573).		
r2700	CO: Reference frequency, actual / Ref_f act		
A_INF, B_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the actual reference quantity for the frequency. All frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The following applies: Reference frequency (in Hz)		
Dependency:	Refer to: p2000		
r2700	CO: Reference speed/reference frequency actual / Ref_n/Ref_f act		
SERVO, TM41, VEC- TOR	Can be changed: - Data type: Floating Point P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the actual reference quantity for speed and frequency. All speeds or frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The following applies: Reference frequency (in Hz) = reference speed (in (RPM) / 60)		
Dependency:	Refer to: p2000		
Note:	This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).		
r2700	CO: Reference velocity/reference frequency actual / Ref_v/Ref_f act		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Sets the actual reference quantity for velocity and frequency. All velocities or frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		

The following applies: Reference frequency (in Hz) = reference velocity (in (m/min) / 60)

Dependency:

Refer to: p2000

Note:

This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example 1:

The signal of an analog input (e.g. r4055[0]) is connected to a velocity setpoint (e.g. p1070[0]). The actual percentage input value is cyclically converted into the absolute velocity setpoint using the reference velocity (p2000).

Example 2:

The setpoint from PROFIBUS (r2050[1]) is connected to a velocity setpoint (e.g. p1070[0]). The current input value is cyclically converted into a percentage value via the pre-specified normalization 4000 hex. This percentage value is converted to the absolute velocity setpoint via reference velocity (p2000).

r2701**CO: Reference voltage actual / Ref voltage act**

A_INF, B_INF,
SERVO, S_INF,
TM41, VECTOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the actual reference quantity for voltages.

All voltages specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency:

Refer to: p2001

Note:

This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

r2702**CO: Reference current actual / Ref current act**

A_INF, B_INF,
SERVO, S_INF,
TM41, VECTOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the actual reference quantity for currents.

All currents specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency:

Refer to: p2002

Note:

This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

r2703**CO: Reference torque actual / Ref torque act**

SERVO, TM41, VEC-
TOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the actual reference quantity for torque (r0108.12 = 0) or force (r0108.12 = 1).

All torques specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: p0505, r0108.12

Refer to: p2003

Note: This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

r2703 CO: Reference force actual / Ref force act

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual reference quantity for forces.

All forces specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: p0505, r0108.12

Refer to: p2003

Note: This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example:

The actual value of the total force (r0079[0]) is connected to a test socket (e.g. p0771[0]). The actual force is cyclically converted into a percentage of the reference force (p2003) and output according to the parameterized scaling.

r2704 CO: Reference power actual / Ref power act

A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual reference quantity for power ratings.

All power ratings specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls.

Refer to: r2004

Note: This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

The reference power is calculated as follows:

- $2 \cdot \pi \cdot \text{reference speed} / 60 \cdot \text{reference torque}$ (motor)

- $\text{reference voltage} \cdot \text{reference current} \cdot \text{root}(3)$ (infeed)

r2705 CO: Reference angle actual / Ref angle act

A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual reference quantity for angle.

All angles specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: Refer to: p2005

Note: This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

r2706 CO: Reference temperature actual / Ref temp act

A_INF, B_INF,
SERVO, S_INF,
TM41, VECTOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Displays the actual reference quantity for temperatures.

All temperatures specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Note: This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

r2707 CO: Reference acceleration actual / Ref accel act

SERVO, SERVO
(Lin), TM41, VEC-
TOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Floating Point

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Displays the actual reference quantity for acceleration rates.

All acceleration rates specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: r0108.12, p0505

Refer to: p2007

Note: This parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC).

p2720[0...n] Load gearbox configuration / Load grbx config

SERVO, VECTOR

Can be changed: C2(1, 4)

Calculated: -

Access level: 1

Data type: Unsigned32

Dynamic index: DDS, p0180

Func. diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-


0000 bin

Description: Sets the configuration for position tracking of a load gearbox.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Load gearbox, activate position tracking	Yes	No	-
	01	Axis type	Linear axis	Rotary axis	-
	02	Load gearbox, reset position	Yes	No	-

Note: For the following events, the non-volatile, saved position values are automatically reset:

- when an encoder replacement has been identified.
- when changing the configuration of the Encoder Data Set (EDS).

p2721[0...n]	Load gearbox, rotary absolute gearbox, revolutions, virtual / Abs rot rev		
SERVO, VECTOR	Can be changed: C2(1, 4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Min 0
		Max 4194303	Factory setting 4096
Description:	Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the load gearbox.		
Dependency:	This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking of the load gearbox (p2720.0 = 1).		
Note:	The resolution that is set must be able to be represented using r2723. For rotary axes/modulo axes, the following applies: This parameter is preset with p0421 and can be changed. For linear axes, the following applies: This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.		
p2722[0...n]	Load gearbox, position tracking tolerance window / Pos track tol		
SERVO, VECTOR	Can be changed: C2(1, 4) Data type: Floating Point P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.00
		Max 4294967300.00	Factory setting 0.00
Description:	Sets a tolerance window for position tracking. After the system is powered-up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated: Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value. Difference outside the tolerance window --> An appropriate message is output.		
Dependency:	Refer to: F07449		
Caution:	Rotation, e.g. through a complete encoder range is not detected.		
			
Note:	The value is entered in integer (complete) encoder pulses. For p2720.0 = 1, the value is automatically pre-assigned quarter of the encoder range. Example: Quarter of the encoder range = (p0408 * p0421) / 4 It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).		
r2723[0...n]	CO: Load gearbox absolute value / Load grbx abs_val		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Min -
		Max -	Factory setting -
Description:	Displays the absolute value after the load gearbox.		
Notice:	The encoder position actual value must be requested using the encoder control word Gn_STW.13.		
Note:	The increments are displayed in the format the same as r0483.		

r2724[0...n]	CO: Load gearbox position difference / Load grbx pos diff		
SERVO, VECTOR	Can be changed: - Data type: Integer32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: DDS, p0180 Units group: - Max -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the position difference before the load gearbox between powering-down and powering-up.		
Note:	The increments are displayed in the same format as for r0483/r2723. If the measuring gearbox of the motor encoder is not activated, the position difference should be read in encoder increments. If the measuring gearbox of the motor encoder is activated, the position difference is converted using the measuring gearbox factor.		
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Free function blocks Not for motor type: - Min -10000.00 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 10000.00 [%]	Access level: 3 Func. diagram: 1021 Unit selection: - Expert list: 1 Factory setting 0.00 [%]
Description:	Sets a fixed percentage.		
Dependency:	Refer to: p2901, p2930		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
Note:	The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)		
p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Free function blocks Not for motor type: - Min -10000.00 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 10000.00 [%]	Access level: 3 Func. diagram: 1021 Unit selection: - Expert list: 1 Factory setting 0.00 [%]
Description:	Sets a fixed percentage.		
Dependency:	Refer to: p2900, p2930		
Notice:	A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.		
Note:	The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)		
r2902[0...14]	CO: Fixed values [%] / Fixed values [%]		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Free function blocks Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 1 Func. diagram: 1021 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Signal sources for frequently used percentage values.		
Index:	[0] = Fixed value +0 % [1] = Fixed value +5 % [2] = Fixed value +10 % [3] = Fixed value +20 % [4] = Fixed value +50 %		

[5] = Fixed value +100 %

[6] = Fixed value +150 %

[7] = Fixed value +200 %

[8] = Fixed value -5 %

[9] = Fixed value -10 %

[10] = Fixed value -20 %

[11] = Fixed value -50 %

[12] = Fixed value -100 %

[13] = Fixed value -150 %

[14] = Fixed value -200 %

Dependency: Refer to: p2900, p2901, p2930**Note:** The signal sources can, for example, be used to interconnect scalings.**p2930[0...n] CO: Fixed value M [Nm] / Fixed value M [Nm]**

SERVO, VECTOR

Can be changed: U, T**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** 1021**P-Group:** Free function blocks**Units group:** 7_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min**

-100000.00 [Nm]

Max

100000.00 [Nm]

Factory setting

0.00 [Nm]

Description: Sets a fixed value for torque.**Dependency:** Refer to: p2900, p2901**Notice:** A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.**Note:** The value can, for example, be used to interconnect a supplementary torque.**p2930[0...n] CO: Fixed value F [N] / Fixed value F [N]**

SERVO (Lin)

Can be changed: U, T**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** 1021**P-Group:** Free function blocks**Units group:** 8_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min**

-100000.00 [N]

Max

100000.00 [N]

Factory setting

0.00 [N]

Description: Sets a fixed value for force.**Dependency:** Refer to: p2900, p2901**Notice:** A BICO interconnection to a parameter that belongs to a drive objects always acts on the effective data set.**Note:** The value can, for example, be used to interconnect a supplementary force.**p3016 Motor identification - torque constant / MotId kT**

SERVO

Can be changed: U, T**Calculated:** CALC_MOD_ALL**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** -**P-Group:** Motor identification**Units group:** 28_1**Unit selection:** p0100**Not for motor type:** ASM, REL, FEM**Expert list:** 1**Min**

0.00 [Nm/A]

Max

100.00 [Nm/A]

Factory setting

0.00 [Nm/A]

Description: Torque constant of the synchronous motor measured by the motor identification.**Dependency:** Refer to: r0334, r1937**Note:** This parameter is not used for induction motors (p0300 = 1xx).

p3016	Motor force constant / MotId kT		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 29_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [N/Arms]	Max 1000.00 [N/Arms]	Factory setting 0.00 [N/Arms]
Description:	Sets the force constant of the synchronous motor. p0316 = 0: The force constant is calculated from the motor data. p0316 > 0: The selected value is used as force constant.		
Dependency:	Refer to: r0334, r1937		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p3017	Motor identification - voltage constant / MotId kE		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [Vrms]	Max 10000.0 [Vrms]	Factory setting 0.0 [Vrms]
Description:	Voltage constant for synchronous motors set by the motor identification. Units for rotating synchronous motors: Vrms/(1000 RPM), phase-to-phase		
Dependency:	Refer to: r1938		
Note:	This parameter is not used for induction motors (p0300 = 1xx).		
p3017	Motor identification - voltage constant / MotId kE		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [Vrms s/m]	Max 1000.0 [Vrms s/m]	Factory setting 0.0 [Vrms s/m]
Description:	Sets the voltage constant for synchronous motors. Units for linear synchronous motors: Vrms s/m, phase		
Dependency:	Refer to: r1938		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p3020	Motor identification - rated magnetizing current / MotId I_mag_rated		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [Arms]	Max 5000.000 [Arms]	Factory setting 0.000 [Arms]
Description:	Induction motors: Sets the rated motor magnetizing current. For p0320 = 0.000 the magnetizing current is internally calculated and displayed in r0331. Synchronous motors: Sets the rated motor short-circuit current.		

p3027	Motor identification - optimum load angle / MotId phi_load opt		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [°]
Description:	<p>Optimum load angle for synchronous motors with reluctance torque set from the motor identification (e.g. 1FE ... motors).</p> <p>This parameter has no significance for induction motors.</p> <p>SERVO: The load angle is measured at 150% rated motor current.</p>		
p3028	Motor identification - reluctance torque constant / MotId kT_reluct		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [mH]
Description:	<p>Reluctance torque constant for synchronous motors with reluctance torque set from the motor identification (e.g. 1FE ... motors).</p> <p>This parameter has no significance for induction motors.</p>		
p3028	Motor identification - reluctance force constant / MotId kT_reluct		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [mH]
Description:	<p>Reluctance force constant for synchronous motors with reluctance force set from the motor identification (e.g. 1FE ... motors).</p> <p>This parameter has no significance for induction motors.</p>		
p3030	Motor identification - angular commutation offset / MotId AngComOffset		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [°]
Description:	Angular commutation offset determined from the motor identification.		

p3031	Motor identification - encoder inversion actual value / MotId EnclInvActVal			
SERVO	Can be changed: U, T		Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned16		Dynamic index: -	Func. diagram: -
	P-Group: Motor identification		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	0000 bin
Description:	Setting to invert actual values.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Invert speed actual value	Yes	No
	01	Invert position actual value	Yes	No
				FP
				4710,
				4715
				4704

p3031	Motor identification - encoder inversion actual value / MotId EnclInvActVal			
SERVO (Lin)	Can be changed: U, T		Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned16		Dynamic index: -	Func. diagram: -
	P-Group: Motor identification		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	0000 bin
Description:	Setting to invert actual values.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Invert velocity actual value	Yes	No
	01	Invert position actual value	Yes	No
				FP
				4710,
				4715
				4704

p3041	Motor identification - moment of inertia / MotId M_mom inert			
SERVO	Can be changed: U, T		Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point		Dynamic index: -	Func. diagram: -
	P-Group: Motor identification		Units group: 25_1	Unit selection: p0100
	Not for motor type: REL			Expert list: 1
	Min		Max	Factory setting
	0.000000 [kgm²]		100000.000000 [kgm²]	0.000000 [kgm²]
Description:	Motor moment of inertia (without load) measured from the motor identification.			

p3041	Motor weight / Mot weight			
SERVO (Lin)	Can be changed: U, T		Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point		Dynamic index: -	Func. diagram: -
	P-Group: Motor identification		Units group: 27_1	Unit selection: p0100
	Not for motor type: REL			Expert list: 1
	Min		Max	Factory setting
	0.000000 [kg]		10000.000000 [kg]	0.000000 [kg]
Description:	Sets the high moments of inertia (without load).			
Note:	The parameter is automatically preset for motors from the motor list (p0301). SERVO: p0341 * p0342 + p1498 influence the speed/torque pre-control in sensorless operation.			

p3042	Motor identification - load moment of inertia / MotId LoadMomInert		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 25_1 Min 0.00000 [kgm²]	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1 Max 100000.00000 [kgm²] Factory setting 0.00000 [kgm²]
Description:	Load moment of inertia measured from the motor identification.		

p3042	Load mass / Load mass		
SERVO (Lin)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 27_1 Min 0.00000 [kg]	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1 Max 10000.00000 [kg] Factory setting 0.00000 [kg]
Description:	Sets the mass.		
Note:	(p0341 * p0342) + p1498 influence the velocity/force pre-control in sensorless operation.		

p3045	Motor identification torque characteristic kT1 / MotID kT1		
SERVO (Exp M_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Min -340.28235E36 [Nm/A]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 340.28235E36 [Nm/A] Factory setting 0.00 [Nm/A]
Description:	Constant kT1 for the torque characteristic set from the motor identification: $kT(iq) = kT1 + kT3 \cdot iq^2 + kT5 \cdot iq^4 + kT7 \cdot iq^6$		
Dependency:	Refer to: p3046, p3047, p3048		

p3045	Motor identification torque characteristic kT1 / MotID kT1		
SERVO (Exp M_ctrl, Lin)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Min -340.28235E36 [N/Arms]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max 340.28235E36 [N/Arms] Factory setting 0.00 [N/Arms]
Description:	Constant kT1 for the torque characteristic set from the motor identification: $kT(iq) = kT1 + kT3 \cdot iq^2 + kT5 \cdot iq^4 + kT7 \cdot iq^6$		
Dependency:	Refer to: p3046, p3047, p3048		

p3046	Motor identification - torque characteristic kT3 / MotId kT3		
SERVO (Exp M_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Min -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Max - Factory setting -
Description:	Constant kT3 for the torque characteristic set from the motor identification: $kT(iq) = kT1 + kT3 \cdot iq^2 + kT5 \cdot iq^4 + kT7 \cdot iq^6$		

Dependency: Refer to: p3045, p3047, p3048

p3047 Motor identification - torque characteristic kT5 / MotId kT5

SERVO (Exp M_ctrl)	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Constant kT5 for the torque characteristic set from the motor identification:
 $kT(iq) = kT1 + kT3 \cdot iq^2 + kT5 \cdot iq^4 + kT7 \cdot iq^6$

Dependency: Refer to: p3045, p3046, p3048

p3048 Motor identification - torque characteristic kT7 / MotId kT7

SERVO (Exp M_ctrl)	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Constant kT7 for the torque characteristic set from the motor identification:
 $kT(iq) = kT1 + kT3 \cdot iq^2 + kT5 \cdot iq^4 + kT7 \cdot iq^6$

Dependency: Refer to: p3045, p3046, p3047

p3050[0...n] Motor identification - stator resistance / MotId R_stator

SERVO	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: 16_1	Unit selection: p0349
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00000 [Ohm]	2000.00000 [Ohm]	0.00000 [Ohm]

Description: Motor stator resistance measured from the motor identification.

p3054[0...n] Motor identification - rotor resistance / MotId R_rotor

SERVO	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL		Expert list: 1
	Min	Max	Factory setting
	0.00000 [Ohm]	300.00000 [Ohm]	0.00000 [Ohm]

Description: Rotor resistance of the motor measured from the motor identification.

Dependency: Refer to: p0625

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

p3056[0...n]	Motor identification - stator leakage inductance / Motld L_stat leak		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting 0.00000 [mH]
Description:	Stator leakage inductance (induction motor, separately-excited synchronous motor) or quadrature stator inductance (synchronous motor) of the motor measured from the motor identification		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p3058[0...n]	Motor identification - rotor leakage inductance / Motld L_rot leak		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting 0.00000 [mH]
Description:	Rotor leakage inductance of the motor measured from the motor identification.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
p3060[0...n]	Motor identification - magnetizing inductance / Motld Lh		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1 Factory setting 0.00000 [mH]
Description:	Magnetizing inductance of the motor measured from the motor identification.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
p3070	Motor identification - voltage emulation error final value / Motld V_err final		
SERVO (Exp M_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.000 [V]
Description:	Final value to compensate the voltage emulation error set from the motor identification.		
p3071	Motor identification - voltage emulation error current offset / Motld V_err I_offs		
SERVO (Exp M_ctrl)	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.000 [A]
Description:	Current offset to compensate the voltage emulation error set by the motor identification.		

p3080	Motor identification - flux controller P gain / Motld flux ctrl Kp		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [A/Vs]	Max 999999.0 [A/Vs]	Factory setting 0.0 [A/Vs]
Description:	Proportional gain of the flux controller set from the motor identification.		
Note:	For synchronous motors, this parameters has no effect.		
p3081	Motor identification - flux controller integral action time / Motld flux ctrl Tn		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 0 [ms]
Description:	Integral action time of the flux controller set from the motor identification.		
Note:	For synchronous motors, this parameters has no effect..		
p3082	Motor identification - current controller P gain / Motld I_ctrl Kp		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 18_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min 0.000 [V/A]	Max 100000.000 [V/A]	Factory setting 0.000 [V/A]
Description:	Proportional gain of the current controller set from the motor identification.		
p3083	Motor identification - current controller integral action time / Motld I_ctrl Tn		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: Motor identification Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 0.00 [ms]
Description:	Integral action time of the current controller set from the motor identification.		
p3100	RTC time stamp mode / RTC t_stamp mode		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the mode for the time stamp p3100 = 0: Time stamp, operating hours p3100 = 1: Time stamp, UTC format		

Note: RTC: Real Time Clock
 UTC: Universal Time Coordinates
 The UTC time started, according to the definition on 01.01.1970 at 00:00:00 and is output in days and milliseconds.

p3101[0...1] RTC set UTC time / RTC set UTC			
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 4294967295	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Setting the UTC time. This means that the drive system is synchronized to the time specified by the time master. To start p3101[1] must be written to followed by p3101[0]. After writing to p3101[0], the UTC time is accepted. p3101[0]: Milliseconds p3101[1]: Days		
<hr/>			
r3102[0...1] RTC read UTC time / RTC read UTC			
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual UTC time in the drive system. p3102[0]: Milliseconds p3102[1]: Days		
<hr/>			
p3103 RTC synchronization source / RTC sync_source			
CU_CX32, CU_S	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 3	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the synchronization source/technique.		
Values:	0: PROFIBUS 1: PROFINET 2: PPI 3: PROFINET PTP		
<hr/>			
p3104 BI: RTC real time synchronization PING / RTC PING			
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the PING event to set the UTC time.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

r3108[0...1]	RTC last synchronization deviation / RTC sync_dev		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the last synchronization deviation that was determined. r3108[0]: Milliseconds r3108[1]: Days		
p3109	RTC real time synchronization, tolerance window / RTC sync tol		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 [ms]	Calculated: - Dynamic index: - Units group: - Max 1000 [ms]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100 [ms]
Description:	Sets the tolerance window for time synchronization. When this tolerance window is exceeded, an appropriate alarm is output.		
Dependency:	Refer to: A01099		
p3110	External fault 3, power-up delay / Ext fault 3 t_on		
All objects	Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 [ms]	Calculated: - Dynamic index: - Units group: - Max 1000 [ms]	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 0 [ms]
Description:	Sets the delay time for external fault 3.		
Dependency:	Refer to: p2108, p3111, p3112 Refer to: F07862		
p3111	BI: External fault 3, enable / Ext fault 3 enab		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3112 Refer to: F07862		

p3111[0...n]	BI: External fault 3, enable / Ext fault 3 enab		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3112 Refer to: F07862		
p3112	BI: External fault 3 enable negated / Ext flt 3 enab neg		
CU_CX32, CU_LINK, CU_S, DMC20, TB30, TM15, TM15DI_DO, TM17, TM31, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the negated enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3111 Refer to: F07862		
p3112[0...n]	BI: External fault 3 enable negated / Ext flt 3 enab neg		
A_INF, B_INF, SERVO, S_INF, TM41, VECTOR	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the negated enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3111 Refer to: F07862		

r3113.0...15 CO/BO: NAMUR message bit bar / NAMUR bit bar

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of NAMUR signal bit bar.

The faults or alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fault drive converter data electronics / software error	Yes	No	-
	01	Line supply fault	Yes	No	-
	02	DC link overvoltage	Yes	No	-
	03	Fault drive converter power electronics	Yes	No	-
	04	Drive converter overtemperature	Yes	No	-
	05	Ground fault	Yes	No	-
	06	Motor overload	Yes	No	-
	07	Bus error	Yes	No	-
	08	External safety-relevant shutdown	Yes	No	-
	09	Mot encoder fault	Yes	No	-
	10	Error internal communications	Yes	No	-
	11	Infeed fault	Yes	No	-
	15	Other faults	Yes	No	-

r3114.9...11 CO/BO: Messages status word global / Msg ZSW global

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the global status word for messages.

The appropriate bit is set if at least one message is present at the drive objects.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	09	Alarm present	Yes	No	8065
	10	Fault present	Yes	No	8060
	11	Safety message present	Yes	No	-

Note: The status bits are displayed with delay.

p3201[0...n] Excitation current outside the tolerance threshold value / I_exc n.Tol thresh

VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min	Max	Factory setting
	0.1 [%]	100.0 [%]	10.0 [%]

Description: Sets the threshold value for the "excitation current outside tolerance" message for the excitation current monitoring. If the absolute value of the difference between the excitation current setpoint and actual value (r1641 - r1626) exceeds the threshold value and the hysteresis is longer than the selected delay time, then fault F07913 is output. This fault is withdrawn when the threshold voltage is fallen below.

Dependency: Refer to: r1626, r1641, p3202, p3203

Refer to: F07913

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).

p3202[0...n]		Excitation current outside the tolerance hysteresis / I_exc n.Tol hyst	
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.1 [%]	Max 100.0 [%]	Factory setting 10.0 [%]
Description:	Sets the hysteresis for the "excitation current outside tolerance" message for the excitation current monitoring.		
Dependency:	Refer to: p3201, p3203 Refer to: F07913		
Note:	The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).		

p3203[0...n]		Excitation current outside the tolerance delay time / I_exc n.Tol t_del	
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.0 [s]	Max 10.0 [s]	Factory setting 1.0 [s]
Description:	Sets the delay time for the "excitation current outside tolerance" message for the excitation current monitoring.		
Dependency:	Refer to: p3201, p3202 Refer to: F07913		
Note:	The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).		

p3204[0...n]	Flux outside the tolerance threshold value / Flux n. tol thresh		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.1 [%]	Max 100.0 [%]	Factory setting 10.0 [%]
Description:	Sets the threshold value for the "flux outside the tolerance" message for the flux monitoring. If the absolute value of the difference between the flux setpoint and actual value (r0083 - r0084) falls below the threshold value with hysteresis longer than the selected delay time, then fault F07914 is output. This fault is withdrawn when the threshold voltage is fallen below.		
Dependency:	Refer to: r0083, r0084, p3205, p3206 Refer to: F07914		
Note:	The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5). The flux monitoring is only active after magnetization (r0056.4 = 1).		

p3205[0...n]	Flux outside the tolerance hysteresis / Flux n. tol hyst		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.1 [%]	Max 50.0 [%]	Factory setting 10.0 [%]
Description:	Sets the hysteresis for the "flux outside tolerance" message for the flux monitoring.		
Dependency:	Refer to: p3204, p3206 Refer to: F07914		
Note:	The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5). The flux monitoring is only active after magnetization (r0056.4 = 1).		
p3206[0...n]	Flux outside tolerance delay time / Flux n. tol t_del		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.0 [s]	Max 10.0 [s]	Factory setting 5.0 [s]
Description:	Sets the delay time for the "flux outside tolerance" message for the flux monitoring.		
Dependency:	Refer to: p3204, p3205 Refer to: F07914		
Note:	The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5). The flux monitoring is only active after magnetization (r0056.4 = 1).		
p3207[0...n]	Zero current signal threshold value / I_0_sig thresh		
VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: 6_2	Unit selection: p0505
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.01 [Arms]	Max 10000.00 [Arms]	Factory setting 1.00 [Arms]
Description:	Sets the threshold value for the zero current signal for the zero current monitoring. If the absolute current falls below the threshold value then r2199.6 is set to 1 after the delay time has expired. The bit is reset if the threshold value and the hysteresis are exceeded again.		
Dependency:	Refer to: r2199, p3208, p3209		
Note:	The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5). The monitoring is only carried out for speeds less than the speed threshold value in p2161 (r2199.0 = 1).		
p3208[0...n]	Zero current signal hysteresis / I_0_sig hyst		
VECTOR	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: 6_2	Unit selection: p0505
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.01 [Arms]	Max 10000.00 [Arms]	Factory setting 1.00 [Arms]
Description:	Sets the hysteresis for the zero current signal for the zero current monitoring.		
Dependency:	Refer to: p3207, p3209		

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).
The monitoring is only carried out for speeds less than the speed threshold value in p2161 (r2199.0 = 1).

p3209[0...n]	Zero current signal delay time / I_0_sig t_del		
VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: ASM, PEM, REL		Expert list: 1
	Min 0.00 [s]	Max 10.00 [s]	Factory setting 0.02 [s]

Description: Sets the delay time for the zero current signal for the zero current monitoring.

Dependency: Refer to: p3207, p3208

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).
The monitoring is only carried out for speeds less than the speed threshold in p2161 (r2199.0 = 1).

p3400	Infeed configuration word / INF config_word		
A_INF, S_INF	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8940
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1010 bin

Description: Sets the configuration word of the infeed.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Smart Mode	On	Off	-
	01	Flat-top mode	On	Off	-
	03	Vdc controller	On	Off	-
	05	Line supply voltage sensing with VSM	On	Off	-

Dependency: Refer to: p0210

Note: Re bit 00:
In the smart mode, the DC link voltage is not controlled - however, infeed can still regenerate. The magnitude of the DC link voltage depends on the actual line supply voltage and the DC link load.
For drive units belonging to the 400 V voltage class, for a drive unit supply voltage (p0210) greater than 415 V, the infeed is always operated in the smart mode. This means that the 660 V limit can be maintained for the steady-state DC link voltage (p0280) up to a line supply voltage of 480 V.
Re bit 01:
If the flat top mode is deactivated, switching losses are higher. This means that the full power is no longer continuously available.
For p3400.0 = 1, this bit is not effective.
Re bit 03:
If the Vdc controller is switched-out, overvoltage or undervoltage conditions occur in the DC link if no other voltage-regulating component is located in the DC link.
For p3400.0 = 1, this bit is not effective.
Re bit 05:
VSM: Voltage Sensing Module
If a VSM is detected when commissioning the system, this bit is automatically set.
When the bit is set, the line supply voltage input of the VSM must be connected (connected at the line side of the commutating reactor).

r3402 Infeed internal status / INF status int

A_INF, S_INF

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Integer16**Dynamic index:** -**Func. diagram:** 8832, 8932**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

11

-

Description:

Displays the internal status of the infeed module.

Values:

0: Initialization
 1: Fault
 2: No ON command
 3: Offset measurement running
 4: ON delay active
 5: Precharg. running
 6: Pulse enable missing
 7: Synchronization running
 8: Voltage ramp-up active
 9: Operation
 10: Shutdown running
 11: Identification running

r3402 Infeed status internal BIC / INF status int

B_INF

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Integer16**Dynamic index:** -**Func. diagram:** 8932**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

6

-

Description:

Displays the internal status of the infeed module.

Values:

0: Initialization
 1: Fault
 2: No ON command
 3: Offset measurement running
 4: ON delay active
 5: Precharg. running
 6: Operation

r3405.0...7 CO/BO: Status word infeed / INF ZSW

A_INF, S_INF

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** 8828, 8928**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the status word of the infeed.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Smart mode active	Yes	No	-
01	Vdc-ctrl active	Yes	No	-
02	Phase failure detected	Yes	No	-
03	Current limit reached	Yes	No	-
04	Infeed operates regenerating/motoring	Regenerative mode	Motor mode	-
05	Motor operation inhibited	Yes	No	-
06	Regenerative operation inhibited	Yes	No	-
07	DC link undervoltage alarm threshold fallen below	Yes	No	-

Note: Re bit 02:
When phase failure is detected the bit is set and alarm A06205 is output.
The bit is reset for the following events:
- the infeed had reached the normal operating state again after a phase failure has been bypassed/buffered (p3402 = 9).
- the pulse enable is withdrawn due to a fault or powering-down with OFF1/OFF2.

r3405.7 CO/BO: Status word infeed / INF ZSW

B_INF	Can be changed: - Data type: Unsigned16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
	Min -	Max -	

Description: Displays the status word of the infeed.

Bit field:	Bit Signal name 07 DC link undervoltage alarm threshold fallen below	1 signal Yes	0 signal No	FP -
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p3409 Infeed line frequency setting / INF f_line_mode

A_INF, S_INF	Can be changed: T Data type: Integer16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
	Min 0	Max 1	

Description: Sets the mode to detect the line supply frequency.

Values:
 0: Line supply frequency setting 50/60 Hz off
 1: Line supply frequency setting 50/60 Hz on

Dependency: Refer to: p0211, p0284, p0285
 Refer to: A06350, A06351, F06500

Note: For p3409 = 1, the following applies:
 After operation has been enabled, the rated line supply frequency (p0211) is automatically set to a value of 50 Hz or 60 Hz corresponding to the currently measured frequency. This means that the parameter value of p0211 is, under certain circumstances, changed.
 For p3409 = 0, the following applies:
 The system does not change parameter p0211.

p3410 Infeed identification method / INF Ident_type

A_INF, S_INF	Can be changed: C2(1), T Data type: Integer16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 5
	Min 0	Max 5	

Description: Sets the line and DC link parameter identification routine for the infeed module.

Values:
 0: Identification (Id) off
 1: Activate identification (Id)
 2: Set controller settings
 3: Save identification and controller settings
 4: Save identification and controller settings with L adaptation
 5: Reset, save Id and controller setting with L adaptation

Dependency:	Refer to: r3411, r3412, r3414, p3415, p3416, p3417, p3421, p3422, p3424, p3555, p3560, p3614 Refer to: A06400
Notice:	For p3410 = 1, 3, 4, 5, alarm A06400 is output and designates that the selected identification will take place the next time that the pulses are enabled.
Note:	<p>When p3410 = 1 an identification run for the total inductance and DC link capacitance is initiated when the pulses are next enabled. The results are displayed in r3411 and r3412. If a Voltage Sensing Module (VSM) is connected, then the line inductance (r3414) is also measured. The infeed then goes into the power-on state.</p> <p>For p3410 = 2, the data (r3411, r3412 und r3414) determined during the identification run (p3410 = 1) are transferred into p3421, p3422 and p3424. The control loop parameters are suitable scaled to achieve a rugged controller setting (p3425); the fast controller response (p3555[2]) and the current actual value smoothing (p3614) are pre-set. Calculations for the controller are then repeated. The user must save the new parameters in a non-volatile fashion in order to permanently select the new controller setting.</p> <p>When p3410 = 3 an identification run for the inductance and DC link capacitance is initiated when the pulses are next enabled. Data determined during the identification (r3411, r3412, r3414) are used, as described under p3410 = 2 for the setting of p3421, p3422, p3424, p3425, p3555 as well as p3614, and the controller is re-calculated. All of the parameters for the infeed module are then automatically stored in a non-volatile memory. The infeed continues to operate without any interruption with the new controller parameters.</p> <p>When p3410 = 4 an identification run for the inductance and DC link capacitance is initiated when the pulses are next enabled. Data determined during the identification (r3411, r3412, r3414) are used, as described under p3410 = 2 for the setting of p3421, p3422, p3424, p3425, p3555 as well as p3614, and the controller is re-calculated. The line inductance identification is then repeated, if p3415[1] > p3514[0]. If the inductance measured the second time is lower, the parameters are written to the current controller adaptation (p3620, p3622).. All of the parameters for the infeed module are then automatically stored in a non-volatile memory. The infeed continues to operate without any interruption with the new controller parameters.</p> <p>For p3410 = 5, the same measurements and write operations are always carried out as for p3410 = 4. However, for the first identification run, initially the controller setting is reset by setting p3421 = p0223 + p0225, p3424 = p0225, p3422 = p0227 and p3425[.] = 100 %. Further, before the measurements are carried out, a brief identification run is executed to coarsely set the controller.</p> <p>p3410 is automatically set to 0 after an identification run has been completed.</p>

r3411[0...1]	Infeed identified inductance / INF L ident		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [mH]	Calculated: - Dynamic index: - Units group: - Max - [mH]	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mH]
Description:	Displays the identified total inductance. The value corresponds to the total inductance between the rigid line supply and the infeed input terminals.		
Index:	[0] = Run 1 [1] = Run 2		
Dependency:	Refer to: p3410		
Note:	<p>The value measured in the first identification run is displayed in r3411[0] (for p3410 = 1, 3, 4, 5). This value is transferred to p3421.</p> <p>The value measured in the second identification run (for p3410 = 4, 5) is displayed in r3411[1] - this value is used to set the current controller adaptation (p3622).</p> <p>For the inductance value of the commutating reactor, r3411 - r3414 applies.</p>		

r3412[0...1]	Infeed DC-link capacitance identified / INF C_DClink ident		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [mF]	Calculated: - Dynamic index: - Units group: - Max - [mF]	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [mF]
Description:	Displays the identified total DC link capacitance.		

Index: [0] = Run 1
[1] = Run 2

Dependency: Refer to: p3410

Note: The value measured in the first identification run (for p3410 = 1, 3, 4, 5) is displayed in r3412[0]. For p3410 = 1, 3, this value is transferred to p3422.
The DC link capacitance is not measured at the second identification run.
The total DC link capacitance of a DC link group comprises the sum of the sub-capacitances of all motor/infeed modules and the additional DC link capacitors.

r3414[0...1] Infeed, line supply inductance identified / INF t_line ident

A_INF, S_INF

Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
Min - [mH]	Max - [mH]	Factory setting - [mH]

Description: Displays the identified line supply inductance.
The value corresponds to the total inductance between the stiff line supply and the connection point of the Voltage Sensing Module (VSM).

Index: [0] = Run 1
[1] = Run 2

Dependency: Refer to: p3410

Notice: The value is only automatically determined for the line supply identification (p3410 > 0), if operation with a Voltage Sensing Module is selected (p3400.5 = 1). Otherwise, r3414 = 0 is displayed.

Note: The value measured in the first identification run is displayed in r3414[0] (for p3410 = 1, 3, 4, 5). This value is transferred to p3421.
The value measured in the second identification run is displayed in r3414[1] (for p3410 = 4, 5).
For the inductance value of the commutating reactor, r3411 - r3414 applies.

p3415[0...1] Infeed excitation current L identification / INF I_exc L_Ident

A_INF, S_INF

Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
Min 1.00 [%]	Max 75.00 [%]	Factory setting 20.00 [%]

Description: Sets the magnitude of the excitation frequency for the L identification.
The setting is made as a percentage of the maximum power unit current (r0209).

Index: [0] = Run 1
[1] = Run 2

Dependency: Refer to: p3410, r3411, p3421, p3620, p3622

Notice: To correctly identify the current level (p3410 = 4, 5) depending on the reactor inductance, the following must apply:
p3415[0] < p3415[1]
For A_INF booksize units, the following applies:
The interrelationship between the reactor inductance and the current magnitude should be measured. Generally, the factory setting of p3415[0] and p3415[1] should be kept.
For chassis units and S_INF booksize units, the following applies:
Generally, there is only a very low inter-relationship between the reactor inductance and the current magnitude. This means that for the factory setting p3415[0] = p3415[1] = 20 %, i.e. run 2 is not executed.

Note: The reactive current for identification run 1 is set in p3415[0] (basic controller setting).
The reactive current for identification run 2 is set in p3415[1] (adaptation of the current controller when reducing the reactor inductance with increasing current magnitude).

p3416	Infeed excitation amplitude C identification / INF exc_amp C_Id		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.10 [%]	Max 20.00 [%]	Factory setting 2.00 [%]
Description:	Sets the level of the excitation frequency for identification of the total DC link capacitance. The amplitude is indicated as a percentage of the DC voltage setpoint ($V_{dc} = p0210 * p3510$).		
Dependency:	Refer to: p3410, r3412, p3422		
p3417	Infeed excitation frequency C identification / INF f_exc C_ID		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 10.00 [Hz]	Max 200.00 [Hz]	Factory setting 50.00 [Hz]
Description:	Sets the level of the excitation frequency for identification of the total DC link capacitance.		
Dependency:	Refer to: p3410, r3412, p3422		
p3421	Infeed inductance / INF Inductance		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.001 [mH]	Max 2000.000 [mH]	Factory setting 1.000 [mH]
Description:	Sets the total effective inductance for the closed-loop current control from the sum of the line supply inductance and inductance of the commutating reactor. This parameter is preset to the sum of p0223 and p0225.		
Dependency:	Refer to: p0223, p0225, p3410, p3425, p3614, p3622		
Note:	The controller setting is derived from this value and p3425. The value can be automatically determined using the identification run (p3410). For a parallel circuit, the value corresponds to the inductance of a power unit. For the inductance value of the commutating reactor, p3421 - p3424 applies.		
p3422	Infeed DC link capacitance / INF C_DCL		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.20 [mF]	Max 2000.00 [mF]	Factory setting 2.00 [mF]
Description:	Sets the DC link capacitance for the closed-loop voltage control. This value is preset to p0227.		
Dependency:	Refer to: p0227, p3410, p3425		
Note:	The controller setting is derived from this value and p3425. A suitable value can be automatically determined using the identification run (p3410).		

p3424 Infeed, line supply inductance / INF L_line

A_INF, S_INF

Can be changed: T**Calculated:** -**Access level:** 3**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** -**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

0.001 [mH]

Max

1000.000 [mH]

Factory setting

0.001 [mH]

Description:

Sets the line supply inductance.

This parameter is preset with p0225.

Dependency:

Refer to: p0223, p0225, p3410, p3425, p3622

Note:

The controller setting is derived from this value and p3425.

The value can be automatically determined using the identification (p3410) if operation with a Voltage Sensing Module is selected. Otherwise, p3424 is set to p3421 - p0223.

p3425[0...1] Infeed control loop parameter scaling / INF par scaling

A_INF, S_INF

Can be changed: T**Calculated:** -**Access level:** 4**Data type:** Floating Point**Dynamic index:** -**Func. diagram:** -**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

1.00 [%]

Max

1000.00 [%]

Factory setting

100.00 [%]

Description:

Sets the scaling factors for controller parameters p3421, p3422 and p3424.

Index:

[0] = Scaling, inductance

[1] = Scaling, capacitance

Dependency:

Refer to: p3410, p3421, p3422, p3424, p3614

Note:p3425 is automatically set to the optimum value when setting the control parameters using the line supply data identification p3410 ≥ 2 . As the line supply inductance (p3424) increases in comparison to the total inductance (p3421), lower values must be selected for p3425. This means that the control is adapted to weak line supplies with high relative short-circuit voltage u_k or high line supply inductance (also refer to p3614).The scaled control loop parameters become effective for the closed-loop control, i.e. the products $p3421 * p3425[0]$ and $p3422 * p3425[1]$ represent the controller setting.**p3440 Smart mode configuration / SLM configuration**

A_INF, S_INF

Can be changed: T**Calculated:** -**Access level:** 4**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

-

Max

-

Factory setting

0001 bin

Description:

Sets the configuration of the smart mode.

Bit field:**Bit** **Signal name**

00 Soft pulse mode

1 signal

On

0 signal

Off

FP

-

Note:

Re bit 00:

When the pulsed mode for the smart mode is de-activated, when regenerating, higher phase current gradients occur.

r3452	Infeed PLL status / INF PLL status		
A_INF, S_INF	Can be changed: - Data type: Integer16 P-Group: Closed-loop control Not for motor type: - Min 0000 bin	Calculated: - Dynamic index: - Units group: - Max 0111 bin	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the status of the line supply PLL.		
Values:	0: Initialization running 1: Error when synchronizing 2: Line analysis 3: Calculation line data 4: Pulse enable missing 5: PLL calculation 6: Final status controlled / smart mode 7: Reserved		
p3458[0...1]	Infeed PLL smoothing time / INF PLL t_smooth		
A_INF, S_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 1.0 [ms]	Calculated: - Dynamic index: - Units group: - Max 1000.0 [ms]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting [0] 23.1 [ms] [1] 9.1 [ms]
Description:	Sets the smoothing time for the line supply PLL.		
Index:	[0] = Sensorless operation line supply frequency smoothing time [1] = VSM operation line supply frequency smoothing time		
Note:	It may be necessary to reduce the smoothing time for weak line supplies with high frequency fluctuations. There is otherwise a risk of brief orientation errors and the infeed could fail.		
r3460	Infeed PLL system deviation / INF PLL ctrl_dev		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [°]	Calculated: - Dynamic index: - Units group: - Max - [°]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Displays the PLL system deviation.		
r3461	Infeed PLL system deviation after filtering / INF PLL ctrl_devSm		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [°]	Calculated: - Dynamic index: - Units group: - Max - [°]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Displays the PLL system deviation after filtering.		
Dependency:	Refer to: p3458		

p3463	Infeed, line angle change, phase failure detection / INF Phi phase fail		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min -180.0 [°]	Calculated: - Dynamic index: - Units group: - Max 180.0 [°]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 15.0 [°]
Description:	If the line supply angle (angle between the line supply phases) suddenly changes by this value, then a phase failure is assumed. The pulses are then inhibited for 10 ms.		
Dependency:	Refer to: A06205		
r3468[0...1]	Infeed voltage alpha/beta line filter / INF V a/b filter		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [V]	Calculated: - Dynamic index: - Units group: - Max - [V]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [V]
Description:	Displays the line supply voltage at the input terminals of the line filter in alpha/beta components.		
Index:	[0] = Alpha component [1] = Beta component		
Note:	The input terminals of the line filter form, for infeeds, the connection point of the Voltage Sensing Module (VSM) to measure the line supply voltage. For operation with VSM (p3400.5 = 1), the following applies: The voltage measured values r3661 and r3662, transformed into the alpha/beta system are displayed in r3468. For sensorless operation without VSM (p3400.5 = 0), the following applies: The estimated values of the voltages from the line supply model of the PLL transformed into the alpha/beta system are displayed in r3468.		
p3469[0...n]	Latch delay time correction, zero crossover detection / t_latch corr PLL		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min -10000.0 [µs]	Calculated: - Dynamic index: PDS, p0120 Units group: - Max 10000.0 [µs]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [µs]
Description:	Calibration value for the RC filter of the zero crossover detection of the line supply voltage in the power unit. For p3469 = 0, a new calibration is carried out at the next identification run with p3410 = 4 or p3410 = 5.		
Note:	The calibration value is saved in the EEPROM of the power unit (not on the CompactFlash card), as it involves a characteristic/feature of the power unit.		
r3470	Infeed active current filter / INF I_act filter		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the active current requirement due to the line filter.		
Dependency:	Refer to: r0038, p0221, p0222		


Note: With respect to the line supply, the sum of the active currents of the power unit (p0078) and line filter (p3470) are effective.
The active current demand of the line filter is taken into account when calculating the power factor (r0038).
The magnitude of the line filter active current depends on the capacitance (p0221) and the resistance (p0222) of the line filter.

r3471	Infeed reactive current filter / INF I_reactiveFilt		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the reactive current requirement as a result of the line filter.		
Dependency:	Refer to: r0038, p0221, p0222		
Note:	With respect to the line supply, the sum of the reactive currents of the power unit (p0076) and line filter (p3471) are effective. The reactive current requirement of the line filter is taken into account when calculating the power factor (r0038). The magnitude of the line filter reactive current depends on the capacitance (p0221) and the resistance (p0222) of the line filter.		

p3472[0...4]	Line supply PLL line supply voltage smoothing time / Line PLL V_I t_sm		
A_INF, S_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 1.0 [ms]	Max 30000.0 [ms]	Factory setting [0] 200.0 [ms] [1] 100.0 [ms] [2] 5000.0 [ms] [3] 8.0 [ms] [4] 8.0 [ms]
Description:	Sets the smoothing time of the line supply voltage for the line supply PLL.		
Index:	[0] = Sensorless operation line supply voltage smoothing time [1] = VSM operation line supply voltage smoothing time [2] = Detection line supply undervoltage smoothing time [3] = Detection line supply overvoltage smoothing time [4] = Detection line supply voltage step smoothing time		
Dependency:	Refer to: p3400		
Note:	For the pre-control of the line supply voltage, a smoothed value of the line supply voltage is used in the closed-loop control. p3472[0]: Sets the PT1 time constant to smooth the line supply voltage for operation without VSM (p3400.5 = 0). p3472[1]: Sets the PT1 time constant to smooth the line supply voltage for operation with VSM (p3400.5 = 1). p3472[2]: Sets the smoothing time constant to slowly detect a line supply undervoltage (F6100). p3472[3]: Sets the smoothing time constant to quickly detect line supply undervoltages for phase failure (A6205). p3472[4]: Sets the smoothing time constant to quickly adapt the line supply pre-control for line supply voltage steps (p0286).		

p3480			
Infeed modulation depth limit / INF mod_depth lim			
A_INF	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8940
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 50.0 [%]	Max 110.0 [%]	Factory setting 97.0 [%]
Description:	Sets the maximum steady-state modulation depth. When this limit is reached, the DC link voltage is boosted to maintain the control margin. This means that the control reserve is maintained.		
Dependency:	Refer to: p3481, r3485		
<hr/>			
p3481			
Infeed standby controller dynamic response / INF res_ctrl dyn			
A_INF	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8940
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 7.5 [ms]
Description:	Sets the dynamic response of the reserve controller for the modulation depth. As the smoothing time increases, the response of the DC link voltage tracking becomes slower.		
Dependency:	Refer to: p3480, r3485		
<hr/>			
r3485			
Infeed standby controller output / INF res_ctrl outp			
A_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8940
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the reserve controller output for the modulation depth. The DC link voltage is increased by this voltage value - the summed setpoint for the DC link voltage is output in r0088. The summed setpoint is limited to the maximum steady-stage DC link voltage (p0280).		
Dependency:	Refer to: p3480, p3481		
<hr/>			
p3490			
Infeed OFF command delay time / INF t_del OFF			
A_INF, B_INF, S_INF	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8732, 8832, 8932
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 1000000.0 [ms]	Factory setting 0.0 [ms]
Description:	Sets the delay time for the ON/OFF1 command of the infeed. After ON/OFF1 = 0 the infeed remains in operation for the specified time		
Dependency:	Refer to: p0840		
Notice:	The ON/OFF1 command of the infeed can be interrupted.		
Note:	This parameter is only relevant if a Motor Module and the infeed are controlled by the same OFF command. In this case, the delay time and the stop ramp time of the motor can be coordinated with one another.		

p3491	Infeed I-offset measurement monitoring time / INF I_offs t_monit		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: 8932 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 65000 [ms]	Factory setting 2000 [ms]
Description:	Sets the monitoring time for the current-offset measurement of the power unit. The time is started with the normal end of the measurement. If the measurement is invalid and if no valid measurement can be taken within the monitoring period (phase currents too high), an appropriate message is generated.		
Note:	Set this parameter to 0 to allow variations in the delay when running-up.		
p3492	Infeed, line supply undervoltage delay time / INF V_line t_del		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [s]	Max 300 [s]	Factory setting 0 [s]
Description:	Sets the delay time for shutdown due to a line supply undervoltage condition (A06100). After the fault occurs, the power unit is only tripped (shut down) after this delay has expired. If the fault is removed during this design time, then the power unit is not tripped (shut down).		
Dependency:	Refer to: p0283 Refer to: F06100		
Note:	The degree of ruggedness of the infeed with respect to fluctuations in the line supply voltage can be increased by parameterizing this delay value. However, the following should be noted: - the infeed power decreases proportionally (linearly) with the line supply voltage. - when other components are connected, for low line supply voltage, operating faults or damage can occur. In this case, the specifications of the connected electrical components should always be carefully observed.		
r3508	Infeed step-up factor maximum / Step-up factor max		
A_INF	Can be changed: - Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the maximum permissible step-up factor for the power unit used in conjunction with the line filter parameterized in p0220[0].		
Dependency:	Refer to: p0210, p3510		
Note:	The maximum step-up factor determines the maximum ratio between the DC link voltage setpoint (p3510) and the unit supply voltage (p0210). The input of the DC link voltage setpoint (p3510) is limited corresponding to the permissible step-up factor (r3508).		

p3510			
A_INF	Infeed DC link voltage setpoint / INF Vdc setp		
	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1774, 8940
	P-Group: Closed-loop control	Units group: 5_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 100.00 [V]	Max 1600.00 [V]	Factory setting 600.00 [V]
Description:	Sets the setpoint for the DC link voltage.		
Dependency:	Refer to: p0210, p0280, p3400, r3508, p3511		
Warning:	Before increasing the voltage limit for pulsed operation of a controlled booksize infeed with line supply voltages p0210 > 415 V it should be checked whether the motors, connected to the DC link, are specified for the higher motor voltages.		
	The warning information associated with p0210 must be carefully observed.		
Note:	When the Smart Mode is activated (p3400.0 = 1) the DC link voltage is not regulated, i.e. the value entered here is in this case not effective.		
	The permissible range of the DC link voltage depends on the parameterized unit supply voltage (p0210) and the permissible, maximum continuous DC link voltage (p0280).		
	In voltage-controlled operation (p3400.0 = 0) the following applies:		
	p3510 >= 1.42 * p0210 and		
	p3510 <= p3508 * p0210 and		
	p3510 <= p0280.		
	In the Smart Mode (p3400.0 = 1) the following applies:		
	The setpoint p3510 for the DC link voltage control is inactive. In order to permit an adapted display, deviating from voltage-controlled operation, the lower limit p3510 is >= 1.2 * p0210.		
<hr/>			
p3511			
A_INF	CI: Infeed DC link voltage supplementary setpoint / INF Vdc Z_set		
	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 8940
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the supplementary setpoint for the DC link voltage.		
Dependency:	Refer to: p3510		
<hr/>			
p3513			
A_INF	BI: Inhibit voltage-controlled operation / Inhib V_ctrl mode		
	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for inhibiting the voltage-controlled mode of the infeed.		
Dependency:	Refer to: p3400, r3405		
Notice:	The DC link voltage must be controlled by a different component at the DC link; otherwise this results in an overvoltage or undervoltage condition.		
Note:	The current controller remains active and can be controlled by means of its setpoint inputs (p3515, p3610). This binector input is used to change over between master (0 signal) and slave (1 signal) operation and vice versa.		

p3514	Infeed supplementary active current steady-state / INF I_sup_eff stat		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2 Min -1000.00 [Arms]	Access level: 3 Func. diagram: 8940 Unit selection: p0505 Expert list: 1 Max 1000.00 [Arms] Factory setting 0.00 [Arms]
Description:	Sets a steady-state supplementary setpoint for the active line supply current.		
Dependency:	Refer to: p3515		
p3515	CI: Infeed supplementary active current / INF I_suppl eff		
A_INF	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -	Access level: 3 Func. diagram: 8940 Unit selection: - Expert list: 1 Max - Factory setting 0
Description:	Sets the signal source for the supplementary setpoint of the active current.		
Dependency:	Refer to: p3514		
Note:	For a master-slave infeed, the master can enter the current setpoint via this connector input.		
p3516	Infeed current distribution factor (parallel connection) / INF I_distr_factor		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0.00 [%]	Access level: 3 Func. diagram: 8940, 8942 Unit selection: - Expert list: 1 Max 100.00 [%] Factory setting 100.00 [%]
Description:	Sets the factor to be multiplied by the active current setpoint for the current controller. For a master slave infeed configuration, the value reduced in this way can be distributed to the slave axes. The overall gain from the perspective of the voltage controller remains the same.		
r3517	CO: Infeed active current controller unlimited setpoint / INF I_act ctrl set		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2 Min - [Arms]	Access level: 3 Func. diagram: 8940 Unit selection: p0505 Expert list: 1 Max - [Arms] Factory setting - [Arms]
Description:	Displays the unlimited setpoint of the active current controller. For a master-slave infeed configuration, the master retrieves this setpoint and distributes it to all of the slaves. The slaves operate in the current-controlled mode.		

p3520[0...3]	CI: Infeed power pre-control / INF pre-control P		
A_INF	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for power pre-control.		
Dependency:	Refer to: p3521		
Note:	Closed-loop control of the DC link voltage is improved by pre-controlling the power required for the other modules. A non-normalized quantity is expected so that the various power reference values (r2004) of the drive objects do not have to be taken into account. The scaling factors are used to adapt the scaling (p3521).		
p3521[0...3]	Infeed pre-control power scaling / INF prectrl P scal		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min -100000.00000 [%]	Calculated: - Dynamic index: - Units group: - Max 100000.00000 [%]	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100.00000 [%]
Description:	Sets the scaling factor for the power pre-control.		
Dependency:	Refer to: p3520		
p3530	Infeed current limit motoring / INF I_limit mot		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 1.00 [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max 100000.00 [Arms]	Access level: 3 Func. diagram: 8940 Unit selection: p0505 Expert list: 1 Factory setting 10000.00 [Arms]
Description:	Sets the motoring limit for the active line current. The currently effective current limit is displayed in r0067[0].		
Dependency:	Refer to: r0067, p3532		
Caution:	If this limit is selected lower than the maximum current permissible for the power unit (r0067), the infeed can no longer provide its full controlled power. Operating faults of the infeed can occur due to the resulting DC link undervoltage.		
Notice:	For self-commutated infeeds, the DC link voltage decreases if more power is drawn from the DC link by the connected load than can be supplied by the line because of the power unit maximum current or a limit in p3530. If the DC link voltage decreases down to the rectified value, then the complete current - necessary to cover the required active power - flows, uncontrolled into the rectifier circuit via the diodes. This is the reason that, for physical reasons, the value in p3530 cannot act as current limit that is always maintained. The value forms a current threshold from which point onwards the DC link energy is used as buffer for brief power fluctuations.		

p3531	Infeed current limit regenerating / INF I_limit regen		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2	Access level: 3 Func. diagram: 8940 Unit selection: p0505 Expert list: 1 Factory setting -10000.00 [Arms]
Description:	Sets the limit for the active line supply current when regenerating. The currently effective current limit is displayed in r0067[1].		
Dependency:	Refer to: r0067, p3533		
Caution:	If this limit is selected lower than the maximum current permissible for the power unit (r0067), the infeed can no longer provide its full controlled power. This can result in an overvoltage condition in the DC link.		
Notice:	For self-commutated infeeds, the DC link voltage increases if more power is input to the DC link through the connected source than can be fed to the line because of the maximum power unit current or a limit in p3531 If the DC link voltage exceeds the permissible threshold (p0297), defined by the hardware, then the unit is tripped due to overvoltage. The value in p3531 represents a current limit that is always maintained - however, this can result in overvoltage conditions in the DC link. The value in p3531 represents a current limit from which point onwards the capacitance of the DC link can be used as buffer for brief power fluctuations.		

p3532	BI: Infeed, inhibit motoring / INF mot op inhibit		
A_INF	Can be changed: T Data type: Unsigned32 / Binary P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8920 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for inhibiting the motoring mode of the infeed.		
Dependency:	Refer to: r3405, p3530		
Notice:	If the motor mode is inhibited although power is withdrawn from the DC link, then the DC link voltage drops to the rectified value. In this state, the DC link is post-charged through the diodes and motoring power is fed to the power unit in spite of the motoring inhibit. The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The inhibit only becomes active after operation has been enabled and the Vdc has been ramped-up (r0863.0 = 1).		

p3533	BI: Infeed, inhibit regenerative operation / INF regen op inhib		
A_INF, S_INF	Can be changed: T Data type: Unsigned32 / Binary P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8820, 8920 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to inhibit the regenerating mode of the infeed.		
Dependency:	Refer to: r3405, p3531		
Notice:	The DC link voltage will increase if regenerative operation is inhibited even though power is being regenerated into the DC link. The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The inhibit only becomes active after operation has been enabled and the Vdc has been ramped-up (r0863.0 = 1).		

r3534	Infeed line filter maximum current / INF filter I_{max}		
A_INF	Can be changed: - Data type: Floating Point P-Group: Converter Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: - Max - [Arms]	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [Arms]
Description:	Displays the maximum permissible current for the line filter set using p0220[0].		
Dependency:	Refer to: p0220		
Note:	The currently effective maximum current for the power unit is displayed in r0067. The value in r0067 is obtained as minimum of the current limits in r0209, p3530 ... r3534.		
r3554	Infeed Vdc controller integral component / INF Vdc_ctr I_{comp}		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 2 Func. diagram: 8940 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the integral action component of the DC link voltage controller (Vdc controller).		
p3555[0...5]	Infeed Vdc controller integral component fast intervention / Vdc_ctr I-compFast		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 0.00 [%]	Calculated: - Dynamic index: - Units group: - Max 200.00 [%]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting [0] 2.00 [%] [1] 102.00 [%] [2] 0.00 [%] [3] 5.00 [%] [4] 100.00 [%] [5] 0.00 [%]
Description:	Sets the fast Vdc controller intervention for a step-like decrease of the DC link voltage due to a high motor load of the infeed. The Vdc controller fast intervention is de-activated for p3555[5] = 0 % or p3560 < 100% or p0225 > 0.5 * p0223. For a line supply and DC link identification (p3410 >= 2) the level of the fast controller intervention (p3555[2]) is automatically adapted to the line supply inductance.		
Recommend.:	Precise system knowhow is required when correctly changing this parameter! - generally, the fast controller intervention is used to improve the control behavior for high-speed load changes. The function can therefore always be de-activated with p3555[5] = 0 % if no peak load duty cycles are required in the application. - using p3555[0], the calculation of the modulation depth is determined in the case of high system deviations also when the controller intervention is de-activated. This is the reason that p3555[0] should generally not be changed.		
Index:	[0] = Intervention threshold 1: Vdc deviation from the setpoint [1] = Intervention threshold 2: Vdc difference to the rectified value [2] = Fast intervention automatic scaling [3] = Fast intervention pre-control [4] = Fast intervention timeout [5] = Fast intervention manual scaling		

Note: p3555[0]:
Vdc system deviation as a percentage of the setpoint of the DC link voltage (first condition to initiate fast controller intervention). The threshold is also used to internally change over the modulation depth calculation for high system deviations and should therefore generally not be changed!

p3555[1]:
Vdc threshold as a percentage of the rectified value of the actual line supply voltage (second condition to initiate the fast controller intervention). Both threshold conditions must be fulfilled to initiate the controller intervention.

p3555[2]:
Percentage overall level of the fast intervention (scaling factor). For a line supply identification with p3410 >= 2, the factor is automatically adapted or, for weak line supplies with a high inductance, set to 0.

p3555[3]:
Percentage correction of the pre-control for a fast voltage dip (dead time compensation).

p3555[4]:
Percentage minimum time between controller interventions (100% corresponds to 100 ms). If high load change frequencies occur with the application, the minimum time between two controller intervention can be reduced using p3555[4].

p3555[5]:
Percentage overall level of the fast intervention (scaling factor). With p3555[5] = 0, the fast controller intervention is inhibited. For weak line supplies with a high inductance, it makes sense to de-activate the fast intervention.

p3560	Infeed Vdc controller proportional gain / INF Vdc_ctrl Kp		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8940 Unit selection: - Expert list: 1
	Min 0.01 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]

Description: Sets the normalized proportional gain for the DC link voltage controller (Vdc controller).

Note: A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

p3562	Infeed,Vdc controller integral time / INF Vdc_ctrl Tn		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8940 Unit selection: - Expert list: 1
	Min 0.10 [%]	Max 100000.00 [%]	Factory setting 100.00 [%]

Description: Sets the normalized integral time for the DC-link voltage controller (Vdc).

Note: A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

p3564	Infeed Vdc monitor, time constant / INF Vdc_observe T		
A_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 100.0 [ms]	Factory setting 0.2 [ms]

Description: Sets the filter time constant for the DC link voltage monitor (Vdc).

p3566	Infeed Vdc ramp duration / INF Vdc t_ramp		
A_INF	Can be changed: T Data type: Floating Point P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8932 Unit selection: - Expert list: 1
	Min 40 [ms]	Max 1000 [ms]	Factory setting 100 [ms]
Description:	Sets the ramp time for the DC link voltage (Vdc) when powering-up and powering-down. Powering-up (pulses enabled, r0898.3 = 1): During this time, the DC link voltage is increased from the rectifier value after pre-charging to the voltage setpoint (p3510, p3511). The voltage setpoint is increased, when necessary, so that the modulation depth reserve (p3481) is maintained. The reactive current is set to the value 0 while ramping. Powering-down (inhibit pulses, r0898.3 = 0): During this time, the DC link voltage is reduced to the rectified value ($\sqrt{2}$ * line supply voltage). The reactive current value is set to the value 0 when the ramp starts.		
p3570	CI: Master/slave active current setpoint / I_act_setp		
A_INF (Master/Slave)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8948 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 3573[0]
Description:	Sets the signal source of the active current setpoint for the closed-loop current control of the slave. The signal value is received from the master infeed (e.g. via the multiplexer or direct).		
Dependency:	Refer to: p3513, p3571, p3572, r3573		
p3571[0...3]	CI: Master/slave active current setpoint, multiplexer input / I_act_multi_inp		
A_INF (Master/Slave)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8948 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal sources for the input values of the multiplexer. The signal values are used as setpoint for the closed-loop current control of the slave infeed.		
Index:	[0] = Multiplexer input value 0 [1] = Multiplexer input value 1 [2] = Multiplexer input value 2 [3] = Multiplexer input value 3		
Dependency:	Refer to: p3570, p3572, r3573		
Note:	For a master infeed and a slave infeed, the active current setpoint can be entered without using a multiplexer. If the multiplexer for the master/slave is not required, then it can also be used for another function.		

p3572	CI: Master/slave active current setpoint, multiplexer selection / I_act multi sel		
A_INF (Master/Slave)	Can be changed: T Data type: Unsigned32 / Integer16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8948 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to select the required input value for the multiplexer. CI: p3572 = 0, 1, 2, 3 --> valid values Fault F06320 is output for other values.		
Dependency:	Refer to: p3571, r3573 Refer to: F06320		
Note:	For a master infeed and a slave infeed, the active current setpoint can be entered without using a multiplexer. If the multiplexer for the master/slave is not required, then it can also be used for another function.		
r3573	CO: Master/slave active current setpoint, multiplexer output / I_act multi outp		
A_INF (Master/Slave)	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2	Access level: 3 Func. diagram: 8948 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays (connector output) the output for the multiplexer. The signal value is used as standard for the active current setpoint for the slave infeed.		
Dependency:	Refer to: p3570, p3571, p3572		
Note:	For a master infeed and a slave infeed, the active current setpoint can be entered without using a multiplexer. If the multiplexer for the master/slave is not required, then it can also be used for another function.		
p3574[0...3]	Master/slave DC link voltage monitoring / Vdc monitoring		
A_INF (Master/Slave)	Can be changed: C2(1), T Data type: Floating Point P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8948 Unit selection: - Expert list: 1 Factory setting [0] 20 [V] [1] -20 [V] [2] 5 [V] [3] -5 [V]
Description:	Sets the upper and lower limit values and hysteresis values for the DC link voltage monitoring. The values are entered as absolute values and refer to the DC link voltage setpoint (p3510). For a slave infeed, if the limits are violated, then the closed-loop voltage control is automatically switched-in.		
Index:	[0] = Vdc upper limit value [1] = Vdc lower limit value [2] = Vdc upper hysteresis value [3] = Vdc lower hysteresis value		
Dependency:	Refer to: p0210		

r3575.0...2		BO: Master/slave DC link voltage monitoring status / Vdc monit status			
A_INF (Master/Slave)	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 8948		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status of the DC link voltage monitoring for the master/slave.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Upper limit value reached	Yes	No	-
	01	Lower limit value reached	Yes	No	-
	02	Upper/lower limit value reached	Yes	No	-
Dependency:	Refer to: r0088, p3510, p3574				
r3602					
Infeed control status / INF ctrl state					
A_INF	Can be changed: -	Calculated: -	Access level: 4		
	Data type: Integer16	Dynamic index: -	Func. diagram: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0000 bin	1000 bin	-		
Description:	Displays the status of the closed-loop infeed control.				
Values:	0: Initialization running 1: Pulse enable missing 2: Ramp-up, DC-link voltage 3: Ramp-up reactive current 4: Shutdown running 5: Reset identification 6: Operation 7: Identification running 8: Smart mode running				
p3603					
Infeed current pre-control factor D component / INF I_ctrl D-comp					
A_INF	Can be changed: U, T	Calculated: -	Access level: 4		
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8946		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0.00 [%]	500.00 [%]	100.00 [%]		
Description:	The D component of the current pre-control is determined from the device data of the filter. p3603 can be used to weigh the pre-calculated D component. If no dynamic pre-control is to be used, set the factor to zero.				
r3606					
Infeed active current controller system deviation / INF I_act ctrl dev					
A_INF	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8946		
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	- [Arms]	- [Arms]	- [Arms]		
Description:	Displays the system deviation of the active current controller.				

r3608	Infeed reactive current controller system deviation / INF I_reactv CtrDev		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max - [Arms]	Access level: 2 Func. diagram: 8946 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the system deviation of the reactive current controller.		
p3610	Infeed reactive current fixed setpoint / INF I_reactv F_set		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min -10000.0 [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Max 10000.0 [Arms]	Access level: 2 Func. diagram: 1774, 8946 Unit selection: p0505 Expert list: 1 Factory setting 0.0 [Arms]
Description:	Sets the fixed setpoint for the reactive current.		
p3611	CI: Infeed reactive current supplementary setpoint / INF I_reactv Z_set		
A_INF	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 2 Func. diagram: 8946 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the supplementary setpoint of the reactive current.		
p3614	Infeed current actual value filter smoothing time / INF I_act t_sm		
A_INF	Can be changed: T Data type: Floating Point P-Group: Commands Not for motor type: - Min 0.000 [ms]	Calculated: - Dynamic index: - Units group: - Max 2.000 [ms]	Access level: 3 Func. diagram: 8950 Unit selection: - Expert list: 1 Factory setting 0.000 [ms]
Description:	Sets the time constant for the PT1 filtering of the active current actual value and reactive current actual value.		
Note:	The PT1 filter with a clock cycle dead time can be used to stabilize the closed-loop current control for extremely weak line supplies with higher relative short-circuit voltage u_k . The current actual value filter is de-activated with $p3614 = 0$. For an automatic controller setting with $p3410 \geq 2$, the current actual value filter is automatically preset.		
p3615	Infeed current controller P gain / INF I_ctrl Kp		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min 0.00 [%]	Calculated: - Dynamic index: - Units group: - Max 1000.00 [%]	Access level: 2 Func. diagram: 8946 Unit selection: - Expert list: 1 Factory setting 100.00 [%]
Description:	Sets the normalized P gain for closed-loop current control of the infeed.		
Note:	A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).		

p3617	Infeed current controller integral time / INF I_ctrl Tn		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8946 Unit selection: - Expert list: 1 Factory setting 100.00 [%]
Description:	Sets the normalized integral time for the infeed current controller.		
Note:	A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).		
r3618	Infeed active current controller, integral component / INF I_act_ctrl Tn		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1	Access level: 2 Func. diagram: 8946 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the integral component of the active current controller.		
r3619	Infeed reactive current controller integral component / INF I_reactv_ctrTn		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1	Access level: 2 Func. diagram: 8946 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the integral action component of the reactive current controller.		
p3620	Infeed current controller adaptation lower application threshold / INF I_adptLowThrsH		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 40.00 [%]
Description:	Sets the switch-in threshold for the current controller adaptation. The value refers to the maximum power modular current (r0209). From the starting threshold onwards, the inductance value (p3421) used for current control is reduced linearly as a function of the current value. The inductance value for the maximum power unit current is therefore p3421 * p3622.		
Dependency:	Refer to: p3410, p3415, p3622		
Note:	The parameter can be set automatically set using the line supply identification (p3410 = 4, 5) (also refer to p3622). Prerequisite for a reliable measurement of p3622 is that the current magnitude for run 2 (p3415[1]) is at least 10 % higher than the current magnitude for run 1 of the line supply identification. Otherwise, the measurement result is rejected. In the case of a correct measurement, p3620 is set to 80% of the current magnitude for run 1 (p3415[0]). For chassis power units, it is generally not necessary to adapt p3620 and p3622 to the characteristics of the line supply. However, when required, the current controller adaptation can be optimized by selecting suitable current magnitudes for p3415. For booksize power units, p3620 and p3622 are automatically adapted with the then valid default setting of the line identification p3415.		

p3622	Infeed current controller adaptation reduction factor / INF I_adapt factor		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.01 [%] Max 100.00 [%] Factory setting 85.00 [%]
Description:	Sets the inductance of the commutating reactor at the maximum power unit current (r0209) as a percentage of the inductance (p3421) at the application threshold (p3620).		
Dependency:	Refer to: p3410, p3415, p3620		
Note:	<p>The parameter for a line supply identification (p3410 = 4, 5) automatically optimized, if the following applies: p3415[1] - p3415[0] > 10%. Otherwise, the measurement result is rejected.</p> <p>For chassis power units, it is generally not necessary to adapt p3620 and p3622 to the characteristics of the line supply. However, when required, the current controller adaptation can be optimized by selecting suitable current magnitudes for p3415.</p> <p>For booksize power units, p3620 and p3622 are automatically adapted with the then valid default setting of the line identification p3415.</p>		
p3624[0...1]	Infeed harmonics controller order / INF harm_ctr order		
A_INF	Can be changed: T Data type: Unsigned16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Min 5 Max 13 Factory setting [0] 5 [1] 7
Description:	<p>Sets the Order of the line harmonics for the current harmonics controller.</p> <p>p3624[0]: Order of the line harmonics for the first harmonics controller.</p> <p>p3624[1]: Order of the line harmonics for the second harmonics controller.</p>		
Dependency:	Refer to: p3625, r3626		
Note:	<p>Harmonics in the line supply voltage can cause harmonics in the converter current. These types of current harmonics can be reduced by activating additional controller modules.</p> <p>Example:</p> <p>For a 50 Hz line supply harmonics at 250 Hz in the phase currents can be reduced by activating a harmonic controller with Order 5 (p3624[0] = 5).</p>		
p3625[0...1]	Infeed harmonics controller scaling / INF harm_ctrl scal		
A_INF	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Min 0.0 [%] Max 300.0 [%] Factory setting 100.0 [%]
Description:	<p>Sets the gain of the harmonics controller.</p> <p>p3625[0]: Gain of the first harmonics controller</p> <p>p3625[1]: Gain of the second harmonics controller</p> <p>0 %: Controller is de-activated</p> <p>100 %: Controller is activated with default gain setting</p>		
Dependency:	Refer to: p3624, r3626		
Note:	<p>The harmonics controller corrects the power unit voltages so that the line-side current harmonics are reduced.</p> <p>The order of a current harmonic, that is to be dampened using a harmonics controller, is defined using p3624.</p>		

r3626[0...1]	Infeed harmonics control output / INF harm_ctrl outp		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the output voltages of the harmonics controller. r3626[0]: RMS value of the 5th harmonic of the controller output voltage r3626[1]: RMS value of the 7th harmonic of the controller output voltage The harmonics controller corrects the power unit voltages so that the line-side current harmonics are reduced.		
Dependency:	Refer to: p3624, p3625		
r3632	Infeed input voltage Vsd (active component) / INF V_inp Vsd		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1	Access level: 3 Func. diagram: 1774, 8946, 8950 Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the voltage Vsd (active component) at the 3-phase line supply input of the power unit.		
r3633	Infeed input voltage Vsq (reactive component) / INF V_inp Vsq		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1	Access level: 3 Func. diagram: 1774, 8946, 8950 Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the voltage Vsq (reactive component) at the 3-phase line supply input of the power unit.		
r3635	Infeed input voltage angle / INF V_inp angle		
A_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8950 Unit selection: - Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the angle of the input voltage (relative to the line angle).		
p3660	VSM input line supply voltage, voltage scaler / VSM inp V_scaler		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9880 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 100000.00 [%]	Factory setting 0.00 [%]
Description:	Sets the voltage scaler for the Voltage Sensing Module (VSM).		

Note: When the 690 V input is used (X522) without voltage scaler,, 0 % should be entered.
 When the 100 V input (X521) is used with voltage scaler to measure medium voltages, the dividing (scaling) factor multiplied by 100% should be entered.
 Example:
 1000 V line supply voltage, voltage scaling, 10:1
 --> voltage at the VSM input is 100 V
 --> p3660 = 10 * 100 % = 1000 %

p3660[0...n]	VSM input line supply voltage, voltage scaler / VSM inp V_scaler		
VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9880
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [%]	Max 100000.00 [%]	Factory setting 0.00 [%]
Description:	Sets the voltage scaler for the Voltage Sensing Module (VSM).		
Note:	When the 690 V input is used (X522) without voltage scaler,, 0 % should be entered. When the 100 V input (X521) is used with voltage scaler to measure medium voltages, the dividing (scaling) factor multiplied by 100% should be entered. Example: 1000 V line supply voltage, voltage scaling, 10:1 --> voltage at the VSM input is 100 V --> p3660 = 10 * 100 % = 1000 %		

r3661	CO: VSM input line supply voltage u1 - u2 / VSM inp u1-u2		
A_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8850, 8950, 9880
	P-Group: Closed-loop control	Units group: 5_3	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the voltage between L1 and L2.		
Dependency:	Refer to: r0025, r0072, p3660		
Note:	X521.1 or X522.1: Connection of L1 X521.2 or X522.2: Connection of L2 X521.3 or X522.3: Connection of L3 The absolute voltage value (3-ph. AC) resulting from the phase voltages is displayed unsmoothed in r0072[1] and smoothed in r0025[1].		

r3661[0...n]	CO: VSM input line supply voltage u1 - u2 / VSM inp u1-u2		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: -
	P-Group: Closed-loop control	Units group: 5_3	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the voltage between L1 and L2.		
Dependency:	Refer to: p3660		
Note:	X521.1 or X522.1: Connection of L1 X521.2 or X522.2: Connection of L2 X521.3 or X522.3: Connection of L3		

r3662	CO: VSM input line supply voltage u2 - u3 / VSM inp u2-u3		
A_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 8850, 8950, 9880
	P-Group: Closed-loop control	Units group: 5_3	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the voltage between L2 and L3.		
Dependency:	Refer to: r0025, r0072, p3660		
Note:	X521.2 or X522.2: Connection of L2 X521.3 or X522.3: Connection of L3 The absolute voltage value resulting from the phase voltages is displayed in r0072[1] and smoothed in r0025[1].		

r3662[0...n]	CO: VSM input line supply voltage u2 - u3 / VSM inp u2-u3		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: -
	P-Group: Closed-loop control	Units group: 5_3	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the voltage between L2 and L3.		
Dependency:	Refer to: p3660		
Note:	X521.2 or X522.2: Connection of L2 X521.3 or X522.3: Connection of L3		

r3664.0...1	BO: VSM temperature evaluation, status / VSM temp status				
A_INF, S_INF	Can be changed: -		Calculated: -		Access level: 3
	Data type: Unsigned16		Dynamic index: -		Func. diagram: 9886
	P-Group: Terminals		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the status of the temperature evaluation of the Voltage Sensing Module (VSM). This displays as to whether the temperature actual value has exceeded the fault/alarm threshold.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Temperature alarm threshold exceeded	Yes	No	-
	01	Temperature fault threshold exceeded	Yes	No	-
Dependency:	Refer to: p3665, r3666, p3667, p3668				

r3664[0...n]	CO: VSM temperature evaluation, status / VSM temp status		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: p0150	Func. diagram: 9886
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the status of the temperature evaluation of the Voltage Sensing Module (VSM). This displays as to whether the temperature actual value has exceeded the fault/alarm threshold.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Temperature alarm threshold exceeded	Yes	No	-
	01	Temperature fault threshold exceeded	Yes	No	-
Dependency:	Refer to: p3665, r3666, p3667, p3668				

p3665[0...n]	VSM temperature evaluation, sensor type / VSM TempSensorType		
A_INF, S_INF, VEC-TOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: p0140	Func. diagram: 9886
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 0
Description:	Setting of the temperature sensor for the Voltage Sensing Module (VSM). The temperature sensor is connected to terminals X520.5 and X520.6 of the VSM.		
Values:	0: No sensor 1: PTC 2: KTY84		

r3666	CO: VSM temperature KTY / VSM temp KTY		
A_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9886
	P-Group: Closed-loop control	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the temperature actual value of a KTY84 temperature sensor connected to the Voltage Sensing Module (VSM). Prerequisite: A KTY84 sensor is connected and p3665 is set to 2.		
Dependency:	Refer to: p3665		
Note:	For sensor type PTC (p3665 = 1), the following applies: - below the nominal response temperature, r3666 = -50°C. - above the nominal response temperature, r3666 = 199.9 °C.		

r3666[0...n]	CO: VSM temperature KTY / VSM temp KTY		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9886
	P-Group: Closed-loop control	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the temperature actual value of a KTY84 temperature sensor connected to the Voltage Sensing Module (VSM). Prerequisite: A KTY84 sensor is connected and p3665 is set to 2.		
Dependency:	Refer to: p3665		
Note:	For sensor type PTC (p3665 = 1), the following applies: - below the nominal response temperature, r3666 = -50°C. - above the nominal response temperature, r3666 = 199.9 °C.		

p3667	VSM line filter overtemperature alarm threshold / VSMfilt_T A_thresh		
A_INF, S_INF	Can be changed: T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9886
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0 [°C]	Max 301 [°C]	Factory setting 150 [°C]
Description:	Sets the alarm threshold for the KTY temperature sensor of the Voltage Sensing Module (VSM) to monitor the line filter temperature. Prerequisite: A KTY84 sensor is connected and p3665 is set to 2.		
Dependency:	Refer to: p3665 Refer to: F34207		
p3667[0...n]	VSM line filter overtemperature alarm threshold / VSMfilt_T A_thresh		
VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9886
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [°C]	Max 301.00 [°C]	Factory setting 150.00 [°C]
Description:	Sets the alarm threshold for the KTY temperature sensor of the Voltage Sensing Module (VSM) to monitor the line filter temperature. Prerequisite: A KTY84 sensor is connected and p3665 is set to 2.		
Dependency:	Refer to: p3665 Refer to: F34207		
p3668	VSM line filter overtemperature shutdown threshold / VSM filt_T F_thres		
A_INF, S_INF	Can be changed: T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9886
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0 [°C]	Max 301 [°C]	Factory setting 180 [°C]
Description:	Sets the shutdown threshold for the KTY temperature sensor of the VSM to monitor the line filter temperature.		
Dependency:	Refer to: p3667 Refer to: A34211		
p3668[0...n]	VSM line filter overtemperature shutdown threshold / VSM filt_T F_thres		
VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9886
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [°C]	Max 301.00 [°C]	Factory setting 180.00 [°C]
Description:	Sets the shutdown threshold for the KTY temperature sensor of the VSM to monitor the line filter temperature.		
Dependency:	Refer to: p3667 Refer to: A34211		

p3669	VSM line filter overtemperature hysteresis / VSM filt_T hyst		
A_INF, S_INF	Can be changed: T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9886
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.0 [K]	Max 50.0 [K]	Factory setting 3.0 [K]
Description:	Sets the hysteresis for the alarm threshold of the VSM to monitor the line filter temperature.		
Dependency:	Refer to: p3667		

p3669[0...n]	VSM line filter overtemperature hysteresis / VSM filt_T hyst		
VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9886
	P-Group: -	Units group: 21_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 1.00 [K]	Max 50.00 [K]	Factory setting 3.00 [K]
Description:	Sets the hysteresis for the alarm threshold of the VSM to monitor the line filter temperature.		
Dependency:	Refer to: p3667		

p3670	VSM 10 V input CT gain / VSM CT_gain		
A_INF, S_INF	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9880
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [A]	Max 1000.000 [A]	Factory setting 1.000 [A]
Description:	Sets CT gain of the CT connected at the 10 V input of the Voltage Sensing Module (VSM). The parameter specifies the current magnitude in [A] referred to the input voltage at the VSM in [V]. Example: CT with 1 V per 200 A. --> p3670 = 200		
Dependency:	Refer to: r3671, r3672		
Note:	The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM. The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.		

p3670[0...n]	VSM 10 V input CT gain / VSM CT_gain		
VECTOR	Can be changed: T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9880
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [A]	Max 1000.000 [A]	Factory setting 1.000 [A]
Description:	Sets CT gain of the CT connected at the 10 V input of the Voltage Sensing Module (VSM). The parameter specifies the current magnitude in [A] referred to the input voltage at the VSM in [V]. Example: CT with 1 V per 200 A. --> p3670 = 200		
Dependency:	Refer to: r3671, r3672		

Note: The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.
The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.

r3671	CO: VSM 10 V input CT 1 actual value / VSM CT 1 I_act		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [A]	Calculated: - Dynamic index: - Units group: - Max - [A]	Access level: 3 Func. diagram: 9880 Unit selection: - Expert list: 1 Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 1 at the 10 V input of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: p3670		
Note:	The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.		
r3671[0...n]	CO: VSM 10 V input CT 1 actual value / VSM CT 1 I_act		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [A]	Calculated: - Dynamic index: p0150 Units group: - Max - [A]	Access level: 3 Func. diagram: 9880 Unit selection: - Expert list: 1 Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 1 at the 10 V input of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: p3670		
Note:	The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.		
r3672	CO: VSM 10 V input CT 2 actual value / VSM CT 2 I_act		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [A]	Calculated: - Dynamic index: - Units group: - Max - [A]	Access level: 3 Func. diagram: 9880 Unit selection: - Expert list: 1 Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 2 at the 10 V input of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: p3670		
Note:	The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.		
r3672[0...n]	CO: VSM 10 V input CT 2 actual value / VSM CT 2 I_act		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [A]	Calculated: - Dynamic index: p0150 Units group: - Max - [A]	Access level: 3 Func. diagram: 9880 Unit selection: - Expert list: 1 Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 2 at the 10 V input of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: p3670		
Note:	The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.		

r3673	CO: VSM 10 V input 1 actual value / VSM inp 1 V_act		
A_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9880
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 1 of the Voltage Sensing Modules (VSM).		
Dependency:	Refer to: p3670		
Note:	10 V input 1: Terminals X520.1 and X520.2		

r3673[0...n]	CO: VSM 10 V input 1 actual value / VSM inp 1 V_act		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9880
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 1 of the Voltage Sensing Modules (VSM).		
Dependency:	Refer to: p3670		
Note:	10 V input 1: Terminals X520.1 and X520.2		

r3674	CO: VSM 10 V input 2 actual value / VSM inp 2 V_act		
A_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9880
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 2 of the Voltage Sensing Modules (VSM).		
Dependency:	Refer to: p3670		
Note:	10 V input 2: Terminals X520.3 and X520.4		

r3674[0...n]	CO: VSM 10 V input 2 actual value / VSM inp 2 V_act		
VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0150	Func. diagram: 9880
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 2 of the Voltage Sensing Modules (VSM).		
Dependency:	Refer to: p3670		
Note:	10 V input 2: Terminals X520.3 and X520.4		

p3676	VSM line filter capacitance alarm threshold / VSMfilt C A_thresh		
A_INF, S_INF	Can be changed: T Data type: Floating Point P-Group: - Not for motor type: - Min 0.00 [%] Description: Sets the alarm threshold for the change of the capacitance of the line filter. The monitoring of the filter capacitance is de-activated with p3676 = 0.00 %. Dependency: Refer to: p3670 Refer to: A06250 Note: Prerequisites for monitoring the filter capacitance: The phase currents must be measured at two capacitors of the line filter. To do this, CTs should be connected at the 10 V inputs of the VSM.	Calculated: - Dynamic index: - Units group: - Max 100.00 [%] Factory setting 0.00 [%]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
r3677[0...2]	VSM line filter capacitance / VSM filt C		
A_INF, S_INF	Can be changed: - Data type: Floating Point P-Group: Closed-loop control Not for motor type: - Min - [µF] Description: Displays the capacitance of the line filter (for a star circuit configuration). Index: [0] = Phase U [1] = Phase V [2] = Phase W Dependency: Refer to: p3676 Note: Prerequisite: The monitoring of the filter capacitance is activated.	Calculated: - Dynamic index: - Units group: - Max - [µF]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [µF]
p3680	BI: Braking Module internal inhibit / BM int inhib		
B_INF	Can be changed: T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min - Description: Sets the signal source to inhibit the internal Braking Module. 1 signal: The Braking Module is inhibited. 0 signal: The Braking Module is enabled. Dependency: Refer to: A06904 Caution: When the Braking Module is inhibited, no energy can be dissipated in the braking resistor.	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0



p3681	BI: Activating Braking Module internal DC link fast discharge / BM intDCdischg act		
B_INF	Can be changed: T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to activate the DC link fast discharge for an internal braking module. The DC link fast discharge is started later with delay time (p3682) when the following conditions apply: - BI: p3681 = 1 signal. - an external line contactor is opened via r0863.1 "energize contactor". The DC link fast discharge is interrupted when the following conditions apply: - BI: p3681 = 0 signal. - ON command for the infeed.		
Recommend.:	The DC link fast discharge should be activated if there is an external line contactor and is correctly interconnected (r0863.1, p0860). If the DC link fast discharge is not activated together with an external line contactor, then faults could occur when pre-charging (e.g. F300027).		
Dependency:	Refer to: p3682 Refer to: F30027		
p3682	Braking Module internal DC link fast discharge delay time / BM int DC dischg t		
B_INF	Can be changed: C1(3), T Data type: Unsigned32 P-Group: Communications Not for motor type: - Min 500 [ms]	Calculated: - Dynamic index: - Units group: - Max 4294967295 [ms]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1000 [ms]
Description:	Sets the delay time for switching-in the DC link fast discharge for an internal Braking Module.		
Dependency:	Refer to: p3681		
r3685	BO: Digital Braking Module: Pre-alarm I2t shutdown / Dig BM I2t Alarm		
B_INF	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	The binector output uses a 1 signal to indicate that 80% of the highest permissible I2t value has been reached in the Braking Module.		
Dependency:	Refer to: A06905		
r3686	BO: Digital Braking Module Fault / Dig BM Fault		
B_INF	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	The binector output uses a 1 signal to indicate an overcurrent fault or an I2t shutdown in the Braking Module.		
Dependency:	Refer to: F06906		

r3687				
BO: Digital Braking Module pre-alarm overtemperature / Dig BM temp alarm				
B_INF	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description: The binector output uses a 1 signal to indicate an overtemperature condition at the connected temperature sensor of the braking resistor.				

r3688				
BO: Digital Braking Module fault overtemperature / Dig BM temp fault				
B_INF	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description: The binector output uses a 1 signal to indicate that the highest permissible overtemperature at the connected temperature sensor has been reached and has caused a trip (shutdown).				
Dependency: Refer to: F06908				

r3689				
BO: Digital Braking Module Vce fault / Dig BM Uce fault				
B_INF	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description: The binector output uses a 1 signal to indicate that there is a Vce fault in the Digital Braking Module.				
Dependency: Refer to: F06909				

p3700				
APC configuration / APC config				
SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 2	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 7012	
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: REL		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	
Description: Sets the configuration for APC (Advanced Positioning Control).				
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activating APC	Yes	No
	08	Activating pulse de-coupling	Yes	No
Note: Re bit 0: For a 1 signal, the acceleration filter output is added to the speed setpoint. For a 0 signal, the value 0 is added. This must be used to evaluate the filter frequency characteristics. Re bit 8: For bit 0 = 1 and activated pulse de-coupling (bit 8 = 1), the speed of the direct measuring system (p3701) selected for APC is used as the actual value for the closed-loop speed control.				

p3701 APC enc sel / APC enc sel

SERVO (APC)

Can be changed: C1(4), U**Calculated:** -**Access level:** 3**Data type:** Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** Data sets**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

2

3

2

Description:

Sets the number of the encoder used for for APC (Advanced Positioning Control).

Values:

2: Encoder 2

3: Encoder 3

Note:

Encoder 1 is the motor encoder and cannot be used for APC as APC requires a load measuring system.

An encoder used for APC is, regarding its fault messages, treated just like a motor encoder - this means that its fault messages are assigned to the drive.

p3704[0...n] APC filter activation / APC filter act

SERVO (APC)

Can be changed: U, T**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** DDS, p0180**Func. diagram:** 7012**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

-

-

0000 bin

Description:

Setting to activate the filter for APC (Advanced Positioning Control).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Activating filter 1.1	Yes	No	-
04	Activating filter 2.1	Yes	No	-
05	Activating filter 2.2	Yes	No	-
08	Activating filter 3.1	Yes	No	-
09	Activating filter 3.2	Yes	No	-

p3705[0...n] APC filter type / APC filter type

SERVO (APC)

Can be changed: U, T**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** DDS, p0180**Func. diagram:** 7012**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

-

-

0000 bin

Description:

Sets the filter type for the filter for APC (Advanced Positioning Control).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Filter 1.1 type	A. Filter 2nd ord.	Low pass (PT2)	-
04	Filter 2.1 type	A. Filter 2nd ord.	Low pass (PT2)	-
05	Filter 2.2 type	A. Filter 2nd ord.	Low pass (PT2)	-
08	Filter 3.1 type	A. Filter 2nd ord.	Low pass (PT2)	-
09	Filter 3.2 type	A. Filter 2nd ord.	Low pass (PT2)	-

p3706[0...n] APC sub-sampling, filter 2.x / APC sub-samp. 2.x

SERVO (APC)

Can be changed: U, T**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** DDS, p0180**Func. diagram:** 7012**P-Group:** Closed-loop control**Units group:** -**Unit selection:** -**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

1

64

1

Description:

Sets the factor for the sub-sampling in the branch of filter 2.1 and 2.2 for APC (Advanced Positioning Control).

Note: The values are integer multiples of the speed controller clock cycle (p0115[1]).

p3707[0...n] APC sub-sampling, filter 3.x / APC sub-samp. 3.x			
SERVO (APC)	Can be changed: U, T Data type: Unsigned16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1
	Min 1	Max 64	Factory setting 1
Description: Sets the factor for the sub-sampling in the branch of filter 3.1 and 3.2 for APC (Advanced Positioning Control).			
Note: The values are integer multiples of the speed controller clock cycle (p0115[1]).			

p3711[0...n] APC filter 1.1 denominator natural frequency / APC Filt 1.1 fn_d			
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description: Sets the denominator natural frequency for filter 1.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).			
Dependency: Refer to: p3704, p3705			

p3712[0...n] APC filter 1.1 denominator damping / APC Filt 1.1 D_d			
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1
	Min 0.050	Max 10.000	Factory setting 0.700
Description: Sets the denominator damping for filter 1.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).			
Dependency: Refer to: p3704, p3705			

p3713[0...n] APC filter 1.1 numerator natural frequency / APC Filt 1 fn_n			
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description: Sets the numerator natural frequency for filter 1.1 (general 2nd Order filter) for APC (Advanced Positioning Control).			
Dependency: Refer to: p3704, p3705			

p3714[0...n] APC filter 1.1 numerator damping / APC Filt 1.1 D_n			
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700
Description: Sets the numerator damping for filter 1.1 (general 2nd Order filter) for APC (Advanced Positioning Control).			

Dependency: Refer to: p3704, p3705

p3721[0...n] APC filter 2.1 denominator natural frequency / APC Filt 2.1 fn_d

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]

Description: Sets the denominator natural frequency for filter 2.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3722[0...n] APC filter 2.1 denominator damping / APC Filt 2.1 D_d

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.050	Max 10.000	Factory setting 0.700

Description: Sets the denominator damping for filter 2.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3723[0...n] APC filter 2.1 numerator natural frequency / APC Filt 2.1 fn_n

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]

Description: Sets the numerator natural frequency for filter 2.1 (general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3724[0...n] APC filter 2.1 numerator damping / APC Filt 2.1 D_n

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700

Description: Sets the numerator damping for filter 2.1 (general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3726[0...n]	APC filter 2.2 denominator natural frequency / APC Filt 2.2 fn_d		
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for filter 2.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	Refer to: p3704, p3705		
p3727[0...n]	APC filter 2.2 denominator damping / APC Filt 2.2 D_d		
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the denominator damping for filter 2.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	Refer to: p3704, p3705		
p3728[0...n]	APC filter 2.2 numerator natural frequency / APC Filt 2.2 fn_n		
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for filter 2.2 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	Refer to: p3704, p3705		
p3729[0...n]	APC filter 2.2 numerator damping / APC Filt 2.2 D_n		
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7029 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the numerator damping for filter 2.2 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	Refer to: p3704, p3705		
p3731[0...n]	APC filter 3.1 denominator natural frequency / APC Filt 3.1 fn_d		
SERVO (APC)	Can be changed: U, T Data type: Floating Point P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7012 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for filter 3.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).		

Dependency: Refer to: p3704, p3705

p3732[0...n] APC filter 3.1 denominator damping / APC Filt 3.1 D_d

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.050	Max 10.000	Factory setting 0.700

Description: Sets the denominator damping for filter 3.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3733[0...n] APC filter 3.1 numerator natural frequency / APC Filt 3.1 fn_n

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]

Description: Sets the numerator natural frequency for filter 3.1 (general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3734[0...n] APC filter 3.1 numerator damping / APC Filt 3.1 D_n

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700

Description: Sets the numerator damping for filter 3.1 (general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3736[0...n] APC filter 3.2 denominator natural frequency / APC Filt 3.2 fn_d

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]

Description: Sets the denominator natural frequency for filter 3.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3737[0...n] APC filter 3.2 denominator damping / APC Filt 3.2 D_d

SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.050	Max 10.000	Factory setting 0.700

Description: Sets the denominator damping for filter 3.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: Refer to: p3704, p3705

p3738[0...n]	APC filter 3.2 numerator natural frequency / APC Filt 3.2 fn_n		
SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for filter 3.2 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	Refer to: p3704, p3705		

p3739[0...n]	APC filter 3.2 numerator damping / APC Filt 3.2 D_n		
SERVO (APC)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700
Description:	Sets the numerator damping for filter 3.2 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	Refer to: p3704, p3705		

p3760[0...n]	APC load speed controller 1 P gain / APC n_load ctr1 Kp		
SERVO (APC)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -100.000	Max 100.000	Factory setting 0.000
Description:	Sets the proportional gain of the load speed controller 1 for APC (Advanced Positioning Control). The gain acts on the difference between the speed setpoint and load speed in the branch for filter 2.1 and 2.2.		

p3760[0...n]	APC load velocity controller 1 P gain / APC v_load ctr1 Kp		
SERVO (APC, Lin)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -100.000	Max 100.000	Factory setting 0.000
Description:	Sets the proportional gain of the load velocity controller 1 for APC (Advanced Positioning Control). The gain acts on the difference between the velocity setpoint and load velocity in the branch for filter 2.1 and 2.2.		

p3761[0...n]	APC load speed controller 1 rate time / APC n_load ctr1 Tv		
SERVO (APC)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -500.00 [ms]	Max 500.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the rate time of the load speed controller 1 for APC (Advanced Positioning Control). The rate time acts on the load acceleration in the branch for filter 2.1 and 2.2.		

p3761[0...n]	APC load velocity controller 1 rate time / APC v_load ctr1 Tv		
SERVO (APC, Lin)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -500.00 [ms]	Max 500.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the rate time of the load velocity controller 1 for APC (Advanced Positioning Control). The rate time acts on the load acceleration in the branch for filter 2.1 and 2.2.		
p3765[0...n]	APC load speed controller 2 P gain / APC n_load ctr2 Kp		
SERVO (APC)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -100.000	Max 100.000	Factory setting 0.000
Description:	Sets the proportional gain of the load speed controller 2 for APC (Advanced Positioning Control). The gain acts on the difference between the speed setpoint and load speed in the branch for filter 3.1 and 3.2.		
p3765[0...n]	APC load velocity controller 2 P gain / APC v_load ctr2 Kp		
SERVO (APC, Lin)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -100.000	Max 100.000	Factory setting 0.000
Description:	Sets the proportional gain of the load velocity controller 2 for APC (Advanced Positioning Control). The gain acts on the difference between the velocity setpoint and load velocity in the branch for filter 3.1 and 3.2.		
p3766[0...n]	APC load speed controller 2 rate time / APC n_load ctr2 Tv		
SERVO (APC)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -500.00 [ms]	Max 500.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the rate time of the load speed controller 2 for APC (Advanced Positioning Control). The rate time acts on the load acceleration in the branch for filter 3.1 and 3.2.		
p3766[0...n]	APC load velocity controller 2 rate time / APC v_load ctr2 Tv		
SERVO (APC, Lin)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7012
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -500.00 [ms]	Max 500.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the rate time of the load velocity controller 2 for APC (Advanced Positioning Control). The rate time acts on the load acceleration in the branch for filter 3.1 and 3.2.		

r3770	CO: APC load speed / APC n_load		
SERVO (APC)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 7012 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the load speed for APC (Advanced Positioning Control).		
Dependency:	Refer to: r3771		
r3770	CO: APC load velocity / APC v_load		
SERVO (APC, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 7012 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the load velocity for APC (Advanced Positioning Control).		
Dependency:	Refer to: r3771		
r3771	CO: APC load speed smoothed / APC n_load smth		
SERVO (APC)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 7012 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the smoothed load speed for APC (Advanced Positioning Control).		
Dependency:	Refer to: p1441, r3770		
r3771	CO: APC load velocity smoothed / APC v_load smth		
SERVO (APC, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 7012 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the smoothed load velocity for APC (Advanced Positioning Control).		
Dependency:	Refer to: p1441, r3770		
r3772[0...1]	APC filter branch 2 display values / APC branch 2 val		
SERVO (APC)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [RPM]	Calculated: - Dynamic index: - Units group: 3_1 Max - [RPM]	Access level: 3 Func. diagram: 7012 Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the speeds in filter branch 2.		
Index:	[0] = Filter 2.1 input value [1] = Filter 2.2 output value		

r3772[0...1] APC filter branch 2 display values / APC branch 2 val

SERVO (APC, Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7012
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the velocities in filter branch 2.		
Index:	[0] = Filter 2.1 input value [1] = Filter 2.2 output value		

r3773[0...1] APC filter branch 3 display values / APC branch 3 val

SERVO (APC)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7012
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the speeds in filter branch 3.		
Index:	[0] = Filter 3.1 input value [1] = Filter 3.2 output value		

r3773[0...1] APC filter branch 3 display values / APC branch 3 val

SERVO (APC, Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7012
	P-Group: Setpoints	Units group: 4_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [m/min]	Max - [m/min]	Factory setting - [m/min]
Description:	Displays the velocities in filter branch 3.		
Index:	[0] = Filter 3.1 input value [1] = Filter 3.2 output value		

r3777[0...1] CO: APC filter branch 1 display values / APC branch 1 val

SERVO (APC)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7012
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the speeds in filter branch 1.		
Index:	[0] = Filter 1.1 input value [1] = Filter 1.1 output value		

r3777[0...1] CO: APC filter branch 1 display values / APC branch 1 val			
SERVO (APC, Lin)	Can be changed: - Data type: Floating Point P-Group: Setpoints Not for motor type: - Min - [m/min]	Calculated: - Dynamic index: - Units group: 4_1 Max - [m/min]	Access level: 3 Func. diagram: 7012 Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the velocities in filter branch 1.		
Index:	[0] = Filter 1.1 input value [1] = Filter 1.1 output value		
<hr/>			
p3784[0...n] BI: Sync-line-drive external increase voltage / Sync ext V incr			
VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Sets the signal source to increase the voltage for external line-drive synchronization. BI: p3784 = 1 signal: The voltage is increased.		
Note:	Only SINAMICS GM150.		
<hr/>			
p3785[0...n] BI: Sync-line-drive external decrease voltage / Sync ext V decr			
VECTOR	Can be changed: T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Sets the signal source to decrease the voltage for external line-drive synchronization. BI: p3785 = 1 signal: The voltage is lowered.		
Note:	Only SINAMICS GM150.		
<hr/>			
p3800[0...n] Sync-line-drive activation / Sync act			
VECTOR	Can be changed: T Data type: Integer16 P-Group: Functions Not for motor type: - Min 0	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 1	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the activation for the line-drive synchronization.		
Values:	0: Sync-line-drive de-activated 1: Sync-line-drive activated VSM-INT		
Dependency:	Refer to: p3801, p3802		
Note:	When the ground fault monitoring initiates a fault for overlapping synchronizing the threshold value p0287[1] for the Motor Module and the associated infeed must be appropriately increased (e.g. p0287[1] = 100 %). For p3800 = 1, the following applies:		

The INTERNAL voltage actual values are used for synchronization. The effects that a (sinusoidal) filter - that is connected between the Motor Module and motor - has on the voltage actual values are taken into account (theoretically) by appropriately selecting p0230.

VSM: Voltage Sensing Module

p3801[0...n]		Sync-line-drive, drive object number / Sync DO_No				
VECTOR	Can be changed: T	Calculated: -		Access level: 2		
	Data type: Unsigned16	Dynamic index: DDS, p0180		Func. diagram: 7020		
	P-Group: Functions	Units group: -		Unit selection: -		
	Not for motor type: -			Expert list: 1		
	Min 1	Max 62		Factory setting 1		
Description:	Sets the drive object number of the Voltage Sensing Module (VSM) used for the line-drive synchronization.					
Dependency:	Refer to: p3800, p3802					
Note:	VSM: Voltage Sensing Module					
<hr/>						
p3802[0...n]		BI: Sync-line-drive enable / Sync enable				
VECTOR	Can be changed: T	Calculated: -		Access level: 2		
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170		Func. diagram: 7020		
	P-Group: Functions	Units group: -		Unit selection: -		
	Not for motor type: -			Expert list: 1		
	Min -	Max -		Factory setting 0		
Description:	Sets the signal source to switch-in/switch-out for the line-drive synchronization. BI: p3802 = 1 signal: The line-drive synchronization is switched-in.					
Dependency:	Refer to: p3800, p3801					
<hr/>						
r3803.0		CO/BO: Sync-line-drive control word / Sync STW				
VECTOR	Can be changed: -	Calculated: -		Access level: 2		
	Data type: Unsigned32	Dynamic index: -		Func. diagram: -		
	P-Group: Functions	Units group: -		Unit selection: -		
	Not for motor type: -			Expert list: 1		
	Min -	Max -		Factory setting -		
Description:	Displays the control word for the line-drive synchronization.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP	
	00	Sync-line-drive selected	Yes	No	-	
Note:	Re bit 00: For a 1 signal, p3800 > 0 is set.					
<hr/>						
r3804		CO: Sync-line-drive target frequency / Sync f_target				
VECTOR	Can be changed: -	Calculated: -		Access level: 2		
	Data type: Floating Point	Dynamic index: -		Func. diagram: 7020		
	P-Group: Functions	Units group: -		Unit selection: -		
	Not for motor type: -			Expert list: 1		
	Min - [Hz]	Max - [Hz]		Factory setting - [Hz]		
Description:	Displays the target frequency for the line-drive synchronization.					
Dependency:	Refer to: A07941					

r3805	CO: Sync-line-drive frequency difference / Sync f_diff		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the frequency difference between the measured target frequency and output frequency of the gating unit of the closed-loop control for line-drive synchronization.		
p3806[0...n]	Sync-line-drive frequency difference threshold value / Sync f_diff thresh		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting 0.10 [Hz]
Description:	Sets the threshold value of the frequency difference to activate the closed-loop phase control for line-drive synchronization. The closed-loop phase control is activated (r3819.6 = 1), if the frequency difference is less than the threshold value.		
r3808	CO: Sync-line-drive phase difference / Sync phase diff		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Displays the phase difference between the measured target phase and phase of the gating unit of the closed-loop control for line-drive synchronization.		
p3809[0...n]	Sync-line-drive phase setpoint / Sync phase setp		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting 0.00 [°]
Description:	Sets the phase setpoint for the line-drive synchronization.		
p3811[0...n]	Sync-line-drive frequency limiting / Sync f_lim		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting 0.20 [Hz]
Description:	Sets the frequency limiting of the phase controller output for the line-drive synchronization.		

r3812	CO: Sync-line-drive correction frequency / Sync f_corr		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: - Min - [Hz]	Calculated: - Dynamic index: - Units group: - Max - [Hz]	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting - [Hz]
Description:	Displays the correction frequency for the line-drive synchronization.		
p3813[0...n]	Sync-line-drive phase synchronism threshold value / Sync Ph_sync thrsh		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: - Min 1.00 [°]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 20.00 [°]	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting 2.00 [°]
Description:	Sets the threshold value of the phase synchronism for the line-drive synchronization. A prerequisite for synchronism is achieved if the phase difference is lower than the threshold value.		
Note:	Synchronism is reached (r3819.2 = 1), if the AND logic operation of the results from the phase measurement (p3813) and voltage measurement (p3815) is fulfilled.		
r3814	CO: Sync-line-drive voltage difference / Sync V_diff		
VECTOR	Can be changed: - Data type: Floating Point P-Group: Functions Not for motor type: - Min - [Vrms]	Calculated: - Dynamic index: - Units group: - Max - [Vrms]	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting - [Vrms]
Description:	Displays the voltage difference between the measured target voltage and output voltage of the gating unit of the closed-loop control for line-drive synchronization.		
p3815[0...n]	Sync-line-drive voltage difference threshold value / Sync V_diff thresh		
VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Functions Not for motor type: - Min 0.00 [%]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: - Max 10.00 [%]	Access level: 2 Func. diagram: 7020 Unit selection: - Expert list: 1 Factory setting 10.00 [%]
Description:	Sets the threshold value of the voltage difference for the line-drive synchronization. A prerequisite for synchronism is reached if the voltage difference is less than the threshold value.		
Note:	Synchronism is reached (r3819.2 = 1), if the AND logic operation of the results from the phase measurement (p3813) and voltage measurement (p3815) is fulfilled. For voltage manipulated quantity margin (reserve) of the drive converter, the amplitude difference (r3814) between the setpoint and actual value is controlled (corrected) to zero.		

r3819.0...7 CO/BO: Sync-line-drive status word / Sync ZSW

VECTOR

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 7020**P-Group:** Functions**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the status word for the line-drive synchronization.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Sync-line-drive enabled	Yes	No	-
02	Sync-line-drive synchronism reached	Yes	No	-
03	Sync-line-drive synchronizing error	Yes	No	-
05	Sync-line-drive frequency measurement active	Yes	No	-
06	Sync-line-drive phase control active	Yes	No	-
07	Sync-line-drive without drive	Yes	No	-

p3820[0...n] Friction characteristic, value n0 / Friction n0SERVO, VECTOR
(n/M)**Can be changed:** T**Calculated:**

CALC_MOD_LIM_REF

Access level: 2**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** 7010**P-Group:** Functions**Units group:** 3_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

0.00 [RPM]

210000.00 [RPM]

15.00 [RPM]

Description:

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 1st value pair of the friction characteristic.

Dependency:

Refer to: p3830, p3845

p3820[0...n] Friction characteristic, value v0 / Friction v0

SERVO (Lin)

Can be changed: T**Calculated:**

CALC_MOD_LIM_REF

Access level: 2**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** 7010**P-Group:** Functions**Units group:** 4_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

0.00 [m/min]

21000.00 [m/min]

1.50 [m/min]

Description:

The friction characteristic is defined by 10 value pairs.

This parameter specifies the v coordinate of the 1st value pair of the friction characteristic.

Dependency:

Refer to: p3830, p3845

p3821[0...n] Friction characteristic, value n1 / Friction n1SERVO, VECTOR
(n/M)**Can be changed:** T**Calculated:**

CALC_MOD_LIM_REF

Access level: 2**Data type:** Floating Point**Dynamic index:** DDS, p0180**Func. diagram:** 7010**P-Group:** Functions**Units group:** 3_1**Unit selection:** p0505**Not for motor type:** REL**Expert list:** 1**Min****Max****Factory setting**

0.00 [RPM]

210000.00 [RPM]

30.00 [RPM]

Description:

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 2nd value pair of the friction characteristic.

Dependency: Refer to: p3831, p3845

p3821[0...n] Friction characteristic, value v1 / Friction v1

SERVO (Lin)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL Min 0.00 [m/min]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 4_1 Max 21000.00 [m/min]	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1 Factory setting 3.00 [m/min]
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Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the v coordinate of the 2nd value pair of the friction characteristic.

Dependency: Refer to: p3831, p3845

p3822[0...n] Friction characteristic, value n2 / Friction n2

SERVO, VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL Min 0.00 [RPM]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1 Max 210000.00 [RPM]	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1 Factory setting 60.00 [RPM]
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Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 3rd value pair of the friction characteristic.

Dependency: Refer to: p3832, p3845

p3822[0...n] Friction characteristic, value v2 / Friction v2

SERVO (Lin)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL Min 0.00 [m/min]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 4_1 Max 21000.00 [m/min]	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1 Factory setting 6.00 [m/min]
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Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the v coordinate of the 3rd value pair of the friction characteristic.

Dependency: Refer to: p3832, p3845

p3823[0...n] Friction characteristic, value n3 / Friction n3

SERVO, VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL Min 0.00 [RPM]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1 Max 210000.00 [RPM]	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1 Factory setting 120.00 [RPM]
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Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 4th value pair of the friction characteristic.

Dependency: Refer to: p3833, p3845

p3823[0...n]	Friction characteristic, value v3 / Friction v3		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [m/min]	Max 21000.00 [m/min]	Factory setting 12.00 [m/min]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the v coordinate of the 4th value pair of the friction characteristic.		
Dependency:	Refer to: p3833, p3845		
p3824[0...n]	Friction characteristic, value n4 / Friction n4		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 150.00 [RPM]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 5th value pair of the friction characteristic.		
Dependency:	Refer to: p3834, p3845		
p3824[0...n]	Friction characteristic, value v4 / Friction v4		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [m/min]	Max 21000.00 [m/min]	Factory setting 15.00 [m/min]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the v coordinate of the 5th value pair of the friction characteristic.		
Dependency:	Refer to: p3834, p3845		
p3825[0...n]	Friction characteristic, value n5 / Friction n5		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 300.00 [RPM]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 6th value pair of the friction characteristic.		
Dependency:	Refer to: p3835, p3845		

p3825[0...n]	Friction characteristic, value v5 / Friction v5		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [m/min]	Max 21000.00 [m/min]	Factory setting 30.00 [m/min]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the v coordinate of the 6th value pair of the friction characteristic.		
Dependency:	Refer to: p3835, p3845		
p3826[0...n]	Friction characteristic, value n6 / Friction n6		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 600.00 [RPM]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 7th value pair of the friction characteristic.		
Dependency:	Refer to: p3836, p3845		
p3826[0...n]	Friction characteristic, value v6 / Friction v6		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [m/min]	Max 21000.00 [m/min]	Factory setting 60.00 [m/min]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the v coordinate of the 7th value pair of the friction characteristic.		
Dependency:	Refer to: p3836, p3845		
p3827[0...n]	Friction characteristic, value n7 / Friction n7		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 1200.00 [RPM]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 8th value pair of the friction characteristic.		
Dependency:	Refer to: p3837, p3845		

p3827[0...n]	Friction characteristic, value v7 / Friction v7		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [m/min]	Max 21000.00 [m/min]	Factory setting 120.00 [m/min]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the v coordinate of the 8th value pair of the friction characteristic.		
Dependency:	Refer to: p3837, p3845		
p3828[0...n]	Friction characteristic, value n8 / Friction n8		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 1500.00 [RPM]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 9th value pair of the friction characteristic.		
Dependency:	Refer to: p3838, p3845		
p3828[0...n]	Friction characteristic, value v8 / Friction v8		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [m/min]	Max 21000.00 [m/min]	Factory setting 150.00 [m/min]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the v coordinate of the 9th value pair of the friction characteristic.		
Dependency:	Refer to: p3838, p3845		
p3829[0...n]	Friction characteristic, value n9 / Friction n9		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [RPM]	Max 210000.00 [RPM]	Factory setting 3000.00 [RPM]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 10th value pair of the friction characteristic.		
Dependency:	Refer to: p3839, p3845		

p3829[0...n]	Friction characteristic, value v9 / Friction v9		
SERVO (Lin)	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 4_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [m/min]	Max 21000.00 [m/min]	Factory setting 300.00 [m/min]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the v coordinate of the 10th value pair of the friction characteristic.		
Dependency:	Refer to: p3839, p3845		
p3830[0...n]	Friction characteristic, value M0 / Friction M0		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 1st value pair of the friction characteristic.		
Dependency:	Refer to: p3820, p3845		
p3830[0...n]	Friction characteristic, value F0 / Friction F0		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 1st value pair of the friction characteristic.		
Dependency:	Refer to: p3820, p3845		
p3831[0...n]	Friction characteristic, value M1 / Friction M1		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 2nd value pair of the friction characteristic.		
Dependency:	Refer to: p3821, p3845		

p3831[0...n]	Friction characteristic, value F1 / Friction F1		
SERVO (Lin)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: 8_1	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs.		
	This parameter specifies the F coordinate of the 2nd value pair of the friction characteristic.		
Dependency:	Refer to: p3821, p3845		
p3832[0...n]	Friction characteristic, value M2 / Friction M2		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: 7_1	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs.		
	This parameter specifies the M coordinate of the 3rd value pair of the friction characteristic.		
Dependency:	Refer to: p3822, p3845		
p3832[0...n]	Friction characteristic, value F2 / Friction F2		
SERVO (Lin)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: 8_1	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs.		
	This parameter specifies the F coordinate of the 3rd value pair of the friction characteristic.		
Dependency:	Refer to: p3822, p3845		
p3833[0...n]	Friction characteristic, value M3 / Friction M3		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: 7_1	Access level: 2 Func. diagram: 7010 Unit selection: p0505 Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs.		
	This parameter specifies the M coordinate of the 4th value pair of the friction characteristic.		
Dependency:	Refer to: p3823, p3845		

p3833[0...n]	Friction characteristic, value F3 / Friction F3		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 4th value pair of the friction characteristic.		
Dependency:	Refer to: p3823, p3845		
p3834[0...n]	Friction characteristic, value M4 / Friction M4		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 5th value pair of the friction characteristic.		
Dependency:	Refer to: p3824, p3845		
p3834[0...n]	Friction characteristic, value F4 / Friction F4		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 5th value pair of the friction characteristic.		
Dependency:	Refer to: p3824, p3845		
p3835[0...n]	Friction characteristic, value M5 / Friction M5		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 6th value pair of the friction characteristic.		
Dependency:	Refer to: p3825, p3845		

p3835[0...n]	Friction characteristic, value F5 / Friction F5		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 6th value pair of the friction characteristic.		
Dependency:	Refer to: p3825, p3845		
p3836[0...n]	Friction characteristic, value M6 / Friction M6		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 7th value pair of the friction characteristic.		
Dependency:	Refer to: p3826, p3845		
p3836[0...n]	Friction characteristic, value F6 / Friction F6		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 7th value pair of the friction characteristic.		
Dependency:	Refer to: p3826, p3845		
p3837[0...n]	Friction characteristic, value M7 / Friction M7		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 8th value pair of the friction characteristic.		
Dependency:	Refer to: p3827, p3845		

p3837[0...n]	Friction characteristic, value F7 / Friction F7		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 8th value pair of the friction characteristic.		
Dependency:	Refer to: p3827, p3845		
p3838[0...n]	Friction characteristic, value M8 / Friction M8		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 9th value pair of the friction characteristic.		
Dependency:	Refer to: p3828, p3845		
p3838[0...n]	Friction characteristic, value F8 / Friction F8		
SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 9th value pair of the friction characteristic.		
Dependency:	Refer to: p3828, p3845		
p3839[0...n]	Friction characteristic, value M9 / Friction M9		
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 10th value pair of the friction characteristic.		
Dependency:	Refer to: p3829, p3845		

p3839[0...n] Friction characteristic, value F9 / Friction F9

SERVO (Lin)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -1000000.00 [N]	Max 1000000.00 [N]	Factory setting 0.00 [N]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the F coordinate of the 10th value pair of the friction characteristic.		
Dependency:	Refer to: p3829, p3845		

r3840.0...8 CO/BO: Friction characteristic, status word / Friction ZSW


SERVO, VECTOR (n/M)	Can be changed: -		Calculated: -		Access level: 2	
	Data type: Unsigned32		Dynamic index: -		Func. diagram: 7010	
	P-Group: Functions		Units group: -		Unit selection: -	
	Not for motor type: REL				Expert list: 1	
	Min -		Max -		Factory setting -	
Description: Displays the state of the friction characteristic.						
Bit field:						
	Bit	Signal name	1 signal		0 signal	FP
	00	Friction characteristic OK	Yes		No	-
	01	Friction characteristic record activated	Yes		No	-
	02	Friction characteristic record completed	Yes		No	-
	03	Friction characteristic record aborted	Yes		No	-
	08	Fiction characteristic direction of rotation, positive	Yes		No	-

r3841 CO: Friction characteristic output / Frict outp

SERVO, VECTOR (n/M)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7010
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque of the friction characteristic dependent on the speed.		
Dependency:	Refer to: p1569, p3842		

r3841 CO: Friction characteristic output / Frict outp


SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 7010
	P-Group: Functions	Units group: 8_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [N]	Max - [N]	Factory setting - [N]
Description:	Displays the force of the friction characteristic dependent on the velocity.		
Dependency:	Refer to: p1569, p3842		

p3842	Friction characteristic activation / Frict act		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Integer16 P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 2 Func. diagram: 7010 Unit selection: - Expert list: 1 Max 1 Factory setting 0
Description:	Setting to activate and de-activate the friction characteristic.		
Values:	0: Friction characteristic de-activated 1: Friction characteristic activated		
Dependency:	Refer to: p1569, r3841, p3845		
p3845	Friction characteristic record activation / Frict rec act		
SERVO, VECTOR	Can be changed: T Data type: Integer16 P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 2 Func. diagram: 7010 Unit selection: - Expert list: 1 Max 3 Factory setting 0
Description:	Setting for the friction characteristic record. After the next power-on command, the friction characteristic is automatically recorded.		
Values:	0: Friction characteristic record de-activated 1: Friction char. record activated for all directions of rotation 2: Friction char. record activated for a pos. direction of rotation 3: Friction char. record activated for a neg. direction of rotation		
Dependency:	When selecting the friction characteristic measurement, the drive data set changeover is suppressed. For linear drives (refer to r0108 bit 12) it is not permissible to carry out the friction characteristic measurement for mechanical systems that limit travel.		
Danger:	For drives with a mechanical system that limit the distance moved, it must be ensured that during recording, the friction characteristic is not reached. If this is not the case, then it is not permissible that the measurement is carried out.		
			
Notice:	In order to permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).		
Note:	When the friction characteristic record is active, it is not possible to save the parameters (p0971, p0977). When the friction characteristic record is active (p3845 > 0), it is not possible to change p3820 ... p3829, p3830 ... p3839 and p3842. When recording the friction characteristic, in addition to the friction, the motor losses are also determined (e.g. iron losses, eddy current losses and re-magnetization losses). A differentiation is not made between these individual loss components. We recommend that a motor temperature sensor is used because torque deviations can also be emulated/mapped on the characteristic due to the thermal influence.		
p3846[0...n]	Friction characteristic record ramp-up/ramp-down time / Frict rec t_RFG		
SERVO, VECTOR (n/M)	Can be changed: T Data type: Floating Point P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.000 [s]	Access level: 2 Func. diagram: 7010 Unit selection: - Expert list: 1 Max 999999.000 [s] Factory setting 10.000 [s]
Description:	Sets the ramp-up/ramp-down time of the ramp-up/ramp-down function generator to automatically record the friction characteristic. The drive is accelerated from standstill (setpoint = 0) up to the maximum speed/velocity (p1082) in this time.		
Dependency:	Refer to: p3845		

p3847[0...n]	Friction characteristic record warm-up time / Frict rec t_warm			
SERVO, VECTOR (n/M)	Can be changed: T	Calculated: -	Access level: 2	
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: 7010	
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: REL		Expert list: 1	
	Min 0.000 [s]	Max 3600.000 [s]	Factory setting 0.000 [s]	
Description:	Sets the warm-up time. For an automatic trace (record) to start, the highest selected speed (p3829) is approached and this time is held. After this, the measurement is started with the highest speed.			
Dependency:	Refer to: p3829, p3845			

p3860	Number of Braking Modules connected in parallel / BM qty par_cct			
A_INF (Brk Mod ext), B_INF (Brk Mod ext), S_INF (Brk Mod ext)	Can be changed: C2(2)	Calculated: -	Access level: 3	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 9951	
	P-Group: Converter	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 1	Max 8	Factory setting 1	
Description:	Sets the number of Braking Modules connected in parallel in a DC link.			
Note:	The parameter can only be written to if the infeed is in the commissioning mode (p0010 = 2).			

r3861.0...7	BO: Braking Module inhibit/acknowledgement / BM inhib/ackn				
A_INF (Brk Mod ext), B_INF (Brk Mod ext), S_INF (Brk Mod ext)	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9951		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Signal to energize terminal X21.1 "inhibit/acknowledgement" on the Braking Module. This binector output is used as signal source to interconnect to a digital output. For "booksize" formats the digital output must be connected to terminal X21.1 and for "chassis" formats the digital output must be connected to terminal X21.5 of the particular Braking Module.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Inhibit/acknowledge Braking Module 1	High	Low	-
	01	Inhibit/acknowledge Braking Module 2	High	Low	-
	02	Inhibit/acknowledge Braking Module 3	High	Low	-
	03	Inhibit/acknowledge Braking Module 4	High	Low	-
	04	Inhibit/acknowledge Braking Module 5	High	Low	-
	05	Inhibit/acknowledge Braking Module 6	High	Low	-
	06	Inhibit/acknowledge Braking Module 7	High	Low	-
	07	Inhibit/acknowledge Braking Module 8	High	Low	-



Warning:

It must be carefully ensured that the binector outputs BO: p3861.n are correctly connected and also that the appropriate digital outputs are correctly connected-up.
If the interconnections/connections are incorrect and if the Braking Module develops a fault condition, then the software could execute a different (incorrect) function via the binector outputs BO: p3861.n.



p3862		Braking Module DC link fast discharge delay time / BM DC-dischg t_del			
A_INF (Brk Mod ext), B_INF (Brk Mod ext), S_INF (Brk Mod ext)	Can be changed: C1(3), T	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9951		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 500 [ms]	Max 4294967295 [ms]	Factory setting 1000 [ms]		
Description:	Sets the delay time for switching-in the DC link fast discharge.				
Dependency:	Refer to: p3863, r3864				
Note:	The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.				

p3863		BI: Activating Braking Module DC link fast discharge / BM DC-dischg act			
A_INF (Brk Mod ext), B_INF (Brk Mod ext), S_INF (Brk Mod ext)	Can be changed: T	Calculated: -	Access level: 3		
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9951		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 0		
Description:	Sets the signal source to activate the DC link fast discharge. The DC link fast discharge is started later with delay time (p3862) when the following conditions apply: - BI: p3863 = 1 signal. - an external line contactor is opened via r0863.1 "energize contactor". The DC link fast discharge is interrupted when the following conditions apply: - BI: p3863 = 0 signal. - ON command for the infeed.				
Recommend.:	The DC link fast discharge should be activated if there is an external line contactor and is correctly interconnected (r0863.1, p0860). If the DC link fast discharge is not activated together with an external line contactor, then faults could occur when pre-charging (e.g. F30027).				
Dependency:	Refer to: r3864 Refer to: F30027				
Note:	The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.				

r3864.0...7		BO: Braking Module DC link fast discharge / BM DC link dischg			
A_INF (Brk Mod ext), B_INF (Brk Mod ext), S_INF (Brk Mod ext)	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9951		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Signal to control (energize) terminal X21.2 "DC link fast discharge" on the Braking Module. This binector output is used as signal source to interconnect to a digital output. The digital output must be connected to terminal X21.2 of the particular Braking Module.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fast discharge Braking Module 1	High	Low	-
	01	Fast discharge Braking Module 2	High	Low	-
	02	Fast discharge Braking Module 3	High	Low	-
	03	Fast discharge Braking Module 4	High	Low	-
	04	Fast discharge Braking Module 5	High	Low	-

05	Fast discharge Braking Module 6	High	Low	-
06	Fast discharge Braking Module 7	High	Low	-
07	Fast discharge Braking Module 8	High	Low	-

Dependency: Refer to: p3863
Refer to: F30027

Warning:

It must be carefully ensured that the binector outputs BO: p3864.n are correctly interconnected and also that the appropriate digital outputs are correctly connected-up.
If the interconnection/connection is incorrect, in the case of an active DC link fast discharge, the software could execute another function (incorrect function) via binector outputs BO: p3864.n or could also permanently control the DC link fast discharge even if the line contactor is closed.

Note: The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3865[0...7] BI: Braking Module pre-warning l*t shutdown / BM l*t shutdown

A_INF (Brk Mod ext), B_INF (Brk Mod ext), S_INF (Brk Mod ext)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9951
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the signal "pre-alarm l*t shutdown (X21.3) of the Braking Module.
BI: p3865[0...7] = 0 signal --> no pre-alarm, l*t shutdown
BI: p3865[0...7] = 1 signal --> pre-alarm l*t shutdown (A06901)

Dependency: Refer to: A06901

Note: The pre-alarm l*t shutdown is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3866[0...7] BI: Braking Module fault / BM fault

A_INF (Brk Mod ext), B_INF (Brk Mod ext), S_INF (Brk Mod ext)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9951
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the "fault" signal of the Braking Module (X21.4 for "booksize" formats and X21.3 for "chassis" formats).
BI: p3866[0...7] = 0 signal --> fault (A06900)
BI: p3866[0...7] = 1 signal --> No fault
For a 1 signal, an acknowledgement via BO: r3861 is automatically carried out at certain time intervals.

Dependency: Refer to: A06900

p3870 Long stator configuration / Long stator config

SERVO	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the configuration when operating a long stator motor.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate long stator help functions	Active	Inactive	-
	01	Suppress Gx_ZSW.14	Active	Inactive	-

Dependency: Refer to: p3871, p3872, p3873, p3874, r3875, p3876, p3878, p3879

Notice: The following restrictions apply to this function:

- it is not permissible to change over the drive data set.
- the encoder/drive may not be parked using a PROFIBUS telegram.
- a maximum of 4 drives may be connected to the Control Unit.
- it is not permissible to commute with the zero mark (p0404).

Note: Re bit 00:

All of the help functions for long stator motors can be enabled/disabled using this bit.

Re bit 01:

When the bit is set, bit 14 (parking encoder active) is set to 0 in the encoder status word GX_ZSW independent of whether the encoder is parked or not.

p3871 BI: Set long stator signal source commutation angle (p3872) / Set S_src com_ang

SERVO

Can be changed: T

Calculated: -

Access level: 3

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description: Sets the signal source to set the commutation angle from CI: p3872.

Dependency: Refer to: p3870, p3872, p3873, p3874, r3875, p3876, p3878, p3879

Danger: If an incorrect commutation angle is set, this can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine !



Note:

Setting takes place for a 0/1 signal edge.

p3872 CI: Long stator signal source commutation angle / S_src com_angle

SERVO

Can be changed: T

Calculated: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

3878[0]

Description: Sets the signal source for the commutation angle.

This angle is set for a 0/1 signal edge via BI: p3871.

Dependency: Refer to: p3870, p3871, p3873, r3875, p3876, p3878, p3879

Danger: If an incorrect commutation angle is set, this can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine !



p3873 BI: Long stator sig. source changeover to cl.-loop ctrl w/ enc. / S_src ctrl w/ enc

SERVO

Can be changed: T

Calculated: -

Access level: 3

Data type: Unsigned32 / Binary

Dynamic index: -

Func. diagram: -

P-Group: Functions

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description: Sets the signal source to change over to closed-loop control with encoder.

Dependency: Refer to: p3870, p3871, p3872, p3874, r3875, p3876, p3878, p3879

Danger: If an incorrect commutation angle is set, this can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine !



Note: BI: p3873 = 1 signal --> closed-loop control with encoder
BI: p3873 = 0 signal --> sensorless closed-loop control
For a 0/1 edge, the commutation angle is set from CI: p3874.

p3874	CI: Long stator signal source commutation angle oper. with encoder / S_src com_ang enc		
SERVO	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: - Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Factory setting 3879[0]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
Description:	Sets the signal source for the commutation angle for operation with encoder.		
Dependency:	Refer to: p3870, p3871, p3872, p3873, r3875, p3876, p3878, p3879		
Note:	This angle is set for a 0/1 signal edge via BI: p3873.		

r3875.0...1	CO/BO: Long stator status word / Long stator ZSW																		
SERVO	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Factory setting -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1																
Description:	Displays the status word for long stator motors.																		
Bit field:	<table> <tr> <th>Bit</th><th>Signal name</th><th>1 signal</th><th>0 signal</th><th>FP</th></tr> <tr> <td>00</td><td>Sensor Module is unparked</td><td>Yes</td><td>No</td><td>-</td></tr> <tr> <td>01</td><td>Closed-loop speed control with encoder requested</td><td>Active</td><td>Inactive</td><td>-</td></tr> </table>	Bit	Signal name	1 signal	0 signal	FP	00	Sensor Module is unparked	Yes	No	-	01	Closed-loop speed control with encoder requested	Active	Inactive	-			
Bit	Signal name	1 signal	0 signal	FP															
00	Sensor Module is unparked	Yes	No	-															
01	Closed-loop speed control with encoder requested	Active	Inactive	-															
Dependency:	Refer to: p3870, p3871, p3872, p3873, p3874, p3876, p3878, p3879																		
Note:	The display is updated with a sampling time of 1 ms. Re bit 00 = 1: The encoder is parked. Contrary to r0481.14, parking is also displayed here if the suppression of the parking bit is active in r0481.14 (p3870.1 = 1). Re bit 01 = 1: The long-stator functions requested closed-loop speed control with encoder. In r1407.2, it is indicated as to whether an encoder is actually used for the closed-loop control.																		

r3875.0...1	CO/BO: Long stator status word / Long stator ZSW																		
SERVO (Lin)	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Factory setting -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1																
Description:	Displays the status word for long stator motors.																		
Bit field:	<table> <tr> <th>Bit</th><th>Signal name</th><th>1 signal</th><th>0 signal</th><th>FP</th></tr> <tr> <td>00</td><td>Sensor Module is unparked</td><td>Yes</td><td>No</td><td>-</td></tr> <tr> <td>01</td><td>Closed-loop velocity control with encoder requested</td><td>Active</td><td>Inactive</td><td>-</td></tr> </table>	Bit	Signal name	1 signal	0 signal	FP	00	Sensor Module is unparked	Yes	No	-	01	Closed-loop velocity control with encoder requested	Active	Inactive	-			
Bit	Signal name	1 signal	0 signal	FP															
00	Sensor Module is unparked	Yes	No	-															
01	Closed-loop velocity control with encoder requested	Active	Inactive	-															
Dependency:	Refer to: p3870, p3871, p3872, p3873, p3874, p3876, p3878, p3879																		
Note:	The display is updated with a sampling time of 1 ms.																		

Re bit 00 = 1:

The encoder is parked. Contrary to r0481.14, parking is also displayed here if the suppression of the parking bit is active in r0481.14 (p3870.1 = 1).

Re bit 01 = 1:

The long-stator functions requested closed-loop velocity control with encoder. In r1407.2, it is indicated as to whether an encoder is actually used for the closed-loop control.

p3876	BI: Unpark long stator signal source 1 encoder / S_src 1 enc unpark		
SERVO	Can be changed: T Data type: Unsigned32 / Binary P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source 1 to unpark the encoder.		
Dependency:	Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3878, p3879		
Note:	BI: p3876 = 1 signal --> encoder is unparked BI: p3876 = 0 signal --> encoder is parked		
p3878	CO: Long stator commutation angle 1 / Com_angle 1		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 [°]
Description:	Enters the commutation angle 1 for long stator motors.		
Dependency:	Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3879		
p3879	CO: Long stator commutation angle 2 / Com_angle 2		
SERVO	Can be changed: U, T Data type: Floating Point P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 [°]
Description:	Enters the commutation angle 2 for long stator motors.		
Dependency:	Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3878		
p3900	Completion of quick commissioning / Compl quick_comm		
A_INF, B_INF, S_INF	Can be changed: C2(1) Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Exits the quick commissioning (p0010 = 1) with automatic calculation of all of the parameters that depend on the entries made during the quick commissioning. p3900 = 1 initially includes a parameter reset (factory setting, the same as p0970 = 1) for all parameters of the drive object; however, without overwriting the entries made during the quick commissioning. The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700 are re-established and all of the dependent filter and closed-loop control parameters are calculated (corresponding to p0340 = 1).		

p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700 and the calculations corresponding to p0340 = 1.
p3900 = 3 only includes the end of the fast commissioning.

Values:
0: No quick parameterization
1: Quick parameterization after parameter reset
2: Quick param. (only) for controller par. and reset for BICO par
3: Completion of quick commissioning

Note: When the calculations have been completed, p3900 and p0010 are automatically reset to a value of 0.

p3900 Completion of quick commissioning / Compl quick_comm

SERVO, VECTOR	Can be changed: C2(1) Data type: Integer16 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 3	Factory setting 0

Description: Exits the quick commissioning (p0010 = 1) with automatic calculation of all of the parameters that depend on the entries made during the quick commissioning.

p3900 = 1 initially includes a parameter reset (factory setting, the same as p0970 = 1) for all parameters of the drive object; however, without overwriting the entries made during the quick commissioning.

The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p1000 and p1500 are re-established and all of the dependent motor, open-loop and control-loop control parameters are calculated (corresponding to p0340 = 1).

p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p1000 and p1500 and the calculations corresponding to p0340 = 1.

p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.

Values:
0: No quick parameterization
1: Quick parameterization after parameter reset
2: Quick parameterization (only) for BICO and motor parameters
3: Quick parameterization for motor parameters (only)

Note: When the calculations have been completed, p3900 and p0010 are automatically reset to a value of 0.
When calculating motor, open-loop and closed-loop control parameters (such as for p0340 = 1) parameters associated with a selected Siemens list motor are not overwritten.

p3902[0...n] Power unit EEPROM Vdc calibration / PU EEPROM Vdc_cal

A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: C1, C2(1), T Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 4294967295	Factory setting 0

Description: Calibration factor for the DC link voltage measurement.

Caution: Incorrect use of the calibration can have a negative impact on the closed-loop control. The parameter influences the upper and lower voltage detection.



Note: Parameter entries are directly saved in the DRIVE-CLiQ component involved. Only values from 100 ... 10000 are accepted. All other entries are not saved and are therefore also not displayed.
The parameter only has an effect for chassis power units.
Calculation rule: $p3902_new = p3902_old * r0026 / Vdc_measured \text{ value}$

r3925[0...n] Identification final display / Ident final_disp				
SERVO	Can be changed: -		Calculated: -	Access level: 3
	Data type: Unsigned32		Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	
Description: Displays the commissioning steps that have been carried out.				
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Complete calculation of motor/control parameters carried out	Yes	No
	02	Motor data identification carried out at standstill (p1910 = 1)	Yes	No
	03	Rotating measurement carried out (p1960 = 1 or 2)	Yes	No
	04	Motor encoder adjustment carried out (p1990 = 1)	Yes	No
	05	Motor encoder manually adjusted	Yes	No
	15	Motor equivalent circuit diagram parameters changed	Changed	Not changed
Note: When motor rating plate parameters are changed, the final display is reset. When setting the individual bits, all of the most significant bits are reset.				
Bit 00 = Automatic parameterization (p0340 = 1, p3900 > 0).				
Bit 02 = Motor data identification (p1910 = 1) successfully completed.				
Bit 03 = Rotating measurement (p1960 = 1, 2) successfully completed.				
Bit 04 = Motor encoder adjustment (p1990 = 1 of 1960 = 1) successfully completed.				
Bit 15 = Equivalent circuit diagram parameters of the motor were subsequently manually changed.				

r3925[0...n] Identification final display / Ident final_disp					
VECTOR	Can be changed: -		Calculated: -	Access level: 3	
	Data type: Unsigned32		Dynamic index: DDS, p0180	Func. diagram: -	
	P-Group: Motor		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-		
Description: Displays the commissioning steps that have been carried out.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Complete calculation of motor/control parameters carried out	Yes	No	-
	02	Motor data identification carried out at standstill (p1910 = 1)	Yes	No	-
	03	Rotating measurement carried out (p1960 = 1 or 2)	Yes	No	-
	04	Motor encoder adjustment carried out (p1990 = 1)	Yes	No	-
	10	Automatic parameterization only for V/f control (r0108.2 = 0)	Yes	No	-
	15	Motor equivalent circuit diagram parameters changed	Changed	Not changed	-

Note: When motor rating plate parameters are changed, the final display is reset. When setting the individual bits, all of the most significant bits are reset.

Bit 00 = Complete calculation of the motor/control parameters (p0340 = 1, p3900 > 0).

Bit 02 = Motor data identification (p1910 = 1) successfully completed.

Bit 03 = Rotating measurement (p1960 = 1, 2) successfully completed.

Bit 04 = Motor encoder adjustment (p1990 = 1) successfully completed.

Bit 15 = Equivalent circuit diagram parameters of the motor were subsequently manually changed.

r3927[0...n] Motor data identification determined data (induction motor) / MotID det dat ASM

SERVO	Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the data determined from the motor identification and that has been accepted.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	p0350 accepted	Yes	No	-
	01	p0354 accepted	Yes	No	-
	02	p0356 accepted	Yes	No	-
	03	p0358 accepted	Yes	No	-
	04	p0360 accepted	Yes	No	-
	05	p0320 accepted	Yes	No	-
	06	p0410 accepted	Yes	No	-
	12	p1715 accepted	Yes	No	-
	13	p1717 accepted	Yes	No	-
	14	p1590 accepted	Yes	No	-
	15	p1592 accepted	Yes	No	-
	22	p0341 accepted	Yes	No	-

Dependency: Refer to: r3925

r3927[0...n] Motor data identification control word / MotID STW

VECTOR	Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Successfully completed component of the last motor data identification carried out.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Stator inductance estimate no measurement	Yes	No	-
	01	Cl.-loop current control w/ dead-beat controller	Yes	No	-
	02	Rotor time constant estimate no measurement	Yes	No	-
	03	Leakage inductance estimate no measurement	Yes	No	-
	04	Activates the identification dynamic leakage inductance	Yes	No	-
	05	Determine Tr and Lsig evaluation in the time range	Yes	No	-
	06	Activates vibration damping	Yes	No	-
	07	De-activates the vibration detection	Yes	No	-

11	De-activate pulse measurement Lq Ld	Yes	No	-
12	De-activate rotor resistance Rr measurement	Yes	No	-
15	Only measure stator resistance and valve voltage error	Yes	No	-

Dependency: Refer to: r3925

Note: The parameter is a copy of p1909.

r3928[0...n] Motor data identification determined data (synchronous motor) / MotId determ SM

SERVO	Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Successfully completed component of the last rotating measurement carried out.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	p350 accepted	Yes	No	-
	02	p356 accepted	Yes	No	-
	06	p410 accepted	Yes	No	-
	07	p431 accepted	Yes	No	-
	08	p1952 accepted	Yes	No	-
	09	p1953 accepted	Yes	No	-
	12	p1715 accepted	Yes	No	-
	13	p1717 accepted	Yes	No	-
	18	p316 accepted	Yes	No	-
	19	p317 accepted	Yes	No	-
	20	p327 accepted	Yes	No	-
	21	p328 accepted	Yes	No	-
	22	p341 accepted	Yes	No	-
	23	Torque characteristic parameter accepted	Yes	No	-

Dependency: Refer to: r3925

Note: The parameter is a copy of p1959.

r3928[0...n] Motor data identification determined data (synchronous motor) / MotId determ SM

SERVO (Lin)	Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Successfully completed component of the last rotating measurement carried out.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	p350 accepted	Yes	No	-
	02	p356 accepted	Yes	No	-
	06	p410 accepted	Yes	No	-
	07	p431 accepted	Yes	No	-
	08	p1952 accepted	Yes	No	-
	09	p1953 accepted	Yes	No	-
	12	p1715 accepted	Yes	No	-
	13	p1717 accepted	Yes	No	-
	18	p316 accepted	Yes	No	-
	19	p317 accepted	Yes	No	-
	20	p327 accepted	Yes	No	-
	21	p328 accepted	Yes	No	-
	22	p341 accepted	Yes	No	-
	23	Force characteristic parameter accepted	Yes	No	-

Dependency: Refer to: r3925
Note: The parameter is a copy of p1959.

r3928[0...n]	Rotating measurement configuration / Rot meas config				
VECTOR (n/M)	Can be changed: -		Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Unsigned16		Dynamic index: DDS, p0180	Func. diagram: -	
	P-Group: Motor identification		Units group: -	Unit selection: -	
	Not for motor type: REL			Expert list: 1	
	Min -	Max -	Factory setting -		
Description:	Successfully completed component of the last rotating measurement carried out.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enc test active	Yes	No	-
	01	Saturation characteristic identification	Yes	No	-
	02	Moment of inertia identification	Yes	No	-
	03	Recalculates the speed controller parameters	Yes	No	-
	04	Speed controller optimization, (vibration test)	Yes	No	-
	05	q leakage inductance ident. (for current controller adaptation)	Yes	No	-

Dependency: Refer to: r3925
Note: The parameter is a copy of p1959.

p3950	Service parameter / Service parameter		
CU_CX32, CU_S	Can be changed: C1, U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: For service personnel only.


r3977	BICO counter, topology / BICO counter topo		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the BICO interconnections that have been parameterized in the complete (overall) topology. The counter is incremented by one for each modified BICO interconnection.

Dependency: Refer to: r3978, r3979

r3978	BICO CounterDevice / BICO CounterDevice		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: For each modified BICO interconnection of this device, the counter is incremented by one. Displays this counter.

r3979			
BICO counter, drive object / BICO counter DO			
A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VEC- TOR	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description: For each modified BICO interconnection of this drive object, the counter is incremented by one. Displays this counter.			
p3981			
Faults, acknowledge drive object / Faults ackn DO			
All objects	Can be changed: U, T Data type: Unsigned8 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8060 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description: Setting to acknowledge all active faults of a drive object. Note: Parameter should be set from 0 to 1 to acknowledge. After acknowledgement, the parameter is automatically reset to 0.			
p3985			
Master control mode selection / PcCtrl mode select			
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description: Sets the mode to change over the master control / LOCAL mode. Values: 0: Change master control for STW1.0 = 0 1: Change master control in operation Danger: When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint.			
			
r3986			
Parameter count / Parameter count			
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description: Displays the number of parameters for this drive unit. The number comprises the device-specific and the drive-specific parameters.			

Dependency: Refer to: r0980, r0981, r0989

r3988	Ramp-up state / Ramp-up state		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	800	-

Description: Displays the ramp-up state.

Values:

- 0: Not active
- 1: Fatal fault
- 10: Fault
- 20: Reset all parameters
- 30: Drive object modified
- 40: Download using commissioning software
- 90: Reset Control Unit and delete drive objects
- 100: Start initialization
- 110: Instantiate Control Unit basis
- 150: Wait until actual topology determined
- 160: Evaluate topology
- 170: Instantiate Control Unit rest
- 180: Initialization YDB configuration information
- 200: First commissioning
- 210: Create drive packages
- 250: Wait for topology acknowledge
- 325: Wait for input of drive type
- 350: Determine drive type
- 360: Write into topology-dependent parameters
- 370: Wait until p0009 = 0 is set
- 380: Check topology
- 550: Call conversion functions for parameter
- 625: Wait non-cyclic starting DRIVE-CLiQ
- 650: Start cyclic operation
- 660: Evaluate drive commissioning status
- 670: Autom. FW update DRIVE-CLiQ components
- 680: Wait for CU link slaves
- 690: Wait non-cyclic starting DRIVE-CLiQ
- 700: Save parameters
- 725: Wait until DRIVE-CLiQ cyclic
- 740: Check the ability to operate
- 750: Interrupt enable
- 800: Initialization finished

r3996	Parameter write inhibit status / Par_write inhib st		
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC-TOR	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays whether writing to parameters is inhibited.

r3996 = 0: Write to parameter is not inhibited.

0 < r3996 < 100: Write to parameter is inhibited. The value shows how the calculations are progressing.

r4021 TB30 digital inputs terminal actual value / TB30 DI act value				
TB30	Can be changed: -		Calculated: -	Access level: 2
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 9100
	P-Group: Commands		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	-
Description:				
Displays the actual value at the digital inputs.				
This means that the actual input signal can be checked at terminal DI x prior to switching from the simulation mode (p4095.x = 1) to the terminal mode (p4095.x = 0). The input signal of terminal DI x is displayed in bit x of r4021.				
Bit field:	Bit	Signal name	1 signal	0 signal
	00	DI 0 (X481.1)	High	Low
	01	DI 1 (X481.2)	High	Low
	02	DI 2 (X481.3)	High	Low
	03	DI 3 (X481.4)	High	Low
Note:				
DI: Digital input				

r4021 TM31 digital inputs terminal actual value / TM31 DI act value				
TM31	Can be changed: -		Calculated: -	Access level: 2
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 1840, 9550, 9552, 9560, 9562
	P-Group: Commands		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-	-	-	
Description:				
Displays the actual value at the digital inputs.				
This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0). The input signal at terminal DI x or DI/DO x is displayed in bit x of r4021.				
Bit field:				
	Bit	Signal name	1 signal	0 signal
	00	DI 0 (X520.1)	High	Low
	01	DI 1 (X520.2)	High	Low
	02	DI 2 (X520.3)	High	Low
	03	DI 3 (X520.4)	High	Low
	04	DI 4 (X530.1)	High	Low
	05	DI 5 (X530.2)	High	Low
	06	DI 6 (X530.3)	High	Low
	07	DI 7 (X530.4)	High	Low
	08	DI/DO 8 (X541.2)	High	Low
	09	DI/DO 9 (X541.3)	High	Low
	10	DI/DO 10 (X541.4)	High	Low
	11	DI/DO 11 (X541.5)	High	Low
Note:				
If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.				
DI: Digital input				
DI/DO: Bidirectional Digital Input/Output				

r4021 TM41 digital inputs terminal actual value / TM41 DI act val				
TM41	Can be changed: -		Calculated: -	Access level: 2
	Data type: Unsigned32		Dynamic index: -	Func. diagram: -
	P-Group: Commands		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min		Max	Factory setting
	-		-	-
Description:				
Displays the actual value at the digital inputs.				
This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0). The input signal at terminal DI x or DI/DO x is displayed in bit x of r4021.				
Bit field:	Bit	Signal name	1 signal	0 signal
	00	DI 0 (X522.1)	High	Low
	01	DI 1 (X522.2)	High	Low
	02	DI 2 (X522.3)	High	Low
	03	DI 3 (X522.4)	High	Low
	08	DI/DO 0 (X521.1)	High	Low
	09	DI/DO 1 (X521.2)	High	Low
	10	DI/DO 2 (X521.3)	High	Low
	11	DI/DO 3 (X521.4)	High	Low
Note:				
If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.				
DI: Digital input				
DI/DO: Bidirectional Digital Input/Output				

r4021 TM15DI/DO digital inputs, terminal actual value / TM15D DI act val					
TM15DI_DO	Can be changed: -		Calculated: -	Access level: 2	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 9400, 9401, 9402	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min	Max	Factory setting		
	-	-	-		
Description:					
Displays the actual value at the digital inputs.					
This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0). The input signal at terminal DI x or DI/DO x is displayed in bit x of r4021.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	High	Low	-
	01	DI/DO 1 (X520.3)	High	Low	-
	02	DI/DO 2 (X520.4)	High	Low	-
	03	DI/DO 3 (X520.5)	High	Low	-
	04	DI/DO 4 (X520.6)	High	Low	-
	05	DI/DO 5 (X520.7)	High	Low	-
	06	DI/DO 6 (X520.8)	High	Low	-
	07	DI/DO 7 (X520.9)	High	Low	-
	08	DI/DO 8 (X521.2)	High	Low	-
	09	DI/DO 9 (X521.3)	High	Low	-
	10	DI/DO 10 (X521.4)	High	Low	-
	11	DI/DO 11 (X521.5)	High	Low	-
	12	DI/DO 12 (X521.6)	High	Low	-
	13	DI/DO 13 (X521.7)	High	Low	-
	14	DI/DO 14 (X521.8)	High	Low	-
	15	DI/DO 15 (X521.9)	High	Low	-
	16	DI/DO 16 (X522.2)	High	Low	-
	17	DI/DO 17 (X522.3)	High	Low	-
	18	DI/DO 18 (X522.4)	High	Low	-

19	DI/DO 19 (X522.5)	High	Low	-
20	DI/DO 20 (X522.6)	High	Low	-
21	DI/DO 21 (X522.7)	High	Low	-
22	DI/DO 22 (X522.8)	High	Low	-
23	DI/DO 23 (X522.9)	High	Low	-

Note: If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.

DI/DO: Bidirectional Digital Input/Output

r4022.0...3 CO/BO: TB30 digital inputs, status / TB30 DI status

TB30	Can be changed: -		Calculated: -		Access level: 1	
	Data type: Unsigned32		Dynamic index: -		Func. diagram: 1790, 9100	
	P-Group: Commands		Units group: -		Unit selection: -	
	Not for motor type: -				Expert list: 1	
	Min		Max		Factory setting	
	-		-		-	
Description: Displays the status of the digital inputs of the Terminal Board 30 (TB30).						
Bit field:		Bit	Signal name	1 signal	0 signal	FP
		00	DI 0 (X481.1)	High	Low	-
		01	DI 1 (X481.2)	High	Low	-
		02	DI 2 (X481.3)	High	Low	-
		03	DI 3 (X481.4)	High	Low	-
Dependency:		Refer to: r4023				
Note:		DI: Digital input				

r4022.0...11 CO/BO: TM31 digital inputs, status / TM31 DI status

TM31	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1840, 9550, 9552, 9560, 9562		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status of the digital inputs of terminal module 31 (TM31).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X520.1)	High	Low	-
	01	DI 1 (X520.2)	High	Low	-
	02	DI 2 (X520.3)	High	Low	-
	03	DI 3 (X520.4)	High	Low	-
	04	DI 4 (X530.1)	High	Low	-
	05	DI 5 (X530.2)	High	Low	-
	06	DI 6 (X530.3)	High	Low	-
	07	DI 7 (X530.4)	High	Low	-
	08	DI/DO 8 (X541.2)	High	Low	-
	09	DI/DO 9 (X541.3)	High	Low	-
	10	DI/DO 10 (X541.4)	High	Low	-
	11	DI/DO 11 (X541.5)	High	Low	-
Dependency:	Refer to: r4023				
Note:	DI: Digital input				
	DI/DO: Bidirectional Digital Input/Output				

r4022.0...11 CO/BO: TM41 digital inputs, status / TM41 DI status

TM41	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of the digital inputs of terminal module 41 (TM41).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X522.1)	High	Low	9660
	01	DI 1 (X522.2)	High	Low	9660
	02	DI 2 (X522.3)	High	Low	9660
	03	DI 3 (X522.4)	High	Low	9660
	08	DI/DO 0 (X521.1)	High	Low	9661
	09	DI/DO 1 (X521.2)	High	Low	9661
	10	DI/DO 2 (X521.3)	High	Low	9662
	11	DI/DO 3 (X521.4)	High	Low	9662

Dependency: Refer to: r4023

Note: DI: Digital input
DI/DO: Bidirectional Digital Input/Output

r4022.0...23 CO/BO: TM15DI/DO digital inputs, status / TM15D DI status

TM15DI_DO	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9400, 9401, 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of the digital inputs of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	High	Low	-
	01	DI/DO 1 (X520.3)	High	Low	-
	02	DI/DO 2 (X520.4)	High	Low	-
	03	DI/DO 3 (X520.5)	High	Low	-
	04	DI/DO 4 (X520.6)	High	Low	-
	05	DI/DO 5 (X520.7)	High	Low	-
	06	DI/DO 6 (X520.8)	High	Low	-
	07	DI/DO 7 (X520.9)	High	Low	-
	08	DI/DO 8 (X521.2)	High	Low	-
	09	DI/DO 9 (X521.3)	High	Low	-
	10	DI/DO 10 (X521.4)	High	Low	-
	11	DI/DO 11 (X521.5)	High	Low	-
	12	DI/DO 12 (X521.6)	High	Low	-
	13	DI/DO 13 (X521.7)	High	Low	-
	14	DI/DO 14 (X521.8)	High	Low	-
	15	DI/DO 15 (X521.9)	High	Low	-
	16	DI/DO 16 (X522.2)	High	Low	-
	17	DI/DO 17 (X522.3)	High	Low	-
	18	DI/DO 18 (X522.4)	High	Low	-
	19	DI/DO 19 (X522.5)	High	Low	-
	20	DI/DO 20 (X522.6)	High	Low	-
	21	DI/DO 21 (X522.7)	High	Low	-
	22	DI/DO 22 (X522.8)	High	Low	-
	23	DI/DO 23 (X522.9)	High	Low	-

Dependency: Refer to: r4023, r4024, r4025

Notice: For the BICO interconnection of the connector output (CO) only bit 00 ... bit 15 are transferred.

Note: DI/DO: Bidirectional Digital Input/Output

r4023.0...3 BO: TB30 digital inputs, status inverted / TB30 DI status inv

TB30	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1790, 9100
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the inverted status of the digital inputs of the Terminal Board 30 (TB30).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X481.1)	High	Low	-
	01	DI 1 (X481.2)	High	Low	-
	02	DI 2 (X481.3)	High	Low	-
	03	DI 3 (X481.4)	High	Low	-

Dependency: Refer to: r4022

Note: DI: Digital input

r4023.0...11 CO/BO: TM31 digital inputs, status inverted / TM31 DI status inv

TM31	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1840, 9550, 9552, 9560, 9562
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the inverted status of the digital inputs of terminal module 31 (TM31).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X520.1)	High	Low	-
	01	DI 1 (X520.2)	High	Low	-
	02	DI 2 (X520.3)	High	Low	-
	03	DI 3 (X520.4)	High	Low	-
	04	DI 4 (X530.1)	High	Low	-
	05	DI 5 (X530.2)	High	Low	-
	06	DI 6 (X530.3)	High	Low	-
	07	DI 7 (X530.4)	High	Low	-
	08	DI/DO 8 (X541.2)	High	Low	-
	09	DI/DO 9 (X541.3)	High	Low	-
	10	DI/DO 10 (X541.4)	High	Low	-
	11	DI/DO 11 (X541.5)	High	Low	-

Dependency: Refer to: r4022

Note: DI: Digital input

DI/DO: Bidirectional Digital Input/Output

r4023.0...11 BO: TM41 digital inputs, status inverted / TM41 DI status inv

TM41	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the inverted status of the digital inputs of terminal module 41 (TM41).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X522.1)	High	Low	9660
	01	DI 1 (X522.2)	High	Low	9660
	02	DI 2 (X522.3)	High	Low	9660
	03	DI 3 (X522.4)	High	Low	9660
	08	DI/DO 0 (X521.1)	High	Low	9661
	09	DI/DO 1 (X521.2)	High	Low	9661
	10	DI/DO 2 (X521.3)	High	Low	9662
	11	DI/DO 3 (X521.4)	High	Low	9662
Dependency:	Refer to: r4022				
Note:	DI: Digital input				
	DI/DO: Bidirectional Digital Input/Output				

r4023.0...23		CO/BO: TM15DI/DO digital inputs, status inverted / TM15D DI stat inv			
TM15DI_DO	Can be changed: -		Calculated: -		Access level: 1
	Data type: Unsigned32		Dynamic index: -		Func. diagram: 9400, 9401, 9402
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:		Displays the inverted status of the digital inputs of terminal module 15 (TM15).			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	High	Low	-
	01	DI/DO 1 (X520.3)	High	Low	-
	02	DI/DO 2 (X520.4)	High	Low	-
	03	DI/DO 3 (X520.5)	High	Low	-
	04	DI/DO 4 (X520.6)	High	Low	-
	05	DI/DO 5 (X520.7)	High	Low	-
	06	DI/DO 6 (X520.8)	High	Low	-
	07	DI/DO 7 (X520.9)	High	Low	-
	08	DI/DO 8 (X521.2)	High	Low	-
	09	DI/DO 9 (X521.3)	High	Low	-
	10	DI/DO 10 (X521.4)	High	Low	-
	11	DI/DO 11 (X521.5)	High	Low	-
	12	DI/DO 12 (X521.6)	High	Low	-
	13	DI/DO 13 (X521.7)	High	Low	-
	14	DI/DO 14 (X521.8)	High	Low	-
	15	DI/DO 15 (X521.9)	High	Low	-
	16	DI/DO 16 (X522.2)	High	Low	-
	17	DI/DO 17 (X522.3)	High	Low	-
	18	DI/DO 18 (X522.4)	High	Low	-
	19	DI/DO 19 (X522.5)	High	Low	-
	20	DI/DO 20 (X522.6)	High	Low	-
	21	DI/DO 21 (X522.7)	High	Low	-
	22	DI/DO 22 (X522.8)	High	Low	-
	23	DI/DO 23 (X522.9)	High	Low	-
Dependency:		Refer to: r4022, r4024, r4025			
Notice:		For the BICO interconnection of the connector output (CO) only bit 00 ... bit 15 are transferred.			
Note:		DI/DO: Bidirectional Digital Input/Output			

r4024	CO: TM15DI/DO digital inputs 16 ... 23 status / TM15D DI 16-23 St				
TM15DI_DO	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 9402		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status of digital inputs 16 ... 23 of terminal module 15 (TM15).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 16 (X522.2)	On	Off	-
	01	DI/DO 17 (X522.3)	On	Off	-
	02	DI/DO 18 (X522.4)	On	Off	-
	03	DI/DO 19 (X522.5)	On	Off	-
	04	DI/DO 20 (X522.6)	On	Off	-
	05	DI/DO 21 (X522.7)	On	Off	-
	06	DI/DO 22 (X522.8)	On	Off	-
	07	DI/DO 23 (X522.9)	On	Off	-
Dependency:	Refer to: r4022, r4023, r4025				
Note:	DI: Digital input				

r4025	CO: TM15DI/DO digital inputs 16 ... 23 status inverted / TM15D DI 16-23 inv				
TM15DI_DO	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 9402		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the inverted status of digital inputs 16 ... 23 of terminal module 15 (TM15).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 16 (X522.2)	On	Off	-
	01	DI/DO 17 (X522.3)	On	Off	-
	02	DI/DO 18 (X522.4)	On	Off	-
	03	DI/DO 19 (X522.5)	On	Off	-
	04	DI/DO 20 (X522.6)	On	Off	-
	05	DI/DO 21 (X522.7)	On	Off	-
	06	DI/DO 22 (X522.8)	On	Off	-
	07	DI/DO 23 (X522.9)	On	Off	-
Dependency:	Refer to: r4022, r4023, r4024				
Note:	DI: Digital input				

p4028	TM31 set input or output / TM31 DI or DO			
TM31	Can be changed: T	Calculated: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1840, 9560, 9562	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	
Description:	Sets the bidirectional digital inputs/outputs as input or output on the terminal module 31 (TM31).			

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X541.2)	Output	Input	-
	09	DI/DO 9 (X541.3)	Output	Input	-
	10	DI/DO 10 (X541.4)	Output	Input	-
	11	DI/DO 11 (X541.5)	Output	Input	-

p4028 TM41 set input or output / TM41 DI or DO

TM41	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the bidirectional digital inputs/outputs on the terminal module 41 (TM41) as input or output.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 0 (X521.1)	Output	Input	9661
	09	DI/DO 1 (X521.2)	Output	Input	9661
	10	DI/DO 2 (X521.3)	Output	Input	9662
	11	DI/DO 3 (X521.4)	Output	Input	9662

p4028 TM17 set input or output / TM17 DI or DO

TM17	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the bidirectional digital inputs/outputs on the terminal module 17 (TM17) as input or output.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Output	Input	-
	01	DI/DO 1 (X520.3)	Output	Input	-
	02	DI/DO 2 (X520.5)	Output	Input	-
	03	DI/DO 3 (X520.6)	Output	Input	-
	04	DI/DO 4 (X520.8)	Output	Input	-
	05	DI/DO 5 (X520.9)	Output	Input	-
	06	DI/DO 6 (X521.2)	Output	Input	-
	07	DI/DO 7 (X521.3)	Output	Input	-
	08	DI/DO 8 (X521.8)	Output	Input	-
	09	DI/DO 9 (X521.9)	Output	Input	-
	10	DI/DO 10 (X522.2)	Output	Input	-
	11	DI/DO 11 (X522.3)	Output	Input	-
	12	DI/DO 12 (X522.5)	Output	Input	-
	13	DI/DO 13 (X522.6)	Output	Input	-
	14	DI/DO 14 (X522.8)	Output	Input	-
	15	DI/DO 15 (X522.9)	Output	Input	-

Note: DI/DO: Bidirectional Digital Input/Output

p4028 TM15 set input or output / TM15 DI or DO

TM15	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the bidirectional digital inputs/outputs on the terminal module 15 (TM15) as input or output.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Output	Input	-
	01	DI/DO 1 (X520.3)	Output	Input	-
	02	DI/DO 2 (X520.4)	Output	Input	-
	03	DI/DO 3 (X520.5)	Output	Input	-
	04	DI/DO 4 (X520.6)	Output	Input	-
	05	DI/DO 5 (X520.7)	Output	Input	-
	06	DI/DO 6 (X520.8)	Output	Input	-
	07	DI/DO 7 (X520.9)	Output	Input	-
	08	DI/DO 8 (X521.2)	Output	Input	-
	09	DI/DO 9 (X521.3)	Output	Input	-
	10	DI/DO 10 (X521.4)	Output	Input	-
	11	DI/DO 11 (X521.5)	Output	Input	-
	12	DI/DO 12 (X521.6)	Output	Input	-
	13	DI/DO 13 (X521.7)	Output	Input	-
	14	DI/DO 14 (X521.8)	Output	Input	-
	15	DI/DO 15 (X521.9)	Output	Input	-
	16	DI/DO 16 (X522.2)	Output	Input	-
	17	DI/DO 17 (X522.3)	Output	Input	-
	18	DI/DO 18 (X522.4)	Output	Input	-
	19	DI/DO 19 (X522.5)	Output	Input	-
	20	DI/DO 20 (X522.6)	Output	Input	-
	21	DI/DO 21 (X522.7)	Output	Input	-
	22	DI/DO 22 (X522.8)	Output	Input	-
	23	DI/DO 23 (X522.9)	Output	Input	-
Note:	DI/DO: Bidirectional Digital Input/Output				

p4028 TM15DI/DO set input or output / TM15D DI or DO

TM15DI_DO	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9400, 9401, 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the bidirectional digital inputs/outputs on the terminal module 15 (TM15) as input or output.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Output	Input	-
	01	DI/DO 1 (X520.3)	Output	Input	-
	02	DI/DO 2 (X520.4)	Output	Input	-
	03	DI/DO 3 (X520.5)	Output	Input	-
	04	DI/DO 4 (X520.6)	Output	Input	-
	05	DI/DO 5 (X520.7)	Output	Input	-
	06	DI/DO 6 (X520.8)	Output	Input	-
	07	DI/DO 7 (X520.9)	Output	Input	-
	08	DI/DO 8 (X521.2)	Output	Input	-
	09	DI/DO 9 (X521.3)	Output	Input	-
	10	DI/DO 10 (X521.4)	Output	Input	-
	11	DI/DO 11 (X521.5)	Output	Input	-
	12	DI/DO 12 (X521.6)	Output	Input	-
	13	DI/DO 13 (X521.7)	Output	Input	-
	14	DI/DO 14 (X521.8)	Output	Input	-
	15	DI/DO 15 (X521.9)	Output	Input	-
	16	DI/DO 16 (X522.2)	Output	Input	-
	17	DI/DO 17 (X522.3)	Output	Input	-
	18	DI/DO 18 (X522.4)	Output	Input	-
	19	DI/DO 19 (X522.5)	Output	Input	-
	20	DI/DO 20 (X522.6)	Output	Input	-

21	DI/DO 21 (X522.7)	Output	Input	-
22	DI/DO 22 (X522.8)	Output	Input	-
23	DI/DO 23 (X522.9)	Output	Input	-

Note: DI/DO: Bidirectional Digital Input/Output

p4030	BI: TB30 signal source for terminal DO 0 / TB30 S_src DO 0		
TB30	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1790, 9102
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for digital output DO 0 (X481.5) of the Terminal Board 30 (TB30).		
Note:	DO: Digital Output		

p4030	BI: TM31 signal source for terminal DO 0 / TM31 S_src DO 0		
TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1840, 9556
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the digital output DO 0 (X542.1, X542.2, X542.3) of terminal module 31 (TM31). Digital output 0 of TM31 is a relay output. If the signal at the binector input p4030 is low, then terminal COM 0 (X542.2) is connected to NC 0 (X542.1). This connection also matches the mechanical quiescent setting of the relay. If the signal at the binector input p4030 is high, then terminal COM 0 (X542.2) is connected to NO 0 (X542.3).		
Note:	DO: Digital Output NC: Normally Closed contact NO: Normally Open contact		

p4030	BI: TM15DI/DO signal source for terminal DI/DO 0 / TM15D S_srcDI/DO 0		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9400
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 0 (X520.2) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.0 = 1). DI/DO: Bidirectional Digital Input/Output		

p4031	BI: TB30 signal source for terminal DO 1 / TB30 S_src DO 1		
TB30	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9102
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DO 1 (X481.6) of the Terminal Board 30 (TB30).		
Note:	DO: Digital Output		

p4031			
BI: TM31 signal source for terminal DO 1 / TM31 S_src DO 1			
TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1840, 9556
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the digital output DO 1 (X542.4, X542.5, X542.6) of terminal module 31 (TM31). Digital output 1 of TM31 is a relay output. If the signal at the binector input p4031 is low, then terminal COM 1 (X542.5) is connected to NC 1 (X542.4). This connection also matches the mechanical quiescent setting of the relay. If the signal at the binector input p4031 is high, then terminal COM 1 (X542.5) is connected to NO 1 (X542.6).		
Note:	DO: Digital Output NC: Normally Closed contact NO: Normally Open contact		

p4031			
BI: TM15DI/DO signal source for terminal DI/DO 1 / TM15D S_srcDI/DO 1			
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9400
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 1 (X520.3) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.1 = 1). DI/DO: Bidirectional Digital Input/Output		

p4032			
BI: TB30 signal source for terminal DO 2 / TB30 S_src DO 2			
TB30	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9102
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DO 2 (X481.7) of the Terminal Board 30 (TB30).		
Note:	DO: Digital Output		

p4032			
BI: TM15DI/DO signal source for terminal DI/DO 2 / TM15D S_srcDI/DO 2			
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9400
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 2 (X520.4) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.2 = 1). DI/DO: Bidirectional Digital Input/Output		

p4033	BI: TB30 signal source for terminal DO 3 / TB30 S_src DO 3		
TB30	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 1790, 9102 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DO 3 (X481.8) of the Terminal Board 30 (TB30).		
Note:	DO: Digital Output		
p4033	BI: TM15DI/DO signal source for terminal DI/DO 3 / TM15D S_srcDI/DO 3		
TM15DI_DO	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 9400 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DI/DO 3 (X520.5) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.3 = 1). DI/DO: Bidirectional Digital Input/Output		
p4034	BI: TM15DI/DO signal source for terminal DI/DO 4 / TM15D S_srcDI/DO 4		
TM15DI_DO	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 9400 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DI/DO 4 (X520.6) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.4 = 1). DI/DO: Bidirectional Digital Input/Output		
p4035	BI: TM15DI/DO signal source for terminal DI/DO 5 / TM15D S_srcDI/DO 5		
TM15DI_DO	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 9400 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DI/DO 5 (X520.7) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.5 = 1). DI/DO: Bidirectional Digital Input/Output		

p4036	BI: TM15DI/DO signal source for terminal DI/DO 6 / TM15D S_srcDI/DO 6		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9400
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 6 (X520.8) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.6 = 1). DI/DO: Bidirectional Digital Input/Output		
p4037	BI: TM15DI/DO signal source for terminal DI/DO 7 / TM15D S_srcDI/DO 7		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9400
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 7 (X520.9) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.7 = 1). DI/DO: Bidirectional Digital Input/Output		
p4038	BI: TM31 signal source for terminal DI/DO 8 / TM31 S_src DI/DO 8		
TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1840, 9560
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 8 (X541.2) of terminal module 31 (TM31).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.8 = 1). DI/DO: Bidirectional Digital Input/Output		
p4038	BI: TM41 signal source for terminal DI/DO 0 / TM41 S_src DI/DO 0		
TM41	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9661
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 0 (X521.1) of terminal module 41 (TM41).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.8 = 1). DI/DO: Bidirectional Digital Input/Output		

p4038	BI: TM15DI/DO signal source for terminal DI/DO 8 / TM15D S_srcDI/DO 8		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 8 (X521.2) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.8 = 1). DI/DO: Bidirectional Digital Input/Output		

p4039	BI: TM31 signal source for terminal DI/DO 9 / TM31 S_src DI/DO 9		
TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9560
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 9 (X541.3) of terminal module 31 (TM31).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.9 = 1). DI/DO: Bidirectional Digital Input/Output		

p4039	BI: TM41 signal source for terminal DI/DO 1 / TM41 S_src DI/DO 1		
TM41	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9661
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 1 (X541.2) of terminal module 41 (TM41).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.9 = 1). DI/DO: Bidirectional Digital Input/Output		

p4039	BI: TM15DI/DO signal source for terminal DI/DO 9 / TM15D S_srcDI/DO 9		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 9 (X521.3) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.9 = 1). DI/DO: Bidirectional Digital Input/Output		

p4040	BI: TM31 signal source for terminal DI/DO 10 / TM31 S_src DI/DO10		
TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9562
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 10 (X541.4) of terminal module 31 (TM31).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.10 = 1). DI/DO: Bidirectional Digital Input/Output		
p4040	BI: TM41 signal source for terminal DI/DO 2 / TM41 S_src DI/DO 2		
TM41	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9662
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 2 (X521.3) of terminal module 41 (TM41).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.10 = 1). DI/DO: Bidirectional Digital Input/Output		
p4040	BI: TM15DI/DO signal source for terminal DI/DO 10 / TM15D S_srcDI/DO10		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 10 (X521.4) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.10 = 1). DI/DO: Bidirectional Digital Input/Output		
p4041	BI: TM31 signal source for terminal DI/DO 11 / TM31 S_src DI/DO11		
TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1840, 9562
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 11 (X541.5) of terminal module 31 (TM31).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.11 = 1). DI/DO: Bidirectional Digital Input/Output		

p4041			
BI: TM41 signal source for terminal DI/DO 3 / TM41 S_src DI/DO 3			
TM41	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9662
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 3 (X521.4) of terminal module 41 (TM41).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.11 = 1). DI/DO: Bidirectional Digital Input/Output		


p4041			
BI: TM15DI/DO signal source for terminal DI/DO 11 / TM15D S_srcDI/DO11			
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 11 (X521.5) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.11 = 1). DI/DO: Bidirectional Digital Input/Output		

p4042			
BI: TM15DI/DO signal source for terminal DI/DO 12 / TM15D S_srcDI/DO12			
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 12 (X521.6) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.12 = 1). DI/DO: Bidirectional Digital Input/Output		

p4043			
BI: TM15DI/DO signal source for terminal DI/DO 13 / TM15D S_srcDI/DO13			
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 13 (X521.7) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.13 = 1). DI/DO: Bidirectional Digital Input/Output		

p4044	BI: TM15DI/DO signal source for terminal DI/DO 14 / TM15D S_srcDI/DO14			
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for terminal DI/DO 14 (X521.8) of terminal module 15 (TM15).			
Note:	Prerequisite: The DI/DO must be set as an output (p4028.14 = 1). DI/DO: Bidirectional Digital Input/Output			

p4045	BI: TM15DI/DO signal source for terminal DI/DO 15 / TM15D S_srcDI/DO15			
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9401	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for terminal DI/DO 15 (X521.9) of terminal module 15 (TM15).			
Note:	Prerequisite: The DI/DO must be set as an output (p4028.15 = 1). DI/DO: Bidirectional Digital Input/Output			

p4046	TM31 digital outputs, limit current / TM31 DO limit curr			
TM31	Can be changed: T	Calculated: -	Access level: 2	
	Data type: Integer16	Dynamic index: -	Func. diagram: 9560	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	1	0	
Description:	Sets the limit for the total output voltage of terminals X541.1, X541.2, X541.3 and X541.4 (DI/DO 8 ... 11) of terminal module 31 (TM31).			
Values:	0: 0.1 A total current limit DI/DO 8 ... 11 1: 1.0 A total current limit DI/DO 8 ... 11			
Dependency:	Refer to: p4028			
Warning:	Since the sum of the output currents at terminals X541.1, X541.2, X541.3 and X541.4 is limited, an overcurrent or short circuit at one output terminal can cause a dip in the signal at the other terminals.			
				

r4047	TB30 digital outputs status / TB30 DO status				
TB30	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9102		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status of the digital outputs of the Terminal Board 30 (TB30).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0 (X481.5)	High	Low	-
	01	DO 1 (X481.6)	High	Low	-
	02	DO 2 (X481.7)	High	Low	-
	03	DO 3 (X481.8)	High	Low	-

Note: Inversion using p4048 has been taken into account.
DO: Digital Output

r4047	TM31 digital outputs status / TM31 DO status				
TM31	Can be changed: -		Calculated: -		Access level: 1
	Data type: Unsigned32		Dynamic index: -		Func. diagram: 9556, 9560, 9562
	P-Group: Commands		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the status of the digital outputs of terminal module 31 (TM31).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0 (X542.1 - 3)	High	Low	-
	01	DO 1 (X542.4 - 6)	High	Low	-
	08	DI/DO 8 (X541.2)	High	Low	-
	09	DI/DO 9 (X541.3)	High	Low	-
	10	DI/DO 10 (X541.4)	High	Low	-
	11	DI/DO 11 (X541.5)	High	Low	-
Note:	Inversion using p4048 has been taken into account.				
	The setting of the DI/DO as either input or output is of no significance (p4028).				
	DO: Digital Output				
	DI/DO: Bidirectional Digital Input/Output				

r4047	TM41 digital outputs status / TM41 DO status				
TM41	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status of the digital outputs of terminal module 41 (TM41).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 0 (X521.1)	High	Low	9661
	09	DI/DO 1 (X521.2)	High	Low	9661
	10	DI/DO 2 (X521.3)	High	Low	9662
	11	DI/DO 3 (X521.4)	High	Low	9662
Note:	Inversion using p4048 has been taken into account.				
	The setting of the DI/DO as either input or output is of no significance (p4028).				
	DO: Digital Output				
	DI/DO: Bidirectional Digital Input/Output				

r4047	TM15DI/DO digital outputs, status / TM15D DO status		
TM15DI_DO	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9400, 9401, 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the status of the digital outputs of terminal module 15 (TM15).		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	High	Low	-
	01	DI/DO 1 (X520.3)	High	Low	-
	02	DI/DO 2 (X520.4)	High	Low	-
	03	DI/DO 3 (X520.5)	High	Low	-
	04	DI/DO 4 (X520.6)	High	Low	-
	05	DI/DO 5 (X520.7)	High	Low	-
	06	DI/DO 6 (X520.8)	High	Low	-
	07	DI/DO 7 (X520.9)	High	Low	-
	08	DI/DO 8 (X521.2)	High	Low	-
	09	DI/DO 9 (X521.3)	High	Low	-
	10	DI/DO 10 (X521.4)	High	Low	-
	11	DI/DO 11 (X521.5)	High	Low	-
	12	DI/DO 12 (X521.6)	High	Low	-
	13	DI/DO 13 (X521.7)	High	Low	-
	14	DI/DO 14 (X521.8)	High	Low	-
	15	DI/DO 15 (X521.9)	High	Low	-
	16	DI/DO 16 (X522.2)	High	Low	-
	17	DI/DO 17 (X522.3)	High	Low	-
	18	DI/DO 18 (X522.4)	High	Low	-
	19	DI/DO 19 (X522.5)	High	Low	-
	20	DI/DO 20 (X522.6)	High	Low	-
	21	DI/DO 21 (X522.7)	High	Low	-
	22	DI/DO 22 (X522.8)	High	Low	-
	23	DI/DO 23 (X522.9)	High	Low	-

Note: Inversion using p4048 has been taken into account.
The setting of the DI/DO as either input or output is of no significance (p4028).
DI/DO: Bidirectional Digital Input/Output

p4048 TB30 invert digital outputs / TB30 DO invert

TB30	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9102
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital outputs of the Terminal Board 30 (TB30).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0 (X481.5)	Inverted	Not inverted	-
	01	DO 1 (X481.6)	Inverted	Not inverted	-
	02	DO 2 (X481.7)	Inverted	Not inverted	-
	03	DO 3 (X481.8)	Inverted	Not inverted	-

Note: DO: Digital Output

p4048 TM31 invert digital outputs / TM31 DO invert

TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9556, 9560, 9562
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital outputs of terminal module 31 (TM31).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0 (X542.1 - 3)	Inverted	Not inverted	-
	01	DO 1 (X542.4 - 6)	Inverted	Not inverted	-
	08	DI/DO 8 (X541.2)	Inverted	Not inverted	-
	09	DI/DO 9 (X541.3)	Inverted	Not inverted	-
	10	DI/DO 10 (X541.4)	Inverted	Not inverted	-
	11	DI/DO 11 (X541.5)	Inverted	Not inverted	-

Note: DO: Digital Output
DI/DO: Bidirectional Digital Input/Output

p4048 TM41 invert digital outputs / TM41 DO invert

TM41	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital outputs of terminal module 41 (TM41).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 0 (X521.1)	Inverted	Not inverted	9661
	09	DI/DO 1 (X521.2)	Inverted	Not inverted	9661
	10	DI/DO 2 (X521.3)	Inverted	Not inverted	9662
	11	DI/DO 3 (X521.4)	Inverted	Not inverted	9662

Note: DO: Digital Output
DI/DO: Bidirectional Digital Input/Output

p4048 TM17 invert digital inputs/outputs / TM17 DI/DO invert

TM17	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital inputs/outputs of terminal module 17 (TM17).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Inverted	Not inverted	-
	01	DI/DO 1 (X520.3)	Inverted	Not inverted	-
	02	DI/DO 2 (X520.5)	Inverted	Not inverted	-
	03	DI/DO 3 (X520.6)	Inverted	Not inverted	-
	04	DI/DO 4 (X520.8)	Inverted	Not inverted	-
	05	DI/DO 5 (X520.9)	Inverted	Not inverted	-
	06	DI/DO 6 (X521.2)	Inverted	Not inverted	-
	07	DI/DO 7 (X521.3)	Inverted	Not inverted	-
	08	DI/DO 8 (X521.8)	Inverted	Not inverted	-
	09	DI/DO 9 (X521.9)	Inverted	Not inverted	-
	10	DI/DO 10 (X522.2)	Inverted	Not inverted	-
	11	DI/DO 11 (X522.3)	Inverted	Not inverted	-
	12	DI/DO 12 (X522.5)	Inverted	Not inverted	-
	13	DI/DO 13 (X522.6)	Inverted	Not inverted	-
	14	DI/DO 14 (X522.8)	Inverted	Not inverted	-
	15	DI/DO 15 (X522.9)	Inverted	Not inverted	-

Note: DI/DO: Bidirectional Digital Input/Output

p4048 TM15 invert digital inputs/outputs / TM15 DI/DO invert

TM15	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital inputs/outputs of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Inverted	Not inverted	-
	01	DI/DO 1 (X520.3)	Inverted	Not inverted	-
	02	DI/DO 2 (X520.4)	Inverted	Not inverted	-
	03	DI/DO 3 (X520.5)	Inverted	Not inverted	-
	04	DI/DO 4 (X520.6)	Inverted	Not inverted	-
	05	DI/DO 5 (X520.7)	Inverted	Not inverted	-
	06	DI/DO 6 (X520.8)	Inverted	Not inverted	-
	07	DI/DO 7 (X520.9)	Inverted	Not inverted	-
	08	DI/DO 8 (X521.2)	Inverted	Not inverted	-
	09	DI/DO 9 (X521.3)	Inverted	Not inverted	-
	10	DI/DO 10 (X522.4)	Inverted	Not inverted	-
	11	DI/DO 11 (X521.5)	Inverted	Not inverted	-
	12	DI/DO 12 (X521.6)	Inverted	Not inverted	-
	13	DI/DO 13 (X521.7)	Inverted	Not inverted	-
	14	DI/DO 14 (X521.8)	Inverted	Not inverted	-
	15	DI/DO 15 (X521.9)	Inverted	Not inverted	-
	16	DI/DO 16 (X522.2)	Inverted	Not inverted	-
	17	DI/DO 17 (X522.3)	Inverted	Not inverted	-
	18	DI/DO 18 (X522.4)	Inverted	Not inverted	-
	19	DI/DO 19 (X522.5)	Inverted	Not inverted	-
	20	DI/DO 20 (X522.6)	Inverted	Not inverted	-
	21	DI/DO 21 (X522.7)	Inverted	Not inverted	-
	22	DI/DO 22 (X522.8)	Inverted	Not inverted	-
	23	DI/DO 23 (X522.9)	Inverted	Not inverted	-

Note: DI/DO: Bidirectional Digital Input/Output

p4048 TM15DI/DO invert digital outputs / TM15D DO invert

TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9400, 9401, 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the signals at the digital outputs of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Inverted	Not inverted	-
	01	DI/DO 1 (X520.3)	Inverted	Not inverted	-
	02	DI/DO 2 (X520.4)	Inverted	Not inverted	-
	03	DI/DO 3 (X520.5)	Inverted	Not inverted	-
	04	DI/DO 4 (X520.6)	Inverted	Not inverted	-
	05	DI/DO 5 (X520.7)	Inverted	Not inverted	-
	06	DI/DO 6 (X520.8)	Inverted	Not inverted	-
	07	DI/DO 7 (X520.9)	Inverted	Not inverted	-
	08	DI/DO 8 (X521.2)	Inverted	Not inverted	-
	09	DI/DO 9 (X521.3)	Inverted	Not inverted	-
	10	DI/DO 10 (X521.4)	Inverted	Not inverted	-
	11	DI/DO 11 (X521.5)	Inverted	Not inverted	-

12	DI/DO 12 (X521.6)	Inverted	Not inverted	-
13	DI/DO 13 (X521.7)	Inverted	Not inverted	-
14	DI/DO 14 (X521.8)	Inverted	Not inverted	-
15	DI/DO 15 (X521.9)	Inverted	Not inverted	-
16	DI/DO 16 (X522.2)	Inverted	Not inverted	-
17	DI/DO 17 (X522.3)	Inverted	Not inverted	-
18	DI/DO 18 (X522.4)	Inverted	Not inverted	-
19	DI/DO 19 (X522.5)	Inverted	Not inverted	-
20	DI/DO 20 (X522.6)	Inverted	Not inverted	-
21	DI/DO 21 (X522.7)	Inverted	Not inverted	-
22	DI/DO 22 (X522.8)	Inverted	Not inverted	-
23	DI/DO 23 (X522.9)	Inverted	Not inverted	-

Note: DI/DO: Bidirectional Digital Input/Output

p4049 TM17 digital inputs/outputs, set the mode / TM17 DI/DO mode

TM17	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the mode of the DI/DO of terminal module 17 (TM17).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	I/O with time	I/O	-
	01	DI/DO 1 (X520.3)	I/O with time	I/O	-
	02	DI/DO 2 (X520.5)	I/O with time	I/O	-
	03	DI/DO 3 (X520.6)	I/O with time	I/O	-
	04	DI/DO 4 (X520.8)	I/O with time	I/O	-
	05	DI/DO 5 (X520.9)	I/O with time	I/O	-
	06	DI/DO 6 (X521.2)	I/O with time	I/O	-
	07	DI/DO 7 (X521.3)	I/O with time	I/O	-
	08	DI/DO 8 (X521.8)	I/O with time	I/O	-
	09	DI/DO 9 (X521.9)	I/O with time	I/O	-
	10	DI/DO 10 (X522.2)	I/O with time	I/O	-
	11	DI/DO 11 (X522.3)	I/O with time	I/O	-
	12	DI/DO 12 (X522.5)	I/O with time	I/O	-
	13	DI/DO 13 (X522.6)	I/O with time	I/O	-
	14	DI/DO 14 (X522.8)	I/O with time	I/O	-
	15	DI/DO 15 (X522.9)	I/O with time	I/O	-

Note: DI/DO: Bidirectional Digital Input/Output

p4049 TM15 digital inputs/outputs, set the mode / TM15 DI/DO mode

TM15	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the mode of the DI/DOs of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	I/O with time	I/O	-
	01	DI/DO 1 (X520.3)	I/O with time	I/O	-
	02	DI/DO 2 (X520.4)	I/O with time	I/O	-
	03	DI/DO 3 (X520.5)	I/O with time	I/O	-
	04	DI/DO 4 (X520.6)	I/O with time	I/O	-
	05	DI/DO 5 (X520.7)	I/O with time	I/O	-
	06	DI/DO 6 (X520.8)	I/O with time	I/O	-

07	DI/DO 7 (X520.9)	I/O with time	I/O	-
08	DI/DO 8 (X521.2)	I/O with time	I/O	-
09	DI/DO 9 (X521.3)	I/O with time	I/O	-
10	DI/DO 10 (X522.4)	I/O with time	I/O	-
11	DI/DO 11 (X521.5)	I/O with time	I/O	-
12	DI/DO 12 (X521.6)	I/O with time	I/O	-
13	DI/DO 13 (X521.7)	I/O with time	I/O	-
14	DI/DO 14 (X521.8)	I/O with time	I/O	-
15	DI/DO 15 (X521.9)	I/O with time	I/O	-
16	DI/DO 16 (X522.2)	I/O with time	I/O	-
17	DI/DO 17 (X522.3)	I/O with time	I/O	-
18	DI/DO 18 (X522.4)	I/O with time	I/O	-
19	DI/DO 19 (X522.5)	I/O with time	I/O	-
20	DI/DO 20 (X522.6)	I/O with time	I/O	-
21	DI/DO 21 (X522.7)	I/O with time	I/O	-
22	DI/DO 22 (X522.8)	I/O with time	I/O	-
23	DI/DO 23 (X522.9)	I/O with time	I/O	-

Note: DI/DO: Bidirectional Digital Input/Output

r4052[0...1] CO: TB30 analog inputs, actual input voltage / TB30 AI inp_V

TB30	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9104
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]

Description: Displays the actual input voltage at the analog inputs of the Terminal Board 30 (TB30).

Index:
[0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: AI: Analog Input

r4052[0...1] CO: TM31 analog inputs, actual input voltage/current / TM31 AI inp_V/I

TM31	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9566, 9568
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the actual input voltage in V when set as voltage input.

Displays the actual input current in mA when set as current input and with the load resistor switched-in.

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The type of analog input AI x (voltage or current input) is set using p4056.
Refer to: r4056, p4056

Note: AI: Analog Input

r4052[0...0] CO: TB41 analog inputs, actual input voltage / TM41 AI inp_V

TM41	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9663
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]

Description: Displays the actual input voltage in V.

Index: [0] = AI 0 (X523.1/X523.2)

Note: AI: Analog Input

p4053[0...1] TB30 analog inputs, smoothing time constant / TB30 AI T_smooth

TB30	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9104
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 0.0 [ms]

Description: Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs of the Terminal Board 30 (TB30).

Index: [0] = AI 0 (X482.1/X482.2)

[1] = AI 1 (X482.3/X482.4)

Note: AI: Analog Input

p4053[0...1] TM31 analog inputs, smoothing time constant / TM31 AI T_smooth

TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9566, 9568
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 0.0 [ms]

Description: Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs of terminal module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)

[1] = AI 1 (X521.3/X521.4, S5.1)

Note: AI: Analog Input

p4053[0...0] TM41 analog inputs, smoothing time constant / TM41 AI T_smooth

TM41	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9663
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 0.0 [ms]

Description: Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs of terminal module 41 (TM41).

Index: [0] = AI 0 (X523.1/X523.2)

Note: AI: Analog Input

r4055[0...1] CO: TB30 analog inputs, actual value in percent / TB30 AI value in %

TB30	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1790, 9104
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the currently referred input value of the analog inputs of Terminal Board 30 (TB30).
When interconnected, the signals are referred to the reference quantities p200x and p205x.

Index: [0] = AI 0 (X482.1/X482.2)

[1] = AI 1 (X482.3/X482.4)

Note: AI: Analog Input


r4055[0...1]	CO: TB31 analog inputs, actual value in percent / TM31 AI value in %		
TM31	Can be changed: - Data type: Floating Point P-Group: Terminals Not for motor type: - Min - [%] Description: Index: [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) Note: AI: Analog Input	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 1 Func. diagram: 1840, 9566, 9568 Unit selection: - Expert list: 1 Factory setting - [%]
r4055[0...0]	CO: TB41 analog inputs, actual value in percent / TM41 AI value in %		
TM41	Can be changed: - Data type: Floating Point P-Group: Terminals Not for motor type: - Min - [%] Description: Index: [0] = AI 0 (X523.1/X523.2) Note: AI: Analog Input	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 1 Func. diagram: 9663 Unit selection: - Expert list: 1 Factory setting - [%]
r4056[0...1]	TB30 analog inputs, type / TB30 AI type		
TB30	Can be changed: - Data type: Integer16 P-Group: Terminals Not for motor type: - Min 4 Description: Values: 4: Bipolar voltage input (-10 V ... +10 V) Index: [0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)	Calculated: - Dynamic index: - Units group: - Max 4	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
p4056[0...1]	TM31 analog inputs, type / TM31 AI type		
TM31	Can be changed: U, T Data type: Integer16 P-Group: Terminals Not for motor type: - Min 0 Description: Sets the type of analog inputs of terminal module 31 (TM31). p4056[x] = 0, 4 correspond to a voltage input (r4052, p4057, p4059 are displayed in V). p4056[x] = 2, 3, 5 correspond to a current input (r4052, p4057, p4059 are displayed in mA). In addition, the associated switch S5 must be switched. For a voltage input, S5.1 or S5.2 must be switched to setting V. For a current input, S5.1 and S5.2 must be switched into setting I (load resistor = 250 Ohm is switched-in).	Calculated: - Dynamic index: - Units group: - Max 5	Access level: 1 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 4

Values:

- 0: Unipolar voltage input (0 V ... +10 V)
- 2: Unipolar current input (0 mA ... +20 mA)
- 3: Unipolar current input monitored (4 mA ... +20 mA)
- 4: Bipolar voltage input (-10 V ... +10 V)
- 5: Bipolar current input (-20 mA ... +20 mA)

Index:

- [0] = AI 0 (X521.1/X521.2, S5.0)
- [1] = AI 1 (X521.3/X521.4, S5.1)

Warning:  The maximum voltage difference between the analog input terminals AI+, AI- and the ground of the TM31 (X520.6, X530.3) may not exceed 35 V.

For operation with the load resistor switched-in, the voltage between the differential inputs AI+ and AI- may not exceed 15 V or the impressed current of 60 mA; if this is not carefully observed, the input will be damaged.

Notice: For use as voltage input, switch S500 must be set to 0 for the input involved.

Switch S500 is located on the front panel of the TM31 above terminal block X521.

Note: When changing p4056, the parameters of the normalization characteristic (p4057, p4058, p4059, p4060) are overwritten with the following default values:

For p4056 = 0, 4, p4057 is set to 0.0 V, p4058 to 0.0 %, p4059 to 10.0 V and p4060 to 100.0 %.

For p4056 = 2, 5, p4057 is set to 0.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %.

For p4056 = 3, p4057 is set to 4.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %.

r4056 TM41 analog input, type / TM41 AI type

TM41	Can be changed: - Data type: Integer16 P-Group: Terminals Not for motor type: - Min 4	Calculated: - Dynamic index: - Units group: - Max 4	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
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Description: Displays the type of the analog input.

Values: 4: Bipolar voltage input (-10 V ... +10 V)

p4057[0...1] TB30 analog inputs, characteristic value x1 / TB30 AI char x1

TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: - Min -11.000 [V]	Calculated: - Dynamic index: - Units group: - Max 11.000 [V]	Access level: 2 Func. diagram: 9104 Unit selection: - Expert list: 1 Factory setting 0.000 [V]
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Description: Sets the normalization characteristic for the analog inputs of Terminal Board 30 (TB30).

The normalization characteristic for the analog inputs is defined using two points.

This parameter specifies the x coordinate (input voltage in V) of the 1st value pair of the characteristic.

Index:

- [0] = AI 0 (X482.1/X482.2)
- [1] = AI 1 (X482.3/X482.4)

Note: The parameters for the characteristic do not limit.

p4057[0...1] TM31 analog inputs, characteristic value x1 / TM31 AI char x1

TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: - Min -20.000	Calculated: - Dynamic index: - Units group: - Max 20.000	Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0.000
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Description: Sets the normalization characteristic for the analog inputs of terminal module 31 (TM31).

The normalization characteristic for the analog inputs is defined using two points.

	This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 1st value pair of the characteristic.		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
Dependency:	The units of this parameter (V or mA) depend on the analog input type. Refer to: r4056, p4056		
Notice:	This parameter is automatically overwritten when the analog input type (p4056) is modified.		
Note:	The parameters for the characteristic do not limit.		

p4057[0...0] TM41 analog input, characteristic value x1 / TM41 AI char x1

TM41	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9663
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -20.000 [V]	Max 20.000 [V]	Factory setting 0.000 [V]
Description:	Sets the normalization characteristic for the analog inputs of terminal module 41 (TM41). The normalization characteristic for the analog input is defined using 2 points. This parameter specifies the x coordinate (input voltage in V) of the 1st value pair of the characteristic.		
Index:	[0] = AI 0 (X523.1/X523.2)		
Note:	The parameters for the characteristic do not limit.		

p4058[0...1] TB30 analog inputs, characteristic value y1 / TB30 AI char y1

TB30	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9104
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 0.00 [%]
Description:	Sets the normalization characteristic for the analog inputs of Terminal Board 30 (TB30). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		
Note:	The parameters for the characteristic do not limit.		

p4058[0...1] TM31 analog inputs, characteristic value y1 / TM31 AI char y1

TM31	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9566, 9568
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 0.00 [%]
Description:	Sets the normalization characteristic for the analog inputs of terminal module 31 (TM31). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
Notice:	This parameter is automatically overwritten when the analog input type (p4056) is modified.		
Note:	The parameters for the characteristic do not limit.		

p4058[0...0]	TM41 analog input, characteristic value y1 / TM41 AI char y1		
TM41	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9663 Unit selection: - Expert list: 1 Factory setting 0.00 [%]
Description:	Sets the normalization characteristic for the analog input of terminal module 41 (TM41). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.		
Index:	[0] = AI 0 (X523.1/X523.2)		
Note:	The parameters for the characteristic do not limit.		
p4059[0...1]	TB30 analog inputs, characteristic value x2 / TB30 AI char x2		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9104 Unit selection: - Expert list: 1 Factory setting 10.000 [V]
Description:	Sets the normalization characteristic for the analog inputs of Terminal Board 30 (TB30). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the x coordinate (input voltage in V) of the 2nd value pair of the characteristic.		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		
Note:	The parameters for the characteristic do not limit.		
p4059[0...1]	TM31 analog inputs, characteristic value x2 / TM31 AI char x2		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 10.000
Description:	Sets the normalization characteristic for the analog inputs of terminal module 31 (TM31). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 2nd value pair of the characteristic.		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
Dependency:	The units of this parameter (V or mA) depend on the analog input type. Refer to: r4056, p4056		
Notice:	This parameter is automatically overwritten when the analog input type (p4056) is modified.		
Note:	The parameters for the characteristic do not limit.		

p4059[0...0] TM41 analog input, characteristic value x2 / TM41 AI char x2

TM41	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9663
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -20.000 [V]	Max 20.000 [V]	Factory setting 10.000 [V]
Description:	Sets the normalization characteristic for the analog input of terminal module 41 (TM41). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the x coordinate (input voltage in V) of the 2nd value pair of the characteristic.		
Index:	[0] = AI 0 (X523.1/X523.2)		
Note:	The parameters for the characteristic do not limit.		

p4060[0...1] TB30 analog inputs, characteristic value y2 / TB30 AI char y2

TB30	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9104
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the normalization characteristic for the analog inputs of Terminal Board 30 (TB30). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		
Note:	The parameters for the characteristic do not limit.		

p4060[0...1] TM31 analog inputs, characteristic value y2 / TM31 AI char y2

TM31	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9566, 9568
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the normalization characteristic for the analog inputs of terminal module 31 (TM31). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
Notice:	This parameter is automatically overwritten when the analog input type (p4056) is modified.		
Note:	The parameters for the characteristic do not limit.		

p4060[0...0]	TM41 analog input, characteristic value y2 / TM41 AI char y2		
TM41	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9663 Unit selection: - Expert list: 1 Factory setting 100.00 [%]
Description:	Sets the normalization characteristic for the analog input of terminal module 41 (TM41). The normalization characteristic for the analog inputs is defined using two points. This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.		
Index:	[0] = AI 0 (X523.1/X523.2)		
Note:	The parameters for the characteristic do not limit.		
p4061[0...1]	TM31 analog inputs, wire breakage monitoring response threshold / TM31 WireBrkThresh		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 2.00 [mA]
Description:	Sets the response threshold for wire-breakage monitoring of the analog inputs of terminal module 31 (TM31).		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
Dependency:	The wire breakage monitoring is active for the following type of analog input: p4056[x] = 3 (current input unipolar, monitored 4 mA ... 20 mA). Refer to: r4056, p4056		
p4062[0...1]	TM31 analog inputs, wire breakage monitoring delay time / TM31 wirebrk t_del		
TM31	Can be changed: U, T Data type: Unsigned16 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 100 [ms]
Description:	Sets the delay time for wire-breakage monitoring of the analog inputs on terminal module 31 (TM31).		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
p4063[0...1]	TB30 analog inputs offset / TB30 AI offset		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9104 Unit selection: - Expert list: 1 Factory setting 0.000 [V]
Description:	Sets the offset for the analog inputs of Terminal Board 30 (TB30). The offset is added to the input signal before the normalization characteristic.		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		

p4063[0...1]	TM31 analog inputs offset / TM31 AI offset		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -20.000	Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0.000
Description:	Sets the offset for the analog inputs of terminal module 31 (TM31). The offset is added to the input signal before the normalization characteristic.		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
p4063[0...0]	TM41 analog input, offset / TM41 AI offset		
TM41	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -20.000 [V]	Access level: 2 Func. diagram: 9663 Unit selection: - Expert list: 1 Factory setting 0.000 [V]
Description:	Sets the offset for the analog input of terminal module 41 (TM41). The offset is added to the input signal before the normalization characteristic.		
Index:	[0] = AI 0 (X523.1/X523.2)		
p4066[0...1]	TB30 analog inputs, activate absolute value generation / TB30 AI absVal act		
TB30	Can be changed: U, T Data type: Integer16 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 3 Func. diagram: 9104 Unit selection: - Expert list: 1 Factory setting 0
Description:	Activates the absolute value generation for the analog input signals of the Terminal Board 30 (TB30).		
Values:	0: No absolute value generation 1: Absolute value generation switched-in		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		
p4066[0...1]	TM31 analog inputs, activate absolute value generation / TM31 AI absVal act		
TM31	Can be changed: U, T Data type: Integer16 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 3 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0
Description:	Activates the absolute value generation for the analog input signals of terminal module 31 (TM31).		
Values:	0: No absolute value generation 1: Absolute value generation switched-in		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		

p4066[0...0]	TM41 analog input, activate absolute value generation / TM41 AI absVal act		
TM41	Can be changed: U, T Data type: Integer16 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9663 Unit selection: - Expert list: 1 Factory setting 0
Description:	Activates the absolute value generation of the analog input signal of terminal module 41 (TM41).		
Values:	0: No absolute value generation 1: Absolute value generation switched-in		
Index:	[0] = AI 0 (X523.1/X523.2)		
p4067[0...1]	BI: TB30 analog inputs, signal source for inversion / TB30 AI invert		
TB30	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9104 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to invert the analog input signals of the Terminal Board 30 (TB30).		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		
p4067[0...1]	BI: TM31 analog inputs, signal source for inversion / TM31 AI invert		
TM31	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to invert the analog inputs signals of terminal module 31 (TM31).		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
p4067[0...0]	BI: TM41 analog input, signal source for inversion / TM41 AI invert		
TM41	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9663 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to invert the analog input signal of terminal module 41 (TM41).		
Index:	[0] = AI 0 (X523.1/X523.2)		

p4068[0...1]	TB30 analog inputs, window to suppress noise / TB30 AI window		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9104 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 20.00 [%]	Factory setting 0.00 [%]
Description:	Sets the noise suppression window for the analog inputs of Terminal Board 30 (TB30). Changes less than the window are suppressed.		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		
p4068[0...1]	TM31 analog inputs, window to suppress noise / TM31 AI window		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 20.00 [%]	Factory setting 0.00 [%]
Description:	Sets the window for noise suppression for the analog inputs of terminal module 31 (TM31). Changes less than the window are suppressed.		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
p4068[0...0]	TM41 analog input, window to suppress noise / TM41 AI window		
TM41	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9663 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 20.00 [%]	Factory setting 0.00 [%]
Description:	Sets the noise suppression window for the analog input of terminal module 41 (TM41). Changes less than the window are suppressed.		
Index:	[0] = AI 0 (X523.1/X523.2)		
p4069[0...1]	BI: TB30 analog inputs, signal source for enable / TB30 AI enable		
TB30	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 9104 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for enabling the analog inputs of the Terminal Board 30 (TB30).		
Index:	[0] = AI 0 (X482.1/X482.2) [1] = AI 1 (X482.3/X482.4)		

p4069[0...1]			
BI: TM31 analog inputs, signal source for enable / TM31 AI enable			
TM31	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9566, 9568
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the enable signal of the analog inputs of terminal module 31 (TM31).		
Index:	[0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1)		
p4069[0...0]			
BI: TM41 analog input, signal source for enable / TM41 AI enable			
TM41	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9663
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the enable signal of the analog input of terminal module 41 (TM41).		
Index:	[0] = AI 0 (X523.1/X523.2)		
p4071[0...1]			
CI: TB30 analog outputs, signal source / TB30 AO sig_source			
TB30	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 1790, 9106
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the analog outputs of the Terminal Board 30 (TB30).		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
Note:	AO: Analog Output		
p4071[0...1]			
CI: TM31 analog outputs, signal source / TM31 AO sig_source			
TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 1840, 9572
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the analog outputs of terminal module 31 (TM31).		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		
Note:	AO: Analog Output		

r4072[0...1]	TB30 analog outputs, output value actually referred / TB30 AO outp_val		
TB30	Can be changed: - Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 9106 Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the actual referred output value of the analog outputs of the Terminal Board 30 (TB30).		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
r4072[0...1]	TM31 analog outputs, output value actually referred / TM31 AO outp_val		
TM31	Can be changed: - Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 9572 Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the actual referred output value of the analog outputs of terminal module 31 (TM31).		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		
p4073[0...1]	TB30 analog outputs, smoothing time constant / TB30 AO T_smooth		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 9106 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 0.0 [ms]
Description:	Sets the smoothing time constant of the 1st order low pass filter for the analog outputs of the Terminal Board 30 (TB30).		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
p4073[0...1]	TM31 analog outputs, smoothing time constant / TM31 AO T_smooth		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 9572 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 0.0 [ms]
Description:	Sets the smoothing time constant of the 1st-order low pass filter for the analog outputs of terminal module 31 (TM31).		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		

r4074[0...1]	TB30 analog outputs, actual output voltage / TB30 AO V_outp		
TB30	Can be changed: - Data type: Floating Point P-Group: Terminals Not for motor type: - Min - [V]	Calculated: - Dynamic index: - Units group: - Max - [V]	Access level: 1 Func. diagram: 9106 Unit selection: - Expert list: 1 Factory setting - [V]
Description:	Displays the actual output voltage at the analog outputs of the Terminal Board 30 (TB30).		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
<hr/>			
r4074[0...1]	TM31 analog outputs, actual output voltage/current / TM31 AO V/I_outp		
TM31	Can be changed: - Data type: Floating Point P-Group: Terminals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 9572 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual output voltage in V when set as voltage output. Displays the actual output voltage in mA when set as current output.		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		
Dependency:	The type of the analog output AO x (voltage or current output) is set using p4076.		
	Refer to: r4076, p4076		
Note:	AO: Analog Output		
<hr/>			
p4075[0...1]	TB30 analog outputs, activate absolute value generation / TB30 AO absVal act		
TB30	Can be changed: T Data type: Integer16 P-Group: Terminals Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 1	Access level: 3 Func. diagram: 9106 Unit selection: - Expert list: 1 Factory setting 0
Description:	Activates the absolute value generation for the analog outputs of the Terminal Board 30 (TB30).		
Values:	0: No absolute value generation 1: Absolute value generation switched-in		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
<hr/>			
p4075[0...1]	TM31 analog outputs, activate absolute value generation / TM31 AO absVal act		
TM31	Can be changed: T Data type: Integer16 P-Group: Terminals Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 1	Access level: 3 Func. diagram: 9572 Unit selection: - Expert list: 1 Factory setting 0
Description:	Activates the absolute value generation for the analog outputs of terminal module 31 (TM31).		
Values:	0: No absolute value generation 1: Absolute value generation switched-in		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		

r4076[0...1]	TB30 analog outputs, type / TB30 AO type		
TB30	Can be changed: - Data type: Integer16 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 4 Max 4	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the type of analog outputs of the Terminal Board 30 (TB30).		
Values:	4: Voltage output (-10 V ... +10 V)		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
p4076[0...1]	TM31 analog outputs, type / TM31 AO type		
TM31	Can be changed: U, T Data type: Integer16 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0 Max 4	Access level: 1 Func. diagram: 9572 Unit selection: - Expert list: 1 Factory setting 4
Description:	Sets the type of analog outputs of terminal module 31 (TM31). p4076[x] = 1, 4 correspond to a voltage output (p4074, p4078, p4080, p4083 are displayed in V). p4076[x] = 0, 2, 3 correspond to a current output (p4074, p4078, p4080, p4083 are displayed in mA).		
Values:	0: Current output (0 mA ... +20 mA) 1: Voltage output (0 V ... +10 V) 2: Current output (4 mA ... +20 mA) 3: Current output (-20 mA ... +20 mA) 4: Voltage output (-10 V ... +10 V)		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		
Dependency:	Refer to: p4077, p4078, p4079, p4080		
Note:	When changing p4076, the parameters of the normalization characteristic (p4077, p4078, p4079, p4080) are over-written with the following default values: For p4076 = 0, 3, p4077 is set to 0.0 %, p4078 to 0.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA. For p4076 = 1, 4, p4077 is set to 0.0 %, p4078 to 0.0 V, p4079 to 100.0 % and p4080 to 10.0 V. For p4076 = 2, p4077 is set to 0.0 %, p4078 to 4.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA.		
p4077[0...1]	TB30 analog outputs, characteristic value x1 / TB30 AO char x1		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min -1000.00 [%] Max 1000.00 [%]	Access level: 2 Func. diagram: 9106 Unit selection: - Expert list: 1 Factory setting 0.00 [%]
Description:	Sets the normalization characteristic for the analog outputs of Terminal Board 30 (TB30). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the x coordinate (percentage) of the 1st value pair of the characteristic.		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
Note:	The parameters for the characteristic do not limit.		

p4077[0...1]	TM31 analog outputs, characteristic value x1 / TM31 AO char x1		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9572 Unit selection: - Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 0.00 [%]
Description:	Sets the normalization characteristic for the analog outputs of terminal module 31 (TM31). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the x coordinate (percentage) of the 1st value pair of the characteristic.		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		
Dependency:	The units of this parameter (V or mA) depend on the analog input type. Refer to: r4076, p4076		
Notice:	This parameter is automatically overwritten when the analog output type is changed (p4076).		
Note:	This parameter is automatically overwritten if p4076 (type of analog output) is changed. The parameters for the characteristic do not limit.		
p4078[0...1]	TB30 analog outputs, characteristic value y1 / TB30 AO char y1		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9106 Unit selection: - Expert list: 1
	Min -11.000 [V]	Max 11.000 [V]	Factory setting 0.000 [V]
Description:	Sets the normalization characteristic for the analog outputs of Terminal Board 30 (TB30). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the y coordinate (output voltage in V) of the 1st value pair of the characteristic.		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
Note:	The parameters for the characteristic do not limit.		
p4078[0...1]	TM31 analog outputs, characteristic value y1 / TM31 AO char y1		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9572 Unit selection: - Expert list: 1
	Min -20.000 [V]	Max 20.000 [V]	Factory setting 0.000 [V]
Description:	Sets the normalization characteristic for the analog outputs of terminal module 31 (TM31). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 1st value pair of the characteristic.		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		
Dependency:	The units of this parameter (V or mA) depend on the analog input type. Refer to: r4076, p4076		
Notice:	This parameter is automatically overwritten when the analog output type is changed (p4076).		
Note:	This parameter is automatically overwritten if p4076 (type of analog output) is changed. The parameters for the characteristic do not limit.		

p4079[0...1]	TB30 analog outputs, characteristic value x2 / TB30 AO char x2		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9106 Unit selection: - Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the normalization characteristic for the analog outputs of Terminal Board 30 (TB30). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the x coordinate (percentage) of the 2nd value pair of the characteristic.		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
Note:	The parameters for the characteristic do not limit.		
p4079[0...1]	TM31 analog outputs, characteristic value x2 / TM31 AO char x2		
TM31	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9572 Unit selection: - Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the normalization characteristic for the analog outputs of terminal module 31 (TM31). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the x coordinate (percentage) of the 2nd value pair of the characteristic.		
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)		
Dependency:	Refer to: r4076, p4076		
Notice:	This parameter is automatically overwritten when the analog output type is changed (p4076).		
Note:	This parameter is overwritten if p4076 (type of analog output) is changed. The parameters for the characteristic do not limit.		
p4080[0...1]	TB30 analog outputs, characteristic value y2 / TB30 AO char y2		
TB30	Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 9106 Unit selection: - Expert list: 1
	Min -11.000 [V]	Max 11.000 [V]	Factory setting 10.000 [V]
Description:	Sets the normalization characteristic for the analog outputs of Terminal Board 30 (TB30). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the y coordinate (output voltage in V) of the 2nd value pair of the characteristic.		
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)		
Note:	The parameters for the characteristic do not limit.		

p4080[0...1]				
TM31	Can be changed: U, T		Calculated: -	Access level: 2
	Data type: Floating Point		Dynamic index: -	Func. diagram: 9572
	P-Group: Terminals		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min	Max	Factory setting	
	-20.000 [V]	20.000 [V]	10.000 [V]	
Description:	Sets the normalization characteristic for the analog outputs of terminal module 31 (TM31). The normalization characteristic for the analog outputs is defined using 2 points. This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 2nd value pair of the characteristic.			
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)			
Dependency:	The units of this parameter (V or mA) depend on the analog input type. Refer to: r4076, p4076			
Notice:	This parameter is automatically overwritten when the analog output type is changed (p4076).			
Note:	This parameter is overwritten if p4076 (type of analog output) is changed. The parameters for the characteristic do not limit.			

p4082[0...1]				
TB30	Can be changed: U, T		Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary		Dynamic index: -	Func. diagram: 9106
	P-Group: Terminals		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for inverting the analog output signals of the Terminal Board 30 (TB30).			
Index:	[0] = AO 0 (X482.5/X482.6) [1] = AO 1 (X482.7/X482.8)			

p4082[0...1]				
TM31	Can be changed: U, T		Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary		Dynamic index: -	Func. diagram: 9572
	P-Group: Terminals		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source to invert the analog output signals of terminal module 31 (TM31).			
Index:	[0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6)			

p4083[0...1]				
TB30	Can be changed: U, T		Calculated: -	Access level: 1
	Data type: Floating Point		Dynamic index: -	Func. diagram: 9106
	P-Group: Terminals		Units group: -	Unit selection: -
	Not for motor type: -			Expert list: 1
	Min	Max	Factory setting	
	-10.000	10.000	0.000	
Description:	Sets the offset for the analog outputs of Terminal Board 30 (TB30). The offset is added to the output signal after the normalization characteristic.			

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

p4083[0...1] TM31 analog outputs, offset / TM31 AO offset

TM31	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9572
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -20.000	Max 20.000	Factory setting 0.000

Description: Sets the offset for the analog outputs of terminal module 31 (TM31).
The offset is added to the output signal after the normalization characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The units of this parameter (V or mA) depend on the analog input type.
Refer to: r4076, p4076

Note: This means, for example, the offset of a downstream isolating amplifier can be compensated.

p4086 BI: TM15DI/DO signal source for terminal DI/DO 16 / TM15D S_srcDI/DO16

TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for terminal DI/DO 16 (X522.2) of terminal module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.16 = 1).
DI/DO: Bidirectional Digital Input/Output

p4087 BI: TM15DI/DO signal source for terminal DI/DO 17 / TM15D S_srcDI/DO17

TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for terminal DI/DO 17 (X522.3) of terminal module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.17 = 1).
DI/DO: Bidirectional Digital Input/Output

p4088 BI: TM15DI/DO signal source for terminal DI/DO 18 / TM15D S_srcDI/DO18

TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for terminal DI/DO 18 (X522.4) of terminal module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.18 = 1).
DI/DO: Bidirectional Digital Input/Output

p4089	BI: TM15DI/DO signal source for terminal DI/DO 19 / TM15D S_srcDI/DO19		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 19 (X522.5) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.19 = 1). DI/DO: Bidirectional Digital Input/Output		
p4090	BI: TM15DI/DO signal source for terminal DI/DO 20 / TM15D S_srcDI/DO20		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 20 (X522.6) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.20 = 1). DI/DO: Bidirectional Digital Input/Output		
p4091	BI: TM15DI/DO signal source for terminal DI/DO 21 / TM15D S_srcDI/DO21		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 21 (X522.7) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.21 = 1). DI/DO: Bidirectional Digital Input/Output		
p4092	BI: TM15DI/DO signal source for terminal DI/DO 22 / TM15D S_srcDI/DO22		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 22 (X522.8) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.22 = 1). DI/DO: Bidirectional Digital Input/Output		

p4093	BI: TM15DI/DO signal source for terminal DI/DO 23 / TM15D S_srcDI/DO23		
TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 9402
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 23 (X522.9) of terminal module 15 (TM15).		
Note:	Prerequisite: The DI/DO must be set as an output (p4028.23 = 1). DI/DO: Bidirectional Digital Input/Output		

r4094.0...23	BO: TM15 digital inputs status inverted raw data internal / TM15 DI st raw dat				
TM15DI_DO	Can be changed: -		Calculated: -	Access level: 4	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: -	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	-	
Description:	Displays the inverted status of the raw data of the digital inputs of the Terminal Module 15 (TM15).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	High	Low	-
	01	DI/DO 1 (X520.3)	High	Low	-
	02	DI/DO 2 (X520.4)	High	Low	-
	03	DI/DO 3 (X520.5)	High	Low	-
	04	DI/DO 4 (X520.6)	High	Low	-
	05	DI/DO 5 (X520.7)	High	Low	-
	06	DI/DO 6 (X520.8)	High	Low	-
	07	DI/DO 7 (X520.9)	High	Low	-
	08	DI/DO 8 (X521.2)	High	Low	-
	09	DI/DO 9 (X521.3)	High	Low	-
	10	DI/DO 10 (X521.4)	High	Low	-
	11	DI/DO 11 (X521.5)	High	Low	-
	12	DI/DO 12 (X521.6)	High	Low	-
	13	DI/DO 13 (X521.7)	High	Low	-
	14	DI/DO 14 (X521.8)	High	Low	-
	15	DI/DO 15 (X521.9)	High	Low	-
	16	DI/DO 16 (X522.2)	High	Low	-
	17	DI/DO 17 (X522.3)	High	Low	-
	18	DI/DO 18 (X522.4)	High	Low	-
	19	DI/DO 19 (X522.5)	High	Low	-
	20	DI/DO 20 (X522.6)	High	Low	-
	21	DI/DO 21 (X522.7)	High	Low	-
	22	DI/DO 22 (X522.8)	High	Low	-
	23	DI/DO 23 (X522.9)	High	Low	-
Notice:	The raw data of the digital inputs is directly displayed (e.g. without any debounce).				
Note:	Should only used for internal Siemens purposes (alternative r4022, r4023).				

p4095 TB30 digital inputs, simulation mode / TB30 DI sim_mode

TB30	Can be changed: U, T		Calculated: -	Access level: 2		
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 1790, 9100		
	P-Group: Commands		Units group: -	Unit selection: -		
	Not for motor type: -			Expert list: 1		
	Min		Max	Factory setting		
	-		-	0000 bin		
Description:		Sets the simulation mode for the digital inputs of the Terminal Board 30 (TB30).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP	
	00	DI 0 (X481.1)	Simulation	Terminal eval.	-	
	01	DI 1 (X481.2)	Simulation	Terminal eval.	-	
	02	DI 2 (X481.3)	Simulation	Terminal eval.	-	
	03	DI 3 (X481.4)	Simulation	Terminal eval.	-	
Dependency:		The setpoint for the input signals is specified using p4096.				
		Refer to: p4096				
Note:		This parameter is not saved when data is backed-up (p0971, p0977).				
		DI: Digital input				

p4095 TM31 digital inputs, simulation mode / TM31 DI sim_mode

TM31	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1840, 9550, 9552, 9560, 9562		
	P-Group: Terminals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the simulation mode for the digital inputs of terminal module 31 (TM31).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X520.1)	Simulation	Terminal eval.	-
	01	DI 1 (X520.2)	Simulation	Terminal eval.	-
	02	DI 2 (X520.3)	Simulation	Terminal eval.	-
	03	DI 3 (X520.4)	Simulation	Terminal eval.	-
	04	DI 4 (X530.1)	Simulation	Terminal eval.	-
	05	DI 5 (X530.2)	Simulation	Terminal eval.	-
	06	DI 6 (X530.3)	Simulation	Terminal eval.	-
	07	DI 7 (X530.4)	Simulation	Terminal eval.	-
	08	DI/DO 8 (X541.2)	Simulation	Terminal eval.	-
	09	DI/DO 9 (X541.3)	Simulation	Terminal eval.	-
	10	DI/DO 10 (X541.4)	Simulation	Terminal eval.	-
	11	DI/DO 11 (X541.5)	Simulation	Terminal eval.	-
Dependency:	The setpoint for the input signals is specified using p4096. Refer to: p4096				
Note:	This parameter is not saved when data is backed-up (p0971, p0977). DI: Digital input DI/DO: Bidirectional Digital Input/Output				

p4095 TM41 digital inputs, simulation mode / TM41 DI sim_mode

TM41	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the simulation mode for the digital inputs of terminal module 41 (TM41).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X522.1)	Simulation	Terminal eval.	9660
	01	DI 1 (X522.2)	Simulation	Terminal eval.	9660
	02	DI 2 (X522.3)	Simulation	Terminal eval.	9660
	03	DI 3 (X522.4)	Simulation	Terminal eval.	9660
	08	DI/DO 0 (X521.1)	Simulation	Terminal eval.	9661
	09	DI/DO 1 (X521.2)	Simulation	Terminal eval.	9661
	10	DI/DO 2 (X521.3)	Simulation	Terminal eval.	9662
	11	DI/DO 3 (X521.4)	Simulation	Terminal eval.	9662

Dependency: The setpoint for the input signals is specified using p4096.

Refer to: p4096

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital input

DI/DO: Bidirectional Digital Input/Output

p4095 TM15DI/DO digital inputs, simulation mode / TM15D DI sim_mode

TM15DI_DO	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9400, 9401, 9402
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the simulation mode for the digital inputs of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Simulation	Terminal eval.	-
	01	DI/DO 1 (X520.3)	Simulation	Terminal eval.	-
	02	DI/DO 2 (X520.4)	Simulation	Terminal eval.	-
	03	DI/DO 3 (X520.5)	Simulation	Terminal eval.	-
	04	DI/DO 4 (X520.6)	Simulation	Terminal eval.	-
	05	DI/DO 5 (X520.7)	Simulation	Terminal eval.	-
	06	DI/DO 6 (X520.8)	Simulation	Terminal eval.	-
	07	DI/DO 7 (X520.9)	Simulation	Terminal eval.	-
	08	DI/DO 8 (X521.2)	Simulation	Terminal eval.	-
	09	DI/DO 9 (X521.3)	Simulation	Terminal eval.	-
	10	DI/DO 10 (X521.4)	Simulation	Terminal eval.	-
	11	DI/DO 11 (X521.5)	Simulation	Terminal eval.	-
	12	DI/DO 12 (X521.6)	Simulation	Terminal eval.	-
	13	DI/DO 13 (X521.7)	Simulation	Terminal eval.	-
	14	DI/DO 14 (X521.8)	Simulation	Terminal eval.	-
	15	DI/DO 15 (X521.9)	Simulation	Terminal eval.	-
	16	DI/DO 16 (X522.2)	Simulation	Terminal eval.	-
	17	DI/DO 17 (X522.3)	Simulation	Terminal eval.	-
	18	DI/DO 18 (X522.4)	Simulation	Terminal eval.	-
	19	DI/DO 19 (X522.5)	Simulation	Terminal eval.	-
	20	DI/DO 20 (X522.6)	Simulation	Terminal eval.	-

21	DI/DO 21 (X522.7)	Simulation	Terminal eval.	-
22	DI/DO 22 (X522.8)	Simulation	Terminal eval.	-
23	DI/DO 23 (X522.9)	Simulation	Terminal eval.	-

Dependency: The setpoint for the input signals is specified using p4096.

Refer to: p4096

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI/DO: Bidirectional Digital Input/Output

p4096 TB30 digital inputs, simulation mode setpoint / TB30 DI sim setpt

TB30	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1790, 9100
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of the Terminal Board 30 (TB30).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X481.1)	High	Low	-
	01	DI 1 (X481.2)	High	Low	-
	02	DI 2 (X481.3)	High	Low	-
	03	DI 3 (X481.4)	High	Low	-

Dependency: The simulation of a digital input is selected using p4095.

Refer to: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital input

p4096 TM31 digital inputs, simulation mode setpoint / TM31 DI sim setp

TM31	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1840, 9550, 9552, 9560, 9562
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of terminal module 31 (TM31).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X520.1)	High	Low	-
	01	DI 1 (X520.2)	High	Low	-
	02	DI 2 (X520.3)	High	Low	-
	03	DI 3 (X520.4)	High	Low	-
	04	DI 4 (X530.1)	High	Low	-
	05	DI 5 (X530.2)	High	Low	-
	06	DI 6 (X530.3)	High	Low	-
	07	DI 7 (X530.4)	High	Low	-
	08	DI/DO 8 (X541.2)	High	Low	-
	09	DI/DO 9 (X541.3)	High	Low	-
	10	DI/DO 10 (X541.4)	High	Low	-
	11	DI/DO 11 (X541.5)	High	Low	-

Dependency: The simulation of a digital input is selected using p4095.

Refer to: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital input

DI/DO: Bidirectional Digital Input/Output

p4096	TM41 digital inputs, simulation mode setpoint / TM41 DI sim setp				
TM41	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Terminals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the setpoint for the input signals in the simulation mode of the digital inputs of terminal module 41 (TM41).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X522.1)	High	Low	9660
	01	DI 1 (X522.2)	High	Low	9660
	02	DI 2 (X522.3)	High	Low	9660
	03	DI 3 (X522.4)	High	Low	9660
	08	DI/DO 0 (X521.1)	High	Low	9661
	09	DI/DO 1 (X521.2)	High	Low	9661
	10	DI/DO 2 (X521.3)	High	Low	9662
	11	DI/DO 3 (X521.4)	High	Low	9662
Dependency:	The simulation of a digital input is selected using p4095.				
	Refer to: p4095				
Note:	This parameter is not saved when data is backed-up (p0971, p0977).				
	DI: Digital input				
	DI/DO: Bidirectional Digital Input/Output				

p4096	TM15DI/DO digital inputs, simulation mode, setpoint / TM15D DI sim setp				
TM15DI_DO	Can be changed: U, T		Calculated: -	Access level: 2	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: 9400, 9401, 9402	
	P-Group: Terminals		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	0000 bin	
Description:	Sets the setpoint for the input signals in the simulation mode of the digital inputs of terminal module 15 (TM15).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	High	Low	-
	01	DI/DO 1 (X520.3)	High	Low	-
	02	DI/DO 2 (X520.4)	High	Low	-
	03	DI/DO 3 (X520.5)	High	Low	-
	04	DI/DO 4 (X520.6)	High	Low	-
	05	DI/DO 5 (X520.7)	High	Low	-
	06	DI/DO 6 (X520.8)	High	Low	-
	07	DI/DO 7 (X520.9)	High	Low	-
	08	DI/DO 8 (X521.2)	High	Low	-
	09	DI/DO 9 (X521.3)	High	Low	-
	10	DI/DO 10 (X521.4)	High	Low	-
	11	DI/DO 11 (X521.5)	High	Low	-
	12	DI/DO 12 (X521.6)	High	Low	-
	13	DI/DO 13 (X521.7)	High	Low	-
	14	DI/DO 14 (X521.8)	High	Low	-
	15	DI/DO 15 (X521.9)	High	Low	-
	16	DI/DO 16 (X522.2)	High	Low	-
	17	DI/DO 17 (X522.3)	High	Low	-
	18	DI/DO 18 (X522.4)	High	Low	-
	19	DI/DO 19 (X522.5)	High	Low	-
	20	DI/DO 20 (X522.6)	High	Low	-

21	DI/DO 21 (X522.7)	High	Low	-
22	DI/DO 22 (X522.8)	High	Low	-
23	DI/DO 23 (X522.9)	High	Low	-

Dependency: The simulation of a digital input is selected using p4095.
Refer to: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI/DO: Bidirectional Digital Input/Output

p4097[0...1] TB30 analog inputs simulation mode / TB30 AI sim_mode

TB30	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: 9104
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Sets the simulation mode for the analog inputs of the Terminal Board 30 (TB30).

Values: 0: No simulation mode for analog input x
1: Simulation mode for analog input x

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Dependency: The setpoint for the input voltage is specified via p4098.
Refer to: p4098

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4097[0...1] TM31 analog inputs simulation mode / TM31 AI sim_mode

TM31	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: 9566, 9568
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Sets the simulation mode for the analog inputs of terminal module 31 (TM31).

Values: 0: No simulation mode for analog input x
1: Simulation mode for analog input x

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The setpoint for the input voltage is specified via p4098.
Refer to: p4098

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4097[0...0] TM41 analog input, simulation mode / TM41 AI sim_mode

TM41	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: 9663
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Sets the simulation mode for the analog input of terminal module 41 (TM41).

Values: 0: No simulation mode for analog input x
1: Simulation mode for analog input x

Index: [0] = AI 0 (X523.1/X523.2)

Dependency: The setpoint for the input voltage is specified via p4098.
Refer to: p4098

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4098[0...1] TB30 analog inputs simulation mode setpoint / TB30 AI sim setp

Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: - Min -11.000 [V]	Calculated: - Dynamic index: - Units group: - Max 11.000 [V]	Access level: 2 Func. diagram: 9104 Unit selection: - Expert list: 1 Factory setting 0.000 [V]
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Description: Sets the setpoint for the input voltage in the simulation mode of the analog inputs of Terminal Board 30 (TB30).

Index:
[0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Dependency: The simulation of an analog input is selected using p4097.
Refer to: p4097

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4098[0...1] TM31 analog inputs simulation mode setpoint / TM31 AI sim setp

Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: - Min -20.000	Calculated: - Dynamic index: - Units group: - Max 20.000	Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0.000
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Description: Sets the setpoint for the input value in simulation mode of the analog inputs of terminal module 31 (TM31).

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The simulation of an analog input is selected using p4097.
If AI x is parameterized as voltage input (p4056), then the setpoint is a voltage in V.
If AI x is parameterized as current input (p4056), then the setpoint is current in mA.
Refer to: r4056, p4056, p4097

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4098[0...0] TM41 analog input, simulation mode setpoint / TM41 AI sim setp

Can be changed: U, T Data type: Floating Point P-Group: Terminals Not for motor type: - Min -20.000 [V]	Calculated: - Dynamic index: - Units group: - Max 20.000 [V]	Access level: 2 Func. diagram: 9663 Unit selection: - Expert list: 1 Factory setting 0.000 [V]
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Description: Sets the setpoint for the input value in simulation mode of the analog input of terminal module 41 (TM41).

Index:
[0] = AI 0 (X523.1/X523.2)

Dependency: The simulation of the analog input is selected using p4097.
If AI x is parameterized as voltage input (p4056), then the setpoint is a voltage in V.
If AI x is parameterized as current input (p4056), then the setpoint is current in mA.
Refer to: p4097

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4099[0...2] TB30 inputs/outputs, sampling time / TB30 I/O t_sample			
TB30	Can be changed: C1(3) Data type: Floating Point P-Group: Commands Not for motor type: - Min 0.00 [μs]	Calculated: - Dynamic index: - Units group: - Max 5000.00 [μs]	Access level: 3 Func. diagram: 9100, 9102, 9104, 9106 Unit selection: - Expert list: 1 Factory setting [0] 4000.00 [μs] [1] 4000.00 [μs] [2] 4000.00 [μs]
Description:	Sets the sampling time for the inputs and outputs of the Terminal Board 30 (TB30).		
Index:	[0] = Digital inputs/outputs (DI/DO) [1] = Analog inputs (AI) [2] = Analog outputs (AO)		
Dependency:	The parameter can only be modified for p0009 = 3, 29. The sampling times can only be set as an integer multiple of the basic sampling time (r0110, r0111). Refer to: p0009, r0110, r0111		
Note:	The modified sampling time is not effective until the drive unit is powered-up again. For clock cycle synchronous PROFIBUS operation, the TB30 hardware (e.g. A/D converter) is operated with the PROFIBUS clock cycle (r2064[1]). This clock cycle is also kept after the PROFIBUS connection has been exited up to the next time that the Control Unit is powered-down. In this case, a faster sampling time than the PROFIBUS clock cycle is not practical in p4099[0...2].		

p4099[0...2] TM31 inputs/outputs, sampling time / TM31 I/O t_sample			
TM31	Can be changed: C1(3) Data type: Floating Point P-Group: Commands Not for motor type: - Min 0.00 [μs]	Calculated: - Dynamic index: - Units group: - Max 5000.00 [μs]	Access level: 3 Func. diagram: 9550 Unit selection: - Expert list: 1 Factory setting 4000.00 [μs]
Description:	Sets the sampling time for the inputs and outputs of terminal module 31 (TM31).		
Index:	[0] = Digital inputs/outputs (DI/DO) [1] = Analog inputs (AI) [2] = Analog outputs (AO)		
Dependency:	The parameter can only be modified for p0009 = 3, 29. The sampling times can only be set as an integer multiple of the basic sampling time (r0110, r0111). Refer to: p0009, r0110, r0111		
Notice:	The sampling times entered in index 0 (digital inputs/outputs) and index 2 (analog outputs) must always be greater than or equal to the sampling time in index 1 (analog inputs).		
Note:	- the modified sampling time is not effective until the drive unit is powered-up again. - P4099(0) must never equal zero.		

p4099[0...3]	TM41 inputs/outputs, sampling time / TM41 I/O t_sample		
TM41	Can be changed: C1(3) Data type: Floating Point P-Group: Commands Not for motor type: - Min 0.00 [µs]	Calculated: - Dynamic index: - Units group: - Max 5000.00 [µs]	Access level: 3 Func. diagram: 9660, 9661, 9662, 9663, 9674, 9676 Unit selection: - Expert list: 1 Factory setting [0] 4000.00 [µs] [1] 4000.00 [µs] [2] 0.00 [µs] [3] 125.00 [µs]
Description:	Sets the sampling time for the inputs and outputs of terminal module 41 (TM41).		
Index:	[0] = Digital inputs/outputs (DI/DO) [1] = Analog inputs (AI) [2] = Does not exist [3] = Encoder emulation		
Dependency:	The parameter can only be modified for p0009 = 3, 29. Refer to: p0009, r0110, r0111 Refer to: F35228		
Note:	- the modified sampling time is not effective until the drive unit is powered-up again. - the value of the sampling time of the Encoder Emulation p4099[3] can be preset. The next time that the system boots, the validity of the value is checked. For an invalid value, fault F35228 is output and p4099[3] is automatically set to the correct value. After this, the changed parameter must be saved. - parameter p4099[0] must never equal zero.		
p4099	TM17 inputs/outputs, sampling time / TM17 I/O t_sample		
TM17	Can be changed: C1(3) Data type: Floating Point P-Group: Commands Not for motor type: - Min 31.25 [µs]	Calculated: - Dynamic index: - Units group: - Max 500.00 [µs]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 125.00 [µs]
Description:	The sampling time of the Terminal Module 17 (TM17) is determined by the DRIVE-CLiQ clock cyclic of the line to which the module is attached. An entry is not possible using p4099. At power on, p4099 is correctly set to the resulting sampling time.		
p4099	TM15 inputs/outputs, sampling time / TM15 I/O t_sample		
TM15	Can be changed: C1(3) Data type: Floating Point P-Group: Commands Not for motor type: - Min 31.25 [µs]	Calculated: - Dynamic index: - Units group: - Max 500.00 [µs]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 125.00 [µs]
Description:	The sampling time of the Terminal Module 15 (TM15) is determined by the DRIVE-CLiQ clock cyclic of the line to which the module is attached. An entry is not possible using p4099. At power on, p4099 is correctly set to the resulting sampling time.		

p4099	TM15DI/DO inputs/outputs, sampling time / TM15D I/O t_sampl		
TM15DI_DO	Can be changed: C1(3) Data type: Floating Point P-Group: Commands Not for motor type: - Min 0.00 [µs] Description: Sets the sampling time for the inputs and outputs of terminal module 15 (TM15). Dependency: The parameter can only be modified for p0009 = 3, 29. Refer to: p0009, r0110, r0111 Note: - the modified sampling time is not effective until the drive unit is powered-up again. - P4099(0) must never equal zero.	Calculated: - Dynamic index: - Units group: - Max 5000.00 [µs] Description: Sets the temperature evaluation of terminal module 31 (TM31). This means that the temperature sensor type is selected and the evaluation is switched-in. Values: 0: Evaluation disabled 1: PTC thermistor 2: KTY84 Note: The temperature sensor is connected at terminals X522.7(+) and X522.8(-).	Access level: 3 Func. diagram: 9400, 9401, 9402 Unit selection: - Expert list: 1 Factory setting 4000.00 [µs]
p4100	TM31 temperature evaluation, sensor type / TM31 temp sens_type		
TM31	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 2	Access level: 1 Func. diagram: 9576, 9577 Unit selection: - Expert list: 1 Factory setting 0
r4101	TM31 temperature evaluation, sensor resistance / TM31 temp R_sensor		
TM31	Can be changed: - Data type: Unsigned16 P-Group: Terminals Not for motor type: - Min - [Ohm]	Calculated: - Dynamic index: - Units group: - Max - [Ohm]	Access level: 3 Func. diagram: 9576, 9577 Unit selection: - Expert list: 1 Factory setting - [Ohm]
p4102[0...1]	TM31 temperature evaluation fault/alarm threshold / TM31 temp thresh		
TM31	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min -48 [°C]	Calculated: - Dynamic index: - Units group: - Max 251 [°C]	Access level: 1 Func. diagram: 9576 Unit selection: - Expert list: 1 Factory setting [0] 100 [°C] [1] 120 [°C]
Description:	Sets the fault/alarm threshold for the temperature evaluation of terminal module 31 (TM31). Temperature actual value > p4102[0] --> alarm A35211 is output. Temperature actual value > p4102[1] --> fault F35207 is output.		

Index: [0] = Alarm threshold
[1] = Fault threshold

Dependency: Refer to: r4104

Warning: Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.



Note: The temperature sensor is connected at terminals X522.7(+) and X522.8(-).
A value > 250 °C deactivates the alarm or fault.

r4104.0...1 **BO: TM31 temperature evaluation, status / TM31 temp status**

TM31	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1840, 9576
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status for the temperature evaluation of terminal module 31 (TM31).
This displays as to whether the temperature actual value has exceeded the fault/alarm threshold.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Temperature alarm threshold exceeded	Yes	No	-
	01	Temperature fault threshold exceeded	Yes	No	-

Dependency: Refer to: p4102

r4105 **CO: TM31 temperature evaluation, actual value / TM31 temp actValue**

TM31	Can be changed: -	Calculated: -	Access level: 1
	Data type: Floating Point	Dynamic index: -	Func. diagram: 1840, 9576
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

Description: Displays the actual temperature value of the temperature evaluation of terminal module 31 (TM31).

Dependency: For sensor type PTC (p4100 = 1), the following applies:
- below the nominal response temperature, r4105 = -50°C.
- above the nominal response temperature, r4105 = 250 °C.
For sensor type KTY84-130 (p4100 = 2), the following applies:
- the displayed value corresponds to the temperature actual value.
Refer to: p4100

Note: The temperature sensor is connected at terminals X522.7(+) and X522.8(-).
For an invalid temperature actual value, (e.g. a short-circuit at the sensor input), r4105 = -300 °C is displayed.

r4154 **TM41 diagnostics speed setpoint non-filtered / n_set non-filt**

TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [RPM]	- [RPM]	- [RPM]

Description: Displays the unfiltered speed setpoint N_SETPT in revolutions per minute for diagnostic purposes.
In contrast to p1155, this value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

Dependency: Refer to: r4155

r4155 TM41 diagnostics speed setpoint / TM41 Diag n_set

TM41	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 9674
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [RPM]	Max - [RPM]	Factory setting - [RPM]
Description:	Displays the filtered speed setpoint N_SETPT in revolutions per minute for diagnostic purposes. In contrast to p1155, this value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.		
Dependency:	Refer to: r4154		

r4201 TM17 system time for synchronization / TM17 t_system sync

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Is used to synchronize the timer of terminal module 17 (TM17) with the system time of the DP master. To do this, the sign-of-life of the DP master is transferred in the form of a counter in bits 12 to 15. At each cycle of the system of the DP master, bit 0 (SYN signal) is set for the duration of a DP master clock cycle.		

r4201 TM15 system time for synchronization / TM15 t_system sync

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Is used to synchronize the timer of terminal module 15 (TM15) with the system time of the DP master. To do this, the sign-of-life of the DP master is transferred in the form of a counter in bits 12 to 15. At each cycle of the system of the DP master, bit 0 (SYN signal) is set for the duration of a DP master clock cycle.		

r4204 TM17 control digital output 0 ... 15 / TM17 ctrl DO 0-15

TM17	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Used to control digital output 0 ... 15 of terminal module 17 (TM17).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	On	Off	-
	01	DI/DO 1 (X520.3)	On	Off	-
	02	DI/DO 2 (X520.5)	On	Off	-
	03	DI/DO 3 (X520.6)	On	Off	-
	04	DI/DO 4 (X520.8)	On	Off	-
	05	DI/DO 5 (X520.9)	On	Off	-
	06	DI/DO 6 (X521.2)	On	Off	-
	07	DI/DO 7 (X521.3)	On	Off	-
	08	DI/DO 8 (X521.8)	On	Off	-

09	DI/DO 9 (X521.9)	On	Off	-
10	DI/DO 10 (X522.2)	On	Off	-
11	DI/DO 11 (X522.3)	On	Off	-
12	DI/DO 12 (X522.5)	On	Off	-
13	DI/DO 13 (X522.6)	On	Off	-
14	DI/DO 14 (X522.8)	On	Off	-
15	DI/DO 15 (X522.9)	On	Off	-

Note: DI/DO: Bidirectional Digital Input/Output

r4204 TM15 control digital output 0 ... 15 / TM15 ctrl DO 0-15

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Used to control digital output 0 ... 15 of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	On	Off	-
	01	DI/DO 1 (X520.3)	On	Off	-
	02	DI/DO 2 (X520.4)	On	Off	-
	03	DI/DO 3 (X520.5)	On	Off	-
	04	DI/DO 4 (X520.6)	On	Off	-
	05	DI/DO 5 (X520.7)	On	Off	-
	06	DI/DO 6 (X520.8)	On	Off	-
	07	DI/DO 7 (X520.9)	On	Off	-
	08	DI/DO 8 (X521.2)	On	Off	-
	09	DI/DO 9 (X521.3)	On	Off	-
	10	DI/DO 10 (X522.4)	On	Off	-
	11	DI/DO 11 (X521.5)	On	Off	-
	12	DI/DO 12 (X521.6)	On	Off	-
	13	DI/DO 13 (X521.7)	On	Off	-
	14	DI/DO 14 (X521.8)	On	Off	-
	15	DI/DO 15 (X521.9)	On	Off	-

Note: DI/DO: Bidirectional Digital Input/Output

r4205 TM15 control digital output 16 ... 23 / TM15 ctrl DO 16-23

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Used to control digital output 16 ... 23 of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 16 (X522.2)	On	Off	-
	01	DI/DO 17 (X522.3)	On	Off	-
	02	DI/DO 18 (X522.4)	On	Off	-
	03	DI/DO 19 (X522.5)	On	Off	-
	04	DI/DO 20 (X522.6)	On	Off	-
	05	DI/DO 21 (X522.7)	On	Off	-
	06	DI/DO 22 (X522.8)	On	Off	-
	07	DI/DO 23 (X522.9)	On	Off	-

Note: DI/DO: Bidirectional Digital Input/Output

r4211	TM17 edge mode digital input 0 ... 7 / TM17 EdgMd DI 0-7		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge mode for digital input 0 ... 7 of terminal module 17 (TM17).
Assignment of the digital inputs to the bits:
DI 0: r4211.1 ... 0
DI 1: r4211.3 ... 2
DI 2: r4211.5 ... 4
DI 3: r4211.7 ... 6
DI 4: r4211.9 ... 8
DI 5: r4211.11 ... 10
DI 6: r4211.13 ... 12
DI 7: r4211.15 ... 14
Possible edge modes:
Bit x, y = 0, 0 --> no edge detection
Bit x, y = 0, 1 --> rising - rising edge
Bit x, y = 1, 0 --> falling - falling edge
Bit x, y = 1, 1 --> rising - falling edge or falling - rising edge

Note: DI: Digital input

r4211	TM15 edge mode digital input 0 ... 7 / TM15 EdgMd DI0-7		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge mode for digital input 0 ... 7 of terminal module 15 (TM15).
Assignment of the digital inputs to the bits:
DI 0: r4211.1 ... 0
DI 1: r4211.3 ... 2
DI 2: r4211.5 ... 4
DI 3: r4211.7 ... 6
DI 4: r4211.9 ... 8
DI 5: r4211.11 ... 10
DI 6: r4211.13 ... 12
DI 7: r4211.15 ... 14
Possible edge modes:
Bit x, y = 0, 0 --> no edge detection
Bit x, y = 0, 1 --> rising - rising edge
Bit x, y = 1, 0 --> falling - falling edge
Bit x, y = 1, 1 --> rising - falling edge or falling - rising edge

Note: DI: Digital input

r4212	TM17 edge mode digital input 8 ... 15 / TM17 EdgMd DI 8-15		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge mode for digital input 8 ... 15 of terminal module 17 (TM17).
Assignment of the digital inputs to the bits:

DI 8: r4212.1 ... 0

DI 9: r4212.3 ... 2

DI 10: r4212.5 ... 4

DI 11: r4212.7 ... 6

DI 12: r4212.9 ... 8

DI 13: r4212.11 ... 10

DI 14: r4212.13 ... 12

DI 15: r4212.15 ... 14

Possible edge modes:

Bit x, y = 0, 0 --> no edge detection

Bit x, y = 0, 1 --> rising - rising edge

Bit x, y = 1, 0 --> falling - falling edge

Bit x, y = 1, 1 --> rising - falling edge or falling - rising edge

Note: DI: Digital input

r4212	TM15 edge mode digital input 8 ... 15 / TM15 EdgMd DI8-15		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge mode for digital input 8 ... 15 of terminal module 15 (TM15).
Assignment of the digital inputs to the bits:

DI 8: r4212.1 ... 0

DI 9: r4212.3 ... 2

DI 10: r4212.5 ... 4

DI 11: r4212.7 ... 6

DI 12: r4212.9 ... 8

DI 13: r4212.11 ... 10

DI 14: r4212.13 ... 12

DI 15: r4212.15 ... 14

Possible edge modes:

Bit x, y = 0, 0 --> no edge detection

Bit x, y = 0, 1 --> rising - rising edge

Bit x, y = 1, 0 --> falling - falling edge

Bit x, y = 1, 1 --> rising - falling edge or falling - rising edge

Note: DI: Digital input

r4213 TM15 edge mode digital input 16 ... 23 / TM15 EdgMd DI16-23

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge mode for digital input 16 ... 23 of terminal module 15 (TM15).
Assignment of the digital inputs to the bits:
DI 16: r4213.1 ... 0
DI 17: r4213.3 ... 2
DI 18: r4213.5 ... 4
DI 19: r4213.7 ... 6
DI 20: r4213.9 ... 8
DI 21: r4213.11 ... 10
DI 22: r4213.13 ... 12
DI 23: r4213.15 ... 14
Possible edge modes:
Bit x, y = 0, 0 --> no edge detection
Bit x, y = 0, 1 --> rising - rising edge
Bit x, y = 1, 0 --> falling - falling edge
Bit x, y = 1, 1 --> rising - falling edge or falling - rising edge

Note: DI: Digital input

p4220 TM17 enable DI/DO 0 ... 5 / TM17 enable 0-5

TM17	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the enable signal with bits 0 ... 5 for DI/DO 0 ... 5 of terminal module 17 (TM17).
Sets the triggering of the enable signal with bits 8 ... 13.
The following assignment applies:
Enable signal for DI/DO 0, 1, 2, 3, 4 or 5 via DI/DO 10, 11, 12, 13, 14 or 15.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	With enable	Without enable	-
	01	DI/DO 1 (X520.3)	With enable	Without enable	-
	02	DI/DO 2 (X520.5)	With enable	Without enable	-
	03	DI/DO 3 (X520.6)	With enable	Without enable	-
	04	DI/DO 4 (X520.8)	With enable	Without enable	-
	05	DI/DO 5 (X520.9)	With enable	Without enable	-
	08	DI/DO 10 (X522.2)	Level-triggered	Edge-triggered	-
	09	DI/DO 11 (X522.3)	Level-triggered	Edge-triggered	-
	10	DI/DO 12 (X522.5)	Level-triggered	Edge-triggered	-
	11	DI/DO 13 (X522.6)	Level-triggered	Edge-triggered	-
	12	DI/DO 14 (X522.8)	Level-triggered	Edge-triggered	-
	13	DI/DO 15 (X522.9)	Level-triggered	Edge-triggered	-

Note: DI/DO: Bidirectional Digital Input/Output

p4221 TM17 smoothing time constant, digital input 0 ... 15 / TM17 smooth DI					
TM17	Can be changed: U, T		Calculated: -	Access level: 2	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: -	
	P-Group: Commands		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	0000 bin	
Description: Sets the smoothing time constant for digital input 0 ... 15 of terminal module 17 (TM17).					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Smoothing 1 µs	Smoothing 125 µs	-
	01	DI/DO 1 (X520.3)	Smoothing 1 µs	Smoothing 125 µs	-
	02	DI/DO 2 (X520.5)	Smoothing 1 µs	Smoothing 125 µs	-
	03	DI/DO 3 (X520.6)	Smoothing 1 µs	Smoothing 125 µs	-
	04	DI/DO 4 (X520.8)	Smoothing 1 µs	Smoothing 125 µs	-
	05	DI/DO 5 (X520.9)	Smoothing 1 µs	Smoothing 125 µs	-
	06	DI/DO 6 (X521.2)	Smoothing 1 µs	Smoothing 125 µs	-
	07	DI/DO 7 (X521.3)	Smoothing 1 µs	Smoothing 125 µs	-
	08	DI/DO 8 (X521.8)	Smoothing 1 µs	Smoothing 125 µs	-
	09	DI/DO 9 (X521.9)	Smoothing 1 µs	Smoothing 125 µs	-
	10	DI/DO 10 (X522.2)	Smoothing 1 µs	Smoothing 125 µs	-
	11	DI/DO 11 (X522.3)	Smoothing 1 µs	Smoothing 125 µs	-
	12	DI/DO 12 (X522.5)	Smoothing 1 µs	Smoothing 125 µs	-
	13	DI/DO 13 (X522.6)	Smoothing 1 µs	Smoothing 125 µs	-
	14	DI/DO 14 (X522.8)	Smoothing 1 µs	Smoothing 125 µs	-
	15	DI/DO 15 (X522.9)	Smoothing 1 µs	Smoothing 125 µs	-
Note: DI/DO: Bidirectional Digital Input/Output					
DI: Digital input					

p4222					TM17 time absolute/relative digital output 0 ... 15 / TM17 abs/rel 0-15					
TM17		Can be changed: T			Calculated: -			Access level: 2		
		Data type: Unsigned32			Dynamic index: -			Func. diagram: -		
		P-Group: Commands			Units group: -			Unit selection: -		
		Not for motor type: -						Expert list: 1		
		Min			Max			Factory setting		
		-			-			0000 bin		
Description:		Sets as absolute or relative timing with bit 0 ... 15 for digital output 0 ... 15 of terminal module 17 (TM17).								
Bit field:		Bit	Signal name		1 signal		0 signal		FP	
		00	DI/DO 0 (X520.2)		Relative time		Absolute time		-	
		01	DI/DO 1 (X520.3)		Relative time		Absolute time		-	
		02	DI/DO 2 (X520.5)		Relative time		Absolute time		-	
		03	DI/DO 3 (X520.6)		Relative time		Absolute time		-	
		04	DI/DO 4 (X520.8)		Relative time		Absolute time		-	
		05	DI/DO 5 (X520.9)		Relative time		Absolute time		-	
		06	DI/DO 6 (X521.2)		Relative time		Absolute time		-	
		07	DI/DO 7 (X521.3)		Relative time		Absolute time		-	
		08	DI/DO 8 (X521.8)		Relative time		Absolute time		-	
		09	DI/DO 9 (X521.9)		Relative time		Absolute time		-	
		10	DI/DO 10 (X522.2)		Relative time		Absolute time		-	
		11	DI/DO 11 (X522.3)		Relative time		Absolute time		-	
		12	DI/DO 12 (X522.5)		Relative time		Absolute time		-	
		13	DI/DO 13 (X522.6)		Relative time		Absolute time		-	
		14	DI/DO 14 (X522.8)		Relative time		Absolute time		-	
		15	DI/DO 15 (X522.9)		Relative time		Absolute time		-	
Note:		DI/DO: Bidirectional Digital Input/Output								
		DO: Digital Output								

r4250 TM17 set/reset time digital output 0 / TM17 t_set DO 0

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 0 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4250 TM15 set/reset time digital output 0 / TM15 t_set DO 0

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 0 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4251 TM17 set/reset time digital output 1 / TM17 t_set DO 1

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 1 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4251 TM15 set/reset time digital output 1 / TM15 t_set DO 1

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 1 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4252 TM17 set/reset time digital output 2 / TM17 t_set DO 2

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 2 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4252 TM15 set/reset time digital output 2 / TM15 t_set DO 2

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 2 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4253 TM17 set/reset time digital output 3 / TM17 t_set DO 3

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 3 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4253 TM15 set/reset time digital output 3 / TM15 t_set DO 3

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 3 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4254	TM17 set/reset time digital output 4 / TM17 t_set DO 4		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 4 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DO: Digital Output		

r4254	TM15 set/reset time digital output 4 / TM15 t_set DO 4		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 4 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DO: Digital Output		

r4255	TM17 set/reset time digital output 5 / TM17 t_set DO 5		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 5 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DO: Digital Output		

r4255	TM15 set/reset time digital output 5 / TM15 t_set DO 5		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 5 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DO: Digital Output		

r4256 TM17 set/reset time digital output 6 / TM17 t_set DO 6

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 6 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4256 TM15 set/reset time digital output 6 / TM15 t_set DO 6

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 6 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4257 TM17 set/reset time digital output 7 / TM17 t_set DO 7

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 7 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4257 TM15 set/reset time digital output 7 / TM15 t_set DO 7

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 7 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4258	TM17 set/reset time digital output 8 / TM17 t_set DO 8		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 8 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DO: Digital Output		

r4258	TM15 set/reset time digital output 8 / TM15 t_set DO 8		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 8 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DO: Digital Output		

r4259	TM17 set/reset time digital output 9 / TM17 t_set DO 9		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 9 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DO: Digital Output		

r4259	TM15 set/reset time digital output 9 / TM15 t_set DO 9		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 9 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DO: Digital Output		

r4260 TM17 set/reset time digital output 10 / TM17 t_set DO 10

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 10 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4260 TM15 set/reset time digital output 10 / TM15 t_set DO 10

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 10 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4261 TM17 set/reset time digital output 11 / TM17 t_set DO 11

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 11 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4261 TM15 set/reset time digital output 11 / TM15 t_set DO 11

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 11 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4262	TM17 set/reset time digital output 12 / TM17 t_set DO 12		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 12 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DO: Digital Output		

r4262	TM15 set/reset time digital output 12 / TM15 t_set DO 12		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 12 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DO: Digital Output		

r4263	TM17 set/reset time digital output 13 / TM17 t_set DO 13		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 13 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DO: Digital Output		

r4263	TM15 set/reset time digital output 13 / TM15 t_set DO 13		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time to set and reset for digital output 13 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DO: Digital Output		

r4264 TM17 set/reset time digital output 14 / TM17 t_set DO 14

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 14 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4264 TM15 set/reset time digital output 14 / TM15 t_set DO 14

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 14 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4265 TM17 set/reset time digital output 15 / TM17 t_set DO 15

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 15 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DO: Digital Output

r4265 TM15 set/reset time digital output 15 / TM15 t_set DO 15

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 15 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4266 TM15 set/reset time digital output 16 / TM15 t_set DO 16

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 16 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4267 TM15 set/reset time digital output 17 / TM15 t_set DO 17

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 17 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4268 TM15 set/reset time digital output 18 / TM15 t_set DO 18

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 18 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4269 TM15 set/reset time digital output 19 / TM15 t_set DO 19

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 19 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4270 TM15 set/reset time digital output 20 / TM15 t_set DO 20

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 20 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4271 TM15 set/reset time digital output 21 / TM15 t_set DO 21

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 21 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4272 TM15 set/reset time digital output 22 / TM15 t_set DO 22

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 22 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4273 TM15 set/reset time digital output 23 / TM15 t_set DO 23

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time to set and reset for digital output 23 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DO: Digital Output

r4301 TM17 module synchronization / TM17 Module sync

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Is used to synchronize the timer of terminal module 17 (TM17) with the system time of the DP master.
 Bit 12 ... 15:
 After synchronization with the DP master, the module sends its sign-of-life in the form of a counter.
 Bit 0:
 This SYNC signal is set if the module has aligned its time to the system time of the DP master.
 Bit 9:
 This bit is set if a fault has occurred on the module (r0945).

r4301 TM15 module synchronization / TM15 module sync

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Is used to synchronize the timer of terminal module 15 (TM15) with the system time of the DP master.
 Bit 12 ... 15:
 After synchronization with the DP master, the module sends its sign-of-life in the form of a counter.
 Bit 0:
 This SYNC signal is set if the module has aligned its time to the system time of the DP master.
 Bit 9:
 This bit is set if a fault has occurred on the module (r0945).

r4304 TM17 status, digital input 0 ... 15 / TM17 St DI 0-15

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays status for digital input 0 ... 15 of terminal module 17 (TM17).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	On	Off	-
	01	DI/DO 1 (X520.3)	On	Off	-
	02	DI/DO 2 (X520.5)	On	Off	-
	03	DI/DO 3 (X520.6)	On	Off	-
	04	DI/DO 4 (X520.8)	On	Off	-
	05	DI/DO 5 (X520.9)	On	Off	-
	06	DI/DO 6 (X521.2)	On	Off	-
	07	DI/DO 7 (X521.3)	On	Off	-
	08	DI/DO 8 (X521.8)	On	Off	-
	09	DI/DO 9 (X521.9)	On	Off	-
	10	DI/DO 10 (X522.2)	On	Off	-
	11	DI/DO 11 (X522.3)	On	Off	-
	12	DI/DO 12 (X522.5)	On	Off	-

13	DI/DO 13 (X522.6)	On	Off	-
14	DI/DO 14 (X522.8)	On	Off	-
15	DI/DO 15 (X522.9)	On	Off	-

Note: DI/DO: Bidirectional Digital Input/Output

r4304 TM15 status, digital input 0 ... 15 / TM15 St DI 0-15

TM15 **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** -
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays status for digital input 0 ... 15 of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	On	Off	-
	01	DI/DO 1 (X520.3)	On	Off	-
	02	DI/DO 2 (X520.4)	On	Off	-
	03	DI/DO 3 (X520.5)	On	Off	-
	04	DI/DO 4 (X520.6)	On	Off	-
	05	DI/DO 5 (X520.7)	On	Off	-
	06	DI/DO 6 (X520.8)	On	Off	-
	07	DI/DO 7 (X520.9)	On	Off	-
	08	DI/DO 8 (X521.2)	On	Off	-
	09	DI/DO 9 (X521.3)	On	Off	-
	10	DI/DO 10 (X522.4)	On	Off	-
	11	DI/DO 11 (X521.5)	On	Off	-
	12	DI/DO 12 (X521.6)	On	Off	-
	13	DI/DO 13 (X521.7)	On	Off	-
	14	DI/DO 14 (X521.8)	On	Off	-
	15	DI/DO 15 (X521.9)	On	Off	-

Note: DI/DO: Bidirectional Digital Input/Output

r4305 TM15 status, digital input 16 ... 23 / TM15 St DI 16-23

TM15 **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** -
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays status for digital input 16 ... 23 of terminal module 15 (TM15).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 16 (X522.2)	On	Off	-
	01	DI/DO 17 (X522.3)	On	Off	-
	02	DI/DO 18 (X522.4)	On	Off	-
	03	DI/DO 19 (X522.5)	On	Off	-
	04	DI/DO 20 (X522.6)	On	Off	-
	05	DI/DO 21 (X522.7)	On	Off	-
	06	DI/DO 22 (X522.8)	On	Off	-
	07	DI/DO 23 (X522.9)	On	Off	-

Note: DI/DO: Bidirectional Digital Input/Output

r4311	TM17 edge status digital input 0 ... 7 / TM17 EdgSt DI 0-7		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge status for digital input 0 ... 7 of terminal module 17 (TM17).
Assignment of the digital inputs to the bits:
DI 0: r4311.1 ... 0
DI 1: r4311.3 ... 2
DI 2: r4311.5 ... 4
DI 3: r4311.7 ... 6
DI 4: r4311.9 ... 8
DI 5: r4311.11 ... 10
DI 6: r4311.13 ... 12
DI 7: r4311.15 ... 14
Possible edge states:
Bit x, y = 0, 0 --> no edge detection
Bit x, y = 0, 1 --> 1st edge detected
Bit x, y = 1, 0 --> 2nd edge detected
Bit x, y = 1, 1 --> both edges detected

Note: DI: Digital input

r4311	TM15 edge status digital input 0 ... 7 / TM15 EdgSt DI 0-7		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge status for digital input 0 ... 7 of terminal module 15 (TM15).
Assignment of the digital inputs to the bits:
DI 0: r4311.1 ... 0
DI 1: r4311.3 ... 2
DI 2: r4311.5 ... 4
DI 3: r4311.7 ... 6
DI 4: r4311.9 ... 8
DI 5: r4311.11 ... 10
DI 6: r4311.13 ... 12
DI 7: r4311.15 ... 14
Possible edge states:
Bit x, y = 0, 0 --> no edge detection
Bit x, y = 0, 1 --> 1st edge detected
Bit x, y = 1, 0 --> 2nd edge detected
Bit x, y = 1, 1 --> both edges detected

Note: DI: Digital input

r4312	TM17 edge status digital input 8 ... 15 / TM17 EdgSt DI 8-15		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge status for digital input 8 ... 15 of terminal module 17 (TM17).
Assignment of the digital inputs to the bits:

DI 8: r4312.1 ... 0

DI 9: r4312.3 ... 2

DI 10: r4312.5 ... 4

DI 11: r4312.7 ... 6

DI 12: r4312.9 ... 8

DI 13: r4312.11 ... 10

DI 14: r4312.13 ... 12

DI 15: r4312.15 ... 14

Possible edge states:

Bit x, y = 0, 0 --> no edge detection

Bit x, y = 0, 1 --> 1st edge detected

Bit x, y = 1, 0 --> 2nd edge detected

Bit x, y = 1, 1 --> both edges detected

Note: DI: Digital input

r4312	TM15 edge status digital input 8 ... 15 / TM15 EdgSt DI 8-15		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the edge status for digital input 8 ... 15 of terminal module 15 (TM15).
Assignment of the digital inputs to the bits:

DI 8: r4312.1 ... 0

DI 9: r4312.3 ... 2

DI 10: r4312.5 ... 4

DI 11: r4312.7 ... 6

DI 12: r4312.9 ... 8

DI 13: r4312.11 ... 10

DI 14: r4312.13 ... 12

DI 15: r4312.15 ... 14

Possible edge states:

Bit x, y = 0, 0 --> no edge detection

Bit x, y = 0, 1 --> 1st edge detected

Bit x, y = 1, 0 --> 2nd edge detected

Bit x, y = 1, 1 --> both edges detected

Note: DI: Digital input

r4313	TM15 edge status digital input 16 ... 23 / TM15 EdgSt DI16-23		
TM15	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the edge status for digital input 16 ... 23 of terminal module 15 (TM15). Assignment of the digital inputs to the bits: DI 16: r4313.1 ... 0 DI 17: r4313.3 ... 2 DI 18: r4313.5 ... 4 DI 19: r4313.7 ... 6 DI 20: r4313.9 ... 8 DI 21: r4313.11 ... 10 DI 22: r4313.13 ... 12 DI 23: r4313.15 ... 14 Possible edge states: Bit x, y = 0, 0 --> no edge detection Bit x, y = 0, 1 --> 1st edge detected Bit x, y = 1, 0 --> 2nd edge detected Bit x, y = 1, 1 --> both edges detected		
Note:	DI: Digital input		
r4350	TM17 edge times digital input 0 / TM17 edge_t DI 0		
TM17	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 0 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DI: Digital input		
r4350	TM15 edge times digital input 0 / TM15 edge_t DI 0		
TM15	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 0 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DI: Digital input		

r4351 TM17 edge times digital input 1 / TM17 edge_t DI 1

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 1 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4351 TM15 edge times digital input 1 / TM15 edge_t DI 1

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 1 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4352 TM17 edge times digital input 2 / TM17 edge_t DI 2

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 2 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4352 TM15 edge times digital input 2 / TM15 edge_t DI 2

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 2 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4353	TM17 edge times digital input 3 / TM17 edge_t DI 3		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 3 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DI: Digital input		

r4353	TM15 edge times digital input 3 / TM15 edge_t DI 3		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 3 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DI: Digital input		

r4354	TM17 edge times digital input 4 / TM17 edge_t DI 4		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 4 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DI: Digital input		

r4354	TM15 edge times digital input 4 / TM15 edge_t DI 4		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 4 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DI: Digital input		

r4355 TM17 edge times digital input 5 / TM17 edge_t DI 5

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 5 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4355 TM15 edge times digital input 5 / TM15 edge_t DI 5

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 5 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4356 TM17 edge times digital input 6 / TM17 edge_t DI 6

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 6 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4356 TM15 edge times digital input 6 / TM15 edge_t DI 6

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 6 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4357	TM17 edge times digital input 7 / TM17 edge_t DI 7		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 7 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DI: Digital input		

r4357	TM15 edge times digital input 7 / TM15 edge_t DI 7		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 7 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DI: Digital input		

r4358	TM17 edge times digital input 8 / TM17 edge_t DI 8		
TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 8 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DI: Digital input		

r4358	TM15 edge times digital input 8 / TM15 edge_t DI 8		
TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 8 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DI: Digital input		

r4359 TM17 edge times digital input 9 / TM17 edge_t DI 9

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 9 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4359 TM15 edge times digital input 9 / TM15 edge_t DI 9

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 9 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4360 TM17 edge times digital input 10 / TM17 edge_t DI 10

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 10 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4360 TM15 edge times digital input 10 / TM15 edge_t DI 10

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 10 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4361	TM17 edge times digital input 11 / TM17 edge_t DI 11		
TM17	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 11 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DI: Digital input		

r4361	TM15 edge times digital input 11 / TM15 edge_t DI 11		
TM15	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 11 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DI: Digital input		

r4362	TM17 edge times digital input 12 / TM17 edge_t DI 12		
TM17	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 12 of terminal module 17 (TM17). The two times are specified as 16 bit values with a resolution of 0.25 µs.		
Note:	DI: Digital input		

r4362	TM15 edge times digital input 12 / TM15 edge_t DI 12		
TM15	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the time when detecting the 1st and 2nd edge for digital input 12 of terminal module 15 (TM15). The two times are specified as 8 bit values with a resolution of 64 µs.		
Note:	DI: Digital input		

r4363 TM17 edge times digital input 13 / TM17 edge_t DI 13

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 13 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4363 TM15 edge times digital input 13 / TM15 edge_t DI 13

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 13 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4364 TM17 edge times digital input 14 / TM17 edge_t DI 14

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 14 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4364 TM15 edge times digital input 14 / TM15 edge_t DI 14

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 14 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4365 TM17 edge times digital input 15 / TM17 edge_t DI 15

TM17	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 15 of terminal module 17 (TM17).
The two times are specified as 16 bit values with a resolution of 0.25 µs.

Note: DI: Digital input

r4365 TM15 edge times digital input 15 / TM15 edge_t DI 15

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 15 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4366 TM15 edge times digital input 16 / TM15 edge_t DI 16

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 16 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4367 TM15 edge times digital input 17 / TM15 edge_t DI 17

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 17 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4368 TM15 edge times digital input 18 / TM15 edge_t DI 18

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 18 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4369 TM15 edge times digital input 19 / TM15 edge_t DI 19

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 19 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4370 TM15 edge times digital input 20 / TM15 edge_t DI 20

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 20 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4371 TM15 edge times digital input 21 / TM15 edge_t DI 21

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 21 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4372 TM15 edge times digital input 22 / TM15 edge_t DI 22

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 22 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

r4373 TM15 edge times digital input 23 / TM15 edge_t DI 23

TM15	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the time when detecting the 1st and 2nd edge for digital input 23 of terminal module 15 (TM15).
The two times are specified as 8 bit values with a resolution of 64 µs.

Note: DI: Digital input

p4400 TM41 incremental encoder emulation operating mode / Enc_emulat mode

TM41	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 9674, 9676
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Sets the operating mode for the incremental encoder emulation.
0 -> Encoder emulation using the speed setpoint (p1155)
1 -> Encoder emulation using the encoder position actual value (p4420)

Values:
0: SIMOTION
1: SINAMICS

Note: A change only becomes effective after the next boot.

p4401 TM41 incremental encoder emulation mode / Enc_emulat mode

TM41	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 9674, 9676
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0001 bin

Description: Sets the mode for the incremental encoder emulation.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable zero mark	Yes	No	9674

r4402.0...2		CO/BO: TM41 incremental encoder emulation, status / Enc_emulat status			
TM41	Can be changed: -		Calculated: -	Access level: 3	
	Data type: Unsigned16		Dynamic index: -	Func. diagram: 9674, 9676	
	P-Group: Closed-loop control		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	-	
Description:		Displays the status of the incremental encoder emulation on terminal module 41 (TM41).			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Zero mark enabled	Yes	No	-
	01	Tracks A/B enabled	Yes	No	-
	02	Interface encoder emulation enabled	Yes	No	-

r4403		Incremental encoder emulation mode active / Enc_emul mode act			
TM41	Can be changed: -		Calculated: -	Access level: 3	
	Data type: Unsigned16		Dynamic index: -	Func. diagram: 9674, 9676	
	P-Group: Closed-loop control		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	-	
Description:		Displays the actual operating mode of Terminal Module 41 (TM41).			
Dependency:		Refer to: p4400			

p4420		CI: TM41 incremental encoder emulation encoder position actual value / Enc_emul s_act			
TM41	Can be changed: T		Calculated: -	Access level: 3	
	Data type: Unsigned32 / Integer32		Dynamic index: -	Func. diagram: 9676	
	P-Group: Setpoints		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-		-	0	
Description:		Sets the signal source for the position actual value.			
Dependency:		Refer to: p4400, r4403			
Note:		Prerequisites for the signal source: For the incremental encoder emulation, an encoder is required that supplies precisely one zero mark per revolution. The following BICO interconnection should be preferably set: CI: p4420 = r0479. An encoder actual value (r0479) can only be interconnected once on a TM41. The zero mark of the incremental encoder is output at the encoder interface after successful internal, automatic synchronization. If an absolute encoder is connected to the TM41, then a zero mark is always output at the zero revolution at the encoder interface of the TM41. The same behavior applies even if no encoder parameter is interconnected.			

p4421		TM41 incremental encoder emulation deadtime compensation / Enc_emul t_dead			
TM41	Can be changed: U, T		Calculated: -	Access level: 3	
	Data type: Floating Point		Dynamic index: -	Func. diagram: 9676	
	P-Group: Setpoints		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-10.00		10.00	0.00	
Description:		This factor defines the multiplier in which the encoder position setpoint of the incremental encoder emulation is shifted depending on the velocity.			

Dependency: Refer to: p4400

p4422 TM41 position actual value inversion / TM41 s_act inv

TM41	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 9676
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Setting to invert the position actual value for Terminal Module 41 (TM41).

0 -> Position actual value (CI: p4420) is evaluated as normal.

1 -> Position actual value (CI: p4420) is processed inverted.

Dependency: Refer to: p4420

p4426 Incremental encoder emulation, pulses for zero mark / Enc_emul pulses ZM

TM41	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9674
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 8192	Factory setting 0

Description: Sets pulse number to output the zero mark for the incremental encoder simulation/emulation.

Example:

p0408 = 2048 (encoder pulses)

p4426 = 512 (pulses for the zero mark)

--> Position direction: The zero mark is output after 512 pulses.

--> Negative direction: The zero mark is output after 1536 pulses.

Dependency: Refer to: p0408

Note: The pulses for the zero mark (p4426) must be less than the encoder pulse number (p0408).
For p4400 = 1, this parameter has not effect.

p4600[0...n] Motor temperature sensor 1 sensor type / MotTemp_sens typ 1

SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 32	Factory setting 0

Description: Sets the sensor type of the first temperature sensor for the motor temperature monitoring.

The parameter can only be changed for SME120, SME125, CU310 and CUA32.

Values:

- 0: No sensor available
- 10: PTC fault
- 11: PTC alarm
- 12: PTC alarm and timer stage
- 20: KTY84
- 30: Bimetallic NC contact fault
- 31: Bimetallic NC contact alarm
- 32: Bimetallic NC contact alarm and timer stage

Dependency: Refer to: r0458, p0600, p0601

Note: PTC thermistor: Tripping resistance = 1650 Ohm

p4601[0...n]	Motor temperature sensor 2 sensor type / MotTemp_sens typ 2		
SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 32	Factory setting 0
Description:	Sets the sensor type of the second temperature sensor for the motor temperature monitoring. The parameter can only be changed for SME120, SME125, CU310 and CUA32.		
Values:	0: No sensor available 10: PTC fault 11: PTC alarm 12: PTC alarm and timer stage 20: KTY84 30: Bimetallic NC contact fault 31: Bimetallic NC contact alarm 32: Bimetallic NC contact alarm and timer stage		
Dependency:	Refer to: r0458, p0600, p0601		
Note:	Terminals for KTY84: X200.1, X200.2 PTC thermistor: Tripping resistance = 1650 Ohm		

p4602[0...n]	Motor temperature sensor 3 sensor type / MotTemp_sens typ 3		
SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 32	Factory setting 0
Description:	Sets the sensor type of the third temperature sensor for the motor temperature monitoring. The parameter can only be changed for SME120, SME125.		
Values:	0: No sensor available 10: PTC fault 11: PTC alarm 12: PTC alarm and timer stage 20: KTY84 30: Bimetallic NC contact fault 31: Bimetallic NC contact alarm 32: Bimetallic NC contact alarm and timer stage		
Dependency:	Refer to: r0458, p0600, p0601		
Note:	Terminals for PTC triplet and bimetallic: X200.3, X200.4 PTC thermistor: Tripping resistance = 1650 Ohm		

p4603[0...n]	Motor temperature sensor 4 sensor type / MotTemp_sens typ 4		
SERVO, VECTOR	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 32	Factory setting 0
Description:	Sets the sensor type of the fourth temperature sensor for the motor temperature monitoring. The parameter can only be changed for SME120, SME125.		

Values:	0:	No sensor available
	10:	PTC fault
	11:	PTC alarm
	12:	PTC alarm and timer stage
	20:	KTY84
	30:	Bimetallic NC contact fault
	31:	Bimetallic NC contact alarm
	32:	Bimetallic NC contact alarm and timer stage
Dependency:	Refer to: r0458, p0600, p0601	
Note:	Terminals for PTC triplet: X200.5, X200.6	
	PTC thermistor: Tripping resistance = 1650 Ohm	

r4620[0...3]	Motor temperatures SME / Mot Temp SME		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the actual temperatures in the motor, measured via an SME 120 or SME 125.		
Index:	[0] = SME temperature channel 1 [1] = SME temperature channel 2 [2] = SME temperature channel 3 [3] = SME temperature channel 4		
Note:	An invalid temperature is displayed using the value -200°C.		

p4690	SMI component number / SMI comp_no		
CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 399	Factory setting 0
Description:	Sets the component number for the Sensor Module Integrated (SMI) for which data should be saved or down-loaded.		
Dependency:	Refer to: p4691, p4692		
Note:	SMI: SINAMICS Sensor Module Integrated		
	Only component numbers that correspond to a Sensor Module Integrated can be entered.		

p4691	Save/download SMI data / Save/DL SMI data		
CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 15	Factory setting 0
Description:	Setting to save/download the data for the Sensor Module Integrated (SMI) specified in p4690.		
	Procedure:		
	p4690 = set component number		
	p4691 = 1, 2 set the required procedure (save/download)		
	p4691 = 0 --> automatically after the procedure has been successfully completed		
	p4691 = 11, 12, 13, 14, 15 --> error vales if the procedure was not able to be executed		

Values:

- 0: Inactive
- 1: Save SMI data
- 2: Download SMI data
- 11: SMI data for the selected component not found on CF
- 12: Component with the selected component number not available.
- 13: CompactFlash card does not have sufficient memory space
- 14: Incorrect format of the saved data
- 15: Data not able to be downloaded into SMI

Dependency: Refer to: p4690, p4692

Note: SMI: SINAMICS Sensor Module Integrated

Help for error value = 11:
Save the data for the originally existing SMI on the CompactFlash card.

Help for error value = 12:
Set the correct component number.

Help for error value = 13:
Use a CompactFlash card with a larger memory.

Help for error value = 15:
Use an SMI card that is empty.

p4692 Save SMI data of all SMI / Save SMI data

CU_CX32, CU_S	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 13	Factory setting 0

Description: Setting to save data of all existing Sensor Module Integrated (SMI) on the CompactFlash card.

Values:

- 0: Inactive
- 1: Save data from all SMI on CompactFlash card
- 13: CompactFlash card does not have sufficient memory space

Dependency: Refer to: p4690, p4691

Note: SMI: SINAMICS Sensor Module Integrated

p4692 is automatically set to 0 at the end of the data save procedure.

The procedure must be repeated if the data save operation was interrupted (e.g. if the power supply voltage failed).

p4700[0...1] Trace control / Trace control

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0	Max 1	Factory setting 0

Values:

- 0: Stop trace
- 1: Start trace

Index:

- [0] = Trace 0
- [1] = Trace 1

p4701			
Measuring function, control / Meas fct ctrl			
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0	2	0
Values:	0: Stop measuring function		
	1: Start measuring function		
	2: Measuring function, check parameterization		
<hr/>			
p4702			
Trace recording channels count / Trace rec_chan			
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description:	Sets the number of recording channels for trace 1 and trace 2.		
	Procedure:		
	- cancel the pulses		
	- set p0009 to 1		
	- set p4702 to the requested value		
	- set p0009 to 0		
	The drive system is then automatically booted.		
Values:	0: 4 recording channels per trace		
	1: 8 recording channels per trace		
Recommend.:	For performance reasons, in normal operation, the setting p4702 = 0 should be set (4 recording channels per trace).		
<hr/>			
r4705[0...1]			
Trace status / Trace status			
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0	4	-
Description:	Displays the current status of the trace.		
Values:	0: Trace inactive		
	1: Trace is recording presamples		
	2: Trace is waiting for trigger event		
	3: Trace is recording		
	4: Recording (trace) ended		
Index:	[0] = Trace 0		
	[1] = Trace 1		

r4706	Measuring function, status / Meas fct status		
CU_CX32, CU_S	Can be changed: - Data type: Integer16 P-Group: Trace and function generator Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 5	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Values:	0: Measurement function inactive 1: Measuring function, parameterization checked 2: Measuring function waits for stabilizing time 3: Measuring function recording (tracing) 4: Measuring function, trace ended with error 5: Measuring function, trace successfully completed		
r4708[0...1]	Trace memory space required / Trace mem required		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the required memory in bytes for the actual parameterization.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Refer to: r4799		
p4710[0...1]	Trace trigger condition / Trace Trig_cond		
CU_CX32, CU_S	Can be changed: U, T Data type: Integer16 P-Group: Trace and function generator Not for motor type: - Min 1	Calculated: - Dynamic index: - Units group: - Max 7	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 2
Description:	Sets the trigger condition for the trace.		
Values:	1: Immediate start 2: Positive edge 3: Negative edge 4: Entry to hysteresis band 5: Leaving hysteresis band 6: Trigger at bit mask 7: Start with function generator		
Index:	[0] = Trace 0 [1] = Trace 1		
p4711[0...1]	Trace trigger signal / Trace trig_signal		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Selects the trigger signal for the trace. OR: Defines the data type of signal to be traced when selected using the physical address (p4789).		

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 does not equal 1.

p4712[0...1] **Trace trigger threshold / Trace trig_thresh**

CU_CX32, CU_S **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** - **Func. diagram:** -
P-Group: Trace and function generator **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 0

Min Max **Factory setting**
-340.28235E36 340.28235E36 0.00

Description: Sets the trigger threshold for the trace.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 2, 3.

p4713[0...1] **Trace tolerance band trigger threshold / Trace trig_thresh**

CU_CX32, CU_S **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** - **Func. diagram:** -
P-Group: Trace and function generator **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 0

Min Max **Factory setting**
-340.28235E36 340.28235E36 0.00

Description: Sets the first trigger threshold for trigger via tolerance band.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 4, 5.

p4714[0...1] **Trace tolerance band trigger threshold / Trace trig_thresh**

CU_CX32, CU_S **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** - **Func. diagram:** -
P-Group: Trace and function generator **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 0

Min Max **Factory setting**
-340.28235E36 340.28235E36 0.00

Description: Sets the second trigger threshold for trigger via tolerance band

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 4, 5.

p4715[0...1] **Trace bit mask trigger, bit mask / Trace trig_mask**

CU_CX32, CU_S **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: Trace and function generator **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 0

Min Max **Factory setting**
0 4294967295 0

Description: Sets the bit mask for the bit mask trigger.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 6.

p4716[0...1]	Trace, bit mask trigger, trigger condition / Trace Trig_cond		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Sets the trigger condition for bit mask trigger.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 6.		
p4717	Measuring function, number of averaging operations / Meas fct avg qty		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned8 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
p4718	Measuring function, number of stabilizing periods / MeasFct StabPerQty		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned8 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
r4719[0...1]	Trace trigger index / Trace Trig_index		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the trigger index in the trace buffer. The trigger event occurred at this point.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only valid when p4705 = 4.		
p4720[0...1]	Trace recording cycle / Trace record_cyc		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 1.000 [ms]
Description:	Sets the recording cycle for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4721[0...1]	Trace recording time / Trace record_time		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 1000.000 [ms]
Description:	Sets the recording time for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4722[0...1]	Trace trigger delay / Trace trig_delay		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0.000 [ms]
Description:	Sets the trigger delay for the trace. Trigger delay < 0: Pretrigger: Tracing (recording) starts the selected time before the trigger event actually occurs. Trigger delay > 0: Post trigger: Tracing does not start until the set time after the trigger event.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4723[0...1]	Time slice cycle for trace / Trace cycle		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0.12500 [ms]
Description:	Sets the time slice cycle in which the trace is called.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4724[0...1]	Trace average in the time range / Trace average		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned8 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0001 bin
Index:	[0] = Trace 0 [1] = Trace 1		

r4725[0...1]	Trace, data type 1 traced / Trace rec type 1		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4726[0...1]	Trace, data type 2 traced / Trace rec type 2		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4727[0...1]	Trace, data type 3 traced / Trace rec type 3		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4728[0...1]	Trace, data type 4 traced / Trace rec type 4		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4729[0...1]	Trace number of recorded values / Trace rec values		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of traced values for each signal.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only valid when p4705 = 4.		

p4730[0...1]	Trace record signal 0 / Trace record sig 0		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Selects the first signal to be traced. For trace with a physical address (p4780), the data type of the signal to be traced (recorded) is set here.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4731[0...1]	Trace record signal 1 / Trace record sig 1		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Selects the second signal to be traced. For trace with a physical address (p4781), the data type of the signal to be traced (recorded) is set here.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4732[0...1]	Trace record signal 2 / Trace record sig 2		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Selects the third signal to be traced. For trace with a physical address (p4782), the data type of the signal to be traced (recorded) is set here.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4733[0...1]	Trace record signal 3 / Trace record sig 3		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Selects the fourth signal to be traced. For trace with a physical address (p4783), the data type of the signal to be traced (recorded) is set here.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4734[0...1]	Trace record signal 4 / Trace record sig 4		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	0
Description:	<p>Selects the fifth signal to be traced.</p> <p>For trace with a physical address (p4784), the data type of the signal to be traced (recorded) is set here.</p> <p>The parameter can only be written to if the number of trace channels (p4702) is eight.</p>		
Index:	<p>[0] = Trace 0</p> <p>[1] = Trace 1</p>		
p4735[0...1]	Trace record signal 5 / Trace record sig 5		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	0
Description:	<p>Selects the sixth signal to be traced.</p> <p>For trace with a physical address (p4785), the data type of the signal to be traced (recorded) is set here.</p> <p>The parameter can only be written to if the number of trace channels (p4702) is eight.</p>		
Index:	<p>[0] = Trace 0</p> <p>[1] = Trace 1</p>		
p4736[0...1]	Trace record signal 6 / Trace record sig 6		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	0
Description:	<p>Selects the seventh signal to be traced.</p> <p>For trace with a physical address (p4786), the data type of the signal to be traced (recorded) is set here.</p> <p>The parameter can only be written to if the number of trace channels (p4702) is eight.</p>		
Index:	<p>[0] = Trace 0</p> <p>[1] = Trace 1</p>		
p4737[0...1]	Trace record signal 7 / Trace record sig 7		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	0
Description:	<p>Selects the eighth signal to be traced.</p> <p>For trace with a physical address (p4787), the data type of the signal to be traced (recorded) is set here.</p> <p>The parameter can only be written to if the number of trace channels (p4702) is eight.</p>		
Index:	<p>[0] = Trace 0</p> <p>[1] = Trace 1</p>		

r4740[0...16383] Trace 0 trace buffer signal 0 floating point / Trace 0 trace sig0

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0.
The trace (record) buffer is sub-divided into memory banks, each containing 16384 values. Parameter p4795 can be used to toggle between the individual banks.
Example A:
The first 16384 values of signal 0, trace 0 are to be read-out.
In this case, memory bank 0 is set with p4795 = 0. The first 16384 values can now be read-out using r4740[0] to r4740[16383].
Example B:
The values 16385 to 32768 from signal 0, trace 0 are to be read-out.
In this case, memory bank 1 is set with p4795 = 1. The values can now be read out in r4740[0] to r4740[16383].

Dependency: Refer to: p4795

r4741[0...16383] Trace 0 trace buffer signal 1 floating point / Trace 0 trace sig1

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.

Dependency: Refer to: r4740, p4795

r4742[0...16383] Trace 0 trace buffer signal 2 floating point / Trace 0 trace sig2

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: Refer to: r4740, p4795

r4743[0...16383] Trace 0 trace buffer signal 3 floating point / Trace 0 trace sig3

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: Refer to: r4740, p4795

r4744[0...16383] Trace 0 trace buffer signal 4 floating point / Trace 0 rec sig 4

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: Refer to: r4740, p4795

r4745[0...16383] Trace 0 trace buffer signal 5 floating point / Trace 0 rec sig 5

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: Refer to: r4740, p4795

r4746[0...16383] Trace 0 trace buffer signal 6 floating point / Trace 0 rec sig 6

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4740, p4795

r4747[0...16383] Trace 0 trace buffer signal 7 floating point / Trace 0 rec sig 7

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: Refer to: r4740, p4795

r4750[0...16383] Trace 1 trace buffer signal 0 floating point / Trace 1 trace sig0

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: Refer to: r4740, p4795

r4751[0...16383] Trace 1 trace buffer signal 1 floating point / Trace 1 trace sig1

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: Refer to: r4740, p4795

r4752[0...16383] Trace 1 trace buffer signal 2 floating point / Trace 1 trace sig2

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: Refer to: r4740, p4795

r4753[0...16383] Trace 1 trace buffer signal 3 floating point / Trace 1 trace sig3

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: Refer to: r4740, p4795

r4754[0...16383] Trace 1 trace buffer signal 4 floating point / Trace 1 rec sig 4

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: Refer to: r4740, p4795

r4755[0...16383] Trace 1 trace buffer signal 5 floating point / Trace 1 rec sig 5

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: Refer to: r4740, p4795

r4756[0...16383] Trace 1 trace buffer signal 6 floating point / Trace 1 rec sig 6

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the trace buffer (record buffer) for trace 1 and signal 6.		
Dependency:	Refer to: r4740, p4795		

r4757[0...16383] Trace 1 trace buffer signal 7 floating point / Trace 1 rec sig 7

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the trace buffer (record buffer) for trace 1 and signal 7.		
Dependency:	Refer to: r4740, p4795		

r4760[0...16383] Trace 0 trace buffer signal 0 / Trace 0 trace sig0

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

r4761[0...16383] Trace 0 trace buffer signal 1 / Trace 0 trace sig1

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

r4762[0...16383] Trace 0 trace buffer signal 2 / Trace 0 trace sig2

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

r4763[0...16383] Trace 0 trace buffer signal 3 / Trace 0 trace sig3

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

r4764[0...16383] Trace 0 trace buffer signal 4 / Trace 0 rec sig 4

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

r4765[0...16383] Trace 0 trace buffer signal 5 / Trace 0 rec sig 5

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

r4766[0...16383] Trace 0 trace buffer signal 6 / Trace 0 rec sig 6

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

r4767[0...16383] Trace 0 trace buffer signal 7 / Trace 0 rec sig 7

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

p4780[0...1] Trace physical address signal 0 / Trace PhyAddr Sig0

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the first signal to be traced.

The data type is defined using p4730.

Index:
[0] = Trace 0
[1] = Trace 1

p4781[0...1] Trace physical address signal 1 / Trace PhyAddr Sig1

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the second signal to be traced.

The data type is defined using p4731.

Index:
[0] = Trace 0
[1] = Trace 1

p4782[0...1]	Trace physical address signal 2 / Trace PhyAddr Sig2		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the third signal to be traced. The data type is defined using p4732.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4783[0...1]	Trace physical address signal 3 / Trace PhyAddr Sig3		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the fourth signal to be traced. The data type is defined using p4733.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4784[0...1]	Trace physical address signal 4 / Trace PhyAddr Sig4		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the fifth signal to be traced. The data type is defined using p4734. The parameter can only be written to if the number of trace channels (p4702) is eight.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4785[0...1]	Trace physical address signal 5 / Trace PhyAddr Sig5		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the sixth signal to be traced. The data type is defined using p4735. The parameter can only be written to if the number of trace channels (p4702) is eight.		

Index: [0] = Trace 0
[1] = Trace 1

p4786[0...1] Trace physical address signal 6 / Trace PhyAddr Sig6

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin

Description: Sets the physical address for the seventh signal to be traced.
The data type is defined using p4736.
The parameter can only be written to if the number of trace channels (p4702) is eight.

Index: [0] = Trace 0
[1] = Trace 1

p4787[0...1] Trace physical address signal 7 / Trace PhyAddr Sig7

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin

Description: Sets the physical address for the eighth signal to be traced.
The data type is defined using p4737.
The parameter can only be written to if the number of trace channels (p4702) is eight.

Index: [0] = Trace 0
[1] = Trace 1

p4789[0...1] Trace physical address trigger signal / Trace PhyAddr Trig

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the physical address for the trigger signal.
The data type is defined by making the appropriate selection in p4711.

Index: [0] = Trace 0
[1] = Trace 1

r4790[0...1] Trace, data type 5 traced / Trace rec type 5

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -

Index: [0] = Trace 0
[1] = Trace 1

r4791[0...1]	Trace, data type 6 traced / Trace rec type 6		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4792[0...1]	Trace, data type 7 traced / Trace rec type 7		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4793[0...1]	Trace, data type 8 traced / Trace rec type 8		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

p4795	Trace memory bank changeover / Trace mem changeov		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0	500	0
Description:	Changes over the memory bank to read-out the contents of the trace buffer.		
Dependency:	Refer to: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753		

r4799	Trace memory location free / Trace mem free		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the free memory for the trace in bytes.		
Dependency:	Refer to: r4708		

p4800 Function generator control / FG control

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 0
Description:	The function generator is started with p4800 = 1. The signal is only generated for a 1 signal of BI: p4819.		
Values:	0: Stop function generator 1: Start function generator 2: Check function generator parameterization		
Dependency:	Refer to: p4819		

r4805 Function generator status / FG status

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 6	Factory setting -
Description:	Displays the actual status of the function generator.		
Values:	0: Inactive 1: Generate accelerating ramp to offset 2: Generate parameterized signal shape 3: Generate braking ramp 4: Function generator stopped due to missing enable signals 5: Function generator waits for BI: p4819 6: Function generator parameterization has been checked		
Dependency:	Refer to: p4800, p4819		

r4806 BO: Function generator status signal / FG status signal

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the status of the function generator. 0 signal: Function generator inactive 1 signal: Function generator running		

p4810 Function generator mode / FG operating mode

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 99	Factory setting 0
Description:	Sets the operating mode of the function generator.		

Values:	0:	Connection at connector output r4818
	1:	Connection at current setpoint after filter and r4818
	2:	Connection as disturbing torque and r4818
	3:	Connection at speed setpoint after filter and r4818
	4:	Connection at current setpoint before filter and r4818
	5:	Connection at speed setpoint before filter and r4818
	99:	Connection at physical address and r4818

p4812	Function generator physical address / FG phys address		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 4294967295	Factory setting 0
Description:	Sets the physical address where the function generator is to be connected.		
Dependency:	Only effective when p4810 = 99.		

p4813	Function generator physical address reference value / FG phys addr ref		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.00	Max 1000000.00	Factory setting 1.00
Description:	Sets the reference value for 100 % for referred inputs.		
Dependency:	Only effective when p4810 = 99.		

p4815[0...2]	Function generator drive number / FG drive number		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Selects the required drive where the function generator is to be connected.		
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection		
Dependency:	Only effective when p4810 = 1, 2, 3, 4 or 5.		
Note:	For the function generator, only type SERVO drives can be used.		

r4818	CO: Function generator output signal / FG output signal		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the output signal for the function generator.		
Dependency:	Refer to: p4810		
Note:	The value is displayed independently of the function generator mode. The signal is available as connector output for an ongoing interconnection.		

p4819	BI: Function generator control / FG control		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source to control the function generator. When the function generator is running, signal generation is stopped with a 0 signal from BI: p4819 and p4800 is set to 0.		
Dependency:	Refer to: p4800		
p4820	Function generator signal shape / FG signal shape		
CU_CX32, CU_S	Can be changed: U, T Data type: Integer16 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal to be generated for the function generator.		
Values:	1: Square-wave 2: Staircase 3: Delta 4: Binary noise - PRBS (Pseudo Random Binary Signal) 5: Sinusoidal		
p4821	Function generator period / FG period duration		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1000.00 [ms]
Description:	Sets the period of the signal to be generated for the function generator.		
Dependency:	Ineffective when p4820 = 4 (PRBS).		
p4822	Function generator pulse width / FG pulse width		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 500.00 [ms]
Description:	Sets the pulse width for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 1 (square-wave).		

p4823	Function generator bandwidth / FG bandwidth		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0025 [Hz]	Max 16000.0000 [Hz]	Factory setting 4000.0000 [Hz]
Description:	Sets the bandwidth for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 4 (PRBS). Refer to: p4830 Refer to: A02041		
p4824	Function generator amplitude / FG amplitude		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 5.00 [%]
Description:	Sets the amplitude for the signal to be generated for the function generator.		
Dependency:	Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).		
p4825	Function generator 2nd amplitude / FG 2nd amplitude		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 7.00 [%]
Description:	Sets the second amplitude for the signal to be generated for the function generator.		
Dependency:	Only effective for p4820 = 2 (staircase). Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).		
p4826	Function generator offset / FG offset		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 0.00 [%]
Description:	Sets the offset (DC component) of the signal to be generated for the function generator.		
Dependency:	Units are dependent on p4810. If p4810 = 1, 2, 4: The offset is referred to p2002 (reference current). If p4810 = 3, 5: The offset is referred to p2000 (reference speed). If p4810 = 2: In order to avoid the undesirable effects of play (backlash), the offset does not act on the current set-point, but instead on the speed setpoint.		

p4827	Function generator ramp-up time to offset / FG ramp-up offset		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 32.00 [ms]
	Min 0.00 [ms]	Max 100000.00 [ms]	
Description:	Sets the ramp-up time to the offset for the function generator.		
p4828	Function generator lower limit / FG lower limit		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -100.00 [%]
	Min -10000.00 [%]	Max 0.00 [%]	
Description:	Sets the lower limit for the function generator.		
Dependency:	For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).		
p4829	Function generator upper limit / FG upper limit		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100.00 [%]
	Min 0.00 [%]	Max 10000.00 [%]	
Description:	Sets the upper limit for the function generator.		
Dependency:	For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).		
p4830	Function generator time slice cycle / FG time slice		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.12500 [ms]
	Min 0.03125 [ms]	Max 2.00000 [ms]	
Description:	Sets the time slice cycle in which the function generator is called.		
p4831	Function generator amplitude scaling / FG amplitude scal		
CU_CX32, CU_S	Can be changed: U, T Data type: Floating Point P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100.00000 [%]
	Min 0.00000 [%]	Max 200.00000 [%]	
Description:	Sets the scaling for the amplitude of the signal waveforms for all output channels. The value can be changed while the function generator is running.		

p4832[0...2]					
Function generator amplitude scaling / FG amplitude scal					
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Floating Point	Dynamic index: -	Func. diagram: -		
	P-Group: Trace and function generator	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -340.28235E36 [%]	Max 340.28235E36 [%]	Factory setting 100.00000 [%]		
Description:	Sets the scaling for the amplitude of the signal waveforms separately for each output channel. The value cannot be changed while the function generator is running.				
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection				
<hr/>					
p4833[0...2]					
Function generator offset scaling / FG offset scal					
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Floating Point	Dynamic index: -	Func. diagram: -		
	P-Group: Trace and function generator	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -340.28235E36 [%]	Max 340.28235E36 [%]	Factory setting 100.00000 [%]		
Description:	Sets the scaling for the offset of the signal waveforms separately for each output channel. The value cannot be changed while the function generator is running.				
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection				
<hr/>					
r4899					
Status word sequence control / ZSW seq_ctrl					
TM41	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the status word of the sequence control from terminal module 41 (TM41).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready to power up	Yes	No	-
	01	Ready	Yes	No	-
	02	Operation enabled	Yes	No	-
	03	Fault present	Yes	No	-
	04	Coast down active	No	Yes	-
	05	Quick Stop active	No	Yes	-
	06	Power-on inhibit	Yes	No	-
	07	Alarm present	Yes	No	-
	09	Control requested	Yes	No	-
	14	Motor rotates forwards	Yes	No	-

r4950	OA application count / OA appl qty		
All objects	Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 10	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the number of OA applications installed on the CompactFlash card.		
Dependency:	Refer to: r4951, r4952, r4955, p4956, r4957, r4958, r4959, r4960		
Note:	OA: Open Architecture		
r4951	OA application identifier, total length / OA appl ID length		
All objects	Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 90	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the total length of the identifiers of all of the OA applications installed on the CompactFlash card. The identifier of an OA application comprises a maximum of 8 characters plus separator.		
Dependency:	Refer to: r4950, r4952, r4955, p4956, r4957, r4958, r4959, r4960		
r4952	OA application GUID, total length / OA applGUID length		
All objects	Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 180	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the total length of the GUIDs of all of the OA applications installed on the CompactFlash card. The GUID of an OA application comprises 16 characters plus 1 character major information plus 1 character, minor information.		
Dependency:	Refer to: r4950, r4951, r4955, p4956, r4957, r4958, r4959, r4960		
Note:	GUID: Globally Unique Identifier		
r4955[0...n]	OA application identifier / OA appl identifier		
All objects	Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: - Min -	Calculated: - Dynamic index: r4951 Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the identifiers of all of the OA applications installed on the CompactFlash card. r4955[0...8]: Identifier of OA application 1 r4955[9...17]: Identifier of OA application 2 etc.		
Dependency:	Refer to: r4950, r4951, r4952, p4956, r4957, r4958, r4959, r4960		
Notice:	If there is no OA application, then it is not possible to access an index.		

p4956[0...n]	OA application activation / OA appl act		
All objects	Can be changed: C1, T Data type: Integer16 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: r4950 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0
Description:	Setting to activate the OA applications installed on the CompactFlash card. r4956[0]: Activates OA application 1 r4956[1]: Activates OA application 2 etc.		
Values:	0: OA application inactive 1: OA application active		
Dependency:	Refer to: r4950, r4951, r4952, r4955, r4957, r4958, r4959, r4960		
Notice:	If there is no OA application, then it is not possible to access an index.		
r4957[0...n]	OA application version / OA appl version		
All objects	Can be changed: - Data type: Unsigned32 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: r4950 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the version of OA applications installed on the CompactFlash card. r4957[0]: Version of OA application 1 r4957[1]: Version of OA application 2 etc.		
Dependency:	Refer to: r4950, r4951, r4952, r4955, p4956, r4958, r4959, r4960		
Notice:	If there is no OA application, then it is not possible to access an index.		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		
r4958[0...n]	OA application interface version / OA appl intfc_vers		
All objects	Can be changed: - Data type: Unsigned32 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: r4950 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the interface version of the OA applications installed on the CompactFlash card. r4958[0]: Interface version of OA application 1 r4958[1]: Interface version of OA application 2 etc.		
Dependency:	Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4959, r4960		
Notice:	If there is no OA application, then it is not possible to access an index.		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r4959[0...n]	OA application GUID / OA appl GUID		
All objects	Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: - Min -	Calculated: - Dynamic index: r4952 Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the GUIDs of OA applications installed on the CompactFlash card. r4959[0...15]: GUID of OA application 1 r4960[16]: Major information of OA application 1 r4960[17]: Minor information of OA application 1 r4959[18...33]: GUID of OA application 2 r4960[34]: Major information of OA application 2 r4960[35]: Minor information of OA application 2 etc.		
Dependency:	Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4960		
Notice:	If there is no OA application, then it is not possible to access an index.		
r4960[0...n]	OA application GUID drive object / OA appl GUID DO		
All objects	Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: - Min -	Calculated: - Dynamic index: r4952 Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the GUIDs of this drive object of the OA applications installed on the CompactFlash card. r4960[0...15]: GUID of this drive object of OA application 1 r4960[16]: Major information of this drive object of OA application 1 r4960[17]: Minor information of this drive object of OA application 1 r4960[18...33]: GUID of this drive object of OA application 2 r4960[34]: Major information of this drive object of OA application 2 r4960[35]: Minor information of this drive object of OA application 2 etc.		
Dependency:	Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4959		
Notice:	If there is no OA application, then it is not possible to access an index.		
r7000	Par_circuit No. of active power units / Qty active PU		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Unsigned16 P-Group: Modulation Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the active power units for a parallel circuit configuration.		
Dependency:	Refer to: p7001		

p7001[0...n]	Par_circuit enable power units / Enable PU		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: T Data type: Integer16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
	Min 0	Max 1	
Description:	Enables the power units in the parallel circuit configuration.		
Values:	0: De-activated 1: Activated		
Dependency:	Refer to: r7000		
Note:	For motors with separate winding systems (p7003 = 1) it is not possible to inhibit an individual power unit. p7001 is automatically reset if a power unit is de-activated via p0125 or p0895.		
r7002[0...n]	Par_circuit status power units / Status PU		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Integer16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
	Min 0	Max 1	
Description:	Displays the status of the power units in the parallel circuit configuration.		
Values:	0: Pulses inhibited 1: Pulses enabled		
Dependency:	Refer to: r7000, p7001		
p7003	Par_circuit winding system / Winding system		
VECTOR (Parallel)	Can be changed: C2(2) Data type: Integer16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 1	
Description:	Specifies the winding system for a parallel circuit configuration. The following limitations/restrictions are obtained depending on the setting: One winding system (p7003 = 0): - the motor data identification routine (p1910) determines the stator resistance and the cable resistance. The cable resistance of an individual motor module is entered into p0352. - the current symmetrizing is activated as standard after the motor data identification routine (p7035 = 1). - individual Motor Modules can be activated and de-activated (p7001). - the edge modulation is not possible (p1802). Several separate winding systems or motors (p7003 = 1): - the motor data identification routine (p1910) determines the total (overall) resistance. The cable resistance is not measured, but instead, entered as a component of the total resistance (refer to p0352). - all Motor Modules are activated. It is not possible to de-activate a motor model. - the edge modulation can be activated (p1802).		
Values:	0: One winding system 1: Several separate winding systems or motors		
Dependency:	Refer to: p1802		

p7010	Par_circuit current dissymmetry alarm threshold / i_dissym A thresh		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: U, T Data type: Floating Point P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 2 [%]	Max 100 [%]	Factory setting 20 [%]
Description:	Sets the alarm threshold to detect current dissymmetry in the parallel circuit configuration. The deviation between the measured values and average value is evaluated. The specified value is referred to the rated power unit current (p7251[0]).		
Dependency:	Refer to: r7251 Refer to: A05052		
p7011	Par_circuit DC link voltage dissymmetry alarm threshold / Vdc_dissym A thrsh		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: U, T Data type: Floating Point P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 2 [%]	Max 100 [%]	Factory setting 10 [%]
Description:	Sets the alarm threshold to detect dissymmetry of the DC link voltages in the parallel circuit configuration. The deviation between the measured values and average value is evaluated. The specified value is referred to the rated link voltage.		
Dependency:	Refer to: A05053		
r7020[0...n]	CO: Par_circuit deviation current in phase U / Phase U curr dev		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: 6_5	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the deviation between the measured current actual value of phase U and the average value as peak value. The maximum deviation from the average value is displayed in r7025.		
Dependency:	Refer to: r7021, r7022, r7025		
r7021[0...n]	CO: Par_circuit deviation current in phase V / Phase V curr dev		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: 6_5	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the deviation between the measured current actual value of phase V and the average value as peak value. The maximum deviation from the average value is displayed in r7026.		
Dependency:	Refer to: r7020, r7022, r7026		

r7022[0...n]	CO: Par_circuit deviation current in phase W / Phase W curr dev		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the deviation between the measured current actual value of phase W and the average value as peak value. The maximum deviation from the average value is displayed in r7027.		
Dependency:	Refer to: r7020, r7021, r7027		
r7025	CO: Par_circuit max. deviation currents phase U / Phase U Max i_dev		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the maximum absolute deviation of the measured current actual values of phase U from the average value as peak value. The deviation of the individual currents from the average value is displayed in r7020.		
Dependency:	Refer to: r7020, r7026, r7027 Refer to: A05052		
r7026	CO: Par_circuit max. deviation currents phase V / Phase V Max i_dev		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the maximum absolute deviation of the measured current actual values of phase V from the average value as peak value. The deviation of the individual currents from the average value is displayed in r7021.		
Dependency:	Refer to: r7021, r7025, r7027 Refer to: A05052		
r7027	CO: Par_circuit max. deviation currents phase W / Phase W Max i_dev		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the maximum absolute deviation of the measured current actual values of phase W from the average value as peak value. The deviation of the individual currents from the average value is displayed in r7022.		
Dependency:	Refer to: r7022, r7025, r7026 Refer to: A05052		

r7030[0...n] CO: Par_circuit DC link voltage deviation / Vdc deviationA_INF (Parallel),
B_INF (Parallel),
S_INF (Parallel),
VECTOR (Parallel)**Can be changed:** -**Data type:** Floating Point**P-Group:** Displays, signals**Not for motor type:** -**Calculated:** -**Dynamic index:** PDS, p0120**Units group:** -**Access level:** 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**

- [V]

Max

- [V]

Factory setting

- [V]

Description:

Displays the deviation of the measured DC link voltage from the average value.

The maximum deviation from the average value is displayed in r7031.

Dependency:

Refer to: r7031

r7031 CO: Par_circuit DC link voltage maximum deviation / Vdc deviation max.A_INF (Parallel),
B_INF (Parallel),
S_INF (Parallel),
VECTOR (Parallel)**Can be changed:** -**Data type:** Floating Point**P-Group:** Displays, signals**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**

- [V]

Max

- [V]

Factory setting

- [V]

Description:

Displays the maximum absolute deviation of the measured DC link voltage from the average value.

The deviation of the individual voltages from the average value is displayed in r7030.

Dependency:

Refer to: r7030

Refer to: A05053

p7035 Infeed par_circuit circulating current control operating mode / Circ_I modeA_INF (Parallel),
S_INF (Parallel)**Can be changed:** U, T**Data type:** Integer16**P-Group:** Modulation**Not for motor type:** PEM, REL**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**

0

Max

1

Factory setting

1

Description:

Sets the operating mode of the circulating current control.

The circulating current control ensures symmetrical distribution of the total currents to the individual converters.

Values:

0: Circulating current control de-activated

1: Circulating control control activated

p7035[0...n] Par_circuit circulating current control operating mode / Circ_I mode

VECTOR (Parallel)

Can be changed: U, T**Data type:** Integer16**P-Group:** Modulation**Not for motor type:** PEM, REL**Calculated:** -**Dynamic index:** DDS, p0180**Units group:** -**Access level:** 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Min**

0

Max

1

Factory setting

1

Description:

Sets the operating mode of the circulating current control.

The circulating current control ensures symmetrical distribution of the total currents to the individual converters.

Values:

0: Circulating current control de-activated

1: Circulating control control activated

p7036 Infeed par_cct circulating current controller proportional gain / Circ_I Kp

A_INF (Parallel), S_INF (Parallel)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00000 [%]	Max 1000.00000 [%]	Factory setting 100.00000 [%]
Description:	Sets the normalized proportional gain for the circulating current controller.		
Note:	A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3622).		

p7036[0...n] Par_circuit circulating current control proportional gain / Circ_I Kp

VECTOR (Parallel)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00000 [Ohm]	Max 20.00000 [Ohm]	Factory setting 0.00000 [Ohm]
Description:	Sets the proportional gain for the circulating current controller. The parameter is pre-set to the cable resistance.		

p7037 Infeed par_cct circulating current control integral time / I_circ Tn

A_INF (Parallel), S_INF (Parallel)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [%]	Max 100000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the normalized integral time of the circulating current controller.		
Note:	A value of 100 % corresponds to the basic setting derived from the controller sampling time p0115[0]. The integral component of the controller is de-activated with p7037 = 0.		

p7037[0...n] Par_circuit circulating current control integral time / I_circ Tn

VECTOR (Parallel)	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2.0	Max 1000.0	Factory setting 4.0
Description:	Sets the integral time of the circulating current controller. The parameter is referred to the current controller sampling time (p0115[0]).		
Dependency:	Refer to: p0115		

p7038	Infeed par_circuit circulating current control limit / I_circ limit		
A_INF (Parallel), S_INF (Parallel)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [%]	Max 100 [%]	Factory setting 100 [%]
Description:	Sets the limit of the circulating current controller output values. The parameter is, depending on the phase, referred to the valve lockout times (p1828, p1829, p1830).		
p7038[0...n]	Par_circuit circulating current control limit / I_circ limit		
VECTOR (Parallel)	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Floating Point	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1 [%]	Max 100 [%]	Factory setting 50 [%]
Description:	Sets the limit of the circulating current controller output values. The parameter is, depending on the phase, referred to the valve lockout times (p1828, p1829, p1830).		
p7040[0...n]	Par_circuit correction valve lockout time phase U / Comp t_lockout U		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [μs]	Max 1000000.00 [μs]	Factory setting 0.00 [μs]
Description:	For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase U (p1828). The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.		
Dependency:	Refer to: p1828		
p7042[0...n]	Par_circuit correction valve lockout time phase V / Comp t_lockout V		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [μs]	Max 1000000.00 [μs]	Factory setting 0.00 [μs]
Description:	For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase V (p1829). The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.		
Dependency:	Refer to: p1829		

p7044[0...n]	Par_circuit correction valve lockout time phase W / Comp t_lockout W		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: U, T Data type: Floating Point P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [μs]	Max 1000000.00 [μs]	Factory setting 0.00 [μs]
Description:	For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase W (p1830). The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.		
Dependency:	Refer to: p1830		
r7050[0...n]	Par_circuit circulating current phase U / Circ_I_phase U		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: 6_5	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the circulating current of phase U as peak value.		
r7051[0...n]	Par_circuit circulating current phase V / Circ_I_phase V		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: 6_5	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the circulating current of phase V as peak value.		
r7052[0...n]	Par_circuit circulating current phase W / Circ_I_phase W		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Floating Point P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS, p0120 Units group: 6_5	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the circulating current of phase W as peak value.		
r7100[0...99]	Par_circuit ring buffer fault/alarm code / Fault/alarm code		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module). Displays the fault/alarm code.		

Dependency: Refer to: r7101, r7102, r7103
Note: The last fault case that occurred is documented in index 0.
The parameter is reset to 0 at POWER ON.

r7101[0...99]	Par_circuit ring buffer data set number / Ring buffer Ds_No		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module). p7101 < 100: Displays the Power unit Data Set number (PDS). p7101 >= 100: Displays the Voltage Sensing Module Data Set number (VSMDs)		
Dependency:	Refer to: r7100, r7102, r7103		
Note:	The last fault case that occurred is documented in index 0. The parameter is reset to 0 at POWER ON.		

r7102[0...99]	Par_circuit ring buffer fault/alarm received / F/A received		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module). Displays the relative system runtime when the fault or alarm occurred.		
Dependency:	Refer to: r7100, r7101, r7103		
Note:	The last fault case that occurred is documented in index 0. The parameter is reset to 0 at POWER ON.		

r7103[0...99]	Par_circuit ring buffer fault/alarm gone / F/A gone		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module). Displays the relative system runtime when the fault or alarm was withdrawn.		
Dependency:	Refer to: r7100, r7101, r7102		
Note:	The last fault case that occurred is documented in index 0. The parameter is reset to 0 at POWER ON.		

r7200[0...n]	Par_circuit power unit overload I2T / PU overload I2T		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the overload of the particular power unit in a parallel circuit configuration calculated using the I2t function. The maximum value of all power units is displayed in r0036.		
r7201[0...n]	Par_circuit power unit temperatures max. inverter / PU temp max inv		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the maximum inverter temperature in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[0].		
r7202[0...n]	Par_circuit power unit temperatures max. depletion layer / PU TempMaxDepLayer		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the maximum depletion layer temperature in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[1].		
r7203[0...n]	Par_circuit power unit temperatures max. rectifier / PU temp max rect		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the maximum rectifier temperature in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[2].		
r7204[0...n]	Par_circuit power unit temperatures air intake / PU temp air intake		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the air intake temperature in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[3].		

r7205[0...n]	Par_circuit power unit temperatures electronics / PU temp electr		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the temperature of the electronics module in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[4].		
r7206[0...n]	Par_circuit power unit temperatures inverter 1 / PU temp inv 1		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the inverter temperature 1 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[5].		
r7207[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp inv 2		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the inverter temperature 2 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[6].		
r7208[0...n]	Par_circuit power unit temperatures inverter 3 / PU temp inv 3		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the inverter temperature 3 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[7].		
r7209[0...n]	Par_circuit power unit temperatures inverter 4 / PU temp inv 4		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the inverter temperature 4 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[8].		

r7210[0...n]	Par_circuit power unit temperatures inverter 5 / PU temp inv 5		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the inverter temperature 5 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[9].		

r7211[0...n]	Par_circuit power unit temperatures inverter 6 / PU temp inv 6		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the inverter temperature 6 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[10].		

r7212[0...n]	Par_circuit power unit temperatures inverter 1 / PU temp rect 1		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays rectifier temperature 1 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[11].		

r7213[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp rect 2		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays rectifier temperature 2 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[12].		

r7214[0...n]	Par_circuit power unit temperatures depletion layer 1 / PU temp DepLayer 1		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays depletion layer temperature 1 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[13].		

r7215[0...n]	Par_circuit power unit temperatures depletion layer 2 / PU temp DepLayer 2		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays depletion layer temperature 2 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[14].		

r7216[0...n]	Par_circuit power unit temperatures depletion layer 3 / PU temp DepLayer 3		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays depletion layer temperature 3 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[15].		

r7217[0...n]	Par_circuit power unit temperatures depletion layer 4 / PU temp DepLayer 4		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays depletion layer temperature 4 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[16].		

r7218[0...n]	Par_circuit power unit temperatures depletion layer 5 / PU temp DepLayer 5		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays depletion layer temperature 5 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[17].		

r7219[0...n]	Par_circuit power unit temperatures depletion layer 6 / PU temp DepLayer 6		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays depletion layer temperature 6 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[18].		

r7220[0...n]	Infeed par_circuit absolute current value motoring permissible / INF I_abs mot perm		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the currently permissible line-side absolute current when motoring. The minimum value of all power units multiplied by the number of Motor Modules is displayed in r0067[0].		
r7220[0...n]	CO: Par_circuit drive output current maximum / Drv I_outp max		
VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum output current of the power unit. The minimum value of all power units multiplied by the number of Motor Modules is displayed in r0067.		
r7221[0...n]	Infeed par_circuit absolute current regenerating permissible / INF I_absRegenPerm		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the currently permissible line-side absolute regenerative current. The minimum value of all power units multiplied by the number of Motor Modules is displayed in r0067[1].		
r7222[0...n]	CO: Par_circuit absolute current actual value / I_act abs val		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays actual absolute current. The summed value of all power units is displayed in r0068.		
r7223[0...n]	CO: Par_circuit phase current actual value phase U / I_phase U act val		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured actual value of phase U as peak value. The summed value of all power units is displayed in r0069[0].		

r7224[0...n]	CO: Par_circuit phase current actual value phase V / I_phase V act val		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured actual value of phase V as peak value. The summed value of all power units is displayed in r0069[1].		
r7225[0...n]	CO: Par_circuit phase current actual value phase W / I_phase W act val		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured actual value of phase W as peak value. The summed value of all power units is displayed in r0069[2].		
r7226[0...n]	CO: Par_circuit phase current actual value phase U offset / I_phase U offset		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured offset of phase U as peak value. The summed value of all power units is displayed in r0069[3].		
r7227[0...n]	CO: Par_circuit phase current actual value phase V offset / I_phase V offset		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured offset of phase V as peak value. The summed value of all power units is displayed in r0069[4].		
r7228[0...n]	CO: Par_circuit phase current actual value phase W offset / I_phase W offset		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured offset of phase W as peak value. The summed value of all power units is displayed in r0069[5].		

r7229[0...n]	CO: Par_circuit phase current actual value sum U, V, W / I_phase sum UVW		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured sum of the currents in phases U, V and W as peak value. The summed value of all power units is displayed in r0069[6].		
r7230[0...n]	CO: Par_circuit DC link voltage actual value / Vdc_act		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 5_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the measured actual value of the DC link voltage. The average value of all power units is displayed in r0070.		
r7231[0...n]	CO: Par_circuit phase voltage actual value phase U / V_phase U act val		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 5_3	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual voltage, phase U. The average value of all power units is displayed in r0089[0].		
r7232[0...n]	CO: Par_circuit phase voltage actual value phase V / V_phase V act val		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 5_3	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual voltage, phase V. The average value of all power units is displayed in r0089[1].		
r7233[0...n]	CO: Par_circuit phase voltage actual value phase W / V_phase W act val		
A_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: PDS, p0120	Func. diagram: -
	P-Group: Displays, signals	Units group: 5_3	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual voltage, phase W. The average value of all power units is displayed in r0089[2].		

r7250[0...4]	Par_circuit power unit rated power / PU P_rated		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: 14_6	Unit selection: p0100
	Not for motor type: -		Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]
Description:	Displays the rated power of the individual power units connected in parallel for various load duty cycles. The sum of the rated powers of all power units connected in parallel is displayed in r0206.		
Index:	[0] = Rating plate [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 continuous duty cycle [4] = S6 load duty cycle		
Dependency:	The value is displayed in [kW] or [hp]. Refer to: p0100, p0205		

r7251[0...4]	Par_circuit power unit rated current / PU PI_rated		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the rated current of the individual power units connected in parallel for various load duty cycles. The sum of the rated currents of all power units connected in parallel is displayed in r0207.		
Index:	[0] = Rating plate [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 continuous duty cycle [4] = S6 load duty cycle		
Dependency:	Refer to: p0205		

r7252[0...4]	Par_circuit maximum power unit current / PU I_max		
A_INF (Parallel), B_INF (Parallel), S_INF (Parallel), VECTOR (Parallel)	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum output current of the individual power units connected in parallel. The sum of the maximum currents of all power units connected in parallel is displayed in r0209.		
Index:	[0] = Rating plate [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 continuous duty cycle [4] = S6 load duty cycle		
Dependency:	Refer to: p0205		

r7300[0...n]	CO: Par_circuit VSM input line voltage u1 - u2 / VSM inp u1-u2				
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min - [V]	Max - [V]	Factory setting - [V]		
Description:	Displays the voltage between phases L1 and L2 of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSM is displayed in r3661.				
Dependency:	Refer to: p3660				
Note:	X521.1 or X522.1: Connection of L1 X521.2 or X522.2: Connection of L2				
r7301[0...n]	CO: Par_circuit VSM input line voltage u2 - u3 / VSM inp u2-u3				
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min - [V]	Max - [V]	Factory setting - [V]		
Description:	Displays the voltage between phases L2 and L3 of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSM is displayed in r3662.				
Dependency:	Refer to: p3660				
Note:	X521.2 or X522.2: Connection of L2 X521.3 or X522.3: Connection of L3				
r7305[0...n]	Par_circuit VSM temperature evaluation status / VSM temp status				
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: p0140	Func. diagram: -		
	P-Group: Terminals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the status of the temperature evaluation of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. This displays as to whether the temperature actual value has exceeded the fault/alarm threshold. The overall status of the temperature evaluation of all VSM is displayed in r3664.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Temperature alarm threshold exceeded	Yes	No	-
	01	Temperature fault threshold exceeded	Yes	No	-
Dependency:	Refer to: p3665, r3666, p3667, p3668				

r7306[0...n]	CO: Par_circuit VSM temperature KTY / VSM temp KTY		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the temperature actual value of the KTY84 temperature sensor connected to the Voltage Sensing Module (VSM) for a parallel circuit configuration. The maximum value of all VSM is displayed in r3666. Prerequisite: A KTY84 sensor is connected and p3665 is set to 2.		
Dependency:	Refer to: p3665		
r7310[0...n]	CO: Par_circuit VSM 10 V input CT1 actual value / VSM CT 1 I_act		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 1 at the 10 V input of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSM is displayed in r3671.		
Dependency:	Refer to: p3670		
Note:	The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.		
r7311[0...n]	CO: Par_circuit VSM 10 V input CT2 actual value / VSM CT 2 I_act		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 2 at the 10 V input of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSM is displayed in r3672.		
Dependency:	Refer to: p3670		
Note:	The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.		
r7315[0...n]	CO: Par_circuit VSM 10 V input 1 actual value / VSM inp 1 V_act		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 1 of the Voltage Sensing Modules (VSM). The average value of all VSM is displayed in r3673.		
Dependency:	Refer to: p3670		
Note:	10 V input 1: Terminals X520.1 and X520.2		

r7316[0...n]	CO: Par_circuit VSM 10 V input 2 actual value / VSM inp 2 V_act		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 2 of the Voltage Sensing Modules (VSM). The average value of all VSM is displayed in r3674.		
Dependency:	Refer to: p3670		
Note:	10 V input 2: Terminals X520.3 and X520.4		
r7320[0...n]	Par_circuit VSM line filter capacitance phase U / VSM filt C phase U		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [μF]	Max - [μF]	Factory setting - [μF]
Description:	Displays the capacitance of the line filter, phase U of the particular Voltage Sensing Module (VSM). The average value of all VSM is displayed in r3677[0].		
Dependency:	Refer to: p3676		
Note:	Prerequisites: The monitoring of the filter capacitance is activated.		
r7321[0...n]	Par_circuit VSM line filter capacitance phase V / VSM filt C phase V		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [μF]	Max - [μF]	Factory setting - [μF]
Description:	Displays the capacitance of the line filter, phase V of the particular Voltage Sensing Module (VSM). The average value of all VSM is displayed in r3677[1].		
Dependency:	Refer to: p3676		
Note:	Prerequisites: The monitoring of the filter capacitance is activated.		
r7322[0...n]	Par_circuit VSM line filter capacitance phase W / VSM filt C phase W		
A_INF (Parallel), S_INF (Parallel)	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: p0140	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [μF]	Max - [μF]	Factory setting - [μF]
Description:	Displays the capacitance of the line filter, phase W of the particular Voltage Sensing Module (VSM). The average value of all VSM is displayed in r3677[2].		
Dependency:	Refer to: p3676		
Note:	Prerequisites: The monitoring of the filter capacitance is activated.		

p7820	DRIVE-CLiQ component component number / DLQ comp_no		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the component number of the DRIVE-CLiQ component whose parameters are to be accessed.		
Dependency:	Refer to: p7821, p7822, r7823		

p7821	DRIVE-CLiQ component parameter number / DLQ para_no		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the parameter number to access a parameter of a DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7822, r7823		

p7822	DRIVE-CLiQ component parameter index / DLQ para_index		
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the parameter index to access a parameter of a DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7821, r7823		

r7823	DRIVE-CLiQ component read parameter value / Read DLQ value		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the parameter value read from the DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7821, p7822		

r7825[0...1]	DRIVE-CLiQ component version / DLQ version		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the firmware versions of the DRIVE-CLiQ component selected using p7828[1].		
Index:	[0] = Reference firmware version [1] = Actual firmware version		

Dependency: Refer to: p7828
Note: Reference firmware version: Version on the CompactFlash card.
 Actual firmware version: Actual version of the DRIVE-CLiQ component.

p7826			
Firmware update automatic / FW update auto			
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Sets the behavior for the automatic firmware update of the DRIVE-CLiQ components.		
Values:	0: De-activated 1: Upgrade and downgrade 2: Upgrade		
Notice:	If this parameter is changed, it only becomes effective the next time that the drive system boots.		
Note:	The firmware is automatically updated when the system boots. The boot can take several minutes. After the update has been completed, it is necessary to carry out a new POWER ON (power-down/power-up) for the components involved. The firmware update procedure is displayed as follows: Control Unit (LED RDY): Flashes yellow with 0.5 Hz --> firmware is being updated. Flashing yellow with 2 Hz --> POWER ON is required for the components involved. Components involved: Flashing red/green with 0.5 Hz --> firmware is being updated. Flashing red/green with 2 Hz --> POWER ON of the components is required. Only components from firmware version 2.5 support the red/green flashing at 2 Hz.		

r7827			
Firmware update progress display / FW update progress			
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the progress when updating the firmware of the DRIVE-CLiQ components.		

p7828[0...1]			
Firmware download component number / FW download number			
CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 399	Factory setting 0
Description:	Sets the component number for the required DRIVE-CLiQ component. Index 0: Component number of the DRIVE-CLiQ component for which a firmware download is to be made. Index 1: Component number of the DRIVE-CLiQ component to which the reference firmware version of the CompactFlash card saved in r7825 is to be displayed.		
Index:	[0] = Firmware download [1] = Reference firmware version		

Dependency: Refer to: p0121, p0141, p0151, p7829

Note: For p7828[0] = 399, the firmware for all of the existing components is downloaded.
The firmware download is started with p7829 = 1.

p7829	Activate firmware download / FW download act		
CU_CX32, CU_S	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 999 Factory setting 0
Description:	Activating the firmware download for the DRIVE-CLiQ components specified in p7828. 1: Activate download. 0: Download successfully completed. 1: Fault code 011: DRIVE-CLiQ component has detected a checksum error. 015: The selected DRIVE-CLiQ components did not accept the contents of the firmware file. 018: Firmware version is too old and is not accepted by the component. 019: Firmware version is not suitable for the hardware release of the component. 101: After several communication attempts, not response from the DRIVE-CLiQ component. 140: Firmware file for the DRIVE-CLiQ component not available on the CompactFlash card. 143: Component is not changed in the firmware download mode. 156: Component with the specified component number is not available. Additional values: Only for internal Siemens troubleshooting.		
Dependency:	Refer to: p7828		
Note:	p7829 is automatically set to 0 after the firmware has been successfully downloaded. The new firmware only becomes active at the next system run-up.		

p7830	Diagnostics telegram selection / Diag telegram		
SERVO, VECTOR	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 3 Factory setting 0
Description:	Selects a telegram whose contents should be shown in p7831 ... p7836.		
Values:	0: Reserved 1: First cyclic receive telegram sensor 1 2: First cyclic receive telegram sensor 2 3: First cyclic receive telegram sensor 3		
Dependency:	Refer to: r7831, r7832, r7833, r7834, r7835, r7836		

r7831[0...15]	Telegram diagnostics signals / Tel diag signals		
SERVO, VECTOR	Can be changed: - Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 10789 Factory setting -
Description:	Displays the signals contained in the selected telegram (p7830).		

Values:	0:	UNUSED
	1:	UNKNOWN
	102:	SAPAR_ID_DSA_ALARM
	110:	SAPAR_ALARMBITS_FLOAT_0
	111:	SAPAR_ALARMBITS_FLOAT_1
	112:	SAPAR_ALARMBITS_FLOAT_2
	113:	SAPAR_ALARMBITS_FLOAT_3
	114:	SAPAR_ALARMBITS_FLOAT_4
	115:	SAPAR_ALARMBITS_FLOAT_5
	10500:	ENC_ID_TIME_PRETRIGGER
	10501:	ENC_ID_TIME_SEND_TELEG_1
	10502:	ENC_ID_TIME_CYCLE_FINISHED
	10503:	ENC_ID_TIME_DELTA_FUNMAN
	10504:	ENC_ID_SUBTRACE_CALCTIMES
	10505:	ENC_ID_SYNO_PERIOD
	10516:	ENC_ID_ADC_TRACK_A
	10517:	ENC_ID_ADC_TRACK_B
	10518:	ENC_ID_ADC_TRACK_C
	10519:	ENC_ID_ADC_TRACK_D
	10520:	ENC_ID_ADC_TRACK_A_SAFETY
	10521:	ENC_ID_ADC_TRACK_B_SAFETY
	10523:	ENC_ID_ADC_TEMP_1
	10532:	ENC_ID_TRACK_AB_X
	10533:	ENC_ID_TRACK_AB_Y
	10534:	ENC_ID_OFFSET_CORR_AB_X
	10535:	ENC_ID_OFFSET_CORR_AB_Y
	10536:	ENC_ID_AB_ABS_VALUE
	10537:	ENC_ID_TRACK_CD_X
	10538:	ENC_ID_TRACK_CD_Y
	10539:	ENC_ID_TRACK_CD_ABS
	10542:	ENC_ID_AB_RAND_X
	10543:	ENC_ID_AB_RAND_Y
	10544:	ENC_ID_AB_RAND_ABS_VALUE
	10545:	ENC_ID_SUBTRACE_ABS_ARRAY
	10546:	ENC_ID_PROC_OFFSET_0
	10547:	ENC_ID_PROC_OFFSET_4
	10564:	ENC_SELFTEMP_ACT
	10565:	ENC_ID_MOTOR_TEMP_TOP
	10566:	ENC_ID_MOTOR_TEMP_1
	10580:	ENC_ID_RESISTANCE_1
	10596:	ENC_ID_AB_ANGLE
	10597:	ENC_ID_CD_ANGLE
	10598:	ENC_ID_MECH_ANGLE_HI
	10599:	ENC_ID_RM_POS_PHI_COMMU
	10600:	ENC_ID_PHI_COMMU
	10612:	ENC_ID_DIFF_CD_INC
	10613:	ENC_ID_RM_POS_PHI_COMMU_RFG
	10628:	ENC_ID_MECH_ANGLE
	10629:	ENC_ID_MECH_RM_POS
	10644:	ENC_ID_INIT_VECTOR
	10645:	FEAT_INIT_VЕКТОR
	10660:	ENC_ID_SENSOR_STATE
	10661:	ENC_ID_BASIC_SYSTEM
	10662:	ENC_ID_REFMARK_STATUS
	10663:	ENC_ID_DSA_STATUS1_SENSOR
	10664:	ENC_ID_DSA_RMSTAT_HANDSHAKE
	10665:	ENC_ID_DSA_CONTROL1_SENSOR
	10676:	ENC_ID_COUNTCORR_SAW_VALUE
	10677:	ENC_ID_COUNTCORR_ABS_VALUE
	10678:	ENC_ID_SAWTOOTH_CORR
	10692:	ENC_ID_RESISTANCE_CALIB_INSTANT
	10693:	ENC_ID_SERPROT_POS
	10724:	ENC_ID_ACT_FUNMAN_FUNCTION
	10725:	ENC_ID_SAFETY_COUNTER_CRC

10740: ENC_ID_POS_ABSOLUTE
 10741: ENC_ID_POS_REFMARK
 10742: ENC_ID_SAWTOOTH
 10743: ENC_ID_SAFETY_PULSE_COUNTER
 10756: ENC_ID_DSA_ACTUAL_SPEED
 10772: ENC_ID_DSA_POS_XIST1
 10788: ENC_ID_AB_CROSS_CORR
 10789: ENC_ID_AB_GAIN_Y_CORR

Index:

[0] =
 [1] =
 [2] =
 [3] =
 [4] =
 [5] =
 [6] =
 [7] =
 [8] =
 [9] =
 [10] =
 [11] =
 [12] =
 [13] =
 [14] =
 [15] =

r7832[0...15] Telegram diagnostics numerical format / tel diag format

SERVO, VECTOR

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** -**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-1

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-

Description:

Indicates the original numerical format of the signals contained in the telegram.

The associated signal number is represented at the appropriate index in r7831.

Values:

-1: Unknown
 0: Boolean
 1: Signed 1 byte
 2: Signed 2 byte
 3: Signed 4 byte
 4: Signed 8 byte
 5: Unsigned 1 byte
 6: Unsigned 2 byte
 7: Unsigned 4 byte
 8: Unsigned 8 byte
 9: Float 4 byte
 10: Double 8 byte
 11: mm dd yy HH MM SS MS DOW
 12: ASCII string
 13: SIMUMERIK frame type
 14: SIMUMERIK axis type

Index:

[0] =
 [1] =
 [2] =
 [3] =
 [4] =
 [5] =
 [6] =
 [7] =
 [8] =
 [9] =
 [10] =

[11] =
[12] =
[13] =
[14] =
[15] =

r7833[0...15] Telegram diagnostics unsigned / Tel diag unsigned

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Parameter to display a DSA signal in the unsigned-integer format.
The associated signal number is represented at the appropriate index in r7831.

Index: [0] =
[1] =
[2] =
[3] =
[4] =
[5] =
[6] =
[7] =
[8] =
[9] =
[10] =
[11] =
[12] =
[13] =
[14] =
[15] =

r7834[0...15] Telegram diagnostics signed / Tel diag signed

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Parameter to display a DSA signal in the signed-integer format.
The associated signal number is represented at the appropriate index in r7831.

Index: [0] =
[1] =
[2] =
[3] =
[4] =
[5] =
[6] =
[7] =
[8] =
[9] =
[10] =
[11] =
[12] =
[13] =
[14] =
[15] =

r7835[0...15] Telegram diagnostics real / Tel diag real			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Parameter to display a DSA signal in the float format. The associated signal number is represented at the appropriate index in r7831.		
Index:	[0] = [1] = [2] = [3] = [4] = [5] = [6] = [7] = [8] = [9] = [10] = [11] = [12] = [13] = [14] = [15] =		

r7836[0...15] Telegram diagnostics unit / Tel diag unit			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-1	147	-
Description:	Parameter to display the units of a DSA signal. The associated signal number is represented at the appropriate index in r7831.		
Values:	-1: Unknown 0: None 1: Millimeter or degrees 2: Millimeter 3: Degrees 4: mm/min or RPM 5: Millimeter / min 6: Revolutions / min 7: m/sec^2 or V/sec^2 8: m/sec^2 9: V/sec^2 10: m/sec^3 or V/sec^3 11: m/sec^3 12: V/sec^3 13: Sec 14: 16.667 / sec 15: mm/revolution 16: ACX_UNIT_COMPENSATION_CORR 18: Newton 19: Kilogram 20: Kilogram meter ^2 21: Percent		

22:	Hertz
23:	Volt peak-to-peak
24:	Amps peak-to-peak
25:	Degrees Celsius
26:	Degrees
28:	Millimeter or degrees
29:	Meters / minute
30:	Meters / second
31:	Ohm
32:	Millihenry
33:	Newton meter
34:	Newton meter / Amps
35:	Volt / Amp
36:	Newton meter second / rad
38:	31.25 microseconds
39:	Microseconds
40:	Milliseconds
42:	Kilowatt
43:	Micro amps peak-to-peak
44:	Volt seconds
45:	Microvolt seconds
46:	Micro Newton meter
47:	Amps / Volt seconds
48:	Per mille
49:	Hertz / second
53:	Micrometer or millidegrees
54:	Micrometer
55:	Millidegrees
59:	Nanometer
61:	Newton/Amps
62:	Volt seconds / meter
63:	Newton seconds / meter
64:	Micronewton
65:	Liters / minute
66:	Bar
67:	Cubic centimeters
68:	Millimeters / Volt minute
69:	Newton/Volt
80:	Millivolts peak-to-peak
81:	Volt rms
82:	Millivolts rms
83:	Amps rms
84:	Micro amps rms
85:	Micrometers / revolution
90:	Tenths of a second
91:	Hundredths of a second
92:	10 microseconds
93:	Pulses
94:	256 pulses
95:	Tenth of a pulse
96:	Revolutions
97:	100 revolutions / minute
98:	10 revolutions / minute
99:	0.1 revolutions / minute
100:	Thousandth revolution / minute
101:	Pulses / second
102:	100 pulses / second
103:	10 revolutions / (minute * second)
104:	10000 pulses/second^2
105:	0.1 Hertz
106:	0.01 Hertz
107:	0.1 / seconds
108:	Factor 0.1
109:	Factor 0.01

110: Factor 0.001
111: Factor 0.0001
112: 0.1 Volt peak-to-peak
113: 0.1 Volt peak-to-peak
114: 0.1 amps peak-to-peak
115: Watt
116: 100 Watt
117: 10 Watt
118: 0.01 percent
119: 1 / second ^3
120: 0.01 percent/millisecond
121: Pulses / revolution
122: Microfarads
123: Milliohm
124: 0.01 Newton meter
125: Kilogram millimeter ^2
126: Rad / (seconds newton meter)
127: Henry
128: Kelvin
129: Hours
130: Kilohertz
131: Milliampere peak-to-peak
132: Millifarads
133: Meter
135: Kilowatt hours
136: Percent
137: Amps / Volt
138: Volt
139: Millivolts
140: Microvolts
141: Amps
142: Milliampere
143: Micro amps
144: Milliampere rms
145: Millimeter
146: Nanometer
147: Joules

Index:

[0] =
[1] =
[2] =
[3] =
[4] =
[5] =
[6] =
[7] =
[8] =
[9] =
[10] =
[11] =
[12] =
[13] =
[14] =
[15] =

r7843[0...20]	CompactFlash card serial number / CF serial number		
CU_S	Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the actual serial number of the CompactFlash card. The individual characters of the serial number are displayed in the ASCII code in the indices.		
Dependency:	Refer to: p9920, p9921		
Notice:	An ASCII table (excerpt) can be found, for example, in the following List Manual:		
Note:	Example for displaying a CompactFlash card serial number: r7843[0] = 49 dec --> ASCII characters = "1" --> serial number, character 1 r7843[1] = 49 dec --> ASCII characters = "1" --> serial number, character 2 r7843[2] = 49 dec --> ASCII characters = "1" --> serial number, character 3 r7843[3] = 57 dec --> ASCII characters = "9" --> serial number, character 4 r7843[4] = 50 dec --> ASCII characters = "2" --> serial number, character 5 r7843[5] = 51 dec --> ASCII characters = "3" --> serial number, character 6 r7843[6] = 69 dec --> ASCII characters = "E" --> serial number, character 7 r7843[7] = 0 dec --> ASCII characters = " " --> serial number, character 8 ... r7843[19] = 0 dec --> ASCII characters = " " --> serial number, character 20 CompactFlash card serial number = 111923E		

r7844	CompactFlash card software version / CF SW version		
CU_S	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the software version of the CompactFlash card.		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r7850[0...15]	Drive object operational/not operational / DO ready for oper		
CU_CX32, CU_S	Can be changed: - Data type: Integer16 P-Group: - Not for motor type: - Min -32786	Calculated: - Dynamic index: - Units group: - Max 32767	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays whether, for an activated drive object, all activated topology components are available or not (or whether these can be addressed). 0: Drive object not ready for operation 1: Drive object ready for operation		

p7852	Number of indices for r7853 / Qty indices r7853		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 200	Factory setting 1
Description:	Displays the number of indices for r7853[0...n]. This corresponds to the number of DRIVE-CLiQ components that are in the target topology.		
Dependency:	Refer to: r7853		
r7853[0...n]	Component available/not available / Comp present		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: p7852 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF hex	Factory setting -
Description:	Displays the component and whether this component is currently present. High byte: Component number Low byte: 0/1 (not available/available)		
Dependency:	Refer to: p7852		
r7867	Status/configuration changes global / Changes global		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays status and configuration changes of all of the drive objects in the complete unit. When changing the status or the configuration of the Control Unit or a drive object, the value of this parameter is incremented.		
Dependency:	Refer to: r7868, r7869, r7870		
r7868[0...16]	Configuration changes drive object reference / Config_chng DO ref		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Reference to the drive objects whose configuration has changed. Index 0: When changing one of the following indices, then the value in this index is increased. Index 1...n: The drive object with object number in p0101[n-1] has changed its configuration. Example: r7868[3] was incremented since the last time it was read. --> the configuration of the drive object with object number in p0101[2] was changed.		

Index:

- [0] = Sum of the following indices
- [1] = Object number in p0101[0]
- [2] = Object number in p0101[1]
- [3] = Object number in p0101[2]
- [4] = Object number in p0101[3]
- [5] = Object number in p0101[4]
- [6] = Object number in p0101[5]
- [7] = Object number in p0101[6]
- [8] = Object number in p0101[7]
- [9] = Object number in p0101[8]
- [10] = Object number in p0101[9]
- [11] = Object number in p0101[10]
- [12] = Object number in p0101[11]
- [13] = Object number in p0101[12]
- [14] = Object number in p0101[13]
- [15] = Object number in p0101[14]
- [16] = Object number in p0101[15]

Dependency: Refer to: p0101, r7867, r7871

r7869[0...16] Status changes drive object reference / Status_chng DO ref

CU_CX32, CU_S	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
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Description:

Reference to the drive objects whose status has changed.

Index 0:
When changing one of the following indices, then the value in this index is increased.

Index 1...n:
The drive object with object number in p0101[n-1] has changed its status.

Example:
r7868[3] was incremented since the last time it was read.
--> the status of the drive object with object number in p0101[2] was changed.

Index:

- [0] = Sum of the following indices
- [1] = Object number in p0101[0]
- [2] = Object number in p0101[1]
- [3] = Object number in p0101[2]
- [4] = Object number in p0101[3]
- [5] = Object number in p0101[4]
- [6] = Object number in p0101[5]
- [7] = Object number in p0101[6]
- [8] = Object number in p0101[7]
- [9] = Object number in p0101[8]
- [10] = Object number in p0101[9]
- [11] = Object number in p0101[10]
- [12] = Object number in p0101[11]
- [13] = Object number in p0101[12]
- [14] = Object number in p0101[13]
- [15] = Object number in p0101[14]
- [16] = Object number in p0101[15]

Dependency: Refer to: p0101, r7867, r7872

r7870[0...6] Configuration changes global / Config_chng global

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description:	Displays the configuration changes of all of the drive objects in the complete unit. Index 0: When changing one of the following indices, then the value in this index is incremented. Index 1: Drive object configuration. When changing r7871[0] on a drive object, the value in this index is incremented. Index 2: Drive object, configuration unit. When changing either p0101 or r0102, the value in this index is incremented. Index 3: PROFIBUS configuration unit. When changing p0978, the value in this index is incremented. Index 4: DRIVE-CLiQ actual topology. When changing either r9900 or r9901, the value in this index is incremented. Index 5: DRIVE-CLiQ target topology. When changing either p9902 or p9903, the value in this index is incremented. Index 6: DRIVE-CLiQ ports. When changing p0109, the value in this index is incremented.
Index:	[0] = Sum of the following indices [1] = r7871[0] of a drive object [2] = p0101 or r0102 [3] = PROFIBUS configuration (p0978) [4] = DRIVE-CLiQ actual topology (r9900 or r9901) [5] = DRIVE-CLiQ target topology (r9902 or r9903) [6] = DRIVE-CLiQ ports (p0109)
Dependency:	Refer to: r7867, r7871

r7871[0...9] Configuration changes drive object / Config_chng DO

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description:	Displays the configuration changes on the drive object. Index 0: When changing one of the following indices, then the value in this index is incremented. Index 1: Drive object configuration. When changing p10, p0107 or p108, the value in this index is incremented. Index 2: Drive object name. When changing p0199, the value in this index is incremented. Index 3: Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented. Index 4: Drive object BICO interconnections. When changing r3977, the value in this index is incremented. Index 6: Drive object, data save.
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0: There are not parameter changes to save.

1: There are parameter changes to save.

Index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented.

Index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Index: [0] = Sum of the following indices
 [1] = r0107 or r0108
 [2] = Drive object name (p0199)
 [3] = Structure-relevant parameters (e.g. p0180)
 [4] = BICO interconnections
 [5] = Activate/de-activate drive object
 [6] = Data back-up required
 [7] = Reserved
 [8] = Reference or changeover parameters (e.g. p2000)
 [9] = Parameter count through Drive Control Chart (DCC)

Dependency: Refer to: r7868, r7870

r7871[0...9] Configuration changes drive object / Config_chng DO

A_INF, B_INF, S_INF	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
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Description: Displays the configuration changes on the drive object.

Index 0:
 When changing one of the following indices, then the value in this index is incremented.

Index 1:
 Drive object configuration. When changing p10, p0107 or p108, the value in this index is incremented.

Index 2:
 Drive object name. When changing p0199, the value in this index is incremented.

Index 3:
 Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Index 4:
 Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Index 6:
 Drive object, data save.

0: There are not parameter changes to save.
 1: There are parameter changes to save.

Index 8:
 Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented.

Index 9:
 Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Index: [0] = Sum of the following indices
 [1] = p0010, r0107 or r0108
 [2] = Drive object name (p0199)
 [3] = Structure-relevant parameters (e.g. p0180)
 [4] = BICO interconnections
 [5] = Activate/de-activate drive object
 [6] = Data back-up required

[7] = Activate/de-activate component
 [8] = Reference or changeover parameters (e.g. p2000)
 [9] = Parameter count through Drive Control Chart (DCC)

Dependency: Refer to: r7868, r7870

r7871[0...9] Configuration changes drive object / Config_chng DO

CU_LINK, DMC20,
 TB30, TM15,
 TM15DI_DO, TM17,
 TM31, TM41

Can be changed: -
Data type: Unsigned32
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 4
Func. diagram: -
Unit selection: -
Expert list: 1

Min	Max	Factory setting
-	-	-

Description:

Displays the configuration changes on the drive object.
 Index 0:
 When changing one of the following indices, then the value in this index is incremented.
 Index 1:
 Drive object configuration. When changing p10, p0107 or p108, the value in this index is incremented.
 Index 2:
 Drive object name. When changing p0199, the value in this index is incremented.
 Index 3:
 Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.
 Index 4:
 Drive object BICO interconnections. When changing r3977, the value in this index is incremented.
 Index 6:
 Drive object, data save.
 0: There are not parameter changes to save.
 1: There are parameter changes to save.
 Index 8:
 Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented.
 Index 9:
 Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Index:

[0] = Sum of the following indices
 [1] = p0010, r0107 or r0108
 [2] = Drive object name (p0199)
 [3] = Structure-relevant parameters (e.g. p0180)
 [4] = BICO interconnections
 [5] = Activate/de-activate drive object
 [6] = Data back-up required
 [7] = Reserved
 [8] = Reference or changeover parameters (e.g. p2000)
 [9] = Parameter count through Drive Control Chart (DCC)

Dependency: Refer to: r7868, r7870

r7871[0...9] Configuration changes drive object / Config_chng DO			
TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	<p>Displays the configuration changes on the drive object.</p> <p>Index 0: When changing one of the following indices, then the value in this index is incremented.</p> <p>Index 1: Drive object configuration. When changing p10, p0107 or p108, the value in this index is incremented.</p> <p>Index 2: Drive object name. When changing p0199, the value in this index is incremented.</p> <p>Index 3: Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.</p> <p>Index 4: Drive object BICO interconnections. When changing r3977, the value in this index is incremented.</p> <p>Index 6: Drive object, data save. 0: There are not parameter changes to save. 1: There are parameter changes to save.</p> <p>Index 8: Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented.</p> <p>Index 9: Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.</p>		
Index:	<p>[0] = Sum of the following indices [1] = p0010, r0107 or r0108 [2] = Drive object name (p0199) [3] = Structure-relevant parameters (e.g. p0180) [4] = BICO interconnections [5] = Reserved [6] = Data back-up required [7] = Reserved [8] = Reference or changeover parameters (e.g. p2000) [9] = Parameter count through Drive Control Chart (DCC)</p>		
Dependency:	Refer to: r7868, r7870		

r7871[0...15] Configuration changes drive object / Config_chng DO			
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	<p>Displays the configuration changes on the drive object.</p> <p>Index 0: When changing one of the following indices, then the value in this index is incremented.</p> <p>Index 1: Drive object configuration. When changing p10, p0107 or p108, the value in this index is incremented.</p>		

Index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Index 6:

Drive object, data save.

0: There are not parameter changes to save.

1: There are parameter changes to save.

Index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented.

Index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Index 15:

SERVO/VECTOR configuration. When changing p0300, p0301 or p0400, the value in this index is incremented.

Index:

[0] = Sum of the following indices

[1] = p0010, r0107 or r0108

[2] = Drive object name (p0199)

[3] = Structure-relevant parameters (e.g. p0180)

[4] = BICO interconnections

[5] = Activate/de-activate drive object

[6] = Data back-up required

[7] = Activate/de-activate component

[8] = Reference or changeover parameters (e.g. p2000)

[9] = Parameter count through Drive Control Chart (DCC)

[10] = Reserved

[11] = Reserved

[12] = Reserved

[13] = Reserved

[14] = Reserved

[15] = SERVO or VECTOR (e.g. p0300)

Dependency:

Refer to: r7868, r7870

r7872[0...3]

Status changes drive object / Status_chng DO

All objects

Can be changed: -

Calculated: -

Access level: 4

Data type: Unsigned32

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the status changes on the drive object.

Index 0:

When changing one of the following indices, then the value in this index is incremented.

Index 1:

Drive object faults. When changing r0944, the value in this index is incremented.

Index 2:

Drive object alarms. When changing r2121, the value in this index is incremented.

Index 3:

Drive object safety messages. When changing r9744, the value in this index is incremented.

Index: [0] = Sum of the following indices
[1] = Faults (r0944)
[2] = Alarms (r2121)
[3] = Safety messages (r9744)

Dependency: Refer to: r7869

r7901[0...33] Time slice cycle times / Time slices t_cyc

CU_CX32, CU_S	Can be changed: - Data type: Floating Point P-Group: - Not for motor type: - Min - [µs]	Calculated: - Dynamic index: - Units group: - Max - [µs]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [µs]
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Description: Displays the actual cycle times for all existing time slices.
For r7901[x] = 0, the following applies: The time slice is not active.

p8500[0...7] BI: Data transfer 0 bitwise / Transfer 0 bit

CU_CX32, CU_LINK	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 2 Func. diagram: 2211 Unit selection: - Expert list: 1 Factory setting 0
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Description: Sets the signal source for bitwise data transfer.
These signals are transferred to another Control Unit and are located in BO: r8510.0 ... 7 for further interconnection.

Index: [0] = Send signal to BO: r8510.0
[1] = Send signal to BO: r8510.1
[2] = Send signal to BO: r8510.2
[3] = Send signal to BO: r8510.3
[4] = Send signal to BO: r8510.4
[5] = Send signal to BO: r8510.5
[6] = Send signal to BO: r8510.6
[7] = Send signal to BO: r8510.7

Dependency: Refer to: r8510

p8501[0...15]			
CU_CX32	BI: Data transfer 1 bitwise / Transfer 1 bit		
	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2211
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	[0] 722.0
			[1] 722.1
			[2] 722.2
			[3] 722.3
			[4] 0
			[5] 0
			[6] 0
			[7] 0
			[8] 722.8
			[9] 722.9
			[10] 722.10
			[11] 722.11
			[12] 0
			[13] 0
			[14] 0
			[15] 0
Description:	Sets the signal source for bitwise data transfer. These signals are transferred to another Control Unit and are located in BO: r8511.0 ... 15 for further interconnection.		
Index:	[0] = Send signal to BO: r8511.0 [1] = Send signal to BO: r8511.1 [2] = Send signal to BO: r8511.2 [3] = Send signal to BO: r8511.3 [4] = Send signal to BO: r8511.4 [5] = Send signal to BO: r8511.5 [6] = Send signal to BO: r8511.6 [7] = Send signal to BO: r8511.7 [8] = Send signal to BO: r8511.8 [9] = Send signal to BO: r8511.9 [10] = Send signal to BO: r8511.10 [11] = Send signal to BO: r8511.11 [12] = Send signal to BO: r8511.12 [13] = Send signal to BO: r8511.13 [14] = Send signal to BO: r8511.14 [15] = Send signal to BO: r8511.15		
Dependency:	Refer to: r8511		

p8501[0...15]	BI: Data transfer 1 bitwise / Transfer 1 bit		
CU_LINK	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2211 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting [0] 722.0 [1] 722.1 [2] 722.2 [3] 722.3 [4] 722.4 [5] 722.5 [6] 722.6 [7] 722.7 [8] 722.8 [9] 722.9 [10] 722.10 [11] 722.11 [12] 722.12 [13] 722.13 [14] 722.14 [15] 722.15
Description:	Sets the signal source for bitwise data transfer. These signals are transferred to another Control Unit and are located in BO: r8511.0 ... 15 for further interconnection.		
Index:	[0] = Send signal to BO: r8511.0 [1] = Send signal to BO: r8511.1 [2] = Send signal to BO: r8511.2 [3] = Send signal to BO: r8511.3 [4] = Send signal to BO: r8511.4 [5] = Send signal to BO: r8511.5 [6] = Send signal to BO: r8511.6 [7] = Send signal to BO: r8511.7 [8] = Send signal to BO: r8511.8 [9] = Send signal to BO: r8511.9 [10] = Send signal to BO: r8511.10 [11] = Send signal to BO: r8511.11 [12] = Send signal to BO: r8511.12 [13] = Send signal to BO: r8511.13 [14] = Send signal to BO: r8511.14 [15] = Send signal to BO: r8511.15		
Dependency:	Refer to: r8511		
p8502	CI: Data transfer 0 wordwise / Transfer 0 word		
CU_CX32, CU_LINK	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2211 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is transferred to another Control Unit and is located at CO: r8512 for further interconnection.		
Dependency:	Refer to: r8512		

p8503 CI: Data transfer 1 wordwise / Transfer 1 word

CU_CX32, CU_LINK	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 2211
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is transferred to another Control Unit and is located in CO: r8513 for further interconnection.		
Dependency:	Refer to: r8513		

p8504 CI: Data transfer 2 wordwise / Transfer 2 word

CU_CX32, CU_LINK	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 2211
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is transferred to another Control Unit and is located in CO: r8514 for further interconnection.		
Dependency:	Refer to: r8514		

p8505 CI: Data transfer 3 wordwise / Transfer 3 word

CU_CX32, CU_LINK	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 2211
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is transferred to another Control Unit and is located in CO: r8515 for further interconnection.		
Dependency:	Refer to: r8515		

r8510.0...7 BO: Data transfer 0 receive bitwise / Trans 0 recv bit

CU_CX32, CU_LINK	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2211		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the signals of the bitwise received data. These signals were interconnected and transferred to another Control Unit via BI: p8500[0...7].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8500	On	Off	-
	01	Receive signal from BI: p8500	On	Off	-
	02	Receive signal from BI: p8500	On	Off	-
	03	Receive signal from BI: p8500	On	Off	-
	04	Receive signal from BI: p8500	On	Off	-
	05	Receive signal from BI: p8500	On	Off	-
	06	Receive signal from BI: p8500	On	Off	-
	07	Receive signal from BI: p8500	On	Off	-

Dependency: Refer to: p8500

r8511.0...15 BO: Data transfer 1 receive bitwise / Trans 1 recv bit

CU_CX32, CU_LINK **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Displays the signals of the bitwise received data.
 These signals were interconnected and transferred to another Control Unit via BI: p8501[0...15].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8501	On	Off	-
	01	Receive signal from BI: p8501	On	Off	-
	02	Receive signal from BI: p8501	On	Off	-
	03	Receive signal from BI: p8501	On	Off	-
	04	Receive signal from BI: p8501	On	Off	-
	05	Receive signal from BI: p8501	On	Off	-
	06	Receive signal from BI: p8501	On	Off	-
	07	Receive signal from BI: p8501	On	Off	-
	08	Receive signal from BI: p8501	On	Off	-
	09	Receive signal from BI: p8501	On	Off	-
	10	Receive signal from BI: p8501	On	Off	-
	11	Receive signal from BI: p8501	On	Off	-
	12	Receive signal from BI: p8501	On	Off	-
	13	Receive signal from BI: p8501	On	Off	-
	14	Receive signal from BI: p8501	On	Off	-
	15	Receive signal from BI: p8501	On	Off	-

Dependency: Refer to: p8501

r8512 CO: Data transfer 0 receive wordwise / Trans 0 recv word

CU_CX32, CU_LINK **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Floating Point **Dynamic index:** - **Func. diagram:** 2211
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Displays the signals of the wordwise received data (process signal).
 This signal value is interconnected and transferred to another Control Unit via CI: p8502.

Dependency: Refer to: p8502

r8513 CO: Data transfer 1 receive wordwise / Trans 1 recv word

CU_CX32, CU_LINK **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Floating Point **Dynamic index:** - **Func. diagram:** 2211
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Displays the signals of the wordwise received data (process signal).
 This signal value is interconnected and transferred to another Control Unit via CI: p8503.

Dependency: Refer to: p8503

r8514 CO: Data transfer 2 receive wordwise / Trans 2 recv word

CU_CX32, CU_LINK	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2211
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the signals of the wordwise received data (process signal).
This signal value is interconnected and transferred to another Control Unit via CI: p8504.

Dependency: Refer to: p8504

r8515 CO: Data transfer 3 receive wordwise / Trans 3 recv word

CU_CX32, CU_LINK	Can be changed: -	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2211
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the signals of the wordwise received data (process signal).
This signal value is interconnected and transferred to another Control Unit via CI: p8505.

Dependency: Refer to: p8505

p8520[0...3] CU_LINK signal value scaling / Sig val scal

CU_CX32, CU_LINK	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2211
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00010	10000.00000	1.00000

Description: Sets the scaling for signal value 0 ... 3 (process signals).

Index: [0] = Signal value 0 (CI: p8502) scaling
[1] = Signal value 1 (CI: p8503) scaling
[2] = Signal value 2 (CI: p8504) scaling
[3] = Signal value 3 (CI: p8505) scaling

Dependency: Refer to: p8502, p8503, p8504, p8505

p8550 AOP LOCAL/REMOTE / AOP LOCAL/REMOTE

CU_CX32, CU_S	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1001 bin

Description: Is used to save the current configuration of the Advanced Operator Panels (AOP).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	LOCAL save	Yes	No	-
	01	Start in LOCAL	Yes	No	-
	02	Change in oper.	Yes	No	-
	03	OFF acts like OFF1	Yes	No	-
	04	OFF acts like OFF2	Yes	No	-
	05	OFF acts like OFF3	Yes	No	-

07	CW/CCW active	Yes	No	-
08	Jog active	Yes	No	-
09	Save speed setpoint	Yes	No	-
14	Inhibit operation	Yes	No	-
15	Inhibit parameters	Yes	No	-

r8570[0...29] Macro drive unit / Macro drv unit

CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the ACX file saved in the appropriate directory of the CompactFlash card.

Dependency: Refer to: p0015

Note: For a value = 9999999, the following applies: The read operation is still running.

r8570[0...29] Macro drive object / Macro DO

A_INF, B_INF, SERVO, S_INF, TM15DI_DO, TM31, VECTOR	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the ACX file saved in the appropriate directory of the CompactFlash card.

Dependency: Refer to: p0015

Note: For a value = 9999999, the following applies: The read operation is still running.

r8571[0...29] Macro Binector Input (BI) / Macro BI

A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the ACX file saved in the appropriate directory of the CompactFlash card.

Dependency: Refer to: p0700

Note: For a value = 9999999, the following applies: The read operation is still running.

r8572[0...29] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set

A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the ACX file saved in the appropriate directory of the CompactFlash card.

Dependency: Refer to: p1000

Note: For a value = 9999999, the following applies: The read operation is still running.

r8573[0...29]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the ACX file saved in the appropriate directory of the CompactFlash card.		
Dependency:	Refer to: p1500		
Note:	For a value = 9999999, the following applies: The read operation is still running.		
r8585	Actual macro actual / Actual macro		
A_INF, B_INF, CU_CX32, CU_S, SERVO, S_INF, TM15DI_DO, TM31, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -
Description:	Indicates which macro is presently being run in the drive object.		
Dependency:	Refer to: p0015, p0700, p1000, p1500, r8570, r8571, r8572, r8573		
r8600	CBC device type / Device type		
CU_S (CAN)	Can be changed: - Data type: Unsigned32 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays all of the devices connected to the CAN bus after run-up. r8600 = 00000000 hex: No drive recognized. = FFFF0192 hex: Several drives - drive 1 is an Active Line Module, servo drive or vector drive = FFFF0191 hex: Several drives - 1st drive is a Terminal Module = 00010192 hex: 1 Vector drive = 00020192 hex: 1 Servo drive = 01000192 hex: 1 Active Line Module = 00080191 hex: 1 Terminal Module		
Note:	Corresponds to the CANopen object 1000 hex. For each detected drive, the device type is displayed in object 67FF hex + 800 hex * x (x: Drive number 0 ... 7).		
r8601	CBC error register / Error register		
CU_S (CAN)	Can be changed: - Data type: Unsigned8 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the error register for CANopen. Bit 0: Generic error 0 signal: No error present		

1 signal: Generic error present
 Bit 1 ... 3: Not supported (always a 0 signal)
 Bit 4: Communications error
 0 signal: There is no message in the range 8700 ... 8799
 1 signal: There is at least one message (fault or alarm) in the range 8700 ... 8799
 Bit 5 ... 6: Not supported (always a 0 signal)
 Bit 7: Fault outside the range 8700 ... 8799
 0 signal: There is no fault outside the range 8700 ... 8799
 1 signal: There is at least one fault outside the range 8700 ... 8799
Note: Corresponds to the CANopen object 1001 hex.

p8602**CBC SYNC object / SYNC object**

CU_S (CAN)

Can be changed: C1(1), T
Data type: Unsigned32
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min
 0000 hex

Max
 FFFF FFFF hex

Factory setting
 0080 hex

Description: Sets the SYNC object parameter for the following CANopen objects:
 - 1005 hex: COB-ID

Note: SINAMICS operates as SYNC load.
 COB-ID: CAN object identification

p8603**CBC COB ID Emergency Message / COB ID EMCY Msg**

CU_S (CAN)

Can be changed: C1(1), T
Data type: Unsigned32
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min
 0000 hex

Max
 FFFF FFFF hex

Factory setting
 0000 hex

Description: Sets the COB ID of the emergency message (error telegram). It corresponds to the CANopen objects:
 - 1014 hex: COB-ID

Note: If, when downloading, the pre-set value 0 is downloaded, then the CANopen pre-set value 80 hex + Node-ID is automatically set.
 Online, the value 0 is rejected as, according to the CANopen Standard, COB ID 0 is not permitted here.
 The changeover of the node ID using the hardware switch at the CU or per software has no effect on the COB-ID EMCY. The saved value remains effective.

p8604[0...1]**CBC node guarding / Node guarding**

CU_S (CAN)

Can be changed: T
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min
 0

Max
 65535

Factory setting
 0

Description: Sets the node guarding parameter for the following CANopen objects:
 - 100C hex: Guard Time
 - 100D hex: Life Time Factor

The life time is derived by multiplying guard time by the life time factor.

Index: [0] = Time interval [ms] for new node guarding telegram
 [1] = Factor for failure of the node guarding telegram

Dependency: Only adjustable if heartbeat time = 0 (heartbeat is disabled).
Refer to: p8606

Note: For p8604[0] = 0 and/or p8604[1] = 0, the node guarding protocol is not used.
Either node guarding or heartbeat can be used.

p8606 CBC producer heartbeat time / Prod Heartb Time

CU_S (CAN) **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0 [ms] 65535 [ms] 0 [ms]

Description: Sets the time [ms] to cyclically send heartbeat telegrams.
The smallest cycle time is 100 ms.
When a 0 is written, then heartbeat telegrams are not sent.

Dependency: Only adjustable if guard time = 0 (node guarding disabled).
Refer to: p8604

Note: Corresponds to the CANopen object 1017 hex.
Either node guarding or heartbeat can be used.

r8607[0...3] CBC identity object / Identity object

CU_S (CAN) **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
- - -

Description: General device information display.

Index: [0] = Vendor ID
[1] = Product code
[2] = Revision number
[3] = Serial number

Note: Corresponds to the CANopen object 1018 hex.

p8608 CBC clear bus off error / Clear bus off err

CU_S (CAN) **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0 1 0

Description: For a bus off error, the CAN bus is restarted with p8608 = 1 after the cause of the error has been removed.

Values: 0: Inactive
1: Start CAN controller

Note: This parameter is automatically reset to 0 after start.

p8609[0...1]			
CBC error behavior / Error behavior			
CU_S (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Sets the behavior of the CAN node referred to the communications error or equipment fault.		
Values:	0: Pre-operational 1: No change 2: Stopped		
Index:	[0] = Behavior for communication errors [1] = Behavior for device faults		
Note:	Corresponds to the CANopen object 1029 hex.		
<hr/>			
r8610[0...1]			
CBC first server SDO / First server SDO			
CU_S (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the identifier (client/server and server/client) of the SDO channel.		
Index:	[0] = Displays the COB ID from client to server [1] = Displays the COB ID from server to client		
Note:	Corresponds to the CANopen object 1200 hex. SDO: Service Data Object		
<hr/>			
p8611[0...82]			
CBC pre-defined error field / Pre_def err field			
CU_S (CAN)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF 1000 hex	Factory setting 0000 hex
Description:	Displays the Pre-defined Error Field of the CAN node. It includes the number of all errors that have occurred, the number of errors that have occurred for each drive and the errors according to their history. The first 16 bits represent the CANopen error code and the second 16 bits the SINAMICS error code. Index 1 has the same structure - however, the CAN offset is in the second 16 bits instead of the SINAMICS error code. CANopen error code: 0000 hex: No error present 8110 hex: Alarm A08751 present 8120 hex: Alarm A08752 present 8130 hex: Alarm A08700(F) with alarm value = 2 present 1000 hex: Generic error 1 present (there is at least one fault outside the range 8700 ... 8799) 1001 hex: Generic error 2 present (there is at least one alarm in the range 8700 ... 8799 with the exception of A08751, A08752, A08700)		

Index:	[0] = Number of all faults in the drive unit
	[1] = Most recent drive number / fault number
	[2] = Number of faults drive 1
	[3] = Fault 1/ drive 1
	[4] = Fault 2/ drive 1
	[5] = Fault 3/ drive 1
	[6] = Fault 4/ drive 1
	[7] = Fault 5/ drive 1
	[8] = Fault 6/ drive 1
	[9] = Fault 7/ drive 1
	[10] = Fault 8/ drive 1
	[11] = Number of faults drive 2
	[12] = Fault 1/ drive 2
	[13] = Fault 2/ drive 2
	[14] = Fault 3/ drive 2
	[15] = Fault 4/ drive 2
	[16] = Fault 5/ drive 2
	[17] = Fault 6/ drive 2
	[18] = Fault 7/ drive 2
	[19] = Fault 8/ drive 2
	[20] = Number of faults drive 3
	[21] = Fault 1/ drive 3
	[22] = Fault 2/ drive 3
	[23] = Fault 3/ drive 3
	[24] = Fault 4/ drive 3
	[25] = Fault 5/ drive 3
	[26] = Fault 6/ drive 3
	[27] = Fault 7/ drive 3
	[28] = Fault 8/ drive 3
	[29] = Number of faults drive 4
	[30] = Fault 1/ drive 4
	[31] = Fault 2/ drive 4
	[32] = Fault 3/ drive 4
	[33] = Fault 4/ drive 4
	[34] = Fault 5/ drive 4
	[35] = Fault 6/ drive 4
	[36] = Fault 7/ drive 4
	[37] = Fault 8/ drive 4
	[38] = Number of faults drive 5
	[39] = Fault 1/ drive 5
	[40] = Fault 2/ drive 5
	[41] = Fault 3/ drive 5
	[42] = Fault 4/ drive 5
	[43] = Fault 5/ drive 5
	[44] = Fault 6/ drive 5
	[45] = Fault 7/ drive 5
	[46] = Fault 8/ drive 5
	[47] = Number of faults drive 6
	[48] = Fault 1/ drive 6
	[49] = Fault 2/ drive 6
	[50] = Fault 3/ drive 6
	[51] = Fault 4/ drive 6
	[52] = Fault 5/ drive 6
	[53] = Fault 6/ drive 6
	[54] = Fault 7/ drive 6
	[55] = Fault 8/ drive 6
	[56] = Number of faults drive 7
	[57] = Fault 1/ drive 7
	[58] = Fault 2/ drive 7
	[59] = Fault 3/ drive 7
	[60] = Fault 4/ drive 7
	[61] = Fault 5/ drive 7
	[62] = Fault 6/ drive 7
	[63] = Fault 7/ drive 7

[64] = Fault 8/ drive 7
 [65] = Number of faults drive 8
 [66] = Fault 1/ drive 8
 [67] = Fault 2/ drive 8
 [68] = Fault 3/ drive 8
 [69] = Fault 4/ drive 8
 [70] = Fault 5/ drive 8
 [71] = Fault 6/ drive 8
 [72] = Fault 7/ drive 8
 [73] = Fault 8/ drive 8
 [74] = Number of faults Control Unit
 [75] = Fault 1/Control Unit
 [76] = Fault 2/Control Unit
 [77] = Fault 3/Control Unit
 [78] = Fault 4/Control Unit
 [79] = Fault 5/Control Unit
 [80] = Fault 6/Control Unit
 [81] = Fault 7/Control Unit
 [82] = Fault 8/Control Unit

Note: Faults, whose causes have been removed and only have to be acknowledged are no longer contained in the pre-defined error field. These faults are still contained in parameter p0945.

p8620 CBC node ID / Node ID			
CU_S (CAN)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 126	Factory setting 126
Description:	Display or setting of the CANopen Node ID. The Node ID can be set as follows: 1) Using the DIP switch power-up the Control Unit. --> p8620 can then only be read and displays the selected Node ID. --> A change only becomes effective after a POWER ON. --> CANopen Node ID and PROFIBUS address are identical. 2) Using p8620 --> only if all of the DIP switches - from S1 to S7 - are either set to ON or OFF. --> the Node ID is set as standard to 126. --> A change only becomes effective after save and POWER ON.		
Note:	Every node ID change only becomes effective after a POWER ON. It is only possible to independently set CANopen node ID and the PROFIBUS address using p0918 and p8620 (pre-requisite: For DIP switches, all of the switches from S1 to S7 are either set to ON or OFF).		

p8622 CBC baud rate / Baud rate			
CU_S (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 7	Factory setting 6
Description:	Setting the baud rate for the CAN bus. The appropriate bit timings are selected that are defined in p8623 in the associated sub-index.		
Values:	0: 1 Mbit/s 1: 800 kbit/s 2: 500 kbit/s 3: 250 kbit/s		

4: 125 kbit/s
 5: 50 kbit/s
 6: 20 kbit/s
 7: 10 kbit/s

Recommend.: Use the factory setting when setting the baud rate.

Example:

Baud rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6].

Dependency: Refer to: p8623

p8623[0...7]**CBC bit timing selection / Bit timing select**

CU_S (CAN)

Can be changed: T

Calculated: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Func. diagram: -

P-Group: -

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

0000 hex

Max

000F 7FFF hex

Factory setting

[0] 1405 hex

[1] 1605 hex

[2] 1C05 hex

[3] 1C0B hex

[4] 1C17 hex

[5] 1C3B hex

[6] 0002 1C15 hex

[7] 0004 1C2B hex

Description:

Sets the bit timing for the C_CAN controller to the associated and selected baud rate (p8622).

Bits are distributed to the following parameters of the C_CAN controller in p8623[0...7]:

Bit 0 ... 5: BRP (Baud Rate Prescaler)

Bit 6 ... 7: SJW (Synchronization Jump Width)

Bit 8 ... 11: TSEG1 (Time Segment 1, before the sampling point)

Bit 12 ... 14: TSEG2 (Time Segment 2, after the sampling point)

Bit 15: Reserved

Bit 16 ... 19: BRPE (Baud Rate Prescaler Extension)

Bit 20 ... 31: Reserved

Index:

[0] = 1 Mbit/s

[1] = 800 kbit/s

[2] = 500 kbit/s

[3] = 250 kbit/s

[4] = 125 kbit/s

[5] = 50 kbit/s

[6] = 20 kbit/s

[7] = 10 kbit/s

Dependency:

Refer to: p8622

Note:

Recommendation:

You use the factory setting (refer to p8622) when setting the bit timing.

Example:

Baud rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6] --> 0001 2FB6

p8630[0...2] CBC virtual objects / Virtual objects			
CU_S (CAN)	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 65535	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the drive object selection (index 0), the sub-index area (index 1) and the parameter area (index 2) when using virtual objects. This means that it is possible to access all SINAMICS parameters via CAN. Index 0 (drive object selection): 0: Not possible to access virtual CANopen objects 1: Device 2 ... 65535: Drive 1 ... 8 Index 1 (sub-index area): 0: 0 ... 255 1: 256 ... 511 2: 512 ... 767 3: 768 ... 1023 Index 2 (parameter area): 0: 1 ... 9999 1: 10000 ... 19999 2: 20000 ... 29999 3: 30000 ... 39999		
Index:	[0] = Drive object selection [1] = Sub-index range [2] = Parameter range		

p8641 CBC abort connection option code / Abort con opt code			
SERVO (CAN), VEC-TOR (CAN)	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 3	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 3
Description:	Sets the drive behavior if a CAN communication error occurs.		
Values:	0: No response 1: OFF1 2: OFF2 3: OFF3		
Dependency:	Refer to: F08700		

r8680[0...36] CBC diagnostics hardware / Diagnostics HW			
CU_S (CAN)	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the register of the CAN controller C_CAN: Register, Message Interface Register and Message Handler Register - referred to the CAN protocol.		

Index:	[0] = Control register
	[1] = Status register
	[2] = Error counter
	[3] = Bit timing register
	[4] = Interrupt register
	[5] = Test register
	[6] = Baud rate prescaler extension register
	[7] = Interface 1 command request register
	[8] = Interface 1 command mask register
	[9] = Interface 1 mask 1 register
	[10] = Interface 1 mask 2 register
	[11] = Interface 1 arbitration 1 register
	[12] = Interface 1 arbitration 2 register
	[13] = Interface 1 message control register
	[14] = Interface 1 data A1 register
	[15] = Interface 1 data A2 register
	[16] = Interface 1 data B1 register
	[17] = Interface 1 data B2 register
	[18] = Interface 2 command request register
	[19] = Interface 2 command mask register
	[20] = Interface 2 mask 1 register
	[21] = Interface 2 mask 2 register
	[22] = Interface 2 arbitration 1 register
	[23] = Interface 2 arbitration 2 register
	[24] = Interface 2 message control register
	[25] = Interface 2 data A1 register
	[26] = Interface 2 data A2 register
	[27] = Interface 2 data B1 register
	[28] = Interface 2 data B2 register
	[29] = Transmission request 1 register
	[30] = Transmission request 2 register
	[31] = New data 1 register
	[32] = New data 2 register
	[33] = Interrupt pending 1 register
	[34] = Interrupt pending 2 register
	[35] = Message valid 1 register
	[36] = Message valid 2 register

Note: A description of the individual registers of the C_CAN controller can be taken from "C_CAN User's Manual".

p8684	CBC NMT state after booting / NMT state boot		
CU_S (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	4	127	127
Description:	Sets the CANopen NMT state that is effective after booting.		
Values:	4: Stopped 5: Operational 127: Pre-operational		
Dependency:	Refer to: p8685		
Note:	Bootling in the NMT state pre-operational corresponds to the CANopen standard		

p8685 CBC NMT states / NMT states

CU_S (CAN)

Can be changed: C1(1), U, T**Calculated:** -**Access level:** 3**Data type:** Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

0

Max

129

Factory setting

127

Description:

Sets and displays the CANopen NMT state.

Values:

0: Initializing
 4: Stopped
 5: Operational
 127: Pre-operational
 128: Reset node
 129: Reset Communication

Note:

The value 0 (initialization) is only displayed and cannot be set.

p8700[0...1] CBC receive PDO 1 / Receive PDO 1SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Calculated:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 9204, 9206**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

0000 hex

Max

8000 06DF hex

Factory setting

[0] 8000 06DF hex

[1] 00FE hex

Description:

Sets the communication parameters for CANopen Receive Process Data Object 1 (RPDO 1).

Index:

[0] = PDO COB-ID
 [1] = PDO transmission type

Dependency:

A valid COB-ID can only be set for the available (existing) channel.
 Refer to: p8740, p8741

Note:

Corresponds to the CANopen object 1400 hex + 40 hex * x (x: Drive number 0 ... 7).
 Transmission types 0, 1, FE and FF can be set.
 PDO: Process Data Object

p8701[0...1] CBC receive PDO 2 / Receive PDO 2SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Calculated:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** 9204, 9206**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min**

0000 hex

Max

8000 06DF hex

Factory setting

[0] 8000 06DF hex

[1] 00FE hex

Description:

Sets the communication parameters for CANopen Receive Process Data Object 2 (RPDO 2).

Index:

[0] = PDO COB-ID
 [1] = PDO transmission type

Dependency:

A valid COB-ID can only be set for the available (existing) channel.
 Refer to: p8740, p8741

Note:

Corresponds to the CANopen object 1401 hex + 40 hex * x (x: Drive number 0 ... 7).
 Transmission types 0, 1, FE and FF can be set.
 PDO: Process Data Object

p8702[0...1] CBC receive PDO 3 / Receive PDO 3SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
8000 06DF hex**Access level:** 3**Func. diagram:** 9204, 9206**Unit selection:** -**Expert list:** 1**Factory setting**
[0] 8000 06DF hex
[1] 00FE hex**Description:** Sets the communication parameters for CANopen Receive Process Data Object 3 (RPDO 3).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Note:**
Corresponds to the CANopen object 1402 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object**p8703[0...1] CBC receive PDO 4 / Receive PDO 4**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
8000 06DF hex**Access level:** 3**Func. diagram:** 9204, 9206**Unit selection:** -**Expert list:** 1**Factory setting**
[0] 8000 06DF hex
[1] 00FE hex**Description:** Sets the communication parameters for CANopen Receive Process Data Object 4 (RPDO 4).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Note:**
Corresponds to the CANopen object 1403 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object**p8704[0...1] CBC receive PDO 5 / Receive PDO 5**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
8000 06DF hex**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Factory setting**
[0] 8000 06DF hex
[1] 00FE hex**Description:** Sets the communication parameters for CANopen Receive Process Data Object 5 (RPDO 5).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Note:**
Corresponds to the CANopen object 1404 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8705[0...1] CBC receive PDO 6 / Receive PDO 6SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
8000 06DF hex**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Factory setting**
[0] 8000 06DF hex
[1] 00FE hex**Description:** Sets the communication parameters for CANopen Receive Process Data Object 6 (RPDO 6).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Note:**
Corresponds to the CANopen object 1405 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object**p8706[0...1] CBC receive PDO 7 / Receive PDO 7**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
8000 06DF hex**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Factory setting**
[0] 8000 06DF hex
[1] 00FE hex**Description:** Sets the communication parameters for CANopen Receive Process Data Object 7 (RPDO 7).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Note:**
Corresponds to the CANopen object 1406 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object**p8707[0...1] CBC receive PDO 8 / Receive PDO 8**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
8000 06DF hex**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Factory setting**
[0] 8000 06DF hex
[1] 00FE hex**Description:** Sets the communication parameters for CANopen Receive Process Data Object 8 (RPDO 8).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Note:**
Corresponds to the CANopen object 1407 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8710[0...3] CBC receive mapping for RPDO 1 / Mapping RPDO 1

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the mapping parameters for CANopen Receive Process Data Object 1 (RPDO 1).		
Index:	[0] = Mapped object 1 [1] = Mapped object 2 [2] = Mapped object 3 [3] = Mapped object 4		
Note:	Corresponds to the CANopen object 1600 hex + 40 hex * x (x: Drive number 0 ... 7). Dummy mapping not supported.		

p8711[0...3] CBC receive mapping for RPDO 2 / Mapping RPDO 2

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the mapping parameters for CANopen Receive Process Data Object 2 (RPDO 2).		
Index:	[0] = Mapped object 1 [1] = Mapped object 2 [2] = Mapped object 3 [3] = Mapped object 4		
Note:	Corresponds to the CANopen object 1601 hex + 40 hex * x (x: Drive number 0 ... 7). Dummy mapping not supported.		

p8712[0...3] CBC receive mapping for RPDO 3 / Mapping RPDO 3

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the mapping parameters for CANopen Receive Process Data Object 3 (RPDO 3).		
Index:	[0] = Mapped object 1 [1] = Mapped object 2 [2] = Mapped object 3 [3] = Mapped object 4		
Note:	Corresponds to the CANopen object 1602 hex + 40 hex * x (x: Drive number 0 ... 7). Dummy mapping not supported.		

p8713[0...3] CBC receive mapping for RPDO 4 / Mapping RPDO 4SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 9204, 9206**Unit selection:** -**Expert list:** 1**Min**
0000 hex**Max**
FFFF FFFF hex**Factory setting**
0000 hex**Description:** Sets the mapping parameters for CANopen Receive Process Data Object 4 (RPDO 4).**Index:**
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4**Note:** Corresponds to the CANopen object 1603 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.**p8714[0...3] CBC receive mapping for RPDO 5 / Mapping RPDO 5**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Min**
0000 hex**Max**
FFFF FFFF hex**Factory setting**
0000 hex**Description:** Sets the mapping parameters for CANopen Receive Process Data Object 5 (RPDO 5).**Index:**
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4**Note:** Corresponds to the CANopen object 1604 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.**p8715[0...3] CBC receive mapping for RPDO 6 / Mapping RPDO 6**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Min**
0000 hex**Max**
FFFF FFFF hex**Factory setting**
0000 hex**Description:** Sets the mapping parameters for CANopen Receive Process Data Object 6 (RPDO 6).**Index:**
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4**Note:** Corresponds to the CANopen object 1605 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.

p8716[0...3] CBC receive mapping for RPDO 7 / Mapping RPDO 7SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Min**
0000 hex**Max**
FFFF FFFF hex**Factory setting**
0000 hex**Description:** Sets the mapping parameters for CANopen Receive Process Data Object 7 (RPDO 7).**Index:**
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4**Note:** Corresponds to the CANopen object 1606 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.**p8717[0...3] CBC receive mapping for RPDO 8 / Mapping RPDO 8**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 9204**Unit selection:** -**Expert list:** 1**Min**
0000 hex**Max**
FFFF FFFF hex**Factory setting**
0000 hex**Description:** Sets the mapping parameters for CANopen Receive Process Data Object 8 (RPDO 8).**Index:**
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4**Note:** Corresponds to the CANopen object 1607 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.**p8720[0...4] CBC transmit PDO 1 / Transmit PDO 1**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 9208, 9210**Unit selection:** -**Expert list:** 1**Min**
0000 hex**Max**
C000 06DF hex**Factory setting**
[0] C000 06DF hex
[1] 00FE hex
[2] 0000 hex
[3] 0000 hex
[4] 0000 hex**Description:** Sets the communication parameters for CANopen Transmit Process Data Object 1 (TPDO 1).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)**Dependency:** A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Notice:** For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1800 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8721[0...4] CBC transmit PDO 2 / Transmit PDO 2

SERVO (CAN), VECTOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 2 (TPDO 2).

Index: [0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1801 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8722[0...4] CBC transmit PDO 3 / Transmit PDO 3

SERVO (CAN), VECTOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 3 (TPDO 3).

Index: [0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1802 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8723[0...4] CBC transmit PDO 4 / Transmit PDO 4SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
C000 06DF hex**Access level:** 3**Func. diagram:** 9208, 9210**Unit selection:** -**Expert list:** 1**Factory setting**
[0] C000 06DF hex
[1] 00FE hex
[2] 0000 hex
[3] 0000 hex
[4] 0000 hex**Description:** Sets the communication parameters for CANopen Transmit Process Data Object 4 (TPDO 4).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)**Dependency:** A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Notice:** For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.**Note:** Corresponds to the CANopen object 1803 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object**p8724[0...4] CBC transmit PDO 5 / Transmit PDO 5**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
C000 06DF hex**Access level:** 3**Func. diagram:** 9208**Unit selection:** -**Expert list:** 1**Factory setting**
[0] C000 06DF hex
[1] 00FE hex
[2] 0000 hex
[3] 0000 hex
[4] 0000 hex**Description:** Sets the communication parameters for CANopen Transmit Process Data Object 5 (TPDO 5).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)**Dependency:** A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Notice:** For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.**Note:** Corresponds to the CANopen object 1804 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8725[0...4] CBC transmit PDO 6 / Transmit PDO 6SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
C000 06DF hex**Access level:** 3**Func. diagram:** 9208**Unit selection:** -**Expert list:** 1**Factory setting**
[0] C000 06DF hex
[1] 00FE hex
[2] 0000 hex
[3] 0000 hex
[4] 0000 hex**Description:** Sets the communication parameters for CANopen Transmit Process Data Object 6 (TPDO 6).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)**Dependency:** A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Notice:** For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.**Note:** Corresponds to the CANopen object 1805 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object**p8726[0...4] CBC transmit PDO 7 / Transmit PDO 7**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
C000 06DF hex**Access level:** 3**Func. diagram:** 9208**Unit selection:** -**Expert list:** 1**Factory setting**
[0] C000 06DF hex
[1] 00FE hex
[2] 0000 hex
[3] 0000 hex
[4] 0000 hex**Description:** Sets the communication parameters for CANopen Transmit Process Data Object 7 (TPDO 7).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)**Dependency:** A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Notice:** For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.**Note:** Corresponds to the CANopen object 1806 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8727[0...4] CBC transmit PDO 8 / Transmit PDO 8SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
C000 06DF hex**Access level:** 3**Func. diagram:** 9208**Unit selection:** -**Expert list:** 1**Factory setting**
[0] C000 06DF hex
[1] 00FE hex
[2] 0000 hex
[3] 0000 hex
[4] 0000 hex**Description:** Sets the communication parameters for CANopen Transmit Process Data Object 8 (TPDO 8).**Index:**
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)**Dependency:** A valid COB-ID can only be set for the available (existing) channel.
Refer to: p8740, p8741**Notice:** For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.**Note:** Corresponds to the CANopen object 1807 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object**p8730[0...3] CBC send mapping for TPDO 1 / Mapping TPDO 1**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
FFFF FFFF hex**Access level:** 3**Func. diagram:** 9208, 9210**Unit selection:** -**Expert list:** 1**Factory setting**
0000 hex**Description:** Sets the mapping parameters for CANopen Transmit Process Data Object 1 (TPDO 1).**Index:**
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4**Note:** Corresponds to the CANopen object 1A00 hex + 40 hex * x (x: Drive number 0 ... 7).**p8731[0...3] CBC send mapping for TPDO 2 / Mapping TPDO 2**SERVO (CAN), VEC-
TOR (CAN)**Can be changed:** C1(3), T**Data type:** Unsigned32**P-Group:** Communications**Not for motor type:** -**Min**
0000 hex**Calculated:** -**Dynamic index:** -**Units group:** -**Max**
FFFF FFFF hex**Access level:** 3**Func. diagram:** 9208, 9210**Unit selection:** -**Expert list:** 1**Factory setting**
0000 hex**Description:** Sets the mapping parameters for CANopen Transmit Process Data Object 2 (TPDO 2).**Index:**
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4**Note:** Corresponds to the CANopen object 1A01 hex + 40 hex * x (x: Drive number 0 ... 7).

p8732[0...3] CBC send mapping for TPDO 3 / Mapping TPDO 3

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the mapping parameters for CANopen Transmit Process Data Object 3 (TPDO 3).		
Index:	[0] = Mapped object 1 [1] = Mapped object 2 [2] = Mapped object 3 [3] = Mapped object 4		
Note:	Corresponds to the CANopen object 1A02 hex + 40 hex * x (x: Drive number 0 ... 7).		

p8733[0...3] CBC send mapping for TPDO 4 / Mapping TPDO 4

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the mapping parameters for CANopen Transmit Process Data Object 4 (TPDO 4).		
Index:	[0] = Mapped object 1 [1] = Mapped object 2 [2] = Mapped object 3 [3] = Mapped object 4		
Note:	Corresponds to the CANopen object 1A03 hex + 40 hex * x (x: Drive number 0 ... 7).		

p8734[0...3] CBC send mapping for TPDO 5 / Mapping TPDO 5

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the mapping parameters for CANopen Transmit Process Data Object 5 (TPDO 5).		
Index:	[0] = Mapped object 1 [1] = Mapped object 2 [2] = Mapped object 3 [3] = Mapped object 4		
Note:	Corresponds to the CANopen object 1A04 hex + 40 hex * x (x: Drive number 0 ... 7).		

p8735[0...3] CBC send mapping for TPDO 6 / Mapping TPDO 6

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the mapping parameters for CANopen Transmit Process Data Object 6 (TPDO 6).		

Index: [0] = Mapped object 1
 [1] = Mapped object 2
 [2] = Mapped object 3
 [3] = Mapped object 4

Note: Corresponds to the CANopen object 1A05 hex + 40 hex * x (x: Drive number 0 ... 7).

p8736[0...3] CBC send mapping for TPDO 7 / Mapping TPDO 7

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 7 (TPDO 7).

Index: [0] = Mapped object 1
 [1] = Mapped object 2
 [2] = Mapped object 3
 [3] = Mapped object 4

Note: Corresponds to the CANopen object 1A06 hex + 40 hex * x (x: Drive number 0 ... 7).

p8737[0...3] CBC send mapping for TPDO 8 / Mapping TPDO 8

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 8 (TPDO 8).

Index: [0] = Mapped object 1
 [1] = Mapped object 2
 [2] = Mapped object 3
 [3] = Mapped object 4

Note: Corresponds to the CANopen object 1A07 hex + 40 hex * x (x: Drive number 0 ... 7).

p8740[0...23] CBC channel assignment / Chann assign.

CU_S (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 8	Factory setting 0

Description: Sets the number of channels for receive PDOs and Transmit PDOs.
 To define the number of channels of a drive, there are 3 indices (3 * n indices, n = 8).

Index 0: Number of channels for receive PDOs (1st drive)
 Index 1: Number of channels for transmit PDOs (1st drive)
 Index 2: Reserved

Correspondingly, indices 3 to 5 are valid for the 2nd drive, etc.

Index: [0] = Number of channels for receive PDOs (drive 1)
 [1] = Number of channels for transmit PDOs (drive 1)
 [2] = Reserved
 [3] = Number of channels for receive PDOs (drive 2)
 [4] = Number of channels for transmit PDOs (drive 2)
 [5] = Reserved
 [6] = Number of channels for receive PDOs (drive 3)

[7] = Number of channels for transmit PDOs (drive 3)
 [8] = Reserved
 [9] = Number of channels for receive PDOs (drive 4)
 [10] = Number of channels for transmit PDOs (drive 4)
 [11] = Reserved
 [12] = Number of channels for receive PDOs (drive 5)
 [13] = Number of channels for transmit PDOs (drive 5)
 [14] = Reserved
 [15] = Number of channels for receive PDOs (drive 6)
 [16] = Number of channels for transmit PDOs (drive 6)
 [17] = Reserved
 [18] = Number of channels for receive PDOs (drive 7)
 [19] = Number of channels for transmit PDOs (drive 7)
 [20] = Reserved
 [21] = Number of channels for receive PDOs (drive 8)
 [22] = Number of channels for transmit PDOs (drive 8)
 [23] = Reserved

Dependency:

Refer to: p8741

Note:

Channel assignment not yet in effect. To acknowledge set p8741 = 1.

p8741**CBC PDO configuration acknowledgement / PDO config ackn**

CU_S (CAN)

Can be changed: T**Calculated:** -**Access level:** 3**Data type:** Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** -**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

1

0

Description:

Acknowledges the channel distribution selection made (p8740) and the setting of the predefined connection sets (p8744).

Values:

0: Inactive

1: Acknowledge configuration

Dependency:

Refer to: p8740

r8742**CBC number of free RPDO channels / Qty free RPDO**

CU_S (CAN)

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Communications**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the RPDO channels that are still available.

Dependency:

Refer to: p8741

Note:

The display is updated after acknowledging the configuration (p8741 = 1).

The number only includes the RPDO channels in p8740 for which an axis is present in the topology!

RPDO: Receive Process Data Object

r8743[0...7]**CBC assignment drive ID / Drive ID**

CU_S (CAN)

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** -**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the drive ID associated with each drive.

Index:

- [0] = Drive ID for 1st drive
- [1] = Drive ID for 2nd drive
- [2] = Drive ID for 3rd drive
- [3] = Drive ID for 4th drive
- [4] = Drive ID for 5th drive
- [5] = Drive ID for 6th drive
- [6] = Drive ID for 7th drive
- [7] = Drive ID for 8th drive

p8744 CBC PDO mapping configuration / PDO Mapping conf.

SERVO (CAN), VEC-TOR (CAN)	Can be changed: C2, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: 9204, 9206, 9208, 9210
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 2	Factory setting 2

Description: Selector switch for the PDO mapping.
Sets the mapping for download or in the online mode after acknowledging with p8741.

Values:

- 1: Predefined Connection Set
- 2: Free PDO Mapping

r8750[0...15] CBC mapped 16-bit receive objects / RPDO 16 mapped

SERVO (CAN), VEC-TOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the mapped 16-bit receive CANopen objects in the process data buffer.
Example:
The control word is mapped in p8720[0] and p8721[0]; this means that r8750[0] indicates that it is located at the first position (p8850[0]) in the process data buffer.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

r8751[0...15] CBC mapped 16-bit transmit objects / TPDO 16 mapped

SERVO (CAN), VECTOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays mapped 16-bit transmit CANopen objects in the process data buffer.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

Dependency: Refer to: r8750

r8760[0...14] CBC mapped 32-bit receive objects / RPDO 32 mapped

SERVO (CAN), VECTOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the mapped 32-bit receive CANopen objects in the process data buffer.

Index:

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6
- [5] = PZD 6 + 7
- [6] = PZD 7 + 8
- [7] = PZD 8 + 9
- [8] = PZD 9 + 10
- [9] = PZD 10 + 11
- [10] = PZD 11 + 12
- [11] = PZD 12 + 13
- [12] = PZD 13 + 14
- [13] = PZD 14 + 15
- [14] = PZD 15 + 16

r8761[0...14] CBC mapped 32-bit transmit objects / TPDO 32 mapped

SERVO (CAN), VECTOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays mapped 32-bit transmit CANopen objects in the process data buffer.

Index:

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6
- [5] = PZD 6 + 7
- [6] = PZD 7 + 8
- [7] = PZD 8 + 9
- [8] = PZD 9 + 10
- [9] = PZD 10 + 11
- [10] = PZD 11 + 12
- [11] = PZD 12 + 13
- [12] = PZD 13 + 14
- [13] = PZD 14 + 15
- [14] = PZD 15 + 16

r8784 CO: CBC status word / Status word

SERVO (CAN), VECTOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8010
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the CANopen status word.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready to power up	Yes	No	-
	01	Ready	Yes	No	-
	02	Operation enabled	Yes	No	-
	03	Fault present	Yes	No	-
	04	No coasting active	Yes	No	-
	05	No Quick Stop active	Yes	No	-
	06	Power-on inhibit active	Yes	No	-
	07	Alarm present	Yes	No	-
	08	Can be freely interconnected (BI: p8785)	High	Low	-
	09	Control requested	Yes	No	-
	10	Target reached	Yes	No	-
	11	Torque limit reached	Yes	No	-
	12	Velocity equal to zero	Yes	No	-
	14	Can be freely interconnected (BI: p8786)	High	Low	-
	15	Can be freely interconnected (BI: p8787)	High	Low	-

Note: Corresponds to the CANopen object 6041 hex + 800 hex * x (x: Drive number 0 ... 7).
 Re bit 10:
 When the ramp-function generator is activated, the interconnection from Cl: p2151 = r1119 can be changed, so that to evaluate bit 10, the setpoint can be retrieved (taken) from in front of the ramp-function generator.
 Re bit 10, 12:
 When braking, the two bits must indicate the same state. This is the reason that the following parameters must be set the same:
 p2161 (speed threshold value 3, for r2199.0) = p2163 (speed threshold value 4, for r2197.7)
 p2150 (hysteresis speed 3, for r2199.0) = p2164 (hysteresis speed 4, for r2197.7)

p8785	BI: CBC status word bit 8 / Status word bit 8		
SERVO (CAN), VEC-TOR (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Binector input for CANopen status word bit 8.		
Dependency:	Refer to: r8784		

p8786	BI: CBC status word bit 14 / Status word bit 14		
SERVO (CAN), VEC-TOR (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Binector input for CANopen status word bit 14.		
Dependency:	Refer to: r8784		

p8787	BI: CBC status word bit 15 / Status word bit 15		
SERVO (CAN), VEC-TOR (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Binector input for CANopen status word bit 15.		
Dependency:	Refer to: r8784		

p8790	CBC control word - auto interconnection / STW interconn auto		
SERVO (CAN), VEC-TOR (CAN)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description:	Sets the automatic BICO interconnection of the CANopen control word.		
Values:	0: No interconn 1: Interconnection		
Dependency:	Refer to: r8750, r8795, r8850		

Note: The following BICO interconnections are automatically established if the CANopen control word is mapped at one of the locations x = 0 ... 3 in the receive process data buffer.

BI: p0840.0 = r889x.0
 BI: p0844.0 = r889x.1
 BI: p0848.0 = r889x.2
 BI: p0852.0 = r889x.3
 BI: p2103.0 = r889x.7

The write access is rejected if a CANopen control word is not mapped at one of these locations.
 This also causes the project download of the commissioning software to be canceled.

r8795 CBC control word / Control word

SERVO (CAN), VEC-TOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting

-

-

-

Description: Access to the CANopen control word using SDO transfer.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	Do not activate coast down	Yes	No	-
	02	Do not activate a Quick Stop	Yes	No	-
	03	Enable operation	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	11	Freely interconn	High	Low	-
	12	Freely interconn	High	Low	-
	13	Freely interconn	High	Low	-
	14	Freely interconn	High	Low	-
	15	Freely interconn	High	Low	-

Dependency: Refer to: p8790

Note: Corresponds to the CANopen object 6040 hex + 800 hex * x (x: Drive number 0 ... 7).

r8796 CBC target velocity / Target velocity

SERVO (CAN), VEC-TOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting

-

-

-

Description: Access to the CANopen object target velocity using the SDO transfer.

The value is displayed in increments/second as standard.

Note: Corresponds to the CANopen object 60FF hex + 800 hex * x (x: Drive number 0 ... 7).

The displayed value is calculated as follows:

$$r8796 = n_set [RPM] / 60 \text{ s} * p0408 * 2^p0418 * p8798[1] / p8798[0]$$

r8797 CBC target torque / Target torque

SERVO (CAN), VEC-TOR (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting

-

-

-

Description: Access to the CANopen object target torque using SDO transfer.

Note: The value is displayed as per mille (1/1000) as standard.
Corresponds to the CANopen object 6071 hex + 800 hex * x (x: Drive number 0 ... 7).
The displayed value is calculated as follows:
$$r8797 [\text{per mille}] = M_set [\text{Nm}] / p0333 [\text{Nm}] * 1000$$

p8798[0...1] CBC speed conversion factor / n_conv_factor

SERVO (CAN), VECTOR (CAN)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 4294967295	Factory setting 1

Description: The factor converts the required velocity units into the internal velocity units (V/s).
With the factor setting, for CANopen, the velocity units are increments/second.
The parameter corresponds to the CANopen object 6094 hex.
The internal velocity is calculated as follows:
$$n_set_internal = \text{object } 6094.1 / \text{object } 6094.2 * 1 / (p0408 * 2^{p0418}) * n_set_bus$$

Index: [0] = Counter
[1] = Denominator

p8839[0...1] PZD interface hardware assignment / PZD IF HW assign

CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 99	Factory setting 99

Description: Assignment of the hardware for cyclic communications via PZD interface 1 and interface 2.

Values: 0: Inactive
1: ONBOARD hardware
2: COMM BOARD
99: Automatic

Index: [0] = IF1
[1] = IF2

Note: For value = 99 (automatic) the following applies:
- if neither a COMM BOARD nor CAN is inserted, then PROFIBUS communicates via IF1.
- if a CBE20 is inserted, then PROFINET communicates via IF1.
- CAN always communicates via IF2.
For a value not equal to 99 (automatic) the following applies:
- both indices must be set to a number not equal to 99 (automatic).
A new setting only becomes effective after POWER ON, reset or download.

p8840	COMM BOARD monitoring time / CB t_monit		
CU_S (COMM BOARD, PROFINET)	Can be changed: U, T Data type: Floating Point P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 65535000 [ms]	Factory setting 20 [ms]
p8841[0...39]	COMM BOARD send configuration data / CB S_config_data		
CU_S (COMM BOARD, PROFINET)	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
p8842	COMM BOARD start configuration / CB config start		
CU_S (COMM BOARD, PROFINET)	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
p8848	IF2 PZD sampling time / IF2 PZD t_sample		
CU_CX32, CU_S	Can be changed: C1(3) Data type: Floating Point P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1.00 [ms]	Max 16.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the sampling time for the cyclic interface 2 (IF2).		
r8849[0...139]	COMM BOARD receive configuration data / CB E_config_data		
CU_S (COMM BOARD, PROFINET)	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
r8850[0...4]	CO: IF2 PZD receive word / IF2 PZD recv word		
A_INF, B_INF, S_INF	Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2491 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.		

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

r8850[0...15] CO: IF2 PZD receive word / IF2 PZD recv word

SERVO, VECTOR	Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2485, 9204, 9206 Unit selection: - Expert list: 1 Factory setting -
---------------	--	---	--

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: r8860, r8890, r8891, r8892, r8893

Note: IF2: Interface 2
PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

p8851[0...7] CI: IF2 PZD send word / IF2 PZD send word

A_INF, B_INF, S_INF	Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2493, 9210 Unit selection: - Expert list: 1 Factory setting 0
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Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8

Note: IF2: Interface 2

p8851[0...15]	CI: IF2 PZD send word / IF2 PZD send word		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 2487, 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) to be sent via interface 2 in the word format.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16		
Dependency:	Refer to: p8861		
Note:	IF2: Interface 2		

r8853[0...7]	IF2 diagnostics PZD send / IF2 diag PZD send				
A_INF, B_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2493		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the sent PZD (actual values) sent via interface 2.				
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-

13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Note: IF2: Interface 2

r8853[0...15] IF2 diagnostics PZD send / IF2 diag PZD send

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2487, 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: p8851, p8861

Note: IF2: Interface 2

r8854 COMM BOARD state / CB stateCU_S (COMM
BOARD, PROFINET)**Can be changed:** -**Data type:** Integer16**P-Group:** Communications**Not for motor type:** -**Min**

0

Calculated: -**Dynamic index:** -**Units group:** -**Max**

255

Access level: 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

-

Description:

Status display for COMM BOARD.

Values:

0: No initialization

1: Fatal fault

2: Initialization

3: Send configuration

4: Receive configuration

5: Non-cyclic communication

6: Cyclic communications but no setpoints (stop/no clock cycle)

255: Cyclic communication

r8858[0...39] COMM BOARD read diagnostics channel / CB diag_chan readCU_S (COMM
BOARD, PROFINET)**Can be changed:** -**Data type:** Unsigned16**P-Group:** Communications**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

-

r8859[0...7] COMM BOARD identification Data / CB Ident_dataCU_S (COMM
BOARD, PROFINET)**Can be changed:** -**Data type:** Unsigned16**P-Group:** Communications**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 3**Func. diagram:** -**Unit selection:** -**Expert list:** 1**Factory setting**

-

r8860[0...14] CO: IF2 PZD receive double word / IF2 PZD recv DW

SERVO, VECTOR

Can be changed: -**Data type:** Integer32**P-Group:** Communications**Not for motor type:** -**Min**

-

Calculated: -**Dynamic index:** -**Units group:** -**Max**

-

Access level: 3**Func. diagram:** 2485, 9204,
9206**Unit selection:** -**Expert list:** 1**Factory setting**

-

Description:

Connector output for interconnecting the PZD (setpoints) received via interface 2 in the double word format.

Index:

[0] = PZD 1 + 2

[1] = PZD 2 + 3

[2] = PZD 3 + 4

[3] = PZD 4 + 5

[4] = PZD 5 + 6

[5] = PZD 6 + 7

[6] = PZD 7 + 8

[7] = PZD 8 + 9

[8] = PZD 9 + 10

[9] = PZD 10 + 11

[10] = PZD 11 + 12

[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16

Dependency: Refer to: r8850
Note: IF2: Interface 2

p8861[0...14] CI: IF2 PZD send double word / IF2 PZD send DW

SERVO, VECTOR	Can be changed: U, T Data type: Unsigned32 / Integer32 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2487, 9208, 9210 Unit selection: - Expert list: 1 Factory setting 0
---------------	--	---	--

Description: Selects the PZD (actual values) to be sent via interface 2 in the double word format.

Index:
 [0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16

Dependency: Refer to: p8851
Note: IF2: Interface 2

r8863[0...14] IF2 diagnostics PZD send double word / IF2 diag send DW

SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2487 Unit selection: - Expert list: 1 Factory setting -
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Description: Displays the PZD sent via interface 2 (actual values) with double word format.

Index:
 [0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
	16	Bit 16	On	Off	-
	17	Bit 17	On	Off	-
	18	Bit 18	On	Off	-
	19	Bit 19	On	Off	-
	20	Bit 20	On	Off	-
	21	Bit 21	On	Off	-
	22	Bit 22	On	Off	-
	23	Bit 23	On	Off	-
	24	Bit 24	On	Off	-
	25	Bit 25	On	Off	-
	26	Bit 26	On	Off	-
	27	Bit 27	On	Off	-
	28	Bit 28	On	Off	-
	29	Bit 29	On	Off	-
	30	Bit 30	On	Off	-
	31	Bit 31	On	Off	-

Note: IF2: Interface 2

r8874[0...4]	IF2 diagnostics bus address PZD receive / IF2 diag addr recv		
A_INF, B_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the bus address of sender from which the PZD is received.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		

r8874[0...15]	IF2 diagnostics bus address PZD receive / IF2 diag addr recv		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the bus address of sender from which the PZD is received.		

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

Note:

IF2: Interface 2

Value range:

0 - 125: Bus address of the sender

255: Not occupied

r8875[0...4]		IF2 diagnostics telegram offset PZD receive / IF diag offs recv	
A_INF, B_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the byte offset of the PZD in the receive telegram.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		

r8875[0...15]		IF2 diagnostics telegram offset PZD receive / IF diag offs recv	
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the byte offset of the PZD in the receive telegram.		
Index:	[0] = PZD 1		
	[1] = PZD 2		
	[2] = PZD 3		
	[3] = PZD 4		
	[4] = PZD 5		
	[5] = PZD 6		
	[6] = PZD 7		
	[7] = PZD 8		
	[8] = PZD 9		
	[9] = PZD 10		
	[10] = PZD 11		
	[11] = PZD 12		
	[12] = PZD 13		
	[13] = PZD 14		
	[14] = PZD 15		

Note: [15] = PZD 16
 IF2: Interface 2
 Value range:
 0 - 242: Byte offset
 255: Not occupied

r8876[0...7]		IF2 diagnostics telegram offset PZD send / IF2 diag offs send	
A_INF, B_INF, S_INF	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the byte offset of the PZD in the send telegram.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8		

r8876[0...15]		IF2 diagnostics telegram offset PZD send / IF2 diag offs send	
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the byte offset of the PZD in the send telegram.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16		
Note:	IF2: Interface 2 Value range: 0 - 242: Byte offset 255: Not occupied		

p8880[0...15] BI: IF2 binector-connector converter status word 1 / Bin/con ZSW1			
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2489
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form status word 1.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p8888, r8889		

p8881[0...15] BI: IF2 binector-connector converter status word 2 / Bin/con ZSW2			
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2489
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form status word 2.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p8888, r8889		

p8882[0...15]	BI: IF2 binector-connector converter status word 3 / Bin/con ZSW3		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2489
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form free status word 3.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p8888, r8889		
p8883[0...15]	BI: IF2 binector-connector converter status word 4 / Bin/con ZSW4		
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2489
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form free status word 4.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p8888, r8889		

p8888[0...3] IF2 invert binector-connector converter status word / Bin/con ZSW inv					
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: U, T		Calculated: -	Access level: 3	
	Data type: Unsigned16		Dynamic index: -	Func. diagram: -	
	P-Group: Communications		Units group: -	Unit selection: -	
	Not for motor type: -			Expert list: 1	
	Min		Max	Factory setting	
	-	-		0000 bin	
Description: Setting to invert the individual binector inputs of the binector connector converter.					
Index: [0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-
Dependency: Refer to: p8880, p8881, p8882, p8883, r8889					

r8889[0...3]		CO: IF2 send binector-connector converter status word / Bin/con ZSW send				
A_INF, B_INF, SERVO, S_INF, VECTOR	Can be changed: -		Calculated: -		Access level: 3	
	Data type: Unsigned16		Dynamic index: -		Func. diagram: -	
	P-Group: Communications		Units group: -		Unit selection: -	
	Not for motor type: -				Expert list: 1	
	Min		Max		Factory setting	
	-		-		-	
Description:		Connector output to interconnect the status words to a PZD send word.				
Index:		[0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4				
Bit field:		Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0		On	Off	-
	01	Bit 1		On	Off	-
	02	Bit 2		On	Off	-
	03	Bit 3		On	Off	-
	04	Bit 4		On	Off	-
	05	Bit 5		On	Off	-
	06	Bit 6		On	Off	-
	07	Bit 7		On	Off	-
	08	Bit 8		On	Off	-
	09	Bit 9		On	Off	-
	10	Bit 10		On	Off	-
	11	Bit 11		On	Off	-

12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Dependency: Refer to: p8851, p8880, p8881, p8882, p8883

Note: r8889 together with p8880 to p8883 forms four binector-connector converters.

r8890.0...15 BO: IF2 PZD1 receive bit-serial / IF2 PZD1 recv bitw

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Func. diagram: 2485, 2491,
9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received via interface 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8891.0...15 BO: IF2 PZD2 receive bit-serial / IF2 PZD2 recv bitw

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Func. diagram: 2485, 2491,
9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Binector output for bit-serial interconnection of PZD2 received via interface 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-

11	Bit 11	On	Off	-
12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8892.0...15 BO: IF2 PZD3 receive bit-serial / IF2 PZD3 recv bitw

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2485, 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Binector output for bit-serial interconnection of PZD3 received via interface 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8893.0...15 BO: IF2 PZD4 receive bit-serial / IF2 PZD4 recv bitw

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2485, 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received via interface 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-

10	Bit 10	On	Off	-
11	Bit 11	On	Off	-
12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8894.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: -

Data type: Unsigned16

P-Group: Communications

Not for motor type: -

Calculated: -

Dynamic index: -

Units group: -

Access level: 3

Func. diagram: 2485, 2491

Unit selection: -

Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIBUS/PROFINET master .

The PZD is selected via p8899[0].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: p8899

r8895.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: -

Data type: Unsigned16

P-Group: Communications

Not for motor type: -

Calculated: -

Dynamic index: -

Units group: -

Access level: 3

Func. diagram: 2485, 2491

Unit selection: -

Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Binector output for bit-serial interconnection of a PZD word received from the PROFIBUS/PROFINET master.

The PZD is selected via p8899[1].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-

09	Bit 9	On	Off	-
10	Bit 10	On	Off	-
11	Bit 11	On	Off	-
12	Bit 12	On	Off	-
13	Bit 13	On	Off	-
14	Bit 14	On	Off	-
15	Bit 15	On	Off	-

Dependency: Refer to: p8899

p8898[0...1] IF2 invert connector-binector converter binector output / Con/bin outp inv

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Func. diagram: 2485, 2491

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p8898[0], the signals of CI: p8899[0] are influenced.
Using p8898[1], the signals of CI: p8899[1] are influenced.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: r8894, r8895, p8899

p8899[0...1] CI: IF2 connector-binector converter signal source / Con/bin S_src

A_INF, B_INF,
SERVO, S_INF,
VECTOR

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Unsigned32 / Integer16

Dynamic index: -

Func. diagram: 2485, 2491

P-Group: Communications

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description: Sets the signal source for the connector-binector converter.
A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: Refer to: r8894, r8895

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted.
p8899[0...1] together with r8894.0...15 and r8895.0...15 forms two connector-binector converters:
Connector input p8899[0] to binector output in r8894.0...15
Connector input p8899[1] to binector output in r8895.0...15

p9300	SI motion monitoring clock cycle (Motor Module) / SI Mtn clock MM				
SERVO, VECTOR	Can be changed: C2		Calculated: -		Access level: 3
	Data type: Floating Point		Dynamic index: -		Func. diagram: -
	P-Group: Safety Integrated		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min 500.00 [µs]		Max 25000.00 [µs]		Factory setting 12000.00 [µs]
Description:	Sets the monitoring clock cycle for safe motion monitoring.				
Dependency:	Refer to: p0115, p9500 Refer to: F01652				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
Note:	The monitoring clock cycle must be a multiple of the position controller clock cycle.				

p9301	SI motion enable safety functions (Motor Module) / SI Mtn enable MM				
SERVO, VECTOR	Can be changed: C2		Calculated: -		Access level: 3
	Data type: Unsigned32		Dynamic index: -		Func. diagram: -
	P-Group: Safety Integrated		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min -		Max -		Factory setting 0000 bin
Description:	Sets the enable signals for the safe motion monitoring.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable SOS/SLS	Enable	Inhibit	-
	03	Enable actual value synchronization	Enable	Inhibit	-
Dependency:	Refer to: p9501 Refer to: F01682, F01683				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operational Stop SLS: Safely Limited Speed				

p9302	SI motion axis type (Motor Module) / SI Mtn AxisType MM				
SERVO, VECTOR	Can be changed: C2		Calculated: -		Access level: 3
	Data type: Integer16		Dynamic index: -		Func. diagram: -
	P-Group: Safety Integrated		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min 0		Max 1		Factory setting 0
Description:	Sets the axis type (linear axis or rotary axis/spindle).				
Values:	0: Linear axis 1: Rot axis/spindle				
Dependency:	Refer to: p9502				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
Note:	For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload. A change only becomes effective after a POWER ON.				

p9316	SI motion encoder configuration, safety functions (Motor Module) / SI Mtn enc_cfg MM																		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 bin																
Description:	Sets the configuration for the encoder and position actual value. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.																		
Bit field:	<table> <tr> <th>Bit</th><th>Signal name</th><th>1 signal</th><th>0 signal</th><th>FP</th></tr> <tr> <td>00</td><td>Encoder rotating/linear</td><td>Linear</td><td>Rotating:</td><td>-</td></tr> <tr> <td>01</td><td>Position actual value sign change</td><td>Yes</td><td>No</td><td>-</td></tr> </table>	Bit	Signal name	1 signal	0 signal	FP	00	Encoder rotating/linear	Linear	Rotating:	-	01	Position actual value sign change	Yes	No	-			
Bit	Signal name	1 signal	0 signal	FP															
00	Encoder rotating/linear	Linear	Rotating:	-															
01	Position actual value sign change	Yes	No	-															
Dependency:	Refer to: p0404, p0410, p9516																		
Note:	A change only becomes effective after a POWER ON.																		
p9317	SI motion linear scale grid division (Motor Module) / SI Mtn grid MM																		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 10000.00 [nm]																
Description:	Sets the grid division for a linear encoder. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.																		
Dependency:	Refer to: p0407, p9316																		
Note:	A change only becomes effective after a POWER ON.																		
p9318	SI motion encoder pulses per revolution (Motor Module) / SI Mtn p/rev MM																		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 2048																
Description:	Sets the number of encoder pulses per revolution for rotary encoders. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.																		
Dependency:	Refer to: p0408, p9316																		
Note:	A change only becomes effective after a POWER ON.																		

p9319	SI motion fine resolution G1_XIST1 (Motor Module) / SI Mtn G1_XIST1 MM		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 2 Max 18 Factory setting 11
Description:	Sets the fine resolution for G1_XIST1 in bits. For safe functions that are not enabled (p9301 = 0), the following applies: p9319 is automatically set the same as p0418 at run-up. For safety functions that are enabled (p9301 > 0), the following applies: p9319 is checked to see that it matches p0418. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		
Dependency:	Refer to: p0418 Refer to: F01670, F01671		
Note:	A change only becomes effective after a POWER ON. G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)		
p9320	SI motion spindle pitch (Motor Module) / SI Mtn sp_pitch MM		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.1000 [mm] Max 8388.0000 [mm] Factory setting 10.0000 [mm]
Description:	Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		
Dependency:	Refer to: p9520		
Note:	A change only becomes effective after a POWER ON.		
p9321[0...7]	SI motion gearbox encoder/load denominator (Motor Module) / SI Mtn denom MM		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 1 Max 2147000000 Factory setting 1
Description:	Sets the denominator for the gearbox between the encoder and load. The actual gearbox stage is selected via safety-relevant inputs (SGE). The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	Refer to: p9322		

Note: A change only becomes effective after a POWER ON.

p9322[0...7]	SI motion gearbox encoder/load numerator (Motor Module) / SI Mtn numer MM		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the numerator for the gearbox between the encoder and load. The actual gearbox stage is selected via safety-relevant inputs (SGE). The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	Refer to: p9321		
Note:	A change only becomes effective after a POWER ON.		
p9326	SI motion encoder assignment (Motor Module) / SI Mtn encoder MM		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the number of the encoder that the Motor Module uses for safe motion monitoring functions.		
Dependency:	For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1). Refer to: p0187, p0188, p0189, p0430, p9526		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	For p9326 = 1 the following applies: Motor Module uses an encoder for closed-loop speed control, it involves a 1-encoder system. A change only becomes effective after a POWER ON.		
p9328[0...11]	SI Motion Sensor Module Node Identifier (Motor Module) / SI Mtn SM Ident MM		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned8 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Sets the node identifier of the Sensor Module that is used by the Motor Module for the motion monitoring functions.		
Dependency:	Refer to: r9881		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		

p9330	SI motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [mm]	Max 100.000 [mm]	Factory setting 1.000 [mm]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: p9530 Refer to: C01707		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operational Stop		


p9330	SI motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [°]	Max 100.000 [°]	Factory setting 1.000 [°]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: p9530 Refer to: C01707		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operational Stop		


p9331[0...3]	SI motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 2000.00 [mm/min]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9363, p9531 Refer to: C01714		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed		

p9331[0...3] SI motion SLS limit values (Motor Module) / SI Mtn SLS lim MM			
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [RPM]	Max 1000000.00 [RPM]	Factory setting 2000.00 [RPM]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9363, p9531 Refer to: C01714		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed		

p9342 SI motion act val comparison tol (crosswise) (Motor Module) / SI Mtn act tol MM			
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0010 [mm]	Max 360.0000 [mm]	Factory setting 0.1000 [mm]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: p9542 Refer to: C01711		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON.		

p9342 SI motion act val comparison tol (crosswise) (Motor Module) / SI Mtn act tol MM			
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0010 [°]	Max 360.0000 [°]	Factory setting 0.1000 [°]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: p9542 Refer to: C01711		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON.		

p9346 SI motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM			
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 20.00 [mm/min]
Description:	Sets the velocity limit for the SSM feedback signal to detect standstill. When this limit value is fallen below, the signal "SSM feedback signal active" is set.		
Dependency:	Refer to: p9546		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched-out after the selected threshold value is fallen below.		
			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		

p9346 SI motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM			
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 1000000.00 [RPM]	Factory setting 20.00 [RPM]
Description:	Sets the velocity limit for the SSM feedback signal to detect standstill. When this limit value is fallen below, the signal "SSM feedback signal active" is set.		
Dependency:	Refer to: p9546		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched-out after the selected threshold value is fallen below.		
			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		

p9348 SI motion SBR actual velocity tolerance (Motor Module) / SI Mtn SBR Tol MM			
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 120000.00 [mm/min]	Factory setting 300.00 [mm/min]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: p9548 Refer to: C01706		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor		

p9348	SI motion SBR actual velocity tolerance (Motor Module) / SI Mtn SBR Tol MM		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 120000.00 [RPM]	Factory setting 300.00 [RPM]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: p9548 Refer to: C01706		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor		
p9349	SI motion slip velocity tolerance (Motor Module) / SI Mtn slip MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 6.00 [mm/min]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in cross-check between the Control Unit and the Motor Module.		
Dependency:	Refer to: p9301, p9342, p9549		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.		
p9349	SI motion slip velocity tolerance (Motor Module) / SI Mtn slip MM		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 6000.00 [RPM]	Factory setting 6.00 [RPM]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in cross-check between the Control Unit and the Motor Module.		
Dependency:	Refer to: p9301, p9342, p9549		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.		

p9351	SI Motion SLS changeover delay time (Motor Module) / SI Mtn SLS t MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]
Description:	Sets the delay time for the SLS changeover or for the changeover from SLS to SOS for the function "Safely Limited Speed" (SLS). When transitioning from a higher to a lower safely-limited velocity/speed stage or to the safe operating stop (SOS), within this delay time, the "old" velocity stage remains active. Even if SLS or SOS is activated from non safety-related operation, then this delay is still applied.		
Dependency:	Refer to: p9551		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely Limited Speed SOS: Safe Operating Stop		
p9352	SI Motion transition time STOP C to SOS (Motor Module) / SI Mtn t C->SOS MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]
Description:	Sets the transition time from STOP C to "safe operating stop" (SOS).		
Dependency:	Refer to: p9552		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operational Stop		
p9353	SI Motion transition time STOP D to SOS (Motor Module) / SI Mtn t D->SOS MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]
Description:	Sets the transition time from STOP D to "safe operating stop" (SOS).		
Dependency:	Refer to: p9553		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop		

p9355 SI motion transition time STOP F to STOP B (Motor Module) / SI Mtn t F->B MM

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 0.00 [µs]

Description: Sets the transition time from STOP F to STOP B.

Dependency: Refer to: C01711

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

p9356 SI motion pulse cancelation delay time (Motor Module) / SI Mtn IL t_del MM

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the delay time for the safe pulse cancelation after STOP B / SS1.

Dependency: Refer to: p9360, p9556

Refer to: C01701

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

SS1: Safe Stop 1

p9357 SI motion pulse cancelation test time (Motor Module) / SI Mtn IL t MM

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 10000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the time after which the pulses must have been canceled when initiating the test stop.

Dependency: Refer to: p9557

Refer to: C01798

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

p9358 SI motion acceptance test mode time limit (Motor Module) / SI Mtn acc t MM

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 5000000.00 [µs]	Max 100000000.00 [µs]	Factory setting 40000000.00 [µs]

Description: Sets the maximum time for the acceptance test mode.

If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.

Dependency: Refer to: p9558

Refer to: C01799

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

p9360 SI motion pulse cancelation shutdown velocity (Motor Module) / SI Mtn IL v_shutMM			
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 0.00 [mm/min]
Description:	Sets the shutdown velocity for pulse cancelation. Below this velocity "standstill" is assumed and for STOP B / SS1, the pulses are canceled (by changing to STOP A).		
Dependency:	Refer to: p9356, p9560		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SS1: Safe Stop 1		

p9360 SI motion pulse cancelation shutdown speed (Motor Module) / SI Mtn IL n_shutMM			
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 6000.00 [RPM]	Factory setting 0.00 [RPM]
Description:	Sets the shutdown speed for the pulse cancelation. Below this speed "standstill" is assumed and for STOP B / SS1, the pulses are canceled (by changing to STOP A).		
Dependency:	Refer to: p9356, p9560		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SS1: Safe Stop 1		

p9363[0...3] SI motion SLS stop response (Motor Module) / SI Mtn SLS Stop MM			
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 14	Factory setting 2
Description:	Sets the stop response for the function "safely reduced speed" (SLS). These settings apply to the individual limit values for SLS.		
Values:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 10: STOP A with delayed pulse cancelation when the bus fails 11: STOP B with delayed pulse cancelation when the bus fails 12: STOP C with delayed pulse cancelation when the bus fails 13: STOP D with delayed pulse cancelation when the bus fails 14: STOP E with delayed pulse cancelation when the bus fails		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		

Dependency: Refer to: p9331, p9380, p9563

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.
Values 10 to 14 are being prepared and are presently ineffective.

Note: A change only becomes effective after a POWER ON.
SLS: Safely-Limited Speed / SG: Safely reduced speed

p9370 **SI motion acceptance test mode (Motor Module) / SI Mtn acc_mod MM**

SERVO, VECTOR **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0000 hex 00AC hex 0000 hex

Description: Setting to select and de-select the acceptance test mode.

Values: 0: [00 hex] De-select the acceptance test mode
172: [AC hex] Select the acceptance test mode

Dependency: Refer to: p9358, r9371
Refer to: C01799

r9371 **SI motion acceptance test status (Motor Module) / SI Mtn acc_stat MM**

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0000 hex 00AC hex -

Description: Displays the status of the acceptance test mode.

Values: 0: [00 hex] Acc_mode inactive
12: [0C hex] Acc_mode not possible due to POWER ON fault
13: [0D hex] Acc_mode not possible due to incorrect ID in p9370
15: [0F hex] Acc_mode not possible due to expired Acc_timer
172: [AC hex] Acc_mode active

Dependency: Refer to: p9358, p9370
Refer to: C01799

p9380 **SI motion pulse cancelation delay bus failure (Motor Module) / SI Mtn t to IL MM**

SERVO, VECTOR **Can be changed:** C2 **Calculated:** - **Access level:** 4
Data type: Floating Point **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
0.00 [µs] 800000.00 [µs] 0.00 [µs]

Description: Sets the delay time after which the pulses are safely canceled after a bus failure.

Dependency: Refer to: p9363

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.
The parameter is being prepared and is presently ineffective.

Note: A change only becomes effective after a POWER ON.

r9390[0...2] SI motion version safety motion monitoring (Motor Module) / SI Mtn Version MM

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated version for the safety motion monitoring functions on the Motor Module.

Index:
 [0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)

Dependency: Refer to: r9590, r9770, r9870, r9890

Note:
 Example:
 r9390[0] = 2, r9390[1] = 3, r9390[2] = 1 --> SI motion version V02.03.01

r9398[0...1] SI motion actual checksum SI parameters (Motor Module) / SI Mtn act CRC MM

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the checksum for the checked Safety Integrated parameters of the motion monitoring function (actual checksum) on the Motor Module.

Index:
 [0] = Checksum over SI parameters for motion monitoring
 [1] = Checksum over SI parameters with hardware reference

Dependency: Refer to: p9399

Note: SI: Safety Integrated

p9399[0...1] SI motion reference checksum SI parameters (Motor Module) / SI Mtn ref CRC MM

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters of the motion monitoring functions (reference checksum) on the Motor Module.

Index:
 [0] = Checksum over SI parameters for motion monitoring
 [1] = Checksum over SI parameters with hardware reference

Dependency: Refer to: r9398

Note: SI: Safety Integrated

r9406[0...19] PS file parameter number parameter not transferred / PS parameter No.			
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the parameters that were not able to be transferred when reading the parameter back-up files (PS files) from the CompactFlash card. r9406[0] = 0 --> All of the parameter values were able to be transferred error-free. r9406[0...x] > 0 --> Displays the parameter number whose value was not able to be completely transferred or for an indexed parameter, for at least 1 index, was not able to be transferred. The first index that is not transferred is displayed in r9407.		
Dependency:	Refer to: r9407, r9408		
Note:	All indices from r9406 to r9408 designate the same parameter. r9406[x] parameter number, parameter not accepted r9407[x] parameter index, parameter not accepted r9408[x] fault code, parameter not accepted		

r9407[0...19] PS file parameter index parameter not transferred / PS parameter index			
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the first index of the parameter that was not able to be transferred when reading the parameter back-up files (PS files) from the CompactFlash card. If, from an indexed parameter, at least one index was not able to be transferred, then the parameter number is displayed in r9406[n] and the first index that was not transferred is displayed in r9407[n]. r9406[0] = 0 --> All of the parameter values were able to be transferred error-free. r9406[n] > 0 --> Displays r9407[n] the first index of the parameter number r9406[n] that was not transferred.		
Dependency:	Refer to: r9406, r9408		
Note:	All indices from r9406 to r9408 designate the same parameter. r9406[x] parameter number, parameter not accepted r9407[x] parameter index, parameter not accepted r9408[x] fault code, parameter not accepted		

r9408[0...19] PS file fault code parameter not transferred / PS fault code

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, DMC20,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41, VEC-
TOR

Can be changed: -
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 1
Func. diagram: -
Unit selection: -
Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Only for internal Siemens service.

Dependency: Refer to: r9406, r9407

Note: All indices from r9406 to r9408 designate the same parameter.
r9406[x] parameter number, parameter not accepted
r9407[x] parameter index, parameter not accepted
r9408[x] fault code, parameter not accepted

r9409 Number of parameters to be saved / Qty par to save

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, DMC20,
SERVO, S_INF,
TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41, VEC-
TOR

Can be changed: -
Data type: Unsigned16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 4
Func. diagram: -
Unit selection: -
Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Displays the number of modified parameters and those that have still not be saved for this drive object.

Dependency: Refer to: p0971, p0977

Note: The modified parameters that still need to be saved are internally listed in r9410 ... r9419.

r9450[0...29] Displays para. that cannot be calc. after int. ref. value change / Diag int ref chng

A_INF, B_INF,
SERVO, S_INF,
TM41, VECTOR

Can be changed: -
Data type: Unsigned32
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 2
Func. diagram: -
Unit selection: -
Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Displays the parameters for which the re-calculation was unsuccessful after an internal system reference value change.

Dependency: Refer to: F07086

r9451[0...29] Units changeover adapted parameters / Unit_chngov par

A_INF, B_INF,
SERVO, S_INF,
TM41, VECTOR

Can be changed: -
Data type: Unsigned32
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 1
Func. diagram: -
Unit selection: -
Expert list: 1

Min

-

Max

-

Factory setting

-

Description: Displays the parameters whose parameter would have to be changed during a units changeover.

Dependency: Refer to: F07088

r9481 Number of BICO interconnections / BICO count

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, SERVO,
S_INF, TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41,
TM54F_MA,
TM54F_SL, VEC-
TOR

Can be changed: -
Data type: Unsigned16
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 0

Min

-

Max

-

Factory setting

-

Description: Displays the number of BICO interconnections (signal drains) to other drive objects.
The selected BICO interconnections should be entered into r9482[0...59] and r9483[0...59].

Dependency: Refer to: r9482, r9483

r9482[0...59] BICO interconnections BI/CI parameters / BICO BI/CI par

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, SERVO,
S_INF, TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41,
TM54F_MA,
TM54F_SL, VEC-
TOR

Can be changed: -
Data type: Unsigned32
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 0

Min

-

Max

-

Factory setting

-

Description: Displays the signal drains (Binector/Connector Inputs, BI/CI parameters) to other drive objects.
The number of BICO interconnections to other drive objects is displayed in r9481.

Dependency: Refer to: r9481, r9483

Note: The list is sorted according to signal sources and is structured as follows:
r9842[0]: Interconnection 1 (signal drain, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)
r9842[1]: Interconnection 2 (signal drain, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)
...

r9483[0...59] BICO interconnections BO/CO parameters / BICO BO/CO par

A_INF, B_INF,
CU_CX32, CU_LINK,
CU_S, SERVO,
S_INF, TB30, TM15,
TM15DI_DO, TM17,
TM31, TM41,
TM54F_MA,
TM54F_SL, VEC-
TOR

Can be changed: -
Data type: Unsigned32
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 0

Min

-

Max

-

Factory setting

-

Description: Displays the signal sources (Binector/Connector Outputs, BO/CO parameters) to other drive objects.
The number of BICO interconnections to other drive objects is displayed in r9481.

Dependency: Refer to: r9481, r9482

Note: The list is sorted according to signal sources and is structured as follows:
r9842[0]: Interconnection 1 (signal drain, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)
r9842[1]: Interconnection 2 (signal drain, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)
...

p9484	BICO interconnections search signal source / BICO S_src srch		
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VEC- TOR	Can be changed: T Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min 0	Max 4294967295	Factory setting 0
Description:	Sets the signal source (BO/CO parameter, BICO coded) to search in the signal drains. The question is answered: How often is a connection made to a signal source in the drive object and from which index are these interconnections saved (r9482[0...59], r9483[0...59])?		
Dependency:	Refer to: r9481, r9482, r9483, r9485, r9486		
r9485	BICO interconnections signal source search count / BICO S_src srchQty		
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VEC- TOR	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the number of BICO interconnections to the signal drain being searched for. The signal source to be searched is set in p9484 (BICO-coded). The search result is contained in r9482[0...59] and r9483[0...59] and is specified by the count (r9485) and the first index (r9486).		
Dependency:	Refer to: r9481, r9482, r9483, p9484, r9486		
r9486	BICO interconnections signal source search first index / BICO S_src srchIdx		
A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VEC- TOR	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the first index of the signal source being searched for. The signal source to be searched is set in p9484 (BICO-coded). The search result is contained in r9482[0...59] and r9483[0...59] and is specified by the count (r9485) and the first index (r9486).		
Dependency:	Refer to: r9481, r9482, r9483, p9484, r9485		

r9490	Number of BICO interconnections to other drives / Qty BICO to drive		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the number of signal sources from this drive to other drives/drive objects (Binector Output/Connector Output, BO/CO).		
Dependency:	Refer to: r9491, r9492, p9493		
r9491[0...9]	BI/CI of BICO interconnections to other drives / BI/CI to drive		
All objects	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the signal receiver list (Binector Input/Connector Input, BI/CI) for the first interconnections between this drive and other drives/drive objects.		
Dependency:	Refer to: r9490, r9492, p9493		
Notice:	A drive cannot be deleted if this list is not empty! Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.		
Note:	All indices of r9491 to p9493 designate the same interconnection. r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.		
r9492[0...9]	BO/CO of BICO interconnections to other drives / BO/CO to drive		
All objects	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the signal source list (Binector Output/Connector Output, BO/CO) for the first interconnections between this drive and other drives/drive objects.		
Dependency:	Refer to: r9490, r9491, p9493		
Notice:	A drive cannot be deleted if this list is not empty! Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.		
Note:	All indices of r9491 to p9493 designate the same interconnection. r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.		
p9493[0...9]	Reset BICO interconnections to other drives / Reset BICO to drv		
All objects	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 15	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 15
Description:	Setting to reset the BICO interconnections to other drives. Each interconnection can be individually reset.		

Values:

- 0: Set connection to 0
- 1: Set connection to 1 (100 %)
- 2: Set connection to factory setting
- 15: Finished

Dependency: Refer to: r9490, r9491, r9492

Note: All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9495 BICO behavior to de-activated drive objects / Behav to deact obj

A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
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Min	Max	Factory setting
0	2	0

Description: Setting for the behavior for BICO interconnections to other non-operational/de-activated drive objects.
If this drive object has BICO interconnections to other non-operational or de-activated drive objects as drain, then using these parameters, all of the associated BI/CI parameters of this drive object can be marked and then set to the factory setting or only marked.

Values:

- 0: Do not do anything
- 1: Mark connection
- 2: Mark connection and then set to the factory setting

Dependency: Refer to: p9496, p9497, r9498, r9499

Refer to: A01318, A01507

Note: The BI/CI parameters involved are listed in r9498[0...29] (drain).
The associated BO/CO parameters are listed in r9499[0...29] (source).
However, r9498 and r9499 are only then filled if p9495 is not equal to 0, otherwise they remain empty.

p9496 Restore BICO to the drive objects that are now activated / Rest BICO act obj

A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC- TOR	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
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Min	Max	Factory setting
0	2	0

Description: If this drive object has BICO interconnections to other drive objects that are either not operational or have been de-activated, then using this parameter, all of the BI/CI parameters involved with this drive object can be re-established.

Values:

- 0: Do not do anything
- 1: Restore the connections from the list
- 2: Delete the connection from the list

Dependency: Refer to: p9495, p9497, r9498, r9499

Refer to: A01318, A01507

Note: The BI/CI parameters involved are listed in r9498[0...29] (drain).
The associated BO/CO parameters are listed in r9499[0...29] (source).
After setting p9496 to 1 or 2, r9498 and r9499 are reset, r9497 is set to 0 and p9496 itself is set to 0.

p9497 BICO number of interconnections to de-activated drive objects / Qty to deact obj

A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC-TOR

Can be changed: T
Data type: Unsigned16
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min 0 **Max** 65535 **Factory setting** 0

Description: Displays the number of signal drains of this drive object to other drives/drive objects that are no longer operational/de-activated (Binector Input/Connector Input, BI/CI).

Dependency: Refer to: p9495, p9496, r9498, r9499
Refer to: A01318, A01507

Note: The parameter is only used for display purposes and cannot be written into.

r9498[0...29] BICO BI/CI parameters to de-activated drive objects / BI/CI to deact obj

A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC-TOR

Can be changed: -
Data type: Unsigned32
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min - **Max** - **Factory setting** -

Description: List of the BI/CI parameters that represent a connection to non-operational/de-activated drive objects.

Dependency: Refer to: p9495, p9496, p9497, r9499
Refer to: A01318, A01507

Note: All indices from r9498 to r9499 designate the same BICO interconnection.
This signal drain is in r9498[x] and the associated signal source in r9499[x].

r9499[0...29] BICO BO/CO parameters to de-activated drive objects / BO/CO to deact obj

A_INF, B_INF, CU_CX32, CU_LINK, CU_S, SERVO, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, VEC-TOR

Can be changed: -
Data type: Unsigned32
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -

Access level: 3
Func. diagram: -
Unit selection: -
Expert list: 1

Min - **Max** - **Factory setting** -

Description: List of the BO/CO parameters that represent a connection to non-operational/de-activated drive objects.

Dependency: Refer to: p9495, p9496, p9497, r9498
Refer to: A01318, A01507

Note: All indices from r9498 to r9499 designate the same BICO interconnection.
This signal drain is in r9498[x] and the associated signal source in r9499[x].

p9500	SI motion monitoring clock cycle (Control Unit) / SI Mtn mon_clk_cyc		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.50 [ms]	Max 25.00 [ms]	Factory setting 12.00 [ms]
Description:	Sets the monitoring clock cycle for safe motion monitoring.		
Dependency:	Refer to: p0115 Refer to: F01652		
Note:	The monitoring clock cycle must be a multiple of the position controller clock cycle.		

p9501	SI motion enable safety functions (Control Unit) / SI Mtn enab fct				
SERVO, VECTOR	Can be changed: C2		Calculated: -	Access level: 3	
	Data type: Unsigned32		Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated		Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1		
	Min -	Max -		Factory setting 0000 bin	
Description:	Sets the enable signals for the safe motion monitoring.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable SOS/SLS (SBH/SG)	Enable	Inhibit	-
	01	Enable SLP (SE)	Enable	Inhibit	-
	03	Enable actual value synchronization	Enable	Inhibit	-
	04	Enable external ESR activation	Enable	Inhibit	-
	05	Enable override SLS (SG)	Enable	Inhibit	-
	06	Enable external STOPS	Enable	Inhibit	-
	07	Enable cam synchronization	Enable	Inhibit	-
	08	Enable SCA1+ (SN1+)	Enable	Inhibit	-
	09	Enable SCA1- (SN1-)	Enable	Inhibit	-
	10	Enable SCA2+ (SN2+)	Enable	Inhibit	-
	11	Enable SCA2- (SN2-)	Enable	Inhibit	-
	12	Enable SCA3+ (SN3+)	Enable	Inhibit	-
	13	Enable SCA3- (SN3-)	Enable	Inhibit	-
	14	Enable SCA4+ (SN4+)	Enable	Inhibit	-
	15	Enable SCA4- (SN4-)	Enable	Inhibit	-
Dependency:	Refer to: F01682, F01683				
Note:	A change only becomes effective after a POWER ON.				
	Re bit 06:				
	For the motion monitoring functions integrated in the drive, the enable for the external stops is of no significance.				
	ESR: Extended Stopping and Retraction				
	SCA: Safe Cam / SN: Safe software cam				
	SLP: Safely-Limited Position / SE: Safe software limit switches				
	SLS: Safely-Limited Speed / SG: Safely reduced speed				
	SOS: Safe Operating Stop / SBH: Safe operating stop				

p9502 SI motion axis type (Control Unit) / SI Mtn axis type

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Sets the axis type (linear axis or rotary axis/spindle).

Values:
0: Linear axis
1: Rot axis/spindle

Note: For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload.

A change only becomes effective after a POWER ON.

p9503 SI motion SCA (SN) enable (Control Unit) / SI Mtn SCA enab

SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0000 bin

Description: Setting to enable the function "Safe Cam" (SCA).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable SCA1 (SN1)	Enable	Inhibit	-
	01	Enable SCA2 (SN2)	Enable	Inhibit	-
	02	Enable SCA3 (SN3)	Enable	Inhibit	-
	03	Enable SCA4 (SN4)	Enable	Inhibit	-
	04	Enable SCA5 (SN5)	Enable	Inhibit	-
	05	Enable SCA6 (SN6)	Enable	Inhibit	-
	06	Enable SCA7 (SN7)	Enable	Inhibit	-
	07	Enable SCA8 (SN8)	Enable	Inhibit	-
	08	Enable SCA9 (SN9)	Enable	Inhibit	-
	09	Enable SCA10 (SN10)	Enable	Inhibit	-
	10	Enable SCA11 (SN11)	Enable	Inhibit	-
	11	Enable SCA12 (SN12)	Enable	Inhibit	-
	12	Enable SCA13 (SN13)	Enable	Inhibit	-
	13	Enable SCA14 (SN14)	Enable	Inhibit	-
	14	Enable SCA15 (SN15)	Enable	Inhibit	-
	15	Enable SCA16 (SN16)	Enable	Inhibit	-
	16	Enable SCA17 (SN17)	Enable	Inhibit	-
	17	Enable SCA18 (SN18)	Enable	Inhibit	-
	18	Enable SCA19 (SN19)	Enable	Inhibit	-
	19	Enable SCA20 (SN20)	Enable	Inhibit	-
	20	Enable SCA21 (SN21)	Enable	Inhibit	-
	21	Enable SCA22 (SN22)	Enable	Inhibit	-
	22	Enable SCA23 (SN23)	Enable	Inhibit	-
	23	Enable SCA24 (SN24)	Enable	Inhibit	-
	24	Enable SCA25 (SN25)	Enable	Inhibit	-
	25	Enable SCA26 (SN26)	Enable	Inhibit	-
	26	Enable SCA27 (SN27)	Enable	Inhibit	-
	27	Enable SCA28 (SN28)	Enable	Inhibit	-
	28	Enable SCA29 (SN29)	Enable	Inhibit	-
	29	Enable SCA30 (SN30)	Enable	Inhibit	-

Dependency:
Refer to: p9501
Refer to: F01686

Note: The "Safe Cam" function (SCA) can either be enabled using p9501 or p9503.
A change only becomes effective after a POWER ON.
SCA: Safe Cam / SN: Safe software cam

p9505		SI motion SCA (SN) modulo value (Control Unit) / SI Mtn SCA modulo	
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [°]	Max 737280 [°]	Factory setting 0 [°]
Description:	Sets the modulo range of the safe position actual value in degrees for the function "Safe Cam" (SCA) for rotary axes.		
Dependency:	Refer to: p9536, p9537		
Note:	A change only becomes effective after a POWER ON. SCA: Safe Cam / SN: Safe software cam		

p9510		SI Motion clock-cycle synchronous PROFIBUS master / SI Mtn sync master	
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Setting for the clock-cycle synchronous PROFIBUS master. The parameter must be set if the safety-relevant motion monitoring functions integrated in the drive are enabled and there is a clock-cycle synchronous PROFIBUS master. This is, for example, the case when using the following controls: - clock-cycle synchronous control for the motion control (e.g. SIMOTION). - clock-cycle synchronous PROFIsafe master (e.g. SIMATIC S7-400F).		
Values:	0: No clock-cycle synchronous PROFIBUS master 1: Clock-cycle synchronous PROFIBUS master present		
Dependency:	Refer to: C01711, A01796		
Note:	A change only becomes effective after a POWER ON.		

p9516	SI motion motor encoder config., safety-relevant functions (CU) / SI Mtn enc_config				
SERVO, VECTOR	Can be changed: C2		Calculated: -		Access level: 3
	Data type: Unsigned16		Dynamic index: -		Func. diagram: -
	P-Group: Safety Integrated		Units group: -		Unit selection: -
	Not for motor type: -		Expert list: 1		
	Min		Max		Factory setting
	-		-		0000 bin
Description:	Sets the configuration for the motor encoder and position actual value.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor encoder, rotating/linear	Linear	Rotating:	-
	01	Position actual value, sign change	Yes	No	-
Dependency:	Refer to: p0404, p0410				
	Refer to: F01671				

Note: For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9516.0 is automatically set when booting as for p0410.1. When booting, p9516.1 is automatically set as for p0404.0.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9516.1 is checked to identify whether it coincides with p0404.0.
 A change only becomes effective after a POWER ON.

p9517 SI motion linear scale grid division (Control Unit) / SI Mtn grid			
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [nm]	Max 250000000.00 [nm]	Factory setting 10000.00 [nm]
Description:	Sets the grid division for a linear motor encoder.		
Dependency:	Refer to: p0407, p9516 Refer to: F01671		
Note:	For safety functions that have not been enabled (p9501 = 0), the following applies: When booting p9517 is automatically set the same as p0407. For safety functions that are enabled (p9501 > 0), the following applies: p9517 is checked as to whether it coincides with p0407. A change only becomes effective after a POWER ON.		

p9518 SI motion encoder pulses per revolution (Control Unit) / SI Mtn pulses/rev			
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 100000	Factory setting 2048
Description:	Sets the number of encoder pulses per revolution for rotary motor encoders.		
Dependency:	Refer to: p0408, p9516 Refer to: F01671		
Note:	For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9518 is automatically set the same as p0408. For safety functions that are enabled (p9501 > 0), the following applies: p9518 is checked as to whether it coincides with p0408. A change only becomes effective after a POWER ON.		

p9519 SI motion fine resolution G1_XIST1 (Control Unit) / SI Mtn G1_XIST1			
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2	Max 18	Factory setting 11
Description:	Sets the fine resolution for G1_XIST1 in bits.		
Dependency:	Refer to: p0418 Refer to: F01671		
Note:	For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9519 is automatically set the same as p0418. For safety functions that are enabled (p9501 > 0), the following applies: p9519 is checked as to whether it coincides with p0418.		

A change only becomes effective after a POWER ON.

G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)

p9520	SI motion spindle pitch (Control Unit) / SI Mtn Sp_pitch		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.1000 [mm]	Max 8388.0000 [mm]	Factory setting 10.0000 [mm]
Description:	Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder.		
Note:	A change only becomes effective after a POWER ON.		
p9521[0...7]	SI motion gearbox encoder/load denominator (Control Unit) / SI Mtn gear denom		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the denominator for the gearbox between the encoder and load. The actual gearbox stage is selected via safety-relevant inputs (SGE).		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	Refer to: p9522		
Note:	A change only becomes effective after a POWER ON.		
p9522[0...7]	SI motion gearbox encoder/load numerator (Control Unit) / SI Mtn gear numer		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the numerator for the gearbox between the encoder and load. The actual gearbox stage is selected via safety-relevant inputs (SGE).		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	Refer to: p9521		
Note:	A change only becomes effective after a POWER ON.		

p9526	SI motion encoder assignment second channel / SI Mtn enc chan 2		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 1 Max 3 Factory setting 1
Description:	Sets the number of the encoder that the second channel (control, Motor Module) uses for safe motion monitoring functions.		
Dependency:	For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1). Refer to: p0187, p0188, p0189, p0430		
Note:	For p9526 = 1, the encoder for the closed-loop speed control is used for the second channel of the motion monitoring functions (1-encoder system). A change only becomes effective after a POWER ON.		
p9530	SI motion standstill tolerance (Control Unit) / SI Mtn standst_tol		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.000 [mm] Max 100.000 [mm] Factory setting 1.000 [mm]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: C01707		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		
p9530	SI motion standstill tolerance (Control Unit) / SI Mtn standst_tol		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.000 [°] Max 100.000 [°] Factory setting 1.000 [°]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: C01707		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		
p9531[0...3]	SI motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0.00 [mm/min] Max 1000000.00 [mm/min] Factory setting 2000.00 [mm/min]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3		

[3] = Limit value SLP4

Dependency: Refer to: p9532, p9561, p9563
Refer to: C01714

Note: A change only becomes effective after a POWER ON.
SLS: Safely-Limited Speed / SG: Safely reduced speed

p9531[0...3] SI motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU

SERVO (Safety rot), VECTOR (Safety rot) **Can be changed:** C2 **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0.00 [RPM]	1000000.00 [RPM]	2000.00 [RPM]

Description: Sets the limit values for the function "Safely-Limited Speed" (SLS).

Index: [0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLP4

Dependency: Refer to: p9532, p9561, p9563
Refer to: C01714

Note: A change only becomes effective after a POWER ON.
SLS: Safely-Limited Speed / SG: Safely reduced speed

p9532[0...15] SI motion SLS (SG) override factor (Control Unit) / SI Mtn SLS over

SERVO, VECTOR **Can be changed:** U, T **Calculated:** - **Access level:** 4
Data type: Floating Point **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0.000 [%]	100.000 [%]	100.000 [%]

Description: Sets the override factor for the limit value for SLS2 and SLS4 for the function "Safely-Limited Speed" (SLS).

Index: [0] = SLS (SG) override factor 0
[1] = SLS (SG) override factor 1
[2] = SLS (SG) override factor 2
[3] = SLS (SG) override factor 3
[4] = SLS (SG) override factor 4
[5] = SLS (SG) override factor 5
[6] = SLS (SG) override factor 6
[7] = SLS (SG) override factor 7
[8] = SLS (SG) override factor 8
[9] = SLS (SG) override factor 9
[10] = SLS (SG) override factor 10
[11] = SLS (SG) override factor 11
[12] = SLS (SG) override factor 12
[13] = SLS (SG) override factor 13
[14] = SLS (SG) override factor 14
[15] = SLS (SG) override factor 15

Dependency: Refer to: p9501, p9531

Note: The actual override factor for SLS2 and SLS4 is selected using the safety-relevant inputs (SGE).
A change only becomes effective after a POWER ON.
SLS: Safely-Limited Speed / SG: Safely reduced speed

p9533	SI motion SLS setpoint velocity limiting (Control Unit) / SI Mtn SLS set_lim		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 80.000 [%]
Description:	This is an evaluation factor to define the setpoint limit from the selected actual speed limit. The active SLS limit value is evaluated with this factor and is made available as setpoint limit in r9733: $r9733 = p9533 * p9531[0...3]$		
Dependency:	This parameter only has to be parameterized for the motion monitoring functions integrated in the drive ($p9601.2 = 1$) Refer to: p9501, p9531, p9601		
Note:	The active actual speed limit is selected via safety-relevant inputs (SGE). When selecting SOS or a STOP A ... D, setpoint 0 is specified in r9733. A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed		
p9534[0...1]	SI motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100000.000 [mm]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	Refer to: p9501, p9535, p9562		
Note:	For the setting of these limit values, the following applies: $p9534 > p9535$ A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		
p9534[0...1]	SI motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100000.000 [°]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	Refer to: p9501, p9535, p9562		
Note:	For the setting of these limit values, the following applies: $p9534 > p9535$ A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		

p9535[0...1]	SI motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting -100000.000 [mm]
Description:	Sets the lower limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	Refer to: p9501, p9534, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		

p9535[0...1]	SI motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting -100000.000 [°]
Description:	Sets the lower limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	Refer to: p9501, p9534, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		

p9536[0...29]	SI motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting 10.000 [mm]
Description:	Sets the plus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7) [7] = Cam position SCA8 (SN8) [8] = Cam position SCA9 (SN9) [9] = Cam position SCA10 (SN10) [10] = Cam position SCA11 (SN11) [11] = Cam position SCA12 (SN12) [12] = Cam position SCA13 (SN13) [13] = Cam position SCA14 (SN14) [14] = Cam position SCA15 (SN15)		

[15] = Cam position SCA16 (SN16)
 [16] = Cam position SCA17 (SN17)
 [17] = Cam position SCA18 (SN18)
 [18] = Cam position SCA19 (SN19)
 [19] = Cam position SCA20 (SN20)
 [20] = Cam position SCA21 (SN21)
 [21] = Cam position SCA22 (SN22)
 [22] = Cam position SCA23 (SN23)
 [23] = Cam position SCA24 (SN24)
 [24] = Cam position SCA25 (SN25)
 [25] = Cam position SCA26 (SN26)
 [26] = Cam position SCA27 (SN27)
 [27] = Cam position SCA28 (SN28)
 [28] = Cam position SCA29 (SN29)
 [29] = Cam position SCA30 (SN30)

Dependency: Refer to: p9501, p9503, p9537
Note: A change only becomes effective after a POWER ON.
 SCA: Safe Cam / SN: Safe software cam

p9536[0...29] SI motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+

SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: - Min -2147000.000 [°]	Calculated: - Dynamic index: - Units group: - Max 2147000.000 [°]	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 10.000 [°]
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Description: Sets the plus cam position for the function "Safe Cam" (SCA).

Index:

[0] = Cam position SCA1 (SN1)
 [1] = Cam position SCA2 (SN2)
 [2] = Cam position SCA3 (SN3)
 [3] = Cam position SCA4 (SN4)
 [4] = Cam position SCA5 (SN5)
 [5] = Cam position SCA6 (SN6)
 [6] = Cam position SCA7 (SN7)
 [7] = Cam position SCA8 (SN8)
 [8] = Cam position SCA9 (SN9)
 [9] = Cam position SCA10 (SN10)
 [10] = Cam position SCA11 (SN11)
 [11] = Cam position SCA12 (SN12)
 [12] = Cam position SCA13 (SN13)
 [13] = Cam position SCA14 (SN14)
 [14] = Cam position SCA15 (SN15)
 [15] = Cam position SCA16 (SN16)
 [16] = Cam position SCA17 (SN17)
 [17] = Cam position SCA18 (SN18)
 [18] = Cam position SCA19 (SN19)
 [19] = Cam position SCA20 (SN20)
 [20] = Cam position SCA21 (SN21)
 [21] = Cam position SCA22 (SN22)
 [22] = Cam position SCA23 (SN23)
 [23] = Cam position SCA24 (SN24)
 [24] = Cam position SCA25 (SN25)
 [25] = Cam position SCA26 (SN26)
 [26] = Cam position SCA27 (SN27)
 [27] = Cam position SCA28 (SN28)
 [28] = Cam position SCA29 (SN29)
 [29] = Cam position SCA30 (SN30)

Dependency: Refer to: p9501, p9503, p9537
Note: A change only becomes effective after a POWER ON.
 SCA: Safe Cam / SN: Safe software cam

p9537[0...29] SI motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-			
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting -10.000 [mm]
Description:	Sets the minus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7) [7] = Cam position SCA8 (SN8) [8] = Cam position SCA9 (SN9) [9] = Cam position SCA10 (SN10) [10] = Cam position SCA11 (SN11) [11] = Cam position SCA12 (SN12) [12] = Cam position SCA13 (SN13) [13] = Cam position SCA14 (SN14) [14] = Cam position SCA15 (SN15) [15] = Cam position SCA16 (SN16) [16] = Cam position SCA17 (SN17) [17] = Cam position SCA18 (SN18) [18] = Cam position SCA19 (SN19) [19] = Cam position SCA20 (SN20) [20] = Cam position SCA21 (SN21) [21] = Cam position SCA22 (SN22) [22] = Cam position SCA23 (SN23) [23] = Cam position SCA24 (SN24) [24] = Cam position SCA25 (SN25) [25] = Cam position SCA26 (SN26) [26] = Cam position SCA27 (SN27) [27] = Cam position SCA28 (SN28) [28] = Cam position SCA29 (SN29) [29] = Cam position SCA30 (SN30)		
Dependency:	Refer to: p9501, p9503, p9536		
Note:	A change only becomes effective after a POWER ON. SCA: Safe Cam / SN: Safe software cam		

p9537[0...29] SI motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-			
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting -10.000 [°]
Description:	Sets the minus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7)		

[7] = Cam position SCA8 (SN8)
[8] = Cam position SCA9 (SN9)
[9] = Cam position SCA10 (SN10)
[10] = Cam position SCA11 (SN11)
[11] = Cam position SCA12 (SN12)
[12] = Cam position SCA13 (SN13)
[13] = Cam position SCA14 (SN14)
[14] = Cam position SCA15 (SN15)
[15] = Cam position SCA16 (SN16)
[16] = Cam position SCA17 (SN17)
[17] = Cam position SCA18 (SN18)
[18] = Cam position SCA19 (SN19)
[19] = Cam position SCA20 (SN20)
[20] = Cam position SCA21 (SN21)
[21] = Cam position SCA22 (SN22)
[22] = Cam position SCA23 (SN23)
[23] = Cam position SCA24 (SN24)
[24] = Cam position SCA25 (SN25)
[25] = Cam position SCA26 (SN26)
[26] = Cam position SCA27 (SN27)
[27] = Cam position SCA28 (SN28)
[28] = Cam position SCA29 (SN29)
[29] = Cam position SCA30 (SN30)

Dependency:

Refer to: p9501, p9503, p9536

Note:

A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9538[0...29] SI motion SCA (SN) cam track assignment (Control Unit) / SI Mtn SCA assign.

SERVO, VECTOR

Can be changed: U, T**Calculated:** -**Access level:** 4**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** -**P-Group:** Safety Integrated**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

100

414

[0] 100

[1] 101

[2] 102

[3] 103

[4] 104

[5] 105

[6] 106

[7] 107

[8] 108

[9] 109

[10] 110

[11] 111

[12] 112

[13] 113

[14] 114

[15] 200

[16] 201

[17] 202

[18] 203

[19] 204

[20] 205

[21] 206

[22] 207

[23] 208

[24] 209

[25] 210

[26] 211

[27] 212

[28] 213

[29] 214

Description:

Assigns the individual cams to the maximum of 4 cam tracks and defines the numerical value for the SGA "cam range".

p9538[0...29] = CBA dec

C = Assignment of the cam to the cam track.

Valid values are 1, 2, 3, 4.

BA = Numerical value for the SGA "cam range".

If the position lies in the range of this cam, the value BA is signaled to the safety-relevant logic via the SGA "cam range" of the cam track set using C.

Valid values are 0 ... 14. Each numerical value may only be used once for each cam track.

Examples:

p9538[0] = 207

Cam 1 (index 0) is assigned cam track 2. If the position lies within the range of this cam, a value of 7 is entered in the SGA "cam range" of the second cam track.

p9538[5] = 100

Cam 6 (index 5) is assigned cam track 1. If the position lies within the range of this cam, a value of 0 is entered in the SGA "cam range" of the first cam track.

Index:	[0] = Track assignment SCA1
	[1] = Track assignment SCA2
	[2] = Track assignment SCA3
	[3] = Track assignment SCA4
	[4] = Track assignment SCA5
	[5] = Track assignment SCA6
	[6] = Track assignment SCA7
	[7] = Track assignment SCA8
	[8] = Track assignment SCA9
	[9] = Track assignment SCA10
	[10] = Track assignment SCA11
	[11] = Track assignment SCA12
	[12] = Track assignment SCA13
	[13] = Track assignment SCA14
	[14] = Track assignment SCA15
	[15] = Track assignment SCA16
	[16] = Track assignment SCA17
	[17] = Track assignment SCA18
	[18] = Track assignment SCA19
	[19] = Track assignment SCA20
	[20] = Track assignment SCA21
	[21] = Track assignment SCA22
	[22] = Track assignment SCA23
	[23] = Track assignment SCA24
	[24] = Track assignment SCA25
	[25] = Track assignment SCA26
	[26] = Track assignment SCA27
	[27] = Track assignment SCA28
	[28] = Track assignment SCA29
	[29] = Track assignment SCA30

Dependency: Refer to: p9501, p9503

Refer to: C01681


Note: A change only becomes effective after a POWER ON.


SCA: Safe Cam / SN: Safe software cam

p9540		SI motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol	
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [mm]	Max 10.0000 [mm]	Factory setting 0.1000 [mm]
Description:	Sets the tolerance for the function "Safe Cam" (SCA). Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.		
Note:	A change only becomes effective after a POWER ON.		

p9540		SI motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol	
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [°]	Max 10.0000 [°]	Factory setting 0.1000 [°]
Description:	Sets the tolerance for the function "Safe Cam" (SCA). Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.		
Note:	A change only becomes effective after a POWER ON.		

p9542	SI motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act val tol		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0010 [mm]	Max 360.0000 [mm]	Factory setting 0.1000 [mm]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		
p9542	SI motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act val tol		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0010 [°]	Max 360.0000 [°]	Factory setting 0.1000 [°]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		
p9544	SI motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol		
SERVO, VECTOR	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0000 [mm]	Max 36.0000 [mm]	Factory setting 0.0100 [mm]
Description:	Sets the tolerance to check the actual values after referencing (incremental encoder) or when powering-up (absolute encoder).		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		
p9544	SI motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: U, T Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0000 [°]	Max 36.0000 [°]	Factory setting 0.0100 [°]
Description:	Sets the tolerance to check the actual values after referencing (incremental encoder) or when powering-up (absolute encoder).		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		

p9546	SI motion SSM (SGA n < nx) velocity limit n_x (CU) / SI Mtn SSM v_limCU		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 20.00 [mm/min]
Description:	Sets the velocity limit for the SSM feedback signal (n < n_x) to detect standstill. When this limit value is fallen below, the signal "SSM feedback signal active" (SGA n < n_x) is set.		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched-out after the selected threshold value is fallen below.		
			
Note:	A change only becomes effective after a POWER ON. F-DO: Failsafe Digital Output / SGA: Safety-related output SBR: Safe Acceleration Monitor SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx		

p9546	SI motion SSM (SGA n < nx) velocity limit n_x (CU) / SI Mtn SSM v_limCU		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 1000000.00 [RPM]	Factory setting 20.00 [RPM]
Description:	Sets the velocity limit for the SSM feedback signal (n < n_x) to detect standstill. When this limit value is fallen below, the signal "SSM feedback signal active" (SGA n < n_x) is set.		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched-out after the selected threshold value is fallen below.		
			
Note:	A change only becomes effective after a POWER ON. F-DO: Failsafe Digital Output / SGA: Safety-related output SBR: Safe Acceleration Monitor SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx		

p9548	SI motion SBR actual velocity tolerance (Control Unit) / SI Mtn SBR tol		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 120000.00 [mm/min]	Factory setting 300.00 [mm/min]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: C01706		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor		

p9548	SI motion SBR actual velocity tolerance (Control Unit) / SI Mtn SBR tol		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 120000.00 [RPM]	Factory setting 300.00 [RPM]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: C01706		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor		
p9549	SI motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 6.00 [mm/min]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.		
Dependency:	Refer to: p9501, p9542		
Note:	If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.		
p9549	SI motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [RPM]	Max 6000.00 [RPM]	Factory setting 6.00 [RPM]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.		
Dependency:	Refer to: p9501, p9542		
Note:	If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.		
p9550	SI motion SGE changeover tolerance time (Control Unit) / SI Mtn SGE_chg tol		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the tolerance time for the changeover of the safety-related inputs (SGE).		
Note:	A change only becomes effective after a POWER ON.		

p9551	SI motion SLS (SG) changeover delay time (Control Unit) / SI Mtn SLS t CU		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the delay time for the SLS changeover or for the changeover from SLS to SOS for the function "Safely-Limited Speed" (SLS). When transitioning from a higher to a lower safely-limited velocity/speed stage or to the safe operating stop (SOS), within this delay time, the "old" velocity stage remains active. Even if SLS or SOS is activated from non safety-related operation, then this delay is still applied.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed / SG: Safely reduced speed SOS: Safe Operating Stop / SBH: Safe operating stop		
p9552	SI motion transition time STOP C to SOS (SBH) (Control Unit) / SI Mtn t C->SOS CU		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the transition time from STOP C to "Safe Operating Stop" (SOS).		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		
p9553	SI motion transition time STOP D to SOS (SBH) (Control Unit) / SI Mtn t D->SOS CU		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the transition time from STOP D to "Safe Operating Stop" (SOS).		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		
p9554	SI motion transition time STOP E to SOS (SBH) (Control Unit) / SI Mtn time E->SOS		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the transition time from STOP E to "Safe Operating Stop" (SOS).		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		

p9555	SI motion transition time STOP F to STOP B (Control Unit) / SI Mtn t F->B CU		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the transition time from STOP F to STOP B.		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		
p9556	SI motion pulse cancelation delay time (Control Unit) / SI Mtn IL t_del CU		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the delay time for the safe pulse cancelation after STOP B.		
Dependency:	Refer to: p9560 Refer to: C01701		
Note:	A change only becomes effective after a POWER ON.		
p9557	SI motion pulse cancelation test time (Control Unit) / SI Mtn IL t_test		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the time after which the pulses must have been canceled when initiating the test stop.		
Dependency:	Refer to: C01798		
Note:	A change only becomes effective after a POWER ON.		
p9558	SI motion acceptance test mode time limit (Control Unit) / SI Mtn t_accept		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 5000.00 [ms]	Max 100000.00 [ms]	Factory setting 40000.00 [ms]
Description:	Sets the maximum time for the acceptance test mode. If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.		
Dependency:	Refer to: C01799		
Note:	A change only becomes effective after a POWER ON.		

p9559	SI motion forced checking procedure timer (Control Unit) / SI Mtn dyn timer		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [h]	Max 9000.00 [h]	Factory setting 8.00 [h]
Description:	Sets the time to carry out the forced checking procedure and test the safety motion monitoring functions integrated in the drives. Within the parameterized time, the safety functions must have been tested at least once including de-selecting the function "Safe Torque Off". The monitoring time is reset each time that the test is carried out. The signal source to initiate the forced checking procedure is parameterized in p9705.		
Dependency:	Refer to: p9705 Refer to: C01798		
Note:	A change only becomes effective after a POWER ON.		
p9560	SI motion pulse cancelation shutdown velocity (Control Unit) / SI Mtn IL v_shutCU		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 0.00 [mm/min]
Description:	Sets the shutdown velocity for pulse cancelation. Below this velocity "standstill" is assumed and for STOP B, the pulses are canceled (by changing to STOP A).		
Dependency:	Refer to: p9556		
Note:	A change only becomes effective after a POWER ON.		
p9560	SI motion pulse cancelation shutdown speed (Control Unit) / SI Mtn IL n_shutCU		
SERVO (Safety rot), VECTOR (Safety rot)	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [RPM]	Max 6000.00 [RPM]	Factory setting 0.00 [RPM]
Description:	Sets the shutdown speed for the pulse cancelation. Below this speed "standstill" is assumed and for STOP B, the pulses are canceled (by changing to STOP A).		
Dependency:	Refer to: p9556		
Note:	A change only becomes effective after a POWER ON.		
p9561	SI motion SLS (SG) stop response (Control Unit) / SI Mtn SLS resp		
SERVO, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 14	Factory setting 5
Description:	Sets the stop response for the function "Safely-Limited Speed" (SLS). This setting applies for all SLS limit values. An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection.		

Values:	0:	STOP A
	1:	STOP B
	2:	STOP C
	3:	STOP D
	4:	STOP E
	5:	Sets the stop response via p9563 (SLS-specific)
	10:	STOP A with delayed pulse cancelation when the bus fails
	11:	STOP B with delayed pulse cancelation when the bus fails
	12:	STOP C with delayed pulse cancelation when the bus fails
	13:	STOP D with delayed pulse cancelation when the bus fails
	14:	STOP E with delayed pulse cancelation when the bus fails
Dependency: Refer to: p9531, p9563, p9580		
Note: A change only becomes effective after a POWER ON.		
SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9562	SI motion SLP (SE) stop response (Control Unit) / SI Mtn SLP resp		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2	Max 4	Factory setting 2
Description:	Sets the stop response for the function "Safely-Limited Position" (SLP).		
Values:	2: STOP C		
	3: STOP D		
	4: STOP E		
Dependency:	Refer to: p9534, p9535		
Note:	A change only becomes effective after a POWER ON.		
	SLP: Safely-Limited Position / SE: Safe software limit switches		

p9563[0...3]	SI motion SLS (SG)-specific stop response (Control Unit) / SI Mtn SLS stop		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	14	2
Description:	Sets the SLS-specific stop response for the function "Safely-Limited Speed" (SLS). These settings apply to the individual limit values for SLS.		
Values:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 10: STOP A with delayed pulse cancelation when the bus fails 11: STOP B with delayed pulse cancelation when the bus fails 12: STOP C with delayed pulse cancelation when the bus fails 13: STOP D with delayed pulse cancelation when the bus fails 14: STOP E with delayed pulse cancelation when the bus fails		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9531, p9561, p9580		
Notice:	Values 10 to 14 are being prepared and are presently ineffective.		

Note: A change only becomes effective after a POWER ON.
SLS: Safely-Limited Speed / SG: Safely reduced speed

p9570	SI motion acceptance test mode (Control Unit) / SI Mtn Acc_mode		
SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting 0000 hex
Description:	Setting to select and de-select the acceptance test mode.		
Values:	0: [00 hex] De-select the acceptance test mode 172: [AC hex] Select the acceptance test mode		
Dependency:	Refer to: p9558, r9571 Refer to: C01799		

r9571	SI motion acceptance test status (Control Unit) / SI Mtn acc_status		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting -
Description:	Displays the status of the acceptance test mode.		
Values:	0: [00 hex] Acc_mode inactive 12: [0C hex] Acc_mode not possible due to POWER ON fault 13: [0D hex] Acc_mode not possible due to incorrect ID in p9570 15: [0F hex] Acc_mode not possible due to expired Acc_timer 172: [AC hex] Acc_mode active		
Dependency:	Refer to: p9558, p9570 Refer to: C01799		

p9580	SI motion pulse cancelation delay time after bus failure (CU) / SI Mtn t to IL		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 4
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 800.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the delay time after which the pulses are safely canceled after a bus failure.		
Dependency:	Refer to: p9561, p9563		
Notice:	The parameter is being prepared and is presently ineffective.		
Note:	A change only becomes effective after a POWER ON.		

r9590[0...2]	SI motion version safety motion monitoring (Control Unit) / SI Mtn version		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the Safety Integrated version for the safety motion monitoring functions on the Control Unit.		

Index: [0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)

Dependency: Refer to: r9770, r9870, r9890

Note: Example:
 r9590[0] = 2, r9590[1] = 3, r9590[2] = 1 --> SI motion version V02.03.01

p9601 SI enable, functions integrated in the drive (Control Unit) / SI enable fct CU

SERVO, VECTOR **Can be changed:** C2 **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the enable signals for safety functions on the Control Unit that are integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable STO (SH) via terminals (Control Unit)	Enable	Inhibit	2810
	02	Motion monitoring functions integr. in the drive (Control Unit)	Enable	Inhibit	-
	03	Enable PROFIsafe (Control Unit)	Enable	Inhibit	-

Dependency: Refer to: p9801

Note: For p9601.2 = 1 and p9601.3 = 0 the following apply:
 It is assumed that the motion monitoring functions integrated in the drive are controlled via the Terminal Module 54F (TM54F).
 CU: Control Unit
 STO: Safe Torque Off / SH: Safe standstill
 SI: Safety Integrated
 SMM: Safe Motion Monitoring

p9602 SI enable Safe Brake Control (Control Unit) / SI enable SBC CU

SERVO, VECTOR **Can be changed:** C2 **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Func. diagram:** 2814
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
0	1	0

Description: Sets the enable signal for the function "Safe Brake Control" (SBC) on the Control Unit.

Values:
 0: Inhibit SBC
 1: Enable SBC

Dependency: Refer to: p9802

Note: The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9601 not equal to 0).
 The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = p9802 = 1) is not practical if there is no motor holding brake.
 The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.
 It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).
 CU: Control Unit
 SBC: Safe Brake Control
 SI: Safety Integrated

p9610	SI PROFIsafe address (Control Unit) / SI PROFIsafe CU		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned16 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Max FFFE hex	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Sets the PROFIsafe address of the Control Unit.		
Dependency:	Refer to: p9810		
p9620[0...7]	BI: SI signal source for STO (SH)/SBC/SS1 (Control Unit) / SI S_srcSTO/SS1 CU		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 / Binary P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 2810 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the following functions on the Control Unit: STO: Safe Torque Off / SH: Safe standstill SBC: Safe Brake Control SS1: Safe Stop 1 (time monitored)		
Dependency:	Refer to: p9601		
Note:	The following signal sources are permitted: - fixed zero (standard setting). - digital inputs DI 0 to DI 7 on the Control Unit 320 (CU320). - digital inputs DI 0 to DI 3 on the Controller Extensions (CX32, NX10, NX15). - digital inputs DI 0 to DI 3 on the Control Unit 310 (CU310). It is not permitted to establish an interconnection to a digital input in the simulation mode. For a parallel circuit configuration of n power units, the following applies: p9620[0] = Signal source for power unit 1 ... p9620[n-1] = Signal source for power unit n		
p9650	SI SGE changeover tolerance time (Control Unit) / SI SGE_chg tol CU		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: - Min 0.00 [ms]	Calculated: - Dynamic index: - Units group: - Max 2000.00 [ms]	Access level: 3 Func. diagram: 2810 Unit selection: - Expert list: 1 Factory setting 500.00 [ms]
Description:	Sets the tolerance time to change over the safety-related inputs (SGE) on the Control Unit. An SGE changeover is not simultaneously effective due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a data cross-check during this tolerance time.		
Dependency:	Refer to: p9850		
Note:	For a data cross-check between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SGE: Safety-related input (e.g. STO terminals)		

p9652	SI Safe Stop 1 delay time (Control Unit) / SI Stop 1 t_del CU		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [s]
Description:	Sets the delay time of the pulse cancelation for the function "Safe Stop 1" (SS1) on the Control Unit to brake along the OFF3 down ramp (p1135).		
Dependency:	Refer to: p1135, p9852		
Note:	For a data cross-check between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)		
p9658	SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A CU		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2802 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the transition period from STOP F to STOP A on the Control Unit.		
Dependency:	Refer to: r9795, p9858 Refer to: F01611		
Note:	For a data cross-check between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. STOP F: Defect in a monitoring channel (error in the data cross-check) STOP A: Pulse cancelation via the safety shutdown path		
p9659	SI forced checking procedure timer / SI FrCdCkProcTimer		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2810 Unit selection: - Expert list: 1 Factory setting 8.00 [h]
Description:	Sets the time to carry out the dynamic update and testing the safety shutdown paths (forced checking procedure). Within the parameterized time, STO must have been de-selected at least once. The monitoring time is reset each time that STO is de-selected.		
Dependency:	Refer to: A01699		
Note:	STO: Safe Torque Off / SH: Safe standstill		
p9700	SI Motion copy function / SI Mtn copy fct		
SERVO, TM54F_MA, VECTOR	Can be changed: C2, U, T Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Setting to start the required copy function.		

After starting, the appropriate parameters are copied from the Control Unit to the Motor Module.

After completing copying, parameters are automatically reset to 0.

Values:
 0: [00 hex] Copy function ended
 29: [1D hex] Start copy function node identifier
 87: [57 hex] Start copy function SI parameters

Note:
 Re value = 57 hex:
 The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.
 SI: Safety Integrated

p9701 Acknowledge SI motion data / Ackn SI Mtn dat

SERVO, TM54F_MA, TM54F_SL, VEC- TOR	Can be changed: C2, U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 00EC hex	Factory setting 0000 hex

Description: Setting to transfer the reference checksums from the associated actual checksums after changes (SI parameters, hardware).

After transferring the reference checksums, parameters are automatically reset to 0.

Values:
 0: [00 hex] Data unchanged
 172: [AC hex] Acknowledge data change complete
 236: [EC hex] Acknowledge hardware CRC

Dependency: Refer to: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899

Note:
 Re value = AC hex:
 The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.
 SI: Safety Integrated

p9705 BI: SI Motion: Test stop signal source / SI Mtn test stop

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for the test stop of the safety-relevant motion monitoring functions.

r9710[0...1] SI motion diagnostics result list 1 / SI Mtn res_list 1

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays result list 1 that, for the data cross-check between the monitoring channels, led to the fault.

Index:
 [0] = Result list, second channel
 [1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit SOS	Yes	No	-
	01	Actual value > lower limit SOS	Yes	No	-
	02	Actual value > upper limit, SE1	Yes	No	-
	03	Actual value > lower limit, SE1	Yes	No	-
	04	Actual value > upper limit, SE2	Yes	No	-
	05	Actual value > lower limit, SE2	Yes	No	-

06	Actual value > upper limit, SG1	Yes	No	-
07	Actual value > lower limit, SG1	Yes	No	-
08	Actual value > upper limit, SG2	Yes	No	-
09	Actual value > lower limit, SG2	Yes	No	-
10	Actual value > upper limit, SG3	Yes	No	-
11	Actual value > lower limit, SG3	Yes	No	-
12	Actual value > upper limit, SG4	Yes	No	-
13	Actual value > lower limit, SG4	Yes	No	-
16	Actual value > upper limit, SBR	Yes	No	-
17	Actual value > lower limit, SBR	Yes	No	-

Dependency: Refer to: C01711

r9711[0...1] SI motion diagnostics result list 2 / SI Mtn res_list 2

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays result list 2 that, for the data cross-check between the monitoring channels, led to the fault.

Index: [0] = Result list, second channel
[1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN1+	Yes	No	-
	01	Actual value > lower limit, SN1+	Yes	No	-
	02	Actual value > upper limit, SN1-	Yes	No	-
	03	Actual value > lower limit, SN1-	Yes	No	-
	04	Actual value > upper limit, SN2+	Yes	No	-
	05	Actual value > lower limit, SN2+	Yes	No	-
	06	Actual value > upper limit, SN2-	Yes	No	-
	07	Actual value > lower limit, SN2-	Yes	No	-
	08	Actual value > upper limit, SN3+	Yes	No	-
	09	Actual value > lower limit, SN3+	Yes	No	-
	10	Actual value > upper limit, SN3-	Yes	No	-
	11	Actual value > lower limit, SN3-	Yes	No	-
	12	Actual value > upper limit, SN4+	Yes	No	-
	13	Actual value > lower limit, SN4+	Yes	No	-
	14	Actual value > upper limit, SN4-	Yes	No	-
	15	Actual value > lower limit, SN4-	Yes	No	-
	16	Actual value > upper limit, n_x+	Yes	No	-
	17	Actual value > lower limit, n_x+	Yes	No	-
	18	Actual value > upper limit, n_x-	Yes	No	-
	19	Actual value > lower limit, n_x-	Yes	No	-
	20	Actual value > upper limit, modulo	Yes	No	-
	21	Actual value > lower limit, modulo	Yes	No	-

Dependency: Refer to: C01711

r9712 SI motion diagnostics position action value motor side / SI Mtn s_act mot

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the actual motor-side position actual value for the motion monitoring functions on the Control Unit.

r9713[0...2]	SI motion diagnostics position action value load side / SI Mtn s_act load				
SERVO, VECTOR	Can be changed: -		Calculated: -		Access level: 3
	Data type: Unsigned32		Dynamic index: -		Func. diagram: -
	P-Group: Safety Integrated		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the actual load-side actual values of both monitoring channels and their difference.				
Index:	[0] = Load-side actual value on the Control Unit [1] = Load-side actual value on the second channel [2] = Load-side actual value difference Control Unit - second channel				
Dependency:	Refer to: r9724				
Note:	Re r9713[0]: The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle. Re r9713[1]: The display of the load-side position actual value on the second channel is updated in the DCC clock cycle (r9724) and delayed by one DCC clock cycle. Re r9713[2]: The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the DCC clock cycle (r9724) and delayed by one DCC clock cycle. DCC: Data cross-check				

r9714	SI motion diagnostics velocity actual value load side / SI Mtn v_act load				
SERVO, VECTOR	Can be changed: -		Calculated: -		Access level: 3
	Data type: Integer32		Dynamic index: -		Func. diagram: -
	P-Group: Safety Integrated		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Displays the actual load-side velocity actual value for the motion monitoring functions on the Control Unit.				
Note:	For a linear axis, the following units apply: Micrometers per monitoring clock cycle (p9500) For a rotary axis, the following units apply: Milldegrees per monitoring clock cycle (p9500)				

r9718.23	CO/BO: SI motion control signals 1 / SI Mtn ctrl_sig 1				
SERVO, VECTOR	Can be changed: -		Calculated: -		Access level: 4
	Data type: Unsigned32		Dynamic index: -		Func. diagram: -
	P-Group: Safety Integrated		Units group: -		Unit selection: -
	Not for motor type: -				Expert list: 1
	Min		Max		Factory setting
	-		-		-
Description:	Control signal 1 for safety-relevant motion monitoring functions.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	23	Set offset for TfS to the actual torque	Set	Reset	-
Note:	TfS: Traverse to fixed stop				

r9719.0...31 CO/BO: SI motion control signals 2 / SI Mtn ctrl_sig 2

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Control signal 2 for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	De-select SOS/SLS (SBH/SG)	Yes	No	-
	01	De-select SOS (SBH)	Yes	No	-
	03	Select SLS (SG) bit 0	Set	Not set	-
	04	Select SLS (SG) bit 1	Set	Not set	-
	08	Gearbox selection, bit 0	Set	Not set	-
	09	Gearbox selection, bit 1	Set	Not set	-
	10	Gearbox selection, bit 2	Set	Not set	-
	12	Select SLP (SE)	SLP2 (SE2)	SLP1 (SE1)	-
	13	Close brake from control	Yes	No	-
	15	Select test stop	Yes	No	-
	16	SGE valid	Yes	No	-
	18	De-select external STOP A	Yes	No	-
	19	De-select external STOP C	Yes	No	-
	20	De-select external STOP D	Yes	No	-
	21	De-select external STOP E	Yes	No	-
	28	SLS (SG) override bit 0	Set	Not set	-
	29	SLS (SG) override bit 1	Set	Not set	-
	30	SLS (SG) override bit 2	Set	Not set	-
	31	SLS (SG) override bit 3	Set	Not set	-

Note: Re r9719.0 and r9719.1:
 These two bits must be considered together.
 - if SOS/SLS (SBH/SG) is de-selected using bit 0, then assignment of bit 1 is irrelevant.
 - if SOS/SLS (SBH/SG) is selected using bit 0, then a changeover is made between SOS (SBH) and SLS (SG) using bit 1.
 SLP: Safely-Limited Position / SE: Safe software limit switches
 SLS: Safely-Limited Speed / SG: Safely reduced speed
 SOS: Safe Operating Stop / SBH: Safe operating stop

r9720.0...10 CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2840, 2855
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Control signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	De-select STO	Yes	No	-
	01	De-select SS1	Yes	No	-
	02	De-select SS2	Yes	No	-
	03	De-select SOS	Yes	No	-
	04	De-select SLS	Yes	No	-
	07	Acknowledgement	Signal edge active	No	-
	09	Select SLS bit 0	Set	Not set	-
	10	Select SLS bit 1	Set	Not set	-

r9721.0...15 CO/BO: SI motion status signals / SI Mtn stat_sig

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Status signal for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SOS or SLS active	Yes	No	-
	01	SOS active	Yes	No	-
	02	Pulse enable	Deleted	Enabled	-
	03	Active SLS stage bit 0	Set	Not set	-
	04	Active SLS stage bit 1	Set	Not set	-
	05	Velocity below limit value n_x	Yes	No	-
	06	Status signals valid	Yes	No	-
	07	Safely referenced	Yes	No	-
	12	STOP A or B active	Yes	No	-
	13	STOP C active	Yes	No	-
	14	STOP D active	Yes	No	-
	15	STOP E active	Yes	No	-

r9722.0...15 CO/BO: SI motion status signals integrated in the drive / SI Mtn integ stat

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2840, 2855
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Status signal for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO active	Yes	No	-
	01	SS1 active	Yes	No	-
	02	SS2 active	Yes	No	-
	03	SOS active	Yes	No	-
	04	SLS active	Yes	No	-
	07	Internal event	No	Yes	-
	09	Active SLS stage bit 0	Set	Not set	-
	10	Active SLS stage bit 1	Set	Not set	-
	11	SOS selected	Yes	No	-
	15	SSM (speed below limit value)	Yes	No	-

Notice: Re bit 07:
The signal state behaves in an opposite way to the PROFIsafe Standard.

Note: Re bit 07:
An internal even is displayed if a STOP A ... F is active.

r9722.0...15 CO/BO: SI motion status signals integrated in the drive / SI Mtn integ stat

SERVO (Lin)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2840, 2855
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Status signal for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO active	Yes	No	-
	01	SS1 active	Yes	No	-
	02	SS2 active	Yes	No	-
	03	SOS active	Yes	No	-
	04	SLS active	Yes	No	-
	07	Internal event	No	Yes	-
	09	Active SLS stage bit 0	Set	Not set	-
	10	Active SLS stage bit 1	Set	Not set	-
	11	SOS selected	Yes	No	-
	15	SSM (velocity below limit value)	Yes	No	-

Notice: Re bit 07:

The signal state behaves in an opposite way to the PROFIsafe Standard.

Note: Re bit 07:

An internal even is displayed if a STOP A ... F is active.

r9723.0 CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the diagnostic signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Forced checking procedure required	Yes	No	-

r9724 SI Motion crosswise comparison clock cycle / SI Mtn DCC clk cyc

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

Description: Displays the crosswise comparison clock cycle (clock cycle time with which each individual DCC value is compared between both monitoring channels).

Dependency: Refer to: p9500

Note: Crosswise comparison clock cycle = monitoring clock cycle (p9500) * number of data to be crosswise compared
DCC: Data cross-check

r9725 SI motion, diagnostics STOP F / SI Mtn Diag STOP F

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the message value that resulted in the STOP F on the drive.

Value = 0 means:

The controlled signaled a STOP F.

Value = 1 ... 999 means:

Number of the incorrect crosswise compared data between the drive and control.

Value \geq 1000 means:

Additional diagnostic values of the drive.

Dependency:

Refer to: C01711

Note:

The significance of the individual values is described in message C01711.

p9726	SI motion, user agreement selection/de-selection / SI Mtn UserAgr sel		
SERVO, VECTOR	Can be changed: U, T Data type: Integer16 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Max 00AC hex	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Setting to select and de-select the user agreement.		
Values:	0: [00 hex] De-select user agreement 172: [AC hex] Select user agreement		
Dependency:	Refer to: r9727		
r9727	SI motion user agreement, inside the drive / SI Mtn UserAgr int		
SERVO, VECTOR	Can be changed: - Data type: Integer16 P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the internal state of the user agreement. Value = 0: User agreement is not set. Value = AC hex: User agreement is set.		
Dependency:	Refer to: p9726		
r9728[0...1]	SI motion actual checksum, SI parameters / SI Mtn act CRC		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the checksum over the checked Safety Integrated parameters of the motion monitoring functions (actual checksum).		
Index:	[0] = Checksum over SI parameters for motion monitoring [1] = Checksum over SI parameters for actual values		
Dependency:	Refer to: p9729 Refer to: F01680		
p9729[0...1]	SI motion reference checksum, SI parameters / SI Mtn ref CRC		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Max FFFF FFFF hex	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Sets the checksum using the checksum-tested Safety Integrated parameters for motion monitoring functions (reference checksum).		

Index: [0] = Checksum over SI parameters for motion monitoring
 [1] = Checksum over SI parameters for actual values

Dependency: Refer to: r9728
 Refer to: F01680

r9733[0...1]	CO: SI Motion effective setpoint speed limiting / SI Mtn setp limit		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [RPM]
Description:	Displays the necessary setpoint speed limit as a result of the selected SI motion monitoring functions. Contrary to the parameterization of the SI limit values, this parameter specifies the motor-side limit value and not the load-side limit value.		
Index:	[0] = Setpoint limiting positive [1] = Setpoint limiting negative		
Dependency:	r9733[0] = p9531[x] * p9533; x = selected SLS stage r9733[1] = - p9531[x] * p9533; x = selected SLS stage Refer to: p9531, p9533		
Notice:	If r9733[0] is interconnected to p1085, then r9733[1] must also be interconnected to p1088. If only the absolute value of the setpoint velocity limiting is required, r9733[0] is sufficient.		
Note:	The units changeover between linear and rotary axis units is not realized via the safety changeover (p9502), but by the linear motor changeover.		

r9733[0...1]	CO: SI Motion effective setpoint speed limiting / SI Mtn setp limit		
SERVO (Lin)	Can be changed: - Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: 4_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting - [m/min]
Description:	Displays the necessary setpoint speed limit as a result of the selected SI motion monitoring functions. Contrary to the parameterization of the SI limit values, this parameter specifies the motor-side limit value and not the load-side limit value.		
Index:	[0] = Setpoint limiting positive [1] = Setpoint limiting negative		
Dependency:	r9733[0] = p9531[x] * p9533; x = selected SLS stage r9733[1] = - p9531[x] * p9533; x = selected SLS stage Refer to: p9531, p9533		
Notice:	If r9733[0] is interconnected to p1085, then r9733[1] must also be interconnected to p1088. If only the absolute value of the setpoint velocity limiting is required, r9733[0] is sufficient.		
Note:	The units changeover between linear and rotary axis units is not realized via the safety changeover (p9502), but by the linear motor changeover.		

r9735[0...1]	SI motion diagnostics result list 3 / SI Mtn res_list 3		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays result list 3, that for the data cross-check with the control, led to the fault.		

Index: [0] = Result list, second channel
[1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN1+	Yes	No	-
	01	Actual value > lower limit, SN1+	Yes	No	-
	02	Actual value > upper limit, SN1-	Yes	No	-
	03	Actual value > lower limit, SN1-	Yes	No	-
	04	Actual value > upper limit, SN2+	Yes	No	-
	05	Actual value > lower limit, SN2+	Yes	No	-
	06	Actual value > upper limit, SN2-	Yes	No	-
	07	Actual value > lower limit, SN2-	Yes	No	-
	08	Actual value > upper limit, SN3+	Yes	No	-
	09	Actual value > lower limit, SN3+	Yes	No	-
	10	Actual value > upper limit, SN3-	Yes	No	-
	11	Actual value > lower limit, SN3-	Yes	No	-
	12	Actual value > upper limit, SN4+	Yes	No	-
	13	Actual value > lower limit, SN4+	Yes	No	-
	14	Actual value > upper limit, SN4-	Yes	No	-
	15	Actual value > lower limit, SN4-	Yes	No	-
	16	Actual value > upper limit, SN5+	Yes	No	-
	17	Actual value > lower limit, SN5+	Yes	No	-
	18	Actual value > upper limit, SN5-	Yes	No	-
	19	Actual value > lower limit, SN5-	Yes	No	-
	20	Actual value > upper limit, SN6+	Yes	No	-
	21	Actual value > lower limit, SN6+	Yes	No	-
	22	Actual value > upper limit, SN6-	Yes	No	-
	23	Actual value > lower limit, SN6-	Yes	No	-

Dependency: Refer to: C01711

r9736[0...1] SI motion diagnostics result list 4 / SI Mtn res_list 4

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays result list 4, that for the data cross-check with the control, led to the fault.

Index: [0] = Result list, second channel
[1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN7+	Yes	No	-
	01	Actual value > lower limit, SN7+	Yes	No	-
	02	Actual value > upper limit, SN7-	Yes	No	-
	03	Actual value > lower limit, SN7-	Yes	No	-
	04	Actual value > upper limit, SN8+	Yes	No	-
	05	Actual value > lower limit, SN8+	Yes	No	-
	06	Actual value > upper limit, SN8-	Yes	No	-
	07	Actual value > lower limit, SN8-	Yes	No	-
	08	Actual value > upper limit, SN9+	Yes	No	-
	09	Actual value > lower limit, SN9+	Yes	No	-
	10	Actual value > upper limit, SN9-	Yes	No	-
	11	Actual value > lower limit, SN9-	Yes	No	-
	12	Actual value > upper limit, SN10+	Yes	No	-
	13	Actual value > lower limit, SN10+	Yes	No	-
	14	Actual value > upper limit, SN10-	Yes	No	-
	15	Actual value > lower limit, SN10-	Yes	No	-
	16	Actual value > upper limit, SN11+	Yes	No	-
	17	Actual value > lower limit, SN11+	Yes	No	-
	18	Actual value > upper limit, SN11-	Yes	No	-
	19	Actual value > lower limit, SN11-	Yes	No	-

20	Actual value > upper limit, SN12+	Yes	No	-
21	Actual value > lower limit, SN12+	Yes	No	-
22	Actual value > upper limit, SN12-	Yes	No	-
23	Actual value > lower limit, SN12-	Yes	No	-

Dependency: Refer to: C01711

r9737[0...1] SI motion diagnostics result list 5 / SI Mtn res_list 5

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays result list 5, that for the data cross-check with the control, led to the fault.

Index: [0] = Result list, second channel
[1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN13+	Yes	No	-
	01	Actual value > lower limit, SN13+	Yes	No	-
	02	Actual value > upper limit, SN13-	Yes	No	-
	03	Actual value > lower limit, SN13-	Yes	No	-
	04	Actual value > upper limit, SN14+	Yes	No	-
	05	Actual value > lower limit, SN14+	Yes	No	-
	06	Actual value > upper limit, SN14-	Yes	No	-
	07	Actual value > lower limit, SN14-	Yes	No	-
	08	Actual value > upper limit, SN15+	Yes	No	-
	09	Actual value > lower limit, SN15+	Yes	No	-
	10	Actual value > upper limit, SN15-	Yes	No	-
	11	Actual value > lower limit, SN15-	Yes	No	-
	12	Actual value > upper limit, SN16+	Yes	No	-
	13	Actual value > lower limit, SN16+	Yes	No	-
	14	Actual value > upper limit, SN16-	Yes	No	-
	15	Actual value > lower limit, SN16-	Yes	No	-
	16	Actual value > upper limit, SN17+	Yes	No	-
	17	Actual value > lower limit, SN17+	Yes	No	-
	18	Actual value > upper limit, SN17-	Yes	No	-
	19	Actual value > lower limit, SN17-	Yes	No	-
	20	Actual value > upper limit, SN18+	Yes	No	-
	21	Actual value > lower limit, SN18+	Yes	No	-
	22	Actual value > upper limit, SN18-	Yes	No	-
	23	Actual value > lower limit, SN18-	Yes	No	-

Dependency: Refer to: C01711

r9738[0...1] SI motion diagnostics result list 6 / SI Mtn res_list 6

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays result list 5, that for the data cross-check with the control, led to the fault.

Index: [0] = Result list, second channel
[1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN19+	Yes	No	-
	01	Actual value > lower limit, SN19+	Yes	No	-
	02	Actual value > upper limit, SN19-	Yes	No	-

03	Actual value > lower limit, SN19-	Yes	No	-
04	Actual value > upper limit, SN20+	Yes	No	-
05	Actual value > lower limit, SN20+	Yes	No	-
06	Actual value > upper limit, SN20-	Yes	No	-
07	Actual value > lower limit, SN20-	Yes	No	-
08	Actual value > upper limit, SN21+	Yes	No	-
09	Actual value > lower limit, SN21+	Yes	No	-
10	Actual value > upper limit, SN21-	Yes	No	-
11	Actual value > lower limit, SN21-	Yes	No	-
12	Actual value > upper limit, SN22+	Yes	No	-
13	Actual value > lower limit, SN22+	Yes	No	-
14	Actual value > upper limit, SN22-	Yes	No	-
15	Actual value > lower limit, SN22-	Yes	No	-
16	Actual value > upper limit, SN23+	Yes	No	-
17	Actual value > lower limit, SN23+	Yes	No	-
18	Actual value > upper limit, SN23-	Yes	No	-
19	Actual value > lower limit, SN23-	Yes	No	-
20	Actual value > upper limit, SN24+	Yes	No	-
21	Actual value > lower limit, SN24+	Yes	No	-
22	Actual value > upper limit, SN24-	Yes	No	-
23	Actual value > lower limit, SN24-	Yes	No	-

Dependency: Refer to: C01711

r9739[0...1] SI motion diagnostics result list 7 / SI Mtn res_list 7

SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays result list 7, that for the data cross-check with the control, led to the fault.

Index: [0] = Result list, second channel
[1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN25+	Yes	No	-
	01	Actual value > lower limit, SN25+	Yes	No	-
	02	Actual value > upper limit, SN25-	Yes	No	-
	03	Actual value > lower limit, SN25-	Yes	No	-
	04	Actual value > upper limit, SN26+	Yes	No	-
	05	Actual value > lower limit, SN26+	Yes	No	-
	06	Actual value > upper limit, SN26-	Yes	No	-
	07	Actual value > lower limit, SN26-	Yes	No	-
	08	Actual value > upper limit, SN27+	Yes	No	-
	09	Actual value > lower limit, SN27+	Yes	No	-
	10	Actual value > upper limit, SN27-	Yes	No	-
	11	Actual value > lower limit, SN27-	Yes	No	-
	12	Actual value > upper limit, SN28+	Yes	No	-
	13	Actual value > lower limit, SN28+	Yes	No	-
	14	Actual value > upper limit, SN28-	Yes	No	-
	15	Actual value > lower limit, SN28-	Yes	No	-
	16	Actual value > upper limit, SN29+	Yes	No	-
	17	Actual value > lower limit, SN29+	Yes	No	-
	18	Actual value > upper limit, SN29-	Yes	No	-
	19	Actual value > lower limit, SN29-	Yes	No	-
	20	Actual value > upper limit, SN30+	Yes	No	-
	21	Actual value > lower limit, SN30+	Yes	No	-
	22	Actual value > upper limit, SN30-	Yes	No	-
	23	Actual value > lower limit, SN30-	Yes	No	-

Dependency: Refer to: C01711

r9744	SI message buffer changes, counter / SI msg_buffer chng		
SERVO, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the changes of the safety message buffer. This counter is incremented every time that the safety message buffer changes.		
Recommend.:	This is used to check whether the safety message buffer has been read-out consistently.		
Dependency:	Refer to: r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756, p9759		
r9747[0...63]	SI message code / SI msg_code		
SERVO, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the numbers of safety messages that have occurred.		
Dependency:	Refer to: r9744, r9748, r9749, p9752, r9753, r9754, r9755, r9756, p9759		
Note:	The messages type "safety message" (Cxxxxx) are entered in the message fault buffer.		
r9748[0...63]	SI message time received in milliseconds / SI t_msg rcv ms		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - [ms]	Calculated: - Dynamic index: - Units group: - Max - [ms]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message occurred.		
Dependency:	Refer to: r9744, r9747, r9749, p9752, r9753, r9754, r9755, r9756, p9759		
r9749[0...63]	SI message value / SI msg_value		
SERVO, VECTOR	Can be changed: - Data type: Integer32 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the additional information about the safety message that occurred (as integer number).		
Dependency:	Refer to: r9744, r9747, r9748, p9752, r9753, r9754, r9755, r9756, p9759		

p9752	SI message cases, counter / SI msg_cases count		
SERVO, VECTOR	Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Number of safety messages that have occurred since the last reset.		
Dependency:	The safety message buffer is cleared by resetting the parameter to 0. Refer to: r9744, r9747, r9748, r9749, r9753, r9754, r9755, r9756, p9759		
Note:	The parameter is reset to 0 at POWER ON.		

r9753[0...63]	SI message value for float values / SI msg_val float		
SERVO, VECTOR	Can be changed: - Data type: Floating Point P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays additional information about the safety message that has occurred for float values.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9754, r9755, r9756, p9759		

r9754[0...63]	SI message time received in days / SI t_msg rcv days		
SERVO, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the relative system runtime in days when the safety message occurred.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9755, r9756, p9759		

r9755[0...63]	SI message time removed in milliseconds / SI t_msg rem ms		
SERVO, VECTOR	Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message was removed.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9756, p9759		

r9756[0...63]	SI message time removed in days / SI t_msg rem days		
SERVO, VECTOR	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the relative system runtime in days when the safety message was removed.		

Dependency: Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755, p9759

p9759 SI, acknowledge messages, drive object / SI msg ackn DO

SERVO, VECTOR	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Acknowledges all safety messages present for a drive object.

Dependency: Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756

Note: Parameter should be set from 0 to 1 to acknowledge.
After acknowledgement, the parameter is automatically reset to 0.

p9761 SI password input / SI password inp

SERVO, VECTOR	Can be changed: C1, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Enters the Safety Integrated password.

Dependency: Refer to: F01659

Note: It is not permissible to change Safety Integrated parameter settings until the Safety Integrated password has been entered.

p9762 SI password new / SI password new

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Enters a new Safety Integrated password.

Dependency: A change made to the Safety Integrated password must be acknowledged in the following parameter:
Refer to: p9763

p9763 SI password acknowledgement / SI ackn password

SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Acknowledges the new Safety Integrated password.

Dependency: Refer to: p9762

Note: The new password entered into p9762 must be re-entered in order to acknowledge.
p9762 = p9763 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.

r9770[0...2] SI vers. safety fcts that run indep. in the drive (Control Unit) / SI version Drv CU

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 2802
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Displays the Safety Integrated version for the safety functions that run independently in the drive on the Control Unit.

Index: [0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)

Dependency: Refer to: r9870, r9890

Note: Example:
 r9770[0] = 2, r9770[1] = 3, r9770[2] = 1 --> Safety-Version V02.03.01

r9771 SI common functions (Control Unit) / SI common fct CU

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** 2804
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Displays the safety integrated monitoring functions supported on the Control Unit and Motor Module.
 The Control Unit determines this display.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	2804
	01	SBC supported	Yes	No	2804
	02	SI Motion supported	Yes	No	2804
	03	SS1 supported	Yes	No	2804
	04	PROFIsafe supported	Yes	No	-
	05	Drive-based motion monitoring functions supported	Yes	No	-

Dependency: Refer to: r9871

Note: CU: Control Unit
 SBC: Safe Brake Control
 SI: Safety Integrated
 SS1: Safe Stop 1
 STO: Safe Torque Off / SH: Safe standstill

r9772.0...15 CO/BO: SI status (Control Unit) / SI stat CU

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** 2804
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Displays the Safety Integrated status on the Control Unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected on Control Unit	Yes	No	2810
	01	STO active on Control Unit	Yes	No	2810
	02	SS1 active on Control Unit	Yes	No	-

04	SBC requested	Yes	No	2814
09	STOP A cannot be acknowledged, active	Yes	No	2802
10	STOP A active	Yes	No	2802
15	STOP F active	Yes	No	2802

Dependency: Refer to: r9872

r9773.0...31 CO/BO: SI status (Control Unit + Motor Module) / SI stat CU+MM

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** 2804
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the Safety Integrated status on the drive (Control Unit + Motor Module).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected in drive	Yes	No	2804
	01	STO active in drive	Yes	No	2804
	02	SS1 active in drive	Yes	No	2804
	04	SBC requested	Yes	No	2804
	31	Shutdown paths must be tested	Yes	No	2810

Note: This status is formed from the AND operation of the relevant status of the two monitoring channels.

r9774.0...31 CO/BO: SI status (group STO) / SI stat group STO

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** 2804
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the status for Safety Integrated of the group to which this drive belongs.
These signals are an AND logic operation of the individual status signals of the drives included in this group.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected in group	Yes	No	2804
	01	STO active in group	Yes	No	2804
	02	SS1 active in group	Yes	No	-
	04	SBC requested in group	Yes	No	2804
	31	Shutdown paths of the group must be tested	Yes	No	2804

Dependency: Refer to: p9620, r9773

Notice: If a drive belonging to a group is de-activated via p0105, then the signals in r9774 can no longer be correctly displayed (Remedy: Before de-activating, remove this drive from the group).

Note: A group is formed by appropriately grouping the terminals for the function "Safe Torque Off" (STO).
The status of a group of n drives is, for drives 1 to n - 1 displayed with a delay of one monitoring clock cycle; this is a system-related effect.

r9780 SI monitoring clock cycle (Control Unit) / SI monitor_clk CU

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** - **Func. diagram:** 2802
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
- [ms]	- [ms]	- [ms]

Description: Displays the clock cycle time for the Safety Integrated Basic Functions on the Control Unit.

Dependency: Refer to: r9880

r9781[0...1]	SI checksum to check changes (Control Unit) / SI checksum chg CU		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Additional check sum that is formed to check changes (fingerprint for the safety logbook functionality) to safety parameters (that are relevant for checksums).		
Index:	[0] = Safety change tracking checksum functional [1] = Safety change tracking checksum hardware dependent		
Dependency:	Refer to: p9601, p9729, p9799 Refer to: F01690		
r9782[0...1]	SI time stamp to check changes (Control Unit) / SI TimeStamp CU		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [h]	- [h]	- [h]
Description:	Time stamp for the checksum that is saved in parameters p9781[0] and p9781[1] to track changes (fingerprint for the safety logbook functionality) made to safety parameters.		
Index:	[0] = SI time stamp change tracking checksum functional [1] = SI time stamp change tracking checksum hardware-dependent		
Dependency:	Refer to: p9601, p9729, p9799 Refer to: F01690		
r9794[0...19]	SI crosswise comparison list (Control Unit) / SI DCC_list CU		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of the data that are being presently compared crosswise on the Control Unit. Example: r9794[0] = 1 (monitoring clock cycle) r9794[1] = 2 (enable safety-related functions) r9794[2] = 3 (SGE changeover, tolerance time) r9794[3] = 4 (transition time, STOP F to STOP A) ... The list of crosswise compared data is obtained dependent on the particular application.		
Dependency:	Refer to: r9894		
Note:	The complete list of numbers for data cross-check is listed in Fault F01611.		

r9795	SI diagnostics STOP F (Control Unit) / SI diag STOP F CU			
SERVO, VECTOR	Can be changed: -		Calculated: -	
	Data type: Unsigned32		Dynamic index: -	
	P-Group: Safety Integrated		Units group: -	
	Not for motor type: -		Access level: 2	
	Min		Max	
	-		-	
Description:	Displays the number of the cross-checked data which has caused STOP F on the Control Unit.			
Dependency:	Refer to: r9895			
	Refer to: F01611			
Note:	The complete list of numbers for data cross-check is listed in Fault F01611.			
r9798	SI actual checksum SI parameters (Control Unit) / SI act_checksum CU			
SERVO, VECTOR	Can be changed: -		Calculated: -	
	Data type: Unsigned32		Dynamic index: -	
	P-Group: Safety Integrated		Units group: -	
	Not for motor type: -		Access level: 3	
	Min		Max	
	-		-	
Description:	Displays the checksum over the checked Safety Integrated parameters on the Control Unit (actual checksum).			
Dependency:	Refer to: p9799, r9898			
p9799	SI reference checksum SI parameters (Control Unit) / SI set_checksum CU			
SERVO, VECTOR	Can be changed: C2		Calculated: -	
	Data type: Unsigned32		Dynamic index: -	
	P-Group: Safety Integrated		Units group: -	
	Not for motor type: -		Access level: 3	
	Min		Max	
	0000 hex		FFFF FFFF hex	
Description:	Sets the checksum for the checked Safety Integrated parameters on the Control Unit (reference checksum).			
Dependency:	Refer to: r9798, p9899			
p9801	SI enable, functions integrated in the drive (Motor Module) / SI enable fct MM			
SERVO, VECTOR	Can be changed: C2		Calculated: -	
	Data type: Unsigned16		Dynamic index: -	
	P-Group: Safety Integrated		Units group: -	
	Not for motor type: -		Access level: 3	
	Min		Max	
	-		-	
Description:	Sets the enable signals for safety functions on the Motor Module that are integrated in the drive.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Enable STO (SH) via terminals (Motor Mod- ule)	Enable	Inhibit
	02	Motion monitoring functions integr. in the drive (Motor Module)	Enable	Inhibit
	03	Enable PROFIsafe (Motor Module)	Enable	Inhibit
Dependency:	Refer to: p9601			
Note:	For p9801.2 = 1 and p9801.3 = 0 the following applies: It is assumed that the motion monitoring functions integrated in the drive are controlled via the Terminal Module 54F (TM54F). MM: Motor Module			

SI: Safety Integrated
 SMM: Safe Motion Monitoring
 STO: Safe Torque Off / SH: Safe standstill

p9802	SI enable Safe Brake Control (Motor Module) / SI enable SBC MM		
SERVO, VECTOR	Can be changed: C2 Data type: Integer32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2814 Unit selection: - Expert list: 1 Min 0
		Max 1	Factory setting 0
Description:	Sets the enable signal for the "Safe Brake Control" function (SBC) on the Motor Module. 0: Inhibit SBC 1: Enable SBC		
Dependency:	Refer to: p9602		
Note:	The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9801 not equal to 0). The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = p9802 = 1) is not practical if there is no motor holding brake. The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical. It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1). MM: Motor Module SBC: Safe Brake Control SI: Safety Integrated		
p9810	SI PROFIsafe address (Motor Module) / SI PROFIsafe MM		
SERVO, VECTOR	Can be changed: C2 Data type: Unsigned16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0000 hex
		Max FFFE hex	Factory setting 0000 hex
Description:	Sets the PROFIsafe address of the Motor Module.		
p9850	SI SGE changeover tolerance time (Motor Module) / SI SGE_chg tol MM		
SERVO, VECTOR	Can be changed: C2 Data type: Floating Point P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2810 Unit selection: - Expert list: 1 Min 0.00 [µs]
		Max 2000000.00 [µs]	Factory setting 500000.00 [µs]
Description:	Sets the tolerance time to change over the safety-related inputs (SGE) on the Motor Module. An SGE changeover is not simultaneously effective due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a data cross-check during this tolerance time.		
Dependency:	Refer to: p9650		
Note:	For a data cross-check between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SGE: Safety-related input (e.g. STO terminals)		

p9852	SI Safe Stop 1 delay time (Motor Module) / SI Stop 1 t_del MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 300000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the delay time of the pulse cancelation for the function "Safe Stop 1" (SS1) on the Motor Module to brake along the OFF3 down ramp (p1135).		
Dependency:	Refer to: p1135, p9652		
Note:	For a data cross-check between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)		
p9858	SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 30000000.00 [µs]	Factory setting 0.00 [µs]
Description:	Sets the transition period from STOP F to STOP A on the Motor Module.		
Dependency:	Refer to: p9658, r9895 Refer to: F30611		
Note:	For a data cross-check between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. STOP F: Defect in a monitoring channel (error in the data cross-check) STOP A: Pulse cancelation via the safety shutdown path		
r9870[0...2]	SI version safety functions integrated in drive (Motor Module) / SI version MM		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the Safety Integrated version for the safety functions integrated in the drive on the Motor Module.		
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch)		
Dependency:	Refer to: r9770, r9890		
Note:	Example: r9870[0] = 2, r9870[1] = 3, r9870[2] = 1 --> Safety-Version V02.03.01		

r9871 SI common functions (Motor Module / SI general fct MM)

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** 2804
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Displays the safety integrated monitoring functions supported on the Control Unit and Motor Module.
 The Motor Module determines this display.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	2804
	01	SBC supported	Yes	No	2804
	02	SI Motion supported	Yes	No	2804
	03	SS1 supported	Yes	No	2804
	04	PROFIsafe supported	Yes	No	-
	05	Drive-based motion monitoring functions supported	Yes	No	-

Dependency: Refer to: r9771

Note: MM: Motor Module
 SBC: Safe Brake Control
 SI: Safety Integrated
 SS1: Safe Stop 1
 STO: Safe Torque Off / SH: Safe standstill

r9872.0...15 CO/BO: SI status list (Motor Module) / SI status MM

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Func. diagram:** 2804
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Displays the Safety Integrated status on the Motor Module.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO on Motor Module selected	Yes	No	2810
	01	STO on Motor Module active	Yes	No	2810
	02	SS1 on Motor Module active	Yes	No	2804
	04	SBC requested	Yes	No	2814
	09	STOP A cannot be acknowledged, active	Yes	No	2802
	10	STOP A active	Yes	No	2802
	15	STOP F active	Yes	No	2802

Dependency: Refer to: r9772

r9880 SI monitoring clock cycle (Motor Module) / SI monitor_click MM

SERVO, VECTOR **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Floating Point **Dynamic index:** - **Func. diagram:** 2802
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - [ms] - [ms] - [ms]

Description: Displays the clock cycle time for the Safety Integrated Basic Functions on the Motor Module.

Dependency: Refer to: r9780

r9881[0...11]	SI Motion Sensor Module Node Identifier second channel / SI Mtn SM Ident		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the Node Identifier of the Sensor Module that the second channel uses for the motion monitoring functions.		

r9890[0...2]	SI version (Sensor Module) / SI version SM		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the Safety Integrated version on the Sensor Module.		
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch)		
Dependency:	Refer to: r9770, r9870		
Note:	Example: r9890[0] = 2, r9890[1] = 3, r9890[2] = 1 --> Safety-Version V02.03.01		

r9894[0...19]	SI crosswise comparison list (Motor Module) / SI DCC_list MM		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of the data that are being presently compared crosswise on the Motor Module. Example: r9894[0] = 1 (monitoring clock cycle) r9894[1] = 2 (enable safety-related functions) r9894[2] = 3 (SGE changeover, tolerance time) r9894[3] = 4 (transition time, STOP F to STOP A) ... The list of crosswise compared data is obtained dependent on the particular application.		
Dependency:	Refer to: r9794		
Note:	The complete list of numbers for data cross-check is listed in Fault F30611.		

r9895	SI diagnostics STOP F (Motor Module) / SI diag STOP F MM		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of the cross-checked data which has caused STOP F on the Motor Module.		

Dependency: Refer to: r9795
Refer to: F30611

Note: The complete list of numbers for data cross-check is listed in Fault F30611.

r9898	SI actual checksum SI parameters (Motor Module) / SI act_checksum MM		
SERVO, VECTOR	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the checksum for the checked Safety Integrated parameters on the Motor Module (actual checksum).		
Dependency:	Refer to: r9798, p9899		

p9899	SI reference checksum SI parameters (Motor Module) / SI set_checksum MM		
SERVO, VECTOR	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Sets the checksum for the checked Safety Integrated parameters on the Motor Module (reference checksum).		
Dependency:	Refer to: p9799, r9898		

p9904	Topology comparison, acknowledge differences / Topo_compare ackn		
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex
Description:	<p>If, when comparing the actual topology and target topology, only error has occurred, that can be acknowledged, then using this parameter, a new comparison can be started - acknowledging the error in the target topology.</p> <p>Differences that can be acknowledged:</p> <ul style="list-style-type: none"> - topology comparison, component shifted - topology comparison, serial number of a component has been detected to be different (byte 3 = 1) - topology comparison shows one component that is connected differently <p>The following parameter values are available:</p> <p>p9904 = 1 --> the procedure is started.</p> <p>p9904 = 0 after starting --> the procedure has been successfully completed.</p> <p>p9904 = 1 after starting --> the procedure has not been successfully completed.</p> <p>The possible causes for an unsuccessful procedure are located in bytes 4, 3, 2.</p> <p>Byte 2: Number of structural differences.</p> <p>Byte 3: Number of differences that can be acknowledged (p9904).</p> <p>Byte 4: Number of differences. These differences can be resolved as follows:</p> <ul style="list-style-type: none"> - sets the topology comparison (p9906 or p9907/p9908). - change over the actual topology. <p>The appropriate action should be selected corresponding to the message that is displayed/output.</p>		

Note: In order to permanently accept the acknowledgement of the fault that can be resolved, then it must be saved in a non-volatile fashion (p0977).

p9905	Device specialization / Device specializ.		
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 0
Description:	<p>With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started..</p> <p>For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers.</p> <p>With p9905 = 2, the serial numbers, the hardware versions and the order numbers of all of the components are transferred from the actual topology into the target topology and a new comparison is started..</p> <p>For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers and order numbers.</p>		
Note:	<p>p9905 is automatically set to 0 at the end of the operation.</p> <p>In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977).</p>		

p9906	Topology comparison, comparison stage of all components / Topo_cmptr tot comp		
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 99	Factory setting 0
Description:	<p>Sets the type of comparison between the actual topology and target topology.</p> <p>The comparison is started by setting the required value.</p>		
Values:	<p>0: High: Compares the complete electronic rating plate</p> <p>1: Average: Compares the component type and the Order number</p> <p>2: Low: Compares the component type</p> <p>3: Minimum: Compares the component class</p> <p>99: Topology has different comparison stages</p>		
Note:	<p>The electronic rating plate comprises the following data:</p> <ul style="list-style-type: none"> - component type (e.g. "SMC20") - Order No. (e.g. "6SL3055-0AA0-5BA0") - manufacturer (e.g. SIEMENS) - hardware version (e.g. "A") - Serial No. (e.g. "T-P30050495") <p>When comparing the topology, the following data is compared in the target and actual topologies:</p> <p>p9906 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.</p> <p>p9906 = 1: Component type, Order No.</p> <p>p9906 = 2: Component type</p> <p>p9906 = 3: Component class (e.g. Sensor Module or Motor Module)</p>		

p9907	Topology comparison, comparison stage of the component number / Topo_cmpr comp_no		
CU_CX32, CU_S	Can be changed: C1(1) Data type: Unsigned8 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 199 Factory setting 0
Description:	Enters the number of the component where the setting of how the actual topology should be compared to the target topology should be changed.		
Dependency:	Refer to: p9908		
p9908	Topology comparison, comparison stage of a component / Topo_cmpr 1 comp		
CU_CX32, CU_S	Can be changed: C1(1) Data type: Integer16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 99 Factory setting 0
Description:	Sets the type of comparison of a component in the target topology with the actual topology. The comparison is started by setting the required value.		
Values:	0: High: Compares the complete electronic rating plate 1: Average: Compares the component type and the Order number 2: Low: Compares the component type 3: Minimum: Compares the component class 99: Topology has different comparison stages		
Dependency:	Refer to: p9907		
Note:	The electronic rating plate comprises the following data: - component type (e.g. "SMC20") - Order No. (e.g. "6SL3055-0AA0-5BA0") - manufacturer (e.g. SIEMENS) - hardware version (e.g. "A") - Serial No. (e.g. "T-P30050495") When comparing the topology, the following data is compared in the target and actual topologies: p9908 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No. p9908 = 1: Component type, Order No. p9908 = 2: Component type p9908 = 3: Component class (e.g. Sensor Module or Motor Module)		
p9909	Topology comparison, component replacement / Topo_cmpr replace		
CU_CX32, CU_S	Can be changed: C1(1) Data type: Unsigned8 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Min 0 Max 1 Factory setting 1
Description:	For p9909 = 1, the serial number and the hardware version of the new replaced component is automatically transferred from the actual topology into the target topology and then saved in a non-volatile fashion. For the components that have been replaced, the electronic type plate must match as far as the following data is concerned: - component type (e.g. "SMC20") - Order No. (e.g. "6SL3055-0AA0-5BA0")		

For p9909 = 0, serial numbers and hardware versions are not automatically transferred. In this case, the transfer must be made using p9904.

Dependency: Refer to: p9904, p9905

Note: The modified target topology is automatically saved in a non-volatile fashion when the drive object runs-up (e.g. after a POWER ON).

Special case for Control Unit and option slot modules:

When replacing these components, independent of p9909, the serial number and hardware version are automatically transferred and saved in a non-volatile fashion.

p9910			
Transfer additional components into the target topology / Transfer comp			
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 5	Factory setting 0
Description:	Transfer additional inserted DRIVE-CLiQ components into the target topology and add the appropriate drive objects to the project.		
Values:	0: No selection 1: Drive object type SERVO 2: Drive object type VECTOR 3: SINAMICS GM (DFEMV & VECTORMV) 4: SINAMICS SM (AFEMV & VECTORMV) 5: SINAMICS GL (VECTORGL)		

p9915			
DRIVE-CLiQ data transfer error shutdown threshold master / DLQ fault master			
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 0007 07FF hex	Factory setting 0007 02FF hex
Description:	Only for internal Siemens service.		

p9916			
DRIVE-CLiQ data transfer error shutdown threshold slave / DLQ fault slave			
CU_CX32, CU_S	Can be changed: C1(1)	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 0007 07FF hex	Factory setting 0007 02FF hex
Description:	Only for internal Siemens service.		

p9920[0...19]			
Licensing, enter license key / Enter license key			
CU_S	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Enters the license key for this drive unit. Example of the license key: EACZ-QBCA = 69 65 67 90 45 81 66 67 65 dec (ASCII characters)		

Index 0 = license key character 1 (e.g. 69 dec)
 Index 1 = license key character 2 (e.g. 65 dec)
 ...
 Index 19 = license key character 20 (e.g. 0 dec)
 With the commissioning software, the ASCII characters are entered uncoded.

Dependency:

Refer to: r7843, p9921
 Refer to: A13000, A13001

Notice:

An ASCII table (excerpt) can be found, for example, in the following List Manual:

Note:

Only the ASCII characters, contained in a license key can be entered.
 When changing p9920[x] to the value 0, all of the following indices are also set to 0.
 After entering the license key, the license key must be activated (p9921).
 If the licensing is not adequate, then the following alarm is displayed together with LED:
 - A13000 --> licensing not sufficient
 - LED READY --> flashes green/red with 0.5 Hz

p9921**Licensing, activate license key / Act license key**

CU_S

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** Integer16**Dynamic index:** -**Func. diagram:** -**P-Group:** -**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

1

0

Description:

Activates the entered license key.
 The following is executed when activating the license key.
 - the checksum of the entered license key is checked.
 - the entered license key is saved in the a non-volatile fashion on the CompactFlash card.
 - re-enter the license key.

Values:

0: Inactive
 1: Activate start license key

Dependency:

Refer to: p9920
 Refer to: A13000, A13001

Note:

Before activation, the license key entered using parameter p9920 is checked. If this check identifies an error, activation is rejected. In this case, writing a 1 to p9921 is rejected.
 When the license key has been activated, p9921 is automatically set to 0.

r9925[0...99]**CompactFlash card file error / CF file error**

CU_CX32, CU_S

Can be changed: -**Calculated:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Func. diagram:** -**P-Group:** -**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the directory and the name of the file that was identified as illegal with respect to the state when supplied from the factory when checking the CompactFlash card.

Dependency:

Refer to: r9926
 Refer to: A01016

Note:

The directory and name of the file is displayed in the ASCII code.

r9926	CompactFlash card check status / CF check status		
CU_CX32, CU_S	Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the status when checking the CompactFlash card after powering-up. 0: CompactFlash Card still not checked. 1: Check running. 2: Check successfully completed. 3: Check indicates an error.		
Dependency:	Refer to: r9925 Refer to: A01016		

p9930[0...8]	System logbook activation / SYSLOG activation		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 255	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Only for service purposes.		
Index:	[0] = System logbook stage (0: Not active) [1] = COM2/COM1 (0: COM2, 1: COM1) [2] = Activate file write (0: Not active) [3] = Display time stamp (0: Not displayed) [4] = Reserved [5] = Reserved [6] = Reserved [7] = Reserved [8] = System logbook file size (stages, each 10 kB)		
Notice:	Before powering-down the Control Unit, ensure that the system logbook is switched-out (p9930[0] = 0).		

p9931[0...99]	System logbook module selection / SYSLOG mod select.		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Max FFFF FFFF hex	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Only for service purposes.		

p9932	Save system logbook EEPROM / SYSLOG EEPROM save		
CU_CX32, CU_S	Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 255	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Only for service purposes.		

r9935.0				
BO: POWER ON delay signal / POWER ON t_delay				
CU_CX32, CU_S	Can be changed: -		Access level: 3	
	Data type: Unsigned8		Func. diagram: -	
	P-Group: -		Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	After power-on, binector output r9935.0 is set with the start of the first sampling time and is again reset after approx. 100 ms.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	POWER ON delay signal	High	Low
				FP
				-

p9950				
Runtime measurement control / Runtime_meas ctrl				
CU_CX32, CU_S	Can be changed: U, T		Access level: 4	
	Data type: Integer16		Func. diagram: -	
	P-Group: -		Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	3	0	
Description:	Setting to control the runtime measurement.			
Values:	0: Stop runtime measurement 1: Start runtime meas (internal) 2: Clear trace buffer (internal) 3: Activate calculation of remaining computing time			
Dependency:	Refer to: r9976			

r9976[0...7]				
System load / Sys_load				
CU_CX32, CU_S	Can be changed: -		Access level: 3	
	Data type: Floating Point		Func. diagram: -	
	P-Group: -		Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [%]	- [%]	- [%]	
Description:	Displays the system load. The system load measurement is automatically started after run-up. The individual values (computation load and cyclic load) are measured over short time slices and from the measurements, the maximum, the minimum and the average value are formed and displayed in the appropriate indices. Further, the degree of memory utilization of the data and program memory is displayed.			
Index:	[0] = comp. time load (min) [1] = Computation time load (averaged) [2] = Computation time load (max) [3] = Computation time load cyclic (min) [4] = Computation time load cyclic (avg) [5] = Computation time load cyclic (max) [6] = Data memory locked [7] = Program memory locked			
Dependency:	Refer to: p9950 Refer to: A01053			

r9999[0...99]	Software error internal supplementary diagnostics / SW_err int diag		
CU_CX32, CU_S	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Diagnostics parameter to display additional information for internal software errors. Only for internal Siemens troubleshooting.		
p10000	SI sampling time / SI t_sample		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1.00 [ms]	25.00 [ms]	12.00 [ms]
Description:	Sets the sampling time for the Terminal Module 54F (TM54F).		
p10001	SI delay time for test stop at DO 0 ... 3 / SI t_delay DO		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	2.00 [ms]	2000.00 [ms]	500.00 [ms]
Description:	Sets the delay time for the test of the digital outputs 0 ... 3 (DO 0 ... 3). Within this time, for a forced checking procedure of the digital outputs, the signal must have been detected via the corresponding digital input DI 20 ... 23.		
Dependency:	Refer to: p10003, p10007, p10041, p10046		
p10002	SI discrepancy monitoring time / SI discrep t_monit		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2850, 2851
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1.00 [ms]	2000.00 [ms]	12.00 [ms]
Description:	Sets the monitoring time for the discrepancy for the digital inputs. The signal states at the two associated digital inputs (F-DI) must assume the same state within this monitoring time.		
Note:	F-DI: Failsafe Digital Input		

p10003			
SI forced checking procedure timer / SI FrCdCkProcTimer			
TM54F_MA	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Floating Point	Dynamic index: -	Func. diagram: 2848
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [h]	Max 8760.00 [h]	Factory setting 8.00 [h]
Description:	Sets the time to carry out the forced checking procedure (test stop). Within the parameterized time, the digital inputs/outputs must must have been subject to a forced checking procedure at least once. The forced checking procedure is started with BI: p10007 = 0/1 signal.		
Dependency:	Refer to: p10001, p10007, p10046		
<hr/>			
r10004[0...1]			
SI actual checksum TM54F parameters / SI act CRC TM54F			
TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2846
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the actual checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).		
<hr/>			
p10005[0...1]			
SI reference checksum TM54F parameters / SI ref CRC TM54F			
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2846
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Displays the reference checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).		
<hr/>			
p10006			
SI acknowledgement internal event input terminal / SI ackn int event			
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Select a safety-relevant digital input for the signal "acknowledge internal event" (internal fault). The signal is transferred to the corresponding control signal of all drives. The falling edge at this input resets the status "internal event" in the drives.		
Values:	0: Statically active 1: F-DI 0 (X521.2/3/6) 2: F-DI 1 (X521.4/5/7) 3: F-DI 2 (X522.1/2/7) 4: F-DI 3 (X522.3/4/8) 5: F-DI 4 (X522.5/6/9) 6: F-DI 5 (X531.2/3/6) 7: F-DI 6 (X531.4/5/7) 8: F-DI 7 (X532.1/2/7) 9: F-DI 8 (X532.3/4/8) 10: F-DI 9 (X532.5/6/9) 255: Statically inact		

p10007	BI: SI input terminal forced checking procedure F-DO 0 ... 3 / SI DI fcp F-DO		
TM54F_MA	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2848
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects an input terminal (input terminal of the Control Unit or a Terminal Module) to start the test stop. The test stop is started with a 0/1 signal at the input terminal and is then only possible if the TM54F is not in the commissioning mode (p0010 = 0).		
Dependency:	Refer to: p10001, p10003, p10041, p10046		
Notice:	It is not permissible to use an input on the TM54F to start the test stop.		
p10008	SI operating mode TM54F / SI op_mode TM54F		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	1
Description:	Sets the operating mode for the Terminal Module 54F (TM54F).		
Values:	0: Function interface 1: Control interface		
Note:	Parameter is being prepared - for this firmware version, the function interface is not supported.		
p10010[0...5]	SI drive object assignment / SI drv_obj assign		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2846, 2848
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	32	0
Description:	Sets the drive object number for the drives that are available.		
Index:	[0] = Drive 1 [1] = Drive 2 [2] = Drive 3 [3] = Drive 4 [4] = Drive 5 [5] = Drive 6		
Notice:	If, for a drive, safety with TM54F is activated (p9601 = 5), then its drive object number must be precisely entered into one index of p10010.		
p10011[0...5]	SI drive group assignment / SI drv_gr assign		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2848
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	4	1
Description:	Sets the drive group for the drives that are available. A drive group is a combination of several drives with the same types of behavior.		

Index:

- [0] = Drive 1
- [1] = Drive 2
- [2] = Drive 3
- [3] = Drive 4
- [4] = Drive 5
- [5] = Drive 6

p10012[0...5] SI Motor Module Node Identifier Word 1 / SI MM Node ID 1

TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
-----------------------	--	--	--

Min
0000 hex

Max
FFFF FFFF hex

Description: Sets the actual Node Identifier (word 1, bit 0 ... 31) for the Motor Modules.

Index:

- [0] = Drive 1
- [1] = Drive 2
- [2] = Drive 3
- [3] = Drive 4
- [4] = Drive 5
- [5] = Drive 6

Dependency: Refer to: p10013, p10014

Note: The Node Identifier (96 bit) is represented in the following 3 parameters.

p10012[0] word 1 (bit 0 ... 31) for Motor Module 1

...

p10012[5] word 1 (bit 0 ... 31) for Motor Module 6

p10013[0] word 2 (bit 32 ... 63) for Motor Module 1

...

p10013[5] word 2 (bit 32 ... 63) for Motor Module 6

p10014[0] word 3 (bit 64 ... 95) for Motor Module 1

...

p10014[5] word 3 (bit 64 ... 95) for Motor Module 6

p10013[0...5] SI Motor Module Node Identifier Word 2 / SI MM Node ID 2

TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex
-----------------------	--	--	--

Min
0000 hex

Max
FFFF FFFF hex

Description: Sets the actual Node Identifier (word 2, bit 32 ... 63) for the Motor Modules.

Index:

- [0] = Drive 1
- [1] = Drive 2
- [2] = Drive 3
- [3] = Drive 4
- [4] = Drive 5
- [5] = Drive 6

Dependency: Refer to: p10012, p10014

Note: The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.

p10014[0...5]	SI Motor Module Node Identifier Word 3 / SI MM Node ID 3		
TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0000 hex	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Max FFFF FFFF hex Factory setting 0000 hex
Description:	Sets the actual Node Identifier (word 3, bit 64 ... 95) for the Motor Modules.		
Index:	[0] = Drive 1 [1] = Drive 2 [2] = Drive 3 [3] = Drive 4 [4] = Drive 5 [5] = Drive 6		
Dependency:	Refer to: p10012, p10013		
Note:	The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.		
p10020[0...3]	SI special operating mode selection / SI spec op sel		
TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Max 3 Factory setting 1
Description:	Sets the special operating mode for the operating mode "function interface". 0 = Inactive 1 = Safe Operating Stop with braking (SS2) 2 = Safe Operating Stop without braking (SOS) 3 = Safely reduced speed without standstill (SLS) 4 = Safely reduced speed with agreement (SS2 --> SLS)		
Index:	[0] = Drive group 1 [1] = Drive group 2 [2] = Drive group 3 [3] = Drive group 4		
Dependency:	Refer to: p10008		
Note:	Parameter is being prepared - for this firmware version, the function interface is not supported. SS2: Safe Stop 2 SOS: Safe Operating Stop SLS: Safely-Limited Speed		
p10021[0...3]	SI Emergency Stop stop response / SI Emergency Stop		
TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Max 2 Factory setting 0
Description:	Sets the stop response for the drive group for Emergency Stop. The input terminal for Emergency Stop is set in p10038. 0 = Stop reaction STO 1 = Stop reaction SS1 2 = Stop reaction SS2		

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Dependency: Refer to: p10008, p10038

Note: Parameter is being prepared - for this firmware version, the function interface is not supported.

p10022[0...3]		SI STO input terminal / SI STO DI	
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0
Description:	Sets the input terminal for STO (operating mode "control interface").		
Values:	0: Statically active 1: F-DI 0 (X521.2/3/6) 2: F-DI 1 (X521.4/5/7) 3: F-DI 2 (X522.1/2/7) 4: F-DI 3 (X522.3/4/8) 5: F-DI 4 (X522.5/6/9) 6: F-DI 5 (X531.2/3/6) 7: F-DI 6 (X531.4/5/7) 8: F-DI 7 (X532.1/2/7) 9: F-DI 8 (X532.3/4/8) 10: F-DI 9 (X532.5/6/9) 255: Statically inactive		
Index:	[0] = Drive group 1 [1] = Drive group 2 [2] = Drive group 3 [3] = Drive group 4		
Note:	STO: Safe Torque Off Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10023[0...3]		SI SS1 input terminal / SI SS1 DI	
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0
Description:	Assignment of the input terminals for input SS1 (operating mode = control interface) Description, refer to P10022		
Values:	0: Statically active 1: F-DI 0 (X521.2/3/6) 2: F-DI 1 (X521.4/5/7) 3: F-DI 2 (X522.1/2/7) 4: F-DI 3 (X522.3/4/8) 5: F-DI 4 (X522.5/6/9) 6: F-DI 5 (X531.2/3/6) 7: F-DI 6 (X531.4/5/7) 8: F-DI 7 (X532.1/2/7) 9: F-DI 8 (X532.3/4/8) 10: F-DI 9 (X532.5/6/9)		

255: Statically inactive

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: SS1: Safe Stop 1
Re value = 0:
No terminal assigned, safety function always active.
Re value = 255:
No terminal assigned, safety function always inactive.

p10024[0...3] SI SS2 input terminal / SI SS2 DI

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0

Description: Assignment of the input terminals for input SS2 (operating mode = control interface)
Description, refer to P10022

Values: 0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inactive

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: SS2: Safe Stop 2
Re value = 0:
No terminal assigned, safety function always active.
Re value = 255:
No terminal assigned, safety function always inactive.

p10025[0...3] SI SOS input terminal / SI SOS DI

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0

Description: Assignment of the input terminals for input SOS (operating mode = control interface)
Description, refer to P10022

Values: 0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)

5: F-DI 4 (X522.5/6/9)
 6: F-DI 5 (X531.2/3/6)
 7: F-DI 6 (X531.4/5/7)
 8: F-DI 7 (X532.1/2/7)
 9: F-DI 8 (X532.3/4/8)
 10: F-DI 9 (X532.5/6/9)
 255: Statically inactive

Index: [0] = Drive group 1
 [1] = Drive group 2
 [2] = Drive group 3
 [3] = Drive group 4

Note: SOS: Safe Operating Stop
 Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.

p10026[0...3] SI SLS input terminal / SI SLS DI

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0

Description: Assignment of the input terminals for input SLS (operating mode = control interface)
 Description, refer to P10022

Values: 0: Statically active
 1: F-DI 0 (X521.2/3/6)
 2: F-DI 1 (X521.4/5/7)
 3: F-DI 2 (X522.1/2/7)
 4: F-DI 3 (X522.3/4/8)
 5: F-DI 4 (X522.5/6/9)
 6: F-DI 5 (X531.2/3/6)
 7: F-DI 6 (X531.4/5/7)
 8: F-DI 7 (X532.1/2/7)
 9: F-DI 8 (X532.3/4/8)
 10: F-DI 9 (X532.5/6/9)
 255: Statically inactive

Index: [0] = Drive group 1
 [1] = Drive group 2
 [2] = Drive group 3
 [3] = Drive group 4

Note: SLS: Safely-Limited Speed
 Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.

p10027[0...3] SI SLS_Limit(1) input terminal / SI SLS_Limit(1) DI

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0

Description: Sets the input terminal for SLS_Limit bit 0 (operating mode "control interface").

Values:	0:	Statically active
	1:	F-DI 0 (X521.2/3/6)
	2:	F-DI 1 (X521.4/5/7)
	3:	F-DI 2 (X522.1/2/7)
	4:	F-DI 3 (X522.3/4/8)
	5:	F-DI 4 (X522.5/6/9)
	6:	F-DI 5 (X531.2/3/6)
	7:	F-DI 6 (X531.4/5/7)
	8:	F-DI 7 (X532.1/2/7)
	9:	F-DI 8 (X532.3/4/8)
	10:	F-DI 9 (X532.5/6/9)
	255:	Statically inactive
Index:	[0]	= Drive group 1
	[1]	= Drive group 2
	[2]	= Drive group 3
	[3]	= Drive group 4
Note:	SLS: Safely-Limited Speed	
	Re value = 0:	
	No terminal assigned, selection bit remains statically at "0".	
	Re value = 255:	
	No terminal assigned, selection bit remains statically at "1".	

p10028[0...3]	SI SLS_Limit(2) input terminal / SI SLS_Limit(2) DI		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Sets the input terminal for SLS_Limit bit 1 (operating mode "control interface").		
Values:	0:	Statically active	
	1:	F-DI 0 (X521.2/3/6)	
	2:	F-DI 1 (X521.4/5/7)	
	3:	F-DI 2 (X522.1/2/7)	
	4:	F-DI 3 (X522.3/4/8)	
	5:	F-DI 4 (X522.5/6/9)	
	6:	F-DI 5 (X531.2/3/6)	
	7:	F-DI 6 (X531.4/5/7)	
	8:	F-DI 7 (X532.1/2/7)	
	9:	F-DI 8 (X532.3/4/8)	
	10:	F-DI 9 (X532.5/6/9)	
	255:	Statically inactive	
Index:	[0]	= Drive group 1	
	[1]	= Drive group 2	
	[2]	= Drive group 3	
	[3]	= Drive group 4	
Note:	SLS: Safely-Limited Speed		
	Re value = 0:		
	No terminal assigned, selection bit remains statically at "0".		
	Re value = 255:		
	No terminal assigned, selection bit remains statically at "1".		

p10036[0...3]	SI special operating mode input terminal / SI spec op DI		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Sets the input terminal for "special operating mode" (operating mode "function interface").		
Values:	0: Statically active 1: F-DI 0 (X521.2/3/6) 2: F-DI 1 (X521.4/5/7) 3: F-DI 2 (X522.1/2/7) 4: F-DI 3 (X522.3/4/8) 5: F-DI 4 (X522.5/6/9) 6: F-DI 5 (X531.2/3/6) 7: F-DI 6 (X531.4/5/7) 8: F-DI 7 (X532.1/2/7) 9: F-DI 8 (X532.3/4/8) 10: F-DI 9 (X532.5/6/9) 255: Statically inactive		
Index:	[0] = Drive group 1 [1] = Drive group 2 [2] = Drive group 3 [3] = Drive group 4		
Note:	Parameter is being prepared - for this firmware version, the function interface is not supported. Re value = 0: No terminal assigned, static special operation. Re value = 255: No terminal assigned, static normal operation.		

p10037[0...3]	SI agreement input terminal / SI agreement DI		
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Sets the input terminal for "agreement" (operating mode "function interface").		
Values:	0: Statically active 1: F-DI 0 (X521.2/3/6) 2: F-DI 1 (X521.4/5/7) 3: F-DI 2 (X522.1/2/7) 4: F-DI 3 (X522.3/4/8) 5: F-DI 4 (X522.5/6/9) 6: F-DI 5 (X531.2/3/6) 7: F-DI 6 (X531.4/5/7) 8: F-DI 7 (X532.1/2/7) 9: F-DI 8 (X532.3/4/8) 10: F-DI 9 (X532.5/6/9) 255: Statically inactive		
Index:	[0] = Drive group 1 [1] = Drive group 2 [2] = Drive group 3 [3] = Drive group 4		

Note: Parameter is being prepared - for this firmware version, the function interface is not supported.
 Re value = 0:
 No terminal assigned, no static agreement.
 Re value = 255:
 No terminal assigned, static agreement.

p10038[0...3] SI Emergency Stop input terminal / SI Emer Stop DI

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0

Description: Sets the input terminal for input "Emergency Stop" (operating mode "function interface").
 The behavior of this input signal is set in p10021.

Values:

0:	Statically active
1:	F-DI 0 (X521.2/3/6)
2:	F-DI 1 (X521.4/5/7)
3:	F-DI 2 (X522.1/2/7)
4:	F-DI 3 (X522.3/4/8)
5:	F-DI 4 (X522.5/6/9)
6:	F-DI 5 (X531.2/3/6)
7:	F-DI 6 (X531.4/5/7)
8:	F-DI 7 (X532.1/2/7)
9:	F-DI 8 (X532.3/4/8)
10:	F-DI 9 (X532.5/6/9)
255:	Statically inactive

Index:

[0]	= Drive group 1
[1]	= Drive group 2
[2]	= Drive group 3
[3]	= Drive group 4

Dependency: Refer to: p10008, p10021

Note: Parameter is being prepared - for this firmware version, the function interface is not supported.
 Re value = 0:
 No terminal assigned, "Emergency Stop" statically active.
 Re value = 255:
 No terminal assigned, no "Emergency Stop" statically active.

p10039[0...3] SI Safe State signal selection / SI Safe State Sel

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2856
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0001 bin

Description: Sets the signals for the drive group specific signal "Safe State".
 Bit 0 = Power_removed
 Bit 1 = SS1_active
 Bit 2 = SS2_active
 Bit 3 = SOS_active
 Bit 4 = SLS_active
 Bit 5 = Reserved

Index:

[0]	= Drive group 1
[1]	= Drive group 2
[2]	= Drive group 3

[3] = Drive group 4

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Power_removed	Selected	Not selected	-
	01	SS1_active	Selected	Not selected	-
	02	SS2_active	Selected	Not selected	-
	03	SOS_active	Selected	Not selected	-
	04	SLS_active	Selected	Not selected	-

Note: Bit = 0 signal --> not selected

Bit = 1 signal --> selected

The selected signals (high-active) are OR'ed The result of the logic operation results in the status "Safe State".

p10040 SI F-DI input mode / SI F-DI inp_mode

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the input mode for the safety-relevant input terminals of terminal series 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0, DI 1+ (X521.3)	NO contact	NC contact	2850
	01	F-DI 1, DI 3+ (X521.5)	NO contact	NC contact	2850
	02	F-DI 2, DI 5+ (X522.2)	NO contact	NC contact	2850
	03	F-DI 3, DI 7+ (X522.4)	NO contact	NC contact	2850
	04	F-DI 4, DI 9+ (X522.6)	NO contact	NC contact	2850
	05	F-DI 5, DI 11+ (X531.3)	NO contact	NC contact	2851
	06	F-DI 6, DI 13+ (X531.5)	NO contact	NC contact	2851
	07	F-DI 7, DI 15+ (X532.2)	NO contact	NC contact	2851
	08	F-DI 8, DI 17+ (X532.4)	NO contact	NC contact	2851
	09	F-DI 9, DI 19+ (X532.6)	NO contact	NC contact	2851

Note: Only an NC contact can be connected to terminals that are not listed in the selection.**p10041 SI F-DI enable for test / SI F-DI enab test**

TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2848
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Enable signal for the integration of F-DI in the test (forced checking procedure) of the sensor power supply.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0, power supply L1+	Test active	No test	-
	01	F-DI 1, power supply L1+	Test active	No test	-
	02	F-DI 2, power supply L1+	Test active	No test	-
	03	F-DI 3, power supply L1+	Test active	No test	-
	04	F-DI 4, power supply L1+	Test active	No test	-
	05	F-DI 5, power supply L2+	Test active	No test	-
	06	F-DI 6, power supply L2+	Test active	No test	-
	07	F-DI 7, power supply L2+	Test active	No test	-
	08	F-DI 8, power supply L2+	Test active	No test	-
	09	F-DI 9, power supply L2+	Test active	No test	-

Note: F-DI: Failsafe Digital Input

p10042[0...5] SI F-DO 0 signal sources / SI F-DO 0 S_src			
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2857
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 777	Factory setting 0
Description:	Sets the signal sources for F-DO 0. The 6 signal sources in p10042[0...5] are AND'ed and the result is output at F-DO 0.		
Values:	0: No function 1: Drive group 1 pulses canceled 2: Drive group 1 SS1 active 3: Drive group 1 SS2 active 4: Drive group 1 SOS active 5: Drive group 1 SLS active 6: Drive group 1 SSM feedback signal active 7: Drive group 1 safe state 8: Drive group 1 SOS selected 9: Drive group 1 internal event 257: Drive group 2 pulses canceled 258: Drive group 2 SS1 active 259: Drive group 2 SS2 active 260: Drive group 2 SOS active 261: Drive group 2 SLS active 262: Drive group 2 SSM feedback signal active 263: Drive group 2 safe state 264: Drive group 2 SOS selected 265: Drive group 2 internal event 513: Drive group 3 pulses canceled 514: Drive group 3 SS1 active 515: Drive group 3 SS2 active 516: Drive group 3 SOS active 517: Drive group 3 SLS active 518: Drive group 3 SSM feedback signal active 519: Drive group 3 safe state 520: Drive group 3 SOS selected 521: Drive group 3 internal event 769: Drive group 4 pulses canceled 770: Drive group 4 SS1 active 771: Drive group 4 SS2 active 772: Drive group 4 SOS active 773: Drive group 4 SLS active 774: Drive group 4 SSM feedback signal active 775: Drive group 4 safe state 776: Drive group 4 SOS selected 777: Drive group 4 internal event		
Index:	[0] = AND logic operation input 1 [1] = AND logic operation input 2 [2] = AND logic operation input 3 [3] = AND logic operation input 4 [4] = AND logic operation input 5 [5] = AND logic operation input 6		
Note:	F-DO: Failsafe Digital Output		

p10043[0...5] SI F-DO 1 signal sources / SI F-DO 1 S_src			
TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2857 Unit selection: - Expert list: 1
	Min 0	Max 777	Factory setting 0
Description:	Sets the signal sources for F-DO 1. The 6 signal sources in p10043[0...5] are AND'ed and the result is output at F-DO 1.		
Values:	0: No function 1: Drive group 1 pulses canceled 2: Drive group 1 SS1 active 3: Drive group 1 SS2 active 4: Drive group 1 SOS active 5: Drive group 1 SLS active 6: Drive group 1 SSM feedback signal active 7: Drive group 1 safe state 8: Drive group 1 SOS selected 9: Drive group 1 internal event 257: Drive group 2 pulses canceled 258: Drive group 2 SS1 active 259: Drive group 2 SS2 active 260: Drive group 2 SOS active 261: Drive group 2 SLS active 262: Drive group 2 SSM feedback signal active 263: Drive group 2 safe state 264: Drive group 2 SOS selected 265: Drive group 2 internal event 513: Drive group 3 pulses canceled 514: Drive group 3 SS1 active 515: Drive group 3 SS2 active 516: Drive group 3 SOS active 517: Drive group 3 SLS active 518: Drive group 3 SSM feedback signal active 519: Drive group 3 safe state 520: Drive group 3 SOS selected 521: Drive group 3 internal event 769: Drive group 4 pulses canceled 770: Drive group 4 SS1 active 771: Drive group 4 SS2 active 772: Drive group 4 SOS active 773: Drive group 4 SLS active 774: Drive group 4 SSM feedback signal active 775: Drive group 4 safe state 776: Drive group 4 SOS selected 777: Drive group 4 internal event		
Index:	[0] = AND logic operation input 1 [1] = AND logic operation input 2 [2] = AND logic operation input 3 [3] = AND logic operation input 4 [4] = AND logic operation input 5 [5] = AND logic operation input 6		
Note:	F-DO: Failsafe Digital Output		

p10044[0...5] SI F-DO 2 signal sources / SI F-DO 2 S_src			
TM54F_MA, TM54F_SL	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2857
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 777	Factory setting 0
Description:	Sets the signal sources for F-DO 2. The 6 signal sources in p10044[0...5] are AND'ed and the result is output at F-DO 2.		
Values:	0: No function 1: Drive group 1 pulses canceled 2: Drive group 1 SS1 active 3: Drive group 1 SS2 active 4: Drive group 1 SOS active 5: Drive group 1 SLS active 6: Drive group 1 SSM feedback signal active 7: Drive group 1 safe state 8: Drive group 1 SOS selected 9: Drive group 1 internal event 257: Drive group 2 pulses canceled 258: Drive group 2 SS1 active 259: Drive group 2 SS2 active 260: Drive group 2 SOS active 261: Drive group 2 SLS active 262: Drive group 2 SSM feedback signal active 263: Drive group 2 safe state 264: Drive group 2 SOS selected 265: Drive group 2 internal event 513: Drive group 3 pulses canceled 514: Drive group 3 SS1 active 515: Drive group 3 SS2 active 516: Drive group 3 SOS active 517: Drive group 3 SLS active 518: Drive group 3 SSM feedback signal active 519: Drive group 3 safe state 520: Drive group 3 SOS selected 521: Drive group 3 internal event 769: Drive group 4 pulses canceled 770: Drive group 4 SS1 active 771: Drive group 4 SS2 active 772: Drive group 4 SOS active 773: Drive group 4 SLS active 774: Drive group 4 SSM feedback signal active 775: Drive group 4 safe state 776: Drive group 4 SOS selected 777: Drive group 4 internal event		
Index:	[0] = AND logic operation input 1 [1] = AND logic operation input 2 [2] = AND logic operation input 3 [3] = AND logic operation input 4 [4] = AND logic operation input 5 [5] = AND logic operation input 6		
Note:	F-DO: Failsafe Digital Output		

p10045[0...5] SI F-DO 3 signal sources / SI F-DO 3 S_src			
TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2857 Unit selection: - Expert list: 1
	Min 0	Max 777	Factory setting 0
Description:	Sets the signal sources for F-DO 3. The 6 signal sources in p10045[0...5] are AND'ed and the result is output at F-DO 3.		
Values:	0: No function 1: Drive group 1 pulses canceled 2: Drive group 1 SS1 active 3: Drive group 1 SS2 active 4: Drive group 1 SOS active 5: Drive group 1 SLS active 6: Drive group 1 SSM feedback signal active 7: Drive group 1 safe state 8: Drive group 1 SOS selected 9: Drive group 1 internal event 257: Drive group 2 pulses canceled 258: Drive group 2 SS1 active 259: Drive group 2 SS2 active 260: Drive group 2 SOS active 261: Drive group 2 SLS active 262: Drive group 2 SSM feedback signal active 263: Drive group 2 safe state 264: Drive group 2 SOS selected 265: Drive group 2 internal event 513: Drive group 3 pulses canceled 514: Drive group 3 SS1 active 515: Drive group 3 SS2 active 516: Drive group 3 SOS active 517: Drive group 3 SLS active 518: Drive group 3 SSM feedback signal active 519: Drive group 3 safe state 520: Drive group 3 SOS selected 521: Drive group 3 internal event 769: Drive group 4 pulses canceled 770: Drive group 4 SS1 active 771: Drive group 4 SS2 active 772: Drive group 4 SOS active 773: Drive group 4 SLS active 774: Drive group 4 SSM feedback signal active 775: Drive group 4 safe state 776: Drive group 4 SOS selected 777: Drive group 4 internal event		
Index:	[0] = AND logic operation input 1 [1] = AND logic operation input 2 [2] = AND logic operation input 3 [3] = AND logic operation input 4 [4] = AND logic operation input 5 [5] = AND logic operation input 6		
Note:	F-DO: Failsafe Digital Output		

p10046		SI test sensor feedback signal input DI 20 ... 23 / SI test sens FS			
TM54F_MA, TM54F_SL		Can be changed: C2	Calculated: -	Access level: 3	
		Data type: Unsigned32	Dynamic index: -	Func. diagram: 2848	
		P-Group: Safety Integrated	Units group: -	Unit selection: -	
		Not for motor type: -		Expert list: 1	
		Min	Max	Factory setting	
		-	-	0000 bin	
Description:		Sets the test of the feedback line for forced checking procedure.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Read back F-DO 0 in DI 20	Test active	No test	-
	01	Read back F-DO 1 in DI 21	Test active	No test	-
	02	Read back F-DO 2 in DI 22	Test active	No test	-
	03	Read back F-DO 3 in DI 23	Test active	No test	-
Note:		F-DO: Failsafe Digital Output			

r10051.0...9		CO/BO: SI digital inputs status / SI DI status			
TM54F_MA, TM54F_SL		Can be changed: -	Calculated: -	Access level: 3	
		Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
		P-Group: Safety Integrated	Units group: -	Unit selection: -	
		Not for motor type: -		Expert list: 1	
		Min	Max	Factory setting	
		-	-	-	
Description:		Displays the single-channel status of the safety digital inputs F-DI 0 .. 9 at Terminal Module 54F (TM54F). If a safety function is assigned to an input (e.g. via p10022), then the following applies: - logical "0": The safety function is selected - logical "1": The safety function is canceled The interrelationship between the logical level and the external voltage level at the input depends on the parameterization (refer to p10040) of the input as either NC or NO contact and is aligned to the use of a safety function: With 24 V at the input, NC contacts have a logical "1" level, for 0 V at the input, a logical "0" level. This means that an NC/NC contact parameterization of 0 V at both inputs of the F-DI selects the safety function, for 24 V at both inputs, deselects the safety function. With 24 V at the input, NO contacts have a logical "0" level, for 0 V at the input, a logical "1" level. This means that for an NC/NO contact parameterization, the level 0 V/24 V selects the safety function, the level 24 V/0 V deselects the safety function.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0	Logical 1	Logical 0	2850
	01	F-DI 1	Logical 1	Logical 0	2850
	02	F-DI 2	Logical 1	Logical 0	2850
	03	F-DI 3	Logical 1	Logical 0	2850
	04	F-DI 4	Logical 1	Logical 0	2850
	05	F-DI 5	Logical 1	Logical 0	2851
	06	F-DI 6	Logical 1	Logical 0	2851
	07	F-DI 7	Logical 1	Logical 0	2851
	08	F-DI 8	Logical 1	Logical 0	2851
	09	F-DI 9	Logical 1	Logical 0	2851
Note:		F-DI: Failsafe Digital Input			

r10052.0...3 CO/BO: SI digital outputs status / SI DO status

TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of the digital outputs at the Terminal Module 54F (TM54F).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0	High	Low	2853
	01	DO 1	High	Low	2853
	02	DO 2	High	Low	2853
	03	DO 3	High	Low	2853

Note: F-DO: Failsafe Digital Output

r10053.0...3 CO/BO: SI digital inputs 20 ... 23 status / SI DI 20...23 stat

TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2848
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of the digital inputs at the Terminal Module 54F (TM54F).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 20	High	Low	2853
	01	DI 21	High	Low	2853
	02	DI 22	High	Low	2853
	03	DI 23	High	Low	2853

r10054 SI TM54F failsafe events active / SI failsafe event

TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the events that lead to the transfer of failsafe signals to all drives assigned to the TM54F.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Commissioning mode active (p0010 = 95)	Yes	No	-
	01	Checksum error of the safety parameters	Yes	No	-
	02	Internal synchronization problem within RM54F	Yes	No	-
	03	Internal software error	Yes	No	-
	04	Overvoltage in the TM54F	Yes	No	-
	05	Undervoltage in the TM54F	Yes	No	-
	06	Error at test stop	Yes	No	-
	07	Error for data cross-check within TM54F	Yes	No	-
	08	Overvoltage in the TM54F	Yes	No	-

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p10062 SI password new TM54F / SI password new			
TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Max FFFF FFFF hex	Access level: 3 Func. diagram: 2846 Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Enters the new Safety Integrated password for the Terminal Module 54F (TM54F).		
Dependency:	A change made to the Safety Integrated password must be acknowledged in the following parameter: Refer to: p10063		
<hr/>			
p10063 SI password acknowledgement TM54F / SI ackn password			
TM54F_MA, TM54F_SL	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Max FFFF FFFF hex	Access level: 3 Func. diagram: 2846 Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Acknowledgement of the new Safety Integrated password for the Terminal Module 54F (TM54F).		
Dependency:	Refer to: p10062		
Note:	The new password entered into p10062 must be re-entered in order to acknowledge. p10062 = p10063 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.		
<hr/>			
r10090[0...2] SI TM54F version / SI TM54F version			
TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the Safety Integrated version for the Terminal Module 54F (TM54F).		
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch)		
Dependency:	Refer to: r9390, r9590, r9770, r9870, r9890		
Note:	Example: r10090[0] = 2, r10090[1] = 3, r10090[2] = 1 --> SI version V02.03.01		
<hr/>			
r61000[0...239] PROFINET Name of Station / PN Name of Station			
CU_S (PROFINET)	Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays PROFINET Name of Station.		
Notice:	An ASCII table (excerpt) can be found, for example, in the following List Manual:		

r61001[0...3]	PROFINET IP of Station / PN IP of Station		
CU_S (PROFINET)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays PROFINET IP of Station.		

1.3 Parameters for data sets

1.3.1 Parameters for Command Data Sets (CDS)

Note:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions
Section "Data sets"

The following list contains the command-data-set-dependent parameters.

Product: SINAMICS S, Version: 2503100, Language: eng

p0700[0...n]	Macro Binector Input (BI) / Macro BI
p0820[0...n]	BI: Drive data set selection DDS bit 0 / DDS select., bit 0
p0821[0...n]	BI: Drive data set selection DDS bit 1 / DDS select., bit 1
p0822[0...n]	BI: Drive data set selection DDS bit 2 / DDS select., bit 2
p0823[0...n]	BI: Drive data set selection DDS bit 3 / DDS select., bit 3
p0824[0...n]	BI: Drive data set selection DDS bit 4 / DDS select., bit 4
p0828[0...n]	BI: Motor changeover, feedback signal / Mot_chng fdbk sig
p0840[0...n]	BI: ON/OFF1 / ON/OFF1
p0844[0...n]	BI: 1. OFF2 / 1. OFF2
p0845[0...n]	BI: 2. OFF2 / 2. OFF2
p0848[0...n]	BI: 1. OFF3 / 1. OFF3
p0849[0...n]	BI: 2. OFF3 / 2. OFF3
p0852[0...n]	BI: Enable operation / Enable operation
p0854[0...n]	BI: Master ctrl by PLC / Master ctrl by PLC
p0855[0...n]	BI: Unconditionally release holding brake / Uncond open brake
p0856[0...n]	BI: Enable speed controller / Enable n_ctrl
p0856[0...n]	BI: Enable velocity controller / Enable v_ctrl
p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake
p1000[0...n]	Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set
p1000[0...n]	Macro Connector Inputs (CI) for velocity setpoints / Macro CI v_set
p1020[0...n]	BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0
p1020[0...n]	BI: Fixed velocity setpoint selection Bit 0 / v_set_fixed Bit 0
p1021[0...n]	BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1
p1021[0...n]	BI: Fixed velocity setpoint selection Bit 1 / v_set_fixed Bit 1
p1022[0...n]	BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2
p1022[0...n]	BI: Fixed velocity setpoint selection Bit 2 / v_set_fixed Bit 2
p1023[0...n]	BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3
p1023[0...n]	BI: Fixed velocity setpoint selection Bit 3 / v_set_fixed Bit 3
p1035[0...n]	BI: Motorized potentiometer setpoint raise / Mop raise
p1036[0...n]	BI: Motorized potentiometer lower setpoint / Mop lower
p1039[0...n]	BI: Motorized potentiometer inversion / Mop inversion
p1041[0...n]	BI: Motorized potentiometer manual/automatic / Mop manual/auto
p1042[0...n]	CI: Motorized potentiometer automatic setpoint / Mop auto setpoint
p1043[0...n]	BI: Motorized potentiometer accept setpoint / Mop accept set val
p1044[0...n]	CI: Motorized potentiometer setting value / Mop setting value
p1055[0...n]	BI: Jog bit 0 / Jog bit 0
p1056[0...n]	BI: Jog bit 1 / Jog bit 1
p1070[0...n]	CI: Main setpoint / Main setpoint

p1071[0...n]	CI: Main setpoint scaling / Main setp scal
p1075[0...n]	CI: Suppl setpoint / Suppl setpoint
p1076[0...n]	CI: Supplementary setpoint scaling / Suppl setp scal
p1085[0...n]	CI: Speed limit in positive direction of rotation / n_limit pos
p1085[0...n]	CI: Velocity limit positive direction / v_limit pos
p1088[0...n]	CI: Speed limit negative direction of rotation / n_limit neg
p1088[0...n]	CI: Velocity limit negative direction / n_limit neg
p1110[0...n]	BI: Inhibit negative direction / Inhib neg dir rot
p1111[0...n]	BI: Inhibit positive direction / Inhib pos dir rot
p1113[0...n]	BI: Direction reversal / Direction reversal
p1122[0...n]	BI: Bypass ramp-function generator / Bypass RFG
p1140[0...n]	BI: Enables the ramp-function generator / Enable RFG
p1141[0...n]	BI: Start ramp-function generator / Start RFG
p1142[0...n]	BI: Enable speed setpoint / Enable n_set
p1142[0...n]	BI: Enable velocity setpoint / Enable v_set
p1143[0...n]	BI: Ramp-function generator, accept setting value / Accept RFG set val
p1144[0...n]	CI: Ramp-function generator setting value / RFG setting value
p1155[0...n]	CI: Speed controller speed setpoint 1 / n_ctrl n_set 1
p1155[0...n]	CI: Velocity controller, velocity setpoint 1 / v_ctrl n_set 1
p1160[0...n]	CI: Speed controller speed setpoint 2 / n_ctrl n_set 2
p1160[0...n]	CI: Velocity controller, velocity setpoint 2 / v_ctrl n_set 2
p1230[0...n]	BI: Armature short-circuit / DC brake activation / ASC act
p1235[0...n]	BI: External armature short-circuit, contactor feedback signal / ASC ext feedback
p1330[0...n]	CI: V/Hz control independent voltage setpoint / Vf V_set independ.
p1356[0...n]	CI: V/f control, angular setpoint / Uf ang setpoint
p1430[0...n]	CI: Speed pre-control / n_prectrl
p1430[0...n]	CI: Velocity pre-control / v_prectrl
p1437[0...n]	CI: Speed controller, reference model I component input / n_ctrRefMod I_comp
p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctrl Adpt_sig Kp
p1455[0...n]	CI: Velocity controller, P gain adaptation signal / v_ctrl Adpt_sig Kp
p1466[0...n]	CI: Speed controller P-gain scaling / n_ctrl Kp scal
p1466[0...n]	CI: Velocity controller P gain scaling / v_ctrl Kp scal
p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop
p1476[0...n]	BI: Velocity controller, hold integrator / v_ctrl integ stop
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set
p1477[0...n]	BI: Set velocity controller integrator value / v_ctrl integ set
p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal
p1478[0...n]	CI: Velocity controller, integrator value / v_ctr integ_setVal
p1479[0...n]	CI: Speed controller integrator setting value scaling / n_ctrl I_val scal
p1492[0...n]	BI: Droop feedback enable / Enables droop
p1495[0...n]	CI: Acceleration pre-control / a_prectrl
p1497[0...n]	CI: Moment of inertia, scaling / M_mom inert scal
p1497[0...n]	CI: Motor weight scaling / Mot_weight scal
p1500[0...n]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set
p1500[0...n]	Macro Connector Inputs (CI) for force setpoints / Macro CI F_set
p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl
p1501[0...n]	BI: Changeover velocity/force control / Changeov n/F_ctrl
p1503[0...n]	CI: Torque setpoint / M_set
p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1
p1511[0...n]	CI: Supplementary force 1 / F_suppl 1
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal
p1512[0...n]	CI: Supplementary force 1 scaling / F_suppl 1 scal
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2

p1513[0...n]	Cl: Supplementary force 2 / F _{suppl} 2
p1522[0...n]	Cl: Torque limit upper/motoring / M _{max} upper/mot
p1522[0...n]	Cl: Force limit upper/motoring / F _{max} upper/mot
p1522[0...n]	Cl: Torque limit upper / M _{max} upper
p1523[0...n]	Cl: Torque limit lower/regenerative / M _{max} lower/regen
p1523[0...n]	Cl: Force limit lower/regenerative / F _{max} lower/regen
p1523[0...n]	Cl: Torque limit lower / M _{max} lower
p1528[0...n]	Cl: Torque limit upper/motoring scaling / M _{max} up/mot scal
p1528[0...n]	Cl: Force limit upper/motoring scaling / F _{max} up/mot scal
p1528[0...n]	Cl: Torque limit upper scaling / M _{max} upper scal
p1529[0...n]	Cl: Torque limit lower/regenerating scaling / M _{max} low/gen scal
p1529[0...n]	Cl: Force limit lower/regenerative scaling / F _{max} low/gen scal
p1529[0...n]	Cl: Torque limit lower scaling / M _{max} lower scal
p1540[0...n]	Cl: Torque limit speed controller upper scaling / M _{max} n-ctr upScal
p1541[0...n]	Cl: Torque limit. speed controller lower scaling / M _{max} nctr lowScal
p1542[0...n]	Cl: Travel to fixed stop torque reduction / TfS M _{red}
p1542[0...n]	Cl: Travel to fixed stop force reduction / TfS F _{red}
p1545[0...n]	Bl: Activates travel to a fixed stop / TfS activation
p1550[0...n]	Bl: Transfer actual torque as torque offset / Accept act torque
p1550[0...n]	Bl: Transfer actual force as force offset / Accept act force
p1551[0...n]	Bl: Torque limit variable/fixed signal source / M _{lim} var/fixS_src
p1551[0...n]	Bl: Force limit variable/fixed signal source / F _{lim} var/fixS_src
p1552[0...n]	Cl: Torque limit upper scaling without offset / M _{max} up offs scal
p1552[0...n]	Cl: Force limit upper scaling without offset / F _{max} up offs scal
p1554[0...n]	Cl: Torque limit lower scaling without offset / M _{max} low offsScal
p1554[0...n]	Cl: Force limit lower scaling without offset / F _{max} low offsScal
p1555[0...n]	Cl: Power limit / P _{max}
p1569[0...n]	Cl: Supplementary torque 3 / M _{suppl} 3
p1569[0...n]	Cl: Supplementary force 3 / F _{suppl} 3
p1571[0...n]	Cl: Supplementary flux setpoint / Suppl flux setp
p1640[0...n]	Cl: Excitation current actual value / I _{exc_act} val
p2103[0...n]	Bl: 1. Acknowledge faults / 1. Acknowledge
p2104[0...n]	Bl: 2. Acknowledge faults / 2. Acknowledge
p2105[0...n]	Bl: 3. Acknowledge faults / 3. Acknowledge
p2106[0...n]	Bl: External fault 1 / External fault 1
p2107[0...n]	Bl: External fault 2 / External fault 2
p2108[0...n]	Bl: External fault 3 / External fault 3
p2112[0...n]	Bl: External alarm 1 / External alarm 1
p2116[0...n]	Bl: External alarm 2 / External alarm 2
p2117[0...n]	Bl: External alarm 3 / External alarm 3
p2144[0...n]	Bl: Motor stall monitoring enable (negated) / Mot stall enab neg
p2148[0...n]	Bl: Ramp-function generator active / HLG active
p2151[0...n]	Cl: Speed setpoint for messages/signals / n _{set} for msg
p2151[0...n]	Cl: Velocity setpoint for messages/signals / v _{set} for msg
p2154[0...n]	Cl: Speed setpoint 2 / n _{set} 2
p2154[0...n]	Cl: Velocity setpoint 2 / v _{set} 2
p2200[0...n]	Bl: Technology controller enable / Tec_ctrl enable
p2220[0...n]	Bl: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0
p2221[0...n]	Bl: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1
p2222[0...n]	Bl: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2
p2223[0...n]	Bl: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3
p2235[0...n]	Bl: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise
p2236[0...n]	Bl: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower

p2253[0...n]	Cl: Technology controller setpoint 1 / Tec_ctrl setp 1
p2254[0...n]	Cl: Technology controller setpoint 2 / Tec_ctrl setp 2
p2264[0...n]	Cl: Technology controller actual value / Tec_ctrl act val
p2289[0...n]	Cl: Technology controller pre-control signal / Tec_ctrl prectrl
p2296[0...n]	Cl: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n]	Cl: Technology controller maximum limiting / Tec_ctrl max_limit
p2298[0...n]	Cl: Technology controller minimum limiting / Tec_ctrl min_lim
p3111[0...n]	Bl: External fault 3, enable / Ext fault 3 enab
p3112[0...n]	Bl: External fault 3 enable negated / Ext flt 3 enab neg
p3784[0...n]	Bl: Sync-line-drive external increase voltage / Sync ext V incr
p3785[0...n]	Bl: Sync-line-drive external decrease voltage / Sync ext V decr
p3802[0...n]	Bl: Sync-line-drive enable / Sync enable

1.3.2 Parameters for Drive Data Sets (DDS)

Note:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions
Section "Data sets"

The following list contains the drive-data-set-dependent parameters.

Product: SINAMICS S, Version: 2503100, Language: eng

p0186[0...n]	Motor Data Sets (MDS) number / MDS number
p0187[0...n]	Encoder 1 encoder data set number / Enc 1 EDS number
p0188[0...n]	Encoder 2 encoder data set number / Enc 2 EDS number
p0189[0...n]	Encoder 3 encoder data set number / Enc 3 EDS number
p0340[0...n]	Automatic calculation of motor/control parameters / Calc auto par
p0572[0...n]	Activate inhibit list / Act inhib list
p0578[0...n]	Calculate parameters that are dependent on the technology/units / Calc techn par
p0640[0...n]	Current limit / Current limit
p0642[0...n]	Sensorless operation current reduction / Sensorl op I_red
p1001[0...n]	CO: Fixed speed setpoint 1 / n_set_fixed 1
p1001[0...n]	CO: Fixed velocity setpoint 1 / n_set_fixed 1
p1002[0...n]	CO: Fixed speed setpoint 2 / n_set_fixed 2
p1002[0...n]	CO: Fixed velocity setpoint 2 / n_set_fixed 2
p1003[0...n]	CO: Fixed speed setpoint 3 / n_set_fixed 3
p1003[0...n]	CO: Fixed velocity setpoint 3 / n_set_fixed 3
p1004[0...n]	CO: Fixed speed setpoint 4 / n_set_fixed 4
p1004[0...n]	CO: Fixed velocity setpoint 4 / n_set_fixed 4
p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5
p1005[0...n]	CO: Fixed velocity setpoint 5 / n_set_fixed 5
p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6
p1006[0...n]	CO: Fixed velocity setpoint 6 / n_set_fixed 6
p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7
p1007[0...n]	CO: Fixed velocity setpoint 7 / n_set_fixed 7
p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8
p1008[0...n]	CO: Fixed velocity setpoint 8 / n_set_fixed 8
p1009[0...n]	CO: Fixed speed setpoint 9 / n_set_fixed 9
p1009[0...n]	CO: Fixed velocity setpoint 9 / n_set_fixed 9
p1010[0...n]	CO: Fixed speed setpoint 10 / n_set_fixed 10

p1010[0...n]	CO: Fixed velocity setpoint 10 / n_set_fixed 10
p1011[0...n]	CO: Fixed speed setpoint 11 / n_set_fixed 11
p1011[0...n]	CO: Fixed velocity setpoint 11 / n_set_fixed 11
p1012[0...n]	CO: Fixed speed setpoint 12 / n_set_fixed 12
p1012[0...n]	CO: Fixed velocity setpoint 12 / n_set_fixed 12
p1013[0...n]	CO: Fixed speed setpoint 13 / n_set_fixed 13
p1013[0...n]	CO: Fixed velocity setpoint 13 / n_set_fixed 13
p1014[0...n]	CO: Fixed speed setpoint 14 / n_set_fixed 14
p1014[0...n]	CO: Fixed velocity setpoint 14 / n_set_fixed 14
p1015[0...n]	CO: Fixed speed setpoint 15 / n_set_fixed 15
p1015[0...n]	CO: Fixed velocity setpoint 15 / n_set_fixed 15
p1030[0...n]	Motorized potentiometer configuration / Mop configuration
p1037[0...n]	Motorized potentiometer maximum speed / Mop n_max
p1037[0...n]	Motorized potentiometer maximum velocity / Mop n_max
p1038[0...n]	Motorized potentiometer minimum speed / Mop n_min
p1038[0...n]	Motorized potentiometer minimum velocity / Mop n_min
p1040[0...n]	Motorized potentiometer starting value / Mop start value
p1047[0...n]	Motorized potentiometer ramp-up time / Mop ramp-up time
p1048[0...n]	Motorized potentiometer ramp-down time / Mop ramp-down time
p1058[0...n]	Jog 1 speed setpoint / Jog 1 n_set
p1058[0...n]	Jog 1 velocity setpoint / Jog 1 n_set
p1059[0...n]	Jog 2 speed setpoint / Jog 2 n_set
p1059[0...n]	Jog 2 velocity setpoint / Jog 2 n_set
p1063[0...n]	Speed limit setpoint channel / n_limit setp
p1063[0...n]	Velocity limit setpoint channel / v_limit setp
p1080[0...n]	Minimum speed / Minimum speed
p1080[0...n]	Minimum velocity / Minimum speed
p1082[0...n]	Maximum speed / Maximum speed
p1082[0...n]	Maximum velocity / Maximum speed
p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos
p1083[0...n]	CO: Velocity limit positive direction / v_limit pos
p1086[0...n]	CO: Speed limit negative direction of rotation / n_limit neg
p1086[0...n]	CO: Velocity limit negative direction / v_limit neg
p1091[0...n]	Skip speed 1 / n_skip 1
p1091[0...n]	Skip velocity 1 / v_skip 1
p1092[0...n]	Skip speed 2 / n_skip 2
p1092[0...n]	Skip velocity 2 / v_skip 2
p1093[0...n]	Skip speed 3 / n_skip 3
p1093[0...n]	Skip velocity 3 / v_skip 3
p1094[0...n]	Skip speed 4 / n_skip 4
p1094[0...n]	Skip velocity 4 / v_skip 4
p1101[0...n]	Skip speed bandwidth / n_skip bandwidth
p1101[0...n]	Skip velocity bandwidth / v_skip bandwidth
p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time
p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time
p1130[0...n]	Ramp-function generator initial rounding-off time / RFG t_start_round
p1131[0...n]	Ramp-function generator final rounding-off time / RFG t_end_delay
p1134[0...n]	Ramp-function generator rounding-off type / RFG round-off type
p1135[0...n]	OFF3 ramp-down time / RFG OFF3 t_ramp-dn
p1136[0...n]	OFF3 initial rounding-off time / RFG OFF3 t_strt_rnd
p1137[0...n]	OFF3 final rounding-off time / RFG OFF3 t_end_del
p1145[0...n]	Ramp-function generator tracking intensity. / RFG track intens
p1148[0...n]	Ramp-function gen., tolerance for ramp-up and ramp-down active / RFG tol HL/RL act

p1151[0...n]	Ramp-function generator configuration / RFG config
p1189[0...n]	Speed setpoint configuration / n_ctrl config
p1189[0...n]	Velocity setpoint configuration / v_ctrl config
p1192[0...n]	DSC enc selection / DSC enc selection
p1193[0...n]	DSC encoder adaptation factor / DSC encodAdaptFact
p1200[0...n]	FlyRest oper mode / FlyRest op_mode
p1202[0...n]	FlyRest srch curr / FlyRest srch curr
p1203[0...n]	Flying restart search rate factor / FlyRst v_Srch Fact
p1240[0...n]	Vdc controller or Vdc monitoring configuration / Vdc_ctrl config
p1243[0...n]	Vdc_max controller dynamic factor / Vdc_max dyn_factor
p1244[0...n]	DC link voltage threshold upper / Vdc upper thresh
p1245[0...n]	Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level
p1247[0...n]	Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor
p1248[0...n]	DC link voltage threshold lower / Vdc lower thresh
p1249[0...n]	Vdc_max controller speed threshold / Vdc_max n_thresh
p1250[0...n]	Vdc controller proportional gain / Vdc_ctrl Kp
p1251[0...n]	Vdc controller integral time / Vdc_ctrl Tn
p1252[0...n]	Vdc controller rate time / Vdc_ctrl t_rate
p1255[0...n]	Vdc_min controller time threshold / Vdc_min t_thresh
p1256[0...n]	Vdc_min controller response (kinetic buffering) / Vdc_min response
p1257[0...n]	Vdc_min controller speed threshold / Vdc_min n_thresh
p1262[0...n]	Bypass dead time / Bypass t_dead
p1280[0...n]	Vdc controller or Vdc monitoring configuration (V/f) / Vdc_ctr config V/f
p1283[0...n]	Vdc_max controller dynamic factor (V/f) / Vdc_max dyn_factor
p1285[0...n]	Vdc_min controller switch-in level (kinetic buffering) (V/f) / Vdc_min on_level
p1287[0...n]	Vdc_min controller dynamic factor (kinetic buffering) (V/f) / Vdc_min dyn_factor
p1289[0...n]	Vdc_max controller speed threshold (V/f) / Vdc_max n_thresh
p1290[0...n]	Vdc controller proportional gain (V/f) / Vdc_ctrl Kp
p1291[0...n]	Vdc controller integral time (V/f) / Vdc_ctrl Tn
p1292[0...n]	Vdc controller rate time (V/f) / Vdc_ctrl t_rate
p1293[0...n]	Vdc controller output limit (V/f) / Vdc_ctrl outp_lim
p1295[0...n]	Vdc_min controller time threshold (V/f) / Vdc_min t_thresh
p1296[0...n]	Vdc_min controller response (kinetic buffering) (V/f) / Vdc_min response
p1297[0...n]	Vdc_min controller speed threshold (V/f) / Vdc_min n_thresh
p1300[0...n]	Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode
p1310[0...n]	Voltage boost permanent / V_boost perm
p1311[0...n]	Voltage boost at acceleration / V_boost accelerate
p1317[0...n]	V/f control diagnostics activation / Vf diagn act
p1318[0...n]	V/f control ramp-up/ramp-down time / Vf t_rmp-up_rmp-dn
p1319[0...n]	V/f control voltage at zero frequency / Vf V at f=0 Hz
p1320[0...n]	V/f control programmable characteristic frequency 1 / Vf char f1
p1321[0...n]	V/f control programmable characteristic voltage 1 / Vf char U1
p1322[0...n]	V/f control programmable characteristic frequency 2 / Vf char f2
p1323[0...n]	V/f control programmable characteristic voltage 2 / Vf char U2
p1324[0...n]	V/f control programmable characteristic frequency 3 / Vf char f3
p1325[0...n]	V/f control programmable characteristic voltage 3 / Vf char U3
p1326[0...n]	V/f control programmable characteristic frequency 4 / Vf char f4
p1327[0...n]	V/f control programmable characteristic voltage 4 / Vf char U4
p1335[0...n]	Slip compensation, scaling / Slip comp scal
p1336[0...n]	Slip compensation limit value / Slip comp lim val
p1338[0...n]	V/f mode resonance damping gain / Vf Res_damp gain
p1339[0...n]	V/f mode resonance damping filter time constant / Vf Res_damp T
p1340[0...n]	I_max frequency controller proportional gain / I_max_ctrl Kp

p1341[0...n]	I_max frequency controller integral time / I_max_ctrl Tn
p1345[0...n]	I_max voltage controller proportional gain / I_max_V_ctrl Kp
p1346[0...n]	I_max voltage controller integral time / I_max_V_ctrl Tn
p1349[0...n]	V/f mode resonance damping maximum frequency / Uf res_damp F_max
p1350[0...n]	Soft starting / Soft starting
p1358[0...n]	Angular difference, symmetrizing, actual angle / Sym act angle
p1400[0...n]	Speed control configuration / n_ctrl config
p1400[0...n]	Velocity control, configuration / v_ctrl config
p1401[0...n]	Flux control configuration / F_ctrl config
p1402[0...n]	Closed-loop current control and motor model configuration / I_ctrl config
p1404[0...n]	Sensorless operation changeover speed / Sensorl op n_chgov
p1404[0...n]	Sensorless operation changeover velocity / Sensorl op v_chgov
p1412[0...n]	Speed setpoint filter, dead time / n_set dead time
p1414[0...n]	Speed setpoint filter activation / n_set_filt active
p1414[0...n]	Velocity setpoint filter activation / v_set_filt active
p1415[0...n]	Speed setpoint filter 1 type / n_set_filt 1 typ
p1415[0...n]	Velocity setpoint filter 1 type / n_set_filt 1 typ
p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T
p1416[0...n]	Velocity setpoint filter 1 time constant / v_set_filt 1 T
p1417[0...n]	Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d
p1417[0...n]	Velocity setpoint filter 1 denominator natural frequency / v_set_filt 1 fn_d
p1418[0...n]	Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d
p1418[0...n]	Velocity setpoint filter 1 denominator damping / v_set_filt 1 D_d
p1419[0...n]	Speed setpoint filter 1 numerator natural frequency / n_set_filt 1 fn_n
p1419[0...n]	Velocity setpoint filter 1 numerator natural frequency / v_set_filt 1 fn_n
p1420[0...n]	Speed setpoint filter 1 numerator damping / n_set_filt 1 D_n
p1420[0...n]	Velocity setpoint filter 1 numerator damping / v_set_filt 1 D_n
p1421[0...n]	Speed setpoint filter 2 type / n_set_filt 2 typ
p1421[0...n]	Velocity setpoint filter 2 type / n_set_filt 2 typ
p1422[0...n]	Speed setpoint filter 2 time constant / n_set_filt 2 T
p1422[0...n]	Velocity setpoint filter 2 time constant / v_set_filt 2 T
p1423[0...n]	Speed setpoint filter 2 denominator natural frequency / n_set_filt 2 fn_d
p1423[0...n]	Velocity setpoint filter 2 denominator natural frequency / v_set_filt 2 fn_d
p1424[0...n]	Speed setpoint filter 2 denominator damping / n_set_filt 2 D_d
p1424[0...n]	Velocity setpoint filter 2 denominator damping / v_set_filt 2 D_d
p1425[0...n]	Speed setpoint filter 2 numerator natural frequency / n_set_filt 2 fn_n
p1425[0...n]	Velocity setpoint filter 2 numerator natural frequency / v_set_filt 2 fn_n
p1426[0...n]	Speed setpoint filter 2 numerator damping / n_set_filt 2 D_n
p1426[0...n]	Velocity setpoint filter 2 numerator damping / v_set_filt 2 D_n
p1428[0...n]	Speed pre-control balancing dead time / n_prectrBal t_dead
p1428[0...n]	Velocity pre-control balancing dead time / n_prectrBal t_dead
p1429[0...n]	Speed pre-control balancing time constant / n_prectr bal T
p1429[0...n]	Velocity pre-control balancing time constant / n_prectr bal T
p1433[0...n]	Speed controller reference model natural frequency / n_ctrl RefMod fn
p1433[0...n]	Velocity controller reference model natural frequency / v_ctrl RefMod fn
p1434[0...n]	Speed controller reference model damping / n_ctrl RefMod D
p1434[0...n]	Velocity controller reference model damping / v_ctrl RefMod D
p1435[0...n]	Speed controller reference model dead time / n_ctrRefMod t_dead
p1435[0...n]	Velocity controller reference model dead time / v_ctrRefMod t_dead
p1441[0...n]	Actual speed smoothing time / n_ist T_smooth
p1441[0...n]	Actual velocity, smoothing time / v_act T_smooth
p1442[0...n]	Speed controller speed actual value smoothing time / n_ctr n_act T_smth
p1452[0...n]	Speed controller speed actual value smoothing time (SLVC) / n_C n_act T_s SLVC

p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow.
p1456[0...n]	Velocity controller P gain adaptation, lower starting point / v_ctrl AdaptKpLow.
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up.
p1457[0...n]	Velocity controller P gain adaptation upper starting point / v_ctrl AdaptKp up.
p1458[0...n]	Adaptation factor, lower / Adapt_factor lower
p1459[0...n]	Adaptation factor, upper / Adapt_factor upper
p1460[0...n]	Speed controller P gain adaptation speed, lower / n_ctrl Kp n lower
p1460[0...n]	Velocity controller, P gain adaptation velocity, lower / v_ctrl Kp n lower
p1461[0...n]	Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper
p1461[0...n]	Velocity controller, P gain adaptation velocity, upper / v_ctrl Kp n upper
p1462[0...n]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower
p1462[0...n]	Velocity contr. integral act. time adaptation velocity lower / v_ctrl Tn n lower
p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper
p1463[0...n]	Velocity contr. integral act. time adaptation velocity upper / v_ctrl Tn n upper
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower
p1464[0...n]	Velocity controller adaptation velocity, lower / v_ctrl n lower
p1465[0...n]	Speed controller adaptation speed, upper / n_ctrl n upper
p1465[0...n]	Velocity controller adaptation velocity, upper / v_ctrl n upper
p1470[0...n]	Speed controller sensorless operation P-gain / n_ctrl SLVC Kp
p1470[0...n]	Velocity controller sensorless operation P-gain / v_ctrl SLVC Kp
p1472[0...n]	Speed controller sensorless operation integral time / n_ctrl SLVC Tn
p1472[0...n]	Velocity controller sensorless operation integral time / v_ctrl SLVC Tn
p1488[0...n]	Droop input source / Droop input,source
p1489[0...n]	Droop feedback scaling / Droop scaling
p1494[0...n]	Speed controller integrator feedback time constant / n_ctr integ_fdbk T
p1494[0...n]	Velocity controller integrator feedback time constant / v_ctr integ_fdbk T
p1496[0...n]	Acceleration pre-control scaling / a_before scaling
p1498[0...n]	Load moment of inertia / Load mom of inert
p1498[0...n]	Load mass / Load mass
p1499[0...n]	Accelerating for torque control, scaling / a for M_ctrl scal
p1514[0...n]	Supplementary torque 2 scaling / M_suppl 2 scal
p1517[0...n]	Accelerating torque smoothing time constant / M_accel T_smooth
p1517[0...n]	Acceleration force smoothing time constant / F_accel T_smooth
p1520[0...n]	CO: Torque limit upper/motoring / M_max upper/mot
p1520[0...n]	CO: Force limit upper/motoring / F_max upper/mot
p1520[0...n]	CO: Torque limit upper / M_max upper
p1521[0...n]	CO: Torque limit lower/regenerative / M_max lower/regen
p1521[0...n]	CO: Force limit lower/regenerative / F_max lower/regen
p1521[0...n]	CO: Torque limit lower / M_max lower
p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot scal
p1524[0...n]	CO: Force limit upper/motoring scaling / F_max up/mot scal
p1524[0...n]	CO: Torque limit upper scaling / M_max upper scal
p1525[0...n]	CO: Torque limit lower/regenerating scaling / M_max low/gen scal
p1525[0...n]	CO: Force limit lower/regenerative scaling / F_max low/gen scal
p1525[0...n]	CO: Torque limit lower scaling / M_max lower scal
p1530[0...n]	Power limit motoring / P_max mot
p1531[0...n]	Power limit regenerating / P_max gen
p1532[0...n]	CO: Torque limit offset / M_max offset
p1532[0...n]	CO: Force offset, force limit / F_max offset
p1556[0...n]	Power limit scaling / P_max_scale
p1570[0...n]	CO: Flux setpoint / Flux setpoint
p1572[0...n]	Supplementary flux setpoint / Suppl flux setp
p1574[0...n]	Voltage reserve dynamic / V_reserve dyn

p1576[0...n]	Flux boost, adaptation speed, lower / Flux boost n lower
p1577[0...n]	Flux boost adaptation speed, upper / Flux boost n upper
p1580[0...n]	Efficiency optimization / Efficiency opt.
p1582[0...n]	Flux setpoint smoothing time / Flux setp T_smth
p1584[0...n]	Field weakening operation, flux setpoint smoothing time / Field weak T_smth
p1585[0...n]	Flux actual value, smoothing time / Flux actVal T_smth
p1586[0...n]	Field weakening characteristic, scaling / Field weak scal
p1590[0...n]	Flux controller P gain / Flux controller Kp
p1592[0...n]	Flux controller integral-action time / Flux controller Tn
p1594[0...n]	Field-weakening controller, P gain / Field_ctrl Kp
p1596[0...n]	Field weakening controller integral-action time / Field_ctrl Tn
p1599[0...n]	Flux controller, excitation current difference / Flux ctr I_excDiff
p1600[0...n]	P flux controller, P gain / P flux ctrl Kp
p1609[0...n]	Current setpoint for I/f operation / I_set I/f oper
p1610[0...n]	Torque setpoint static (SLVC) / M_set static
p1611[0...n]	Supplementary accelerating torque (SLVC) / M_suppl_accel
p1612[0...n]	Current setpoint, open-loop control, sensorless / I_setCtrSensorless
p1616[0...n]	Current setpoint smoothing time / I_set T_smooth
p1619[0...n]	Setpoint/actual value tracking threshold / SetAct track thrsh
p1620[0...n]	Stator current, minimum / I_stator min
p1621[0...n]	Changeover speed, inner $\cos \phi = 1 / n_chngov \cos \phi = 1$
p1622[0...n]	Field-generating current setpoint smoothing time constant / Id_setp T_smth
p1625[0...n]	Excitation current setpoint calibration / I_exc_setp cal
p1628[0...n]	Current model controller, dynamic factor / I_mod_ctr dyn_fact
p1629[0...n]	Current model controller P gain / I_mod_ctrl Kp
p1630[0...n]	Current model controller integral time / I_ctrl Tn
p1642[0...n]	Minimum excitation current / Min I_exc
p1643[0...n]	Gain factor, minimum excitation current closed-loop control / Min I_exc Kp
p1653[0...n]	Current setpoint torque-generating minimum smoothing time / Isq_s T_smth_min
p1654[0...n]	Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW
p1656[0...n]	Activates current setpoint filter / I_set_filt active
p1657[0...n]	Current setpoint filter 1 type / I_set_filt 1 Typ
p1658[0...n]	Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_n
p1659[0...n]	Current setpoint filter 1 denominator damping / I_set_filt 1 D_n
p1660[0...n]	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_z
p1661[0...n]	Current setpoint filter 1 numerator damping / I_set_filt 1 D_z
p1662[0...n]	Current setpoint filter 2 type / I_set_filt 2 Typ
p1663[0...n]	Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_n
p1664[0...n]	Current setpoint filter 2 denominator damping / I_set_filt 2 D_n
p1665[0...n]	Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_z
p1666[0...n]	Current setpoint filter 2 numerator damping / I_set_filt 2 D_z
p1667[0...n]	Current setpoint filter 3 type / I_set_filt 3 Typ
p1668[0...n]	Current setpoint filter 3 denominator natural frequency / I_set_filt 3 fn_n
p1669[0...n]	Current setpoint filter 3 denominator damping / I_set_filt 3 D_n
p1670[0...n]	Current setpoint filter 3 numerator natural frequency / I_set_filt 3 fn_z
p1671[0...n]	Current setpoint filter 3 numerator damping / I_set_filt 3 D_z
p1672[0...n]	Current setpoint filter 4 type / I_set_filt 4 Typ
p1673[0...n]	Current setpoint filter 4 denominator natural frequency / I_set_filt 4 fn_n
p1674[0...n]	Current setpoint filter 4 denominator damping / I_set_filt 4 D_n
p1675[0...n]	Current setpoint filter 4 numerator natural frequency / I_set_filt 4 fn_z
p1676[0...n]	Current setpoint filter 4 numerator damping / I_set_filt 4 D_z
p1701[0...n]	Current controller reference model dead time / I_ctrRefMod t_dead
p1702[0...n]	Isd current controller pre-control scaling / Isd_ctr_prectrScal

p1703[0...n]	Isq current controller pre-control scaling / Isq_ctr_prectrScal
p1704[0...n]	EMF scaling of the Isq current controller pre-control / EMF scal Isq_ctrl
p1705[0...n]	Flux setpoint/actual value tracking threshold / Flux track thresh
p1715[0...n]	Current controller P gain / I_ctrl Kp
p1717[0...n]	Current controller integral-action time / I_ctrl Tn
p1726[0...n]	Quadrature arm decoupling, scaling / Transv_decpl scal
p1727[0...n]	Quadrature arm decoupling at voltage limit scaling / TrnsvDecplVmaxScal
p1740[0...n]	Gain resonance damping for sensorless closed loop control / Gain res_damp
p1744[0...n]	Motor model speed threshold stall detection / MotMod n_thr stall
p1745[0...n]	Motor model error threshold stall detection / MotMod ThreshStall
p1750[0...n]	Motor model configuration / MotMod config
p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc
p1752[0...n]	Motor model with encoder changeover velocity / MotMod v_chgov enc
p1753[0...n]	Motor model changeover speed hysteresis operation with encoder / MotMod n_chgovHysE
p1754[0...n]	Flux angle difference smoothing time / Angle diff T_smth
p1755[0...n]	Motor model changeover speed sensorless operation / MotMod n_chgSnsorl
p1755[0...n]	Motor model changeover velocity sensorless operation / MotMod v_chgSnsorl
p1757[0...n]	Motor model w/o enc. op./cl.-loop controlled stab. controller Kp / MotMod w/o enc Kp
p1758[0...n]	Motor model changeover delay time closed/open-loop control / MotMod t cl_op
p1759[0...n]	Motor model changeover delay time open/closed loop control / MotMod t op_cl
p1760[0...n]	Motor model with encoder speed adaptation Kp / MotMod wE n_ada Kp
p1761[0...n]	Motor model with encoder speed adaptation Tn / MotMod wE n_ada Tn
p1764[0...n]	Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp
p1767[0...n]	Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn
p1774[0...n]	Motor model, offset voltage compensation alpha / MotMod offs comp A
p1775[0...n]	Motor model, offset voltage compensation beta / MotMod offs comp B
p1780[0...n]	Motor model adaptation configuration / MotMod adapt conf
p1780[0...n]	Motor/converter model adaptation configuration / MotMod adapt conf
p1781[0...n]	Motor model Rs adaptation integral time / MotMod Rs Tn
r1782[0...n]	Motor model Rs adaptation corrective value / MotMod Rs corr
p1783[0...n]	Motor model Rs adaptation Kp / MotMod Rs Kp
p1785[0...n]	Motor model Lh adaptation Kp / MotMod Lh Kp
p1786[0...n]	Motor model Lh adaptation integral time / MotMod Lh Tn
r1787[0...n]	Motor model Lh adaptation corrective value / MotMod Lh corr
p1795[0...n]	Motor model kT adaptation smoothing time / MotMod kT T_smth
p1795[0...n]	Motor model PEM kT adaptation integral time / MotMod kT Tn
r1797[0...n]	Motor model kT adaptation corrective value / MotMod kT corr
p1800[0...n]	Pulse frequency / Pulse frequency
p1802[0...n]	Modulator mode / Modulator mode
p1803[0...n]	Maximum modulation depth / Modulat depth max
p1804[0...n]	Filter time constant smoothed modulation index / T_filt mod_idxSmth
p1806[0...n]	Filter time constant Vdc correction / T_filt Vdc_corr
p1820[0...n]	Direction reversal output phases / Dir_rev outp_ph
p1821[0...n]	Direction reversal rotating field / Dir_rev rot_field
p1840[0...n]	Actual value correction configuration / AVC config
p1845[0...n]	Actual value correction evaluation factor Lsig / ActV_corr FactLsig
p1846[0...n]	Actual value correction damping factor / ActV_corr D_factor
p1952[0...n]	Voltage emulation error final value / V_error final val
p1953[0...n]	Voltage emulation error current offset / V_error I_offset
p2140[0...n]	Hysteresis speed 2 / n_hysteresis 2
p2140[0...n]	Hysteresis velocity 2 / v_hysteresis 2
p2141[0...n]	Speed threshold 1 / n_thresh val 1
p2141[0...n]	Velocity threshold value 1 / v_thresh val 1

p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1
p2142[0...n]	Hysteresis velocity 1 / v_hysteresis 1
p2149[0...n]	Monitoring configuration / Monit config
p2150[0...n]	Hysteresis speed 3 / n_hysteresis 3
p2150[0...n]	Hysteresis velocity 3 / v_hysteresis 3
p2153[0...n]	Speed actual value filter time constant / n_act_filt T
p2153[0...n]	Velocity actual value filter time constant / v_act_filt T
p2155[0...n]	Speed threshold 2 / n_thresh val 2
p2155[0...n]	Velocity threshold value 2 / v_thresh val 2
p2156[0...n]	On delay, comparison value reached / t_on cmpr val rchd
p2161[0...n]	Speed threshold 3 / n_thresh val 3
p2161[0...n]	Velocity threshold value 3 / v_thresh val 3
p2162[0...n]	Hysteresis speed n_act > n_max / Hyst n_act>n_max
p2162[0...n]	Hysteresis velocity v_act > v_max / Hyst v_act>v_max
p2163[0...n]	Speed threshold 4 / n_thresh val 4
p2163[0...n]	Velocity threshold value 4 / v_thresh val 4
p2164[0...n]	Hysteresis speed 4 / n_hysteresis 4
p2164[0...n]	Hysteresis velocity 4 / v_hysteresis 4
p2166[0...n]	Off delay n_act = n_set / t_del_off n_i=n_so
p2167[0...n]	Switch-on delay n_act = n_set / t_on n_act=n_set
p2174[0...n]	Torque threshold value 1 / M_thresh val 1
p2174[0...n]	Force threshold value 1 / F_thresh val 1
p2175[0...n]	Motor locked speed threshold / Mot lock n_thresh
p2175[0...n]	Motor locked, velocity threshold / Mot lock v_thresh
p2177[0...n]	Motor locked delay time / Mot lock t_del
p2178[0...n]	Motor stalled delay time / Mot stall t_del
p2181[0...n]	Load monitoring response / Load monit resp
p2182[0...n]	Load monitoring speed threshold value 1 / n_thresh 1
p2182[0...n]	Load monitoring velocity threshold 1 / n_thresh 1
p2183[0...n]	Load monitoring speed threshold value 2 / n_thresh 2
p2183[0...n]	Load monitoring velocity threshold 2 / n_thresh 2
p2184[0...n]	Load monitoring speed threshold value 3 / n_thresh 3
p2184[0...n]	Load monitoring velocity threshold 3 / n_thresh 3
p2185[0...n]	Load monitoring torque threshold 1, upper / M_thresh 1 upper
p2185[0...n]	Load monitoring force threshold 1, upper / M_thresh 1 upper
p2186[0...n]	Load monitoring torque threshold 1, lower / M_thresh 1 lower
p2186[0...n]	Load monitoring force threshold 1, lower / M_thresh 1 lower
p2187[0...n]	Load monitoring torque threshold 2, upper / M_thresh 2 upper
p2187[0...n]	Load monitoring force threshold 2, upper / M_thresh 2 upper
p2188[0...n]	Load monitoring torque threshold 2, lower / M_thresh 2 lower
p2188[0...n]	Load monitoring force threshold 2, lower / M_thresh 2 lower
p2189[0...n]	Load monitoring torque threshold 3, upper / M_thresh 3 upper
p2189[0...n]	Load monitoring force threshold 3, upper / M_thresh 3 upper
p2190[0...n]	Load monitoring torque threshold 3, lower / M_thresh 3 lower
p2190[0...n]	Load monitoring force threshold 3, lower / M_thresh 3 lower
p2192[0...n]	Load monitoring delay time / Load monit t_del
p2194[0...n]	Torque threshold value 2 / M_thresh val 2
p2194[0...n]	Force threshold value 2 / F_thresh val 2
p2195[0...n]	Torque utilization switch-off delay / M_util t_off
p2195[0...n]	Force utilization switch-off delay / F_util t_off
p2201[0...n]	CO: Technology controller, fixed value 1 / Tec_ctrl fix val 1
p2202[0...n]	CO: Technology controller, fixed value 2 / Tec_ctrl fix val 2
p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctrl fix val 3

p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctrl fix val 4
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctrl fix val 5
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctrl fix val 6
p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctrl fix val 7
p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctrl fix val 8
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctrl fix val 9
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctrl fix val10
p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctrl fix val11
p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctrl fix val12
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctrl fix val13
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctrl fix val14
p2215[0...n]	CO: Technology controller, fixed value 15 / Tec_ctrl fix val15
p2230[0...n]	Technology controller motorized potentiometer configuration / Tec_ctr mop config
p2237[0...n]	Technology controller motorized potentiometer maximum value / Tec_ctrl mop max
p2238[0...n]	Technology controller motorized potentiometer minimum value / Tec_ctrl mop min
p2240[0...n]	Technology controller motorized potentiometer starting value / Tec_ctrl mop start
p2247[0...n]	Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up
p2248[0...n]	Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_rdown
p2502[0...n]	LR encoder assignment / Encoder assignment
p2503[0...n]	LR length unit LU per 10 mm / LU per 10 mm
p2504[0...n]	LR motor/load motor revolutions / Mot/load motor rev
p2505[0...n]	LR motor/load motor revolutions / Mot/load motor rev
p2506[0...n]	LR length unit LU per load revolution / LU per load rev
p2519[0...n]	LR position actual value preprocessing config. DDS changeover / s_act config DDS
p2533[0...n]	LR position setpoint filter, time constant / s_set_filt T
p2534[0...n]	LR speed pre-control factor / n_prectrl fact
p2535[0...n]	LR speed pre-control balancing filter dead time / n_prectrFlt t_dead
p2536[0...n]	LR speed pre-control, symmetrizing filter PT1 / n_prectrl filt PT1
p2538[0...n]	LR proportional gain / Kp
p2539[0...n]	LR integral time / Tn
p2546[0...n]	LR dynamic following error monitoring tolerance / s_delta_monit tol
p2567[0...n]	LR torque pre-control moment of inertia / M_prectr M_inertia
p2567[0...n]	LR force pre-control mass / F_prectrl mass
p2634[0...n]	EPOS fixed stop maximum following error / Following err max
p2720[0...n]	Load gearbox configuration / Load grbx config
p2721[0...n]	Load gearbox, rotary absolute gearbox, revolutions, virtual / Abs rot rev
p2722[0...n]	Load gearbox, position tracking tolerance window / Pos track tol
r2723[0...n]	CO: Load gearbox absolute value / Load grbx abs_val
r2724[0...n]	CO: Load gearbox position difference / Load grbx pos diff
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]
p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]
p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]
p2930[0...n]	CO: Fixed value F [N] / Fixed value F [N]
p3201[0...n]	Excitation current outside the tolerance threshold value / I_exc n.Tol thresh
p3202[0...n]	Excitation current outside the tolerance hysteresis / I_exc n.Tol hyst
p3203[0...n]	Excitation current outside the tolerance delay time / I_exc n.Tol t_del
p3204[0...n]	Flux outside the tolerance threshold value / Flux n. tol thresh
p3205[0...n]	Flux outside the tolerance hysteresis / Flux n. tol hyst
p3206[0...n]	Flux outside tolerance delay time / Flux n. tol t_del
p3207[0...n]	Zero current signal threshold value / I_0_sig thresh
p3208[0...n]	Zero current signal hysteresis / I_0_sig hyst
p3209[0...n]	Zero current signal delay time / I_0_sig t_del
p3704[0...n]	APC filter activation / APC filter act

p3705[0...n]	APC filter type / APC filter type
p3706[0...n]	APC sub-sampling, filter 2.x / APC sub-samp. 2.x
p3707[0...n]	APC sub-sampling, filter 3.x / APC sub-samp. 3.x
p3711[0...n]	APC filter 1.1 denominator natural frequency / APC Filt 1.1 fn_d
p3712[0...n]	APC filter 1.1 denominator damping / APC Filt 1.1 D_d
p3713[0...n]	APC filter 1.1 numerator natural frequency / APC Filt 1 fn_n
p3714[0...n]	APC filter 1.1 numerator damping / APC Filt 1.1 D_n
p3721[0...n]	APC filter 2.1 denominator natural frequency / APC Filt 2.1 fn_d
p3722[0...n]	APC filter 2.1 denominator damping / APC Filt 2.1 D_d
p3723[0...n]	APC filter 2.1 numerator natural frequency / APC Filt 2.1 fn_n
p3724[0...n]	APC filter 2.1 numerator damping / APC Filt 2.1 D_n
p3726[0...n]	APC filter 2.2 denominator natural frequency / APC Filt 2.2 fn_d
p3727[0...n]	APC filter 2.2 denominator damping / APC Filt 2.2 D_d
p3728[0...n]	APC filter 2.2 numerator natural frequency / APC Filt 2.2 fn_n
p3729[0...n]	APC filter 2.2 numerator damping / APC Filt 2.2 D_n
p3731[0...n]	APC filter 3.1 denominator natural frequency / APC Filt 3.1 fn_d
p3732[0...n]	APC filter 3.1 denominator damping / APC Filt 3.1 D_d
p3733[0...n]	APC filter 3.1 numerator natural frequency / APC Filt 3.1 fn_n
p3734[0...n]	APC filter 3.1 numerator damping / APC Filt 3.1 D_n
p3736[0...n]	APC filter 3.2 denominator natural frequency / APC Filt 3.2 fn_d
p3737[0...n]	APC filter 3.2 denominator damping / APC Filt 3.2 D_d
p3738[0...n]	APC filter 3.2 numerator natural frequency / APC Filt 3.2 fn_n
p3739[0...n]	APC filter 3.2 numerator damping / APC Filt 3.2 D_n
p3760[0...n]	APC load speed controller 1 P gain / APC n_load ctr1 Kp
p3760[0...n]	APC load velocity controller 1 P gain / APC v_load ctr1 Kp
p3761[0...n]	APC load speed controller 1 rate time / APC n_load ctr1 Tv
p3761[0...n]	APC load velocity controller 1 rate time / APC v_load ctr1 Tv
p3765[0...n]	APC load speed controller 2 P gain / APC n_load ctr2 Kp
p3765[0...n]	APC load velocity controller 2 P gain / APC v_load ctr2 Kp
p3766[0...n]	APC load speed controller 2 rate time / APC n_load ctr2 Tv
p3766[0...n]	APC load velocity controller 2 rate time / APC v_load ctr2 Tv
p3800[0...n]	Sync-line-drive activation / Sync act
p3801[0...n]	Sync-line-drive, drive object number / Sync DO_No
p3806[0...n]	Sync-line-drive frequency difference threshold value / Sync f_diff thresh
p3809[0...n]	Sync-line-drive phase setpoint / Sync phase setp
p3811[0...n]	Sync-line-drive frequency limiting / Sync f_lim
p3813[0...n]	Sync-line-drive phase synchronism threshold value / Sync Ph_sync thrsh
p3815[0...n]	Sync-line-drive voltage difference threshold value / Sync V_diff thresh
p3820[0...n]	Friction characteristic, value n0 / Friction n0
p3820[0...n]	Friction characteristic, value v0 / Friction v0
p3821[0...n]	Friction characteristic, value n1 / Friction n1
p3821[0...n]	Friction characteristic, value v1 / Friction v1
p3822[0...n]	Friction characteristic, value n2 / Friction n2
p3822[0...n]	Friction characteristic, value v2 / Friction v2
p3823[0...n]	Friction characteristic, value n3 / Friction n3
p3823[0...n]	Friction characteristic, value v3 / Friction v3
p3824[0...n]	Friction characteristic, value n4 / Friction n4
p3824[0...n]	Friction characteristic, value v4 / Friction v4
p3825[0...n]	Friction characteristic, value n5 / Friction n5
p3825[0...n]	Friction characteristic, value v5 / Friction v5
p3826[0...n]	Friction characteristic, value n6 / Friction n6
p3826[0...n]	Friction characteristic, value v6 / Friction v6
p3827[0...n]	Friction characteristic, value n7 / Friction n7

p3827[0...n]	Friction characteristic, value v7 / Friction v7
p3828[0...n]	Friction characteristic, value n8 / Friction n8
p3828[0...n]	Friction characteristic, value v8 / Friction v8
p3829[0...n]	Friction characteristic, value n9 / Friction n9
p3829[0...n]	Friction characteristic, value v9 / Friction v9
p3830[0...n]	Friction characteristic, value M0 / Friction M0
p3830[0...n]	Friction characteristic, value F0 / Friction F0
p3831[0...n]	Friction characteristic, value M1 / Friction M1
p3831[0...n]	Friction characteristic, value F1 / Friction F1
p3832[0...n]	Friction characteristic, value M2 / Friction M2
p3832[0...n]	Friction characteristic, value F2 / Friction F2
p3833[0...n]	Friction characteristic, value M3 / Friction M3
p3833[0...n]	Friction characteristic, value F3 / Friction F3
p3834[0...n]	Friction characteristic, value M4 / Friction M4
p3834[0...n]	Friction characteristic, value F4 / Friction F4
p3835[0...n]	Friction characteristic, value M5 / Friction M5
p3835[0...n]	Friction characteristic, value F5 / Friction F5
p3836[0...n]	Friction characteristic, value M6 / Friction M6
p3836[0...n]	Friction characteristic, value F6 / Friction F6
p3837[0...n]	Friction characteristic, value M7 / Friction M7
p3837[0...n]	Friction characteristic, value F7 / Friction F7
p3838[0...n]	Friction characteristic, value M8 / Friction M8
p3838[0...n]	Friction characteristic, value F8 / Friction F8
p3839[0...n]	Friction characteristic, value M9 / Friction M9
p3839[0...n]	Friction characteristic, value F9 / Friction F9
p3846[0...n]	Friction characteristic record ramp-up/ramp-down time / Frict rec t_RFG
p3847[0...n]	Friction characteristic record warm-up time / Frict rec t_warm
r3925[0...n]	Identification final display / Ident final_disp
r3927[0...n]	Motor data identification determined data (induction motor) / MotID det dat ASM
r3928[0...n]	Motor data identification determined data (synchronous motor) / MotID determ SM
p7035[0...n]	Par_circuit circulating current control operating mode / Circ_I mode
p7036[0...n]	Par_circuit circulating current control proportional gain / Circ_I Kp
p7037[0...n]	Par_circuit circulating current control integral time / I_circ Tn
p7038[0...n]	Par_circuit circulating current control limit / I_circ limit

1.3.3 Parameters for Encoder Data Sets (EDS)

Note:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions
Section "Data sets"

The following list contains the encoder-data-set-dependent parameters.

Product: SINAMICS S, Version: 2503100, Language: eng

p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_intf comp_no
p0142[0...n]	Encoder component number / Encoder comp_no
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact
r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact
r0147[0...n]	Sensor Module EPROM data version / SM EEPROM version

r0148[0...n]	Sensor Module firmware version / SM FW version
p0400[0...n]	Enc type selection / Enc type selection
p0401[0...n]	Encoder type, OEM selection / Enc type OEM sel
p0402[0...n]	Gearbox type selection / Gearbox type sel
p0404[0...n]	Encoder configuration effective / Enc_config eff
p0405[0...n]	Square-wave encoder track A/B / Sq-wave enc A/B
p0407[0...n]	Linear encoder grid division / Enc grid div
p0408[0...n]	Rotary encoder pulse No. / Rot enc pulse No.
p0410[0...n]	Encoder inversion actual value / Enc inv act value
p0411[0...n]	Measuring gearbox, configuration / Meas grbx config
p0412[0...n]	Measuring gearbox, rotary absolute gearbox, revolutions, virtual / Abs rot rev
p0413[0...n]	Measuring gearbox, position tracking tolerance window / Pos track window
p0418[0...n]	Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1
p0419[0...n]	Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2
p0420[0...n]	Encoder connection / Encoder connection
p0421[0...n]	Absolute encoder rotary multi-turn resolution / Enc abs multiturn
p0422[0...n]	Absolute encoder linear measuring step resolution / Enc abs meas step
p0423[0...n]	Absolute encoder rotary single-turn resolution / Enc abs singleturn
p0424[0...n]	Encoder, linear zero mark distance / Enc lin ZM_dist
p0425[0...n]	Encoder, rotary zero mark distance / Enc rot dist ZM
p0427[0...n]	Encoder SSI baud rate / Enc SSI baud rate
p0428[0...n]	Encoder SSI monoflop time / Enc SSI t_monoflop
p0429[0...n]	Encoder SSI configuration / Enc SSI config
p0430[0...n]	Sensor Module configuration / SM config
p0431[0...n]	Angular commutation offset / Ang_com offset
p0432[0...n]	Gearbox factor, encoder revolutions / Grbx_fact enc_rev
p0433[0...n]	Gearbox factor, motor/load revolutions / Grbx_fact mot_rev
p0434[0...n]	Encoder SSI error bit / Enc SSI error bit
p0435[0...n]	Encoder SSI alarm bit / Enc SSI alarm bit
p0436[0...n]	Encoder SSI parity bit / Enc SSI parity bit
p0440[0...n]	Copy encoder serial number / Copy enc ser_no
p0441[0...n]	Encoder commissioning serial number part 1 / Enc comm ser_no 1
p0442[0...n]	Encoder commissioning serial number part 2 / Enc comm ser_no 2
p0443[0...n]	Encoder commissioning serial number part 3 / Enc comm ser_no 3
p0444[0...n]	Encoder commissioning serial number part 4 / Enc comm ser_no 4
p0445[0...n]	Encoder commissioning serial number part 5 / Enc comm ser_no 5
p0446[0...n]	Encoder SSI number of bits before the absolute value / Enc SSI bit before
p0447[0...n]	Encoder SSI number of bits absolute value / Enc SSI bit val
p0448[0...n]	Encoder SSI number of bits after the absolute value / Enc SSI bit after
p0449[0...n]	Encoder SSI number of bits, filler bits / Enc SSI fill bits
p2507[0...n]	LR absolute encoder adjustment status / Abs_enc_adj stat
p2525[0...n]	CO: LR encoder adjustment, offset / Enc_adj offset
p4600[0...n]	Motor temperature sensor 1 sensor type / MotTemp_sens typ 1
p4601[0...n]	Motor temperature sensor 2 sensor type / MotTemp_sens typ 2
p4602[0...n]	Motor temperature sensor 3 sensor type / MotTemp_sens typ 3
p4603[0...n]	Motor temperature sensor 4 sensor type / MotTemp_sens typ 4

1.3.4 Parameters for Motor Data Sets (MDS)

Note:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions
Section "Data sets"

The following list contains the motor-data-set-dependent parameters.

Product: SINAMICS S, Version: 2503100, Language: eng

p0131[0...n]	Motor component number / Mot comp_no
p0300[0...n]	Motor type selection / Mot type selection
p0301[0...n]	Motor code number selection / Mot code No. sel
r0302[0...n]	Motor code number of motor with DRIVE-CLiQ / Motor code Mot DLQ
r0303[0...n]	Motor status word from motor with DRIVE-CLiQ / Motor ZSW Drv-CLiQ
p0304[0...n]	Rated motor voltage / Mot V _{rated}
p0305[0...n]	Rated motor current / Mot I _{rated}
p0306[0...n]	Number of motors connected in parallel / Motor qty
p0307[0...n]	Rated motor power / Mot P _{rated}
p0308[0...n]	Rated motor power factor / Mot cos_phi _{rated}
p0309[0...n]	Rated motor efficiency / Mot eta _{rated}
p0310[0...n]	Rated motor frequency / Mot f _{rated}
p0311[0...n]	Rated motor speed / Mot n _{rated}
p0311[0...n]	Rated motor velocity / Mot v _{rated}
p0312[0...n]	Rated motor torque / Mot M _{rated}
p0312[0...n]	Rated motor force / Mot F _{rated}
r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act
p0314[0...n]	Motor pole pair number / Mot pole pair No.
p0315[0...n]	Motor pole pair width / MotPolePair width
p0316[0...n]	Motor torque constant / Mot kT
p0316[0...n]	Motor force constant / Mot kT
p0317[0...n]	Motor voltage constant / Mot kE
p0318[0...n]	Motor stall current / Mot I _{standstill}
p0319[0...n]	Motor stall torque / Mot M _{standstill}
p0319[0...n]	Motor stall force / Mot F _{standstill}
p0320[0...n]	Motor rated magnetization current/short-circuit current / Mot I _{mag_rated}
p0322[0...n]	Maximum motor speed / Mot n _{max}
p0322[0...n]	Motor maximum velocity / Mot v _{max}
p0323[0...n]	Maximum motor current / Mot I _{max}
p0325[0...n]	Motor pole position identification current, 1st phase / Mot PolID I 1st ph
p0326[0...n]	Motor stall torque correction factor / Mot M _{stall_corr}
p0326[0...n]	Motor stall force correction factor / Mot F _{stall_corr}
p0327[0...n]	Optimum motor load angle / Mot phi _{load opt}
p0328[0...n]	Motor reluctance torque constant / Mot kT _{reluctance}
p0328[0...n]	Motor reluctance force constant / Mot kT _{reluctance}
p0329[0...n]	Motor pole position identification current / Mot PolID current
r0330[0...n]	Rated motor slip / Mot slip _{rated}
r0331[0...n]	Motor magnetizing current/short-circuit current actual / Mot I _{mag_ratedAct}
r0332[0...n]	Rated motor power factor / Mot cos_phi _{rated}
r0333[0...n]	Rated motor torque / Mot M _{rated}
r0334[0...n]	Motor-torque constant, actual / Mot kT act
r0334[0...n]	Motor force constant, actual / Mot kT act

p0335[0...n]	Motor cooling type / Motor cooling type
r0336[0...n]	Rated motor frequency actual / Mot f _{rated} act
r0337[0...n]	Rated motor EMF / Mot EMF _{rated}
p0338[0...n]	Motor limit current / Mot I _{limit}
r0339[0...n]	Rated motor voltage / Mot V _{rated}
p0341[0...n]	Motor moment of inertia / Mot M _{mom} of inert
p0341[0...n]	Motor weight / Mot weight
p0342[0...n]	Ratio between the total and motor moment of inertia / Mot MomInert Ratio
p0342[0...n]	Ratio between the total and motor force of inertia / Mot MomInert Ratio
p0344[0...n]	Motor weight / Motor weight
r0345[0...n]	Nominal motor starting time / Mot t _{start} _{rated}
p0346[0...n]	Motor excitation build-up time / Mot t _{excitation}
p0347[0...n]	Motor de-excitation time / Mot t _{de-excitat.}
p0348[0...n]	Speed at the start of field weakening V _{dc} = 600 V / Mot n _{field} weaken
p0348[0...n]	Velocity at the start of field weakening V _{dc} = 600 V / Mot v _{field} weaken
p0350[0...n]	Motor stator resistance, cold / Mot R _{stator} cold
p0352[0...n]	Cable resistance / Mot R _{cable} cold
p0353[0...n]	Motor series inductance / Mot L _{series}
p0354[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R _r cold / RDd
p0355[0...n]	Motor damping resistance, q axis / Mot R _{damp} q
p0356[0...n]	Motor stator leakage inductance / Mot L _{stator} leak.
p0357[0...n]	Motor stator inductance, d axis / Mot L _{stator} d
p0358[0...n]	Motor rotor leakage inductance / damping inductance, d axis / Mot L _r leak / LDd
p0359[0...n]	Motor damping inductance, q axis / Mot L _{damp} q
p0360[0...n]	Motor magnetizing inductance/magn. inductance, d axis saturated / Mot L _h /L _h d sat
p0361[0...n]	Motor magnetizing inductance q axis, saturated / Mot L _{magn} q sat
p0362[0...n]	Saturation characteristic flux 1 / Mot saturat.flux 1
p0363[0...n]	Saturation characteristic flux 2 / Mot saturat.flux 2
p0364[0...n]	Saturation characteristic flux 3 / Mot saturat.flux 3
p0365[0...n]	Saturation characteristic flux 4 / Mot saturat.flux 4
p0366[0...n]	Saturation characteristic L _{mag} 1 / Mot sat. L _{mag} 1
p0367[0...n]	Saturation characteristic L _{mag} 2 / Mot sat. L _{mag} 2
p0368[0...n]	Saturation characteristic L _{mag} 3 / Mot sat. L _{mag} 3
p0369[0...n]	Saturation characteristic L _{mag} 4 / Mot sat. L _{mag} 4
r0370[0...n]	Motor stator resistance, cold / Mot R _{stator} cold
r0372[0...n]	Cable resistance / Mot R _{cable}
r0373[0...n]	Motor rated stator resistance / Mot R _{stator} rated
r0374[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R _r cold / RDd
r0375[0...n]	Motor damping resistance, q axis / Mot R _{damp} q
r0376[0...n]	Rated motor rotor resistance / Mot R _{rotor} rated
r0377[0...n]	Motor leakage inductance, total / Mot L _{leak} total
r0378[0...n]	Motor stator inductance, d axis / Mot L _{stator} d
r0380[0...n]	Motor damping inductance, d axis / Mot L _{damping} d
r0381[0...n]	Motor damping inductance, q axis / Mot L _{damping} q
r0382[0...n]	Motor magnetizing inductance transformed / L _h d axis saturated / Mot L _m tr/L _h d sat
r0383[0...n]	Motor magnetizing inductance q axis, saturated / Mot L _{magn} q sat
r0384[0...n]	Motor rotor time constant / damping time constant d axis / Mot T _{rotor} /T _{Dd}
r0385[0...n]	Motor damping time constant, q axis / Mot T _{Dq}
r0386[0...n]	Motor stator leakage time constant / Mot T _{stator} leak
r0387[0...n]	Motor stator leakage time constant, q axis / Mot T _{Sleak} /T _{Sq}
p0389[0...n]	Excitation rated no-load current / Exc I _{noload} _{rated}
p0390[0...n]	Rated excitation current / Exc I _{rated}
p0391[0...n]	Current controller adaptation, starting point KP / I _{adapt} pt KP

p0392[0...n]	Current controller adaptation, starting point KP adapted / I_adapt pt KP adap
p0393[0...n]	Current controller adaptation p gain adaptation / I_adapt Kp adapt
p0393[0...n]	Current controller adaptation P gain scaling / I_adapt Kp scal
r0395[0...n]	Stator resistance, actual / R_stator active
r0396[0...n]	Rotor resistance, actual / R_rotor active
p0600[0...n]	Motor temperature sensor for monitoring / Mot temp_sensor
p0601[0...n]	Motor temperature sensor type / Mot temp_sensortyp
p0604[0...n]	Motor overtemperature alarm threshold / Mot TempAlrmThresh
p0605[0...n]	Motor overtemperature fault threshold / MotTempFaultThresh
p0606[0...n]	Motor overtemperature timer / Mot TempTimeStage
p0607[0...n]	Temperature sensor fault timer / Sensor fault time
p0610[0...n]	Motor overtemperature response / Mot temp response
p0616[0...n]	Motor overtemperature alarm threshold 1 / Mot temp alarm 1
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R
p0621[0...n]	Temperature identification after restart / Temp_ident restart
p0622[0...n]	Motor excitation time for temp_ident after powering-up again / t_excit temp_id
p0625[0...n]	Motor ambient temperature / Mot T_ambient
p0626[0...n]	Motor overtemperature, stator core / Mot T_over core
p0627[0...n]	Motor overtemperature, stator winding / Mot T_over stator
p0628[0...n]	Rotor winding overtemperature / Mot T_over rotor
r0630[0...n]	Motor temperature model ambient temperature / MotTMod T_amb.
r0631[0...n]	Motor temperature model, stator core temperature / MotTMod T_iron
r0632[0...n]	Motor temperature model, stator winding temperature / MotTMod T_copper
r0633[0...n]	Motor temperature model, rotor temperature / MotTMod T_rotor
p0643[0...n]	Overvoltage protection for synchronous motors / Overvolt_protect
p0645[0...n]	Motor-torque characteristic kT1 / Mot kT1
p0646[0...n]	Motor-torque characteristic kT3 / Mot kT3
p0647[0...n]	Motor-torque characteristic kT5 / Mot kT5
p0648[0...n]	Motor-torque characteristic kT7 / Mot kT7
p0650[0...n]	Actual motor operating hours / Mot t_oper act
p0651[0...n]	Motor operating hours maintenance interval / Mot t_op maint
p0652[0...n]	Motor stator resistance, scaling / Mot R_stator scal
p0653[0...n]	Motor stator leakage inductance, scaling / Mot L_S_leak scal
p0655[0...n]	Motor magnetizing inductance, d axis saturated scaling / Mot L_m d sat scal
p0656[0...n]	Motor magnetizing inductance, q axis, saturated scaling / Mot L_m q sat scal
p0657[0...n]	Motor damping inductance, d axis scaling / Mot L_damp d scal
p0658[0...n]	Motor damping inductance, q axis scaling / Mot L_damp q scal
p0659[0...n]	Motor damping resistance, d axis scaling / Mot R_damp d scal
p0660[0...n]	Motor damping resistance, q axis scaling / Mot R_damp q scal
p0826[0...n]	Motor changeover, motor number / Mot_chng mot No.
p0827[0...n]	Motor changeover status word bit number / Mot_chg ZSW bitNo.
p1231[0...n]	Armature short-circuit / DC brake configuration / ASC config
p1232[0...n]	DC braking, braking current / DCBRK I_brake
p1233[0...n]	DC braking time / DCBRK time
p1234[0...n]	Speed at the start of DC braking / DCBRK n_start
p1234[0...n]	DC braking, starting velocity / DCBRK v_start
p1236[0...n]	Ext. armature short-cct., contactor feedback signal monit. time / ASC ext t_monit
p1237[0...n]	External armature short-circuit, waiting time when opening / ASC ext t_wait
p1909[0...n]	Motor data identification control word / MotID STW
p1958[0...n]	Rotating measurement ramp-up/ramp-down time / MotID t_up_down
p1959[0...n]	Rotating measurement configuration / Rot meas config
p1980[0...n]	Pole position identification technique / PolID technique
p1981[0...n]	Pole position identification maximum distance / PolID distance max

p1982[0...n]	Pole position identification selection / PolID selection
p1991[0...n]	Motor changeover, angular commutation correction / Ang_com corr
p1993[0...n]	Pole position identification current, motion-based / PolID I mot_bas
p1994[0...n]	Pole position identification rise time motion-based / PolID T mot_bas
p1995[0...n]	Pole position identification gain, motion-based / PolID kp mot_bas
p1996[0...n]	Pole position identification, integral time motion-based / PolID Tn mot_bas
p1997[0...n]	Pole position identification, smoothing time motion-based / PolID t_sm mot_bas
p1999[0...n]	Ang. commutation offset calibr. and pole position ID - scaling / ComOffsCalib scal
p3050[0...n]	Motor identification - stator resistance / MotId R_stator
p3054[0...n]	Motor identification - rotor resistance / MotId R_rotor
p3056[0...n]	Motor identification - stator leakage inductance / MotId L_stat leak
p3058[0...n]	Motor identification - rotor leakage inductance / MotId L_rot leak
p3060[0...n]	Motor identification - magnetizing inductance / MotId Lh

1.3.5 Parameters for Power unit Data Sets (PDS)

Note:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions
Section "Data sets"

The following list contains the parameters that are dependent on the Power unit Data Sets.

Product: SINAMICS S, Version: 2503100, Language: eng

p0121[0...n]	Power unit component number / PU comp_no
p0124[0...n]	Power unit detection via LED / PU detection LED
p0125[0...n]	Activate/de-activate power unit components / PU_comp act/de-act
r0126[0...n]	Power unit components active/inactive / PU comp act/inact
r0127[0...n]	Power unit version EPROM data / PU EPROM version
r0128[0...n]	Power unit, firmware version / PU FW version
r0200[0...n]	Power unit, actual code number / PU code no. actual
p0201[0...n]	Power unit code number / PU code number
r0203[0...n]	Actual power unit type / PU actual type
r0204[0...n]	Power unit hardware properties / PU HW property
p0251[0...n]	Operating hours counter power unit fan / PU fan t_oper
p0895[0...n]	BI: Activate/de-activate power unit components / PU_comp act/de-act
p3469[0...n]	Latch delay time correction, zero crossover detection / t_latch corr PLL
p3902[0...n]	Power unit EEPROM Vdc calibration / PU EEPROM Vdc_cal
p7001[0...n]	Par_circuit enable power units / Enable PU
r7002[0...n]	Par_circuit status power units / Status PU
r7020[0...n]	CO: Par_circuit deviation current in phase U / Phase U curr dev
r7021[0...n]	CO: Par_circuit deviation current in phase V / Phase V curr dev
r7022[0...n]	CO: Par_circuit deviation current in phase W / Phase W curr dev
r7030[0...n]	CO: Par_circuit DC link voltage deviation / Vdc deviation
p7040[0...n]	Par_circuit correction valve lockout time phase U / Comp t_lockout U
p7042[0...n]	Par_circuit correction valve lockout time phase V / Comp t_lockout V
p7044[0...n]	Par_circuit correction valve lockout time phase W / Comp t_lockout W
r7050[0...n]	Par_circuit circulating current phase U / Circ_I_phase U
r7051[0...n]	Par_circuit circulating current phase V / Circ_I_phase V
r7052[0...n]	Par_circuit circulating current phase W / Circ_I_phase W
r7200[0...n]	Par_circuit power unit overload I2T / PU overload I2T

r7201[0...n]	Par_circuit power unit temperatures max. inverter / PU temp max inv
r7202[0...n]	Par_circuit power unit temperatures max. depletion layer / PU TempMaxDepLayer
r7203[0...n]	Par_circuit power unit temperatures max. rectifier / PU temp max rect
r7204[0...n]	Par_circuit power unit temperatures air intake / PU temp air intake
r7205[0...n]	Par_circuit power unit temperatures electronics / PU temp electr
r7206[0...n]	Par_circuit power unit temperatures inverter 1 / PU temp inv 1
r7207[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp inv 2
r7208[0...n]	Par_circuit power unit temperatures inverter 3 / PU temp inv 3
r7209[0...n]	Par_circuit power unit temperatures inverter 4 / PU temp inv 4
r7210[0...n]	Par_circuit power unit temperatures inverter 5 / PU temp inv 5
r7211[0...n]	Par_circuit power unit temperatures inverter 6 / PU temp inv 6
r7212[0...n]	Par_circuit power unit temperatures inverter 1 / PU temp rect 1
r7213[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp rect 2
r7214[0...n]	Par_circuit power unit temperatures depletion layer 1 / PU temp DepLayer 1
r7215[0...n]	Par_circuit power unit temperatures depletion layer 2 / PU temp DepLayer 2
r7216[0...n]	Par_circuit power unit temperatures depletion layer 3 / PU temp DepLayer 3
r7217[0...n]	Par_circuit power unit temperatures depletion layer 4 / PU temp DepLayer 4
r7218[0...n]	Par_circuit power unit temperatures depletion layer 5 / PU temp DepLayer 5
r7219[0...n]	Par_circuit power unit temperatures depletion layer 6 / PU temp DepLayer 6
r7220[0...n]	Infeed par_circuit absolute current value motoring permissible / INF I_abs mot perm
r7220[0...n]	CO: Par_circuit drive output current maximum / Drv I_outp max
r7221[0...n]	Infeed par_circuit absolute current regenerating permissible / INF I_absRegenPerm
r7222[0...n]	CO: Par_circuit absolute current actual value / I_act abs val
r7223[0...n]	CO: Par_circuit phase current actual value phase U / I_phase U act val
r7224[0...n]	CO: Par_circuit phase current actual value phase V / I_phase V act val
r7225[0...n]	CO: Par_circuit phase current actual value phase W / I_phase W act val
r7226[0...n]	CO: Par_circuit phase current actual value phase U offset / I_phase U offset
r7227[0...n]	CO: Par_circuit phase current actual value phase V offset / I_phase V offset
r7228[0...n]	CO: Par_circuit phase current actual value phase W offset / I_phase W offset
r7229[0...n]	CO: Par_circuit phase current actual value sum U, V, W / I_phase sum UVW
r7230[0...n]	CO: Par_circuit DC link voltage actual value / Vdc_act
r7231[0...n]	CO: Par_circuit phase voltage actual value phase U / V_phase U act val
r7232[0...n]	CO: Par_circuit phase voltage actual value phase V / V_phase V act val
r7233[0...n]	CO: Par_circuit phase voltage actual value phase W / V_phase W act val

Function Diagrams

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Function diagrams

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(PDS).</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div></div><div><div><div><div><div></div><div>Information on parameters, binectors, connectors</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Symbol</div><div>Meaning</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Parameter 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to</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>(xxxx[y].ww)</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>(Def)</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>(Def.w)</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>[aaaa.b]</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div></div><div><div><div><div><div></div><div>Parameter name (up to 18 characters)</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>[dimension unit]</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>"r" = monitoring parameter. These parameters are read-only</div><div>"xxxx" stands for the parameter number</div><div>"[y]" specifies the valid index, "[y...z]" specifies the applicable index range</div><div>".ww" specifies the bit number (e.g. 0...15).</div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>"p" = setting parameter. These parameters can be changed.</div><div>"xxxx" stands for the parameter number,</div><div>"[y]" specifies the applicable index, "[y...z]" specifies the applicable index range</div><div>".ww" specifies the bit number (e.g. 0...15).</div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Value range.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Parameter number (xxxx) with Index number [y] and bit number .ww.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Factory setting.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Factory setting with bit number as prefix.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Diagram references for setting parameters that occur a multiple number of times.</div><div>[Function diagram number, signal path]</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div></div><div><div><div><div><div></div><div>Sampling times</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Symbol</div><div>Meaning</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>pxxx[Y] (ZZZ.ZZ µs)</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>p0115[y] (Drive Object)</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>p0115[y] (Motor Modules)</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>PROFIdrive sampling time</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>CAN bus sampling time</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Background</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Refer to [1020.7]</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Not relevant</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Refer to [1020.7]</div><div></div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div></div><div><div><div><div><div></div><div>Setting parameter with factory setting to select the time slice.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Time slice depending on the pre-setting p0112 of the drive object.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Time slice depending on the rated pulse frequency of the motor module.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>a) If clock-cycle synchronous, then bus cycle time like DP cycle (Tdp).</div><div>b) Otherwise, according to presetting in p2048.</div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Time slice 4000.00 µs.</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>There is no fixed sampling time for this function. The processing takes place in background. The cycle time depends on the computational load of the control unit.</div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>A static state is displayed here. The sampling time data is not relevant.</div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div></div></div></div><div><div><div><div><div></div><div>1</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>2</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>3</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>4</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>5</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>6</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>7</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>8</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div><div><div><div><div></div><div>DO: All objects</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Explanations for the function diagrams - Explanation of the symbols (Part 1)</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div><div><div><div><div></div><div>fp_1020_51_eng.vsd</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>Function diagram</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>16.05.07 V02.05.00</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div><div><div><div></div><div>SINAMICS</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div><div><div><div><div></div><div>- 1020 -</div></div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div>	
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Figure 2-1

1020 – Explanation of the symbols (Part 1)

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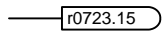
Figure 2-2 1021 – Explanation of the symbols (Part 2)

<div><h3>Switch-on delay</h3><div><p>The digital signal x must have the value "1" without any interruption during the time T before output y changes to "1".</p></div></div>		<div><h3>PT1 element</h3><div><p>Delay element, first order.</p><p>pxxxx = time constant</p></div></div>		<div><h3>2nd-order filter (bandstop/general filter)</h3><div><p>Natural frequency, numerator: fn_z Damping, numerator: D_z</p><p>Natural frequency, denominator: fn_n Damping, denominator: D_n</p></div></div>			
<div><h3>Switch-off delay</h3><div><p>The digital signal x must have the value "0" without interruption during the time T before output y changes to "0".</p></div></div>		<div><h3>PT2 low pass</h3><div><p>Natural frequency, denominator: fn_n Damping, denominator: D_n</p></div></div>		<div><p>Used as bandstop filter</p><ul style="list-style-type: none">- center frequency fs: $fn_z = fs$ $fn_n = fs$- bandwidth f_B: $D_z = 0$ $D_n = \frac{f_B}{2 \cdot fs}$<p>Transfer function when used as general filter</p>$H(s) = \frac{\left(\frac{s}{2\pi fn_z}\right)^2 + \frac{2 \cdot D_z}{2\pi fn_z} \cdot s + 1}{\left(\frac{s}{2\pi fn_n}\right)^2 + \frac{2 \cdot D_n}{2\pi fn_n} \cdot s + 1}$</div>			
<div><h3>Delay (switch-on and switch-off)</h3><div><p>The digital signal x must have the value "1" without interruption during time T_1 or must have the value "0" during time T_2 before output y changes its signal state.</p></div></div>		<div><p>Transfer function</p>$H(s) = \frac{1}{\left(\frac{s}{2\pi fn_n}\right)^2 + \frac{2 \cdot D_n}{2\pi fn_n} \cdot s + 1}$</div>		<div><h3>Analog adder can be activated</h3><div><p>The following applies to $I = 1$ signal: $y = x_1 + x_2$</p><p>The following applies to $I = 0$ signal: $y = x_1$</p></div></div>			
1	2	3	4	5	6	7	8
DO: All objects					fp_1024_51_eng.vsd		
Explanations for the function diagrams - Explanation of the symbols (Part 3)					08.05.07 V02.05.00		
					Function diagram		
					SINAMICS		
- 1024 -							

Figure 2-3 1024 – Explanation of the symbols (Part 3)

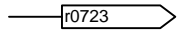
Handling BICO technology

Binector:



Binectors are binary signals that can be freely interconnected (BO = Binector Output). They represent a bit of a "BO:" display parameter (e.g. bit 15 from r0723).

Connector:



Connectors are "analog signals" that can be freely interconnected (e.g. percentage variables, speeds or torques). Connectors are also "CO:" display parameters (CO = Connector Output).

Parameterization:

At the signal destination, the required binector or connector is selected using appropriate parameters:

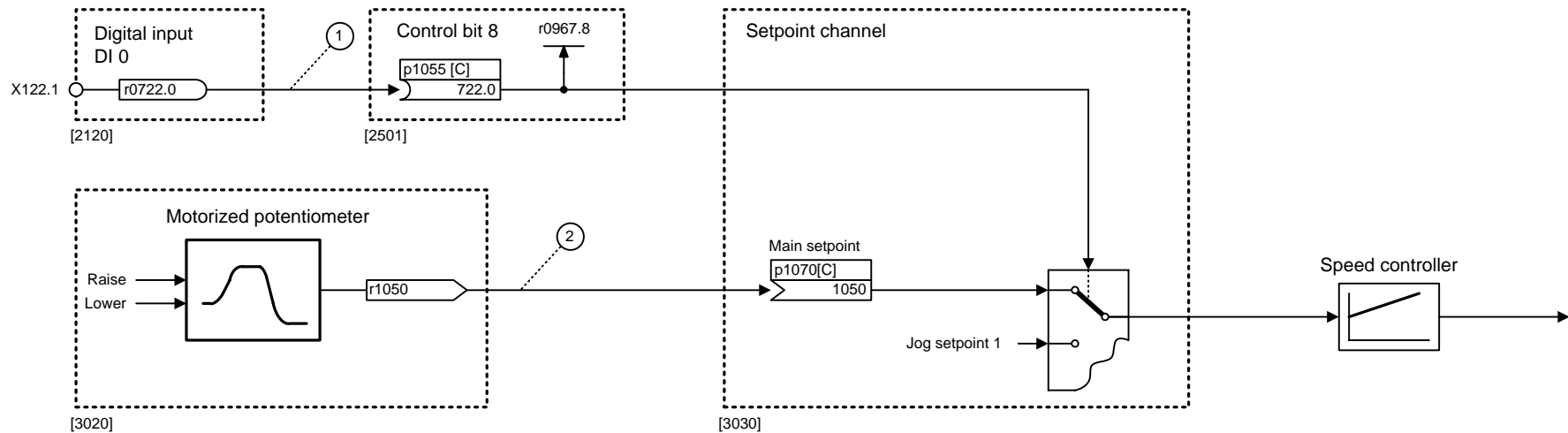
"BI:" parameter for binectors (BI = Binector Input)

or

"CI:" parameter for connectors (CI = Connector Input)

Example:

The main setpoint for the speed controller (CI: p1070) should be received from the output of the motorized potentiometer (CO: r1050) and the "jog" command (BI: p1055) from digital input DI 0 (BO: r0722.0, X122.1 terminal) on the CU320.



Parameterizing steps:

- ① p1055[0] = 722.0 Terminal X122.1 acts as "Jog bit 0".
- ② p1070[0] = 1050 The output of the motorized potentiometer acts as main setpoint for the speed controller.

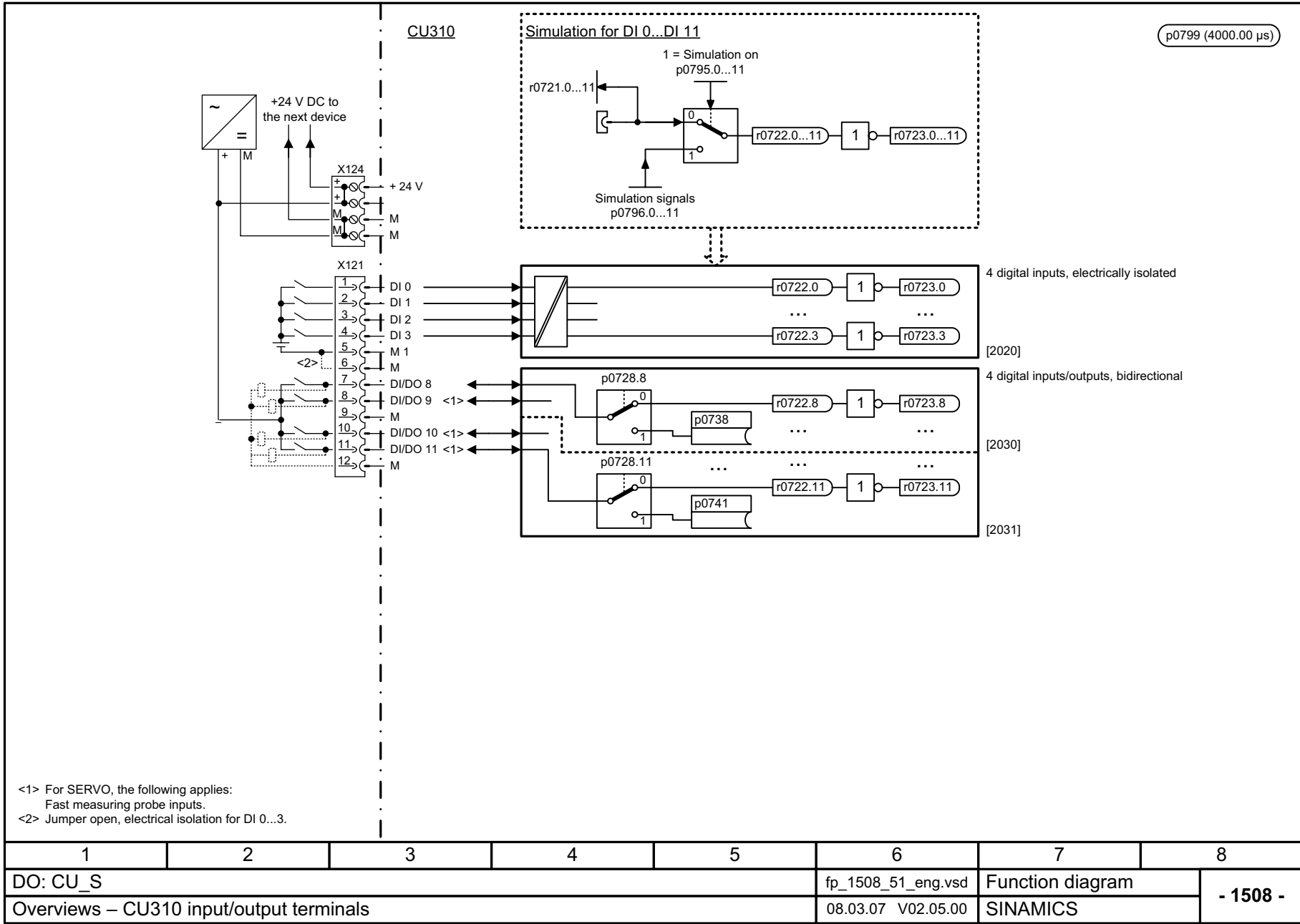
1	2	3	4	5	6	7	8
DO: All objects					fp_1025_51_eng.vsd	Function diagram	
Explanations for the function diagrams - Handling BICO technology					10.05.07 V02.05.00	SINAMICS	
							- 1025 -

Figure 2-4 1025 – Handling BICO technology

2.3 Overviews

Function diagrams

1508 – CU310 input/output terminals	2-1107
1510 – CU320 input/output terminals	2-1108
1512 – CX32 input/output terminals	2-1109
1520 – PROFIdrive	2-1110
1530 – Internal control/status words, data sets	2-1111
1550 – Setpoint channel	2-1112
1580 – Servo control, encoder evaluations (position, speed, temperature)	2-1113
1590 – Servo control, speed control and V/f control	2-1114
1610 – Servo control, generation of the torque limits	2-1115
1630 – Servo control, current control	2-1116
1680 – Vector control, encoder evaluations (position, speed, temperature)	2-1117
1690 – Vector control, V/f control	2-1118
1700 – Vector control, speed control and generation of the torque limits	2-1119
1710 – Vector control, current control	2-1120
1750 – Monitoring functions, faults, alarms	2-1121
1773 – Basic Infeed	2-1122
1774 – Active Infeed	2-1123
1775 – Smart Infeed	2-1124
1780 – Terminal Module 15 (TM15)	2-1125
1781 – Terminal Module 15 for SINAMICS (TM15DI/DO)	2-1126
1782 – Terminal Module 17 High Feature (TM17 High Feature)	2-1127
1790 – Terminal Board 30 (TB30)	2-1128
1840 – Terminal Module 31 (TM31)	2-1129



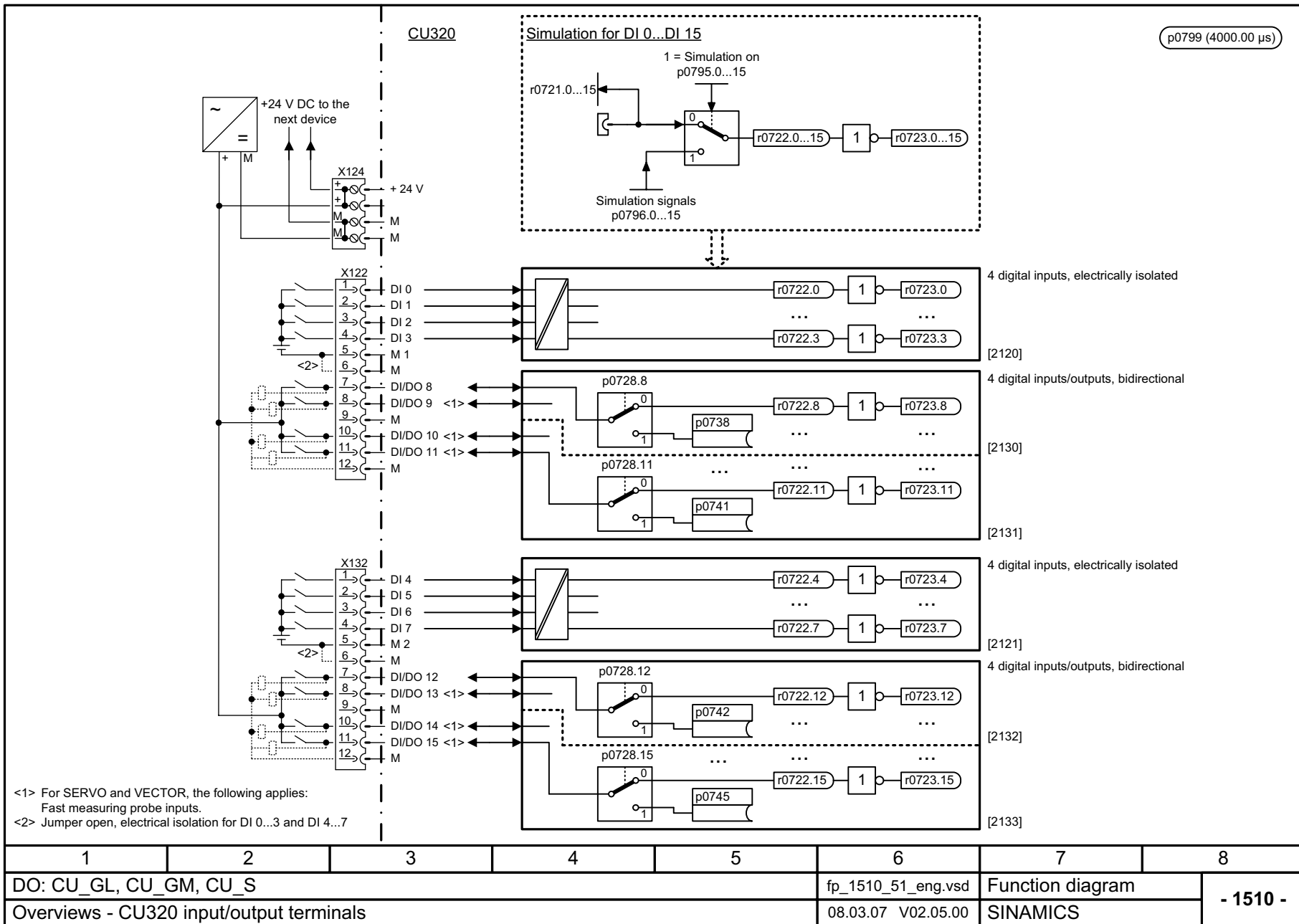
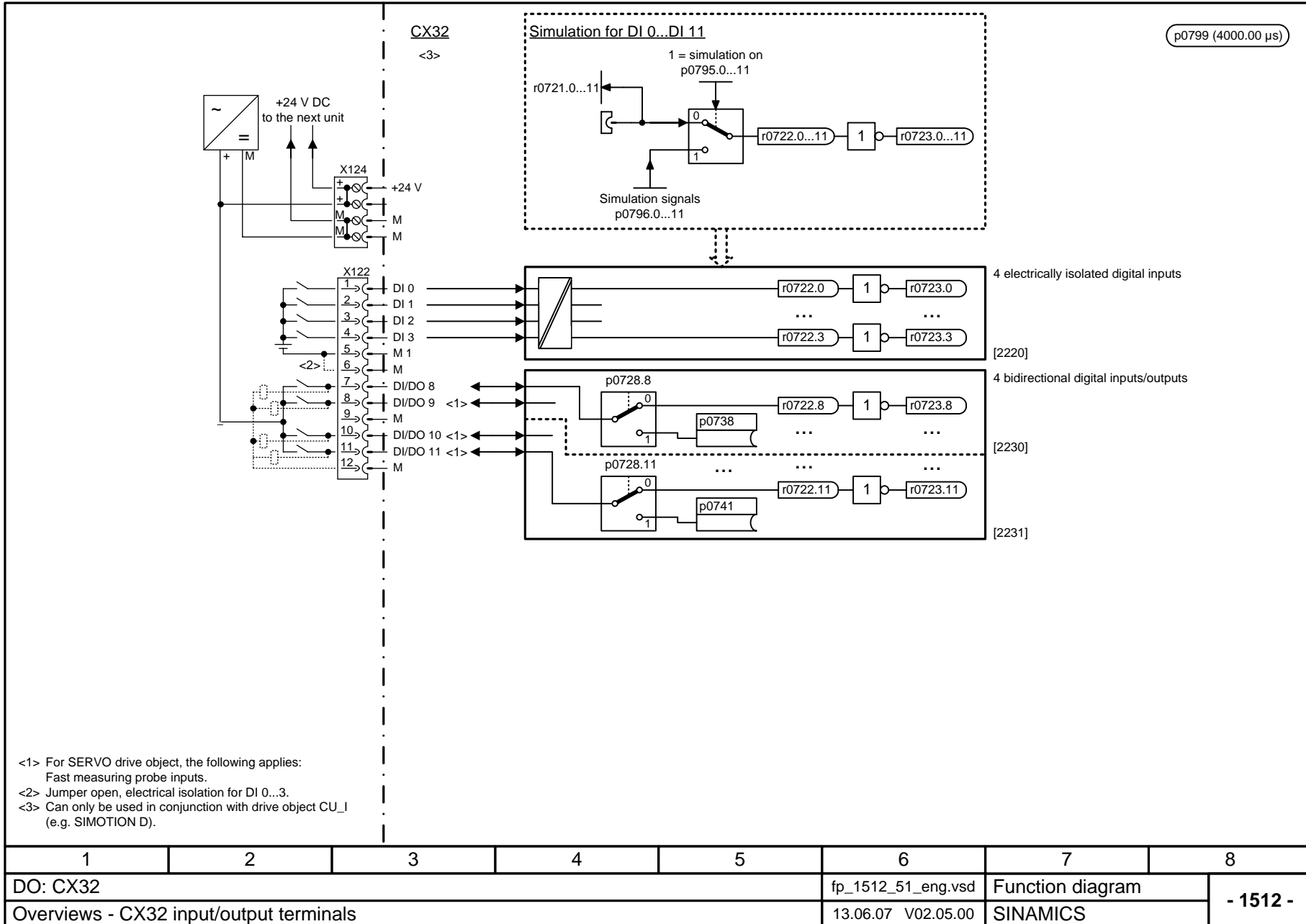


Figure 2-6 1510 – CU320 input/output terminals



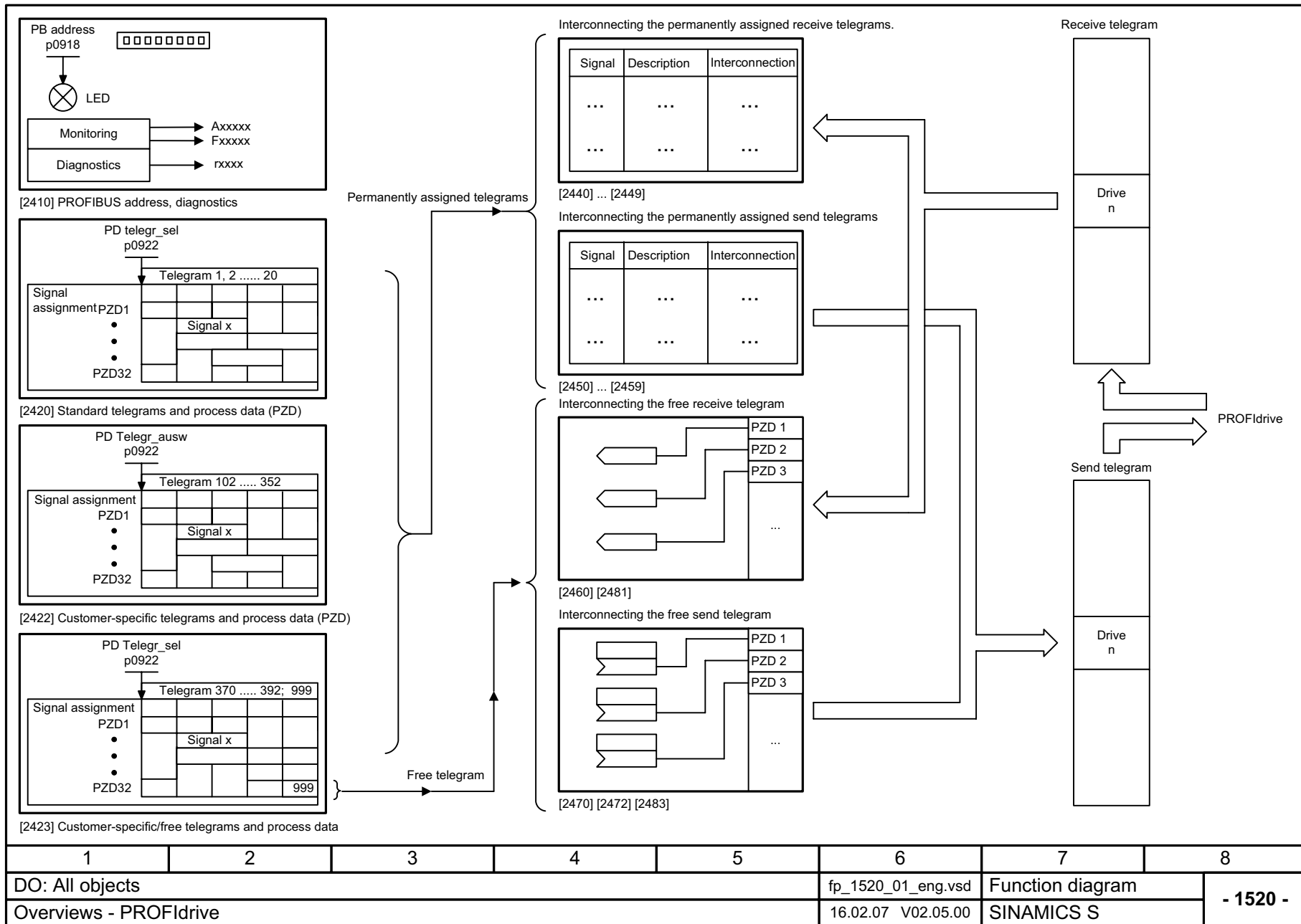


Figure 2-8 1520 – PROFIdrive

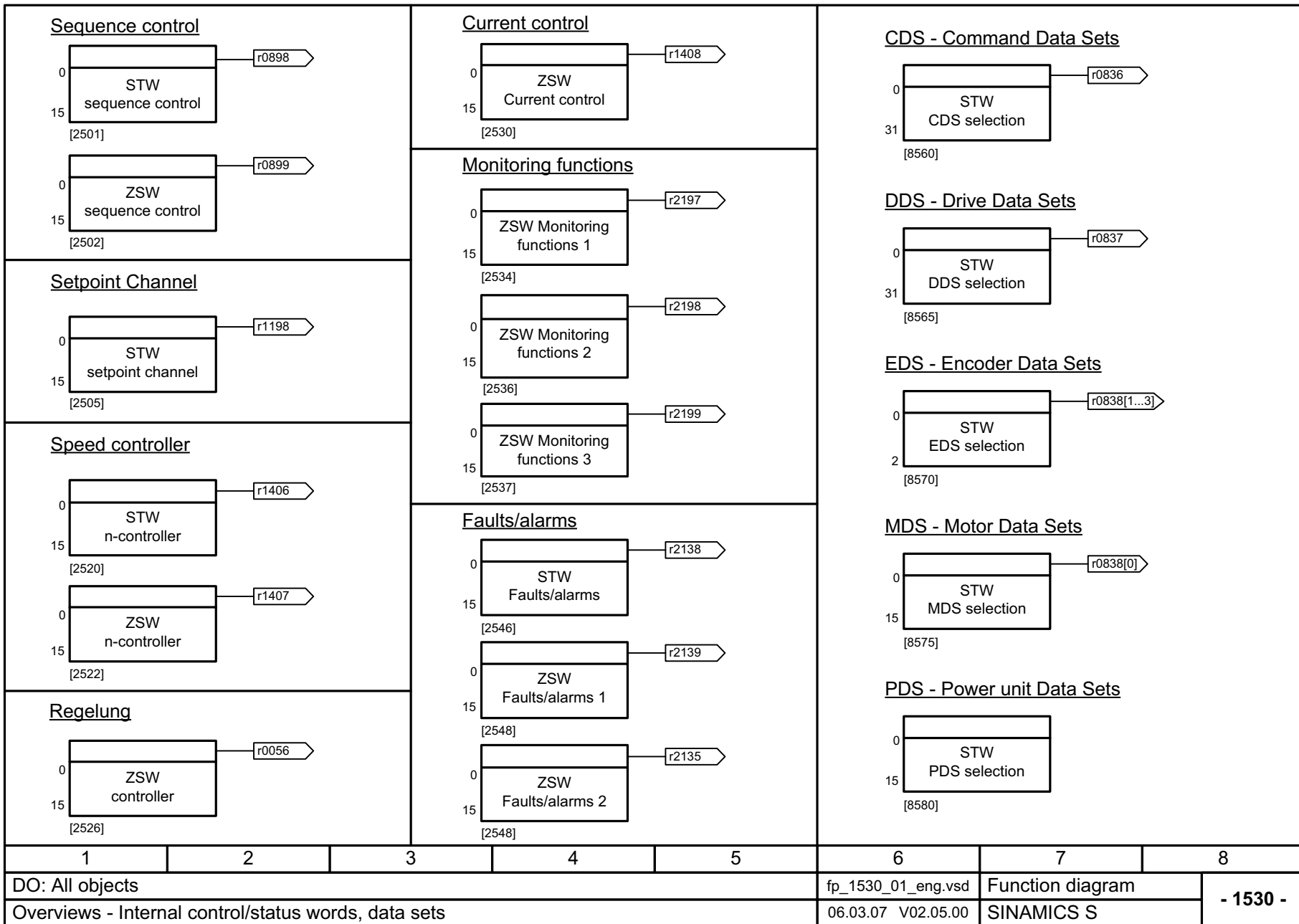
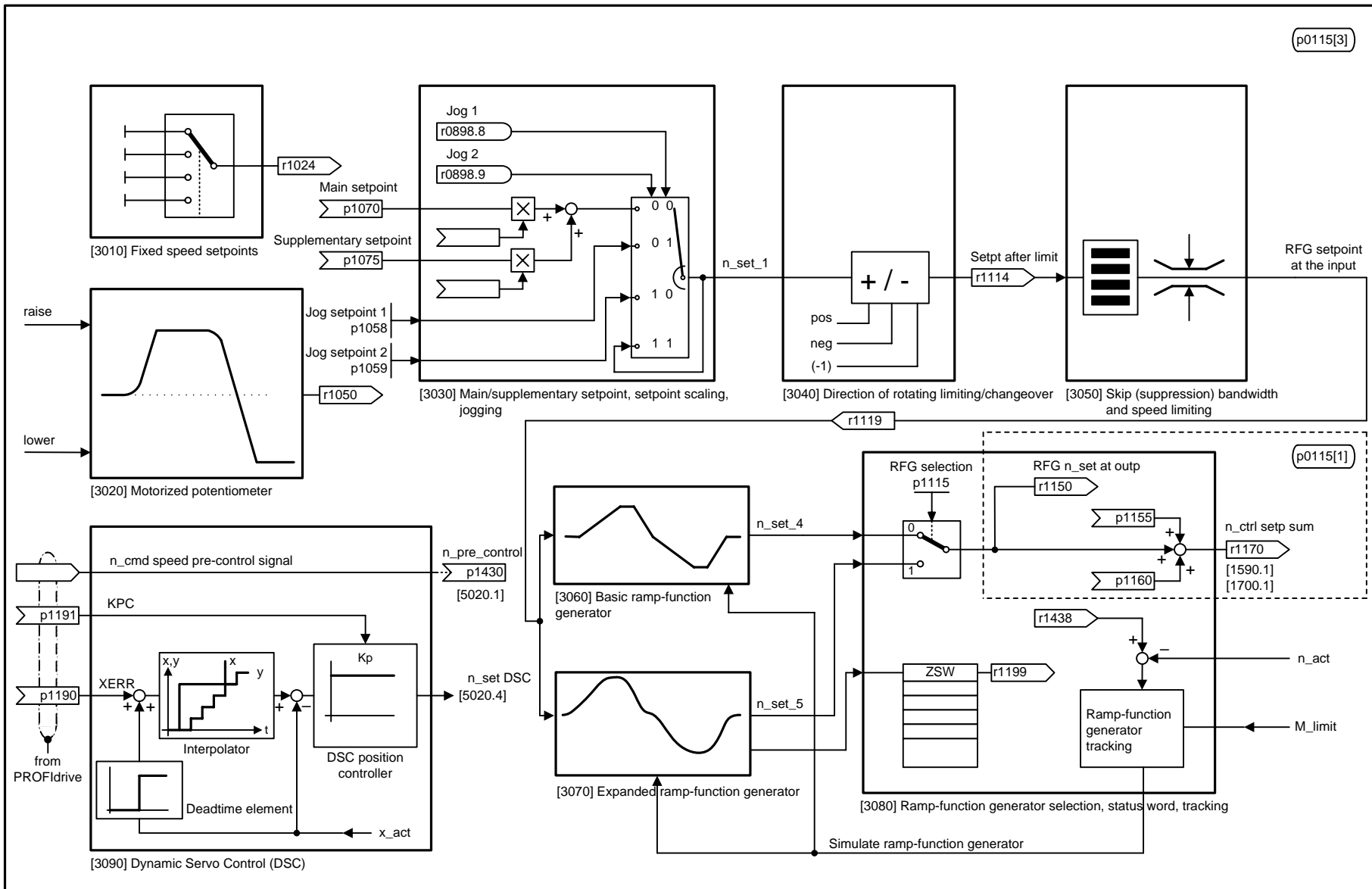
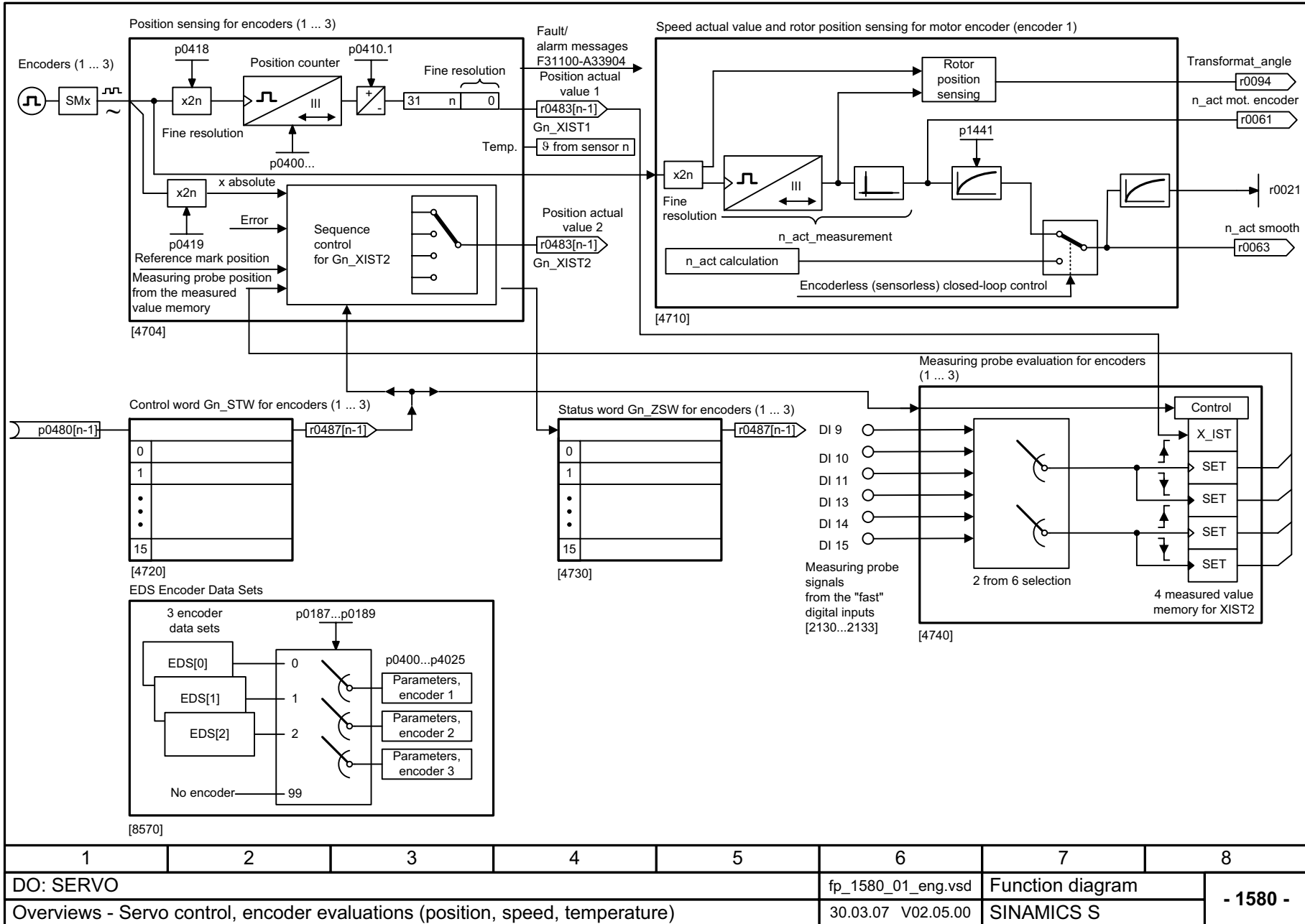


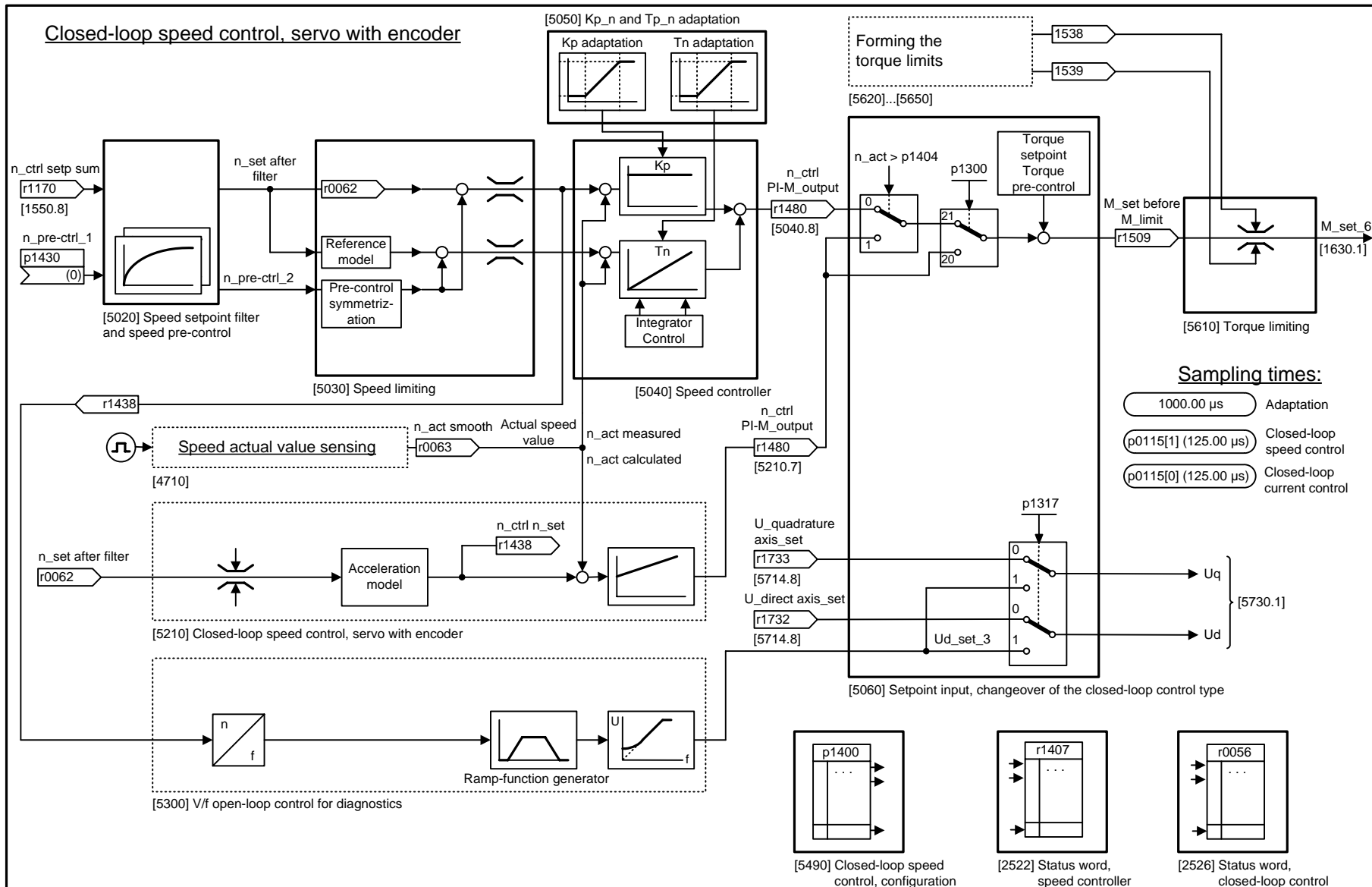
Figure 2-9 1530 – Internal control/status words, data sets



1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTORGL, VECTORMV					fp_1550_51_eng.vsd	Function diagram	
Overviews - Setpoint channel					08.03.07 V02.05.00	SINAMICS	
							- 1550 -

Figure 2-10 1550 – Setpoint channel





1	2	3	4	5	6	7	8
DO: SERVO					fp_1590_01_eng.vsd	Function diagram	
Overviews - Servo control, speed control and V/f control					30.03.07 V02.05.00	SINAMICS S	
							- 1590 -

Figure 2-12 1590 – Servo control, speed control and V/f control

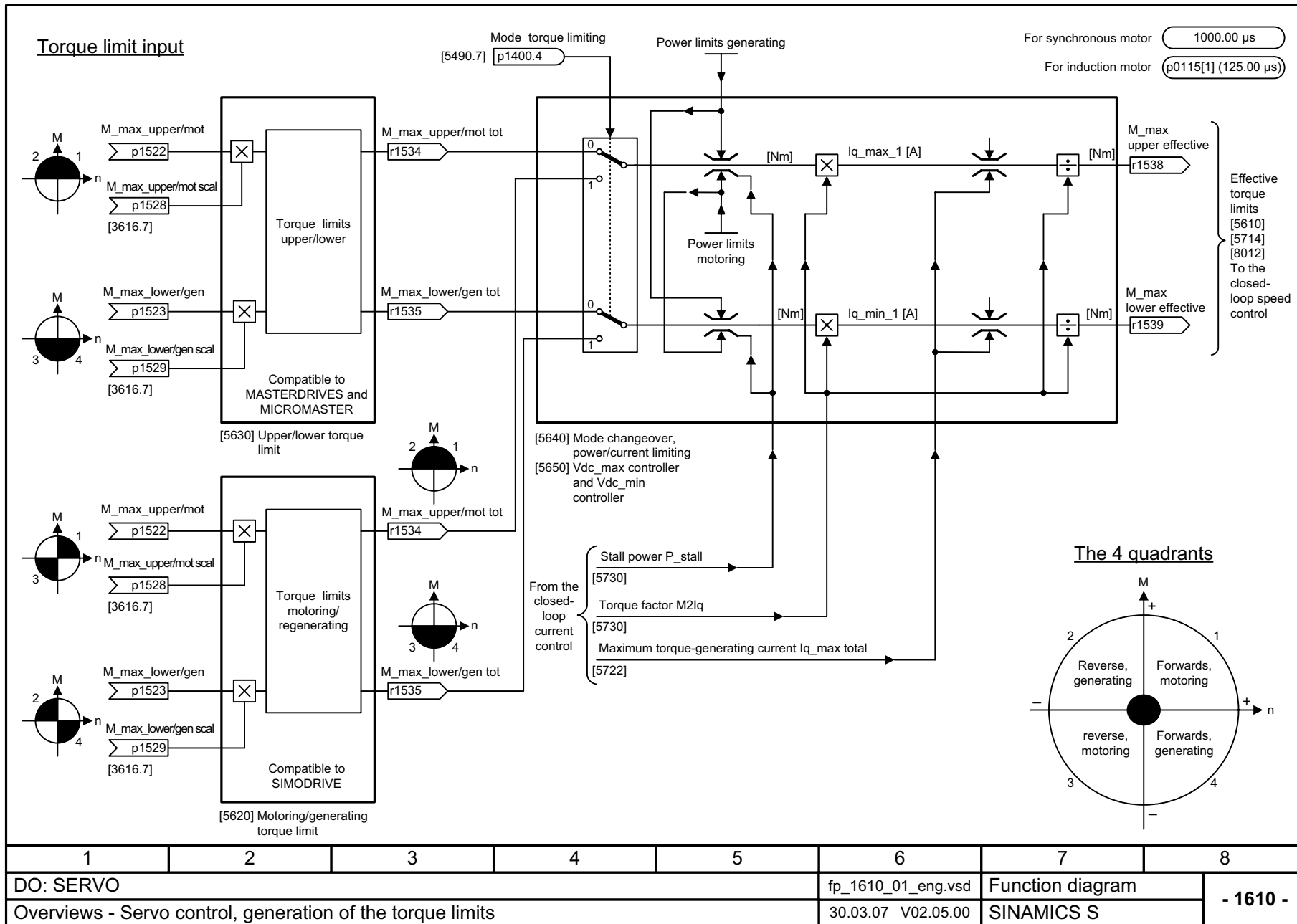


Figure 2-13 1610 – Servo control, generation of the torque limits

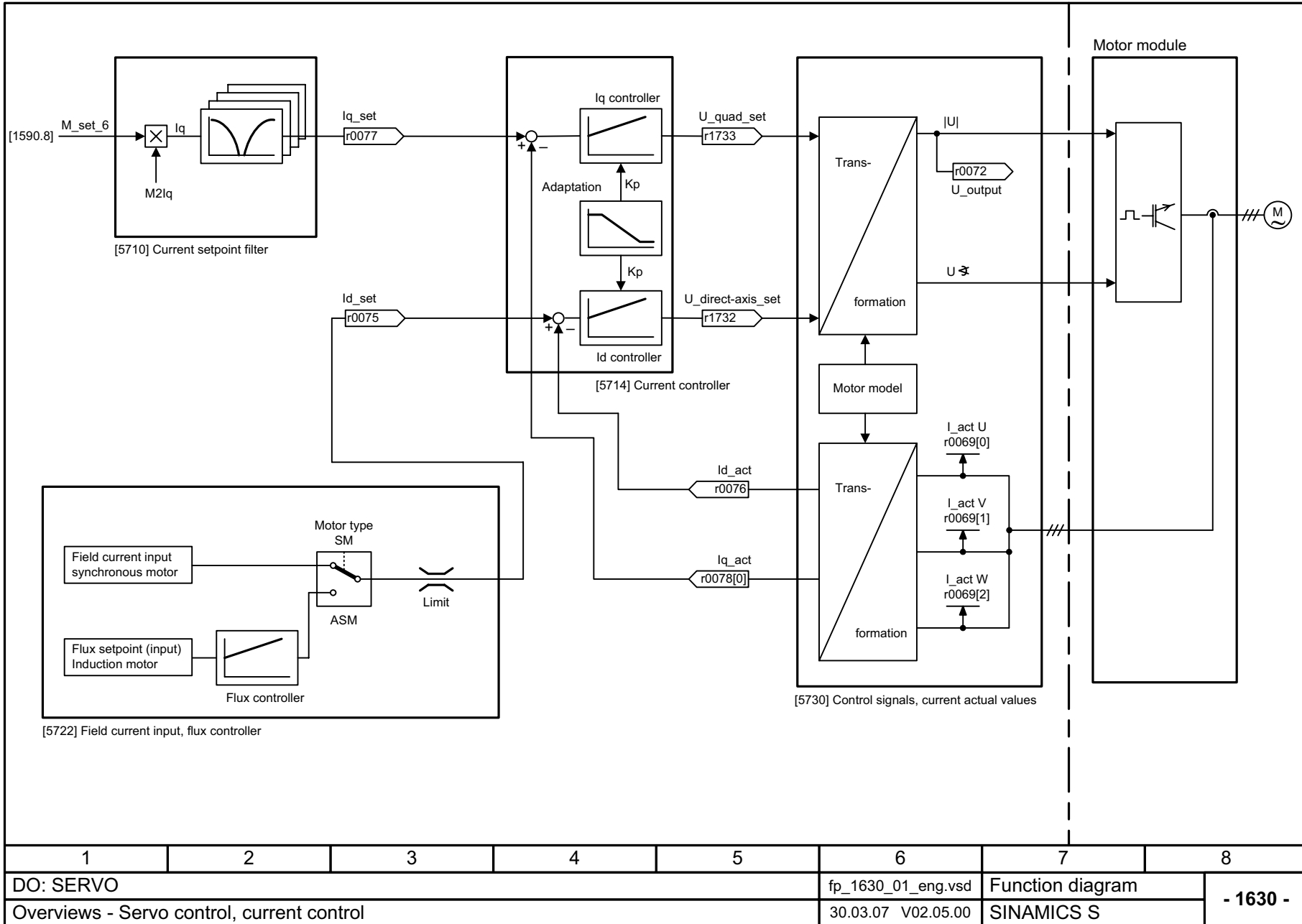
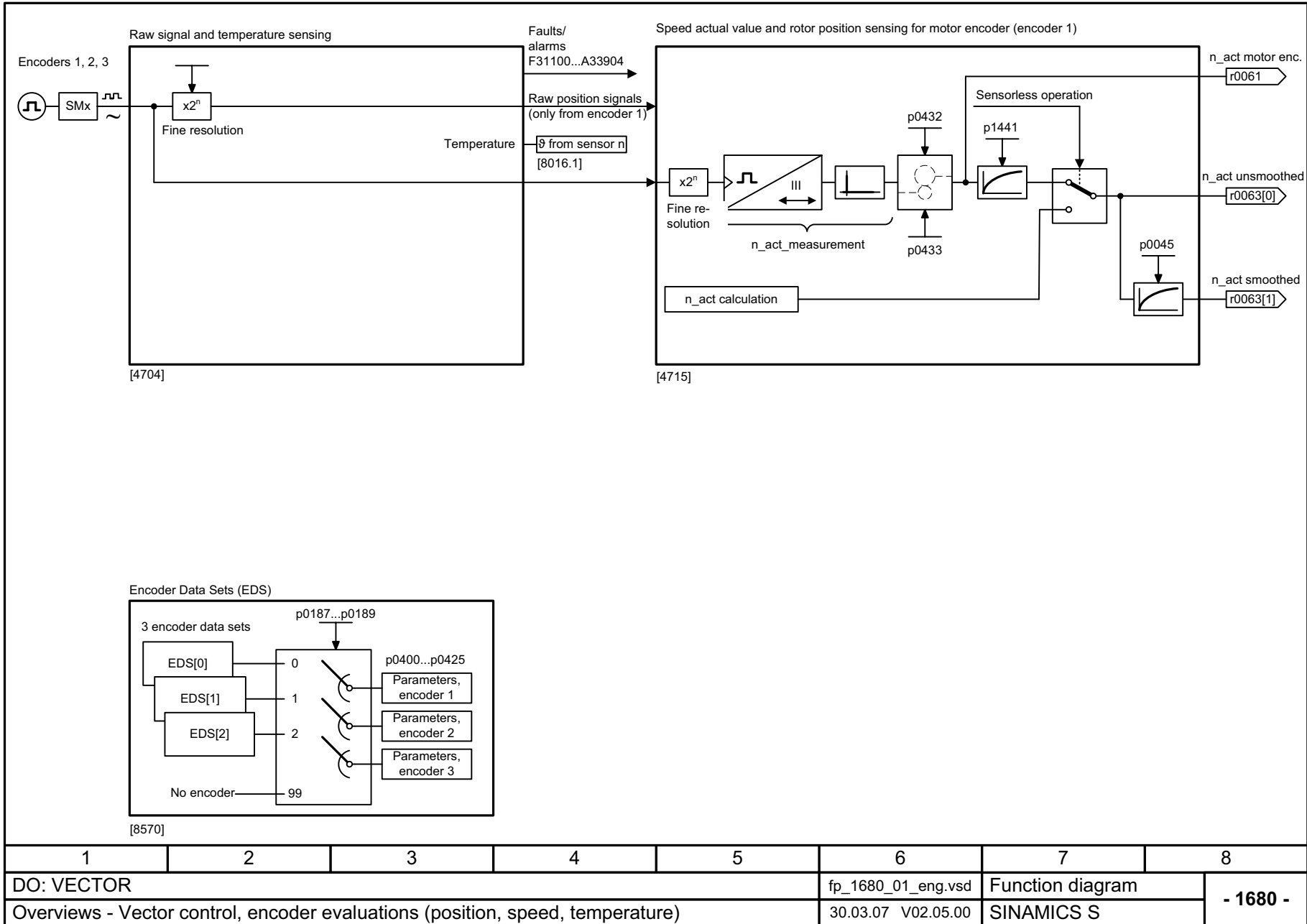
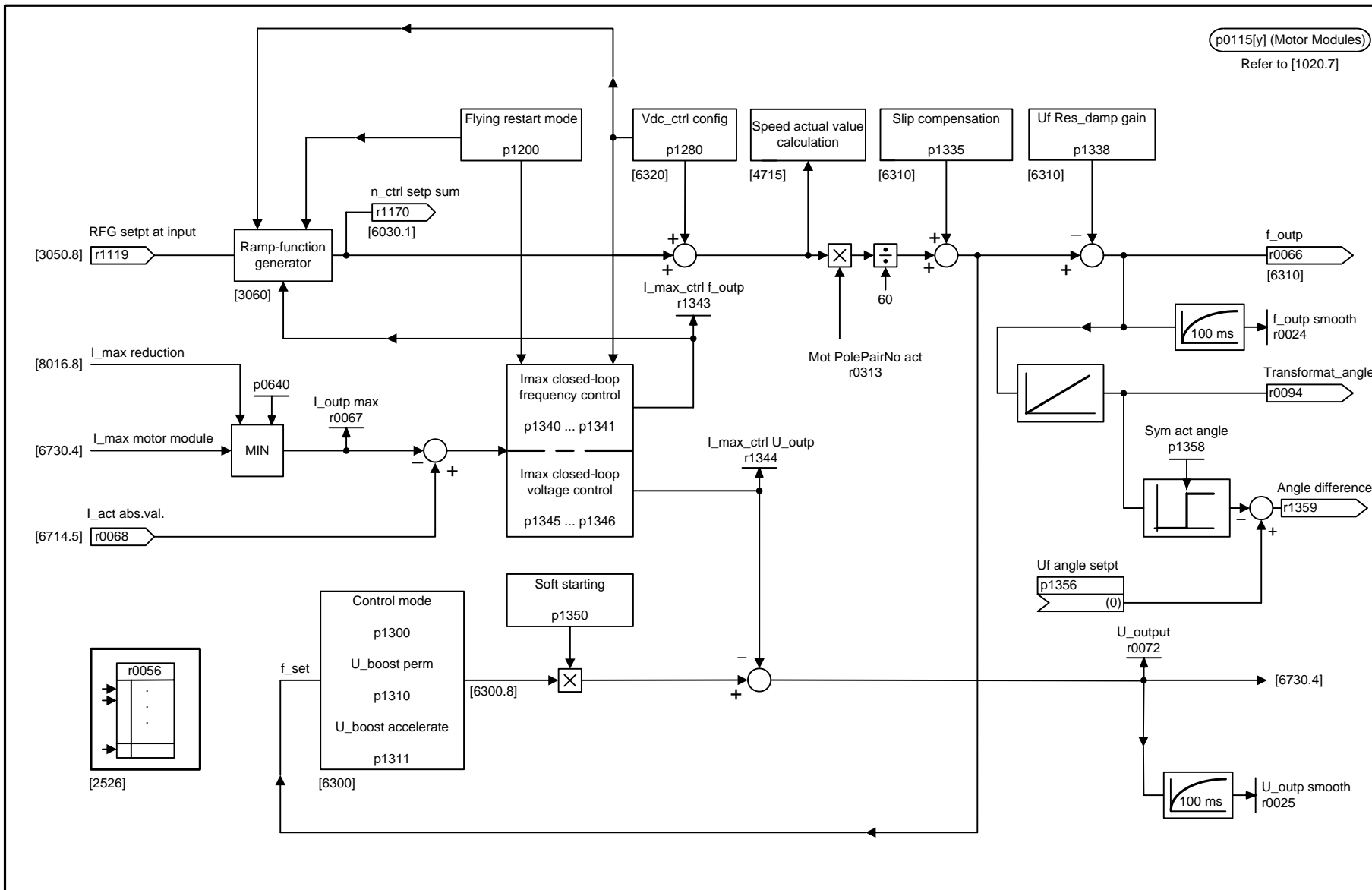


Figure 2-14 1630 – Servo control, current control

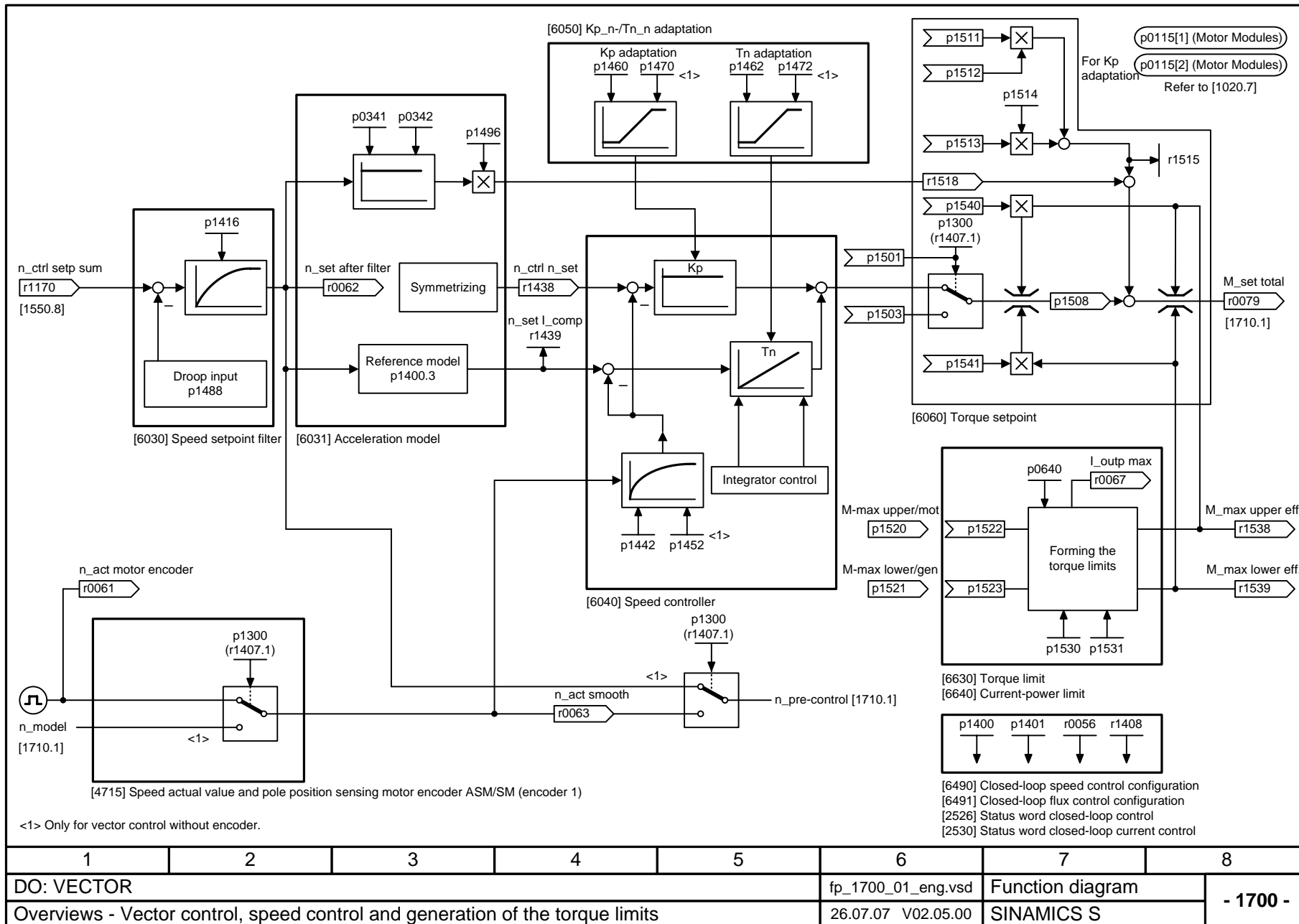
1	2	3	4	5	6	7	8
DO: SERVO					fp_1630_01_eng.vsd	Function diagram	
Overviews - Servo control, current control					30.03.07 V02.05.00	SINAMICS S	
							- 1630 -





1	2	3	4	5	6	7	8
DO: VECTOR					fp_1690_01_eng.vsd	Function diagram	
Overviews - Vector control, V/f control					30.03.07 V02.05.00	SINAMICS S	
					- 1690 -		

Figure 2-16 1690 – Vector control, V/f control



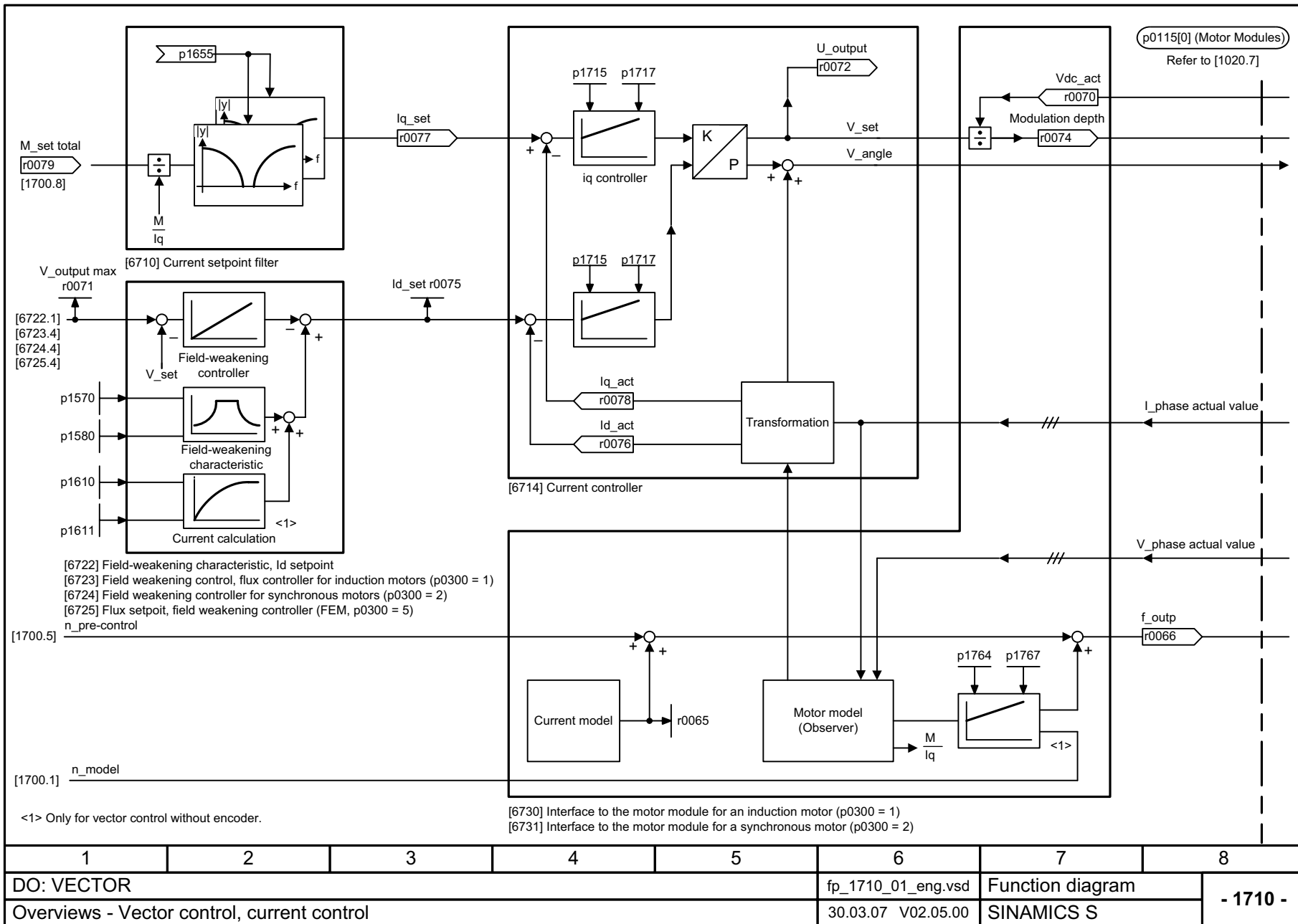
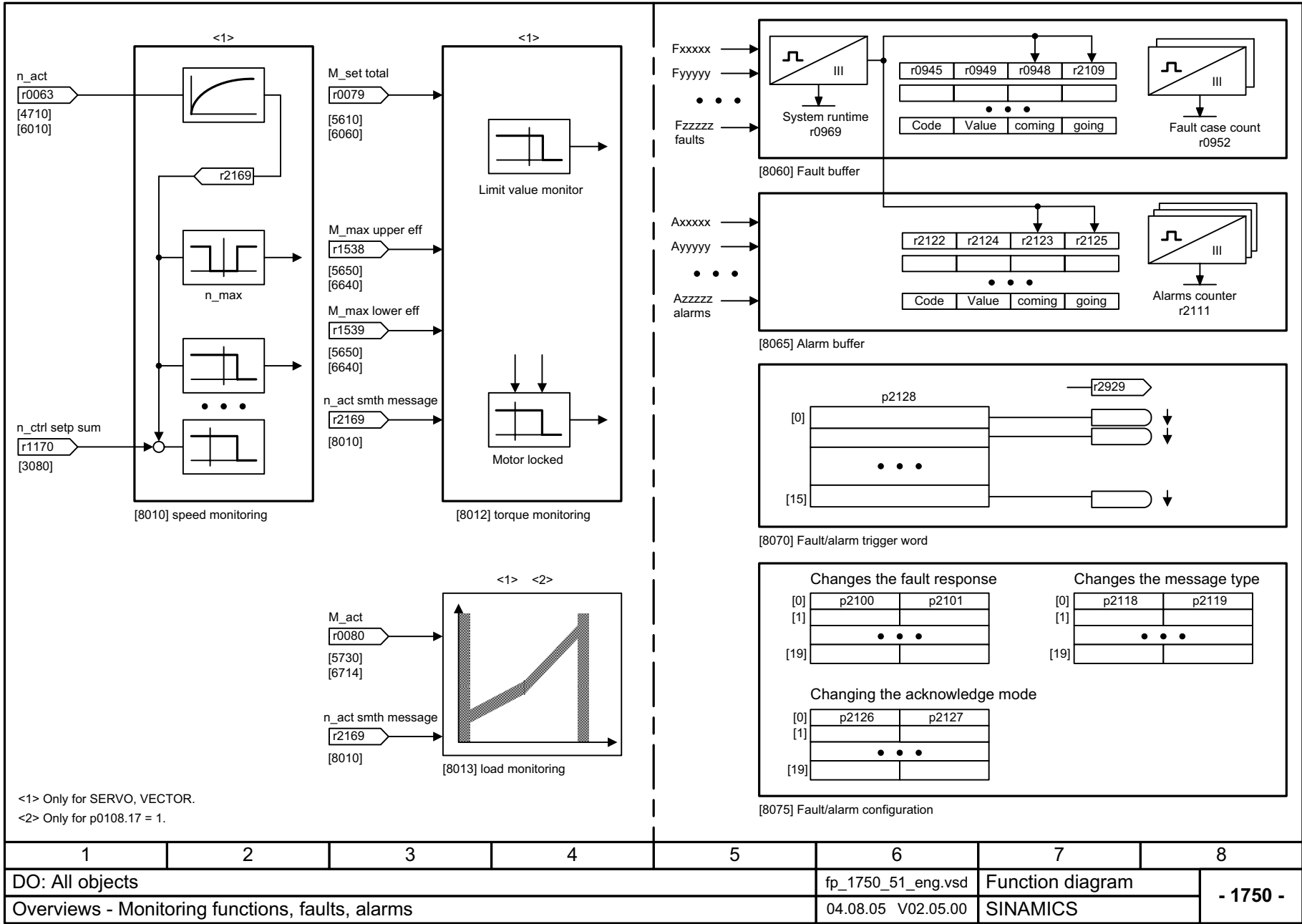


Figure 2-18 1710 – Vector control, current control



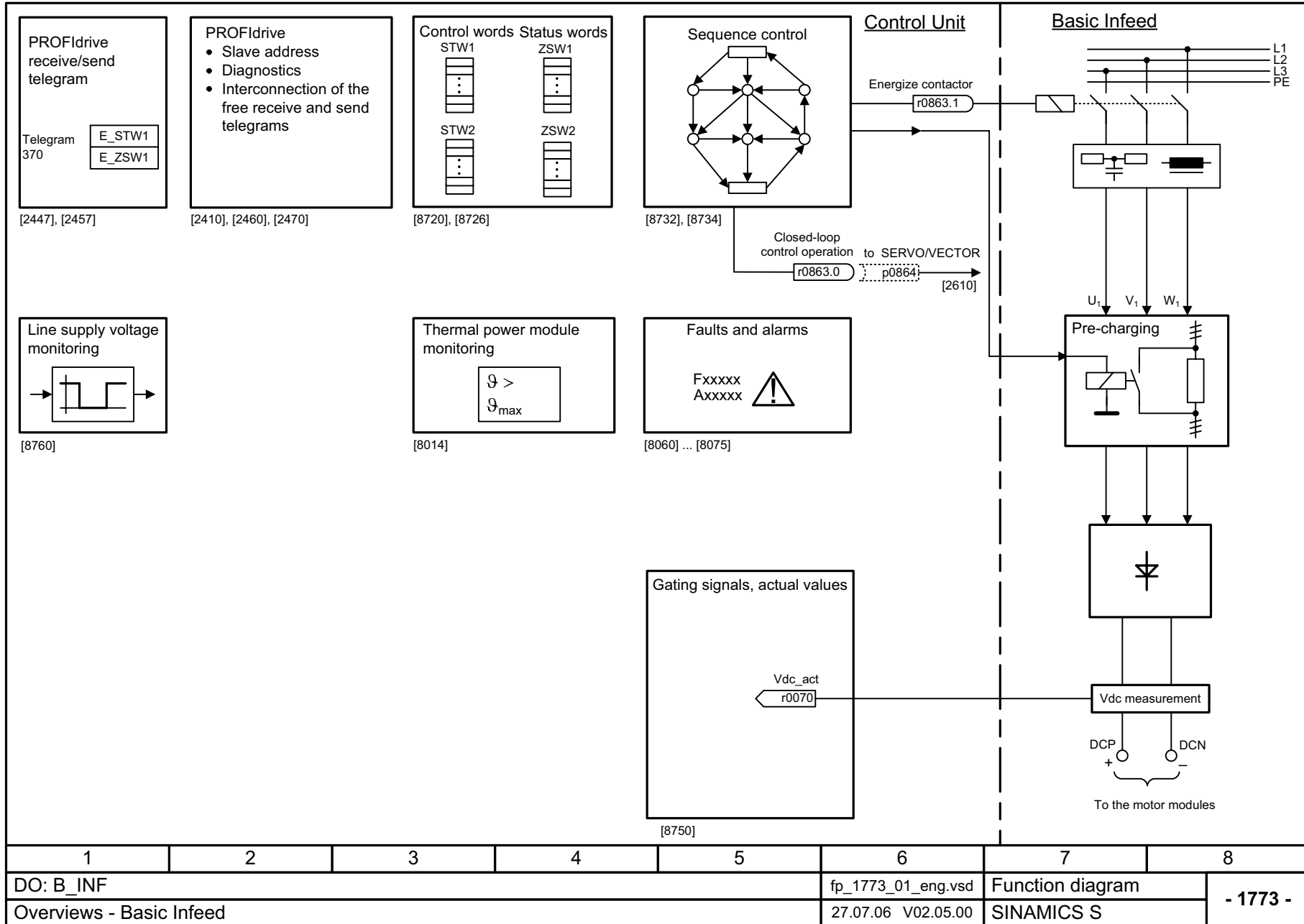
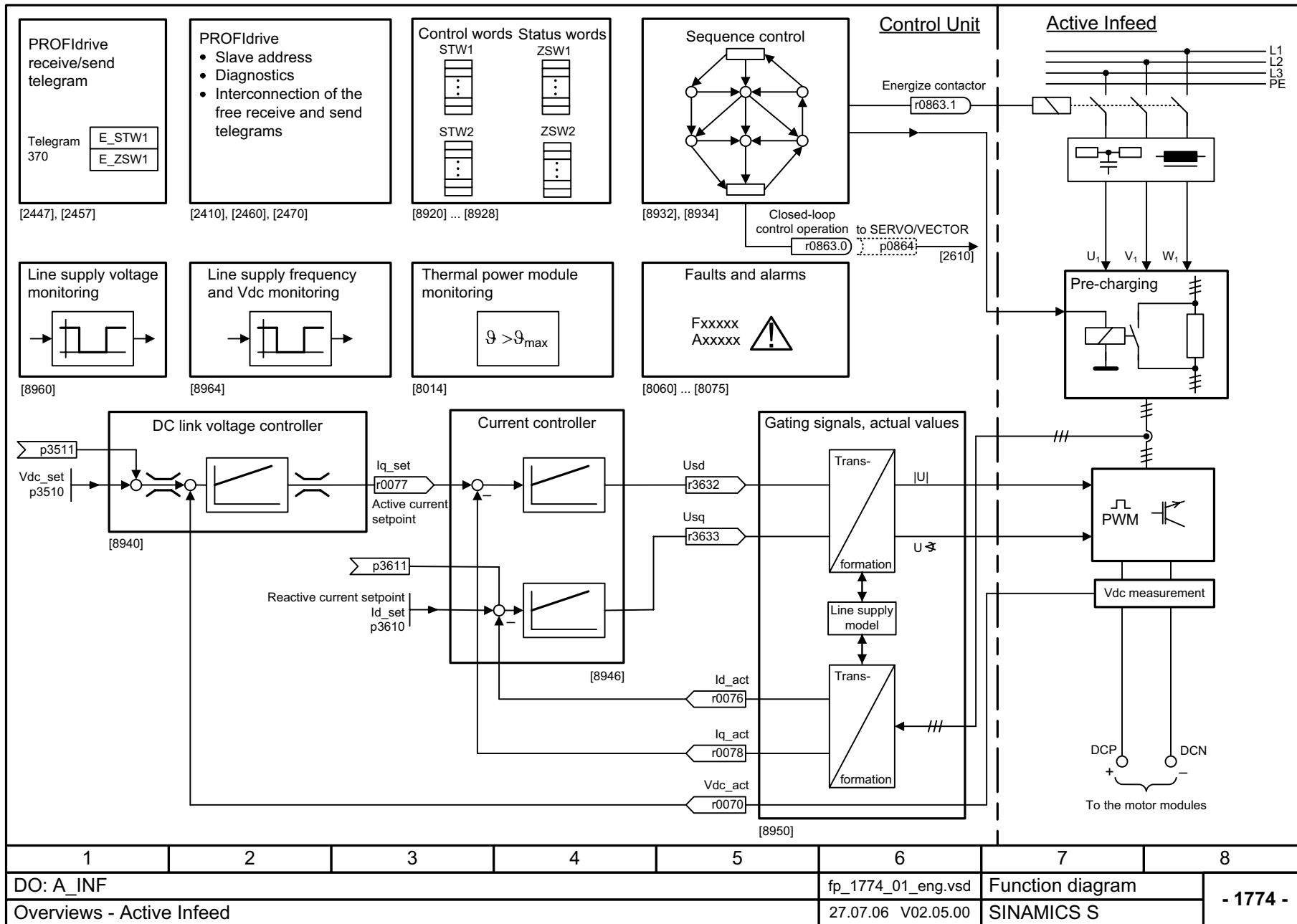
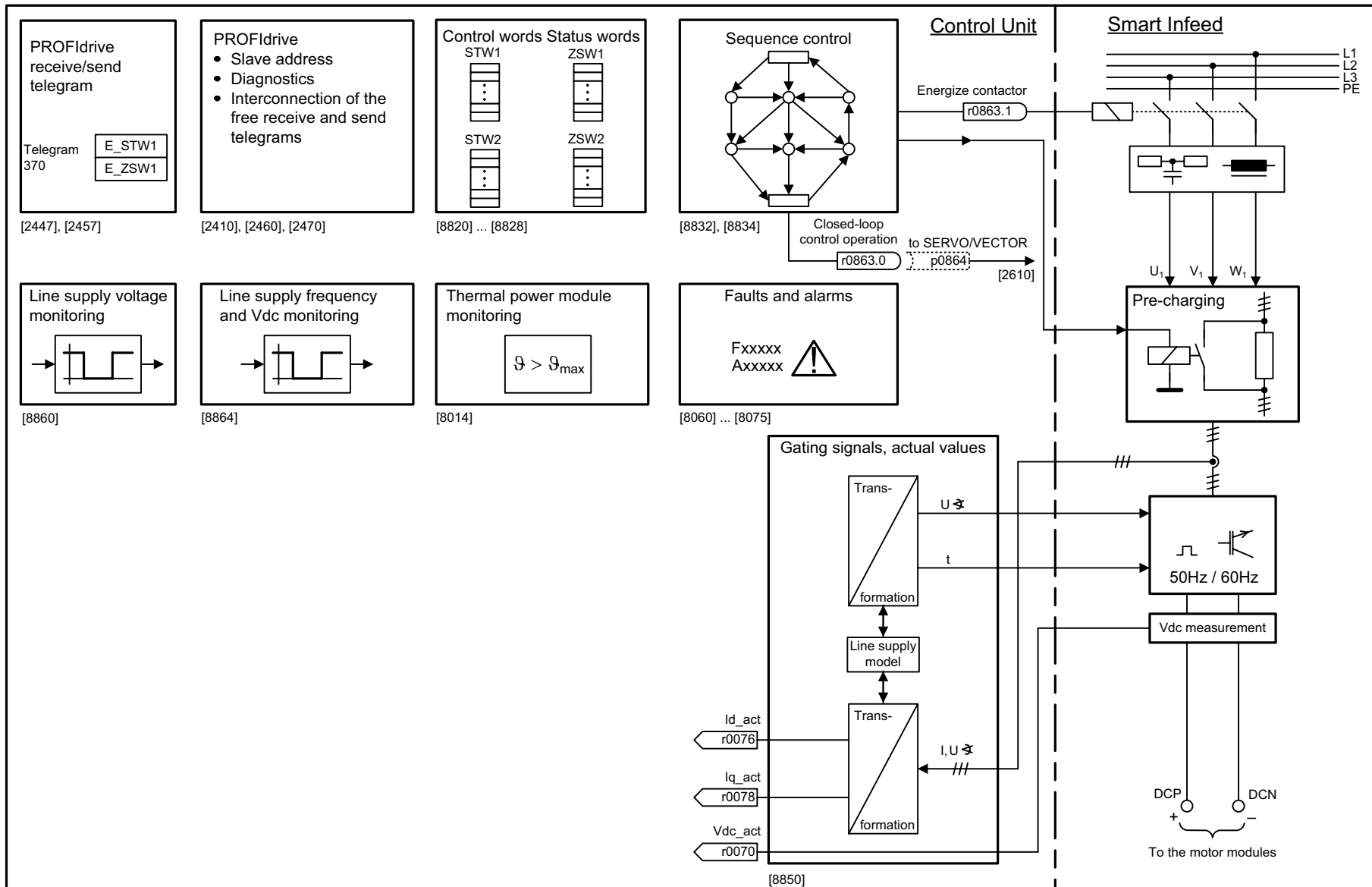


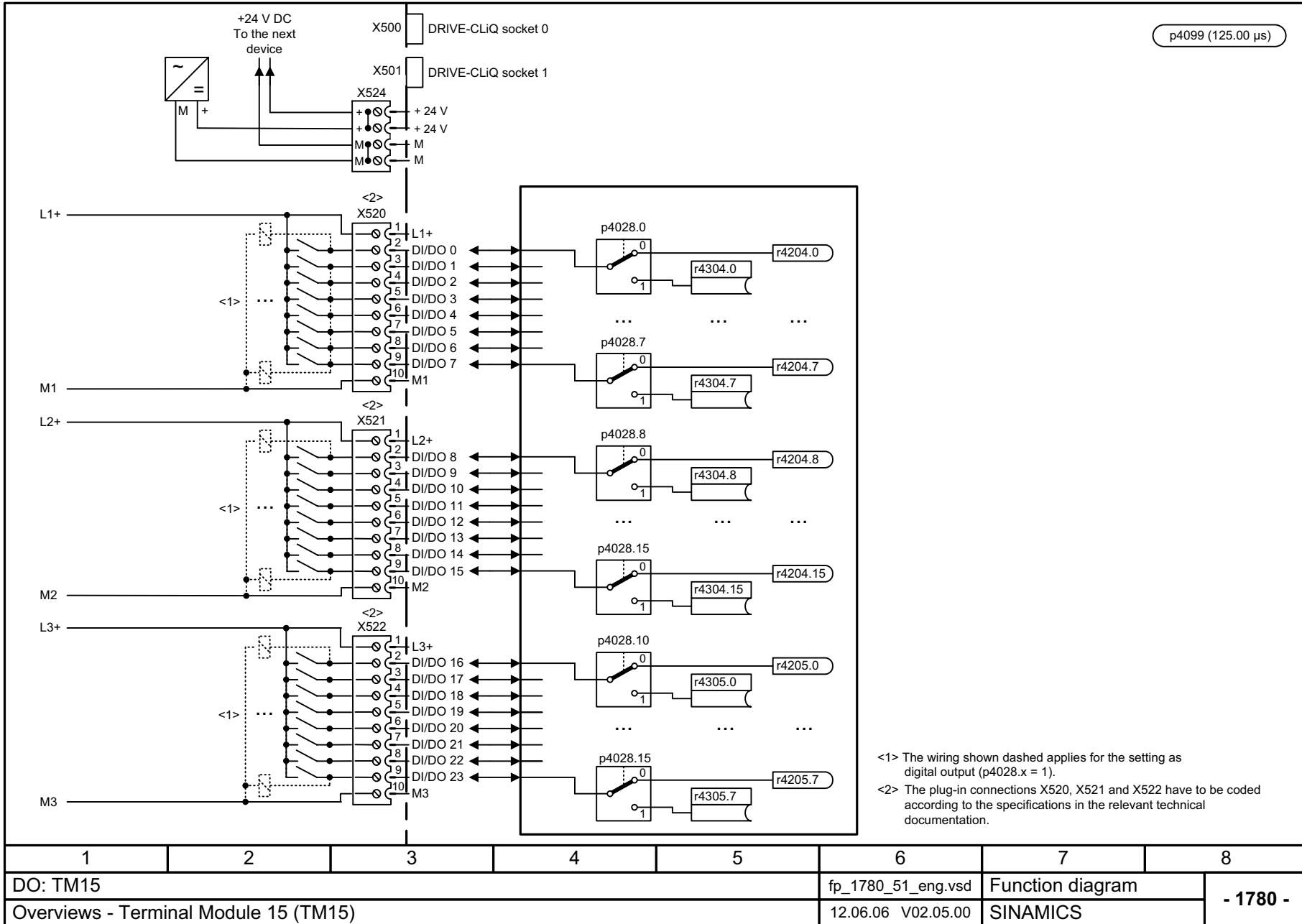
Figure 2-20 1773 – Basic Infeed

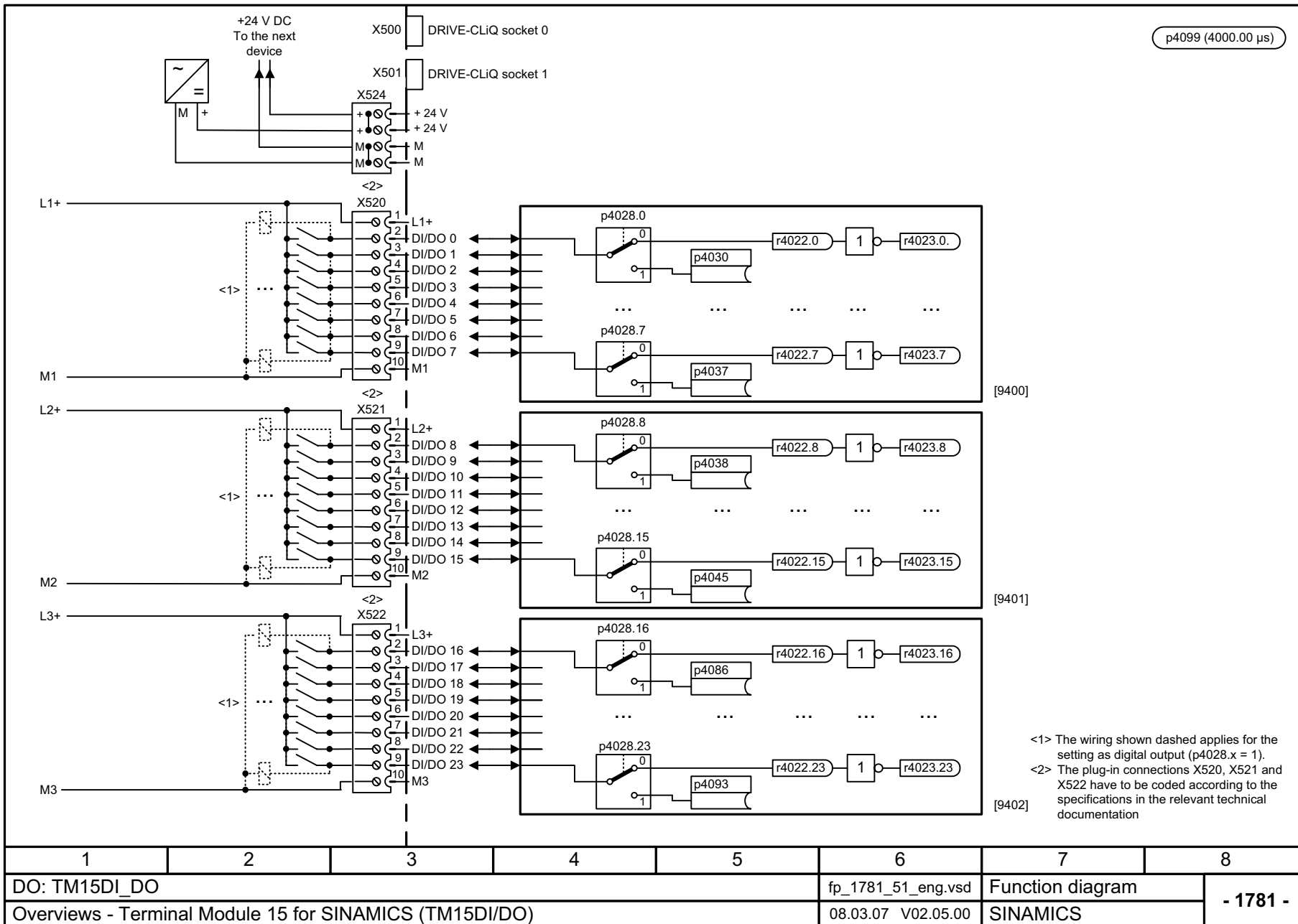




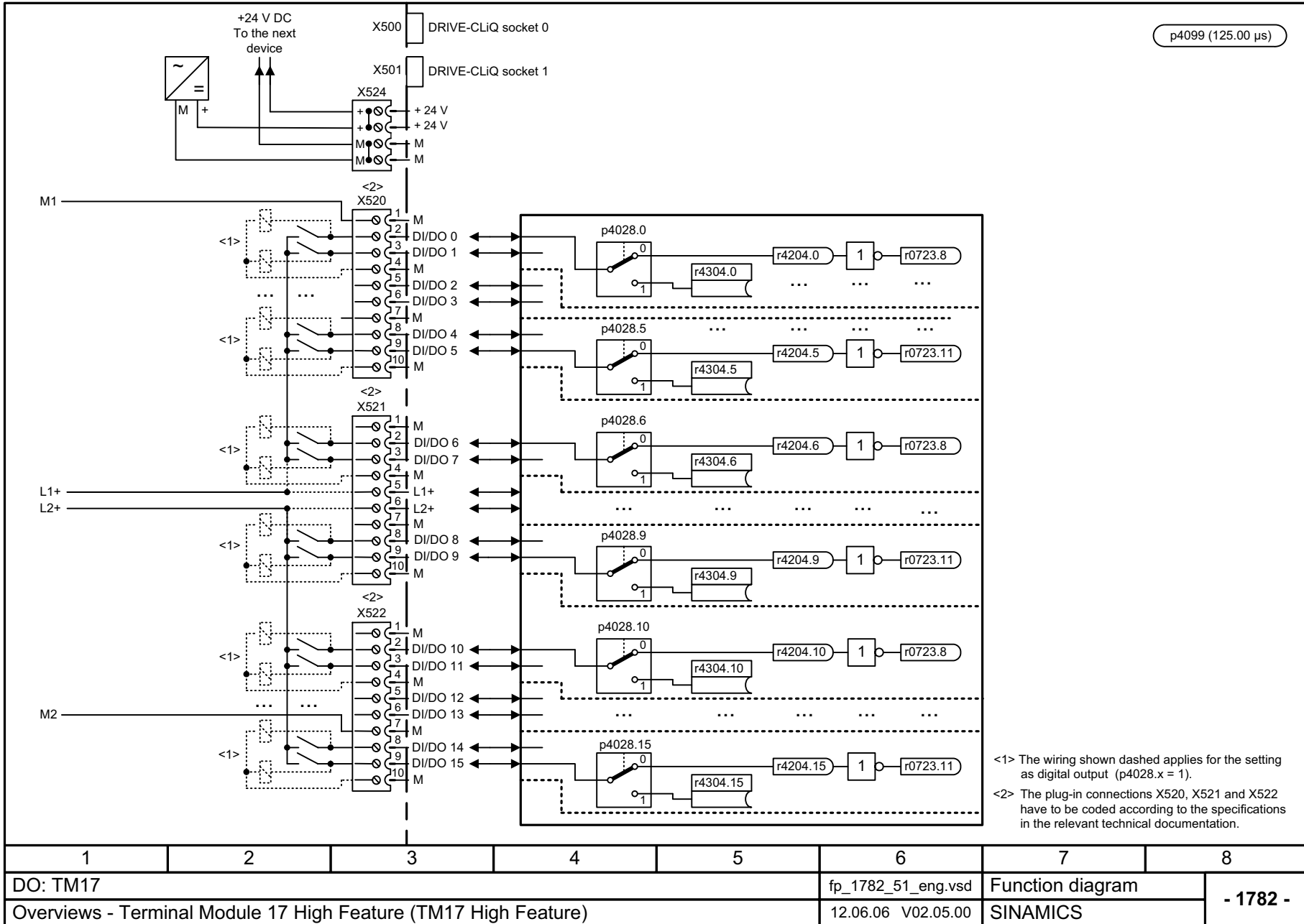
1	2	3	4	5	6	7	8
DO: S_INF					fp_1775_01_eng.vsd	Function diagram	
Overviews - Smart Infeed					26.07.06 V02.05.00	SINAMICS S	
							- 1775 -

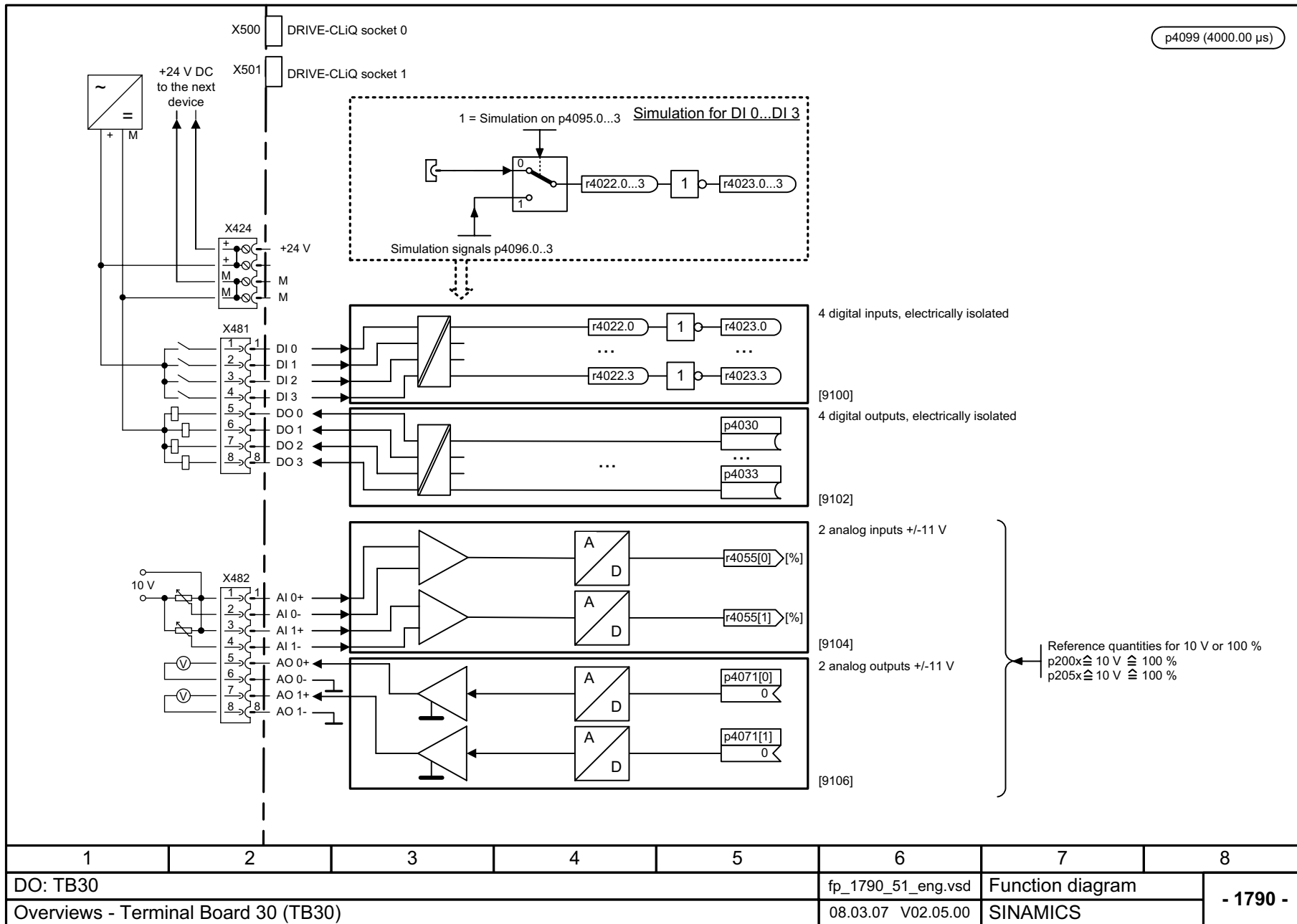
Figure 2-22 1775 – Smart Infeed

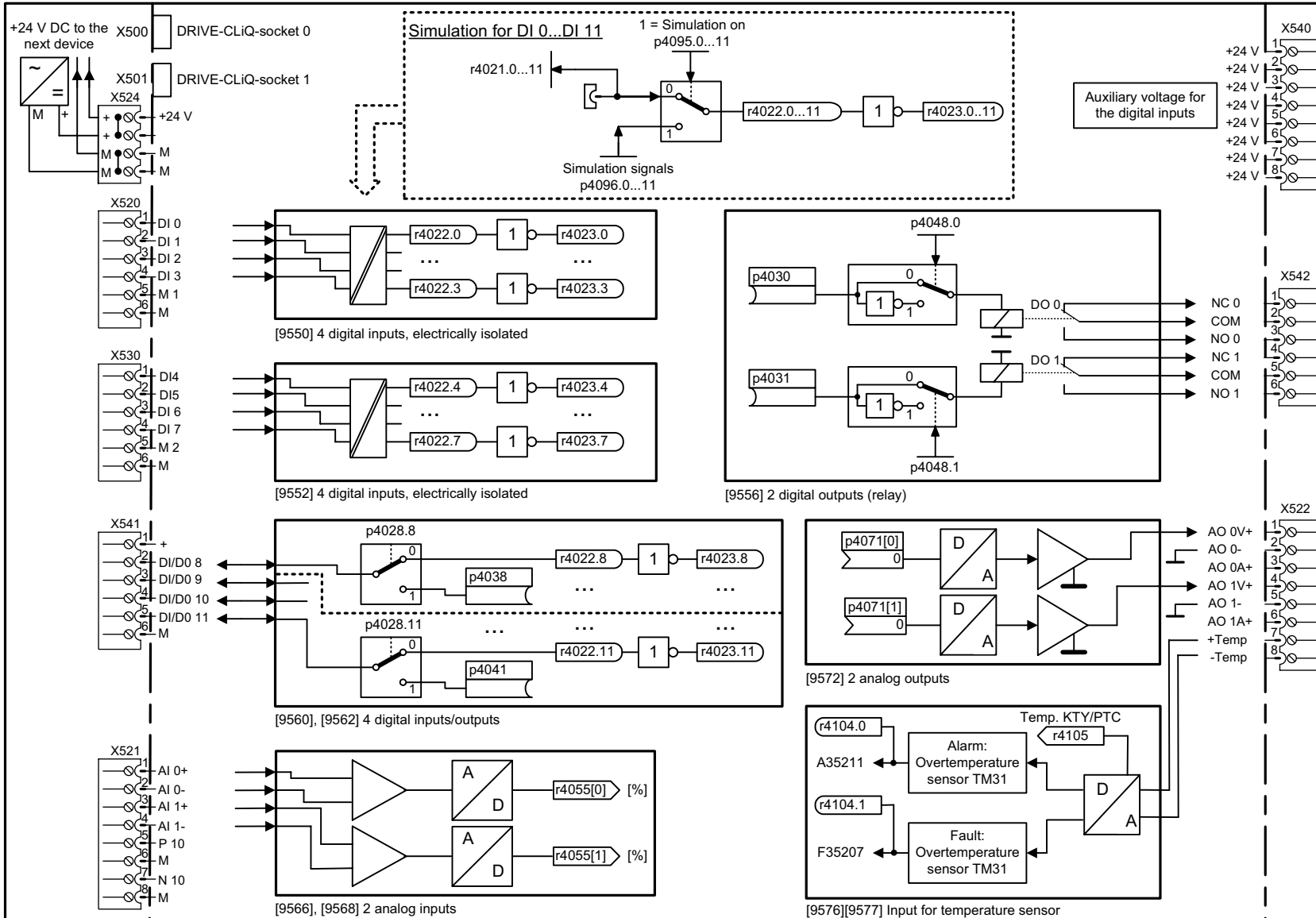




<1> The wiring shown dashed applies for the setting as digital output (p4028.x = 1).
<2> The plug-in connections X520, X521 and X522 have to be coded according to the specifications in the relevant technical documentation







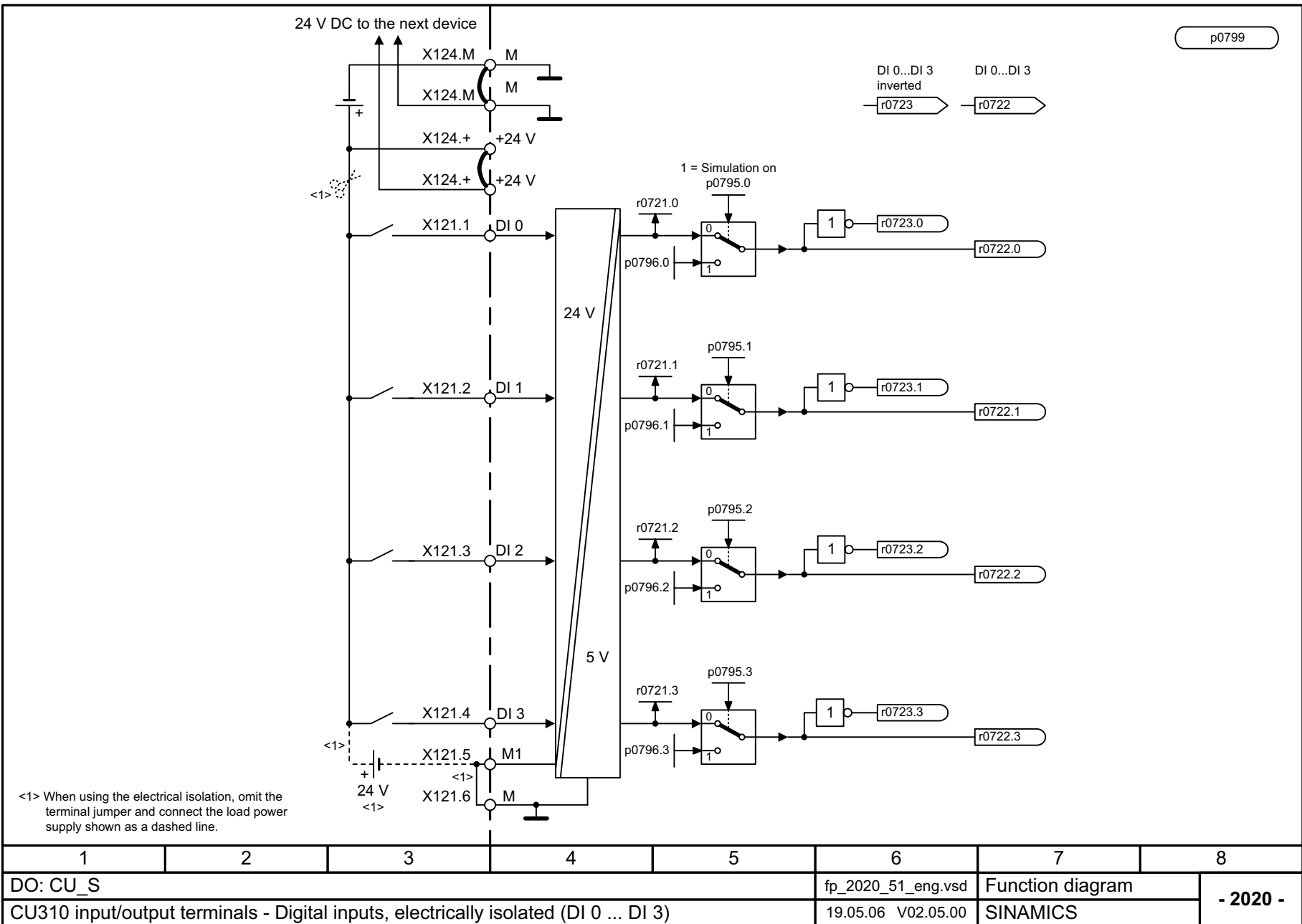
1	2	3	4	5	6	7	8
DO: TM31					fp_1840_51_eng.vsd	Function diagram	
Overviews - Terminal Module 31 (TM31)					15.03.07 V02.05.00	SINAMICS	
							- 1840 -

Figure 2-27 1840 – Terminal Module 31 (TM31)

2.4 CU310 input/output terminals

Function diagrams

2020 – Digital inputs, electrically isolated (DI 0 ... DI 3)	2-1131
2030 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)	2-1132
2131 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)	2-1138



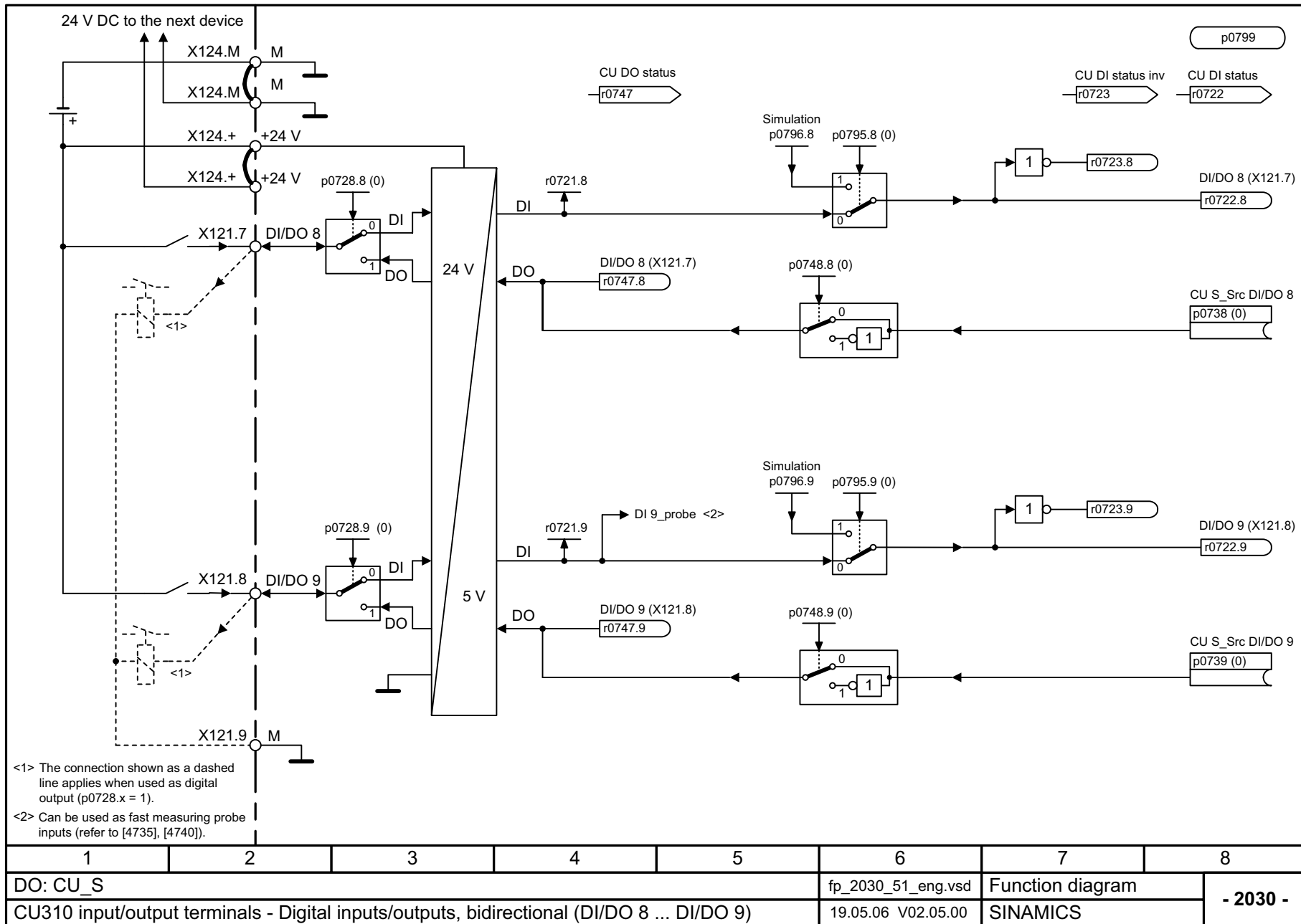


Figure 2-29 2030 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)

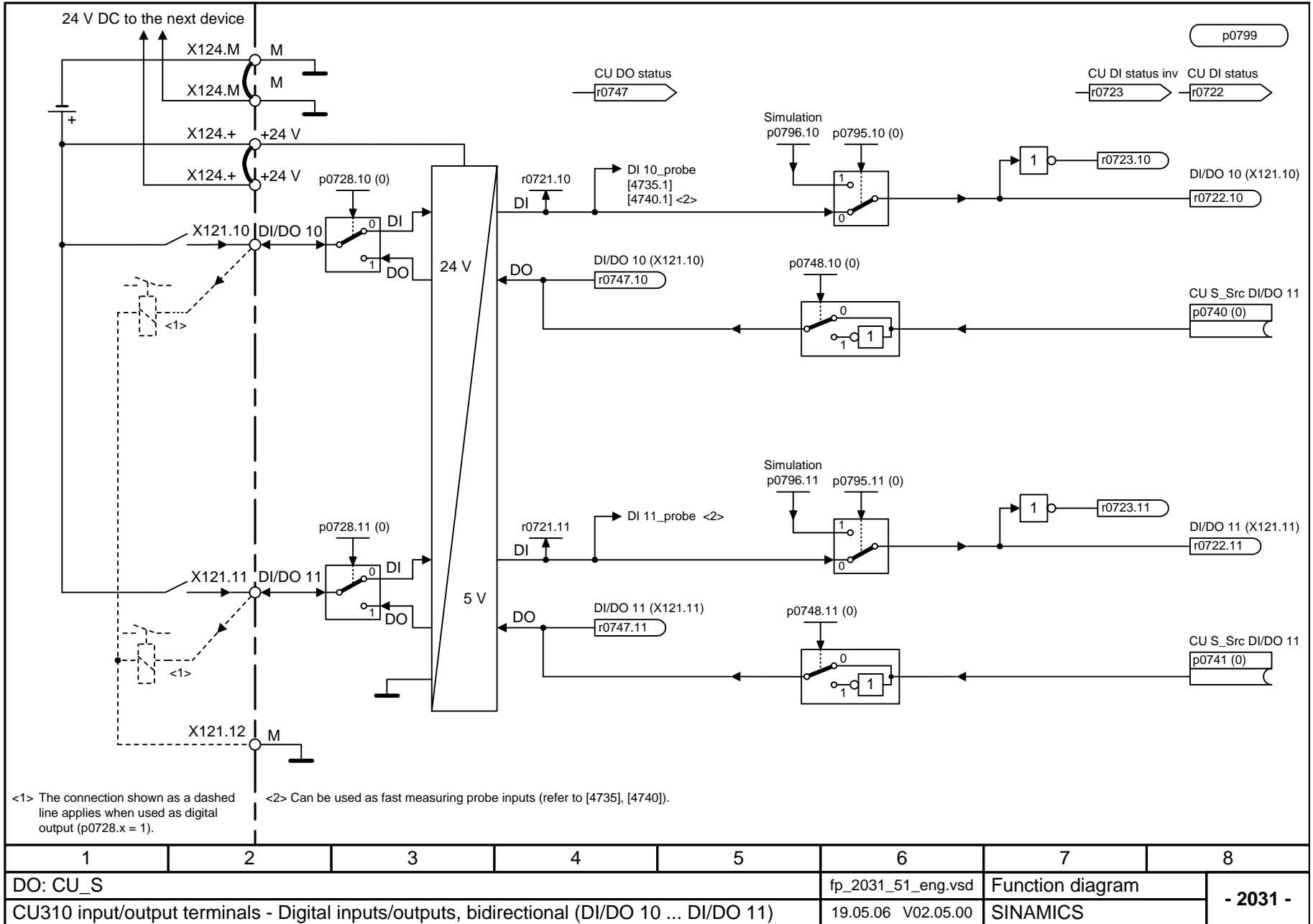


Figure 2-30 2031 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)

2.5 CU320 input/output terminals

Function diagrams

2120 – Digital inputs, electrically isolated (DI 0 ... DI 3)	2-1135
2121 – Digital inputs, electrically isolated (DI 4 ... DI 7)	2-1136
2130 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)	2-1137
2131 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)	2-1138
2132 – Digital inputs/outputs, bidirectional (DI/DO 12 ... DI/DO 13)	2-1139
2133 – Digital inputs/outputs, bidirectional (DI/DO 14 ... DI/DO 15)	2-1140

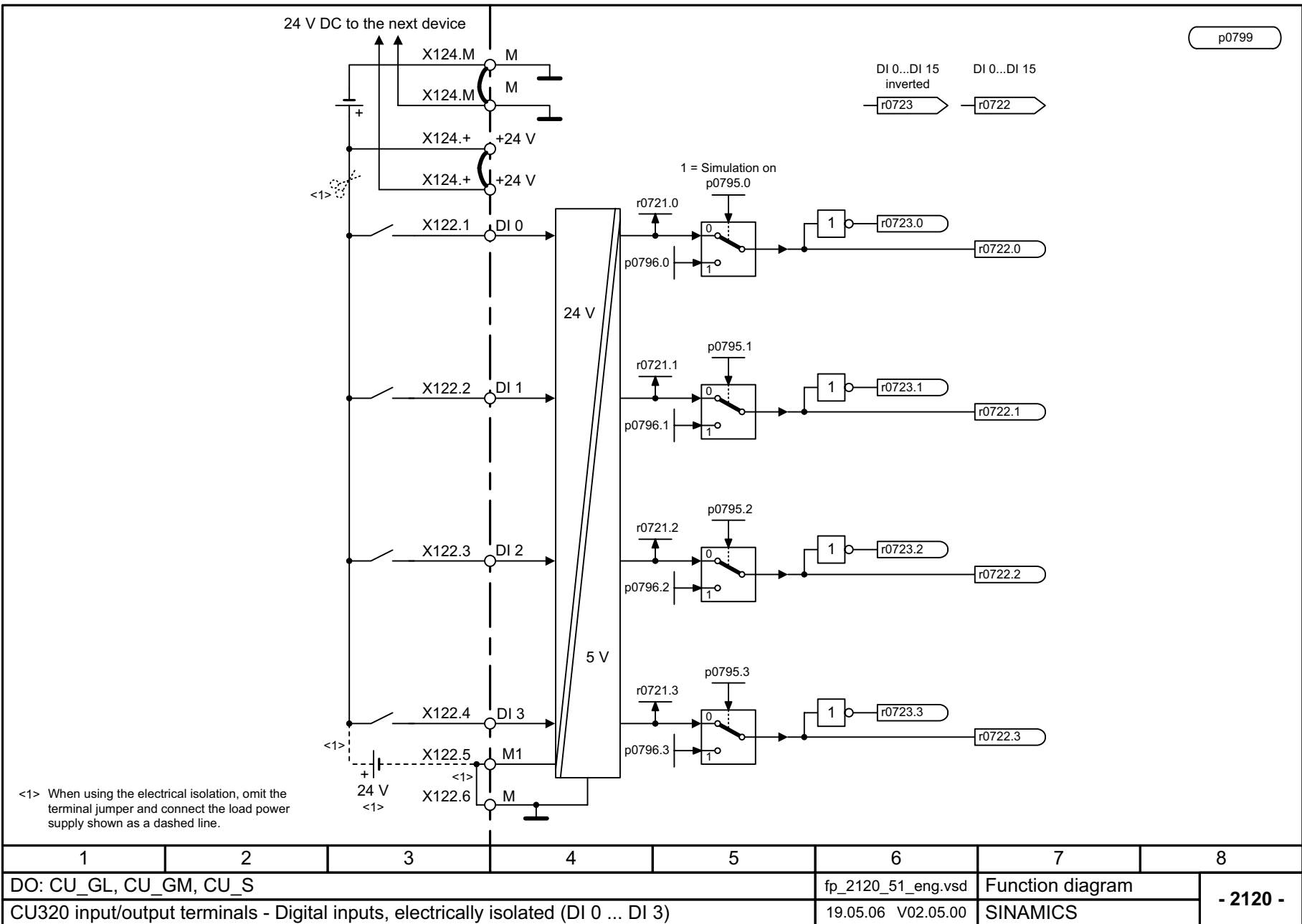


Figure 2-31 2120 – Digital inputs, electrically isolated (DI 0 ... DI 3)

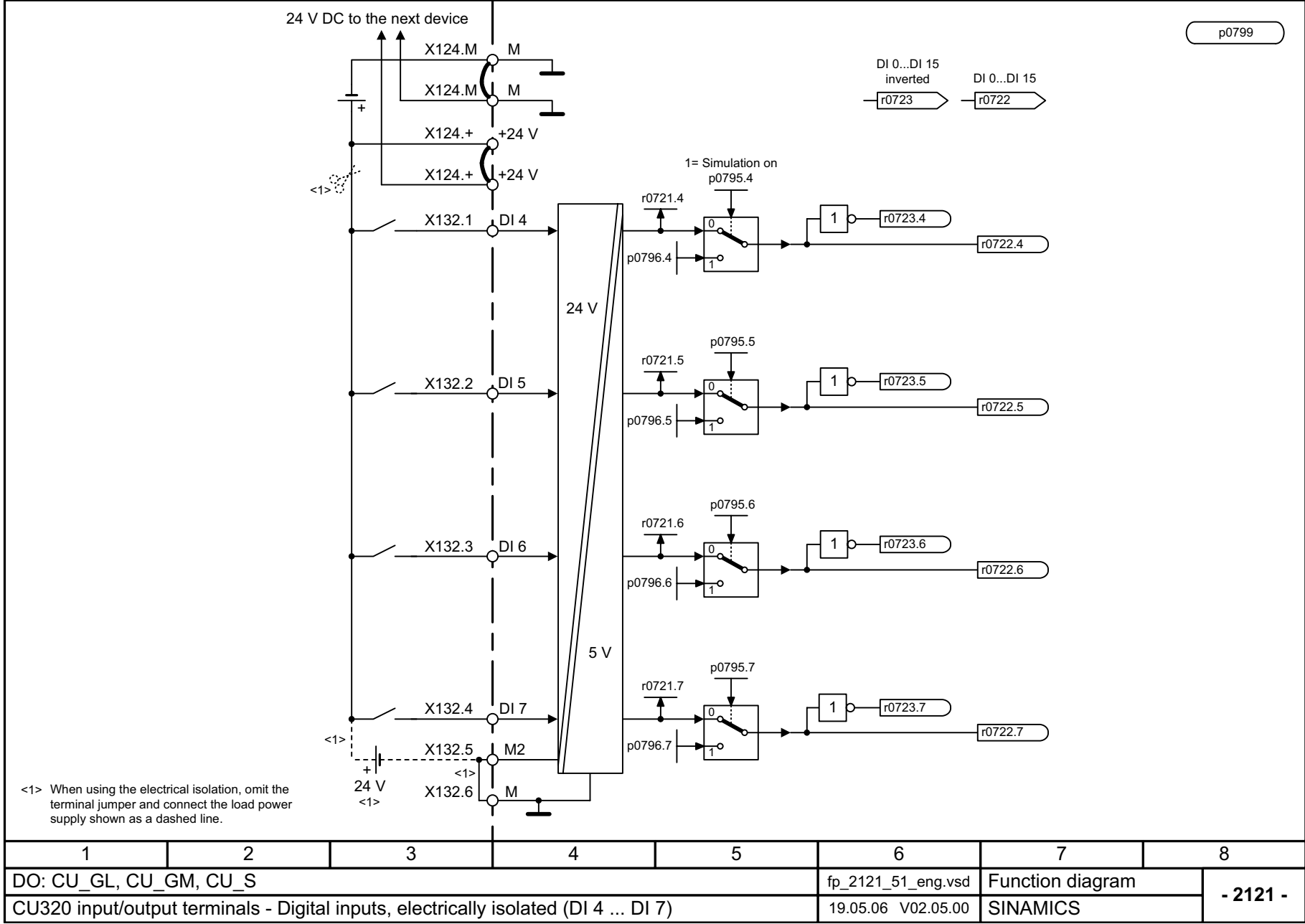


Figure 2-32 2121 – Digital inputs, electrically isolated (DI 4 ... DI 7)

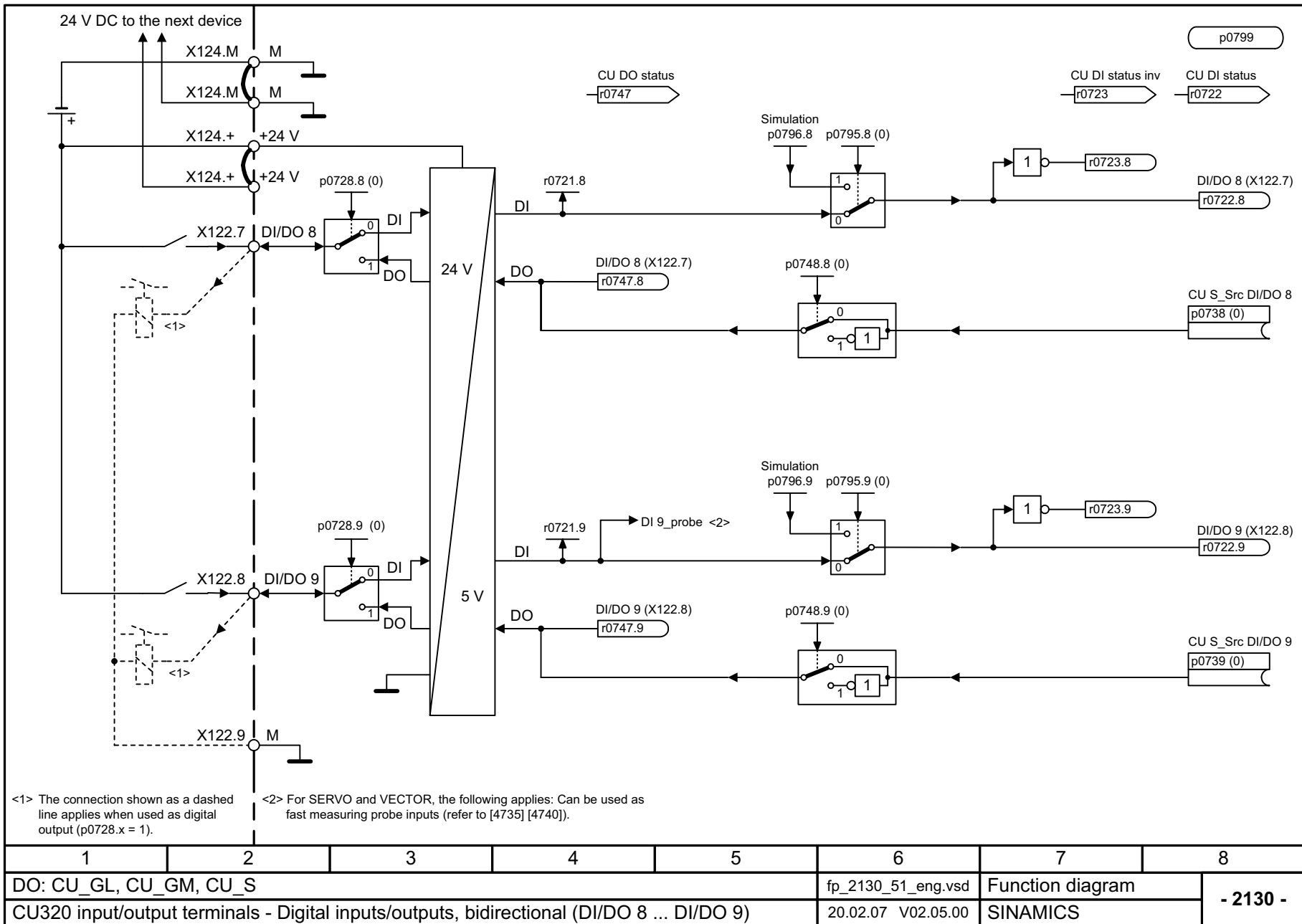


Figure 2-33 2130 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)

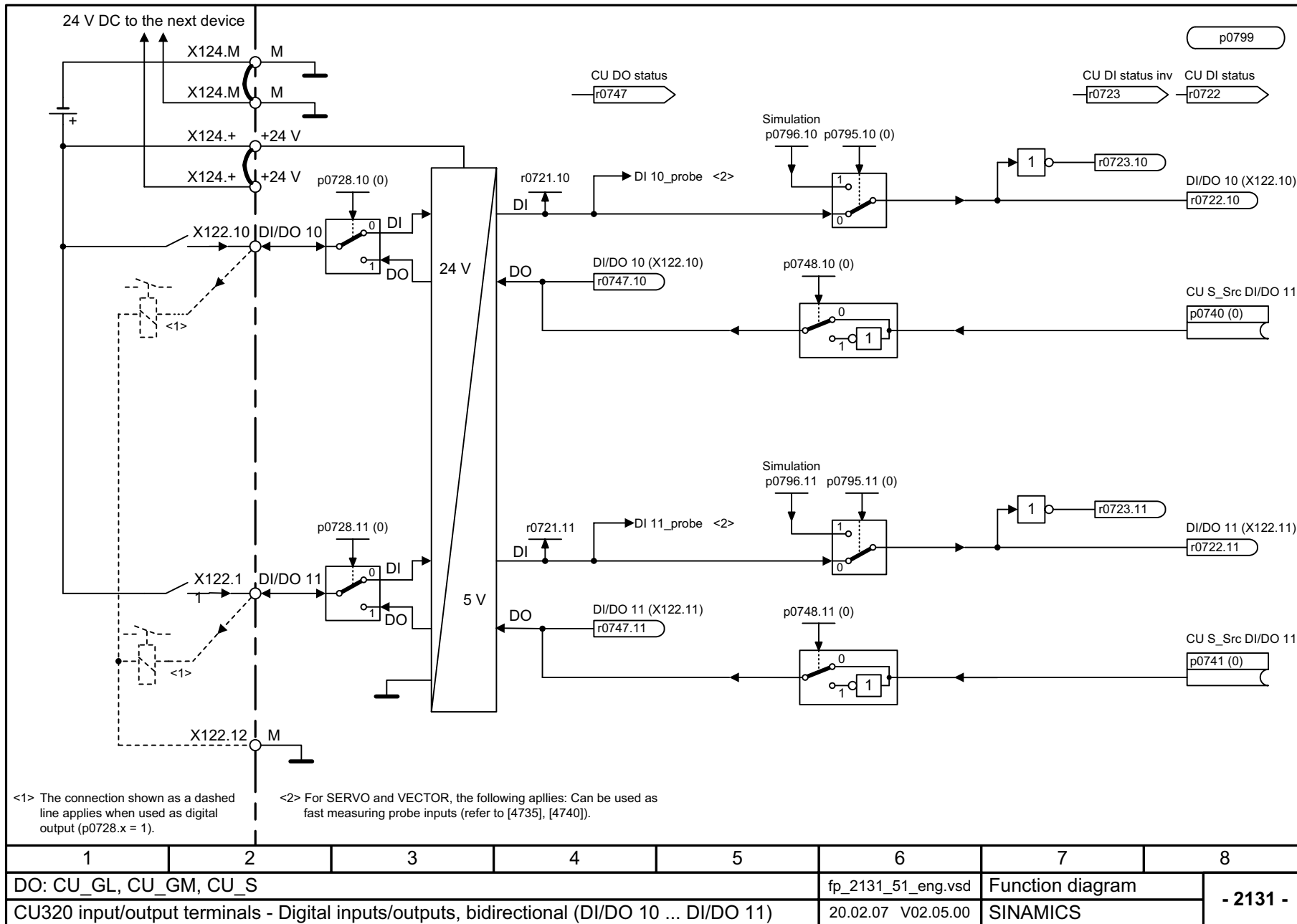


Figure 2-34 2131 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)

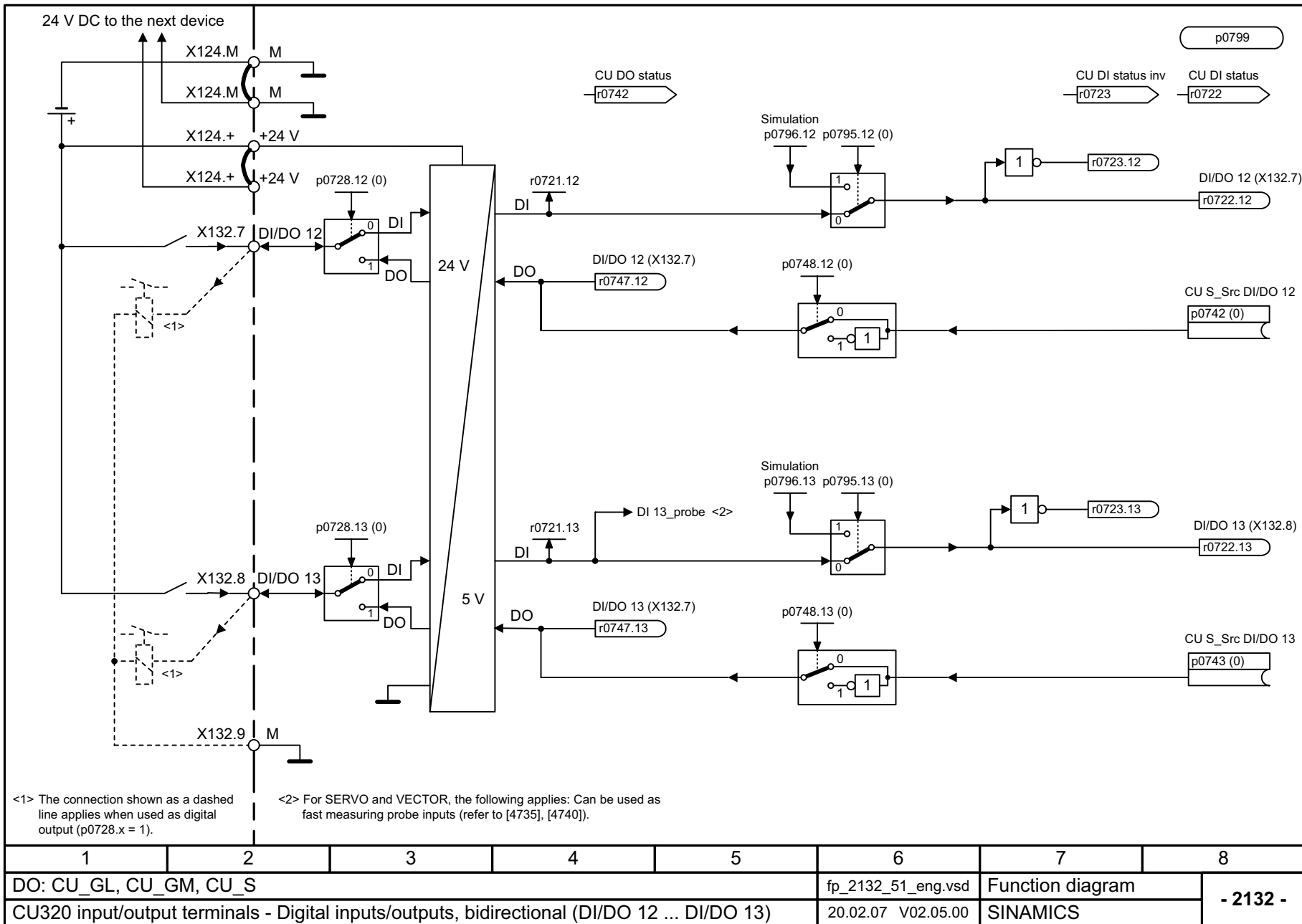


Figure 2-35 2132 – Digital inputs/outputs, bidirectional (DI/DO 12 ... DI/DO 13)

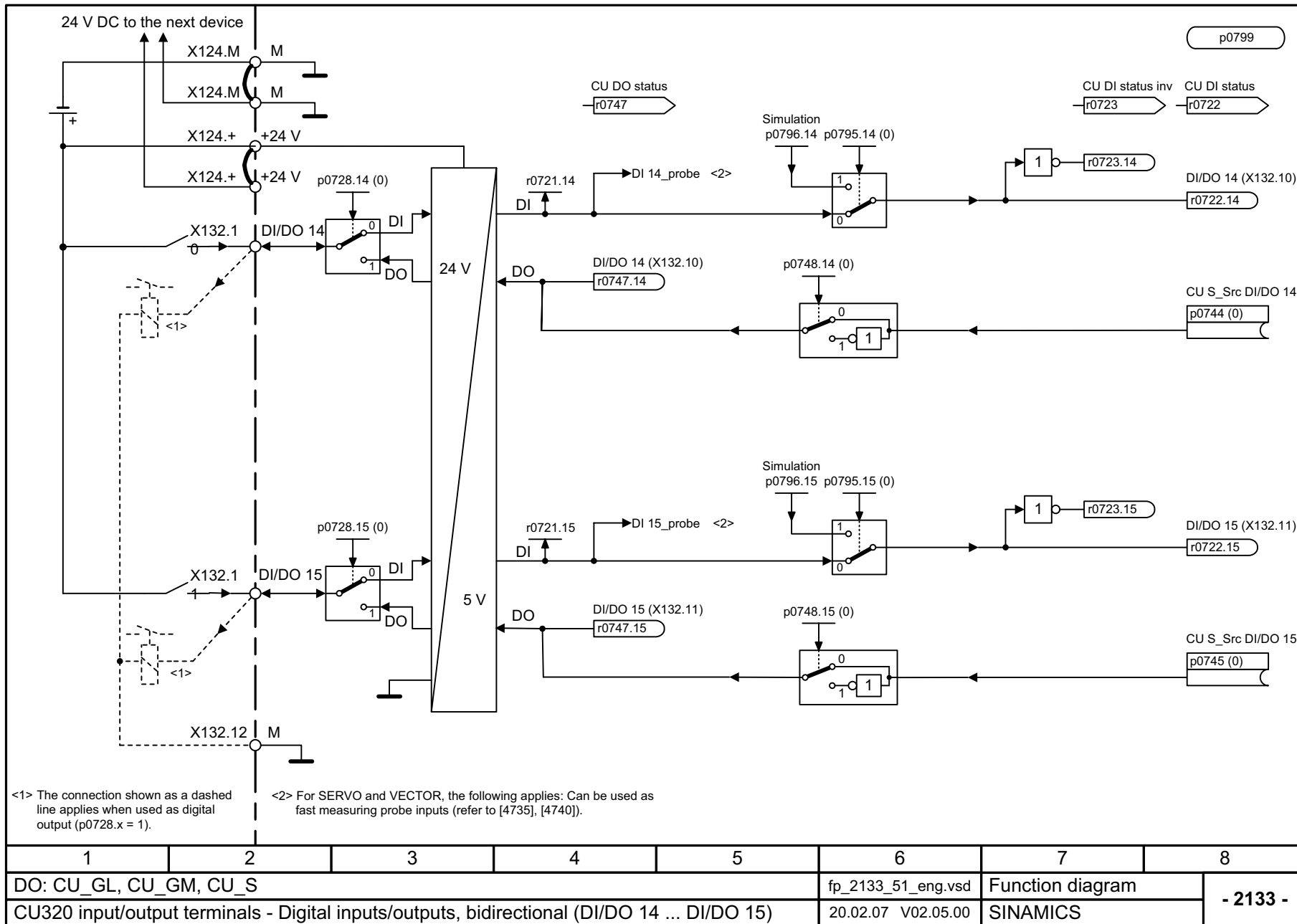


Figure 2-36 2133 – Digital inputs/outputs, bidirectional (DI/DO 14 ... DI/DO 15)

2.6 CU_LINK

Function diagrams

2211 – Data transfer

2-1142

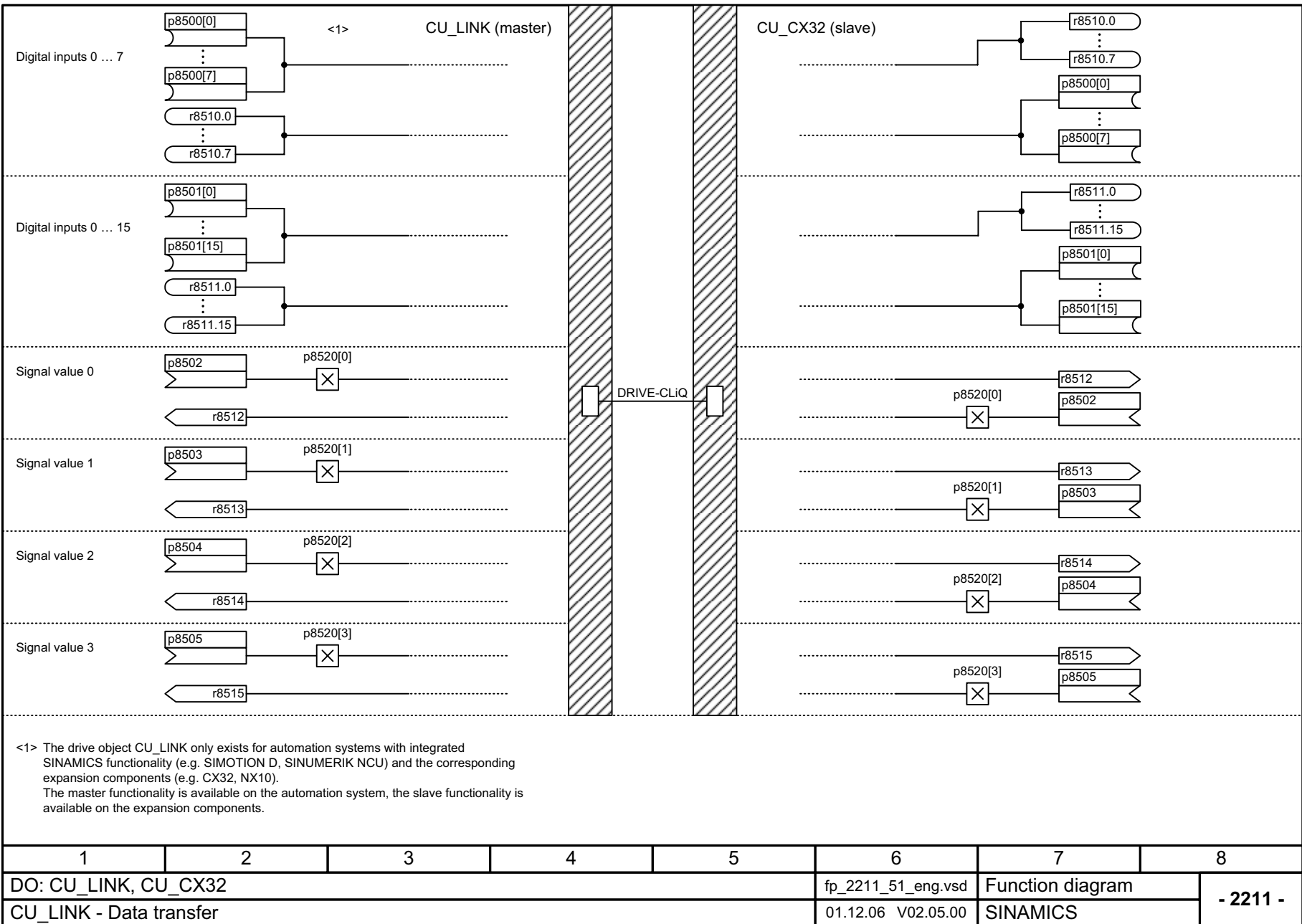


Figure 2-37 2211 – Data transfer

2.7 CX32 input/output terminals

Function diagrams

2220 – Digital inputs, electrically isolated (DI 0 ... DI 3)	2-1144
2230 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)	2-1145
2231 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)	2-1146

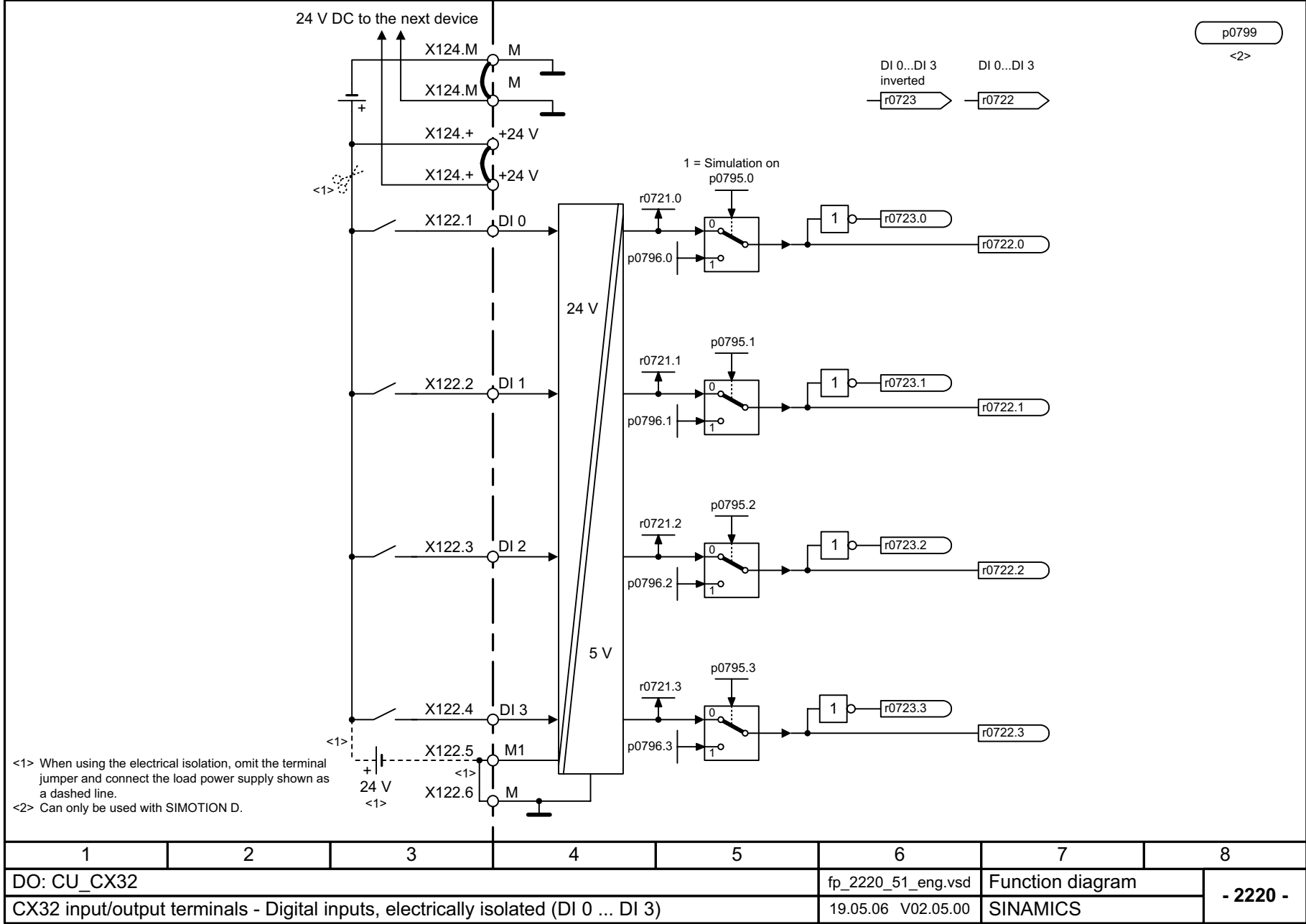


Figure 2-38 2220 – Digital inputs, electrically isolated (DI 0 ... DI 3)

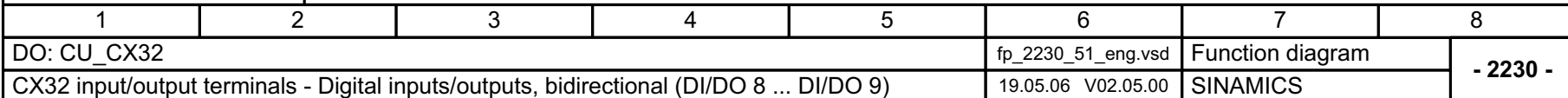
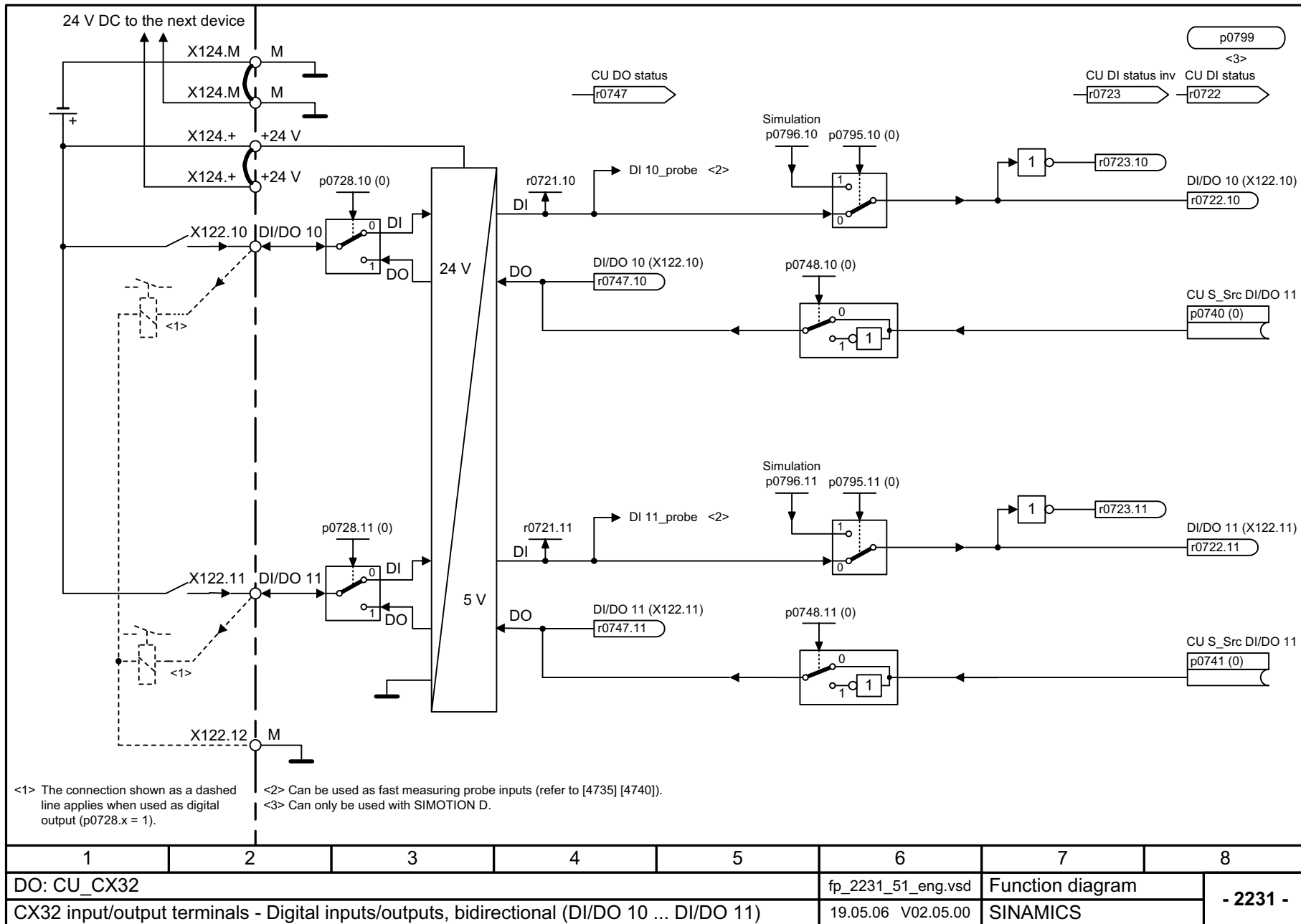


Figure 2-39



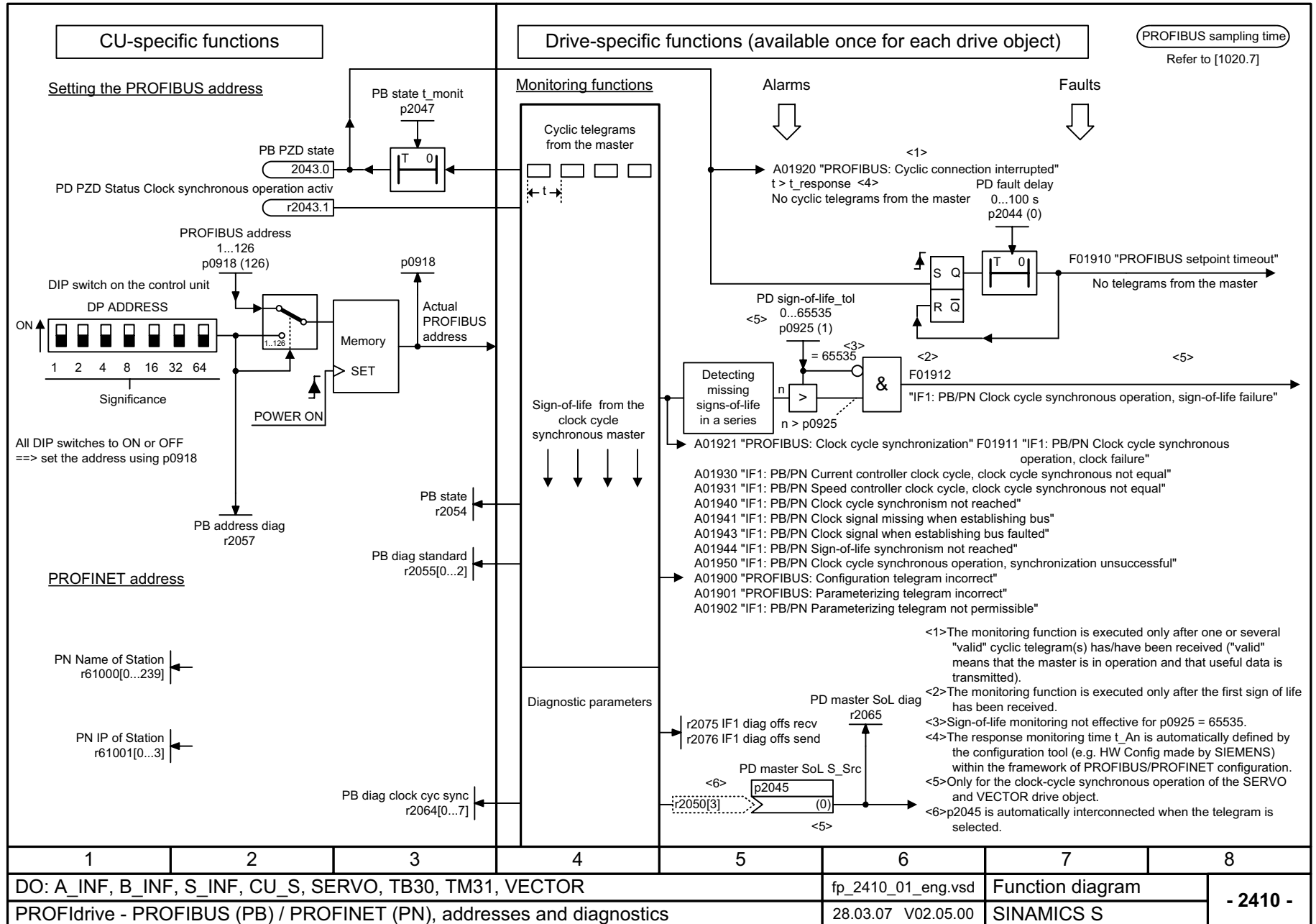
2.8 PROFIdrive

Function diagrams

2410 – PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics	2-1149
2420 – Standard telegrams and Process Data (PZD)	2-1150
2422 – Manufacturer-specific telegrams and Process Data (PZD)	2-1151
2423 – Manufacturer-specific/free telegrams and Process Data (PZD)	2-1152
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2441 – STW1 control word interconnection (p2038 = 2)	2-1154
2442 – STW1 control word interconnection (p2038 = 0)	2-1155
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2449 – A_DIGITAL interconnection	2-1161
2450 – PZD send signals interconnection	2-1162
2451 – ZSW1 status word interconnection (p2038 = 2)	2-1163
2452 – ZSW1 status word interconnection (p2038 = 0)	2-1164
2453 – ZSW1 status word interconnection (p2038 = 1)	2-1165
2454 – ZSW2 status word interconnection (p2038 = 0)	2-1166
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2457 – E_ZSW1 status word infeed interconnection	2-1169
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2460 – IF1 receive telegram, free interconnection via BICO (p0922 = 999)	2-1172
2470 – IF1 send telegram, free interconnection via BICO (p0922 = 999)	2-1173
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2475 – STW1 control word 1 interconnection (r0108.4 = 1)	2-1175

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2485 – IF2 receive telegram, free interconnection via BICO (p0922 = 999)	2-1182
2487 – IF2 send telegram, free interconnection via BICO (p0922 = 999)	2-1183
2489 – IF2 status words, free interconnection	2-1184
2491 – IF2 receive telegram, free interconnection via BICO (p0922 = 999)	2-1185
2493 – IF2 send telegram, free interconnection via BICO (p0922 = 999)	2-1186

Figure 2-41 2410 – PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics



PROFIdrive sampling time

Refer to [1020.7]

<1> <2> <4>
PD Telegram select
p0922 (999)

Interconnection is made according to	[2440] [2450] automatically														
Telegram	102		103		105		106		110		116		352		
Appl.- Class	1, 4		1, 4		4 DSC		4 DSC		3		4 DSC		1		
PZD 1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	
PZD 2									SATZANW	AKTSATZ			NSOLL_A	NIST_A_GLATT	
PZD 3	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	PosSTW	PosZSW	NSOLL_B	NIST_B	<3>	IAIST_GLATT	
PZD 4	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	<3>	MIST_GLATT	
PZD 5	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	Over	MELDW	MOMRED	MELDW	<3>	WARN_CODE	
PZD 6	G1_STW	G1_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW	MDIPos	XistP	G1_STW	G1_ZSW	<3>	FAULT_CODE	
PZD 7		G1_XIST1	G2_STW	G1_XIST1	XERR	G1_XIST1	G2_STW	G1_XIST1			G2_STW	G1_XIST1			
PZD 8															
PZD 9		G1_XIST2		G1_XIST2	KPC	G1_XIST2		G1_XIST2	MDIVel		XERR	G1_XIST2			
PZD 10							KPC	G2_ZSW	MDIAcc		KPC	G2_ZSW			
PZD 11				G2_ZSW					MDIDec						
PZD 12				G2_XIST1				G2_XIST1	MDIMode			G2_XIST1			
PZD 13															
PZD 14				G2_XIST2				G2_XIST2				G2_XIST2			
PZD 15															
PZD 16												AIST_GLATT			
PZD 17												MSOLL_GLATT			
PZD 18												PIST_GLATT			
PZD 19												ITIST_GLATT			
PZD 20															
PZD 21															
PZD 22															
PZD 23															
PZD 24															
PZD 25															
PZD 26															
PZD 27															
PZD 28															
PZD 29															
PZD 30															
PZD 31															
PZD 32															

<1> Depending on the drive object, only specific telegrams can be used.

<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2420] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2420] - [2423]!

<3> Can be freely connected.

<4> The maximum number of PZD words depends on the drive object type.

 = Position encoder signal

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2422_01_eng.vsd	Function diagram	
PROFIdrive - Manufacturer-specific telegrams and Process Data (PZD)					17.04.07 V02.05.00	SINAMICS S	
							- 2422 -

Figure 2-43 2422 – Manufacturer-specific telegrams and Process Data (PZD)

Figure 2-44 2423 – Manufacturer-specific/free telegrams and Process Data (PZD)

<div> <div><1> <2> <4></div> <div>PD Telegram select p0922 (999)</div> </div>									
<div> <div>PROFdrive sampling time</div> <div>Refer to [1020.7]</div> </div>									
Interconnection is made according to	[2440] [2450] automatically								[2481] [2483]
Telegram	370	390	391	392					999
Appl.- Class	-	-	-	-					-
PZD 1	E_STW1	E_ZSW1	CU_STW	CU_ZSW	CU_STW	CU_ZSW	CU_STW	CU_ZSW	STW1 <3> ZSW1 <3>
PZD 2			A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	
PZD 3					MT_STW	MT_ZSW	MT_STW	MT_ZSW	
PZD 4					MT1_ZS_F		MT1_ZS_F		
PZD 5					MT1_ZS_S		MT1_ZS_S		
PZD 6					MT2_ZS_F		MT2_ZS_F		
PZD 7					MT2_ZS_S		MT2_ZS_S		
PZD 8							MT3_ZS_F		
PZD 9							MT3_ZS_S		
PZD 10							MT4_ZS_F		
PZD 11							MT4_ZS_S		
PZD 12							MT5_ZS_F		
PZD 13							MT5_ZS_S		
PZD 14							MT6_ZS_F		
PZD 15							MT6_ZS_S		
PZD 16									
PZD 17									
PZD 18									
PZD 19									
PZD 20									
PZD 21									
PZD 22									
PZD 23									
PZD 24									
PZD 25									
PZD 26									
PZD 27									
PZD 28									
PZD 29									
PZD 30									
PZD 31									
PZD 32									

Receive telegram length freely selectable via central PROFdrive configuration in the master

Transmit telegram length freely selectable via central PROFdrive configuration in the master

<1> Depending on the drive object, only specific telegrams can be used.

<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2420] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2420] - [2423]!

<3> In order to comply with the PROFdrive profile, PZD1 must be used as control word 1 (STW1) or status word 1 (ZSW1).
p2037 = 2 should be set if STW1 is not transferred with PZD1 as specified in the PROFdrive profile.

<4> The maximum number of PZD words depends on the drive object type.

= Position encoder signal

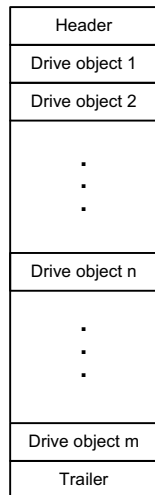
1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_S, S_INF,					fp_2423_01_eng.vsd	Function diagram	- 2423 -
PROFdrive - Manufacturer-specific/free telegrams and Process Data (PZD)					17.04.07 V02.05.00	SINAMICS S	

PROFIdrive sampling time

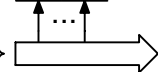
Refer to [1020.7]

Signal receivers for PZD receive signals

Signal	Meaning	PROFIdrive Signal No.	Interconnection parameter	Function diagram	Data type	Normalization
STW1	Control word 1 for telegram 1 ... 106, 110, 116	1	(bit serial)	[2442][2443] [2475]	U16	-
STW2	Control word 2 for telegram 2 ... 6, 8 ... 19, 21 ... 106, 110, 116	3	(bit serial)	[2444] [2445]	U16	-
NSOLL_A	Speed setpoint A (16-bit)	5	p1070	[3030.2]	I16	4000 hex $\hat{=}$ p2000
NSOLL_B	Speed setpoint B (32-bit)	7	p1155 p1430 (DSC)	[3080.4] [3090.8]	I32	4000 0000 hex $\hat{=}$ p2000
G1_STW	Encoder 1 control word	9	p0480[0]	[4720]	U16	
G2_STW	Encoder 2 control word	13	p0480[1]	[4720]	U16	
G3_STW	Encoder 3 control word	17	p0480[2]	[4720]	U16	
A_DIGITAL	Digital outputs	22	(bit serial)	[2449]	U16	
XERR	Position deviation	25	p1190	[3090.5]	I32	
KPC	Position controller gain factor	26	p1191	[3090.5]	I32	
MOMRED	Torque reduction	101	p1542	[5610.2]	I16	4000 hex $\hat{=}$ p2003
MT_STW	Measuring probe control word	130	p0682	-	U16	
SATZANW	Pos block selection	201	(bit serial)	[2476]	U16	
PosSTW	Pos control word	203	(bit serial)	[2477]	U16	
Over	Pos velocity override	205	p2646	[3630]	I16	4000 hex $\hat{=}$ 100%
MDIPos	Pos MDI position	221	p2642	[3618]	I32	1 hex $\hat{=}$ 1 LU
MDIVel	Pos MDI velocity	223	p2643	[3618]	I32	1 hex $\hat{=}$ 1000 LU/min
MDIAcc	Pos MDI acceleration override	225	p2644	[3618]	I16	4000 hex $\hat{=}$ 100%
MDIDec	Pos MDI deceleration override	227	p2645	[3618]	I16	4000 hex $\hat{=}$ 100%
MDIMode	Pos MDI mode	229	p2654	[3620]	U16	
E_STW1	INFEED control word	320	(bit serial)	[2447]	U16	
CU_STW	Control Unit control word	500	(bit serial)	[2448]	U16	

PROFIBUS
PROFINETPROFIdrive
receive telegram

<3>

r2090...r2095 bit
r2050[0...31] WORD
r2060[0...30] DWORDTelegram assignment
according to p0922
[2420]

<1> When selecting a standard telegram or a manufacturer-specific telegram via p0922, these interconnection parameters of the command data set CDS are automatically set to 0.

<2> Data type according to the PROFIdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.



<3> Display parameters for receive data according to [2460].

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_CX32, CU_S, S_INF, SERVO, VECTOR					fp_2440_01_eng.vsd	Function diagram	- 2440 -
PROFIdrive - PZD receive signals interconnection					03.05.07 V02.05.00	SINAMICS S	

Figure 2-45 2440 – PZD receive signals interconnection

PROFdrive sampling time
Refer to [1020.7]

Signal targets for STW1 in Interface Mode VIK-NAMUR (p2038 = 2)

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	 = ON (pulses can be enabled) 0 = OFF1 (braking with ramp-function generator, then pulse cancellation & ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	[2610]	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	[2610]	-
STW1.2	1 = No OFF3 (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	[2610]	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-
STW1.4	1 = Operating condition (the ramp-function generator can be enabled) 0 = Inhibit ramp-function generator (set the ramp-function generator output to zero)	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-
STW1.5	1 = Enable the ramp-function generator 0 = Stop the ramp-function generator (freeze the ramp-function generator output)	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-
STW1.6	1 = Enable setpoint 0 = Inhibit setpoint (set the ramp-function generator input to zero)	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-
STW1.7	 = Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	Reserved	-	-	-	-
STW1.9	Reserved	-	-	-	-
STW1.10	1 = Control via PLC <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	1 = Dir of rot reversal	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	Reserved	-	-	-	-
STW1.13	Reserved	-	-	-	-
STW1.14	Reserved	-	-	-	-
STW1.15	1 = CDS selection	p0810[0] = 2090.15	-	[8565]	-

<1> Used in telegram 20.

<2> Bit 10 must be set in the first PZD word of the telegram received from PROFIBUS in order to ensure that the drive accepts the process data.



1	2	3	4	5	6	7	8
DO: VECTOR					fp_2441_01_eng.vsd	Function diagram	- 2441 -
PROFdrive - STW1 control word interconnection (p2038 = 2)					12.01.07 V02.05.00	SINAMICS S	

Figure 2-46 2441 – STW1 control word interconnection (p2038 = 2)

PROFIdrive sampling time

Refer to [1020.7]

Signal targets for STW1 in Interface Mode SINAMICS (p2038 = 0)

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	 ON (pulses can be enabled) 0 = OFF1 (braking with ramp-function generator, then pulse cancellation and ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	[2610]	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	[2610]	-
STW1.2	1 = No OFF3 (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	[2610]	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-
STW1.4	1 = Operating condition (the ramp-function generator can be enabled) 0 = inhibit ramp-function generator (set the ramp-function generator output to zero)	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-
STW1.5	1 = Enable the ramp-function generator 0 = stop the ramp-function generator (freeze the ramp-function generator output)	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-
STW1.6	1 = Enable setpoint 0 = inhibit setpoint (set the ramp-function generator input to zero)	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-
STW1.7	 = Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	Reserved	-	-	-	-
STW1.9	Reserved	-	-	-	-
STW1.10	1 = Control via PLC <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	1 = Dir of rot reversal <3>	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	Reserved	-	-	-	-
STW1.13	1 = Motorized potentiometer, setpoint, raise <3>	p1035[0] = r2090.13	[2505.3]	[3020]	-
STW1.14	1 = Motorized potentiometer, setpoint, lower <3>	p1036[0] = r2090.14	[2505.3]	[3020]	-
STW1.15	Reserved	-	-	-	-

<1> Used in telegrams 1, 2, 3, 4, 5, 6, 7, 110, 352.



<2> Bit 10 must be set in the first PZD word of the telegram received from PROFIBUS in order to ensure that the drive accepts the process data.

<3> Only for "expanded setpoint channel" and "extended ramp-function generator"

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2442_01_eng.vsd	Function diagram	- 2442 -
PROFIdrive - STW1 control word interconnection (p2038 = 0)					14.07.06 V02.05.00	SINAMICS S	

Figure 2-47 2442 – STW1 control word interconnection (p2038 = 0)

PROFdrive sampling time
Refer to [1020.7]

Signal targets for STW1 in Interface Mode SIMODRIVE 611 universal (p2038 = 1)					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	 = ON (pulses can be enabled) 0 = OFF1 (braking with ramp-function generator, then pulse cancellation, ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	[2610]	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	[2610]	-
STW1.2	1 = No OFF3 (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	[2610]	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-
STW1.4	1 = Operating condition (the ramp-function generator can be enabled) 0 = Inhibit ramp-function generator (set the ramp-function generator output to zero)	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-
STW1.5	1 = Enable the ramp-function generator 0 = Stop the ramp-function generator (freeze the ramp-function generator output)	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-
STW1.6	1 = Enable setpoint 0 = Inhibit setpoint (set the ramp-function generator input to zero)	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-
STW1.7	 = Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	Reserved	-	-	-	-
STW1.9	Reserved	-	-	-	-
STW1.10	1 = Control via PLC <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	1 = Ramp-function generator active	p2148[0] = r2090.11	-	[8010]	-
STW1.12	1 = Unconditionally open the holding brake	p0855[0] = r2090.12	[2501.3]	[2701]	-
STW1.13	Reserved	-	-	-	-
STW1.14	1 = Closed-loop torque control active 0 = Closed-loop speed control active	p1501[0] = r2090.14	[2520.3]	[5060] [6060]	-
STW1.15	Reserved	-	-	-	-

<1> Used in telegrams 1, 2, 3, 4, 5, 6, 102, 103, 105, 106, 116, 352.

<2> Bit 10 must be set in the first PZD word of the telegram received from PROFIBUS in order to ensure that the drive accepts the process data.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2443_01_eng.vsd	Function diagram	- 2443 -
PROFdrive - STW1 control word interconnection (p2038 = 1)					14.07.06 V02.05.00	SINAMICS S	

Figure 2-48 2443 – STW1 control word interconnection (p2038 = 1)

PROFdrive sampling time
Refer to [1020.7]


Signal targets for STW2 in Interface Mode SINAMICS (p2038 = 0)					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW2.0	Drive data set selection DDS, bit 0	p0820[0] = r2093.0	-	[8565]	-
STW2.1	Drive data set selection DDS, bit 1	p0821[0] = r2093.1	-	[8565]	-
STW2.2	Drive data set selection DDS, bit 2	p0822[0] = r2093.2	-	[8565]	-
STW2.3	Drive data set selection DDS, bit 3	p0823[0] = r2093.3	-	[8565]	-
STW2.4	Drive data set selection DDS, bit 4	p0824[0] = r2093.4	-	[8565]	-
STW2.5	Reserved	-	-	-	-
STW2.6	Reserved	-	-	-	-
STW2.7	1 = Parking axis	p0897 = r2093.7	-	-	-
STW2.8	1 = Traverse to fixed endstop <2>	p1545[0] = r2093.8	[2520.2]	[8012]	-
STW2.9	Reserved	-	-	-	-
STW2.10	Reserved	-	-	-	-
STW2.11	1 = Motor changeover, feedback Signal	p0828 = r2093.11	-	-	-
STW2.12	Master sign-of-life, bit 0	p2045 = r2050[3]	-	[2410]	-
STW2.13	Master sign-of-life, bit 1	p2045 = r2050[3]	-	[2410]	-
STW2.14	Master sign-of-life, bit 2	p2045 = r2050[3]	-	[2410]	-
STW2.15	Master sign-of-life, bit 3	p2045 = r2050[3]	-	[2410]	-

<1> Used in telegrams 2, 3, 4, 5, 6, 7, 9 and 110. <2> Not for telegrams 9 and 110.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2444_01_eng.vsd	Function diagram	- 2444 -
PROFdrive - STW2 control word interconnection (p2038 = 0)					08.05.07 V02.05.00	SINAMICS S	

Figure 2-49 2444 – STW2 control word interconnection (p2038 = 0)

PROFdrive sampling time
Refer to [1020.7]

Signal targets for STW2 in Interface Mode SIMODRIVE 611 universal (p2038 = 1)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
STW2.0	Drive data set selection DDS, bit 0	p0820[0] = r2093.0	-	[8565]	-	
STW2.1	Drive data set selection DDS, bit 1	p0821[0] = r2093.1	-	[8565]	-	
STW2.2	Drive data set selection DDS, bit 2	p0822[0] = r2093.2	-	[8565]	-	
STW2.3	Reserved	-	-	-	-	
STW2.4	1 = Bypass ramp-function generator <3>	p1122[0] = r2093.4	-	[3060] [3070]	-	
STW2.5	Reserved	-	-	-	-	
STW2.6	1 = Integrator inhibit, speed controller <2>	p1477[0] = r2093.6	-	[5040] [5210]	-	
STW2.7	1 = Parking axis selection	p0897 = r2093.7	-	-	-	
STW2.8	1 = Traverse to fixed endstop	p1545[0] = r2093.8	[2520.2]	[8012]	-	
STW2.9	Drive data set selection DDS, bit 3	p0823[0] = r2093.9	-	[8565]	-	
STW2.10	Drive data set selection DDS, bit 4	p0824[0] = r2093.10	-	[8565]	-	
STW2.11	 Motor changeover, feedback signal	p0828 = r2093.11	-	-	-	
STW2.12	Master sign-of-life, bit 0	p2045 = r2050[3]	-	[2410]	-	
STW2.13	Master sign-of-life, bit 1	p2045 = r2050[3]	-	[2410]	-	
STW2.14	Master sign-of-life, bit 2	p2045 = r2050[3]	-	[2410]	-	
STW2.15	Master sign-of-life, bit 3	p2045 = r2050[3]	-	[2410]	-	

<1> Used in telegrams 2, 3, 4, 5, 6, 102, 103, 105, 106, 116.

<2> For a 1 signal, the integral component of the speed controller is cleared and the integrator is inhibited.

<3> Only if the function module "extended setpoint channel" is active (r0108.8 = 1).

1	2	3	4	5	6	7	8
DO: SERVO					fp_2445_01_eng.vsd	Function diagram	- 2445 -
PROFdrive - STW2 control word interconnection (p2038 = 1)					14.07.06 V02.05.00	SINAMICS S	

Figure 2-50 2445 – STW2 control word interconnection (p2038 = 1)

PROFIdrive sampling time

Refer to [1020.7]

Signal targets for E_STW1									
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word			[Function diagram] signal target			Inverted
			A_INF	B_INF	S_INF	A_INF	B_INF	S_INF	
STW1.0	ON (close pre-charging/line contactor, pulses can be enabled) 0 = OFF1 (reduce Vdc along a ramp, pulse cancel and open pre-charging/line contactor)	p0840[0] = r2090.0	[8920.3]	[8720.3]	[8820.3]	[8932]	[8732]	[8832]	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[8920.3]	[8720.3]	[8820.3]	[8932]	[8732]	[8832]	-
STW1.2	Reserved		-	-	-	-	-	-	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	<3> p0852[0] = r2090.3	[8920.3]	-	[8820.3]	[8932]	-	[8832]	-
STW1.4	Reserved	-	-	-	-	-	-	-	-
STW1.5	1 = Inhibit motoring operation	<4> p3532= r2090.5	[8920.3]	-	-	[8920]	-	-	-
STW1.6	1 = Inhibit regenerative operation	<3> p3533= r2090.6	[8920.3]	-	[8820.3]	[8920]	-	[8820]	-
STW1.7	Acknowledge faults	p2103[0] = r2090.7	[2546.3]			[8060]			-
STW1.8	Reserved	-	-	-	-	-	-	-	-
STW1.9	Reserved	-	-	-	-	-	-	-	-
STW1.10	1 = Control via PLC	<2> p0854[0] = r2090.10	[8920.3]	[8720.3]	[8820.3]	[8920]	[8720]	[8820]	-
STW1.11	Reserved	-	-	-	-	-	-	-	-
STW1.12	Reserved	-	-	-	-	-	-	-	-
STW1.13	Reserved	-	-	-	-	-	-	-	-
STW1.14	Reserved	-	-	-	-	-	-	-	-
STW1.15	Reserved	-	-	-	-	-	-	-	-

<1> Used in telegram 370.

<2> Bit 10 must be set in the first PZD word of the telegram received from PROFIdrive in order to ensure that the drive object accepts the process data.

<3> Only for A_INF, S_INF

<4> Only for A_INF

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, S_INF					fp_2447_01_eng.vsd	Function diagram	- 2447 -
PROFIdrive - E_STW1 control word infeed interconnection					14.07.06 V02.05.00	SINAMICS S	

Figure 2-51 2447 – E_STW1 control word infeed interconnection

PROFdrive sampling time

Refer to [1020.7]

Signal targets for CU_STW

<1>					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
CU_STW.0	Synchronization	p0681[0] = r2090.0	-	-	-
CU_STW.1	RTC PING	p3104 = r2090.1	-	-	-
CU_STW.2	Reserved	-	-	-	-
CU_STW.3	Reserved	-	-	-	-
CU_STW.4	Reserved	-	-	-	-
CU_STW.5	Reserved	-	-	-	-
CU_STW.6	Reserved	-	-	-	-
CU_STW.7	Acknowledge faults	p2103[0] = r2090.7	-	-	-
CU_STW.8	Reserved	-	-	-	-
CU_STW.9	Reserved	-	-	-	-
CU_STW.10	Reserved	-	-	-	-
CU_STW.11	Reserved	-	-	-	-
CU_STW.12	Master sign-of-life bit 0	p2045[0] = r2050[0]	-	-	-
CU_STW.13	Master sign-of-life bit 1	p2045[0] = r2050[0]	-	-	-
CU_STW.14	Master sign-of-life bit 2	p2045[0] = r2050[0]	-	-	-
CU_STW.15	Master sign-of-life bit 3	p2045[0] = r2050[0]	-	-	-

<1> Used in telegrams 390, 391 and 392.

1	2	3	4	5	6	7	8
DO: CU_S					fp_2448_01_eng.vsd	Function diagram	- 2448 -
PROFdrive - CU_STW control word Control Unit interconnection					22.02.07 V02.05.00	SINAMICS S	

Figure 2-52 2448 – CU_STW control word Control Unit interconnection

PROFIdrive sampling time

Refer to [1020.7]

Signal targets for A_DIGITAL

Signal	Meaning	Interconnection parameters <3>	[Function diagram] internal status word	[Function diagram] signal target	Inverted
A_DIGITAL.0	Digital output 8 (DI/DO 8) <2>	p0738[0] = r2091[0]	-	-	-
A_DIGITAL.1	Digital output 9 (DI/DO 9) <2>	p0739[0] = r2091[1]	-	-	-
A_DIGITAL.2	Digital output 10 (DI/DO 10) <2>	p0740[0] = r2091[2]	-	-	-
A_DIGITAL.3	Digital output 11 (DI/DO 11) <2>	p0741[0] = r2091[3]	-	-	-
A_DIGITAL.4	Digital output 12 (DI/DO 12) <2>	p0742[0] = r2091[4]	-	-	-
A_DIGITAL.5	Digital output 13 (DI/DO 13) <2>	p0743[0] = r2091[5]	-	-	-
A_DIGITAL.6	Digital output 14 (DI/DO 14) <2>	p0744[0] = r2091[6]	-	-	-
A_DIGITAL.7	Digital output 15 (DI/DO 15) <2>	p0745[0] = r2091[7]	-	-	-
A_DIGITAL.8	Reserved	-	-	-	-
A_DIGITAL.9	Reserved	-	-	-	-
A_DIGITAL.10	Reserved	-	-	-	-
A_DIGITAL.11	Reserved	-	-	-	-
A_DIGITAL.12	Reserved	-	-	-	-
A_DIGITAL.13	Reserved	-	-	-	-
A_DIGITAL.14	Reserved	-	-	-	-
A_DIGITAL.15	Reserved	-	-	-	-

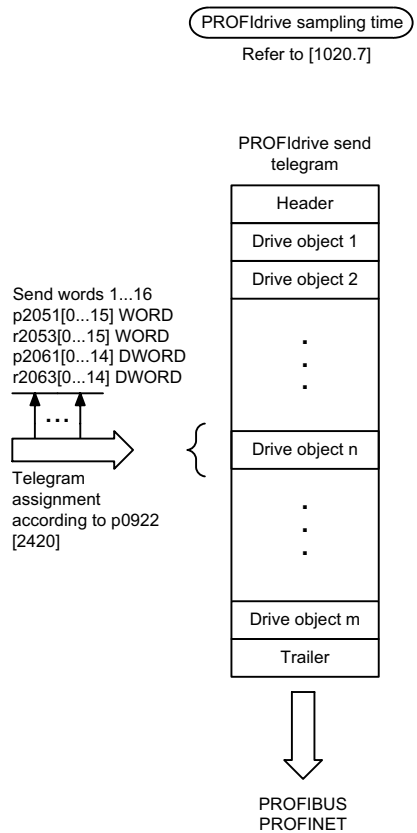
<1> Used in telegrams 390, 391 and 392.

<2> Can be set via p0728 as input (DI) or output (DO).

<3> Pre-assignment, can be freely changed.

1	2	3	4	5	6	7	8
DO: CU_S					fp_2449_01_eng.vsd	Function diagram	- 2449 -
PROFIdrive - A_DIGITAL interconnection					22.02.07 V02.05.00	SINAMICS S	

Figure 2-53 2449 – A_DIGITAL interconnection



<1> Data type according to the PROFIdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32

Signal sources for PZD send signals						
Signal	Description	PROFIdrive Signal No.	Interconnection parameter	Function diagram	Data type	Normalization
ZSW1	Status word 1	2	r2089[0]	[2452][2453]	U16	-
ZSW2	Status word 2	4	r2089[1]	[2454][2455]	U16	-
NIST_A	Speed setpoint A (16 bit)	6	r0063[0]	[4715]	I16	4000 hex $\hat{=}$ p2000
NIST_B	Speed setpoint B (32 bit)	8	r0063	[4710]	I32	4000 0000 hex $\hat{=}$ p2000
G1_ZSW	Encoder 1 status word	10	r0481[0]	[4730]	U16	
G1_XIST1	Encoder 1 actual position 1	11	r0482[0]	[4704]	U32	
G1_XIST2	Encoder 1 actual position 2	12	r0483[0]	[4704]	U32	
G2_ZSW	Encoder 2 status word	14	r0481[1]	[4730]	U16	
G2_XIST1	Encoder 2 actual position 1	15	r0482[1]	[4704]	U32	
G2_XIST2	Encoder 2 actual position 2	16	r0483[1]	[4704]	U32	
G3_ZSW	Encoder 3 status word	18	r0481[2]	[4730]	U16	
G3_XIST1	Encoder 3 actual position 1	19	r0482[2]	[4704]	U32	
G3_XIST2	Encoder 3 actual position 2	20	r0483[2]	[4704]	U32	
E_DIGITAL	Digital inputs	21	r2089[2]	[2459]	U16	
XIST_A	Position actual value A	28	?	?	?	?
IAIST_GLATT	Absolute actual current, smoothed	51	r0068[1]	[6714]	I16	4000 hex $\hat{=}$ p2002
ITACT_SMOOTH	Current actual value, torque-generating	52	r0078[1]	[5730]	I16	4000 hex $\hat{=}$ p2002
MIST_GLATT	Actual torque smoothed	53	r0080[1]	[6714]	I16	4000 hex $\hat{=}$ p2003
PIST_GLATT	Power factor, smoothed	54	r0082[1]	[6714]	I16	4000 hex $\hat{=}$ p2004
NIST_A_GLATT	Actual speed, smoothed	57	r0063[1]	[4715]	I16	4000 hex $\hat{=}$ p2000
MELD_NAMUR	VIK-NAMUR message bit bar	58	r3113	-	U16	
MELDW	Message word	102	r2089[2]	[2456]	U16	
MSET_SMOOTH	Total speed setpoint	120	r0079[1]	[5610]	I16	4000 hex $\hat{=}$ p2003
AACT_SMOOTH	Torque utilization	121	r0081	[8012]	I16	4000 hex $\hat{=}$ 100%
MT_ZSW	Measuring probe status word	131	r0688		U16	
MT1_ZS_F	Measuring probe 1 measuring time, falling edge	132	r0687[0]		U16	
MT1_ZS_S	Measuring probe 1 measuring time, rising edge	133	r0686[0]		U16	
MT2_ZS_F	Measuring probe 2 measuring time, falling edge	134	r0687[1]		U16	
MT2_ZS_S	Measuring probe 2 measuring time, rising edge	135	r0686[1]		U16	
AKTSATZ	Pos selected block	202	r2670	[3650]	U16	
PosZSW	Pos status word	204	r2683	[3645]	U16	
XistP	Pos position actual value	206	r2521	[4010]	I32	1 hex $\hat{=}$ 1 LU
FAULT_CODE	Fault code	301	r2131	[8060]	U16	
WARN_CODE	Alarm code	303	r2132	[8065]	U16	
E_ZSW1	INFEED status word (infeed)	321	r0899, r2139	[2457]	U16	
CU_ZSW	Control Unit status word	501	r2089[1]	[2458]	U16	

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, S_INF, SERVO, VECTOR					fp_2450_01_eng.vsd	Function diagram	- 2450 -
PROFIdrive - PZD send signals interconnection					27.09.06 V02.05.00	SINAMICS S	

Figure 2-54 2450 – PZD send signals interconnection

PROFdrive sampling time
Refer to [1020.7]

Signal sources for ZSW1 in Interface Mode VIK-NAMUR (p2038 = 2)

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] Signal source	Inverted <2>
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	1 = Ready to operate (DC link loaded, pulses blocked)	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	[2610]	-
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	1 = No coast down active (OFF2 inactive)	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	1 = Speed setpoint - actual value deviation within tolerance t_off	p2080[8] = r2197.7	[2534.7]	[8010]	-
ZSW1.9	1 = Control requested <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	1 = f or n comparison value reached/exceeded	p2080[10] = r2199.1	[2536.7]	[8010]	-
ZSW1.11	1 = I, M, or P limit not reached	p2080[11] = r0056.13	[2522.7]	[6060]	✓
ZSW1.12	Reserved	-	-	-	-
ZSW1.13	1 = No motor overtemperature alarm	p2080[13] = r2135.14	[2548.7]	[8016]	✓
ZSW1.14	1 = Motor rotates forwards (n_act ≥ 0) 0 = Motor rotates backwards (n_act < 0)	p2080[14] = r2197.3	[2534.7]	[8010]	-
ZSW1.15	1 = Display CDS	p2080[15] = r0836.0	-	-	-

<1> Used in telegram 20.

<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)

<3> The master system requests the process data.

1	2	3	4	5	6	7	8
DO: VECTOR					fp_2451_01_eng.vsd	Function diagram	- 2451 -
PROFdrive - ZSW1 status word interconnection (p2038 = 2)					17.04.07 V02.05.00	SINAMICS S	

Figure 2-55 2451 – ZSW1 status word interconnection (p2038 = 2)

PROFdrive Abtastzeit

siehe [1020.7]

Signal sources for ZSW1 im Interface Mode SINAMICS (p2038 = 0)

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	1 = Ready to operate	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	1 = Operation enabled	p2080[2] = r0899.2	[2503.7]	[2610]	-
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	1 = No coast down active (OFF2 inactive)	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	1 = Speed setpoint - actual value deviation within tolerance t_off	p2080[8] = r2197.7	[2534.7]	[8010]	-
ZSW1.9	1 = Control requested <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	1 = f or n comparison value reached/exceeded	p2080[10] = r2199.1	[2536.7]	[8010]	-
ZSW1.11	1 = I, M, or P limit not reached <4>	p2080[11] = r1407.7	[2522.7]	[5610] [6060]	✓
ZSW1.12	1 = Open holding brake	p2080[12] = r0899.12	[2503.7]	[2701]	-
ZSW1.13	1 = No motor overtemperature alarm	p2080[13] = r2135.14	[2548.7]	[8016]	✓
ZSW1.14	1 = Motor rotates forwards (n_act ≥ 0) 0 = Motor rotates backwards (n_act < 0)	p2080[14] = r2197.3	[2534.7]	[8010]	-
ZSW1.15	1 = No alarm, thermal overload, power unit	p2080[15] = r2135.15	[2548.7]	[8014]	✓

<1> Used in telegrams 1, 2, 3, 4, 5, 6, 7, 110, 352.

<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)

<3> The master system requests the process data.

<4> Not for VECTOR V/f.

1	2	3	4	5	6	7	8	
DO: SERVO, VECTOR					fp_2452_01_eng.vsd	Function diagram		- 2452 -
PROFIdrive - ZSW1 status word interconnection (p2038 = 0)					07.03.07 V02.05.00	SINAMICS S		

Figure 2-56 2452 – ZSW1 status word interconnection (p2038 = 0)

PROFIdrive sampling time
Refer to [1020.7]

Signal sources for ZSW1 in Interface Mode SIMODRIVE 611 universal (p2038 = 1)					
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] Signal source	Inverted
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	1 = Ready to operate	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	1 = Operation enabled	p2080[2] = r0899.2	[2503.7]	[2610]	-
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	1 = No coast down active	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	1 = No fast stop active	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	1 = Speed setpoint - actual value deviation within tolerance t_off	p2080[8] = r2197.7	[2534.7]	[8010]	-
ZSW1.9	1 = Control requested <2>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	1 = f or n comparison value reached/exceeded	p2080[10] = r2199.1	[2536.7]	[8010]	-
ZSW1.11	Reserved	-	-	-	-
ZSW1.12	Reserved	-	-	-	-
ZSW1.13	Reserved	-	-	-	-
ZSW1.14	1 = Closed-loop torque control active	p2080[14] = r1407.2	[2522.7]	[2522]	-
ZSW1.15	Reserved	-	-	-	-

<1> Used in telegrams 1, 2, 3, 4, 5, 6, 102, 103, 105, 106, 116, 352.

<2> The master system requests the process data.

1	2	3	4	5	6	7	8	
DO: SERVO					fp_2453_01_eng.vsd	Function diagram		- 2453 -
PROFIdrive - ZSW1 status word interconnection (p2038 = 1)					07.03.07 V02.05.00	SINAMICS S		

Figure 2-57 2453 – ZSW1 status word interconnection (p2038 = 1)

PROFdrive sampling time

Refer to [1020.7]

Signal sources for ZSW2 in Interface Mode SINAMICS (p2038 = 0)

Signal	Meaning	Interconnection parameters	[Function diagram] internal status word	[Function diagram] signal source	Inverted
ZSW2.0	1 = Drive data set DDS effective, bit 0	p2081[0] = r0051.0	-	[8565]	-
ZSW2.1	1 = Drive data set DDS effective, bit 1	p2081[1] = r0051.1	-	[8565]	-
ZSW2.2	1 = Drive data set DDS effective, bit 2	p2081[2] = r0051.2	-	[8565]	-
ZSW2.3	1 = Drive data set DDS effective, bit 3	p2081[3] = r0051.3	-	[8565]	-
ZSW2.4	1 = Drive data set DDS effective, bit 4	p2081[4] = r0051.4	-	[8565]	-
ZSW2.5	Reserved	-	-	-	-
ZSW2.6	Reserved	-	-	-	-
ZSW2.7	1 = Parking axis active	p2081[7] = r0896.0	-	-	-
ZSW2.8	1 = Traverse to fixed endstop	p2081[8] = r1406.8	-	[2520]	-
ZSW2.9	Reserved	-	-	-	-
ZSW2.10	Reserved	-	-	-	-
ZSW2.11	1 = Data set changeover active	p2081[11] = r0835.0	-	-	-
ZSW2.12	Slave sign-of-life bit 0	Implicitly interconnected	-	-	-
ZSW2.13	Slave sign-of-life bit 1	Implicitly interconnected	-	-	-
ZSW2.14	Slave sign-of-life bit 2	Implicitly interconnected	-	-	-
ZSW2.15	Slave sign-of-life bit 3	Implicitly interconnected	-	-	-

<1> Used in telegrams 2, 3, 4, 5, 6, 7, 110.

<2> These signals are automatically interconnected for clock-cycle synchronous operation.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2454_01_eng.vsd	Function diagram	- 2454 -
PROFdrive - ZSW2 status word interconnection (p2038 = 0)					08.05.07 V02.05.00	SINAMICS S	

Figure 2-58 2454 – ZSW2 status word interconnection (p2038 = 0)

PROFdrive sampling time
Refer to [1020.7]

Signal sources for ZSW2 in Interface Mode SIMODRIVE 611 universal (p2038 = 1)

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] Signal source	Inverted
ZSW2.0	1 = Drive data set DDS effective, bit 0	p2081[0] = r0051.0	-	[8565]	-
ZSW2.1	1 = Drive data set DDS effective, bit 1	p2081[1] = r0051.1	-	[8565]	-
ZSW2.2	1 = Drive data set DDS effective, bit 2	p2081[2] = r0051.2	-	[8565]	-
ZSW2.3	Reserved	-	-	-	-
ZSW2.4	1 = Ramp-function generator inactive <3>	p2081[4] = r1199.2	-	[3060] [3080]	✓
ZSW2.5	1 = Holding brake open	p2081[5] = r0899.12	[2503.7]	[2701]	-
ZSW2.6	1 = Integrator inhibit, speed controller	p2081[6] = r2093.6	-	[5040] [5210]	-
ZSW2.7	1 = Parking axis active	p2081[7] = r0896.0	-	-	-
ZSW2.8	1 = Traverse to fixed endstop	p2081[8] = r1406.8	-	[2520]	-
ZSW2.9	1 = Drive data set DDS effective, bit 3	p2081[9] = r0051.3	-	[8565]	-
ZSW2.10	1 = Drive data set DDS effective, bit 4	p2081[10] = r0051.4	-	[8565]	-
ZSW2.11	1 = Data set changeover active	p2081 [11] = r0835.0	-	-	-
ZSW2.12	Slave sign-of-life bit 0	Implicitly interconnected	-	-	-
ZSW2.13	Slave sign-of-life bit 1	Implicitly interconnected	-	-	-
ZSW2.14	Slave sign-of-life bit 2	Implicitly interconnected	-	-	-
ZSW2.15	Slave sign-of-life bit 3	Implicitly interconnected	-	-	-

<1> Used in telegrams 2, 3, 4, 5, 6, 102, 103, 105, 106, 116.

<2> These signals are automatically interconnected for clock-cycle synchronous operation.

<3> Only if the function module "extended setpoint channel" is active (r0108.8 = 1).

1	2	3	4	5	6	7	8
DO: SERVO					fp_2455_01_eng.vsd	Function diagram	- 2455 -
PROFdrive - ZSW2 status word interconnection (p2038 = 1)					01.03.07 V02.05.00	SINAMICS S	

Figure 2-59 2455 – ZSW2 status word interconnection (p2038 = 1)

PROFdrive sampling time
Refer to [1020.7]

Signal sources for MELDW

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>
MELDW.0	1 = Ramp-up/ramp-down completed 0 = Ramp-function generator active	p2082[0] = r2199.5	[2537.7]	[8010]	-
MELDW.1	1 = Torque utilization [%] < torque threshold value 2 (p2194)	p2082[1] = r2199.11	[2537.7]	[8012]	-
MELDW.2	1 = n_act < speed threshold value 3 (p2161)	p2082[2] = r2199.0	[2537.7]	[8010]	-
MELDW.3	1 = n_act speed threshold value 2 (p2155)	p2082[3] = r2197.1	[2534.7]	[8010]	-
MELDW.4	Reserved	-	-	-	-
MELDW.5	Reserved	-	-	-	-
MELDW.6	1 = No motor overtemperature alarm	p2082[6] = r2135.14	[2548.7]	[8016]	✓
MELDW.7	1 = No alarm, thermal overload, power unit	p2082[7] = r2135.15	[2548.7]	[8014]	✓
MELDW.8	1 = Speed setpoint - actual value deviation within tolerance t_on	p2082[8] = r2199.4	[2537.7]	[8010]	-
MELDW.9	Reserved	-	-	-	-
MELDW.10	Reserved	-	-	-	-
MELDW.11	1 = Controller enable	p2082[11] = r0899.8	[2503.7]	[2610]	-
MELDW.12	1 = Drive ready	p2082[12] = r0899.7	[2503.7]	[2610]	-
MELDW.13	1 = Pulses enabled	p2082[13] = r0899.11	[2503.7]	[2610]	-
MELDW.14	Reserved	-	-	-	-
MELDW.15	Reserved	-	-	-	-

<1> Used in telegrams 102, 103, 105, 106, 110, 116.

<2> The status word is generated using the binector-connector converter p2088[2].

1	2	3	4	5	6	7	8
DO: SERVO					fp_2456_01_eng.vsd	Function diagram	- 2456 -
PROFdrive - MELDW status word interconnection					09.05.07 V02.05.00	SINAMICS S	

Figure 2-60 2456 – MELDW status word interconnection

PROFIdrive sampling time

Refer to [1020.7]

Signal sources for E_ZSW1

Signal	Meaning	Interconnection parameters	[Function diagram] signal source			[Function diagram] internal status word			Inverted
			A_INF	B_INF	S_INF	A_INF	B_INF	S_INF	
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.1	1 = Ready to operate	p2080[1] = r0899.1	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.2	1 = Operation enabled	p2080[2] = r0899.2	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[8060]			[2548.7]			-
ZSW1.4	1 = No OFF2 effective	p2080[4] = r0899.4	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.5	Reserved	-	-	-	-	-	-	-	-
ZSW1.6	1 = Power-on inhibit	p2080[6] = r0899.6	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[8065]			[2548.7]			-
ZSW1.8	Reserved	-	-	-	-	-	-	-	-
ZSW1.9	1 = PLC requests control <2>	p2080[9] = r0899.9	[8926]	[8726]	[8826]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.10	Reserved	-	-	-	-	-	-	-	-
ZSW1.11	1 = Pre-charging completed	p2080[11] = r0899.11	[8950]	[8750]	[8850]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.12	1 = Line contactor closed	p2080[12] = r0899.12	[8934]	[8734]	[8834]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.13	Reserved	-	-	-	-	-	-	-	-
ZSW1.14	Reserved	-	-	-	-	-	-	-	-
ZSW1.15	Reserved	-	-	-	-	-	-	-	-

<1> Used in telegram 370.

<2> The master system requests process data.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, S_INF					fp_2457_01_eng.vsd	Function diagram	
PROFIdrive - E_ZSW1 status word infeed interconnection					11.07.06 V02.05.00	SINAMICS S	
							- 2457 -

Figure 2-61 2457 – E_ZSW1 status word infeed interconnection

PROFdrive sampling time
Refer to [1020.7]

Signal sources for CU_ZSW					
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted
CU_ZSW.0	Reserved	-	-	-	-
CU_ZSW.1	Reserved	-	-	-	-
CU_ZSW.2	Reserved	-	-	-	-
CU_ZSW.3	Fault present	p2081[3] = r2139.3	-	-	-
CU_ZSW.4	Reserved	-	-	-	-
CU_ZSW.5	Reserved	-	-	-	-
CU_ZSW.6	Reserved	-	-	-	-
CU_ZSW.7	Alarm present	p2081[7] = r2139.7	-	-	-
CU_ZSW.8	Synchronization (SYNC)	p2081[8] = r0899.8	-	-	-
CU_ZSW.9	Alarm is present	p2081[9] = r3114.9	-	-	✓
CU_ZSW.10	Fault Present	p2081[10] = r3114.10	-	-	✓
CU_ZSW.11	Safety-Message/signal present	p2081[11] = r3114.11	-	-	✓
CU_ZSW.12	Slave sign-of-life bit 0	Implicitly interconnected	-	-	-
CU_ZSW.13	Slave sign-of-life bit 1	Implicitly interconnected	-	-	-
CU_ZSW.14	Slave sign-of-life bit 2	Implicitly interconnected	-	-	-
CU_ZSW.15	Slave sign-of-life bit 3	Implicitly interconnected	-	-	-

<1> Used in telegrams 390, 391 and 392.

1	2	3	4	5	6	7	8
DO: CU_S			fp_2458_01_eng.vsd			Function diagram	- 2458 -
PROFdrive - CU_ZSW status word Control Unit interconnection			22.02.07 V02.05.00			SINAMICS S	

Figure 2-62 2458 – CU_ZSW status word Control Unit interconnection

PROFdrive sampling time
Refer to [1020.7]

Signal targets for E_DIGITAL

Signal	Meaning	Interconnection parameters <3>	[Function diagram] Internal status word	[Function diagram] signal target	Inverted
E_DIGITAL.0	Digital input 8 (DI/DO 8) <2>	p2082[0] = r0722[8]	-	-	-
E_DIGITAL.1	Digital input 9 (DI/DO 9) <2>	p2082[1] = r0722[9]	-	-	-
E_DIGITAL.2	Digital input 10 (DI/DO 10) <2>	p2082[2] = r0722[10]	-	-	-
E_DIGITAL.3	Digital input 11 (DI/DO 11) <2>	p2082[3] = r0722[11]	-	-	-
E_DIGITAL.4	Digital input 12 (DI/DO 12) <2>	p2082[4] = r0722[12]	-	-	-
E_DIGITAL.5	Digital input 13 (DI/DO 13) <2>	p2082[5] = r0722[13]	-	-	-
E_DIGITAL.6	Digital input 14 (DI/DO 14) <2>	p2082[6] = r0722[14]	-	-	-
E_DIGITAL.7	Digital input 15 (DI/DO 15) <2>	p2082[7] = r0722[15]	-	-	-
E_DIGITAL.8	Digital input 0 (DI 0)	p2082[8] = r0722[0]	-	-	-
E_DIGITAL.9	Digital input 1 (DI 1)	p2082[9] = r0722[1]	-	-	-
E_DIGITAL.10	Digital input 2 (DI 2)	p2082[10] = r0722[2]	-	-	-
E_DIGITAL.11	Digital input 3 (DI 3)	p2082[11] = r0722[3]	-	-	-
E_DIGITAL.12	Digital input 4 (DI 4)	p2082[12] = r0722[4]	-	-	-
E_DIGITAL.13	Digital input 5 (DI 5)	p2082[13] = r0722[5]	-	-	-
E_DIGITAL.14	Digital input 6 (DI 6)	p2082[14] = r0722[6]	-	-	-
E_DIGITAL.15	Digital input 7 (DI 7)	p2082[15] = r0722[7]	-	-	-

<1> Used in telegrams 390, 391 and 392.

<2> Can be set via p0728 as input (DI) or output (DO).

<3> Pre-assignment, can be freely changed.

1	2	3	4	5	6	7	8
DO: CU_S					fp_2459_01_eng.vsd	Function diagram	- 2459 -
PROFdrive - E_DIGITAL interconnection					22.02.07 V02.05.00	SINAMICS S	

Figure 2-63 2459 – E_DIGITAL interconnection

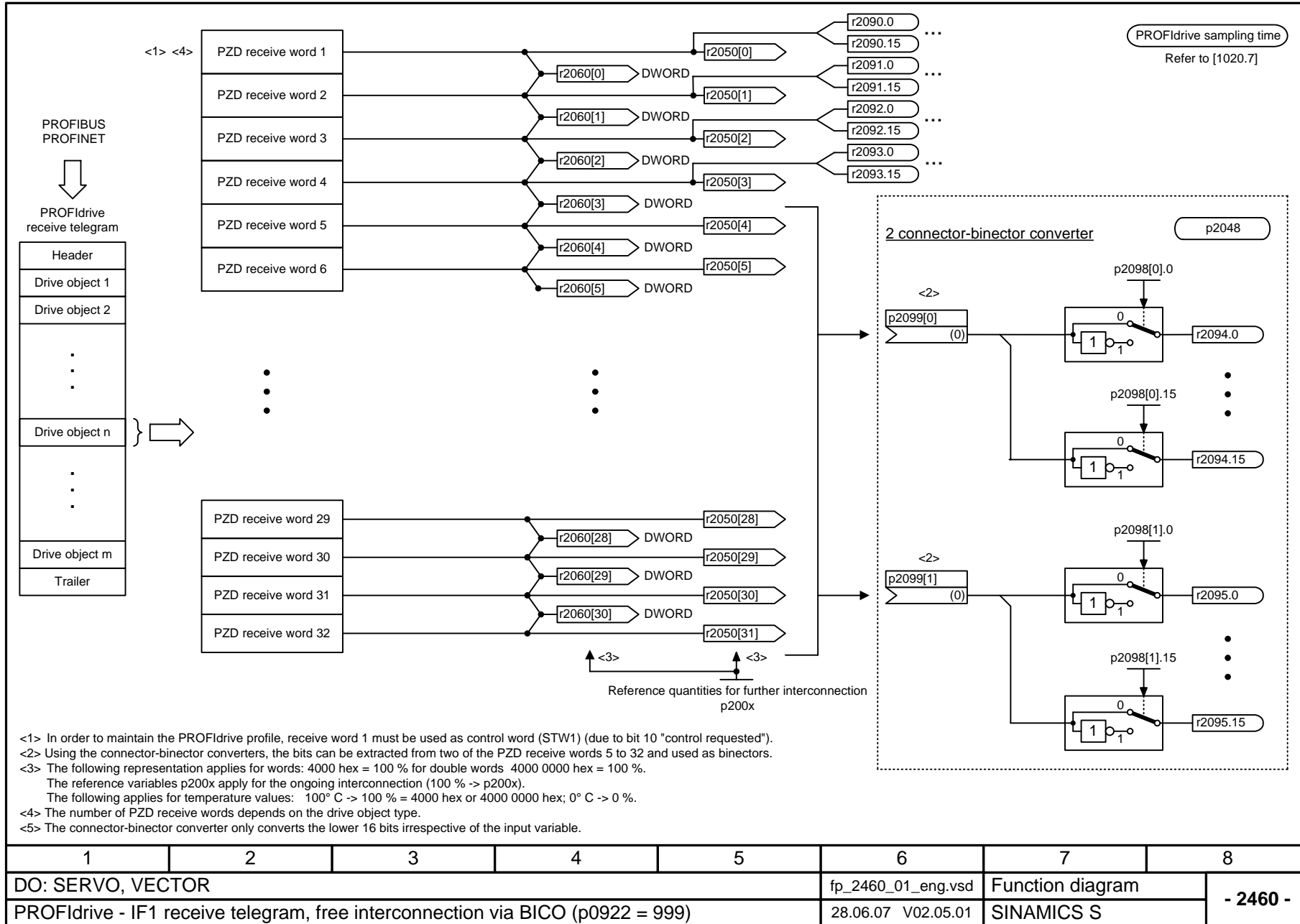
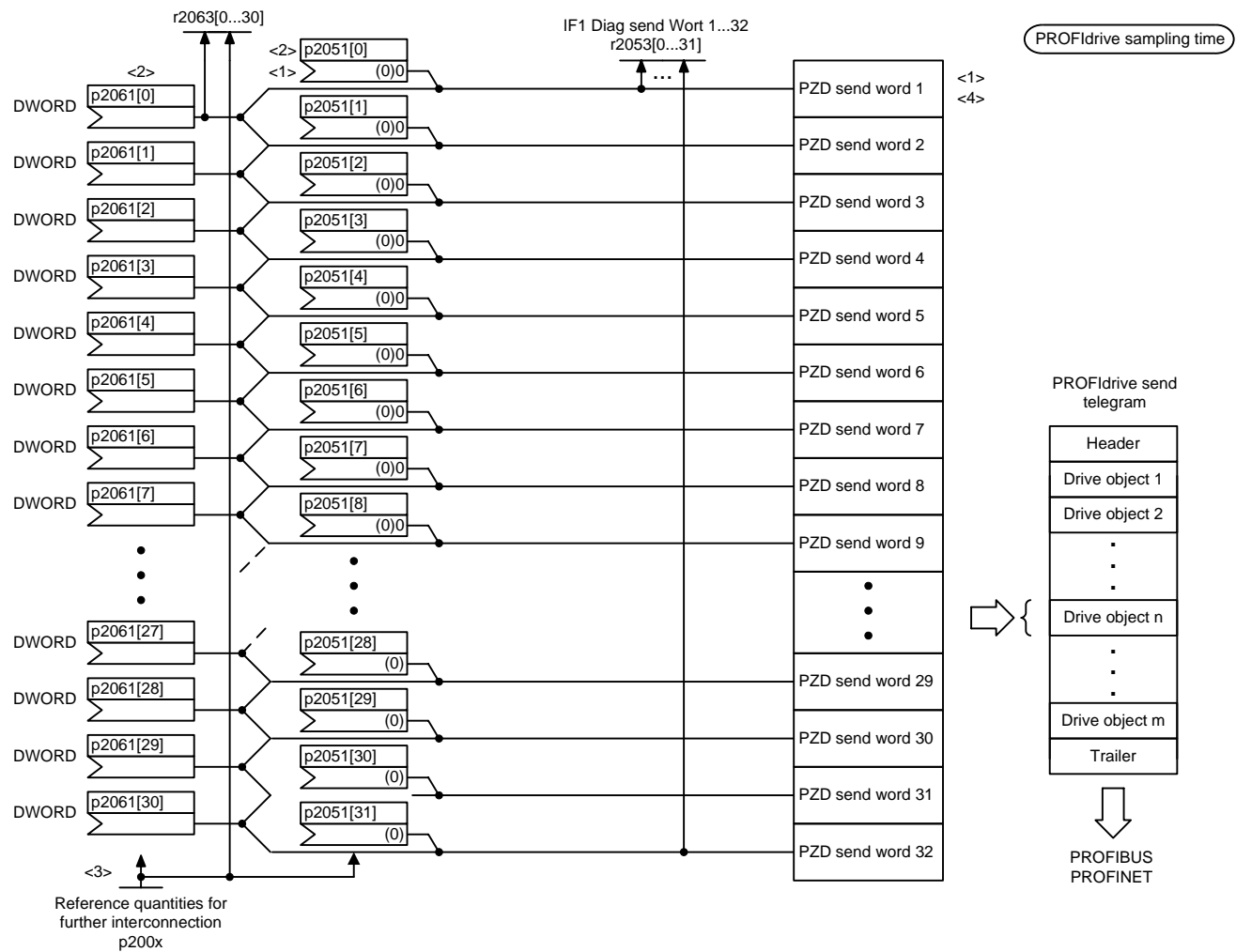


Figure 2-65 2470 – IF1 send telegram, free interconnection via BICO (p0922 = 999)



- <1> To comply with the PROFIdrive profile, send word 1 must be used as status word 1 (ZSW1), not as DWORD.
- <2> Every PZD word can be assigned a word or a double word. Only one of the 2 interconnection parameters p2051 or p2061 may have a value $\neq 0$ for a PZD word.
- <3> Physical word and double word values are inserted in the telegram as referenced variables. p200x apply as reference variables (telegram contents = 4000 hex or 4000 0000 hex in the case of double words, if the input variable has the value p200x).
- The following applies for temperature values: 100° C -> 100 % = 4000 hex or 4000 0000 hex; 0° C -> 0%.
- <4> The number of PZD send words depends on the drive object type.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2470_01_eng.vsd	Function diagram	- 2470 -
PROFIdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999)					29.06.07 V02.05.01	SINAMICS S	

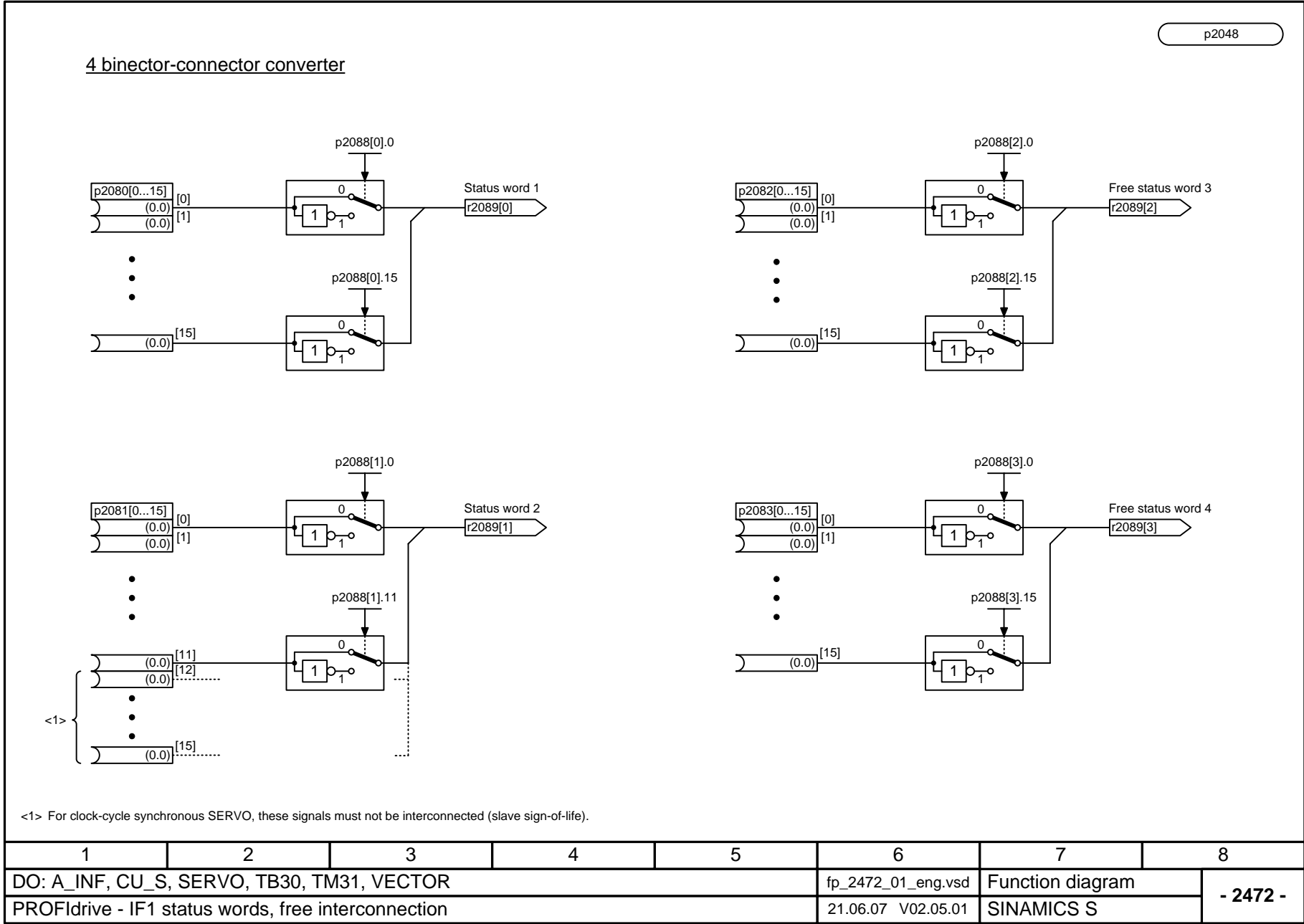


Figure 2-66 2472 – IF1 status words, free interconnection

PROFdrive sampling time
Refer to [1020.7]

Signal targets for STW1 (positioning mode, r0108.4 = 1)					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	= ON (pulses can be enabled) 0 = OFF1 (braking with ramp-funct. generator, then pulse cancellation and ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	[2610]	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	[2610]	-
STW1.2	1 = No OFF3 (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	[2610]	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-
STW1.4	1 = Do not reject traversing task 0 = Reject traversing task (ramp-down with the maximum deceleration)	p2641 = r2090.4	-	[3616.5] [3625]	-
STW1.5	1 = No intermediate stop 0 = Intermediate stop	p2640 = r2090.5	-	[3616.5] [3625]	-
STW1.6	= Activate traversing task	<3> p2631 = r2090.6 p2650 = r2090.6	-	[3620.1] [3625]	-
STW1.7	= Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	1 = Jog 1 ON 0 = Jog 1 OFF	p2589 = r2090.8	-	[3610.1] [3625]	-
STW1.9	1 = Jog 2 ON 0 = Jog 2 OFF	p2590 = r2090.9	-	[3610.1] [3625]	-
STW1.10	1 = Control via PLC <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	1 = Start homing 0 = Stop homing	p2595 = r2090.11	-	[3612.1] [3625]	-
STW1.12	Reserved	-	-	-	-
STW1.13	= External block change	p2633 = r2092.3	-	[3615]	-
STW1.14	Reserved	-	-	-	-
STW1.15	Reserved	-	-	-	-

<1> Used in telegrams 7, 110, 999.

<3> The interconnection p2649 = 0 is made additionally.

<2> Bit 10 must be set in the first PZD word of the telegram received from PROFdrive in order to ensure that the drive accepts the process data.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2475_01_eng.vsd	Function diagram	- 2475 -
PROFdrive - STW1 control word 1 interconnection (r0108.4 = 1)					22.02.07 V02.05.00	SINAMICS S	

Figure 2-67 2475 – STW1 control word 1 interconnection (r0108.4 = 1)

PROFdrive sampling time
Refer to [1020.7]

Signal targets for SATZANW (positioning mode, r0108.4 = 1)

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
SATZANW1.0	1 = Block selection, bit 0	p2625 = r2091.0	-	[3640]	-
SATZANW1.1	1 = Block selection, bit 1	p2626 = r2091.1	-	[3640]	-
SATZANW1.2	1 = Block selection, bit 2	p2627 = r2091.2	-	[3640]	-
SATZANW1.3	1 = Block selection, bit 3	p2628 = r2091.3	-	[3640]	-
SATZANW1.4	1 = Block selection, bit 4	p2629 = r2091.4	-	[3640]	-
SATZANW1.5	1 = Block selection, bit 5	p2630 = r2091.5	-	[3640]	-
SATZANW1.6	Reserved	-	-	-	-
SATZANW1.7	Reserved	-	-	-	-
SATZANW1.8	Reserved	-	-	-	-
SATZANW1.9	Reserved	-	-	-	-
SATZANW1.10	Reserved	-	-	-	-
SATZANW1.11	Reserved	-	-	-	-
SATZANW1.12	Reserved	-	-	-	-
SATZANW1.13	Reserved	-	-	-	-
SATZANW1.14	Reserved	-	-	-	-
SATZANW1.15	1 = Activate MDI 0 = De-activate MDI	p2647 = r2091.15	-	[3625] [3640]	-

<1> Used in telegrams 7, 110, 999.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2476_01_eng.vsd	Function diagram	- 2476 -
PROFdrive - SATZANW Pos Block Selection interconnection (r0108.4 = 1)					11.07.06 V02.05.00	SINAMICS S	

Figure 2-68 2476 – SATZANW-Pos block selection interconnection (r0108.4 = 1)

PROFIdrive sampling time
Refer to [1020.7]

Signal targets for PosSTW (positioning mode, r0108.4 = 1)


Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
PosSTW1.0	1 = Tracking mode 0 = No tracking mode	p2655 = r2092.0	-	[3635]	-
PosSTW1.1	1 = Set home position 0 = Do not set home position	p2596 = r2092.1	-	[3612]	-
PosSTW1.2	1 = Reference cam active	p2612 = r2092.2	-	[3612]	-
PosSTW1.3	Reserved	-	-	-	-
PosSTW1.4	Reserved	-	-	-	-
PosSTW1.5	1 = Jogging, incremental active 0 = Jogging, velocity active	p2591 = r2092.5	-	[3610]	-
PosSTW1.6	Reserved	-	-	-	-
PosSTW1.7	Reserved	-	-	-	-
PosSTW1.8	Reserved	-	-	-	-
PosSTW1.9	Reserved	-	-	-	-
PosSTW1.10	Reserved	-	-	-	-
PosSTW1.11	Reserved	-	-	-	-
PosSTW1.12	Reserved	-	-	-	-
PosSTW1.13	Reserved	-	-	-	-
PosSTW1.14	Reserved	-	-	-	-
PosSTW1.15	Reserved	-	-	-	-

<1> Used in telegram 110, 999.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2477_01_eng.vsd	Function diagram	- 2477 -
PROFIdrive - PosSTW Pos Control Word interconnection (r0108.4 = 1)					11.07.06 V02.05.00	SINAMICS S	

Figure 2-69 2477 – PosSTW-Pos control word interconnection (r0108.4 = 1)

PROFdrive sampling time
Refer to [1020.7]

Signal sources for ZSW1 (positioning mode, r0108.4 = 1)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted	<2>
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	[2610]	-	-
ZSW1.1	1 = Ready to operate (DC link loaded, pulses blocked)	p2080[1] = r0899.1	[2503.7]	[2610]	-	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	[2610]	-	-
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[2548.7]	[8060]	-	-
ZSW1.4	1 = No coast down active (OFF2 inactive)	p2080[4] = r0899.4	[2503.7]	[2610]	-	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	[2610]	-	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	[2610]	-	-
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[2548.7]	[8065]	-	-
ZSW1.8	1 = Following error within tolerance	p2080[8] = r2684.8	[3646.7]	[4025]	-	-
ZSW1.9	1 = Control requested <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-	-
ZSW1.10	1 = Target position reached	p2080[10] = r2684.10	[3646.7]	[4020] [3625]	-	-
ZSW1.11	1 = Home position set	p2080[11] = r2684.11	[3646.7]	[3612] [3614]	-	-
ZSW1.12	 Acknowledgement traversing block activated	p2080[12] = r2684.12	[3646.7]	[3616] [3620]	-	-
ZSW1.13	1 = Drive at standstill	p2080[13] = r2199.0	[2537.7]	[8010] [3625]	-	-
ZSW1.14	Reserved	-	-	-	-	-
ZSW1.15	Reserved	-	-	-	-	-

<1> Used in telegrams 7, 110, 999.

<2> The status word is generated using the binector-connector converter p2088[0].

<3> The master system requests the process data.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2479_01_eng.vsd	Function diagram	- 2479 -
PROFdrive - ZSW1 Status Word 1 interconnection (r0108.4 = 1)					28.02.07 V02.05.00	SINAMICS S	

Figure 2-70 2479 – ZSW1 status word 1 interconnection (r0108.4 = 1)

PROFdrive sampling time
Refer to [1020.7]

Signal targets for MDI Mode (positioning mode, r0108.4 = 1)					<1>	
Signal	Meaning				Interconnection parameters	Inverted
MDIMode1.0	Reserved				-	-
MDIMode1.1	Reserved				-	-
MDIMode1.2	Reserved				-	-
MDIMode1.3	Reserved				-	-
MDIMode1.4	0 = Absolute	1 = Relative	0 = Abs_pos	1 = Abs_neg	p2654	-
MDIMode1.5	0	0	1	1	p2654	-
MDIMode1.6	Reserved				-	-
MDIMode1.7	Reserved				-	-
MDIMode1.8	Reserved				-	-
MDIMode1.9	Reserved				-	-
MDIMode1.10	Reserved				-	-
MDIMode1.11	Reserved				-	-
MDIMode1.12	Reserved				-	-
MDIMode1.13	Reserved				-	-
MDIMode1.14	Reserved				-	-
MDIMode1.15	Reserved				-	-

<1> Used in telegram 110.
<2> Only for modulo correction.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2480_01_eng.vsd	Function diagram	- 2480 -
PROFdrive – MDIMode interconnection (r0108.4 = 1)					18.07.06 V02.05.00	SINAMICS S	

Figure 2-71 2480 – MDIMode interconnection (r0108.4=1)

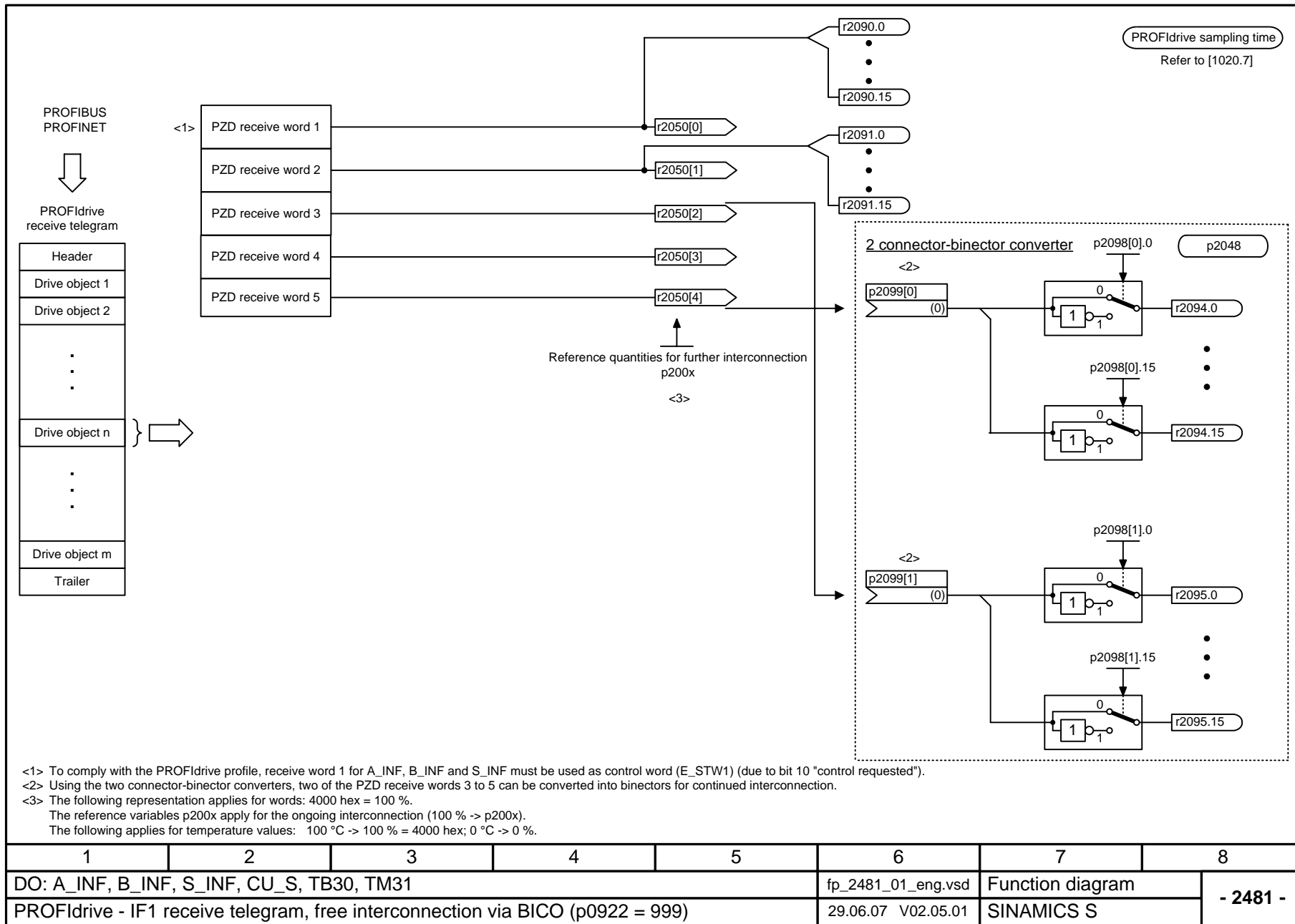
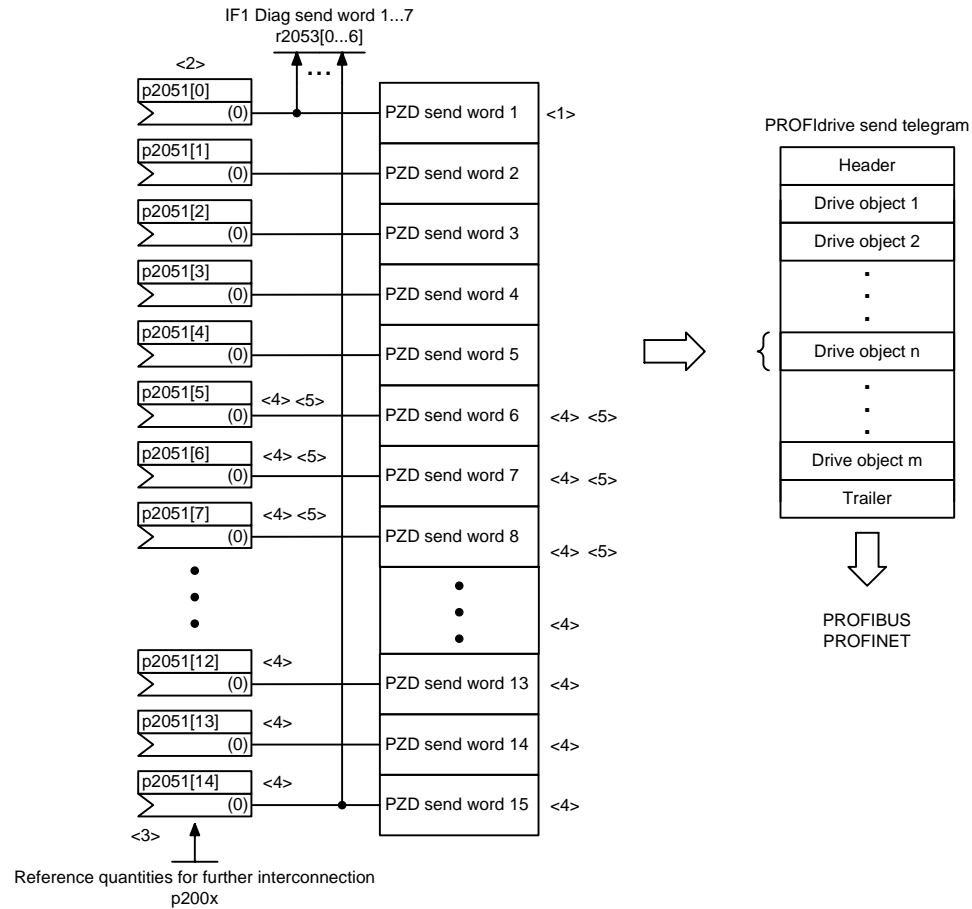


Figure 2-72 2481 – IF1 receive telegram, free interconnection via BICO (p0922 = 999)

PROFIdrive Abtastzeit
Refer to [1020.7]



- <1> In order to maintain the PROFIdrive profile, send word 1 must be used as status word 1 (E_ZSW1) for A_INF, B_INF and S_INF.
<2> Using the binector/connector converters at [2472], bits of 4 send words can be interconnected with any binectors.
<3> The following representation applies for words: 4000 hex = 100 %.
The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
The following applies for temperature values: 100 °C -> 100 % = 4000 hex; 0 °C -> 0 %.
<4> Valid for CU_S.
<5> Valid for A_INF, B_INF, S_INF.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_S, S_INF, TB30, TM15DI_DO, TM31					fp_2483_01_eng.vsd	Function diagram	- 2483 -
PROFIdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999)					29.06.07 V02.05.01	SINAMICS S	

Figure 2-73 2483 – IF1 send telegram, free interconnection via BICO (p0922 = 999)

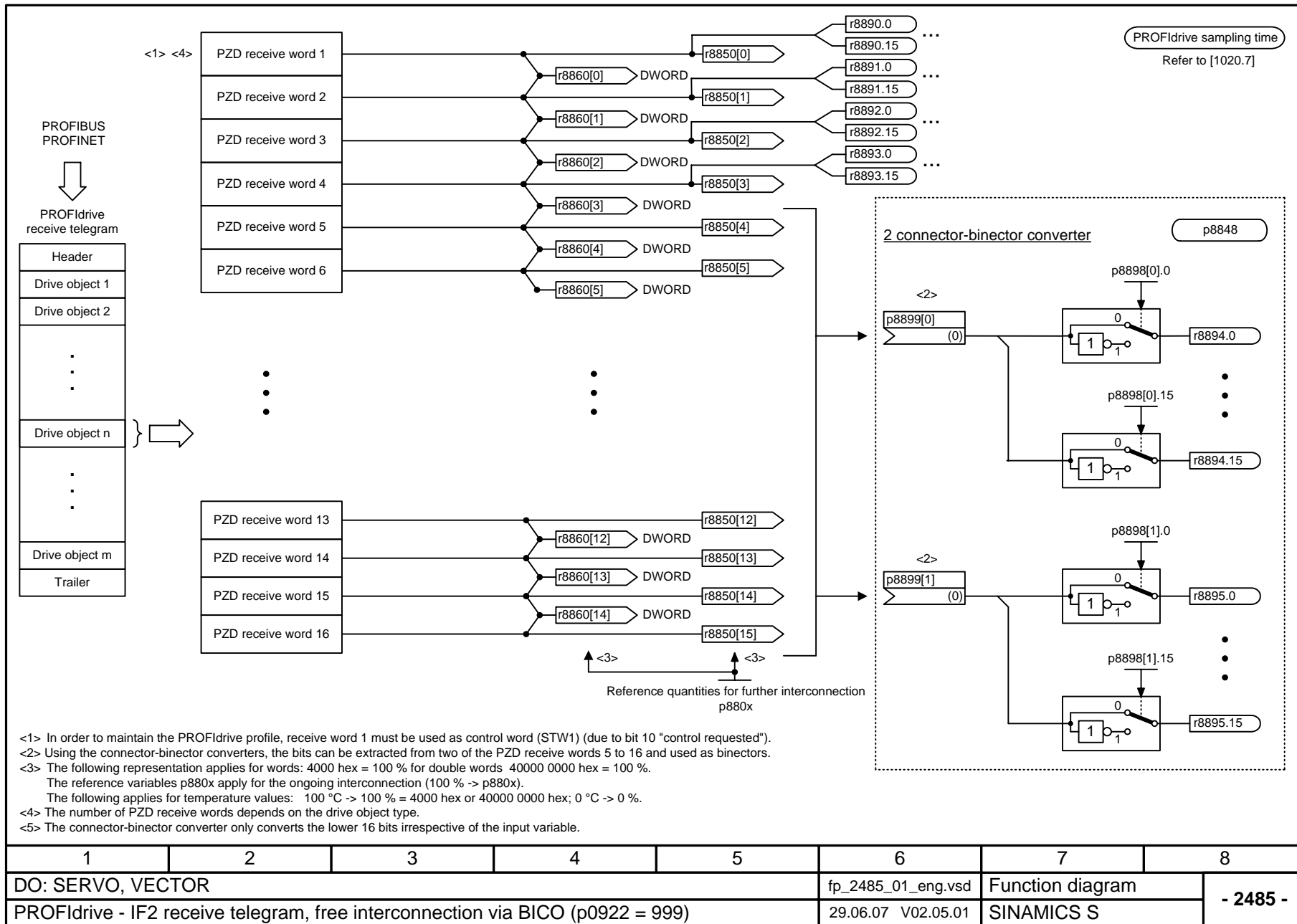
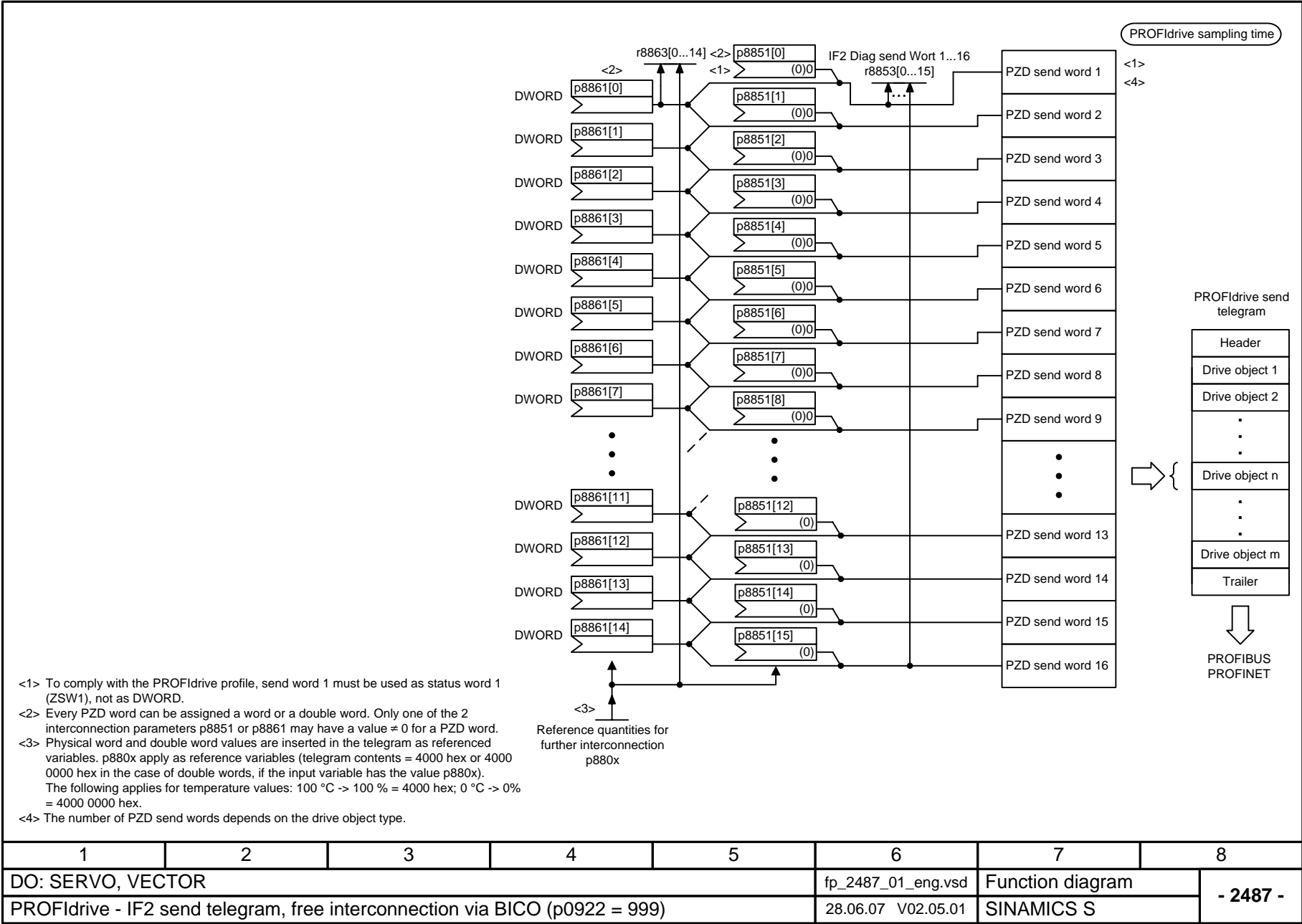


Figure 2-74 2485 – IF2 receive telegram, free interconnection via BICO (p0922 = 999)



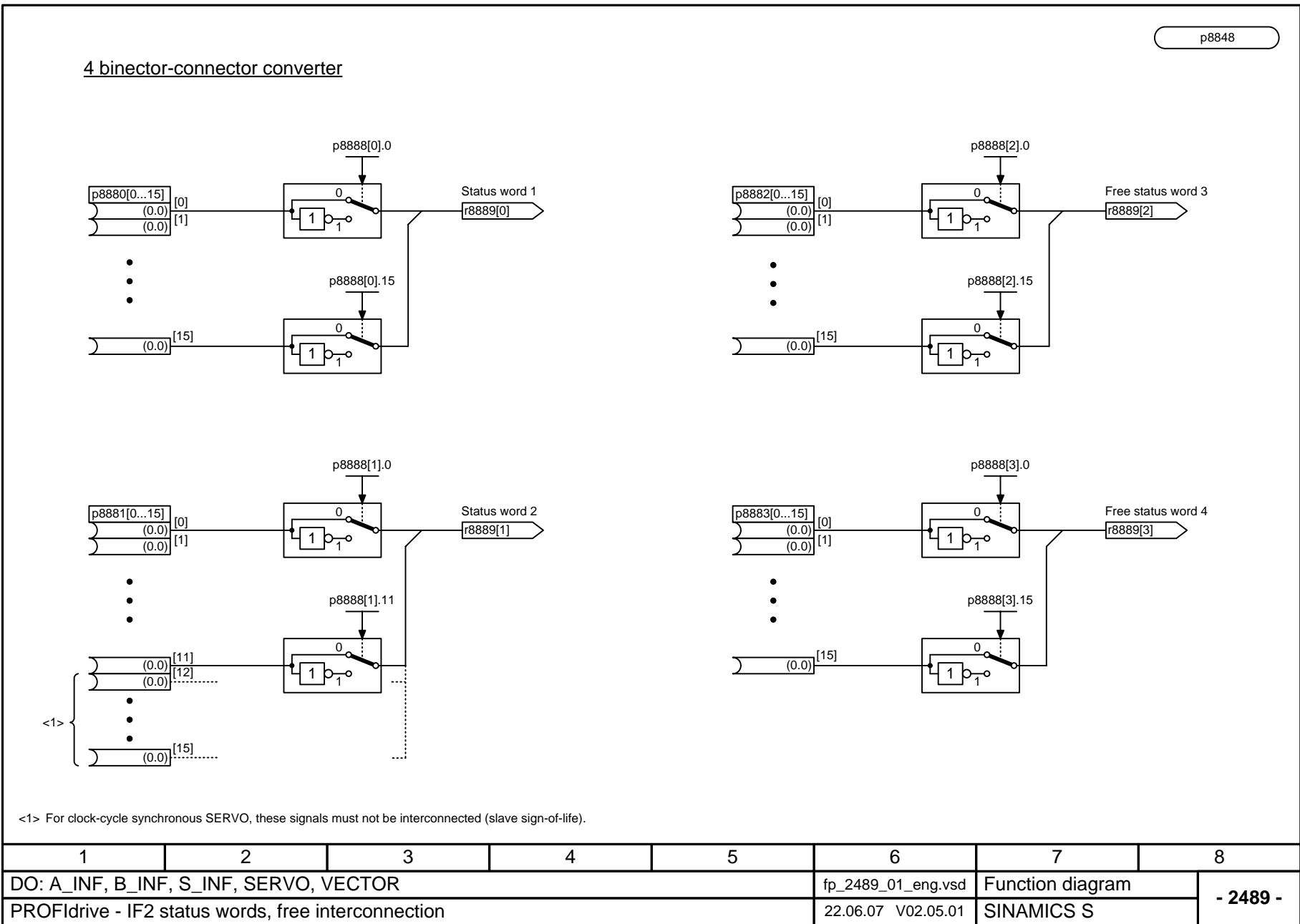
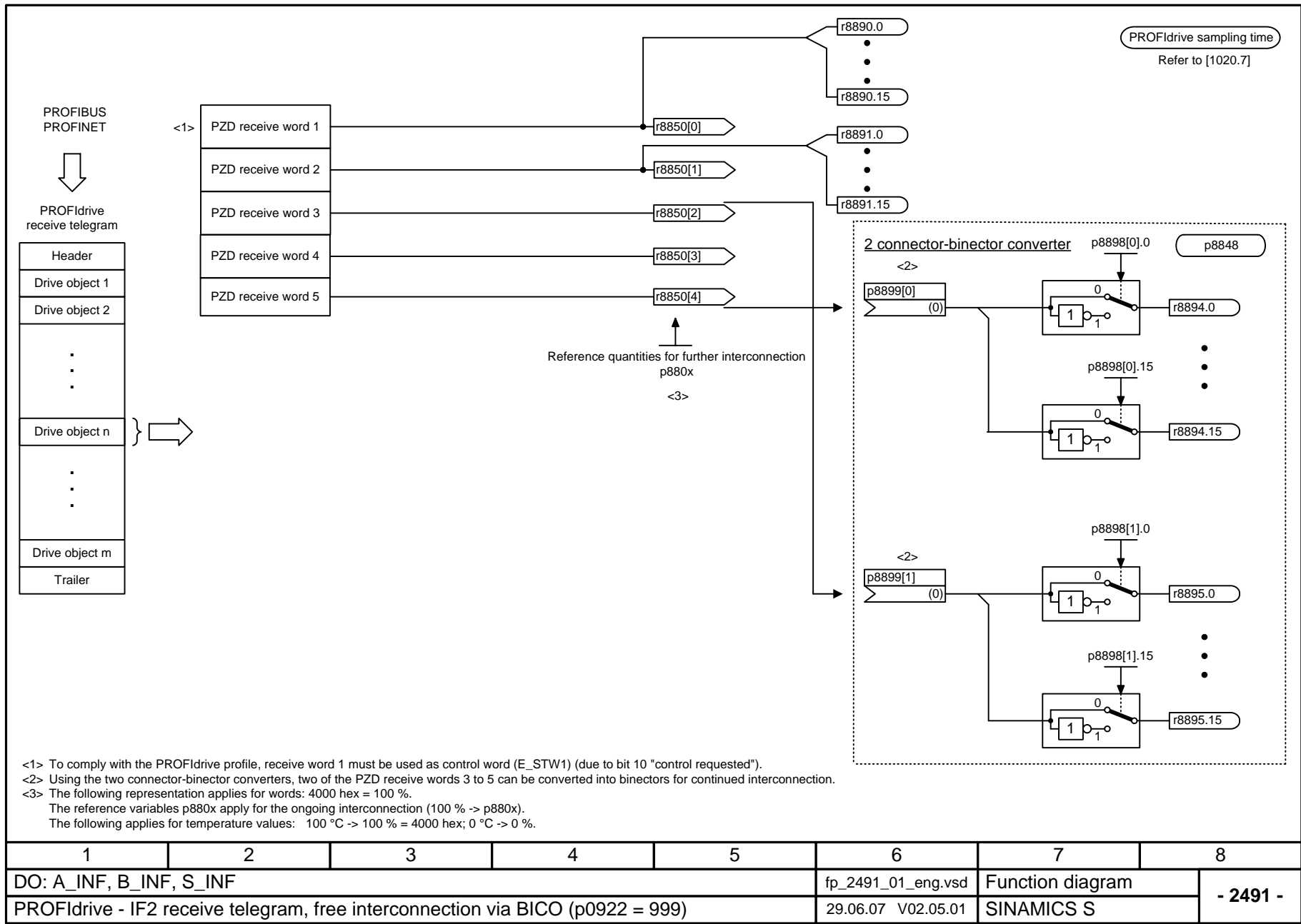


Figure 2-76 2489 – IF2 status words, free interconnection



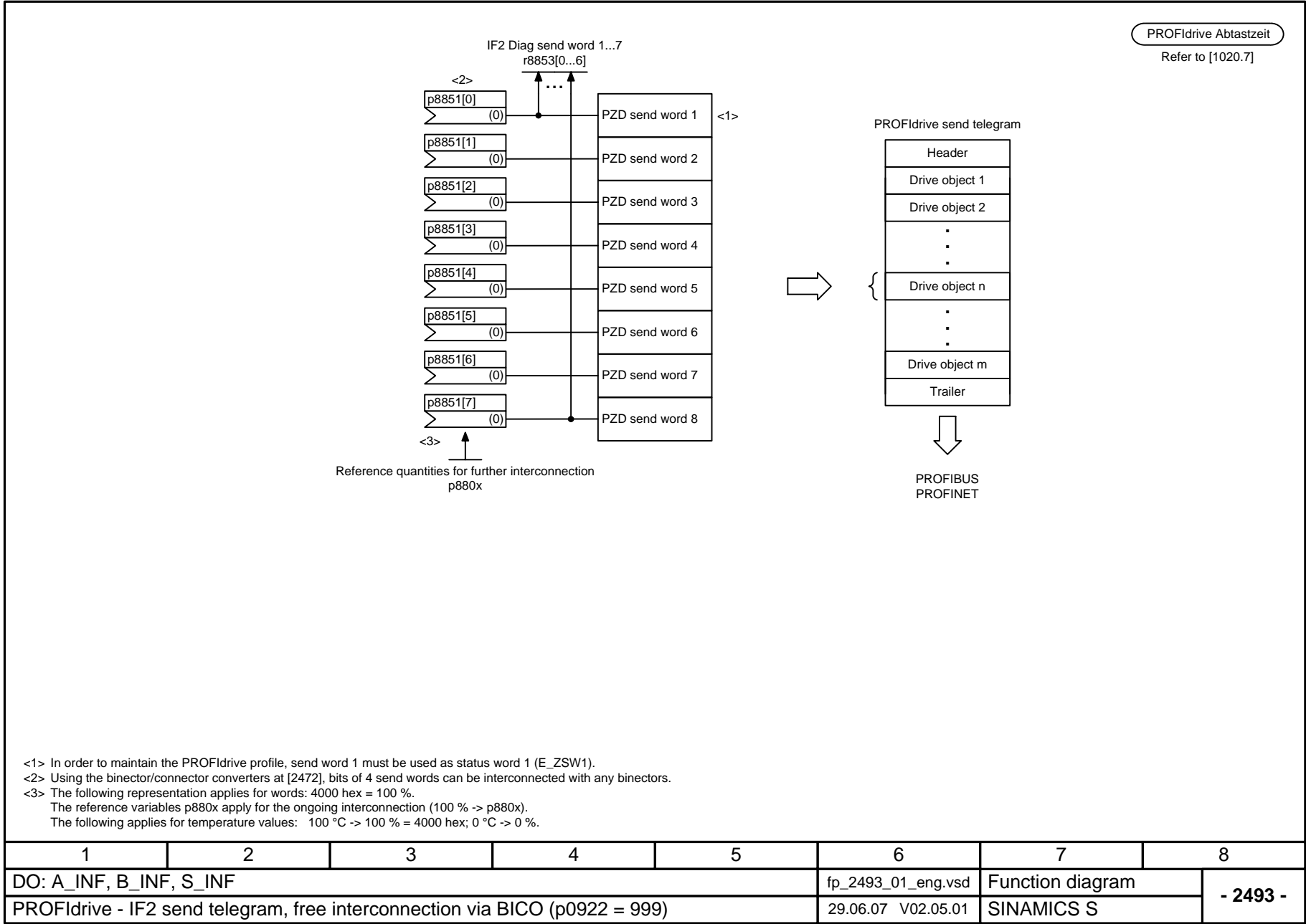
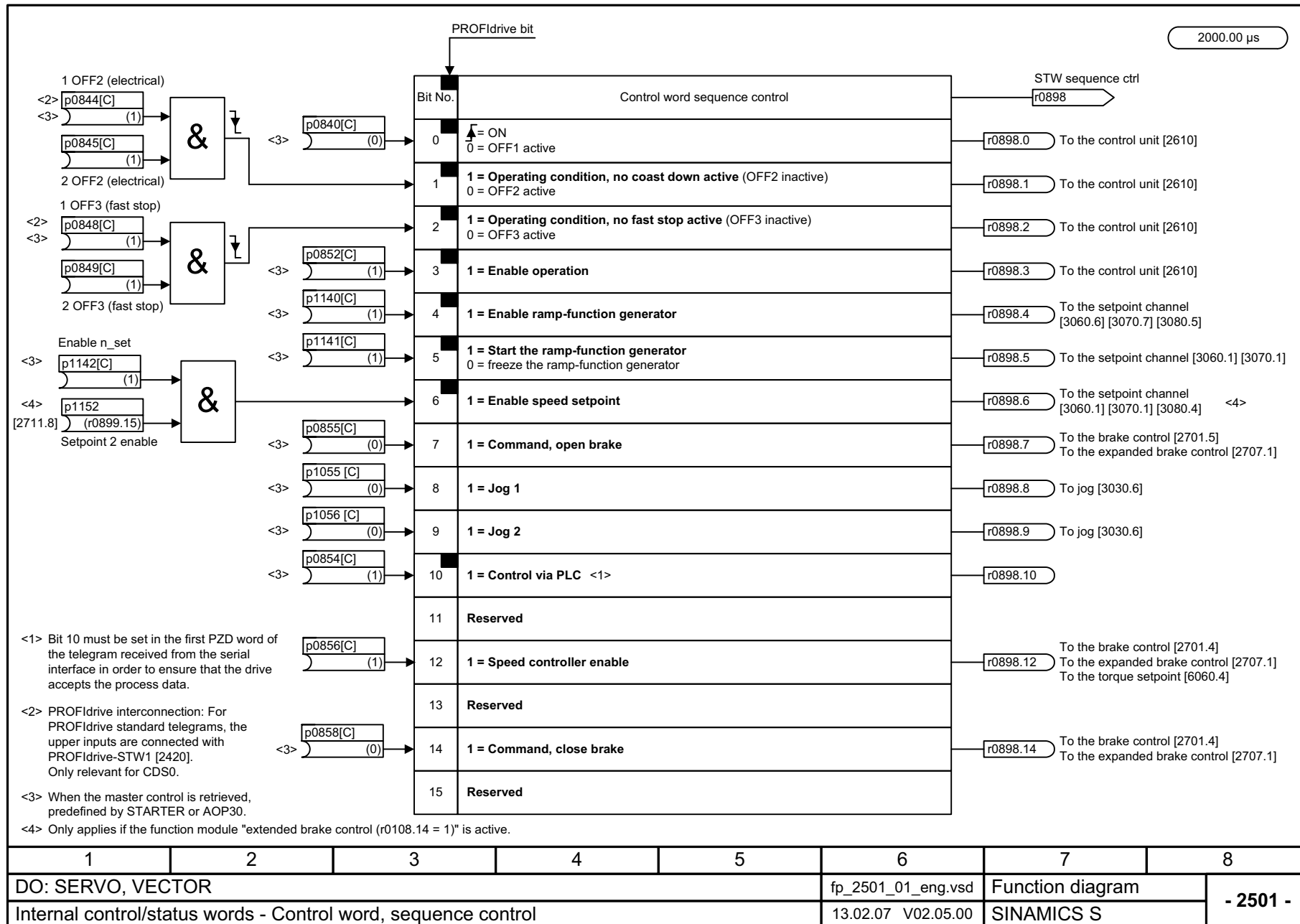


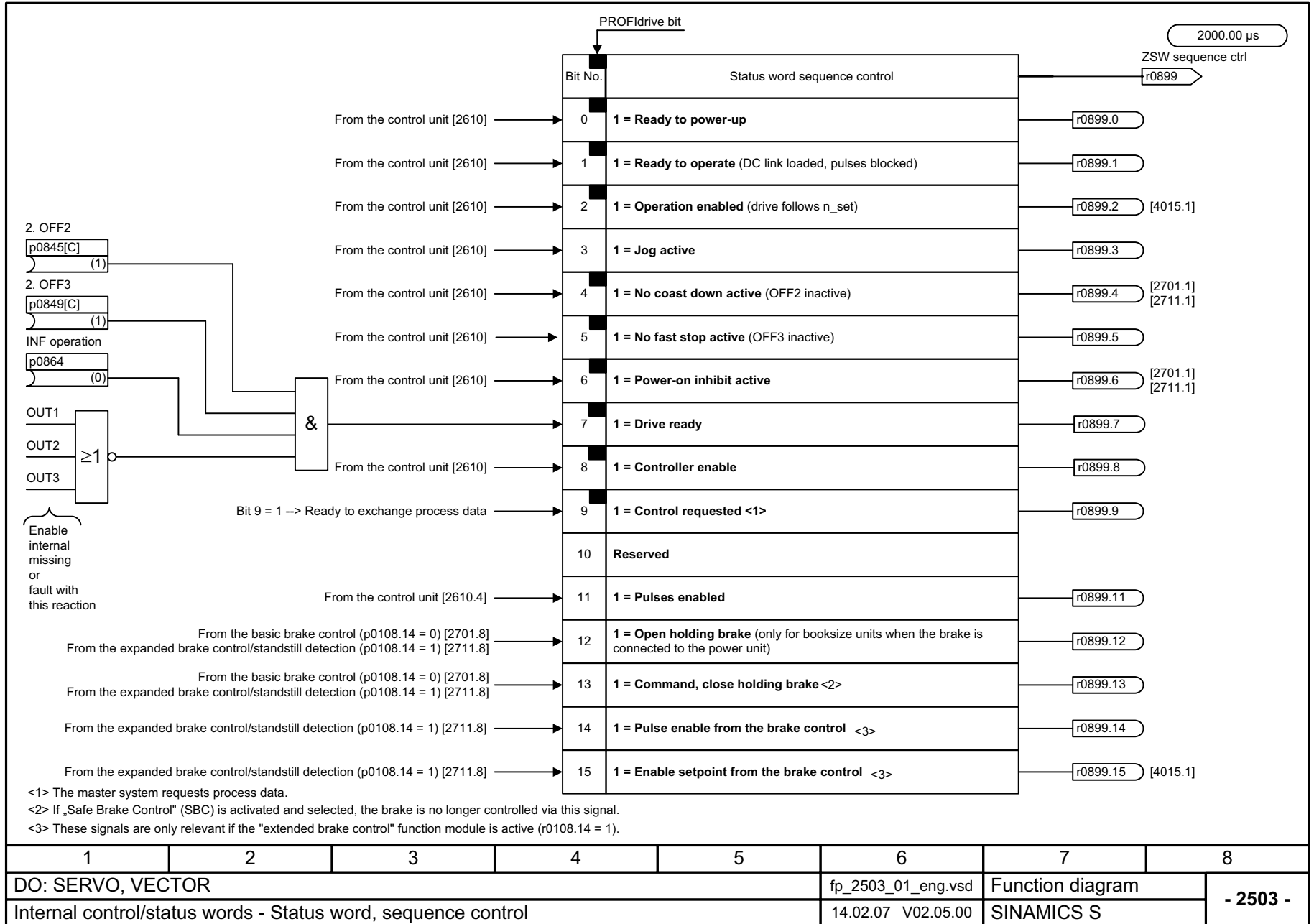
Figure 2-78 2493 – IF2 send telegram, free interconnection via BICO (p0922 = 999)

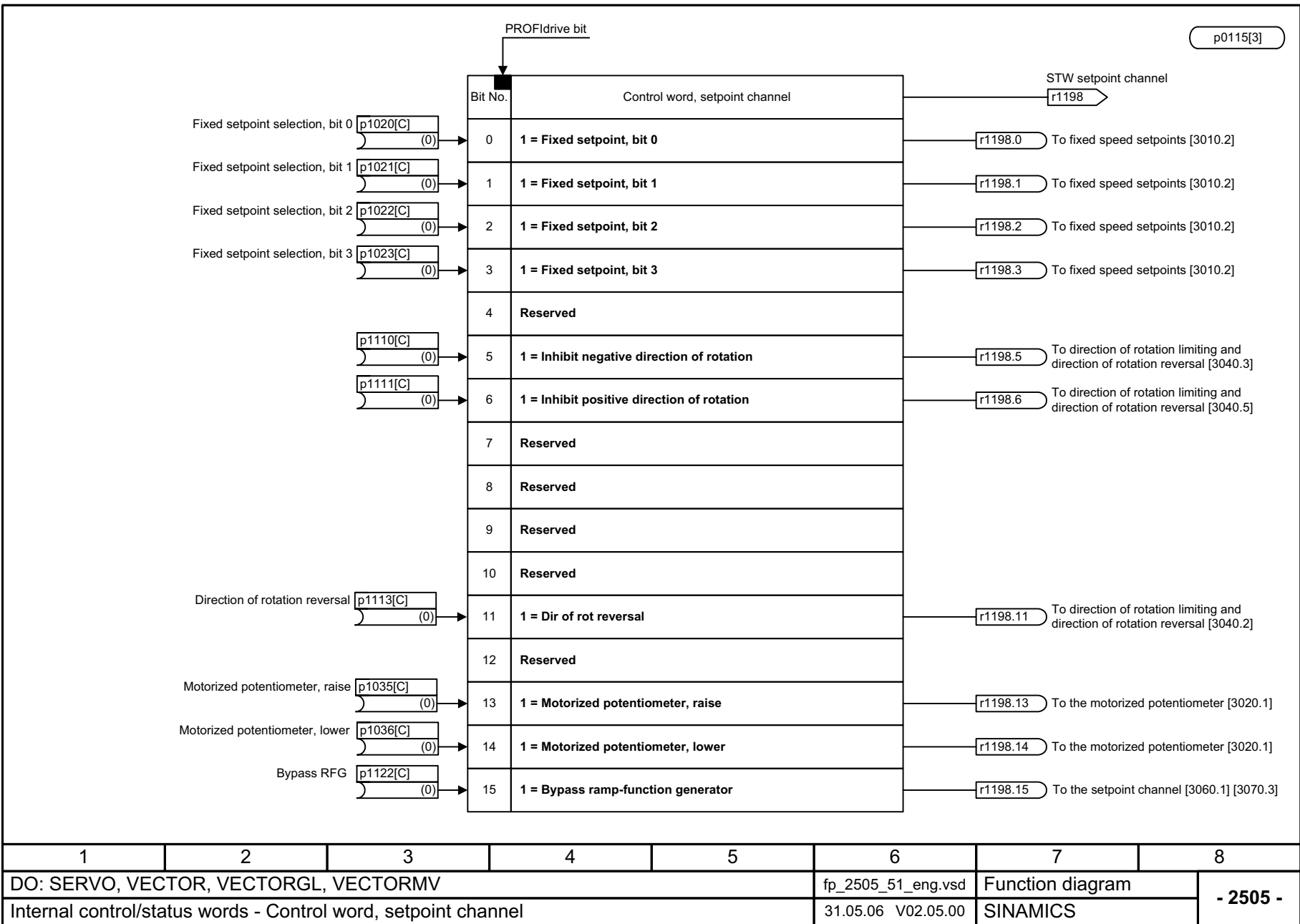
2.9 Internal control/status words

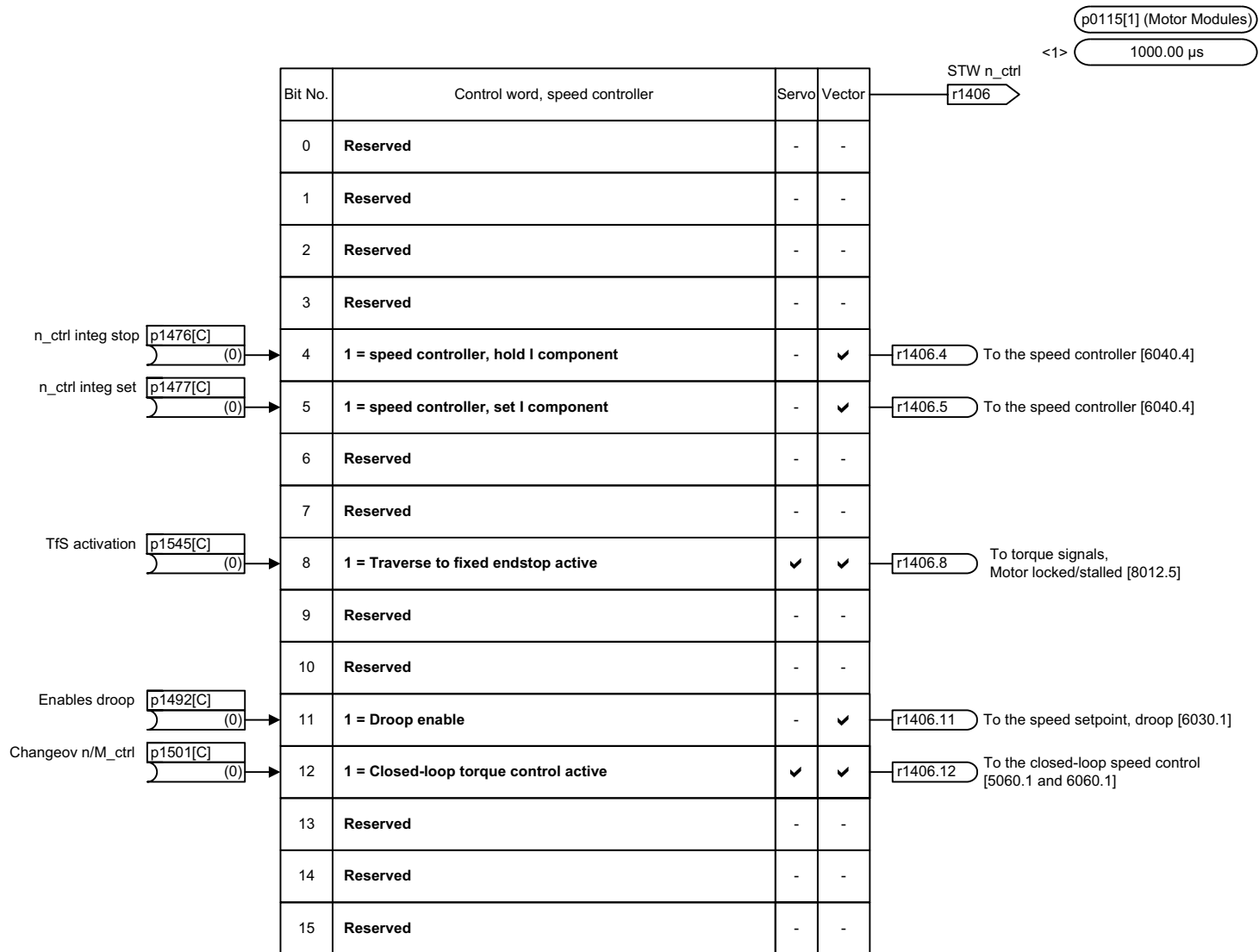
Function diagrams

2501 – Control word sequence control	2-1188
2503 – Status word sequence control	2-1189
2505 – Control word setpoint channel	2-1190
2520 – Control word speed controller	2-1191
2522 – Status word speed controller	2-1192
2526 – Status word, closed-loop control	2-1193
2530 – Status word, closed-loop current control	2-1194
2534 – Status word monitoring functions 1	2-1195
2536 – Status word monitoring functions 2	2-1196
2537 – Status word monitoring functions 3	2-1197
2546 – Control word, faults/alarms	2-1198
2548 – Status word, faults/alarms 1 and 2	2-1199









1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2520_01_eng.vsd	Function diagram	- 2520 -
Internal control/status words - Control word, speed controller					25.09.06 V02.05.00	SINAMICS S	

Figure 2-82 2520 – Control word speed controller

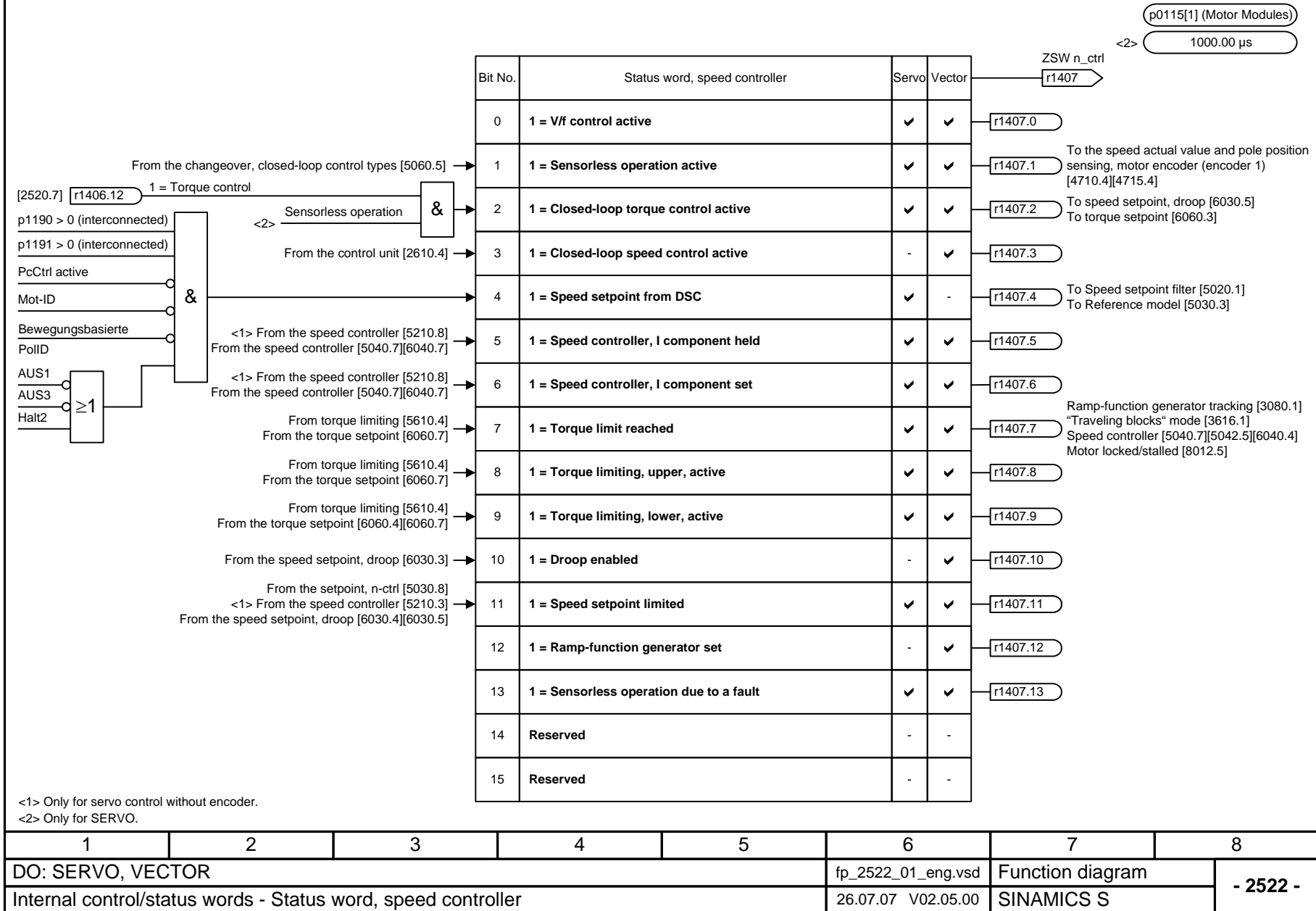


Figure 2-83 2522 – Status word speed controller

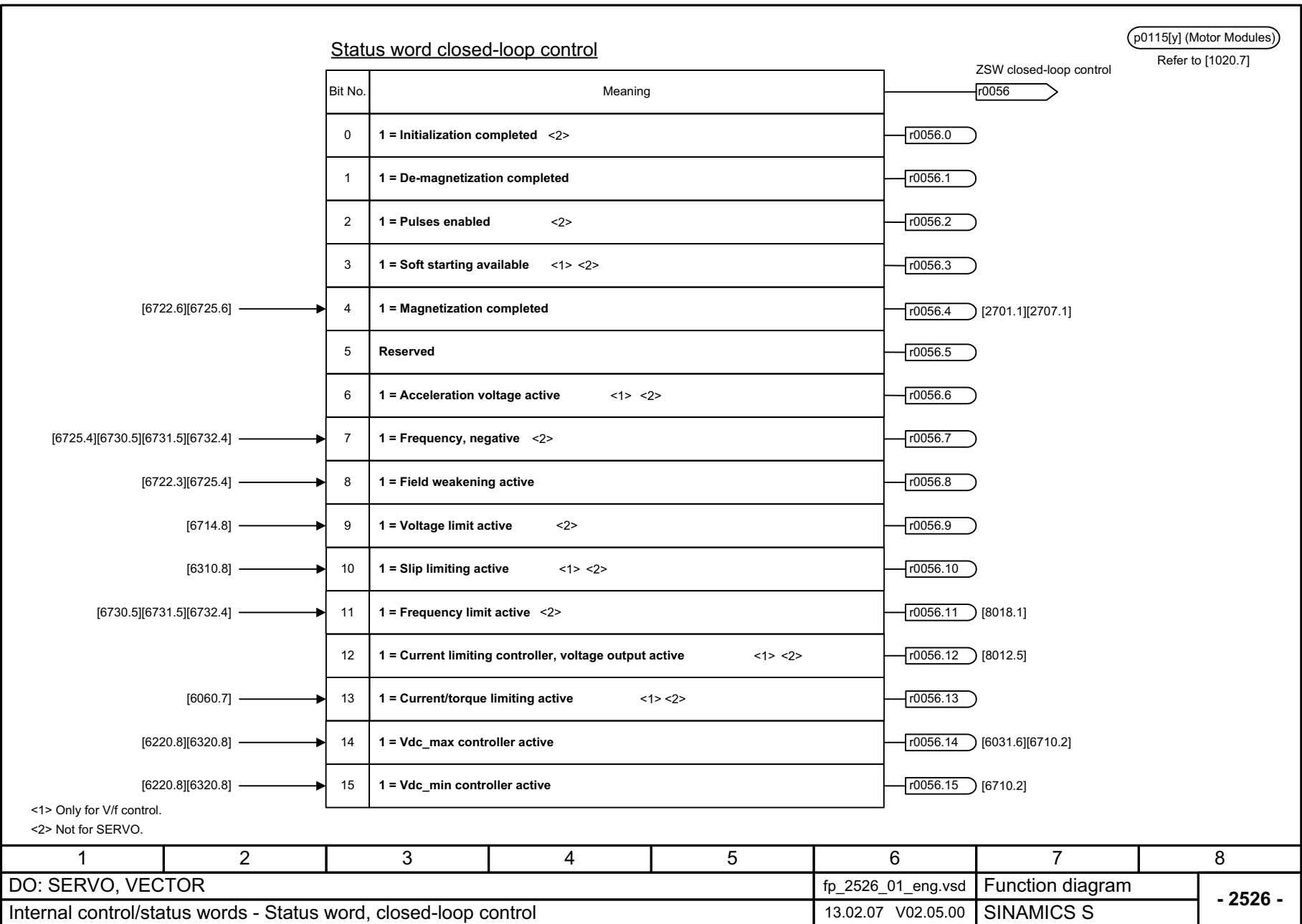


Figure 2-84 2526 – Status word, closed-loop control

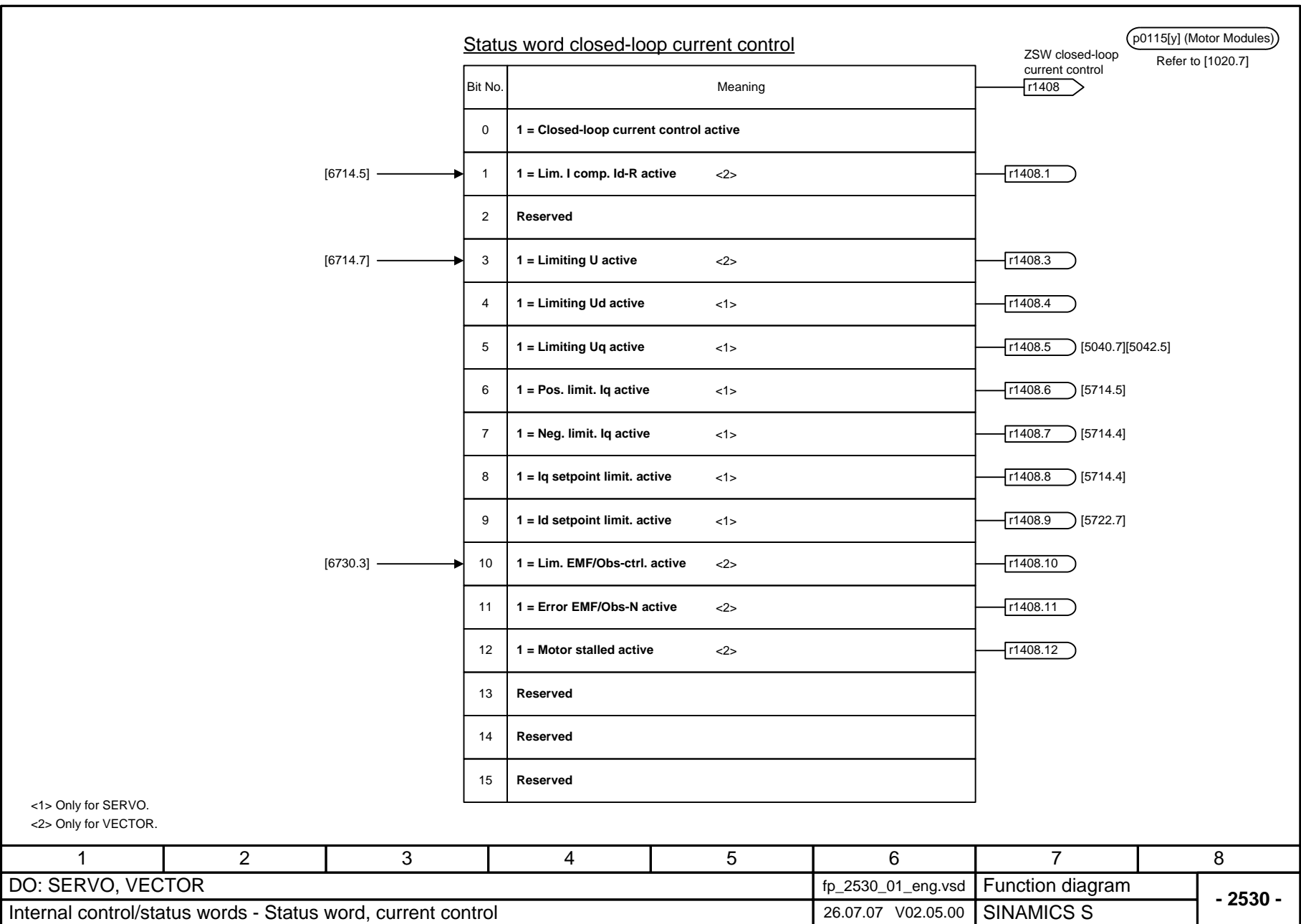


Figure 2-85 2530 – Status word, closed-loop current control

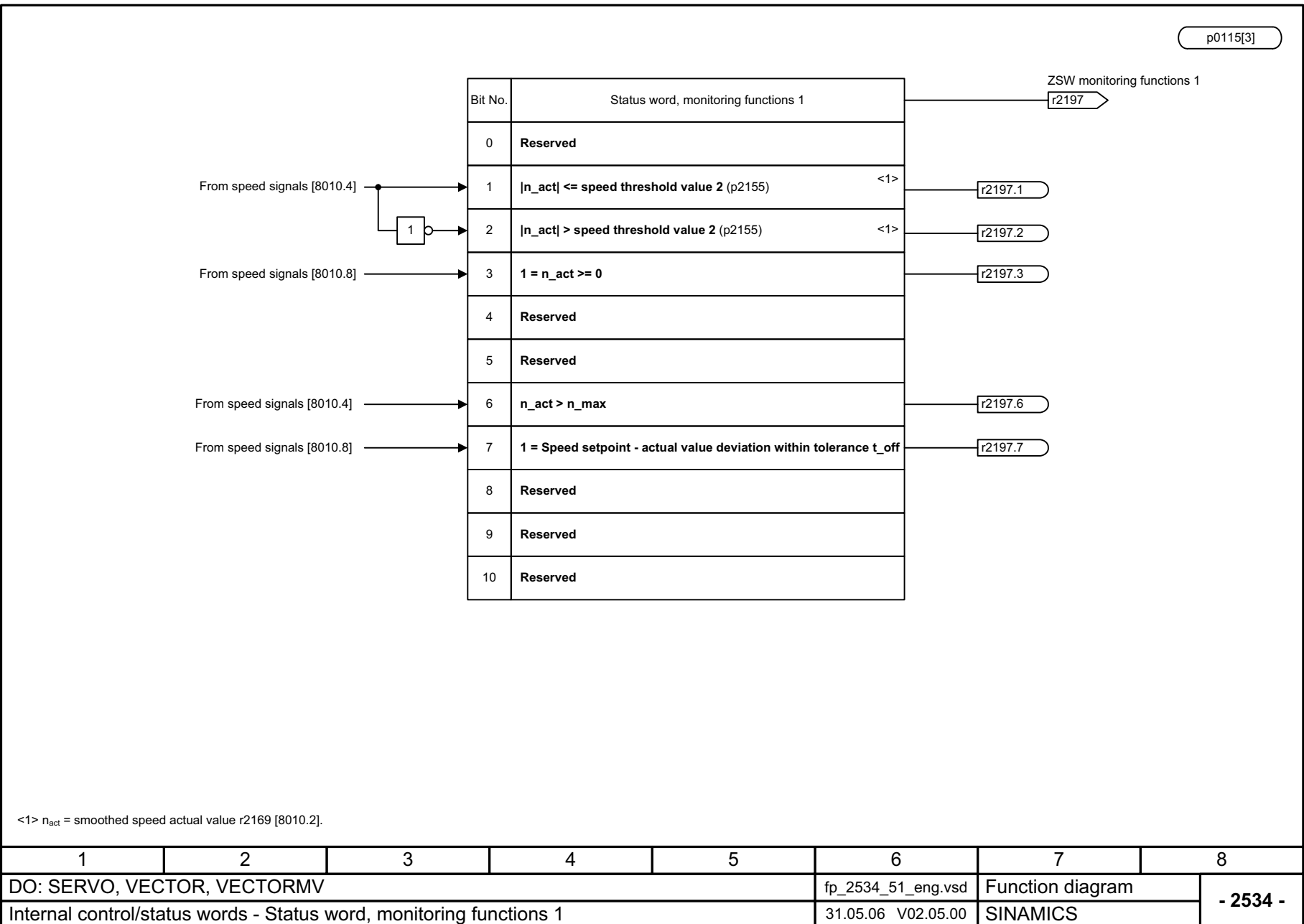


Figure 2-86 2534 – Status word monitoring functions 1

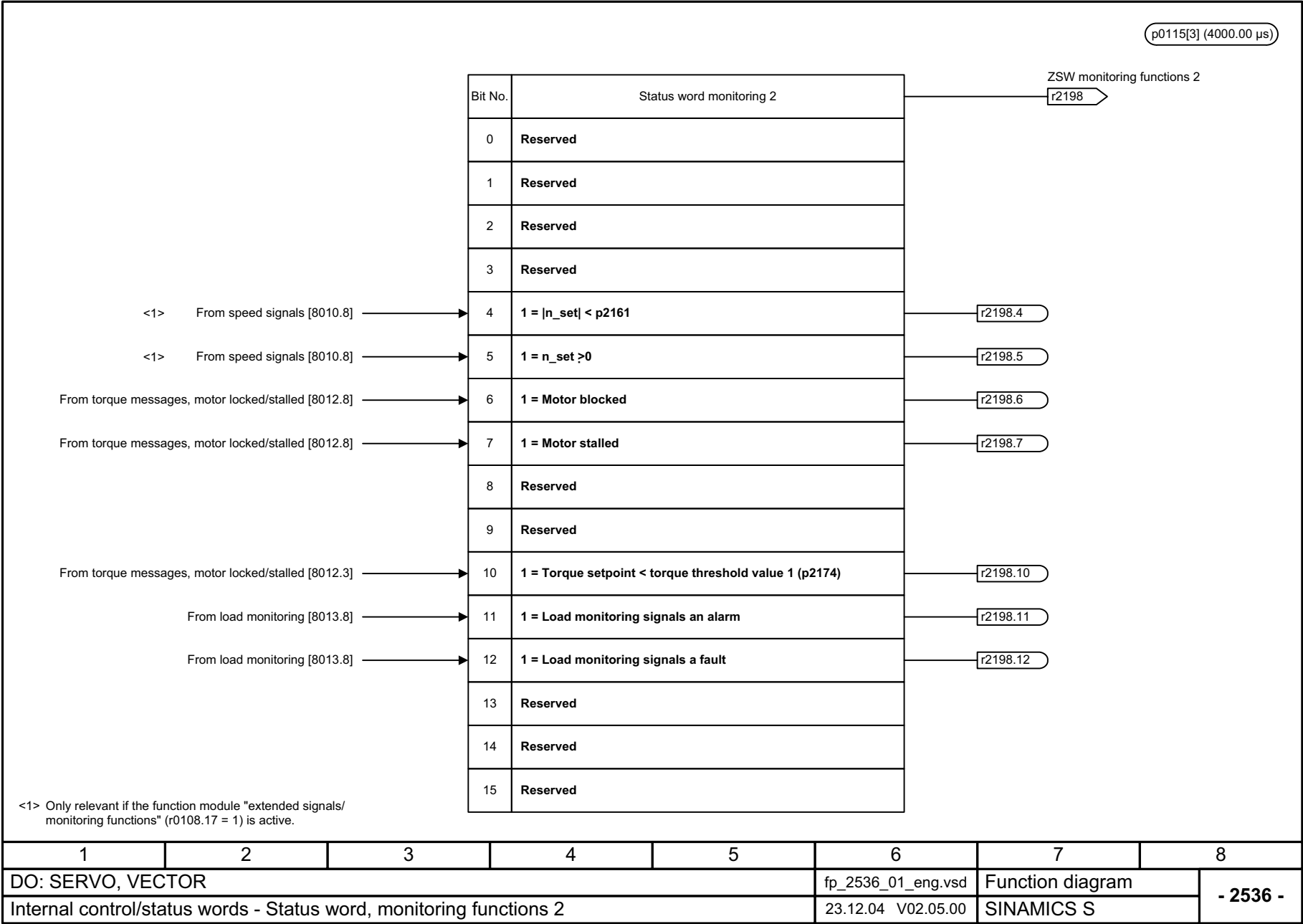


Figure 2-87 2536 – Status word monitoring functions 2

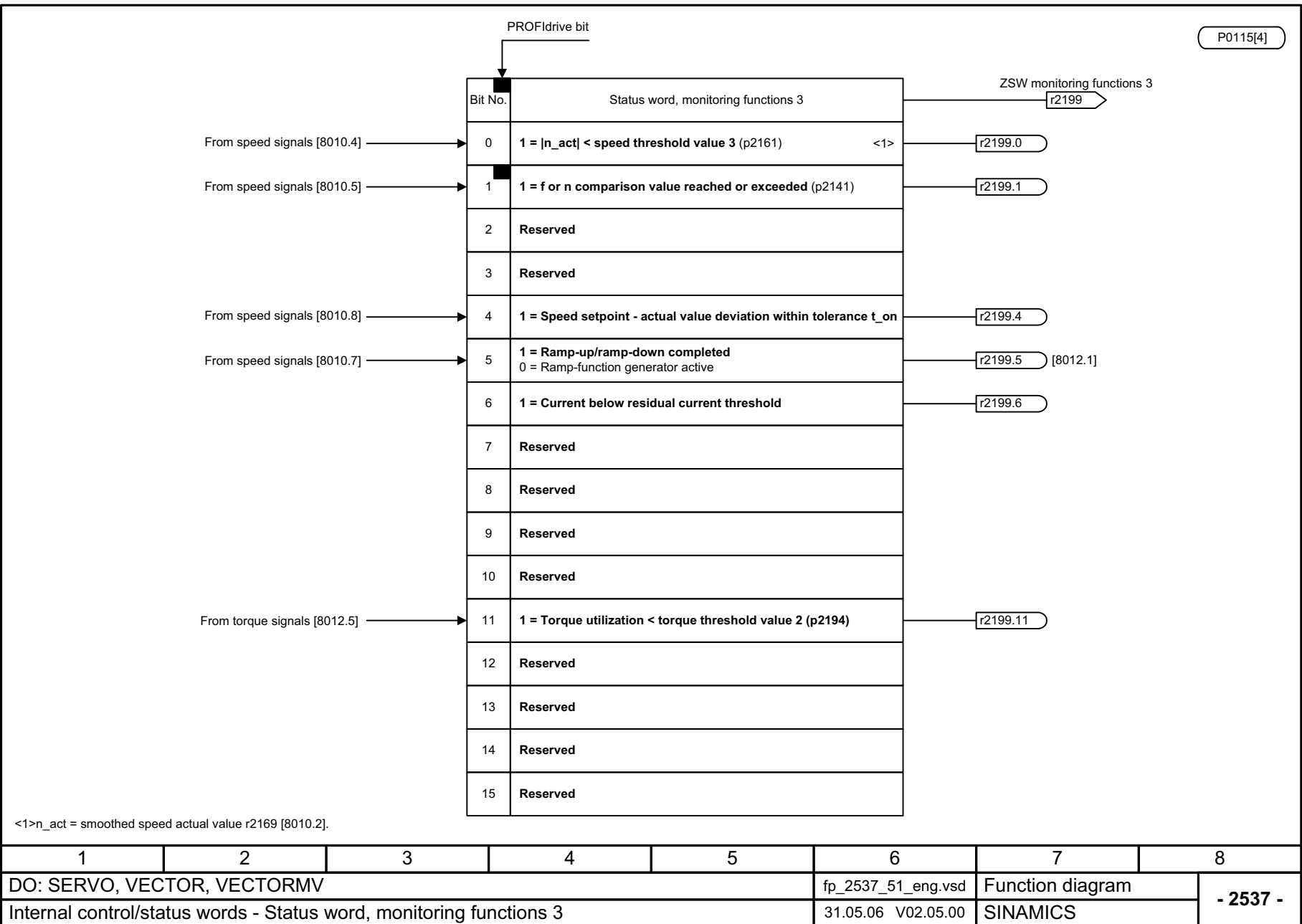
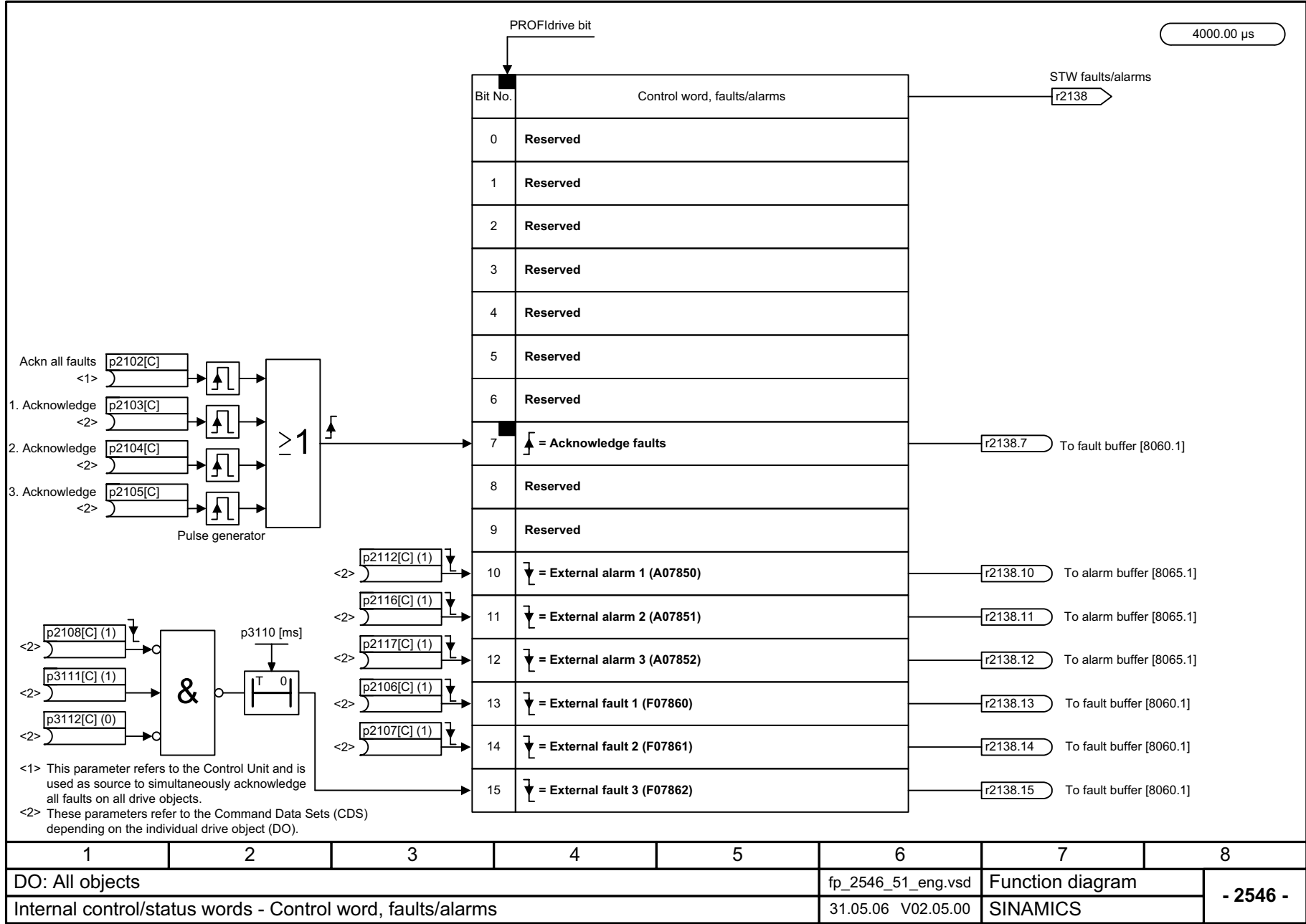
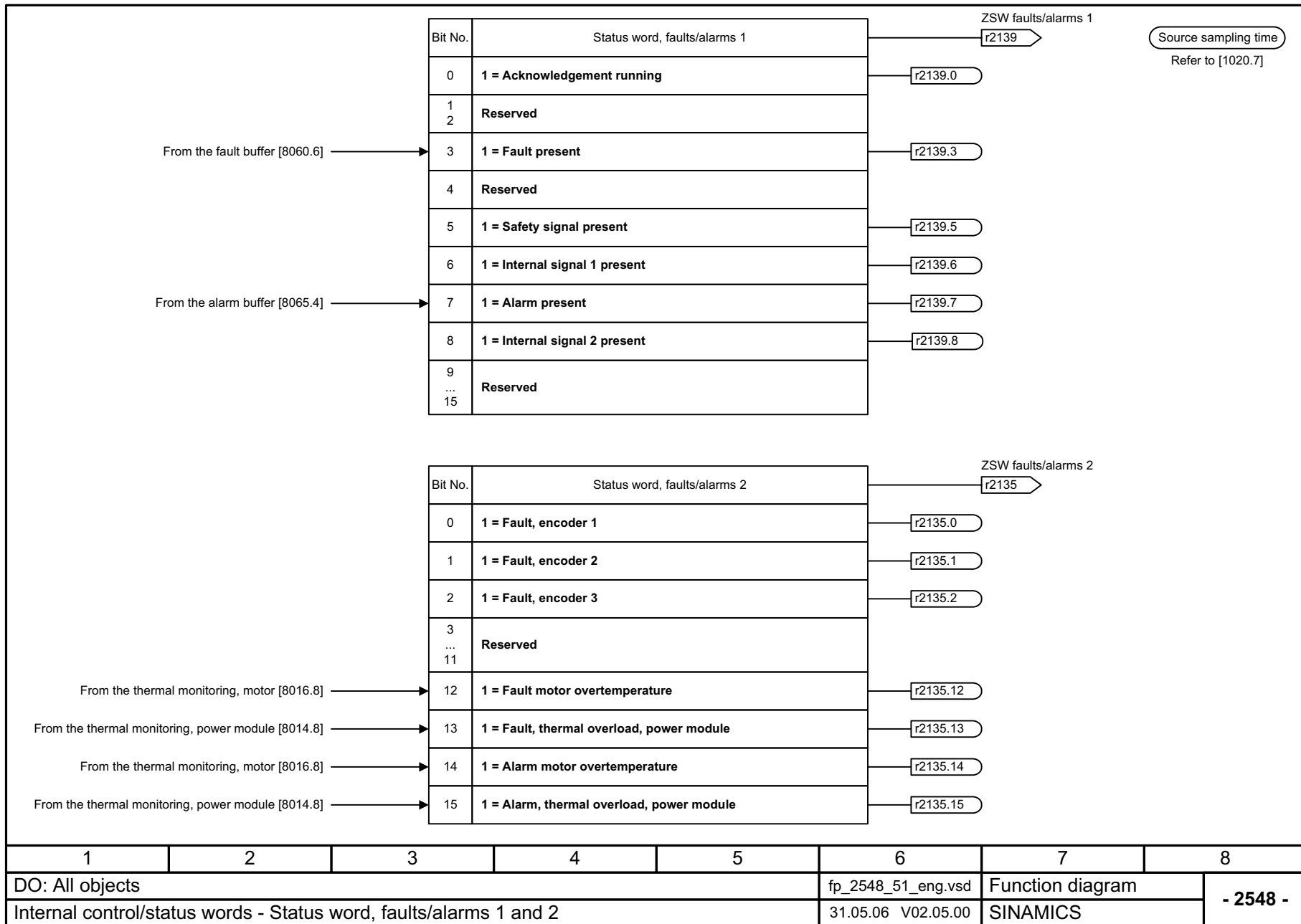


Figure 2-88 2537 – Status word monitoring functions 3

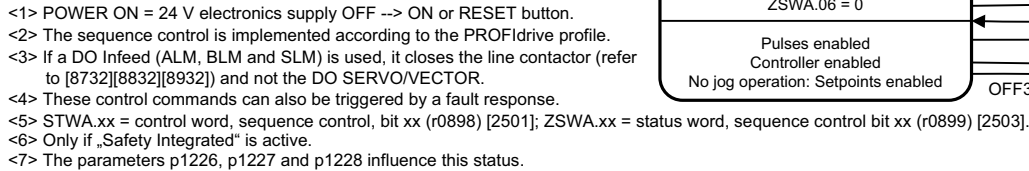


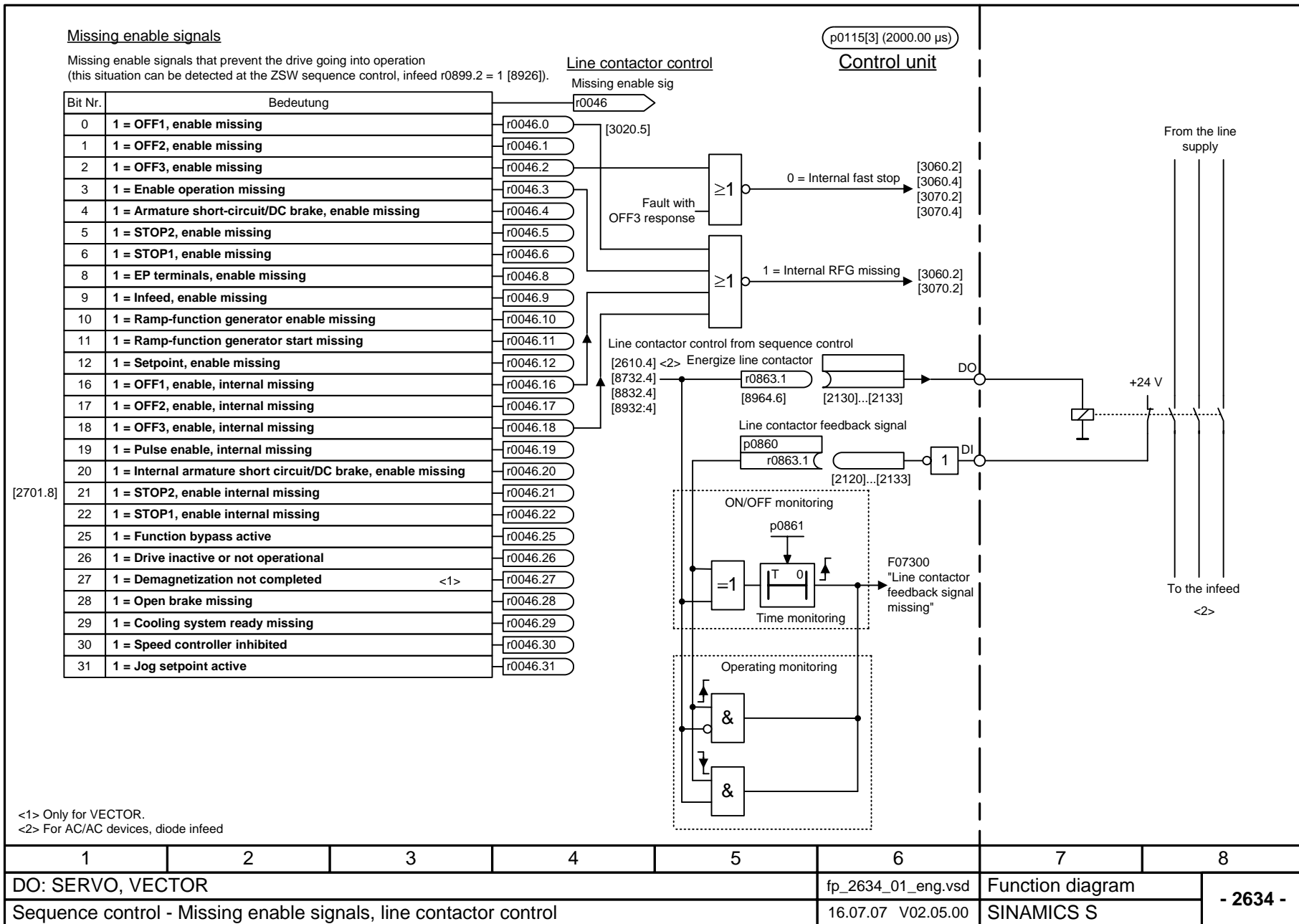


2.10 Sequence control

Function diagrams

2610 – Sequencer	2-1201
2634 – Missing enable signals, line contactor control	2-1202





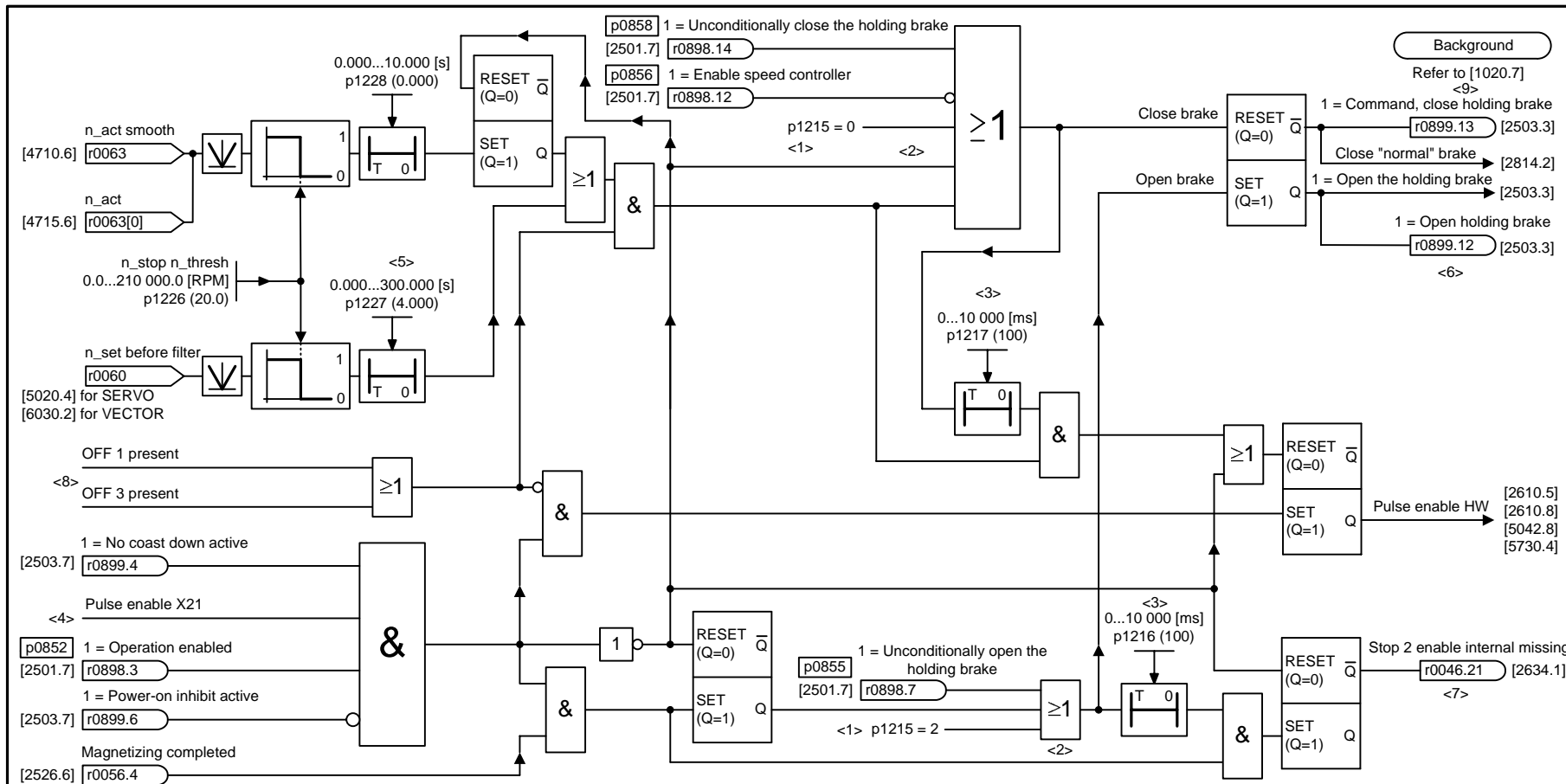
<1> Only for VECTOR.
<2> For AC/AC devices, diode infeed

Figure 2-92 2634 – Missing enable signals, line contactor control

2.11 Braking control

Function diagrams

2701 – Basic braking control (r0108.14 = 0)	2-1204
2704 – Extended braking control, zero speed detection (r0108.14 = 1)	2-1205
2707 – Extended braking control / open/close brake (r0108.14 = 1)	2-1206
2711 – Extended braking, signal outputs (r0108.14 = 1)	2-1207



- <1> Motor holding brake configuration (p1215)
0 = No motor holding brake being used.
1 = Motor holding brake acc. to sequence control.
2 = Motor holding brake always released.
3 = Motor holding brake like sequence control, connection via BICO.
- <2> Priority assignment (high -> low): p1215, p0858, p0855, p0856, sequence control.
- <3> If p1215 = 0, 2 -> t = 0 ms.
- <4> Only if Safety Integrated is active (Double Motor Module: X22, Chassis: X41).
- <5> For p1227 = 300 s, the monitoring function is deactivated.
- <6> If an external motor holding brake is used, p1215 should be set to 3 and r0899.12 should be interconnected as control signal.
- <7> r0046.21 = 0, as long as r0046.0 = 1 (OFF1 enable missing or power-on inhibit).
r0046.21 = 1, if p0858 = 1 or p0856 = 0.
The signal generation is shown simplified.
- <8> The internal signal includes signals that lead to OFF1 or OFF3 (e. g. BICO or fault response).
- <9> If the brake is permanently applied or released (p0855, p0858 or p1215), the drive does not wait while the brake is released or applied.

Note: Braking signal diagnostic evaluation (p1278) only applies for SBC (Safe Brake Control) (controls the Safe Brake Relay).

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2701_01_eng.vsd	Function diagram	
Braking control - Basic braking control (r0108.14 = 0)					26.07.07 V02.05.00	SINAMICS S	
							- 2701 -

Figure 2-93 2701 – Basic braking control (r0108.14 = 0)

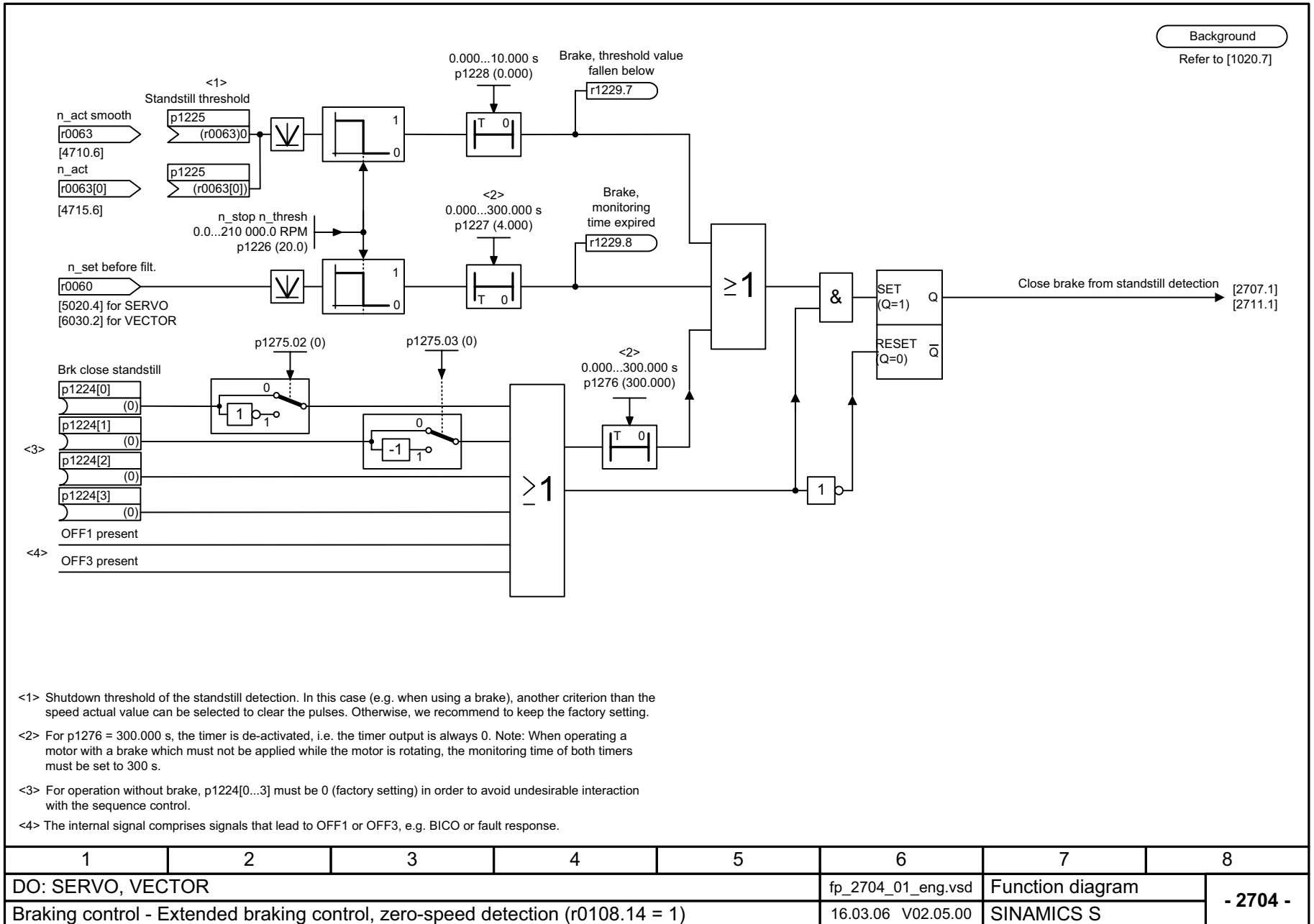


Figure 2-94 2704 – Extended braking control, zero speed detection (r0108.14 = 1)

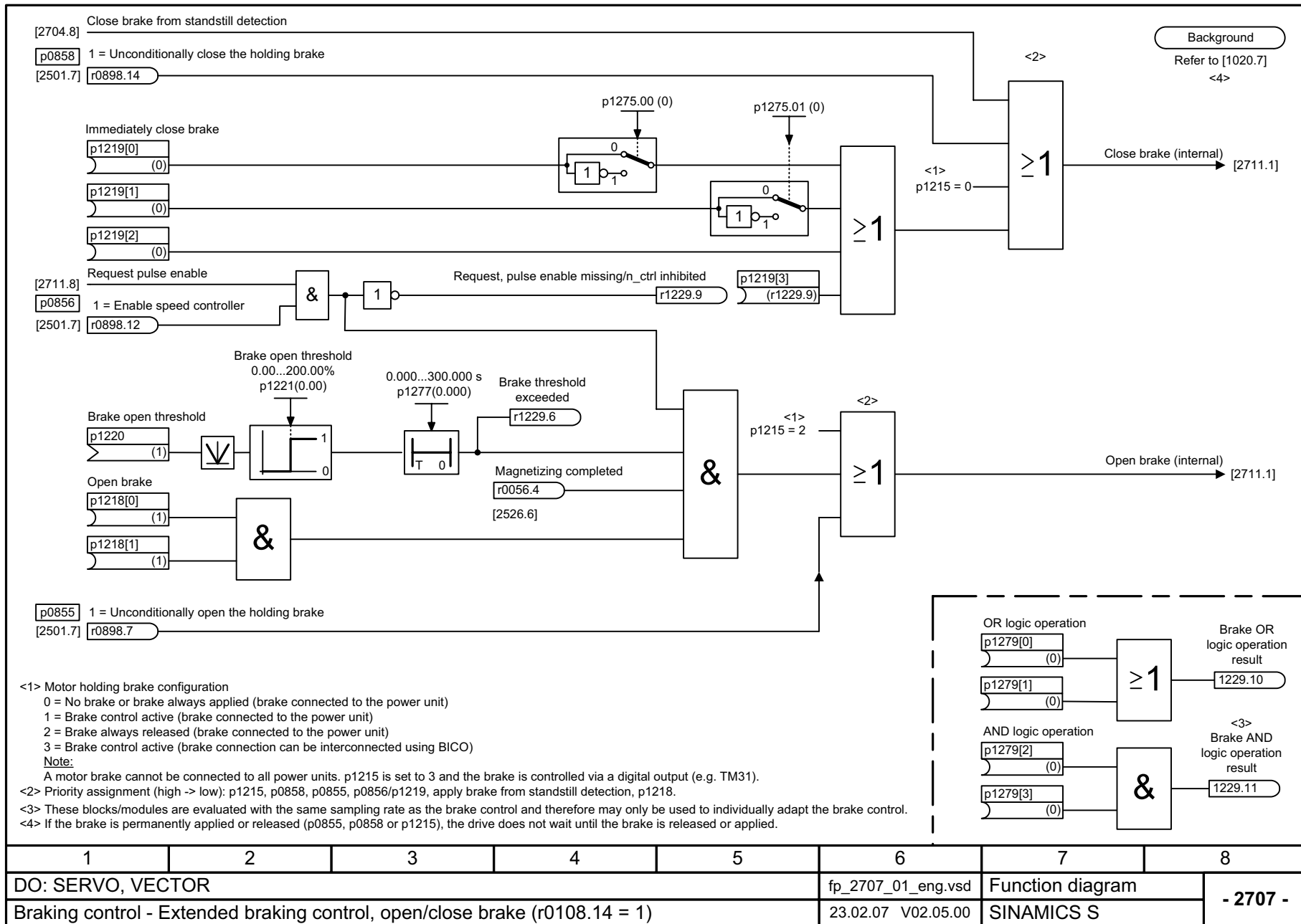
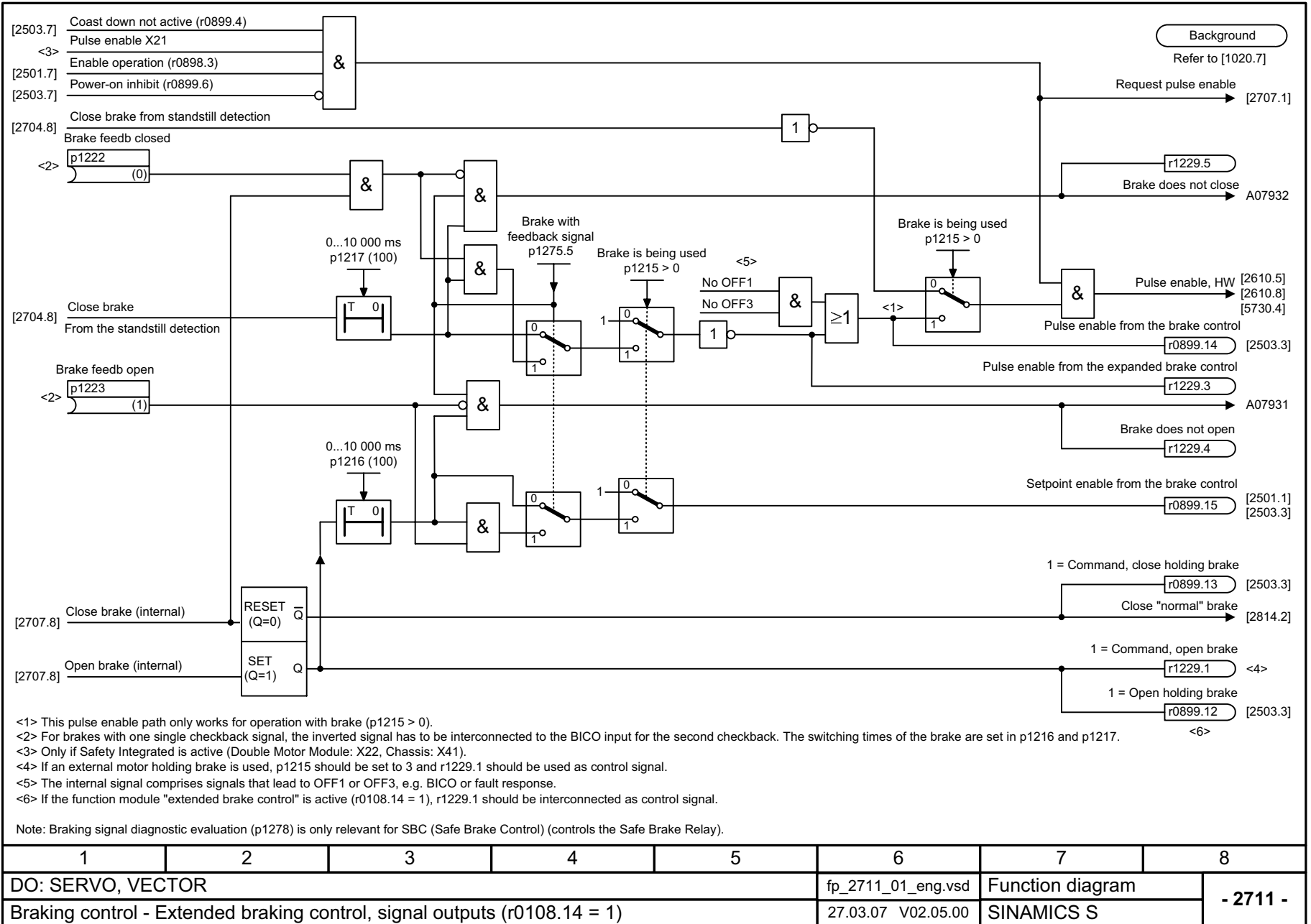


Figure 2-96 2711 – Extended braking, signal outputs (r0108.14 = 1)



2.12 Safety Integrated

Function diagrams

2800 – Basic functions, parameter manager	2-1209
2802 – Basic functions, monitoring and faults/alarms	2-1210
2804 – Basic functions, status words	2-1211
2810 – Basic functions, STO (Safe Torque Off)/SS1 (Safe Stop 1)	2-1212
2814 – Basic functions, SBC (Safe Brake Control)	2-1213
2825 – Extended functions, SS1, SS2, SOS, Internal STOP B, C, D, F	2-1214
2840 – Extended functions, control word and status word	2-1215
2846 – Extended functions, parameter manager	2-1216
2847 – Extended functions, TM54F parameter manager	2-1217
2848 – Extended functions, TM54F configuration, F-DI/F-DO test	2-1218
2850 – Extended functions, TM54F (F-DI 0 ... F-DI 4)	2-1219
2851 – Extended functions, TM54F (F-DI 5 ... F-DI 9)	2-1220
2853 – Extended functions, TM54F (F-DO 0 ... F-DO 3, DI 20 ... DI 23)	2-1221
2855 – Extended functions, TM54F control interface	2-1222
2856 – Extended functions, TM54F Safe State selection	2-1223
2857 – Extended functions, TM54F assignment (F-DO 0 ... F-DO 3)	2-1224

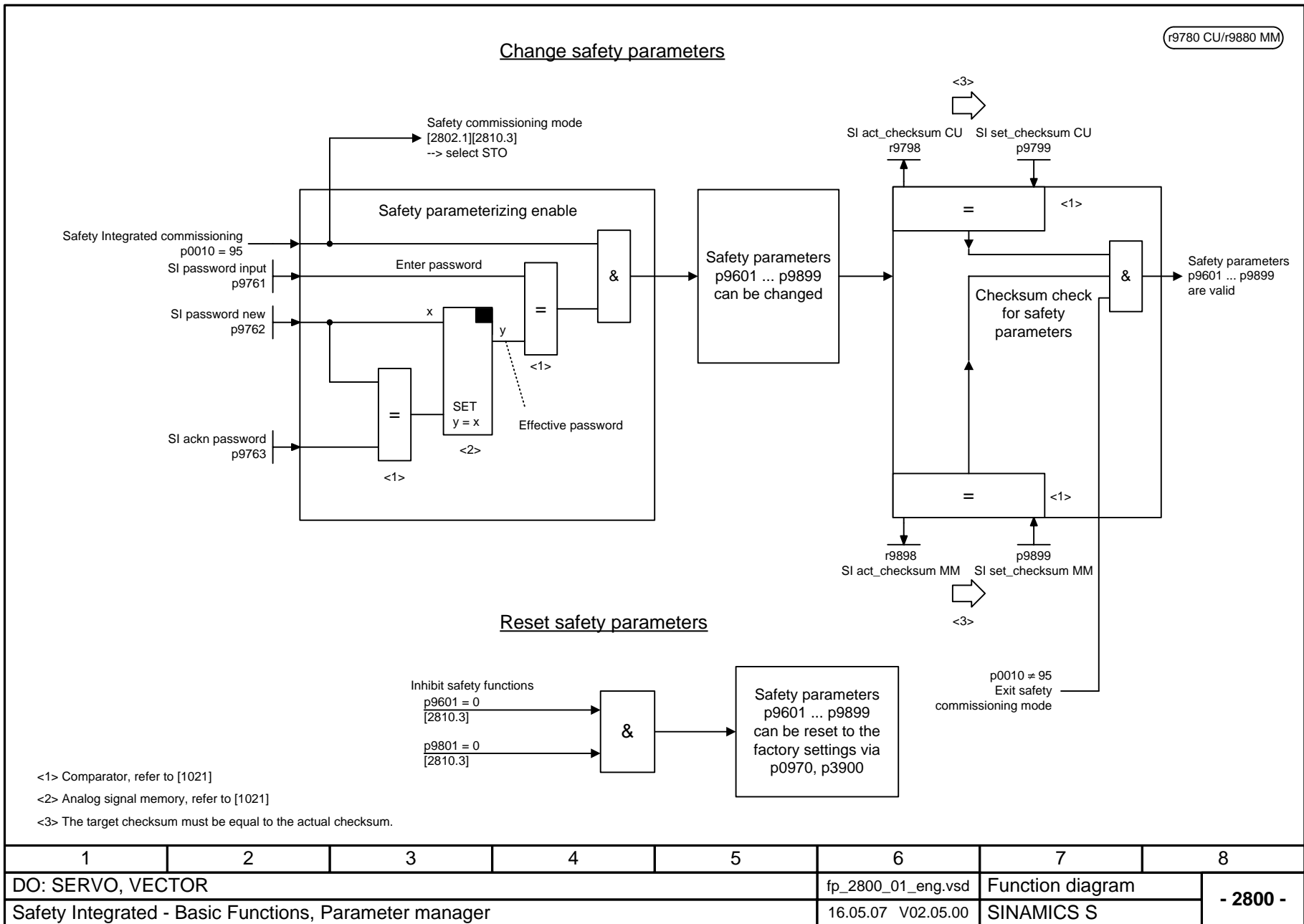
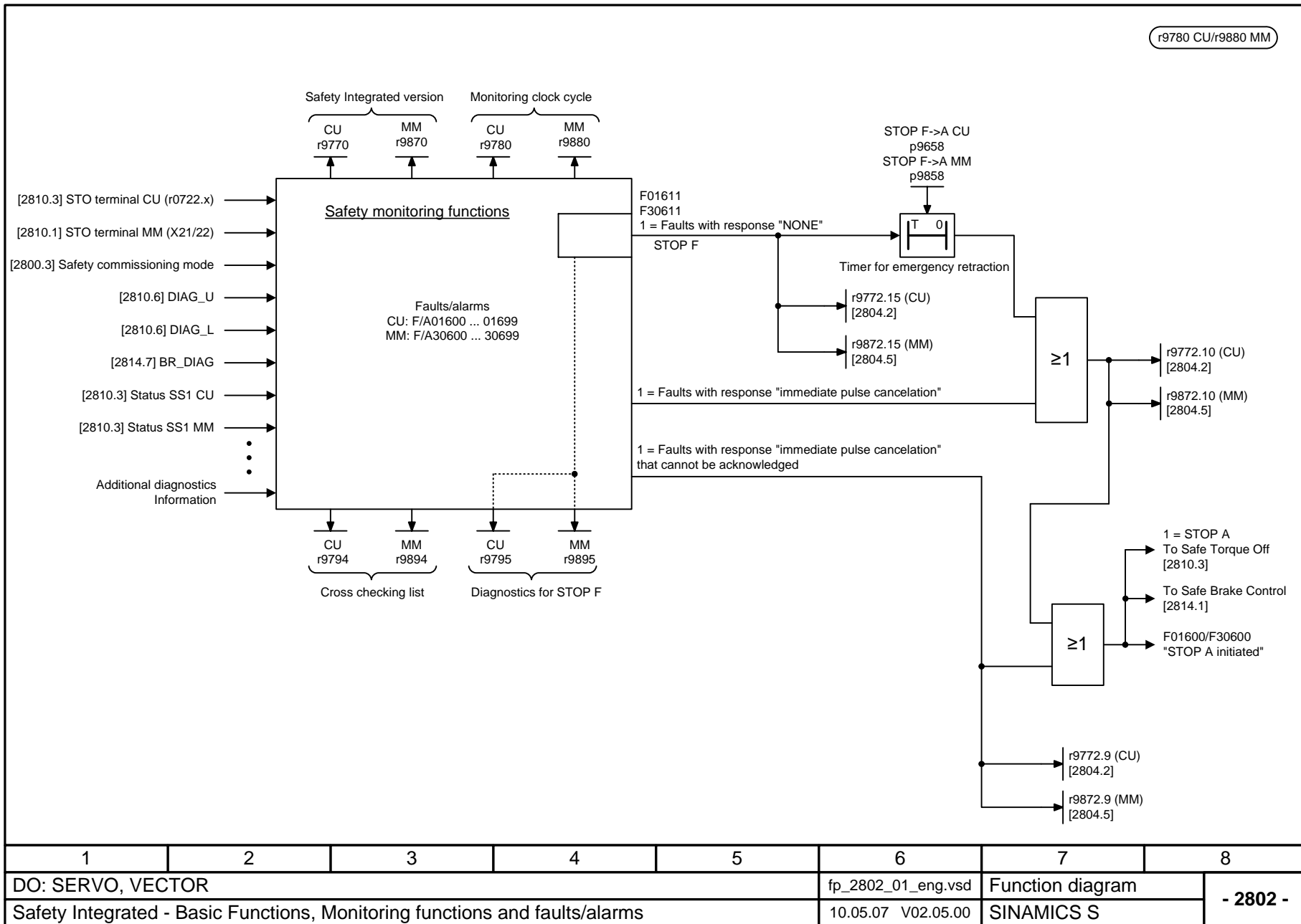


Figure 2-97 2800 – Basic functions, parameter manager



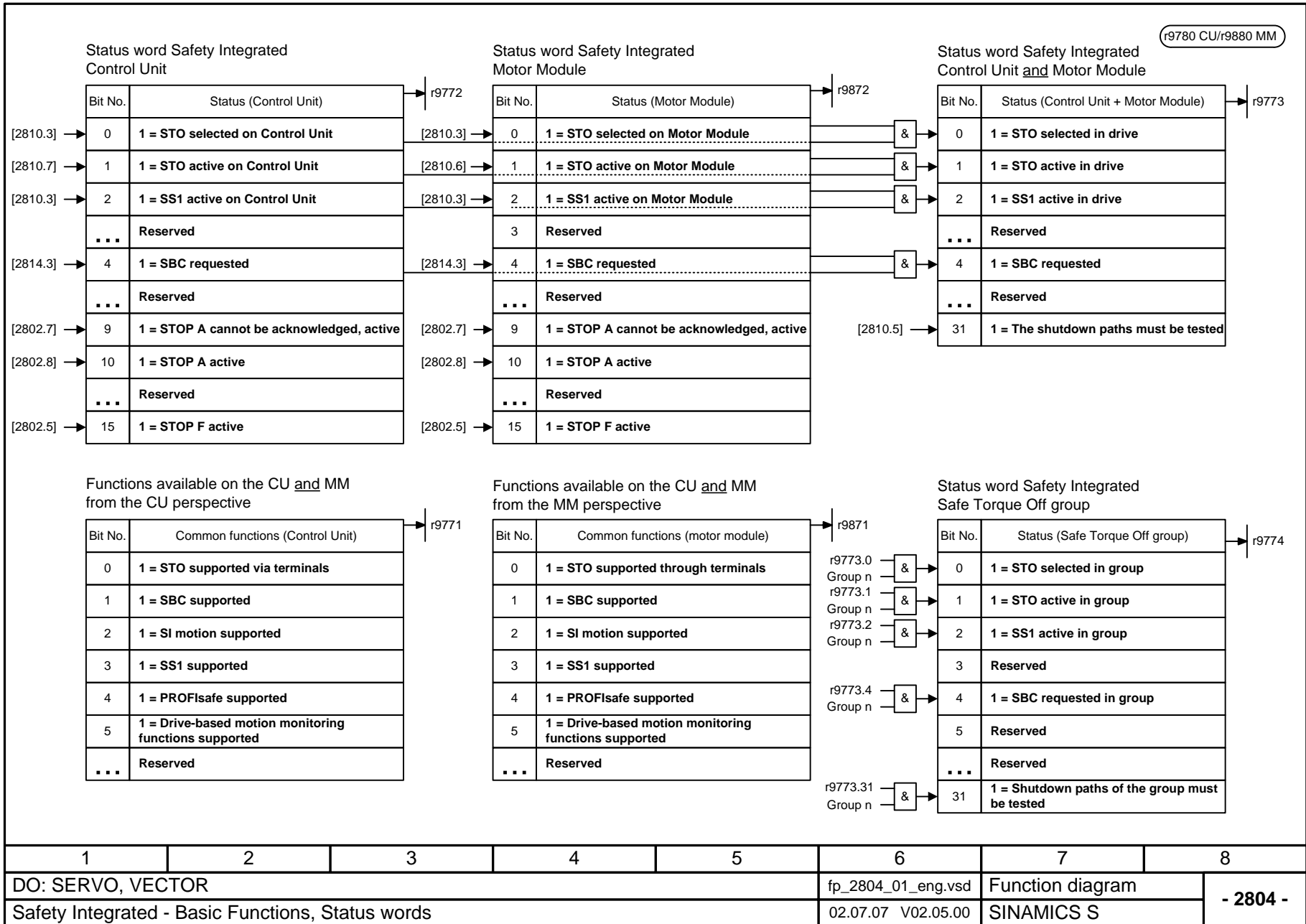


Figure 2-99 2804 – Basic functions, status words

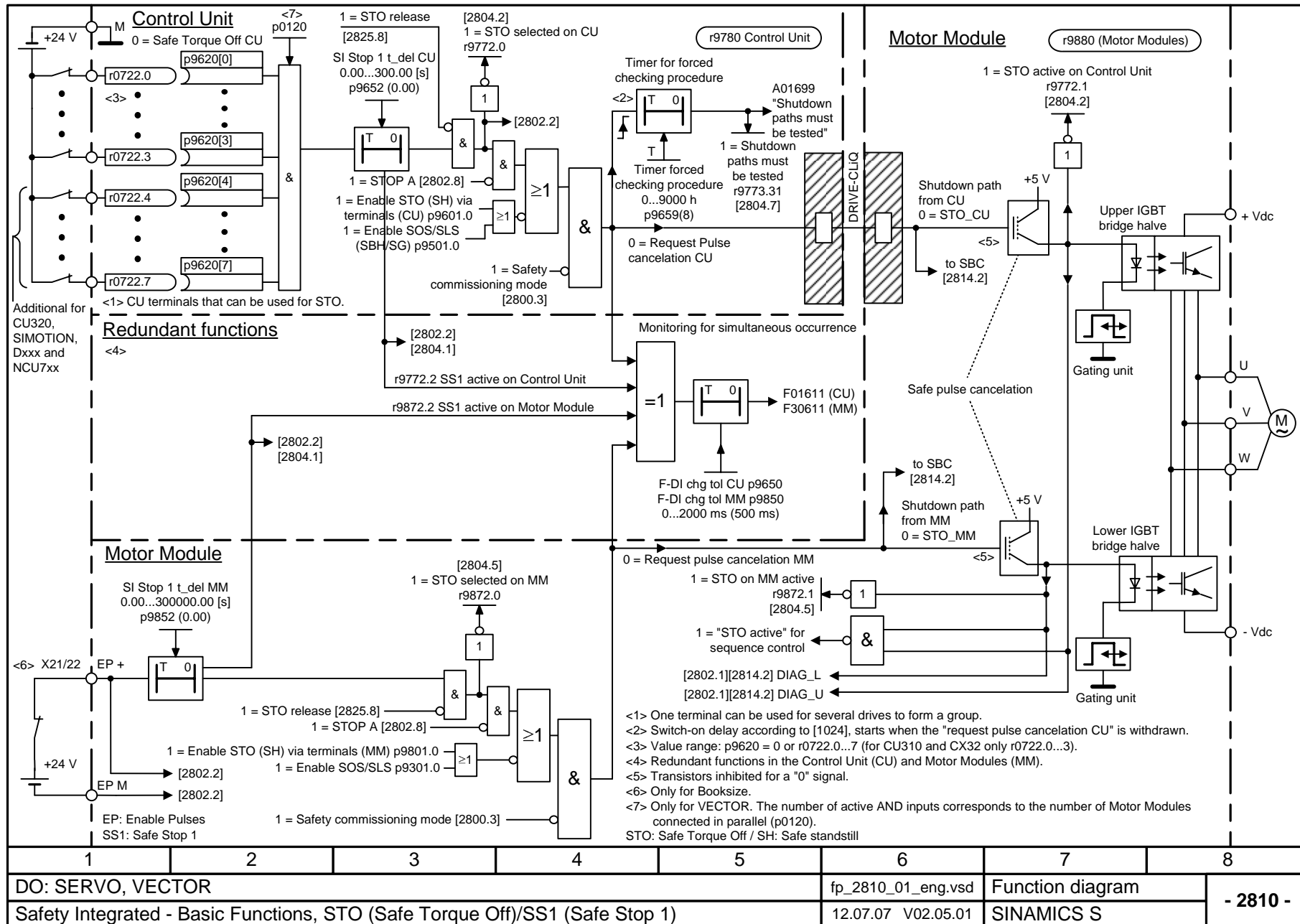
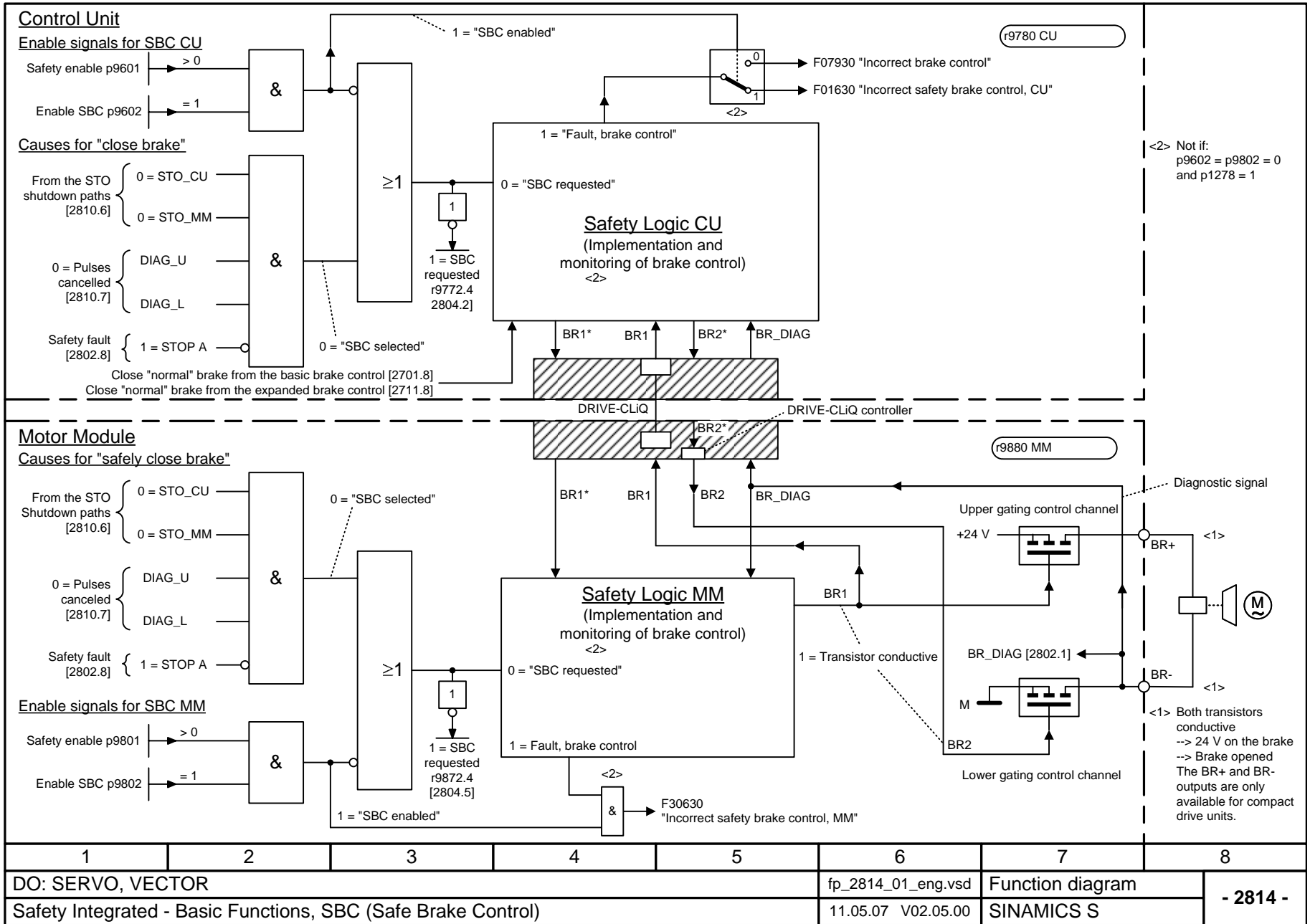


Figure 2-101 2814 – Basic functions, SBC (Safe Brake Control)



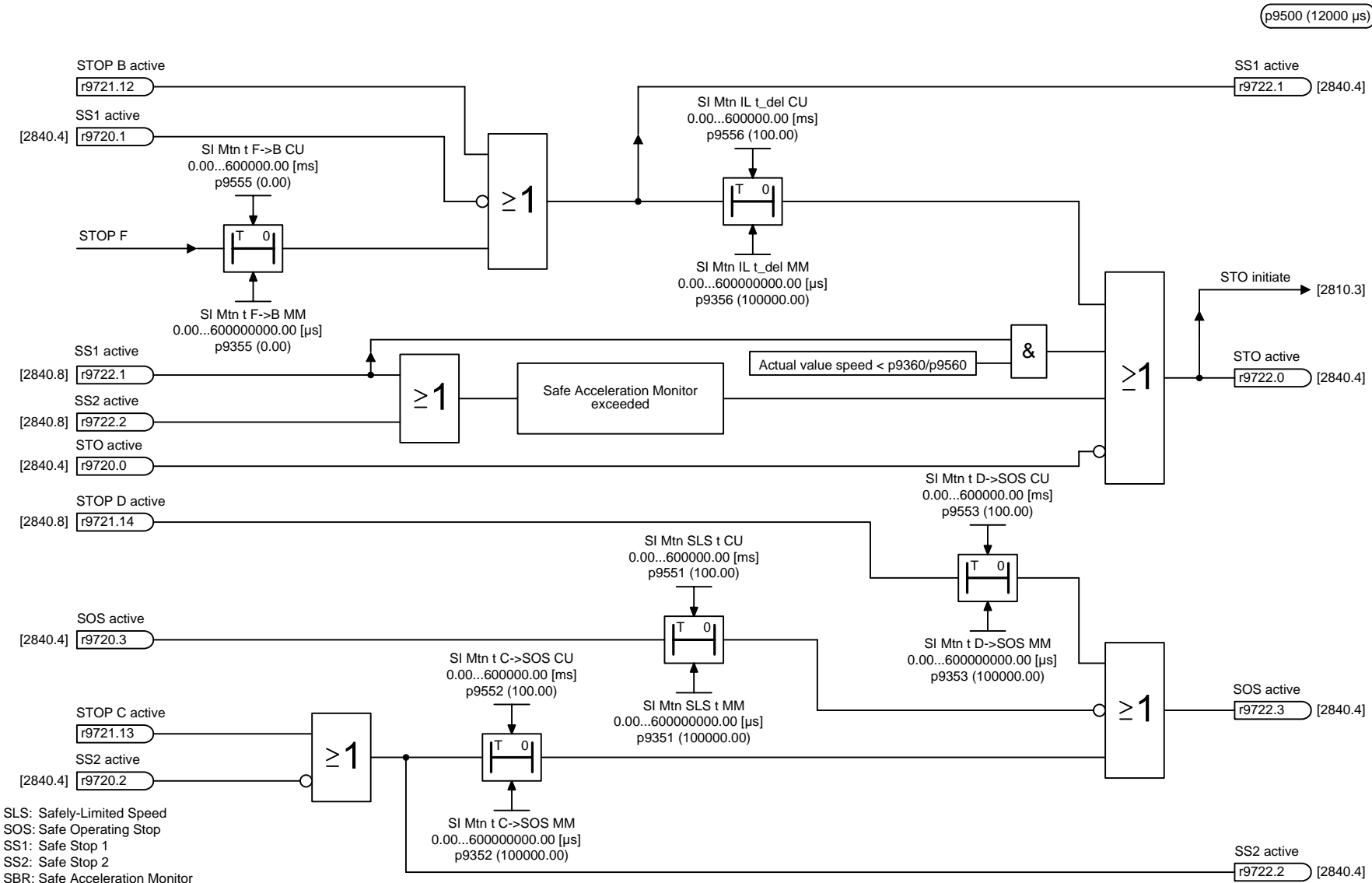


Figure 2-102 2825 – Extended functions, SS1, SS2, SOS, Internal STOP B, C, D, F

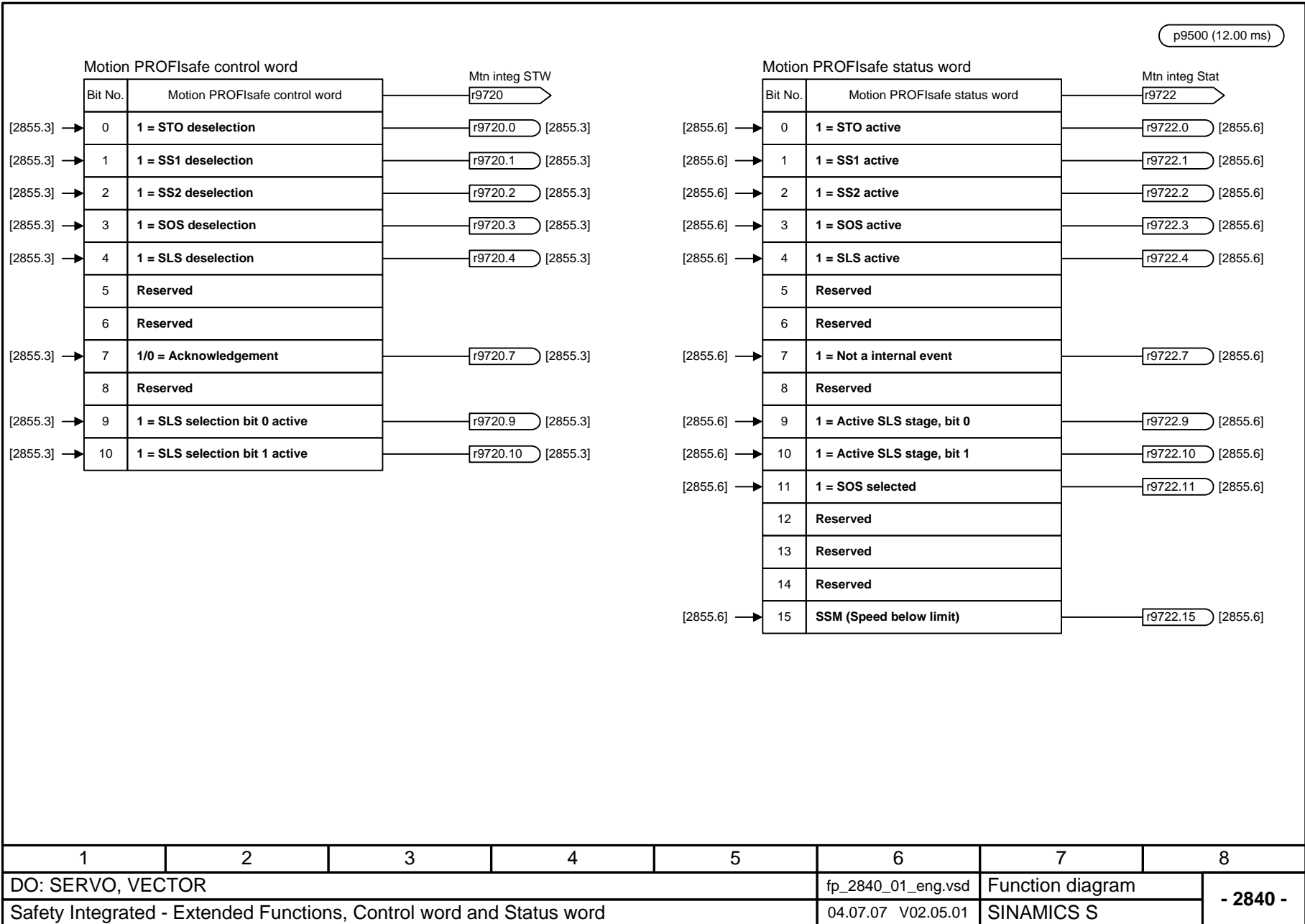


Figure 2-103 2840 – Extended functions, control word and status word

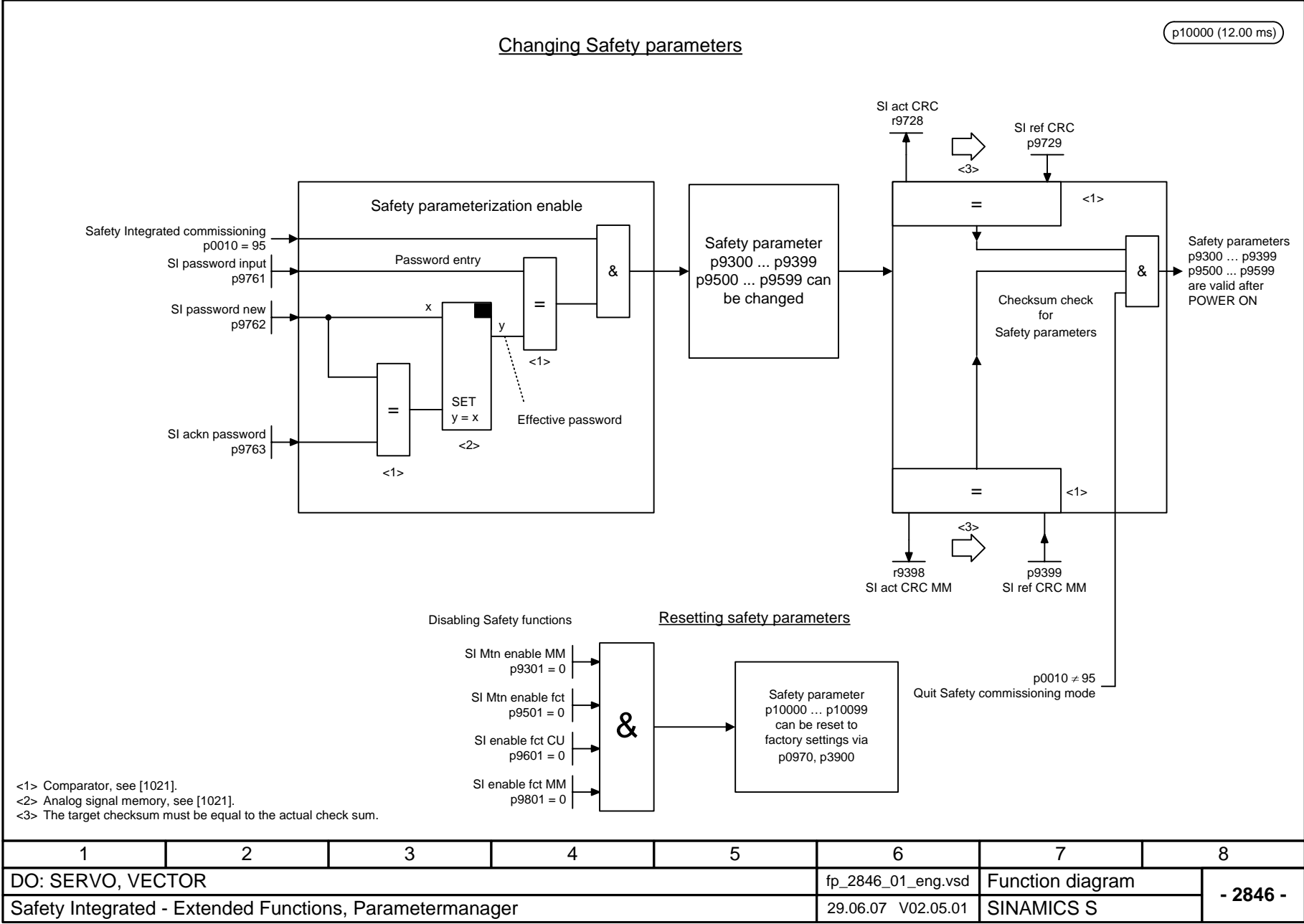


Figure 2-104 2846 – Extended functions, parameter manager

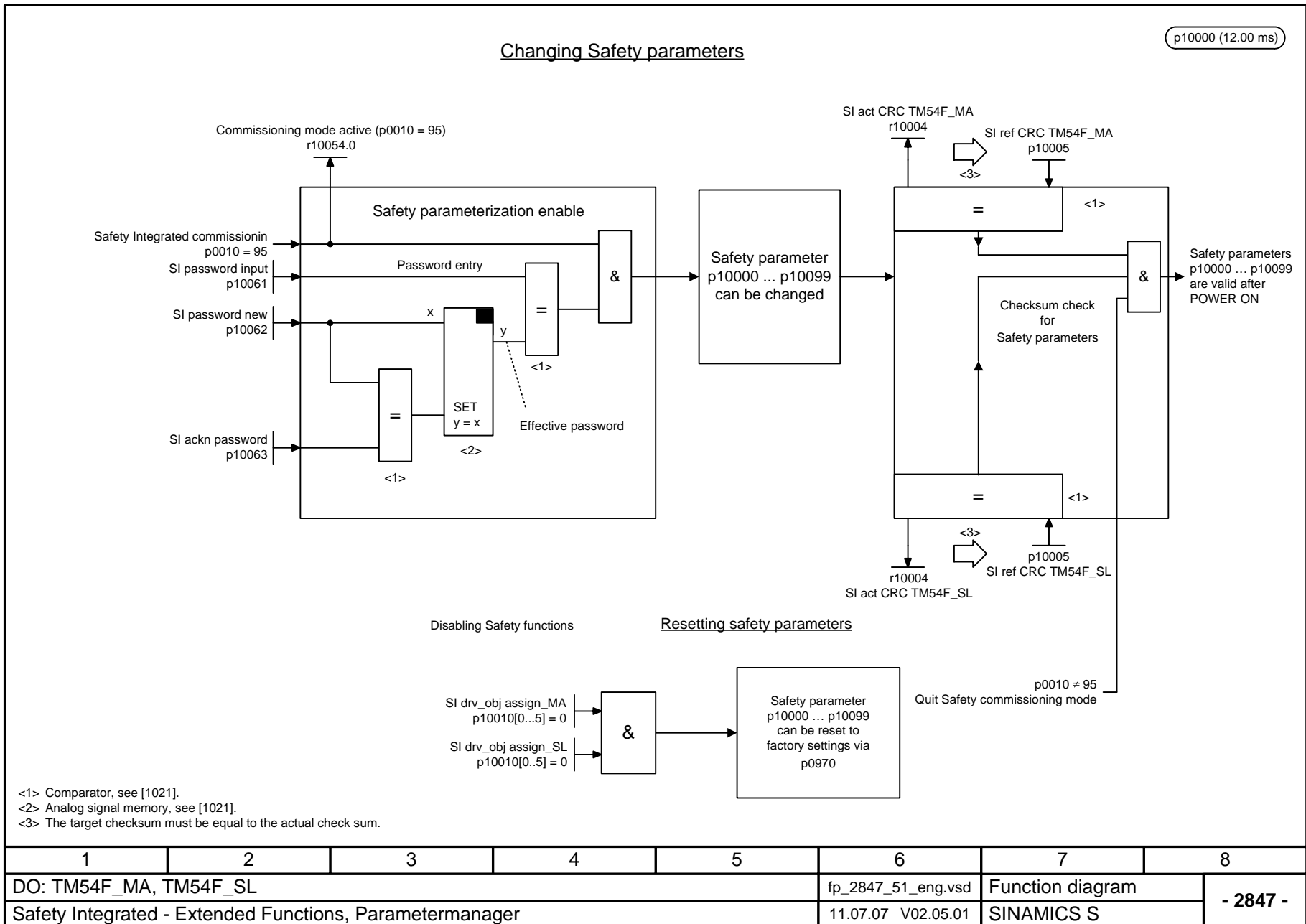
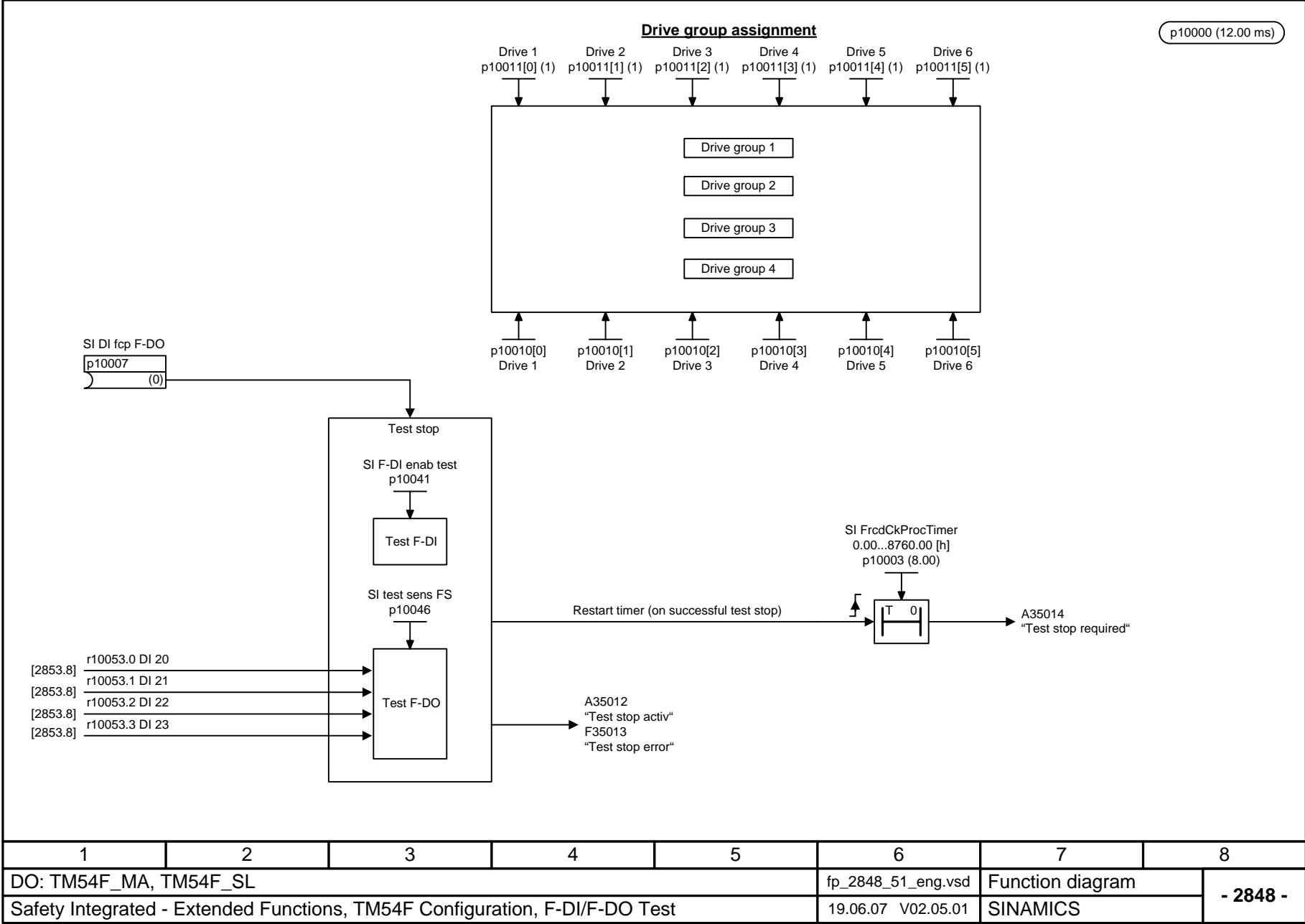


Figure 2-105 2847 – Extended functions, TM54F parameter manager



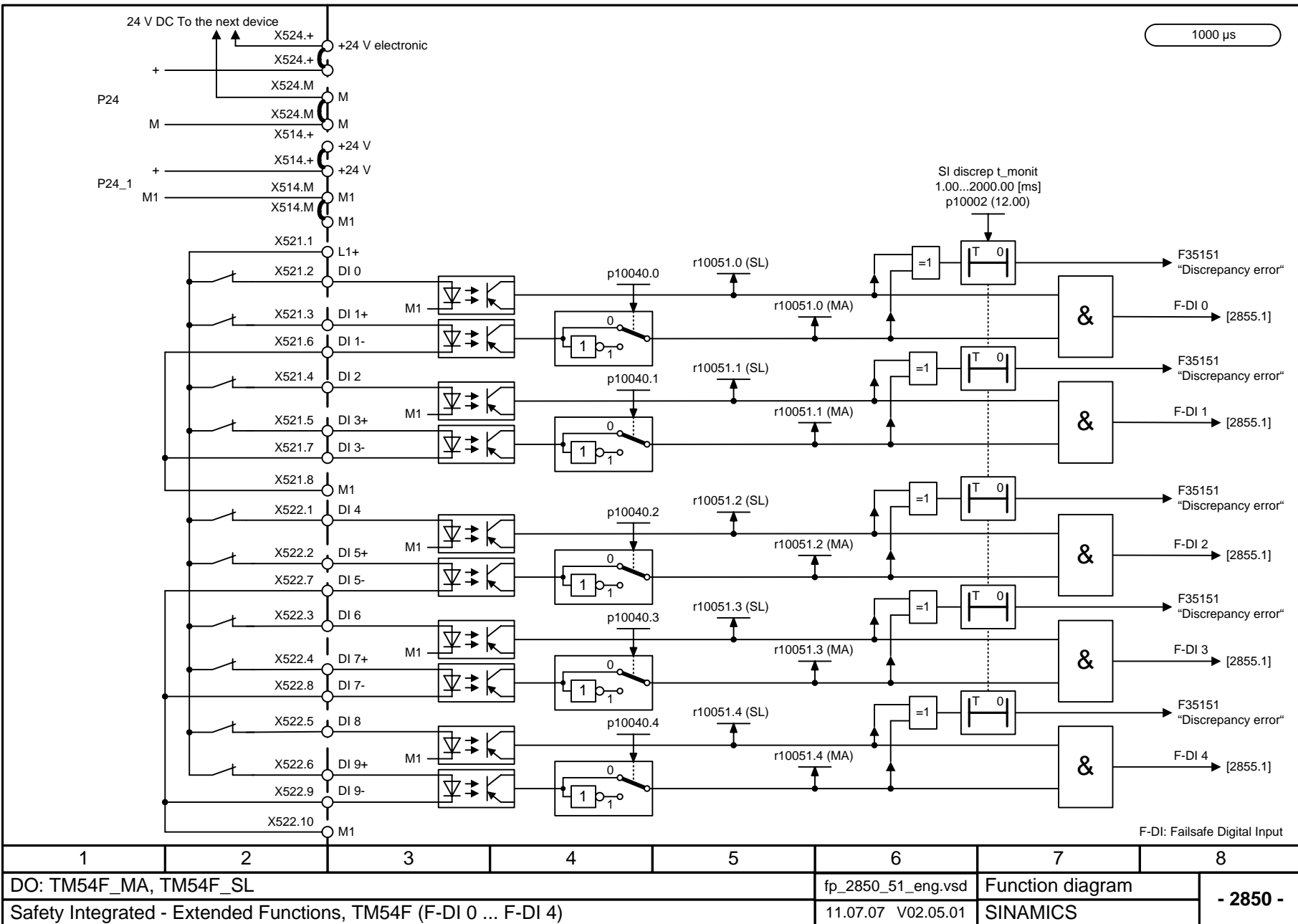


Figure 2-107 2850 – Extended functions, TM54F (F-DI 0 ... F-DI 4)

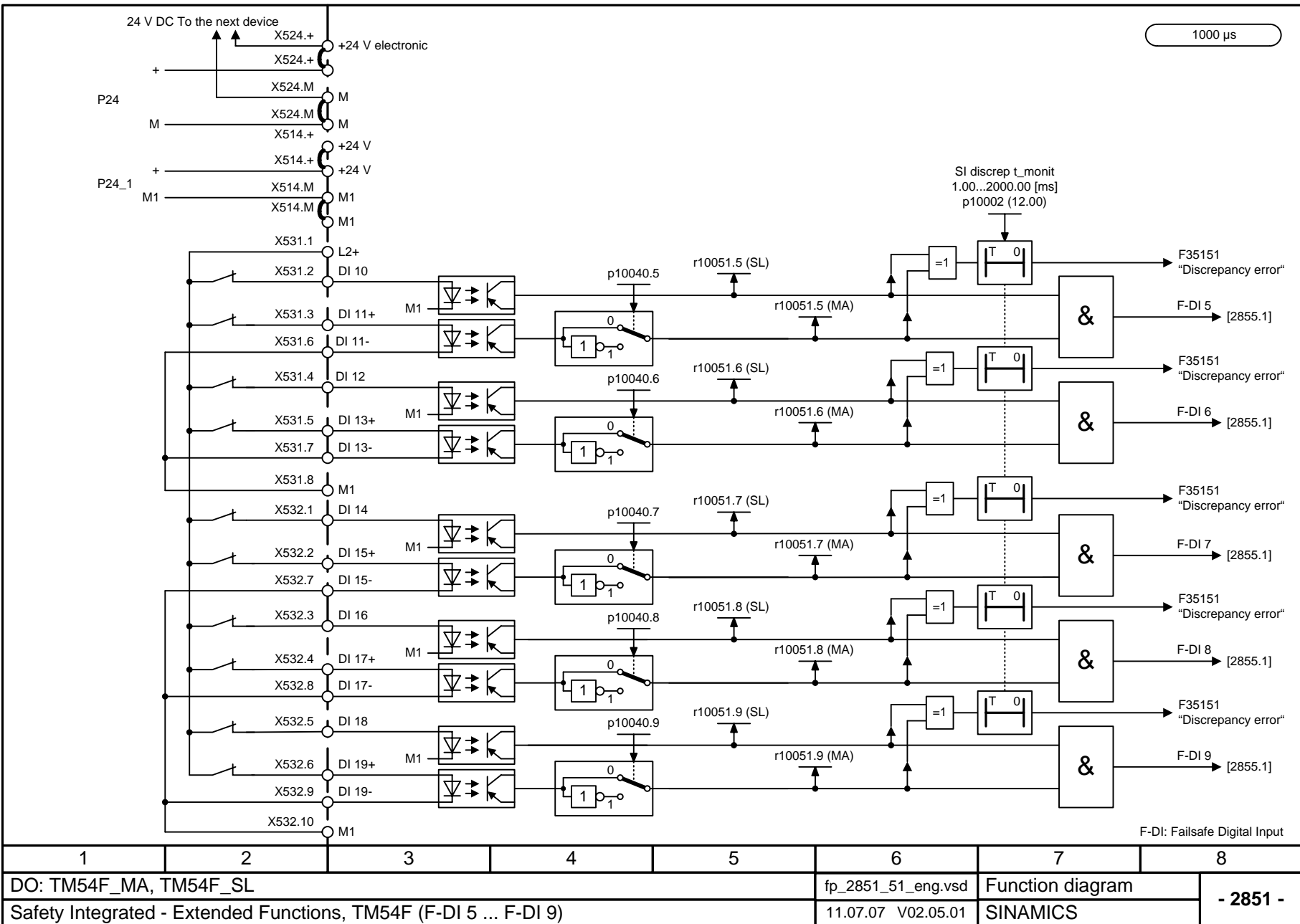


Figure 2-108 2851 – Extended functions, TM54F (F-DI 5 ... F-DI 9)

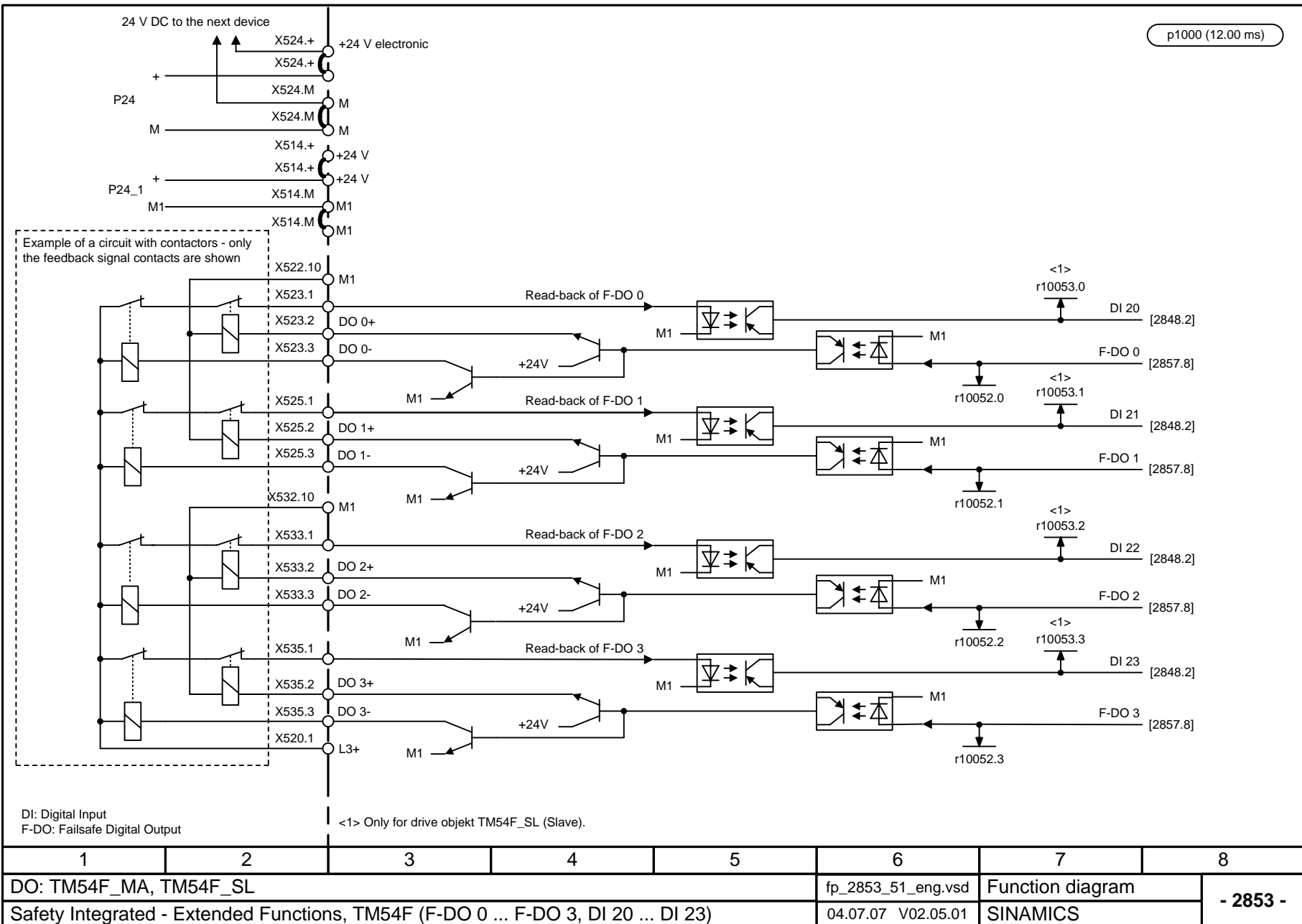


Figure 2-109 2853 – Extended functions, TM54F (F-DO 0 ... F-DO 3, DI 20 ... DI 23)

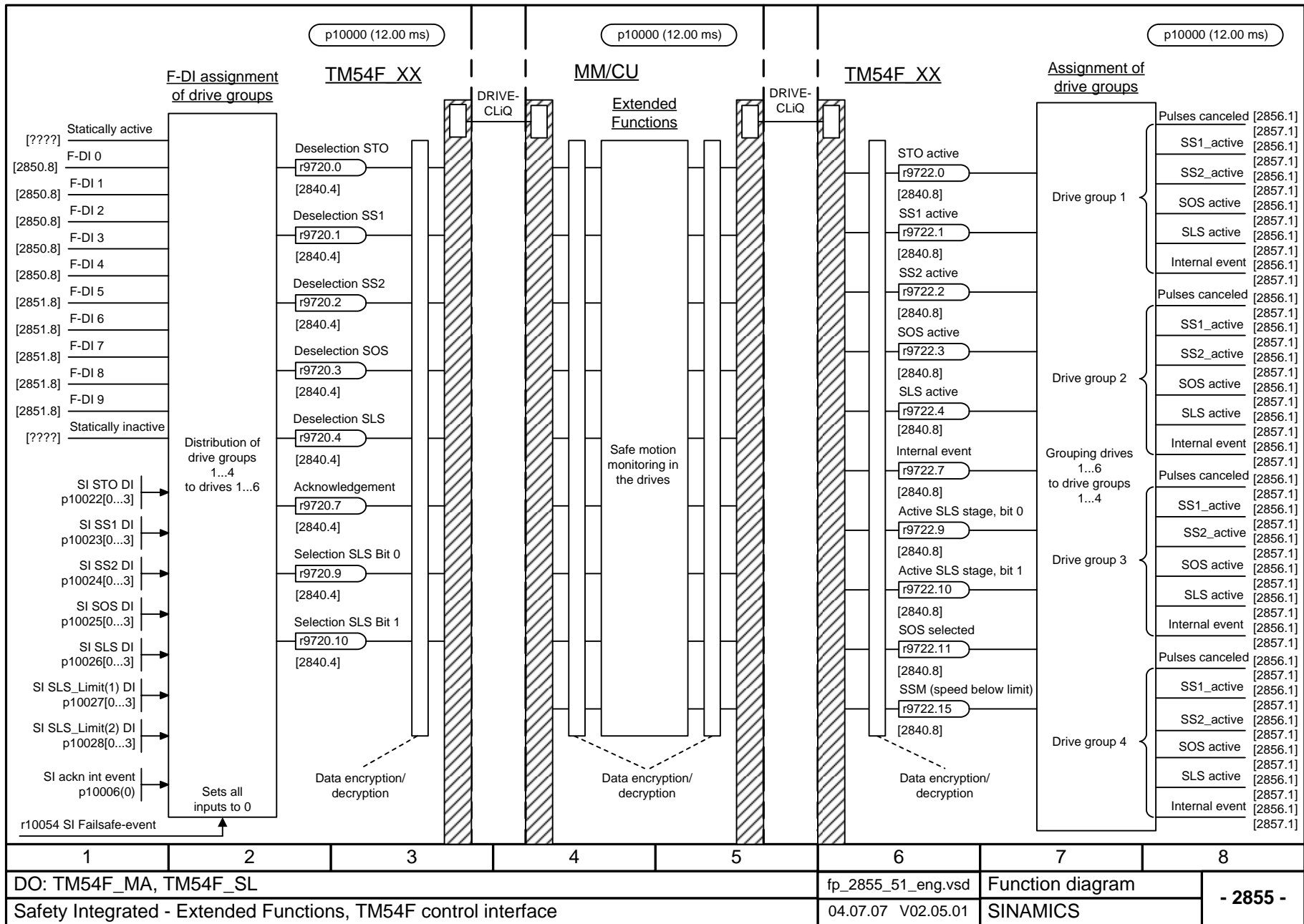


Figure 2-110 2855 – Extended functions, TM54F control interface

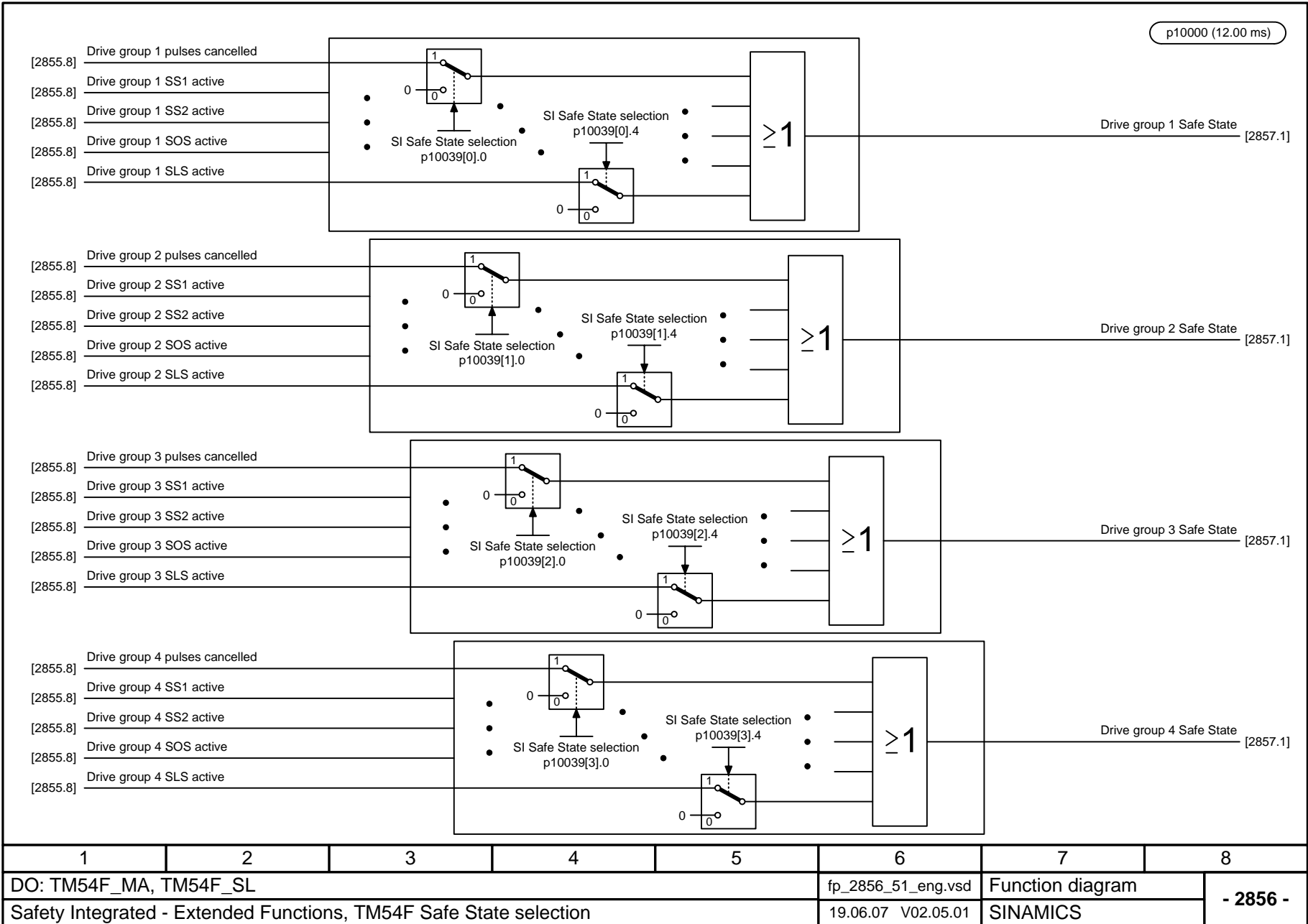


Figure 2-111 2856 – Extended functions, TM54F Safe State selection

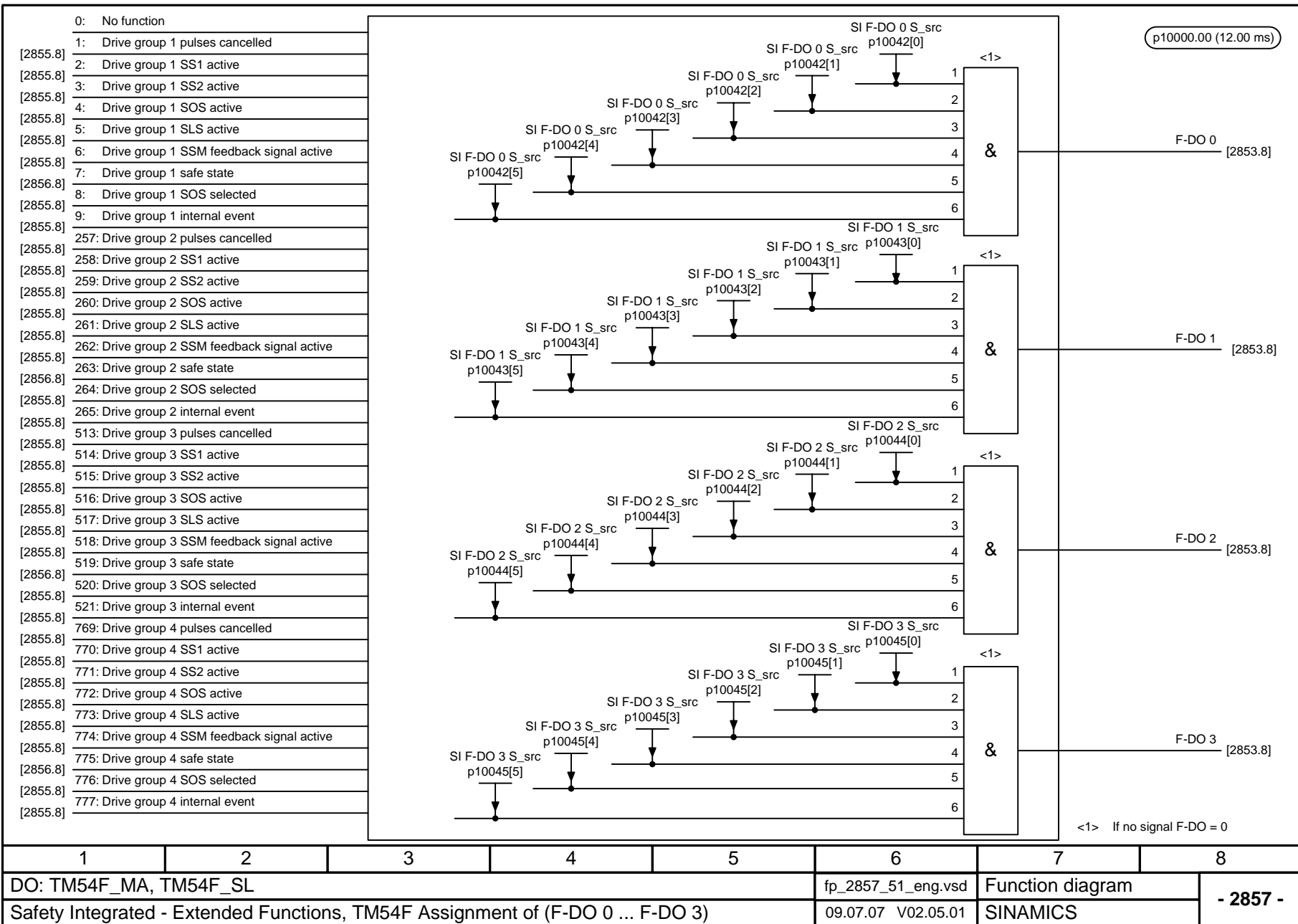
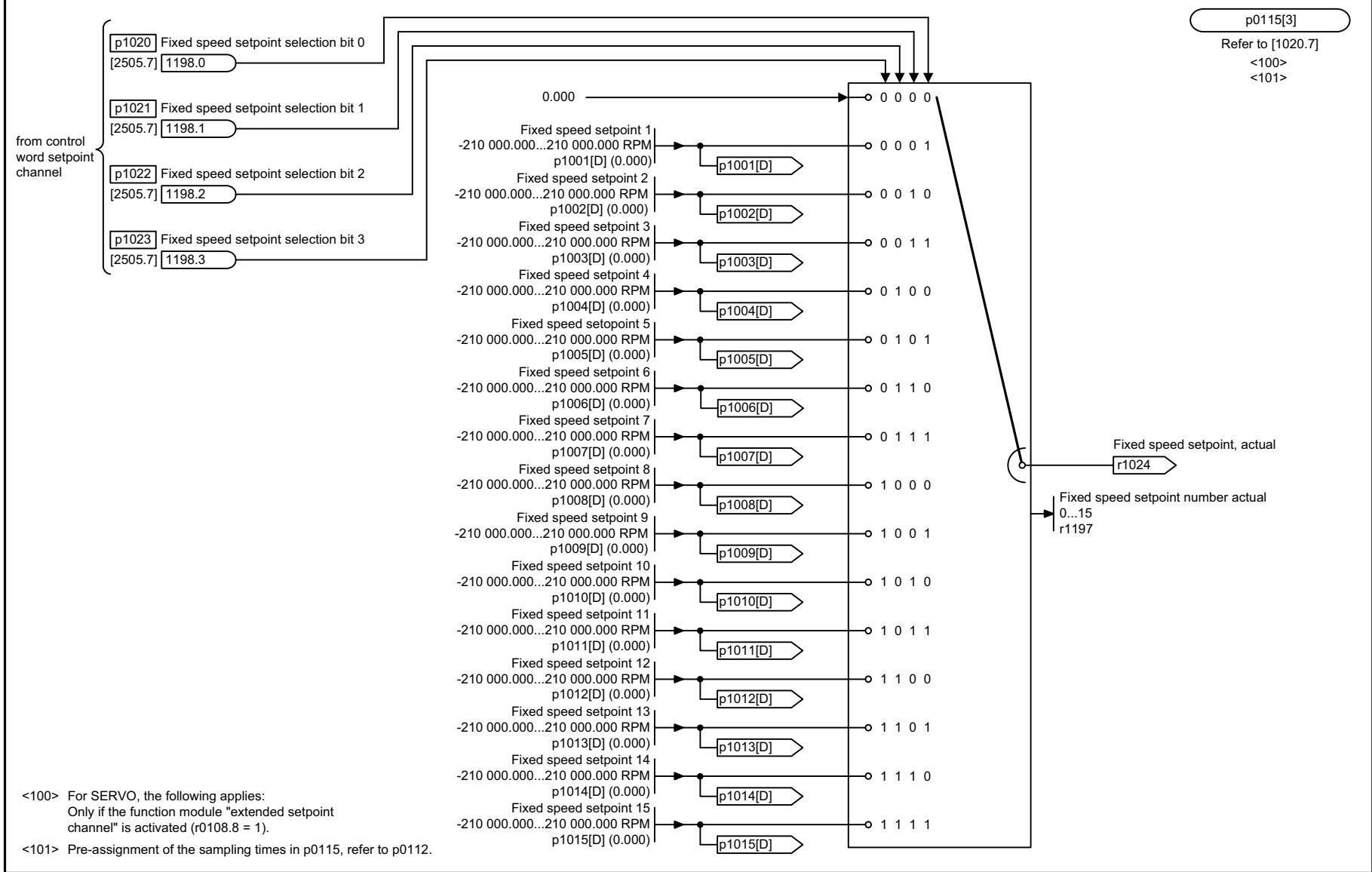


Figure 2-112 2857 – Extended functions, TM54F assignment (F-DO 0 ... F-DO 3)

2.13 Setpoint channel

Function diagrams

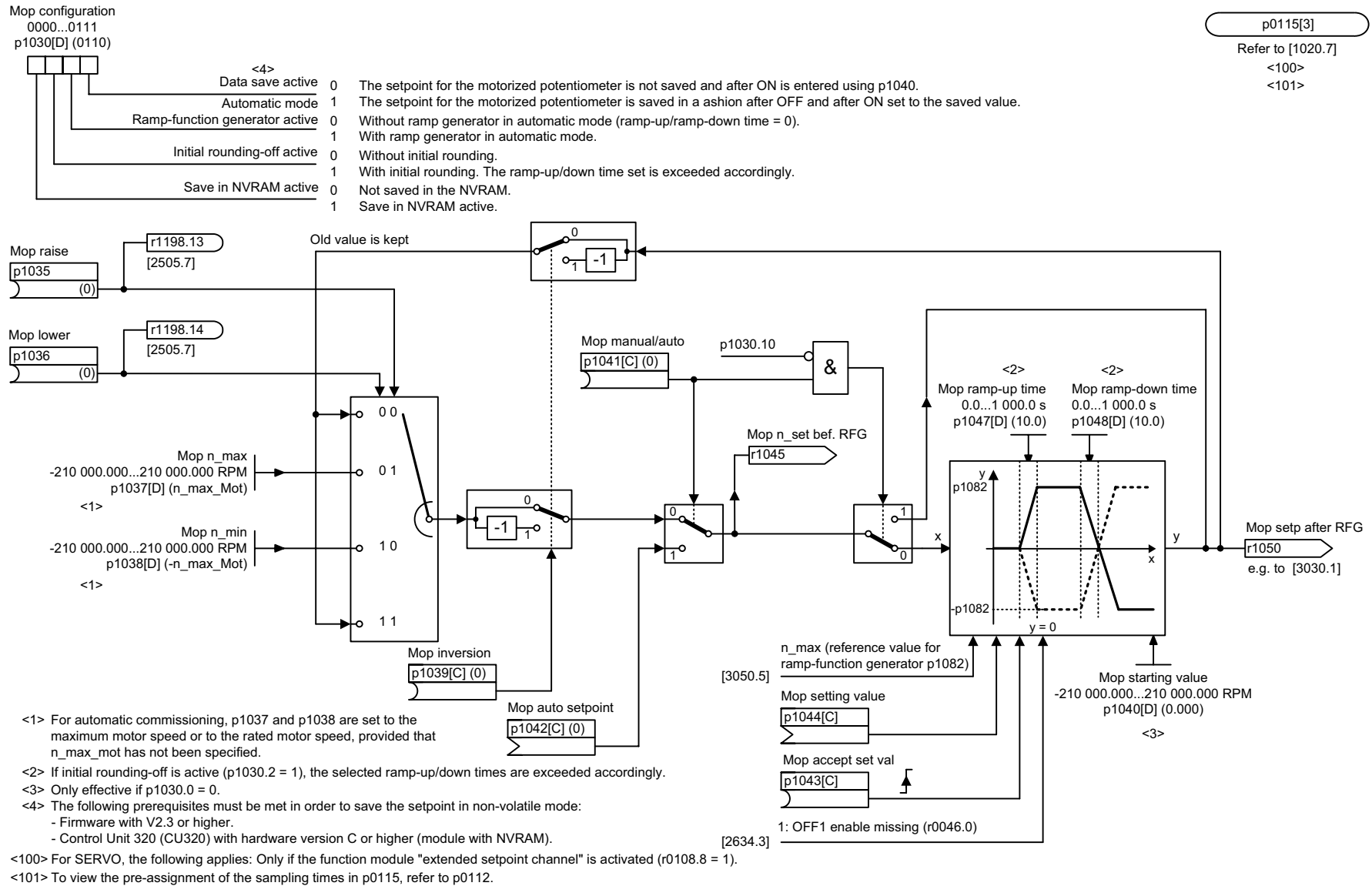
3010 – Fixed speed setpoints	2-1226
3020 – Motorized potentiometer	2-1227
3030 – Main/supplementary setpoint, setpoint scaling, jogging	2-1228
3040 – Direction limiting and direction reversal	2-1229
3050 – Skip frequency bands and speed limiting	2-1230
3060 – Basic ramp-function generator	2-1231
3070 – Extended ramp-function generator	2-1232
3080 – Ramp-function generator selection, status word, tracking	2-1233
3090 – Dynamic Servo Control (DSC)	2-1234



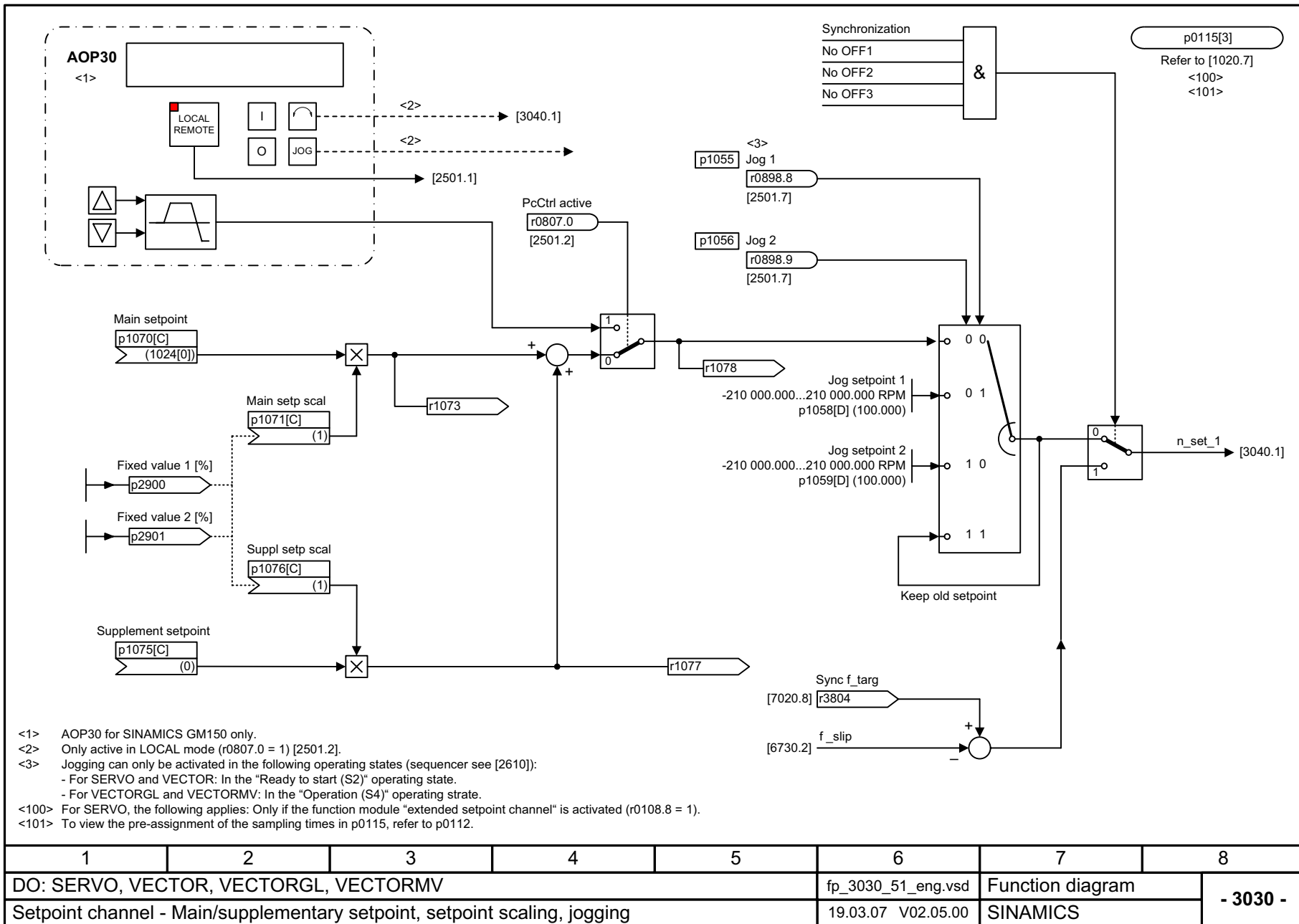
1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTORGL, VECTORMV					fp_3010_51_eng.vsd	Function diagram	- 3010 -
Setpoint channel - Fixed speed setpoints					22.05.05 V02.05.00	SINAMICS	

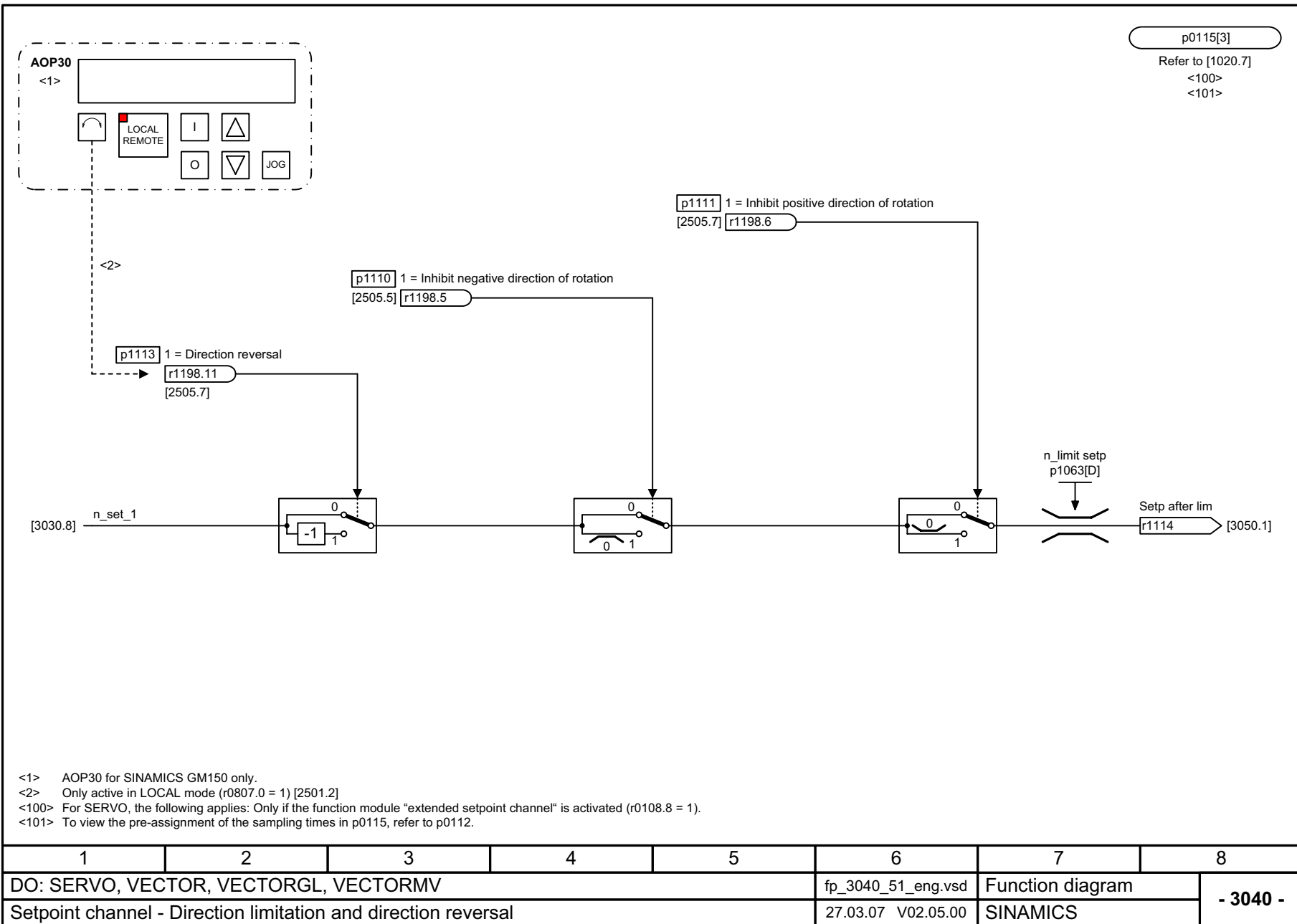
Figure 2-113 3010 – Fixed speed setpoints

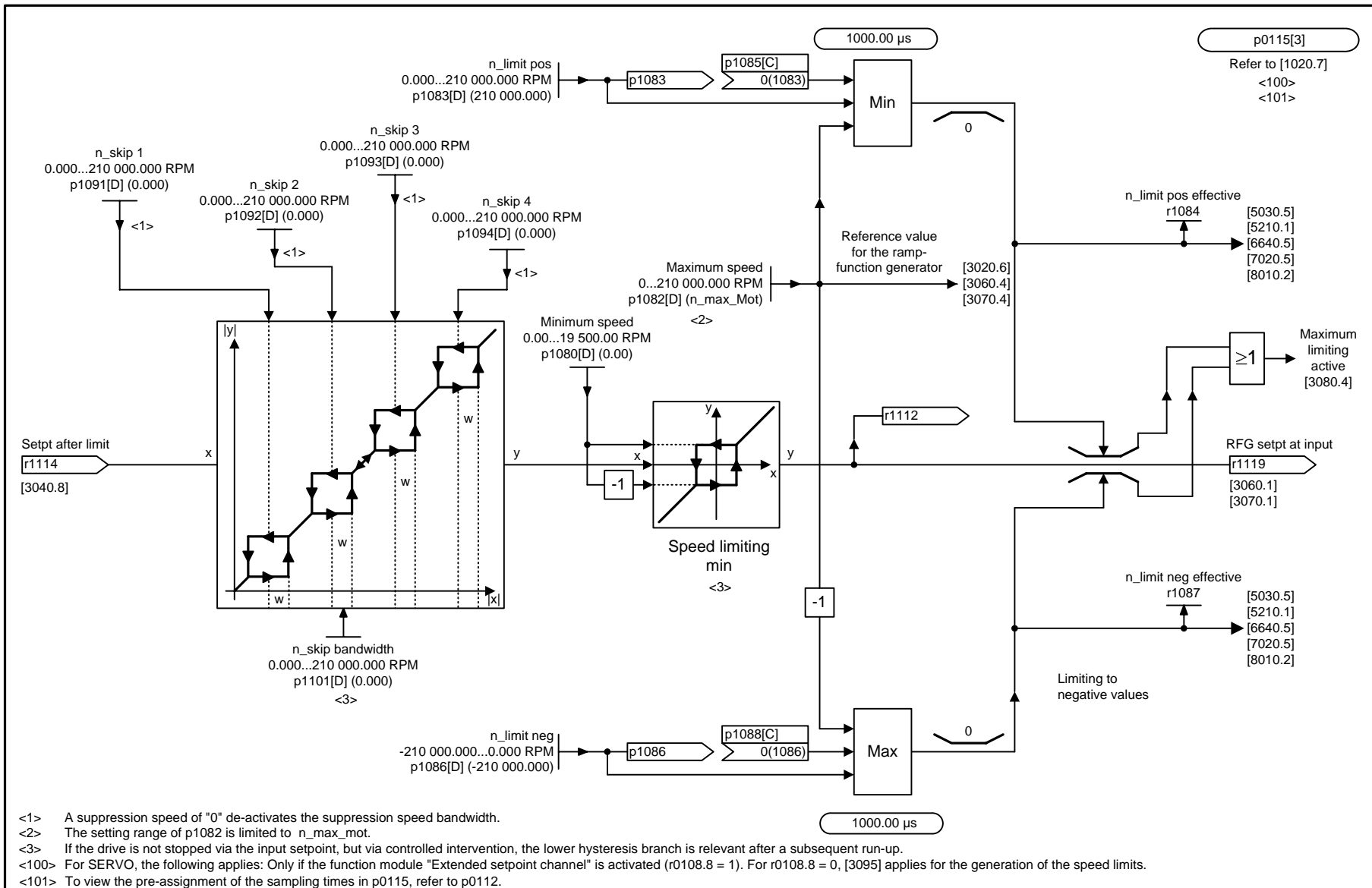
Figure 2-114 3020 – Motorized potentiometer



1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTORGL, VECTORMV					fp_3020_51_eng.vsd	Function diagram	- 3020 -
Setpoint channel - Motorized potentiometer					22.05.06 V02.05.00	SINAMICS	

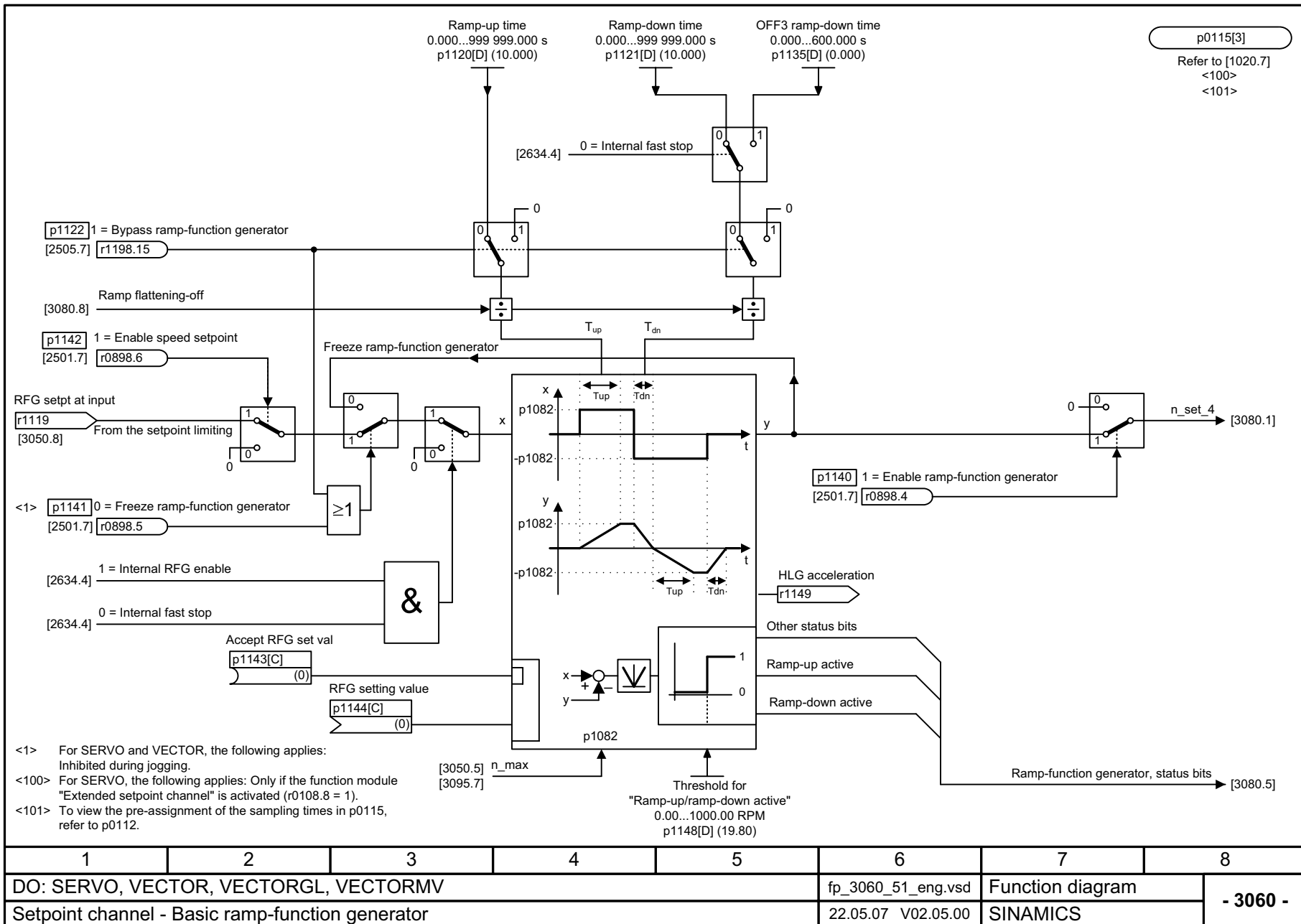






1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTORGL, VECTORMV					fp_3050_51_eng.vsd	Function diagram	
Setpoint channel - Skip frequency bands and speed limitations					14.06.07 V02.05.00	SINAMICS	
							- 3050 -

Figure 2-117 3050 – Skip frequency bands and speed limiting



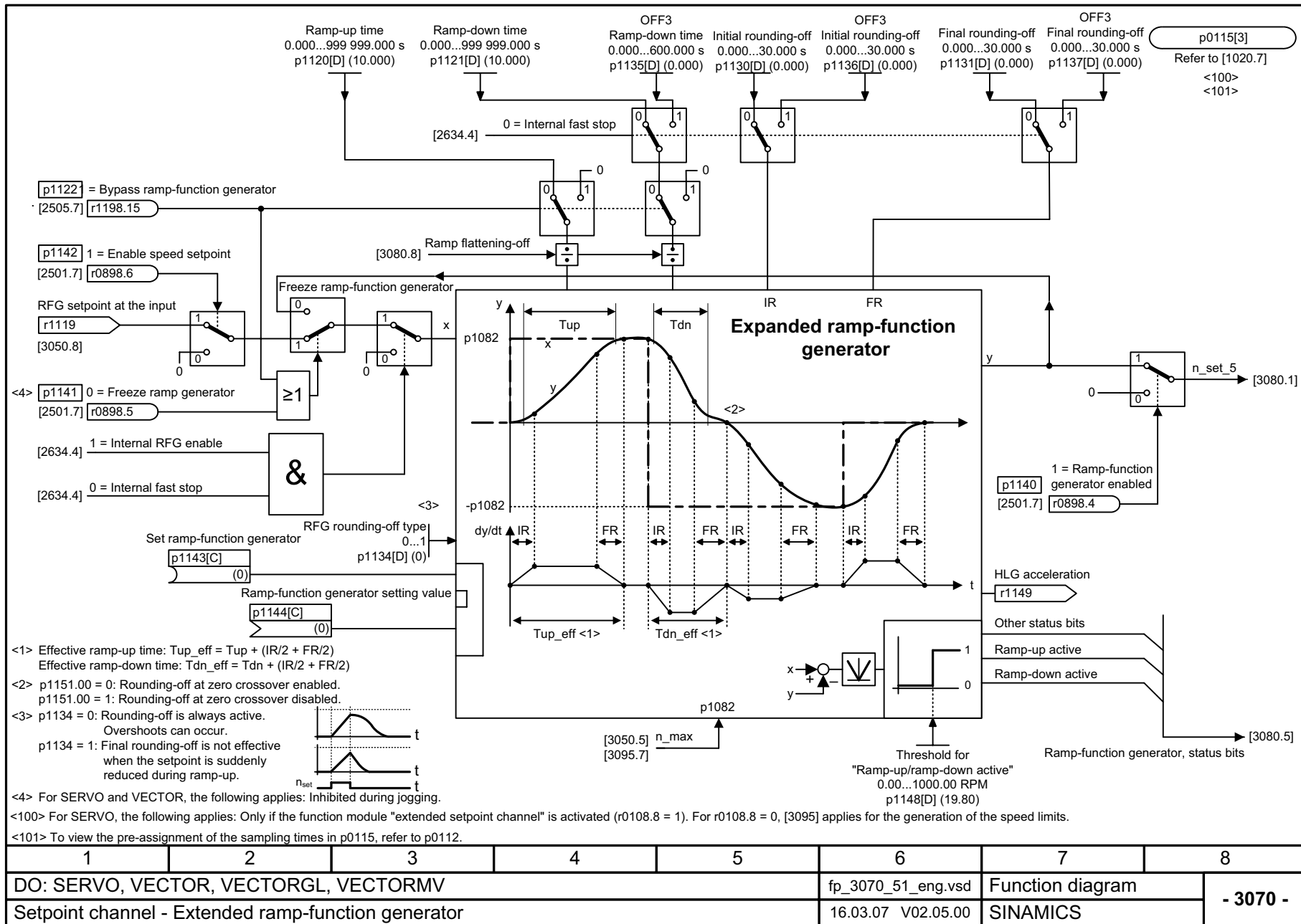
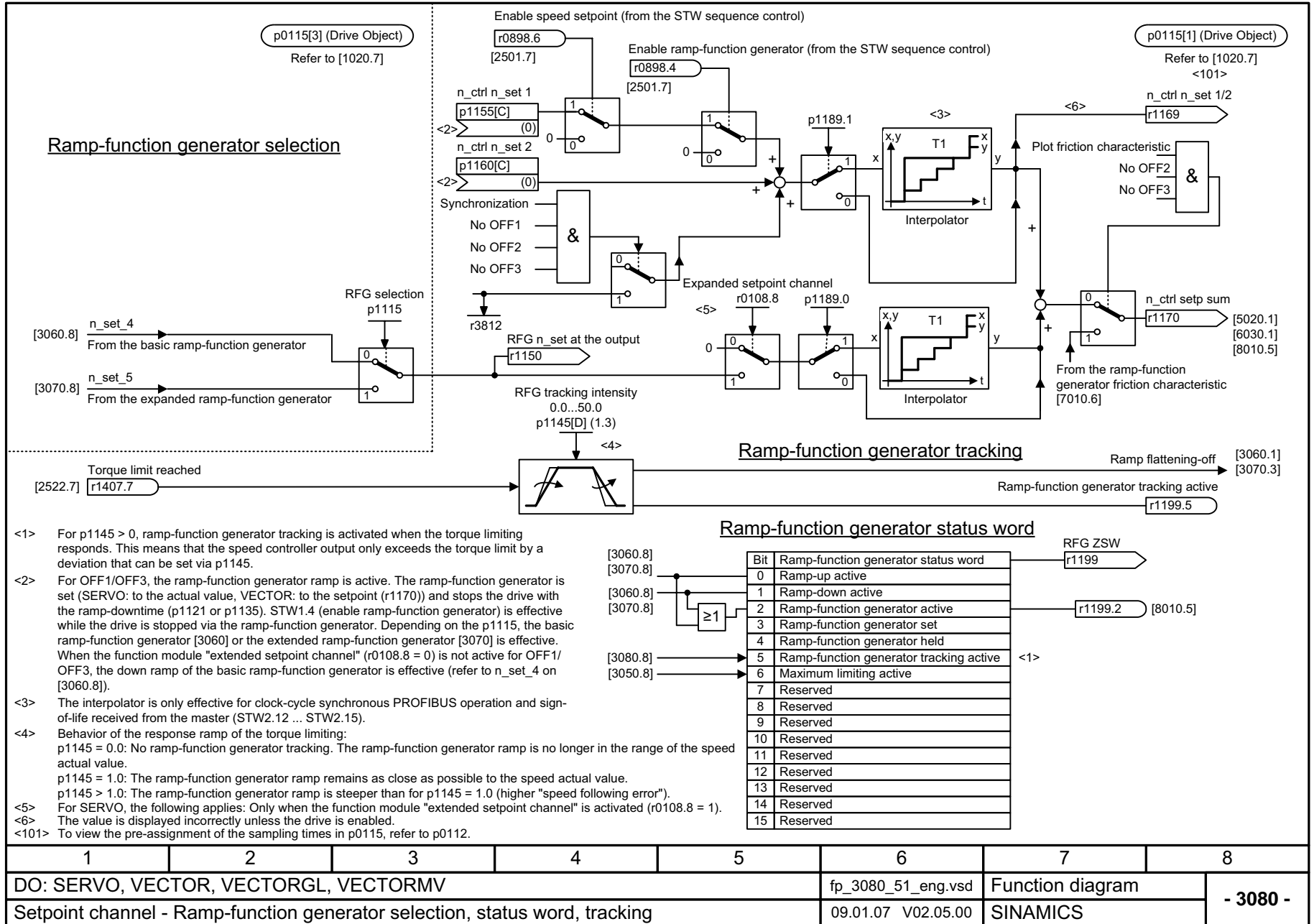


Figure 2-119 – Extended ramp-function generator

Figure 2-120 3080 – Ramp-function generator selection, status word, tracking



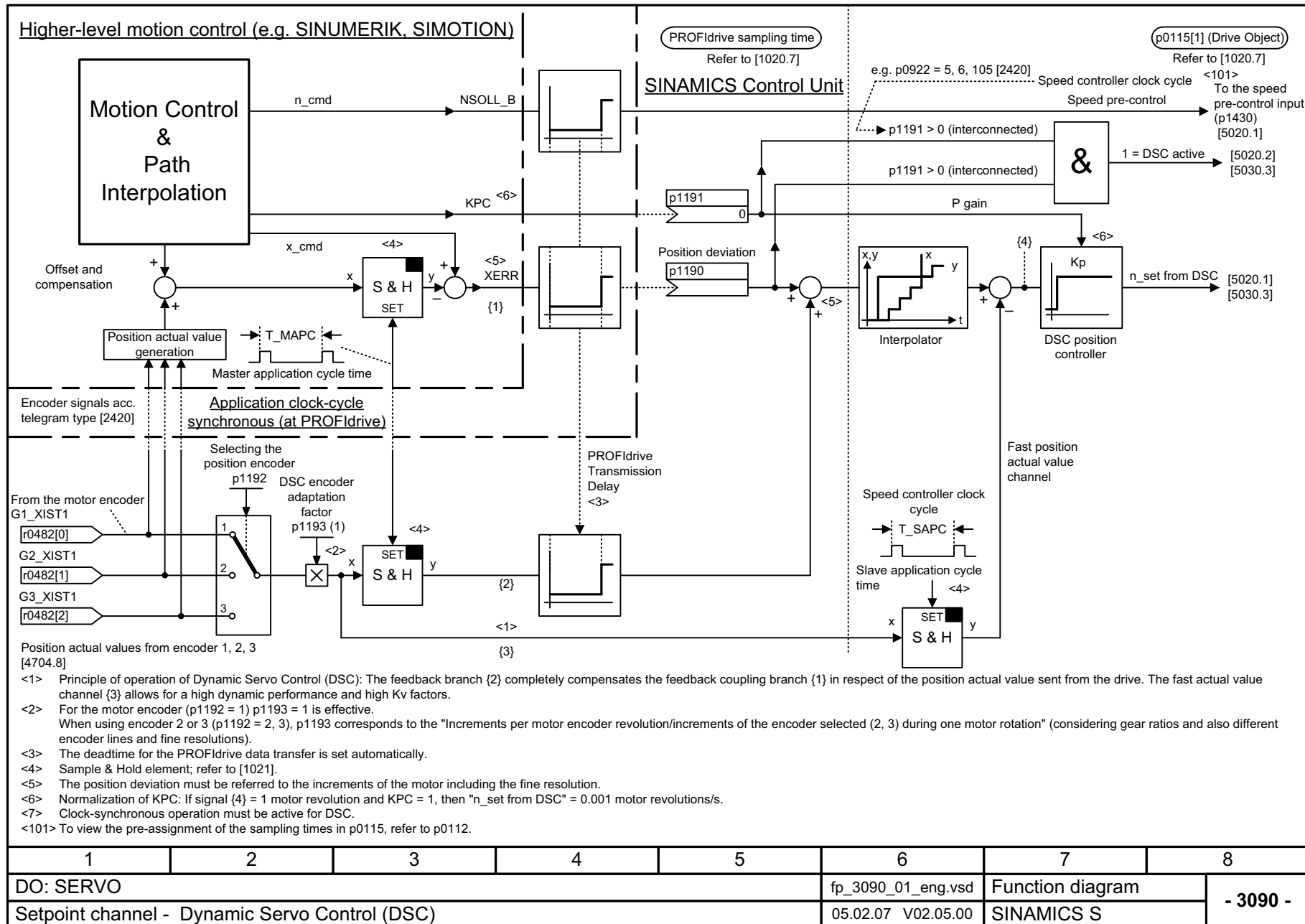


Figure 2-121 3090 – Dynamic Servo Control (DSC)

2.14 Setpoint channel not activated

Function diagrams

3095 – Generating the speed limits ($r0108.8 = 0$)

2-1236

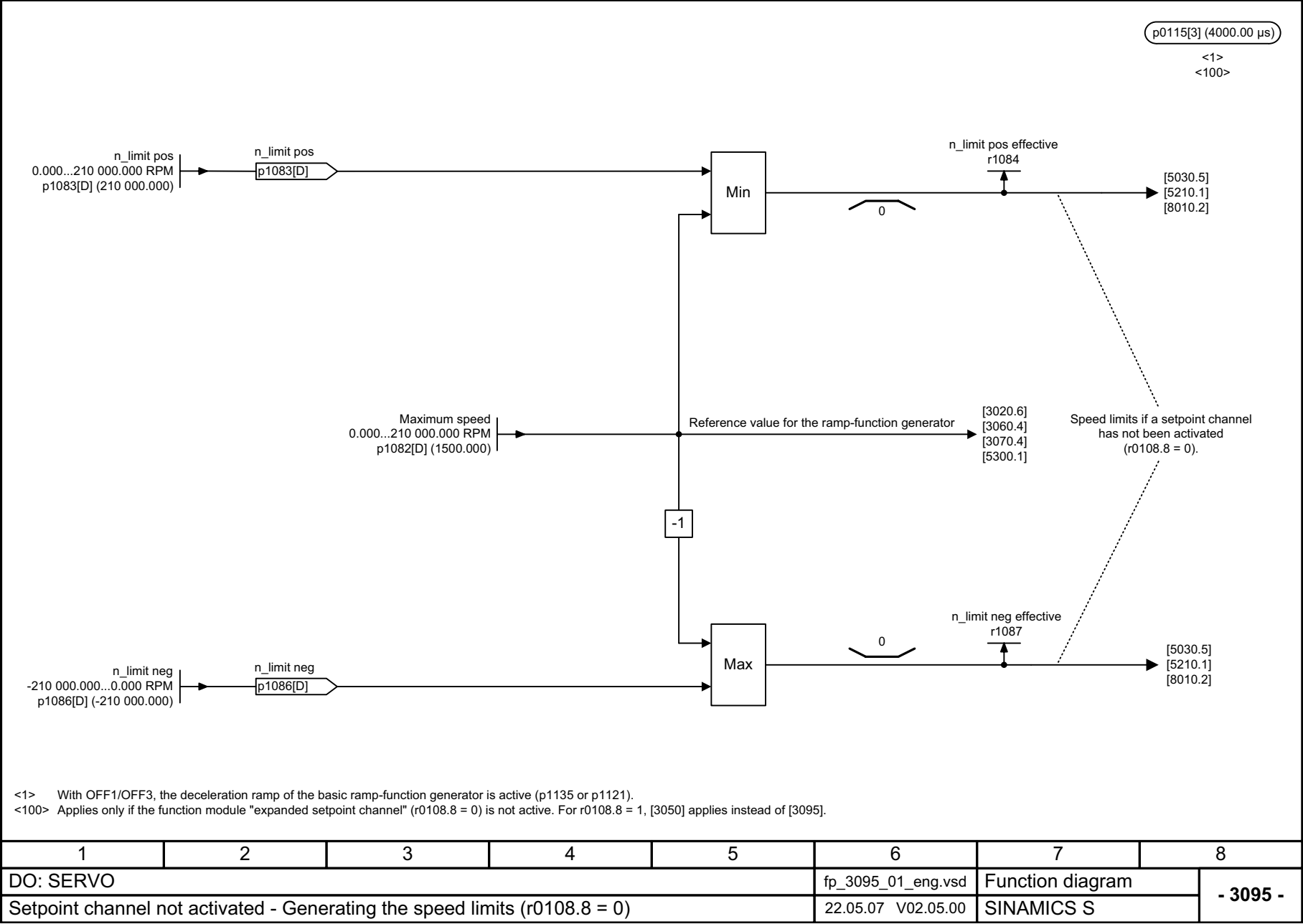


Figure 2-122 3095 – Generating the speed limits (r0108.8 = 0)

2.15 Basic positioner (EPOS)

Function diagrams

3610 – Jog mode (r0108.4 = 1)	2-1238
3612 – Referencing/reference point approach mode (r0108.4 = 1) (p2597 = 0 signal)	2-1239
3614 – Flying referencing mode (r0108.4 = 1) (p2597 = 1-signal)	2-1240
3615 – Traversing blocks, external block change mode (r0108.4 = 1)	2-1241
3616 – Traversing blocks mode (r0108.4 = 1)	2-1242
3617 – Traversing to fixed stop	2-1243
3618 – Direct setpoint input/MDI mode, dynamic values (r0108.4 = 1)	2-1244
3620 – Direct setpoint input/MDI mode (r0108.4 = 1)	2-1245
3625 – Mode control (r0108.4 = 1)	2-1246
3630 – Traversing range limits (r0108.4 = 1)	2-1247
3635 – Interpolator (r0108.4 = 1)	2-1248
3640 – Control word block selection/MDI selection (r0108.4 = 1)	2-1249
3645 – Status word 1 (r0108.3 = 1, r0108.4 = 1)	2-1250
3646 – Status word 2 (r0108.3 = 1, r0108.4 = 1)	2-1251
3650 – Status word active traversing block/MDI active (r0108.4 = 1)	2-1252

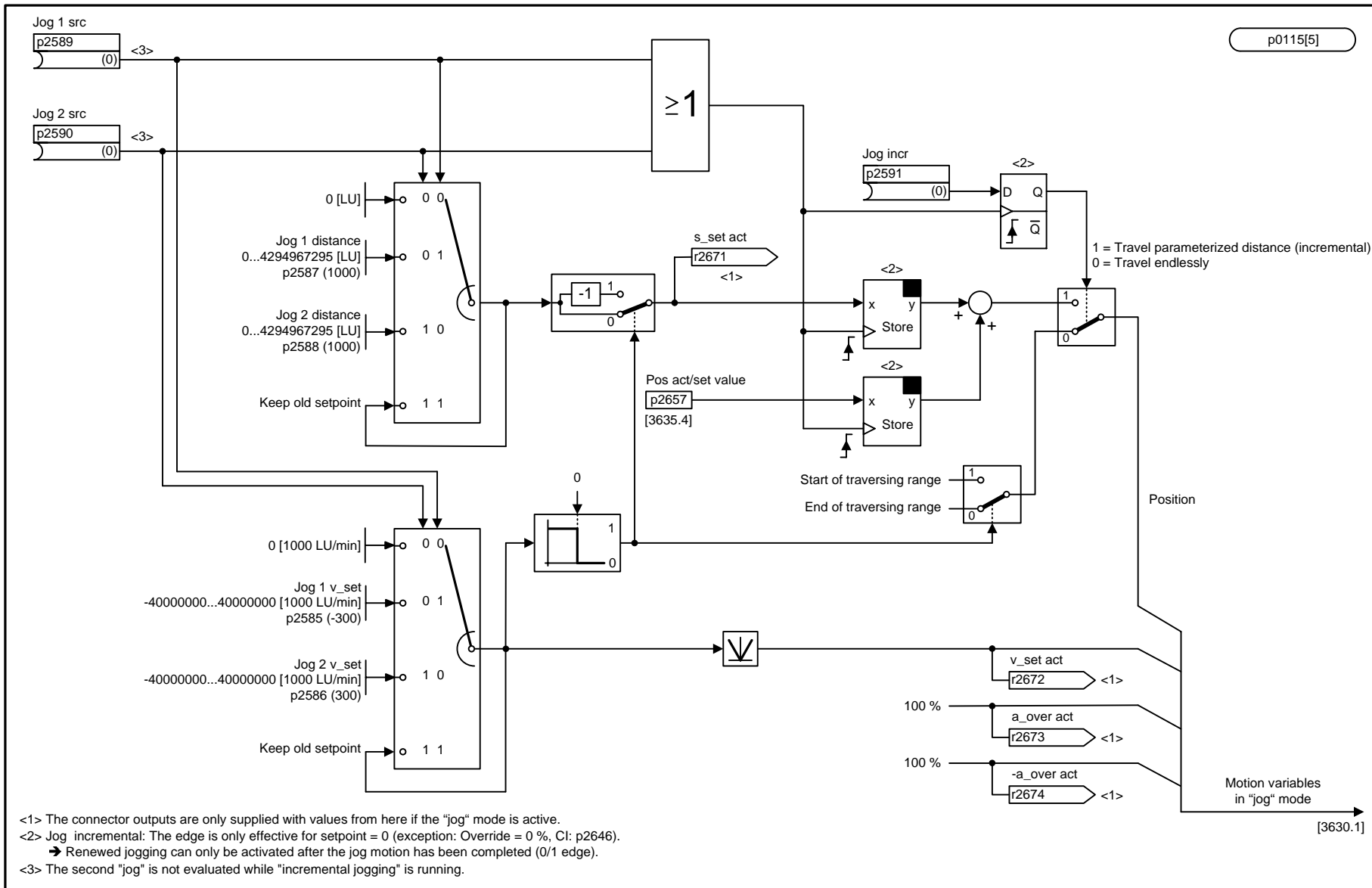
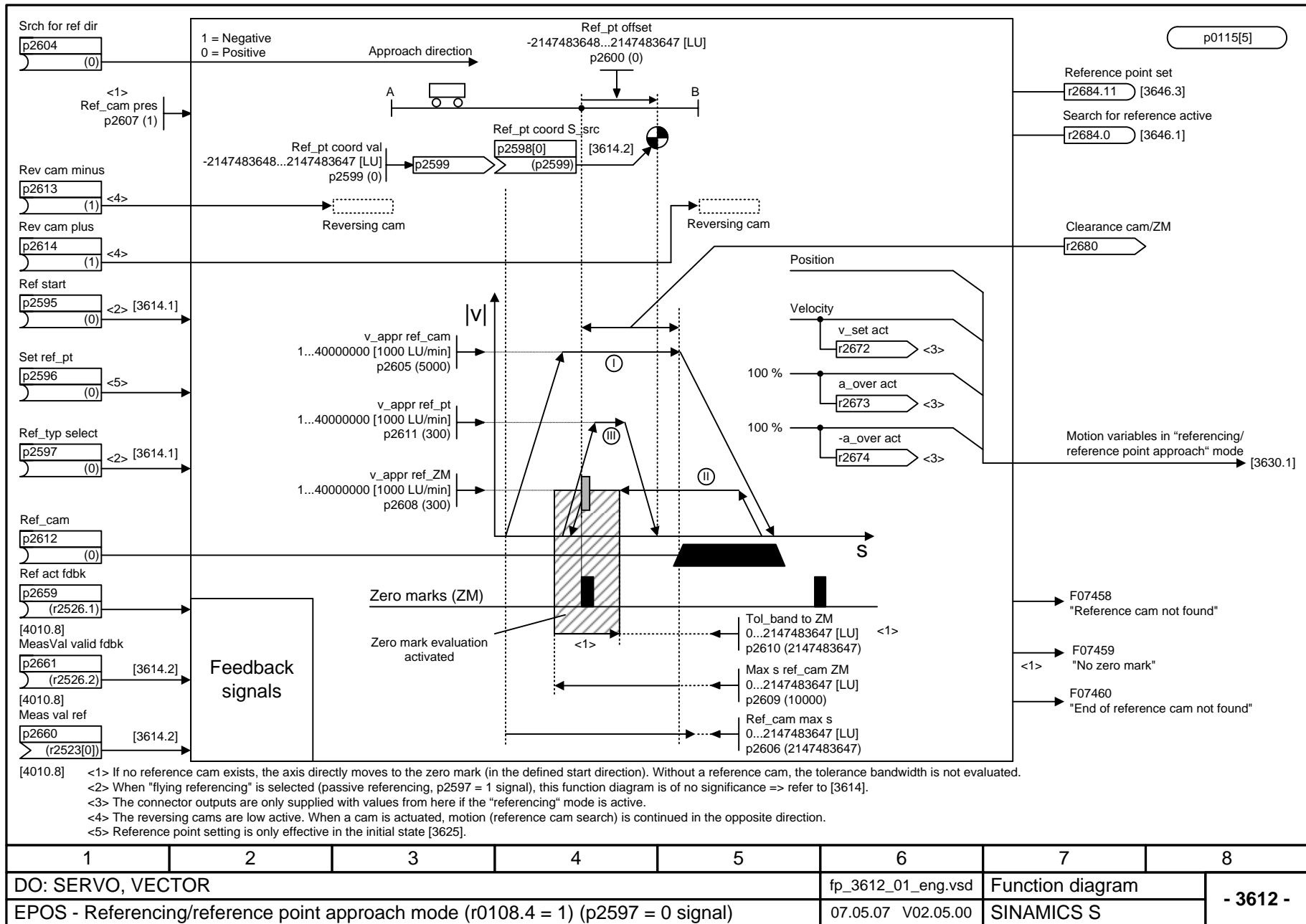
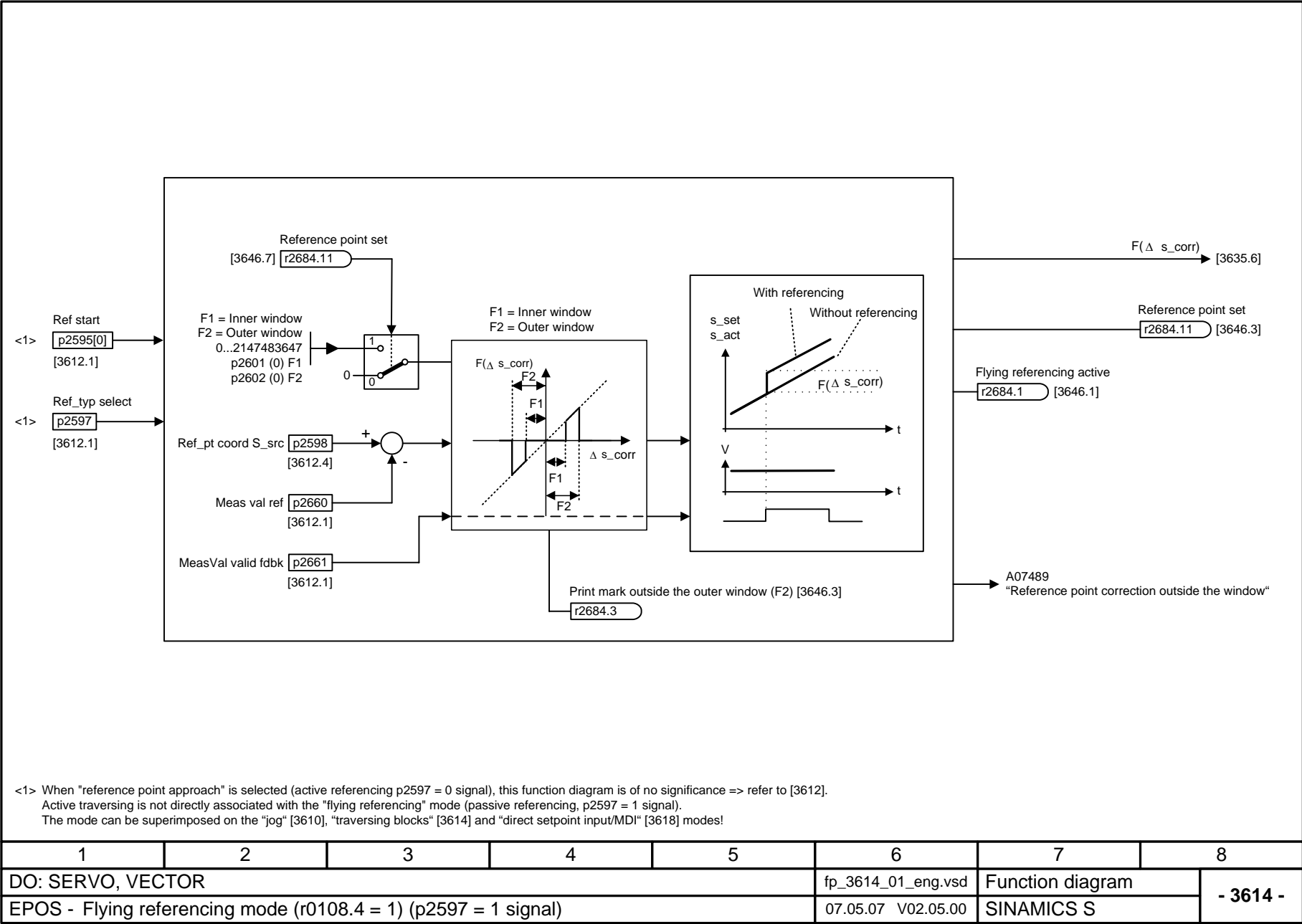
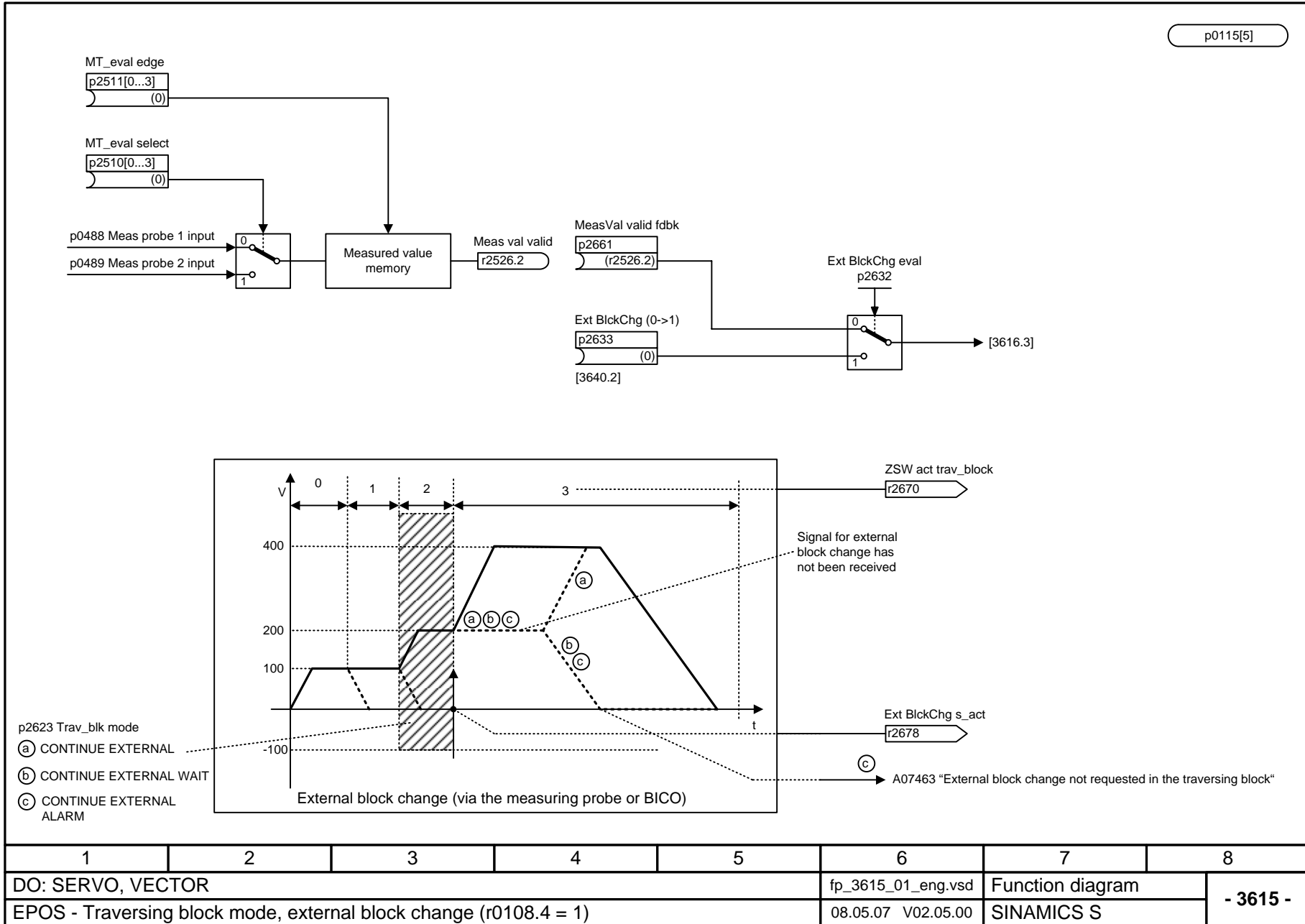


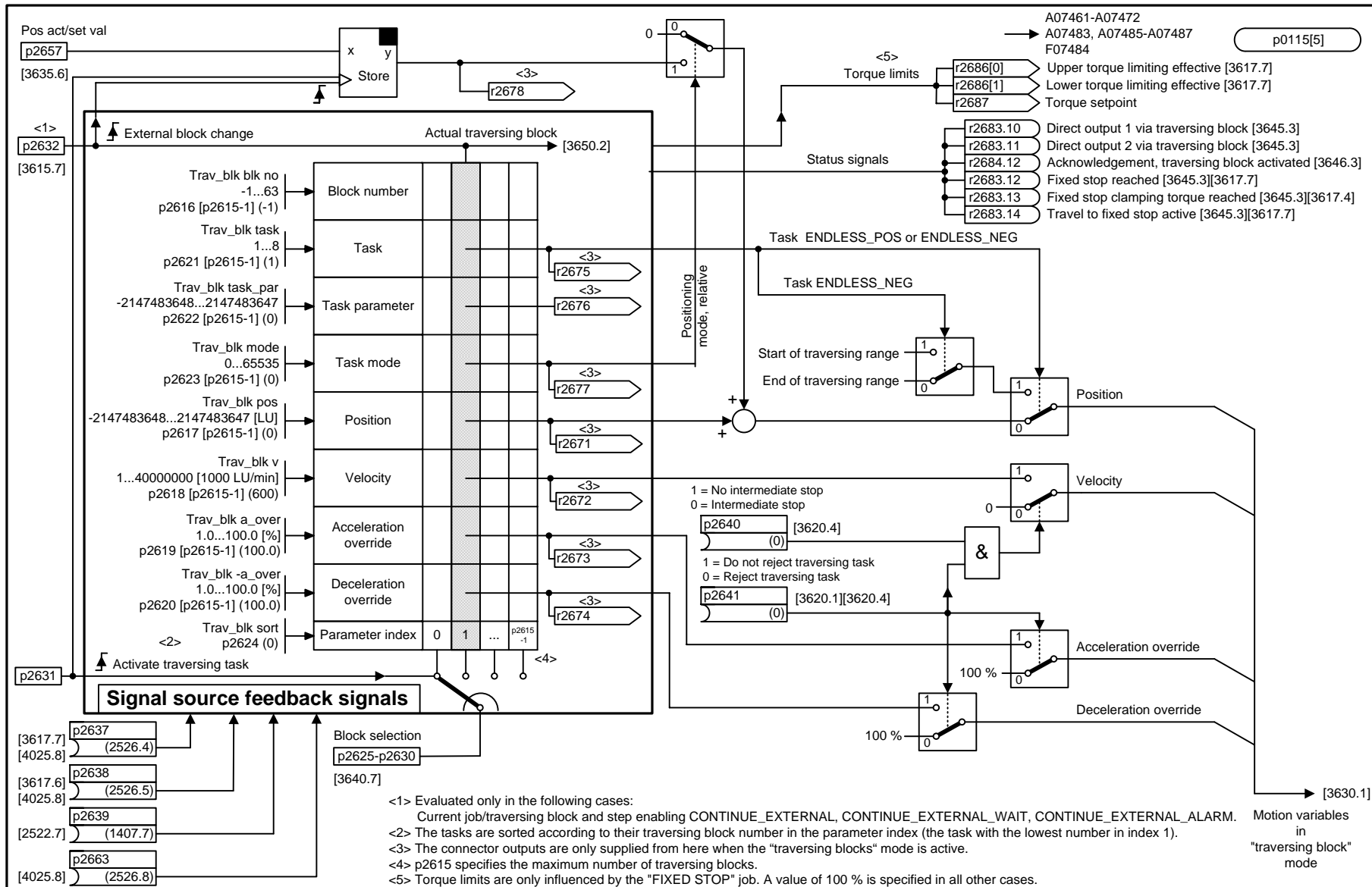
Figure 2-123 3610 – Jog mode (r0108.4 = 1)

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_3610_01_eng.vsd	Function diagram	
EPOS - Jog mode (r0108.4 = 1)					08.05.07 V02.05.00	SINAMICS S	
							- 3610 -



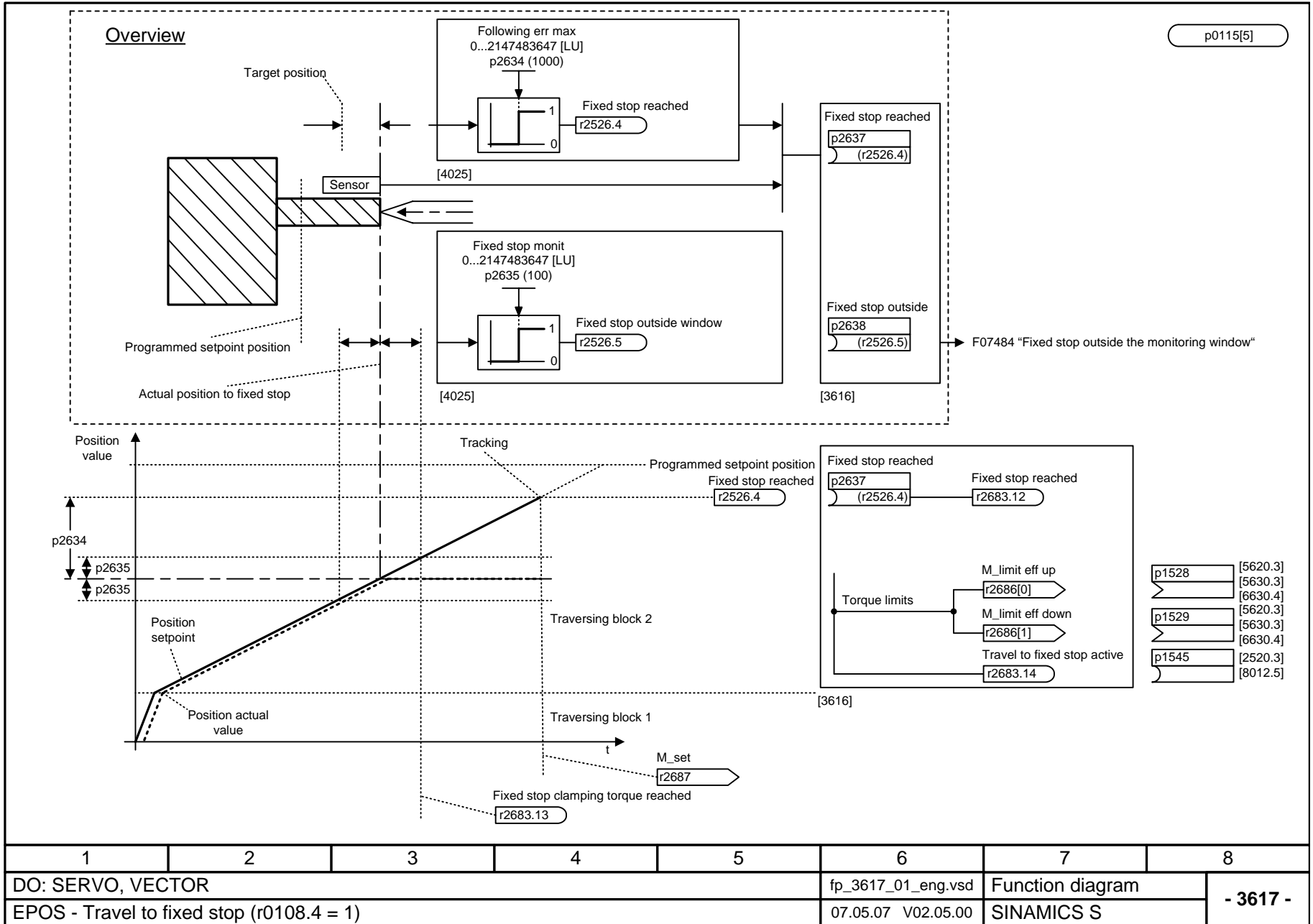






1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_3616_01_eng.vsd	Function diagram	
EPOS - Traversing block mode (r0108.4 = 1)					07.05.07 V02.05.00	SINAMICS S	
							- 3616 -

Figure 2-127 3616 – Traversing blocks mode (r0108.4 = 1)



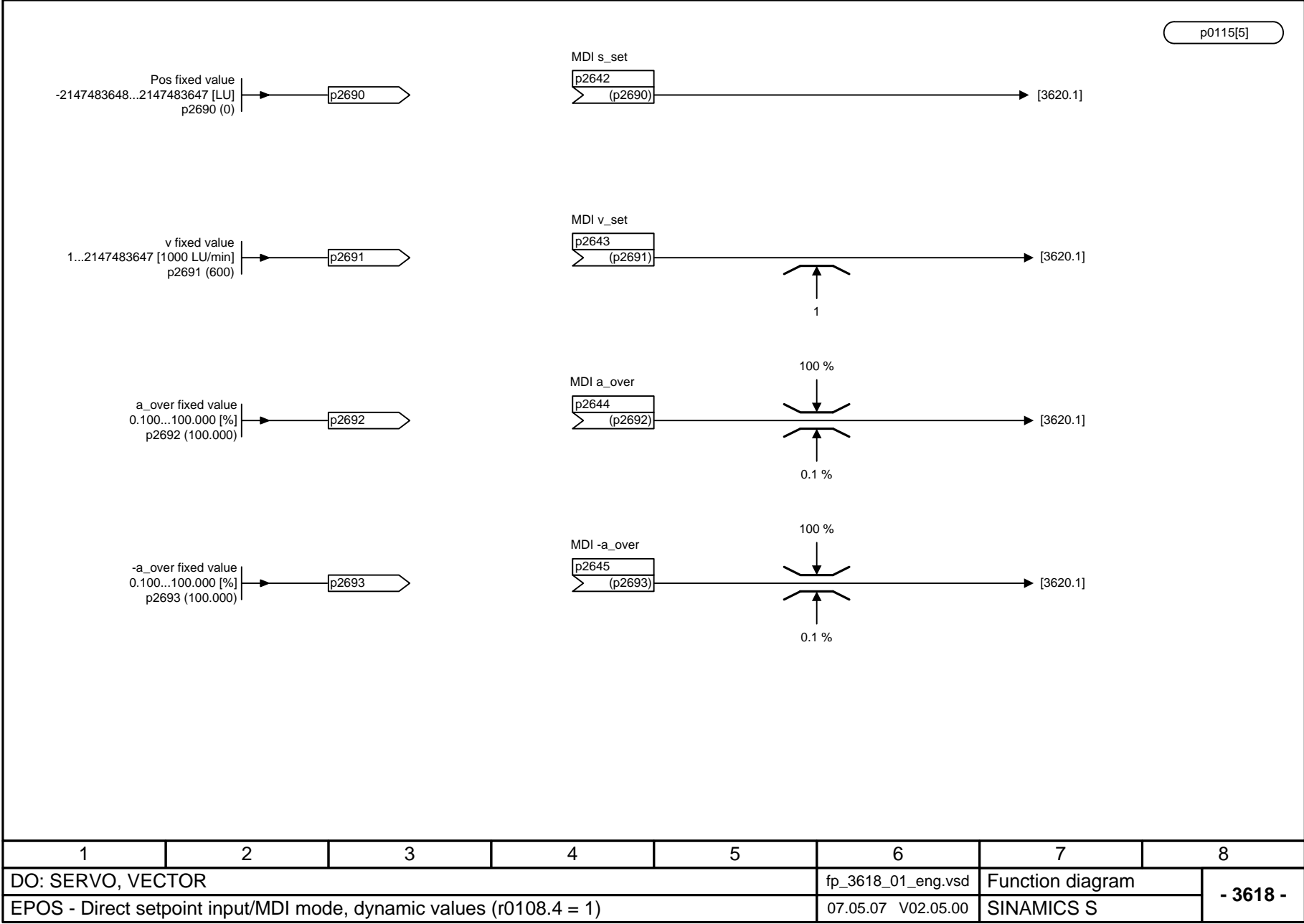
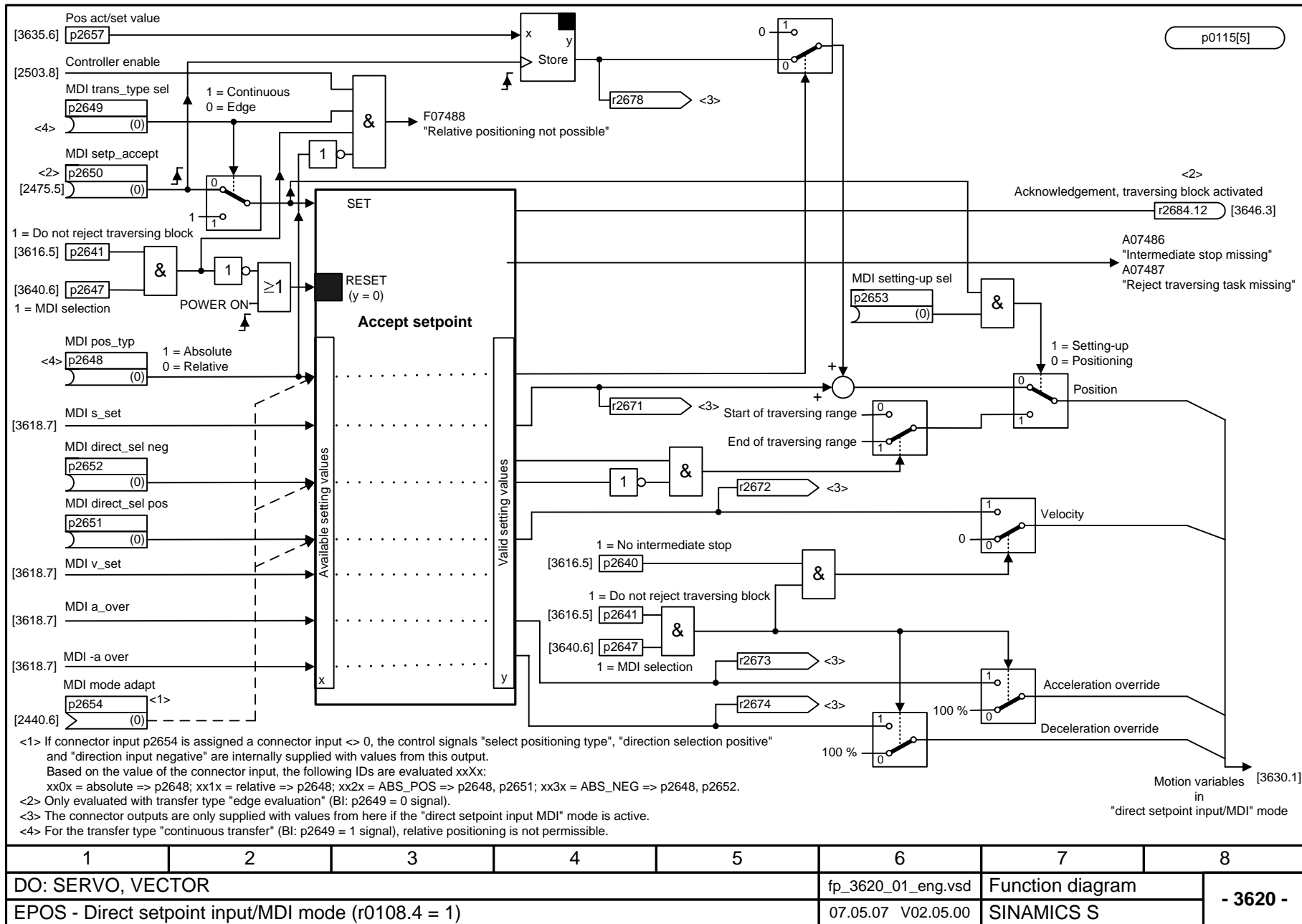
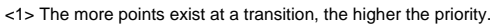


Figure 2-129 3618 – Direct setpoint input/MDI mode, dynamic values (r0108.4 = 1)





3625 – Mode control (r0108.4 = 1)

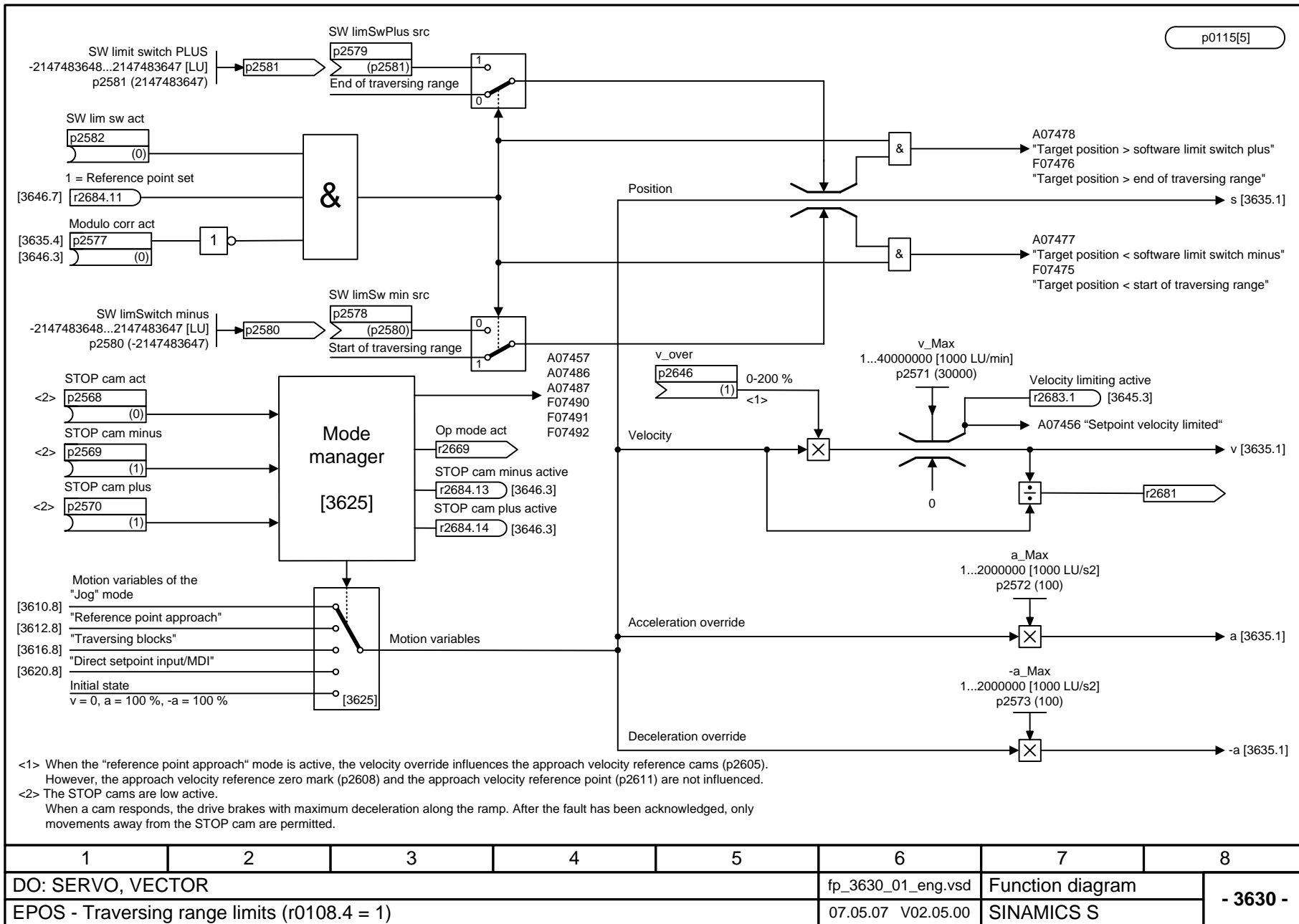
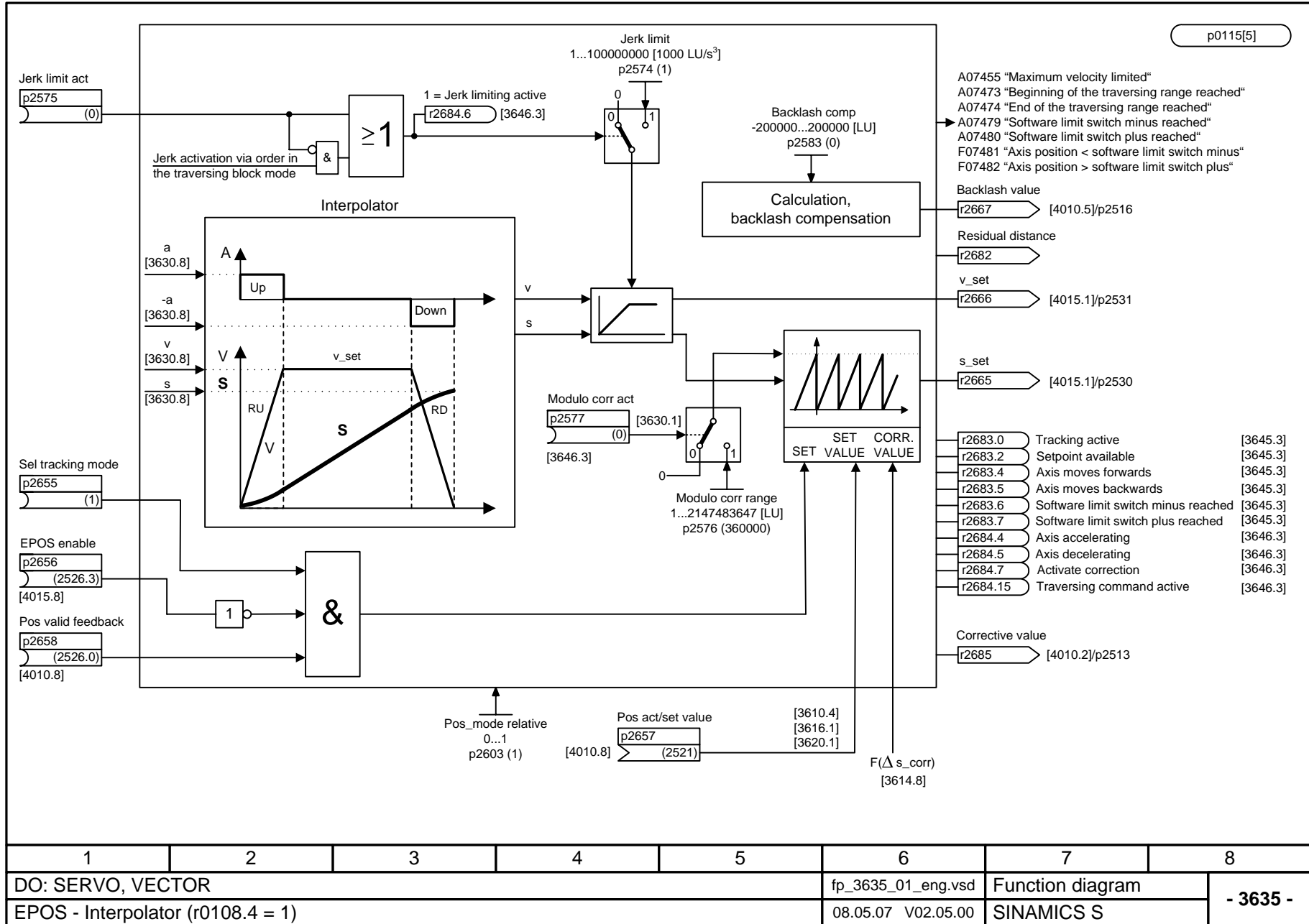


Figure 2-132 3630 – Traversing range limits (r0108.4 = 1)



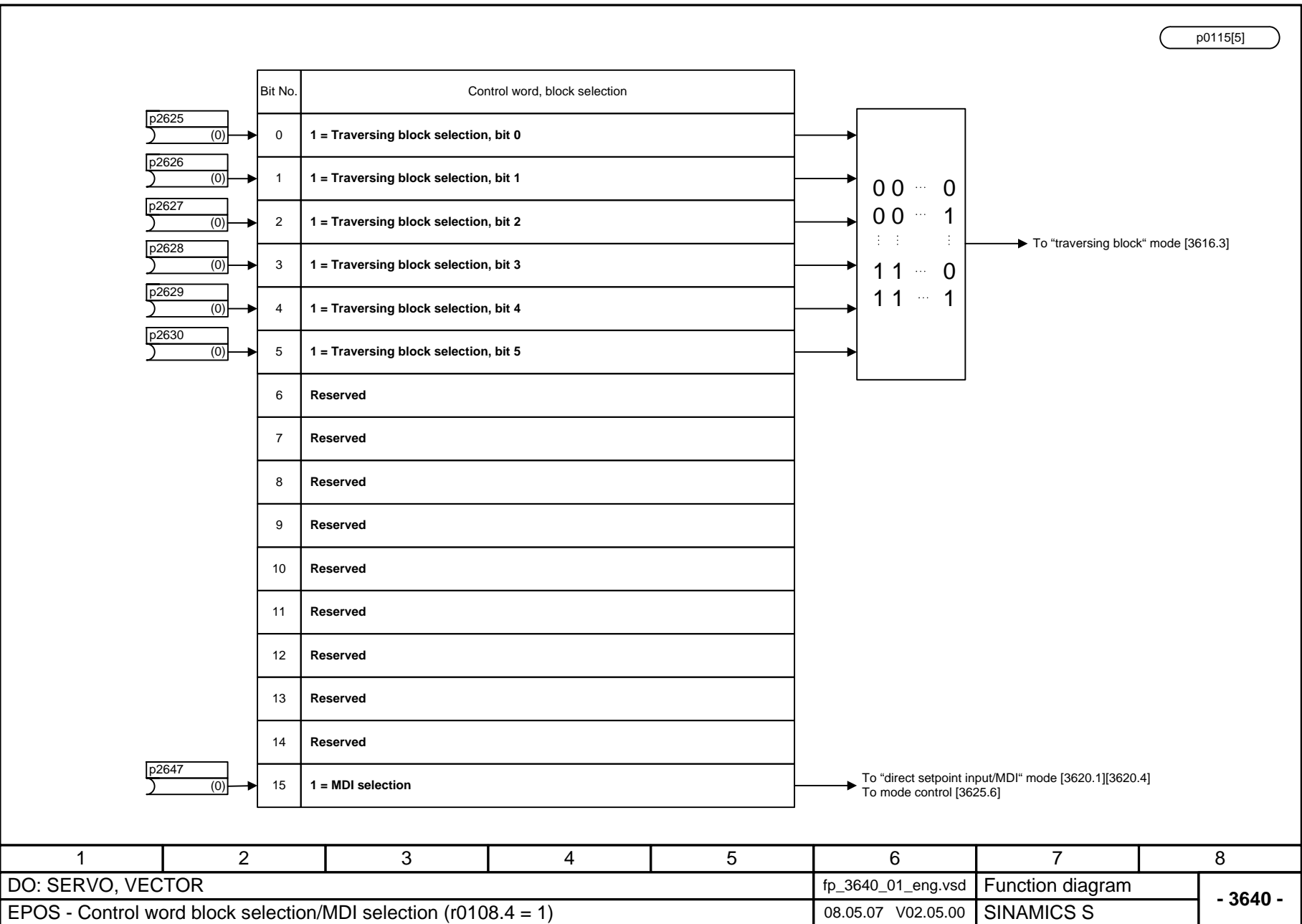


Figure 2-134 3640 – Control word block selection/MDI selection (r0108.4 = 1)

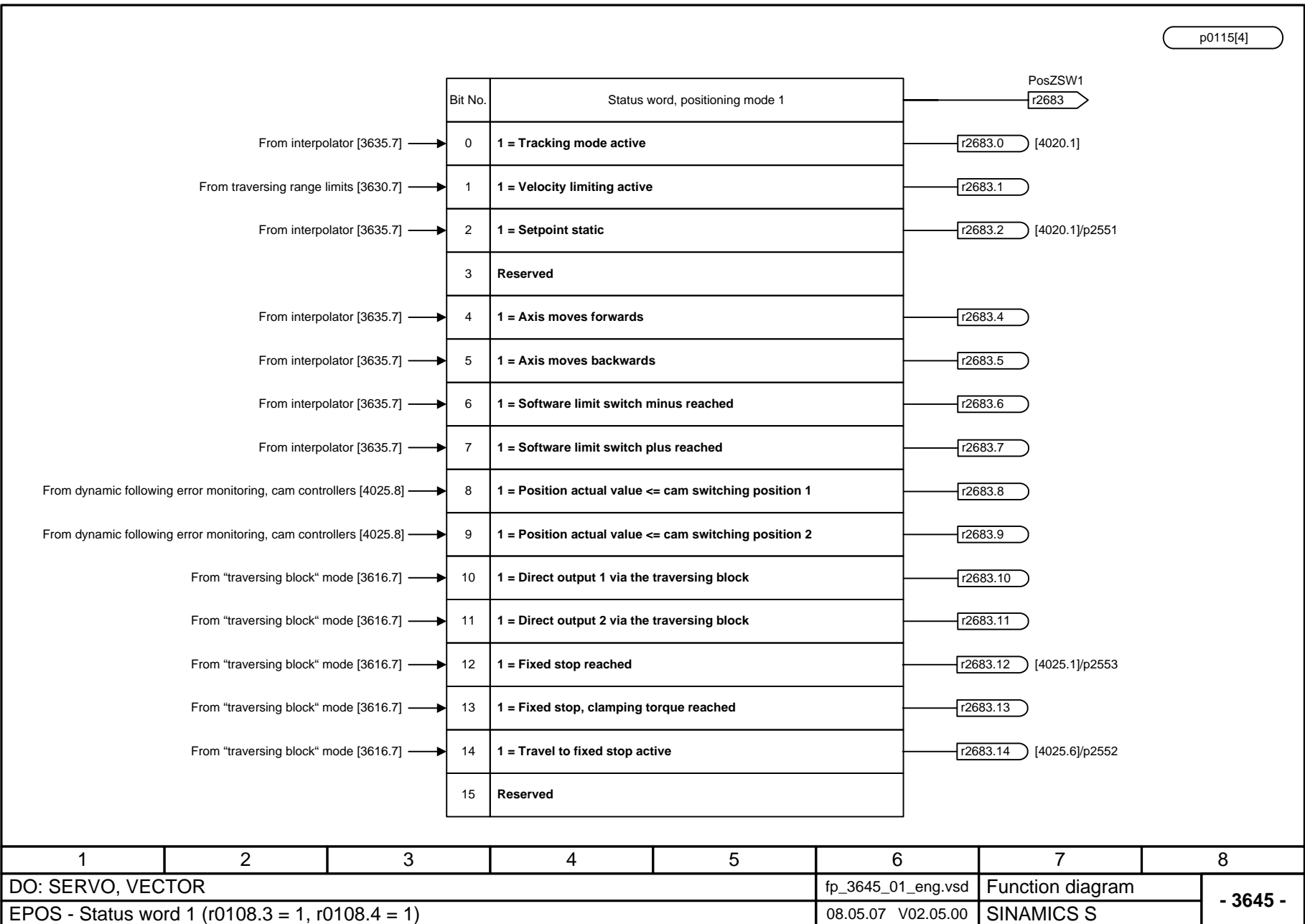
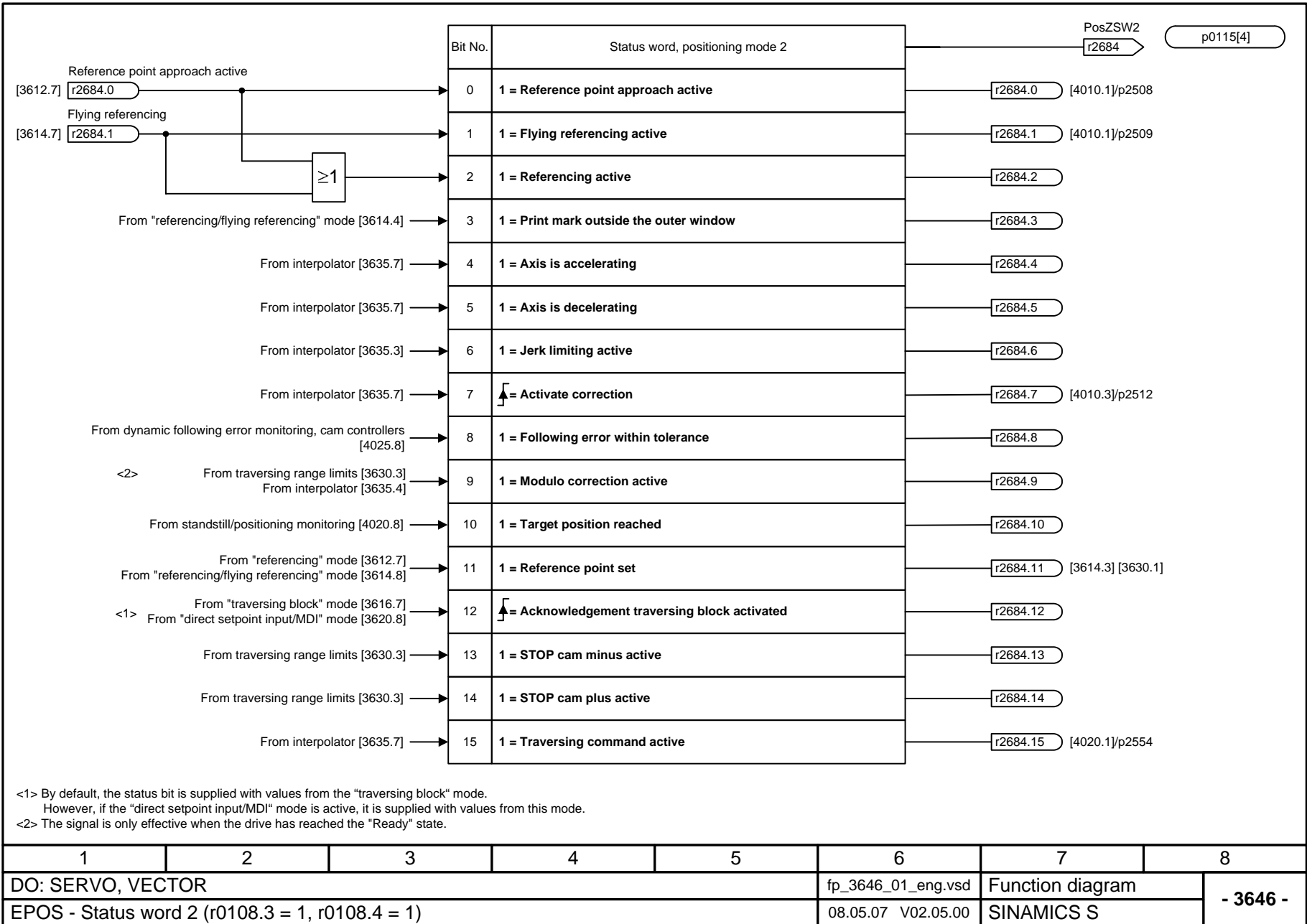


Figure 2-135 3645 – Status word 1 (r0108.3 = 1, r0108.4 = 1)



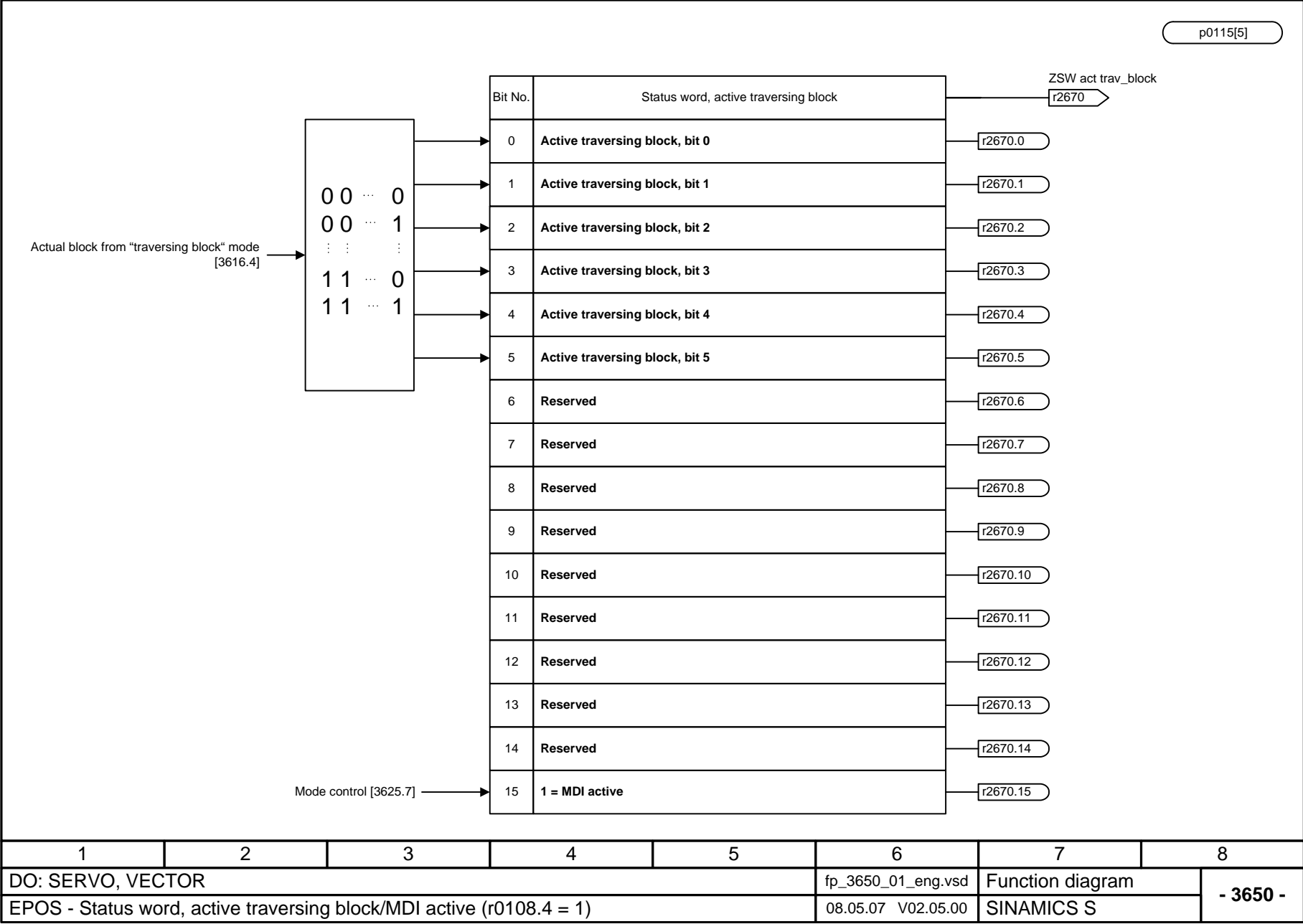


Figure 2-137 3650 – Status word active traversing block/MDI active (r0108.4 = 1)

2.16 Position control

Function diagrams

4010 – Position actual value preprocessing (r0108.3 = 1)	2-1254
4015 – Position controller (r0108.3 = 1)	2-1255
4020 – Standstill/positioning monitoring (r0108.3 = 1)	2-1256
4025 – Dynamic following error monitoring, cam controllers (r0108.3 = 1)	2-1257

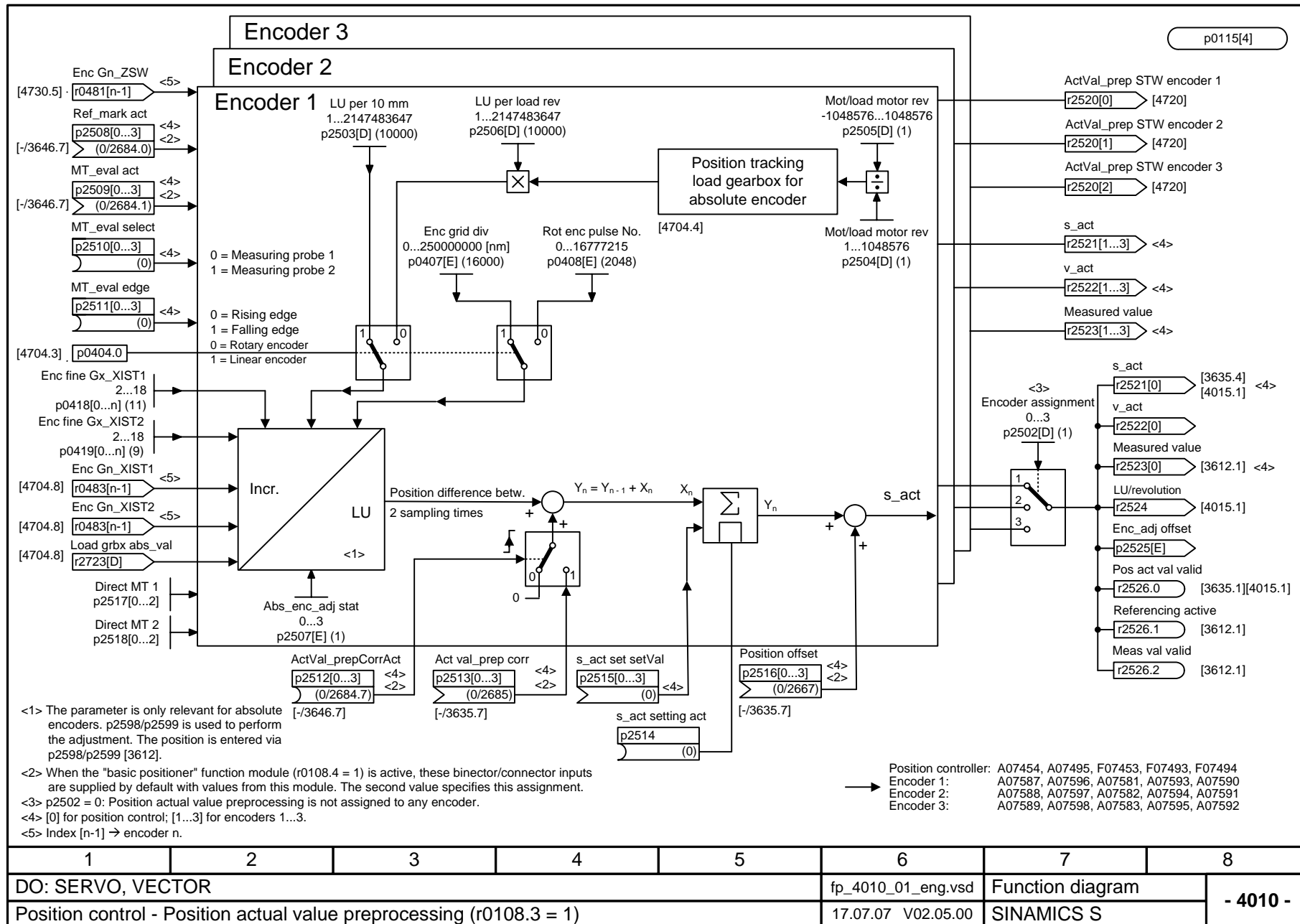
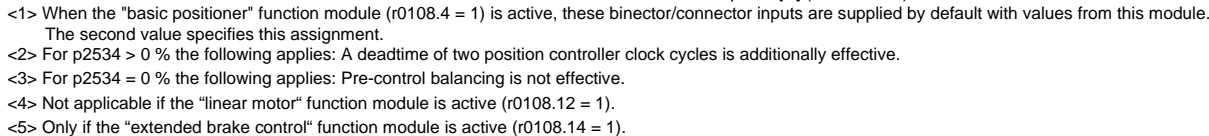
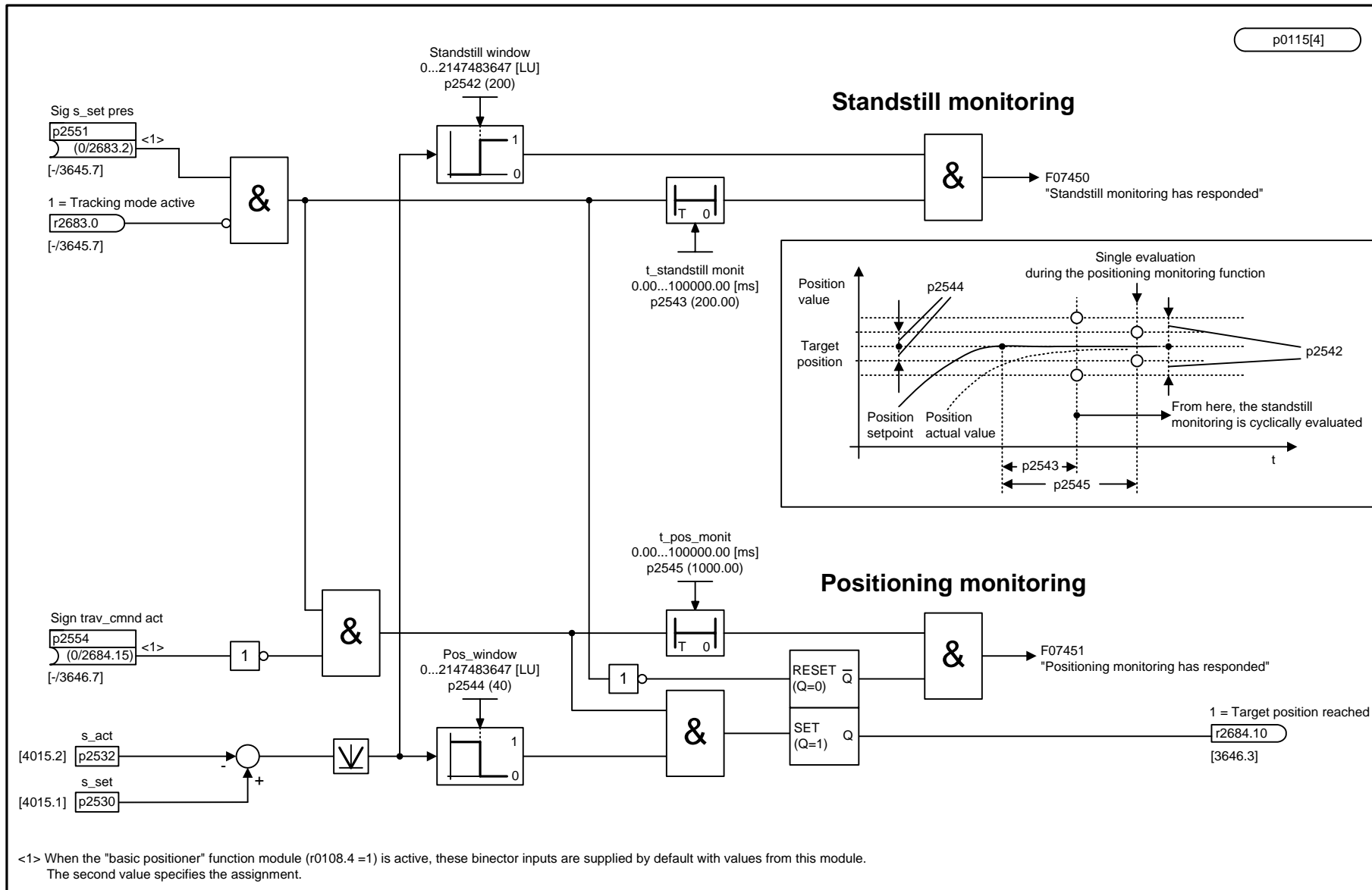


Figure 2-138 4010 – Position actual value preprocessing (r0108.3 = 1)

2-1255





1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_4020_01_eng.vsd	Function diagram	
Position control - Standstill/positioning monitoring (r0108.3 = 1)					08.05.07 V02.05.00	SINAMICS S	
							- 4020 -

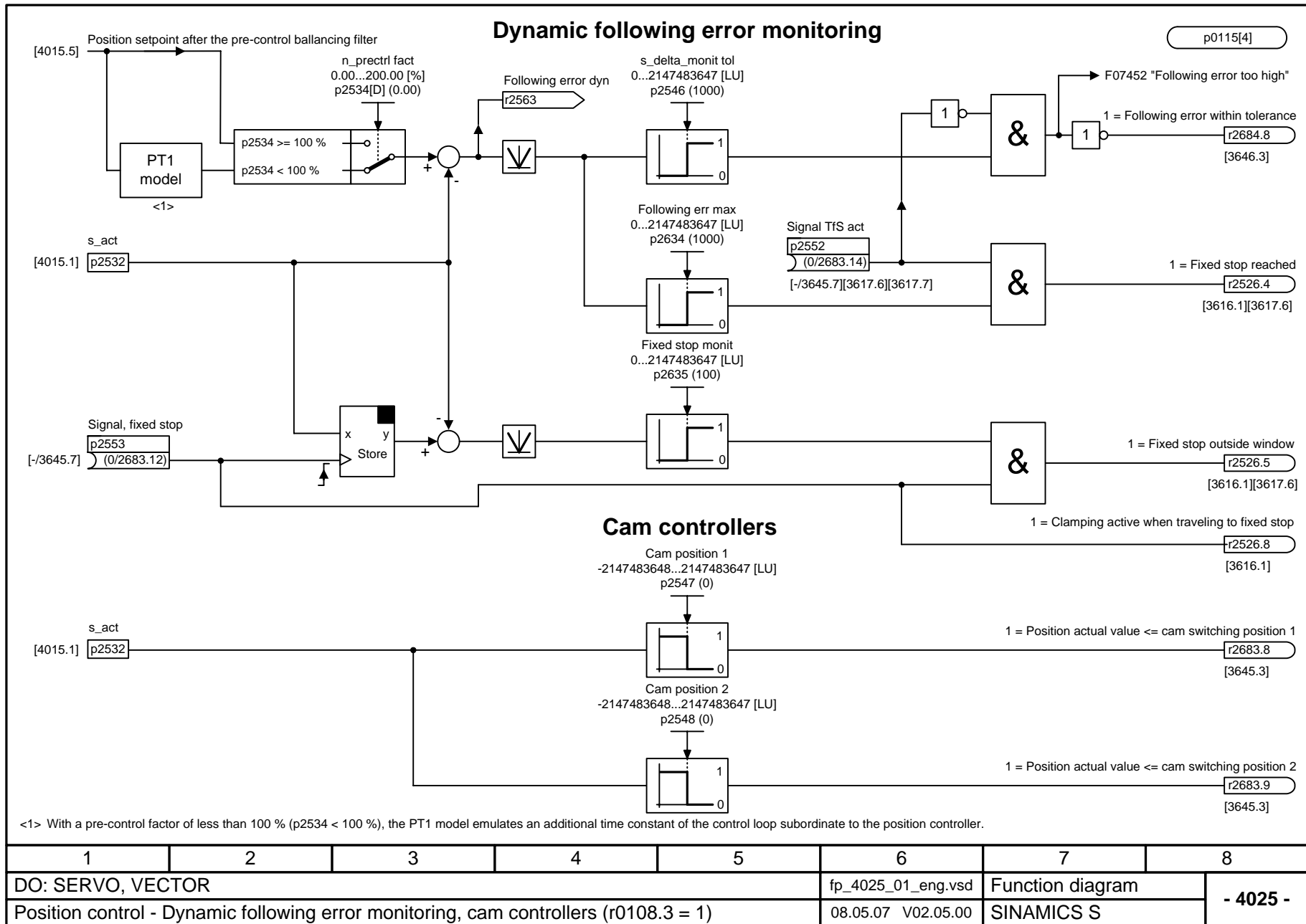


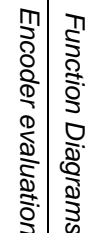
Figure 2-141 4025 – Dynamic following error monitoring, cam controllers (r0108.3 = 1)

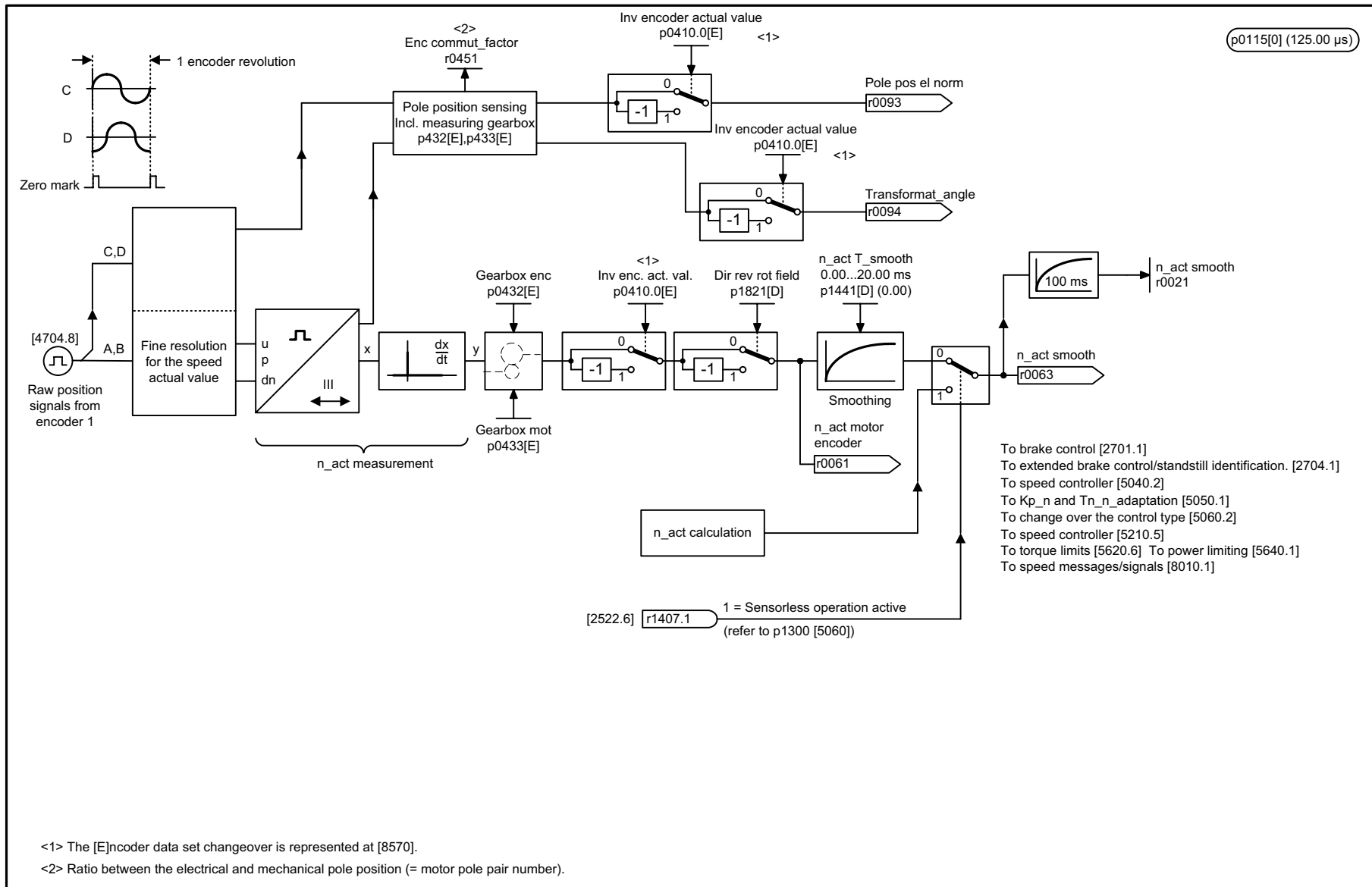
2.17 Encoder evaluation

Function diagrams

4704 – Position and temperature sensing, encoders 1 ... 3	2-1259
4710 – Speed act. value and pole pos. sens., motor enc. (encoder 1)	2-1260
4711 – Speed actual value sensing, encoder 2, 3 (r0108.7 = 1, APC activated)	2-1261
4715 – Speed actual value and pole pos. sensing, motor enc. ASM/SM (encoder 1)	2-1262
4720 – Encoder interface, receive signals, encoders 1 ... 3	2-1263
4730 – Encoder interface, send signals, encoders 1 ... 3	2-1264
4735 – Reference mark search with equivalent zero mark, encoders 1 ... 3	2-1265

Figure 2-142 4704 – Position and temperature sensing, encoders 1 ... 3





1	2	3	4	5	6	7	8
DO: SERVO					fp_4710_01_eng.vsd	Function diagram	
Encoder evaluation - Speed actual value and pole pos. sensing, motor encoder (encoder 1)					20.09.06 V02.05.00	SINAMICS S	
							- 4710 -

Figure 2-143 4710 – Speed act. value and pole pos. sens., motor enc. (encoder 1)

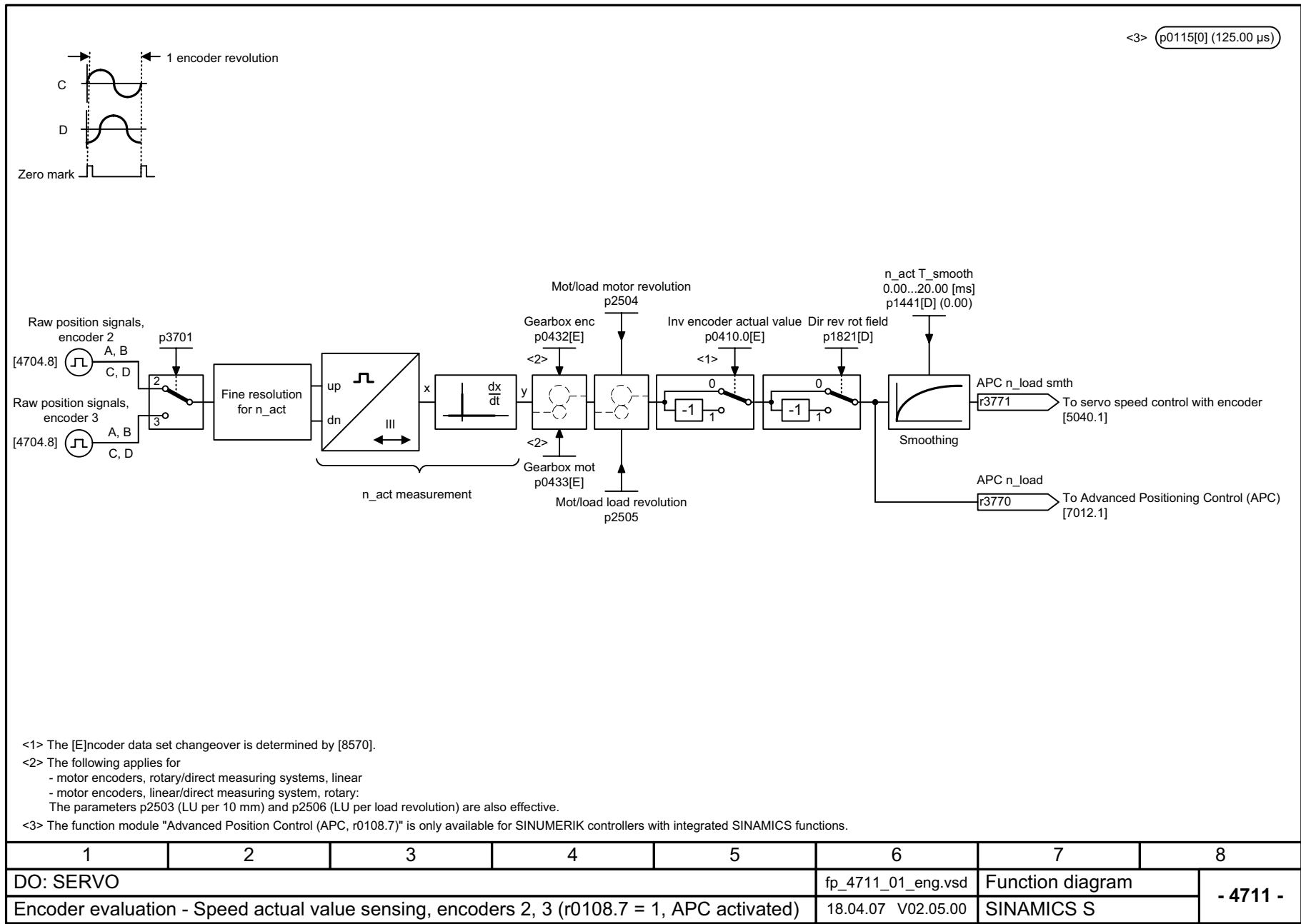
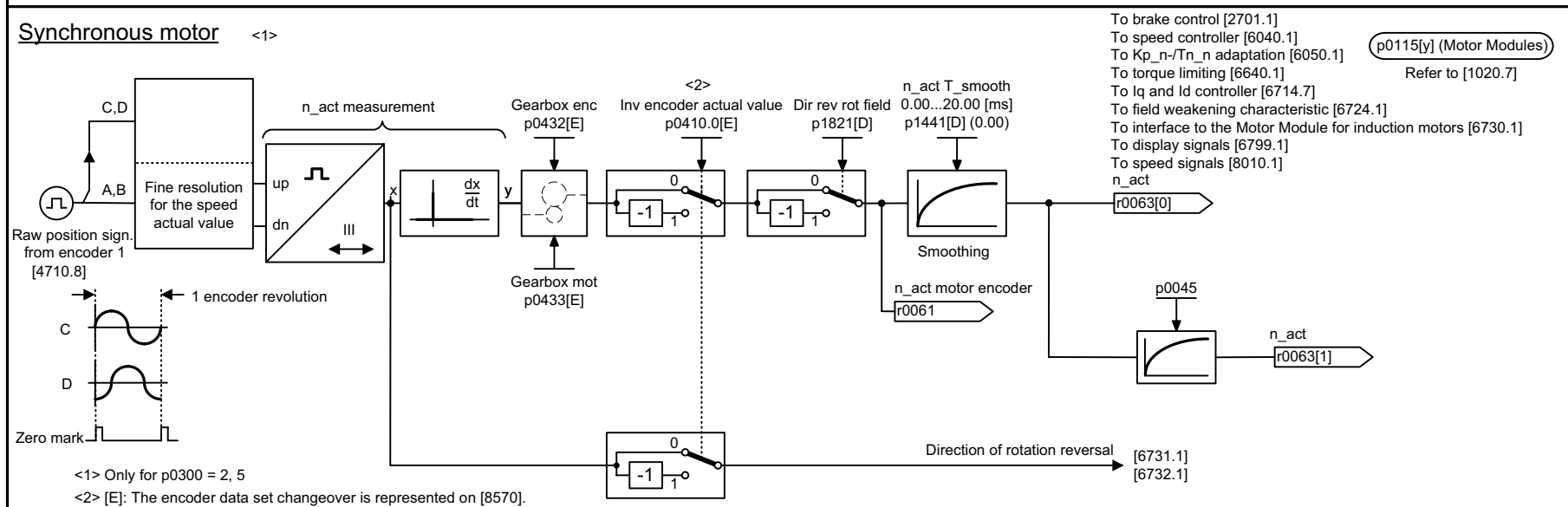
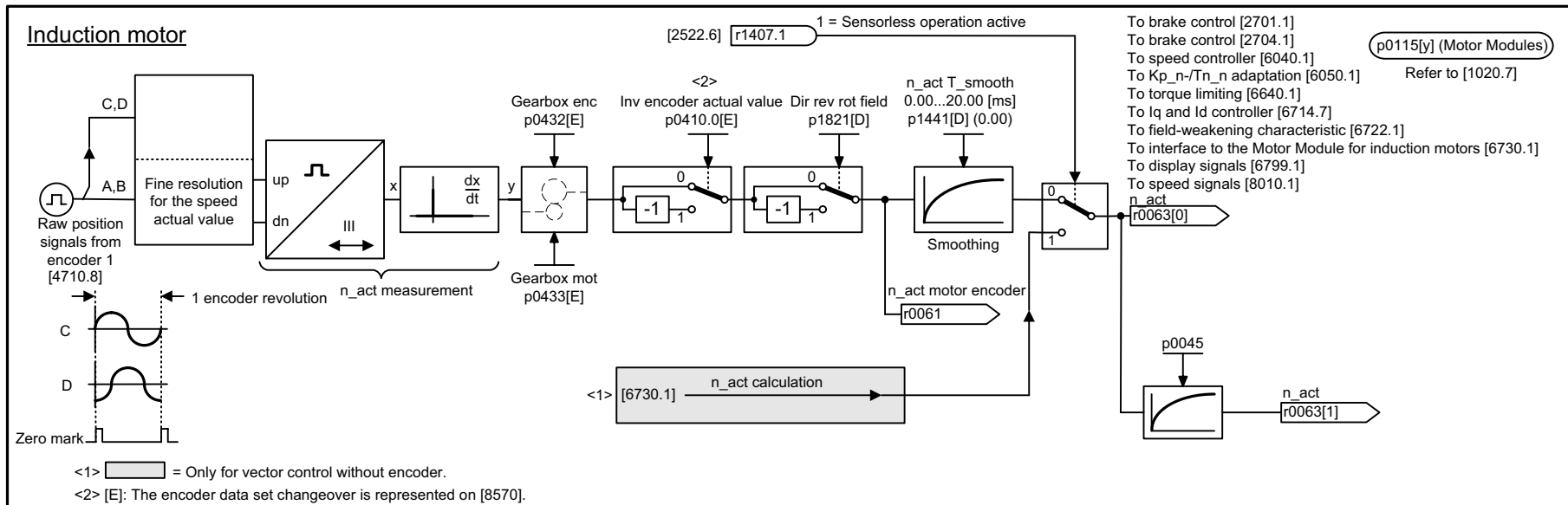


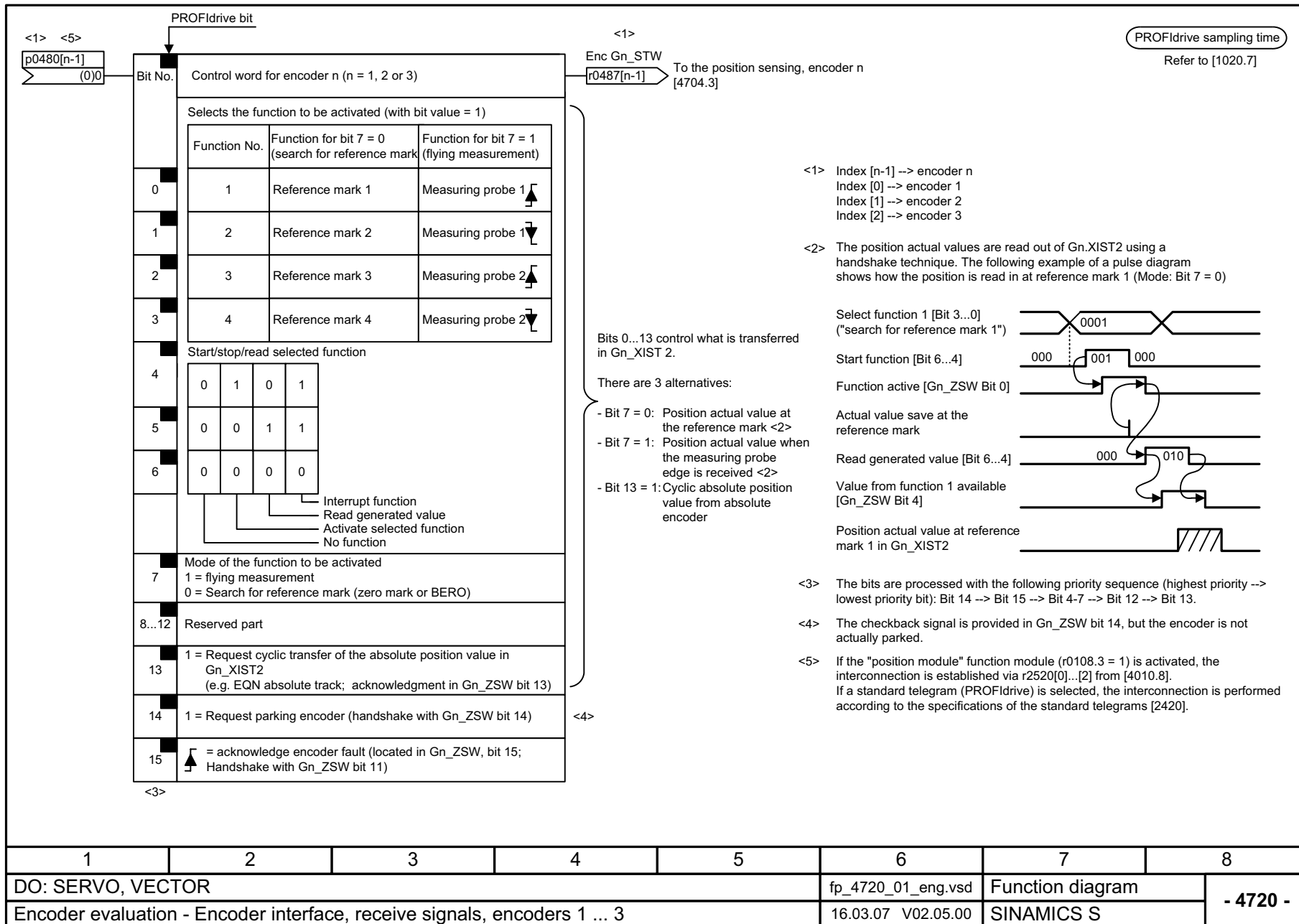
Figure 2-144 4711 – Speed actual value sensing, encoder 2, 3 (r0108.7 = 1, APC activated)

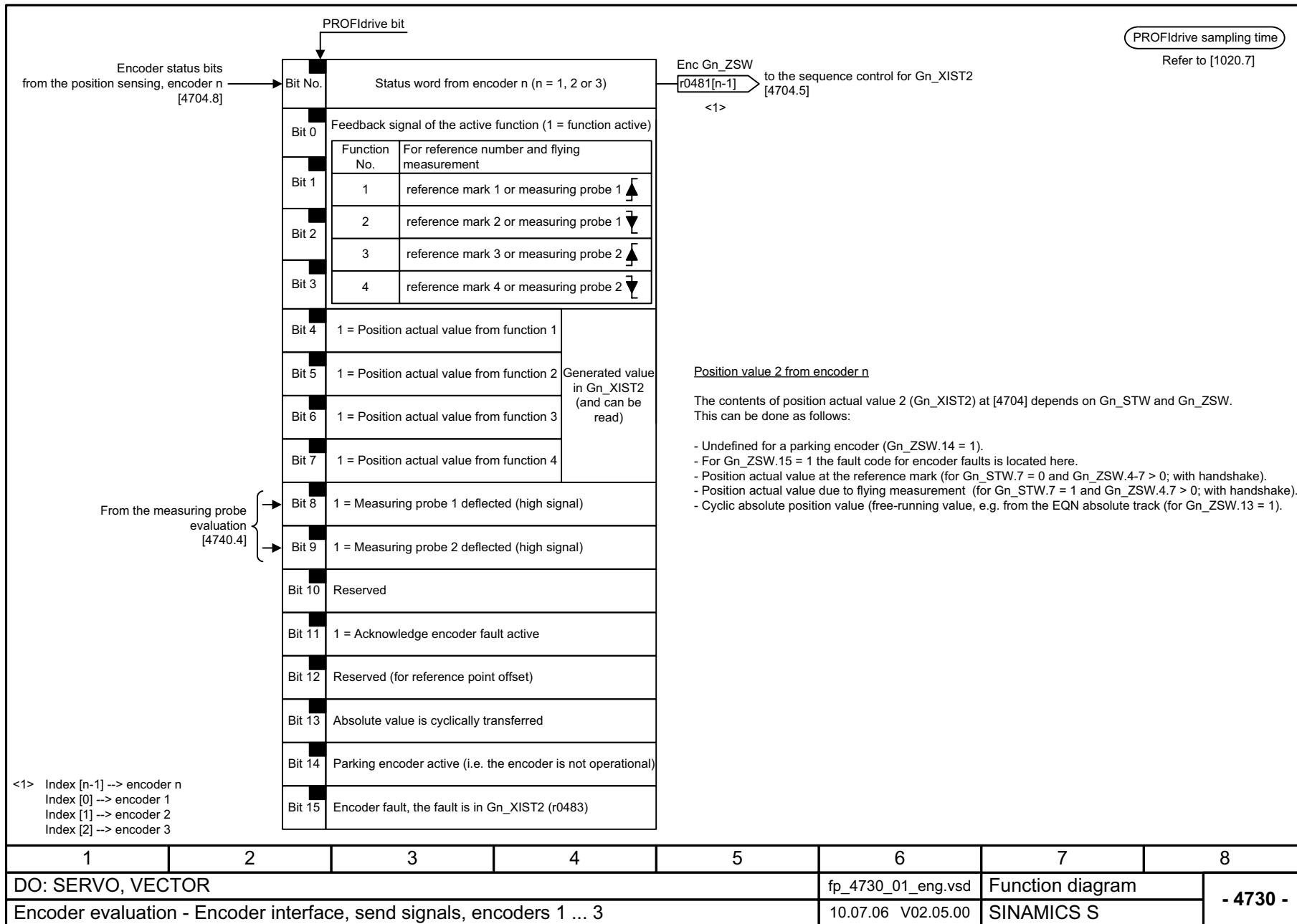
1	2	3	4	5	6	7	8
DO: SERVO					fp_4711_01_eng.vsd	Function diagram	
Encoder evaluation - Speed actual value sensing, encoders 2, 3 (r0108.7 = 1, APC activated)					18.04.07 V02.05.00	SINAMICS S	
							- 4711 -



1	2	3	4	5	6	7	8
DO: VECTOR					fp_4715_01_eng.vsd	Function diagram	
Encoder evaluation - Speed act. value and pole pos. sensing, motor enc. ASM/SM (encoder 1)					15.09.06 V02.05.00	SINAMICS S	
							- 4715 -

Figure 2-145 4715 – Speed actual value and pole pos. sensing, motor enc. ASM/SM (encoder 1)





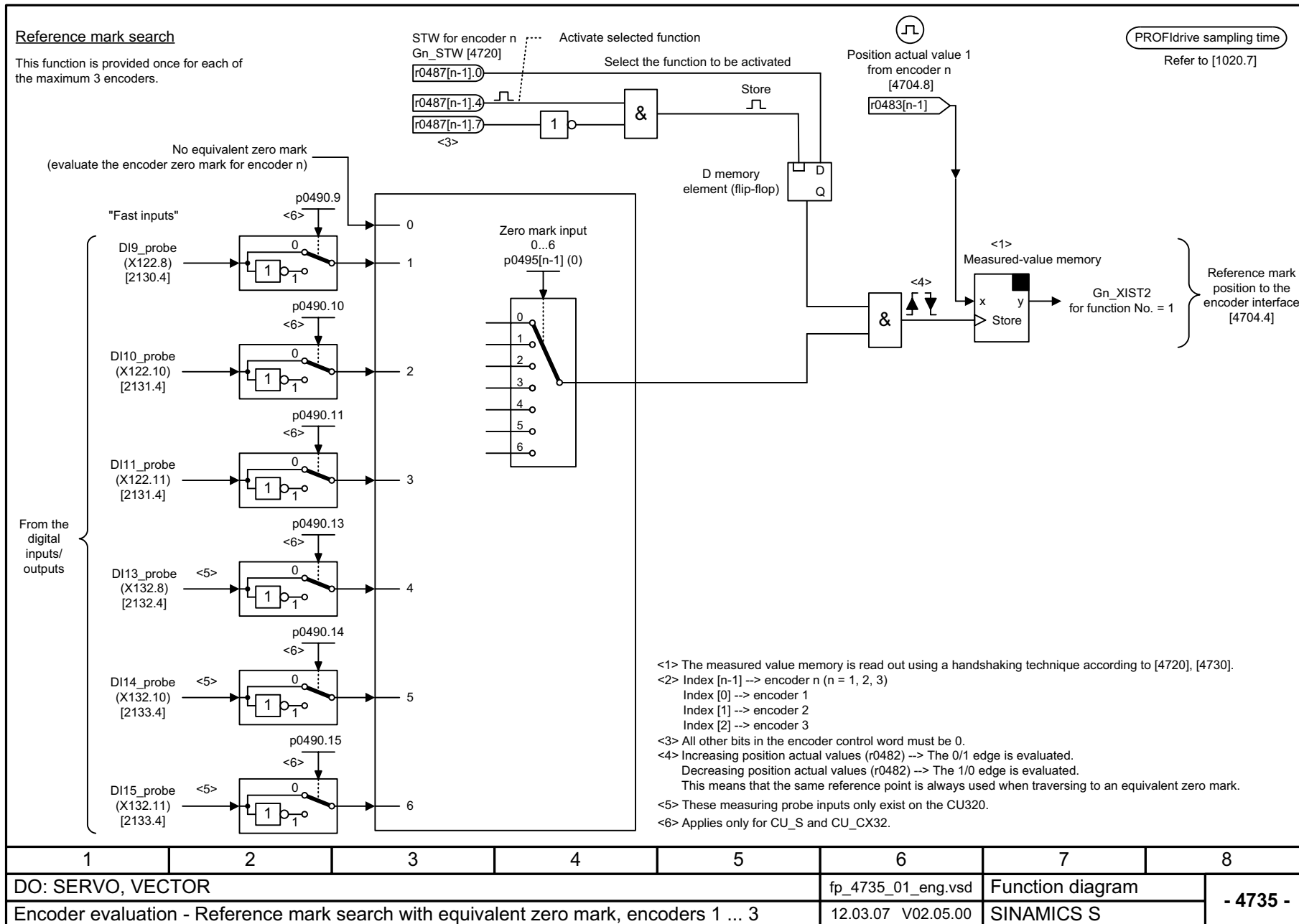


Figure 2-148 4735 – Reference mark search with equivalent zero mark, encoders 1 ... 3

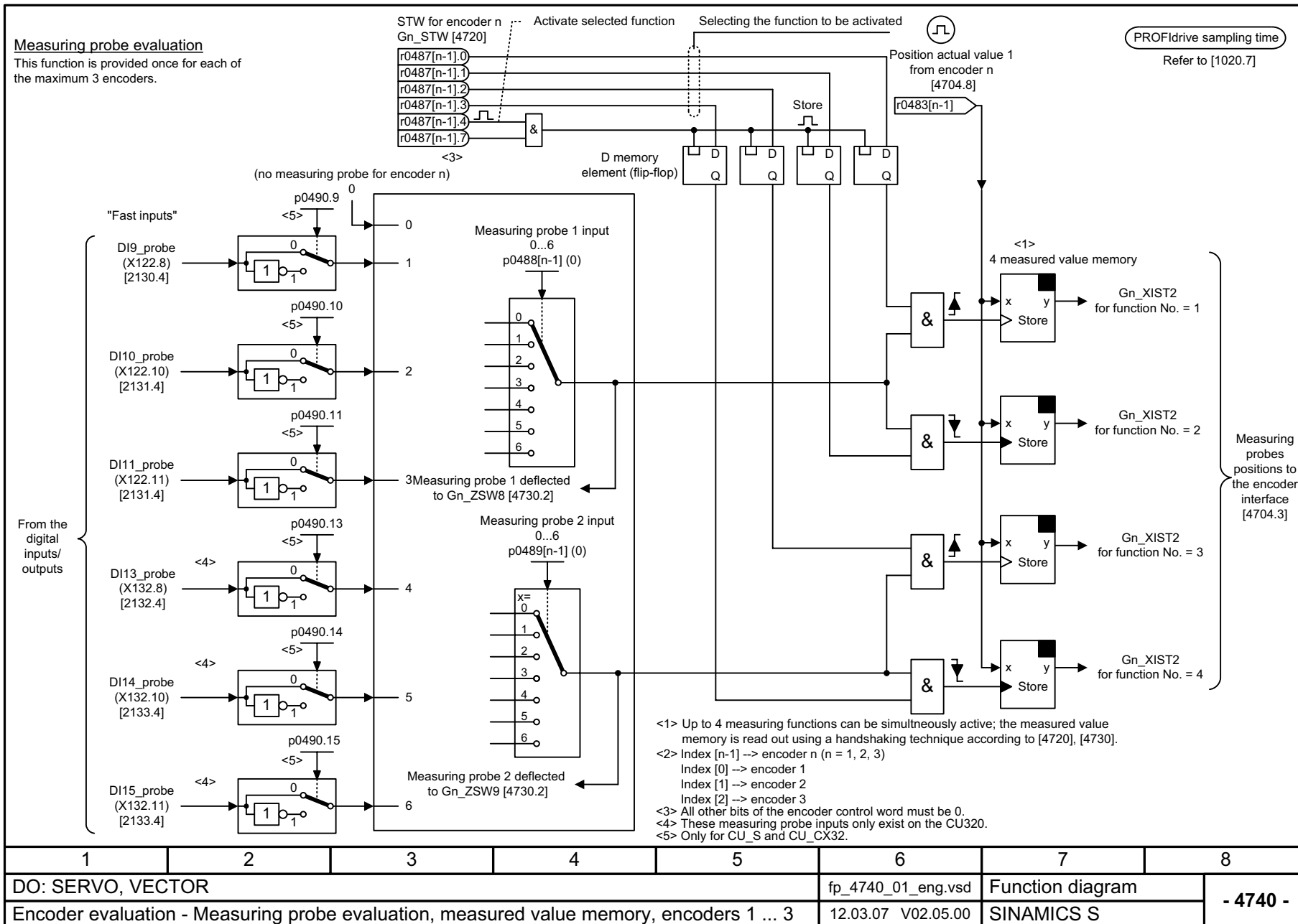
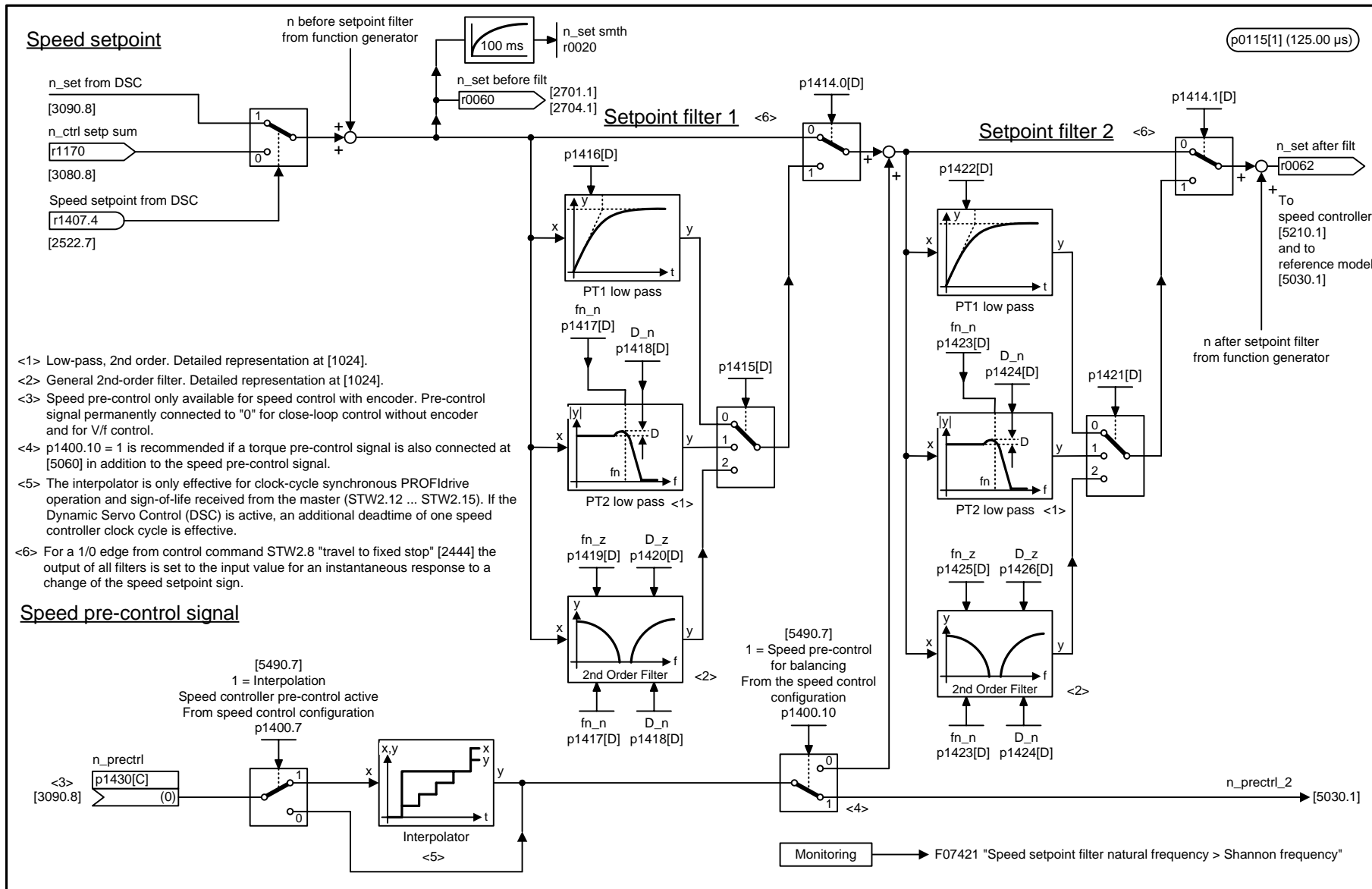


Figure 2-149 4740 – Measuring probe evaluation, measured value memory, encoders 1 ... 3

2.18 Servo control

Function diagrams

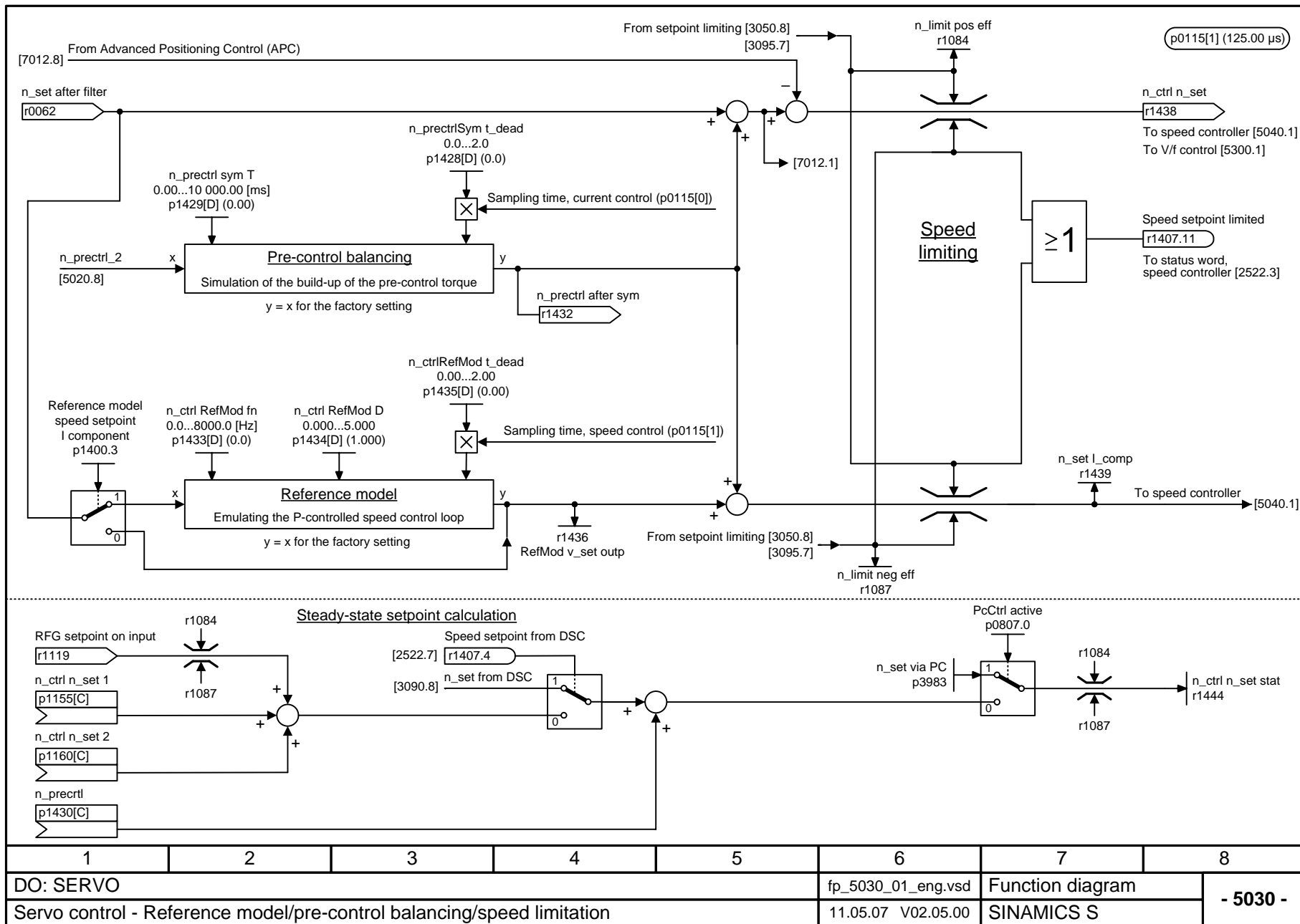
5020 – Speed setpoint filter and speed pre-control	2-1268
5030 – Reference model/pre-control balancing/speed limiting	2-1269
5040 – Speed controller with encoder	2-1270
5042 – Speed controller, torque-speed pre-control with encoder (p1402.4 = 1)	2-1271
5050 – Kp_n/Tn_n adaptation	2-1272
5060 – Torque setpoint, changeover control type	2-1273
5210 – Speed controller without encoder	2-1274
5300 – V/f control for diagnostics	2-1275
5490 – Speed control configuration	2-1276
5610 – Torque limiting/reduction/interpolator	2-1277
5620 – Motor/generator torque limit	2-1278
5630 – Upper/lower torque limit	2-1279
5640 – Mode changeover, power/current limiting	2-1280
5650 – Vdc_max controller and Vdc_min controller	2-1281
5710 – Current setpoint filter	2-1282
5714 – Iq and Id controller	2-1283
5722 – Field current input, flux controller	2-1284
5730 – Interface to the Motor Module (control signals, current actual values)	2-1285

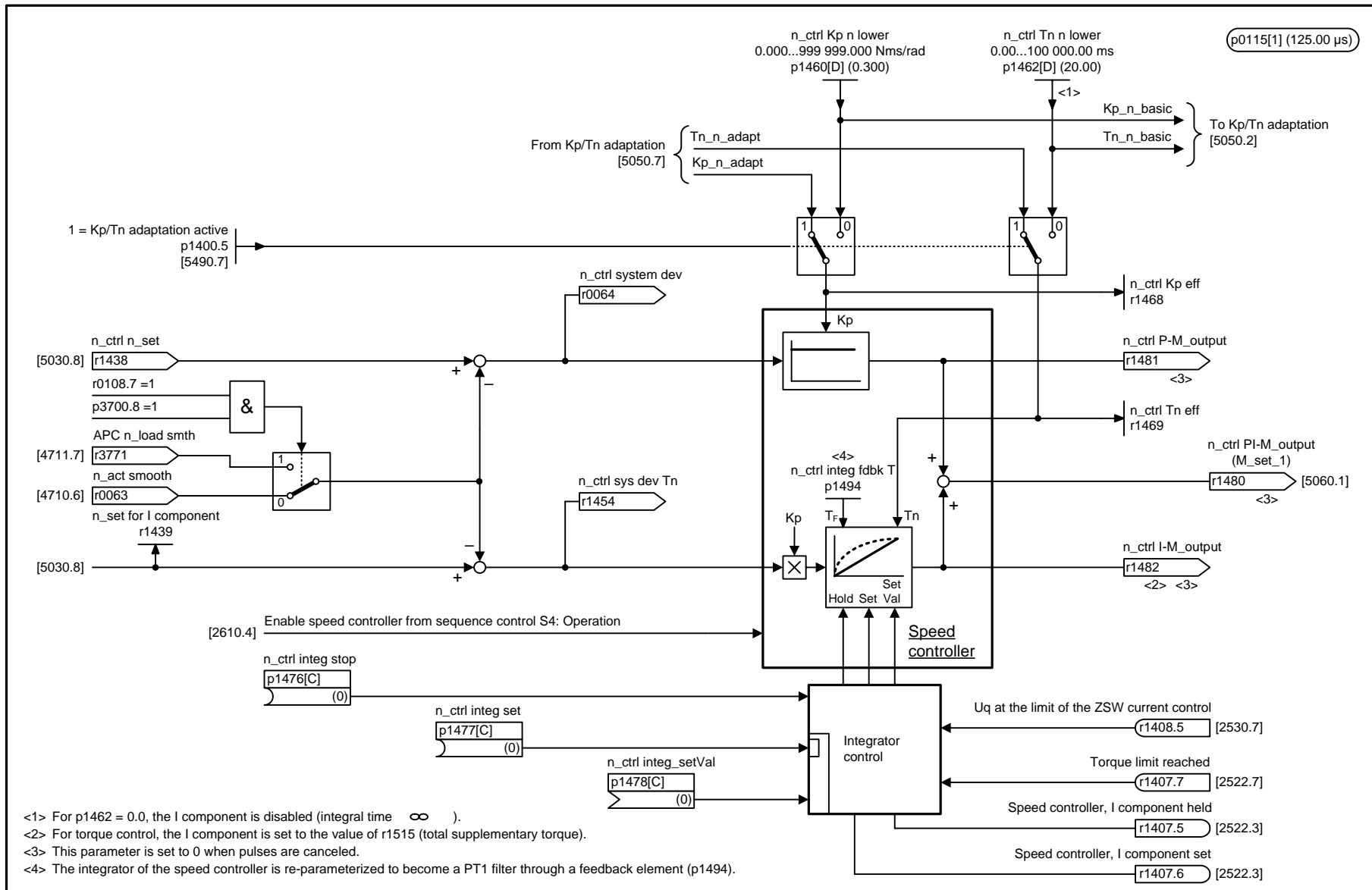


1	2	3	4	5	6	7	8
DO: SERVO					fp_5020_01_eng.vsd	Fuction diagram	
Servo control - Speed setpoint filter and speed pre-control					11.05.07 V02.05.00	SINAMICS S	
							- 5020 -

Figure 2-150 5020 – Speed setpoint filter and speed pre-control

Function Diagrams

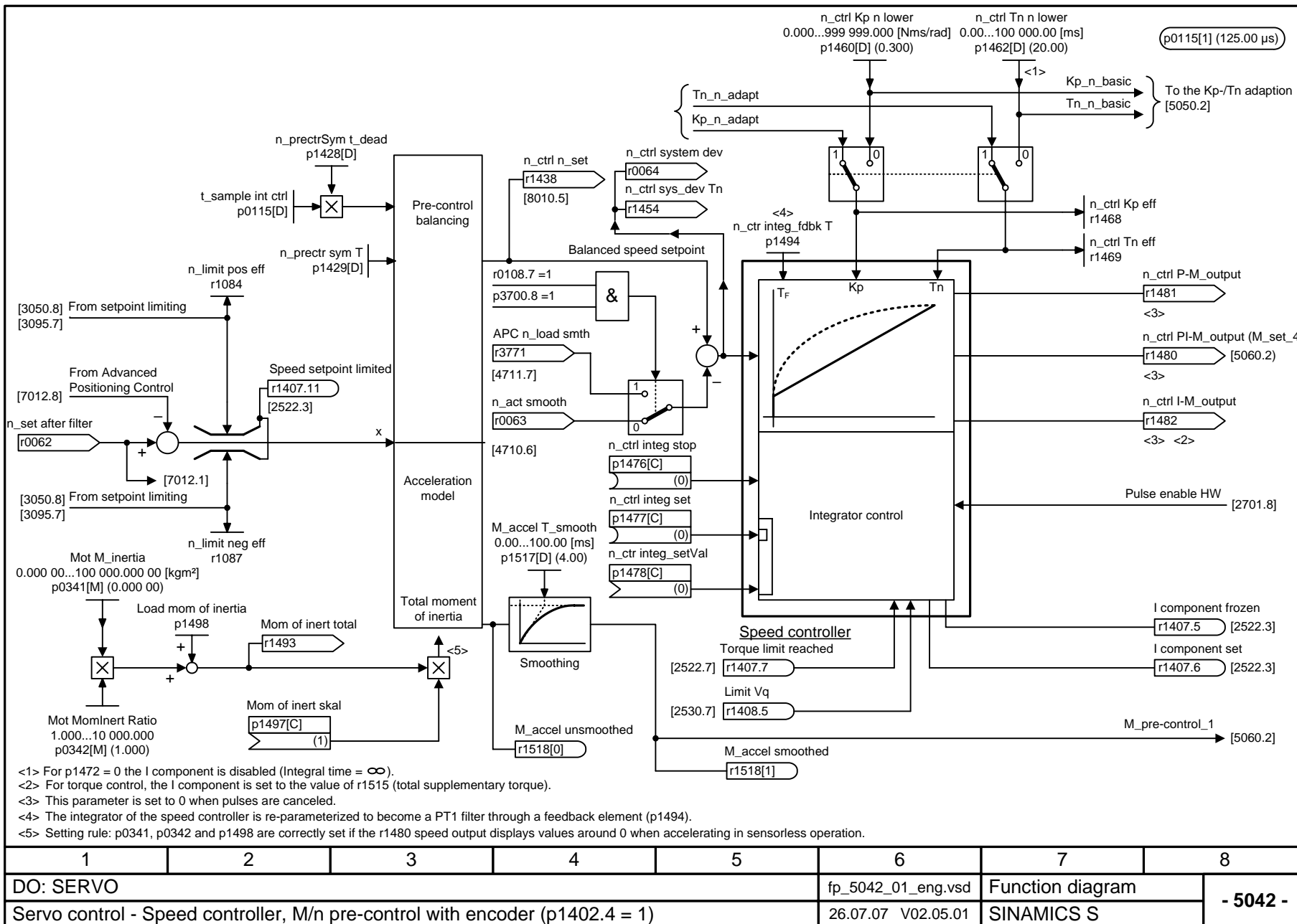




1	2	3	4	5	6	7	8
DO: SERVO					fp_5040_01_eng.vsd	Function diagram	
Servo control - Speed controller with encoder					26.07.07 V02.05.00	SINAMICS S	
							- 5040 -

Figure 2-152 5040 – Speed controller with encoder

Figure 2-153 5042 – Speed controller, torque-speed pre-control with encoder (p1402.4 = 1)



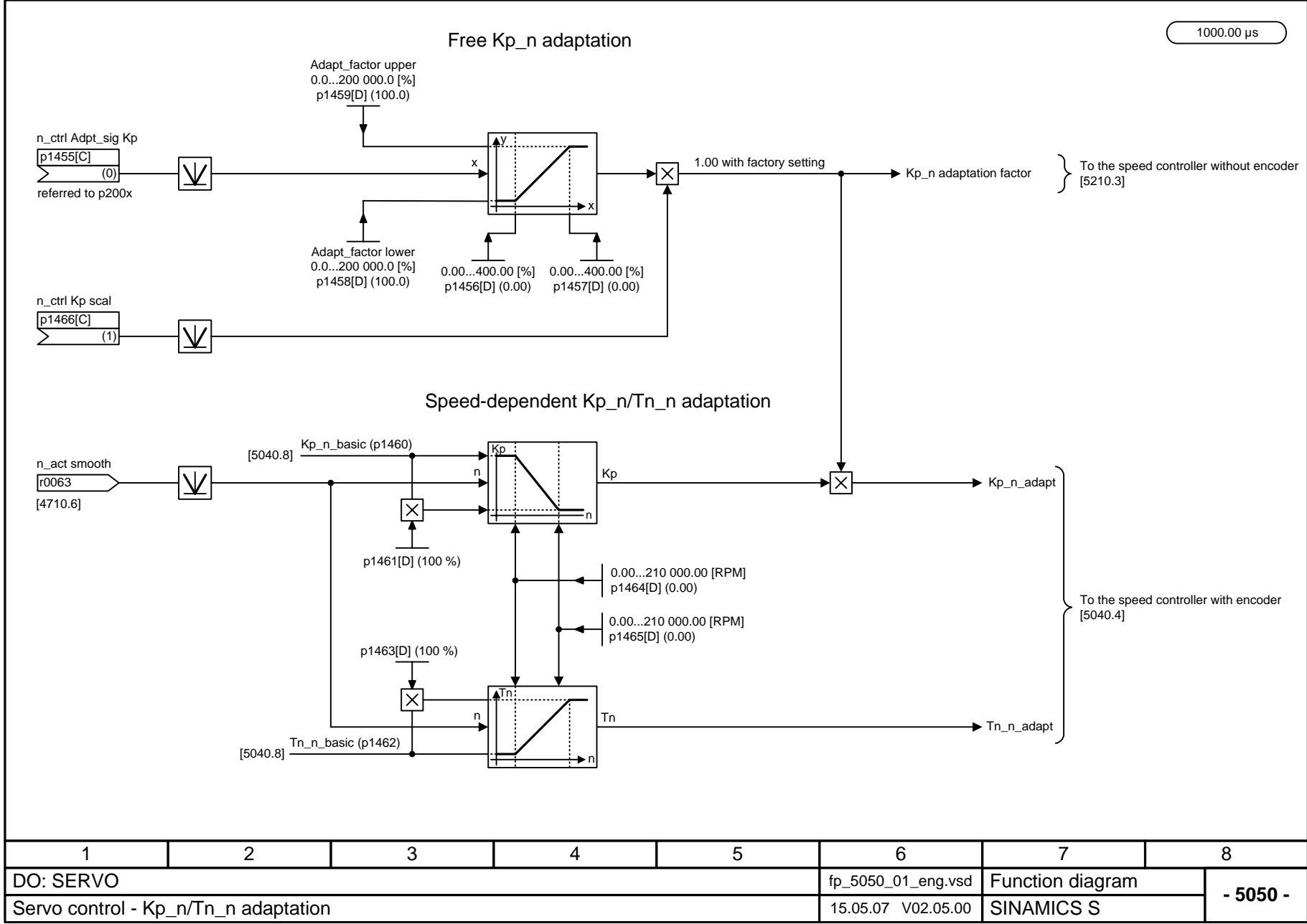
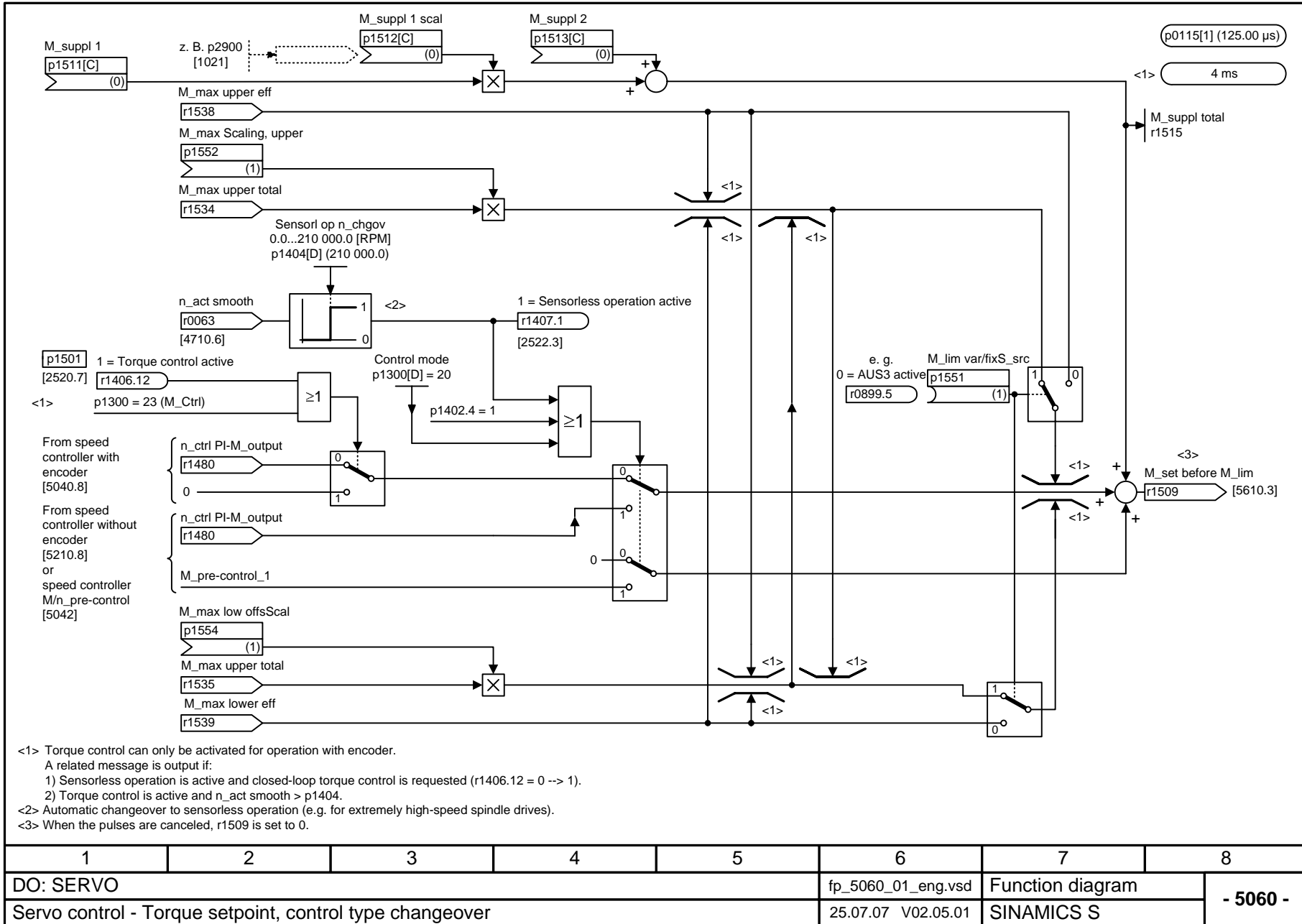
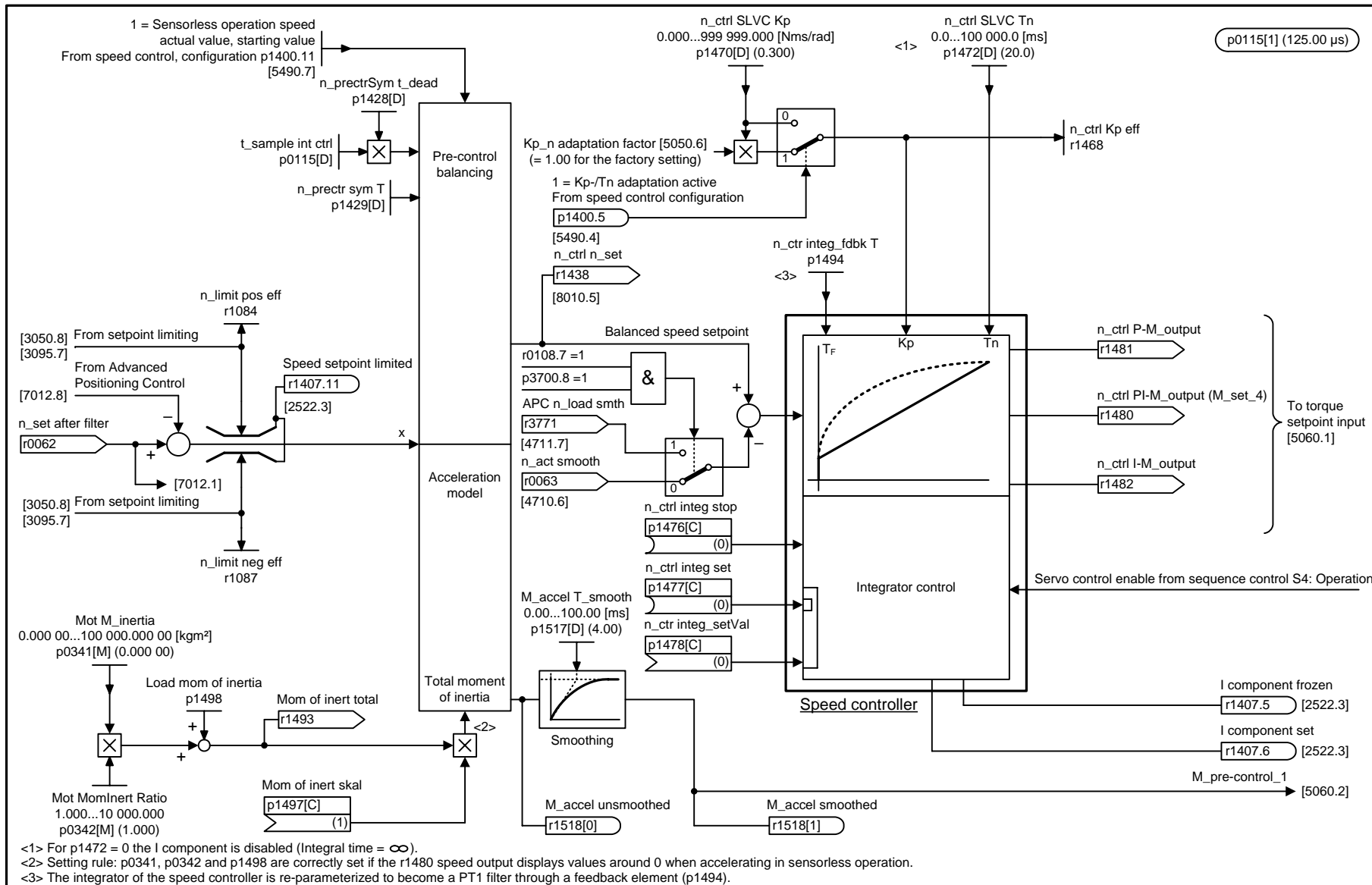


Figure 2-154 5050 – Kp_n/Tn_n adaptation





1	2	3	4	5	6	7	8
DO: SERVO					fp_5210_01_eng.vsd	Function diagram	
Servo control - Speed controller without encoder					26.07.07 V02.05.01	SINAMICS S	
							- 5210 -

Figure 2-156 5210 – Speed controller without encoder

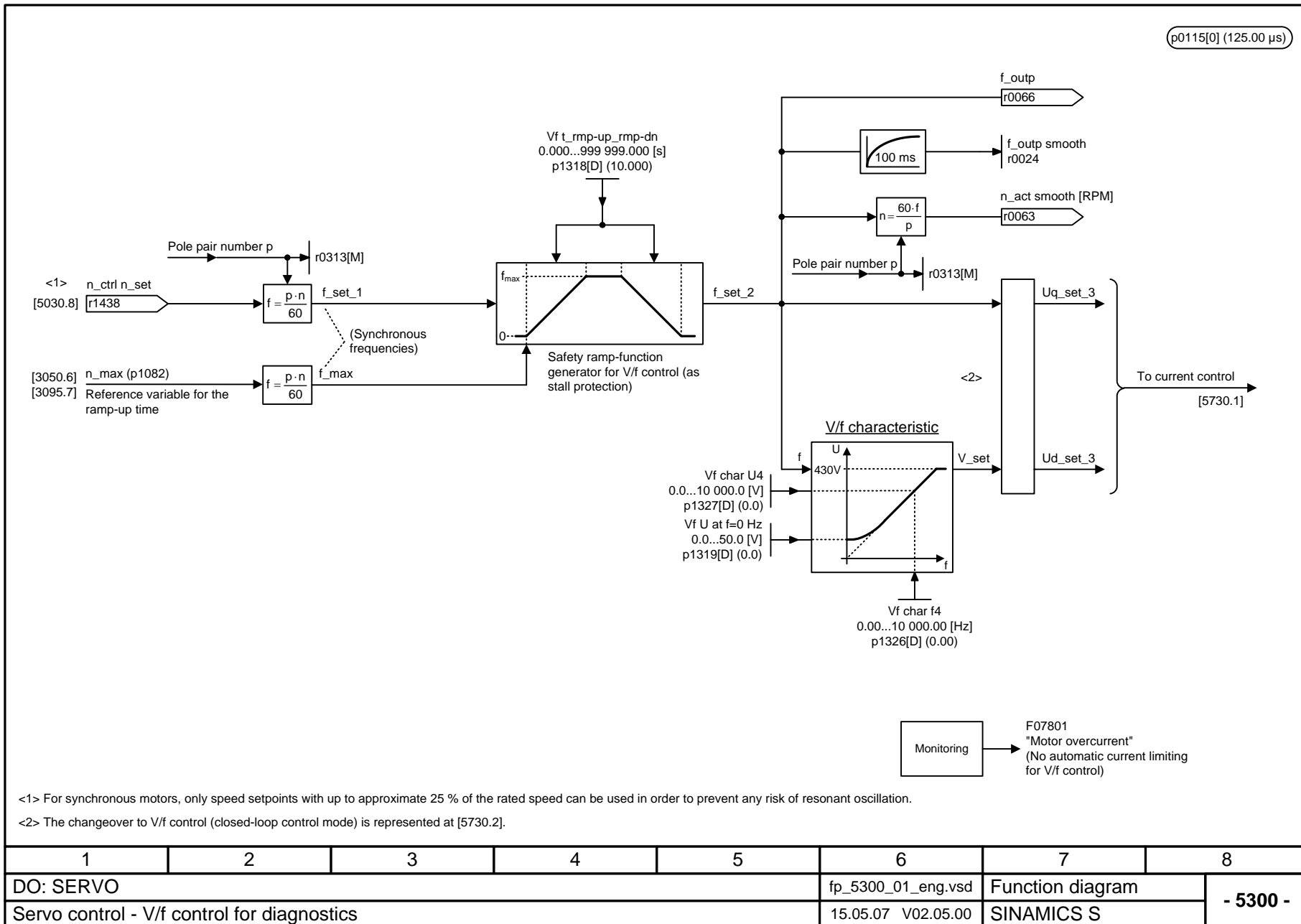


Figure 2-157 5300 – V/f control for diagnostics

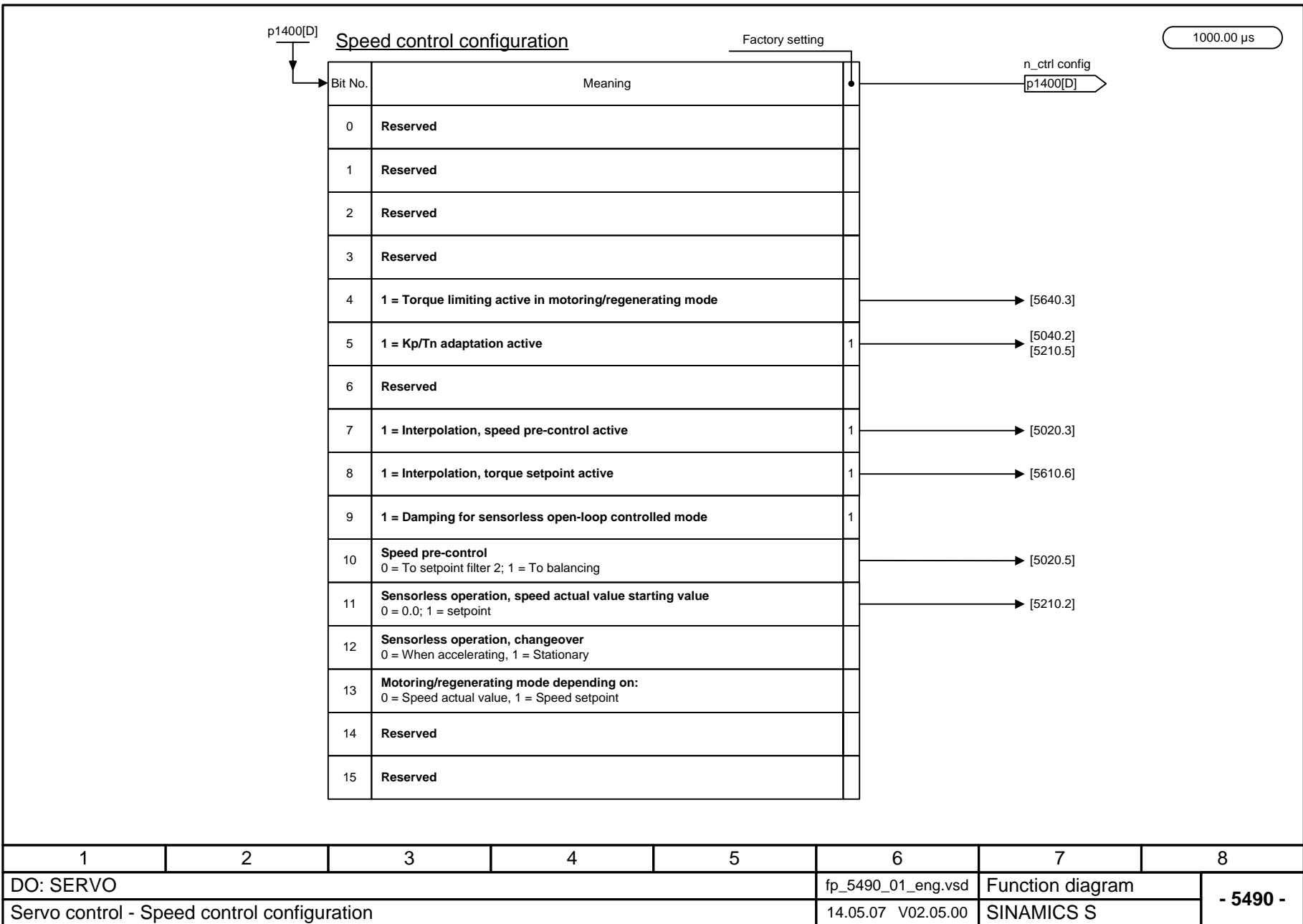


Figure 2-158 5490 – Speed control configuration

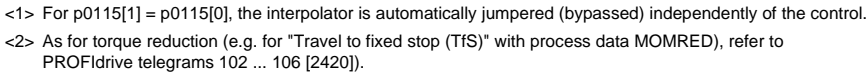


Figure 2-159

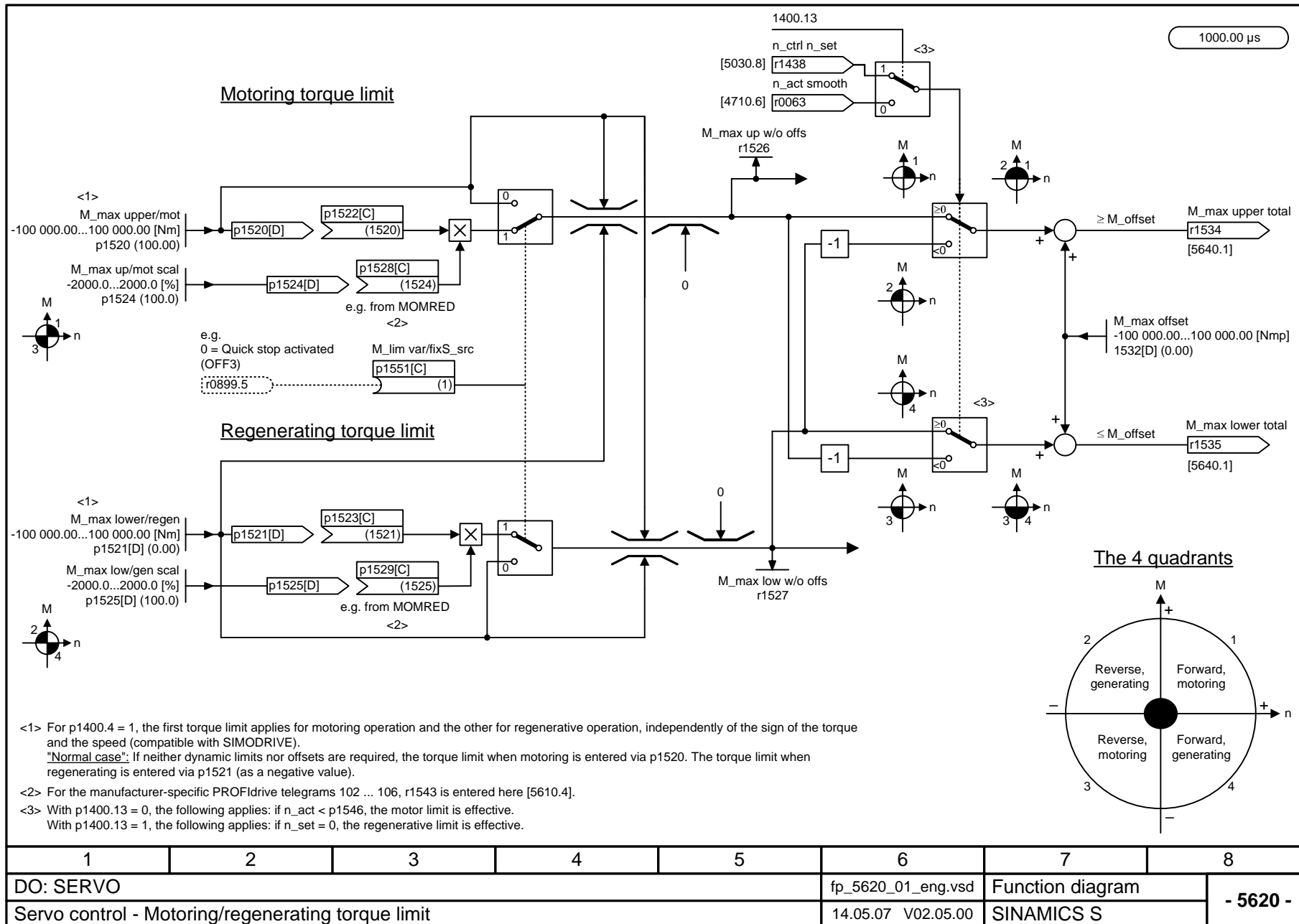
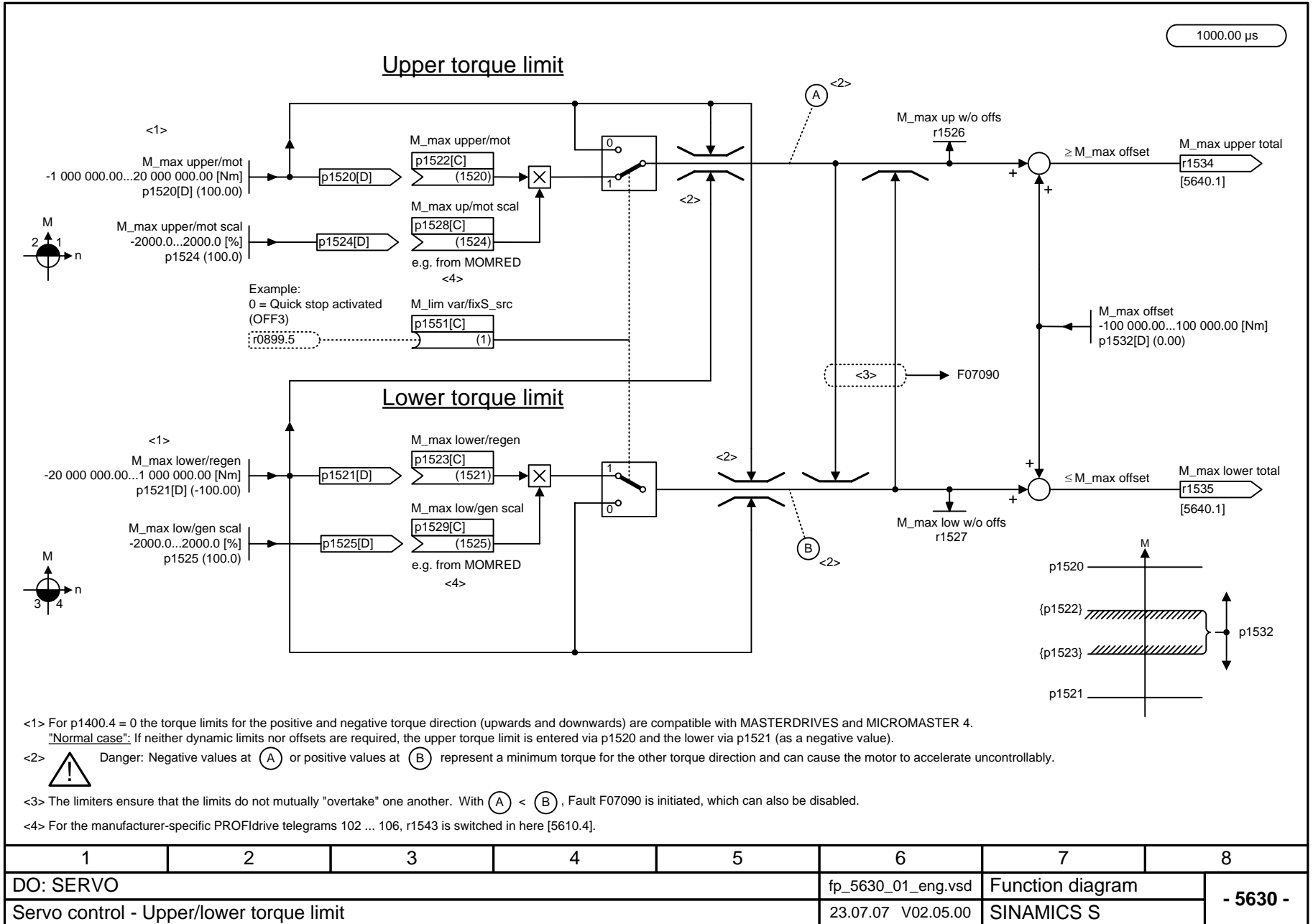
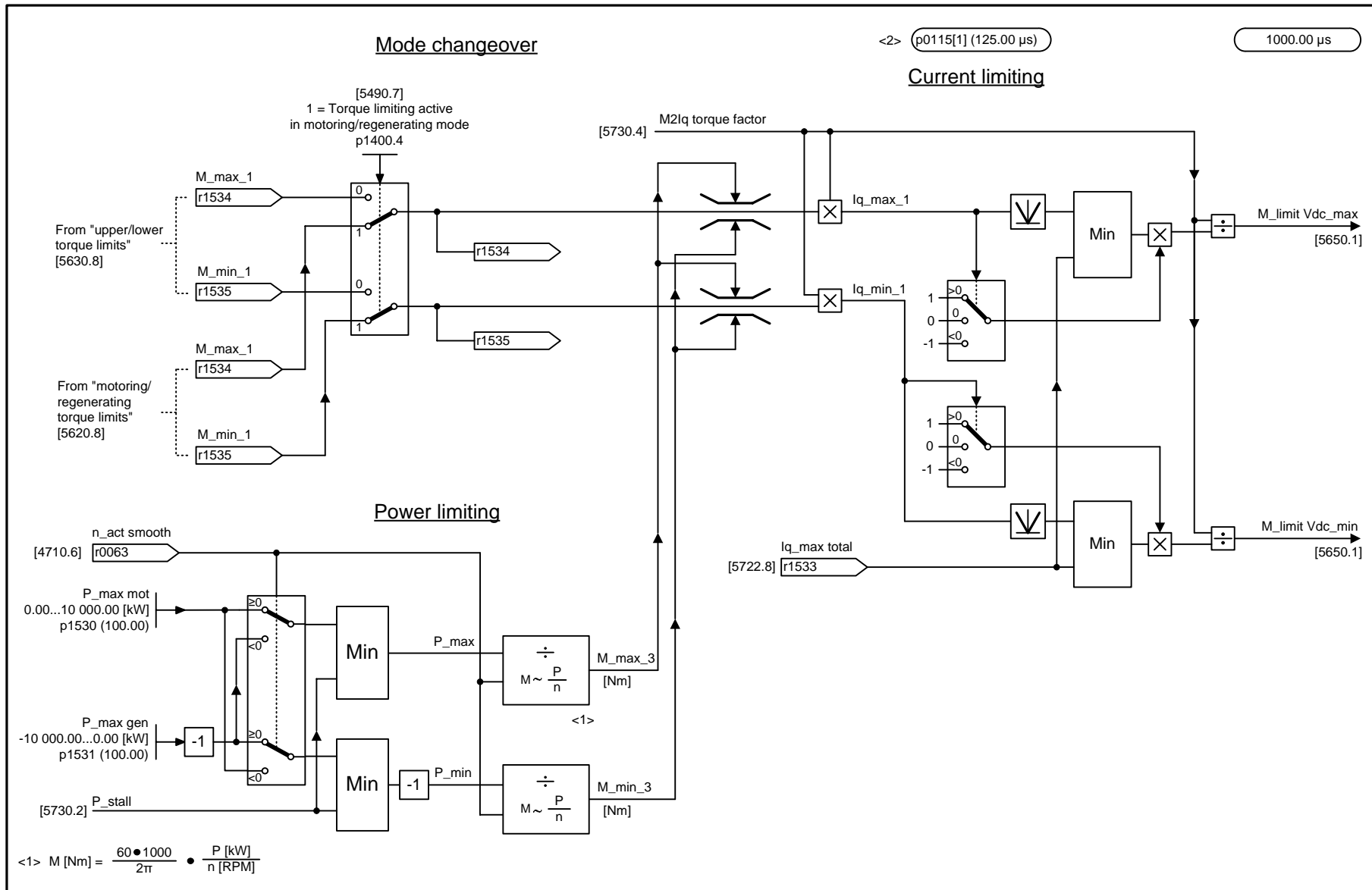


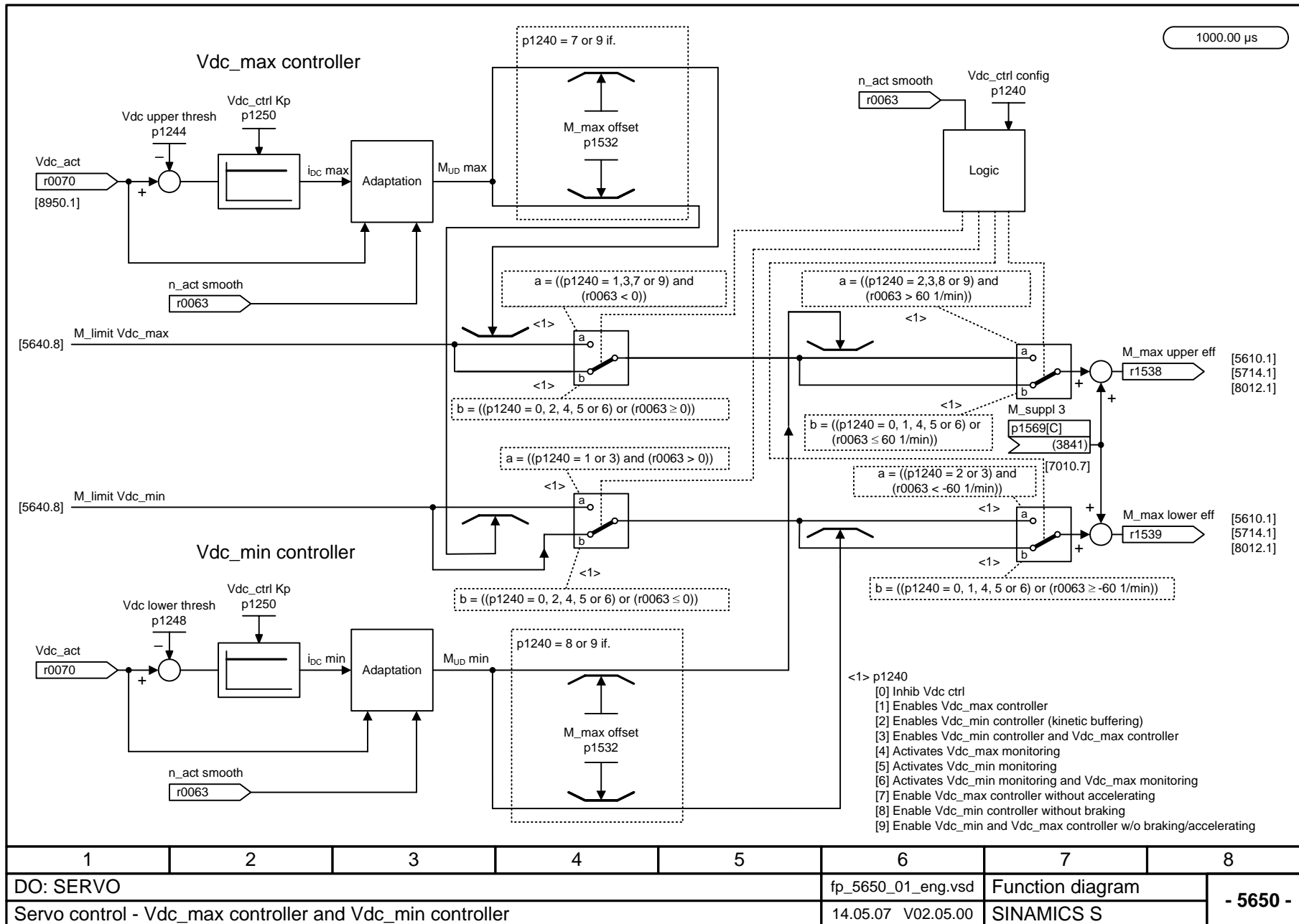
Figure 2-161 5630 – Upper/lower torque limit

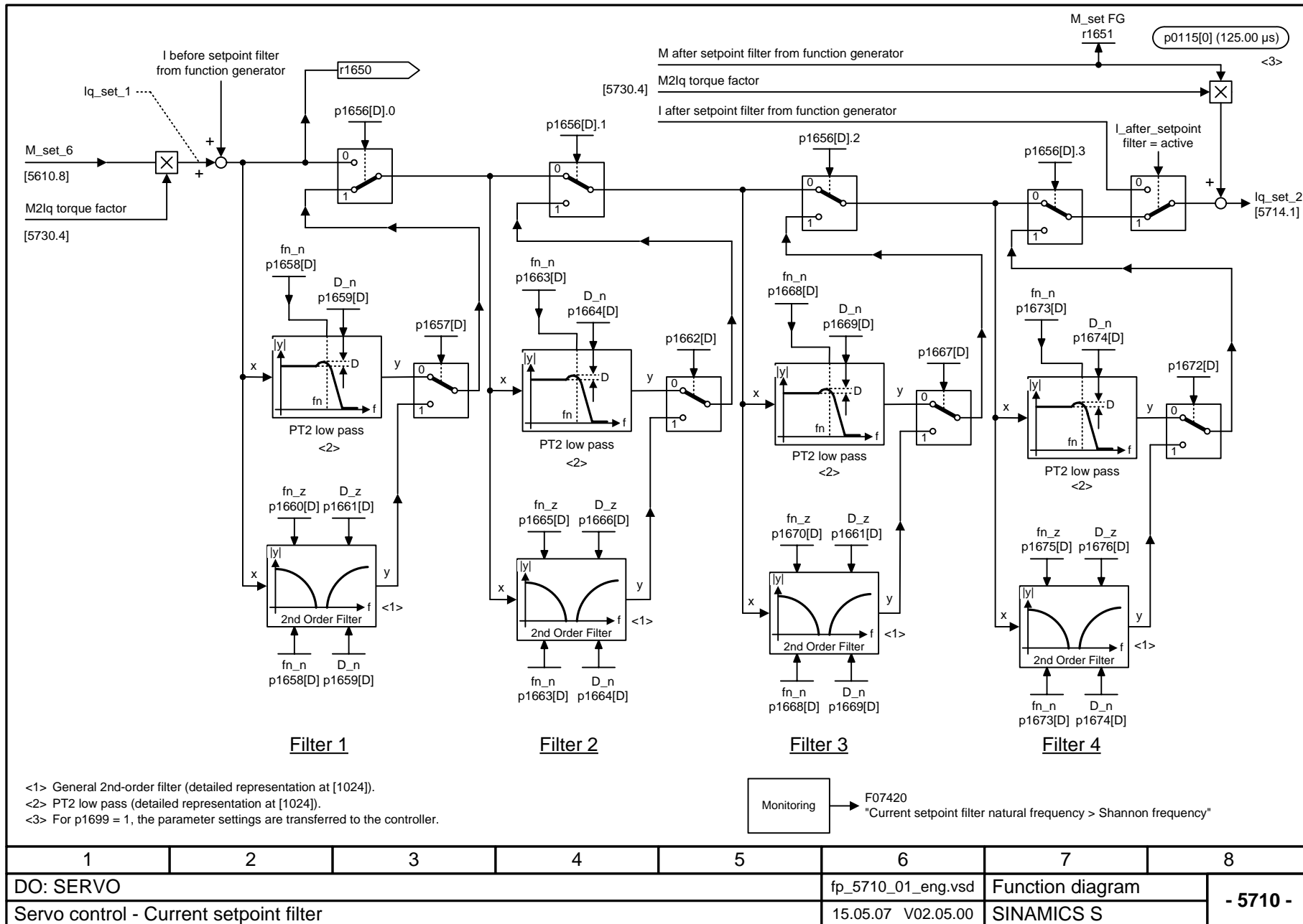




1	2	3	4	5	6	7	8
DO: SERVO					fp_5640_01_eng.vsd	Function diagram	
Servo control - Mode changeover, power/current limiting					14.05.07 V02.05.00	SINAMICS S	
							- 5640 -

Figure 2-162 5640 – Mode changeover, power/current limiting





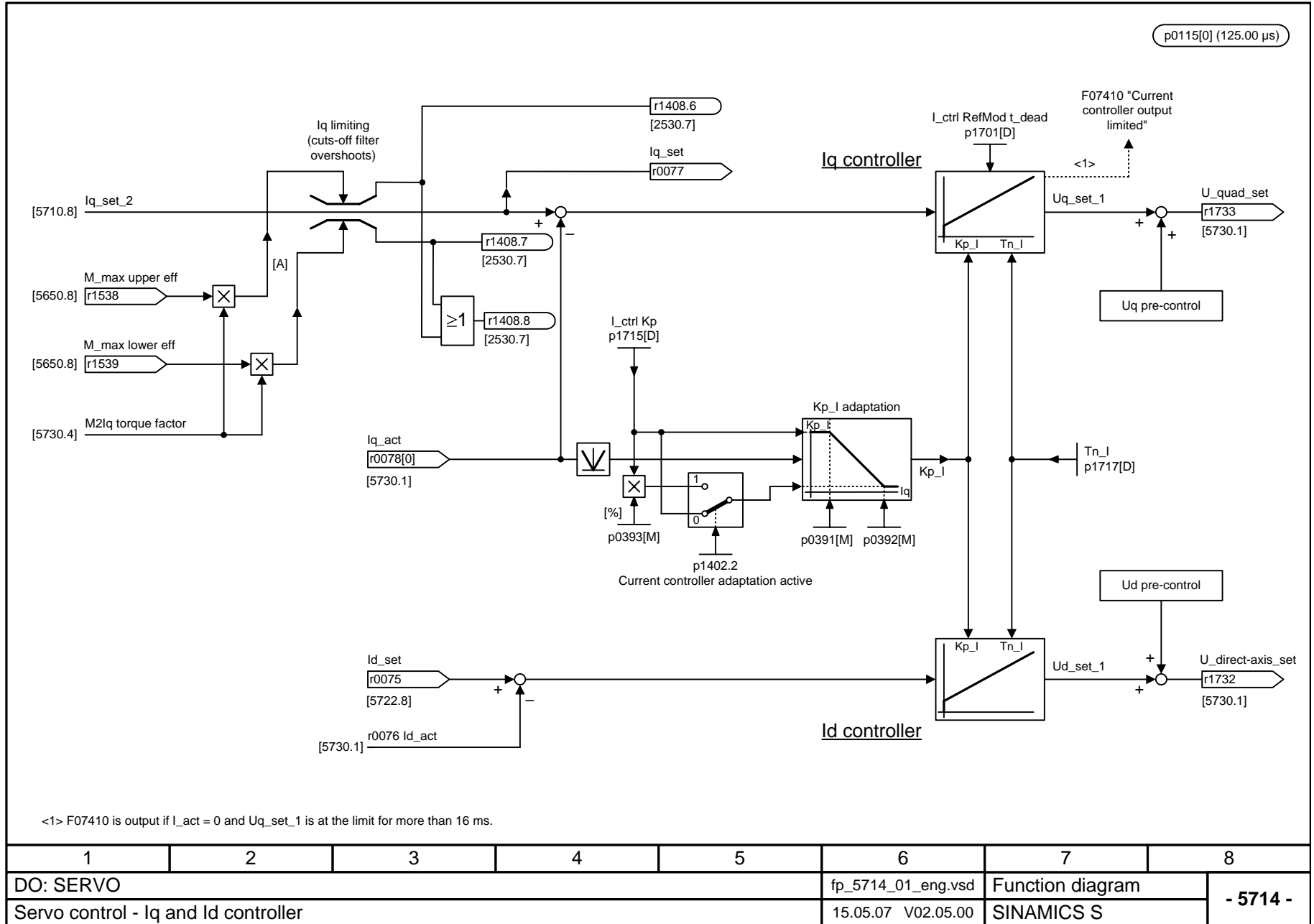


Figure 2-165 5714 – Iq and Id controller

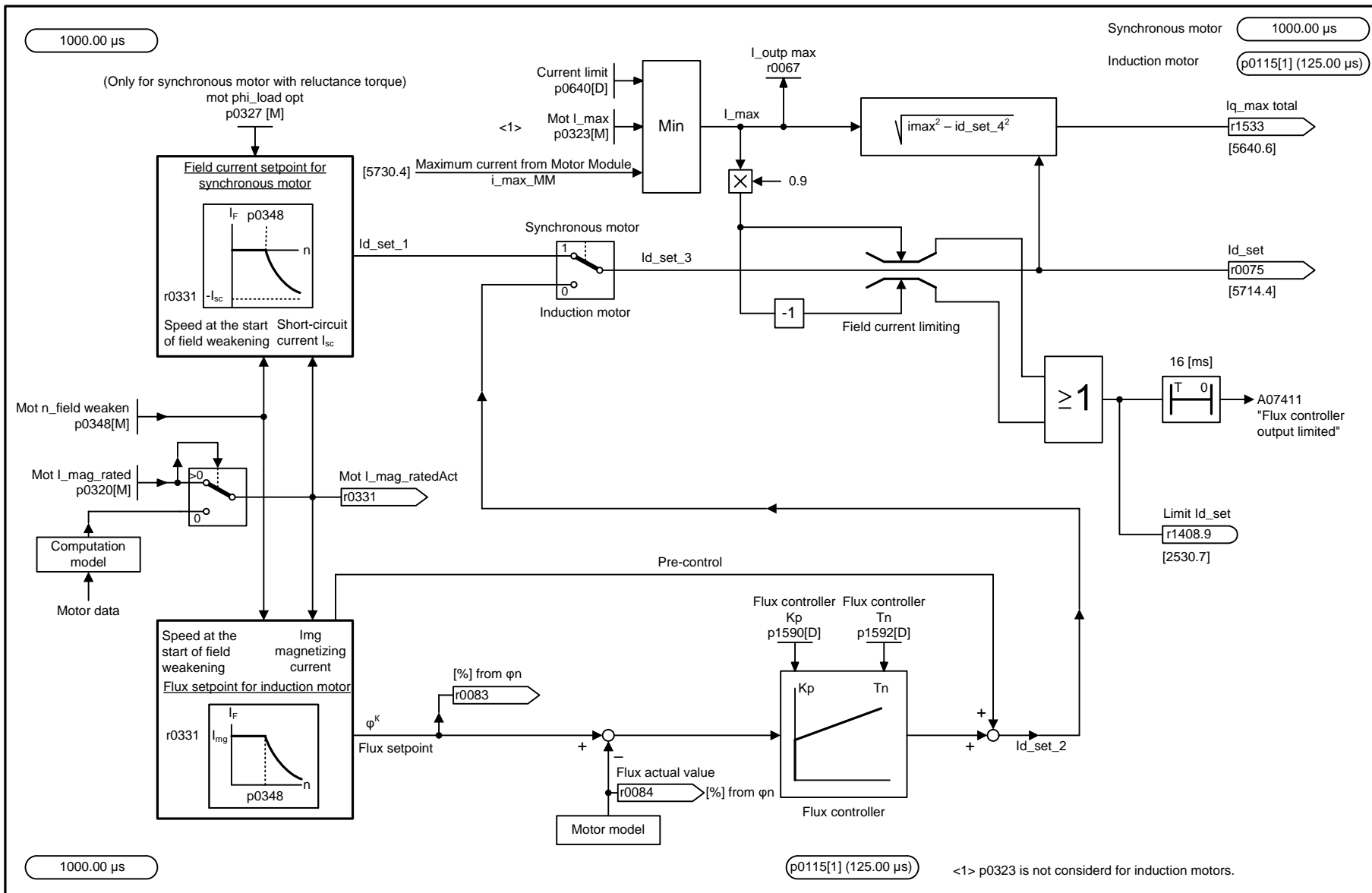
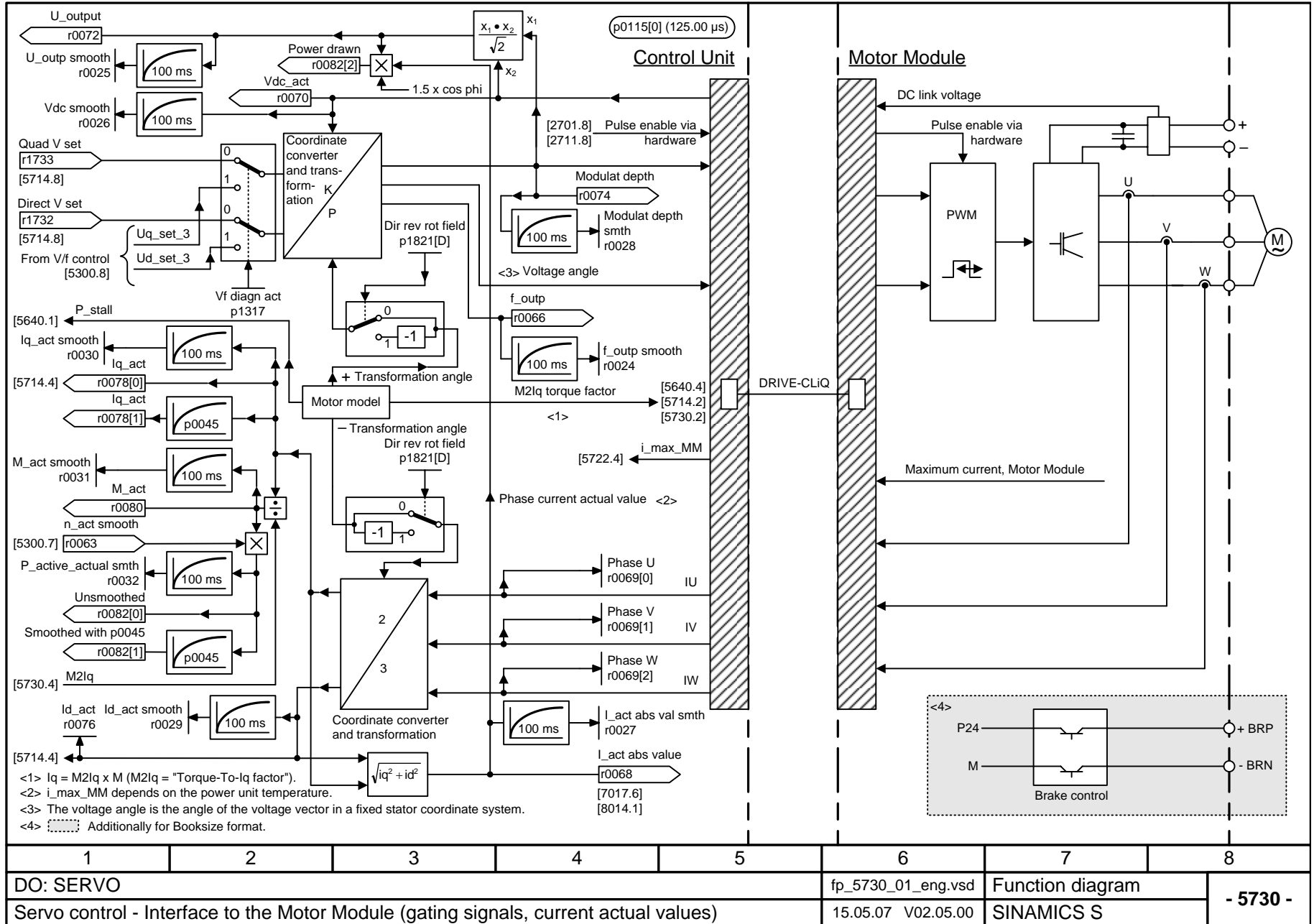


Figure 2-166 5722 – Field current input, flux controller

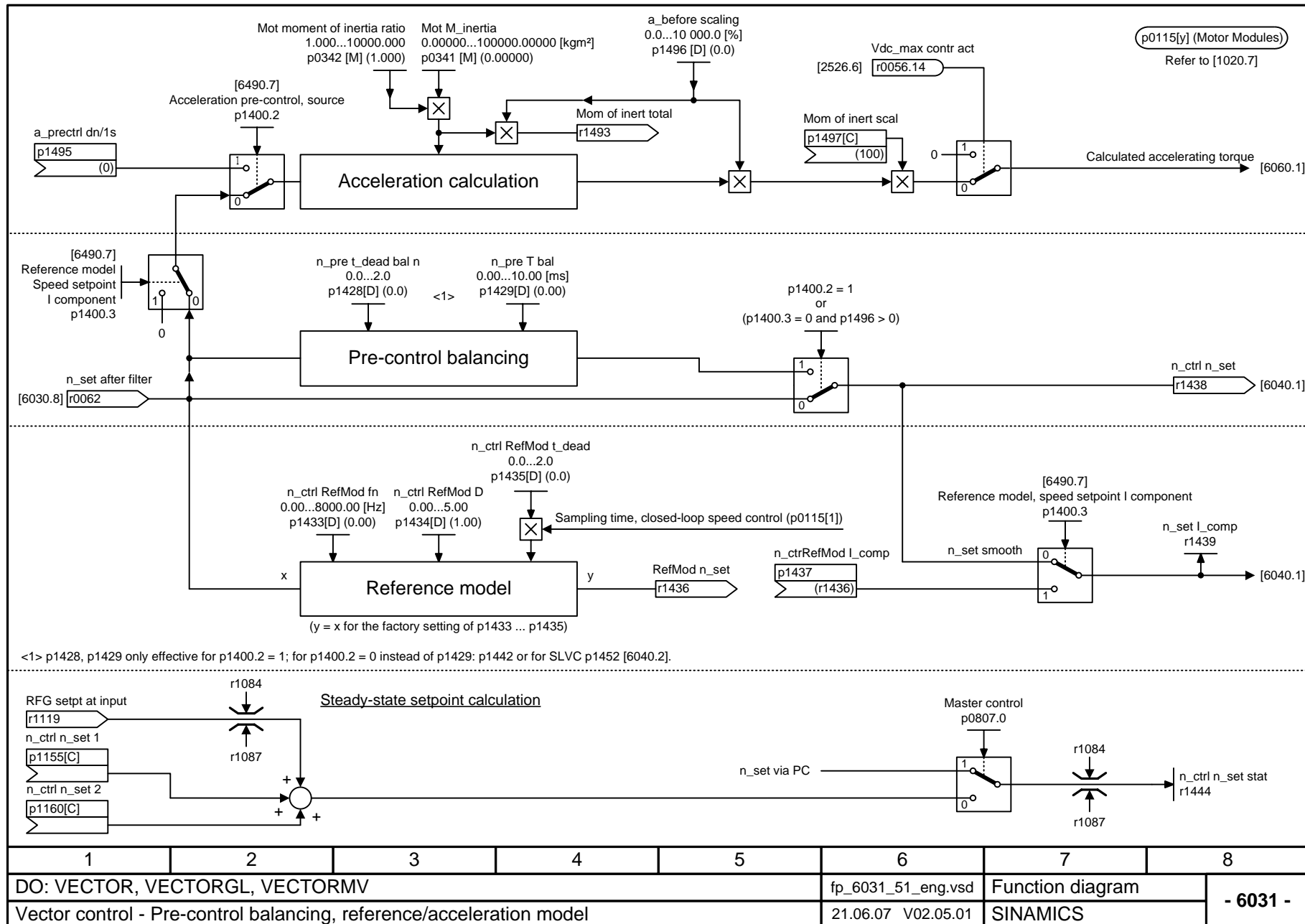
Figure 2-167 5730 – Interface to the Motor Module (control signals, current actual values)



2.19 Vector control

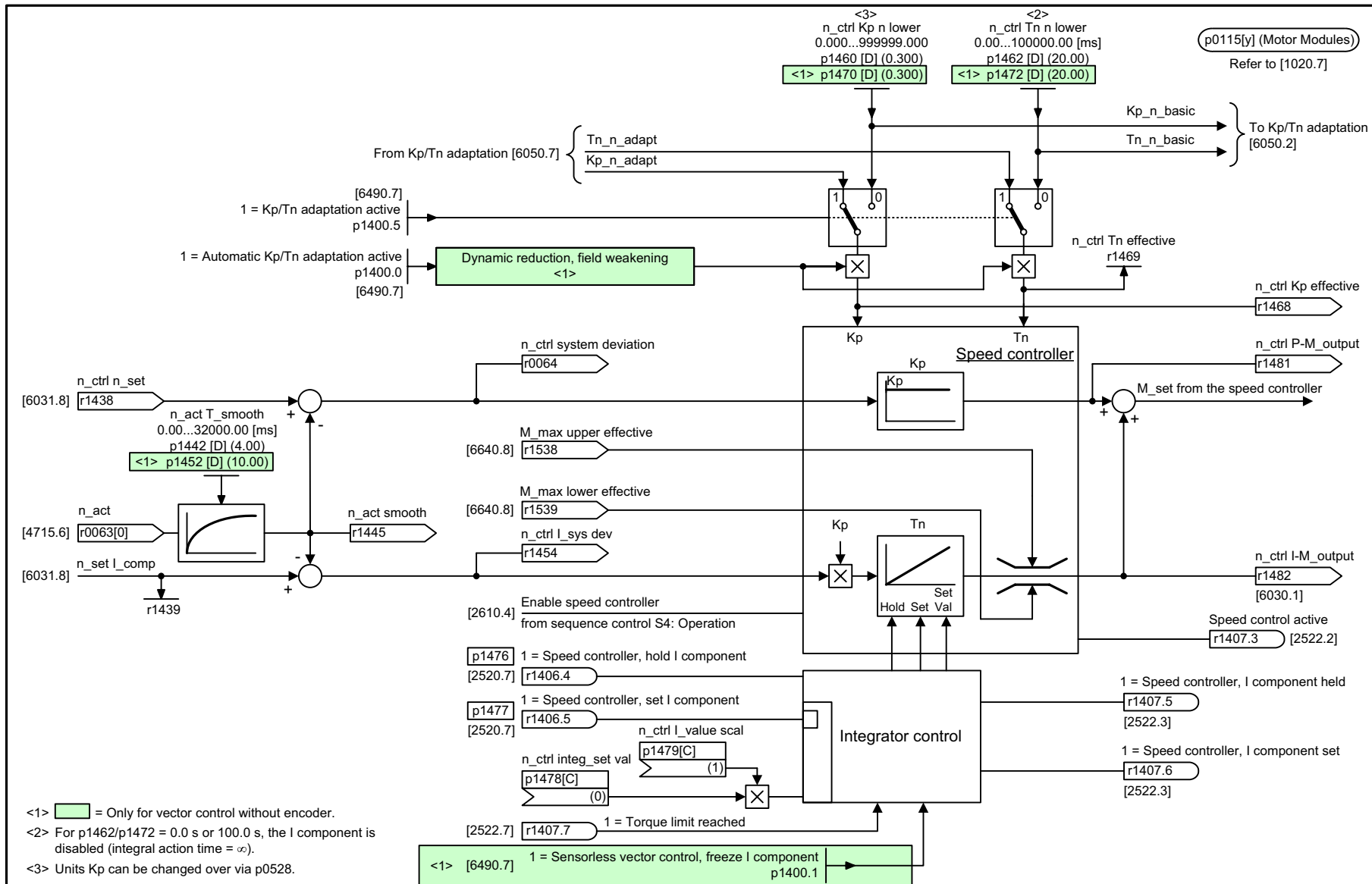
Function diagrams

6030 – Speed setpoint, droop	2-1287
6031 – Pre-control balancing reference/acceleration model	2-1288
6040 – Speed controller with/without encoder	2-1289
6050 – Kp_n/Tn_n adaptation	2-1290
6060 – Torque setpoint	2-1291
6220 – Vdc_max controller and Vdc_min controller	2-1292
6300 – V/f characteristic and voltage boost	2-1293
6310 – Resonance damping and slip compensation	2-1294
6320 – Vdc_max controller and Vdc_min controller	2-1295
6490 – Speed control configuration	2-1296
6491 – Flux control configuration	2-1297
6495 – Excitation (FEM, p0300 = 5)	2-1298
6630 – Upper/lower torque limit	2-1299
6640 – Current/power/torque limits	2-1300
6710 – Current setpoint filter	2-1301
6714 – Iq and Id controller	2-1302
6721 – Id setpoint (PEM, p0300 = 2)	2-1303
6722 – Field weakening characteristic, Id setpoint (ASM, p0300 = 1)	2-1304
6723 – Field weakening controller, flux controller (ASM, p0300 = 1)	2-1305
6724 – Field weakening controller (PEM, p0300 = 2)	2-1306
6725 – Flux setpoint, field weakening controller (FEM, p0300 = 5)	2-1307
6726 – Field weakening controller, flux controller (FEM, p0300 = 5)	2-1308
6727 – Current model, excitation current monitoring, control cos phi (FEM, p0300 = 5)	2-1309
6730 – Interface to Motor Module (ASM, p0300 = 1)	2-1310
6731 – Interface to the Motor Module (PEM, p0300 = 2)	2-1311
6732 – Interface to Motor Module (FEM, p0300 = 5)	2-1312
6799 – Display signals	2-1313



1	2	3	4	5	6	7	8
DO: VECTOR, VECTORGL, VECTORMV					fp_6031_51_eng.vsd	Function diagram	
Vector control - Pre-control balancing, reference/acceleration model					21.06.07 V02.05.01	SINAMICS	
							- 6031 -

Figure 2-169 6031 – Pre-control balancing reference/acceleration model



1	2	3	4	5	6	7	8
DO: VECTOR, VECTORGL, VECTORMV					fp_6040_51_eng.vsd	Function diagram	
Vector control - Speed controller with/without encoder					10.07.07 V02.05.00	SINAMICS	
							- 6040 -

Figure 2-170 6040 – Speed controller with/without encoder

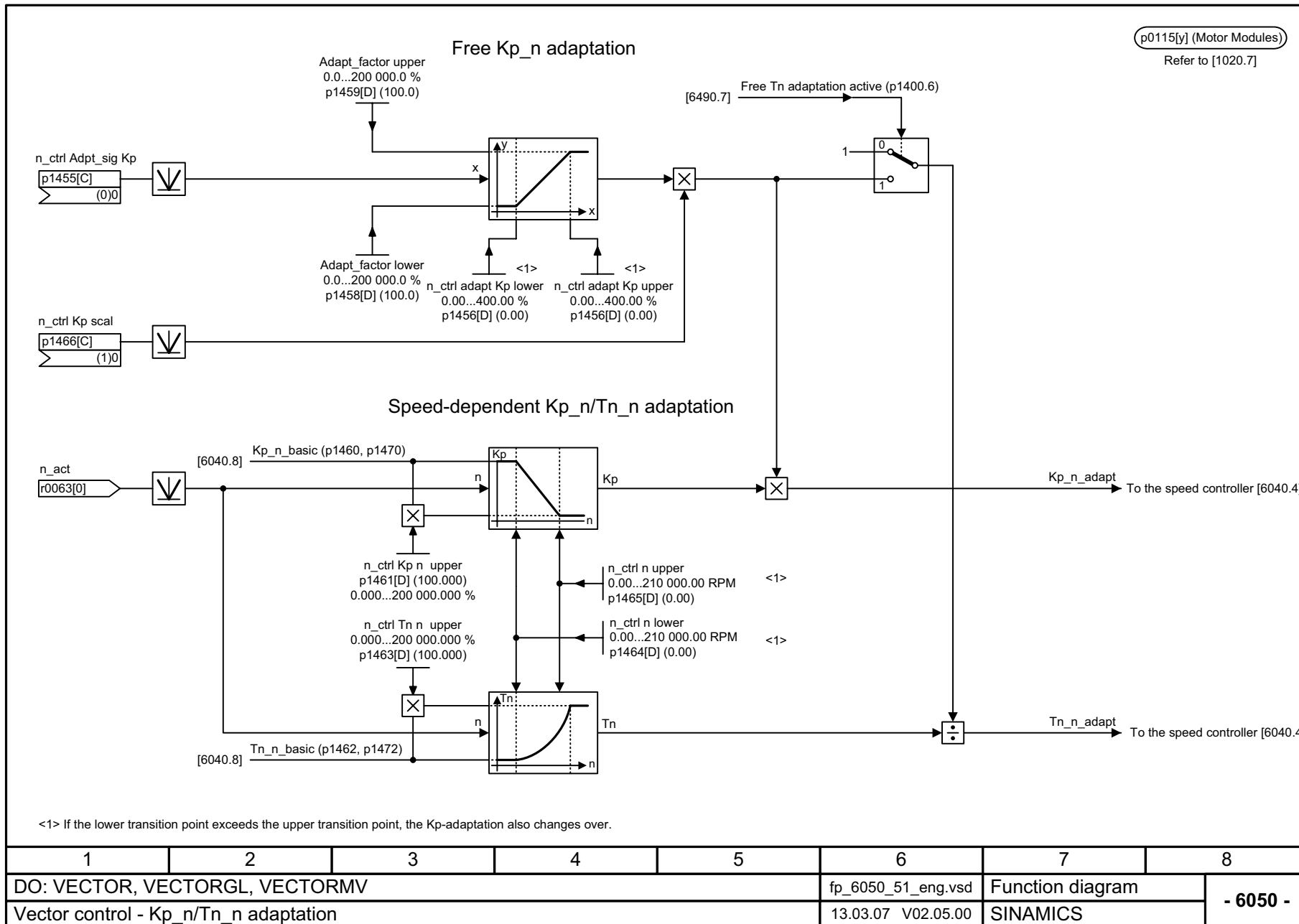
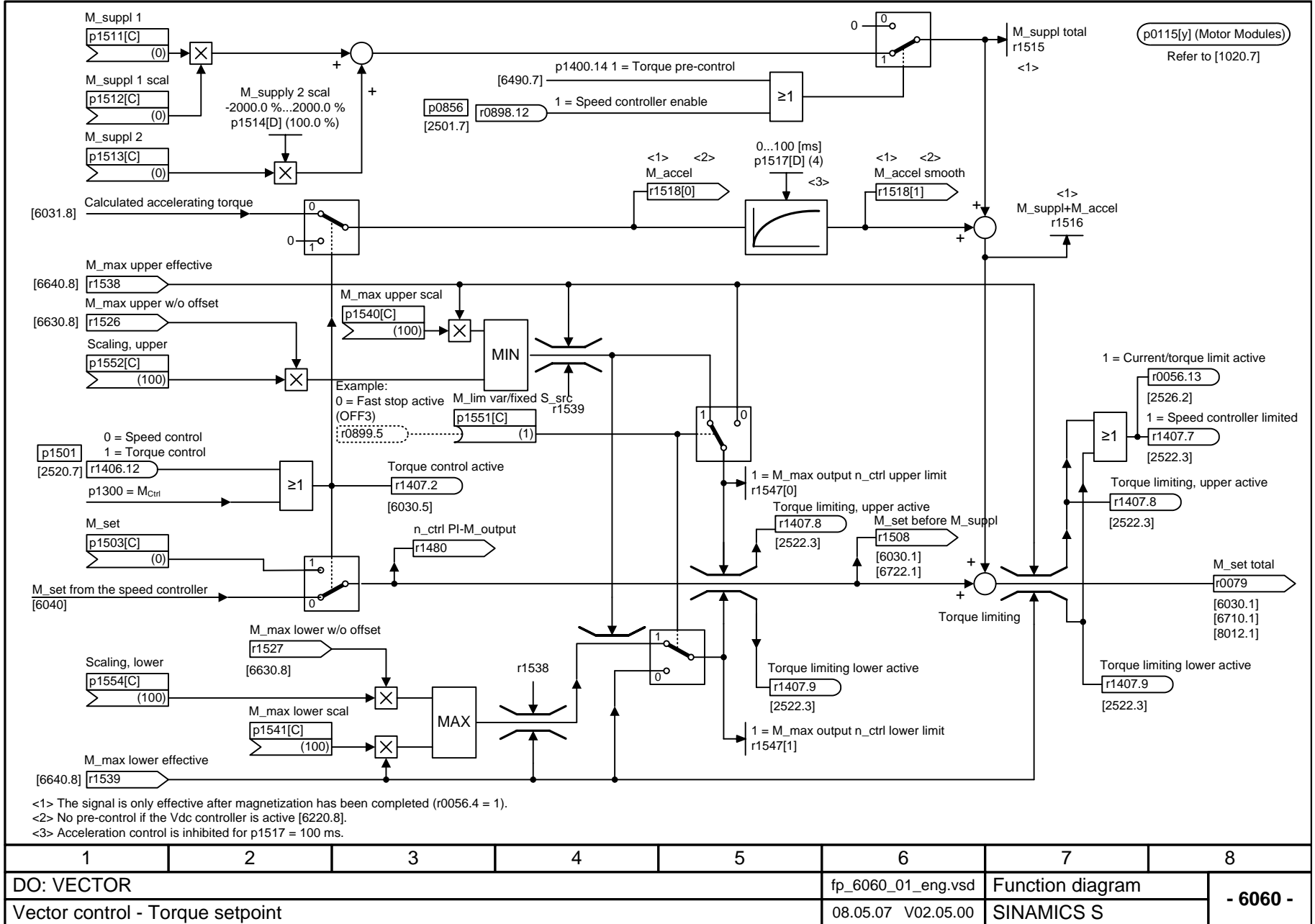
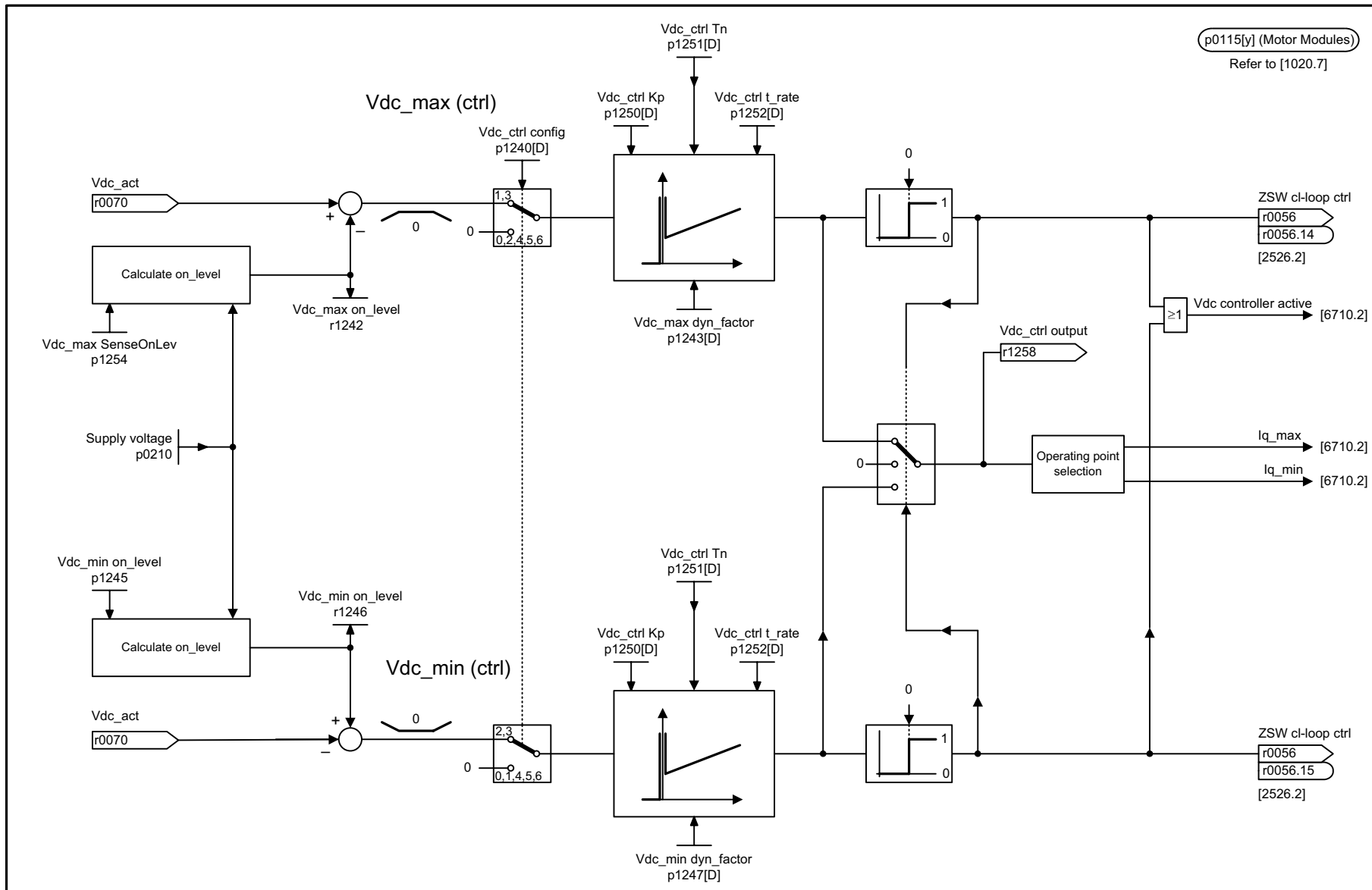


Figure 2-171 6050 – Kp_n/Tn_n adaptation

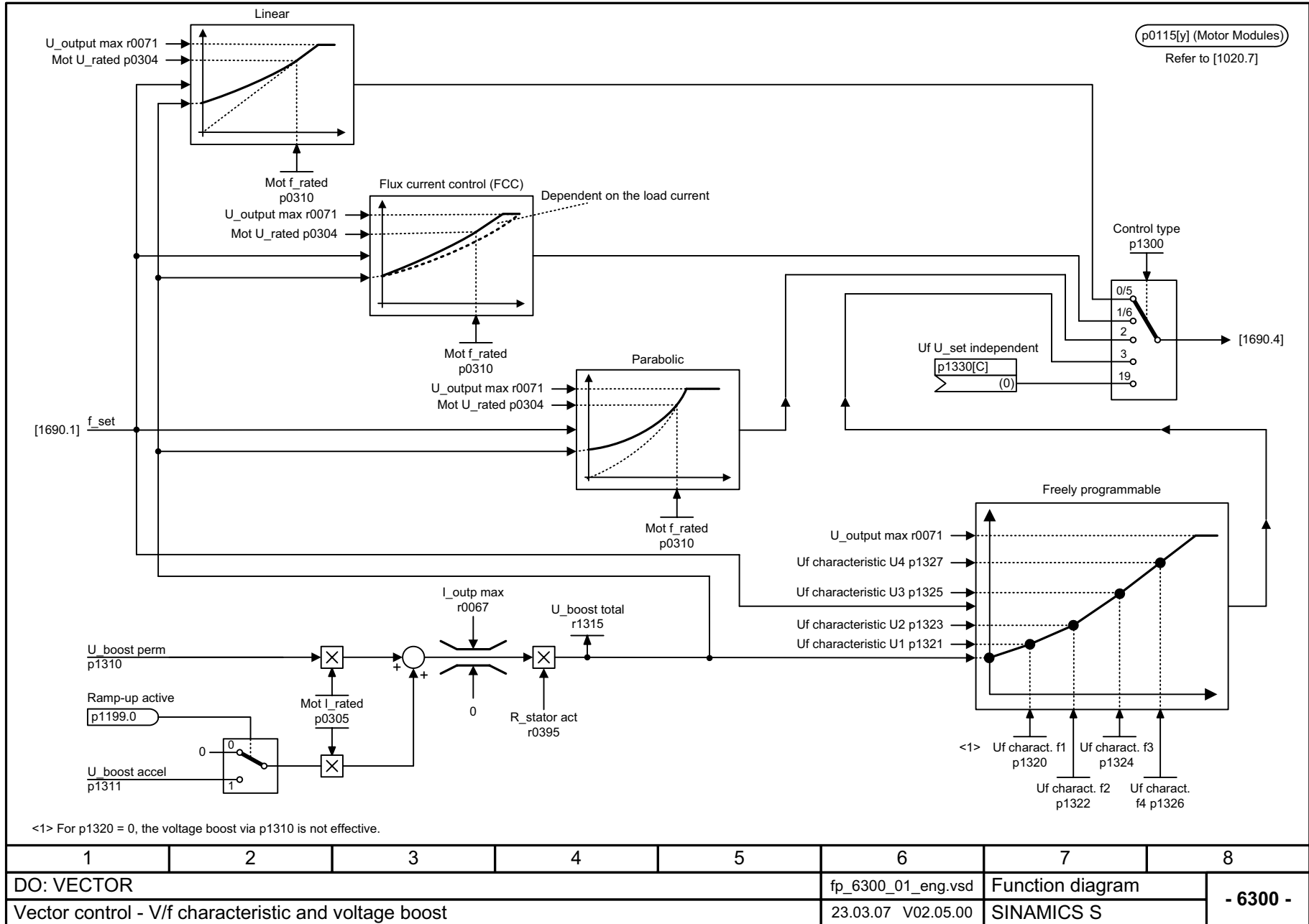
Figure 2-172 6060 – Torque setpoint





1	2	3	4	5	6	7	8
DO: VECTOR, VECTORMV					fp_6220_51_eng.vsd	Function diagram	
Vector control - Vdc_max controller and Vdc_min controller					20.12.06 V02.05.00	SINAMICS	
					- 6220 -		

Figure 2-173 6220 – Vdc_max controller and Vdc_min controller



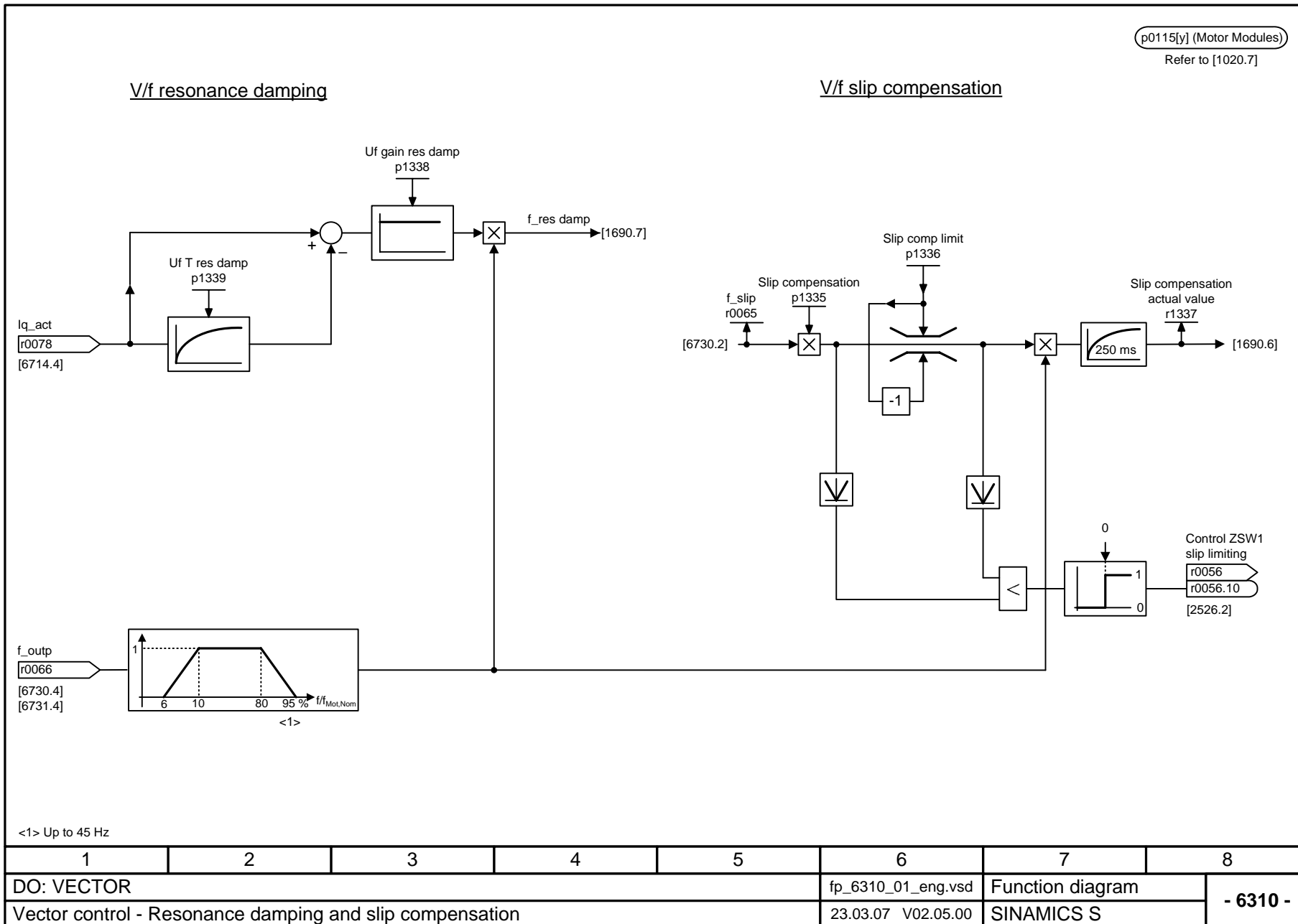


Figure 2-175 6310 – Resonance damping and slip compensation

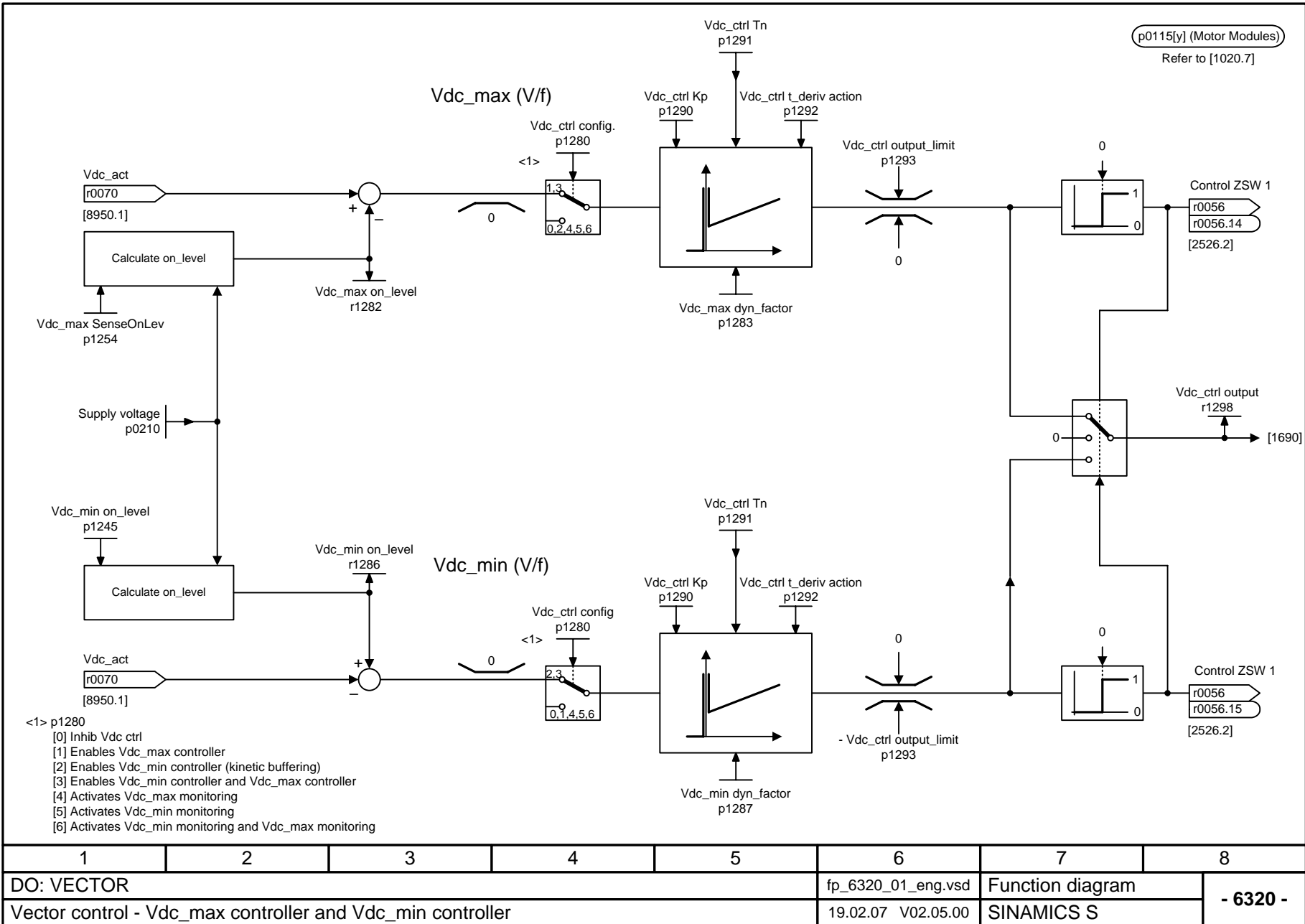


Figure 2-176 6320 – Vdc_max controller and Vdc_min controller

p0115[y] (Motor Modules)
Refer to [1020.7]

n_ctrl config
p1400[D]

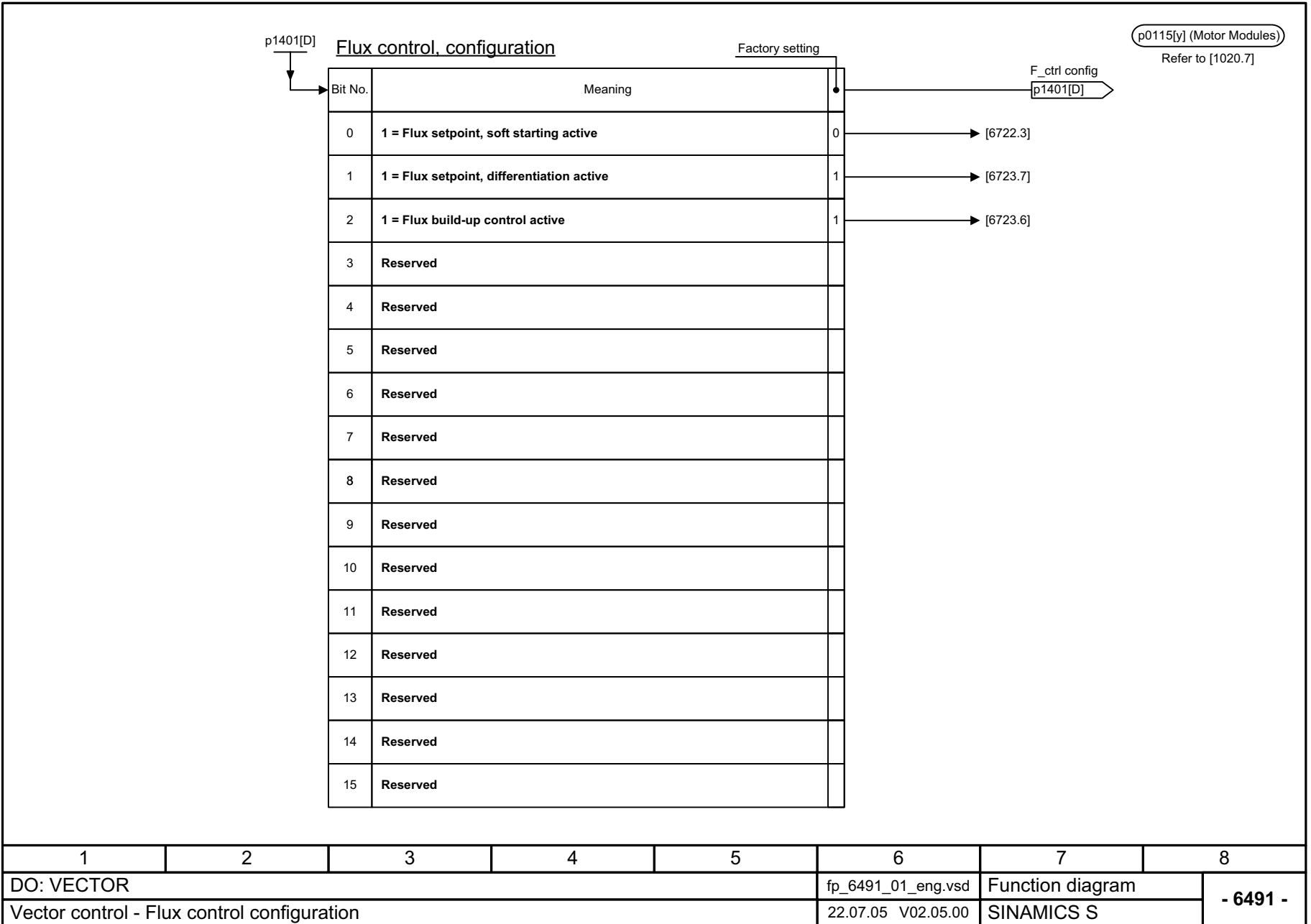
Speed control configuration

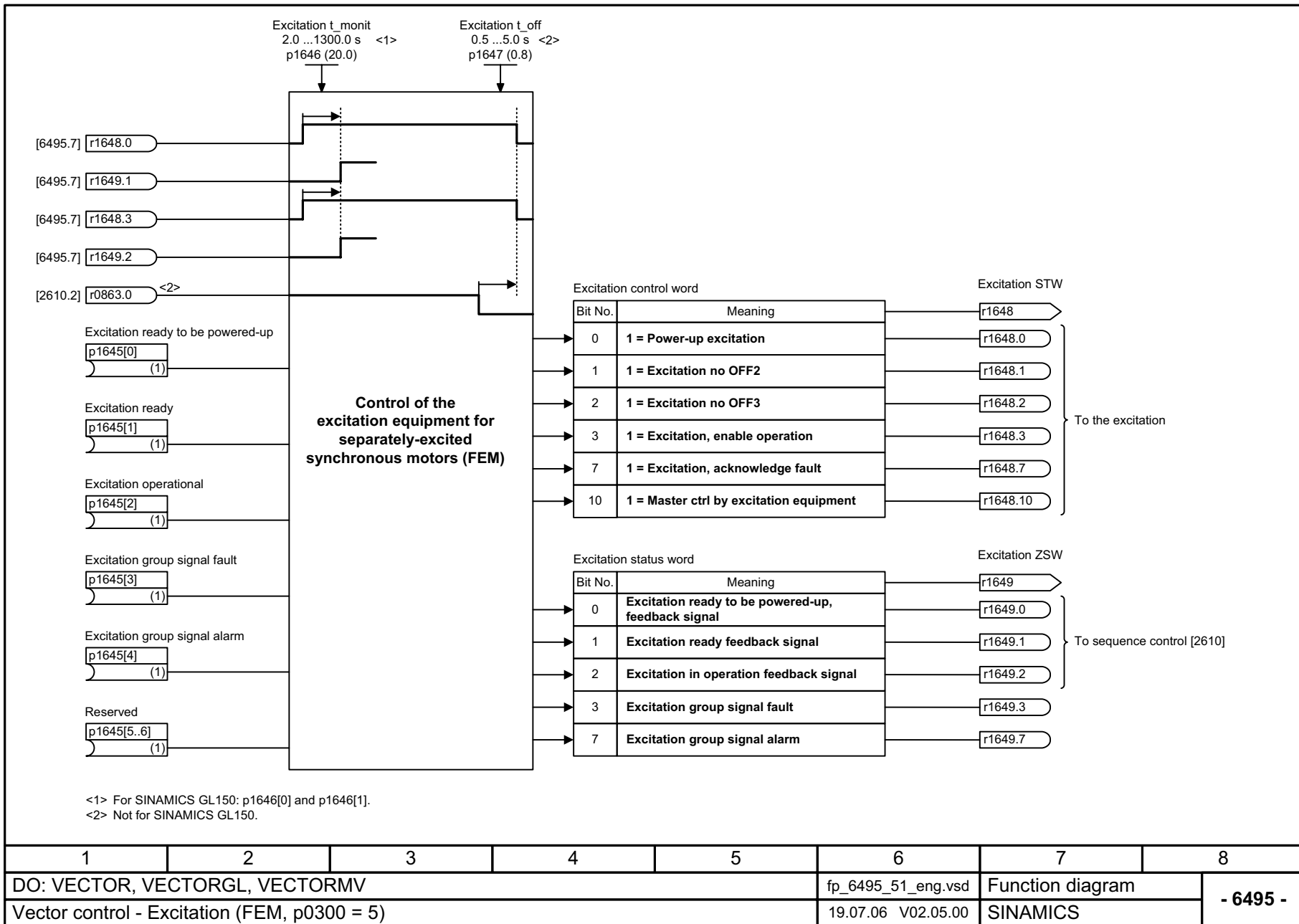
Factory setting

Bit No.	Meaning	Factory setting	
0	1 = Automatic Kp/Tn adaptation active	1	→ [6040.3]
1	1 = Sensorless vector control, freeze I component	0	→ [6040.3]
2	1 = Acceleration pre-control, external source (p1495) 0 = Acceleration pre-control, internal source (n_set)	0	→ [6031.2]
3	1 = Reference model, speed setpoint I component ON	0	→ [6031.1][6031.7]
4	Reserved		
5	1 = Kp/Tn adaptation active	1	→ [6040.3]
6	1 = Free Tn adaptation active	0	→ [6050.6]
7	Reserved		
8	Reserved		
9	Reserved		
10	Reserved		
11	Reserved		
12	Reserved		
13	Reserved		
14	1 = Torque pre-control always active 0 = Torque pre-control for n_ctrl enabled	0	→ [6060.4]
15	1 = Sensorless vector control, speed pre-control active	1	→ [6030.5]

Figure 2-177 6490 – Speed control configuration

1	2	3	4	5	6	7	8
DO: VECTOR, VECTORGL, VECTORMV					fp_6490_51_eng.vsd	Function diagram	- 6490 -
Vector control - Speed control configuration					19.07.06 V02.05.00	SINAMICS	





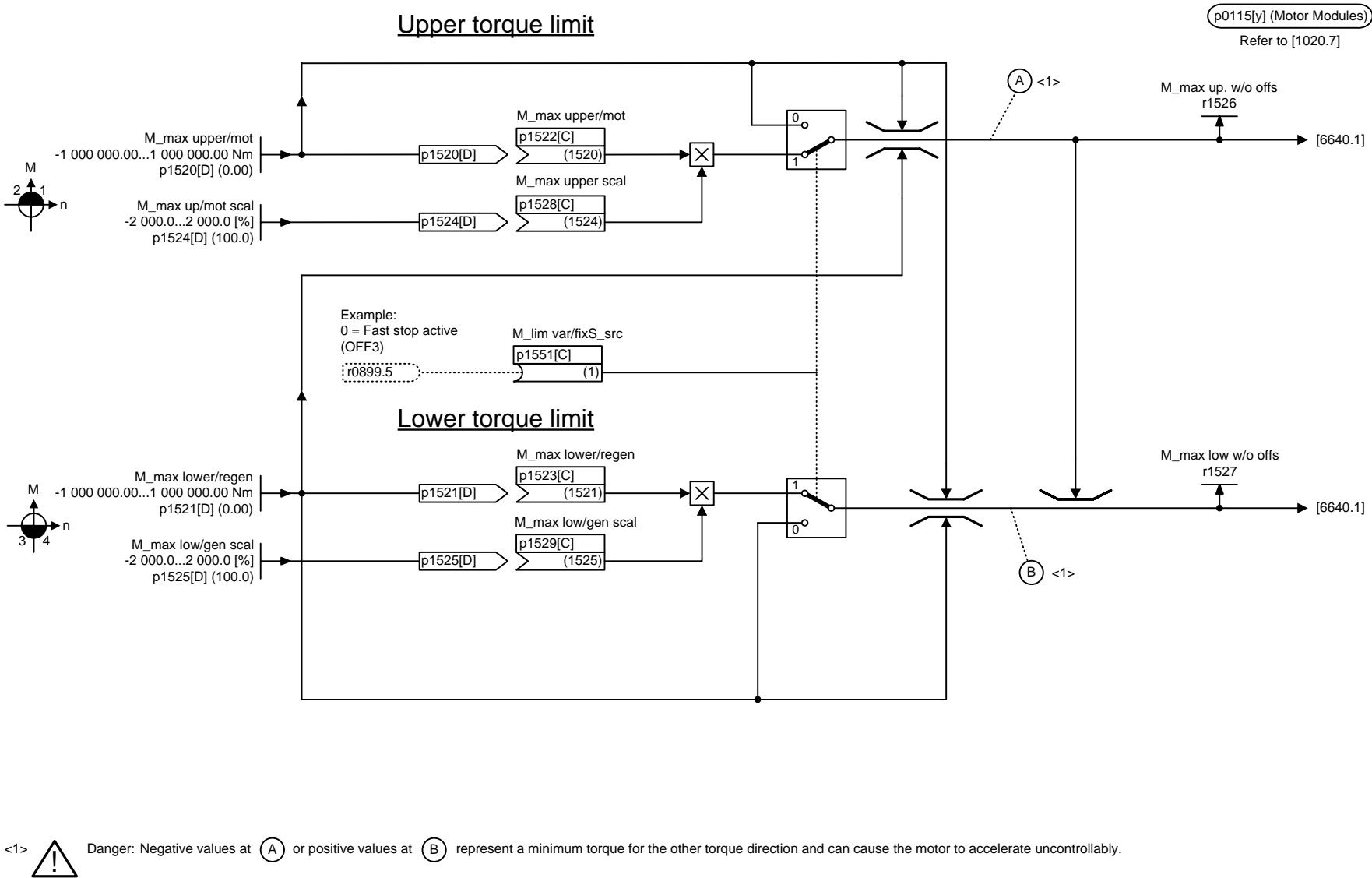
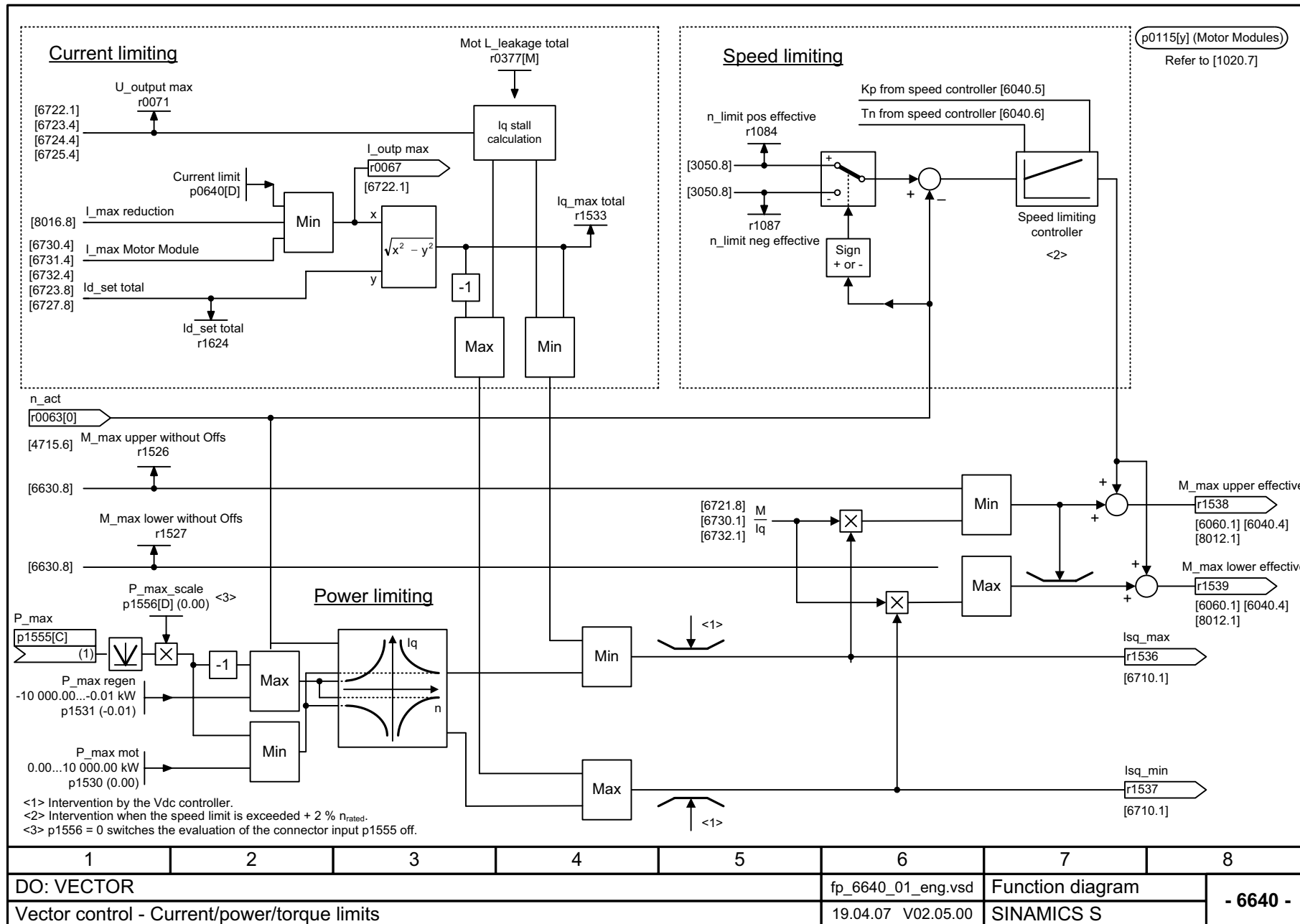
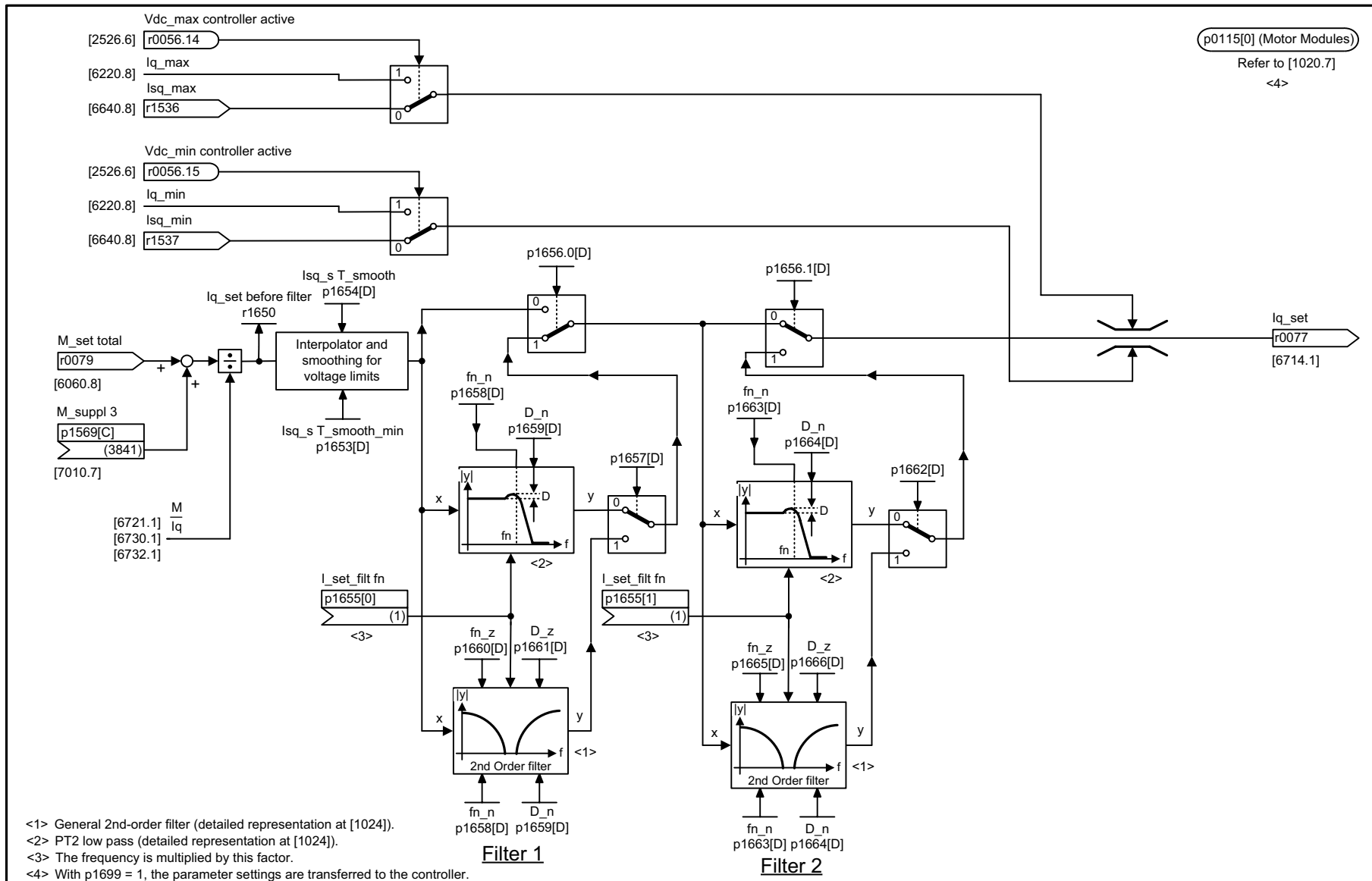
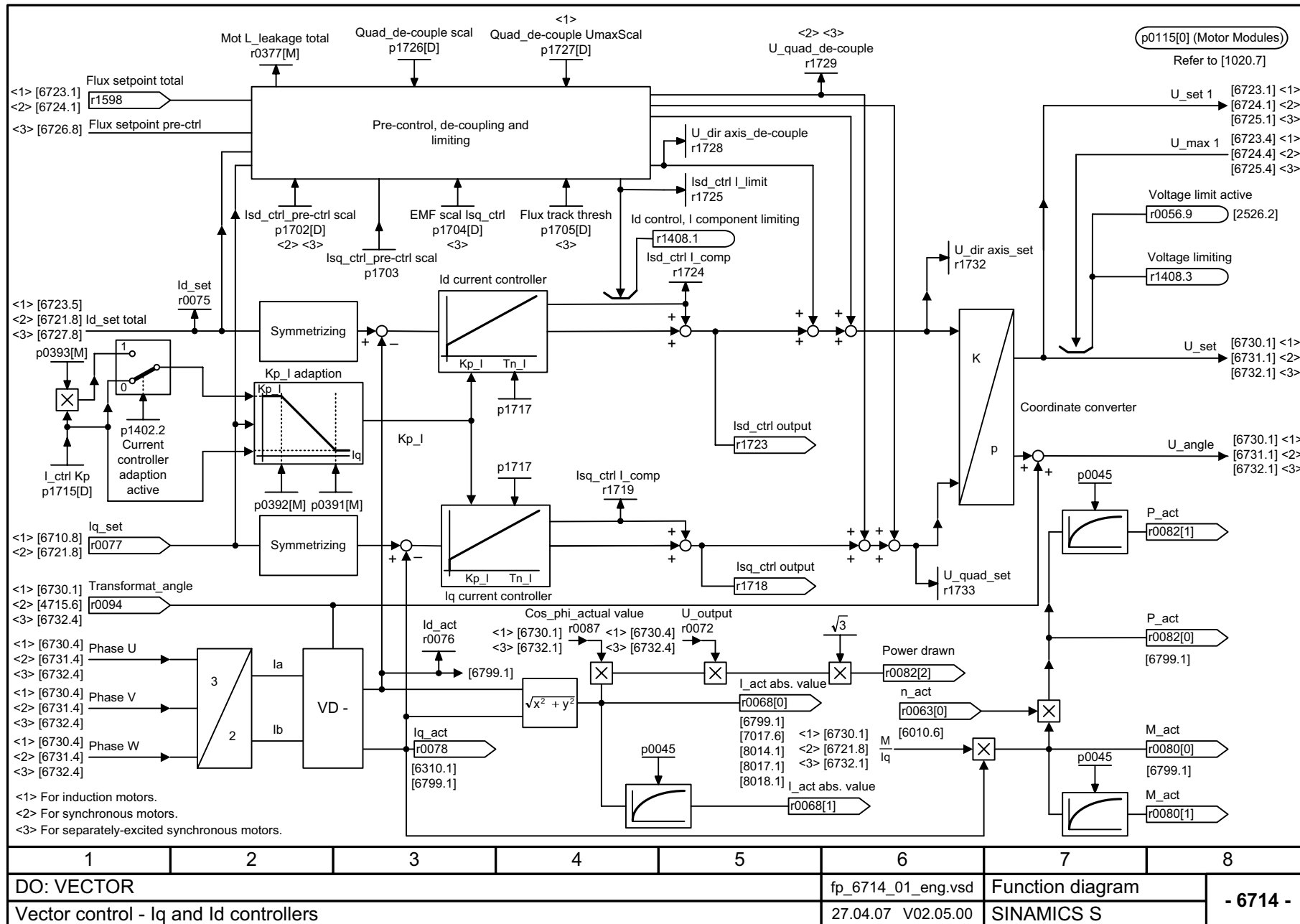


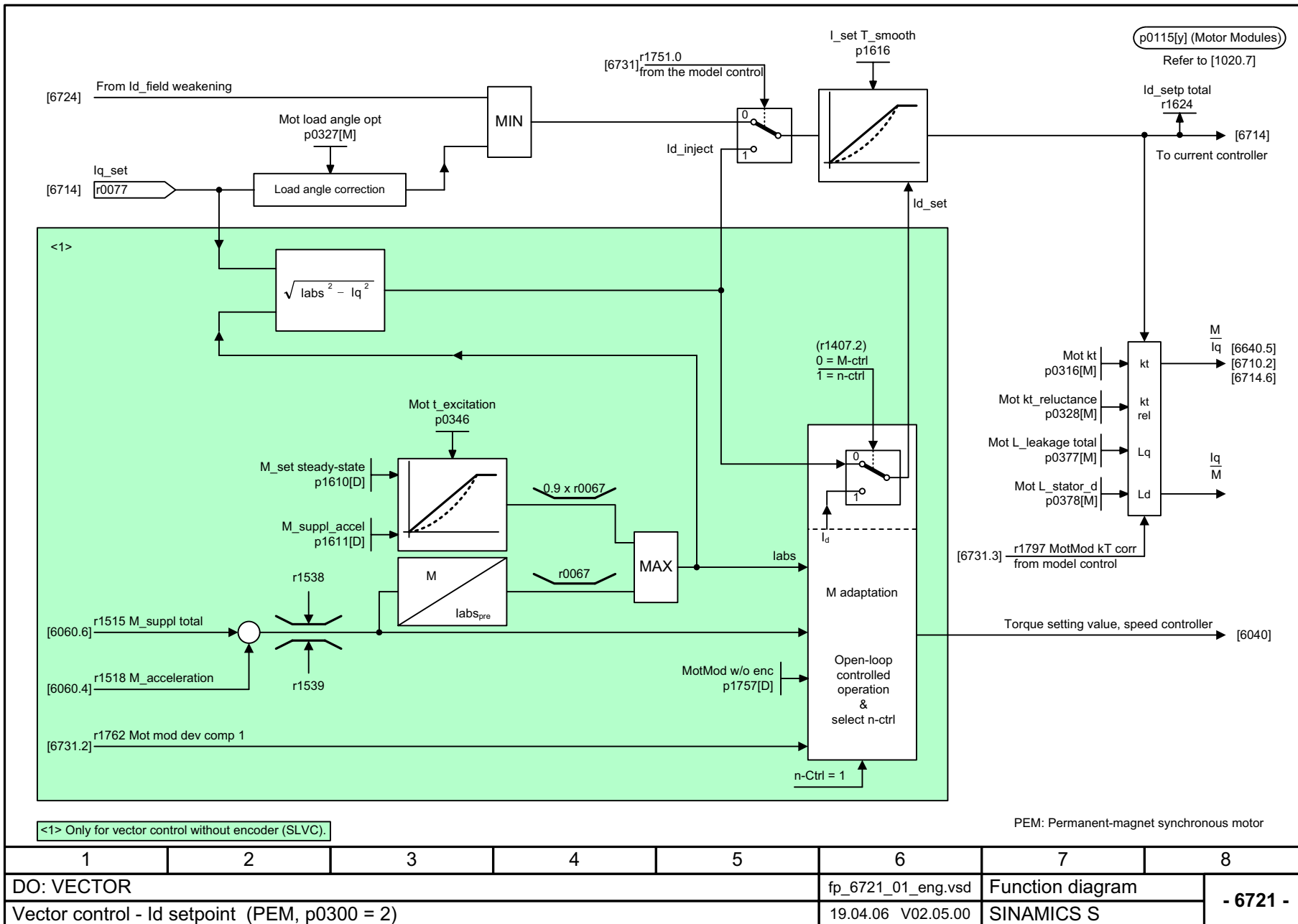
Figure 2-180 6630 – Upper/lower torque limit

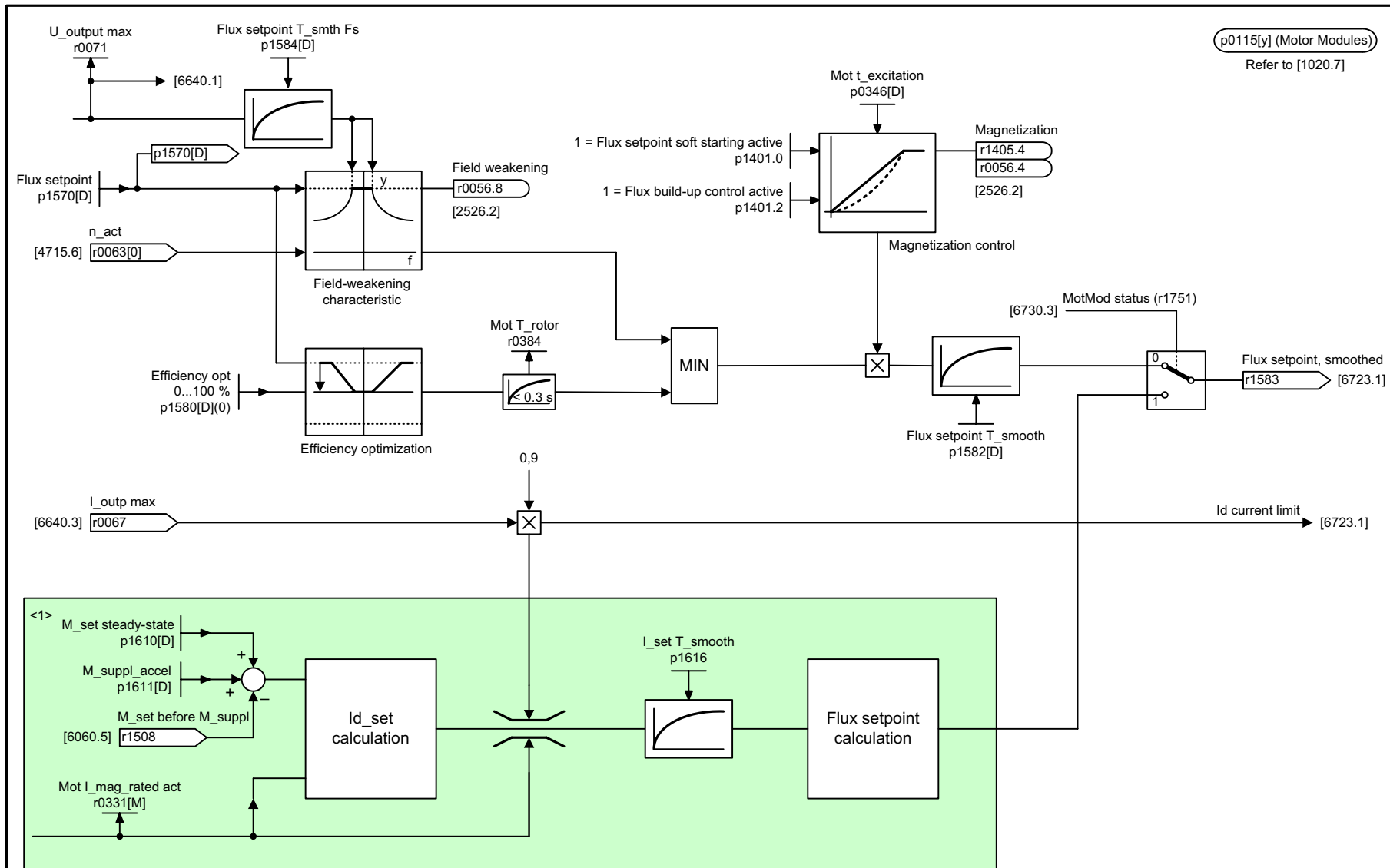




1	2	3	4	5	6	7	8
DO: VECTOR					fp_6710_01_eng.vsd	Function diagram	- 6710 -
Vector control - Current setpoint filter					18.04.07 V02.05.00	SINAMICS S	





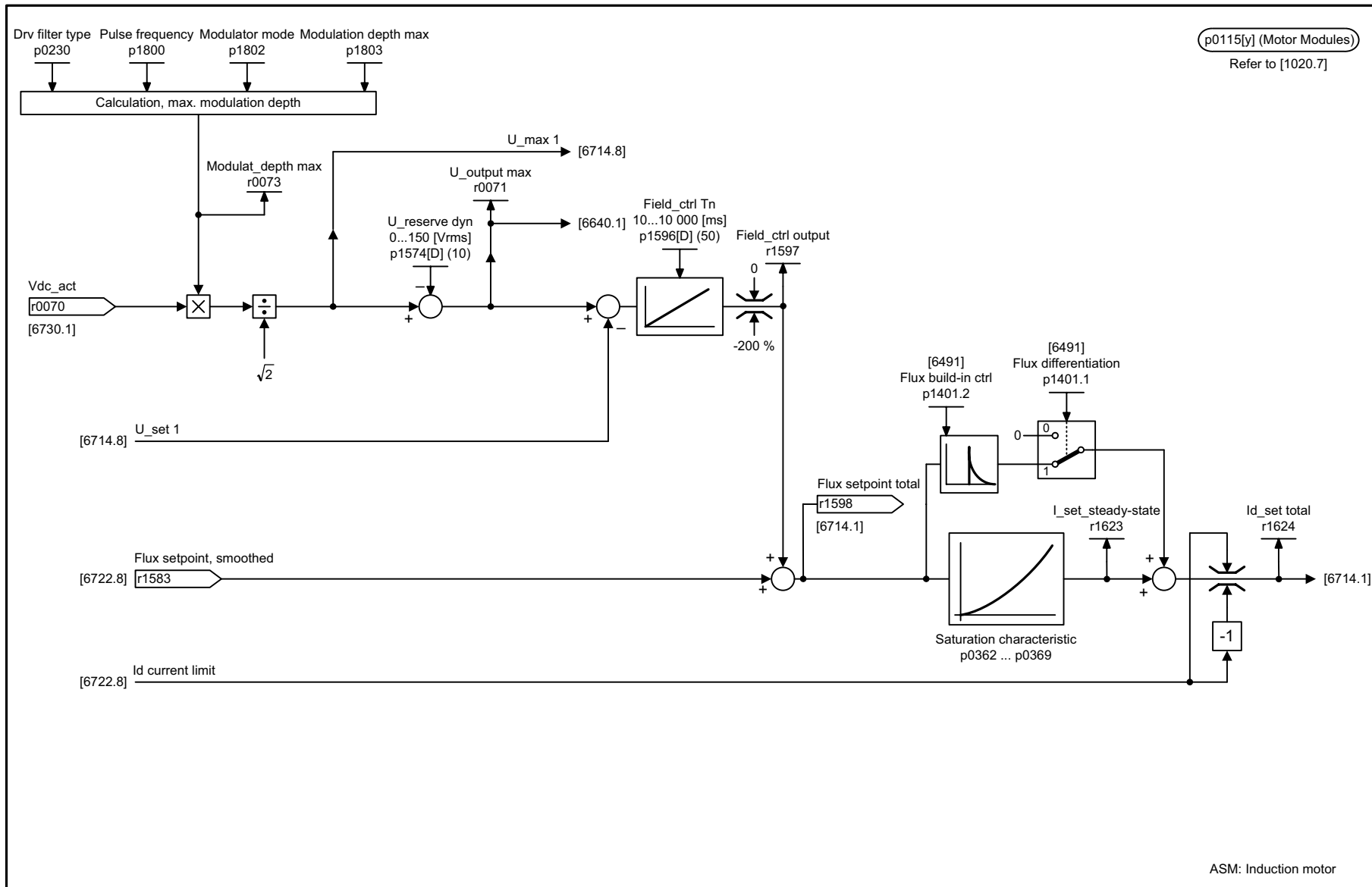


<1> Only for vector control without encoder (SLVC).

ASM: Induction motor

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6722_01_eng.vsd	Function diagram	
Vector control - Field weakening characteristic, Id setpoint (ASM, p0300 = 1)					23.03.07 V02.05.00	SINAMICS S	
							- 6722 -

Figure 2-185 6722 – Field weakening characteristic, Id setpoint (ASM, p0300 = 1)



1	2	3	4	5	6	7	8
DO: VECTOR					fp_6723_01_eng.vsd	Function diagram	- 6723 -
Vector control - Field weakening controller, flux controller (ASM, p0300 = 1)					07.02.06 V02.05.00	SINAMICS S	

Figure 2-186 6723 – Field weakening controller, flux controller (ASM, p0300 = 1)

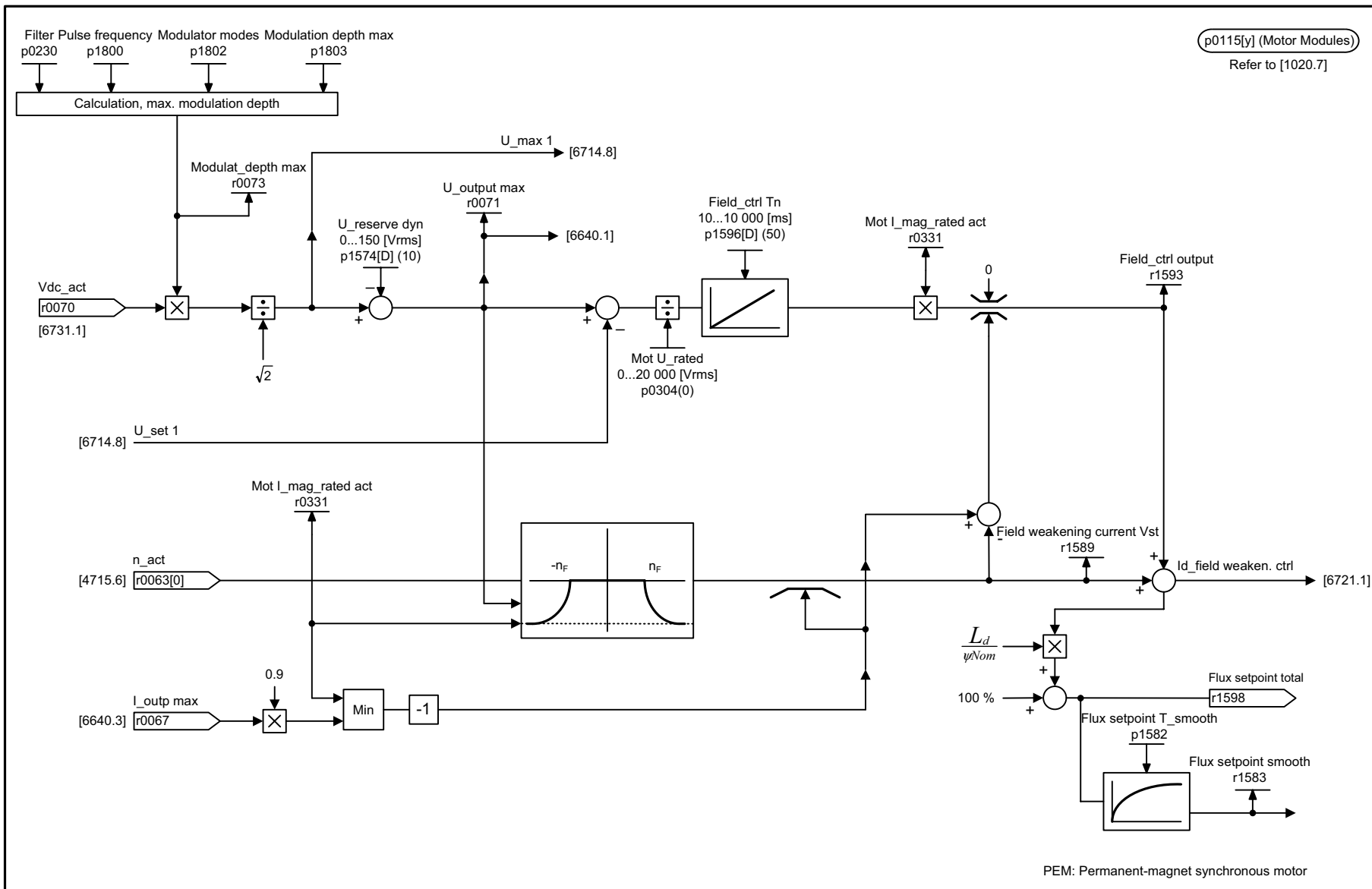
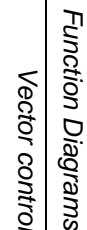
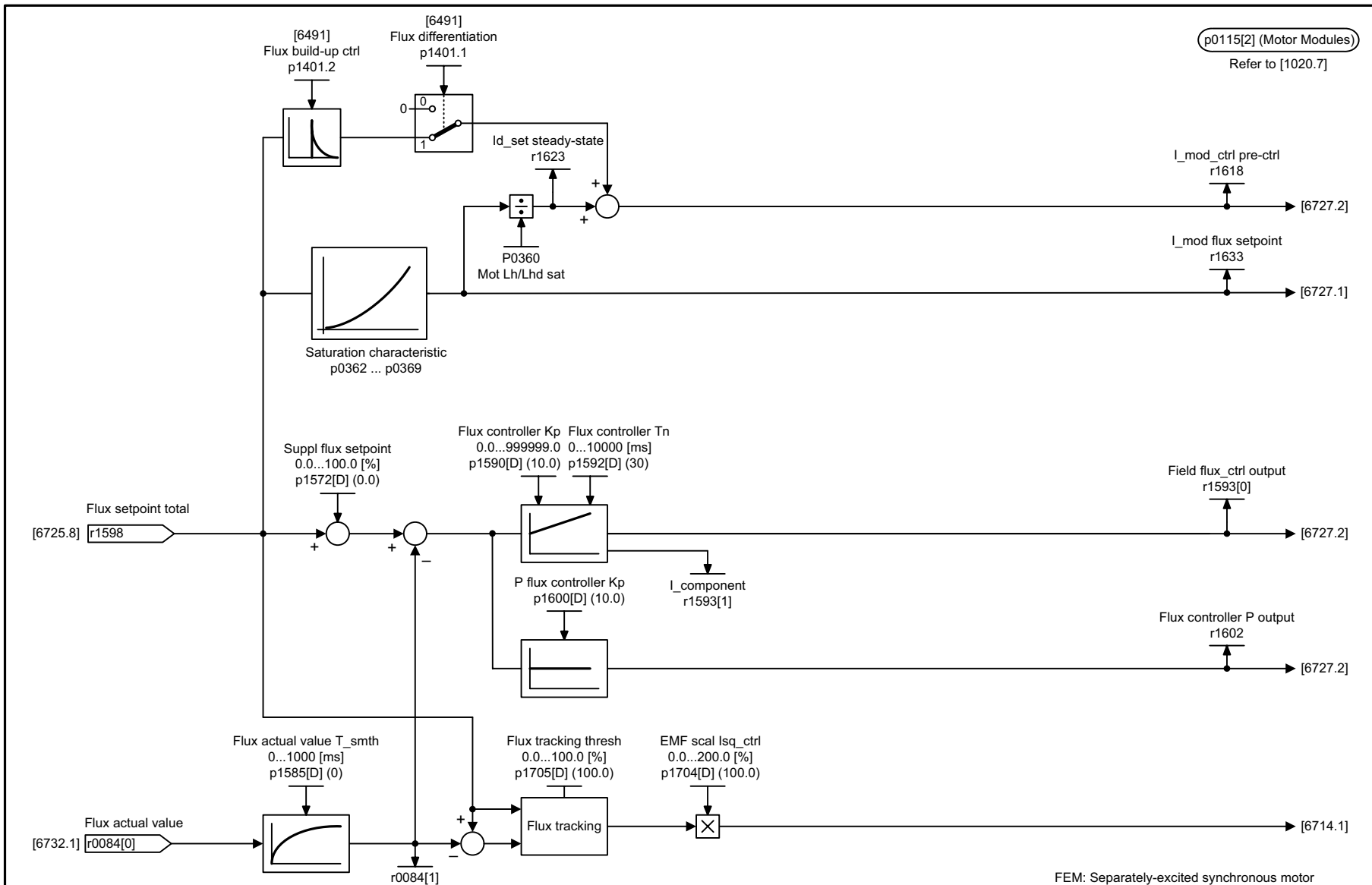


Figure 2-188



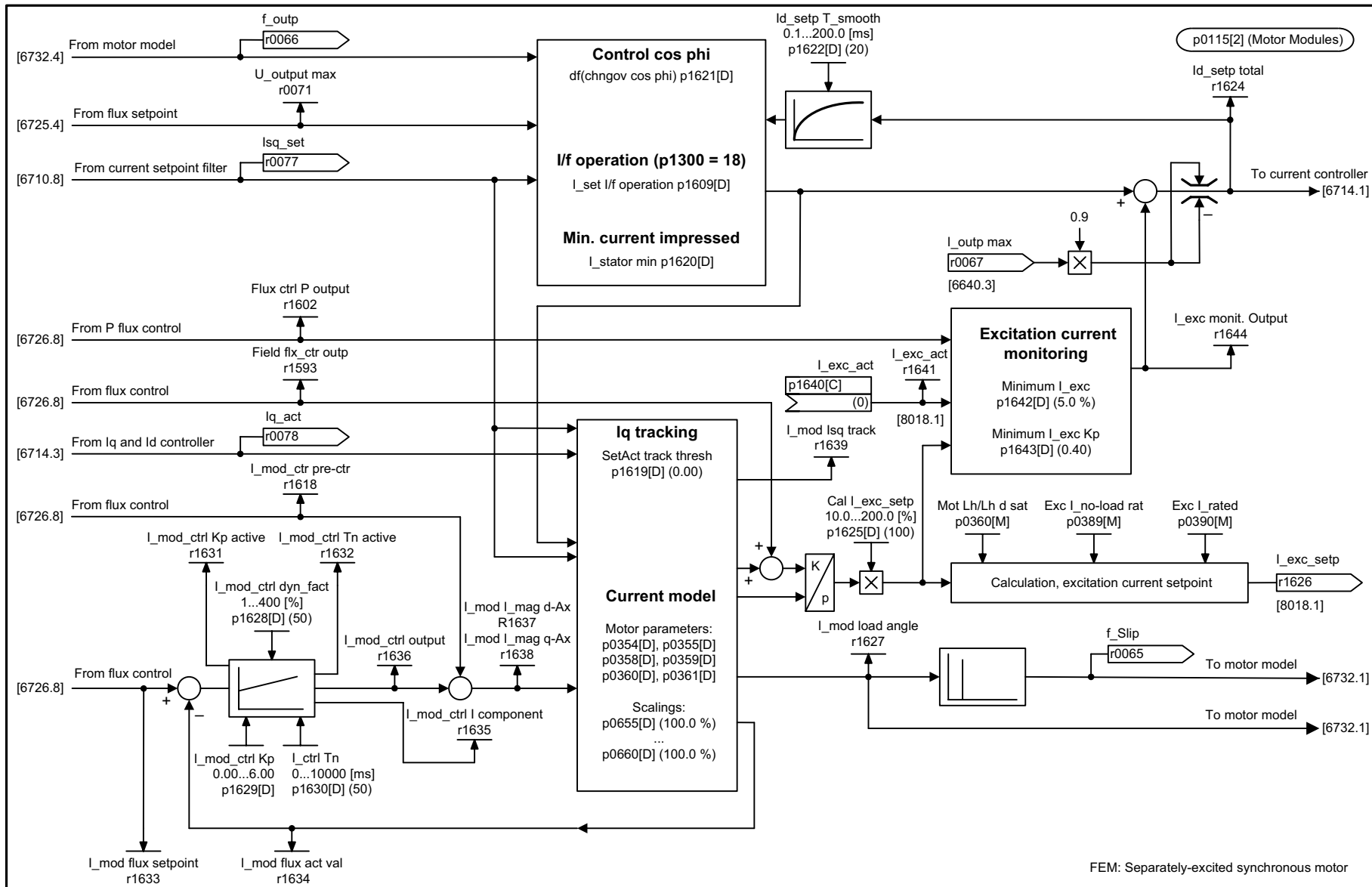
1	2	3	4	5	6	7	8	
DO: VECTOR					fp_6725_01_eng.vsd	Function diagram		- 6725 -
Vector control - Flux setpoint, field weakening controller (FEM, p0300 = 5)					12.06.07 V02.05.01	SINAMICS S		



FEM: Separately-excited synchronous motor

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6726_01_eng.vsd	Function diagram	
Vector control - Field weakening controller, flux controller (FEM, p0300 = 5)					04.12.06 V02.05.00	SINAMICS S	
							- 6726 -

Figure 2-189 6726 – Field weakening controller, flux controller (FEM, p0300 = 5)



1	2	3	4	5	6	7	8
DO: VECTOR					fp_6727_01_eng.vsd	Function diagram	
Vector control - Current model, excitation current monitoring, cos phi (FEM, p0300 = 5)					23.03.07 V02.05.00	SINAMICS S	

- 6727 -

Figure 2-190 6727 – Current model, excitation current monitoring, control cos phi (FEM, p0300 = 5)

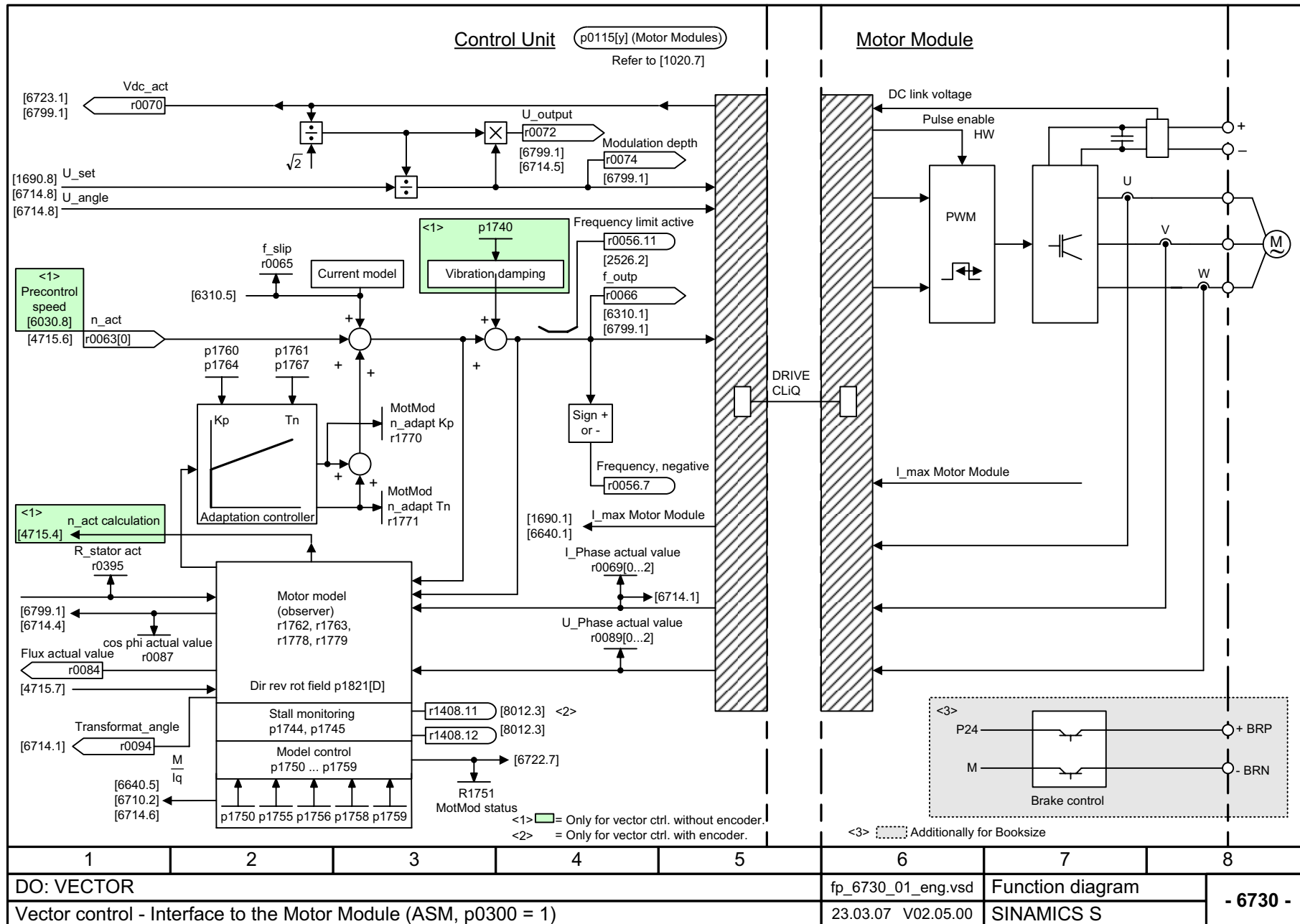
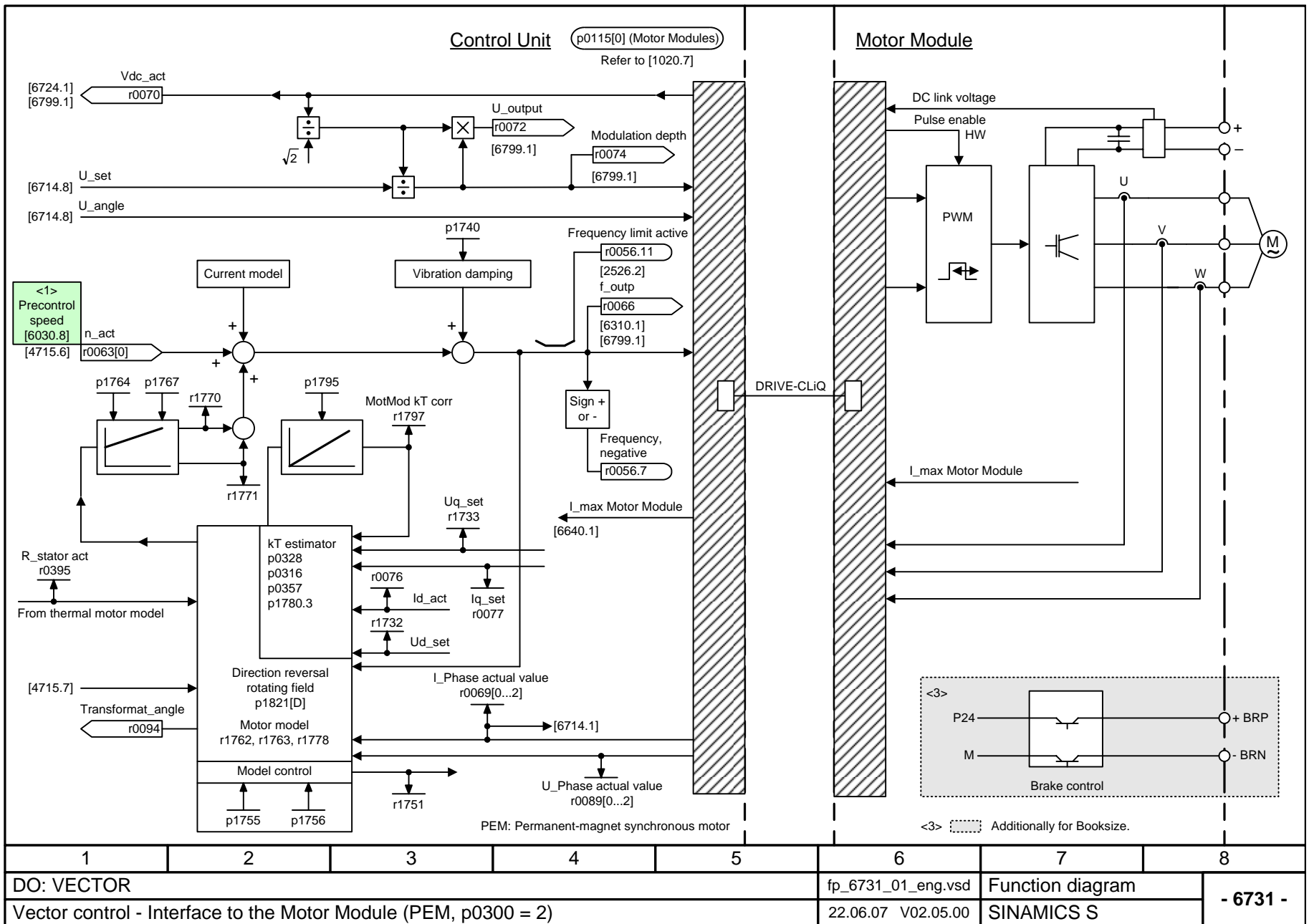


Figure 2-192 Interface to the Motor Module (PEM, p0300 = 2)



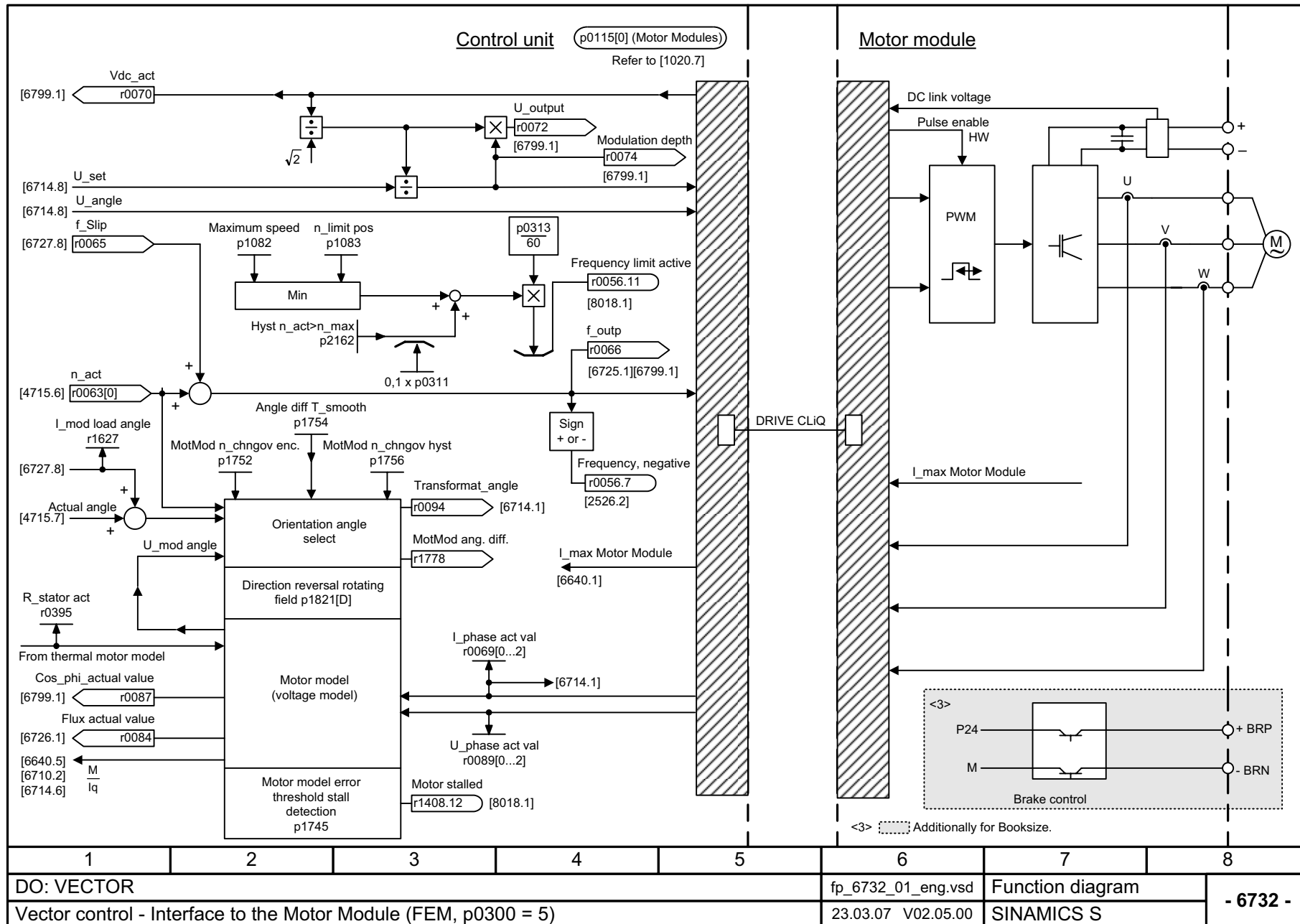


Figure 2-193 – Interface to Motor Module (FEM, p0300 = 5)

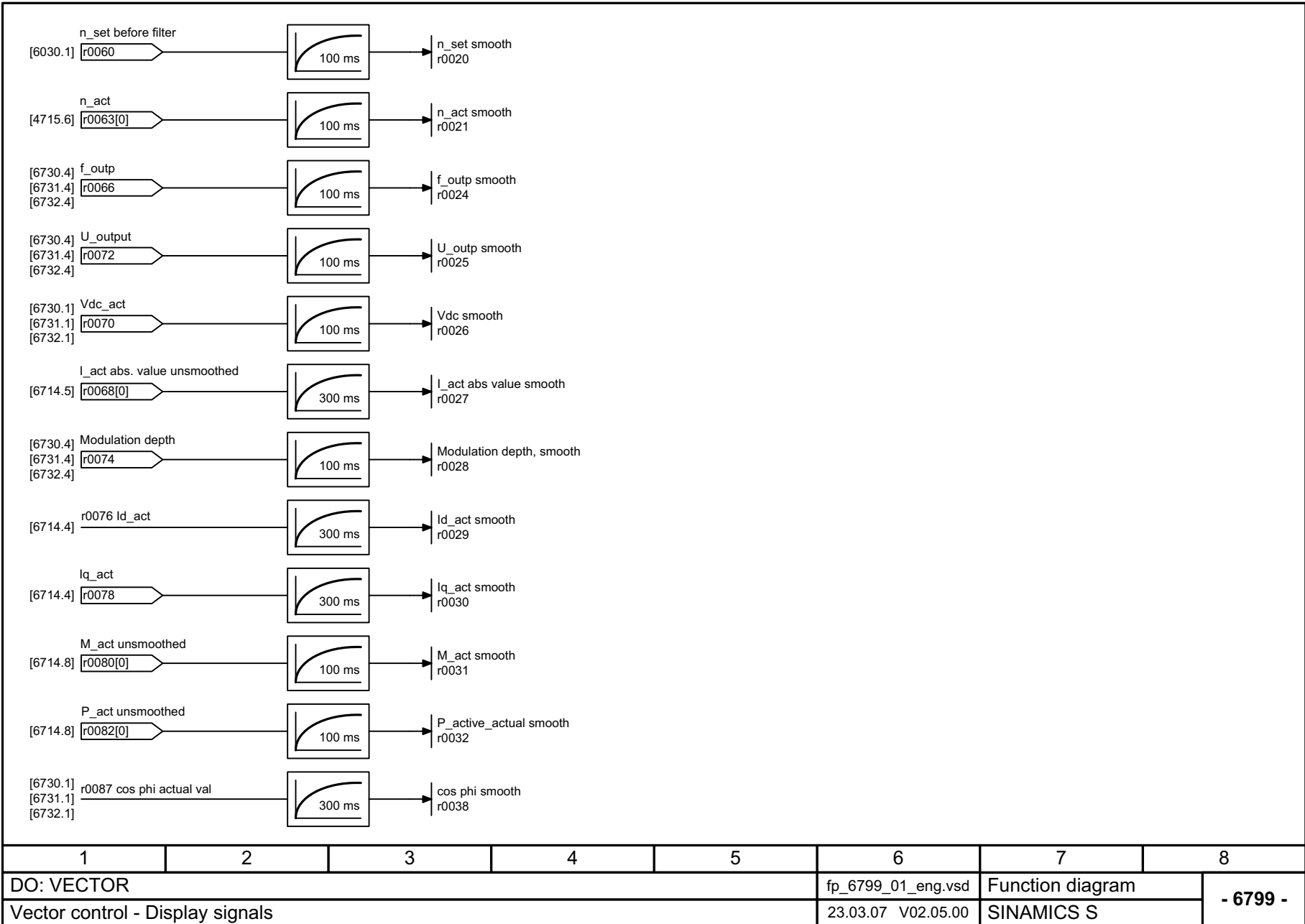
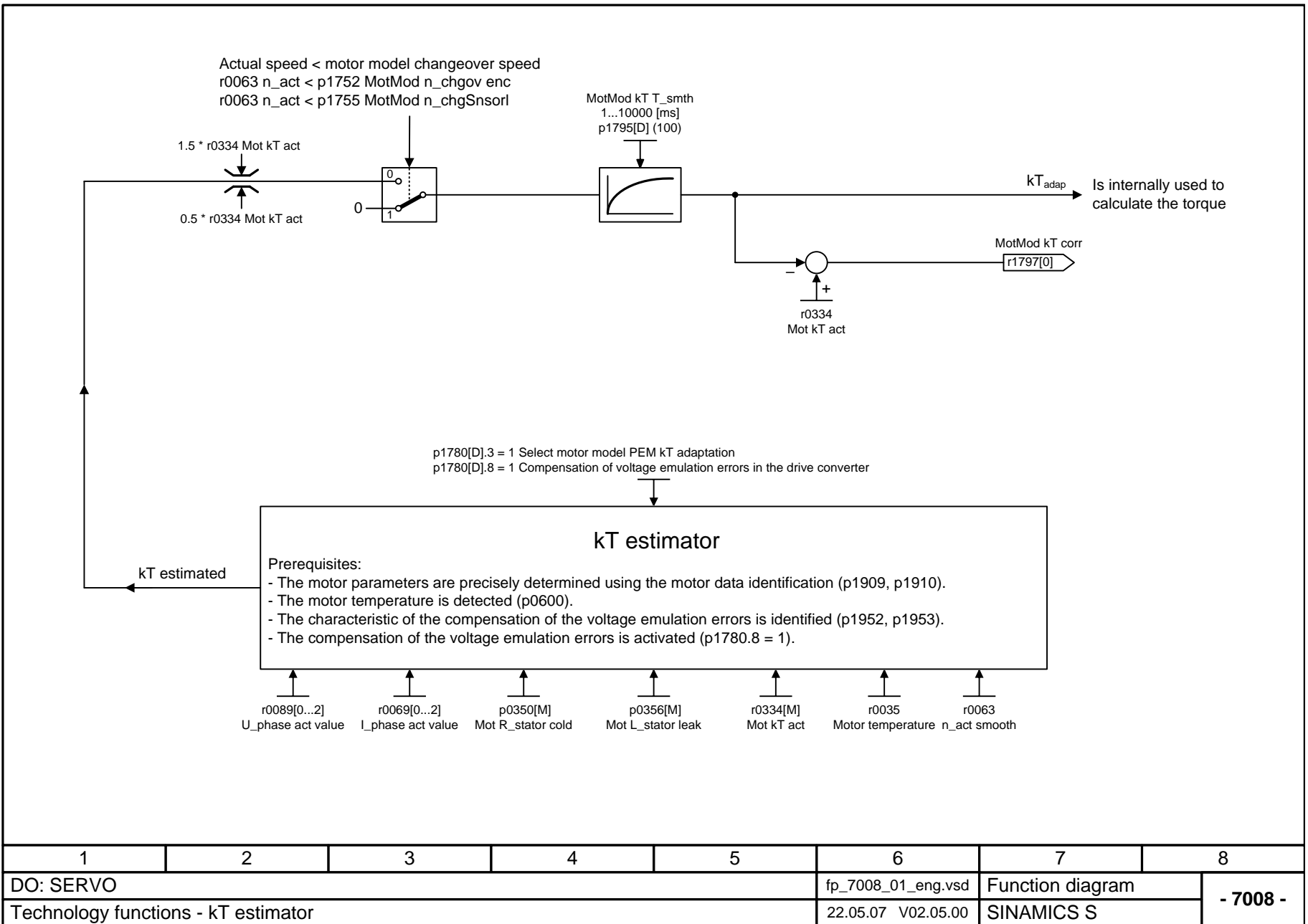


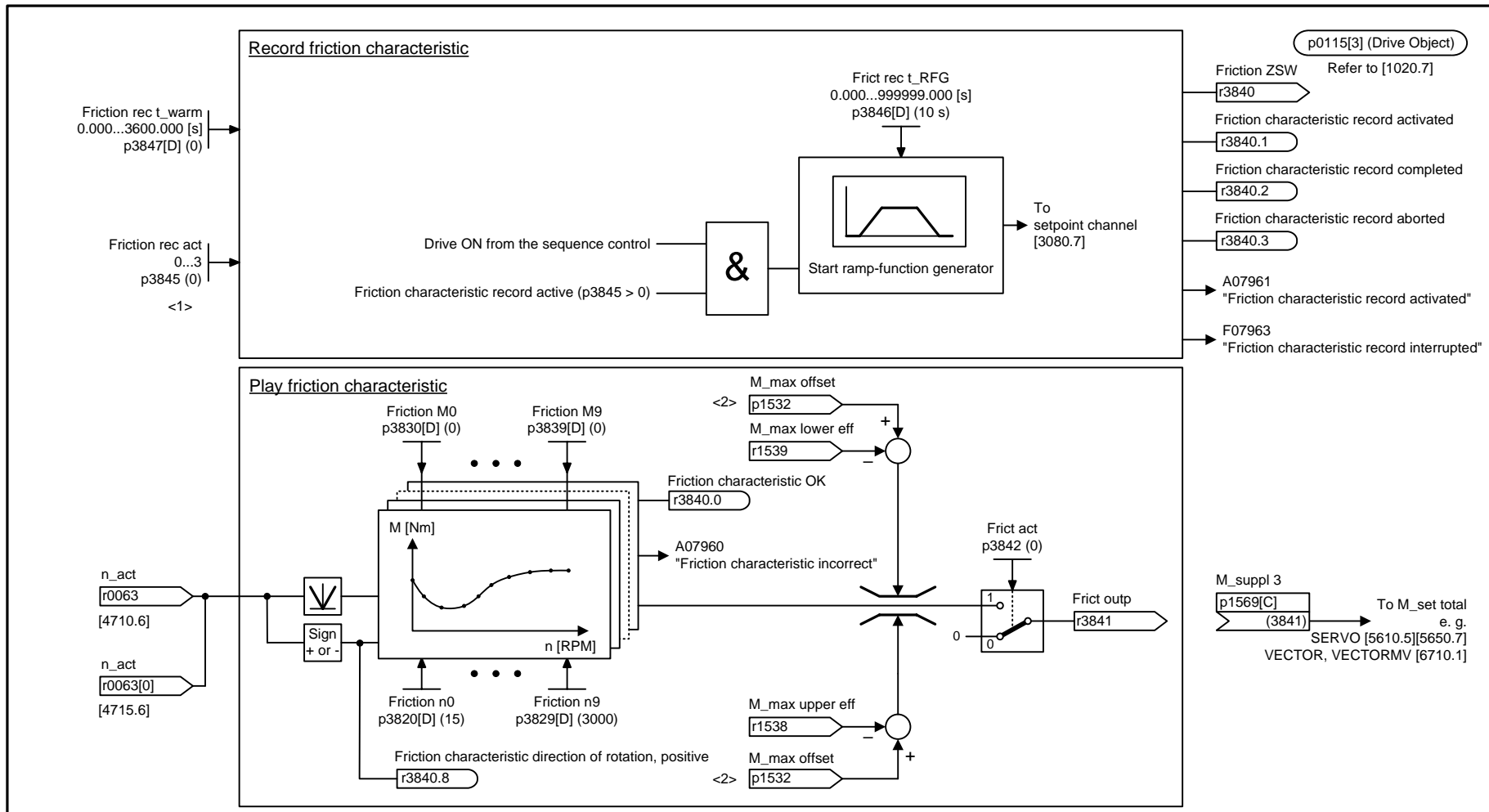
Figure 2-194 6799 – Display signals

2.20 Technology functions

Function diagrams

7008 – kT estimator	2-1315
7010 – Friction characteristic	2-1316
7012 – Advanced Positioning Control (APC, r0108.7 = 1)	2-1317
7014 – External armature short circuit (EASC, p0300 = 2xx or 4xx)	2-1318
7016 – Internal armature short-circuit (IVP, p0300 = 2xx or 4xx)	2-1319
7017 – DC injection brake (p0300 = 1xx)	2-1320
7020 – Synchronization	2-1321

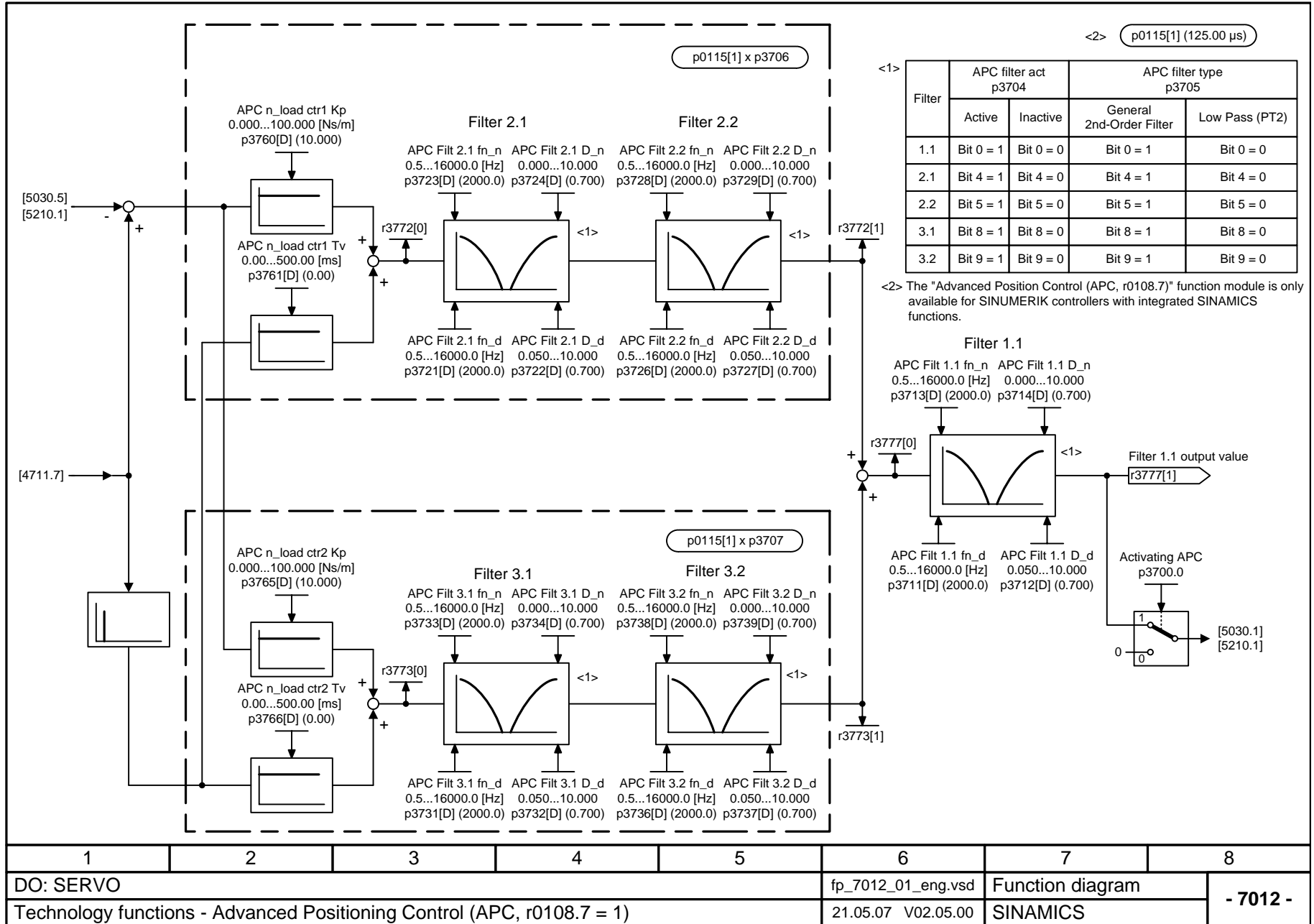




<1> p3845
= 0: Record de-activated
= 1: Record activated, direction of rotation: all
= 2: Record activated, direction of rotation: positive
= 3: Record activated, direction of rotation: negative
<2> Applies only for SERVO.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR (n/M), VECTORMV					fp_7010_51_eng.vsd	Function diagram	
Technology functions - Friction characteristic					21.05.07 V02.05.00	SINAMICS	
							- 7010 -

Figure 2-196 7010 – Friction characteristic



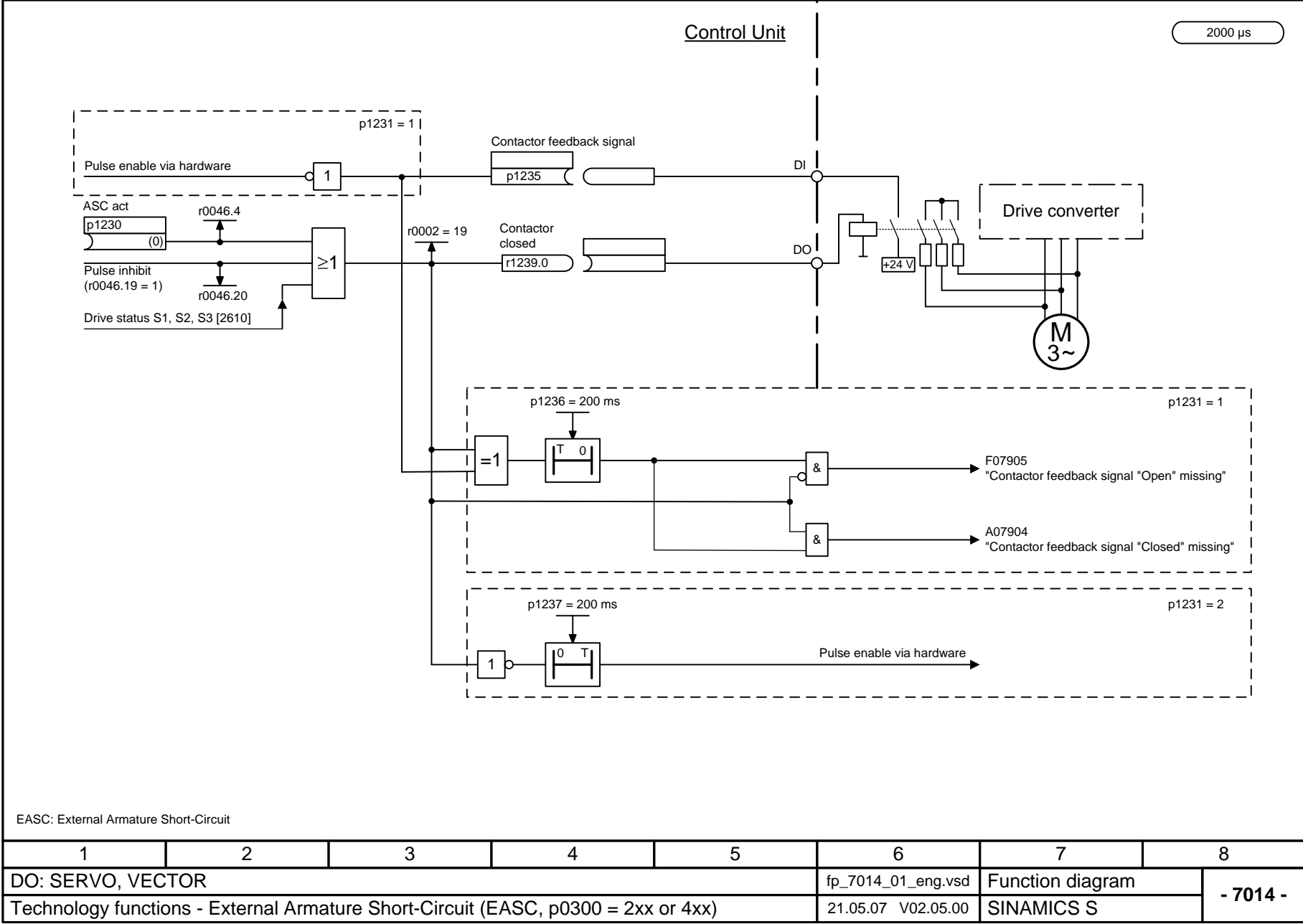


Figure 2-198 7014 – External armature short circuit (EASC, p0300 = 2xx or 4xx)

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_7014_01_eng.vsd	Function diagram	
Technology functions - External Armature Short-Circuit (EASC, p0300 = 2xx or 4xx)					21.05.07 V02.05.00	SINAMICS S	
							- 7014 -

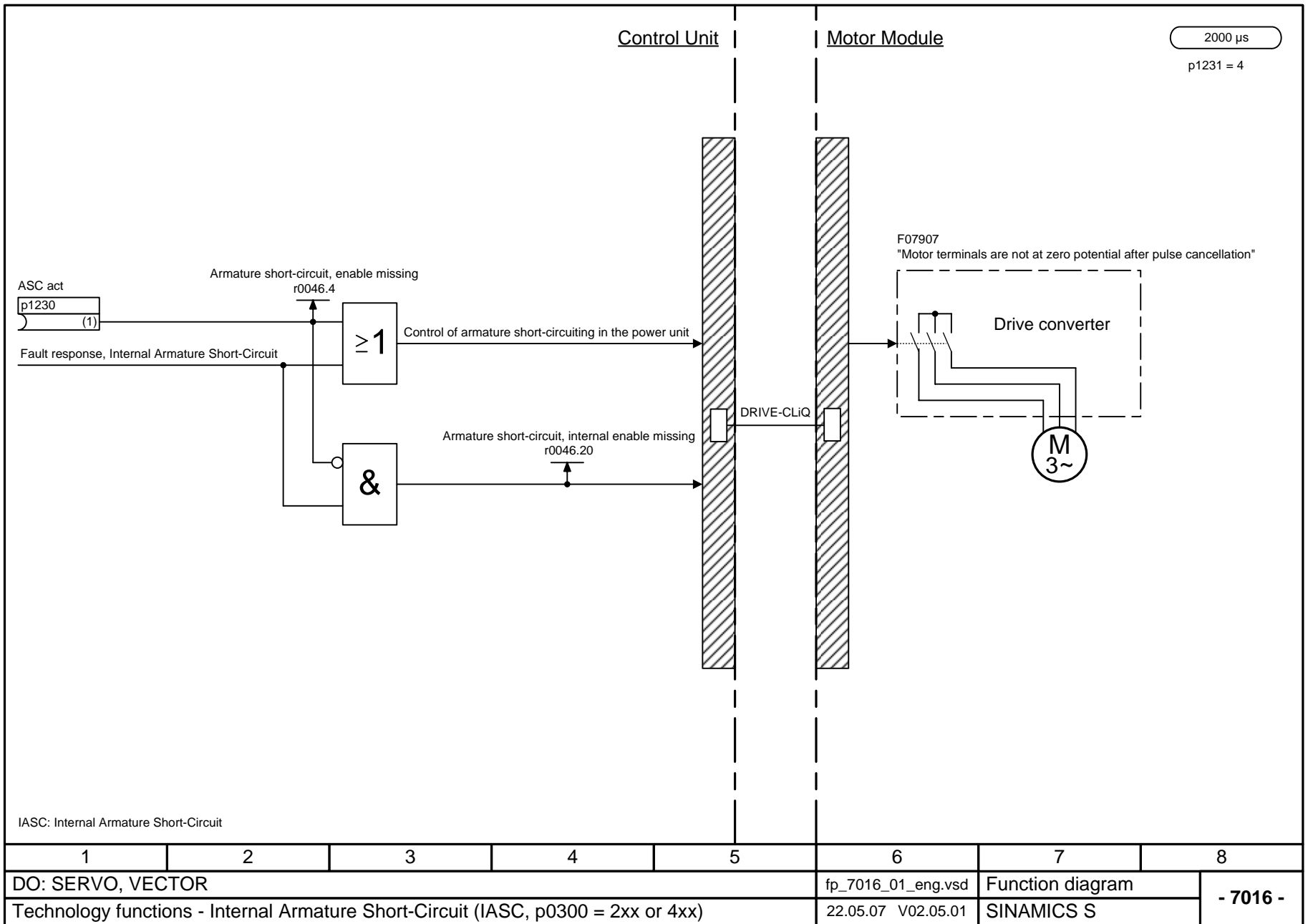


Figure 2-199 7016 – Internal armature short-circuit (I/P, p0300 = 2xx or 4xx)

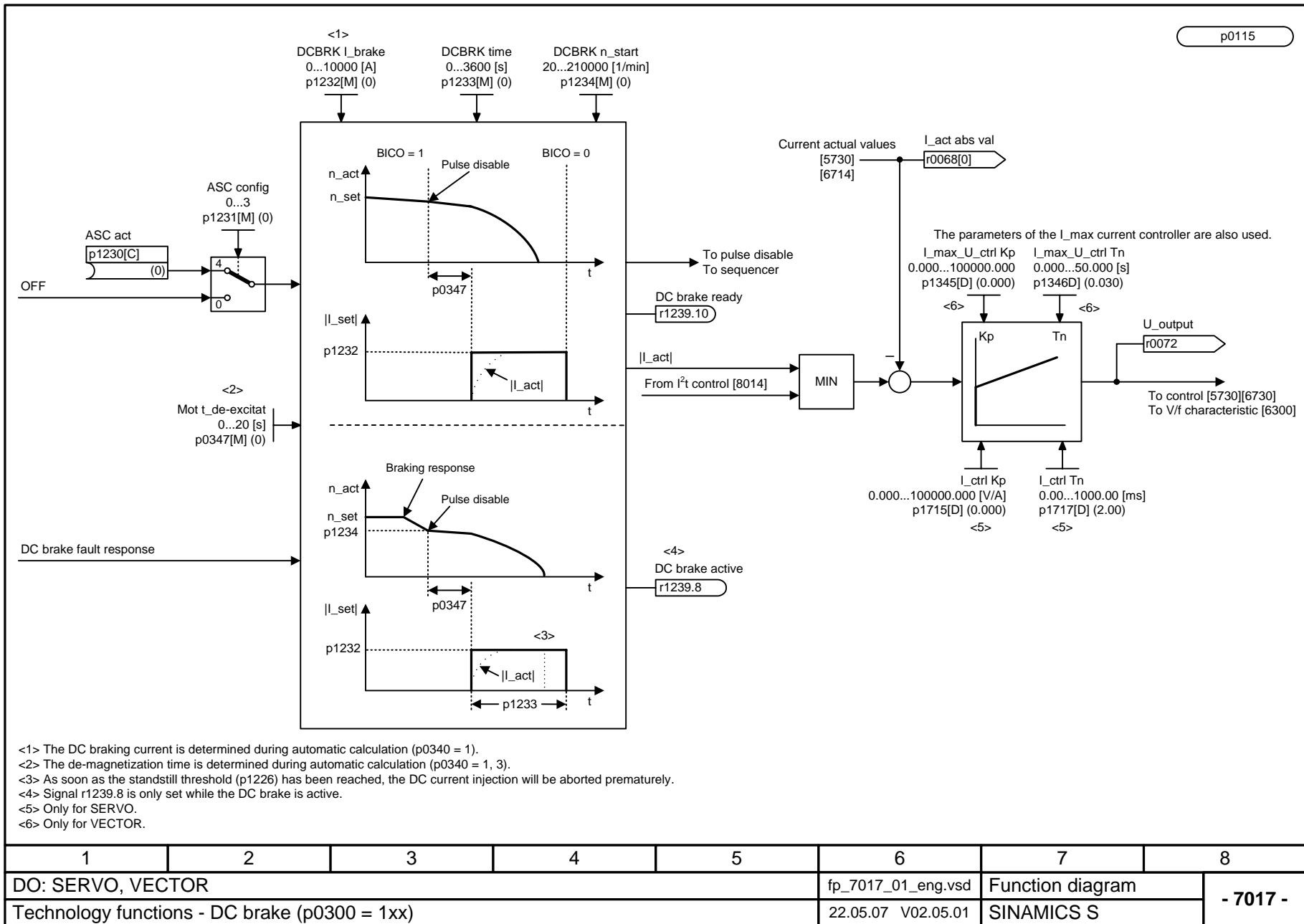
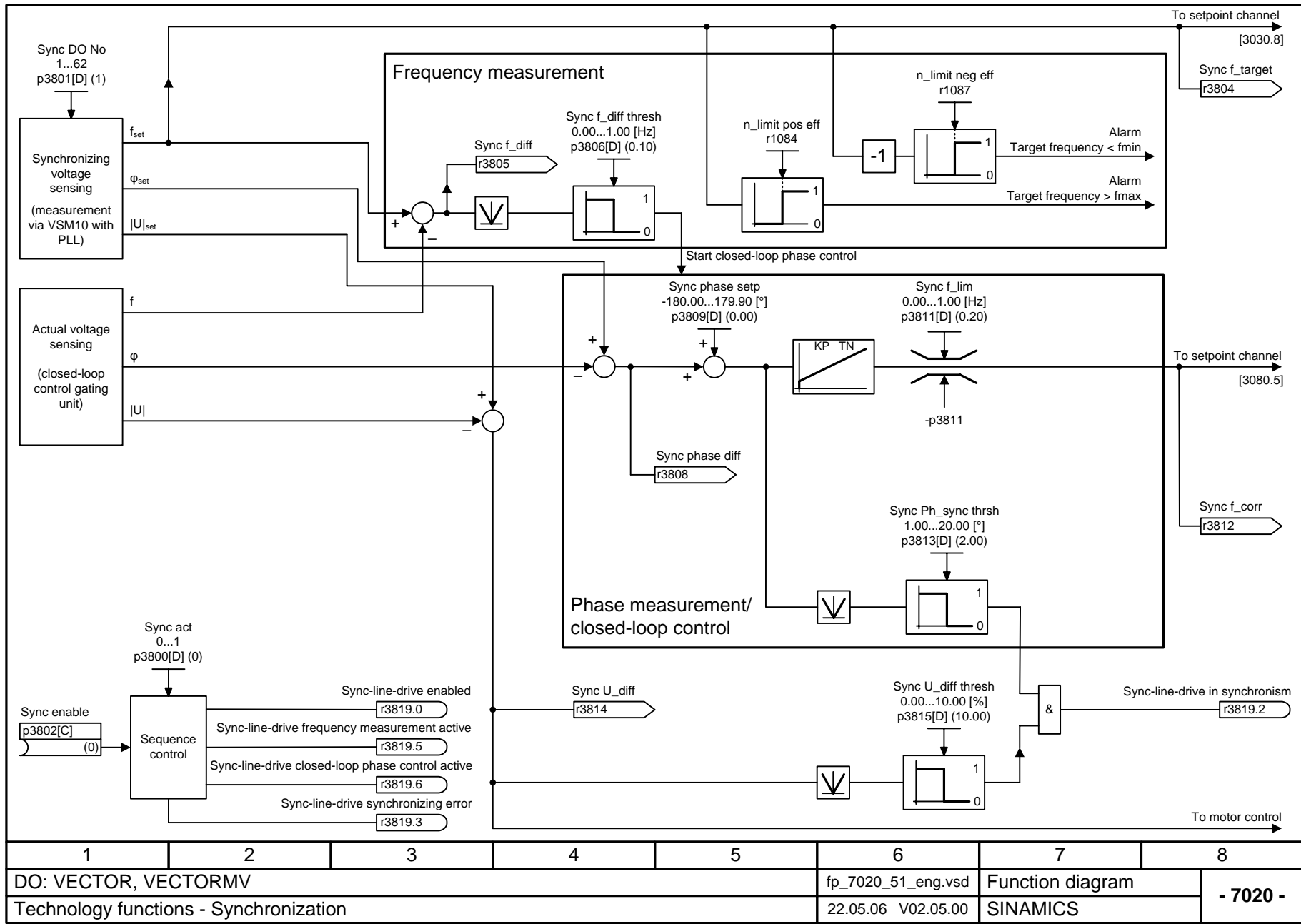


Figure 2-200 7017 – DC injection brake (p0300 = 1xx)



1	2	3	4	5	6	7	8
DO: VECTOR, VECTORMV					fp_7020_51_eng.vsd	Function diagram	
Technology functions - Synchronization					22.05.06 V02.05.00	SINAMICS	
					- 7020 -		

Figure 2-201 7020 – Synchronization

2.21 Technology controller

Function diagrams

7950 – Fixed values (r0108.16 = 1)	2-1323
7954 – Motorized potentiometer (r0108.16=1)	2-1324
7958 – Closed-loop control (r0108.16 = 1)	2-1325

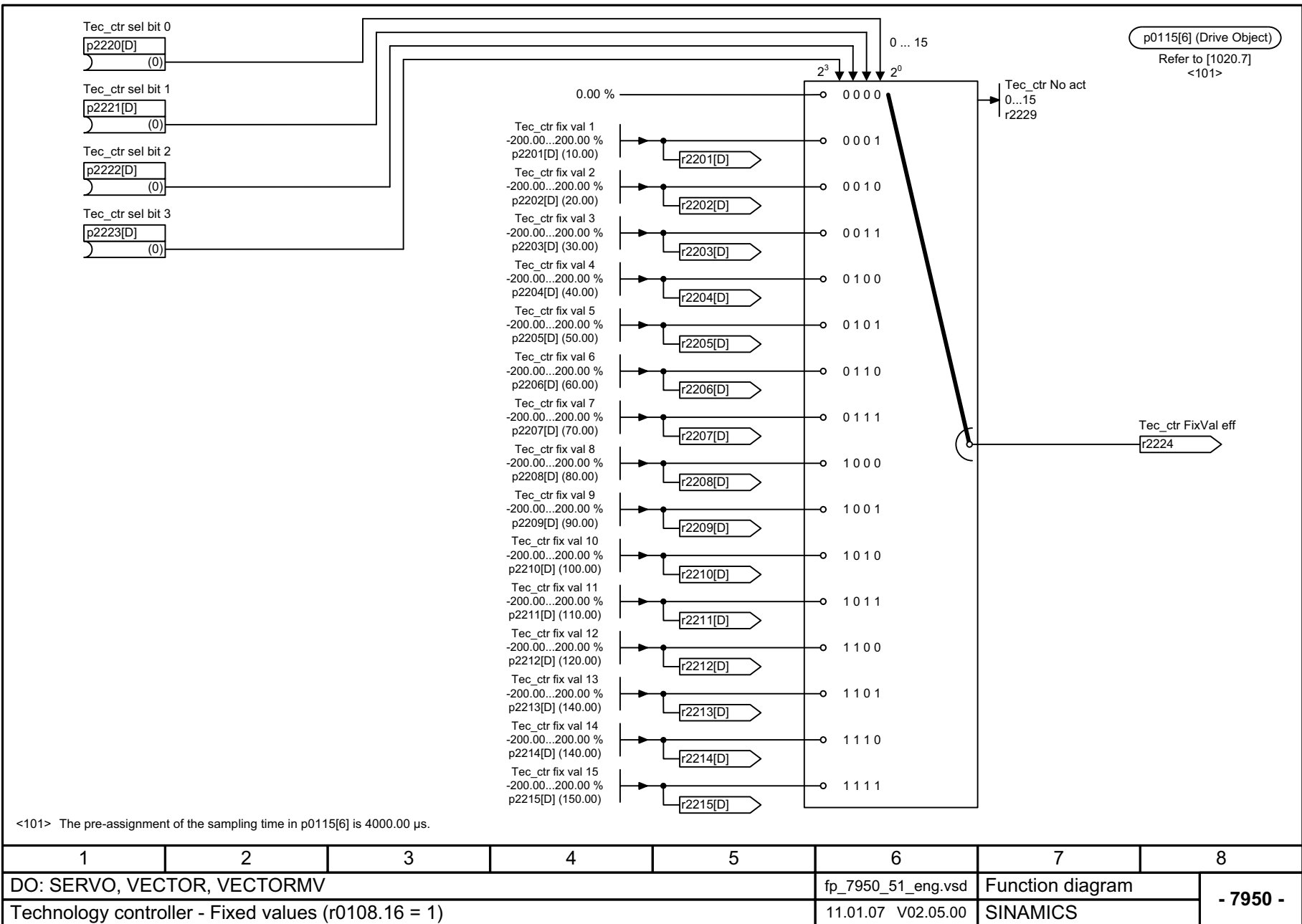


Figure 2-202 7950 – Fixed values (r0108.16 = 1)

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTORMV					fp_7950_51_eng.vsd	Function diagram	- 7950 -
Technology controller - Fixed values (r0108.16 = 1)					11.01.07 V02.05.00	SINAMICS	

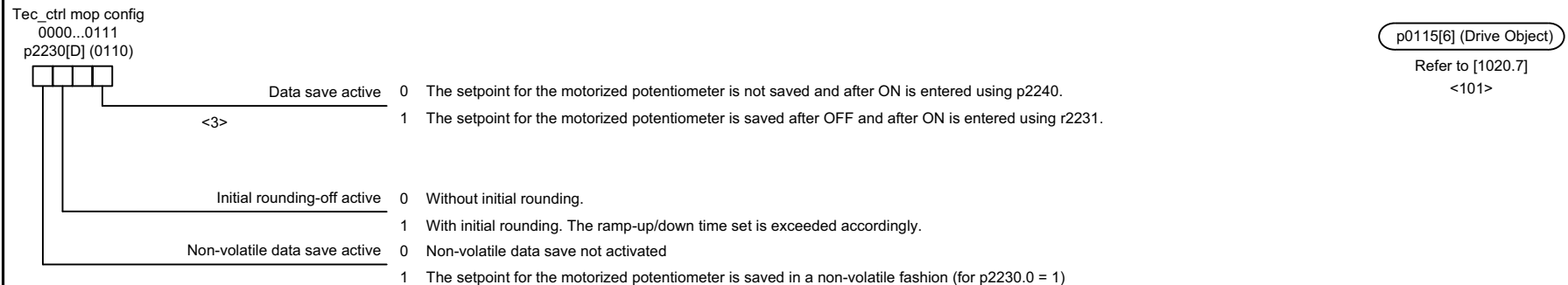
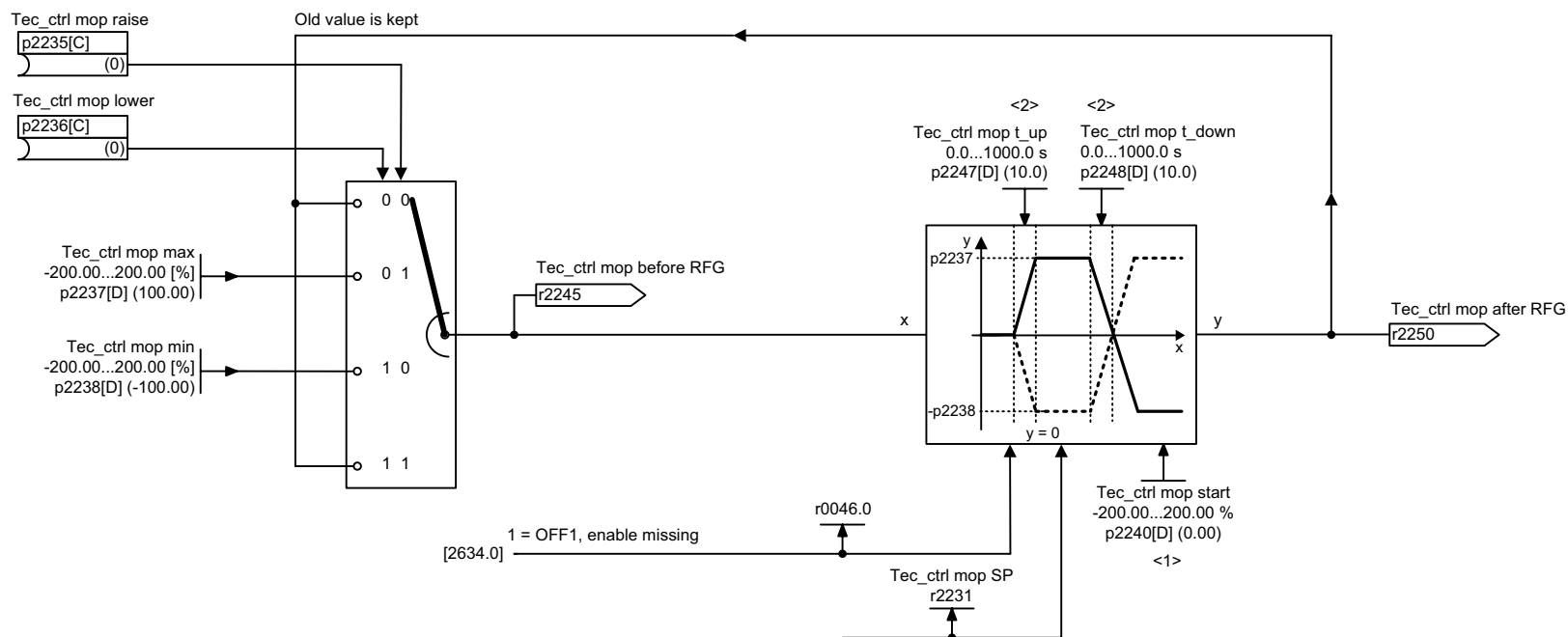


Figure 2-203 7954 – Motorized potentiometer (r0108.16=1)



- <1> For p2230.0 = 0, this setpoint is entered after ON.
<2> If initial rounding-off is active (p2230.2 = 1), the selected ramp-up/down times are exceeded accordingly.
<3> The following prerequisites must be met in order to be able to save the setpoint in non-volatile mode:
- Firmware with V2.3 or higher.
- Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).
<101> The pre-assignment of the sampling time in p0115[6] is 4000.00 µs.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTORMV					fp_7954_51_eng.vsd	Function diagram	- 7954 -
Technology controller - Motorized potentiometer (r0108.16 = 1)					11.01.07 V02.05.00	SINAMICS	

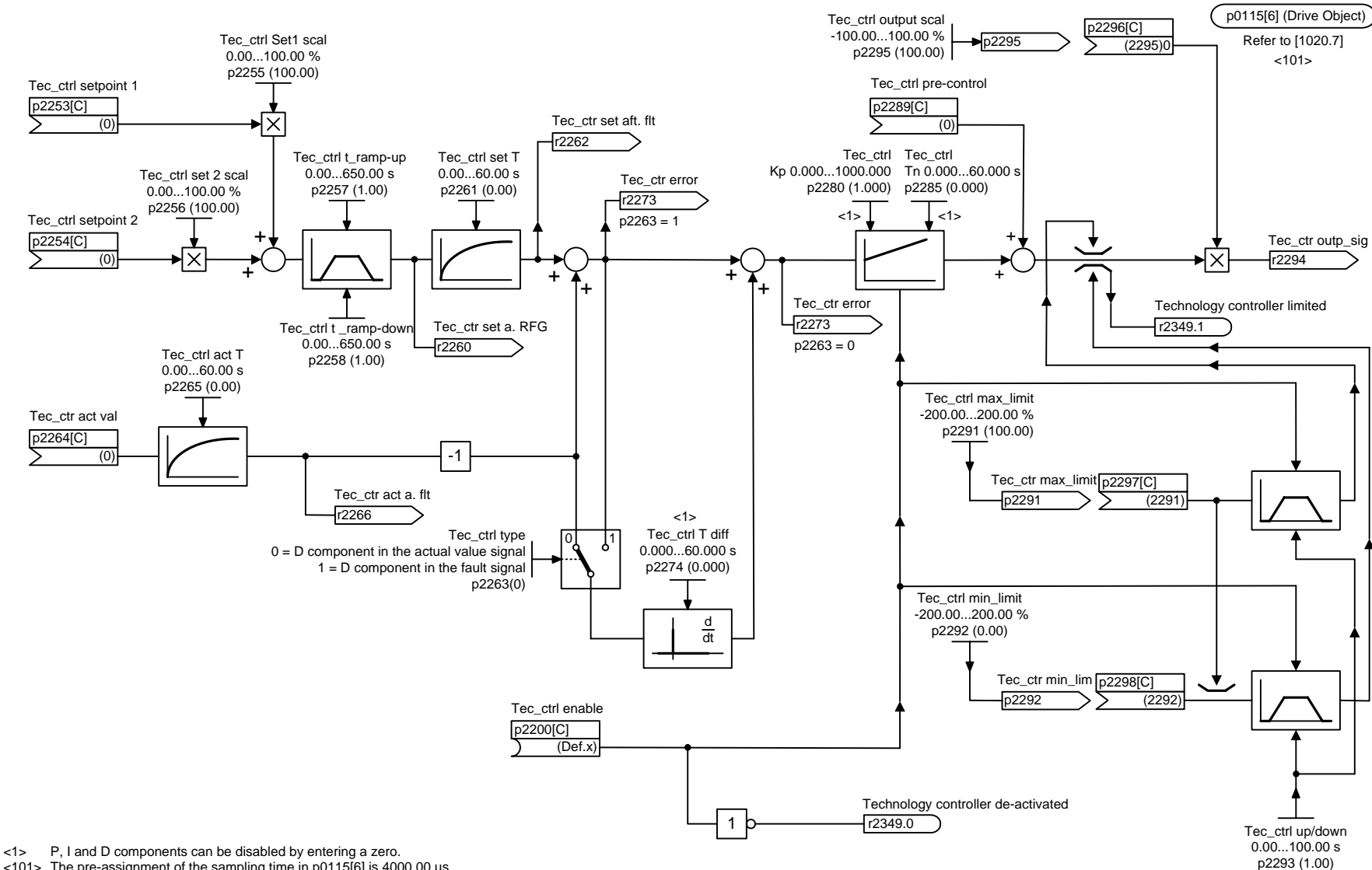
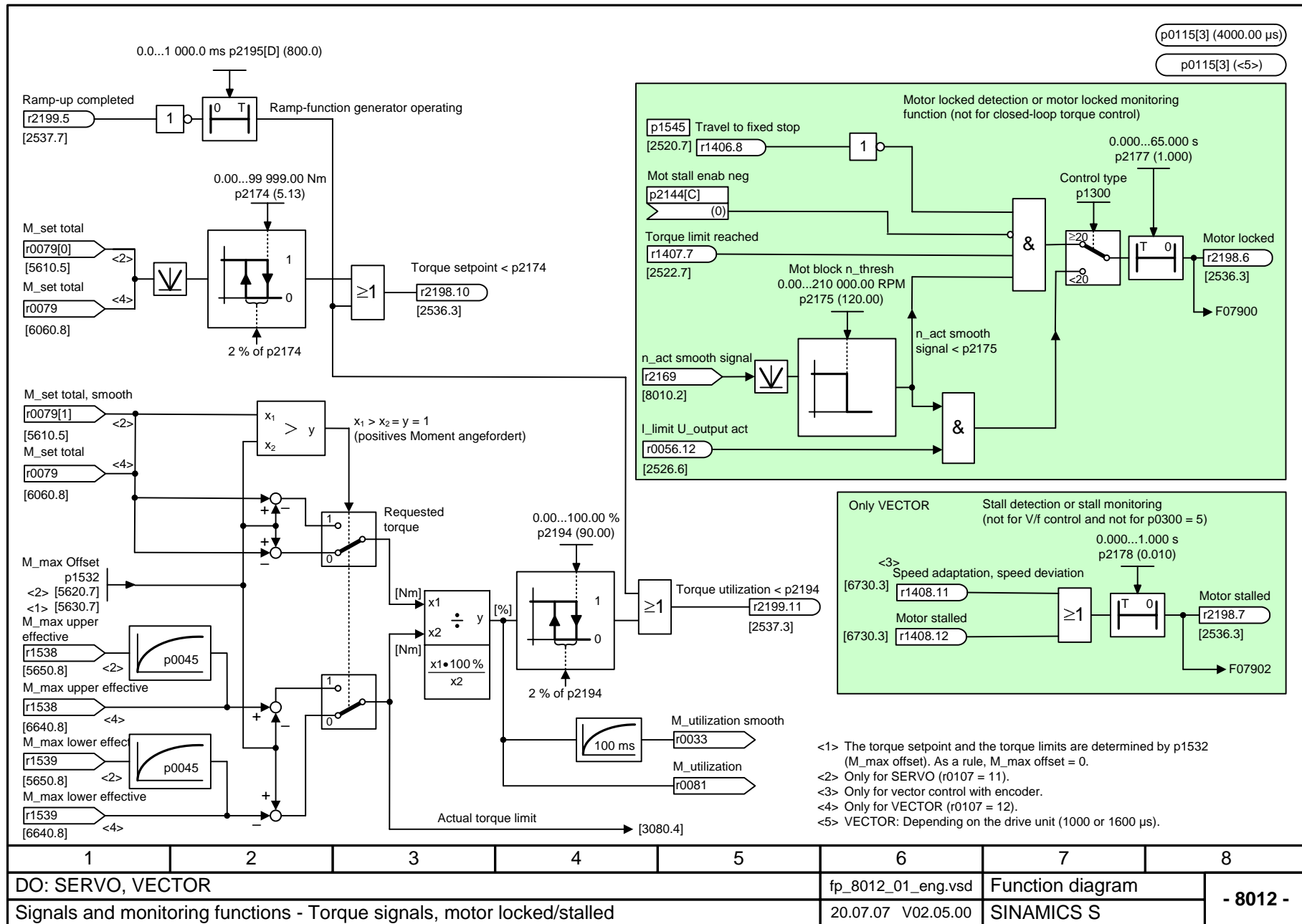


Figure 2-204 7958 – Closed-loop control (r0108.16 = 1)

2.22 Signals and monitoring functions

Function diagrams

8010 – Speed signals	2-1327
8012 – Torque signals, motor locked/stalled	2-1328
8013 – Load monitoring (r0108.17 = 1)	2-1329
8014 – Thermal monitoring, power unit	2-1330
8016 – Thermal monitoring, motor	2-1331
8018 – Separately excited synchronous motor (FEM, p0300 = 5)	2-1332



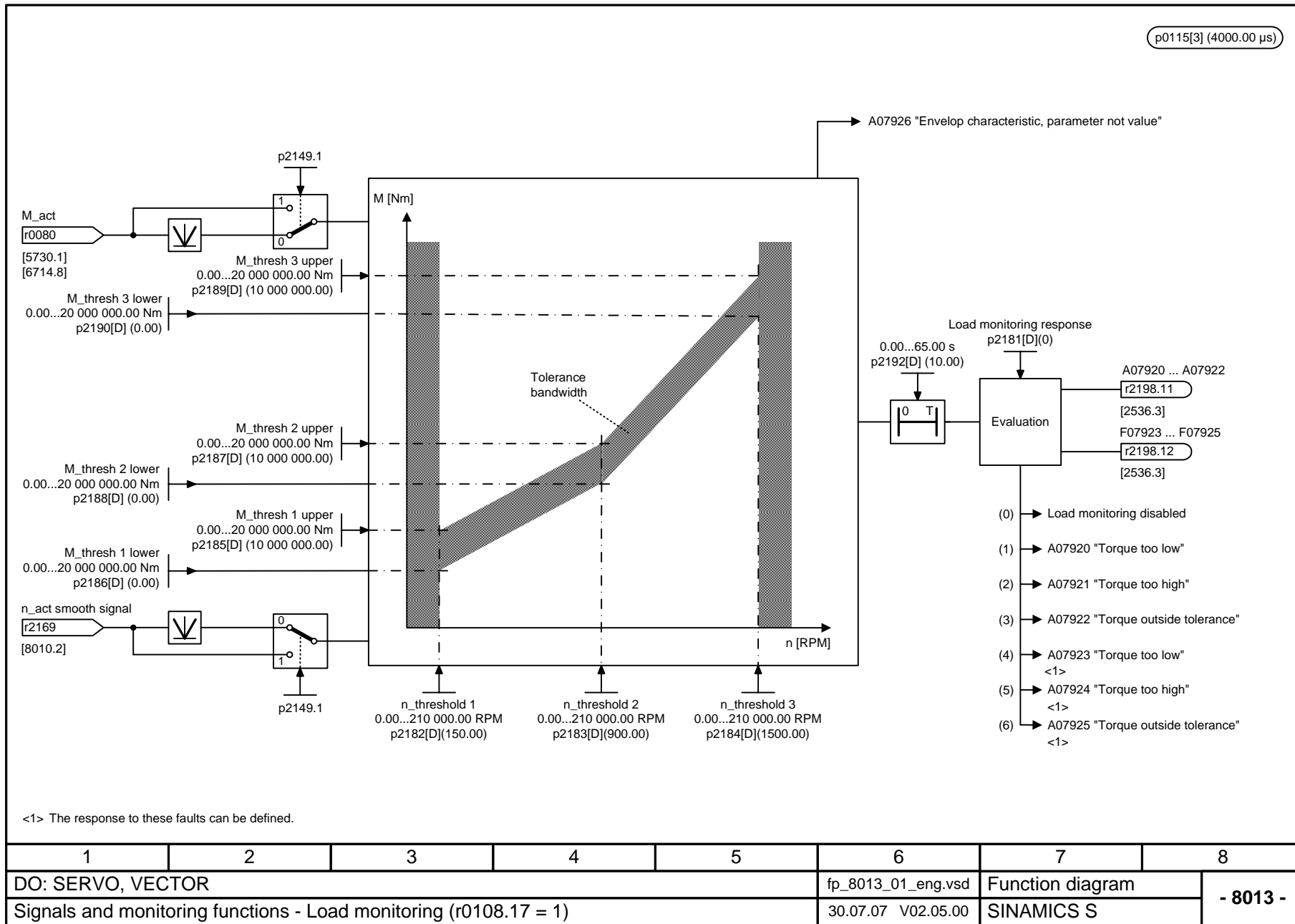
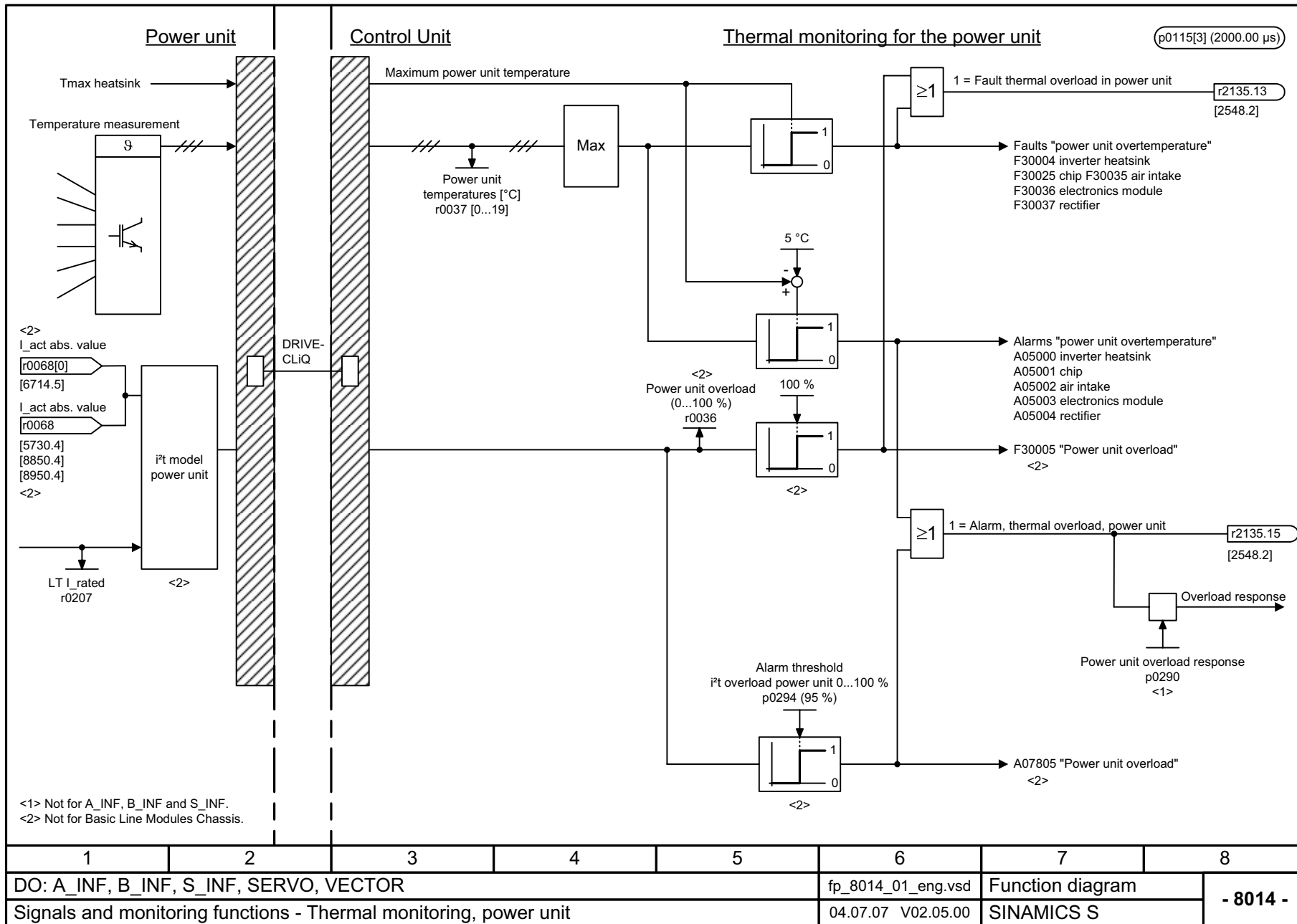
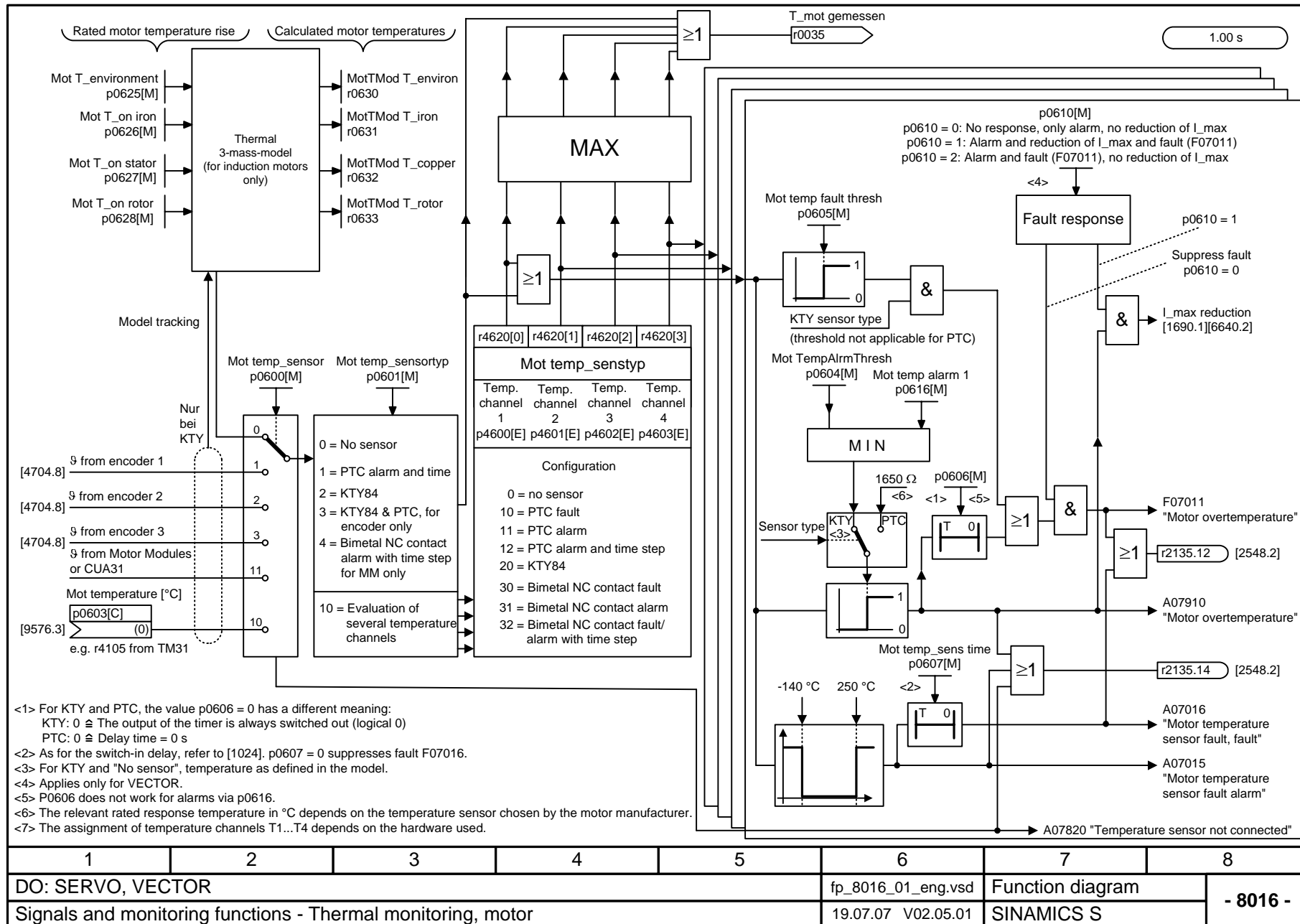


Figure 2-207 8013 – Load monitoring (r0108.17 = 1)





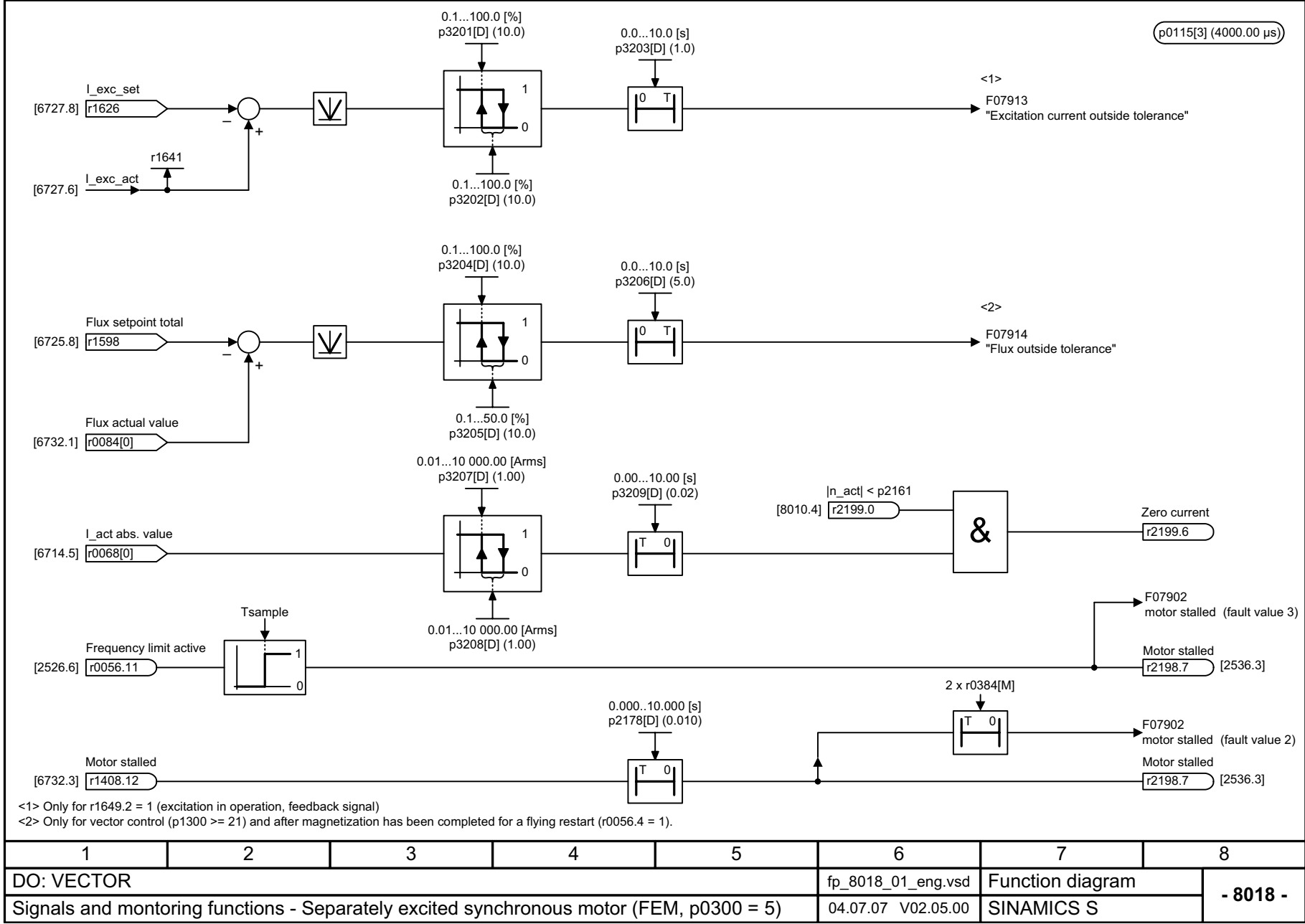
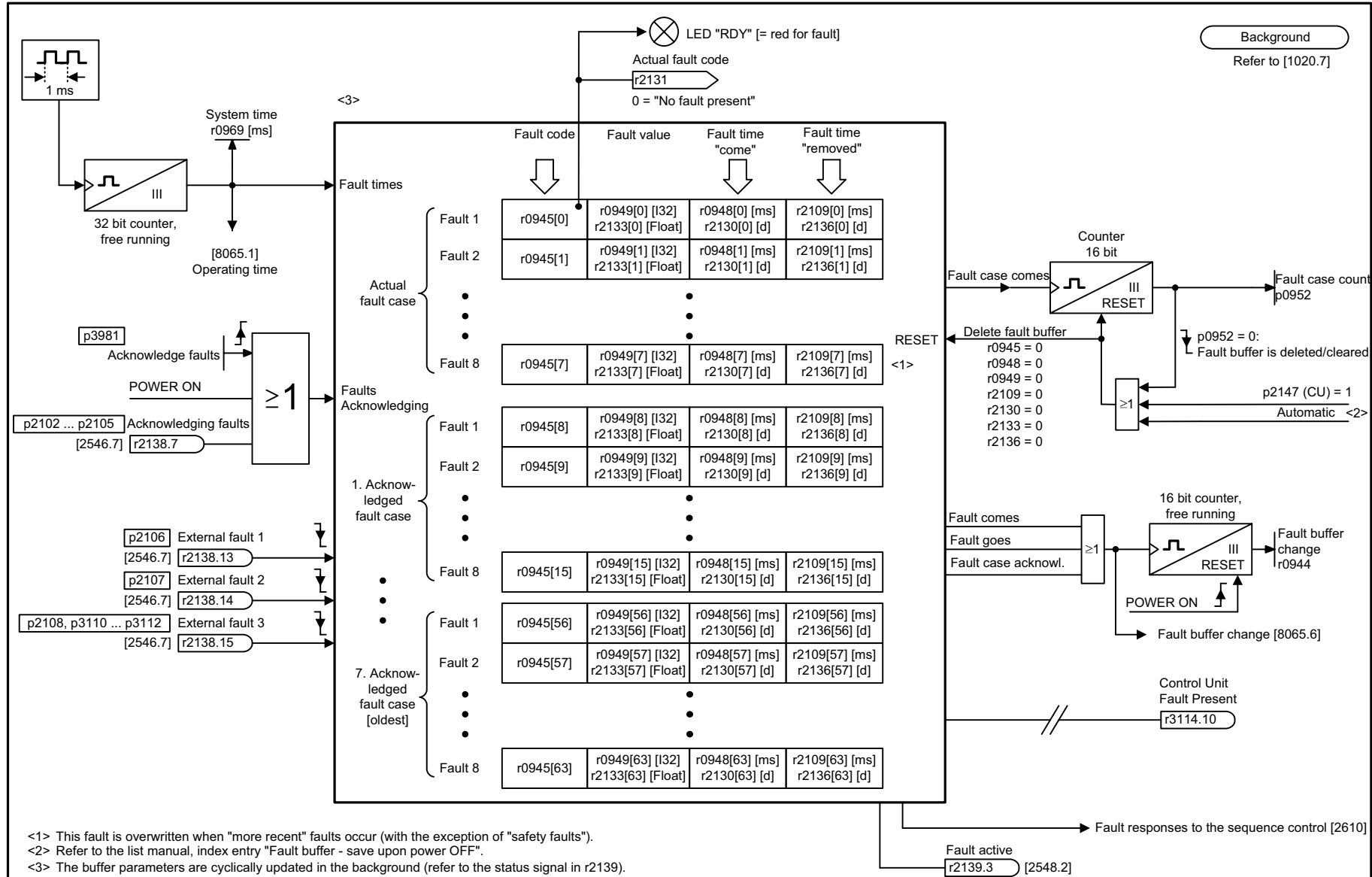


Figure 2-210 8018 – Separately excited synchronous motor (FEM, p0300 = 5)

2.23 Faults and alarms

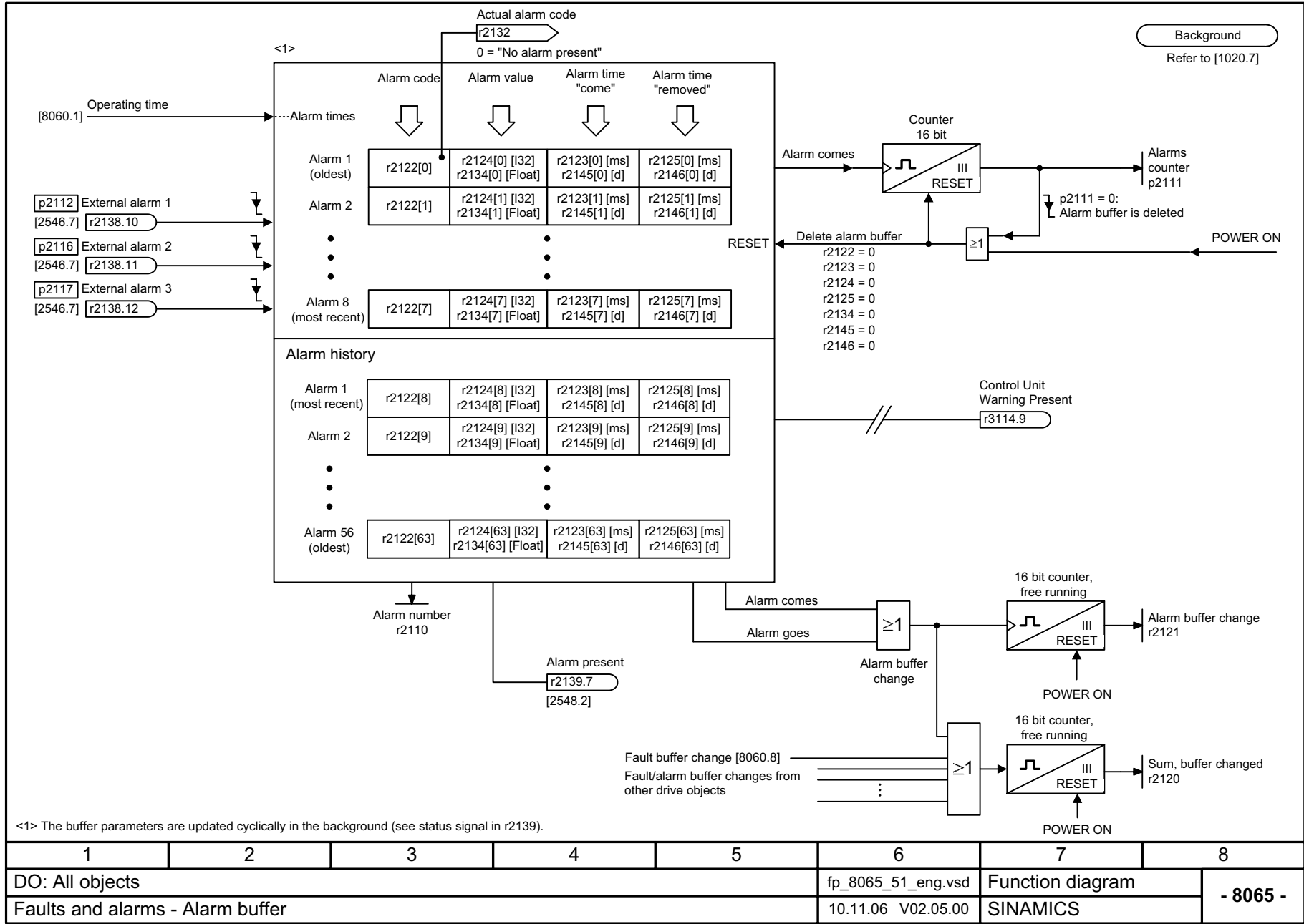
Function diagrams

8060 – Fault buffer	2-1334
8065 – Alarm buffer	2-1335
8070 – Fault/alarm trigger word (r2129)	2-1336
8075 – Fault/alarm configuration	2-1337



1	2	3	4	5	6	7	8
DO: All objects					fp_8060_51_eng.vsd	Function diagram	
Faults and alarms - Fault buffer					10.11.06 V02.05.00	SINAMICS	
							- 8060 -

Figure 2-211 8060 – Fault buffer



1	2	3	4	5	6	7	8
DO: All objects					fp_8065_51_eng.vsd	Function diagram	
Faults and alarms - Alarm buffer					10.11.06 V02.05.00	SINAMICS	

- 8065 -

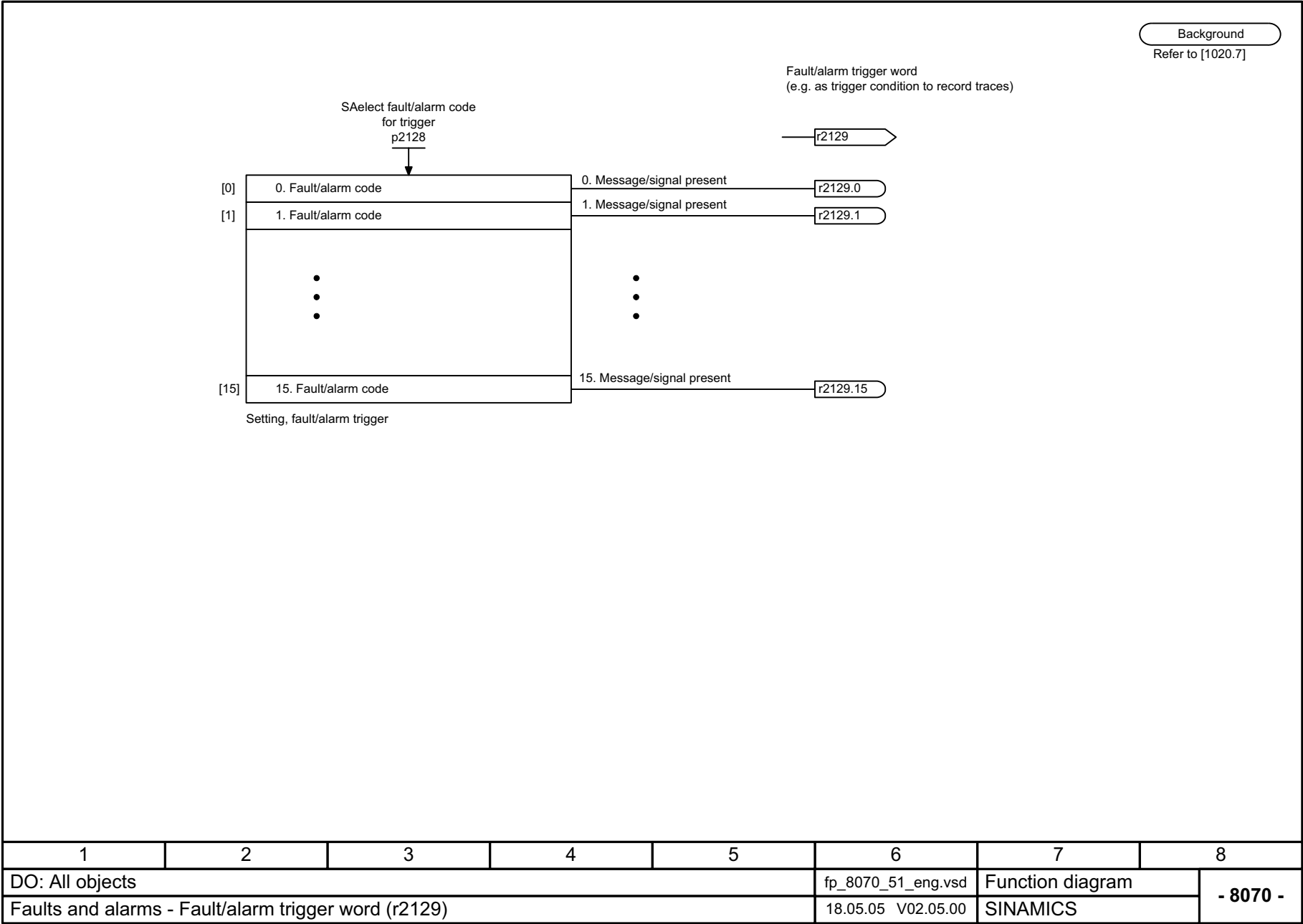
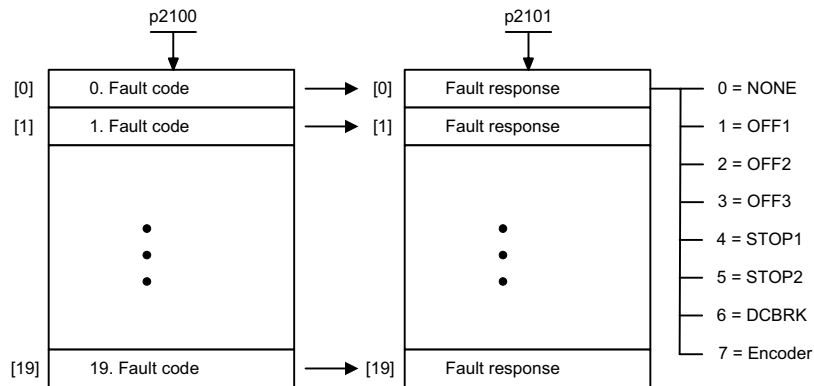


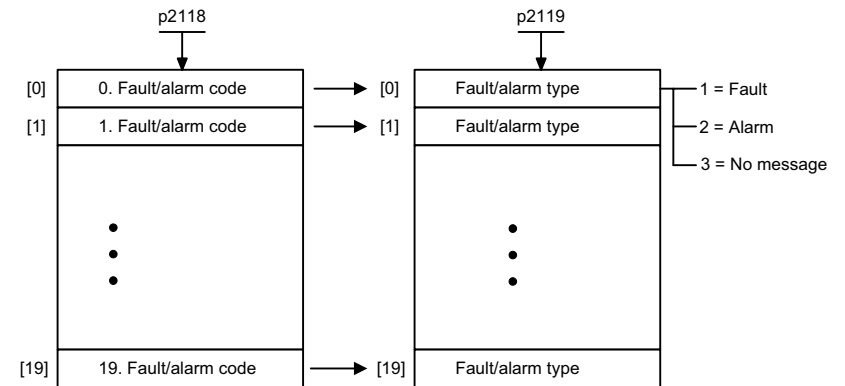
Figure 2-213 8070 – Fault/alarm trigger word (r2129)

Background
Refer to [1020.7]

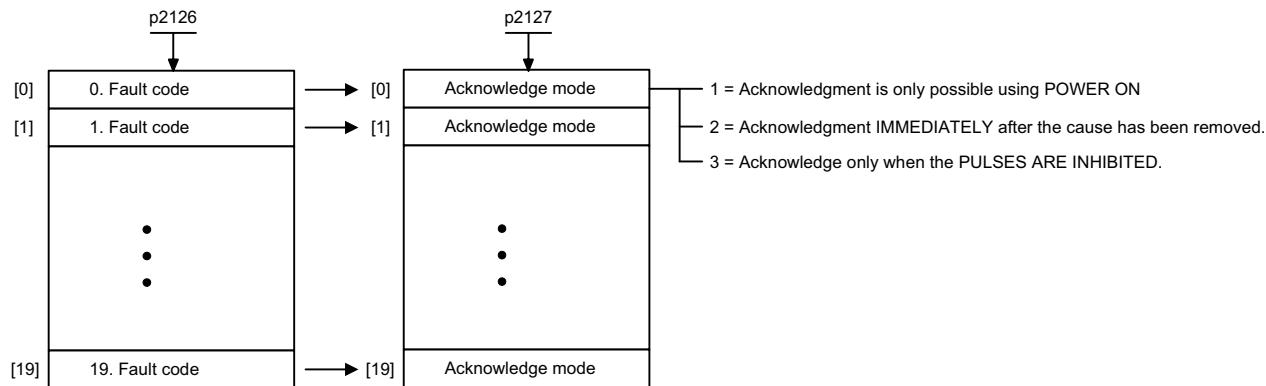
Changing the fault response for maximum 20 faults <1>



Changing the message type - fault <==> alarm for maximum 20 faults/alarms <1>



Changing the acknowledge mode for maximum 20 faults <1>



<1> The fault response, acknowledge mode and message type for all faults and alarms are set to meaningful default values in the factory setting. Changes that may be required are only possible in specific value ranges specified by SIEMENS. When the message type is changed, the supplementary information is transferred from fault value r0949 to alarm value r2124 and vice versa.

1	2	3	4	5	6	7	8
DO: All objects					fp_8075_51_eng.vsd	Function diagram	- 8075 -
Faults and alarms - Fault/alarm configuration					06.03.06 V02.05.00	SINAMICS	

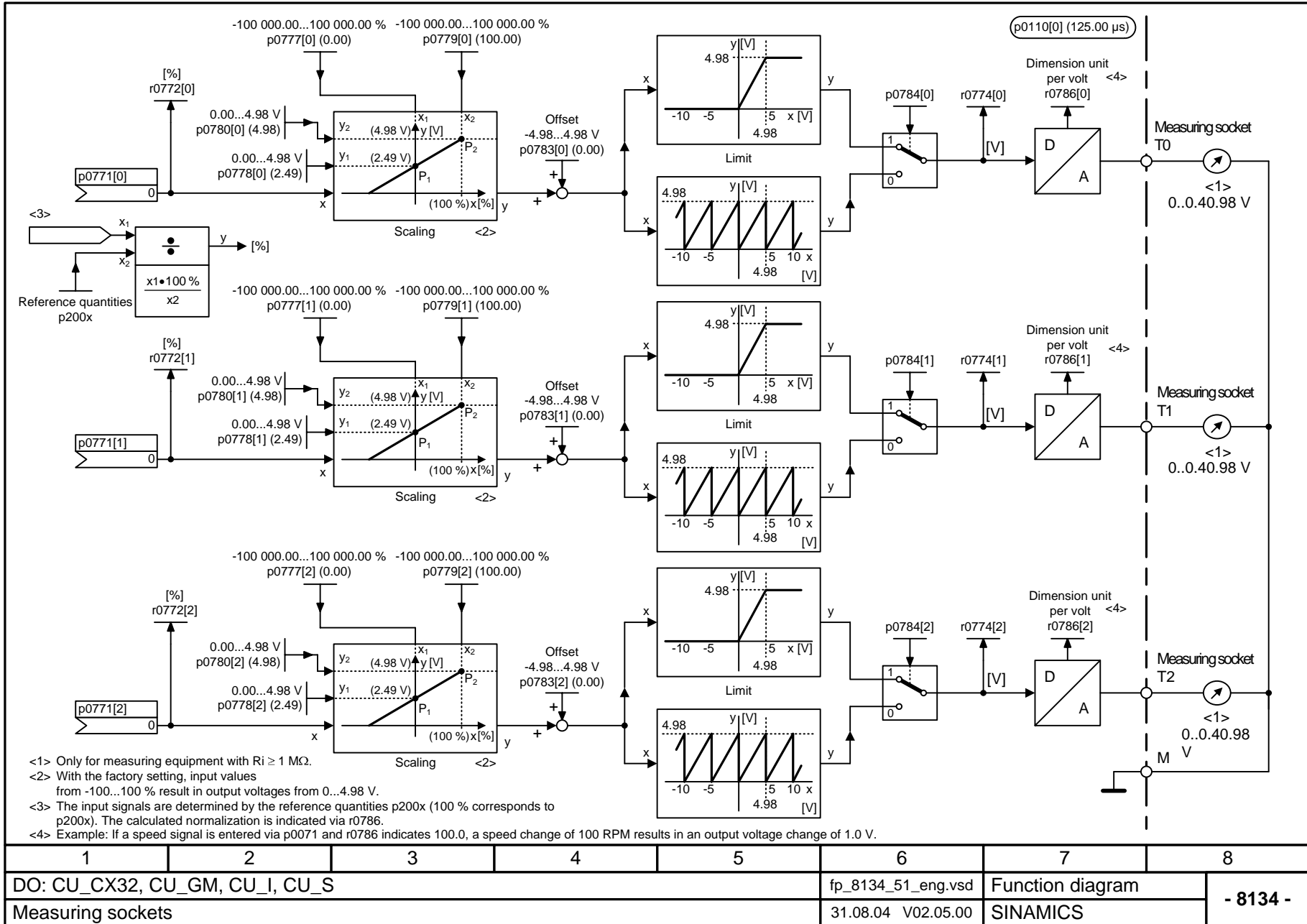
Figure 2-214 8075 – Fault/alarm configuration

2.24 Measuring sockets

Function diagrams

8134 – Measuring sockets

2-1339



2.25 Data sets

Function diagrams

8560 – Command Data Sets (CDS)	2-1341
8565 – Drive Data Sets (DDS)	2-1342
8570 – Encoder Data Sets (EDS)	2-1343
8575 – Motor Data Sets (MDS)	2-1344
8580 – Power Unit Data Sets, PDS	2-1345

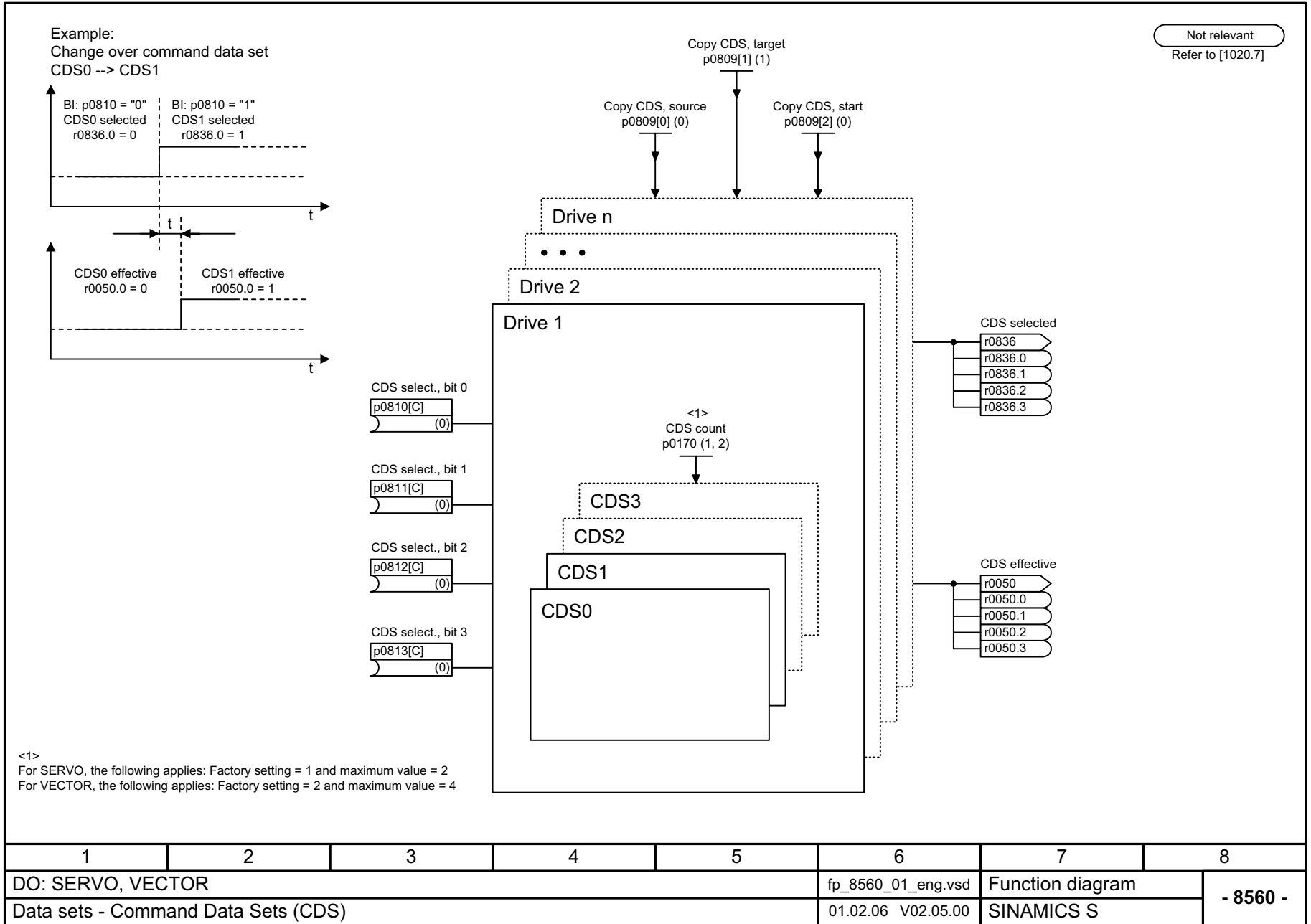


Figure 2-216 8560 – Command Data Sets (CDS)

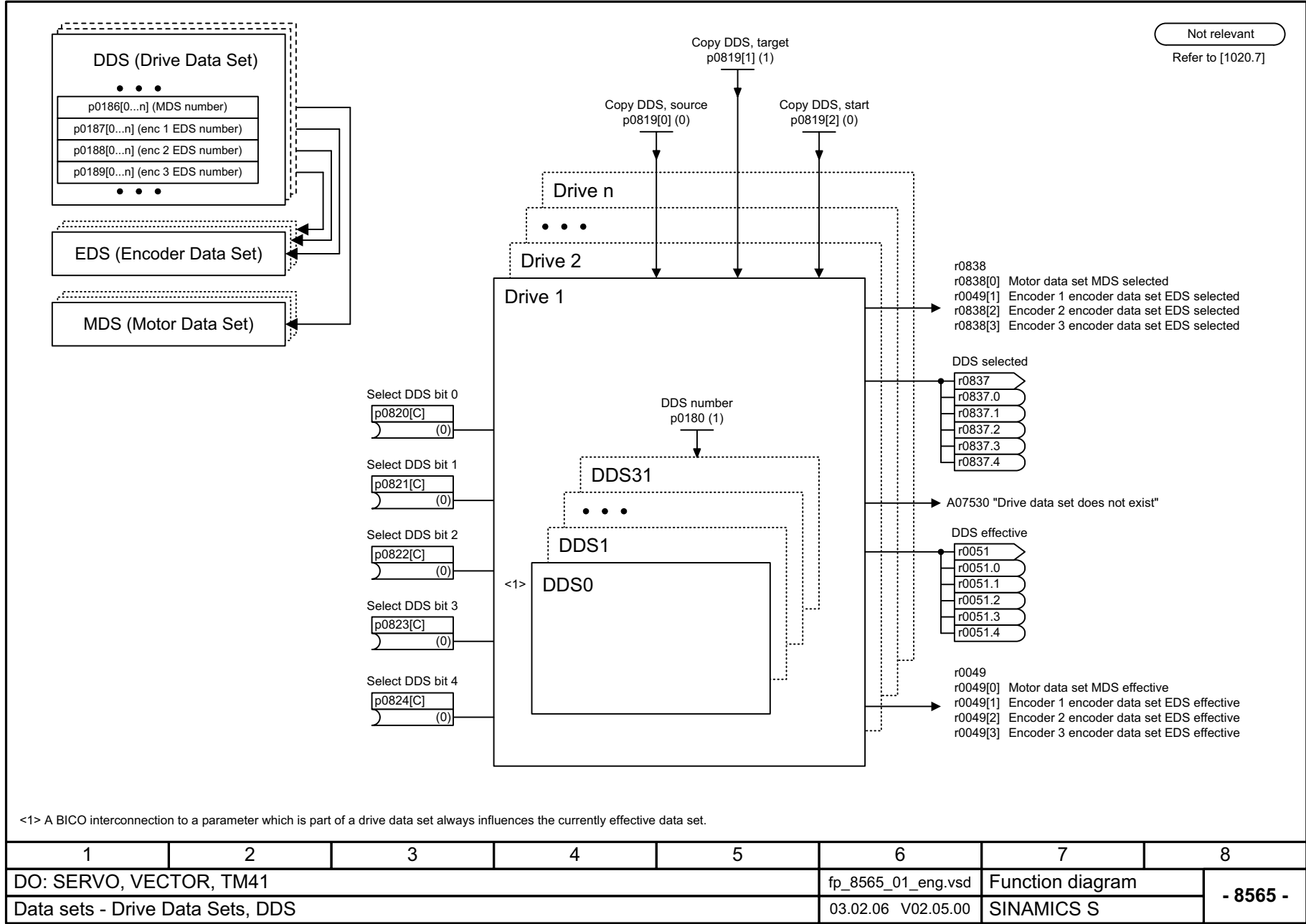
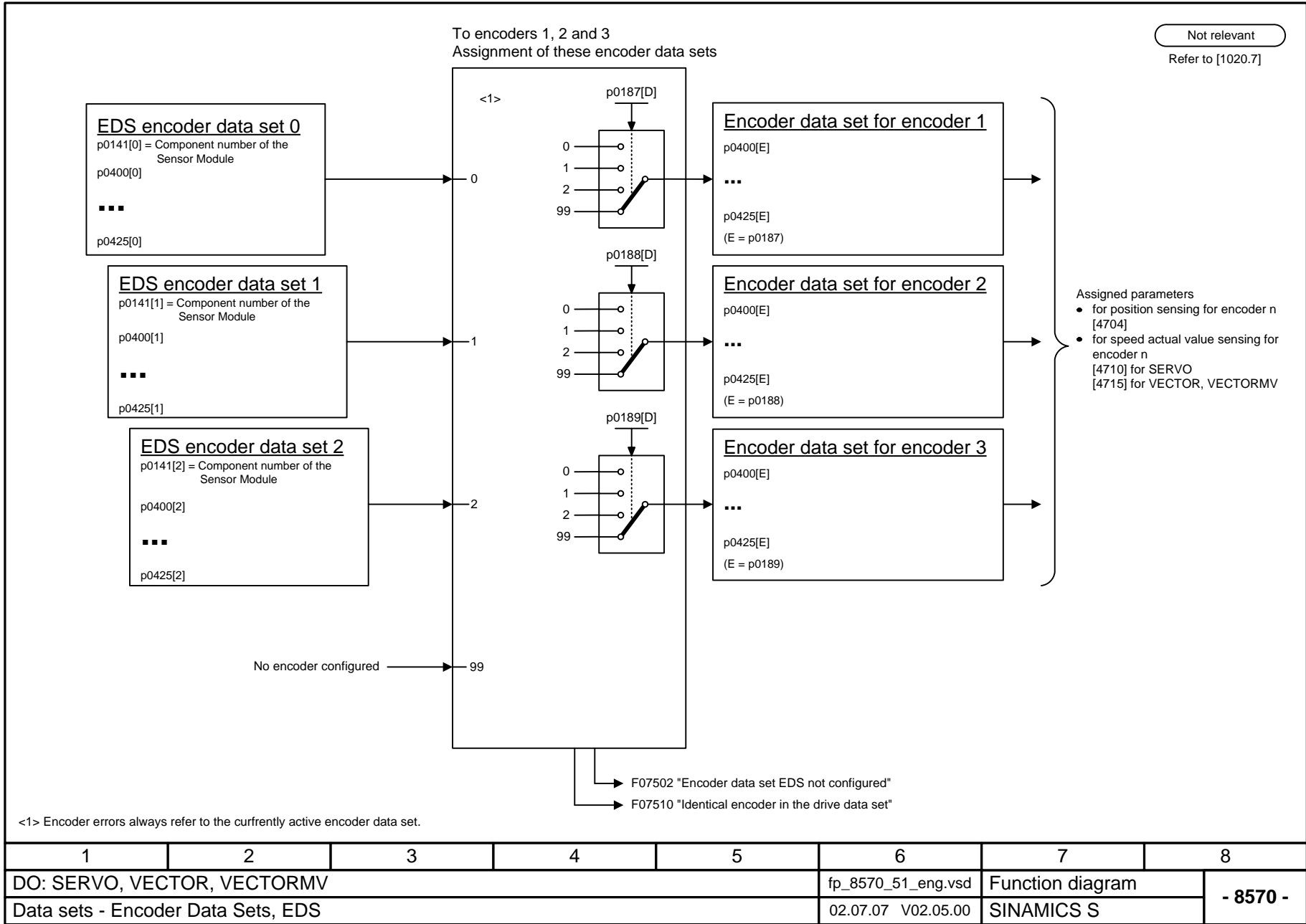
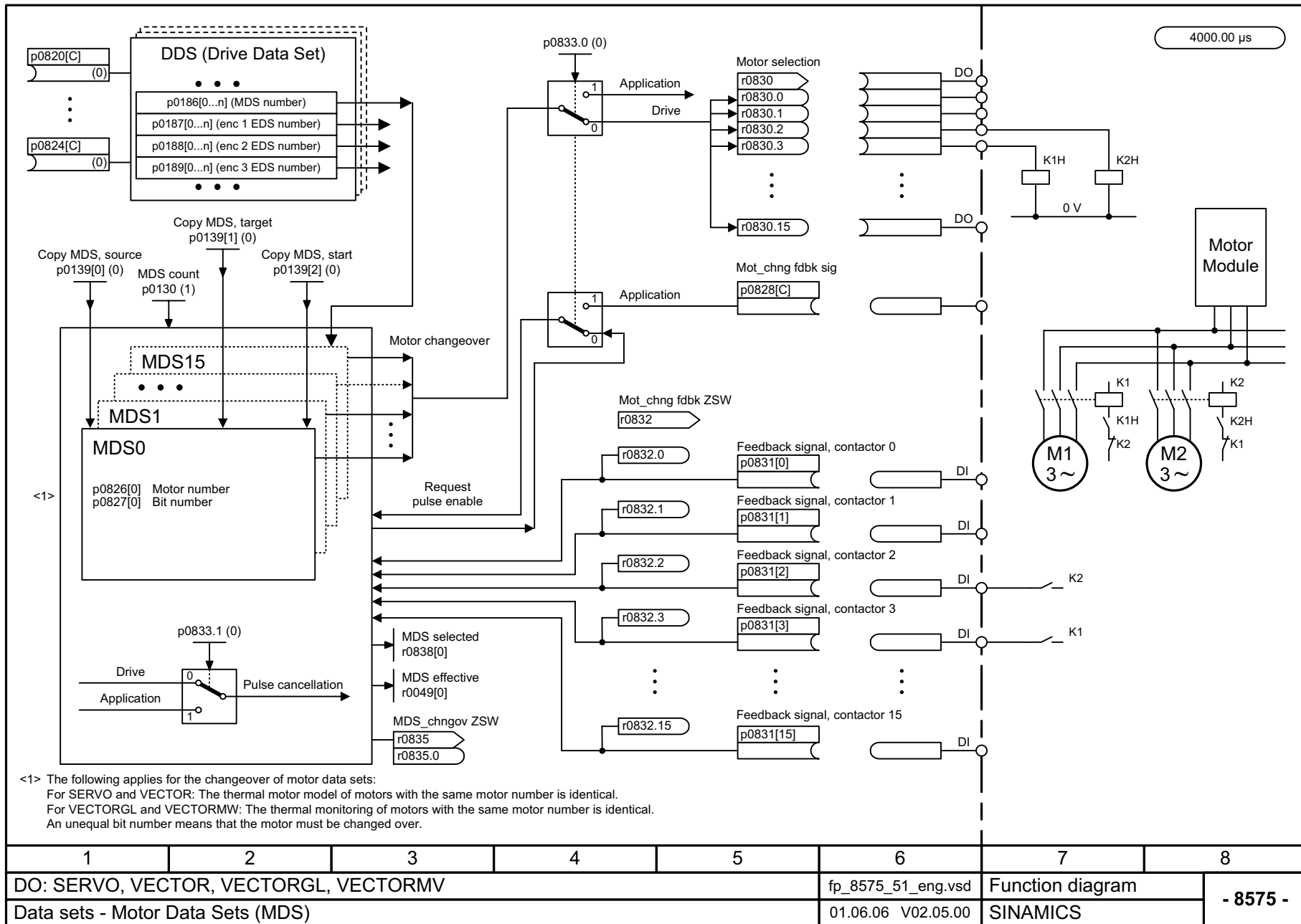


Figure 2-217 8565 – Drive Data Sets (DDS)

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, TM41					fp_8565_01_eng.vsd	Function diagram	
Data sets - Drive Data Sets, DDS					03.02.06 V02.05.00	SINAMICS S	
							- 8565 -





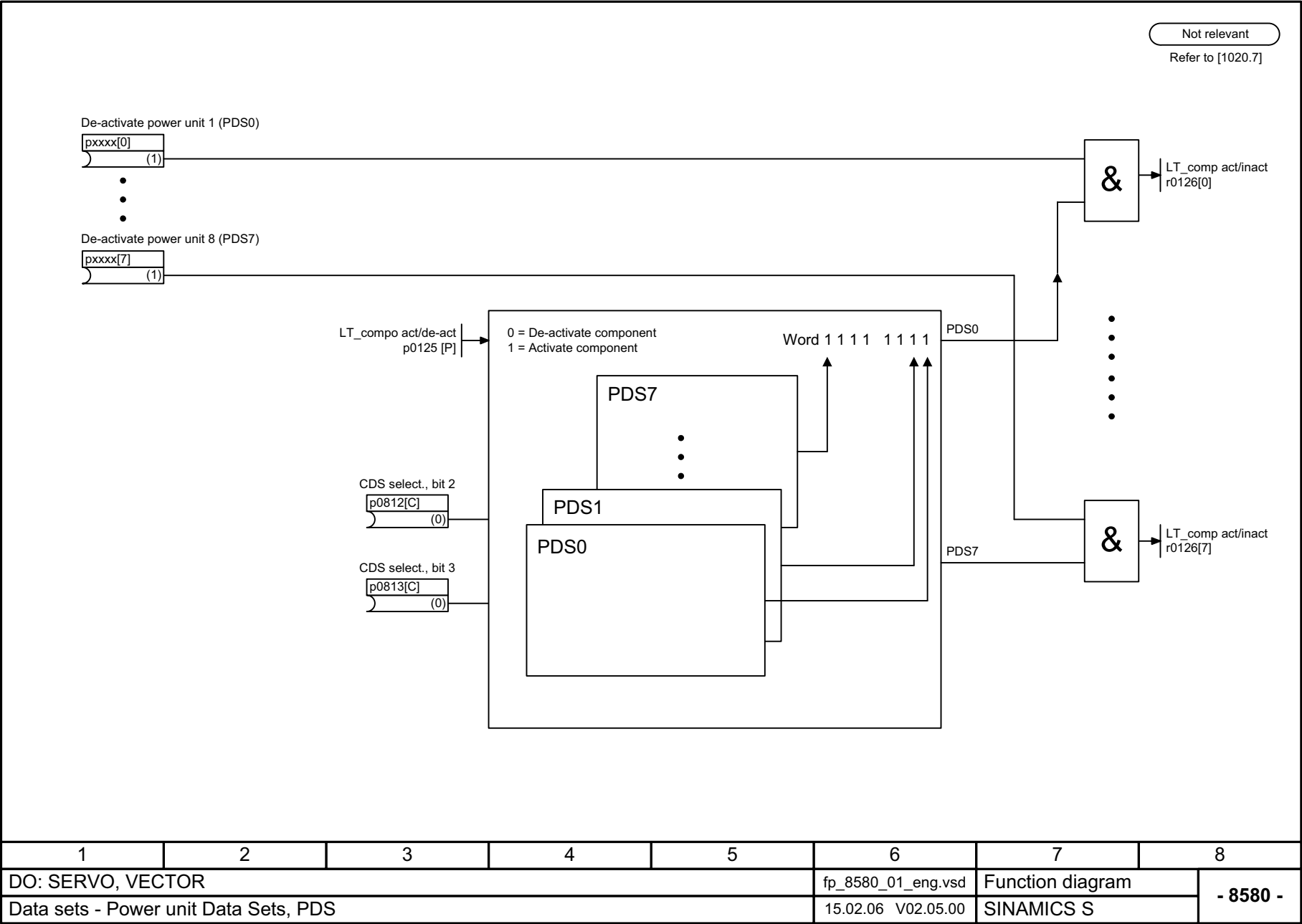


Figure 2-220 8580 – Power Unit Data Sets, PDS

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_8580_01_eng.vsd	Function diagram	
Data sets - Power unit Data Sets, PDS					15.02.06 V02.05.00	SINAMICS S	
							- 8580 -

2.26 Basic Infeed

Function diagrams

8720 – Control word sequence control infeed	2-1347
8726 – Status word sequence control infeed	2-1348
8732 – Sequencer	2-1349
8734 – Missing enable signals, line contactor control	2-1350
8750 – Interface to the Basic Infeed power unit (control signals, actual values)	2-1351
8760 – Signals and monitoring functions (p3400.0 = 0)	2-1352

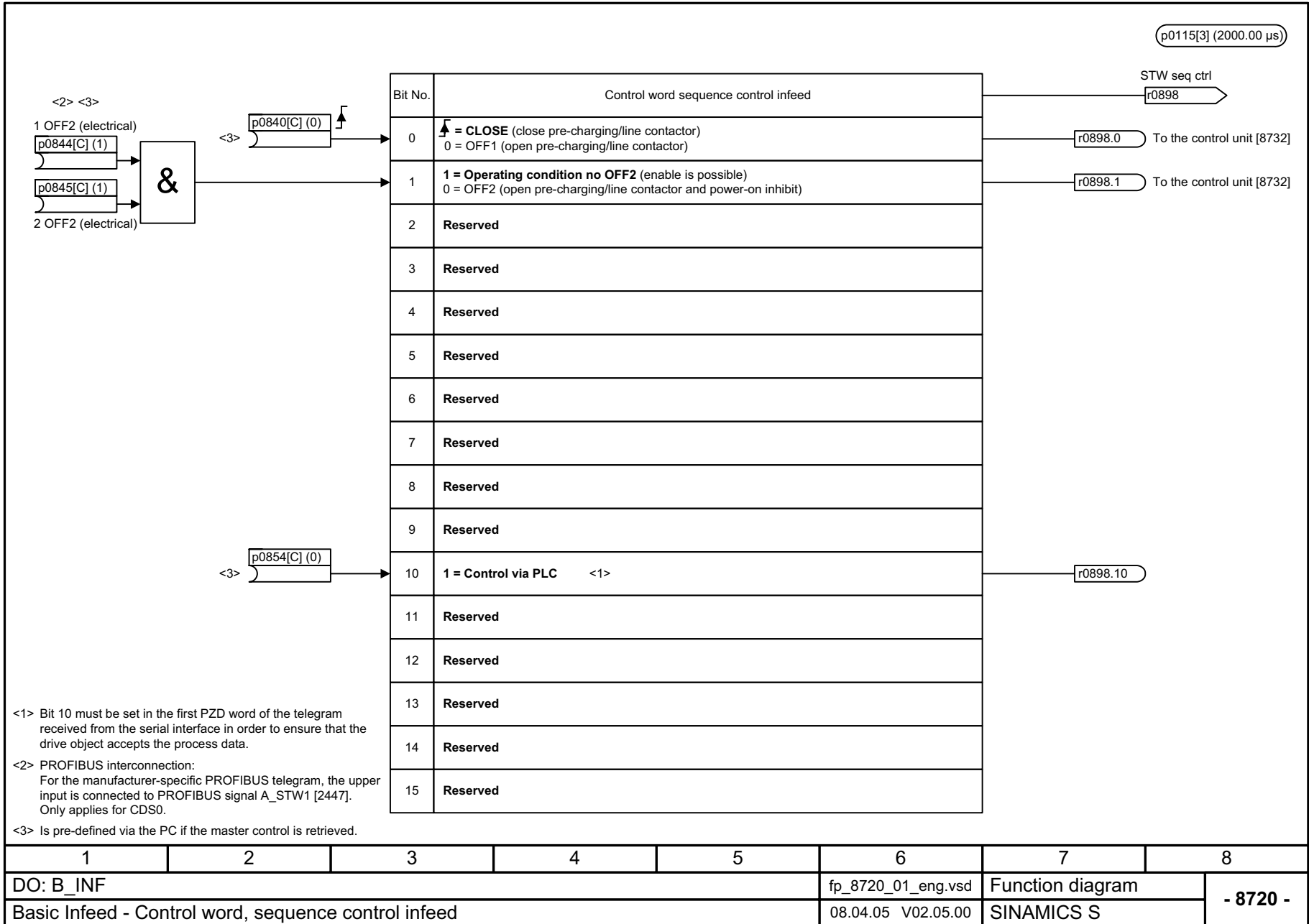


Figure 2-221 8720 – Control word sequence control infeed

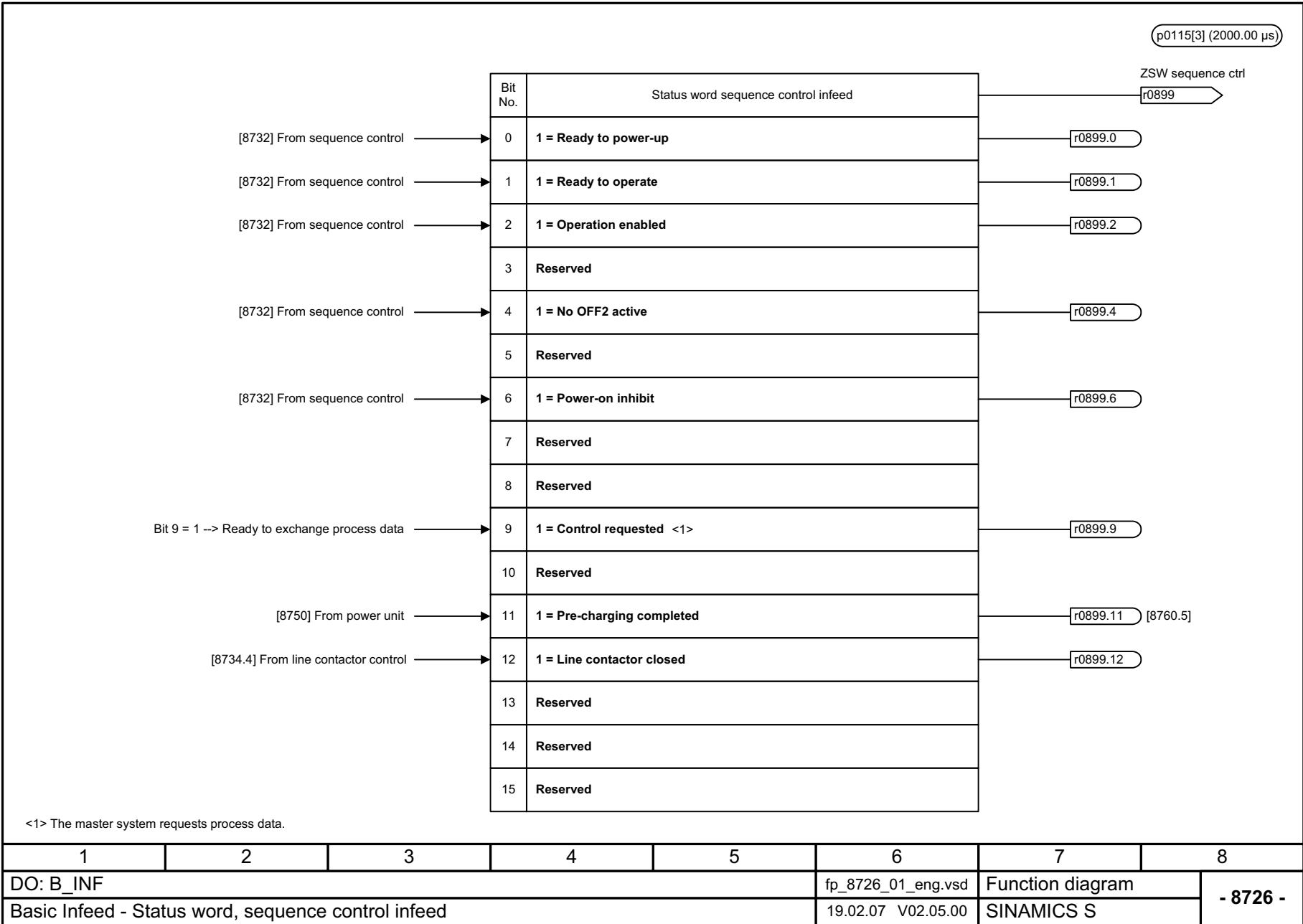


Figure 2-222 8726 – Status word sequence control infeed

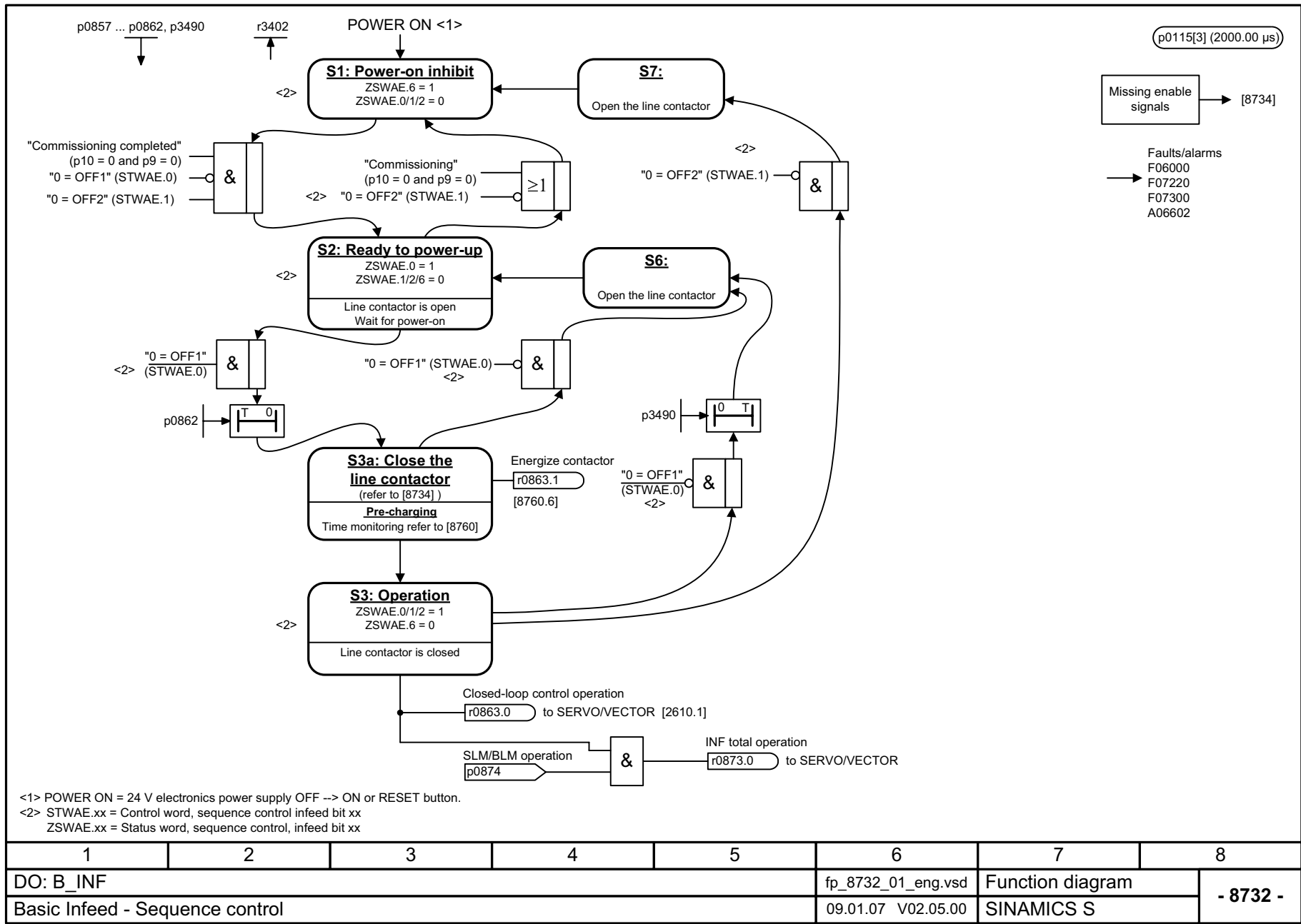


Figure 2-223 8732 – Sequencer

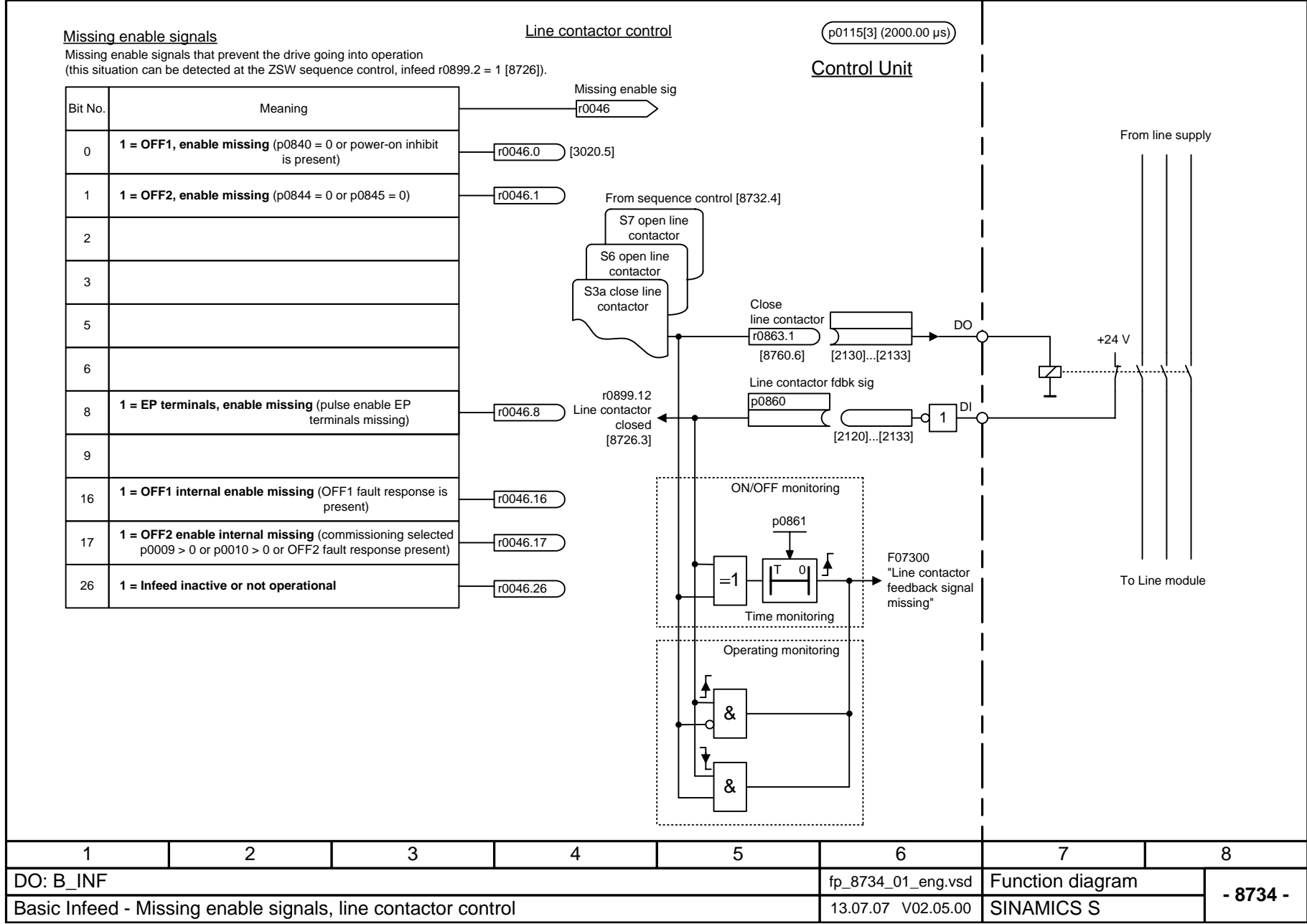


Figure 2-224 8734 – Missing enable signals, line contactor control

1	2	3	4	5	6	7	8
DO: B_INF					fp_8734_01_eng.vsd	Function diagram	
Basic Infeed - Missing enable signals, line contactor control					13.07.07 V02.05.00	SINAMICS S	
							- 8734 -

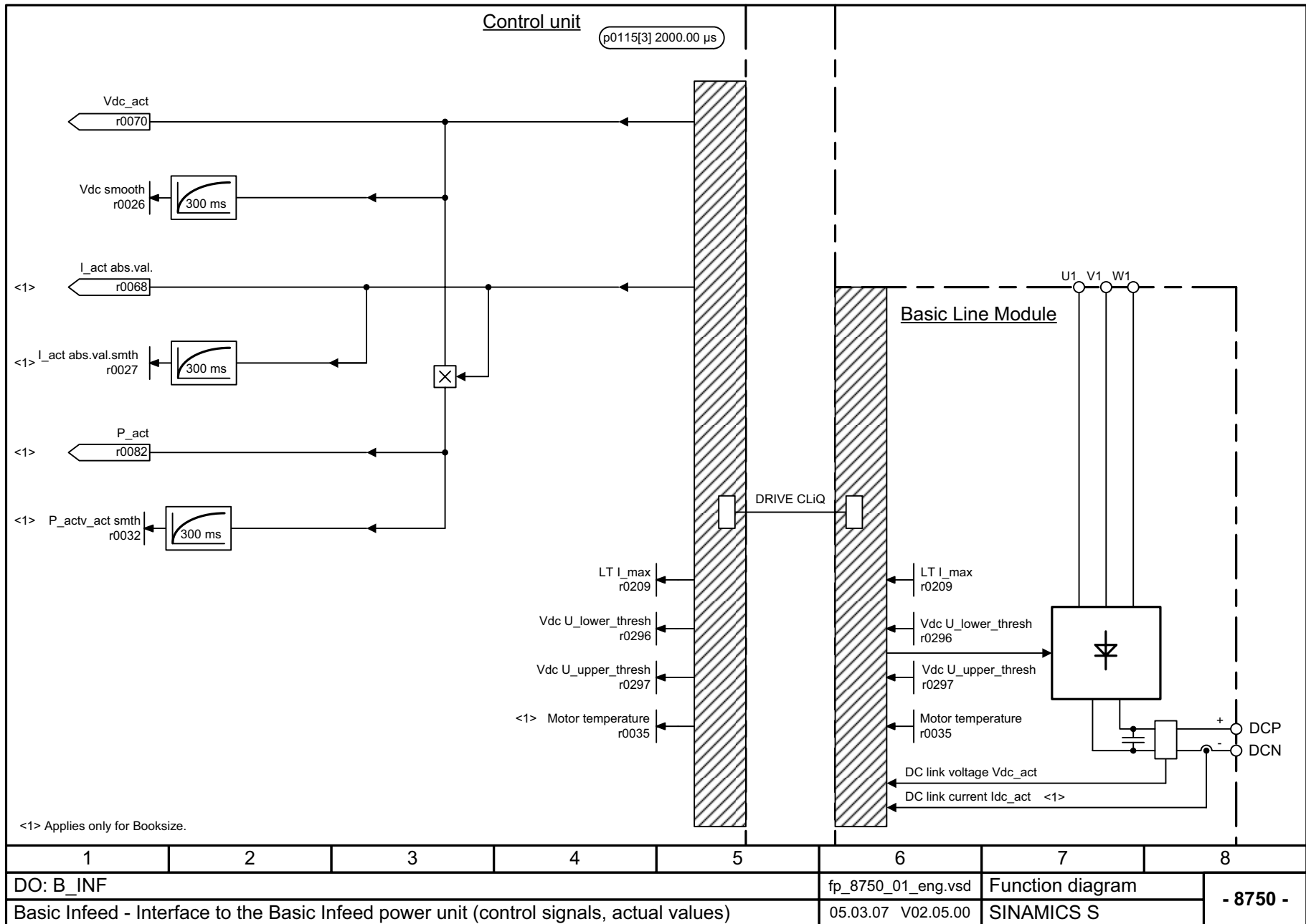
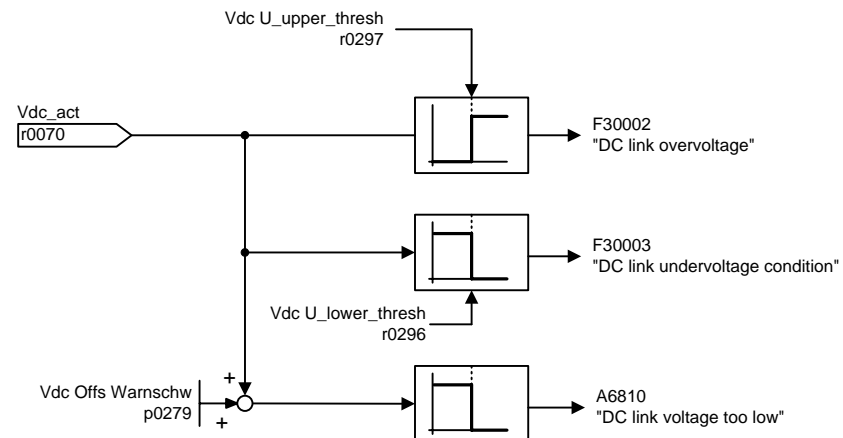


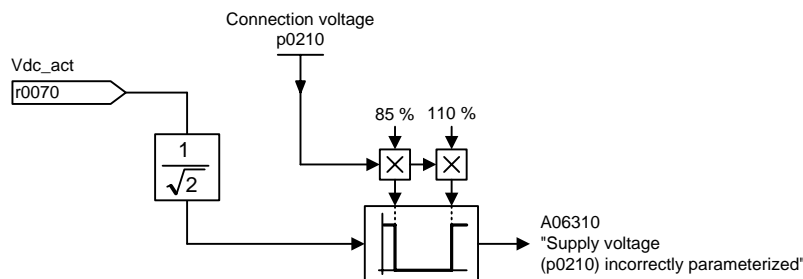
Figure 2-225 8750 – Interface to the Basic Infeed power unit (control signals, actual values)

p0115[3] (2000.00 µs)

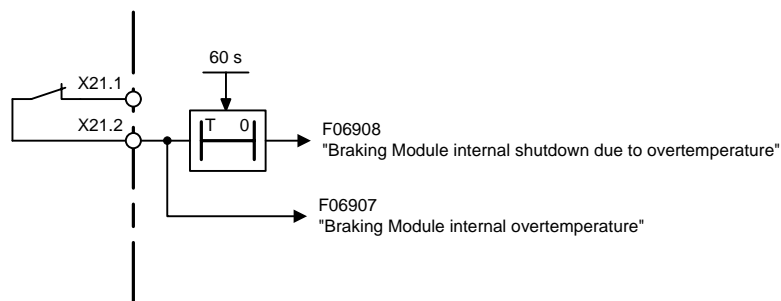
DC link monitoring



Line voltage monitoring when powering-up

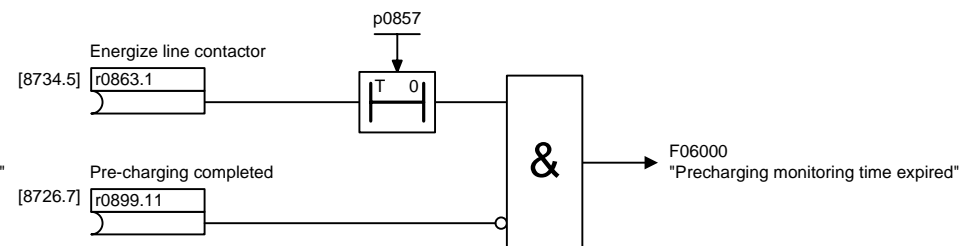


Temperature monitoring braking resistor



<1> For B_INF with Braking Module internal only.

Precharge monitoring for the DC link



1	2	3	4	5	6	7	8
DO: B_INF					fp_8760_01_eng.vsd	Function diagram	
Basic Infeed - Signals and monitoring functions (p3400.0 = 0)					19.07.07 V02.05.00	SINAMICS S	
							- 8760 -

Figure 2-226 8760 – Signals and monitoring functions (p3400.0 = 0)

2.27 Smart Infeed

Function diagrams

8820 – Control word sequence control infeed	2-1354
8826 – Status word sequence control infeed	2-1355
8828 – Status word infeed	2-1356
8832 – Sequencer	2-1357
8834 – Missing enable signals, line contactor control	2-1358
8850 – Interface to the Smart Infeed (control signals, actual values)	2-1359
8860 – Signals and monitoring functions, line supply voltage monitoring	2-1360
8864 – Signals and monitoring functions, line frequency and Vdc monitoring	2-1361

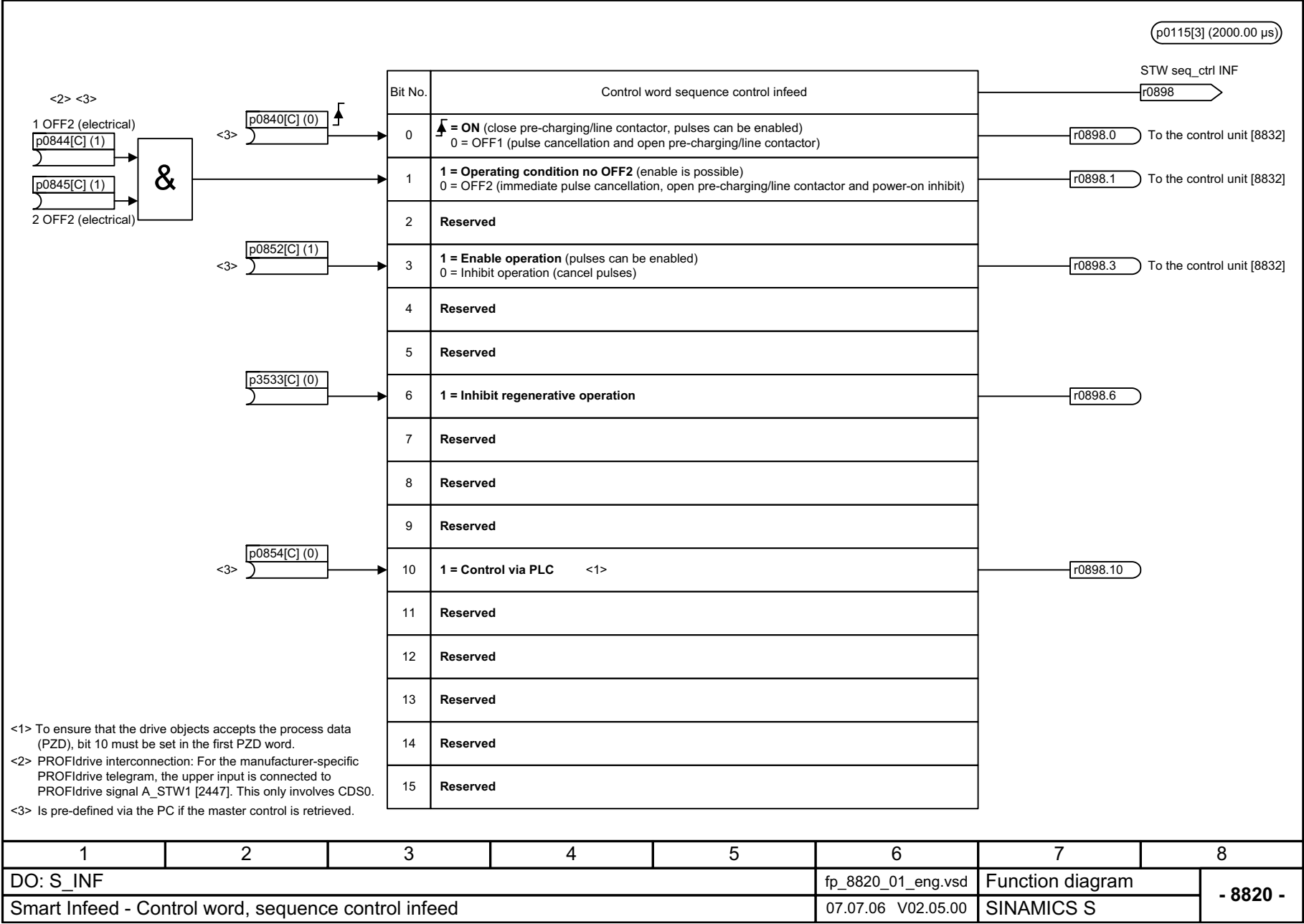


Figure 2-227 8820 – Control word sequence control infeed

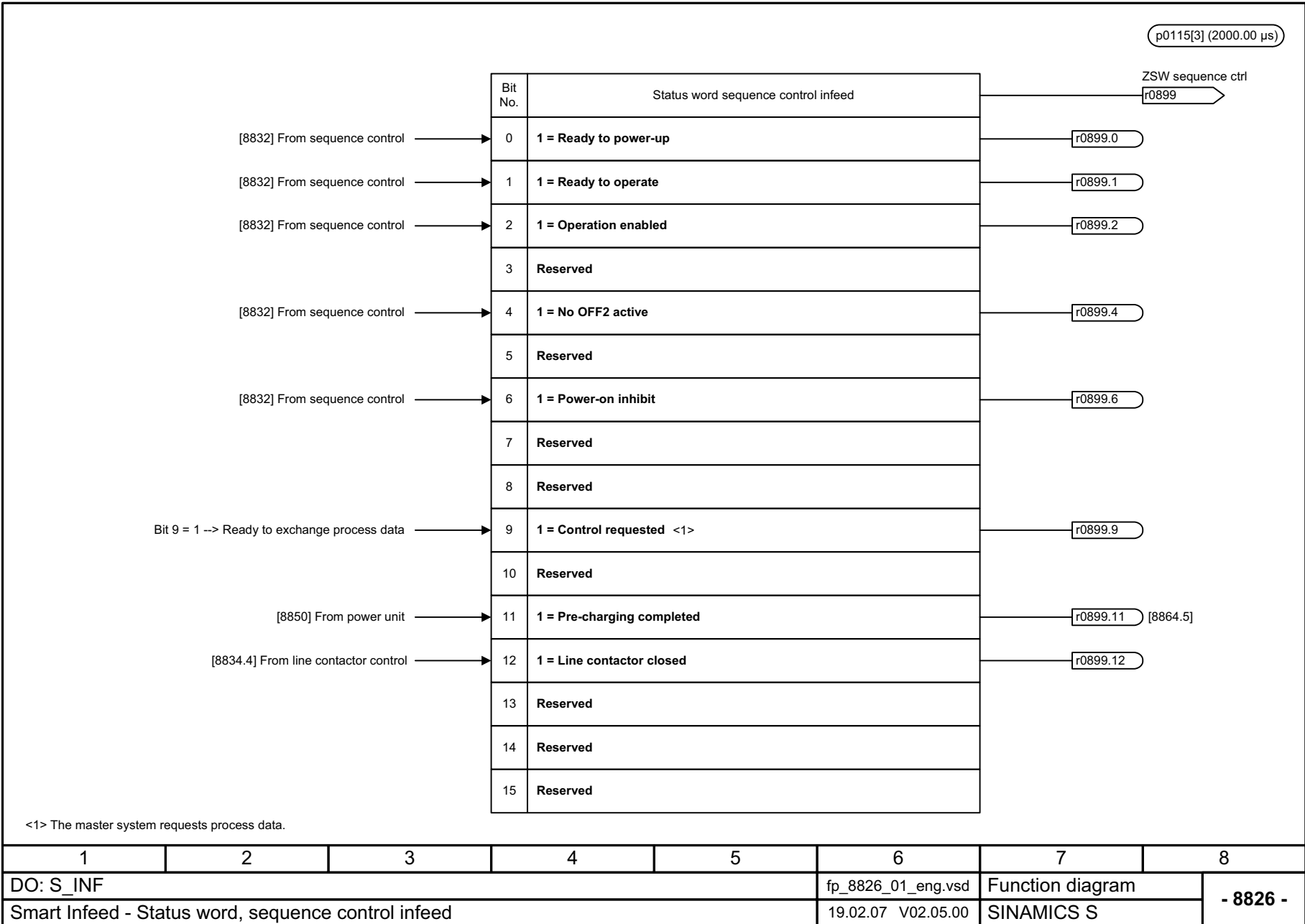


Figure 2-228 8826 – Status word sequence control infeed

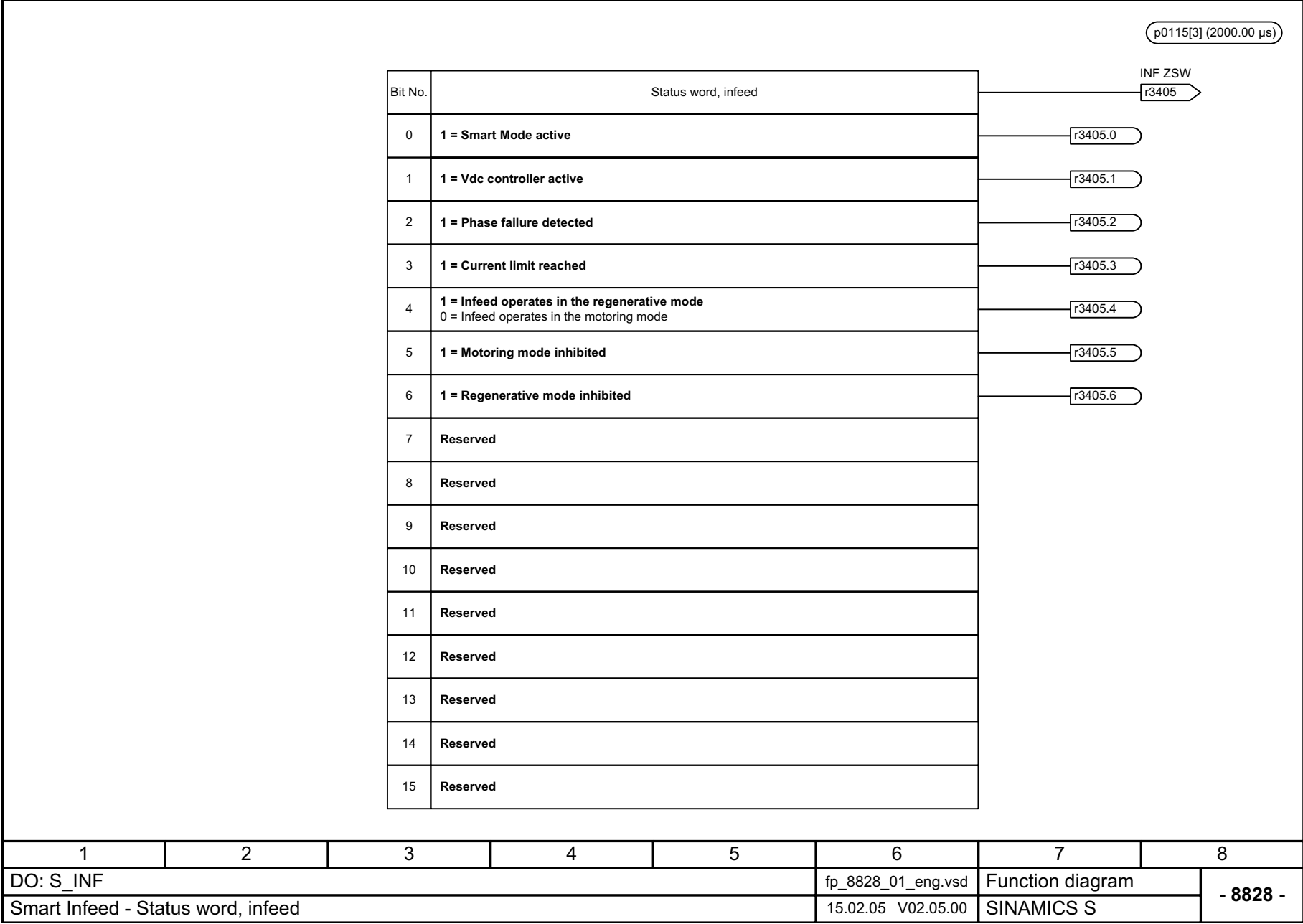
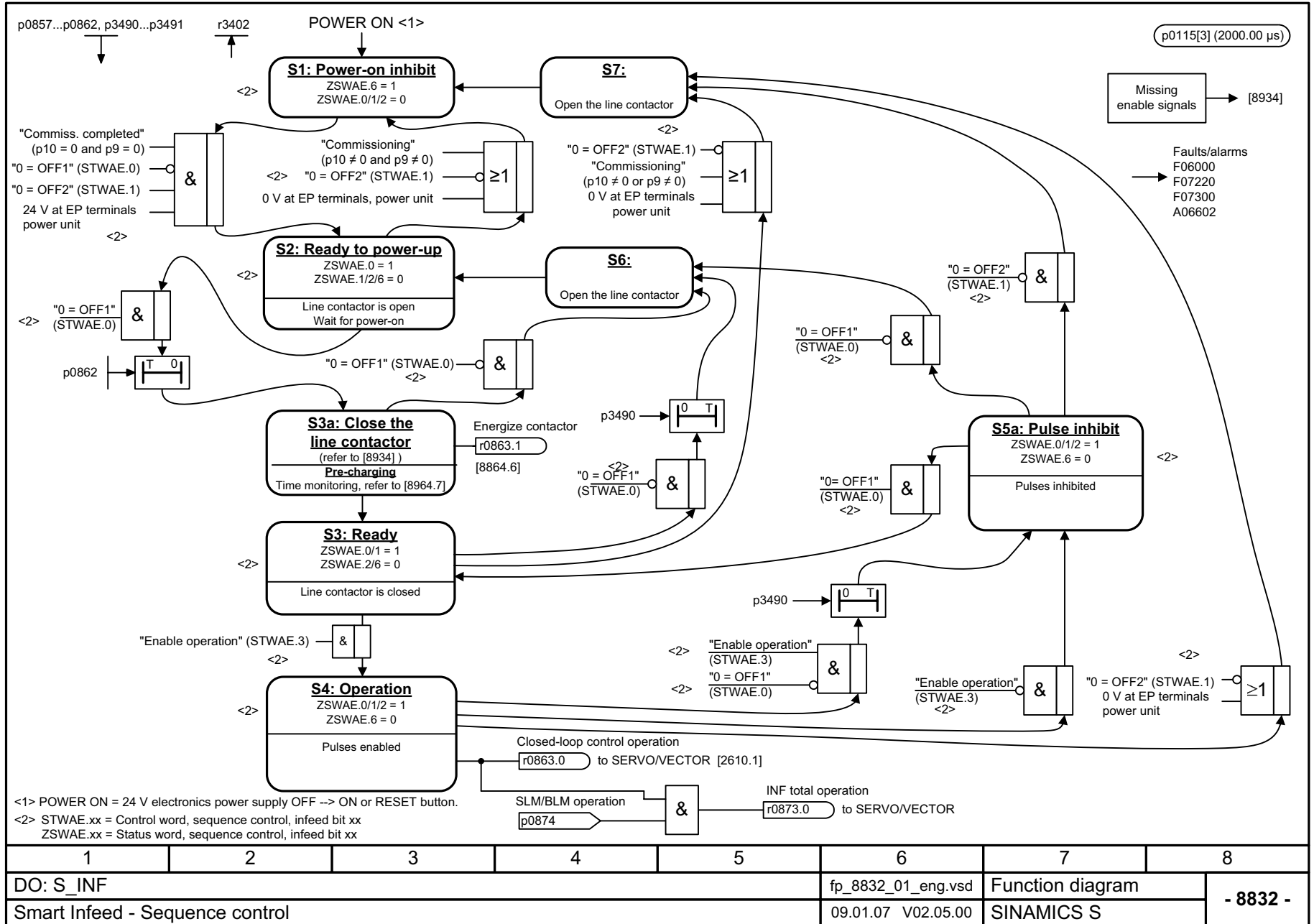


Figure 2-229 8828 – Status word infeed

Figure 2-230 8832 – Sequencer



1	2	3	4	5	6	7	8
DO: S_INF					fp_8832_01_eng.vsd	Function diagram	
Smart Infeed - Sequence control					09.01.07 V02.05.00	SINAMICS S	
							- 8832 -

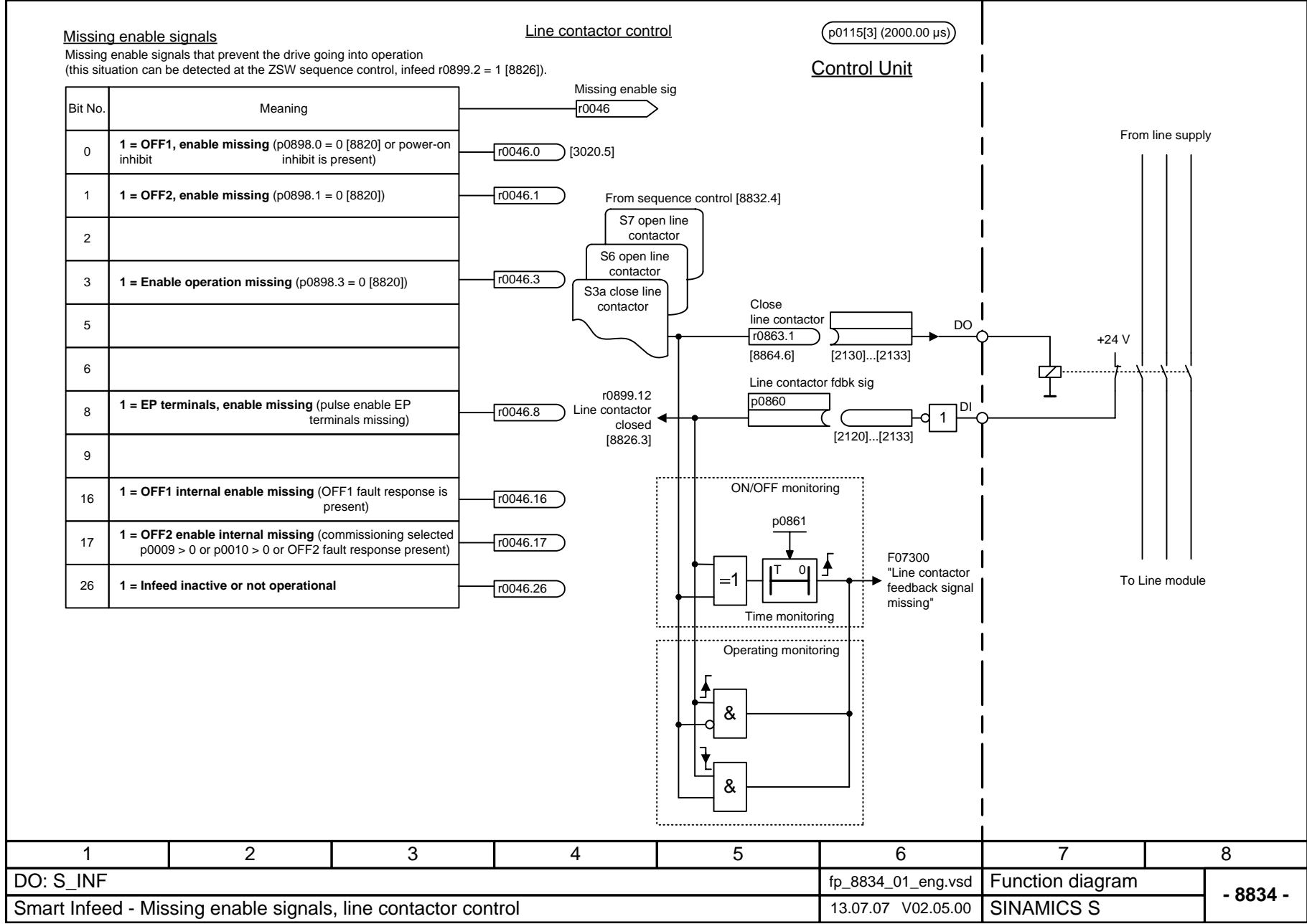
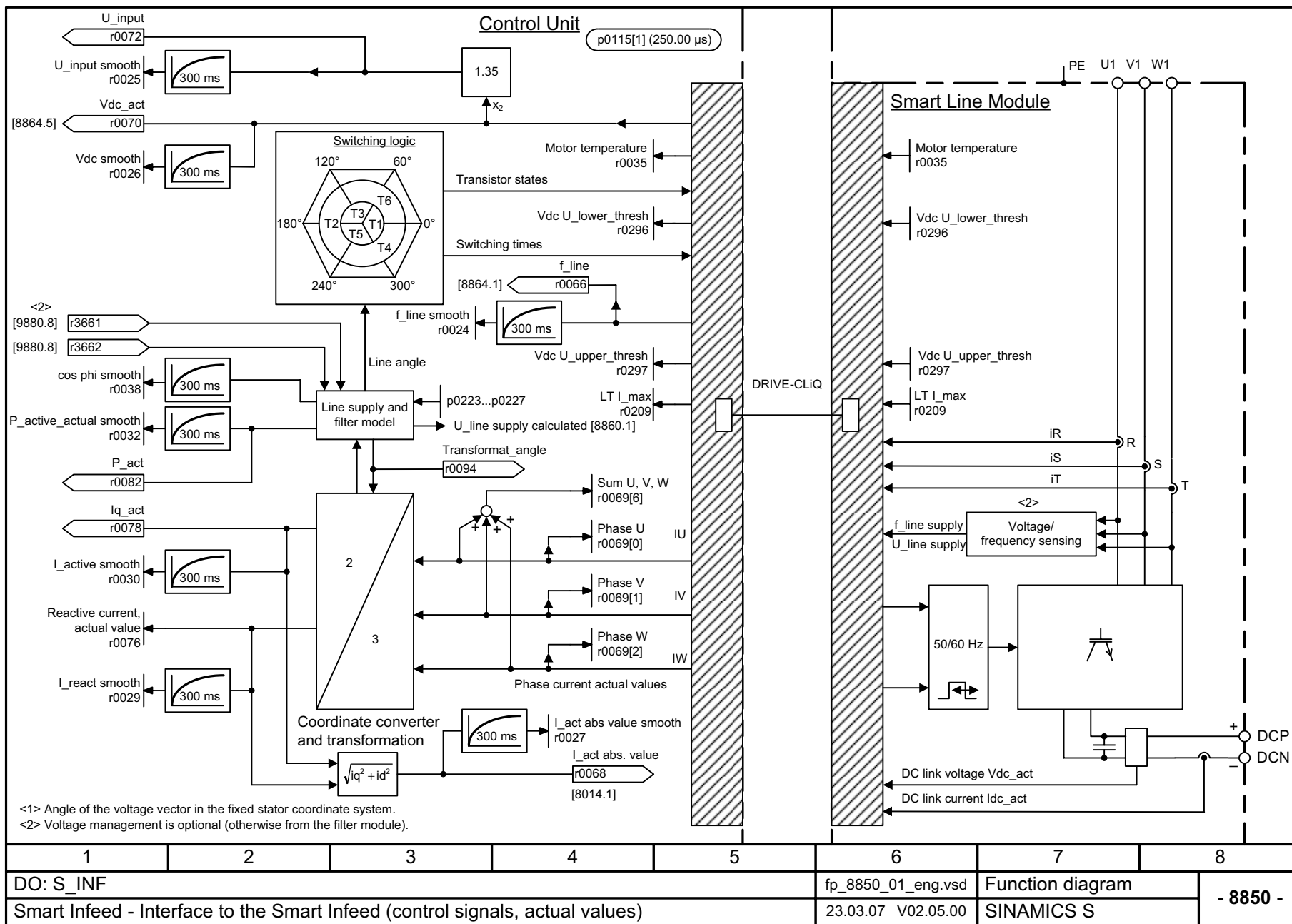


Figure 2-231 8834 – Missing enable signals, line contactor control

Function Diagrams
Smart Inference



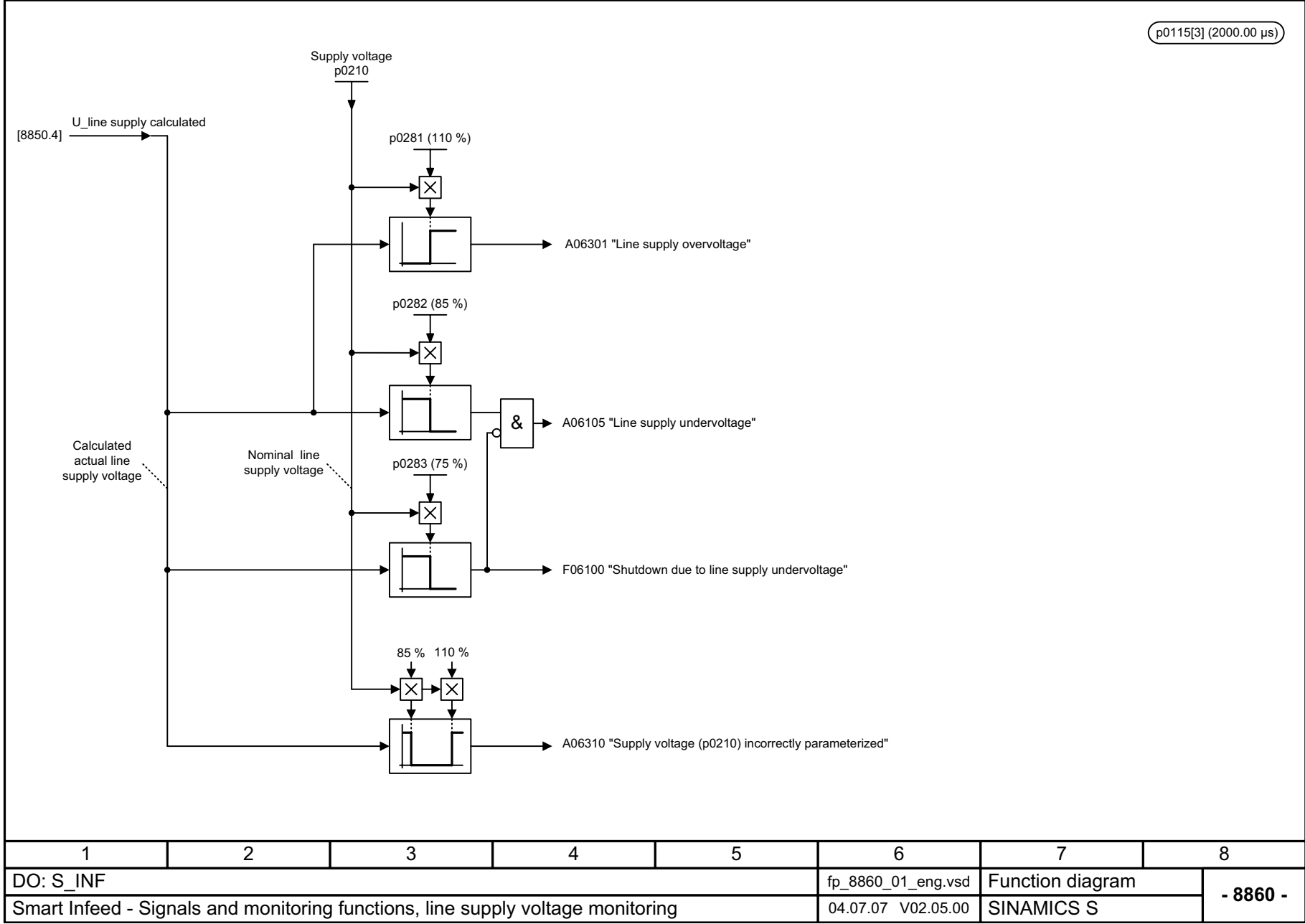


Figure 2-233 8860 – Signals and monitoring functions, line supply voltage monitoring

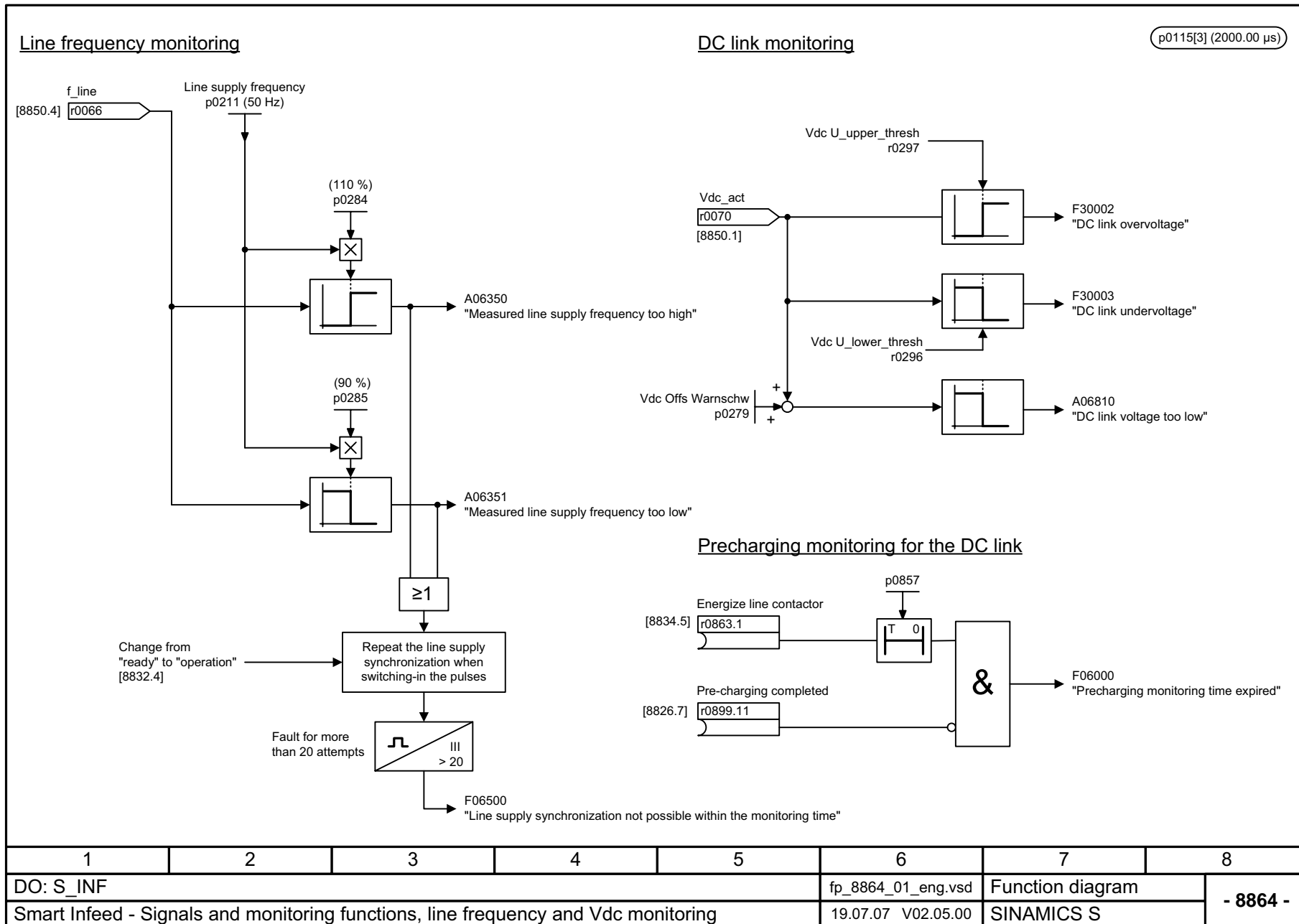
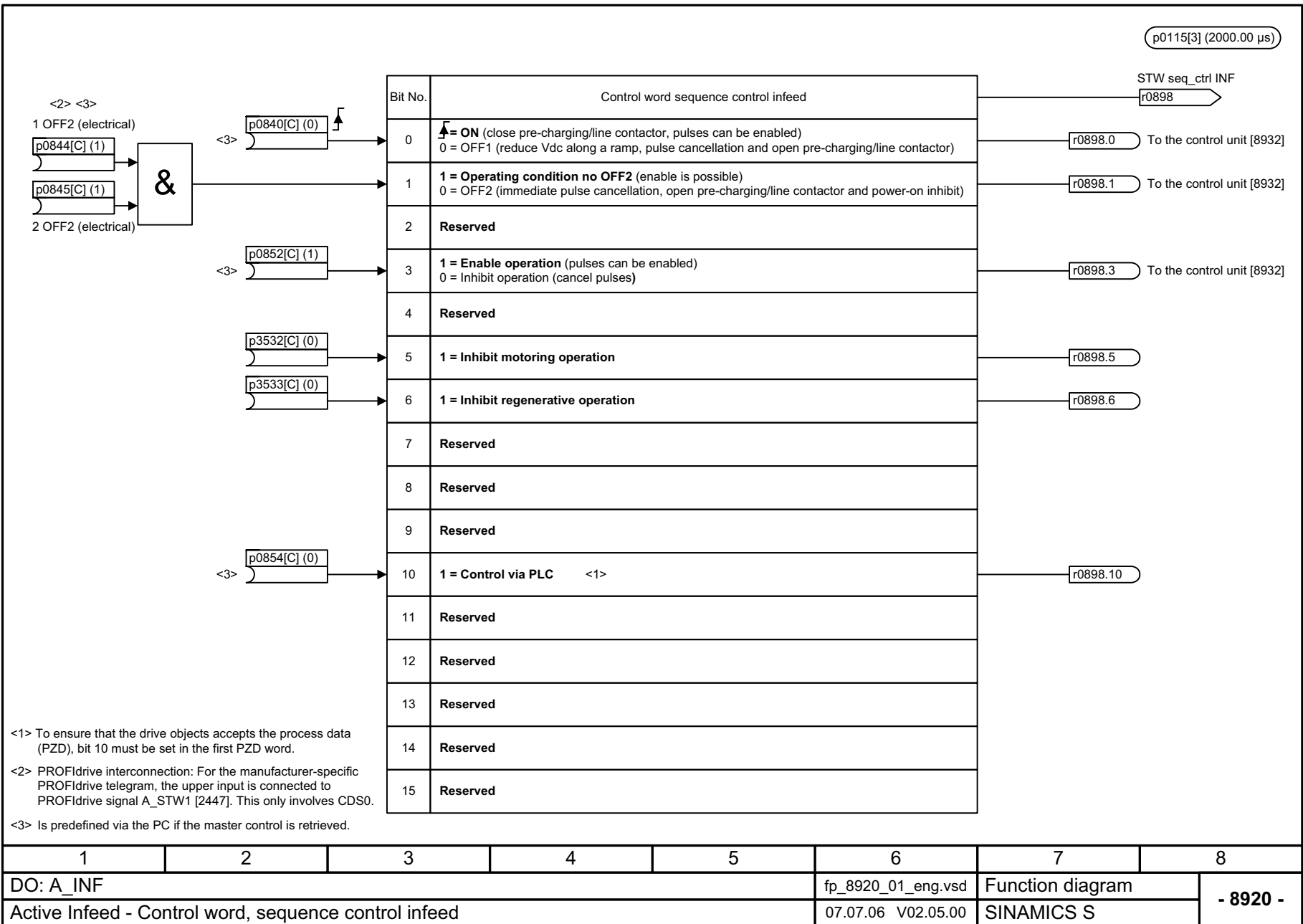


Figure 2-234 8864 – Signals and monitoring functions, line frequency and Vdc monitoring

2.28 Active Infeed

Function diagrams

8920 – Control word sequence control infeed	2-1363
8926 – Status word sequence control infeed	2-1364
8928 – Status word infeed	2-1365
8932 – Sequencer	2-1366
8934 – Missing enable signals, line contactor control	2-1367
8940 – Controller modulation depth reserve / controller DC link voltage (p3400.0 = 0)	2-1368
8946 – Current pre-control / current controller / gating unit (p3400.0 = 0)	2-1369
8948 – Master/slave (r0108.19 = 1)	2-1370
8950 – Interface to the Active Infeed, control signals, actual values (p3400.0 = 0)	2-1371
8960 – Signals and monitoring functions, line supply voltage monitoring (p3400.0 = 0)	2-1372
8964 – Signals and monitoring functions, line frequency/Vdc monitoring (p3400.0 = 0)	2-1373



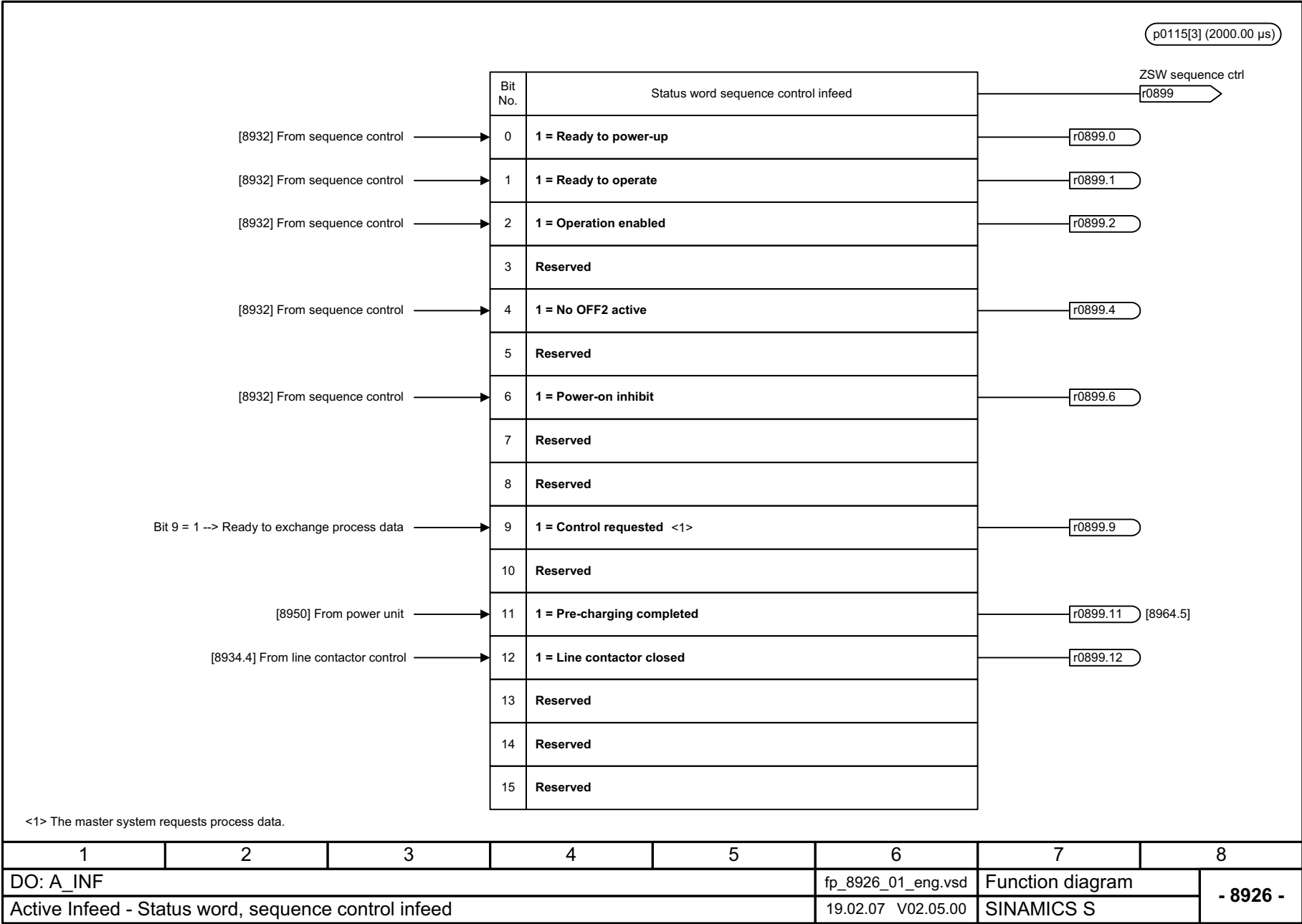


Figure 2-236 8926 – Status word sequence control infeed

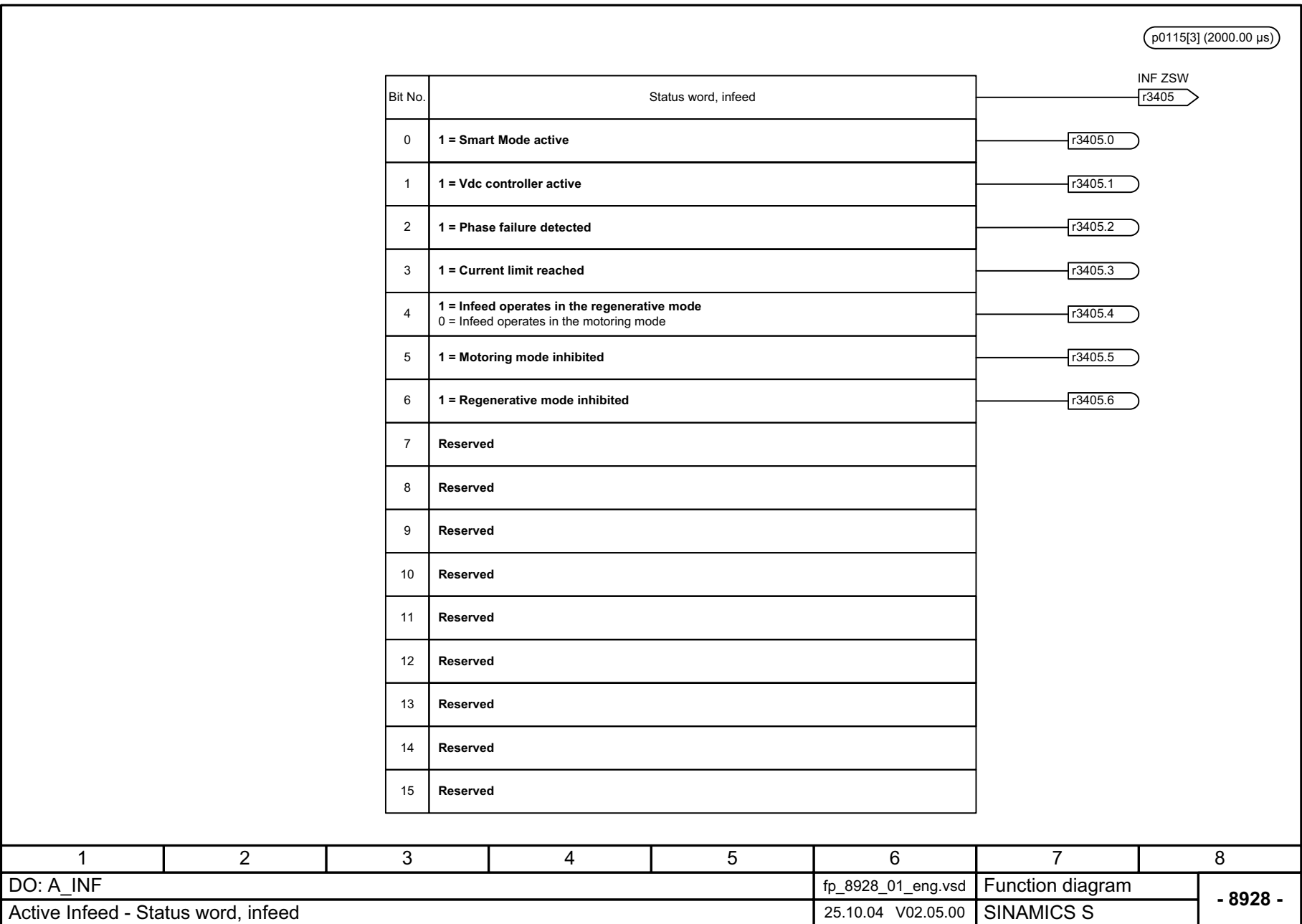
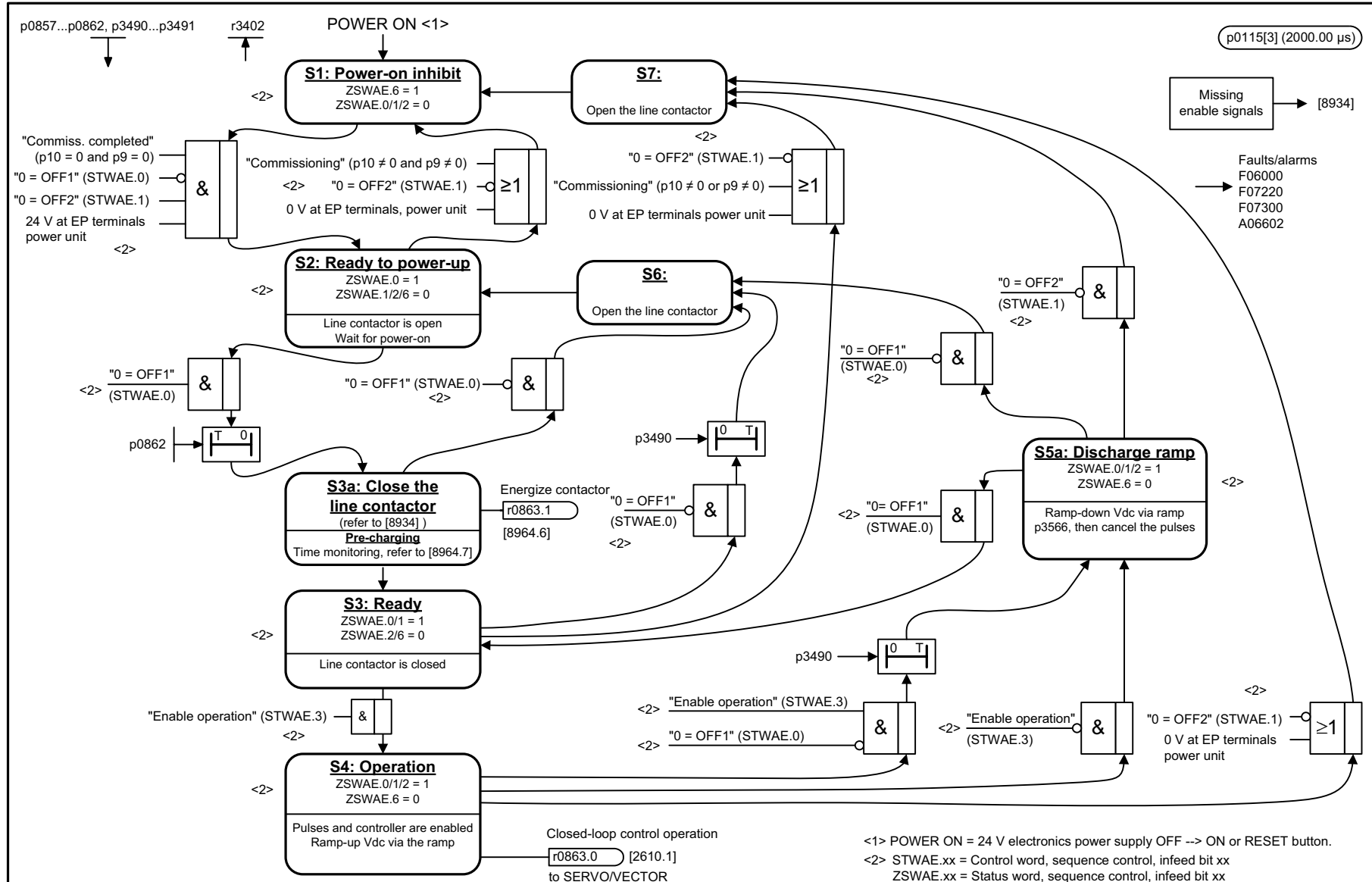
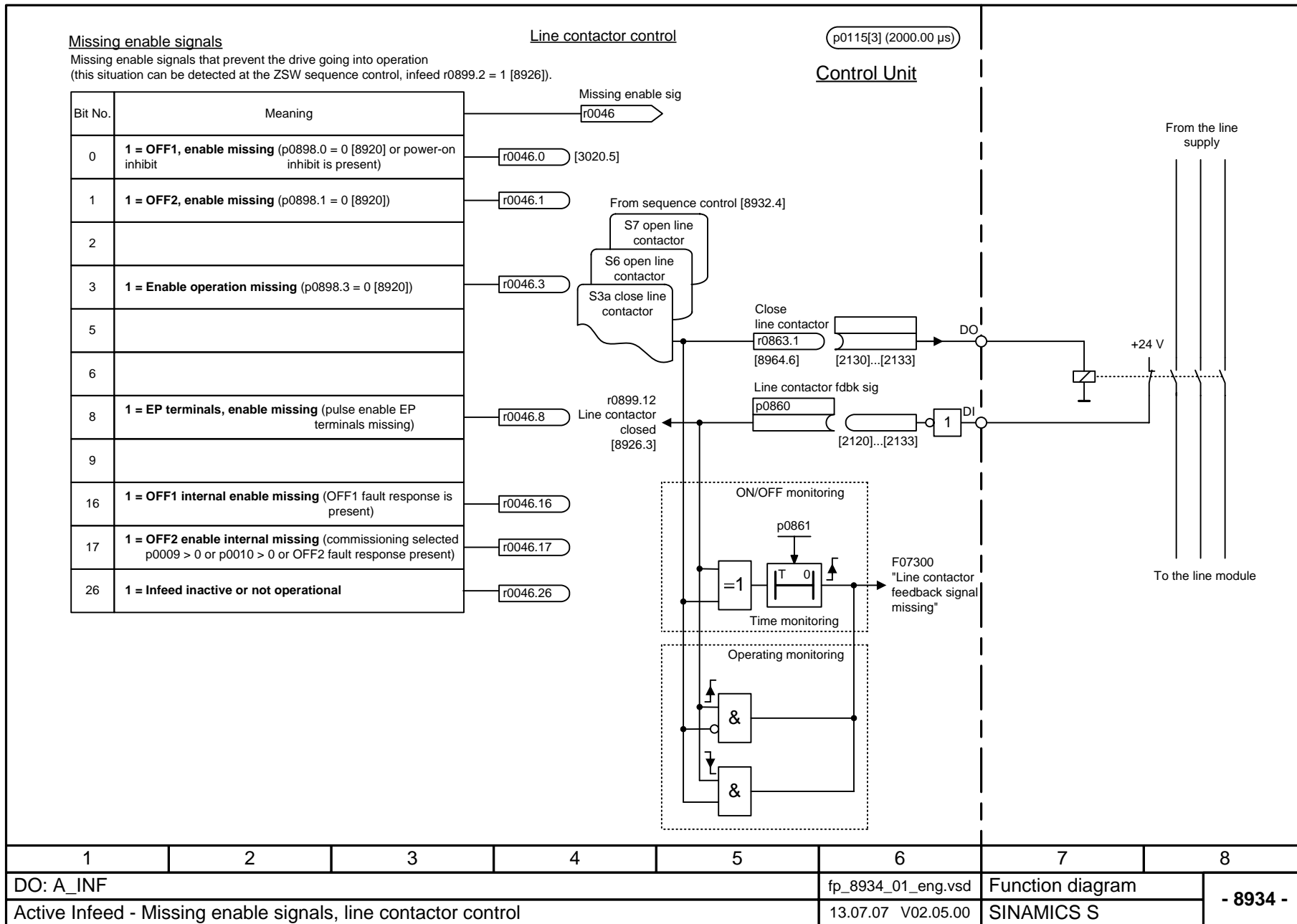


Figure 2-237 8928 – Status word infeed



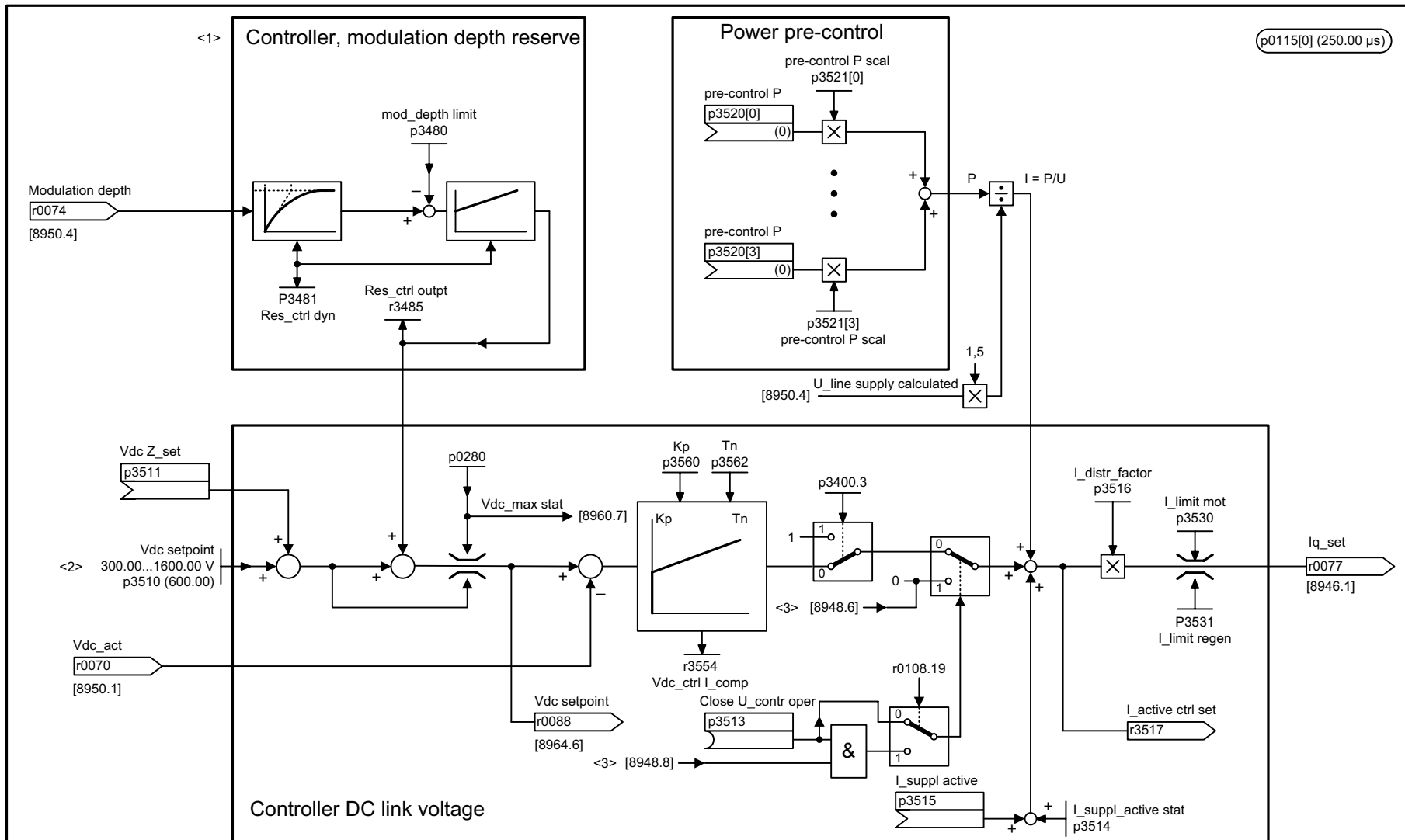
1	2	3	4	5	6	7	8
DO: A_INF					fp_8932_01_eng.vsd	Function diagram	
Active Infeed - Sequence control					28.11.06 V02.05.00	SINAMICS S	
							- 8932 -

Figure 2-238 8932 – Sequencer



1	2	3	4	5	6	7	8
DO: A_INF					fp_8934_01_eng.vsd	Function diagram	
Active Infeed - Missing enable signals, line contactor control					13.07.07 V02.05.00	SINAMICS S	
							- 8934 -

Figure 2-239 8934 – Missing enable signals, line contactor control



- <1> This controller increases (boosts) the DC link voltage when the modulation depth limit has been reached (p3480).
 <2> When the pulses are enabled, the DC link voltage is ramped (p3566) from the actual value to the setpoint p3510.
 <3> Applies only if the " Master/slave" function module is activated (r0108.19 = 1).

1	2	3	4	5	6	7	8
DO: A_INF					fp_8940_01_eng.vsd	Function diagram	
Active Infeed - Controller modulation depth reserve / controller DC link voltage (p3400.0 = 0)					23.01.07 V02.05.00	SINAMICS S	
							- 8940 -

Figure 2-240 8940 – Controller modulation depth reserve / controller DC link voltage (p3400.0 = 0)

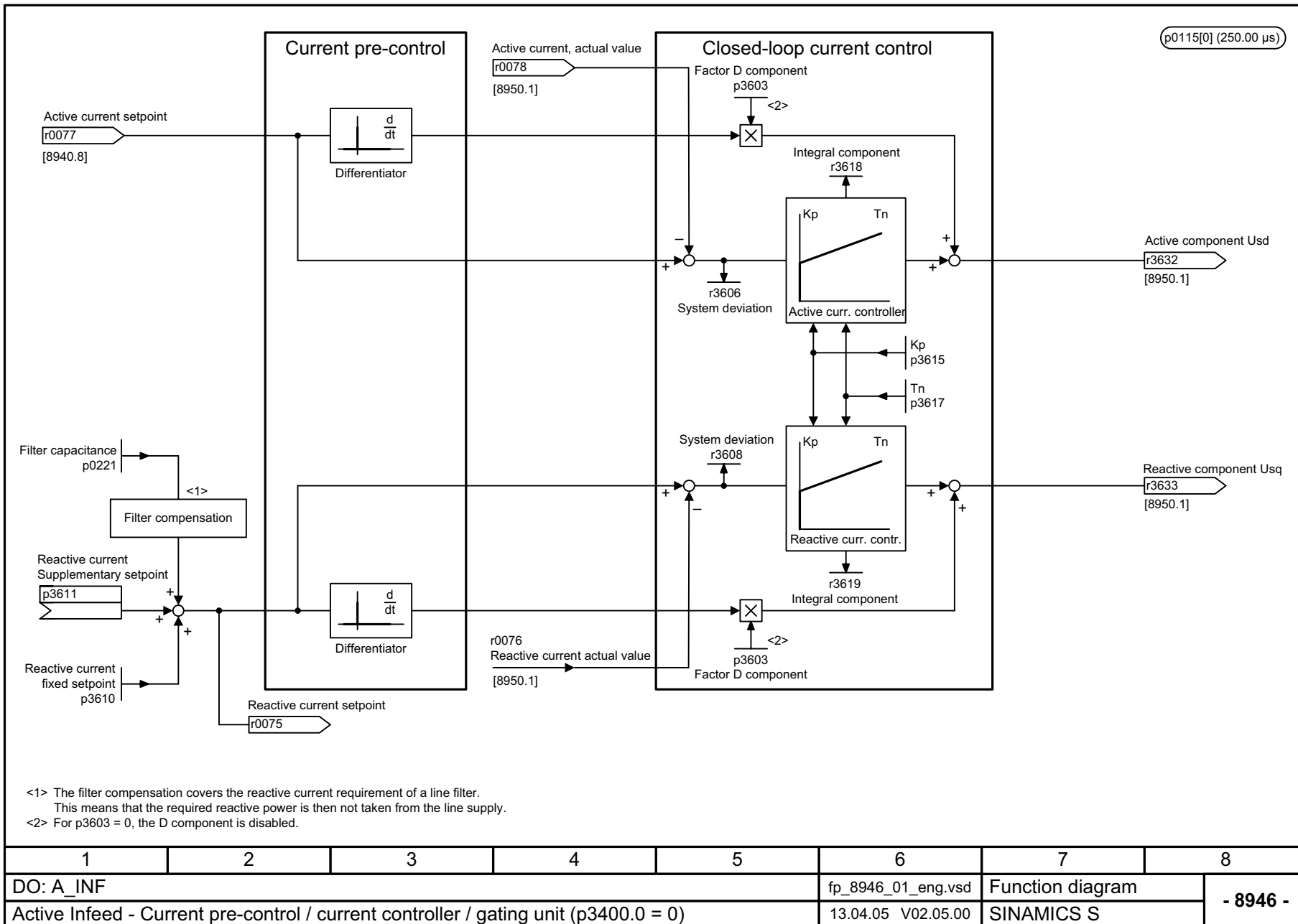
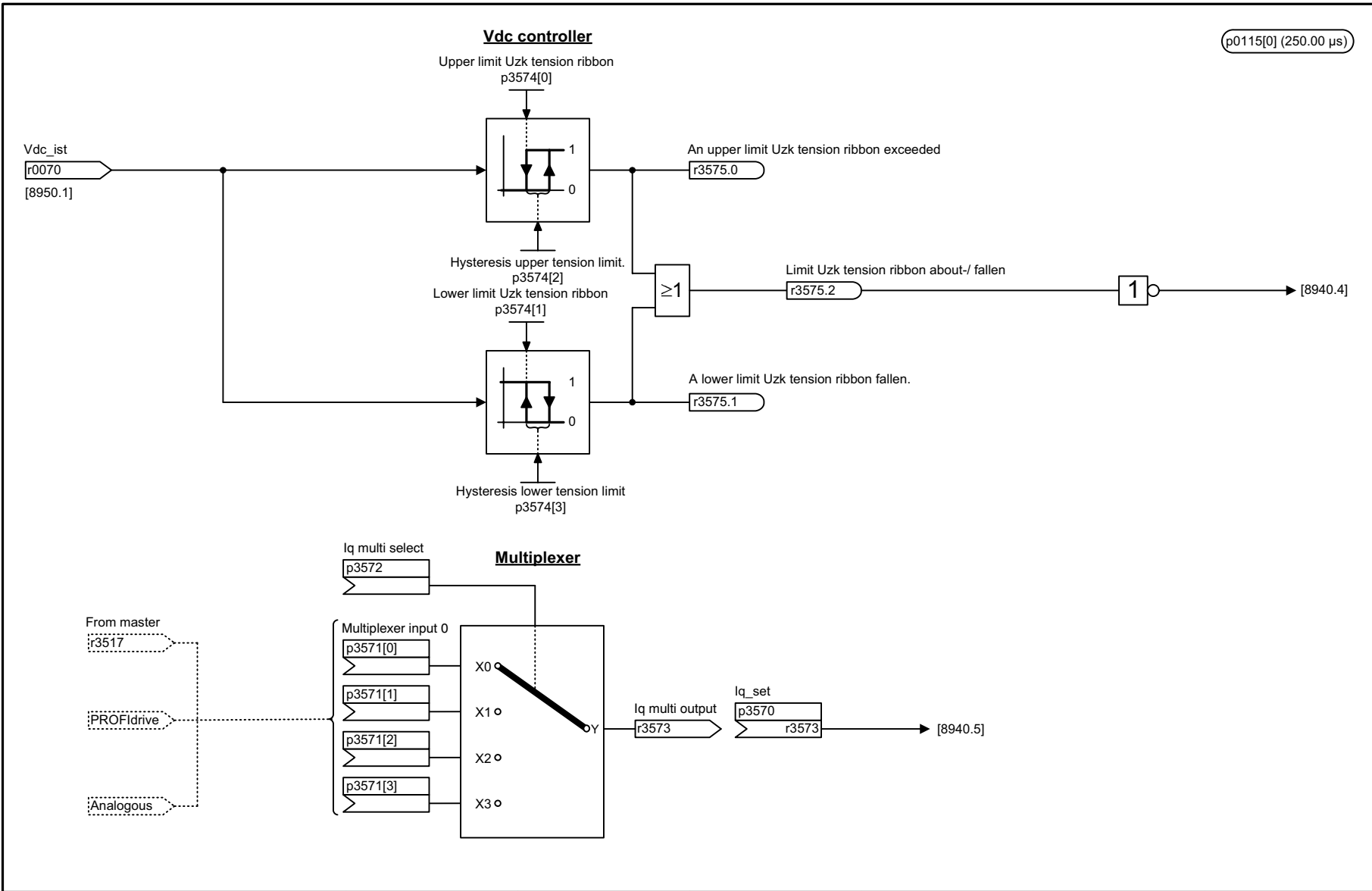
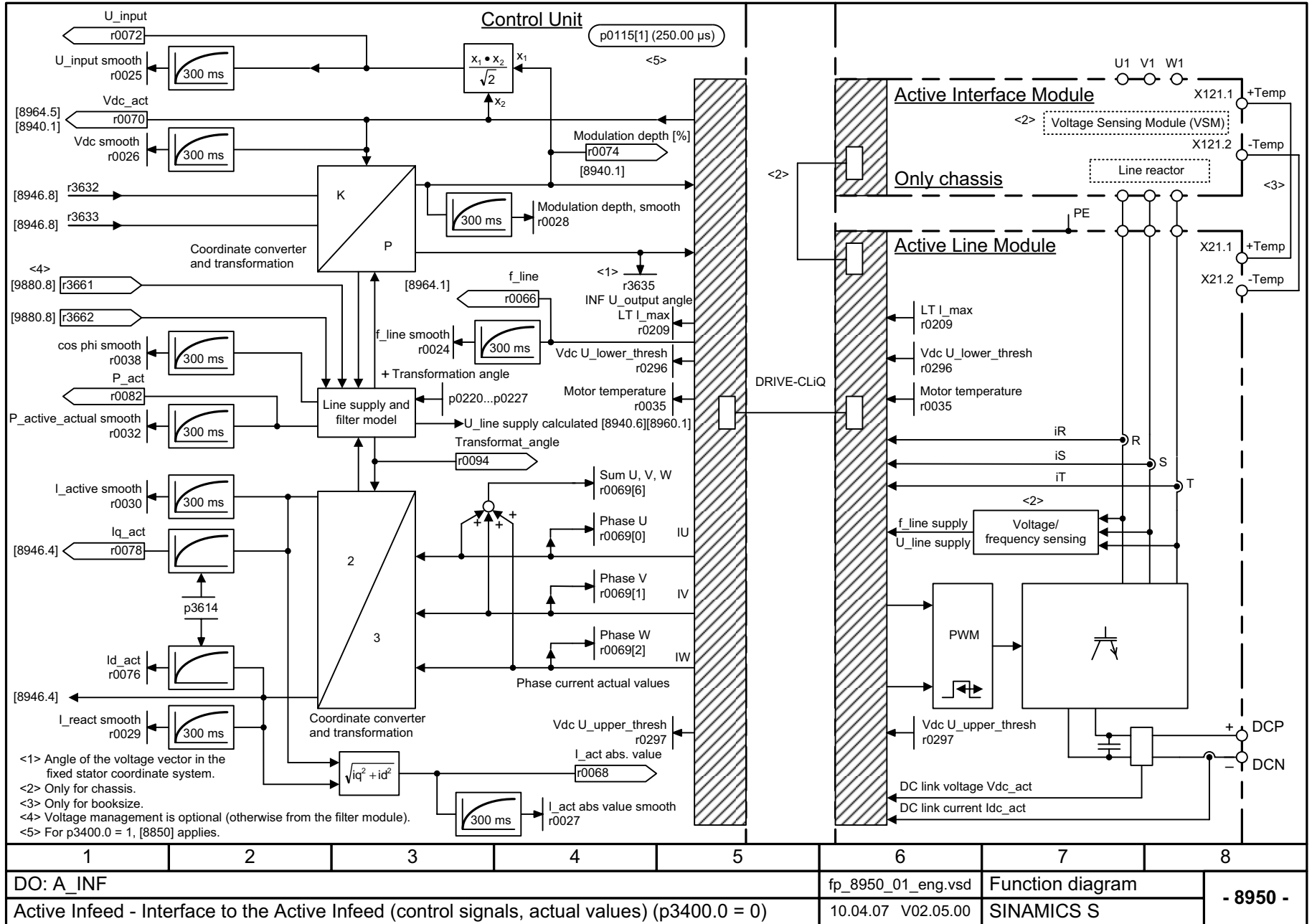


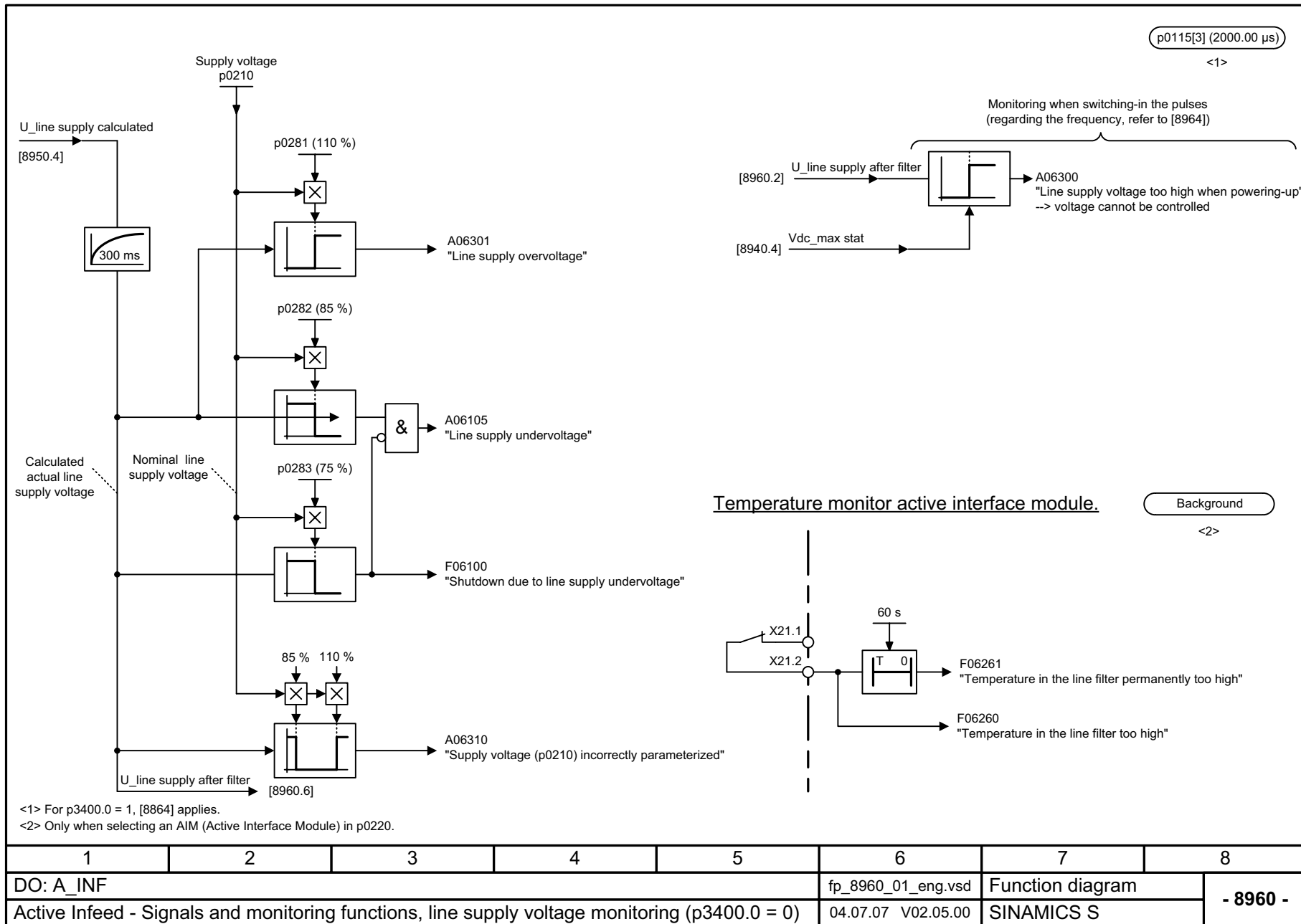
Figure 2-241 8946 – Current pre-control / current controller / gating unit (p3400.0 = 0)

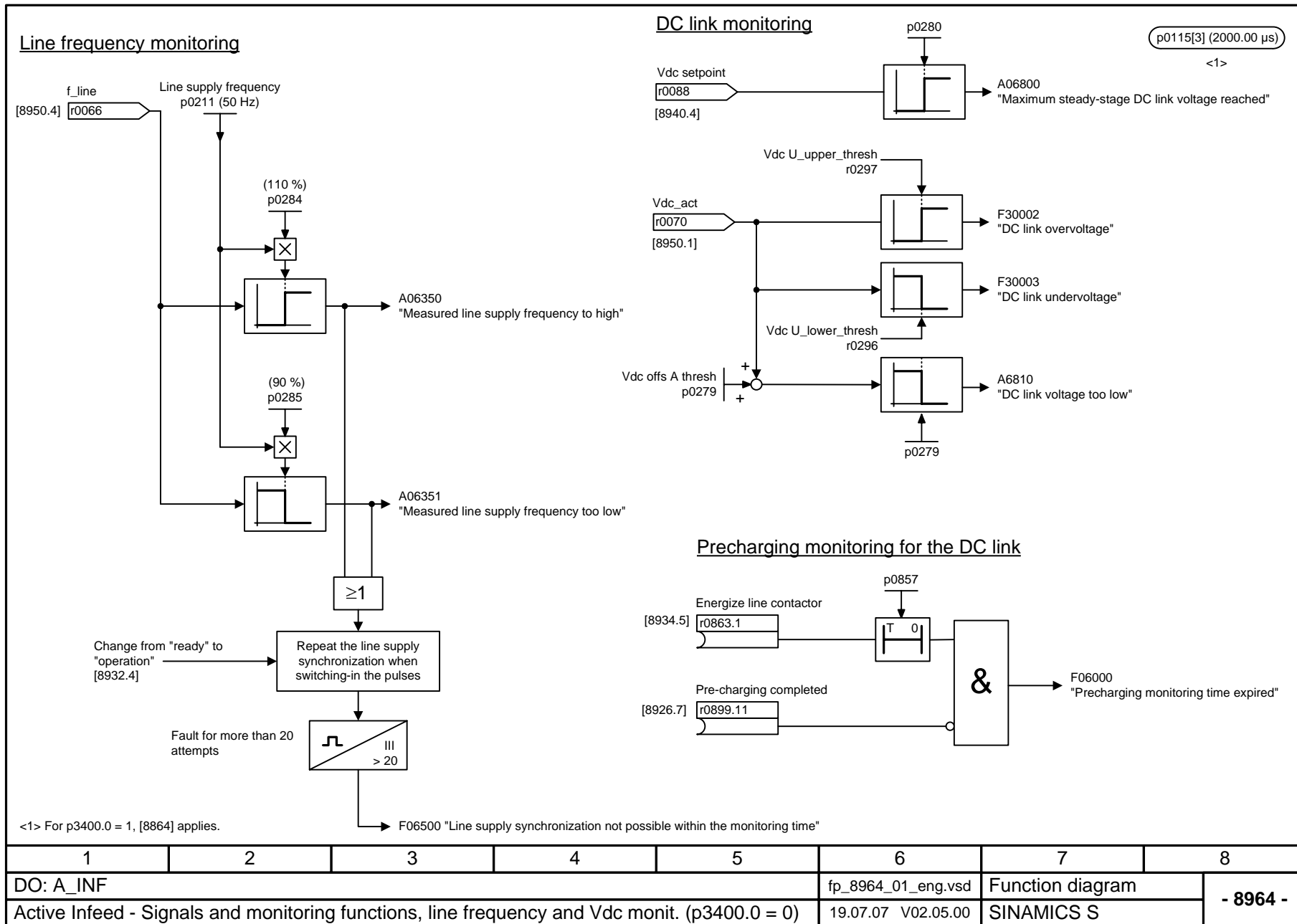


8948 – Master/slave (r0108.19 = 1)

Figure 2-243 8950 – Interface to the Active Infeed, control signals, actual values (p3400.0 = 0)







1	2	3	4	5	6	7	8
DO: A_INF					fp_8964_01_eng.vsd	Function diagram	
Active Infeed - Signals and monitoring functions, line frequency and Vdc monit. (p3400.0 = 0)					19.07.07 V02.05.00	SINAMICS S	
							- 8964 -

Figure 2-245 8964 – Signals and monitoring functions, line frequency/Vdc monitoring (p3400.0 = 0)

2.29 Terminal Board 30 (TB30)

Function diagrams

9100 – Digital inputs, electrically isolated (DI 0 ... DI 3)	2-1375
9102 – Digital outputs, electrically isolated (DO 0 ... DO 3)	2-1376
9104 – Analog inputs (AI 0 ... AI 1)	2-1377
9106 – Analog outputs (AO 0 ... AO 1)	2-1378

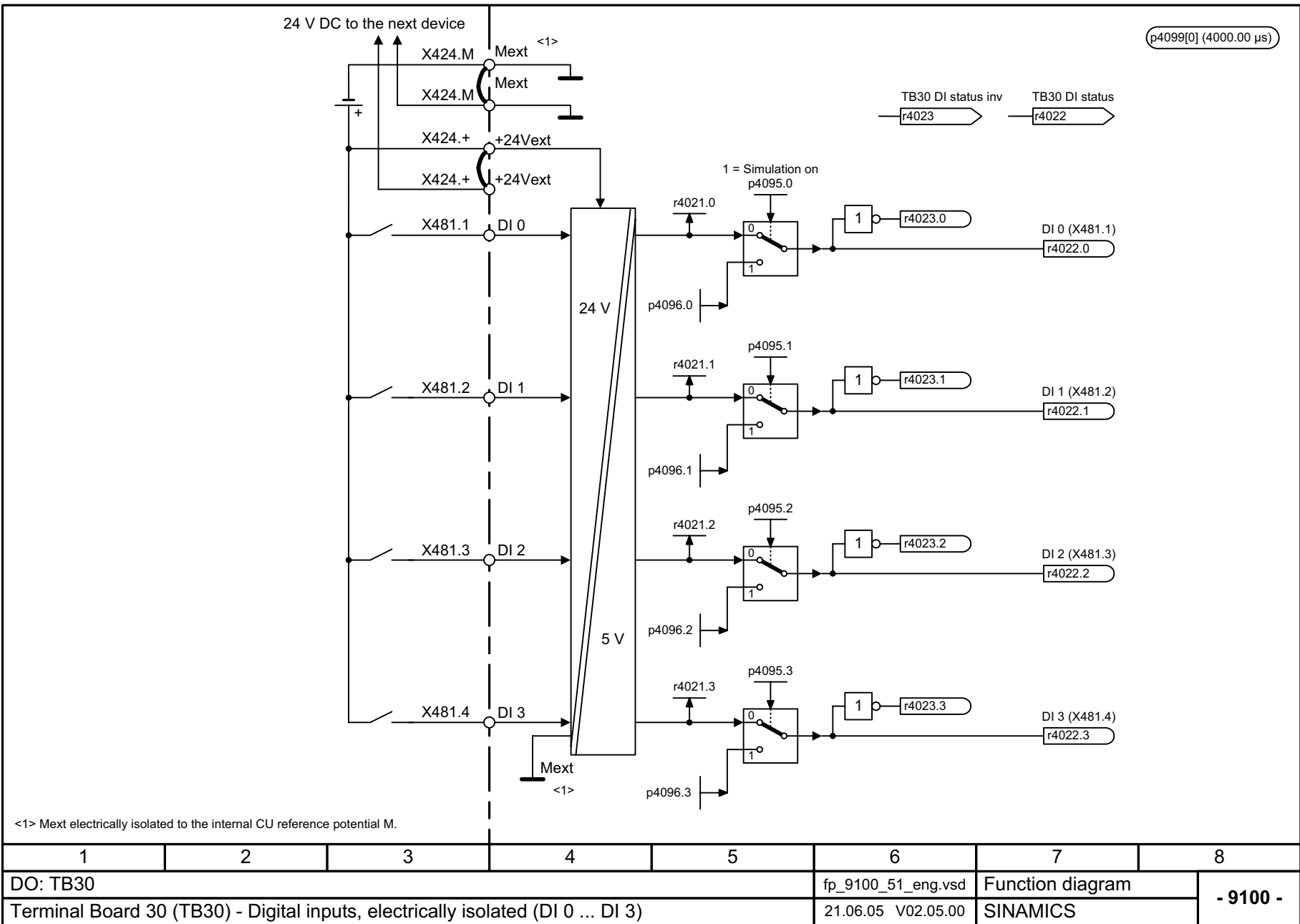


Figure 2-246 9100 – Digital inputs, electrically isolated (DI 0 ... DI 3)

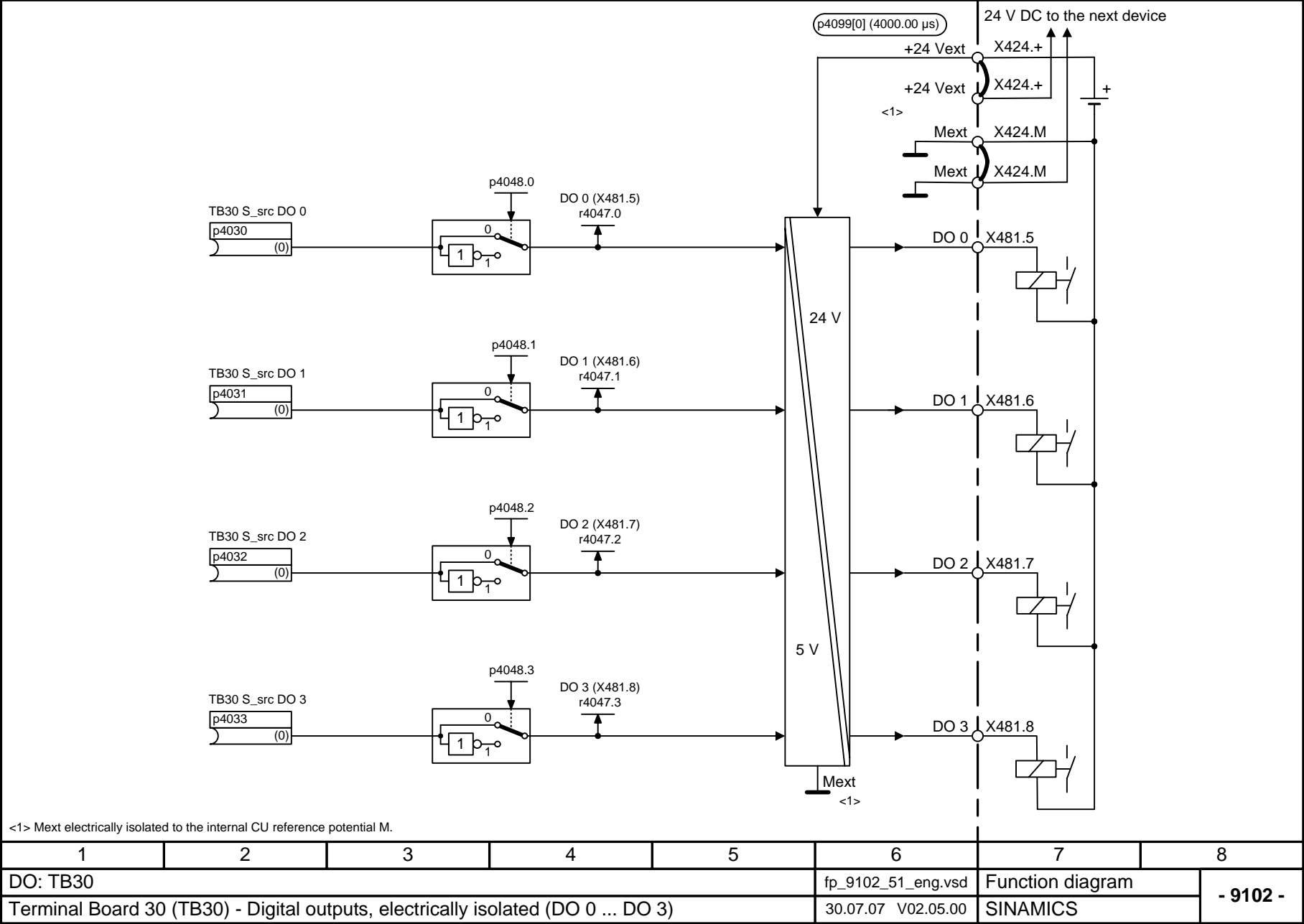
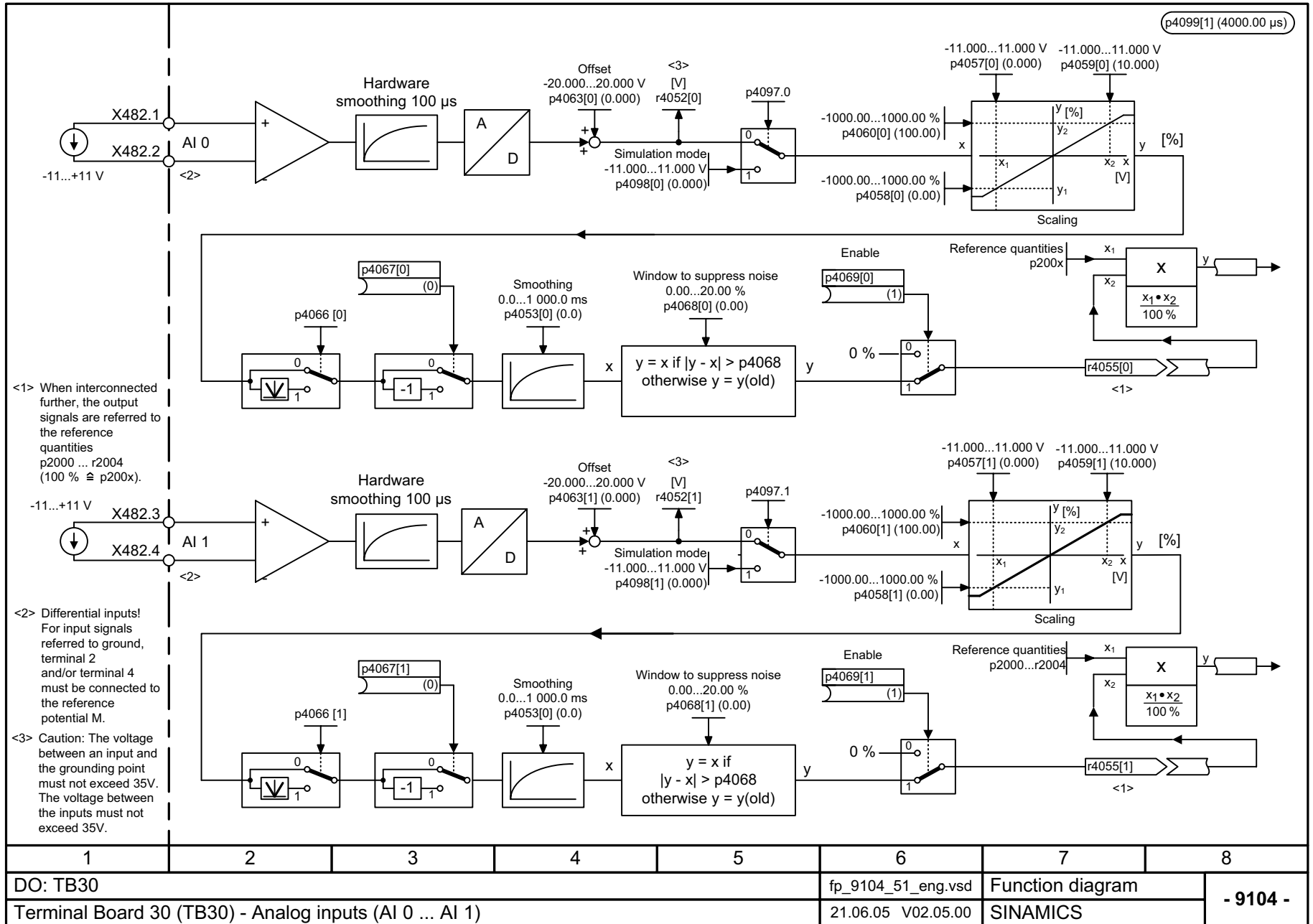
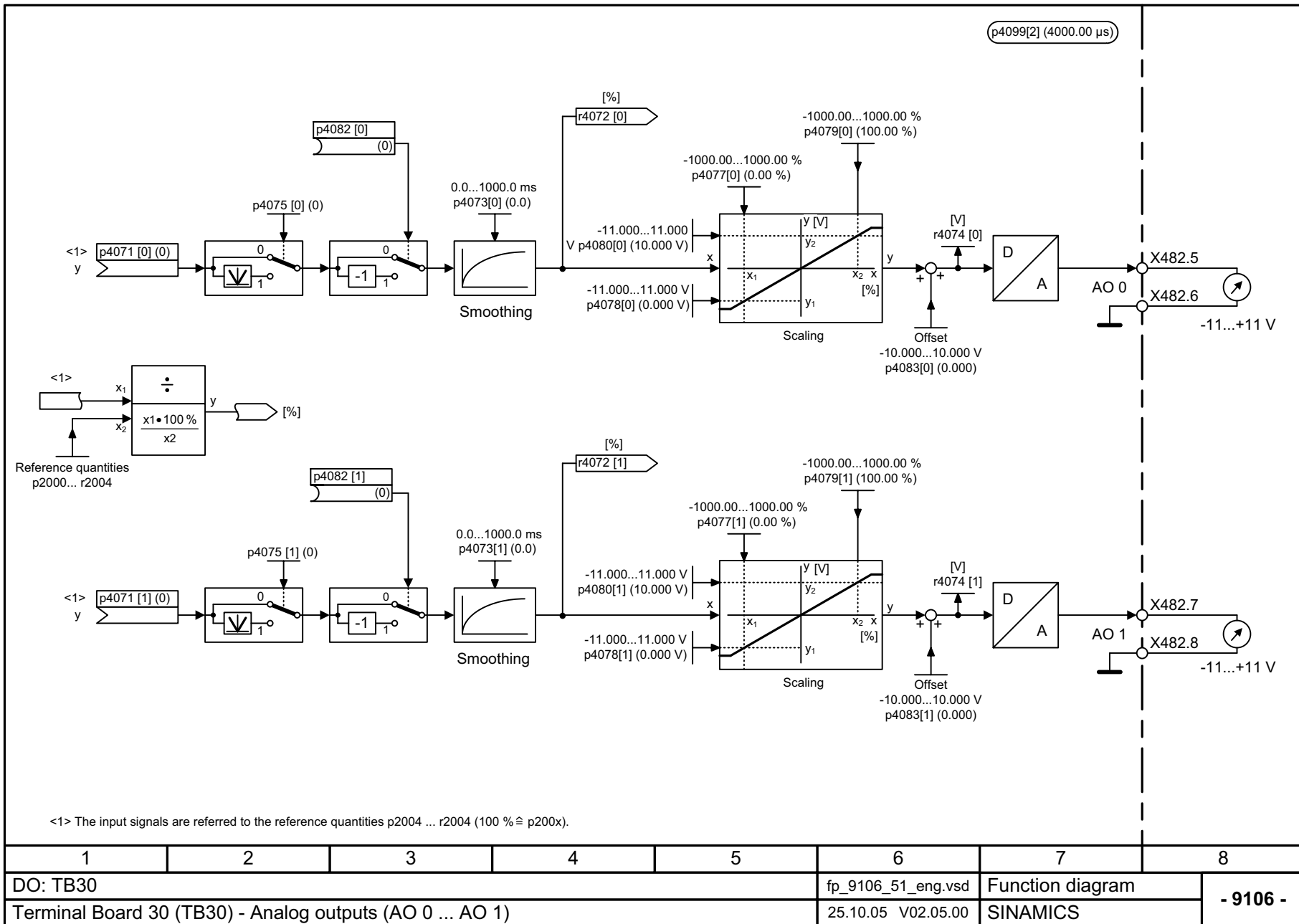


Figure 2-247 9102 – Digital outputs, electrically isolated (DO 0 ... DO 3)

2-1377





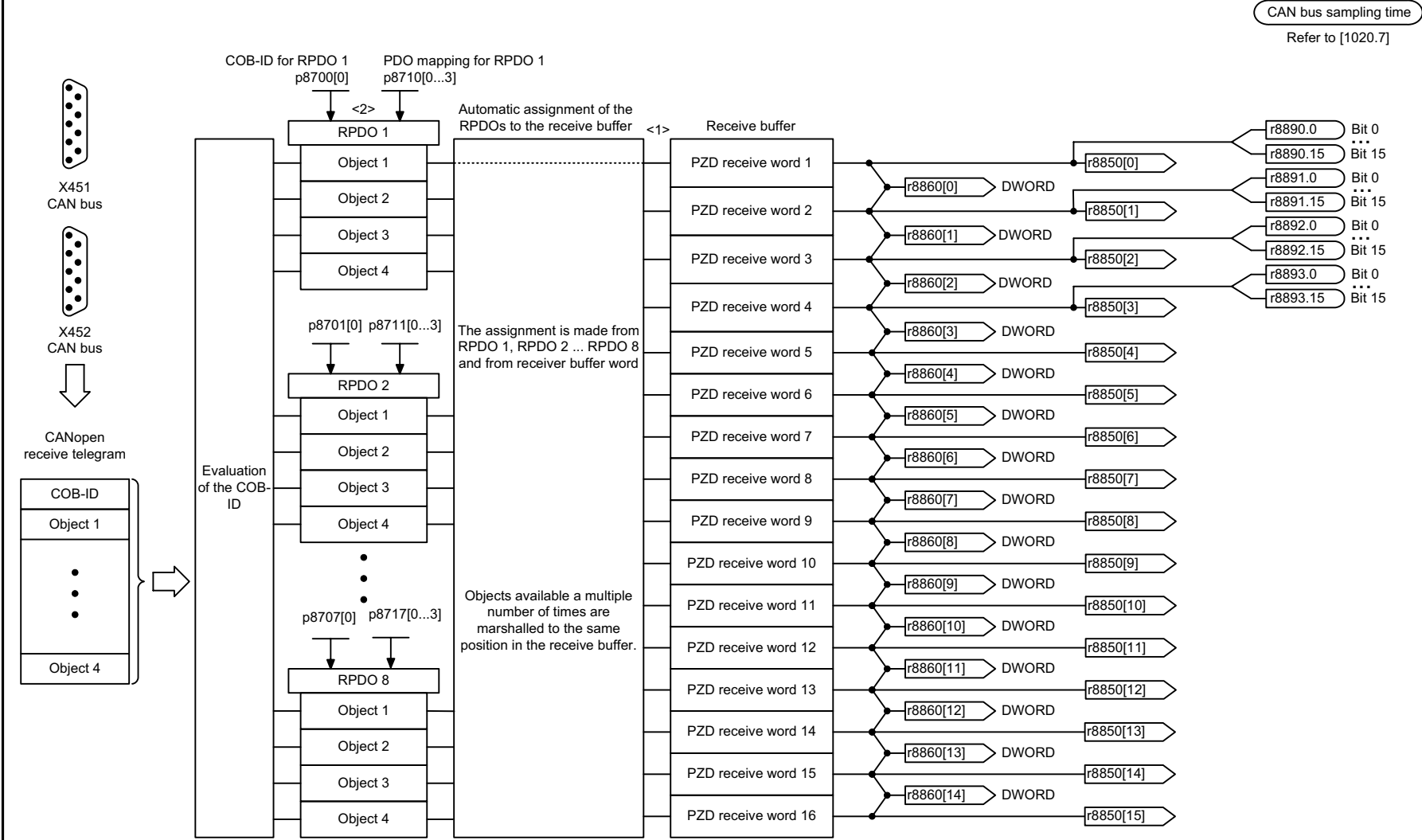
1	2	3	4	5	6	7	8
DO: TB30					fp_9106_51_eng.vsd	Function diagram	
Terminal Board 30 (TB30) - Analog outputs (AO 0 ... AO 1)					25.10.05 V02.05.00	SINAMICS	
							- 9106 -

Figure 2-249 9106 – Analog outputs (AO 0 ... AO 1)

2.30 Communication Board CAN 10 (CBC10)

Function diagrams

9204 – Receive telegram, free PDO mapping (p8744 = 2)	2-1380
9206 – Receive telegram, Predefined Connection Set (p8744=1)	2-1381
9208 – Send telegram, free PDO mapping (p8744 = 2)	2-1382
9210 – Send telegram, Predefined Connection Set (p8744 = 1)	2-1383
9220 – Control word CANopen	2-1384
9226 – Status word CANopen	2-1385

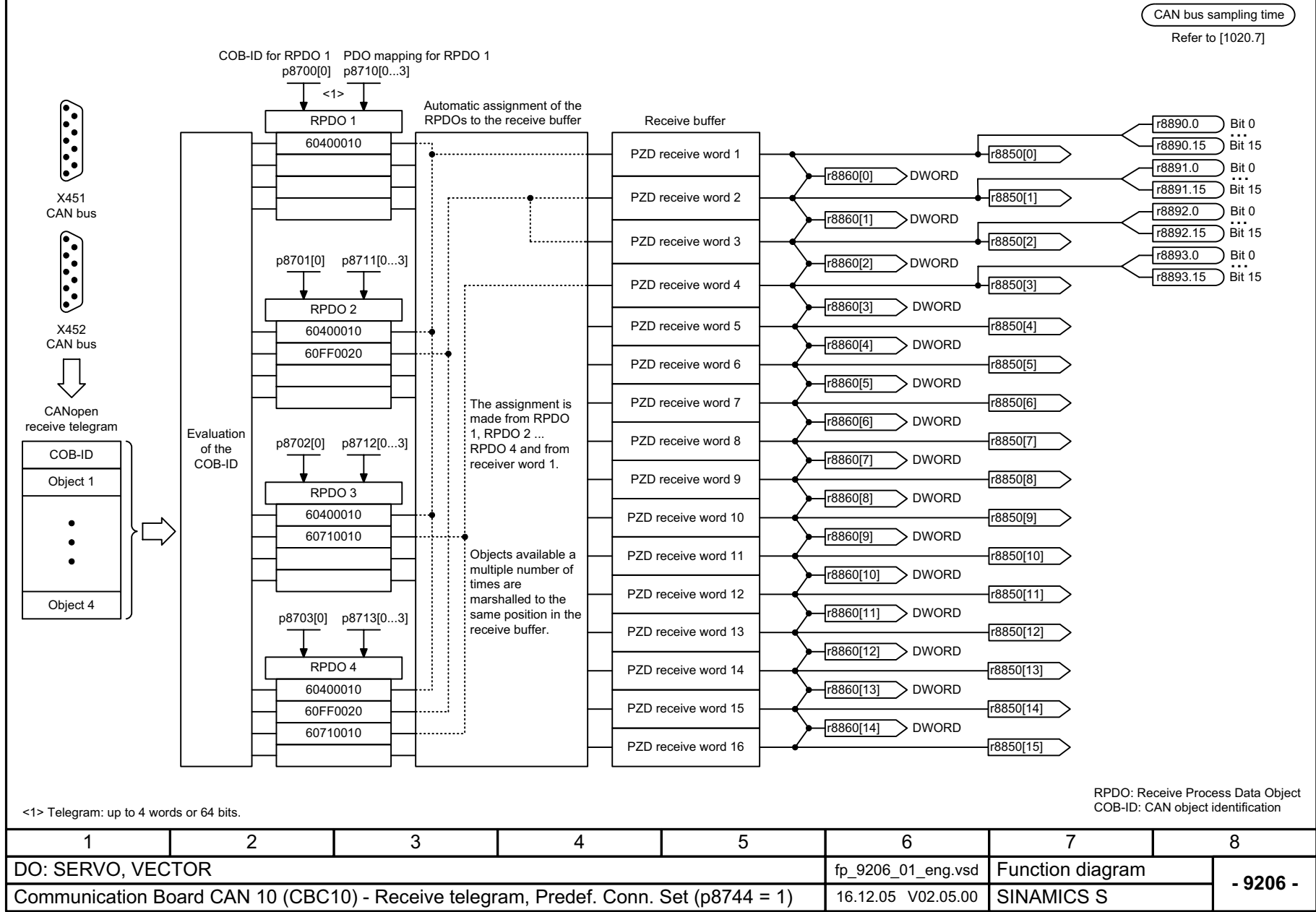


<1> To use automatic BICO interconnection (p8790 = 1), one of the receive words 1-4 must be used as control word 1 (STW1).
<2> Telegram: up to 4 words or 64 bits

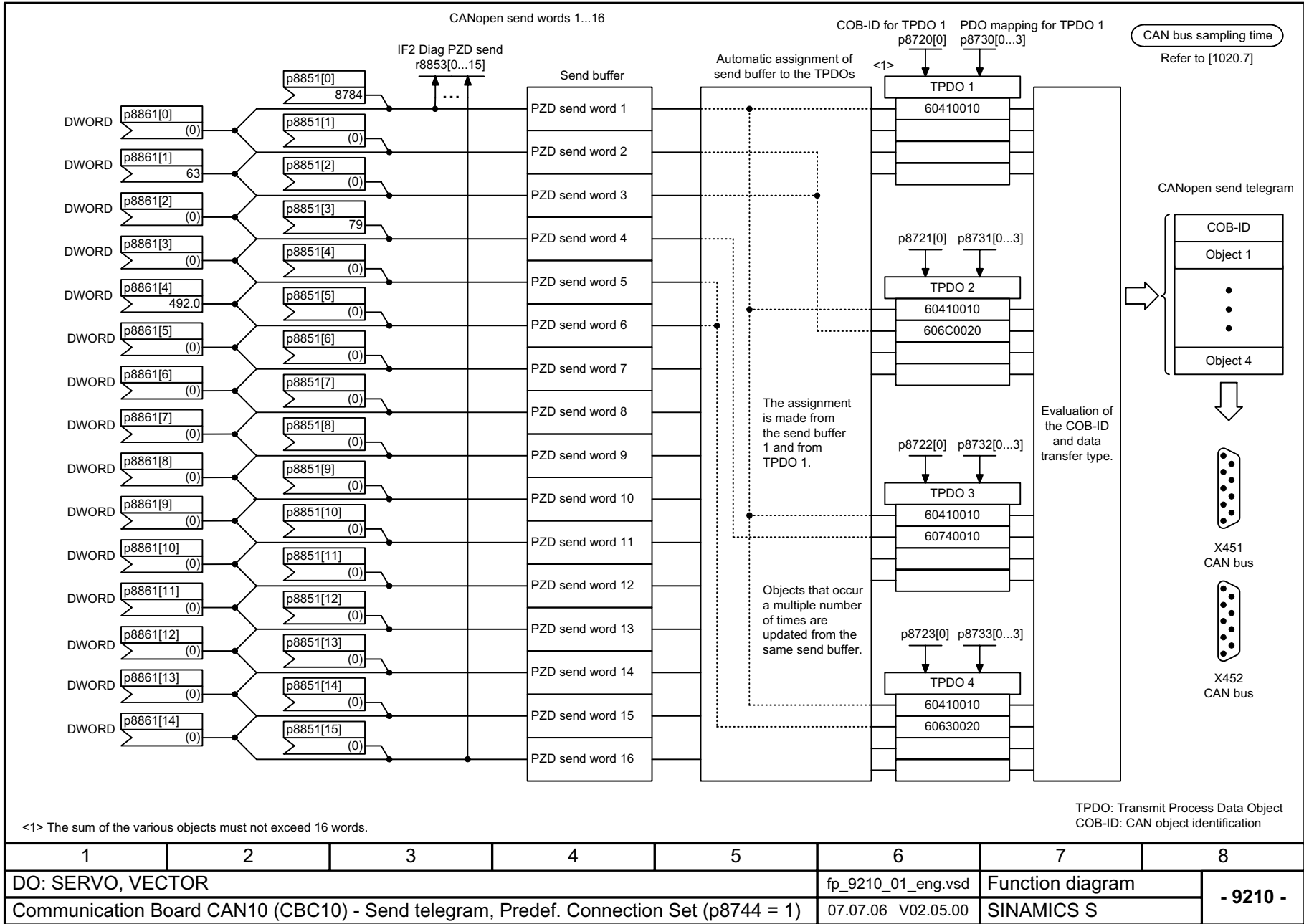
RPDO: Receive Process Data Object
COB-ID: CAN object identification

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_9204_01_eng.vsd	Function diagram	
Communication Board CAN 10 (CBC10) - Receive telegram, free PDO mapping (p8744 = 2)					16.12.04 V02.05.00	SINAMICS S	
							- 9204 -

Figure 2-250 9204 – Receive telegram, free PDO mapping (p8744 = 2)









CANopen sampling time
Refer to [1020.7]

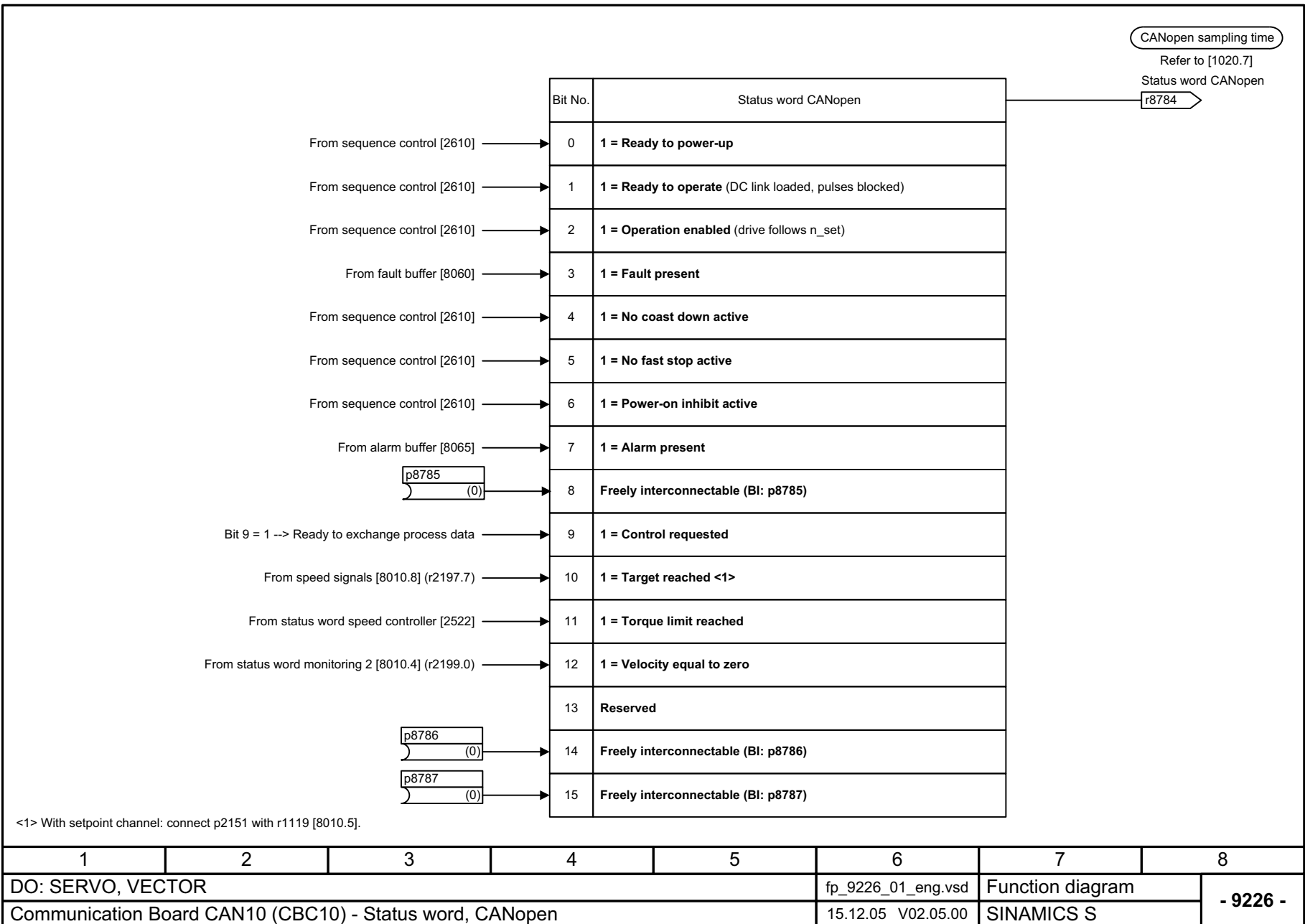
Signal targets for control word CANopen

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	 = ON (pulses can be enabled) 0 = OFF1 (braking with ramp-function generator, then pulse cancellation and ready-to-power-up)	p0840[0] = r8890.0	[2501.3]	[2610]	-
STW1.1	1 = No coast-down activated (enable possible) 0 = Activate coast-down (immediate pulse cancellation and power-on inhibit)	p0844[0] = r8890.1	[2501.3]	[2610]	-
STW1.2	1 = No fast stop activated (enable possible) 0 = Activate fast stop (braking along an OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r8890.2	[2501.3]	[2610]	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r8890.3	[2501.3]	[2610]	-
STW1.4	Reserved	-	-	-	-
STW1.5	Reserved	-	-	-	-
STW1.6	Reserved	-	-	-	-
STW1.7	 = Acknowledge fault	p2103[0] = r8890.7	[2546.1]	[8060]	-
STW1.8	Reserved	-	-	-	-
STW1.9	Reserved	-	-	-	-
STW1.10	Reserved	-	-	-	-
STW1.11	Can be freely connected	pxxxx[y] = r8890.11			-
STW1.12	Can be freely connected	pxxxx[y] = r8890.12	-	-	-
STW1.13	Can be freely connected	pxxxx[y] = r8890.13	-	-	-
STW1.14	Can be freely connected	pxxxx[y] = r8890.14	-	-	-
STW1.15	Can be freely connected	pxxxx[y] = r8890.15	-	-	-

<1> Depending on the position of the CANopen control word in p8750, the number of the binector to be connected changes.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_9220_01_eng.vsd	Function diagram	- 9220 -
Communication Board CAN 10 (CBC10) - Control word, CANopen					15.12.05 V02.05.00	SINAMICS S	

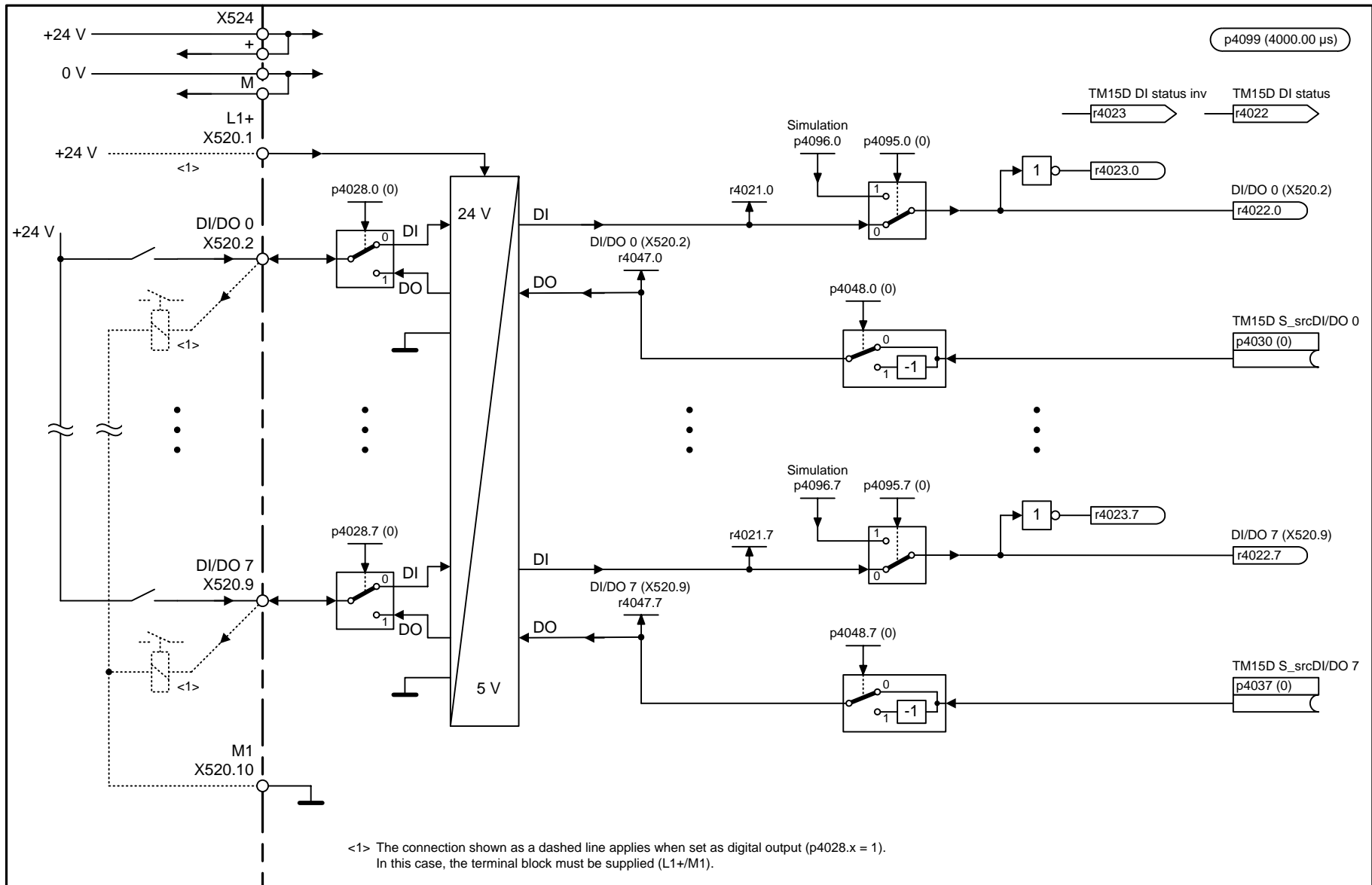
Figure 2-254 9220 – Control word CANopen



2.31 Terminal Module 15 for SINAMICS (TM15DI/DO)

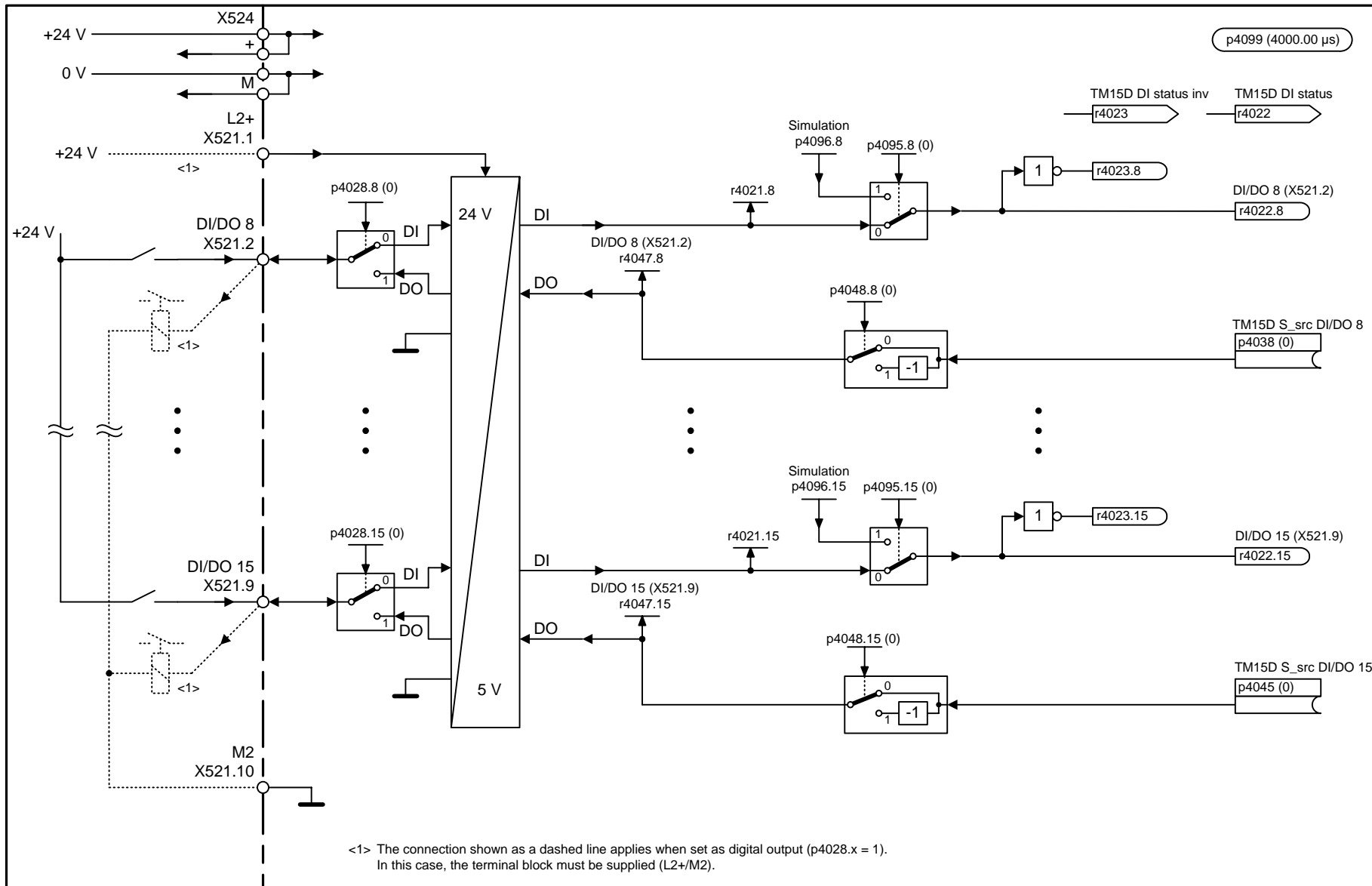
Function diagrams

9400 – Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 7)	2-1387
9401 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 15)	2-1388
9402 – Digital inputs/outputs, bidirectional (DI/DO 16 ... DI/DO 23)	2-1389



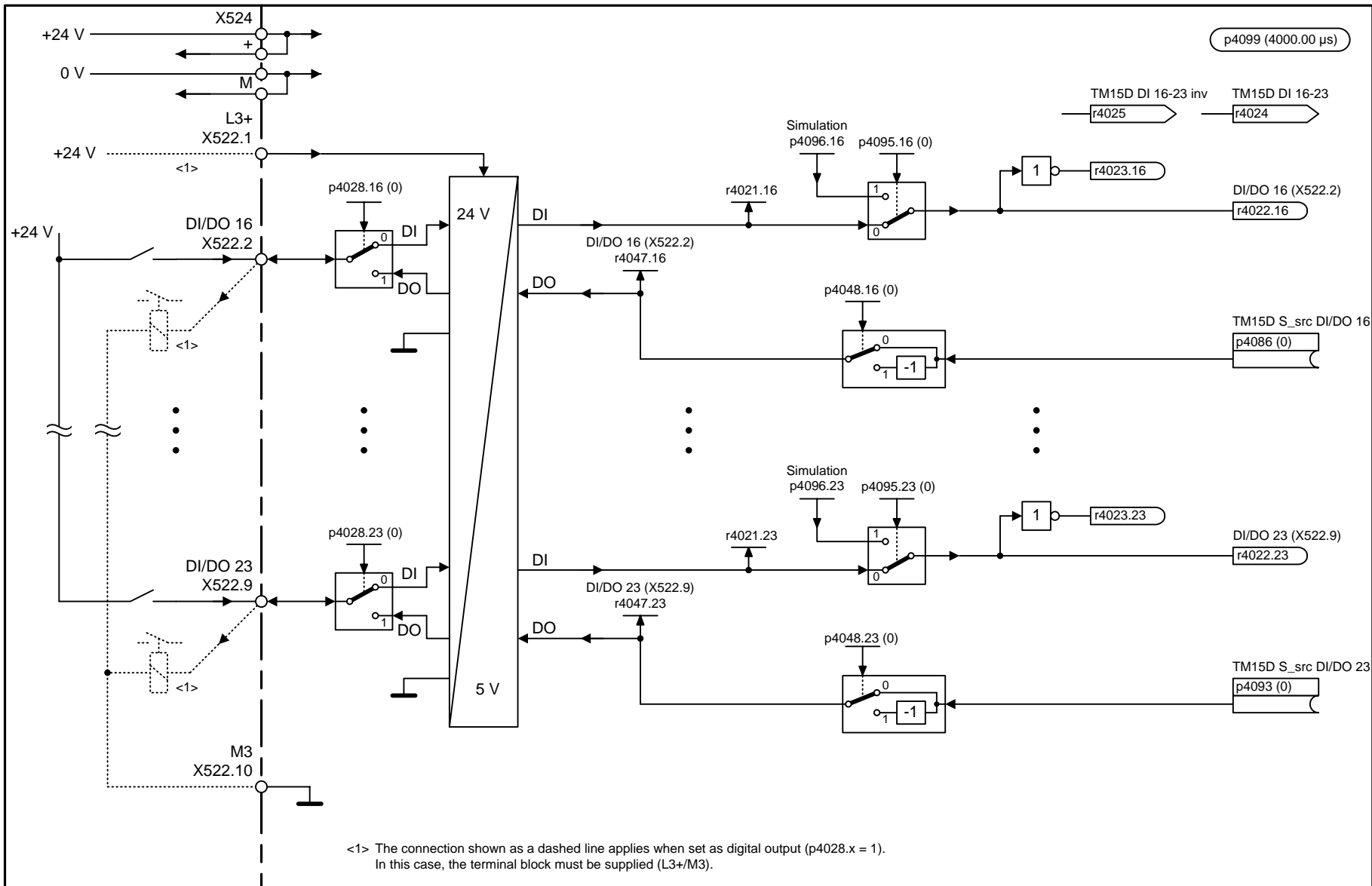
1	2	3	4	5	6	7	8
DO: TM15DI_DO					fp_9400_51_eng.vsd	Function diagram	
Terminal Module 15 (TM15) - Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 7)					01.08.07 V02.05.00	SINAMICS S	
							- 9400 -

Figure 2-256 9400 – Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 7)



1	2	3	4	5	6	7	8
DO: TM15DI_DO					fp_9401_51_eng.vsd	Function diagram	
Terminal Module 15 (TM15) - Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 15)					01.08.07 V02.05.00	SINAMICS	
							- 9401 -

Figure 2-257 9401 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 15)



1	2	3	4	5	6	7	8
DO: TM15DI_DO					fp_9402_51_eng.vsd	Function diagram	
Terminal Module 15 (TM15) - Digital inputs/outputs, bidirectional (DI/DO 16 ... DI/DO 23)					01.08.07 V02.05.00	SINAMICS	
							- 9402 -

Figure 2-258 9402 – Digital inputs/outputs, bidirectional (DI/DO 16 ... DI/DO 23)

2.32 Terminal Module 31 (TM31)

Function diagrams

9550 – Digital inputs, electrically isolated (DI 0 ... DI 3)	2-1391
9552 – Digital inputs, electrically isolated (DI 4 ... DI 7)	2-1392
9556 – Digital relay outputs, electrically isolated (DO 0 ... DO 1)	2-1393
9560 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)	2-1394
9562 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)	2-1395
9566 – Analog input 0 (AI 0)	2-1396
9568 – Analog input 1 (AI 1)	2-1397
9572 – Analog outputs (AO 0 ... AO 1)	2-1398
9576 – Temperature evaluation KTY/PTC	2-1399
9577 – Sensor monitoring KTY/PTC	2-1400

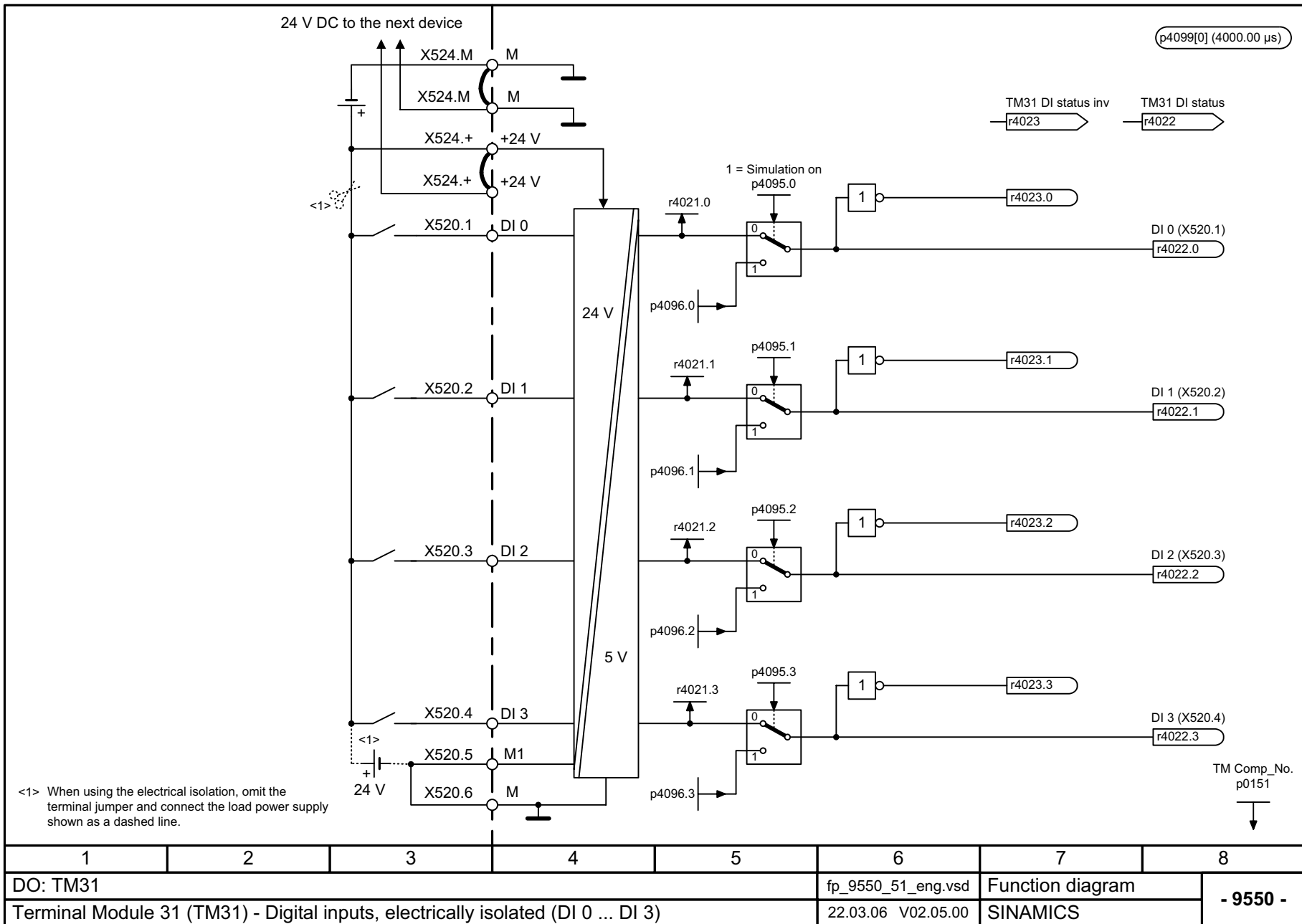


Figure 2-259 9550 – Digital inputs, electrically isolated (DI 0 ... DI 3)

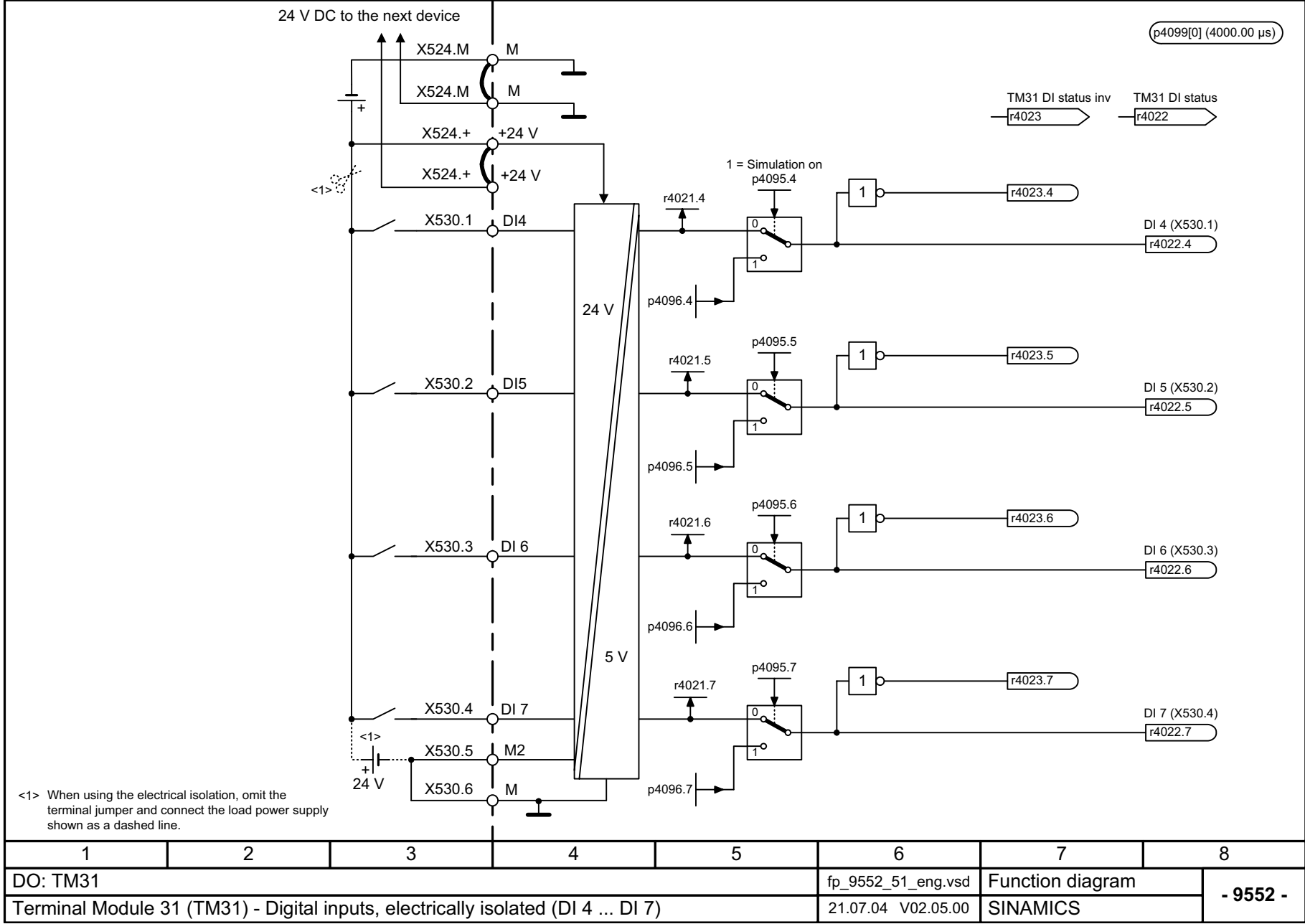


Figure 2-260 9552 – Digital inputs, electrically isolated (DI 4 ... DI 7)

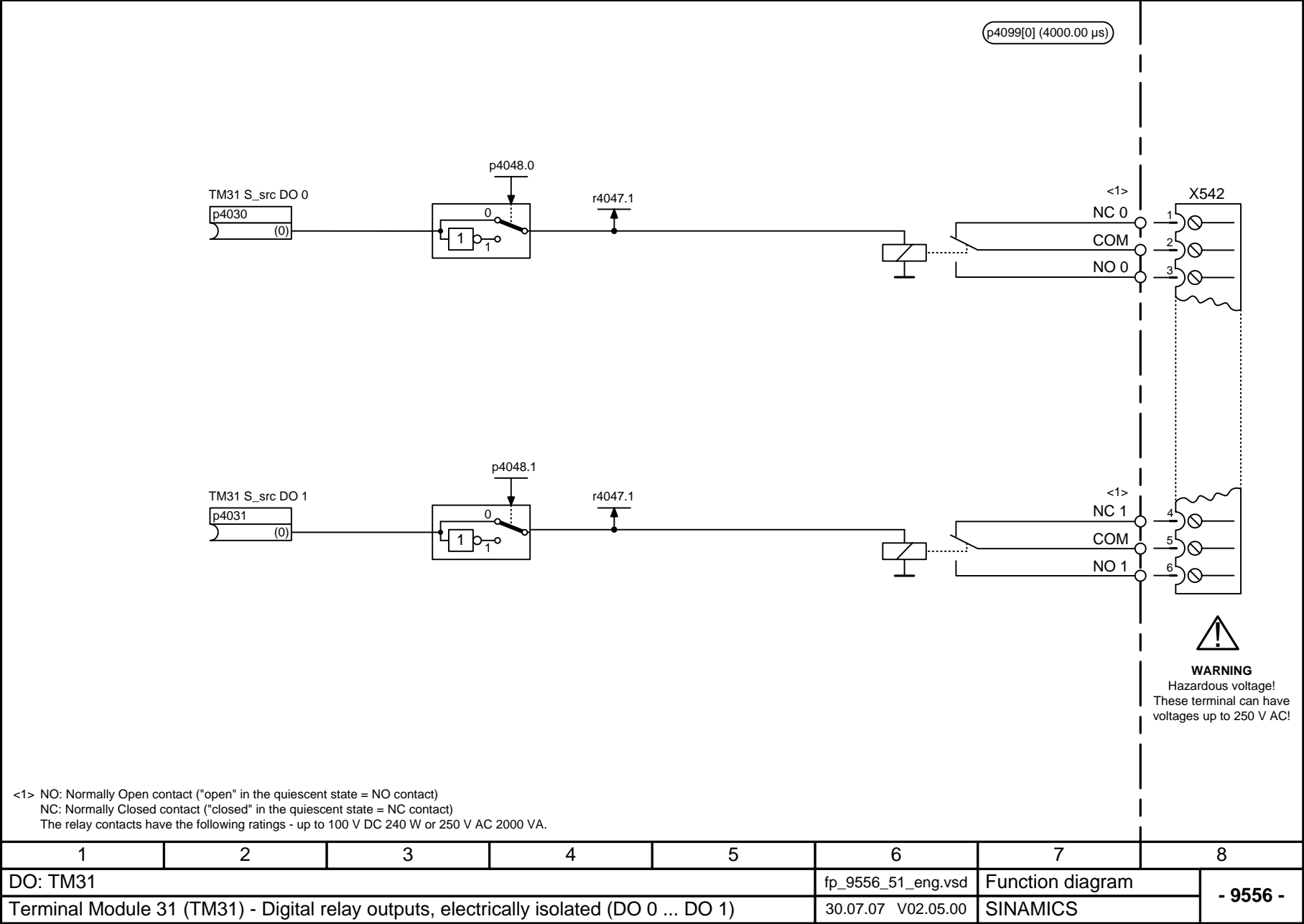


Figure 2-261 9556 – Digital relay outputs, electrically isolated (DO 0 ... DO 1)

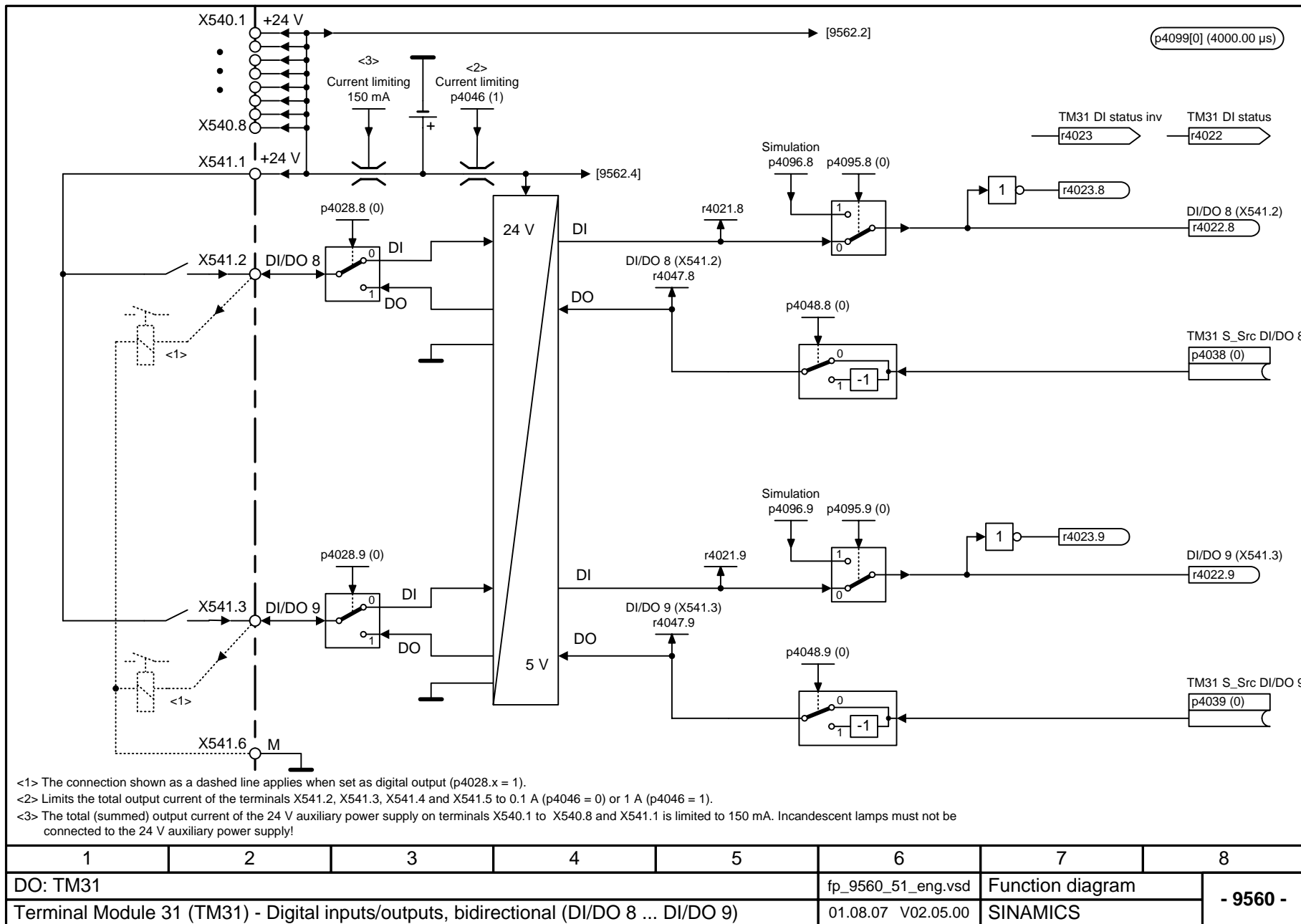
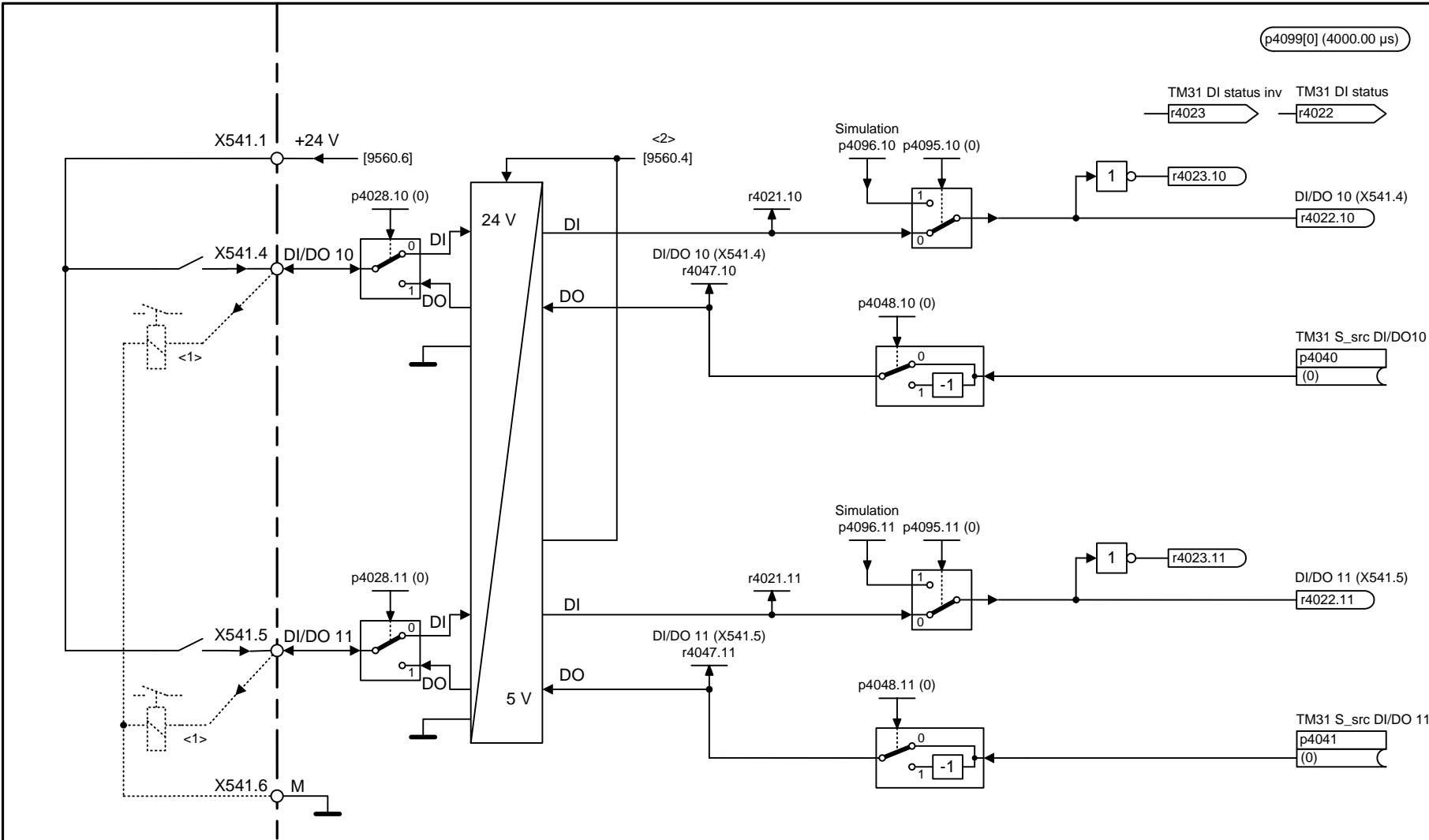


Figure 2-262 9560 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)

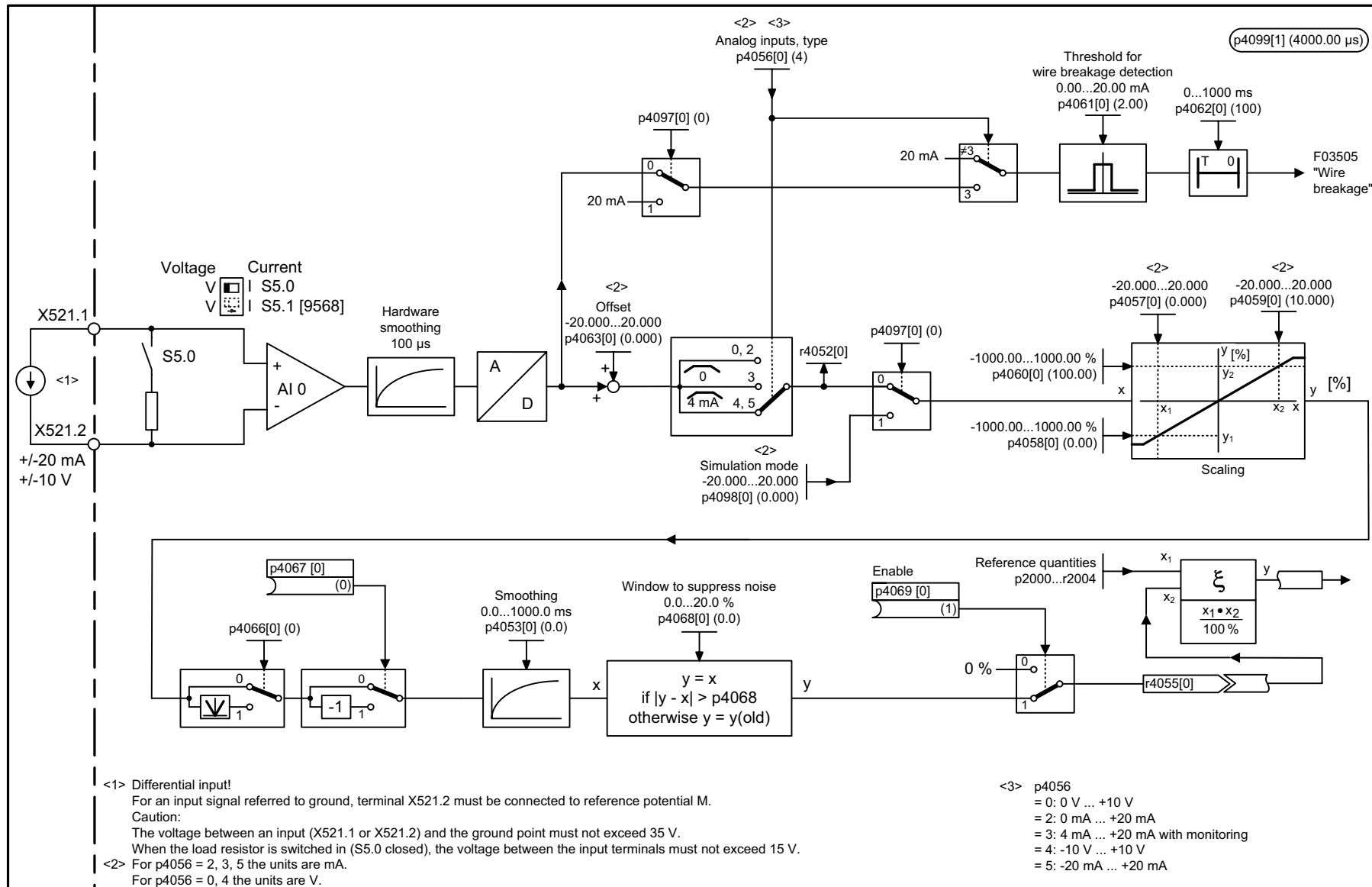


<1> The connection shown as a dashed line applies when set as digital output (p4028.x = 1).
<2> Limits the total output current on terminals X541.2, X541.3, X541.4 and X541.5 to 0.1 A (p4046 = 0) or 1 A (p4046 = 1).

1	2	3	4	5	6	7	8
DO: TM31					fp_9562_51_eng.vsd	Function diagram	
Terminal Module 31 (TM31) - Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)					01.08.07 V02.05.00	SINAMICS	

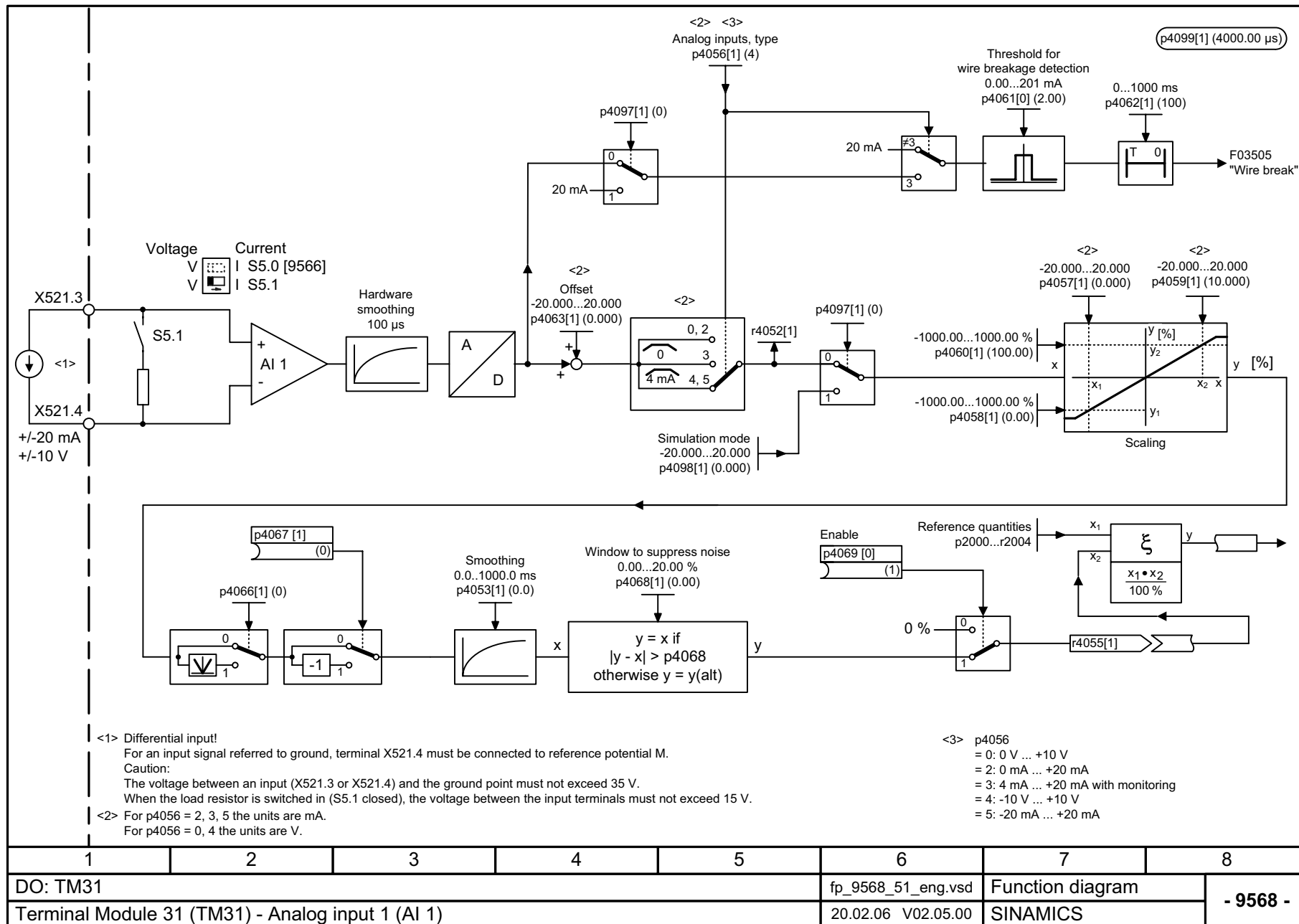
- 9562 -

Figure 2-263 9562 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)



1	2	3	4	5	6	7	8
DO: TM31					fp_9566_51_eng.vsd	Function diagram	
Terminal Module 31 (TM31) - Analog input 0 (AI 0)					21.03.06 V02.05.00	SINAMICS	
							- 9566 -

Figure 2-264 9566 – Analog input 0 (AI 0)



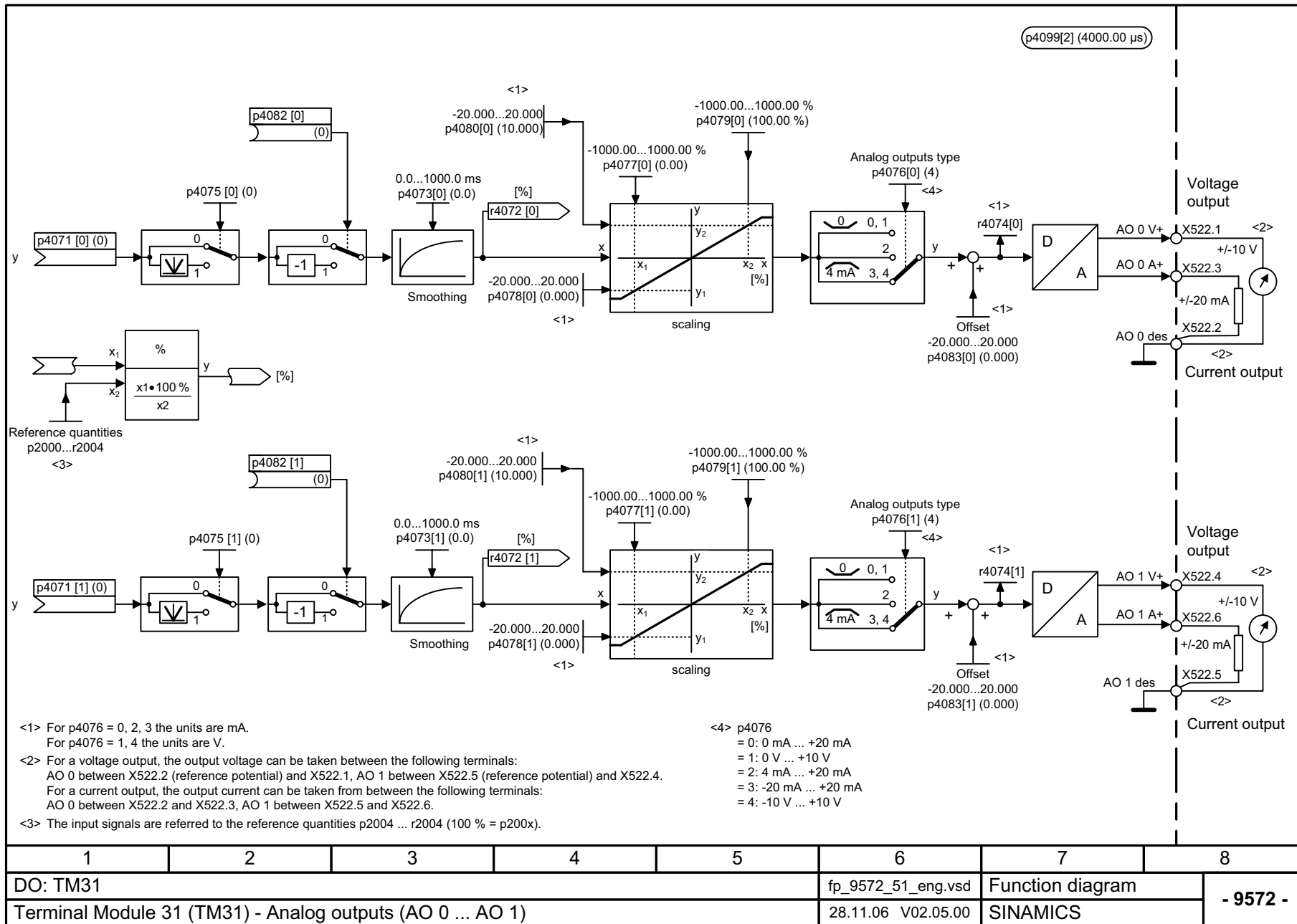
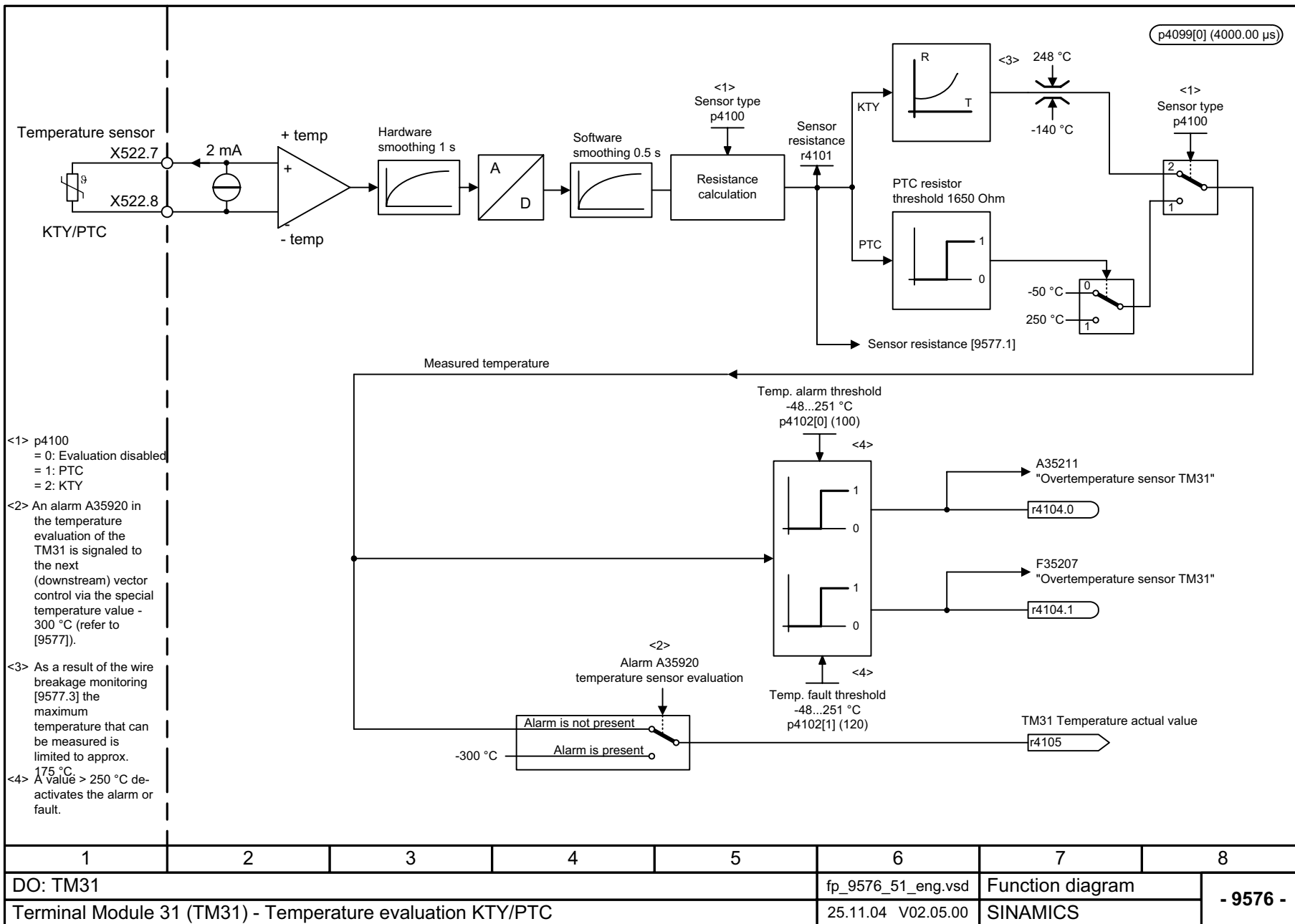


Figure 2-266 9572 – Analog outputs (AO 0 ... AO 1)

Figure 2-267 9576 – Temperature evaluation KTY/PTC



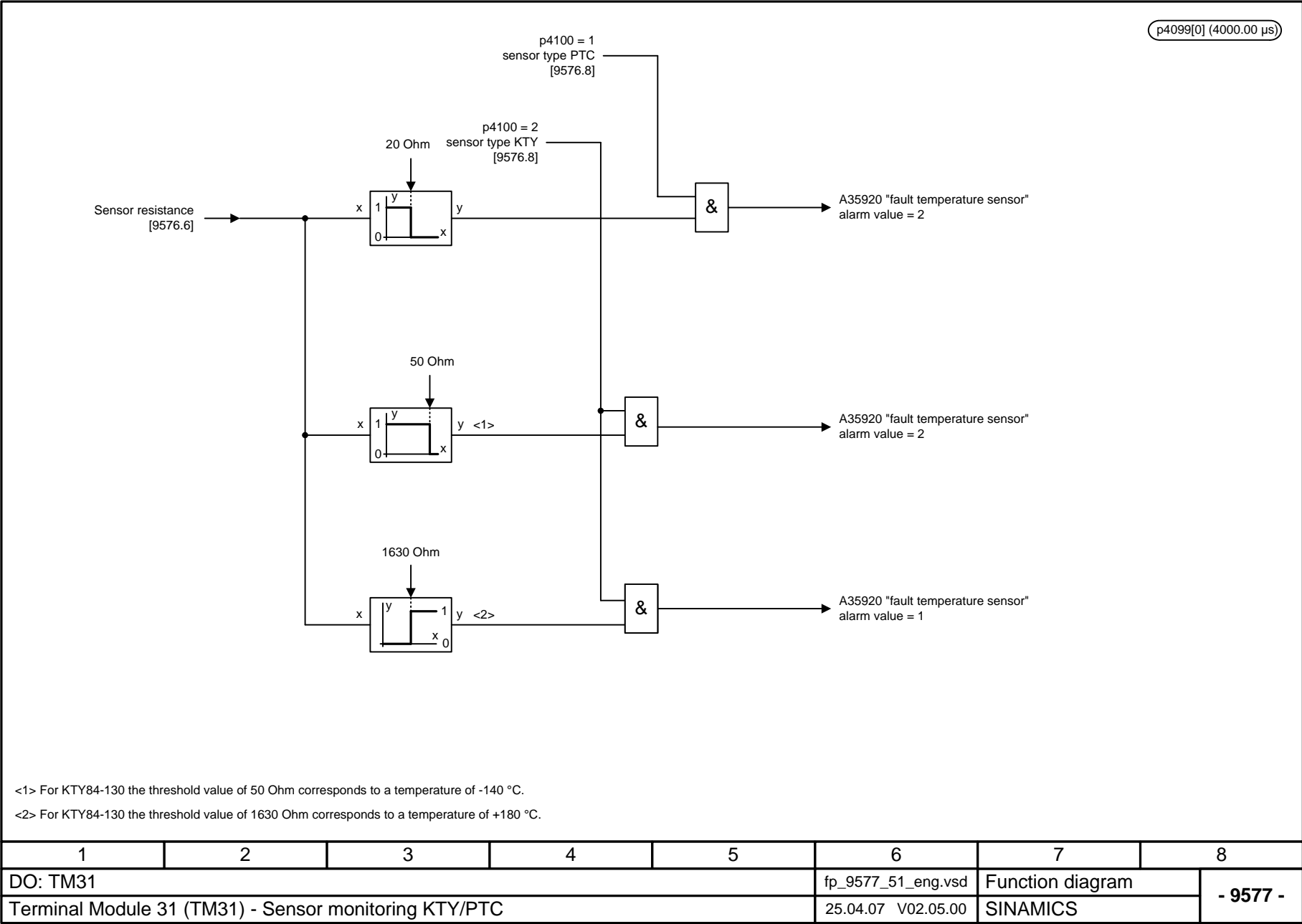


Figure 2-268 9577 – Sensor monitoring KTY/PTC

2.33 Terminal Module 41 (TM41)

Function diagrams

9660 – Digital inputs, electrically isolated (DI 0 ... DI 3)	2-1402
9661 – Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 1)	2-1403
9662 – Digital inputs/outputs, bidirectional (DI/DO 2 ... DI/DO 3)	2-1404
9663 – Analog input (AI 0)	2-1405
9674 – Incremental encoder emulation (p4400 = 0)	2-1406
9676 – Incremental encoder emulation (p4400 = 1)	2-1407
9678 – Control word sequence control	2-1408
9680 – Status word sequence control	2-1409
9682 – Sequencer	2-1410

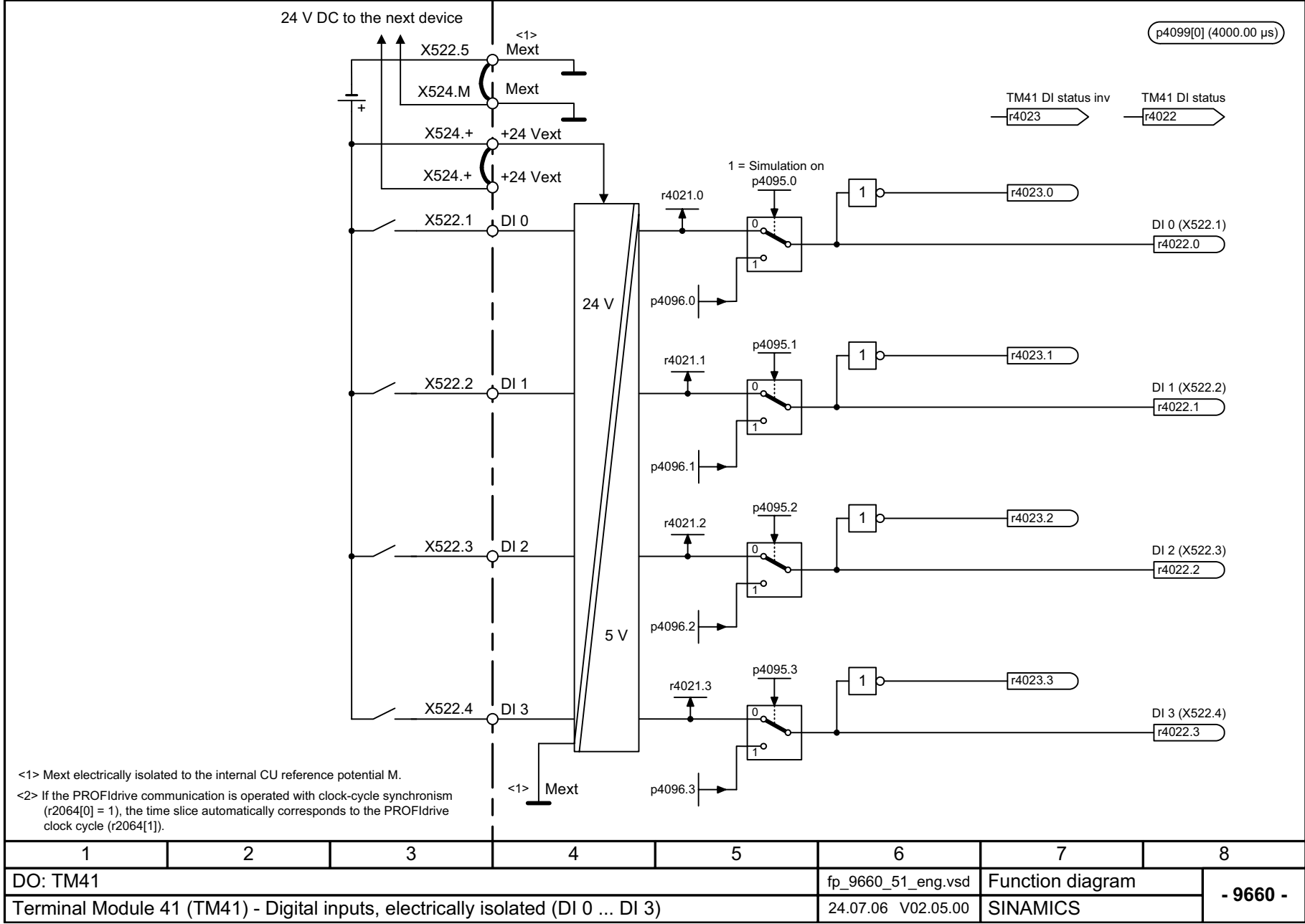


Figure 2-269 9660 – Digital inputs, electrically isolated (DI 0 ... DI 3)

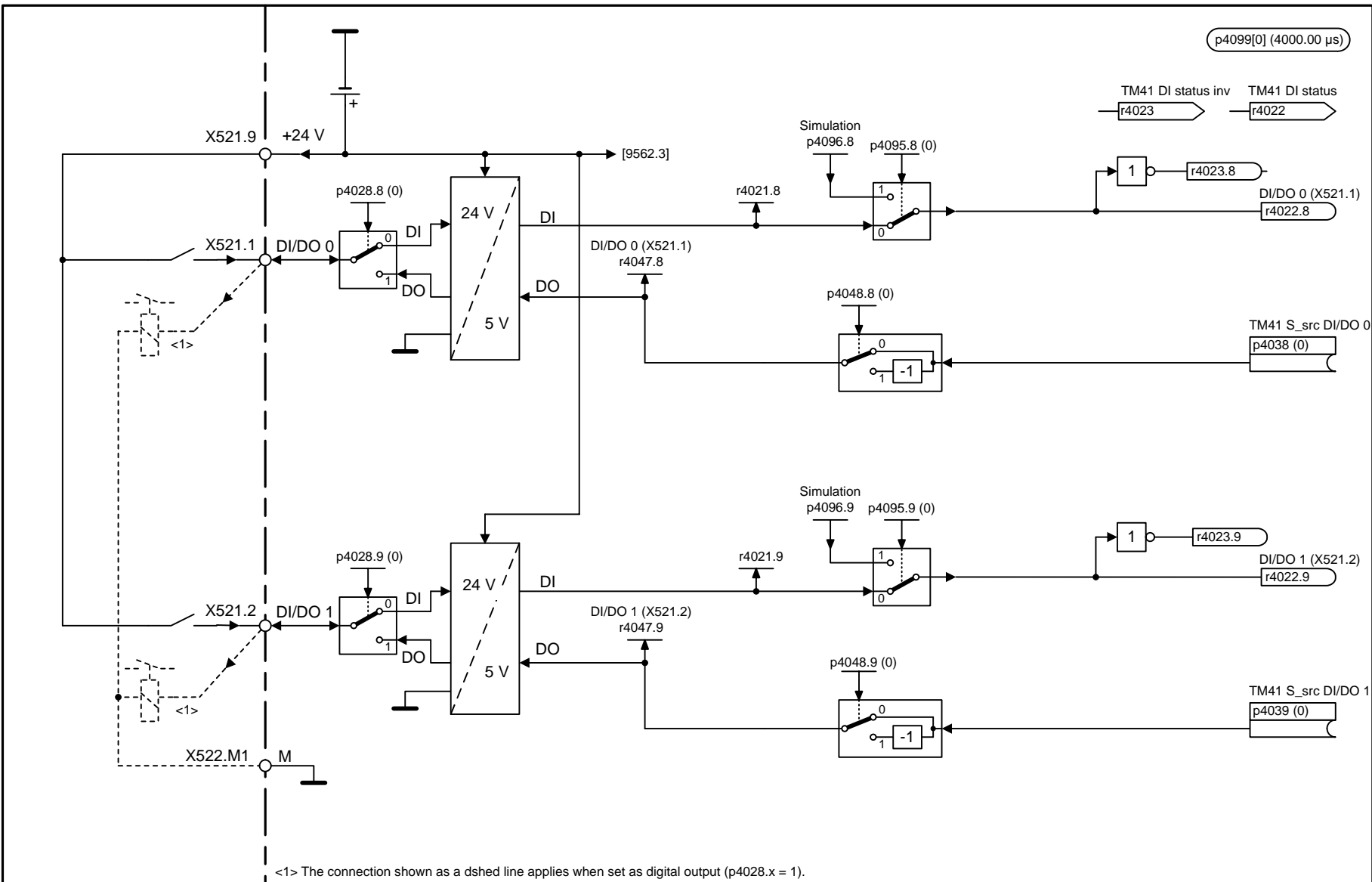
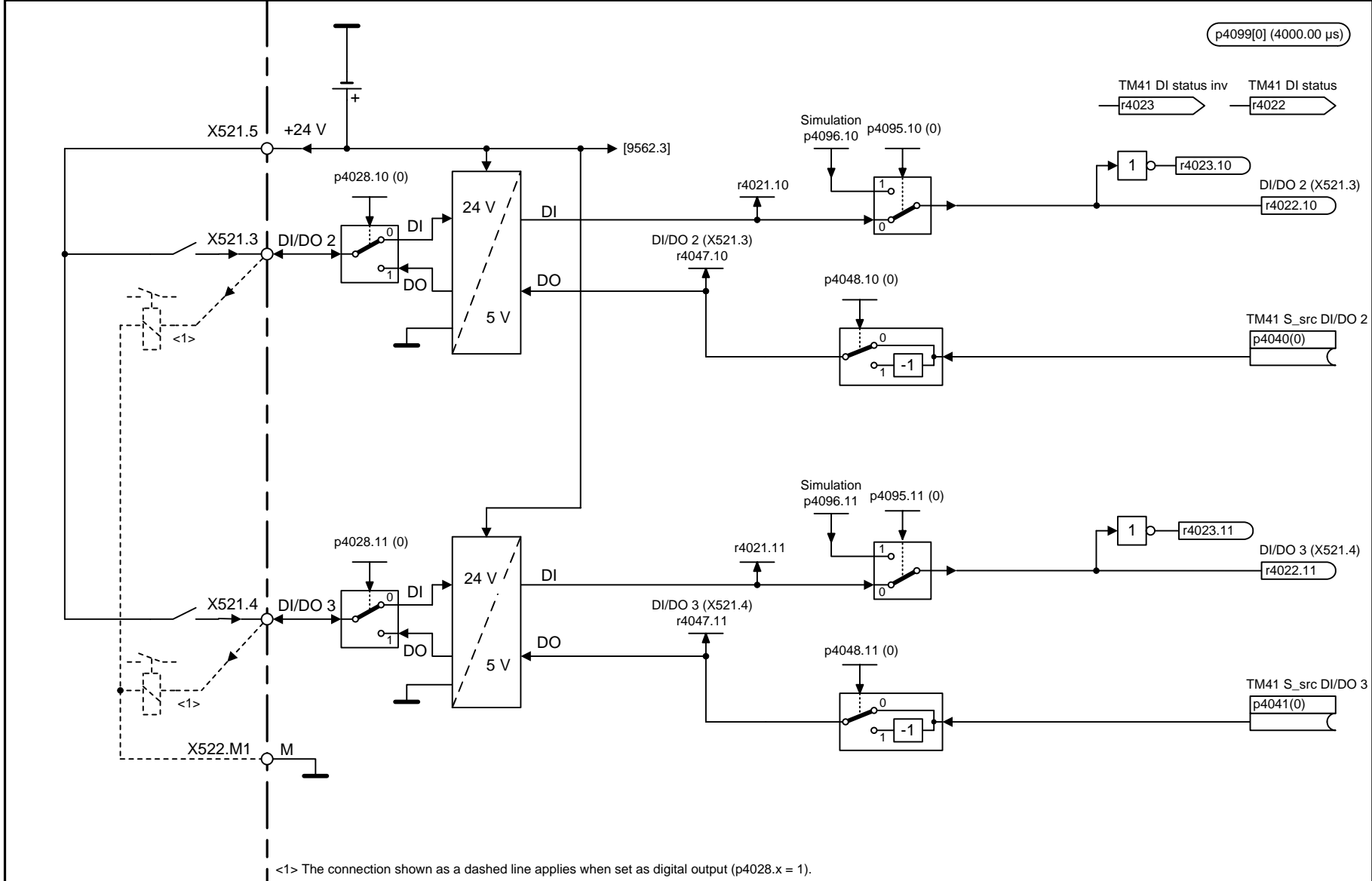
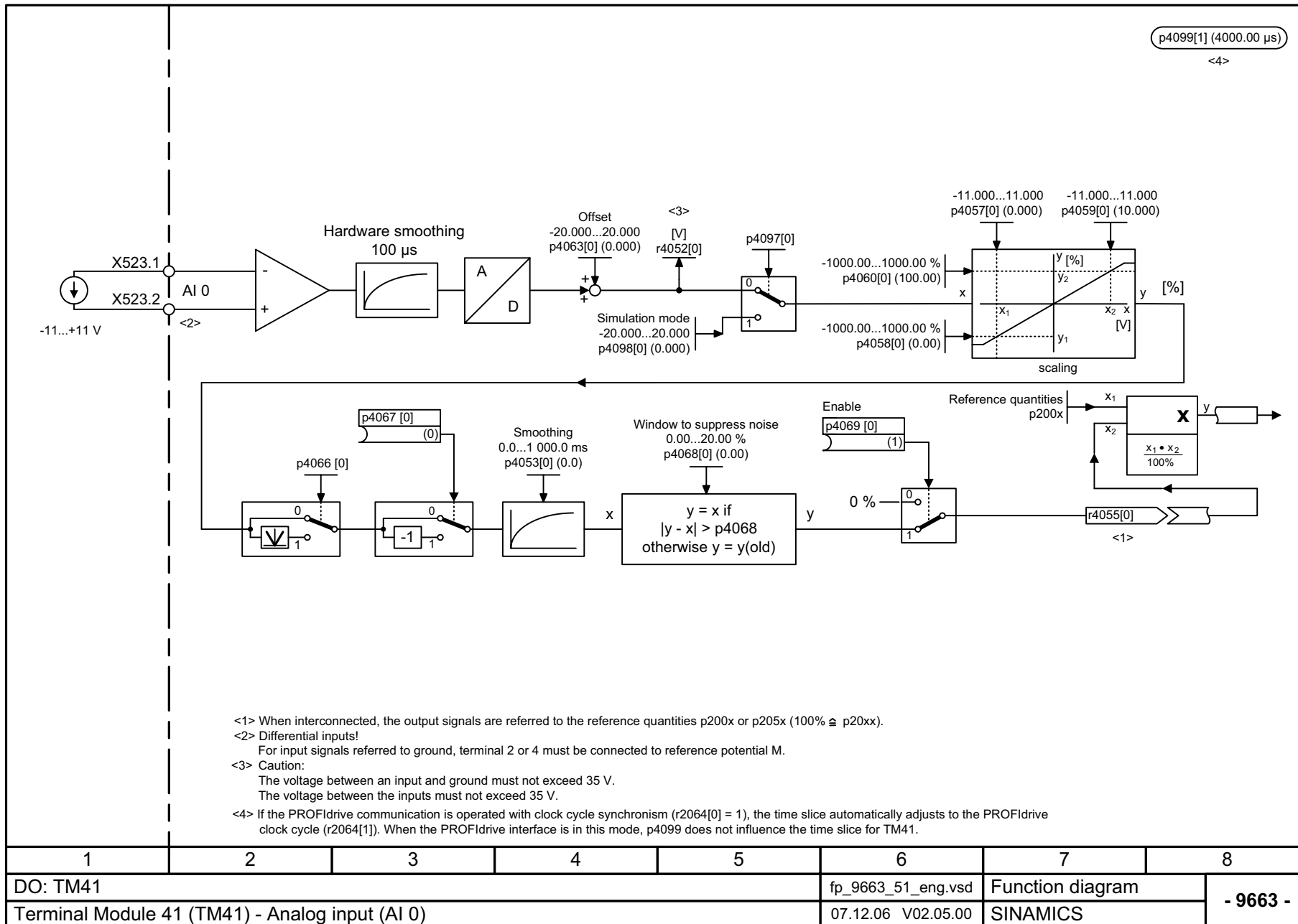


Figure 2-270 9661 – Digital inputs/outputs, bidirectional (D/DO 0 ... D/DO 1)



1	2	3	4	5	6	7	8
DO: TM41					fp_9662_51_eng.vsd	Function diagram	
Terminal Module 41 (TM41) - Digital inputs/outputs, bidirectional (DI/DO 2 ... DI/DO 3)					01.08.07 V02.05.00	SINAMICS	
							- 9662 -

Figure 2-271 9662 – Digital inputs/outputs, bidirectional (DI/DO 2 ... DI/DO 3)



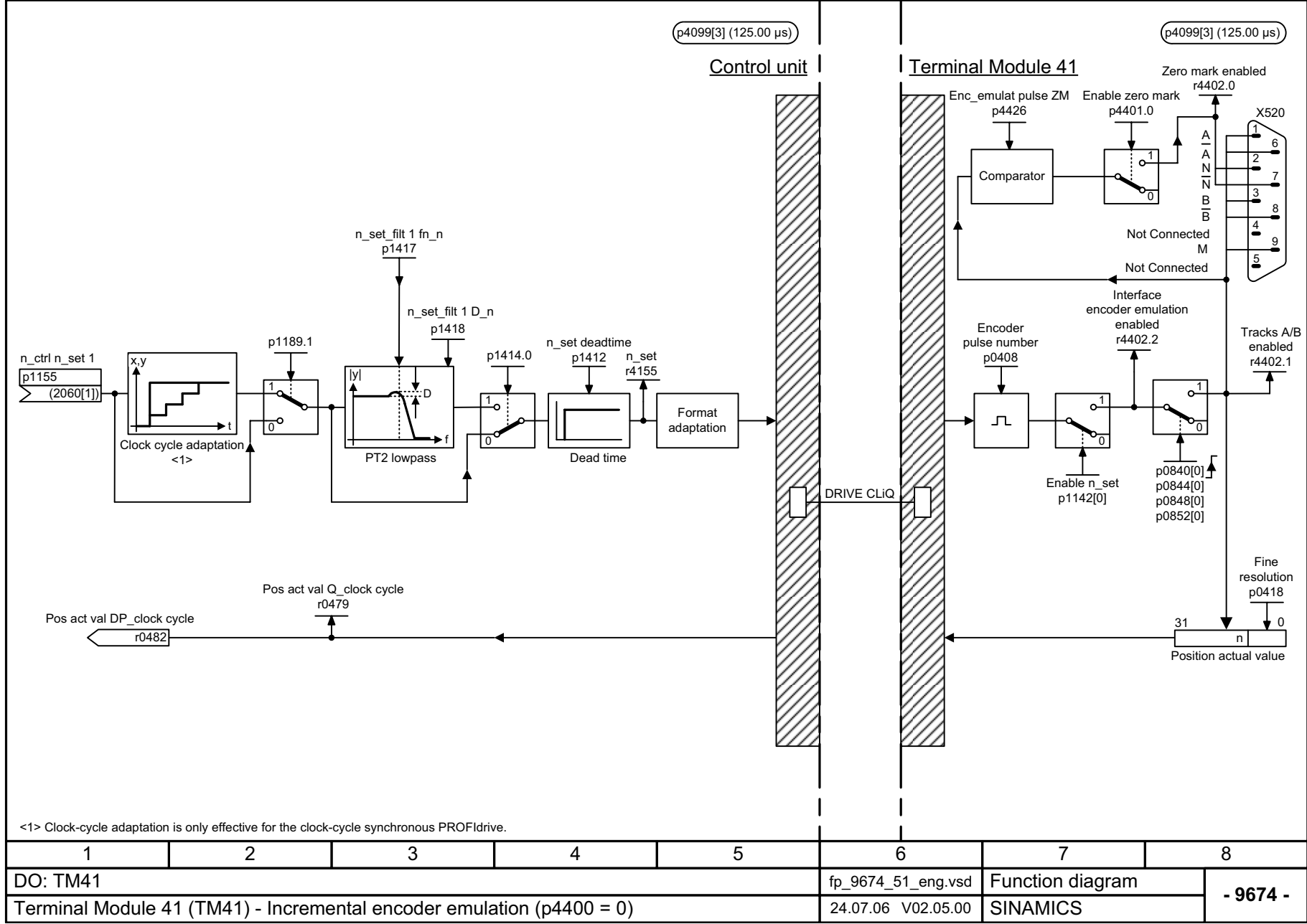
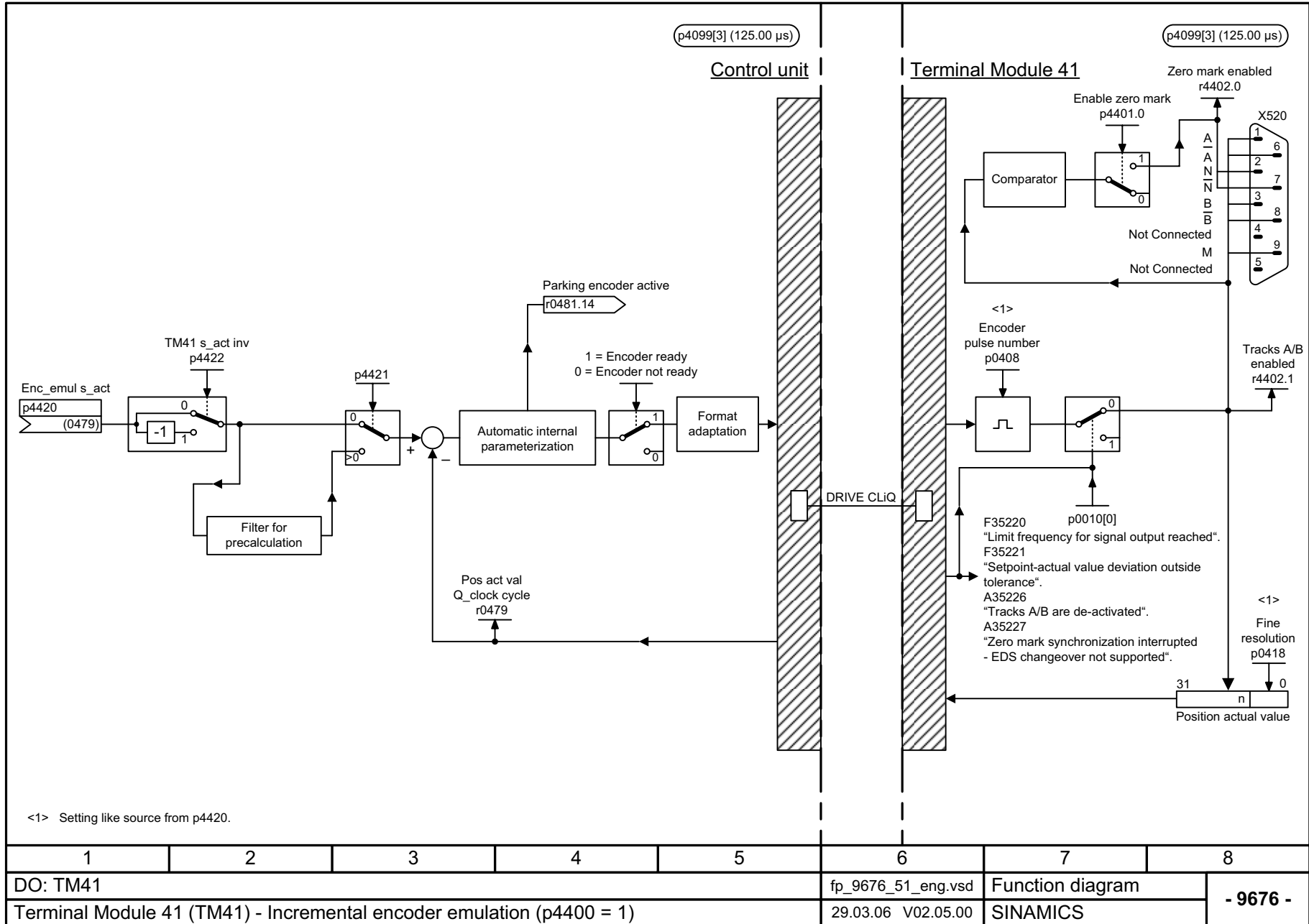


Figure 2-273 – Incremental encoder emulation (p4400 = 0)



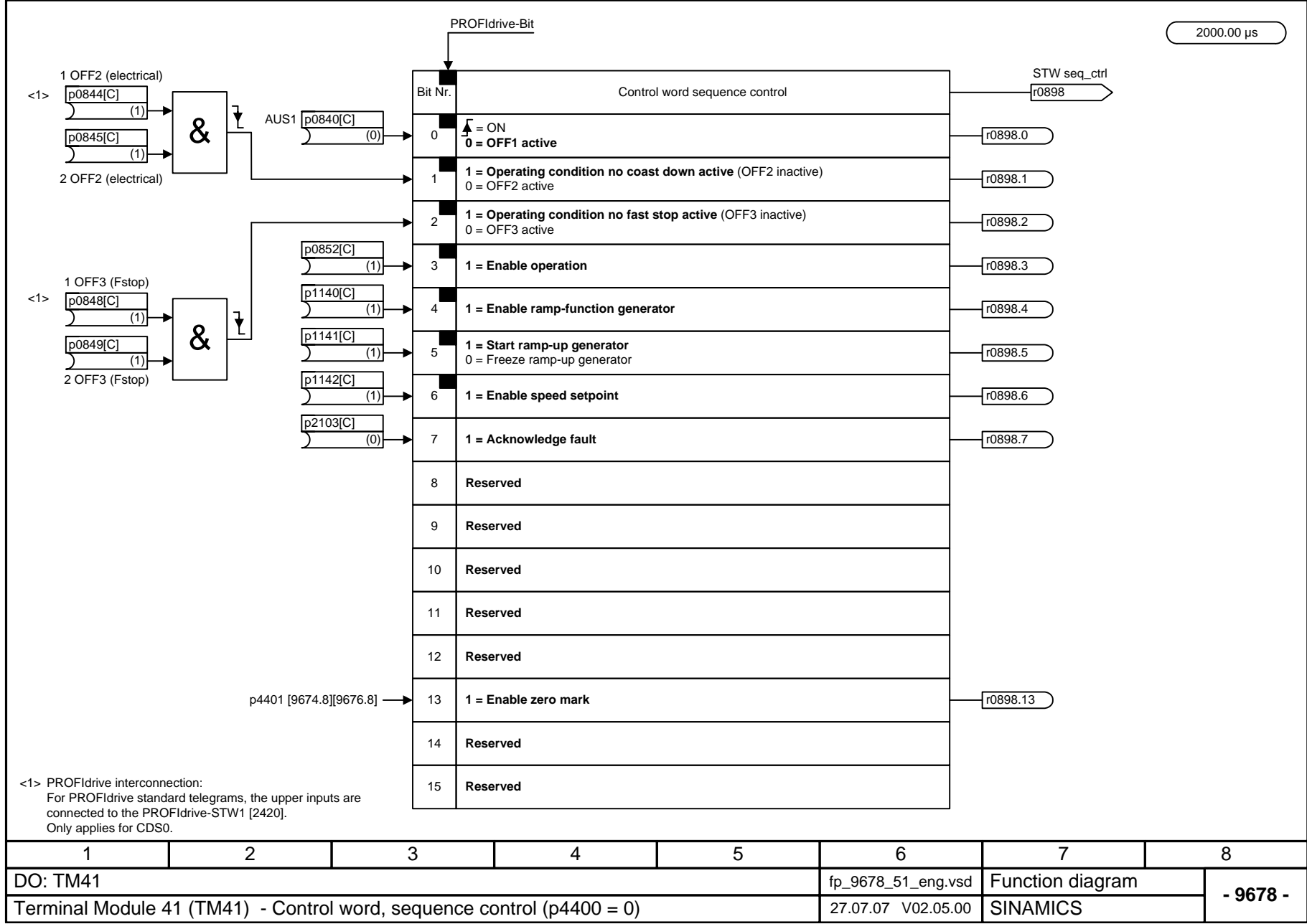
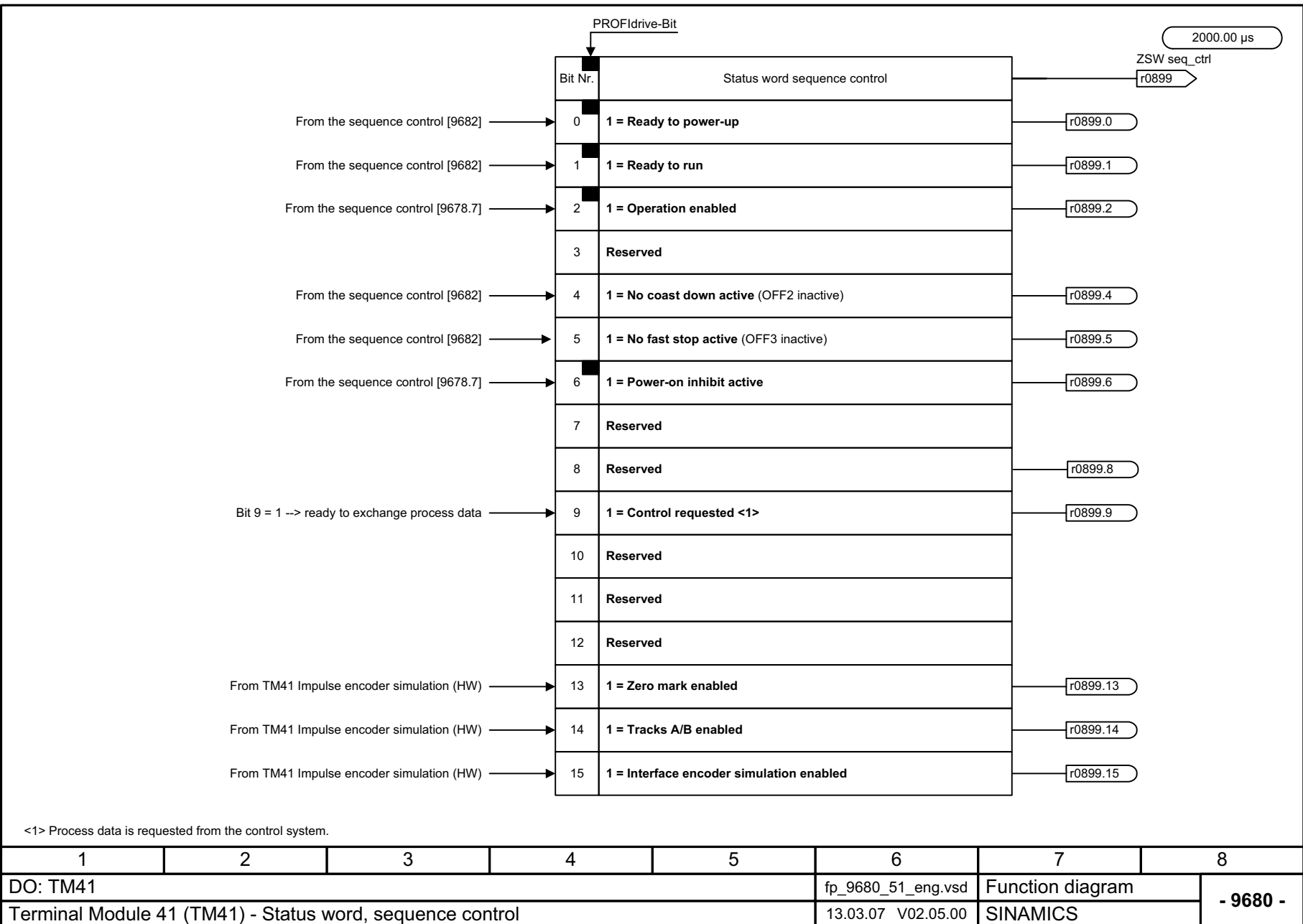
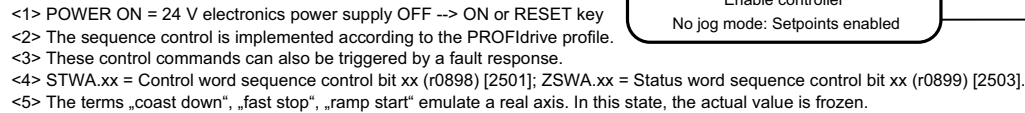


Figure 2-275 9678 – Control word sequence control





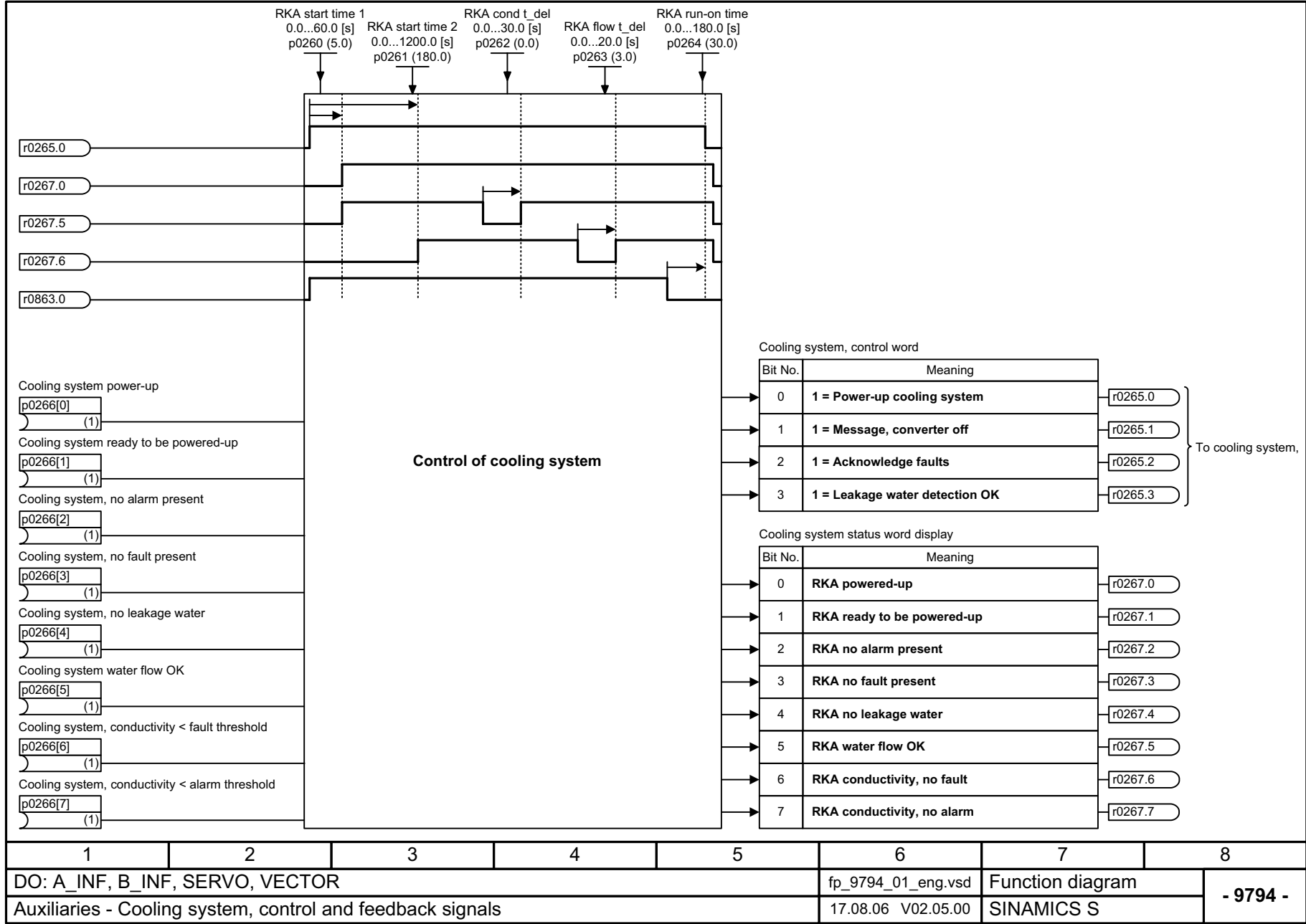
1	2	3	4	5	6	7	8	
DO: TM41					fp_9682_51_eng.vsd	Function diagram		- 9682 -
Terminal Module 41 (TM41) – sequence control (p4400 = 0)					27.02.07 V02.05.00	SINAMICS		

2-1410

2.34 Auxiliaries

Function diagrams

9794 – Cooling system, control and feedback signals	2-1412
9795 – Cooling unit sequence control	2-1413



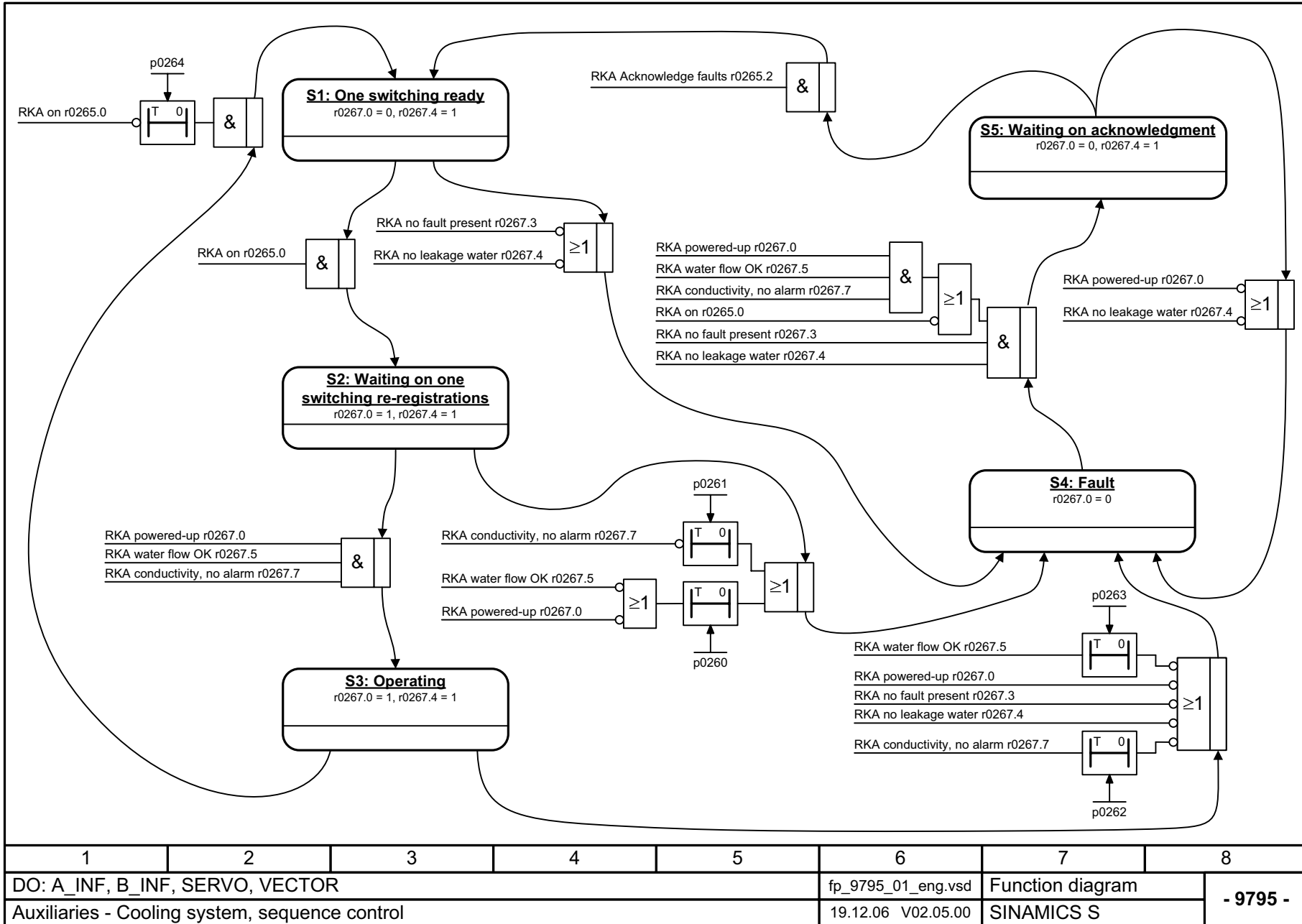
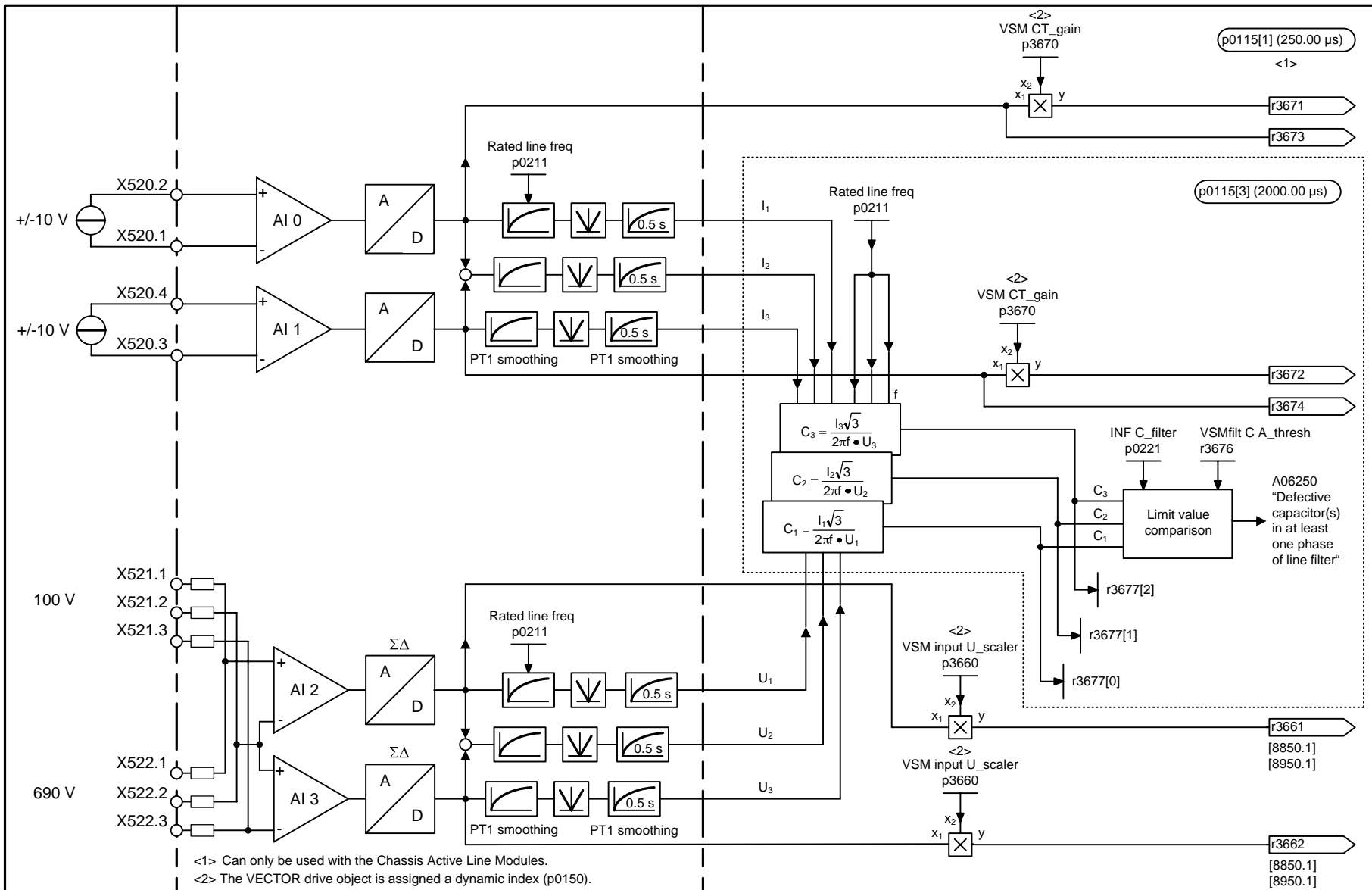


Figure 2-279 9795 – Cooling unit sequence control

2.35 Voltage Sensing Module (VSM)

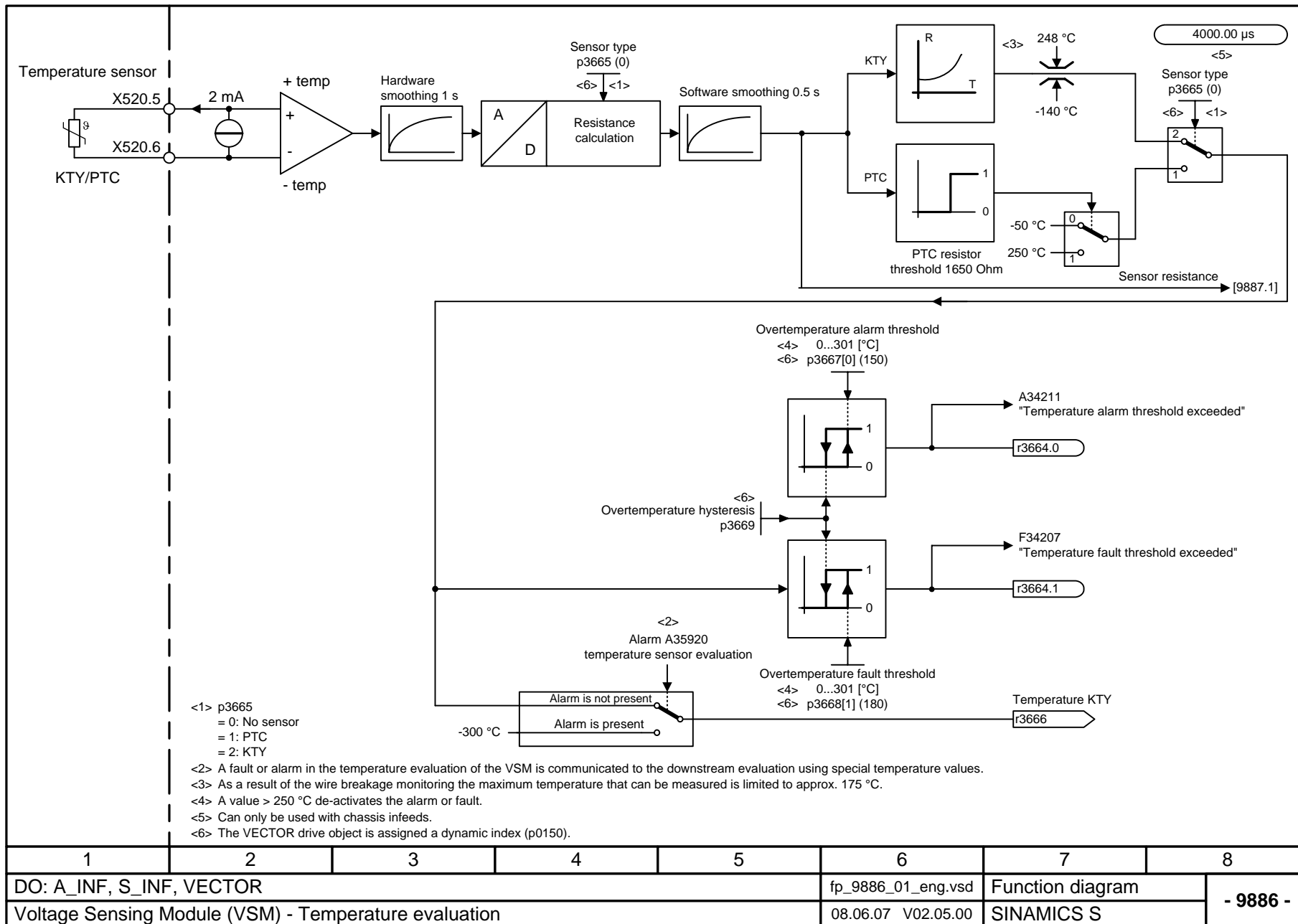
Function diagrams

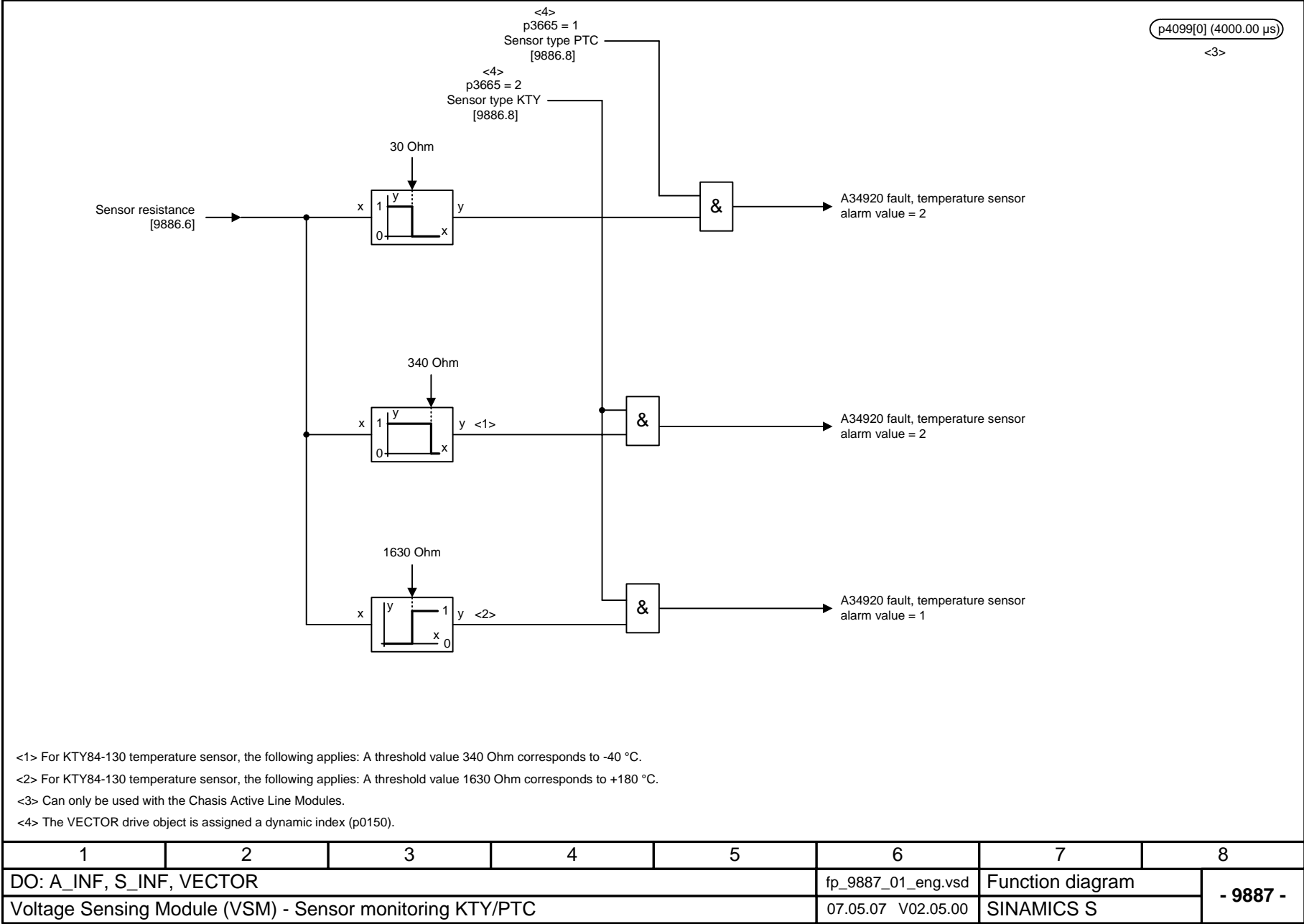
9880 – Analog inputs (AI 0 ... AI 3)	2-1415
9886 – Temperature evaluation	2-1416
9887 – Sensor monitoring KTY/PTC	2-1417



1	2	3	4	5	6	7	8
DO: A_INF, S_INF, VECTOR					fp_9880_01_eng.vsd	Function diagram	
Voltage Sensing Module (VSM) - Analog inputs (AI 0 ... AI 3)					04.06.07 V02.05.00	SINAMICS S	
							- 9880 -

Figure 2-280 9880 – Analog inputs (AI 0 ... AI 3)






2.36 Basic Operator Panel 20 (BOP20)

Function diagrams

9912 – Control word interconnection

2-1419

PROFIdrive sampling time
Refer to [1020.7]

Interconnection STW BOP (r0019)			<1>
Signal	Meaning	Interconnection parameters	
STW BOP.0	1 = On 0 = OFF (OFF1)	p0840[0] = r0019.0	
STW BOP.1	1 = No coast down 0 = Coast down (OFF2)	p0844[0] = r0019.1	
STW BOP.2	1 = No fast stop 0 = Fast stop (OFF3)	p0848[0] = r0019.2	
STW BOP.3	Reserved	-	
STW BOP.4	Reserved	-	
STW BOP.5	Reserved	-	
STW BOP.6	Reserved	-	
STW BOP.7	 = Acknowledge fault	p2102[0] = r0019.7	
STW BOP.8	Reserved	-	
STW BOP.9	Reserved	-	
STW BOP.10	Reserved	-	
STW BOP.11	Reserved	-	
STW BOP.12	Reserved	-	
STW BOP.13	1 = Motorized potentiometer, raise	p1035[0] = r0019.13	
STW BOP.14	1 = Motorized potentiometer, lower	p1036[0] = r0019.14	
STW BOP.15	Reserved	-	

<1> The BICO interconnection represents an example that can be changed by the user.

1	2	3	4	5	6	7	8
DO: CU_S					fp_9912_01_eng.vsd	Function diagram	- 9912 -
Basic Operator Panel 20 (BOP20) - Control word interconnection					16.01.07 V02.05.00	SINAMICS S	

Figure 2-283 9912 – Control word interconnection

2.37 Braking Module external

Function diagrams

9951 – Sequencer (r0108.26 = 1)

2-1421

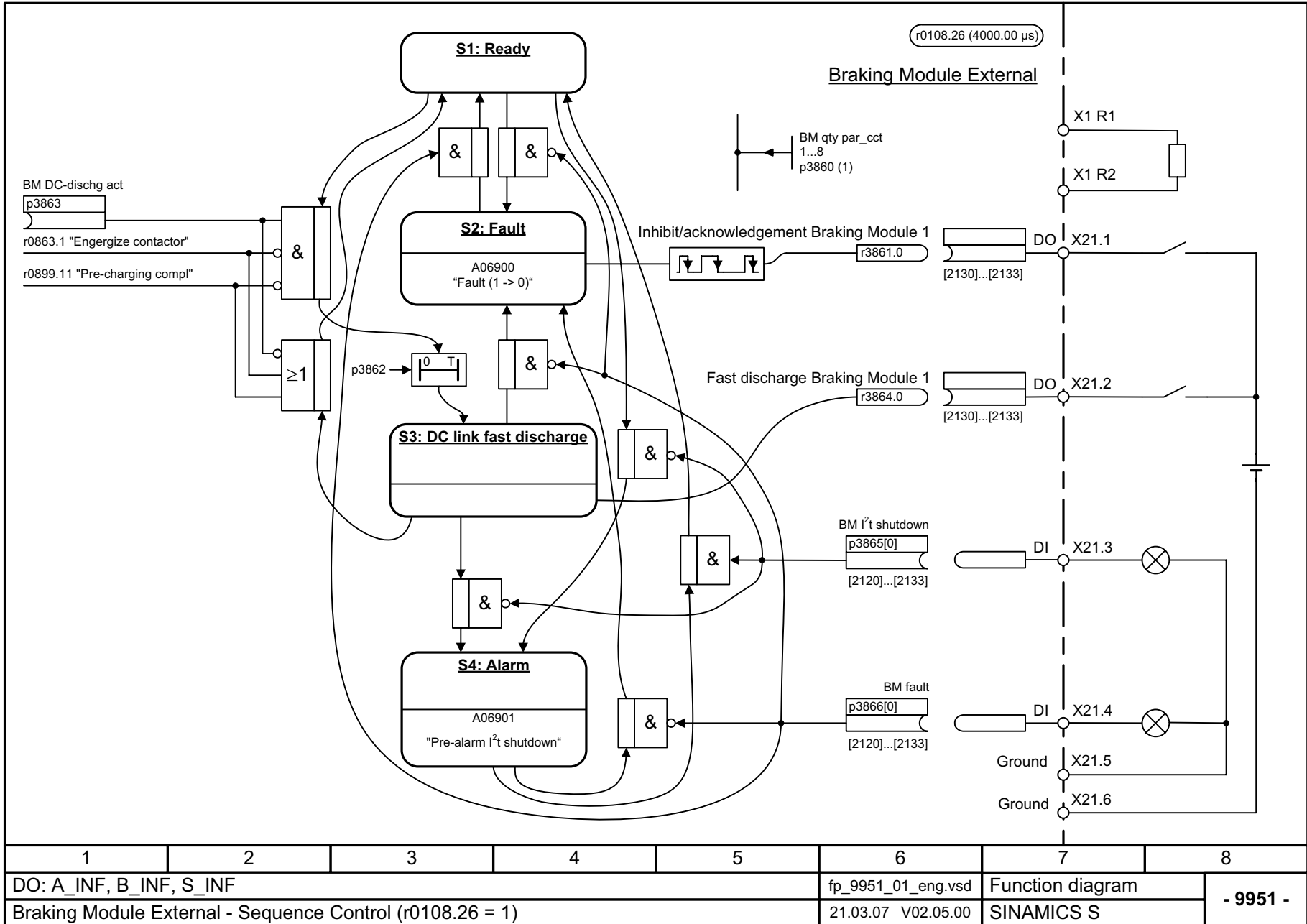


Figure 2-284 9951 – Sequencer (r0108.26 = 1)

Faults and Alarms

3

Content

3.1	Overview of faults and alarms	3-1424
3.2	List of faults and alarms	3-1434

3.1 Overview of faults and alarms

3.1.1 General information about faults and alarms

Indicating faults and alarms

If a fault occurs, the drive indicates the fault and/or alarm.

The following methods for displaying faults and alarms are available:

- Display via the fault and alarm buffer with PROFIBUS.
- Display online via the commissioning software.

Differences between faults and alarms

The differences between faults and alarms are as follows:

Table 3-1 Differences between faults and alarms

Type	Description
Faults	<p>What happens when a fault occurs?</p> <ul style="list-style-type: none">• The appropriate fault reaction is triggered.• Status signal ZSW1.3 is set.• The fault is entered in the fault buffer. <p>How are faults eliminated?</p> <ul style="list-style-type: none">• Remove the original cause of the fault.• Acknowledge the fault.
Alarms	<p>What happens when an alarm occurs?</p> <ul style="list-style-type: none">• Status signal ZSW1.7 is set.• The alarm is entered in the alarm buffer. <p>How are alarms eliminated?</p> <ul style="list-style-type: none">• Alarms acknowledge themselves. If the cause of the alarm is no longer present, then they automatically reset themselves.

Fault reactions

The following fault reactions are defined:

Table 3-2 Fault reactions

List	PROFId- rive	Reaction	Description
NONE	-	None	<p>No reaction when a fault occurs.</p> <p>Note:</p> <p>When the "Basic positioner" function module is activated (r0108.4 = 1) the following applies:</p> <p>When a fault occurs with fault reaction "NONE", an active traversing task is interrupted and a change is made into tracking mode until the fault has been rectified and acknowledged.</p>
OFF1	ON/ OFF	Brake along the ramp generator deceleration ramp followed by pulse disable	<p>Closed-loop speed control (p1300 = 20, 21)</p> <ul style="list-style-type: none"> n_set = 0 is input immediately to brake the drive along the deceleration ramp (p1121). When zero speed is detected, the motor holding brake (if parameterized) is closed (p1215). The pulses are suppressed when the brake application time (p1217) expires. <p>Zero speed is detected if the actual speed drops below the threshold in p1226 or if the monitoring time (p1227) started when speed setpoint ≤ speed threshold (p1226) has expired.</p> <p>Closed-loop torque control (p1300 = 23)</p> <ul style="list-style-type: none"> The following applies to closed-loop torque control mode: Reaction as for OFF2. When changing over to closed-loop control using p1501, the following applies: There is no dedicated braking response. If the actual speed drops below the speed threshold (p1226), or the timer stage (p1227) has expired, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the brake application time (p1217) expires.
OFF2	COAST STOP	Internal/external pulse disable	<p>Closed-loop speed and torque control</p> <ul style="list-style-type: none"> Instantaneous pulse suppression, the drive "coasts" to a standstill. The motor holding brake (if one is being used) is closed immediately. Switching on inhibited is activated.

Table 3-2 Fault reactions, continued

List	PROFId- rive	Reaction	Description
OFF3	QUICK STOP	Brake along the OFF3 decelera- tion ramp fol- lowed by pulse disable	<p>Closed-loop speed control (p1300 = 20, 21)</p> <ul style="list-style-type: none"> • n_set = 0 is input immediately to brake the drive along the OFF3 deceleration ramp (p1135). • When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the brake application time (p1217) expires. <p>Zero speed is detected if the actual speed drops below the threshold in p1226 or if the monitoring time (p1227) started when speed setpoint <= speed threshold (p1226) has expired.</p> <ul style="list-style-type: none"> • Switching on inhibited is activated. <p>Closed-loop torque control (p1300 = 23)</p> <ul style="list-style-type: none"> • Changeover to speed-controlled operation and other reactions as described for speed-controlled operation.
STOP1	-	-	In preparation
STOP2	-	n_set = 0	<ul style="list-style-type: none"> • n_set = 0 is input immediately to brake the drive along the OFF3 deceleration ramp (p1135). • The drive remains in closed-loop speed control mode.
DCBRAKE	-	-	In preparation
ENCODER	-	Internal/external pulse disable (p0491)	<p>The fault reaction ENCODER is applied as a function of the setting in p0491.</p> <p>Factory setting: p0491 = 0 --> Encoder fault causes OFF2</p> <p>Notice:</p> <p>When changing p0491, it is imperative that the information in the description of this parameter is carefully observed.</p>

Acknowledgement of faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been remedied.

Table 3-3 Acknowledgement of faults

Acknowledg-ment	Description								
POWER ON	<p>The fault is acknowledged by a POWER ON process (switch drive unit off and on again).</p> <p>Note: If this action has not eliminated the fault cause, the fault is displayed again immediately after power up.</p>								
IMMEDIATELY	<p>Faults can be acknowledged at an individual drive object (Points 1 to 3) or at all drive objects (point 4) as follows:</p> <p>1 Acknowledge by setting parameter: p3981 = 0 --> 1</p> <p>2 Acknowledge via binector inputs:</p> <table> <tr> <td>p2103</td> <td>BI: 1. Acknowledge faults</td> </tr> <tr> <td>p2104</td> <td>BI: 2. Acknowledge faults</td> </tr> <tr> <td>p2105</td> <td>BI: 3. Acknowledge faults</td> </tr> </table> <p>3 Acknowledge using PROFIBUS control signal: STW1.7 = 0 --> 1 (edge)</p> <p>4 Acknowledging all faults</p> <table> <tr> <td>p2102</td> <td>BI: Acknowledging all faults</td> </tr> </table> <p>All of the faults at all of the drive objects of the drive system can be acknowledged using this binector input.</p> <p>Note:</p> <ul style="list-style-type: none"> • These faults can also be acknowledged by a POWER ON operation. • If this action has not eliminated the fault cause, the fault is displayed again immediately after power up. • Safety Integrated faults The "Safe Stop" (SH) function must be deselected before these faults are acknowledged. 	p2103	BI: 1. Acknowledge faults	p2104	BI: 2. Acknowledge faults	p2105	BI: 3. Acknowledge faults	p2102	BI: Acknowledging all faults
p2103	BI: 1. Acknowledge faults								
p2104	BI: 2. Acknowledge faults								
p2105	BI: 3. Acknowledge faults								
p2102	BI: Acknowledging all faults								
PULSE INHIBIT	<p>The fault can only be acknowledged with a pulse inhibit (r0899.11 = 0).</p> <p>The same possibilities are available for acknowledging as described under acknowledge IMMEDIATELY.</p>								

Save fault buffer on POWER OFF

The contents of the fault buffer are saved to non-volatile storage when the Control Unit 320 (CU320) is powered down, i.e. the fault buffer history is still available when the unit is powered up again.

Note:

Preconditions:

- Firmware with version V2.2 or later.
- Control Unit 320 (CU320) with hardware version C or higher.
The hardware version is shown on the rating plate or can be displayed online with the commissioning software (in Project Navigator under "Drive Unit" --> Configuration --> Version Overview).

If these conditions are not fulfilled, the contents of the fault buffer are deleted on every POWER ON.

The fault buffer of a drive object comprises the following parameters:

- r0945[0...63], r0947[0...63], r0948[0...63], r0949[0...63]
- r2109[0...63], r2130[0...63], r2133[0...63], r2136[0...63]

The fault buffer contents can be deleted manually as follows:

- Delete fault buffer for all drive objects:
p2147 = 1 --> p2147 = 0 is automatically set after execution.
- Delete fault buffer for a specific drive object:
p0952 = 0 --> The parameter belongs to the specified drive object.

The fault buffer contents are automatically deleted in response to the following events:

- Restore factory setting (p0009 = 30 and p0976 = 1).
- Download with modified structure (e.g. number of drive objects changed).
- Power-up after other parameter values have been loaded (e.g. p0976 = 10).
- Firmware release upgrade.

3.1.2 Explanation of the List of Faults and Alarms

The data in the following example has been chosen at random. A description can contain the information listed below. Some of the information is optional.

The list of faults and alarms (See Section 3.2) has the following layout:

----- **Start of example** -----

Axxxxx (F, N)	Fault location (optional): Name
Drive object:	List of objects.
Reaction:	NONE
Acknowledgment:	NONE
Cause:	Description of possible causes. Fault value (r0949, interpret format): or alarm value (r2124, interpret format): (optional) Information about fault or alarm values (optional).
Remedy:	Description of possible remedies.
Reaction to F:	A_INFEED: OFF2 (OFF1, NONE) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledgment for F:	IMMEDIATELY (POWER ON)
Reaction to N:	NONE
Acknowledgment for N:	NONE

----- **End of example** -----

Axxxxx	Alarm xxxxx
Axxxxx (F, N)	Alarm xxxxx (message type can be changed to F or N)
Fxxxxx	Fault xxxxx
Fxxxxx (A, N)	Fault xxxxx (report type can be changed to F or N)
Nxxxxx	No message
Nxxxxx (A)	No message (message type can be changed to A)
Cxxxxx	Safety message (separate message buffer)

A report comprises a letter followed by the relevant number.

The meaning of the letters is as follows:

- A means "Alarm"
- F means "Fault"
- N means "No Report" or "Internal Report"
- C means "Safety message"

The optional brackets indicate whether the type specified for this report can be changed and which report types can be adjusted via parameter (p2118, p2119).

Information about reaction and acknowledgement is specified independently for a report with adjustable report type (e.g. reaction to F, acknowledgement for F).

Note:

You can change the default properties of a fault or alarm by setting parameters.

References: /IH1/ SINAMICS S120 Commissioning Manual
Chapter "Diagnostics"

The list of faults and alarms (see Chapter 3.2) provide information referred to the properties of a message/report that have been set as standard. If the properties of a specific message/report are changed, then the appropriate information may have to be modified in this list.

Fault location (optional): Name

The fault location (optional), the name of the fault or alarm and the report number all serve to identify the report (e.g. with the commissioning software).

Drive object:

For each message (fault/alarm) it is specified in which drive object this message is present.

A message can belong to either one, several, or all drive objects.

Reaction: Default fault reaction (adjustable fault reaction)

Specifies the default reaction in the event of a fault.

The optional brackets indicate whether the default fault reactions can be changed and which fault reactions can be adjusted via parameters (p2100, p2101).

Note:

See Chapter 3.1.1

Acknowledgment: Default acknowledgement (adjustable acknowledgement)

Specifies the default method of fault acknowledgement after the cause has been eliminated.

The optional brackets indicate whether the default acknowledgement can be changed and which acknowledgement can be adjusted via parameter (p2126, p2127).

Note:

See Chapter 3.1.1

Cause:

Description of the possible causes of the fault/alarm A fault or alarm value is also specified as an option.

Fault value (r0949, format):

The fault value is entered in the fault buffer in r0949[0...63] and specifies additional, precise information about a fault.

Alarm value (r2124, format):

The alarm value specifies additional, precise information about an alarm.

The alarm value is entered in the alarm buffer in r2124[0...7] and specifies additional, precise information about an alarm.

Remedy:

Description of the potential methods for eliminating the cause of the active fault or alarm.



Alarm

In individual cases, the servicing and maintenance personnel are responsible for choosing a suitable method for eliminating the cause of faults.

3.1.3 Numerical ranges of faults and alarms

Note:

The following numerical ranges for the faults and alarms represent a complete overview for SINAMICS.

The faults and alarms for the product described in this List Manual are described in detail in Chapter 3.2.

Faults and alarms are organized into the following numerical ranges:

Table 3-4 Numerical ranges of faults and alarms

from	to	Range
1000	3999	Control Unit
4000	4999	Reserved
5000	5999	Power unit
6000	6899	Infeed
6900	6999	Braking Module
7000	7999	Drive
8000	8999	Option Board
9000	19999	Reserved
20000	29999	OEM
30000	30999	DRIVE-CLiQ component power unit
31000	31999	DRIVE-CLiQ component encoder 1
32000	32999	DRIVE-CLiQ component encoder 2 Note: Faults that occur are automatically output as alarm if the encoder is parameterized as direct measuring system and does not intervene in the motor control.
33000	33999	DRIVE-CLiQ component encoder 3 Note: Faults that occur are automatically output as alarm if the encoder is parameterized as direct measuring system and does not intervene in the motor control.
34000	34999	Voltage Sensing Module (VSM)
35000	35199	Terminal Module 54F (TM54F)
35200	35999	Terminal Module 31 (TM31)

Table 3-4 Numerical ranges of faults and alarms, continued

from	to	Range
40000	40999	Controller extension 32 (CX32)
41000	48999	Reserved
49000	49999	SINAMICS GM/SM/GL
50000	50499	Communication Board (COMM BOARD)
50500	59999	OEM Siemens
60000	65535	OEM external

3.2 List of faults and alarms

Product: SINAMICS S, Version: 2503100, Language: eng

F01000	Internal software error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline. - replace the Control Unit.
F01001	Internal software error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.
F01002	Internal software error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.
F01003	Acknowledgement delay when accessing the memory
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	A memory area was accessed that does not return a "READY". Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - contact the Hotline.
N01004 (F, A)	Internal software error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An internal software error has occurred. Fault value (r0949, hexadecimal): Only for internal Siemens troubleshooting.

Remedy: - read-out diagnostics parameter (r9999).
 - contact the Hotline.
 See also: r9999 (Software error internal supplementary diagnostics)

Reaction upon F: OFF2

Acknowled. upon F: POWER ON

Reaction upon A: NONE

Acknowled. upon A: NONE

F01005 Firmware download for DRIVE-CLiQ component unsuccessful

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Firmware was not able to be downloaded into a DRIVE-CLiQ component.
 Fault value (r0949, interpret hexadecimal):
 xxxxxx hex: xx = component number, yyyy = cause of the fault
 yyyy = 000B hex = 11 dec:
 DRIVE-CLiQ component has detected a checksum error.
 yyyy = 000F hex = 15 dec:
 The selected DRIVE-CLiQ component did not accept the contents of the firmware file.
 yyyy = 0012 hex = 18 dec:
 Firmware version is too old and is not accepted by the component.
 yyyy = 0013 hex = 19 dec:
 Firmware version is not suitable for the hardware release of the component.
 yyyy = 0065 hex = 101 dec:
 After several communication attempts, not response from the DRIVE-CLiQ component.
 yyyy = 008B hex = 139 dec:
 Initially, a new boot loader is loaded (must be repeated after POWER ON).
 yyyy = 008C hex = 140 dec:
 Firmware file for the DRIVE-CLiQ component not available on the CompactFlash card.
 yyyy = 008F hex = 142 dec:
 Component has not changed into the mode for firmware download.
 yyyy = 009C hex = 156 dec:
 Component with the specified component number is not available (p7828).
 yyyy = Additional values:
 Only for internal Siemens troubleshooting.

Remedy: - check the selected component number (p7828).
 - check the DRIVE-CLiQ connection.
 - save suitable firmware file for download in the directory /siemens/sinamics/code/sac/.
 - after POWER ON has been carried out again for the DRIVE-CLiQ component, download the firmware again.

A01006 Firmware update for DRIVE-CLiQ component required

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The firmware of a DRIVE-CLiQ component must be updated as there is no suitable firmware or firmware version in the component for operation with the Control Unit.
 Alarm value (r2124, interpret decimal):
 Component number of the DRIVE-CLiQ component.

Remedy: Firmware update using the commissioning software:
 The firmware version of all of the components on the "Version overview" page can be read in the Project Navigator under "Configuration" of the associated drive unit and an appropriate firmware update can be carried out.
 Firmware update via parameter:
 - take the component number from the alarm value and enter into p7828.
 - start the firmware download with p7829 = 1.

A01007	POWER ON for DRIVE-CLiQ component required
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ component must be powered-up again (POWER ON) as, for example, the firmware was updated. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component. Note: For a component number = 1, a POWER ON of the Control Unit is required.
Remedy:	Switch-out the power supply of the specified DRIVE-CLiQ component and switch-in again.
F01008 (N)	Upload not possible
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	It is neither possible to upload parameters nor the topology because this would lead to inconsistent data sets due to the activation of certain drive functions. Fault value (r0949, interpret decimal): Number of active functions that result in the upload being canceled.
Remedy:	For all vector drives, check the following functions and if required, de-activate: - rotating measurement (p1960). - record the friction characteristic (p3845). - synchronize line-drive (p3800).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A01009 (N)	CU: Control board overtemperature
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature (r0037[0]) of the control board (Control Unit) has exceeded the specified limit value.
Remedy:	- check the air intake for the Control Unit. - check the fan for the Control Unit (only for CU310). Note: The alarm automatically disappears after the limit value has been fallen below.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F01010	Drive type unknown
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An unknown drive type was found. Fault value (r0949, interpret decimal): Drive object type (refer to p0101, p0107).
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.

F01011 (N)	Download interrupted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The project download was interrupted. - the user prematurely interrupted the project download. - the communication cable was interrupted (cable breakage, cable withdrawn). Note: The response to an interrupted download is the state "first commissioning".
Remedy:	- check the communication cable. - download the project again. - boot from previously saved files (power-down/power-up or p0976).
Reaction upon N:	NONE
Acknowled. upon N:	NONE

F01012 (N)	Project conversion error
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	When converting the project of an older FW version, a fatal error occurred. The fault value (r0949) specifies the number of the parameter that caused the error. Notice: For fault value 600, the motor temperature monitoring is no longer guaranteed.
Remedy:	The parameter specified in fault value (r0949) must be checked. Notice: For fault value 600 the parameterization of p0600 (motor temperature sensor for monitoring) must be corrected (refer to the function diagram 8016 and parameter description for p0600).
Reaction upon N:	NONE
Acknowled. upon N:	NONE

F01015	Internal software error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.

A01016 (F)	CompactFlash card changed
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	On the CompactFlash card, at least one file in the directory /SIEMENS/SINAMICS/ has been illegally changed with respect to that supplied from the factory. No changes are permitted in this directory. Alarm value (r2124, interpret decimal): 0: Checksum of one file is incorrect. 1: File missing. 2: Too many files. 3: Incorrect firmware version. 4: Incorrect checksum of the back-up file. See also: r9925 (CompactFlash card file error)

Remedy: For the CompactFlash card, restore the status when originally supplied from the factory.

Note:

The file involved can be read-out using parameter r9925.

See also: r9926 (CompactFlash card check status)

Reaction upon F: OFF2

Acknowled. upon F: POWER ON

A01017 Component lists changed

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: On the CompactFlash card, one file in the directory /SIEMENS/SINAMICS/DATA or /ADDON/SINAMICS/DATA has been illegally changed with respect to that supplied from the factory. No changes are permitted in this directory.

Alarm value (r2124, interpret decimal):

The problem is indicated in the first digit of the alarm value:

1: File does not exist.

2: Firmware version of the file does not match-up with the software version.

3: The file checksum is incorrect.

The second digit of the alarm value indicates in which directory the file is located:

0: Directory /SIEMENS/SINAMICS/DATA/

1: Directory /ADDON/SINAMICS/DATA/

The third digit of the alarm value indicates the file:

0: File MOTARM.ACX

1: File MOTSRM.ACX

2: File MOTSLM.ACX

3: File ENCDATA.ACX

4: File FILTDATA.ACX

5: File BRKDATA.ACX

Remedy: For the CompactFlash card file involved, restore the status when originally supplied from the factory.

F01030 Sign of life failure for master control

Drive object: A_INF, B_INF, SERVO, S_INF, TM41, VECTOR

Reaction: A_INFEED: OFF1 (NONE, OFF2)

SERVO: OFF3 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)

VECTOR: OFF3 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: For active PC master control, no sign-of-life was received within the monitoring time.

The master control was returned to the active BICO interconnection.

Remedy: Set the monitoring time higher at the PC or, if required, completely disable the monitoring function.

For the commissioning software, the monitoring time is set as follows:

<Drive> -> Commissioning -> Control panel -> Button "Fetch master control" -> A window is displayed to set the monitoring time in milliseconds.

Notice:

The monitoring time should be set as short as possible. A long monitoring time means a late response when the communications fail!

F01031 Sign of life failure for AOP off in remote

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR

Reaction: A_INFEED: OFF1 (NONE, OFF2)

SERVO: OFF3 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)

VECTOR: OFF3 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: With the off mode active in remote, no sign-of-life was received within the monitoring time.

The master control was returned to the active BICO interconnection.

Remedy: Set the monitoring time higher at the AOP or disable completely.

Notice:

The monitoring time should be set as short as possible. A long monitoring time means a late response when the communications fail!

The monitoring time is set in milliseconds via the Main menu -> Settings -> Control settings -> Timeout monitoring

F01033	Units changeover: Reference parameter value invalid
Drive object:	A_INF, B_INF, SERVO, S_INF, TM41, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	When changing over the units into the referred representation type, it is not permissible that any of the reference parameters required are equal to 0.0 Fault value (r0949, parameter): Reference parameter, whose value is 0.0. See also: p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Selecting technological units)
Remedy:	Set the value of the reference parameter to a number different than 0.0. See also: p0304 (Rated motor voltage), p0305 (Rated motor current), p0310 (Rated motor frequency), p0596 (Reference quantity, technological units), p2000 (Reference frequency), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)

F01034	Units changeover: Calculation parameter values after reference value change unsuccessful
Drive object:	A_INF, B_INF, SERVO, S_INF, TM41, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The change of a reference parameter meant that for a parameter involved, the selected value was not able to be recalculated in the per unit notation. The change was rejected and the original parameter value restored. Fault value (r0949, parameter): Parameter, whose value was not able to be re-calculated. See also: p0304 (Rated motor voltage), p0305 (Rated motor current), p0310 (Rated motor frequency), p0596 (Reference quantity, technological units), p2000 (Reference frequency), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)
Remedy:	Select the value of the reference parameters so that the parameter involved can be calculated in the per unit notation. See also: p0304 (Rated motor voltage), p0305 (Rated motor current), p0310 (Rated motor frequency), p0596 (Reference quantity, technological units), p2000 (Reference frequency), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)

A01035 (F)	ACX: Boot from the back-up parameter back-up files
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the Control Unit booted, no complete data set was found from the parameter back-up files. The last time that the parameterization was saved, it was not completely carried out. Instead, a back-up data set or a back-up parameter back-up file is downloaded. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	If you have saved the project data using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written into the CompactFlash card.
Reaction upon F:	A_INF: NONE (OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

F01036 (A)	ACX: Parameter back-up file missing
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When downloading the device parameterization, a parameter back-up file associated with a drive object cannot be found. Neither a PSxxxxxy.ACX, a PSxxxxxy.NEW nor a PSxxxxxy.BAK parameter back-up file exists on the CompactFlash card for this drive object. Fault value (r0949, interpret hexadecimal): Byte 1: yyy in the file name PSxxxxxy.ACX yyy = 000 --> consistency back-up file yyy = 001 ... 062 --> drive object number yyy = 099 --> PROFIBUS parameter back-up file Byte 2, 3, 4: Only for internal Siemens troubleshooting.
Remedy:	If you have saved your project data using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written into the CompactFlash card. If you have not saved the project data, then the system must be again commissioned for the first time.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01037 (A)	ACX: Re-naming the parameter back-up file not successful
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The re-naming after saving a parameter back-up file on the CompactFlash card or in the volatile memory was unsuccessful. One of the parameter back-up files to be re-named had the "read only" attribute. The parameter back-up files are saved on the CompactFlash card in the directory \USER\SINAMICS\DATA. It is possible that the CompactFlash card is defective. Fault value (r0949, interpret hexadecimal): Byte 1: yyy in the file names PSxxxxxy.* or Cxxxxxy.* or CCxxxxxy.* yyy = 000 --> consistency back-up file yyy = 099 --> PROFIBUS parameter back-up file PSxxx099.* Byte 2: xxx in the file name PSxxxxxy.* xxx = 000 --> data save started with p0977 = 1 xxx = 010 --> data save started with p0977 = 10 xxx = 011 --> data save started with p0977 = 11 xxx = 012 --> data save started with p0977 = 12 Byte 4, 3: Only for internal Siemens troubleshooting.
Remedy:	- check whether one of the files to be overwritten has the attribute "read only" and change this file attribute into "writable". Check all of the files (PSxxxxxy.*, CCxxxxxy.*, Cxxxxxy.*) that belong to drive yyy designated in the fault value. - replace the CompactFlash card.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01038 (A) ACX: Loading the parameter back-up file not successful	
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	An error occurred when loading PSxxxxxy.ACX or PTxxxxxy.ACX files from the CompactFlash card or from the volatile memory of the Control Unit. Fault value (r0949, interpret hexadecimal): Byte 1: yyy in the file name PSxxxxxy.ACX yyy = 000 --> consistency back-up file yyy = 001 ... 062 --> drive object number yyy = 099 --> PROFIBUS parameter back-up file Byte 4, 3, 2: Only for internal Siemens troubleshooting.
Remedy:	- if you have saved your project data using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written into the CompactFlash card. - replace the CompactFlash card.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01039 (A) ACX: Writing to the parameter back-up file was unsuccessful	
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Writing to at least one parameter-back-up file PSxxxxxy.NEW on the CompactFlash card was unsuccessful. - on the CompactFlash card in the directory /USER/SINAMICS/DATA/ at least one parameter back-up file has the "read only" file attribute and cannot be overwritten. - there is not sufficient free memory space on the CompactFlash card. - the CompactFlash card is defective and cannot be written to. Fault value (r0949, interpret hexadecimal): Byte 1: yyy in the file name PSxxxxxy.NEW yyy = 000 --> consistency back-up file yyy = 001 ... 062 --> drive object number yyy = 099 --> PROFIBUS parameter back-up file Byte 2: xxx in the file name PSxxxxxy.NEW xxx = 000 --> data save started with p0977 = 1 xxx = 010 --> data save started with p0977 = 10 xxx = 011 --> data save started with p0977 = 11 xxx = 012 --> data save started with p0977 = 12 Byte 4, 3: Only for internal Siemens troubleshooting.
Remedy:	- check the file attribute of the files (PSxxxxxy.*, CAxxxxxy.*, CCxxxxxy.*) and, if required, change from "read only" to "writeable". - check the free memory space on the CompactFlash card. Approx. 40 kbyte of free memory space is required for every drive object in the system. - replace the CompactFlash card.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01040 Save parameter settings and carry out a POWER ON	
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	A parameter was changed in the drive system that means that it is necessary to save the parameters and re-boot (e.g. p0110).

- Remedy:**
- save the parameters (p0971/p0977).
 - carry out a POWER ON (power off/on) for all components.

F01041 Parameter save necessary

- Drive object:** All objects
- Reaction:** NONE
- Acknowledge:** IMMEDIATELY
- Cause:** Defective or missing files were detected on the CompactFlash card when booting.
 Fault value (r0949, interpret decimal):
 -1: Source file cannot be opened.
 -2: Source file cannot be read.
 -3: Target directory cannot be set-up.
 -4: Target file cannot be set-up/opened.
 -5: Target file cannot be written into.
 Additional values:
 Only for internal Siemens troubleshooting.
- Remedy:**
- save the parameters (p0977).
 - download the project again into the drive unit.
 - update the firmware
 - if required, replace the Control Unit and/or CompactFlash card.

F01042 Parameter error for a project download

- Drive object:** All objects
- Reaction:** A_INFEED: OFF2 (NONE, OFF1)
 SERVO: OFF2 (NONE, OFF1, OFF3)
 VECTOR: OFF2 (NONE, OFF1, OFF3)
- Acknowledge:** IMMEDIATELY
- Cause:** An error was detected when downloading a project using the commissioning (start-up) software (e.g. incorrect parameter value).
 For the specified parameter, it was detected that dynamic limits were exceeded that could possibly depend on other parameters.
 Fault value (r0949, interpret decimal):
 Low word: Parameter number (16 bits without sign)
 Byte 3: Parameter index
 Byte 4: Error ID
 0: Parameter number illegal.
 1: Parameter value cannot be changed.
 2: Lower or upper value limit exceeded.
 3: Sub-index incorrect.
 4: No array, no sub-index.
 5: Data type incorrect.
 6: Setting not permitted (only resetting).
 7: Descriptive element cannot be changed.
 9: Descriptive data not available.
 11: No master control.
 15: No text array present.
 17: Task cannot be executed due to operating status.
 20: Illegal value.
 21: Response too long.
 22: Parameter address illegal.
 23: Format illegal.
 24: Number of values not consistent.
 25: Drive object does not exist.
 101: Presently de-activated.
 104: Illegal value.
 107: Write access not permitted when controller enabled.
 108: Units unknown.
 109: Write access only in the commissioning state, encoder (p0010 = 4).
 110: Write access only in the commissioning state, motor (p0010 = 3).
 111: Write access only in the commissioning state, power unit (p0010 = 2).
 112: Write access only in the quick commissioning mode (p0010 = 1).

- 113: Write access only in the ready mode (p0010 = 0).
- 114: Write access only in the commissioning state, parameter reset (p0010 = 30).
- 115: Write access only in the Safety Integrated commissioning state (p0010 = 95).
- 116: Write access only in the commissioning state, technological application/units (p0010 = 5).
- 117: Write access only in the commissioning state (p0010 not equal to 0).
- 118: Write access only in the commissioning state, download (p0010 = 29).
- 119: Parameter may not be written into in download.
- 120: Write access only in the commissioning state – drive basis configuration (device: p0009 = 3).
- 121: Write access only in the commissioning state – define drive type (device: p0009 = 2).
- 122: Write access only in the commissioning state – data set basis configuration (device: p0009 = 4).
- 123: Write access only in the commissioning state – device configuration (device: p0009 = 1).
- 124: Write access only in the commissioning state – device download (device: p0009 = 29).
- 125: Write access only in the commissioning state – device parameter reset (device: p0009 = 30).
- 126: Write access only in the commissioning state – device ready (device: p0009 = 0).
- 127: Write access only in the commissioning state – device (device: p0009 not equal to 0).
- 129: Parameter may not be written into in download.
- 130: Transfer of the master control is inhibited via BI: p0806.
- 131: Required BICO interconnection not possible, because BICO output does not supply floating value
- 132: Free BICO interconnection inhibited via p0922.
- 133: Access method not defined.
- 200: Below the valid values.
- 201: Above the valid values.
- 202: Cannot be accessed from the Basic Operator Panel (BOP).
- 203: Cannot be read from the Basic Operator Panel (BOP).
- 204: Write access not permitted.

Remedy:

- enter the correct value into the specified parameter.
- identify the parameter that narrows (restricts) the limits of the specified parameter.

F01043 Fatal error at project download

Drive object: All objects

Reaction: A_INFEED: OFF2 (OFF1)
 SERVO: OFF2 (OFF1, OFF3)
 VECTOR: OFF2 (OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: A fatal error was detected when downloading a project using the commissioning (start-up) software.
 Fault value (r0949, interpret decimal):

- 1: Device status cannot be changed to Device Download (drive object ON?).
- 2: Incorrect drive object number.
- 3: A drive object that has already been deleted is deleted again.
- 4: Deletes drive object that has already been registered for generation.
- 5: Deletes a drive object that no longer exists.
- 6: Generating an undeleted drive object that already existed.
- 7: Regeneration of a drive object already registered for generation.
- 8: Maximum number of drive objects that can be generated exceeded.
- 9: Error while generating a device drive object.
- 10: Error while generating target topology parameters (p9902 and p9903).
- 11: Error when generating a drive object (global component).
- 12: Error when generating a drive object (drive component).
- 13: Unknown drive object type.
- 14: Drive status cannot be changed to Ready (p0947 and p0949).
- 15: Drive status cannot be changed to Drive Download.
- 16: Device status cannot be changed to Ready.
- 17: It is not possible to download the topology. The component wiring should be checked, taking into account the various messages/signals.
- 18: A new download is only possible if the factory settings are re-established for the drive unit.
- 19: The slot for the option module has been configured several times (e.g. CAN and COMM BOARD)
- 20: The configuration is inconsistent (e.g. CAN for Control Unit, however no CAN configured for drive objects A_INF, SERVO or VECTOR).

- Remedy:**
- use the current version of the commissioning software.
 - modify the offline project and carry out a new download (e.g. compare the number of drive objects, motor, encoder, power unit in the offline project and at the drive).
 - change the drive system (is a drive rotating or is there a message/signal?).
 - carefully note any other messages/signals and remove their cause.

F01044	CU CompactFlash: Message incorrectly written
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An error was detected when loading the message descriptions (FDxxxxxy.ACX) saved on the CompactFlash card. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	Replace the CompactFlash card.

A01045	CU CompactFlash: Configuring data invalid
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An invalid data type was detected when evaluating parameter files PSxxxxxy.ACX, PTxxxxxy.ACX, CAxxxxxy.ACX or CCxxxxxy.ACX, saved on the CompactFlash card. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	Restore the factory setting using (p0976 = 1) and re-load the project into the drive unit. Operation without any restrictions is then possible. After downloading the project, save the parameterization in STARTER using the function "Copy RAM to ROM" or with p0977 = 1. This means that the incorrect parameter files are overwritten on the CompactFlash card.

A01046 (F)	CU CompactFlash: Configuring data invalid
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An invalid data type was detected when evaluating the parameter files PSxxxxxy.ACX, PTxxxxxy.ACX, CAxxxx- yyy.ACX or CCxxxxxy.ACX saved on the CompactFlash card. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	Restore the factory setting using (p0976 = 1) and re-load the project into the drive unit. Operation without any restrictions is then possible. After downloading the project, save the parameterization in STARTER using the function "Copy RAM to ROM" or with p0977 = 1, so that the incorrect parameter files are overwritten on the CompactFlash card.
Reaction upon F:	A_INFEED: NONE (OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A01047 (F)	ACX: Write to parameter error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the parameters files PSxxxxxy.ACX, PTxxxxxy.ACX, CAxxxxxy.ACX or CCxxxxxy.ACX, saved on the CompactFlash card, a parameter value was not able to be transferred into the Control Unit memory. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	Restore the factory setting using (p0976 = 1) and re-load the project into the drive unit. Operation without any restrictions is then possible. After downloading the project, save the parameterization in STARTER using the function "Copy RAM to ROM" or with p0977 = 1. This means that the incorrect parameter files are overwritten on the CompactFlash card.

Reaction upon F: A_INFEED: NONE (OFF2)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A01049 CU CompactFlash: It is not possible write to file

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: It is not possible to write into a write-protective file (PSxxxxx.acx). The write request was interrupted.
Alarm value (r2124, interpret decimal):
Drive object number.

Remedy: Check whether the "write protected" attribute has been set for the files on the CompactFlash card under
.../USER/SINAMICS/DATA/... When required, remove write protection and save again (e.g. set p0971 to 1).

F01050 CompactFlash card and device not compatible

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: OFF2 (NONE, OFF1, OFF3)
VECTOR: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: The CompactFlash card and the device type do not match (e.g. a CompactFlash card for SINAMICS S is inserted in SINAMICS G).

Remedy: - insert the matching CompactFlash card
- use the matching Control Unit or power unit.

F01051 Drive object type is not available

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The drive object type in conjunction with the selected application-specific perspective is not available. The required descriptive file (PDxxxxxy.ACX) does not exist on the CompactFlash card.
Fault value (r0949, interpret decimal):
Index of p0103 and p0107.
See also: p0103 (Application-specific view), r0103 (Application-specific view), p0107 (Drive object type), r0107 (Drive object type)

Remedy: - for this drive object type (p0107), select a valid application-specific perspective (p0103).
- save the required descriptive file (PDxxxxxy.ACX) on the CompactFlash card.
See also: p0103 (Application-specific view), r0103 (Application-specific view), p0107 (Drive object type), r0107 (Drive object type)

A01052 CU: System overload calculated for the complete target topology

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A system overload was calculated based on a complete active target topology.
Alarm value (r2124, interpret decimal):
2: Computation time load too high.
6: Cyclic computation time load too high.

Remedy: - reduce the sampling time.
- only use one data set (CDS, DDS).
- de-activate the function module.
- de-activate the drive object.
- remove the drive object from the target topology.

Note:
After executing the appropriate counter-measure, a new calculation must be initiated with p9974 = 1.

A01053	CU: System overload measured
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A system overload was determined based on measured values. Alarm value (r2124, interpret decimal): 2: Computation time load too high. 6: Cyclic computation time load too high. See also: r9976 (System load)
Remedy:	<ul style="list-style-type: none"> - reduce the sampling time. - only use one data set (CDS, DDS). - de-activate the function module. - de-activate the drive object. - remove the drive object from the target topology.
A01064 (F)	CU: Internal error (CRC)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	CRC error in the Control Unit program memory
Remedy:	<ul style="list-style-type: none"> - carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3, STOP2) VECTOR: NONE (OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
A01065	Drive: Fault for non-active encoder
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	On or several inactive encoders indicate an error.
Remedy:	Remove the error for the inactive encoder.
A01099	Tolerance window of the timer synchronization exited
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The clock (time) master exited the selected tolerance window for clock synchronization. See also: p3109 (RTC real time synchronization, tolerance window)
Remedy:	Select the re-synchronization interval so that the synchronization deviation between the clock master and drive system lies within the tolerance window. See also: r3108 (RTC last synchronization deviation)
A01100	CU: CompactFlash card withdrawn
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The CompactFlash card (non-volatile memory) was withdrawn in operation. Notice: It is not permissible that the CompactFlash card is withdrawn or inserted under voltage.
Remedy:	<ul style="list-style-type: none"> - power-down the drive system. - re-insert the CompactFlash card that was withdrawn - this card must match the drive system. - power-up the drive system again.

F01105 (A)	CU: Insufficient memory
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Too many functions have been configured on this Control Unit e.g. too many drives, function modules, data sets, OA applications, blocks, etc). Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- change the configuration on this Control Unit (e.g. fewer drive, function modules, data sets, OA applications, blocks, etc). - use an additional Control Unit.
Reaction upon A:	NONE
Acknowled. upon A:	NONE

F01107	CU: Save to CompactFlash card unsuccessful
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A data save on the CompactFlash card was not able to be successfully carried out. - CompactFlash card is defective. - CompactFlash card does not have sufficient memory space. Fault value (r0949, interpret decimal): -1: The file on the RAM was not able to be opened. -2: The file on the RAM was not able to be read. -3: A new directory was not able to be set-up on the CompactFlash card. -4: A new file was not able to be set-up on the CompactFlash card. -5: A new file was not able to be written onto the CompactFlash card.
Remedy:	- try to save again. - use another CompactFlash card.

F01110	CU: More than one SINAMICS G on one Control Unit
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	More than one SINAMICS G power unit type is being operated from the Control Unit. Fault value (r0949, interpret decimal): Number of the second drive with a SINAMICS G power unit type.
Remedy:	Only one SINAMICS G drive type is permitted.

F01111	CU: SINAMICS S and G together on one Control Unit
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	SINAMICS S and G drive units are being operated together on one Control Unit. Fault value (r0949, interpret decimal): Number of the first drive object with a different power unit type.
Remedy:	Only power units of one particular drive type may be operated with one Control Unit.

F01112	CU: Power unit not permissible
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The connected power unit cannot be used together with this Control Unit. Fault value (r0949, interpret decimal): 1: Power unit is not supported (e.g. PM240). 2: DC/AC power unit connected to CU310 not permissible.
Remedy:	Replace the power unit that is not permissible by a component that is permissible.

F01120 (A)	Terminal initialization has failed
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal software error has occurred when initializing the terminal functions on the CU3xx, the TB30 or the TM31. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	<ul style="list-style-type: none"> - carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline. - replace the Control Unit.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01122 (A)	Frequency at the measuring probe input too high
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The frequency of the pulses at the measuring probe input is too high. Fault value (r0949, interpret decimal): 1: DI/DO 9 (X122.8) 2: DI/DO 10 (X122.10) 4: DI/DO 11 (X122.11) 8: DI/DO 13 (X132.8) 16: DI/DO 14 (X132.10) 32: DI/DO 15 (X132.11) 1001: DI/DO 9 (X122.8), initialization error 1002: DI/DO 10 (X122.10), initialization error 1004: DI/DO 11 (X122.11), initialization error 1008: DI/DO 13 (X132.8), initialization error 1016: DI/DO 14 (X132.10), initialization error 1032: DI/DO 15 (X132.11), initialization error
Remedy:	Reduce the frequency of the pulses at the measuring probe input.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01150	CU: Number of instances of a drive object type exceeded
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The maximum permissible number of instances of a drive object type was exceeded. Fault value (r0949, interpret decimal): Byte 1: Drive object type (p0107). Byte 2: Max. permissible number of instances for this drive object type. Byte 3: Actual number of instances for this drive object type.
Remedy:	<ul style="list-style-type: none"> - power-down the unit. - suitably restrict the number of instances of a drive object type by reducing the number of inserted components. - re-commission the unit.
F01205	CU: Time slice overflow
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	Insufficient processing time is available for the existing topology. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	<ul style="list-style-type: none"> - reduce the number of drives. - increase the sampling times.

F01210	CU: Basic clock cycle selection and DRIVE-CLiQ clock cycles do not match
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The parameter to select the basic clock cycle does not match the drive topology. Drives connected to the same DRIVE-CLiQ port of the Control Unit have been assigned different basic clock cycles. Fault value (r0949, interpret decimal): The fault value specifies the parameter involved. See also: r0111 (Basis sampling time selection)
Remedy:	Only those drive objects may be connected to the same DRIVE-CLiQ socket of the Control Unit that should run with the same basic clock cycle. For example, Active Line Modules and Motor Modules should be inserted at different DRIVE-CLiQ sockets as their basic clock cycles and current controller clock cycles are generally different. See also: r0111 (Basis sampling time selection)

F01220	CU: Bas clk cyc too low
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The parameter for the basic clock cycle is set too short for the number of connected drives. Fault value (r0949, interpret decimal): The fault value specifies the parameter involved. See also: r0110 (Basis sampling times)
Remedy:	- increase the basic clock cycle. - reduce the number of connected drives and start to re-commission the unit. See also: r0110 (Basis sampling times)

F01221	CU: Bas clk cyc too low
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The closed-loop control / monitoring cannot maintain the intended clock cycle. The runtime of the closed-loop control/monitoring is too long for the particular clock cycle or the computation time remaining in the system is not sufficient for the closed-loop control/monitoring. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	Increase the basic clock cycle of DRIVE-CLiQ communications. See also: p0112 (Sampling times pre-setting p0115)

A01223	CU: Sampling time inconsistent
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When changing a sampling time (p0115[0], p0799 or p4099), inconsistency between the clock cycles has been identified. Alarm value (r2124, interpret decimal): 1: Value, low minimal value. 2: Value, high maximum value. 3: Value not a multiple of 1.25 µs. 4: Value does not match clock cycle synchronous PROFIBUS operation. 5: Value not a multiple of 125 µs. 6: Value not a multiple of 250 µs. 7: Value not a multiple of 375 µs. 8: Value not a multiple of 400 µs. 10: Special restriction of the drive object violated. 20: For a SERVO with a 62.5 µs sampling time, more than a maximum of two SERVO-type drive objects were detected on the DRIVE-CLiQ line (no other drive object is permitted on this line). 21: Value can be a multiple of the current controller sampling time of a servo or vector drive in the system (e.g. for TB30, the values of all of the indices should be taken into account).

- 30: Value less than 31.25 μ s.
- 31: Value less than 62.5 μ s.
- 32: Value less than 125 μ s.
- 40: Nodes (devices) have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 μ s. Further, none of the nodes (devices) has a sampling time of less than 125 μ s.
- 41: A chassis unit was identified on the DRIVE-CLiQ line. Further, the highest common denominator of the sampling times of the all of the nodes (devices) connected to the line is less than 250 μ s.
- 42: An Active Line Module was identified on the DRIVE-CLiQ line as device. Further, the highest common denominator of the sampling times of the all of the nodes (devices) connected to the line is less than 125 μ s.
- 43: A Voltage Sensing Module (VSM) was identified on the DRIVE-CLiQ line as device. Further, the highest common denominator of the sampling times of the all of the nodes (devices) connected to the line is not equal to the current controller sampling time of the drive object of the VSM.
- 44: The highest common denominator of the sampling times of all of the components connected to the DRIVE-CLiQ line is not the same for all components of this drive object (e.g. there are components on different DRIVE-CLiQ lines on which different highest common denominators are generated).
- 52: Nodes (devices) have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 31.25 μ s.
- 54: Nodes (devices) have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 62.5 μ s.
- 56: Nodes (devices) have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 μ s.
- 58: Nodes (devices) have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 250 μ s.
- 99: Inconsistency identified cross drive objects.
- 116: Recommended clock cycle in r0116[0...1].

Note:

The topology rules should be noted when connected-up DRIVE-CLiQ.

The rules are, provided in the following document:

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The parameters of the sampling times can also be changed with automatic calculations.

Remedy:

- check the DRIVE-CLiQ cables.

- set a valid sampling time.

See also: p0115 (Sampling time for supplementary functions), p0799 (CU inputs/outputs, sampling time), p4099 (TB30 inputs/outputs, sampling time)

A01224

CU: Pulse frequency inconsistent

Drive object:

All objects

Reaction:

NONE

Acknowledge:

NONE

Cause:

When changing the minimum pulse frequency (p0113) inconsistency between the pulse frequencies was identified.

Alarm value (r2124, interpret decimal):

1: Value, low minimal value.

2: Value, high maximum value.

3: Resulting sampling time is not a multiple of 1.25 μ s.

4: Value does not match clock cycle synchronous PROFIBUS operation.

10: Special restriction of the drive object violated.

99: Inconsistency identified cross drive objects.

116: Recommended clock cycle in r0116[0...1].

Remedy:

Set a valid pulse frequency.

See also: p0113 (Pulse frequency, minimum selection)

F01250

CU: CU-EEPROM incorrect read-only data

Drive object:

All objects

Reaction:

NONE (OFF2)

Acknowledge:

POWER ON

Cause:

Error when reading the read-only data of the EEPROM in the Control Unit.

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON.

- replace the Control Unit.

A01251	CU: CU-EEPROM incorrect read-write data
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when reading the read-write data of the EEPROM in the Control Unit. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	For alarm value r2124 < 256, the following applies: - carry out a POWER ON. - replace the Control Unit. For alarm value r2124 >= 256, the following applies: - for the drive object with this alarm, clear the fault memory (p0952 = 0). - as an alternative, clear the fault memory of all drive objects (p2147 = 1). - replace the Control Unit.

F01255	CU: Option Board EEPROM read-only data error
Drive object:	All objects
Reaction:	NONE (OFF2)
Acknowledge:	POWER ON
Cause:	Error when reading the read-only data of the EEPROM in the Option Board. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON. - replace the Control Unit.

A01256	CU: Option Board EEPROM Read-Write data error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when reading the read-write data of the EEPROM in the Option Board. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON. - replace the Control Unit.

F01303	DRIVE-CLiQ component does not support the required function
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A function requested by the Control Unit is not supported by a DRIVE-CLiQ component. Fault value (r0949, interpret decimal): 1: The component does not support the de-activation. 101: The Motor Module does not support an internal armature short-circuit. 102: The Motor Module does not support the de-activation. 201: The Sensor Module does not support actual value inversion (p0410.0 = 1) when using a Hall sensor (p0404.6 = 1) for the commutation. 202: The Sensor Module does not support parking/unparking. 203: The Sensor Module does not support the de-activation. 204: The firmware of this Terminal Module 15 (TM15) does not support the application TM15DI/DO. 205: The Sensor Module does not support the selected temperature evaluation (r0458). 206: The firmware of this Terminal Modules TM41/TM31/TM15 refers to an old firmware version. It is urgently necessary to upgrade the firmware to ensure disturbance-free operation. 207: The infeed with this hardware version does not support operation with device supply voltages of less than 380 V.
Remedy:	Upgrade the firmware of the DRIVE-CLiQ component involved. Re fault value = 205: Check parameter p0600 and p0601 and if required, adapt interpretation. Re fault value = 207: Replace the infeed or if required set the device supply voltage higher (p0210).

A01304 (F)	Firmware version of DRIVE-CLiQ component is not up-to-date
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	On the CompactFlash card, there is a later firmware version than in the connected DRIVE-CLiQ component. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component involved.
Remedy:	Update the firmware (p7828, p7829 and commissioning software).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
F01305	Topology: Component number missing
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The component number from the topology was not parameterized (p0121 (for power unit, refer to p0107), p0131 (for servo/vector drives, refer to p0107), p0141, p0151, p0161). Fault value (r0949, interpret decimal): The fault value includes the particular data set number. The fault also occurs if speed encoders were configured (p0187 ... p0189), however, no component numbers exist for them. In this case, the fault value includes the drive data set number plus 100 * encoder number (e.g. 3xx, if a component number was not entered into p0141 for the third encoder (p0189)). See also: p0121 (Power unit component number), p0131 (Motor component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0151 (Voltage Sensing Module component number), p0161 (Option board, component number), p0186 (Motor Data Sets (MDS) number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number)
Remedy:	Enter the missing component number or remove the component and restart commissioning. See also: p0121 (Power unit component number), p0131 (Motor component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0151 (Voltage Sensing Module component number), p0161 (Option board, component number), p0186 (Motor Data Sets (MDS) number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number)
A01306	Firmware of the DRIVE-CLiQ component being updated
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Firmware update is active for at least one DRIVE-CLiQ component. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component.
Remedy:	None necessary. This alarm automatically disappears after the firmware has been updated.
A01314	Topology: Component must not be present
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For a component, "de-activate and not present" is set but this component is still in the topology. Alarm value (r2124, interpret hexadecimal): Byte 1: Component number Byte 2: Component class of the component Byte 3: Connection number Note: Component class and connection number are described in F01375.

Remedy:

- remove the corresponding component.
- change the setting "de-activat and not present".

Note:
Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).
See also: p0105 (Activate/de-activate drive object), p0125 (Activate/de-activate power unit components), p0145 (Voltage Sensing Module, activate/de-activate), p0155 (Voltage Sensing Module, activate/de-activate)

A01315 Drive object not ready for operation

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: For the active drive object involved, at least one activated component is missing.

Note:

All other active and operational drive objects can be in the "RUN" state.

Remedy: The alarm automatically disappears again with the following actions:

- de-activate the drive object involved (p0105 = 0).
- de-activate the components involved (p0125 = 0, p0145 = 0, p0155 = 0, p0165 = 0).
- re-insert the components involved.

See also: p0105 (Activate/de-activate drive object), p0125 (Activate/de-activate power unit components), p0145 (Voltage Sensing Module, activate/de-activate), p0155 (Voltage Sensing Module, activate/de-activate)

A01316 Drive object inactive and again ready for operation

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: If, when inserting a component of the target topology, an inactive, non-operational drive object becomes operational again. The associated parameter of the component is, in this case, set to "activate" (p0125, p0145, p0155, p0165).

Note:

This is the only message, that is displayed for a de-activated drive object.

Remedy: The alarm automatically disappears again with the following actions:

- activate the drive object involved (p0105 = 1).
- again withdraw the components involved.

See also: p0105 (Activate/de-activate drive object)

A01317 De-activated component again present

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: If a component of the target topology for an active drive object is inserted and the associated parameter of the component is set to "de-activate" (p0125, p0145, p0155, p0165).

Note:

This is the only message, that is displayed for a de-activated component.

Remedy: The alarm automatically disappears again with the following actions:

- activate the components involved (p0125 = 1, p0145 = 1, p0155 = 1, p0165 = 1).
- again withdraw the components involved.

See also: p0125 (Activate/de-activate power unit components), p0145 (Voltage Sensing Module, activate/de-activate), p0155 (Voltage Sensing Module, activate/de-activate)

A01318 BICO: De-activated interconnections present

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: This alarm is output:

If an inactive/non-operational drive object is again active/ready for operation
and
r9498[] or r9499[] are not empty
and
the connections listed in r9498[] and r9499 have actually been changed

Remedy: Clear alarm:
Set p9496 to 1 or 2
or
de-activate DO

A01319 Inserted component not initialized

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The inserted component has still not been initiated, as the pulses are enabled.

Remedy: Pulse inhibit

A01320 Topology: Drive object number does not exist in configuration

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A drive object number is missing in p0978
Alarm value (r2124, interpret decimal):
Index of p0101 under which the missing drive object number can be determined.

Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible that a drive object number is repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01321 Topology: Drive object number does not exist in configuration

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: p0978 contains a drive object number that does not exist.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the drive object number can be determined.

Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible that a drive object number is repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01322 Topology: Drive object number present twice in configuration

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A drive object number is present more than once in p0978.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the involved drive object number is located.

Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible that a drive object number is repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01323 Topology: More than two part lists set-up

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Partial lists are available more than twice in p0978. After the second 0, all must be 0.
Alarm value (r2124, interpret decimal):
Index of p0978, under which the illegal value is located.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible that a drive object number is repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01324 Topology: Dummy drive object number incorrectly set-up

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: In p0978, dummy drive object numbers (255) are only permitted in the first partial list.
Alarm value (r2124, interpret decimal):
Index of p0978, under which the illegal value is located.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible that a drive object number is repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01330 Topology: Quick commissioning not possible

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Unable to carry out a quick commissioning. The existing actual topology does not fulfill the requirements.
Alarm value (r2124, interpret hexadecimal):
The cause is in byte 1 supplementary information is included in byte 2 and the high word.
Byte 1 = 1:
For a component, illegal connections were detected.
- Byte 2 = 1: For a Motor Module, more than one motor with DRIVE-CLiQ was detected.
- Byte 2 = 2: For a motor with DRIVE-CLiQ, the DRIVE-CLiQ cable is not connected to a Motor Module.
- high word = preliminary component number of the component with illegal connection.
Byte 1 = 2:
The topology contains too many components of a particular type.
- Byte 2 = 1: There is more than one Master Control Unit.
- Byte 2 = 2: There is more than 1 infeed (8 for a parallel circuit configuration).
- Byte 2 = 3: There are more than 10 Motor Modules (8 for a parallel circuit configuration).
- Byte 2 = 4: There are more than 9 encoders.
- Byte 2 = 5: There are more than 8 Terminal Modules.
- Byte 2 = 7: Unknown component type.
- Byte 2 = 8: There are more than 6 drive slaves.
- Byte 2 = 9: Connection of a drive slave not permitted.
- Byte 2 = 10: There is no Drive Master.
- Byte 2 = 11: There is more than one motor with DRIVE-CLiQ for a parallel circuit.
- high word = not used.
Byte 1 = 3:
More than 16 components are connected at a DRIVE-CLiQ socket of the Control Unit.
- byte 2 = 0, 1, 2, 3 means e.g. detected at the DRIVE-CLiQ socket X100, X101, X102, X103.
- high word = not used.

Byte 1 = 4:

The number of components connected one after the other is greater than 125.

- byte 2 = not used.

- high word = preliminary component number of the first component and component that resulted in the fault.

Byte 1 = 5:

The component is not permissible for SERVO.

- Byte 2 = 1: SINAMICS G is being used.

- Byte 2 = 2: Chassis is being used.

- high word = preliminary component number of the first component and component that resulted in the fault.

Byte 1 = 6:

For a component, illegal EEPROM data was detected. These must be corrected before the system continues to boot.

- Byte 2 = 1: The Order No. [MLFB] of the power unit that was replaced includes a space retainer. The space retainer (*) must be replaced by a correct character.

- high word = preliminary component number of the component with illegal EEPROM data.

Byte 1 = 7:

The actual topology contains an illegal combination of components.

- Byte 2 = 1: Active Line Module (ALM) and Basic Line Module (BLM).

- Byte 2 = 2: Active Line Module (ALM) and Smart Line Module (SLM).

- Byte 2 = 3: SIMOTION control (e.g. SIMOTION D445) and SINUMERIK component (e.g. NX15).

- Byte 2 = 4: SINUMERIK control (e.g. SINUMERIK 730.net) and SIMOTION component (e.g. CX32).

- high word = not used.

Note:

Connection type and connection number are described in F01375.

See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

Remedy:

- adapt the output topology to the permissible requirements.

- carry out commissioning using the commissioning software.

- for motors with DRIVE-CLiQ, connect the power and DRIVE-CLiQ cable to the same Motor Module (Single Motor Module: DRIVE-CLiQ at X202, Double Motor Module: DRIVE-CLiQ from motor 1 (X1) to X202, from motor 2 (X2) to X203).

Re byte 1 = 6 and byte 2 = 1:

Correct the order number when commissioning using the commissioning software.

See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

A01331

Topology: At least one component not assigned to a drive object

Drive object:

All objects

Reaction:

NONE

Acknowledge:

NONE

Cause:

At least one component is not assigned to a drive object.

- when commissioning, a component was not able to be automatically assigned to a drive object.

- the parameters for the data sets are not correctly set.

Alarm value (r2124, interpret decimal):

Component number of the unassigned component.

Remedy:

This component is assigned to a drive object.

Check the parameters for the data sets.

Examples:

- power unit (p0121).

- motor (p0131, p0186).

- encoder interface (p0140, p0141, p0187 ... p0189).

- encoder (p0140, p0142, p0187 ... p0189).

- Terminal Module (p0151).

- option board (p0161).

F01340

Topology: Too many components on one line

Drive object:

All objects

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

For the selected communications clock cycle, too many DRIVE-CLiQ components are connected to one line of the Control Unit.

Fault value (r0949, interpret hexadecimal):

xyy hex: x = fault cause, yy = component number or connection number.

1yy:
The communications clock cycle of the DRIVE-CLiQ connection on the CU is not sufficient for all read transfers.

2yy:
The communications clock cycle of the DRIVE-CLiQ connection on the CU is not sufficient for all write transfers.

3yy:
Cyclic communications is fully utilized.

4yy:
The DRIVE-CLiQ cycle starts before the earliest end of the application. An additional dead time must be added to the control. Sign-of-life errors can be expected.

5yy:
Internal buffer overflow for net data of a DRIVE-CLiQ connection.

6yy:
Internal buffer overflow for receive data of a DRIVE-CLiQ connection.

7yy:
Internal buffer overflow for send data of a DRIVE-CLiQ connection.

Remedy: Check the DRIVE-CLiQ connection:
Reduce the number of components on the DRIVE-CLiQ line involved and distribute these to other DRIVE-CLiQ connections of the Control Unit. This means that communication is uniformly distributed over several communication lines.
Re fault value = 1yy - 4yy in addition:
- increase the sampling times (p0112, p0115).

F01354 Topology: Actual topology indicates an illegal component

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The actual topology indicates at least one illegal component.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = cause.
xx = 1: Component at this Control Unit not permissible.
xx = 2: Component in combination with another component not permissible.
Note:
Pulse enable is prevented.

Remedy: Remove the illegal components and restart the system.

F01355 Topology: Actual topology changed

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The unit target topology (p0099) does not correspond to the unit actual topology (r0098).
The fault only occurs if the topology was commissioned using the automatic internal device mechanism and not using the commissioning software.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: r0098 (Actual device topology), p0099 (Device target topology)

Remedy: One of the following counter-measures can be selected if no faults have occurred in the topology detection itself:
If commissioning was still not completed:
- carry out a self-commissioning routine (starting from p0009 = 1).
General: Set p0099 to r0098, set p0009 to 0; for existing Motor Modules, this results in servo drives being automatically generated (p0107).
Generating servo drives: Set p0097 to 1, set p0009 to 0.
Generating vector drives: Set p0097 to 2, set p0009 to 0.
Generating vector drives with parallel circuit: Set p0097 to 12, set p0009 to 0.
In order to set configurations in p0108, before setting p0009 to 0, it is possible to first set p0009 to 2 and p0108 modified. The index corresponds to the drive object (p0107).
If commissioning was already completed:
- re-establish the original connections and re-connect power to the Control Unit.
- restore the factory setting for the complete equipment (all of the drives) and allow automatic self-commissioning again.
- change the device parameterization to match the connections (this is only possible using the commissioning software).

Notice:

Topology changes, that result in this fault being generated, cannot be accepted by the automatic function in the device, but must be transferred using the commissioning software and parameter download. The automatic function in the device only allows constant topology to be used. Otherwise, when the topology is changed, all of the previous parameter settings are lost and replaced by the factory setting.

See also: r0098 (Actual device topology)

F01360	Topology: Actual topology is illegal
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>The detected actual topology is not permissible.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Byte 1 (cause):</p> <p>1: Too many components were detected at the Control Unit. The maximum permissible number of components is 199.</p> <p>2: The component type of a component is not known. The preliminary component number is in the high word.</p> <p>Note:</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Re fault value = 1:</p> <p>Change the configuration. Connect less than 199 components to the Control Unit.</p> <p>Re fault value = 2:</p> <p>Remove the component with unknown component type.</p>
A01361	Topology: Actual topology contains SINUMERIK and SIMOTION components
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The detected actual topology contains SINUMERIK and SIMOTION components.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Byte 1: Component number of the component.</p> <p>Byte 2: Component class of the actual topology.</p> <p>Byte 3 (cause):</p> <p>1: An NX10 or NX15 was connected to a SIMOTION control.</p> <p>2: A CX32 was connected to a SINUMERIK control.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Re fault value = 1:</p> <p>Replace all NX10 or NX15 by a CX32.</p> <p>Re fault value = 2:</p> <p>Replace all CX32 by an NX10 or NX15.</p>
F01375	Topology: Actual topology, duplicate connection between two components
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>When detecting the actual topology, a ring-type connection was detected.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Low word: Preliminary component number of a component included in the ring</p> <p>Byte 3: Component class</p> <p>Byte 4: Connection number</p> <p>Example:</p> <p>Fault value = 33751339 dec = 203012B hex</p> <p>Byte 4 = 02 hex = 2 dec, byte 3 = 03 hex = 3 dec, low word = 012B hex = 299 dec</p> <p>Component class:</p> <p>1: Control unit</p> <p>2: Motor Module</p> <p>3: Line Module</p> <p>4: Sensor Module (SM)</p> <p>5: Voltage Sensing Module (VSM)</p> <p>6: Terminal Module (TM)</p>

7: DRIVE-CLiQ Module Cabinet (DMC)
8: Controller Extension 32 (CX32)
49: DRIVE-CLiQ components (non-listed components)
50: Option slot (e.g. Terminal Board 30)
60: Encoder (e.g. EnDat)
70: Motor with DRIVE-CLiQ
Component type:
Precise designation within a component class (e.g. "SMC20").
Connection number:
Consecutive numbers, starting from zero, of the appropriate connection or slot (e.g. DRIVE-CLiQ connection X100 on the Control Unit has the connection number 0).
Remedy: Output the fault value and remove the specified connection.
Note:
Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).

F01380	Topology: Actual topology, defective EEPROM
Drive object:	All objects
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	When detecting the actual topology, a component with a defective EEPROM was detected. Fault value (r0949, interpret hexadecimal): Low word: Preliminary component number of the defective components.
Remedy:	Output the fault value and remove the defected component.

A01381	Topology: Comparison power unit shifted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a power unit in the actual topology that has been shifted with respect to the target topology. Alarm value (r2124, interpret hexadecimal): Byte 1: Component number of the component shifted in the target topology. The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4. Byte 2: Component class Byte 3: Component number Byte 4: Connection number Note: Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting the topologies: - undo the change to the actual topology by changing-over the DRIVE-CLiQ cables. - commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project. - automatically remove the topology error (p9904). Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).

A01382	Topology: Comparison Sensor Module shifted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a Sensor Module in the actual topology that has been shifted with respect to the target topology.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component shifted in the target topology</p> <p>The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.</p> <p>Byte 2: Component class</p> <p>Byte 3: Component number</p> <p>Byte 4: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - undo the change to the actual topology by changing-over the DRIVE-CLiQ cables. - commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project. - automatically remove the topology error (p9904). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01383	Topology: Comparison Terminal Module shifted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a Terminal Module in the actual topology that has been shifted with respect to the target topology.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component shifted in the target topology</p> <p>The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.</p> <p>Byte 2: Component class</p> <p>Byte 3: Component number</p> <p>Byte 4: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - undo the change to the actual topology by changing-over the DRIVE-CLiQ cables. - commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project. - automatically remove the topology error (p9904). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01384 Topology: Comparison DMC shifted

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ Hub Module Cabinet (DMC) in the actual topology that has been shifted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
Byte 1: Component number of the component shifted in the target topology
The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.
Byte 2: Component class
Byte 3: Component number
Byte 4: Connection number
Note:
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting the topologies:
- undo the change to the actual topology by changing-over the DRIVE-CLiQ cables.
- commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project.
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).

A01385 Topology: Comparison CX32 shifted

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a controller extension 32 (CX32) in the actual topology that has been shifted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
Byte 1: Component number of the component shifted in the target topology
The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.
Byte 2: Component class
Byte 3: Component number
Byte 4: Connection number
Note:
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting the topologies:
- undo the change to the actual topology by changing-over the DRIVE-CLiQ cables.
- commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project.
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).

A01386	Topology: Comparison DRIVE-CLiQ component shifted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a DRIVE-CLiQ component in the actual topology that has been shifted with respect to the target topology.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component shifted in the target topology</p> <p>The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.</p> <p>Byte 2: Component class</p> <p>Byte 3: Component number</p> <p>Byte 4: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - undo the change to the actual topology by changing-over the DRIVE-CLiQ cables. - commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project. - automatically remove the topology error (p9904). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01387	Topology: Comparison option slot component shifted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a option slot component in the actual topology that has been shifted with respect to the target topology.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component shifted in the target topology</p> <p>The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.</p> <p>Byte 2: Component class</p> <p>Byte 3: Component number</p> <p>Byte 4: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - undo the change to the actual topology by changing-over the DRIVE-CLiQ cables. - commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project. - automatically remove the topology error (p9904). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

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A01388	Topology: Comparison EnDat encoder shifted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected an EnDat encoder in the actual topology that has been shifted with respect to the target topology.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component shifted in the target topology</p> <p>The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.</p> <p>Byte 2: Component class</p> <p>Byte 3: Component number</p> <p>Byte 4: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none">- undo the change to the actual topology by changing-over the DRIVE-CLiQ cables.- commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project.- automatically remove the topology error (p9904). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
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A01389	Topology: Comparison motor with DRIVE-CLiQ shifted
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a motor with DRIVE-CLiQ in the actual topology that has been shifted with respect to the target topology.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component shifted in the target topology</p> <p>The connection in the actual topology where the shifted component was detected, is described in bytes 2, 3 and 4.</p> <p>Byte 2: Component class</p> <p>Byte 3: Component number</p> <p>Byte 4: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none">- undo the change to the actual topology by changing-over the DRIVE-CLiQ cables.- commissioning software: Go online, upload the drive unit, adapt the topology offline and download the modified project.- automatically remove the topology error (p9904). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01416	Topology: Comparison additional component in actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has found a component in the actual topology which is not specified in the target topology. The alarm value includes the component number and connection number of the component with which the additional component is connected.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number</p> <p>Byte 2: Component class of the additional component</p> <p>Byte 3: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - remove the additional component in the actual topology. - download the target topology that matches the actual topology (commissioning software). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01420	Topology: Comparison a component is different
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected differences in the actual and target topologies in relation to one component. There are differences in the electronic rating plate.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component</p> <p>Byte 2: Component class of the target topology</p> <p>Byte 3: Component class of the actual topology</p> <p>Byte 4 (cause):</p> <ol style="list-style-type: none"> 1: Different component type. 2: Different Order No. 3: Different manufacturer. 4: Connection changed-over for a multi-component slave (e.g. double Motor Module) or defective EEPROM data in the electronic rating plate. 5: A CX32 was replaced by an NX10 or NX15. 6: An NX10 or NX15 was replaced by a CX32. <p>Note:</p> <p>Component class and component type are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - check the component soft-wired connections against the hardware configuration of the drive unit in the commissioning software and correct differences. - parameterize the topology comparison of all components (p9906). - parameterize the topology comparison of one components (p9907, p9908). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01421	Topology: Comparison different components
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected differences in the actual and target topologies in relation to one component. The component class, the component type or the number of connections differ.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component</p> <p>Byte 2: Component class of the target topology</p> <p>Byte 3: Component class of the actual topology</p> <p>Byte 4 (cause):</p> <p>1: Different component class</p> <p>2: Different component type</p> <p>3: Different order number</p> <p>4: Different number of connections</p> <p>Note:</p> <p>Component class, component type and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Check the component soft-wired connections against the hardware configuration of the drive unit in the commissioning software and correct differences.</p> <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01425	Topology: Comparison serial number of a component is different
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected differences in the actual and target topologies in relation to one component. The serial number is different.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number of the component</p> <p>Byte 2: Component class</p> <p>Byte 3: Number of differences</p> <p>Note:</p> <p>The component class is described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none">- change over the actual topology to match the target topology.- download the target topology that matches the actual topology (commissioning software). <p>Re byte 3:</p> <p>Byte 3 = 1 --> can be acknowledged using p9904 or p9905.</p> <p>Byte 3 > 1 --> can be acknowledged using p9905 and can be de-activated using p9906 or p9907/p9908.</p> <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p> <p>See also: p9904 (Topology comparison, acknowledge differences), p9905 (Device specialization), p9906 (Topology comparison, comparison stage of all components), p9907 (Topology comparison, comparison stage of the component number), p9908 (Topology comparison, comparison stage of a component)</p>

A01428	Topo: Comparison connection of a component is different
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected differences in the actual and target topologies in relation to one component. A component was connected to another connection.</p> <p>The different connections of a component are described in the alarm value:</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number</p> <p>Byte 2: Component class</p> <p>Byte 3: Connection number of the actual topology</p> <p>Byte 4: Connection number of the target topology</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - change over the actual topology to match the target topology. - download the target topology that matches the actual topology (commissioning software). - automatically remove the topology error (p9904). <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p> <p>See also: p9904 (Topology comparison, acknowledge differences)</p>
A01429	Topology: Comparison connection is different for more than component
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A topology comparison has found differences between the actual and target topology for several components. A component was connected to another connection.</p> <p>The different connections of a component are described in the alarm value:</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>Byte 1: Component number</p> <p>Byte 2: Component class</p> <p>Byte 3: Connection number of the actual topology</p> <p>Byte 4: Connection number of the target topology</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies:</p> <ul style="list-style-type: none"> - change over the actual topology to match the target topology. - download the target topology that matches the actual topology (commissioning software). <p>Note:</p> <p>In the software, a double Motor Module behaves just like two separate DRIVE-CLiQ nodes. If a double Motor Module is re-inserted, this can result in several differences in the actual topology.</p> <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
F01451	Topology: Target topology is invalid
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>An error has occurred when writing into the target topology.</p> <p>The write operation was interrupted due to an invalid target topology.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Only for internal Siemens troubleshooting.</p>
Remedy:	Reload the target topology using the commissioning software.

F01470	Topology: Target topology ring-type connection
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>A ring-type connection was detected when writing into the target topology.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Byte 1: Component number of a component included in the ring</p> <p>Byte 2: Component class</p> <p>Byte 3: Connection number</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p>
Remedy:	<p>Read-out the fault value and remove one of the specified connections.</p> <p>Then, download the target topology again using the commissioning software.</p> <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
F01475	Topology: Target topology duplicate connection between two components
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>When writing the target topology, a duplicate connection between two components was detected.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Byte 1: Component number of one of the components connected twice</p> <p>Byte 2: Component class</p> <p>Byte 3: Connection number 1 of the duplicate connection</p> <p>Byte 4: Connection number 2 of the duplicate connection</p> <p>Note:</p> <p>Component class and connection number are described in F01375.</p>
Remedy:	<p>Read-out the fault value and remove one of the two specified connections.</p> <p>Then, download the target topology again using the commissioning software.</p> <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01481	Topology: Comparison power unit missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a power unit in the target topology that is not available in the actual topology.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Component number of the additional target components.</p> <p>Note:</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<ul style="list-style-type: none">- delete the drive belonging to the power unit in the commissioning software project and download the new configuration into the drive unit.- check that the actual topology matches the target topology and if required, change over.- check DRIVE-CLiQ cables for interruption and contact problems. <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01482	Topology: Comparison Sensor Module missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a Sensor Module in the target topology that is not available in the actual topology.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Component number of the additional target components.</p> <p>Note:</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<ul style="list-style-type: none"> - re-configure the drive belonging to the Sensor Module in the commissioning software project (encoder configuration) and download the new configuration into the drive unit. - delete the drive belonging to the Sensor Module in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01483	Topology: Comparison Terminal Module missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a Terminal Module in the target topology that is not available in the actual topology.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Component number of the additional target components.</p> <p>Note:</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<ul style="list-style-type: none"> - delete the Terminal Module in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01484	Topology: Comparison DMC missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a DRIVE-CLiQ Hub Module Cabinet (DMC) in the target topology that is not available in the actual topology.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Component number of the additional target components.</p> <p>Note:</p> <p>The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<ul style="list-style-type: none"> - delete the DRIVE-CLiQ Hub Module Cabinet (DMC) in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. <p>Note:</p> <p>Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01485	Topology: Comparison CX32 missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a controller extension 32 (CX32) in the target topology that is not available in the actual topology.</p> <p>Alarm value (r2124, interpret decimal): Component number of the additional target components.</p> <p>Note: The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<ul style="list-style-type: none"> - delete the CX32 in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01486	Topology: Comparison DRIVE-CLiQ components missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected a DRIVE-CLiQ component in the target topology that is not available in the actual topology.</p> <p>Alarm value (r2124, interpret decimal): Component number of the additional target components.</p> <p>Note: The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<ul style="list-style-type: none"> - delete the drive belonging to this component in the commissioning software project and download the new configuration into the drive unit. - re-configure the drive belonging to this component in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01487	Topology: Comparison option slot components missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected an option slot module in the target topology that is not available in the actual topology.</p> <p>Alarm value (r2124, interpret decimal): Component number of the additional target components.</p> <p>Note: The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<ul style="list-style-type: none"> - delete the option board in the commissioning software project and download the new configuration into the drive unit. - re-configure the drive unit in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01488	Topology: Comparison EnDat encoder missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected an EnDat encoder in the target topology that is not available in the actual topology. Alarm value (r2124, interpret decimal): Component number of the additional target components. Note: The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	- re-configure the drive belonging to the encoder in the commissioning software project (encoder configuration) and download the new configuration into the drive unit. - delete the drive belonging to the encoder in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).
A01489	Topology: Comparison motor with DRIVE-CLiQ missing in the actual topology
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a motor with DRIVE-CLiQ in the target topology that is not available in the actual topology. Alarm value (r2124, interpret decimal): Component number of the additional target components. Note: The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	- re-configure the drive belonging to this motor in the commissioning software project and download the new configuration into the drive unit. - delete the drive belonging to this motor in the commissioning software project and download the new configuration into the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).
F01505 (A)	BICO: Interconnection cannot be established
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A PROFIdrive telegram has been set (p0922). An interconnection contained in the telegram, was not able to be established. Fault value (r0949, interpret decimal): Parameter receiver that should be changed.
Remedy:	Establish another interconnection.
Reaction upon A:	NONE
Acknowled. upon A:	NONE
F01506 (A)	BICO: No standard telegram
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The standard telegram in p0922 is not maintained and therefore p0922 is set to 999. Fault value (r0949, interpret decimal): BICO parameter for which the write attempt was unsuccessful.

Remedy: Again set the required standard telegram (p0922).
Reaction upon A: NONE
Acknowl. upon A: NONE

A01507 (F, N) BICO: Interconnections to inactive objects present

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: There are BICO interconnections as signal drain from a drive object that is either inactive/not operational.
The BI/CI parameters involved are listed in r9498.
The associated BO/CO parameters are listed in r9499.
The list of the BICO interconnections to other drive objects is displayed in r9491 and r9492 of the de-activated drive object.
Note:
r9498 and r9499 are only written into, if p9495 is not set to 0.
Alarm value (r2124, interpret decimal):
Number of BICO interconnections found to inactive drive objects.
Remedy: - set all open BICO interconnections centrally to the factory setting with p9495 = 2.
- make the non-operational drive object active/operational again (re-insert or activate components).
Reaction upon F: A_INFEED: OFF2 (NONE, OFF1)
SERVO: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
VECTOR: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A01508 BICO: Interconnections to inactive objects exceeded

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The maximum number of BICO interconnections (signal drains) when de-activating a drive object was exceeded.
When de-activating a drive object, all BICO interconnections (signal drains) are listed in the following parameters:
- r9498[0...29]: List of the BI/CI parameters involved.
- r9499[0...29]: List of the associated BO/CO parameters.
Remedy: The alarm automatically disappears as soon as no BICO interconnection (value = 0) is entered in r9498[29] and r9499[29].
Notice:
When re-activating the drive object, all BICO interconnections should be checked and if required, re-established.

F01510 BICO: Signal source is not float type

Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The selected connector output does not have the correct data type. This interconnection is not established.
Fault value (r0949, interpret decimal):
Parameter number to which an interconnection should be made (connector output).
Remedy: Interconnect this connector input with a connector output having a float data type.

F01511 (A)	BICO: Interconnection between various normalizations
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>The requested interconnection was set up. However, a conversion is made between the BICO output and BICO input using the reference values.</p> <ul style="list-style-type: none"> - the BICO output has different normalized units than the BICO input. - message only for interconnections within a drive object. <p>Example: The BICO output has, as normalized unit, voltage and the BICO input has current. This means that the factor p2002 (contains the reference value for current) / p2001 (contains the reference value for voltage) is calculated between the BICO output and BICO input. Fault value (r0949, interpret decimal): Parameter number of the BICO input (signal receiver).</p>
Remedy:	No correction needed.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01512	BICO: No normalization available
Drive object:	All objects
Reaction:	<p>A_INFEED: OFF2 (OFF1)</p> <p>SERVO: OFF2</p> <p>VECTOR: OFF2</p>
Acknowledge:	POWER ON
Cause:	<p>An attempt was made to determine a conversion factor for a normalization that does not exist.</p> <p>Fault value (r0949, interpret decimal): Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.</p>
Remedy:	Apply normalization or check the transfer value.
F01513 (A)	BICO: Spanning DO between different normalizations
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>The requested interconnection was set up. However, a conversion is made between the BICO output and BICO input using the reference values.</p> <p>An interconnection is made between different drive objects and the BICO output has different normalized units than the BICO input or the normalized units are the same but the reference values are different.</p> <p>Example: The BICO output has, as standard unit, voltage and the BICO input has current; both lie in different drive objects. This means that the factor p2002 (contains the reference value for current) / p2001 (contains the reference value for voltage) is calculated between the BICO output and BICO input. Fault value (r0949, interpret decimal): Parameter number of the BICO input (signal receiver).</p>
Remedy:	No correction needed.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A01514 (F)	BICO: Error when writing during a reconnect
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>During a reconnect operation (e.g. while booting or downloading - but cannot occur in normal operation) a parameter was not able to be written into.</p> <p>Example: When writing to a double word BICO input in the second index, the memory areas overlap (e.g. p8861). The parameter is then reset to the factory setting. Alarm value (r2124, interpret decimal): Parameter number of the BICO input (signal receiver).</p>

Remedy: None necessary.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F01515 (A) BICO: Writing to parameter not permitted as the master control is active

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: While changing the number of CDS or when copying from CDS, the master control was active.
Remedy: None necessary.
Reaction upon A: NONE
Acknowl. upon A: NONE

A01590 (F) Drive: Motor maintenance interval expired

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The selected service/maintenance interval for this motor was reached.
Alarm value (r2124, interpret decimal):
Motor data set number.
See also: p0650 (Actual motor operating hours), p0651 (Motor operating hours maintenance interval)
Remedy: carry out service/maintenance and reset the service/maintenance interval (p0651).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F01600 SI CU: STOP A initiated

Drive object: SERVO, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function in the Control Unit (CU) has detected a fault and initiated a STOP A (pulse cancelation via the safety shutdown path of the Control Unit).
- forced checking procedure of the safety shutdown path of the Control Unit unsuccessful.
- subsequent response to fault F01611 (defect in a monitoring channel).
Fault value (r0949, interpret decimal):
0: Stop request from the Motor Module.
1005: Pulses canceled although STO not selected and there is no internal STOP A present.
1010: Pulses enabled although STO is selected or an internal STOP A is present.
1015: Feedback of the safe pulse cancelation for Motor Modules connected in parallel are different.
9999: Subsequent response to fault F01611.
Remedy: - select Safe Torque Off and de-select again.
- replace the Motor Module involved.
Re fault value = 9999:
- carry out diagnostics for fault F01611.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

F01611	SI CU: Defect in a monitoring channel".
Drive object:	SERVO, VECTOR
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function in the Control Unit (CU) has detected a fault in the data cross-check between the CU and Motor Module (MM) and initiated a STOP F.</p> <p>As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.</p> <p>Fault value (r0949, interpret decimal):</p> <p>0: Stop request from the Motor Module.</p> <p>1 to 999:</p> <p>Number of the cross-checked data that resulted in this fault. This number is also displayed in r9795.</p> <p>1: SI monitoring clock cycle (r9780, r9880).</p> <p>2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.</p> <p>3: SI SGE changeover tolerance time (p9650, p9850).</p> <p>4: SI transition period STOP F to STOP A (p9658, p9858).</p> <p>5: SI enable Safe Brake Control (p9602, p9802).</p> <p>6: SI motion enable, safety-relevant functions (p9501, internal value).</p> <p>7: SI pulse cancellation delay time for Safe Stop 1 (p9652, p9852).</p> <p>8: SI PROFIsafe address (p9610, p9810).</p> <p>1000: Watchdog timer has expired. Within the time of approx. 5 * p9650 too many switching operations have occurred at terminal EP of the Motor Module.</p> <p>1001, 1002: Initialization error, change timer / check timer.</p> <p>2000: Status of the STO terminals on the Control Unit and Motor Module are different.</p> <p>2001: Feedback signal for safe pulse cancellation on the Control Unit and Motor Module are different.</p> <p>2002: Status of the delay timer SS1 on the Control Unit and Motor Module are different.</p> <p>2004: Status of the STO selection for modules connected in parallel are different.</p> <p>2005: Feedback signal of the safe pulse cancellation on the Control Unit and Motor Modules connected in parallel are different.</p>
Remedy:	<p>Re fault value = 1 to 5 and 7 to 999:</p> <ul style="list-style-type: none"> - check the cross-checked data that resulted in a STOP F. - carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module software. - upgrade the Control Unit software. <p>Re fault value = 6:</p> <ul style="list-style-type: none"> - carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module software. - upgrade the Control Unit software. <p>Re fault value = 1000:</p> <ul style="list-style-type: none"> - check the EP terminal at the Motor Module (contact problems). <p>Re fault value = 1001, 1002:</p> <ul style="list-style-type: none"> - carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module software. - upgrade the Control Unit software. <p>Re fault value = 2000, 2001, 2002, 2004, 2005:</p> <ul style="list-style-type: none"> - check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852). - check the wiring of the safety-relevant inputs (SGE) (contact problems). - replace the Motor Module involved. <p>Note:</p> <p>CU: Control Unit</p> <p>EP: Enable Pulses (pulse enable)</p> <p>MM: Motor Module</p> <p>F-DI: Failsafe Digital Input / SGE: Safety-relevant input</p> <p>SI: Safety Integrated</p> <p>SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)</p> <p>STO: Safe Torque Off / SH: Safe standstill</p>

F01612	SI CU: STO inputs for power units connected in parallel different
Drive object:	SERVO, VECTOR
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function on the Control Unit (CU) has identified different states of the AND'ed STO inputs for power units connected in parallel and has initiated a STOP F.</p> <p>As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.</p> <p>Fault value (r0949, interpret binary):</p> <p>Binary image of the digital inputs of the Control Unit that are used as signal source for the function "Safe Torque Off".</p>
Remedy:	<p>- check the tolerance time SGE changeover and if required, increase the value (p9650).</p> <p>- check the wiring of the safety-relevant inputs (SGE) (contact problems).</p> <p>Note:</p> <p>CU: Control Unit</p> <p>F-DI: Failsafe Digital Input / SGE: Safety-relevant input</p> <p>SI: Safety Integrated</p> <p>STO: Safe Torque Off / SH: Safe standstill</p>
N01620 (F, A)	SI CU: Safe Torque Off active
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The "Safe Torque Off" (STO) function has been selected on the Control Unit (CU) using the input terminal and is active.</p> <p>Note:</p> <p>This message does not result in a safety stop response.</p>
Remedy:	<p>None necessary.</p> <p>Note:</p> <p>CU: Control Unit</p> <p>SI: Safety Integrated</p> <p>STO: Safe Torque Off / SH: Safe standstill</p>
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon A:	NONE
Acknowl. upon A:	NONE
N01621 (F, A)	SI CU: Safe Stop 1 active
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The "Safe Stop 1" (SS1) function has been selected on the Control Unit (CU) and is active.</p> <p>Note:</p> <p>This message does not result in a safety stop response.</p>
Remedy:	<p>None necessary.</p> <p>Note:</p> <p>CU: Control Unit</p> <p>SI: Safety Integrated</p> <p>SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)</p>
Reaction upon F:	OFF3
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01625	SI CU: Sign-of-life error in safety data
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function in the Control Unit (CU) has detected an error in the sign-of-life of the safety data between the CU and Motor Module (MM) and initiated a STOP A.</p> <ul style="list-style-type: none"> - there is either a DRIVE-CLiQ communications error or communications have failed. - a time slice overflow of the safety software has occurred. <p>Fault value (r0949, interpret decimal):</p> <p>Only for internal Siemens troubleshooting.</p>
Remedy:	<ul style="list-style-type: none"> - select Safe Torque Off and de-select again. - carry out a POWER ON (power off/on) for all components. - check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified. - de-select all drive functions that are not absolutely necessary. - reduce the number of drives. - check the electrical cabinet design and cable routing for EMC compliance <p>Note:</p> <p>CU: Control Unit MM: Motor Module SI: Safety Integrated</p>
F01630	SI CU: Brake control error
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function in the Control Unit (CU) has detected a brake control error and initiated a STOP A.</p> <ul style="list-style-type: none"> - no motor holding brake connected. - the motor holding brake control on the Motor Module is faulty. - a DRIVE-CLiQ communications error has occurred between the Control Unit and the Motor Module involved. <p>Fault value (r0949, interpret decimal):</p> <p>10: No brake connected or fault in the Motor Module brake control circuit ("open brake" operation). 11: Defect in the brake control circuit of the Motor Module ("brake open" operation). 20: Short-circuit in the brake winding or fault in the brake control circuit of the Motor Module ("brake open" state). 30: No brake connected, short-circuit in the brake winding or fault in the Motor Module brake control circuit ("close brake" operation). 31: Defect in the brake control circuit of the Motor Module ("close brake" operation). 40: Defect in the brake control circuit of the Motor Module ("brake closed" state). 50: Defect in the brake control circuit of the Motor Module or communications fault between the Control Unit and the Motor Module (brake control diagnostics).</p>
Remedy:	<ul style="list-style-type: none"> - select Safe Torque Off and de-select again. - check the motor holding brake connection. - check the function of the motor holding brake. - check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified. - check the electrical cabinet design and cable routing for EMC compliance - replace the Motor Module involved. <p>Operation with Safe Brake Module:</p> <ul style="list-style-type: none"> - check the Safe Brake Modules connection. - replace the Safe Brake Module. <p>Note:</p> <p>CU: Control Unit MM: Motor Module SI: Safety Integrated</p>

F01649 SI CU: Internal software error

Drive object: SERVO, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal error in the Safety Integrated software on the Control Unit has occurred.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- re-commission the "Safety Integrated" function and carry out a POWER ON.
- upgrade the Control Unit software.
- contact the Hotline.
- replace the Control Unit.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

F01650 SI CU: Acceptance test required

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function in the Control Unit requires an acceptance test.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, interpret decimal):
130: Safety parameters for the Motor Module not available.
1000: Reference and actual checksum on the Control Unit are not identical (booting).
- at least one checksum-checked piece of data is defective.
2000: Reference and actual checksum on the Control Unit are not identical (commissioning mode).
- reference checksum incorrectly entered into the Control Unit (p9799 not equal to r9798).
- when de-activating the safety functions, p9501 or p9503 are not deleted.
2001: Reference and actual checksum on the Motor Module are not identical (commissioning mode).
- reference checksum incorrectly entered into the Motor Module (p9899 not equal to r9898).
- when de-activating the safety functions, p9501 or p9503 are not deleted.
2002: Enable of safety-related functions between the Control Unit and Motor Module differ (p9601 not equal to p9801).
2003: Acceptance test is required as a safety parameter has been changed.
2004: An acceptance test is required because a project with enabled safety-functions has been downloaded.
2005: The Safety LogBook has identified that a functional safety checksum has changed. An acceptance test is required.
2010: Safe Brake Control is enabled differently between the Control Unit and Motor Module (p9602 not equal to p9802).
2020: Error when saving the safety parameters for the Motor Module.
3005: The Safety LogBook has identified that a hardware-related safety checksum has changed. An acceptance test is required.
9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

Remedy:

- Re fault value = 130:
 - carry out safety commissioning routine.
- Re fault value = 1000:
 - again carry out safety commissioning routine.
 - replace the CompactFlash card.
- Re fault value = 2000:
 - check the safety parameters in the Control Unit and adapt the reference checksum (p9799).
- Re fault value = 2001:
 - check the safety parameters in the Motor Module and adapt the reference checksum (p9899).
- Re fault value = 2002:
 - enable the safety-related functions in the Control Unit and check in the Motor Module (p9601 = p9801).
- Re fault value = 2003, 2004, 2005:
 - Carry out an acceptance test and generate an acceptance report. The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the documentation for SINAMICS Safety Integrated. For fault value 2005, the alarm can be acknowledged if 'Safe Torque Off' (STO) has been deselected
- Re fault value = 2010:
 - enable the safety-related brake control in the Control Unit and check in the Motor Module (p9602 = p9802).
- Re fault value = 2020:
 - again carry out safety commissioning routine.
 - replace the CompactFlash card.
- Re fault value = 3005:
 - carry out the function checks for the modified hardware and generate an acceptance report.
- For fault value 3005, the alarm can be acknowledged if 'Safe Torque Off' (STO) is deselected.
- Re fault value = 9999:
 - carry out diagnostics for the other safety-related fault that is present.

Note:

CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated

See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI reference checksum SI parameters (Motor Module))

F01651	SI CU: Synchronization safety time slices unsuccessful
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The "Safety Integrated" function requires a synchronization of the safety time slices between the Control Unit (CU) and Motor Module (MM) and between the Control Unit and the higher-level control. This synchronization routine was not successful.</p> <p>Note:</p> <p>This fault results in a STOP A that cannot be acknowledged.</p> <p>Fault value (r0949, interpret decimal):</p> <p>150: Fault in the synchronization to the PROFIBUS master.</p> <p>All other values: Only for internal Siemens troubleshooting.</p> <p>See also: p9510 (SI Motion clock-cycle synchronous PROFIBUS master)</p>
Remedy:	<p>Re fault value = 150:</p> <ul style="list-style-type: none"> - check the setting of p9510 (SI motion clock cycle synchronous PROFIBUS master) and if required, correct. <p>General:</p> <ul style="list-style-type: none"> - carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module software. - upgrade the Control Unit software. - upgrade the software of the higher-level control. <p>Note:</p> <p>CU: Control Unit MM: Motor Module SI: Safety Integrated</p>

F01652	SI CU: Illegal monitoring clock cycle
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>One of the Safety Integrated monitoring clock cycles is not permissible:</p> <ul style="list-style-type: none">- the drive-based monitoring clock cycle cannot be maintained due to the communication conditions required in the system.- the monitoring clock cycle for safe motion monitoring functions with the higher-level control is not permissible (p9500).- The sampling time for the current controller (p0112, p0115) cannot be supported. <p>Note:</p> <p>This fault results in a STOP A that cannot be acknowledged.</p> <p>Fault value (r0949, interpret decimal):</p> <ul style="list-style-type: none">- for enabled drive-based SI monitoring (p9601/p9801 > 0): Minimum setting for the monitoring clock cycle (in µs).- with the motion monitoring function enabled (p9501 > 0): 100: No matching monitoring clock cycle was able to be found. 101: The monitoring clock cycle is not an integer multiple of the position controller clock cycle and the DP clock cycle. 102: An error has occurred when transferring the DP clock cycle to the Motor Module (MM). 103: An error has occurred when transferring the DP clock cycle to the Sensor Module. 104: Four times the sampling time of the current controller is greater than 1 ms. 105: Four times the sampling time of the current controller is greater than the DP clock cycle when operating with a clock synchronous PROFIBUS. The DP clock cycle is not an integer multiple of the sampling time of the current controller. 106: The monitoring clock cycle does not match the monitoring clock cycle of the TM54F.
Remedy:	<p>For enabled drive-based SI monitoring (p9601/p9801 > 0):</p> <ul style="list-style-type: none">- upgrade the Control Unit software. <p>For enabled motion monitoring function (p9501 > 0):</p> <ul style="list-style-type: none">- correct the monitoring clock cycle (p9500) and carry out POWER ON. <p>Re fault value 104:</p> <ul style="list-style-type: none">- restrict operation to a maximum of two vector drives. For the standard settings in p0112, p0115, the current controller sampling time is automatically reduced to 250 µs. If the standard values were changed, then the current controller sampling time (p0112, p0115) should be appropriately set. <p>Re fault value 105:</p> <ul style="list-style-type: none">- refer to the remedy for fault value 104.- increase the DP clock cycle for operation with a clock synchronous PROFIBUS so that there is a multiple clock cycle ratio of at least 4:1 between the DP clock cycle and the current controller sampling time. <p>Re fault value 106:</p> <ul style="list-style-type: none">- set the parameters for the monitoring clock cycles the same (p10000 and p9500 / p9300). <p>Note:</p> <p>CU: Control Unit MM: Motor Module SI: Safety Integrated</p>
F01653	SI CU: PROFIBUS configuration error
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>There is a PROFIBUS configuration error for using Safety Integrated monitoring functions with a higher-level control (SINUMERIK or F-PLC).</p> <p>Note:</p> <p>This fault results in a STOP A that cannot be acknowledged.</p> <p>Fault value (r0949, interpret decimal):</p> <ul style="list-style-type: none">200: A safety slot for receive data from the control has not been configured.210, 220: The configured safety slot for the receive data from the control has an unknown format.230: The configured safety slot for the receive data from the F-PLC has the incorrect length.240: The configured safety slot for the receive data from the SINUMERIK has the incorrect length.300: A safety slot for the send data to the control has not been configured.310, 320: The configured safety slot for the send data to the control has an unknown format.330: The configured safety slot for the send data to the F-PLC has the incorrect length.340: The configured safety slot for the send data to the SINUMERIK has the incorrect length.

- Remedy:**
- check the PROFIBUS configuration of the safety slot on the master side and, if required, correct.
 - upgrade the Control Unit software.

F01655 SI CU: Align monitoring functions

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: An error has occurred when aligning the Safety Integrated monitoring functions on the Control Unit (CU) and Motor Module (MM). Control unit and Motor Module were not able to determine a common set of supported SI monitoring functions.

- there is either a DRIVE-CLiQ communications error or communications have failed.

- Safety Integrated software releases on the Control Unit and Motor Module are not compatible with one another.

Note:

This fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret hexadecimal):

Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON (power off/on) for all components.

- upgrade the Motor Module software.

- upgrade the Control Unit software.

- check the electrical cabinet design and cable routing for EMC compliance

Note:

CU: Control Unit

MM: Motor Module

SI: Safety Integrated

F01656 SI CU: Motor Module parameter error

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: When accessing the Safety Integrated parameters for the Motor Module (MM) on the CompactFlash card, an error has occurred.

Note:

This fault results in a STOP A that can be acknowledged.

Fault value (r0949, interpret decimal):

129: Safety parameters for the Motor Module corrupted.

131: Internal Motor Module software error.

132: Communication errors when uploading or downloading the safety parameters for the Motor Module.

255: Internal software error on the Control Unit.

Remedy: - re-commission the safety functions.

- upgrade the Control Unit software.

- upgrade the Motor Module software.

- replace the CompactFlash card.

Re fault value = 132:

- check the electrical cabinet design and cable routing for EMC compliance

Note:

CU: Control Unit

MM: Motor Module

SI: Safety Integrated

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F01659	SI CU: Write request for parameter rejected
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The write request for one or several Safety Integrated parameters on the Control Unit (CU) was rejected.</p> <p>Note:</p> <p>This fault does not result in a safety stop response.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1: The Safety Integrated password is not set.</p> <p>2: It was selected that the drive parameters are reset. However, the Safety Integrated parameters cannot be reset, as Safety Integrated is presently enabled.</p> <p>3: The interconnected STO input is in the simulation mode.</p> <p>10: An attempt was made to enable the STO function although this cannot be supported.</p> <p>11: An attempt was made to enable the SBC function although this cannot be supported.</p> <p>12: An attempt was made to enable the SBC function although this cannot be supported for a parallel circuit configuration.</p> <p>13: An attempt was made to enable the SS1 function although this cannot be supported.</p> <p>14: An attempt was made to enable the PROFIsafe communications although this cannot be supported.</p> <p>15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.</p> <p>16: An attempt was made to enable the STO function although this cannot be supported when the internal voltage protection (p1231) is enabled.</p> <p>See also: p0970 (Reset infeed parameter), p3900 (Completion of quick commissioning), r9771 (SI common functions (Control Unit)), r9871 (SI common functions (Motor Module))</p>
Remedy:	<p>Re fault value = 1:</p> <ul style="list-style-type: none">- set the Safety Integrated password (p9761). <p>Re fault value = 2:</p> <ul style="list-style-type: none">- inhibit Safety Integrated and again reset the drive parameters. <p>Re fault value = 3:</p> <ul style="list-style-type: none">- end the simulation mode for the digital input (p0795). <p>Re fault value = 10, 11, 12, 13, 14, 15:</p> <ul style="list-style-type: none">- check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.- use a Motor Module that supports the required function ("Safe Torque Off", "Safe Brake Control", "PROFIsafe", "motion monitoring functions integrated in the drive").- upgrade the Motor Module software.- upgrade the Control Unit software. <p>Re fault value = 16:</p> <ul style="list-style-type: none">- inhibit the internal voltage protection (p1231). <p>Note:</p> <p>CU: Control Unit</p> <p>SBC: Safe Brake Control</p> <p>SI: Safety Integrated</p> <p>SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)</p> <p>STO: Safe Torque Off / SH: Safe standstill</p> <p>See also: p9501 (SI motion enable safety functions (Control Unit)), p9601 (SI enable, functions integrated in the drive (Control Unit)), p9620 (SI signal source for STO (SH)/SBC/SS1 (Control Unit)), p9761 (SI password input), p9801 (SI enable, functions integrated in the drive (Motor Module))</p>
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F01660	SI CU: Safety-related functions not supported
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The Motor Module (MM) does not support the safety-related functions (e.g. the Motor Module version is not the correct one). Safety Integrated cannot be commissioned.</p> <p>Note:</p> <p>This fault does not result in a safety stop response.</p>

Remedy:

- use a Motor Module that supports the safety-related functions.
- upgrade the Motor Module software.

Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

F01670 SI Motion: Invalid parameterization Sensor Module

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The parameterization of a Sensor Module used for Safety Integrated is not permissible.

Note:

This fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret decimal):

1: No encoder was parameterized for Safety Integrated.

2: An encoder was parameterized for Safety Integrated that does not have an A/B track (sinusoidal/cosinusoidal).

3: The encoder data set selected for Safety Integrated is still not valid.

4: A communications error to the encoder has occurred.

10: For an encoder used for Safety Integrated, not all of the Drive Data Sets (DDS) are assigned to the same Encoder Data Set (EDS) (p0187 ... p0189).

Remedy:

Re fault value = 1, 2:

- use and parameterize an encoder that Safety Integrated supports (encoder with track A/B sinusoidal, p0404.4 = 1).

Re fault value = 3:

- check whether the drive or drive commissioning function is active and if required, exit this (p0009 = p00010 = 0), save the parameters (p0971 = 1) and carry out a POWER ON

Re fault value = 4:

- check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Sensor Module involved and if required, carry out a diagnostics routine for the faults identified.

Re fault value = 10:

- align the EDS assignment of all of the encoders used for safety integrated (p0187 ... p0189).

Note:

SI: Safety Integrated

F01671 SI Motion: Parameterization encoder error

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The parameterization of the encoder used by Safety Integrated is different than the parameterization of the standard encoder.

Fault value (r0949, interpret decimal):

Parameter number of the non-corresponding safety parameter.

Remedy: Align the encoder parameterization between the safety encoder and the standard encoder.

Note:

SI: Safety Integrated

F01672 SI Motion: Motor Module software incompatible

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The existing Motor Module software does not support the safe motion monitoring function with the higher-level control.

Note:

This fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy:

- check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved
- (F01655, F30655) and if required, carry out the appropriate diagnostics routine for the particular faults.
- use a Motor Module that supports safe motion monitoring
- upgrade the Motor Module software.

Note:
SI: Safety Integrated

F01673 SI Motion: Sensor Module software/hardware incompatible

Drive object: SERVO, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing Sensor Module software and/or hardware does not support the safe motion monitoring function with the higher-level control.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy:

- upgrade the Sensor Module software.
- use a Sensor Module that supports safe motion monitoring function.

Note:
SI: Safety Integrated

F01680 SI Motion: Checksum error safety monitoring functions

Drive object: SERVO, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The actual checksum calculated by the drive and entered in r9728 over the safety-relevant parameters does not match the reference checksum saved in p9729 at the last machine acceptance.
Safety-relevant parameters have been changed or a fault is present.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
0: Checksum error for SI parameters for motion monitoring.
1: Checksum error for SI parameters for actual values.

Remedy:

- Check the safety-relevant parameters and if required, correct.
- carry out a POWER ON.
- carry out an acceptance test.

Note:
SI: Safety Integrated

C01681 SI Motion: Incorrect parameter value

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameter cannot be parameterized with this value.
Fault value (r0949, interpret decimal):
Parameter number with the incorrect value.

Remedy: Correct the parameter value.

F01682	SI Motion: Monitoring function not supported
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The monitoring function enabled in p9501, p9601 or p9801 is not supported in this firmware version.</p> <p>Note:</p> <p>This fault results in a STOP A that cannot be acknowledged.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1: Monitoring function SLP not supported (p9501.1).</p> <p>2: Monitoring function SCA not supported (p9501.7 and p9501.8 ... 15 and p9503).</p> <p>3: Monitoring function SLS override not supported (p9501.5).</p> <p>10: Monitoring functions only supported for a SERVO drive object.</p> <p>20: Drive-based motion monitoring functions are only supported in conjunction with PROFIsafe (p9501 and p9601.1 ... 2 and p9801.1 ... 2).</p> <p>21: PROFIsafe only supported in conjunction with motion monitoring functions in the drive (p9501 and p9601.1 ... 2 and p9801.1 ... 2).</p>
Remedy:	<p>De-select the monitoring function involved (p9501, p9503, p9601, p9801).</p> <p>Note:</p> <p>SCA: Safe Cam / SN: Safe software cam</p> <p>SI: Safety Integrated</p> <p>SLP: Safely-Limited Position / SE: Safe software limit switches</p> <p>SLS: Safely-Limited Speed / SG: Safely reduced speed</p> <p>See also: p9501 (SI motion enable safety functions (Control Unit)), p9503 (SI motion SCA (SN) enable (Control Unit))</p>
F01683	SI Motion: SOS/SLS enable missing
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The safety-relevant basic function "SOS/SLS" is not enabled in p9501 although other safety-relevant monitoring functions are enabled.</p> <p>Note:</p> <p>This fault results in a STOP A that cannot be acknowledged.</p>
Remedy:	<p>Enable the function "SOS/SLS" (p9501.0) and carry out a POWER ON.</p> <p>Note:</p> <p>SI: Safety Integrated</p> <p>SLS: Safely-Limited Speed / SG: Safely reduced speed</p> <p>SOS: Safe Operating Stop / SBH: Safe operating stop</p> <p>See also: p9501 (SI motion enable safety functions (Control Unit))</p>
F01684	SI Motion: Safely limited position limit values interchanged
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>For the function "Safely-Limited Position" (SE), a lower value is in p9534 as in p9535.</p> <p>Note:</p> <p>This fault results in a STOP A that cannot be acknowledged.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1: Limit values SLP1 interchanged.</p> <p>2: Limit values SLP2 interchanged.</p>
Remedy:	<p>Correct the limit values in p9534 and p9535 and carry out a POWER ON.</p> <p>Note:</p> <p>SI: Safety Integrated</p> <p>SLP: Safely-Limited Position / SE: Safe software limit switches</p>

F01685	SI Motion: Safely-limited speed limit value too high
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz. Fault value (r0949, interpret decimal): Maximum permissible speed.
Remedy:	Correct the limit values for SLS and carry out a POWER ON. Note: SI: Safety Integrated SLS: Safely-Limited Speed / SG: Safely reduced speed See also: p9531 (SI motion SLS (SG) limit values (Control Unit))

F01686	SI Motion: Illegal parameterization cam position
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	At least one enabled "Safety Cam" (SCA) is parameterized in p9536 or p9537 too close at the tolerance range around the modulo position. The following conditions must be complied with to assign cams to a cam track: - the cam length of cam x = p9536[x]-p9537[x] must be greater or equal to the cam tolerance + the position tolerance (= p9540 + p9542). This also means that for cams on a cam track, the minus position value must be less than the plus position value. - the distance between 2 cams x and y (minus position value[y] - plus position value[x] = p9537[y] - p9536[x]) on a cam track must be greater than or equal to the cam tolerance + position tolerance (= p9540 + p9542). Fault value (r0949, interpret decimal): Number of the "Safe Cam" with an illegal position. See also: p9501 (SI motion enable safety functions (Control Unit))
Remedy:	Correct the cam position and carry out a POWER ON. Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9536 (SI motion SCA (SN) plus cam position (Control Unit)), p9537 (SI motion SCA (SN) plus cam position (Control Unit))

F01687	SI Motion: Illegal parameterization modulo value SCA (SN)
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The parameterized modulo value for the "Safe Cam" (SCA) function is not a multiple of 360 000 mDegrees.
Remedy:	Correct the modulo value for SCA and carry out a POWER ON. Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9505 (SI motion SCA (SN) modulo value (Control Unit))

F01688	SI Motion: Actual value synchronization not permissible
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	It is not permissible to simultaneously enable the actual value synchronization and a monitoring function with absolute reference (SCA/SLP).

Remedy: Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
Note:
 SCA: Safe Cam / SN: Safe software cam
 SI: Safety Integrated
 SLP: Safely-Limited Position / SE: Safe software limit switches
 See also: p9501 (SI motion enable safety functions (Control Unit))

C01689 SI Motion: Axis re-configured

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: POWER ON

Cause: The axis configuration was changed (e.g. changeover between linear axis and rotary axis).
 Parameter p0108.13 is internally set to the correct value.
 Fault value (r0949, interpret decimal):
 Parameter number that initiated the change.
 See also: p9502 (SI motion axis type (Control Unit))

Remedy: The following should be carried out after the changeover:
 - exit the safety commissioning mode (p0010).
 - save the parameters.
 - carry out a POWER ON.
Note:
 For the commissioning software, the units are only consistently displayed after a project upload.

F01690 SI Motion: Data save problem for the NVRAM

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (OFF1, OFF2, OFF3)
 VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: POWER ON

Cause: For the safety functionality logbook when saving parameters p9781 and p9782, there was not enough NVRAM available in the drive:
 0: There is no physical NVRAM available in the drive.
 1: There is no NVRAM free.

Remedy: 0: Use a drive with NVRAM or add NVRAM.
 1: By de-selecting functions that are not required, create sufficient space in the drive NVRAM.

A01696 (F) SI Motion: Testing of the motion monitoring functions selected when booting

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The test of the motion monitoring functions was already illegally active when booting.
 In order to avoid an incorrect alarm, the test is only carried out after again selecting the forced checking procedure parameterized in p9705.

Note:
 This message does not result in a safety stop response.
 See also: p9705 (SI Motion: Test stop signal source)

Remedy: De-select the forced checking procedure of the safety motion monitoring functions and then select again.
 The signal source for initiation is parameterized in BI: p9705.

Note:
 SI: Safety Integrated
 See also: p9705 (SI Motion: Test stop signal source)

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowled. upon F: IMMEDIATELY (POWER ON)

A01697 (F)	SI Motion: Motion monitoring functions must be tested
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The time set in p9559 for the forced checking procedure of the safety motion monitoring functions has been exceeded. A new test is required. After next selecting the forced checking procedure parameterized in p9705, the message is withdrawn and the monitoring time is reset. Note: This message does not result in a safety stop response. See also: p9559 (SI motion forced checking procedure timer (Control Unit)), p9705 (SI Motion: Test stop signal source)
Remedy:	Carry out the forced checking procedure of the safety motion monitoring functions. The signal source for initiation is parameterized in BI: p9705. Note: SI: Safety Integrated See also: p9705 (SI Motion: Test stop signal source)
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A01698 (F)	SI CU: Commissioning mode active
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The commissioning of the "Safety Integrated" function is selected. This message is withdrawn after the safety functions have been commissioned. Note: This message does not result in a safety stop response. See also: p0010 (Infeed commissioning parameter filter)
Remedy:	None necessary. Note: CU: Control Unit SI: Safety Integrated
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A01699 (F)	SI CU: Shutdown path must be tested
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The time set in p9659 for the forced checking procedure of the safety shutdown paths has been exceeded. The safety shutdown paths must be re-tested. After the next time that the "STO" function is de-selected, the message is withdrawn and the monitoring time is reset. Note: This message does not result in a safety stop response. See also: p9659 (SI forced checking procedure timer)
Remedy:	Select STO and then deselect again. Note: CU: Control Unit SI: Safety Integrated STO: Safe Torque Off / SH: Safe standstill
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

C01700	SI Motion CU: STOP A initiated
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive is stopped via a STOP A (pulses are canceled via the safety shutdown path of the Control Unit).</p> <p>Possible causes:</p> <ul style="list-style-type: none"> - stop request from the higher-level control. - pulses not canceled after a parameterized time (p9557) after test stop selection. - subsequent response to the message C01706 "SI Motion: Safe Brake Ramp exceeded". - subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded". - subsequent response to the message C01701 "SI Motion: STOP B initiated".
Remedy:	<ul style="list-style-type: none"> - remove the fault cause in the control and carry out a POWER ON. - check the value in p9557, if necessary, increase the value, and carry out POWER ON. - check the shutdown path of Control Unit (check DRIVE-CLiQ communications). - carry out a diagnostics routine for message C01706. - carry out a diagnostics routine for message C01714. - carry out a diagnostics routine for message C01701. - replace Motor Module. - replace Control Unit. <p>This message can only be acknowledged as follows in the acceptance test mode without POWER ON:</p> <ul style="list-style-type: none"> - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe - motion monitoring functions with SINUMERIK: Via the machine control panel. <p>Note:</p> <p>SI: Safety Integrated</p>
C01701	SI Motion CU: STOP B initiated
Drive object:	SERVO, VECTOR
Reaction:	OFF3
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive is stopped via a STOP B (braked along the current limit).</p> <p>As a result of this fault, after the time, parameterized in p9556 has expired, or the speed threshold, parameterized in p9560 has been fallen below, message C01700 "STOP A initiated" is output.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> - stop request from the higher-level control. - subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded". - subsequent response to the message C01711 "SI Motion: Defect in a monitoring channel".
Remedy:	<ul style="list-style-type: none"> - remove the fault cause in the control and carry out a POWER ON. - carry out a diagnostics routine for message C01714. - carry out a diagnostics routine for message C01711. <p>This message can only be acknowledged as follows in the acceptance test mode without POWER ON:</p> <ul style="list-style-type: none"> - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe - motion monitoring functions with SINUMERIK: Via the machine control panel. <p>Note:</p> <p>SI: Safety Integrated</p>
C01706	SI Motion CU: Safe Acceleration Monitor limit exceeded
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>After initiating STOP B or STOP C, the velocity has exceeded the selected tolerance.</p> <p>The drive is shut down by the message C01700 "SI Motion: STOP A initiated".</p>
Remedy:	<p>Check the braking behavior, if required, adapt the tolerance for "Safe Acceleration Monitor".</p> <p>This message can only be acknowledged as follows in the acceptance test mode without POWER ON:</p> <ul style="list-style-type: none"> - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe - motion monitoring functions with SINUMERIK: Via the machine control panel. <p>Note:</p> <p>SBR: Safe Acceleration Monitor</p> <p>SI: Safety Integrated</p> <p>See also: p9548 (SI motion SBR actual velocity tolerance (Control Unit))</p>

C01707	SI Motion CU: Tolerance for safe operating stop exceeded
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The actual position has distanced itself further from the target position than the standstill tolerance. The drive is shut down by the message C01701 "SI Motion: STOP B initiated".
Remedy:	<ul style="list-style-type: none">- check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.- carry out a POWER ON. <p>This message can only be acknowledged as follows in the acceptance test mode without POWER ON:</p> <ul style="list-style-type: none">- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe- motion monitoring functions with SINUMERIK: Via the machine control panel <p>Note:</p> <p>SI: Safety Integrated SOS: Safe Operating Stop / SBH: Safe operating stop See also: p9530 (SI motion standstill tolerance (Control Unit))</p>

C01708	SI Motion CU: STOP C initiated
Drive object:	SERVO, VECTOR
Reaction:	STOP2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP C (braked along the current limit). "Safe Operating Stop" (SOS) is activated after the parameterized timer stage has expired. Possible causes: <ul style="list-style-type: none">- stop request from the higher-level control.- subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded".- subsequent response to the message C01715 "SI Motion: Safe end stop exceeded". See also: p9552 (SI motion transition time STOP C to SOS (SBH) (Control Unit))
Remedy:	<ul style="list-style-type: none">- remove the cause of the fault at the control.- carry out a diagnostics routine for message C01714. <p>This message can be acknowledged as follows:</p> <ul style="list-style-type: none">- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe- motion monitoring functions with SINUMERIK: Via the machine control panel <p>Note:</p> <p>SI: Safety Integrated SOS: Safe Operating Stop / SBH: Safe operating stop</p>

C01709	SI Motion CU: STOP D initiated
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP D (braking along the path). "Safe Operating Stop" (SOS) is activated after the parameterized timer stage has expired. Possible causes: <ul style="list-style-type: none">- stop request from the higher-level control.- subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded".- subsequent response to the message C01715 "SI Motion: Safe end stop exceeded". See also: p9553 (SI motion transition time STOP D to SOS (SBH) (Control Unit))
Remedy:	<ul style="list-style-type: none">- remove the cause of the fault at the control.- carry out a diagnostics routine for message C01714. <p>This message can be acknowledged as follows:</p> <ul style="list-style-type: none">- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe- motion monitoring functions with SINUMERIK: Via the machine control panel <p>Note:</p> <p>SI: Safety Integrated SOS: Safe Operating Stop / SBH: Safe operating stop</p>

C01710	SI Motion CU: STOP E initiated
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive is stopped via a STOP E (retraction motion). "Safe Operating Stop" (SOS) is activated after the parameterized timer stage has expired. Possible causes:</p> <ul style="list-style-type: none"> - stop request from the higher-level control. - subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded". - subsequent response to the message C01715 "SI Motion: Safe end stop exceeded". <p>See also: p9554 (SI motion transition time STOP E to SOS (SBH) (Control Unit))</p>
Remedy:	<ul style="list-style-type: none"> - remove the cause of the fault at the control. - carry out a diagnostics routine for message C01714. <p>This message can be acknowledged as follows:</p> <ul style="list-style-type: none"> - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe - motion monitoring functions with SINUMERIK: Via the machine control panel <p>Note: SI: Safety Integrated SOS: Safe Operating Stop / SBH: Safe operating stop</p>
C01711	SI Motion CU: Defect in a monitoring channel"
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>When cross-checking and comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible. If at least one monitoring function is active, then after the parameterized timer stage has expired, the message C01701 "SI Motion: STOP B initiated" is output. The message value that resulted in a STOP F is displayed in r9725. The described message values involve the data cross-check between the Control Unit and Motor Module. If the drive is operated together with a SINUMERIK, the message values are described in message 27001 of SINUMERIK. Message value (r9749, interpret decimal): 0 to 999: Number of the cross-checked data that resulted in this fault. 0: Stop request from the other monitoring channel. 1: Status image of monitoring functions SOS, SLS or SLP (result list 1) (r9710[0], r9710[1]). 2: Status image of monitoring function SCA or n < nx (result list 2) (r9711[0], r9711[1]). 3: Pos. act. val. (r9712). 4: Error when synchronizing the crosswise data comparison between the two channels. 5: Function enable signals (p9501, p9301). 6: Limit value for SLS1 (p9531[0], p9331[0]). 7: Limit value for SLS2 (p9531[1], p9331[1]). 8: Limit value for SLS3 (p9531[2], p9331[2]). 9: Limit value for SLS4 (p9531[3], p9331[3]). 10: Standstill tol. (p9530, p9330). 31: Pos. tol. (p9542, p9342). 33: Time, velocity changeover (p9551, p9351). 35: Delay time, pulse canc. (p9556, p9356). 36: Checking time, pulse canc. (p9557, p9357). 37: Trans. time, STOP C to SOS (p9552, p9352). 38: Trans. time STOP D to SOS (p9553, p9353). 40: Stop response for SLS. 42: Shutdown speed, pulse canc. (p9560, p9360). 43: Memory test, stop response (STOP A). 44: Position actual value + limit value SLS1 / safety monitoring clock cycle. 45: Pos. act. val. - limit value SLS1 / safety monitoring clock cycle. 46: Pos. act. val. + limit value SLS2 / safety monitoring clock cycle. 47: Pos. act. val. - limit value SLS2 / safety monitoring clock cycle. 48: Pos. act. val. + limit value SLS3 / safety monitoring clock cycle. 49: Pos. act. val. - limit value SLS3 / safety monitoring clock cycle. 50: Pos. act. val. + limit value SLS4 / safety monitoring clock cycle.</p>

51: Pos. act. val. - limit value SLS4 / safety monitoring clock cycle.
52: Standstill position + tolerance.
53: Standstill position - tolerance
54: Pos. act. val. + limit value nx / safety monit. clock cycle + tolerance.
55: Pos. act. val. + limit value nx / safety monit. clock cycle.
56: Pos. act. val. - limit value nx / safety monit. clock cycle.
57: Pos. act. val. - limit value nx / safety monit. clock cycle - tolerance.
58: Actual stop request.
75: Velocity limit nx (p9546, p9346).
76: Stop response for SLS1 (p9563[0], p9363[0]).
77: Stop response for SLS2 (p9563[1], p9363[1]).
78: Stop response for SLS3 (p9563[2], p9363[2]).
79: Stop response for SLS4 (p9563[3], p9363[3]).
81: Velocity tolerance for SBR (p9548, p9348).
82: SGEs for SLS correction factor.
83: Acceptance test timer (p9558, p9358).
84: Trans. time STOP F (p9555, p9355).
85: Trans. time bus failure (p9580, p9380).
86: Ident. 1-encoder system.
87: Encoder assignment, 2nd channel (p9526, p9326).
89: Encoder limit freq.
1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.
1001: Initialization error of watchdog timer.
1005: Pulses already canceled for test stop selection.
1011: Acceptance test status between the monitoring channels differ.
1012: Plausibility violation of the actual value from the encoder.
1020: Cyc. communication failure between the monit. cycles.
1021: Cyc. communication failure between the monit. channel and Sensor Module.
5000 ... 5140: PROFIsafe message values.
Message values 5000, 5014, 5023, 5024, 5030 ... 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:
- an int. SW error has occurred. Only for int. Siemens troubleshooting.
5012: Error when initializing the PROFIsafe driver.
5013: The result of the initialization is different for the two controllers.
5022: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.
5025: The result of the F parameterization is different for the two controllers.
5026: CRC error for the F parameters. The transferred CRC value of the F parameters does not match the value calculated in the PST.
5065: A communications error was identified when receiving the PROFIsafe telegram.
5066: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.
See also: p9555 (SI motion transition time STOP F to STOP B (Control Unit)), r9725 (SI motion, diagnostics STOP F)

Remedy:

The following generally applies:
The monitoring clock cycles in both channels should be checked for equality and if required, set the same.
Re fault value = 0:
- no error was identified in this monitoring channel. Note the error message of the other monitoring channel (for MM: F30711).
Re fault value = 4:
The monitoring clock cycles in both channels should be checked for equality and if required, set the same.
Re fault value = 1 ... 999:
- check the cross-checked parameters that resulted in a STOP F, if required, copy the safety parameters.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- correction of the encoder evaluation. The actual values differ as a result of mechanical faults (V belts, travel to a mechanical endstop, wear and window setting that is too narrow, encoder fault, ...).
Re fault value = 1000:
- investigate the signal associated with the safety-relevant input (contact problems).
Re fault value = 1001:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 1005:
 - check the conditions for pulse enable.
 Re fault value = 1011:
 - for diagnostics, refer to parameter (r9571).
 Re fault value = 1012:
 - upgrade the Sensor Module software.
 Re fault value = 1020, 1021:
 - check the communication link.
 - carry out a POWER ON (power off/on) for all components.
 - replace the hardware.
 Re fault value = 5000, 5014, 5023, 5024, 5030, 5031, 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:
 - carry out a POWER ON (power off/on) for all components.
 - check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified.
 - upgrade the firmware release.
 - contact the Hotline.
 - replace the Control Unit.
 Re fault value = 5012:
 - check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810). It is not permissible that the PROFIsafe address is 0 or FFFF!
 Re fault value = 5013, 5025:
 - carry out a POWER ON (power off/on) for all components.
 - check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810).
 - check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified.
 Re fault value = 5022:
 - check the setting of the values of the F parameters at the PROFIsafe slave (F_SIL, F_CRC_Length, F_Par_Version, F_Source_Add, F_Dest_add, F_WD_Time).
 Re fault value = 5026:
 - check the settings of the values of the F parameters and the F-parameter-CRC (CRC1) calculated from these at the PROFIsafe slave and update.
 Re fault value = 5065:
 - check the configuration and communication at the PROFIsafe slave (Cons. No. / CRC).
 - check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified.
 Re fault value = 5066:
 - check the setting of the F parameter value of the time monitoring at the PROFIsafe-slave and, if required, increase the timeout value (F_WD_Time).
 This message can be acknowledged as follows:
 - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
 - motion monitoring functions with SINUMERIK: Via the machine control panel
 See also: p9300 (SI motion monitoring clock cycle (Motor Module)), p9500 (SI motion monitoring clock cycle (Control Unit))

C01714	SI Motion CU: Safely-Limited Speed exceeded
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive had moved faster than that specified by the velocity limit value (p9531). The drive is stopped as a result of the configured stop response (p9563).</p> <p>Message value (r9749, interpret decimal):</p> <p>100: SLS1 exceeded.</p> <p>200: SLS2 exceeded.</p> <p>300: SLS3 exceeded.</p> <p>400: SLS4 exceeded.</p> <p>1000: Encoder limit frequency exceeded.</p>

Remedy:

- check the traversing/motion program in the control.
- check the limits for "Safely-Limited Speed (SLS) and if required, adapt (p9531).

This message can be acknowledged as follows:

- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel

Note:

SI: Safety Integrated

SLS: Safely-Limited Speed / SG: Safely reduced speed

See also: p9531 (SI motion SLS (SG) limit values (Control Unit)), p9563 (SI motion SLS (SG)-specific stop response (Control Unit))

C01745 SI Motion CU: Checking braking torque for the brake test

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: POWER ON (IMMEDIATELY)

Cause: The normalization of the brake torque for the brake test can be changed using parameter p2003.
An acceptance test must be carried out again for the braking test. This determines whether the braking test is still carried out with the correct braking torque.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- repeat the acceptance test for the safety brake test if the brake test is used.

See also: p2003 (Reference torque)

A01796 (F, N) SI Motion CU: Wait for communications to the control

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The drive waits for communications to be established with the higher-level control to execute the safety-relevant motion monitoring functions.

Note:

In this state, the pulses are safely deleted.

Remedy: If, after a longer period of time, the message is not automatically withdrawn, then the following checks are made:

- correct assignment of the axes on the higher-level control to the drives in the drive unit.
- enable signal of the safety-relevant motion monitoring functions for the corresponding axis on the higher-level control (SINUMERIK).
- check the setting of p9510 (SI motion clock cycle synchronous PROFIBUS master) and if required, set p9510 to 1.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

C01798 SI Motion CU: Test stop running

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The test stop is active.

Remedy: None necessary.
The message is withdrawn when the test stop is ended.

Note:

SI: Safety Integrated

C01799 SI Motion CU: Acceptance test mode active

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The acceptance test mode is active. The POWER ON signals of the safety-relevant motion monitoring functions can be acknowledged during the acceptance test using the RESET button of the higher-level control.

Remedy: None necessary.
The message is withdrawn when exiting the acceptance test mode.
Note:
SI: Safety Integrated

F01800 DRIVE-CLiQ: Hardware/configuration error

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A DRIVE-CLiQ connection fault has occurred.
Fault value (r0949, interpret decimal):
0 ... 7:
Communications via DRIVE-CLiQ socket 0 ... 7 has not been switched to cyclic operation. The cause can be an incorrect structure or a configuration that results in an impossible bus timing.
10:
Loss of the DRIVE-CLiQ connection. The cause can be, for example, that the DRIVE-CLiQ cable was withdrawn from the Control Unit or as a result of a short-circuit for motors with DRIVE-CLiQ. This fault can only be acknowledged in cyclic communication.
11:
Repeated fault when detecting the connection. This fault can only be acknowledged in cyclic communication.
12:
A connection was detected but the node ID exchange mechanism does not function. The reason is probably that the component is defective. This fault can only be acknowledged in cyclic communication.
Remedy: Re fault value = 0 ... 7:
- ensure that the DRIVE-CLiQ components have the same firmware releases.
- avoid longer topologies for short current controller clock cycles.
Re fault value = 10:
- check the DRIVE-CLiQ cables at the Control Unit.
- remove any short-circuit for motors with DRIVE-CLiQ.
- carry out a POWER ON.
Re fault value = 11:
- check the electrical cabinet design and cable routing for EMC compliance
Re fault value = 12:
- replace the component involved.

F01802 (A) CU DRIVE-CLiQ: POWER ON due to basis sampling times

Drive object: All objects
Reaction: A_INFEED: OFF2 (OFF1)
SERVO: OFF2 (IASC / DCBRAKE, OFF1)
VECTOR: OFF2 (IASC / DCBRAKE, OFF1)
Acknowledge: POWER ON
Cause: It is not possible to change the DRIVE-CLiQ basic sampling times p0110 in operation. POWER ON is required.
Fault value (r0949, interpret decimal):
Index of p0110.
Remedy: - save (p0971 = 1).
- carry out a POWER ON.
Reaction upon A: NONE
Acknowl. upon A: NONE

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F01840	SMI: Component found with changed data
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	<p>Another Sensor Module Integrated (SMI) was found.</p> <p>The reasons could be as follows:</p> <ol style="list-style-type: none">1. A motor with DRIVE-CLiQ (SMI) and another order No. were used as replacement.2. A Sensor Module Integrated was used as spare part where there is no encoder data and motor data of the incorrect data are present. <p>Fault value (r0949, interpret hexadecimal):</p> <p>The value should be interpreted as follows as 8-digit hexadecimal number AAAABBBB:</p> <p>BBBB = Reserved.</p> <p>AAAA = Component number of the component involved.</p>
Remedy:	<p>Re 1.</p> <ul style="list-style-type: none">- re-establish the factory setting.- carry out the first commissioning. <p>Re 2.</p> <ul style="list-style-type: none">- download the SMI data from the back-up (p4690, p4691).- carry out a POWER ON (power off/on) for all components.
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A01900 (F)	PROFIBUS: Configuration telegram error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A PROFIBUS master attempts to establish a connection using an incorrect configuring telegram.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>50: Syntax error.</p> <p>51: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence was defined using p0978.</p> <p>52: Too many data words for input or output to a drive object. A maximum of 16 words is permitted for SERVO and VECTOR; maximum of 5 words, for A_INFEED, TB30, TM31 and CU320.</p> <p>53: Uneven number of bytes for input or output.</p>
Remedy:	<p>Check the bus configuring on the master and slave sides.</p> <p>Re alarm value = 51:</p> <p>Check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.</p>
Reaction upon F:	NONE (OFF1)
Acknowl. upon F:	IMMEDIATELY
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A01901 (F)	PROFIBUS: Parameterizing telegram error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A PROFIBUS master attempts to establish a connection using an incorrect parameterizing telegram.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>1: Incorrect parameterizing bits.</p> <p>10: Illegal length of an optional parameterizing block.</p> <p>11: Illegal ID of an optional parameterizing block.</p> <p>20: Double parameterizing block for clock synchronization.</p> <p>21: Incorrect parameterizing block for clock synchronization.</p> <p>22: Incorrect parameterizing bits for clock synchronization.</p> <p>23: Illegal clock synchronization for PZD interface 2.</p> <p>30: Double parameterizing block for peer-to-peer data transfer.</p> <p>31: Incorrect parameterizing block for peer-to-peer data transfer.</p>
Remedy:	<p>Check the bus configuration:</p> <ul style="list-style-type: none">- bus addresses- slave configuring
Reaction upon F:	NONE (OFF1)
Acknowl. upon F:	IMMEDIATELY

A01902	IF1: PB/PN clock cycle synchronous operation parameterization not permissible
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>Alarm value (r2124, interpret decimal):</p> <p>0: Bus cycle time Tdp < 0.5 ms.</p> <p>1: Bus cycle time Tdp > 32 ms.</p> <p>2: Bus cycle time Tdp is not a integer multiple of the current controller clock cycle.</p> <p>3: Instant of the actual value sensing Ti > Bus cycle time Tdp or Ti = 0.</p> <p>4: Instant of the actual value sensing Ti is not an integer multiple of the current controller clock cycle.</p> <p>5: Instant of the setpoint acceptance Zo >= Bus cycle time Tdp or To = 0.</p> <p>6: Instant of the setpoint acceptance To is not an integer multiple of the current controller clock cycle.</p> <p>7: Master application cycle time Tmapc is not an integer multiple of the speed controller clock cycle.</p> <p>8: Bus reserve bus cycle time Tdp - data exchange time Tdx less than two current controller clock cycles.</p> <p>9: Bus cycle time Tdp has been modified with respect to the first time that the connection was established.</p> <p>10: Instant of the setpoint acceptance not To <= data exchange time Tdx + To_min.</p> <p>11: Master application cycle time Tmapc > 14 or Tmapc = 0.</p> <p>12: PLL tolerance window Tpll_w > Tpll_w_max.</p> <p>13: Bus cycle time Tdp is not a multiple of all basic clock cycles p0110[x].</p> <p>14: For COMM BOARD with the setting To - 1 = Tdp - Ti, the instant of the setpoint acceptance is not To <= Data Exchange time Tdx + 2 * To_min.</p> <p>15: This configuration is not permitted for Tdp < 1 ms.</p> <p>16: Instant of the actual value sensing Ti is less than the permitted value (COMM BOARD: Ti >= 2).</p> <p>17: The setting (To + Ti = Tdp + 2) is not permitted for COMM BOARD.</p>
Remedy:	<p>- adapt the parameterizing telegram.</p> <p>- adapt the current and speed controller clock cycle.</p> <p>Re alarm value = 9:</p> <p>- carry out a POWER ON.</p> <p>Re alarm value = 15:</p> <p>- check the number of specific drive object types in the configuration.</p> <p>Note:</p> <p>IF1: Interface 1</p> <p>PB: PROFIBUS</p> <p>PN: PROFINET</p>
A01903 (F)	COMM INT: Receive configuration data invalid
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The drive unit did not accept the receive-configuration data.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Return value of the receive-configuration data check.</p> <p>0: Configuration accepted.</p> <p>1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence was defined using p0978.</p> <p>2: Too many data words for input or output to a drive object. A maximum of 16 words is permitted for SERVO and VECTOR; maximum of 5 words, for A_INFEED, TB30, TM31 and CU320.</p> <p>3: Uneven number of bytes for input or output.</p> <p>4: Setting data for synchronization not accepted.</p> <p>5: Drive still not in cyclic operation.</p> <p>6: Buffer system not accepted.</p> <p>7: Cyclic channel length too short for this setting.</p> <p>8: Cyclic channel address not initialized.</p> <p>9: 3-buffer system not permitted.</p> <p>10: DRIVE-CLiQ fault.</p> <p>11: CU-Link fault.</p> <p>12: CX32 not in cyclic operation.</p>
Remedy:	<p>Check the receive configuration data.</p> <p>Re alarm value = 1:</p> <p>Check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.</p>

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F01910 (N, A) PROFIBUS: Setpoint timeout

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: OFF3 (IASC / DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
VECTOR: OFF3 (IASC / DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: The receipt of setpoints from the PROFIBUS interface is interrupted because the bus connection is interrupted or the PROFIBUS master is switched off or was set into the STOP state.
See also: p2047 (PROFIBUS additional monitoring time)
Remedy: Restore the bus connection and set the PROFIBUS master to RUN.
See also: p2047 (PROFIBUS additional monitoring time)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F01911 IF1: PB/PN clock cycle synchronous operation clock cycle failure

Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: The global control telegram to synchronize the clock cycles has failed - in cyclic operation - for several DP clock cycles or has violated the time grid specified in the parameterizing telegram over several consecutive DP clock cycles (refer to the bus cycle time, Tdp and Tdpllw).
Remedy:

- check the PROFIBUS cables and connectors.
- check whether communications were briefly or permanently interrupted.
- check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).

Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET

F01912 IF1: PB/PN clock cycle synchronous operation sign-of-life failure

Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: The maximum permissible number of errors in the master sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.
Remedy:

- check the physical bus configuration (terminating resistor, shielding, etc.).
- check the interconnection of the master sign-of-life (p2045).
- check whether the master correctly sends the sign-of-life (e.g. set-up a trace with STW2.12 ... STW2.15 and trigger signal ZSW1.3).
- check the permissible telegram failure rate (p0925).
- check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).

Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET

F01913 (N, A)	COMM INT: Monitoring time sign-of-life expired
Drive object:	All objects
Reaction:	A_INFEED: OFF1 (NONE, OFF2) SERVO: OFF1 (NONE, OFF2, OFF3) VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The monitoring time for the sign-of-life counter has expired. The connection between the drive and the higher-level control (SIMOTION, SINUMERIK) has been interrupted for the following reasons: - the control was reset. - the data transfer to the control was interrupted.
Remedy:	- wait until the control has re-booted. - restore data transfer to the control.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01914 (N, A)	COMM INT: Monitoring time configuration expired
Drive object:	All objects
Reaction:	A_INFEED: OFF1 (NONE, OFF2) SERVO: OFF1 (NONE, OFF2, OFF3) VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The monitoring time for the configuration has expired. Fault value (r0949, interpret decimal): 0: The transfer of the send-configuration data has been exceeded (time). 1: The transfer of the receive-configuration data has been exceeded (time).
Remedy:	- acknowledge faults that are present. - carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A01915	IF1: PB/PN clock cycle synchronous operation sign-of-life failure drive object 1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Group display for problems with the sign-of-life of the master (PROFIBUS clock-cycle synchronous [isochronous]) on the Drive Object 1 (Control Unit). For central measurements, synchronism with the master is lost.
Remedy:	Note: IF1: Interface 1 PB: PROFIBUS PN: PROFINET
A01920 (F)	PROFIBUS: Interruption cyclic connection
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cyclic connection to the PROFIBUS master is interrupted.

Remedy: Set up the PROFIBUS connection and activate the PROFIBUS master in the cyclic mode.
Reaction upon F: NONE (OFF1)
Acknowled. upon F: IMMEDIATELY

A01921 (F) PROFIBUS: Receive setpoints after To

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Output data of PROFIBUS master (setpoints) received at the incorrect instant in time within the PROFIBUS clock cycle.
Remedy: - check bus configuration.
- check parameters for clock cycle synchronization (ensure To > Tdx).
Note:
Zo: Time of setpoint acceptance
Tdx: Data exchange time
Reaction upon F: NONE (OFF1)
Acknowled. upon F: IMMEDIATELY

A01930 IF1: PB/PN current controller clock cycle clock cycle synchronous not equal

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The current controller clock cycle of all drives must be set the same for the clock cycle synchronous operation.
Alarm value (r2124, interpret decimal):
Number of the drive object with the different current controller clock cycle.
Remedy: Set current controller clock cycles to identical values (p0115[0]).
Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET
See also: p0115 (Sampling time for supplementary functions)

A01931 IF1: PB/PN speed controller clock cycle clock cycle synchronous not equal

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The speed controller clock cycle of all drives must be set the same for the clock cycle synchronous operation.
Alarm value (r2124, interpret decimal):
Number of the drive object with the different speed controller clock cycle.
Remedy: Set the speed controller clock cycles the same (p0115[1]).
Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET
See also: p0115 (Sampling time for supplementary functions)

A01932 IF1: PB/PN clock cycle synchronization missing for DSC

Drive object: SERVO, TM41
Reaction: NONE
Acknowledge: NONE
Cause: There is not clock cycle synchronization and DSC is selected.
Note:
DSC: Dynamic Servo Control
Remedy: Set the clock cycle synchronization when configuring the bus.

A01940	IF1: PB/PN clock cycle synchronism not reached
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. It was not possible to synchronize to the clock cycle specified by the master.</p> <ul style="list-style-type: none"> - the master doesn't send a clock synchronous global control telegram although the clock synchronous operation was selected when configuring the bus. - the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram. - at least one drive object (that is not controlled from PROFIBUS/PROFINET) has a pulse enable.
Remedy:	<ul style="list-style-type: none"> - check the master application and bus configuration. - check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master. - ensure that the pulses of drive objects, not controlled from PROFIBUS/PROFINET, are not enabled. Only enable the pulses after synchronizing the PROFIBUS/PROFINET drives. <p>Note: IF1: Interface 1 PB: PROFIBUS PN: PROFINET</p>
A01941	IF1: PB/PN clock cycle signal missing when establishing the bus
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is not being received.</p>
Remedy:	<p>Check the master application and bus configuration.</p> <p>Note: IF1: Interface 1 PB: PROFIBUS PN: PROFINET</p>
A01943	IF1: PB/PN clock cycle signal faulted when establishing the bus
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is being irregularly received.</p> <ul style="list-style-type: none"> - the master is sending an irregular global control telegram. - the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
Remedy:	<ul style="list-style-type: none"> - check the master application and bus configuration. - check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master. <p>Note: IF1: Interface 1 PB: PROFIBUS PN: PROFINET</p>
A01944	IF1: PB/PN sign-of-life synchronism not reached
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. Synchronization with the master sign-of-life (STW2.12 ... STW2.15) could not be completed because the sign-of-life is changing differently than configured in the Tmapc time grid.</p>

Remedy:

- ensure that the master correctly increments the sign-of-life in the master application clock cycle.
- check the interconnection of the master sign-of-life (p2045).

Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET

A01945 PROFIBUS: Connection to the Publisher faulted

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher is faulted.
Alarm value (r2124, interpret binary):
Bit 0 = 1: Publisher with address in r2077[0], connection faulted.

...

Bit 15 = 1: Publisher with address in r2077[15], connection faulted.

Remedy:

- check the PROFIBUS cables.
- carry out a first commissioning of the Publisher that has the faulted connection.

See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

F01946 (A) PROFIBUS: Connection to the Publisher interrupted

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: A_INFEED: OFF1 (NONE, OFF2)
SERVO: OFF1 (NONE, OFF2, OFF3)
VECTOR: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: At this drive object, the connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation was interrupted.
Alarm value (r2124, interpret binary):
Bit 0 = 1: Publisher with address in r2077[0], connection interrupted.
...

Bit 15 = 1: Publisher with address in r2077[15], connection interrupted.

Remedy:

- check the PROFIBUS cables.
- check the state of the Publisher that has the interrupted connection.

See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

Reaction upon A: NONE

Acknowl. upon A: NONE

F01950 (N, A) IF1: PB/PN clock cycle synchronous operation synchronization unsuccessful

Drive object: All objects

Reaction: OFF1 (NONE)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: Synchronization of the internal clock cycle to the global control telegram has failed. The internal clock cycle exhibits an unexpected shift.

Remedy: Siemens internal
Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F01951	CU DRIVE-CLiQ: Synchronization application clock cycle missing
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	If DRIVE-CLiQ components with different application clock cycle are operated at a DRIVE-CLiQ port, then this requires synchronization with the Control Unit. This synchronization routine was not successful. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the software of the DRIVE-CLiQ components. - upgrade the Control Unit software.
F01952	CU DRIVE-CLiQ: Synchronization of component not supported
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The existing system configuration requires at the connected DRIVE-CLiQ components support the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and the application clock cycle. However, not all DRIVE-CLiQ components have this functionality. Fault value (r0949, interpret decimal): Component number of the first faulted DRIVE-CLiQ component.
Remedy:	Upgrade the firmware of the component specified in the fault value. Note: If required, also upgrade additional components in the DRIVE-CLiQ line.
A01953	CU DRIVE-CLiQ: Synchronization not completed
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	After the drive system is powered-up, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time (tolerance). Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	Carry out a POWER ON (power off/on) for all components.
F01954	CU DRIVE-CLiQ: Synchronization unsuccessful
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	After the drive system is powered-up, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started and was not able to be successfully completed. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	1. Ensure perfect functioning of the DRIVE-CLiQ. 2. Initiate a new synchronization, e.g. by: - remove the PROFIBUS master and re-insert again. - restart the PROFIBUS master. - power-down the Control Unit and power-up again. - press the Control Unit reset button. - reset the parameter and download the saved parameters (p0009 = 30, p0976 = 2).

A01955 CU DRIVE-CLiQ: Synchronization DO not completed

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: After the drive system is powered-up, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time (tolerance).
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: Carry out a POWER ON (power off/on) for all components of the DO.

A02000 Function generator: Start not possible

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The function generator has already been started.
Remedy: Stop the function generator and restart again if necessary.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02005 Function generator: Drive does not exist

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection does not exist.
See also: p4815 (Function generator drive number)
Remedy: Use the existing drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4815 (Function generator drive number)

A02006 Function generator: No drive specified for connection

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: No drive specified for connection in p4815.
See also: p4815 (Function generator drive number)
Remedy: At least one drive to be connected must be specified in p4815.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4815 (Function generator drive number)

A02007 Function generator: Drive not SERVO / VECTOR

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection is not a SERVO / VECTOR.
See also: p4815 (Function generator drive number)

Remedy: Use a SERVO / VECTOR drive object with the corresponding number.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02008 Function generator: Drive specified a multiple number of times

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The drive object specified for connection is already specified.
Alarm value (r2124, interpret decimal):
Drive object number of the drive object that is specified a multiple number of times.

Remedy: Specify a different drive object.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02009 Function generator: Illegal mode

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The selected operating mode (p1300) of the drive object is not permissible when using the function generator.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.

Remedy: Change the operating mode for this drive object to p1300 = 20 (sensorless speed control) or p1300 = 21 (speed control with encoder).

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02010 Function generator: Speed setpoint from the drive is not zero

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The speed setpoint of a drive - selected to be connected to - is greater than the value for the standstill detection set using p1226.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.

Remedy: For all of the drives specified for connection, set the speed setpoints to 0.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02011 Function generator: The actual drive speed is not zero

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The speed actual value of a drive - selected to be connected to - is greater than the value for the standstill detection set using p1226.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.

Remedy: Set the relevant drives to zero speed before starting the function generator.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02015 Function generator: Drive enable signals missing

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The master control and/or enable signals are missing to connect to the specified drive.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.
See also: p4815 (Function generator drive number)
Remedy: Fetch the master control to the specified drive object and set all enable signals.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02020 Function generator: Parameter cannot be changed

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: This parameter setting cannot be changed when the function generator is active (p4800 = 1).
See also: p4810 (Function generator mode), p4812 (Function generator physical address), p4813 (Function generator physical address reference value), p4815 (Function generator drive number), p4820 (Function generator signal shape), p4821 (Function generator period), p4822 (Function generator pulse width), p4823 (Function generator bandwidth), p4824 (Function generator amplitude), p4825 (Function generator 2nd amplitude), p4826 (Function generator offset), p4827 (Function generator ramp-up time to offset), p4828 (Function generator lower limit), p4829 (Function generator upper limit)
Remedy: - stop before parameterizing the function generator (p4800 = 0).
- if required, start the function generator (p4800 = 1).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02025 Function generator: Period too short

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The value for the period is too short.
See also: p4821 (Function generator period)
Remedy: Check and adapt the value for the period.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period)

A02026 Function generator: Pulse width too wide

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected pulse width is too high.
The pulse width must be less than the period duration.
See also: p4822 (Function generator pulse width)

Remedy: Reduce pulse width.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4821 (Function generator period), p4822 (Function generator pulse width)

A02030 Function generator: Physical address equals zero

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The specified physical address is zero.
 See also: p4812 (Function generator physical address)
Remedy: Set a physical address with a value other than zero.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4812 (Function generator physical address)

A02040 Function generator: Impermissible value for offset

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The value for the offset is higher than the value for the upper limit or lower than the value for the lower limit.
 See also: p4826 (Function generator offset)
Remedy: Adjust the offset value accordingly.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4826 (Function generator offset), p4828 (Function generator lower limit), p4829 (Function generator upper limit)

A02041 Function generator: Impermissible value for bandwidth

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The bandwidth, referred to the time slice clock cycle of the function generator has either been set too low or too high.
 Depending on the time slice clock cycle, the bandwidth is defined as follows:
 $\text{Bandwidth_max} = 1 / (2 * \text{time slice clock cycle})$
 $\text{Bandwidth_min} = \text{Bandwidth_max} / 100000$
Example:
 Assumption: p4830 = 125 μs
 $\rightarrow \text{Bandwidth_max} = 1 / (2 * 125 \mu\text{s}) = 4000 \text{ Hz}$
 $\rightarrow \text{Bandwidth_min} = 4000 \text{ Hz} / 100000 = 0.04 \text{ Hz}$
Note:
 p4823: Function generator bandwidth
 p4830: Function generator time slice clock cycle
 See also: p4823 (Function generator bandwidth), p4830 (Function generator time slice cycle)
Remedy: Check the value for the bandwidth and appropriately adapt.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.

A02047 Function generator: Time slice clock cycle invalid

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time slice cycle selected does not match any of the existing time slices.
See also: p4830 (Function generator time slice cycle)
Remedy: Input an existing time slice cycle. The existing time slices can be read out via p7901.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: r7901 (Time slice cycle times)

A02050 Trace: Start not possible

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The trace has already been started.
See also: p4700 (Trace control)
Remedy: Stop the trace and, if necessary, start again.

A02055 Trace: Recording time too short

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The trace duration is too short.
The minimum is twice the value of the trace clock cycle.
See also: p4721 (Trace recording time)
Remedy: Check the selected recording time and, if necessary, adjust.

A02056 Trace: Recording cycle too short

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected recording cycle is shorter than the selected basis clock cycle 0 (p0110[0]).
See also: p4720 (Trace recording cycle)
Remedy: Increase the value for the trace cycle.

A02057 Trace: Time slice clock cycle invalid

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time slice cycle selected does not match any of the existing time slices.
See also: p4723 (Time slice cycle for trace)
Remedy: Input an existing time slice cycle. The existing time slices can be read out via p7901.
See also: r7901 (Time slice cycle times)

A02058 Trace: Time slice clock cycle for endless trace not valid

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for the endless trace
See also: p4723 (Time slice cycle for trace)

Remedy: Enter the clock cycle of an existing time slice with a cycle time ≥ 2 ms for up to 4 recording channels or ≥ 4 ms from 5 recording channels per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Time slice cycle times)

A02059 Trace: Time slice clock cycle for 2 x 8 recording channels not valid

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for the setting p4702 = 1 (2 x 8 recording channels).
See also: p4723 (Time slice cycle for trace)
Remedy: Enter the clock cycle of an existing time slice with a cycle time ≥ 4 ms or reduce the number of recording channels to 4 per trace.
The existing time slices can be read out via p7901.
See also: p4702 (Trace recording channels count), r7901 (Time slice cycle times)

A02060 Trace: Signal to be traced missing

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - a signal to be traced was not specified.
- the specified signals are not valid.
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: - specify the signal to be traced.
- check whether the relevant signal can be traced.

A02061 Trace: Invalid signal

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - the specified signal does not exist.
- the specified signal can no longer be traced (recorded).
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: - specify the signal to be traced.
- check whether the relevant signal can be traced.

A02062 Trace: Invalid trigger signal

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - a trigger signal was not specified.
- the specified signal does not exist.
- the specified signal is not a fixed-point signal.
- the specified signal cannot be used as trigger signal for the trace.
See also: p4711 (Trace trigger signal)
Remedy: Specify a valid trigger signal.

A02063 Trace: Invalid data type

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The specified data type to select a signal using a physical address is invalid.
See also: p4711 (Trace trigger signal), p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: Use a valid data type.

A02070	Trace: Parameter cannot be changed
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The trace parameter settings cannot be changed when the trace is active. See also: p4700 (Trace control), p4710 (Trace trigger condition), p4711 (Trace trigger signal), p4712 (Trace trigger threshold), p4713 (Trace tolerance band trigger threshold), p4714 (Trace tolerance band trigger threshold), p4715 (Trace bit mask trigger, bit mask), p4716 (Trace, bit mask trigger, trigger condition), p4720 (Trace recording cycle), p4721 (Trace recording time), p4722 (Trace trigger delay), p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3), p4780 (Trace physical address signal 0), p4781 (Trace physical address signal 1), p4782 (Trace physical address signal 2), p4783 (Trace physical address signal 3), p4789 (Trace physical address trigger signal), p4795 (Trace memory bank changeover)
Remedy:	- stop the trace before parameterization. - if required, start the trace.
A02075	Trace: Pretrigger time too long
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected pretrigger time must be shorter than the recording time. See also: p4721 (Trace recording time), p4722 (Trace trigger delay)
Remedy:	Check the pretrigger time setting and change if necessary.
F02080	Trace: Delete trace because units changed over
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The trace was cleared due to the fact that the units were changed over or the reference parameters changed.
Remedy:	
A02099	Trace: Insufficient Control Unit memory
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The memory space still available on the Control Unit is no longer sufficient for the trace function.
Remedy:	Reduce the memory required, e.g. as follows: - reduce the trace (record) time. - increase the trace clock cycle. - reduce the number of signals to be traced (recorded). See also: r4708 (Trace memory space required), r4799 (Trace memory location free)
A02100	CU: Computation dead time current controller too short
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value in p0118 produces a dead time of one clock cycle because it lies before the setpoint becomes available. A possible cause could be, for example, that the system characteristics no longer match those parameterized after a component has been replaced. Alarm value (r2134, floating point): The minimum value for p0118 where a dead time no longer occurs.
Remedy:	- set p0118 to a value greater than or equal to the alarm value. - set p0117 to an automatic setting. - check the firmware releases of the components involved. See also: p0117 (Current controller computation dead time mode), p0118 (Current controller computation dead time)

A02150	OA: Application cannot be loaded
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The system was not able to load an OA application. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline. Note: OA: Open Architecture See also: r4950 (OA application count), r4955 (OA application identifier), p4956 (OA application activation), r4957 (OA application version)
F02151 (A)	OA: Internal software error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (NONE, OFF1, OFF3) VECTOR: OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal software error has occurred within an OA application. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline. - replace the Control Unit. Note: OA: Open Architecture See also: r4950 (OA application count), r4955 (OA application identifier), p4956 (OA application activation), r4957 (OA application version)
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F02152 (A)	OA: Insufficient memory
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc). Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- change the configuration on this Control Unit (e.g. fewer drive, function modules, data sets, OA applications, blocks, etc). - use an additional Control Unit. Note: OA: Open Architecture
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F03500 (A)	TM: Initialization
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When initializing the Terminal Modules, the terminals of the Control Unit or the Terminal Board 30, an internal software error has occurred. Fault value (r0949, interpret decimal): The thousands location = 1 ... 3: The component number (p0151) of the module involved is specified at the ones, tens and hundreds position.
Remedy:	- power-down the power supply for the Control Unit and power-up again. - check the DRIVE-CLiQ connection. - if required, replace the Terminal Module. The Terminal Module should be directly connected to a DRIVE-CLiQ socket of the Control Unit. If the fault occurs again, replace the Terminal Module.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A03501	TM: Sampling time change
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The sampling times of the inputs/outputs were changed. This change only becomes valid after the next boot.
Remedy:	Carry out a POWER ON.

F03505 (N, A)	TM: Analog input wire breakage
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The input current of the Terminal Module analog input has exceeded the threshold value parameterized in p4061[x]. This fault can only occur, if p4056[x] = 3 (4 ... 20 mA with monitoring) is set. Index x = 0: Analog input 0 (X522.1 to .3) Index x = 1: Analog input 1 (X522.4 to .5) Fault value (r0949, interpret decimal): The component number (p0151) of the module involved is specified at the ones, tens and hundreds position. The thousands position specifies the analog input involved: 0: Analog input 0 (AI 0), 1: Analog input 1 (AI 1)
Remedy:	Check the connection to the signal source for interruptions. Check the magnitude of the impressed current - it is possible that the impressed signal is too low. Please note that the input has a load resistor of 250 Ohm. The input current measured by the Terminal Module can be read-out of r4052[x].
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A03506 (F, N)	24 V power supply missing
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 24 V power supply for the digital outputs (X124) is missing.
Remedy:	Check the terminals for the power supply voltage (X124, L1+, M).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A03550	TM: Speed setpoint filter natural frequency > Shannon frequency
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The natural filter frequency of the speed setpoint filter (p1417) is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: $0.5 / p0115[0]$ See also: p1417 (Speed setpoint filter 1 denominator natural frequency)
Remedy:	Reduce the natural frequency of the speed setpoint filter (PT2 low pass) (p1417).
F03590 (N, A)	TM: Module not ready
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE) SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The Terminal Module involved does not send a ready signal and no valid cyclic data. Fault value (r0949, interpret decimal): Drive object number of the Terminal Module involved.
Remedy:	- check the 24 V power supply. - check the DRIVE-CLiQ connection. - check whether the sampling time of the drive object involved is not equal to zero (p4099[0]).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A05000 (N)	Power unit: Heatsink overtemperature
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for overtemperature at the inverter heatsink has been reached. The response is set using p0290. If the temperature of the heatsink increases by an additional 5 K, then fault F30004 is initiated.
Remedy:	Check the following: - is the ambient temperature within the defined limit values? - have the load conditions and the load duty cycle been appropriately dimensioned? - has the cooling failed?
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A05001 (N)	Power unit: Chip overtemperature
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached. The response is set using p0290. If the chip temperature increases by an additional 15 K, then fault F30025 is initiated.
Remedy:	Check the following: - is the ambient temperature within the defined limit values? - have the load conditions and the load duty cycle been appropriately dimensioned? - has the cooling failed? - pulse frequency too high? See also: r0037 (Control Unit temperature), p0290 (Power unit overload response)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A05002 (N)	Power unit: Air intake overtemperature
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for the air intake overtemperature has been reached. For air-cooled power units, the threshold is 42 degrees Celcius (hysteresis 2 K). The response is set using p0290. If the air intake temperature increases by an additional 13 K, then fault F30035 is output.
Remedy:	Check the following: - is the ambient temperature within the defined limit values? - has the fan failed? Check the direction of rotation.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A05003 (N)	Power unit: Electronics board overtemperature
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for the overtemperature of the electronics module has been reached. The response is set using p0290. If the temperature of the electronics module increases by an additional 5 K, then fault F30036 is initiated.
Remedy:	Check the following: - is the ambient temperature within the defined limit values? - has the fan failed? Check the direction of rotation.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A05004 (N)	Power unit: Rectifier overtemperature
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for the overtemperature of the rectifier has been reached. The response is set using p0290. If the temperature of the rectifier increases by an additional 5 K, then fault F30037 is initiated.
Remedy:	Check the following: - is the ambient temperature within the defined limit values? - have the load conditions and the load duty cycle been appropriately dimensioned? - has the fan failed? Check the direction of rotation. - has a phase of the line supply failed? - is an arm of the supply (incoming) rectifier defective?
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A05005	Cooling system: Cooling medium flow rate too low
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	Cooling system: Alarm - flow rate has fallen below the alarm value
Remedy:	

A05006 (N)	Power unit: Overtemperature chip to heatsink
Drive object:	A_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	

Remedy: See also: r0037 (Control Unit temperature), p0290 (Power unit overload response)
Reaction upon N: NONE
Acknowled. upon N: NONE

N05007 (A) Power unit: Overtemperature thermal model alarm
Drive object: A_INF, SERVO, S_INF, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The temperature difference between the heatsink and chip has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload
- ambient temperature too high.
- pulse frequency too high.
See also: r0037 (Control Unit temperature)
Remedy:
- adapt the load duty cycle.
- check whether the fan is running.
- check the fan elements
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.
Reaction upon A: NONE
Acknowled. upon A: NONE

F05050 Parallel circuit: Pulse enable in spite of pulse inhibit
Drive object: A_INF, B_INF, S_INF, VECTOR
Reaction: A_INFEED: OFF2 (NONE, OFF1)
VECTOR: OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: A power unit signals that the pulses are enabled although the pulses are inhibited.
Fault value (r0949, interpret decimal):
Number of the power unit involved.
Remedy: The power unit is defective and must be replaced.

F05051 Parallel circuit: Power unit pulse enable missing
Drive object: A_INF, B_INF, S_INF, VECTOR
Reaction: A_INFEED: OFF2 (NONE, OFF1)
VECTOR: OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: For one or several power units, the pulses were not able to be enabled.
Fault value (r0949, interpret decimal):
Number of the power unit involved.
Remedy:
- acknowledge power unit faults that are still present.
- inhibit the pulses of the power unit involved (p7001).

A05052 (F) Parallel circuit: Illegal current dissymmetry
Drive object: A_INF, B_INF, S_INF, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The deviation of the individual currents of the power units exceeds the alarm threshold specified in p7010.
Alarm value (r2124, interpret decimal):
1: Phase U.
2: Phase V.
3: Phase W.
Remedy:
- inhibit the pulses of the faulted power unit (p7001).
- check the connecting cables. Loose contacts can cause current spikes.
- the motor reactors are non-symmetrical or faulty and must be replaced.
- the CTs must be calibrated or replaced.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
VECTOR: NONE (OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY

A05053 (F) Parallel circuit: Inadmissible DC link voltage dissymmetry

Drive object: A_INF, B_INF, S_INF, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The deviation of the DC link voltage measured values exceeds the alarm threshold specified in p7011.
Remedy:
- inhibit the pulses of the faulted power unit (p7001).
- check the DC link connecting cables.
- the DC link voltage measurement is incorrect and must be calibrated or renewed.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
VECTOR: NONE (OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY

A05054 Parallel circuit: Power unit de-activated

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: For the drive object involved, fewer power unit components connected in parallel are active than exist in the target topology. Operation is only possible at reduced power (power de-rating).
Remedy: Re-activate the de-activated power unit components.
See also: p0125 (Activate/de-activate power unit components), p0895 (Activate/de-activate power unit components), p0897 (Parking axis selection)

F05055 Power circuit: Power units with different code numbers

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The code numbers of the power units do not match.
Fault value (r0949, interpret decimal):
Parameter in which the first different power unit code number was detected.
Remedy: For parallel circuit configurations, only power units with identical power unit data may be used.

F05056 Parallel circuit: Power unit EPROM versions differ

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The EEPROM versions of the power units do not match.
Fault value (r0949, interpret decimal):
Parameter in which the first different version number was detected.
Remedy: For parallel circuit configurations, only power units with identical EEPROM versions may be used.

F05057 Parallel circuit: Power unit firmware versions differ

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The firmware versions of the power modules connected in parallel do not match.
Fault value (r0949, interpret decimal):
Parameter in which the first different version number was detected.
Remedy: For parallel circuit configurations, only power modules with identical firmware versions may be used.

F05058	Parallel circuit: VSM EEPROM versions differ
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The EEPROM versions of the Voltage Sensing Modules (VSM) do not match. Fault value (r0949, interpret decimal): Parameter in which the first different version number was detected.
Remedy:	For parallel circuit configurations, only Voltage Sensing Modules (VSM) with identical EEPROM versions may be used.
F05059	Parallel circuit: VSM firmware versions differ
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The firmware versions of the Voltage Sensing Module (VSM) do not match. Fault value (r0949, interpret decimal): Parameter in which the first different version number was detected.
Remedy:	For parallel circuit configurations, only Voltage Sensing Modules (VSM) with identical firmware versions may be used.
F05060	Parallel circuit: Power unit firmware version does not match
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Firmware from version V02.30.01.00 is required when connecting the power units in parallel.
Remedy:	Update the firmware of the power units (at least V02.30.01.00).
F05061	Infeed, number of VSM
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The number of active Voltage Sensing Modules (VSM) for the drive object infeed with chassis power units is not correct. For A_Infeed, each active power unit must be assigned an active VSM also for a parallel circuit configuration. For S_Infeed, the active drive object, must be assigned at least one active VSM. Fault value (r0949, interpret decimal): Number of VSMs that are currently assigned to the drive object.
Remedy:	Adapts the number of active Voltage Sensing Modules (VSM).
F06000	Infeed: Precharging monitoring time expired
Drive object:	A_INF, B_INF, S_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	After the line contactor closes the power unit does not signal the READY state within the monitoring time (p0857). The end of the DC link pre-charging was not detected due to one of the following reasons: - there is not line supply voltage. - the line contactor is not closed. - the line supply voltage is too low. - the power unit has detected an internal fault. - there is a DC link short-circuit. - the DC link has a ground fault. - the pre-charging resistors are overheated as there were too many pre-charging operations per time unit. - the pre-charging resistors are overheated as the DC link capacitance is too high (maximum 20 mF). - line supply voltage incorrectly set. See also: p0857 (Power unit monitoring time)

- Remedy:**
- check the line supply voltage
 - check or energize the line contactor.
 - check the monitoring time and, if required, increase (p0857).
 - if required, observe additional power unit messages/signals.
 - check the DC link regarding short-circuit or ground fault.
 - wait until the pre-charging resistors have cooled down.
 - reduce the DC link capacitance by removing the power units or supplementary modules.
 - check the line supply voltage setting (p0210).

F06010 Infeed: Power unit EP 24 V missing in operation

- Drive object:** A_INF, B_INF, S_INF
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: In operation, withdraw the pulse enable at terminal EP at the Line Module (X21.3, X21.4).
Remedy:
- do not open the Line Side Switch in operation - only when the pulses are inhibited.
 - check the wiring of the DP input (X21.3, X21.4) at the Line Module to exclude any poor contacts.

F06050 Infeed: Smart Mode not supported

- Drive object:** A_INF, B_INF, S_INF
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The power unit does not support the Smart Mode.
Remedy:
- set the suitable sampling time $250\ \mu\text{s} \leq p0115[0] \leq 400\ \mu\text{s}$ (e.g. by setting p0112 and p0115 to the factory setting).
 - upgrade the power unit software and/or hardware for the Smart Mode. The availability of the Smart Mode function is displayed in r0192.
 - for A_INF the following applies: De-activate the Smart Mode with $p3400.0 = 0$ and activate the voltage control with $p3400.3 = 1$. For booksize power units, it must be noted that for a supply voltage $p0210 > 415\ \text{V}$ only the Smart Mode is possible in the pre-setting. If DC link voltages above 660 V are permissible in the application, then voltage-controlled operation can be activated with p0280, p0210, p3400 and p3510. The information regarding p0210 should be carefully noted.
- See also: r0192 (Power unit firmware properties)

F06052 Infeed: Filter temperature evaluation not supported

- Drive object:** A_INF, S_INF
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The power unit does not support filter temperature evaluation. This feature is required when using an Active Interface Module as line filter.
Remedy:
- Upgrade the power unit software.
See also: r0192 (Power unit firmware properties), p0220 (Infeed line filter type)

F06100 Infeed: Shutdown due to line supply undervoltage condition

- Drive object:** A_INF, B_INF, S_INF
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The filtered (steady-state) value of the line supply voltage is less than the fault threshold (p0283).
Fault condition: $V_{\text{rms}} < p0283 * p0210$
Fault value (r0949, floating point):
Actual steady-state line supply voltage.
See also: p0283 (Line supply undervoltage, shutdown (trip) threshold)
Remedy:
- check the line supply.
 - check the line supply voltage (p0210).
 - check the fault threshold (p0283).

A06105 (F)	Infeed: Line supply undervoltage
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The filtered (steady-state) value of line supply voltage is lower than the alarm threshold (p0282). Alarm condition: $V_{rms} < p0282 * p0210$ Alarm value (r2124, floating point): Actual steady-state line supply voltage. See also: p0282 (Line supply undervoltage, alarm threshold)</p>
Remedy:	<ul style="list-style-type: none"> - check the line supply. - check the line supply voltage (p0210). - check the alarm threshold (p0282).
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
F06200	Infeed: Failure of one or several line phases
Drive object:	A_INF, B_INF, S_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>Failure of one or several line phases. The fault can be output in two operating states: 1. During the power-on phase of the infeed unit. The measured line supply angle deviates from the regular characteristic for a 3-phase system - the PLL cannot be synchronized. The fault occurs immediately after power-up if, when operating with a VSM, the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit. 2. While the infeed is operational. After a voltage dip has been detected (note A06205) in one or several line phases a fault occurred within 100 ms (also refer to other relevant messages). Probable causes of the fault: <ul style="list-style-type: none"> - voltage dip on the line side or phase phase failure lasting longer than 10 ms. - overload condition on the load side with peak current. - commutating reactor missing. </p>
Remedy:	<ul style="list-style-type: none"> - check the line supply and fuses. - check the connection and size (rating) of the line commutating reactor. - check and correct the phase assignment at the VSM and at the power unit. - check the load. - if failed in operation, carefully note the previous alarm messages A6205 with alarm values. <p>See also: p3463 (Infeed, line angle change, phase failure detection)</p>
A06205 (F)	Infeed: Voltage dip in at least one line supply phase
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>Voltage dip or overvoltage in one or several line supply phases has been detected in operation. The pulses are then canceled for a time of at least 8 ms. The operating signal of the infeed unit in r0863.0 remains and the pulse inhibit due to the phase failure is displayed in r3405.2. Alarm value (r2124, bitwise coded cause of the alarm): Bit 0: Line angle deviation (limit value p3463) due to a line supply fault Bit 2: Active current deviation Bit 3: Line frequency deviation (limit values: 115 % * p0284, 85 % * p0285) Bit 4: Line overvoltage (limit value 130 % * p0281) Bit 5: Line undervoltage (limit value 20 % * p0210) Bit 7: Peak current fault Bit 8: Smart Mode without VSM (p3400.5 = 0): Line angle deviation Bit 9: Smart Mode: DC link voltage dip</p>

Remedy:	<p>Generally, the following applies when an alarm message is output:</p> <ul style="list-style-type: none"> - check the line supply and fuses. - check the line supply quality and system fault level. - check the load. <p>Dependent on the alarm value in r2124, the following applies:</p> <p>Bit 0 = 1: Line fault occurred or poor/incorrect controller setting. For poor line quality or frequent line supply changeover operations, when required, limit value p3463 can be increased until the alarm value no longer occurs.</p> <p>Bit 2 = 1: Line fault occurred or poor/incorrect controller setting. - check the controller setting and load.</p> <p>Bit 3 = 1: Line fault occurred. For poor line quality or frequent line changeover operations, when required, limit values p0284 and p0285 can be increased until the alarm value no longer occurs.</p> <p>Bit 4 = 1: Line interrupted or line overvoltage has occurred.</p> <p>Bit 5 = 1: Line interrupted or line undervoltage has occurred.</p> <p>Bit 7 = 1: Peak current trip due to line fault or overload. Check the load.</p> <p>Bit 8 = 1: Line fault occurred.</p> <p>Bit 9 = 1: Line undervoltage or overload. Check the load.</p> <p>See also: r3405 (Status word infeed), p3463 (Infeed, line angle change, phase failure detection)</p>
Reaction upon F:	NONE (OFF1, OFF2)
Acknowledged upon F:	IMMEDIATELY (POWER ON)
F06210	Infeed: Summed current too high
Drive object:	A_INF, B_INF, S_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The smoothed sum of the phase currents (i1 + i2 + i3) is greater than 4 % of the maximum power unit current (r0209). Possible causes:</p> <ul style="list-style-type: none"> - the DC link has a ground fault that results in a high summed current (r0069.6). The DC component in the line currents can damage/destroy the power unit, commutating reactor or line filter! - the zero point calibration of the current measurement was not carried out (p3491, A06602). - defective current measurement in the power unit. <p>Fault value (r0949, floating point): Smoothed sum of the phase currents.</p>
Remedy:	<ul style="list-style-type: none"> - check the DC link for a low-ohmic or high-ohmic ground fault and if one is present, remove. - increase the monitoring time of the current-offset measurement (p3491). - if required, replace the power unit.
A06215 (F)	Infeed: Summed current too high
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The smoothed sum of the phase currents (i1 + i2 + i3) is greater than 3 % of the maximum power unit current (r0209). Possible causes:</p> <ul style="list-style-type: none"> - the DC link has a ground fault that results in a high summed current (r0069.6). The DC component in the line currents can damage/destroy the power unit, commutating reactor or line filter! - the zero point calibration of the current measurement was not carried out (p3491, A06602). - defective current measurement in the power unit. <p>Alarm value (r2124, floating point): Smoothed sum of the phase currents.</p>
Remedy:	<ul style="list-style-type: none"> - check the DC link for a low-ohmic or high-ohmic ground fault and if one is present, remove. - increase the monitoring time of the current-offset measurement (p3491). - if required, replace the power unit.
Reaction upon F:	NONE (OFF1, OFF2)
Acknowledged upon F:	IMMEDIATELY (POWER ON)

A06250 (F)	Infeed: Defective capacitor(s) in at least one phase of line filter
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A change in the line filter capacitance was detected in at least line phase.</p> <p>The voltages and phase currents of the line filter, measured using a Voltage Sensing Module (VSM), indicated a deviation of the filter capacitances from the value parameterized in p0221.</p> <p>A change or a defect of the line filter capacitors results in a shift of the resonant frequencies and can result in severe damage to the drive system.</p> <p>Alarm value (r2124, floating point):</p> <p>The calculated actual capacitance in μF (rounded-off to an integer number).</p> <p>The 1st decimal point specifies the number of the phase (1, 2, 3) where the capacitance deviates from the specified value.</p>
Remedy:	<ul style="list-style-type: none"> - check the parameterized value of the filter capacitance (p0221). - check the correct wiring of the Voltage Sensing Module (VSM): <p>Differential voltages u12 and u23 must be present at the 100 V/690 V inputs of the VSM; the phase currents of the line filter must be connected to the 10 V inputs through a current - voltage converter.</p> <ul style="list-style-type: none"> - check the alarm limits for the permissible filter capacitance deviation (p3676). - check the normalization of the line supply voltage measurement using the VSM (p3660). - check the normalization of the filter current measurement using the VSM (p3670). - check the line filter capacitors and if required, replace the line filter. <p>See also: p0221 (Infeed filter capacitance), p3660 (VSM input line supply voltage, voltage scaler), p3670 (VSM 10 V input CT gain), p3676 (VSM line filter capacitance alarm threshold)</p>
Reaction upon F:	NONE (OFF1, OFF2)
Acknowled. upon F:	IMMEDIATELY (POWER ON)
A06260	Infeed: Temperature in the line filter too high
Drive object:	A_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The temperature monitoring in the line filter has responded.</p> <p>If the temperature remains too high during the complete monitoring time, this results in fault F06261.</p> <p>Note:</p> <p>The temperature monitoring is only available for an active interface module.</p>
Remedy:	<ul style="list-style-type: none"> - ensure the correct and reliable connection of the line filter temperature switch with input X21 of the infeed. - ensure the connection of the line filter specified for the infeed being used. Check the line filter type (p0220[0]). - reduce the ambient temperature of the line filter. - reduce the load on the infeed and the filter module. - check the magnitude of the line supply voltage. - the internal fan of the filter module is defective. If required, replace the fan. - defective temperature switch of the filter module. If required, replace the filter module.
F06261	Infeed: Temperature in the line filter permanently too high
Drive object:	A_INF, S_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	<p>After the temperature monitoring responded, the temperature in the line filter was permanently exceeded.</p> <p>Note:</p> <p>The temperature monitoring is only available for an active interface module.</p>
Remedy:	<ul style="list-style-type: none"> - ensure the correct and reliable connection of the line filter temperature switch with input X21 of the infeed. - ensure the connection of the line filter specified for the infeed being used. Check the line filter type (p0220[0]). - reduce the ambient temperature of the line filter. - reduce the load on the infeed and the filter module. - check the magnitude of the line supply voltage. - the internal fan of the filter module is defective. If required, replace the fan. - defective temperature switch of the filter module. If required, replace the filter module.

F06262	Infeed: Temperature switch in the line filter open when powering-up
Drive object:	A_INF, S_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	When powering-up the infeed, the temperature in the line filter is too high. Powering-up is prevented.
Remedy:	<ul style="list-style-type: none">- ensure the correct and reliable connection of the line filter temperature switch with input X21 of the infeed.- ensure the connection of the line filter specified for the infeed being used. Check the line filter type (p0220[0]).- the filter temperature is too high. Allow the system to cool down.- the internal fan of the filter module is defective. If required, replace the fan.- defective temperature switch of the filter module. If required, replace the filter module.
F06300	Infeed: Line voltage too high at power on
Drive object:	A_INF, B_INF, S_INF
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The RMS line supply voltage V_{rms} was so high when powering-up that controlled operation is not possible without exceeding the permissible maximum voltage in the DC link (p0280).</p> <p>Fault condition: $V_{rms} * 1.5 > p0280$.</p> <p>Fault value (r0949, floating point):</p> <p>Lowest possible controlled DC link voltage for the line supply voltage presently connected.</p> <p>See also: p0280 (DC link voltage maximum steady-state)</p>
Remedy:	<ul style="list-style-type: none">- check the line supply voltage- check the maximum DC link voltage and if required, increase (p0280).- check the line supply voltage and compare with the actual line supply voltage (p0210).- check whether the power unit is dimensioned for the line supply voltage actually being used. <p>See also: p0210 (Drive unit line supply voltage), p0280 (DC link voltage maximum steady-state)</p>
A06301 (F)	Infeed: Line supply overvoltage
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The filtered (steady-state) value of the rms line supply voltage V_{rms} is higher than the alarm threshold (p0281).</p> <p>Alarm condition: $V_{rms} > p0281 * p0210$.</p> <p>Alarm value (r2124, floating point):</p> <p>Actual steady-state line supply voltage.</p> <p>See also: p0281 (Line supply overvoltage, warning threshold)</p>
Remedy:	<ul style="list-style-type: none">- check the line supply.- check the line supply voltage (p0210).- check the alarm threshold (p0281). <p>See also: p0210 (Drive unit line supply voltage), p0281 (Line supply overvoltage, warning threshold)</p>
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
F06310 (A)	Infeed: Supply voltage (p0210) incorrectly parameterized
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>After pre-charging was completed, the line supply voltage V_{rms} was calculated using the measured DC link voltage. This voltage V_{rms} is not within the tolerance range of the supply voltage.</p> <p>The following applies for the tolerance range: $85 \% * p0210 < V_{rms} < 110 \% * p0210$.</p> <p>Alarm value (r2124, floating point):</p> <p>Line supply voltage V_{rms} present.</p> <p>See also: p0210 (Drive unit line supply voltage)</p>
Remedy:	<ul style="list-style-type: none">- check the parameterized supply voltage and if required change (p0210).- check the line supply voltage. <p>See also: p0210 (Drive unit line supply voltage)</p>
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F06310 (A)	Supply voltage (p0210) incorrectly parameterized
Drive object:	SERVO
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For AC/AC drive units, the measured DC voltage lies outside the tolerance range after pre-charging has been completed. The following applies for the tolerance range: $1.16 * p0210 < r0070 < 1.6 * p0210$. See also: p0210 (Drive unit line supply voltage)
Remedy:	- check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)
Reaction upon A:	NONE
Acknowled. upon A:	NONE
F06310 (A)	Supply voltage (p0210) incorrectly parameterized
Drive object:	VECTOR
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For AC/AC drive units, the measured DC voltage lies outside the tolerance range after pre-charging has been completed: $1.16 * p0210 < r0070 < 1.6 * p0210$. See also: p0210 (Drive unit line supply voltage)
Remedy:	- check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)
Reaction upon A:	NONE
Acknowled. upon A:	NONE
F06311	Infeed: Supply voltage (p0210) fault
Drive object:	A_INF, B_INF, S_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	After pre-charging was completed, the line supply voltage V_{rms} was calculated using the measured DC link voltage. This voltage V_{rms} does not lie within the extended permissible tolerance range of the line supply voltage for 230 V applications. The following applies for the tolerance range: $75 \% * p0210 < V_{rms} < 120 \% * p0210$. Alarm value (r2124, floating point): Line supply voltage V_{rms} present. See also: p0210 (Drive unit line supply voltage)
Remedy:	- check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)
F06320	Master/slave: Multiplexer control not valid
Drive object:	A_INF
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Values 0, 1, 2 and 3 are valid to control the multiplexer via CI: 3572. In this case, an invalid value was identified. The control remains effective with the previous value. Fault value (r0949, interpret decimal): Invalid value to control the multiplexer. See also: p3572 (Master/slave active current setpoint, multiplexer selection)
Remedy:	- check the interconnection to control the multiplexer (CI: p3572). - check the signal source signal value of the BICO interconnection. See also: p3572 (Master/slave active current setpoint, multiplexer selection)

A06350 (F)	Infeed: Measured line frequency too high
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The actual line frequency f_{line} is higher than the parameterized alarm threshold ($f_{line} > p0211 * p0284$). The alarm can be output in two operating states: 1. During the power-on phase of the infeed unit. Consequence: Synchronization of the infeed to the line supply is interrupted and is restarted. 2. While the infeed is operational. Consequence: The infeed remains in the operating (run) state and alarm A6350 is output. This signifies a critical operational fault. Alarm value (r2124, floating point): Actual line frequency determined. See also: p0284 (Line supply frequency exceeded, alarm threshold)</p>
Remedy:	<p>- check the parameterized line frequency and if required change (p0211). - check the alarm threshold (p0284). - check the line supply. - check the line supply quality. See also: p0211 (Rated line freq), p0284 (Line supply frequency exceeded, alarm threshold)</p>
Reaction upon F:	NONE (OFF1, OFF2)
Acknowled. upon F:	IMMEDIATELY (POWER ON)

A06351 (F)	Infeed: Measured line frequency too low
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The actual line frequency f_{line} is lower than the parameterized alarm threshold ($f_{line} < p0211 * p0285$). The alarm can be output in two operating states: 1. During the power-on phase of the infeed unit. Consequence: Synchronization of the infeed to the line supply is interrupted and is restarted. 2. While the infeed is operational. Consequence: The infeed remains in the operating (run) state and alarm A06351 is output. This signifies a critical operational fault. Alarm value (r2124, floating point): Actual line frequency determined. See also: p0285 (Line supply frequency fallen below, alarm threshold)</p>
Remedy:	<p>- check the parameterized line frequency and if required change (p0211). - check the alarm threshold (p0285). - check the line supply. - check the line supply quality. See also: p0211 (Rated line freq), p0285 (Line supply frequency fallen below, alarm threshold)</p>
Reaction upon F:	NONE (OFF1, OFF2)
Acknowled. upon F:	IMMEDIATELY (POWER ON)

A06400	Infeed: Line supply data identification selected/active
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The line supply data identification is selected and active. The line inductance and the DC link capacitance are measured at the next pulse enable. SM150: The Active Line Module is synchronized the next time that the pulses are enabled and the identification mode, selected in p3410 is carried out or the identification mode, displayed in r6442 is presently active. The INFEED_READY signal is not generated. See also: p3410 (Infeed identification method)</p>
Remedy:	No remedial action required.

F06500	Infeed: Line synchronization not possible
Drive object:	A_INF, B_INF, S_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The line synchronization is not possible within the monitoring time. The infeed was re-synchronized to the line supply because it was interrupted due to a line frequency that was determined to be either too low or too high. After 20 attempts, synchronization - and therefore also the power-on operation - were interrupted.
Remedy:	- check the parameterized line frequency and if required change (p0211). - check the setting of the threshold values (p0284, p0285). - check the line supply. - check the line supply quality. See also: p0211 (Rated line freq), p0284 (Line supply frequency exceeded, alarm threshold), p0285 (Line supply frequency fallen below, alarm threshold)
A06601 (F)	Infeed: Current offset measurement interrupted
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	Defective current measurement or a DC current is present during the offset measurement. Alarm value (r2124, interpret decimal): 1: Excessively high phase current has occurred during the current-offset calibration. 2: The measured current - offset is greater than the 3% of the maximum permissible converter current (e.g. due to a ground fault in the DC link).
Remedy:	Re alarm value = 1: - possible counter-measure if there is no line contactor: Power-up an adequately long time before OFF1 = 1. Re alarm value = 2: - defective current measurement or a DC current is present during the offset measurement. - check the DC link for a ground fault.
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
A06602 (F)	Infeed: Current offset measurement not possible
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	After an OFF1 = 1 no valid current offset measurement was able to be made within the monitoring time (p3491) before closing the line contactor. The current offset is set to 0. See also: p3491 (Infeed I-offset measurement monitoring time)
Remedy:	- check the DC link for a ground fault. A ground fault can destroy parts and components! - Check the monitoring time setting and if required increase (p3491). At least 100 ms is required for a valid measurement (p3491 > 100 ms). Notice: If there is no valid measurement, then under certain circumstances the quality of the DC link control will be reduced. See also: p3491 (Infeed I-offset measurement monitoring time)
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
F06700 (A)	Infeed: Switch line contactor for load condition
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	For an ON command, the infeed line contactor should be switched under load.

Remedy:

- do not load the DC link if the infeed has not issued an operating signal (r0863.0 = 1).
- after the infeed has been powered-down, all power units connected to the DC link should be powered-down. To realize this, the operating signal of the infeed (r0863.0) must be suitable interconnected.

Reaction upon A: NONE

Acknowled. upon A: NONE

A06800 (F) Infeed: Maximum steady-state DC link voltage reached

Drive object: A_INF, B_INF, S_INF

Reaction: NONE

Acknowledge: NONE

Cause: The DC link voltage setpoint has reached the maximum steady-state voltage parameterized in p0280. The DC link voltage is increased by the modulation depth reserve controller for the following reasons:

- modulation depth reserve is too low (p3480).
- line supply voltage is too high.
- supply voltage (p0210) parameterized to be too low.
- excessively high setpoint for the reactive line current.

Remedy:

- check the line supply voltage setting (p0210).
- check the line supply for an overvoltage condition.
- reduce the modulation depth reserve (p3480).
- reduce the reactive current setpoint.

See also: p0210 (Drive unit line supply voltage), p0280 (DC link voltage maximum steady-state), p3480 (Infeed modulation depth limit)

Reaction upon F: NONE (OFF1, OFF2)

Acknowled. upon F: IMMEDIATELY (POWER ON)

A06810 (F) Infeed: DC link voltage alarm threshold

Drive object: A_INF, B_INF, S_INF

Reaction: NONE

Acknowledge: NONE

Cause: In operation, the DC link voltage has dropped to below the alarm threshold. The alarm threshold is obtained from the sum of p0279 and r0296. Possible causes include:

- line supply voltage dip or another line supply fault
- overload of the infeed
- for ALM: Incorrect controller parameterization

See also: p0279 (DC link voltage offset alarm threshold), r0296 (DC link voltage undervoltage threshold)

Remedy:

- check the line voltage and line supply quality.
- reduce the power drawn, avoid step-like load changes
- for ALM: Adapt the controller parameterization, e.g. using an automatic line supply identification (p3410=4, 5)

Reaction upon F: NONE (OFF1, OFF2)

Acknowled. upon F: IMMEDIATELY (POWER ON)

A06900 (F) Braking Module: Fault (1 -> 0)

Drive object: A_INF, B_INF, S_INF

Reaction: NONE

Acknowledge: NONE

Cause: The Braking Module signals "Fault (1 -> 0)" via terminal X21.4. This signal is interconnected via binector input BI: p3866[0...7]. See also: p3866 (Braking Module fault)

Remedy:

- reduce the number of braking operations.
- check binector input BI: p3866[0...7] and the wiring from terminal X21.4 of the particular braking module.

Reaction upon F: NONE (OFF2)

Acknowled. upon F: IMMEDIATELY

A06901	Braking Module: Pre-alarm I2t shutdown
Drive object:	A_INF, B_INF, S_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	The Braking Module signals "Pre-alarm I2t shutdown" via terminal X21.3. This signal is interconnected via binector input p3865[0...7]. Note: The pre-alarm I2t shutdown is only possible for "booksize" formats. This function is not supported for "chassis" formats.
Remedy:	- reduce the number of braking operations. - check binector input BI: p3865[0...7] and the wiring from terminal X21.3 of the particular Braking Module.
A06904 (N)	Braking Module internal is inhibited
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	The internal Braking Module was inhibited via the binector input BI: p3680 = 1 signal. In the inhibited state, energy cannot be dissipated using the braking resistor. See also: p3680 (Braking Module internal inhibit)
Remedy:	Release the internal Braking Module (BI: p3680 = 0 signal).
Reaction upon N:	NONE
Acknowled. upon N:	NONE
A06905	Braking Module internal I2t shutdown alarm
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	The internal Braking Module outputs an alarm due to the high I2t value. 80% of the maximum switch-on duration of the braking resistor has been reached. Note: This message is also displayed via BO: p3685. See also: r3685 (Digital Braking Module: Pre-alarm I2t shutdown)
Remedy:	Reduce the number of braking operations.
F06906 (A)	Braking Module internal fault
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The internal Braking Module outputs a fault due to overcurrent or an excessively high I2t value and is therefore inhibited. Note: This message is also displayed via BO: p3686. Fault value (r0949, interpret bitwise binary): Bit 0 = 1: I2t exceeded Bit 1 = 1: overcurrent See also: r3686 (Digital Braking Module Fault)
Remedy:	Reduce the number of braking operations.
Reaction upon A:	NONE
Acknowled. upon A:	NONE
F06907	Braking Module internal overtemperature
Drive object:	B_INF
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	The temperature sensor connected to the braking resistor signals an overtemperature. The Braking Module is still active. If the overtemperature continues for an additional 60s, the Braking Module is shut down (F6908). See also: r3687 (Digital Braking Module pre-alarm overtemperature)

Remedy:

- reduce the temperature at the sensor.
- check the temperature sensor connection.

F06908 Braking Module internal shutdown due to overtemperature

Drive object: B_INF
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY
Cause: Shutdown of the Braking Module due to overtemperature at the temperature sensor of the braking resistor for more than 60s.
See also: r3688 (Digital Braking Module fault overtemperature)
Remedy:

- reduce the temperature at the sensor.
- check the temperature sensor connection.

F06909 Braking Module internal Vce fault

Drive object: B_INF
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Trip due to Vce fault. Collector emitter voltage dip (Vce)
See also: r3689 (Digital Braking Module Vce fault)
Remedy:

- Power ON
- replace the unit.

F07011 Drive: Motor overtemperature

Drive object: SERVO, VECTOR
Reaction: OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: KTY:
The motor temperature has exceeded the fault threshold (p0605) or the timer stage (p0606) after the alarm threshold was exceeded (p0604) has expired.
VECTOR: The response parameterized in p0610 becomes active.
PTC:
The response threshold of 1650 Ohm was exceeded and the timer stage (p0606) has expired.
VECTOR: The response parameterized in p0610 becomes active.
Possible causes:

- motor is overloaded.
- motor ambient temperature too high.
- wire breakage or sensor not connected

Fault value (r0949, interpret decimal):
For SME selected (p0601 = 10), number of the sensor channel leading to the message.
See also: p0604 (Motor overtemperature alarm threshold), p0605 (Motor overtemperature fault threshold), p0606 (Motor overtemperature timer), p0610 (Motor overtemperature response)
Remedy:

- reduce the motor load.
- check the ambient temperature.
- check the wiring and sensor connector.

See also: p0604 (Motor overtemperature alarm threshold), p0605 (Motor overtemperature fault threshold), p0606 (Motor overtemperature timer)

A07015 Drive: Motor temperature sensor alarm

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: An error was detected when evaluating the temperature sensor set in p0600 and p0601.
With the fault, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 1 s after alarm A07015.
Possible causes:

- wire breakage or sensor not connected (KTY: $R > 1630 \text{ Ohm}$).
- measured resistance too low (PTC: $R < 20 \text{ Ohm}$, KTY: $R < 50 \text{ Ohm}$).

Alarm value (r2124, interpret decimal):
For SME selected (p0601 = 10), number of the sensor channel leading to the message.

Remedy:

- check that the sensor is connected correctly.
- check the parameterization (p0600, p0601).

See also: r0035 (Temperature input), p0600 (Motor temperature sensor for monitoring), p0601 (Temperature sensor, sensor type), p0607 (Temperature sensor fault timer)

F07016 Drive: Motor temperature sensor fault

Drive object: SERVO, VECTOR

Reaction: OFF1 (NONE, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: An error was detected when evaluating the temperature sensor set in p0600 and p0601.

Possible causes:

- wire breakage or sensor not connected (KTY: $R > 1630 \text{ Ohm}$).
- measured resistance too low (PTC: $R < 20 \text{ Ohm}$, KTY: $R < 50 \text{ Ohm}$).

Note:

If alarm A07015 is present, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 1 s after alarm A07015.

Fault value (r0949, interpret decimal):

For SME selected (p0601 = 10), number of the sensor channel leading to the message.

See also: p0607 (Temperature sensor fault timer)

Remedy:

- check that the sensor is connected correctly.
- check the parameterization (p0600, p0601).
- induction motors: De-activate temperature sensor fault (p0607 = 0).

See also: r0035 (Temperature input), p0600 (Motor temperature sensor for monitoring), p0601 (Temperature sensor, sensor type), p0607 (Temperature sensor fault timer)

F07080 Drive: Incorrect control parameter

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The closed-loop control parameters have been parameterized incorrectly (e.g. p0356 = L_spread = 0).

Fault value (r0949, interpret decimal):

The fault value includes the parameter number involved.

The following parameter numbers only occur as fault values for vector drives:

p0310, for synchronous motors: p0341, p0344, p0350, p0357

The following parameter numbers do not occur as fault values for synchronous motors:

p0354, p0358, p0360

See also: p0310 (Rated motor frequency), p0311 (Rated motor speed), p0341 (Motor moment of inertia), p0344 (Motor weight), p0350 (Motor stator resistance, cold), p0354 (Motor rotor resistance cold / damping resistance d axis), p0356 (Motor stator leakage inductance), p0357 (Motor stator inductance, d axis), p0358 (Motor rotor leakage inductance / damping inductance, d axis), p0360 (Motor magnetizing inductance/magn. inductance, d axis saturated), p0400 (Enc type selection), p0640 (Current limit), p1082 (Maximum speed), p1300 (Open-loop/closed-loop control operating mode)

Remedy: Modify the parameter indicated in the fault value (r0949) (e.g. p0640 = current limit > 0).

See also: p0311 (Rated motor speed), p0341 (Motor moment of inertia), p0344 (Motor weight), p0350 (Motor stator resistance, cold), p0354 (Motor rotor resistance cold / damping resistance d axis), p0356 (Motor stator leakage inductance), p0358 (Motor rotor leakage inductance / damping inductance, d axis), p0360 (Motor magnetizing inductance/magn. inductance, d axis saturated), p0400 (Enc type selection), p0640 (Current limit), p1082 (Maximum speed)

F07082 Macro: Execution not possible

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The macro cannot be executed.

Fault value (r0949, interpret hexadecimal):

The fault code is in byte 1, possibly supplementary information is in byte 2 and the high word contains the parameter number involved if this is available.

Fault codes:

Fault for the trigger parameter itself:

-20: Called file is not valid for parameter 15.

- 21: Called file is not valid for parameter 700.
- 22: Called file is not valid for parameter 1000.
- 23: Called file is not valid for parameter 1500.
- 24: Data type of a TAG is incorrect (e.g.: Index, number or bit is not U16).
- Faults for the parameters to be set:
- 25: Error level has an undefined value.
- 26: Mode has an undefined value.
- 27: A value was entered as string in the tag value that is not "DEFAULT".
- 31: Entered drive object type unknown.
- 32: A device was not able to be found for the determined drive object number.
- 34: A trigger parameter was recursively called.
- 35: It is not permissible to write to the parameter via macro.
- 36: Check, writing to a parameter unsuccessful, parameter can only be read, not available, incorrect data type, value range or assignment incorrect.
- 37: Source parameter for a BICO interconnection was not able to be determined.
- 38: An index was set for a non-indexed parameter (or CDS-dependent).
- 39: No index was set for an indexed parameter.
- 41: A bit operation is only permissible for parameters with the parameter format DISPLAY_BIN.
- 42: A value not equal to 0 or 1 was set for a BitOperation.
- 43: Reading the parameter to be changed by the BitOperation was unsuccessful.
- 51: Factory setting for DEVICE may only be executed on the DEVICE.
- 61: The setting of a value was unsuccessful.

Remedy:

- check the parameter involved.
 - check the macro file and BICO interconnection.
- See also: p0015 (Macro drive unit), p0700 (Macro Binector Input (BI)), p1000 (Macro Connector Inputs (CI) for speed setpoints), p1500 (Macro Connector Inputs (CI) for torque setpoints)

F07083

Macro: ACX file not found

Drive object:

All objects

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

The ACX file (macro) to be executed was not able to be found in the appropriate directory.
Fault value (r0949, interpret decimal):
Parameter number with which the execution was started.
See also: p0015 (Macro drive unit), p0700 (Macro Binector Input (BI)), p1000 (Macro Connector Inputs (CI) for speed setpoints), p1500 (Macro Connector Inputs (CI) for torque setpoints)

Remedy:

- check whether the file is saved in the appropriate directory on the CompactFlash card.
- Example:
If p0015 is set to 1501, then the selected ACX file must be located in the following directory:
... /PMACROS/DEVICE/P15/PM001501.ACX

F07084

Macro: Condition for WaitUntil not fulfilled

Drive object:

All objects

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

The wait condition set in the macro was not fulfilled in a certain number of attempts.
Fault value (r0949, interpret decimal):
Parameter number for which the condition was set.

Remedy:

Check and correct the conditions for the WaitUntil loop.

F07085	Drive: Open-loop/closed-loop control parameters changed
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>Parameters of the open-loop/closed-loop control had to be changed as they exceeded dynamic limits as a result of other parameters.</p> <p>Fault value (r0949, interpret decimal): The fault value includes the modified parameter number.</p> <p>340: The motor and control parameters were automatically calculated (p0340 = 1), because the vector control was subsequently activated as configuration (r0108.2).</p> <p>See also: p0640 (Current limit), p1082 (Maximum speed), p1300 (Open-loop/closed-loop control operating mode), p1800 (Pulse frequency)</p>
Remedy:	It is not necessary to change the parameters as they have already been correctly limited.
F07086	Units changeover: Parameter limit violation due to reference value change
Drive object:	A_INF, B_INF, SERVO, S_INF, TM41, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>A reference parameter was changed in the system. This resulted in the fact that for the parameters involved, the selected value was not able to be written in the per unit notation (cause: e.g. the steady-state minimum/maximum limit or that defined in the application was violated). The values of the parameters were set to the corresponding violated minimum/maximum limit or to the factory setting.</p> <p>Fault value (r0949, parameter): Diagnostics parameter r9450 to display the parameters that were not able to be re-calculated.</p> <p>See also: p0304 (Rated motor voltage), p0305 (Rated motor current), p0310 (Rated motor frequency), p0596 (Reference quantity, technological units), p2000 (Reference frequency), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)</p>
Remedy:	<p>Check the adapted parameter value and if required correct.</p> <p>See also: r9450 (Displays para. that cannot be calc. after int. ref. value change)</p>
F07087	Drive: Sensorless operation not possible for the selected pulse frequency
Drive object:	SERVO
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>Sensorless operation is not possible for the selected pulse frequency (p1800).</p> <p>Sensorless operation is activated under the following conditions:</p> <ul style="list-style-type: none"> - the changeover speed for sensorless operation (p1404) is less than the maximum speed (p0322). - a control type with sensorless operation has been selected (p1300). - encoder faults of the motor encoder result in a fault response with sensorless operation (p0491). <p>See also: p0491 (Motor encoder fault response ENCODER), p1300 (Open-loop/closed-loop control operating mode), p1404 (Sensorless operation changeover speed), p1800 (Pulse frequency)</p>
Remedy:	<p>Increase the pulse frequency (p1800).</p> <p>Note: In sensorless operation, the pulse frequency must be at least as high as half the current controller clock cycle (1/p0115[0]).</p>

F07088	Units changeover: Parameter limit violation due to units changeover
Drive object:	A_INF, B_INF, SERVO, S_INF, TM41, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>A changeover of units was initiated.</p> <p>Possible causes for the violation of a parameter limit are:</p> <ul style="list-style-type: none">- when rounding-off a parameter corresponding to its decimal places, the steady-state minimum or maximum limit was violated.- inaccuracies for the data type "Floating Point". <p>In these cases, when the minimum limit is violated then the parameter value is rounded-up and when the maximum limited is violated the parameter value is rounded-down.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Diagnostics parameter r9451 to display all parameters whose value had to be adapted.</p> <p>See also: p0100 (IEC/NEMA mot stds), p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Selecting technological units)</p>
Remedy:	<p>Check the adapted parameter values and if required correct.</p> <p>See also: r9451 (Units changeover adapted parameters)</p>

A07089	Changing over units: Adding a function module blocked if units changed over
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>An attempt was made to add a function module. This is not permissible if the units have already been changed over.</p> <p>See also: p0100 (IEC/NEMA mot stds), p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units)</p>
Remedy:	Restore units that have been changed over to the default value.

F07090	Drive: Upper torque limit less than the lower torque limit
Drive object:	SERVO
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The upper torque limit is lower than the lower torque limit.
Remedy:	P1 must be >= P2 if parameter P1 is connected to p1522 and parameter P2 to p1523.

F07100	Drive: Sampling times cannot be reset
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>When resetting drive parameter (p0976) sampling times cannot be reset using p0111, p0112, p0115.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Parameter whose setting prevents the sampling times being reset.</p> <p>See also: r0110 (Basis sampling times)</p>
Remedy:	<ul style="list-style-type: none">- continue to work with the set sampling times.- before resetting the drive parameters, set the basic clock cycle p0110[0] to the original value. <p>See also: r0110 (Basis sampling times)</p>

F07110	Drive: Sampling times and basic clock cycle do not match
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>The parameterized sampling times do not match the basic clock cycle.</p> <p>Fault value (r0949, interpret decimal):</p> <p>The fault value specifies the parameter involved.</p> <p>See also: r0110 (Basis sampling times), r0111 (Basis sampling time selection), p0115 (Sampling time for supplementary functions)</p>

Remedy: Enter the current controller sampling times so that they are identical to the basic clock cycle, e.g. by selecting p0112. Note which basic clock cycle is selected in p0111.
The sampling times in p0115 can only be changed manually in the sampling times preset "Expert" (p0112).
See also: r0110 (Basis sampling times), r0111 (Basis sampling time selection), p0112 (Sampling times pre-setting p0115), p0115 (Sampling time for supplementary functions)

A07200 Drive: Master control ON/OFF1 command present

Drive object: A_INF, B_INF, SERVO, S_INF, TM41, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The ON/OFF1 command is not 0, either via binector input p0840 (current CDS) or in control word p3982 bit 0.
Remedy: The signal at binector input p0840 (actual CDS) as well as p3982 bit 0 must be 0.

F07210 Master control PC/AOP inhibited

Drive object: A_INF, B_INF, SERVO, S_INF, TM41, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The transfer of master control is disabled via binector input p3985.
Remedy: Change the signal via binector input p3985.

F07220 (N, A) Drive: Master control by PLC missing

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: A_INFEED: OFF1 (NONE, OFF2)
SERVO: OFF1 (NONE, OFF2, OFF3, STOP1, STOP2)
VECTOR: OFF1 (NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: The "master control by PLC" signal was missing in operation.
- interconnection of the binector input for "master control by PLC" is incorrect (p0854).
- the higher-level control has withdrawn the "master control by PLC" signal.
- data transfer via the fieldbus (master/drive) was interrupted.
Remedy: - check the interconnection of the binector input for "master control by PLC" (p0854).
- check the "master control by PLC" signal and, if required, switch-in.
- check the data transfer via the fieldbus (master/drive).
Note:
If the drive should continue to operate after withdrawing "master control by PLC" then fault response must be parameterized to NONE or the message type should be parameterized as alarm.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F07300 (A) Drive: Line contactor feedback signal missing

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: - the line contactor was not able to be closed within the time in p0861.
- the line contactor was not able to be opened within the time in p0861.
- the line contactor has dropped-out in operation.
- the line contactor has closed although the drive converter is powered-down.
Remedy: - check the setting of p0860.
- check the feedback circuit from the line contactor.
- increase the monitoring time in p0861.
See also: p0860 (Line cont. fdbk sig), p0861 (Line contactor monitoring time)
Reaction upon A: NONE
Acknowl. upon A: NONE

F07311 Bypass motor switch

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Fault value: Bit field BYPASS_CONTACTOR_ERROR_STATE
Bit 1
BYPASS_CONTACTOR_ERR_FBK_ON_MISSING
Switch "Closed" feedback signal missing
Bit 2
BYPASS_CONTACTOR_ERR_FBK_OFF_MISSING
Switch "opened" feedback signal missing
Bit 3
BYPASS_CONTACTOR_ERR_TOO_SLOW
Switch feedback signal too slow:
After switching, the system waits for the positive feedback signal. If the feedback signal is received later than the specified time, then a fault trip (shutdown) is issued.
Bit 6
BYPASS_CONTACTOR_ERR_BYPASS_INCONSISTENCY
Drive switch feedback signal is not consistent with the bypass state:
When powering-up or for STAGING, the drive switch is closed.
See also: p1260 (Bypass configuration), r1261 (Bypass control/status word), p1266 (Bypass, control command), p1267 (Bypass changeover source configuration), p1269 (Bypass switch feedback signal), p1274 (Bypass switch monitoring time)

Remedy: - check the transfer of the feedback signals.
- check the switch

F07312 Bypass LSS:

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Fault value: Bit field BYPASS_CONTACTOR_ERROR_STATE
Bit 1
BYPASS_CONTACTOR_ERR_FBK_ON_MISSING
Switch "Closed" feedback signal missing
Bit 2
BYPASS_CONTACTOR_ERR_FBK_OFF_MISSING
Switch "opened" feedback signal missing
Bit 3
BYPASS_CONTACTOR_ERR_TOO_SLOW
Switch feedback signal too slow:
After switching, the system waits for the positive feedback signal. If the feedback signal is received later than the specified time, then a fault trip (shutdown) is issued.
Bit 6
BYPASS_CONTACTOR_ERR_BYPASS_INCONSISTENCY
Line Side Switch feedback signal is not consistent with the bypass state:
When powering-up or for STAGING, the Line Side Switch is closed without this having been requested from the bypass.
See also: p1260 (Bypass configuration), r1261 (Bypass control/status word), p1266 (Bypass, control command), p1267 (Bypass changeover source configuration), p1269 (Bypass switch feedback signal), p1274 (Bypass switch monitoring time)

Remedy: - check the transfer of the feedback signals.
- check the switch

F07320	Drive: Automatic restart interrupted
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<ul style="list-style-type: none"> - The specified number of restart attempts (p1211) has been completely used up because within the monitoring time (p1213) the faults were not able to be acknowledged. The number of restart attempts (p1211) is decremented at each new start attempt. - there is no active ON command. - the monitoring time for the power unit has expired (p0857). - when exiting commissioning or at the end of the motor identification routine or the speed controller optimization, the drive unit is not automatically powered-up again. <p>Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.</p>
Remedy:	<ul style="list-style-type: none"> - increase the number of restart attempts (p1211). The actual number of starting attempts is displayed in r1214. - increase the delay time in p1212 and/or the monitoring time in p1213. - issue an ON command (p0840). - either increase or disable the monitoring time of the power unit (p0857).
A07321	Drive: Automatic restart active
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The automatic restart (AR) is active. When the line supply returns and/or the causes of the existing faults are removed the drive is automatically restarted. The pulses are enabled and the motor starts to rotate.
Remedy:	<ul style="list-style-type: none"> - the automatic restart (AR) should, if required, be inhibited (p1210 = 0). - an automatic restart can be directly interrupted by withdrawing the power-on command (BI: p0840).
A07329 (N)	Drive: kT estimator, kT(iq) characteristic or voltage compensation does not function
Drive object:	SERVO
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A function of the function module "extended torque control" (r0108.1) was activated - however the (complete) function is not available.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1...3: The kT estimator is active (p1780.3 = 1) without a functioning compensation of the voltage emulation error in the drive converter. This means that the accuracy is severely restricted.</p> <p>1: The drive converter voltage emulation error "final value" is 0 (p1952).</p> <p>2: The drive converter voltage emulation error "current offset" is 0 (p1953).</p> <p>3: The compensation of the voltage emulation error is disabled (p1780.8 = 0).</p> <p>4: The kT estimator (p1780.3 = 1), the kT(iq) characteristic (p1780.9 = 1) or the compensation of the voltage emulation error (p1780.8 = 1) was activated without activating the function module "extended torque control" (when the function module is activated, the following must apply: r0108.1 = 1).</p>
Remedy:	<p>Re fault value = 1, 2:</p> <ul style="list-style-type: none"> - carry out an identification of the voltage emulation error in the drive converter (p1909.14 = 1, p1910 = 1). - set the parameter to compensation the voltage emulation error in the drive converter (p1952, p1953). <p>Re fault value = 3:</p> <ul style="list-style-type: none"> - enable the compensation of the voltage emulation error in the drive converter (p1780.8 = 1). <p>Re fault value = 4:</p> <ul style="list-style-type: none"> - activate the function module "extended torque control" (r0108.1 = 1) or de-activate the corresponding functions (p1780.3 = 0, p1780.8 = 0, p1780.9 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07330	Flying restart: Measured search current too low
Drive object:	VECTOR
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	During a flying restart, it was identified that the search current reached is too low. It is possible that the motor is not connected.
Remedy:	Check the motor feeder cables.

F07331	FlyRestart: Not supported
Drive object:	VECTOR
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	It is not possible to power-up with the motor rotating (no flying restart). In the following cases, the "flying restart" function is not supported: Permanent-magnet and separately-excited synchronous motors (PEM, FEM): Operation with V/f characteristic. Permanent-magnet synchronous motor (PEM): Sensorless operation without a Voltage Sensing Module (VSM) being connected.
Remedy:	<ul style="list-style-type: none">- de-activate the "flying restart" function (p1200 = 0).- change the open-loop/closed-loop control mode (p1300).- connect a Voltage Sensing Module (VSM) (voltage measurement).

A07350 (F)	Drive: Measuring probe parameterized to a digital output
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measuring probe is connected to a bi-directional digital input/output and the terminal is set as output. Alarm value (r2124, decimal): 9: DI/DO 9 (X122.8) 10: DI/DO 10 (X122.10) 11: DI/DO 11 (X122.11) 13: DI/DO 13 (X132.8) 14: DI/DO 14 (X132.10) 15: DI/DO 15 (X132.11)
Remedy:	<ul style="list-style-type: none">- set the terminal as input (p0728).- de-select the measuring probe (p0488, p0489, p0580).
Reaction upon F:	OFF1
Acknowl. upon F:	IMMEDIATELY

A07400 (N)	Drive: DC link voltage maximum controller active
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DC link voltage controller has been activated because the upper switch-in threshold has been exceeded (r1242). The ramp-down times are automatically increased in order to maintain the DC link voltage (r0026) within the permissible limits. There is a system deviation between the setpoint and actual speeds. When the DC link voltage controller is switched-out (disabled), this is the reason that the ramp-function generator output is set to the speed actual value. See also: p1240 (Vdc controller or Vdc monitoring configuration)
Remedy:	If the controller is not to intervene: <ul style="list-style-type: none">- increase the ramp-down times.- disable the Vdc max controller If the ramp-down times are not to be changed: <ul style="list-style-type: none">- use a chopper or regenerative feedback unit
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07401 (N)	Drive: DC link voltage maximum controller de-activated
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The Vdc_max controller can no longer maintain the DC link voltage (r0026) below the limit value (r1242) and was therefore switched-out (disabled). - the line supply voltage is permanently higher than specified for the power unit. - the motor is permanently in the regenerative mode as a result of a load that is driving the motor.
Remedy:	- check whether the input voltage is within the permissible range. - check whether the load duty cycle and load limits are within the permissible limits.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A07402 (N)	Drive: DC link voltage minimum controller active
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DC link voltage controller has been activated as the lower switch-in threshold has been fallen below (r1246). The kinetic energy of the motor is used in order to buffer the DC link. This brakes the drive. See also: p1240 (Vdc controller or Vdc monitoring configuration)
Remedy:	The alarm disappears when power supply returns.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07403 (N, A)	Drive: Lower DC link voltage threshold reached
Drive object:	SERVO
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DC link voltage monitoring is active (p1240 = 2, 3) and the lower DC link voltage threshold (p1248) was reached in the "Operation" state.
Remedy:	- check the line supply voltage. - check the infeed module - reduce the lower DC link threshold (p1248). - switch-out (disable) the DC link voltage monitoring (p1240 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07403 (N, A)	Drive: Lower DC link voltage threshold reached
Drive object:	VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DC link voltage monitoring is active (p1240 , p1280 = 5, 6) and the lower DC link voltage threshold (r1246, r1286) was reached in the "Operation" state.
Remedy:	- check the line supply voltage. - check the infeed module - adapt the device supply voltage (p0210) or the switch-on level (p1245, p1285). - disable the DC link voltage monitoring (p1240, p1280 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07404	Drive: Upper DC link voltage threshold reached
Drive object:	SERVO
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DC link voltage monitoring is active (p1240 = 1, 3) and the upper DC link voltage threshold (p1244) was reached in the "Operation" state.
Remedy:	<ul style="list-style-type: none">- check the line supply voltage.- check the infeed module or the Braking Module.- increase the upper DC link voltage threshold (p1244).- switch-out (disable) the DC link voltage monitoring (p1240 = 0).

F07404	Drive: Upper DC link voltage threshold reached
Drive object:	VECTOR
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DC link voltage monitoring is active (p1240 , p1280 = 4, 6) and the upper DC link voltage threshold (r1242, r1282) was reached in the "Operation" state.
Remedy:	<ul style="list-style-type: none">- check the line supply voltage.- check the infeed module- adapt the device supply voltage (p0210).- disable the DC link voltage monitoring (p1240, p1280 = 0).

F07405 (N, A)	Drive: Kinetic buffering minimum speed not reached
Drive object:	VECTOR
Reaction:	OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	During kinetic buffering the speed fell below minimum speed (p1257 or p1297 for vector drives with V/f control) and the line supply did not return.
Remedy:	Check the speed threshold for the Vdc_min controller (kinetic buffering) (p1257, p1297). See also: p1257 (Vdc_min controller speed threshold)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07406 (N, A)	Drive: Kinetic buffering maximum time exceeded
Drive object:	VECTOR
Reaction:	OFF3 (IASC / DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The maximum buffer time (p1255 and p1295 for vector drives with V/f control) has been exceeded without the line supply having returned.
Remedy:	Check the time threshold for Vdc-min controller (kinetic buffering) (p1255, p1295). See also: p1255 (Vdc_min controller time threshold)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A07409	Drive: V/f control, current limiting controller active
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The current limiting controller of the V/f control was activated because the current limit was exceeded.
Remedy:	The alarm is automatically withdrawn when increasing the current limit (p0640), reducing the load or using a slower up ramp for the setpoint (reference) speed.

F07410	Drive: Current controller output limited
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	<p>The condition "$I_{act} = 0$ and $U_{q_set_1}$ longer than 16 ms at its limit" is present and can be caused by the following:</p> <ul style="list-style-type: none"> - motor not connected or motor contactor open. - no DC link voltage present. - Motor Module defective. - the "flying restart" function is not activated.
Remedy:	<ul style="list-style-type: none"> - connect the motor or check the motor contactor. - check the DC link voltage (r0070). - check the Motor Module. - activate the "flying restart" function (p1200).
F07411	Drive: Flux controller output limited
Drive object:	SERVO
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	<p>The specified flux setpoint cannot be reached although 90% of the maximum current has been specified.</p> <ul style="list-style-type: none"> - incorrect motor data. - motor data and motor configuration (star/delta) do not match. - the current limit has been set too low for the motor. - induction motor (sensorless, open-loop controlled) in I_{2t} limiting. - the Motor Module is too small.
Remedy:	<ul style="list-style-type: none"> - correct the motor data. - check the motor configuration. - correct the current limits (p0640, p0323). - reduce the induction motor load. - if required, use a larger Motor Module.
F07412	Drive: Commutation angle incorrect (motor model)
Drive object:	SERVO, VECTOR
Reaction:	ENCODER (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	<p>An incorrect commutation angle was detected, that can result in a positive coupling in the speed controller.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> - the motor encoder is incorrectly adjusted with respect to the magnet position. - the motor encoder is damaged. - the angular commutation offset is incorrectly set (p0431). - data to calculate the motor model has been incorrectly set (p0356 (motor-stator leakage inductance) and/or p0350 (motor-stator resistance) and/or p0352 (cable resistance)). - the changeover speed for the motor model is too low (p1752). The monitoring function only becomes effective above the changeover speed. - the motor encoder speed signal is faulted. - the control loop is instable due to incorrect parameterization. <p>Fault value (r0949, interpret decimal):</p> <p>SERVO:</p> <p>0: The comparison of the pole position angle from the encoder and the motor model resulted in an excessively high value ($> 80^\circ$ electrical).</p> <p>1: -</p> <p>VECTOR:</p> <p>0: The comparison of the pole position angle from the encoder and the motor model resulted in an excessively high value ($> 45^\circ$ electrical).</p> <p>1: The change in the speed signal from the motor encoder has changed by $> p0492$ within a current controller clock cycle.</p>

Remedy:

- if the encoder mounting was changed - re-adjust the encoder.
- replace the defective motor encoder.
- correctly set the angular commutation offset (p0431).
- correctly set the motor stator resistance, cable resistance and motor-stator leakage inductance (p0350, p0352, p0356).
- increase the changeover speed for the motor model (p1752). The monitoring is completely de-activated for p1752 > p1082 (maximum speed)

Note:
For High Dynamic Motors (1FK7xxx-7xxx), for applications with a higher current, if necessary, the monitoring should be disabled.

F07413 Drive: Commutation angle incorrect (pole position identification)

Drive object: SERVO, VECTOR

Reaction: ENCODER (NONE, OFF2)

Acknowledge: IMMEDIATELY

Cause: An incorrect commutation angle was detected, that can result in a positive coupling in the speed controller.

- within the pole position identification routine (p1982 = 2):
A difference of > 45° electrical to the encoder angle was determined.
- for VECTOR, within the encoder adjustment (p1990 = 2):
A difference of > 6 ° electrical to the encoder angle was determined.

Remedy:

- correctly set the angular commutation offset (p0431).
- re-adjust the motor encoder after the encoder has been replaced.
- replace the defective motor encoder.
- check the pole position identification routine. If the pole position identification routine is not suitable for this motor type, then disable the plausibility check (p1982 = 0).

F07414 (A) Drive: Encoder serial number changed

Drive object: SERVO

Reaction: ENCODER (NONE, OFF2)

Acknowledge: IMMEDIATELY

Cause: The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).

Cause 1:

The encoder was replaced.

Cause 2:

A third-party, build-in or linear motor was re-commissioned.

Cause 3:

The motor with integrated and adjusted encoder was replaced.

Cause 4:

The firmware was updated to a version that checks the encoder serial number.

Remedy: Re causes 1, 2:

Carry out an automatic adjustment using the pole position identification routine. First, accept the serial number with p0440 = 1. Acknowledge the fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.

SERVO:

If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.

or

Set the adjustment via p0431. In this case, the new serial number is automatically accepted.

or

Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.

Re causes 3, 4:

Accept the new serial number with p0440 = 1.

Reaction upon A: NONE

Acknowl. upon A: NONE

N07415 (F)	Drive: Angular commutation offset transfer running
Drive object:	SERVO
Reaction:	OFF2
Acknowledge:	NONE
Cause:	The angular commutation offset was automatically determined using $p1990 = 1$. This fault causes the pulses to be canceled - this is necessary to transfer the angular commutation offset to p0431. See also: p1990 (Encoder adjustment, determine angular commutation offset)
Remedy:	The fault can be acknowledged without any additional measures.
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY
F07420	Drive: Current setpoint filter natural frequency > Shannon frequency
Drive object:	SERVO
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	One of the filter natural frequencies is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: $0.5 / p0115[0]$ Fault value (r0949, interpret hexadecimal): Bit 0: Filter 1 (p1658, p1660) Bit 1: Filter 2 (p1663, p1665) Bit 2: Filter 3 (p1668, p1670) Bit 3: Filter 4 (p1673, p1675) Bit 8 ... 15: Data set number (starting from zero).
Remedy:	- reduce the numerator or denominator natural frequency of the current setpoint filter involved. - reduce the current controller sampling time (p0115[0]). - switch-out the filter involved (p1656).
F07421	Drive: Speed setpoint filter natural frequency > Shannon frequency
Drive object:	SERVO
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	One of the filter natural frequencies is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: $0.5 / p0115[1]$ Fault value (r0949, interpret hexadecimal): Bit 0: Filter 1 (p1417, p1419) Bit 1: Filter 2 (p1423, p1425) Bit 8 ... 15: Data set number (starting from zero).
Remedy:	- reduce the numerator or denominator natural frequency of the speed setpoint filter involved. - reduce the speed controller sampling time (p0115[1]). - switch-out the filter involved (p1414).
F07422	Drive: Reference model natural frequency > Shannon frequency
Drive object:	SERVO, VECTOR
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The natural filter frequency of the PT2 element for the reference model (p1433) is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: $0.5 / p0115[1]$
Remedy:	- reduce the natural frequency of PT2 element for reference model (p1433). - reduce the speed controller sampling time (p0115[1]).

F07423	Drive: APC filter natural frequency > Shannon frequency
Drive object:	SERVO
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	One of the filter natural frequencies is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: $0.5 / (p0115[1] * x)$ Fault value (r0949, interpret hexadecimal): Bit 0: Filter 1.1 (p3711, p3713), $x = 1$ Bit 4: Filter 2.1 (p3721, p3723), $x = p3706$ Bit 5: Filter 2.2 (p3726, p3728), $x = p3706$ Bit 8: Filter 3.1 (p3731, p3733), $x = p3707$ Bit 9: Filter 3.2 (p3736, p3738), $x = p3707$ Bit 16 ... 32: Data set number (starting from zero)
Remedy:	<ul style="list-style-type: none">- reduce the numerator or denominator natural frequency of the filter involved.- reduce the speed controller sampling time (p0115[1]) or the sub-sampling (p3706, p3707).- switch-out the filter involved (p3704).

A07424	Drive: Operating condition for APC not valid
Drive object:	SERVO
Reaction:	NONE
Acknowledge:	NONE
Cause:	The APC function (Advanced Positioning Control) has identified an invalid operating condition. Alarm value (r2124, interpret hexadecimal): Bit 0 = 1: APC is operating without encoder (sensorless). Bit 1 = 1: The load measuring system for APC, selected using p3701, has a fault. The APC function is disabled. Bit 2 = 1: The load measuring system for APC, selected using p3701, has a fault. The pulse de-coupling is disabled, i.e. the speed of the motor measuring system is used as speed for the closed-loop motor speed control.
Remedy:	Re bit 0: Only use the APC function in operation with an encoder. Re Bit 1, 2: Check the load measuring system.

F07429	Drive: DSC without encoder not possible
Drive object:	SERVO
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The function DSC (Dynamic Servo Control) was activated although there is no encoder. See also: p1191 (DSC position controller gain KPC)
Remedy:	If there is no encoder and CI: p1191 (DSC position controller gain) is interconnected, then connector input CI: p1191 must have a 0 signal.

F07430	Drive: Changeover to open-loop torque controlled operation not possible
Drive object:	SERVO
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For sensorless operation, the converter cannot change over to closed-loop torque-controlled operation (BI: p1501).
Remedy:	Do not attempt to cover over to closed-loop torque-controlled operation.

F07431	Drive: Changeover to sensorless operation not possible
Drive object:	SERVO
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	For closed-loop torque control, the converter cannot change over to sensorless operation (p1404).
Remedy:	Do not attempt to change over to sensorless operation.

F07432	Drive: Synchronous motor without overvoltage protection
Drive object:	SERVO
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	Under voltage conditions, a synchronous motor can generate an overvoltage condition that can destroy the drive system. Fault value (r0949, interpret hexadecimal): Associated Drive Data Set (DDS).
Remedy:	Overvoltage protection can be implemented in the following ways: - limit the maximum speed (p1082) without any additional protection. The maximum speed without protection is calculated as follows: Rotary motors: $p1082 \text{ [rpm]} \leq 11.695 * p0297/p0316 \text{ [Nm/A]}$ Linear motors: $p1082 \text{ [m/min]} \leq 73.484 * p0297/p0316 \text{ [N/A]}$ - use a voltage protection module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801). When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be canceled - this means that the terminals for the function "Safe Torque Off" must be connected to the VPM. When using a VPM, p0643 must be set to 1. - activating the internal voltage protection (IVP) with p1231 = 3. See also: p0643 (Overvoltage protection for synchronous motors), p1231 (Armature short-circuit / DC brake configuration)
F07433	Drive: Closed-loop control with encoder is not possible as the encoder has not been unparked
Drive object:	SERVO
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The changeover to closed-loop control with encoder is not possible as the encoder has not been unparked.
Remedy:	- check whether the encoder firmware supports the "parking" function (r0481.6 = 1). - upgrade the firmware. Note: For long-stator motors (p3870.0 = 1), the following applies: The encoder must have completed the unparking procedure (r3875.0 = 1) before a changeover can be made to closed-loop control with encoder. The encoder is unparked with a 0/1 edge at BI: p3876 and remains unparked until a 0 signal is again present.
F07434	Drive: It is not possible to change the direction using p1821 with the pulses enabled
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A drive data set was selected - with the pulses enabled - that has a different parameterized direction (p1821). It is only possible to change the motor direction using p1821 when the pulses are inhibited.
Remedy:	- change over the drive data set with the pulses inhibited. - ensure that the changeover to a drive data set does not result in the motor direction of rotation being reversed (i.e. for these drive data sets, the same value must be in p1821). See also: p1821 (Direction reversal rotating field)
F07435 (N)	Drive: Setting the ramp-function generator for sensorless vector control
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	During operation with sensorless vector control (r1407.1) the ramp-function generator was stopped (p1141) or bypassed (p1122). An internal setting command of the ramp-function generator output caused the set setpoint speed to be frozen or was not able to be realized.

Remedy:

- de-activate the holding command for the ramp-function generator (p1141).
- do not bypass the ramp-function generator (p1122).
- suppress the fault (p2101, p2119). This is necessary if the ramp-function generator is held using jogging and the speed setpoint is simultaneously inhibited (r0898.6).

Note:
For sensorless vector control it is not practical to read-in the main setpoint of the speed control via p1155 or p1160 (p0922). In this case, the main setpoint should be injected before the ramp-function generator (p1070). The reason for this is that the ramp-function generator output is automatically set when transitioning from closed-loop speed controlled into open-loop speed controlled operation.

Reaction upon N: NONE
Acknowl. upon N: NONE

A07440 EPOS: Jerk time is limited

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The calculation of the jerk time $T_r = \text{MAX}(p2572, p2573) / p2574$ resulted in an excessively high value so that the jerk time is internally limited to 1000 ms.
Note:
The alarm is also output if jerk limiting is not active.

Remedy:

- increase the jerk limiting (p2574).
- reduce maximum acceleration or maximum deceleration (p2572, p2573).

See also: p2572 (EPOS maximum acceleration), p2573 (EPOS maximum deceleration), p2574 (EPOS jerk limiting)

A07441 LR: Save the adjustment parameters

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The status of the absolute encoder adjustment has changed.
In order to permanently accept p2525 (encoder adjustment offset) it must be saved in a non-volatile fashion (p0971, p0977).

Remedy: None necessary.
This alarm automatically disappears after the offset has been saved.
See also: p2507 (LR absolute encoder adjustment status), p2525 (LR encoder adjustment, offset)

F07442 (A) LR: Multiturn does not match the modulo range

Drive object: SERVO, VECTOR
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The ratio between the multiturn resolution and the modular range (p2576) is not an integer number.
This results in the adjustment being set back, as the position actual value cannot be reproduced after power-off/power-on.

Remedy: Make the ration between the multiturn resolution and the modulo range an integer number.
The ratio v is calculated as follows:

1. Motor encoder without position tracking:

$$v = (p0421 * p2506 * p0433 * p2505) / (p0432 * p2504 * p2576)$$
2. Motor encoder with position tracking for the measuring gearbox:

$$v = (p0412 * p2506 * p2505) / (p2504 * p2576)$$
3. Motor encoder with position tracking for the load gearbox:

$$v = (p2721 * p2506 * p0433) / (p0432 * p2576)$$
4. Motor encoder with position tracking for the load and measuring gearbox:

$$v = (p2721 * p2506) / p2576$$
5. Direct encoder without position tracking:

$$v = (p0421 * p2506 * p0433) / (p0432 * p2576)$$

6. Direct encoder with position tracking for the measuring gearbox:

$$v = (p0412 * p2506) / p2576$$

Note:

With position tracking, it is recommended that p0412 and p2721 are changed

See also: p0412 (Measuring gearbox, rotary absolute gearbox, revolutions, virtual), p0432 (Gearbox factor, encoder revolutions), p0433 (Gearbox factor, motor/load revolutions), p2504 (LR motor/load motor revolutions), p2505 (LR motor/load motor revolutions), p2506 (LR length unit LU per load revolution), p2576 (EPOS modulo correction, modulo range), p2721 (Load gearbox, rotary absolute gearbox, revolutions, virtual)

Reaction upon A: NONE

Acknowled. upon A: NONE

F07443 (A) LR: Reference point coordinate not in the permissible range

Drive object: SERVO, VECTOR

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position.

Fault value (r0949, interpret decimal):

Limit value (absolute value) for the reference point coordinate.

Remedy: Set the reference point coordinate less than the limit value specified in the fault value.

See also: p2598 (EPOS reference point coordinate, signal source), p2599 (EPOS reference point coordinate value)

Reaction upon A: NONE

Acknowled. upon A: NONE

F07446 (A) Load gearbox: Position tracking cannot be reset

Drive object: SERVO, VECTOR

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The position tracking cannot be reset.

Remedy:

Reaction upon A: NONE

Acknowled. upon A: NONE

F07447 Load gearbox: Position tracking, maximum actual value exceeded

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: When the position tracking of the load gearbox is configured, the drive/encoder (motor encoder) identifies a maximum possible absolute position actual value (r2723) that can no longer be represented within 32 bits.

Maximum value: $p0408 * p2721 * 2^{p0419}$

See also: p0408 (Rotary encoder pulse No.), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gearbox, rotary absolute gearbox, revolutions, virtual)

Remedy: - reduce the fine resolution (p0419).

- reduce the multiturn resolution (p2721).

See also: p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gearbox, rotary absolute gearbox, revolutions, virtual)

F07448 (A) Load gearbox: Position tracking, linear axis has exceeded the maximum range

Drive object: SERVO, VECTOR

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For a configured linear axis/no modulo axis, the drive/encoder has exceeded the maximum possible traversing range.

For the configured linear axis, the maximum traversing range is defined to be $64x (+/- 32x)$ of p0421. It should be read in p2721 and interpreted as the number of load revolutions.

Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon A: NONE
Acknowl. upon A: NONE

F07449 (A) Load gearbox: Position tracking, actual position outside tolerance window

Drive object: SERVO, VECTOR
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When powered-down, the drive/encoder was moved through a distance greater than what was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
Fault value (r0949, interpret decimal):
Deviation (difference) to the last encoder position in increments of the absolute value after the measuring gearbox - if one is being used. The sign designates the traversing direction.
Note:
The deviation (difference) found is also displayed in r2724.
See also: p2722 (Load gearbox, position tracking tolerance window), r2724 (Load gearbox position difference)

Remedy: Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010 (Infeed commissioning parameter filter), p2507 (LR absolute encoder adjustment status)

Reaction upon A: NONE
Acknowl. upon A: NONE

F07450 (A) LR: Standstill monitoring has responded

Drive object: SERVO, VECTOR
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: After the standstill monitoring time (p2543) expired, the drive left the standstill window (p2542).
- position actual value inversion incorrectly set (p0410).
- standstill window set too small (p2542).
- standstill monitoring time set too low (p2543).
- position loop gain too low (p2538).
- position loop gain too high (instability/oscillation, p2538).
- mechanical overload.
- check the connecting cable, motor/drive converter (phase missing, interchange).
- when selecting motor identification, select tracking mode (BI: p2655[0] = 1 signal).
- when selecting function generator, select tracking mode (BI: p2655[0] = 1 signal) and de-activate position control (BI:p2550 = 0 signal).

Remedy: Check the causes and resolve.

Reaction upon A: NONE
Acknowl. upon A: NONE

F07451 (A) LR: Position monitoring has responded

Drive object: SERVO, VECTOR
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When the position monitoring time (p2545) expired, the drive had still not reached the positioning window (p2544).
- positioning window parameterized too small (p2544).
- position monitoring time parameterized too short (p2545).
- position loop gain too low (p2538).
- position loop gain too high (instability/oscillation, p2538).
- drive mechanically locked.

Remedy: Check the causes and resolve.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07452 (A) LR: Following error too high
Drive object: SERVO, VECTOR
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The difference between the position setpoint position actual value (following error dynamic model, r2563) is greater than the tolerance (p2546).
- the drive torque or accelerating capacity exceeded.
- position measuring system fault.
- position control sense incorrect.
- mechanical system locked.
- excessively high traversing velocity or excessively high position reference value (setpoint) differences
Remedy: Check the causes and resolve.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07453 LR: Position actual value preprocessing error
Drive object: SERVO, VECTOR
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: An error has occurred during the position actual value preprocessing.
Remedy: Check the encoder for the position actual value preprocessing.
See also: p2502 (LR encoder assignment)

A07454 LR: Position actual value preprocessing does not have a valid encoder
Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: One of the following problems has occurred with the position actual value preprocessing:
- an encoder is not assigned for the position actual value preprocessing (p2502 = 0).
- an encoder is assigned, but no encoder data set (p0187 = 99 or p0188 = 99 or p0189 = 99).
- an encoder an an encoder data set have been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy: Check the drive data sets, encoder data sets and encoder assignment.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Enc type selection), p2502 (LR encoder assignment)

A07455 EPOS: Maximum velocity limited
Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The maximum velocity (p2571) is too high to correctly calculate the modulo correction.
Within the sampling time for positioning (p0115[5]), with the maximum velocity, a maximum of the half modulo length must be moved through. p2571 was limited to this value.
Remedy:
- reduce the maximum velocity (p2571).
- increase the sampling time for positioning (p0115[5]).

A07456 EPOS: Setpoint velocity limited
Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The actual setpoint velocity is greater than the parameterized maximum velocity (p2571) and is therefore limited.

Remedy:

- check the entered setpoint velocity.
- reduce the velocity override (CI: p2646).
- increase the maximum velocity (p2571).

A07457 EPOS: Combination of input signals illegal

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: An illegal combination of input signals that are simultaneously set was identified.
Alarm value (r2124, interpret decimal):
0: Jog 1 and jog 2 (p2589, p2590).
1: Jog 1 or jog 2 and direct setpoint input/MDI (p2589, p2590, p2647).
2: Jog 1 or jog 2 and start referencing (p2589, p2590, p2595).
3: Jog 1 or jog 2 and activate traversing task (p2589, p2590, p2631).
4: Direct setpoint input/MDI and starting referencing (p2647, p2595).
5: Direct setpoint input/MDI and activate traversing task (p2647, p2631).
6: Start referencing and activate traversing task (p2595, p2631).

Remedy: Check the appropriate input signals and correct.

F07458 EPOS: Reference cam not found

Drive object: SERVO, VECTOR

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: After starting the search for reference, the axis moved through the maximum permissible distance to search for the reference cam without actually finding the reference cam.

Remedy:

- check the "reference cam" binector input (BI: p2612).
- check the maximum permissible distance to the reference cam (p2606).
- if axis does not have any reference cam, then set p2607 to 0.

See also: p2606 (EPOS search for reference, reference cam, maximum distance), p2607 (EPOS search for reference, reference cam present), p2612 (EPOS search for reference, reference cam)

F07459 EPOS: No zero mark

Drive object: SERVO, VECTOR

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: After leaving the reference cam, the axis has traversed the maximum permissible distance between the reference cam and zero mark without finding the zero mark.

Remedy:

- check the encoder regarding the zero mark
- check the maximum permissible distance between the reference cam and zero mark (p2609).
- use an external encoder zero mark (equivalent zero mark) (p0495).

See also: p0495 (Equivalent zero mark, input terminal), p2609 (EPOS search for reference, max. distance ref. cam and zero mark)

F07460 EPOS: End of reference cam not found

Drive object: SERVO, VECTOR

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: During the search for reference, when the axis reached the zero mark it also reached the end of the traversing range without detecting an edge at the binector input "reference cam" (BI: p2612).
Maximum traversing range: -2147483648 [LU] ... -2147483647 [LU]

Remedy:

- check the "reference cam" binector input (BI: p2612).
- repeat the search for reference.

See also: p2612 (EPOS search for reference, reference cam)

A07461	EPOS: Reference point not set
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	When starting a traversing block/direct setpoint input, a reference point is not set (r2684.11 = 0).
Remedy:	Reference the system (search for reference, flying referencing, set reference point).
A07462	EPOS: Selected traversing block number does not exist
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	A traversing block selected via BI: p2625 to BI: p2630 was started via BI: p2631 = 0/1 edge "Activate traversing task". - the number of the started traversing block is not contained in p2616[0...n]. - the started traversing block is suppressed. Alarm value (r2124, interpret decimal): Number of the selected traversing block that is also not available.
Remedy:	- correct the traversing program. - select an available traversing block number.
A07463 (F)	EPOS: External block change not requested in the traversing block
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	For a traversing block with the block change enable CONTINUE_EXTERNAL_ALARM, the external block change was not requested. Alarm value (r2124, interpret decimal): Number of the traversing block.
Remedy:	Resolve the reason as to why the edge is missing at binector input (BI: p2632).
Reaction upon F:	OFF1
Acknowl. upon F:	IMMEDIATELY
F07464	EPOS: Traversing block is inconsistent
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The traversing block does not contain valid information. Alarm value (r2124, interpret decimal): Number of the traversing block with invalid information.
Remedy:	Check the traversing block and where relevant, take into consideration alarms that are present.
A07465	EPOS: Traversing block does not have a subsequent block
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	There is no subsequent block in the traversing block. Alarm value (r2124, interpret decimal): Number of the traversing block with the missing subsequent block.
Remedy:	- parameterize this traversing block with the block change enable END. - parameterize additional traversing blocks with a higher block number and for the last block, using the block change enable END.

A07466	EPOS: Traversing block number assigned a multiple number of times
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The same traversing block number was assigned a multiple number of times. Alarm value (r2124, interpret decimal): Number of the traversing block that was assigned a multiple number of times.
Remedy:	Correct the traversing blocks.

A07467	EPOS: Traversing block has illegal task parameters
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The task parameter in the traversing block contains an illegal value. Alarm value (r2124, interpret decimal): Number of the traversing block with an illegal task parameter.
Remedy:	Correct the task parameter in the traversing block.

A07468	EPOS: Traversing block jump destination does not exist
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In a traversing block, a jump was programmed to a non-existent block. Alarm value (r2124, interpret decimal): Number of the traversing block with a jump destination that does not exist.
Remedy:	- correct the traversing block. - add the missing traversing block.

A07469	EPOS: Traversing block < target position < software limit switch minus
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the specified absolute target position lies outside the range limited by the software limit switch minus. Alarm value (r2124, interpret decimal): Number of the traversing block with illegal target position.
Remedy:	- correct the traversing block. - change software limit switch minus (CI: p2578, p2580).

A07470	EPOS: Traversing block > target position > software limit switch plus
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the specified absolute target position lies outside the range limited by the software limit switch plus. Alarm value (r2124, interpret decimal): Number of the traversing block with illegal target position.
Remedy:	- correct the traversing block. - change software limit switch plus (CI: p2579, p2581).

A07471	EPOS: Traversing block target position outside the modulo range
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the target position lies outside the modulo range. Alarm value (r2124, interpret decimal): Number of the traversing block with illegal target position.
Remedy:	- in the traversing block, correct the target position. - change the modulo range (p2576).
A07472	EPOS: Traversing block ABS_POS/ABS_NEG not possible
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the positioning mode ABS_POS or ABS_NEG were parameterized with the modulo correction not activated. Alarm value (r2124, interpret decimal): Number of the traversing block with the illegal positioning mode.
Remedy:	Correct the traversing block.
A07473 (F)	EPOS: Beginning of traversing range reached
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	When traversing, the axis has moved to the traversing range limit.
Remedy:	Move away in the positive direction.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07474 (F)	EPOS: End of traversing range reached
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	When traversing, the axis has moved to the traversing range limit.
Remedy:	Move away in the negative direction.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
F07475 (A)	EPOS: Target position < start of traversing range
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The target position for relative traversing lies outside the traversing range.
Remedy:	Correct the target position.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07476 (A)	EPOS: Target position > end of the traversing range
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The target position for relative traversing lies outside the traversing range.

Remedy: Correct the target position.
Reaction upon A: NONE
Acknowl. upon A: NONE

A07477 (F) EPOS: Target position < software limit switch minus

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: In the actual traversing operation, the target position is less than the software limit switch minus.
Remedy:
- correct the target position.
- change software limit switch minus (CI: p2578, p2580).
See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A07478 (F) EPOS: Target position > software limit switch plus

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: In the actual traversing operation, the target position is greater than the software limit switch plus.
Remedy:
- correct the target position.
- change software limit switch plus (CI: p2579, p2581).
See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A07479 EPOS: Software limit switch minus reached

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The axis is at the position of the software limit switch minus. An active traversing block was interrupted.
Remedy:
- correct the target position.
- change software limit switch minus (CI: p2578, p2580).
See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)

A07480 EPOS: Software limit switch plus reached

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The axis is at the position of the software limit switch plus. An active traversing block was interrupted.
Remedy:
- correct the target position.
- change software limit switch plus (CI: p2579, p2581).
See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)

F07481 (A)	EPOS: Axis position < software limit switch minus
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The actual position of the axis is less than the position of the software limit switch minus.
Remedy:	<ul style="list-style-type: none"> - correct the target position. - change software limit switch minus (CI: p2578, p2580). <p>See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)</p>
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07482 (A)	EPOS: Axis position > software limit switch plus
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The actual position of the axis is greater than the position of the software limit switch plus.
Remedy:	<ul style="list-style-type: none"> - correct the target position. - change software limit switch plus (CI: p2579, p2581). <p>See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)</p>
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A07483	EPOS: Travel to fixed stop clamping torque not reached
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The fixed stop in the traversing block was reached without the clamping torque/clamping force having been achieved.
Remedy:	<ul style="list-style-type: none"> - Check the maximum torque-generating current (r1533). - check the torque limits (p1520, p1521). - check the power limits (p1530, p1531). - check the BICO interconnections of the torque limits (p1522, p1523, p1528, p1529).
F07484	EPOS: Fixed stop outside the monitoring window
Drive object:	SERVO, VECTOR
Reaction:	OFF3 (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	In the "fixed stop reached" state, the axis has moved outside the defined monitoring window (p2635).
Remedy:	<ul style="list-style-type: none"> - check the monitoring window (p2635). - check the mechanical system.
F07485 (A)	EPOS: Fixed stop not reached
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	In a traversing block with the task FIXED STOP, the end position was reached without detecting a fixed stop.
Remedy:	<ul style="list-style-type: none"> - check the traversing block and locate the target position further into the workpiece. - check the "fixed stop reached" control signal (p2637). - if required, reduce the maximum following error window to detect the fixed stop (p2634).
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A07486	EPOS: Intermediate stop missing
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "no intermediate stop/intermediate stop" (BI: p2640) did not have a 1 signal.
Remedy:	Connect a 1 signal to the binector input "no intermediate stop/intermediate stop" (BI: p2640) and re-start motion. See also: p2640 (EPOS intermediate stop (0 signal))

A07487	EPOS: Reject traversing task missing
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "do not reject traversing task/reject traversing task" (BI: p2641) does not have a 1 signal.
Remedy:	Connect a 1 signal to the binector input "do not reject traversing task/reject traversing task" (BI: p2641) and re-start motion. See also: p2641 (EPOS reject traversing task (0 signal))

F07488	EPOS: Relative positioning not possible
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	In the mode "direct setpoint input/MDI", for continuous transfer (p2649 = 1) relative positioning was selected (BI: p2648 = 0 signal).
Remedy:	Check the control.

A07489	EPOS: Reference point correction outside the window
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the function "flying referencing" the difference between the measured position at the measuring probe and the reference point coordinate lies outside the parameterized window.
Remedy:	- check the mechanical system. - check the parameterization of the window (p2602).

F07490	EPOS: Enable signal withdrawn while traversing
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	- for a standard assignment, another fault may have occurred as a result of withdrawing the enable signals. - the drive is in the "power-on inhibit" state (for a standard assignment).
Remedy:	- set the enable signals or check the cause of the fault that first occurred and then result (for a standard assignment). - check the assignment to enable the basic positioning function.

F07491 (A)	EPOS: STOP cam minus reached
Drive object:	SERVO, VECTOR
Reaction:	OFF3
Acknowledge:	IMMEDIATELY
Cause:	A zero signal was detected at binector input BI: p2569, i.e. the STOP cam minus was reached. For a positive traversing direction, the STOP cam minus was reached - i.e. the wiring of the STOP cam is incorrect. See also: p2569 (EPOS STOP cam minus)
Remedy:	- leave the STOP cam minus in the positive traversing direction and return the axis to the valid traversing range. - check the wiring of the STOP cam.
Reaction upon A:	NONE
Acknowled. upon A:	NONE

F07492 (A)	EPOS: STOP cam plus reached
Drive object:	SERVO, VECTOR
Reaction:	OFF3
Acknowledge:	IMMEDIATELY
Cause:	A zero signal was detected at binector input BI: p2570, i.e. the STOP cam plus was reached. For a negative traversing direction, the STOP cam plus was reached - i.e. the wiring of the STOP cam is incorrect. See also: p2570 (EPOS STOP cam plus)
Remedy:	- leave the STOP cam plus in the negative traversing direction and return the axis to the valid traversing range. - check the wiring of the STOP cam.
Reaction upon A:	NONE
Acknowled. upon A:	NONE
F07493	LR: Overflow of the value range for the position actual value
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded. When the overflow occurs, the status "referenced" or the status "adjustment absolute measuring system" is reset. Fault value (r0949, interpret decimal): 1: r2521 has exceeded the value range for the position actual value display. 2: r0483 and/or r2723 has exceeded the value range for the position actual value display. 3. The factor to convert the absolute position (r0483 and/or r2723) from increments to LUs is greater than 1.0.
Remedy:	If required, reduce the traversing range or position resolution (p2506). Increase the fine resolution of absolute position actual value p419. Reference to fault value 3: If the factor inc2lu to convert the absolute position (r0483 or r2723) from increments to LUs is greater than 1.0, then it is not possible to make an adjustment as an overflow can occur. The factor inc2lu is calculated as follows for rotary encoders: 1. Motor encoder without position tracking: $\text{inc2lu} = p2506 * p0433 * p2505 / (2^{p0419} * p0408 * p0432 * p2504)$ 2. Motor encoder with position tracking for the measuring gearbox: $\text{inc2lu} = p2506 * p2505 / (2^{p0419} * p0408 * p2504)$ 3. Motor encoder with position tracking for the load gearbox: $\text{inc2lu} = p2506 * p0433 / (2^{p0419} * p0408 * p0432)$ 4. Motor encoder with position tracking for the load and measuring gearbox: $\text{inc2lu} = p2506 / (2^{p0419} * p0408)$ 5. Direct encoder without position tracking: $\text{inc2lu} = p2506 * p0433 / (2^{p0419} * p0408 * p0432)$ 6. Direct encoder with position tracking for the measuring gearbox: $\text{inc2lu} = p2506 / (2^{p0419} * p0408)$ Example re 2: p2506 = 300000 p0419 = 9 p0408 = 2048 p2505 = 7 LoadU p2504 = 2 MotU inc2lu = 1.001358032
F07494	LR: Drive Data Set changeover in operation
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A drive data set changeover (DDS changeover) when the mechanical relationships change (p2503 .. 2506), the direction of rotation (p1821) or the encoder assignment (p2502) were requested during operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.

A07495 (F)	LR: Reference function interrupted
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	An activated reference function (reference mark search or measuring probe evaluation) was interrupted. <ul style="list-style-type: none">- an encoder fault has occurred (Gn_ZSW.15 = 1).- position actual value was set during an activated reference function.- simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal).- activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	<ul style="list-style-type: none">- check the causes and resolve.- reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07496	EPOS: Enable not possible
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	It is not possible to enable the basic positioner because at least one signal is missing. Alarm value (r2124, interpret decimal): 1: EPOS enable missing (BI: p2656). 2: Position actual value, valid feedback signal missing (BI: p2658). See also: p2656 (EPOS enable basic positioner), p2658 (EPOS pos. actual value valid, feedback signal)
Remedy:	Check the appropriate binector inputs and signals.

A07497	LR: Position setting value activated
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The position actual value is set to the value received via CI: p2515 while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy:	None necessary. The alarm automatically disappears with BI: p2514 = 0 signal.

A07498 (F)	LR: Measuring probe evaluation not possible
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the measuring probe, an error occurred. Alarm value (r2124, interpret decimal): 6: The input terminal for the measuring probe is not set. 4098: Error when initializing the measuring probe. 4100: The measuring pulse frequency is too high. > 50000: The measuring clock cycle is not a multiple integer of the position controller clock cycle.
Remedy:	De-activate the measuring probe evaluation (BI: p2509 = 0 signal). Re alarm value = 6: Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518). Re alarm value = 4098: Check the Control Unit hardware. Re alarm value = 4100: Reduce the frequency of the measuring pulses at the measuring probe. Re alarm value > 50000: Set the clock cycle ratio of the measuring clock cycle to the position controller clock cycle to an integer multiple. To do this, the currently effective measuring clock cycle can be determined from the alarm value as follows: $T_{\text{meas}}[125\mu\text{s}] = \text{alarm value} - 50000$.

With Profibus, the measuring clock cycle corresponds to the Profibus clock cycle r2064[1].
Without Profibus, the measuring clock cycle is an internal cycle time that cannot be influenced.

Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

F07499 (A)	EPOS: Reversing cam approached with the incorrect traversing direction
Drive object:	SERVO, VECTOR
Reaction:	OFF3
Acknowledge:	IMMEDIATELY
Cause:	The reversing cam MINUS was approached in the positive traversing direction or the reversing cam PLUS was approached in the negative traversing direction. See also: p2613 (EPOS search for reference reversing cam minus), p2614 (EPOS search for reference reversing cam plus)
Remedy:	- check the wiring of the reversing cam (BI: p2613, BI: p2614). - check the traversing direction to approach the reversing cam.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07500	Drive: Power unit data set PDS not configured
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Only for controlled line supply infeed/regenerative feedback units: The power unit data set was not configured - this means that a data set number was not entered into the drive data set. Fault value (r0949, interpret decimal): Drive data set number of p0185.
Remedy:	The index of the power unit data set associated with the drive data set should be entered into p0185.

F07501	Drive: Motor Data Set MDS not configured
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Only for power units: The motor data set was not configured - this means that a data set number was not entered into the associated drive data set. Fault value (r0949, interpret decimal): The fault value includes the drive data set number of p0186.
Remedy:	The index of the motor data set associated with the drive data set should be entered into p0186. See also: p0186 (Motor Data Sets (MDS) number)

F07502	Drive: Encoder Data Set EDS not configured
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Only for power units: The encoder data set was not configured - this means that a data set number was not entered into the associated drive data set. Fault value (r0949, interpret decimal): The fault value includes the drive data set number of p0187, p0188 and p0189. The fault value is increased by 100 * encoder number (e.g. for p0189: Fault value 3xx with xx = data set number).
Remedy:	The index of the encoder data set associated with the drive data set should be entered into p0187 (1st encoder), p0188 (2nd encoder) and p0189 (3rd encoder).

A07504	Drive: Motor data set is not assigned to a drive data set
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A motor data set is not assigned to a drive object.</p> <p>All of the existing motor data sets in the drive data sets must be assigned using the MDS number (p0186[0...n]).</p> <p>There must be at least as many drive data sets as motor data sets.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Number of the motor data set that has not been assigned.</p>
Remedy:	<p>In the drive data sets, assign the non-assigned motor data set using the MDS number (p0186[0...n]).</p> <ul style="list-style-type: none">- check whether all of the motor data sets are assigned to drive data sets.- if required, delete superfluous motor data sets.- if required, set-up new drive data sets and assign to the corresponding motor data sets. <p>See also: p0186 (Motor Data Sets (MDS) number)</p>

F07510	Drive: Identical encoder in the drive data set
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>More than one encoder with identical component number is assigned to a single drive data set. In one drive data set, it is not permissible that identical encoders are operated together.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1000 * first identical encoder + 100 * second identical encoder + drive data set.</p> <p>Example:</p> <p>Fault value = 1203 means:</p> <p>In drive data set 3, the first (p0187[3]) and second encoder (p0188[3]) are identical.</p>
Remedy:	<p>Assign the drive data set to different encoders.</p> <p>See also: p0141 (Encoder interface (Sensor Module) component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number)</p>

F07511	Drive: Encoder used a multiple number of times
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>Each encoder may only be assigned to one drive and within a drive must - in each drive data set - either always be encoder 1, always encoder 2 or always encoder 3. This unique assignment has been violated.</p> <p>Fault value (r0949, interpret decimal):</p> <p>The two parameters in coded form, that refer to the same component number.</p> <p>First parameter:</p> <p>Index: First and second decimal place (99 for EDS, not assigned DDS)</p> <p>Parameter number: Third decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS not assigned DDS)</p> <p>Drive number: Fourth and fifth decimal place</p> <p>Second parameter:</p> <p>Index: Sixth and seventh decimal place (99 for EDS, not assigned DDS)</p> <p>Parameter number: Eighth decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS, not assigned DDS)</p> <p>Drive number: Ninth and tenth decimal place</p> <p>See also: p0141 (Encoder interface (Sensor Module) component number)</p>
Remedy:	<p>Correct the double use of a component number using the two parameters coded in the fault value.</p>

A07512	Drive: Encoder data set changeover cannot be parameterized
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	Using p0141, a changeover of the encoder data set is prepared that is illegal. In this firmware release, an encoder data set changeover is only permitted for the components in the actual topology. Commissioning can only be exited with the correct parameterization. Alarm value (r2124, interpret decimal): Incorrect EDS data set number. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number)
Remedy:	Every encoder data set must be assigned its own dedicated DRIVE-CLiQ socket. The component numbers of the encoder interfaces (p0141) must have different values within a drive object. The following must apply: p0141[0] not equal to p0141[1] not equal to ... not equal to p0141[n]
A07514	Drive: Data structure does not correspond to the interface module
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The interface mode "SIMODRIVE 611 universal" was set (p2038 = 1) and the data structure does not correspond to this mode. For the data structure, the following rule must be complied with. Within the group of 8 drive data sets, the assignment to the motor data set must be set the same: p0186[0] = p0186[1] = ... = p0186[7] p0186[8] = p0186[9] = ... = p0186[15] p0186[16] = p0186[17] = ... = p0186[23] p0186[24] = p0186[25] = ... = p0186[31] See also: p0180 (Number of Drive Data Sets (DDS)), p0186 (Motor Data Sets (MDS) number), p2038 (PROFIdrive STW/ZSW interface mode)
Remedy:	- structure the data according to the rules of the "SIMODRIVE 611 universal" interface mode. - check the interface mode (p2038).
A07515	Drive: Power unit and motor incorrectly connected
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	A power unit (via PDS) was assigned to a motor (via MDS) in a drive data set that is not connected in the target topology. Alarm value (r2124, interpret decimal): Number of the incorrectly parameterized drive data set.
Remedy:	- assign the drive data set to a combination of motor and power unit permitted by the target topology. - adapt the target topology. See also: p0121 (Power unit component number), p0131 (Motor component number), p0186 (Motor Data Sets (MDS) number)
F07516	Drive: Re-commission the data set
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The assignment between the drive data set and motor data set (p0186) or between the drive data set and the encoder data set was modified (p0187). This is the reason that the drive data set must re-commissioned. Fault value (r0949, interpret decimal): Drive data set to be re-commissioned.
Remedy:	Commission the drive data set specified in the fault value (r0949).

A07517	Drive: Encoder data set changeover incorrectly parameterized
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	An MDS cannot have different motor encoders in two different DDS. The following parameterization therefore results in an error: p0186[0] = 0, p0187[0] = 0 p0186[0] = 0, p0187[0] = 1 Alarm value (r2124, interpret decimal): The lower 16 bits indicate the first DDS and the upper 16 bits indicate the second DDS.
Remedy:	If you wish to operate a motor once with one motor encoder and then another time with the other motor encoder, then you must set-up two different MDSs, in which the motor data are the same. Example: p0186[0] = 0, p0187[0] = 0 p0186[0] = 1, p0187[0] = 1

F07518	Drive: Motor data set changeover incorrectly parameterized
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The system has identified that two motor data sets were incorrectly parameterized. Parameter r0313 (calculated from p0314, p0310, p0311), r0315 and p1982 may only have different values if the motor data sets are assigned different motors. p0827 is used to assign the motors and/contactors. It is not possible to toggle between motor data sets. Alarm value (r2124, interpret hexadecimal): xxxxyyyy: xxxx: First DDS with assigned MDS, yyyy: Second DDS with assigned MDS
Remedy:	Correct the parameterization of the motor data sets.

A07519	Drive: Motor cannot be changed over
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	With the setting p0833.0, a motor changeover via the application is selected. This is the reason that p0827 must have different values in the appropriate motor data set. Alarm value (r2124, interpret hexadecimal): xxxxyyyy: xxxx: First MDS, yyyy: Second MDS
Remedy:	- parameterize the appropriate motor data sets differently (p0827). - select the setting p0833.0 = 0 (motor changeover via the drive).

A07530	Drive: Drive Data Set DDS not present
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected drive data set is not available (p0837 > p0180). The drive data set was not changed-over. See also: p0180 (Number of Drive Data Sets (DDS)), p0820 (Drive data set selection DDS bit 0), p0821 (Drive data set selection DDS bit 1), p0822 (Drive data set selection DDS bit 2), p0823 (Drive data set selection DDS bit 3), p0824 (Drive data set selection DDS bit 4), r0837 (Drive Data Set DDS selected)
Remedy:	- select the existing drive data set. - set-up additional drive data sets.

A07541	Drive: Data set changeover not possible
Drive object:	SERVO, TM41, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected drive data set changeover and the assigned motor changeover are not possible and are not carried out. For synchronous motors, the motor contactor may only be switched for actual speeds less than the speed at the start of field weakening (r0063 < p0348). See also: r0063 (Speed actual value after actual value smoothing), p0348 (Speed at the start of field weakening Vdc = 600 V)
Remedy:	Reduce the speed below the speed at the start of field weakening.
A07550 (F, N)	Drive: Not possible to reset encoder parameters
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	When carrying out a factory setting (e.g. using p0970 = 1), it was not possible to reset the encoder parameters. The encoder parameters are directly read out of the encoder via DRIVE-CLiQ. Alarm value (r2124, interpret decimal): Component number of the encoder involved.
Remedy:	- repeat the operation. - check the DRIVE-CLiQ connection.
Reaction upon F:	NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07551	Drive encoder: No commutation angle information
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (IASC / DCBRAKE)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The angular commutation information is missing. This means that synchronous motors cannot be controlled (closed-loop control) Fault value (r0949, interpret decimal): Low word: Drive data set number High word: Cause: 1: The motor encoder used does not supply an absolute commutation angle. 2: The selected ratio of the measuring gearbox does not match the motor pole pair number.
Remedy:	Re cause 1: - check the encoder parameterization (p0404). - use an encoder with track C/D, EnDat interface of Hall sensors. - use an encoder with sinusoidal A/B track for which the motor pole pair number (p0313) is an integer multiple of the encoder pulse number (p0408). - activate the pole position identification routine (p1982 = 1). Re cause 2: - the quotient of the pole pair number divided by the measuring gearbox ratio must be an integer number: (p0314 * p0433) / p0432, for operation with a C/D track, this quotient must be less than or equal to 8. See also: p0402 (Gearbox type selection), p0404 (Encoder configuration effective), p0432 (Gearbox factor, encoder revolutions), p0433 (Gearbox factor, motor/load revolutions)

F07552 (A)	Drive encoder: Encoder configuration not supported
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The requested encoder configuration is not supported. Only bits may be requested in p0404 that are signaled as being supported by the encoder evaluation in r0456.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Low word low byte: Encoder data set number</p> <p>Low word high byte: Component number</p> <p>High word:</p> <p>The encoder evaluation does not support a function selected in p0404.</p> <p>1: sin/cos encoder with absolute track (this is supported by SME25).</p> <p>3: Squarewave encoder (this is supported by SMC30).</p> <p>4: sin/cos encoder (this is supported by SMC20, SMI20, SME20, SME25).</p> <p>12: sin/cos encoder with reference mark (this is supported by SME20).</p> <p>15: Commutation with zero mark for separately-excited synchronous motors with VECTORMV.</p> <p>23: Resolver (this is supported by SMC10, SMI10).</p> <p>65535: Other function (compare r0456 and p0404).</p> <p>See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)</p>
Remedy:	<ul style="list-style-type: none">- check the encoder parameterization (p0400, p0404).- use the matching encoder evaluation (r0456).
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07553 (A)	Drive encoder: Sensor Module configuration not supported
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The Sensor Module does not support the requested configuration.</p> <p>Possible causes:</p> <ul style="list-style-type: none">- bits are set in p0430 (requested functions) that are not set in r0458 (supported functions). This does not apply for bit 19 (safety position actual value sensing), bit 29 (phase correction), bit 30 (amplitude correction) and bit 31 (offset correction).- p1982 > 0 (pole position identification requested), but r0458 bit 16 = 0 (pole position identification not supported). <p>Fault value (r0949, interpret binary):</p> <p>DCBA:</p> <p>A: Encoder Data Set number.</p> <p>B: First incorrect bit.</p>
Remedy:	<ul style="list-style-type: none">- check the encoder parameterization (p0430).- check the pole position identification routine (p1982).- use the matching encoder evaluation (r0458).
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07555 (A)	Drive encoder: Configuration position tracking
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The configuration of the position tracking is not supported.</p> <p>Position tracking can only be activated for absolute encoders.</p> <p>For linear axes, it is not possible to simultaneously activate the position tracking for load- and measuring gearboxes.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Low word low byte: Encoder data set number</p> <p>Low word high byte: Component number</p> <p>High word low byte: Data set number (only load gearboxes)</p> <p>High word high byte: Cause</p> <p>0: An absolute encoder is not being used.</p> <p>1 : Position tracking cannot be activated because the internal NVRAM is full or the Control Unit does not have an NVRAM.</p>

- 2: For a linear axis, the position tracking was activated for the load and measuring gearbox.
 3: Position tracking cannot be activated because there is more than one data set (p0180).
 4: A linear encoder is being used.
 See also: p0404 (Encoder configuration effective), p0411 (Measuring gearbox, configuration)

Remedy:

- use an absolute encoder.
- if necessary, de-select the position tracking (p0411 for the measuring gearbox, p2720 for the load gearbox).
- use a Control Unit with sufficient NVRAM.

Reaction upon A: NONE

Acknowl. upon A: NONE

F07556 Measuring gearbox: Position tracking, maximum actual value exceeded

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: When the position tracking of the measuring gearbox is configured, the drive/encoder identifies a maximum possible absolute position actual value (r0483) that cannot be represented within 32 bits.
 Maximum value: $p0408 * p0412 * 2^{p0419}$
 Fault value (r0949, interpret decimal):
 Low word low byte: Encoder data set number
 Low word high byte: Component number
 See also: p0408 (Rotary encoder pulse No.), p0412 (Measuring gearbox, rotary absolute gearbox, revolutions, virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits))

Remedy:

- reduce the fine resolution (p0419).
- reduce the multiturn resolution (p0412).

See also: p0412 (Measuring gearbox, rotary absolute gearbox, revolutions, virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits))

A07557 (F) Encoder 1: Reference point coordinate not in the permissible range

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position.
 Fault value (r0949, interpret decimal):
 Limit value (absolute value) for the reference point coordinate.

Remedy: Set the reference point coordinate less than the limit value specified in the fault value.
 See also: p2598 (EPOS reference point coordinate, signal source)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A07558 (F) Encoder 2: Reference point coordinate not in the permissible range

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position.
 Fault value (r0949, interpret decimal):
 Limit value (absolute value) for the reference point coordinate.

Remedy: Set the reference point coordinate less than the limit value specified in the fault value.
 See also: p2598 (EPOS reference point coordinate, signal source)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A07559 (F)	Encoder 3: Reference point coordinate not in the permissible range
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position. Fault value (r0949, interpret decimal): Limit value (absolute value) for the reference point coordinate.
Remedy:	Set the reference point coordinate less than the limit value specified in the fault value. See also: p2598 (EPOS reference point coordinate, signal source)
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowled. upon F:	IMMEDIATELY

F07560	Drive encoder: Number of pulses is not to the power of two
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For rotary absolute encoders, the pulse number in p0408 must be to the power of two. Fault value (r0949, interpret decimal): The fault value includes the encoder data set number involved.
Remedy:	- check the parameterization (p0408, p0404.1, r0458.5). - if required, upgrade the Sensor Module firmware.

F07561	Drive encoder: Number of multiturn pulses is not to the power of two
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The multi-turn resolution in p0421 must be to the power of two. Fault value (r0949, interpret decimal): The fault value includes the encoder data set number involved.
Remedy:	- check the parameterization (p0421, p0404.1, r0458.5). - if required, upgrade the Sensor Module firmware.

A07565 (F, N)	Drive: Encoder error in PROFIdrive encoder interface 1
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	An encoder error was signaled for encoder 1 via the PROFIdrive encoder interface (G1_ZSW.15). Alarm value (r2124, interpret decimal): Error code from G1_XIST2, refer to the description regarding r0483. Note: This alarm is only output if p0480[0] is not equal to zero.
Remedy:	Acknowledge the encoder error using the encoder control word (G1_STW.15 = 1).
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowled. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowled. upon N:	NONE

A07566 (F, N)	Drive: Encoder error in PROFIdrive encoder interface 2
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	An encoder error was signaled for encoder 2 via the PROFIdrive encoder interface (G2_ZSW.15). Alarm value (r2124, interpret decimal): Error code from G2_XIST2, refer to the description regarding r0483. This alarm is only output if p0480[1] is not equal to zero.

Remedy: Acknowledge the encoder error using the encoder control word (G2_STW.15 = 1).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07567 (F, N) Drive: Encoder error in PROFIdrive encoder interface 3

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 3 via the PROFIdrive encoder interface (G3_ZSW.15).
 Alarm value (r2124, interpret decimal):
 Error code from G3_XIST2, refer to the description regarding r0483.
 This alarm is only output if p0480[2] is not equal to zero.
Remedy: Acknowledge the encoder error using the encoder control word (G3_STW.15 = 1).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F07575 Drive: Motor encoder not ready

Drive object: SERVO, TM41, VECTOR
Reaction: OFF2 (ENCODER)
Acknowledge: IMMEDIATELY
Cause: The motor encoder signals that it is not ready.
 - initialization of encoder 1 (motor encoder) was unsuccessful.
 - the function "parking encoder" is active (selected using the encoder control word G1_STW.14 = 1).
 - the encoder interface (Sensor Module) is de-activated (p0145).
 - the Sensor Module is defective.
Remedy: Evaluate other queued faults via encoder 1.

A07576 Drive: Sensorless operation due to a fault active

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: Sensorless operation is active due to a fault (r1407.13).
 The required response when an encoder fault occurs is parameterized in p0491.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:

A07577 (F) Encoder 1: Measuring probe evaluation not possible

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the measuring probe, an error occurred.
 Alarm value (r2124, interpret decimal):
 6: The input terminal for the measuring probe is not set.
 4098: Error when initializing the measuring probe.
 4100: The measuring pulse frequency is too high.
 4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.

Remedy: De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
Re alarm value = 6:
Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
Re alarm value = 4098:
Check the Control Unit hardware.
Re alarm value = 4100:
Reduce the frequency of the measuring pulses at the measuring probe.
Re alarm value = 4200:
Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

A07578 (F) Encoder 2: Measuring probe evaluation not possible

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: When evaluating the measuring probe, an error occurred.
Alarm value (r2124, interpret decimal):
6: The input terminal for the measuring probe is not set.
4098: Error when initializing the measuring probe.
4100: The measuring pulse frequency is too high.
4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.

Remedy: De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
Re alarm value = 6:
Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
Re alarm value = 4098:
Check the Control Unit hardware.
Re alarm value = 4100:
Reduce the frequency of the measuring pulses at the measuring probe.
Re alarm value = 4200:
Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

A07579 (F) Encoder 3: Measuring probe evaluation not possible

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: When evaluating the measuring probe, an error occurred.
Alarm value (r2124, interpret decimal):
6: The input terminal for the measuring probe is not set.
4098: Error when initializing the measuring probe.
4100: The measuring pulse frequency is too high.
4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.

Remedy: De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
Re alarm value = 6:
Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
Re alarm value = 4098:
Check the Control Unit hardware.
Re alarm value = 4100:
Reduce the frequency of the measuring pulses at the measuring probe.
Re alarm value = 4200:
Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

A07580 (F, N) Drive: No Sensor Module with matching component number

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: A Sensor Module with the component number specified in p0141 was not found.
 Alarm value (r2124, interpret decimal):
 Encoder data set involved (index of p0141).
Remedy: Correct parameter p0141.
 Reaction upon F: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A07581 (F) Encoder 1: Position actual value preprocessing error

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred during the position actual value preprocessing.
Remedy: Check the encoder for the position actual value preprocessing.
 See also: p2502 (LR encoder assignment)
 Reaction upon F: OFF1 (OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

A07582 (F) Encoder 2: Position actual value preprocessing error

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred during the position actual value preprocessing.
Remedy: Check the encoder for the position actual value preprocessing.
 See also: p2502 (LR encoder assignment)
 Reaction upon F: OFF1 (OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

A07583 (F) Encoder 3: Position actual value preprocessing error

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred during the position actual value preprocessing.
Remedy: Check the encoder for the position actual value preprocessing.
 See also: p2502 (LR encoder assignment)
 Reaction upon F: OFF1 (OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

A07584 Encoder 1: Position setting value activated

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The position actual value is set to the value received via CI: p2515 while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy: None necessary.
 The alarm automatically disappears with BI: p2514 = 0 signal.

A07585	Encoder 2: Position setting value activated
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The position actual value is set to the value received via CI: p2515 while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy:	None necessary. The alarm automatically disappears with BI: p2514 = 0 signal.

A07586	Encoder 3: Position setting value activated
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The position actual value is set to the value received via CI: p2515 while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy:	None necessary. The alarm automatically disappears with BI: p2514 = 0 signal.

A07587	Encoder 1: Position actual value preprocessing does not have a valid encoder
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The following problem has occurred during the position actual value preprocessing. - an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy:	Check the drive data sets, encoder data sets. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Enc type selection), p2502 (LR encoder assignment)

A07588	Encoder 2: Position actual value preprocessing does not have a valid encoder
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The following problem has occurred during the position actual value preprocessing. - an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy:	Check the drive data sets, encoder data sets. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Enc type selection), p2502 (LR encoder assignment)

A07589	Encoder 3: Position actual value preprocessing does not have a valid encoder
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The following problem has occurred during the position actual value preprocessing. - an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy:	Check the drive data sets, encoder data sets. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Enc type selection), p2502 (LR encoder assignment)

A07590 (F)	Encoder 1: Drive Data Set changeover in operation
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07591 (F)	Encoder 2: Drive Data Set changeover in operation
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07592 (F)	Encoder 3: Drive Data Set changeover in operation
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07593 (F)	Encoder 1: Overflow of the value range for the position actual value
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded. When the overflow occurs, the status "referenced" or the status "adjustment absolute measuring system" is reset. Fault value (r0949, interpret decimal): 1: r2521 has exceeded the value range for the position actual value display. 2: r0483 and/or r2723 has exceeded the value range for the position actual value display. 3. The factor to convert the absolute position (r0483 and/or r2723) from increments to LUs is greater than 1.0.
Remedy:	If required, reduce the traversing range or position resolution. Reducing the position resolution and conversion factor (supplementary info 3): - reduce p2506 (LUs per load revolution for rotary encoders) - increase p419 (fine resolution of absolute position actual values).
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07594 (F)	Encoder 2: Overflow of the value range for the position actual value
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded. When the overflow occurs, the status "referenced" or the status "adjustment absolute measuring system" is reset. Fault value (r0949, interpret decimal): 1: r2521 has exceeded the value range for the position actual value display. 2: r0483 and/or r2723 has exceeded the value range for the position actual value display. 3. The factor to convert the absolute position (r0483 and/or r2723) from increments to LUs is greater than 1.0.
Remedy:	If required, reduce the traversing range or position resolution. Reducing the position resolution and conversion factor (supplementary info 3): - reduce p2506 (LUs per load revolution for rotary encoders) - increase p419 (fine resolution of absolute position actual values).
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07595 (F)	Encoder 3: Overflow of the value range for the position actual value
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded. When the overflow occurs, the status "referenced" or the status "adjustment absolute measuring system" is reset. Fault value (r0949, interpret decimal): 1: r2521 has exceeded the value range for the position actual value display. 2: r0483 and/or r2723 has exceeded the value range for the position actual value display. 3. The factor to convert the absolute position (r0483 and/or r2723) from increments to LUs is greater than 1.0.
Remedy:	If required, reduce the traversing range or position resolution. Reducing the position resolution and conversion factor (supplementary info 3): - reduce p2506 (LUs per load revolution for rotary encoders) - increase p419 (fine resolution of absolute position actual values).
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07596 (F)	Encoder 1: Reference function interrupted
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	An activated reference function (reference mark search or measuring probe evaluation) was interrupted. - an encoder fault has occurred (Gn_ZSW.15 = 1). - position actual value was set during an activated reference function. - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal). - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	- check the causes and resolve. - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07597 (F)	Encoder 2: Reference function interrupted
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>An activated reference function (reference mark search or measuring probe evaluation) was interrupted.</p> <ul style="list-style-type: none"> - an encoder fault has occurred (Gn_ZSW.15 = 1). - position actual value was set during an activated reference function. - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal). - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	<ul style="list-style-type: none"> - check the causes and resolve. - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07598 (F)	Encoder 3: Reference function interrupted
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>An activated reference function (reference mark search or measuring probe evaluation) was interrupted.</p> <ul style="list-style-type: none"> - an encoder fault has occurred (Gn_ZSW.15 = 1). - position actual value was set during an activated reference function. - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal). - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	<ul style="list-style-type: none"> - check the causes and resolve. - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
F07800	Drive: No power unit present
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>The power unit parameters cannot be read or no parameters are stored in the power unit.</p> <p>Connection between the CU and the Motor Module was interrupted or is defective.</p> <p>This fault also occurs if an incorrect topology was selected in the commissioning software and this parameterization is then downloaded into the CU.</p> <p>See also: r0200 (Power unit, actual code number)</p>
Remedy:	<ul style="list-style-type: none"> - connect the data line to power unit and restart the Control Unit (POWER ON). - check or replace the CU module. - check the cable between the CU and Motor Module. - after correcting the topology, the parameters must be again downloaded using the commissioning software.
F07801	Drive: Motor overcurrent
Drive object:	SERVO
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	<p>The permissible motor limit current was exceeded.</p> <ul style="list-style-type: none"> - effective current limit set too low. - current controller not correctly set. - motor was braked with an excessively high stall torque correction factor. - V/f operation: Up ramp was set too short or the load is too high. - V/f operation: Short-circuit in the motor cable or ground fault. - V/f operation: Motor current does not match the current of Motor Module.

Note:
Synchronous motor: Limit current= $1.3 * p0323$
Induction motor: Limit current= $1.3 * r0209$

Remedy:

- check the current limits (p0323, p0640).
- check the current controller (p1715, p1717).
- reduce the stall torque correction factor (p0326).
- increase the up ramp (p1318) or reduce the load.
- check the motor and motor cables for short-circuit and ground fault.
- check the Motor Module and motor combination.

F07801 Drive: Motor overcurrent

Drive object: VECTOR

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: The permissible motor limit current was exceeded.

- effective current limit set too low.
- current controller not correctly set.
- motor was braked with an excessively high stall torque correction factor.
- V/f operation: Up ramp was set too short or the load is too high.
- V/f operation: Short-circuit in the motor cable or ground fault.
- V/f operation: Motor current does not match the current of Motor Module.

Note:
Limit current = $2 * \text{Minimum}(p0640, 4 * p0305) \geq 2 * p0305$

Remedy:

- check the current limits (p0640).
- vector control: Check the current controller (p1715, p1717).
- V/f control: Check the current limiting controller (p1340 ... p1346).
- increase the up ramp (p1120) or reduce the load.
- check the motor and motor cables for short-circuit and ground fault.
- check the Motor Module and motor combination.

F07802 Drive: Infeed or power unit not ready

Drive object: SERVO, VECTOR

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: After an internal power-on command, the infeed or drive does not signal ready.

- monitoring time is too short.
- DC link voltage is not present.
- associated infeed or drive of the signaling component is defective.
- supply voltage incorrectly set.

Remedy:

- increase the monitoring time (p0857).
- ensure that there is a DC link voltage. Check the DC-link busbar. Enable the infeed.
- replace the associated infeed or drive of the signaling component.
- check the line supply voltage setting (p0210).

See also: p0857 (Power unit monitoring time)

A07805 (N) Infeed: Power unit overload I2t

Drive object: A_INF, B_INF, S_INF

Reaction: NONE

Acknowledge: NONE

Cause: Alarm threshold for I2t overload (p0294) of the power unit exceeded.

Remedy:

- reduce the continuous load.
- adapt the load duty cycle.

Reaction upon N: NONE

Acknowled. upon N: NONE

A07805 (N)	Drive: Power unit overload I2t
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	Alarm threshold for I2t overload (p0294) of the power unit exceeded. The response parameterized in p0290 becomes active. See also: p0290 (Power unit overload response)
Remedy:	- reduce the continuous load. - adapt the load duty cycle. - check the assignment of the rated currents of the motor and Motor Module.
Reaction upon N:	NONE
Acknowled. upon N:	NONE
F07810	Drive: Power unit EEPROM without rated data
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	No rated data are stored in the power unit EEPROM. See also: p0205 (Power unit application), r0206 (Rated power unit power), r0207 (Rated power unit current), r0208 (Rated power unit line supply voltage), r0209 (Power unit, maximum current)
Remedy:	Replace the power unit or inform Siemens Customer Service.
F07815	Drive: Power unit has been changed
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The code number of the actual power unit does not match the saved number. Fault value (r0949, interpret decimal): Number of the incorrect parameter. See also: r0200 (Power unit, actual code number), p0201 (Power unit code number)
Remedy:	Connect the original power unit and power-up the Control Unit again (POWER ON) or set p0201 to r0200 and exit commissioning with p0010 = 0. For infeeds, the following applies: Commutating reactors or line filters must be used that are specified for the new power unit. A line supply and DC link identification routine (p3410 = 5) must then be carried out. It is not possible to change the power unit without re-commissioning the system if the type of infeed (A_Infeed, B_Infeed, S_Infeed), the type of construction/design (booksize, chassis) or the voltage class differ between the old and new power units. For inverters, the following applies: If the new power module is accepted, then if required, the current limit p0640 can be reduced by a lower maximum current of the power module (r0209) (torque limits stay the same). If not only the power unit is changed, but also the motor, then the motor must be re-commissioning (e.g. using p0010 = 1). This is also necessary if motor data is still to be downloaded via DRIVE-CLiQ. See also: r0200 (Power unit, actual code number)
A07820	Drive: Temperature sensor not connected
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature sensor for motor temperature monitoring, specified in p0600, is not available. - parameter download with "incorrect" setting. - module with sensor evaluation has been, in the meantime, been removed. - temperature sensor via Motor Module, not for CU310.
Remedy:	- connect the module with temperature sensor. - set the available temperature sensor (p0600, p0601). See also: p0600 (Motor temperature sensor for monitoring), p0601 (Temperature sensor, sensor type)

A07825 (N)	Drive: Simulation operation activated
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The simulation mode is activated. The drive can only be powered-up if the DC link voltage is less than 40 V.
Remedy:	The alarm automatically disappears if simulation operation is de-activated with p1272 = 0.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07826	Drive: Simulation operation with DC link voltage too high
Drive object:	VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The simulation mode is activated and the DC link voltage is greater than the permissible value of 40 V.
Remedy:	- switch-out (disable) simulation operation (p1272 = 0) and acknowledge the fault. - reduce the input voltage in order to reach a DC link voltage below 40 V.

F07840	Drive: Infeed operation missing
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The signal "infeed operation" is not present although the enable signals for the drive have been present for longer than the parameterized monitoring time (p0857). - infeed not operational. - interconnection of the binector input for the ready signal is either incorrect or missing (p0864). - infeed is presently carrying out a line supply identification routine.
Remedy:	- bring the infeed into an operational state. - check the interconnection of the binector input for the signal "infeed operation" (p0864). - increase the monitoring time (p0857). - wait until the infeed has completed the line supply identification routine. See also: p0857 (Power unit monitoring time), p0864 (Infeed operation)

F07841	Drive: Infeed operation withdrawn
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The signal "infeed operation" was withdrawn in operation. - interconnection of the binector input for the signal "infeed operation" is either incorrect or missing (p0864). - the enable signals of the infeed were disabled. - due to a fault, the infeed withdraws the signal "infeed operation".
Remedy:	- check the interconnection of the binector input for the signal "infeed operation" (p0864). - check the enable signals of the infeed and if required, enable. - remove and acknowledge an infeed fault. Note: If this drive is intended to back-up the DC link regeneratively, then the fault response must be parameterized for NONE so that the drive can continue to operate even after the infeed fails.

A07850 (F)	External alarm 1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The BICO signal for "external alarm 1" was triggered. The condition for this external alarm is fulfilled. See also: p2112 (External alarm 1)
Remedy:	Eliminate the causes of this alarm.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

A07851 (F) External alarm 2

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The BICO signal for "external alarm 2" was triggered.
 The condition for this external alarm is fulfilled.
 See also: p2116 (External alarm 2)
Remedy: Eliminate the causes of this alarm.
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

A07852 (F) External alarm 3

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The BICO signal for "external alarm 3" was triggered.
 The condition for this external alarm is fulfilled.
 See also: p2117 (External alarm 3)
Remedy: Eliminate the causes of this alarm.
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

F07860 (A) External fault 1

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE, OFF1)
 SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
 VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The BICO signal "external fault 1" was triggered.
 See also: p2106 (External fault 1)
Remedy: Eliminate the causes of this fault.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F07861 (A) External fault 2

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE, OFF1)
 SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
 VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The BICO signal "external fault 2" was triggered.
 See also: p2107 (External fault 2)
Remedy: Eliminate the causes of this fault.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F07862 (A)	External fault 3
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The BICO signal "external fault 3" was triggered. See also: p2108 (External fault 3), p3111 (External fault 3, enable), p3112 (External fault 3 enable negated)
Remedy:	Eliminate the causes of this fault.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07890	Internal voltage protection / internal armature short-circuit with Safe Torque Off active
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The internal armature short-circuit (p1231=4) is not possible as Safe Torque Off is enabled. The pulses cannot be enabled.
Remedy:	Switch-out the internal armature short-circuit (p1231=0) or de-activate Safe Torque Off (p9501 = p9561 = 0).

F07900 (N, A)	Drive: Motor locked/speed controller at its limit
Drive object:	SERVO
Reaction:	OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	Motor has been operating at the torque limit longer than the time specified in p2177 and below the speed threshold set in p2175. This signal can also be initiated if the speed actual value is oscillating and the speed controller output repeatedly goes to its limit. See also: p2175 (Motor locked speed threshold), p2177 (Motor locked delay time)
Remedy:	<ul style="list-style-type: none">- check that the motor can freely rotate.- check the torque limit: For a positive direction of rotation r1538, for a negative direction of rotation r1539.- check the parameter, message "Motor locked" and if required, correct (p2175, p2177).- check the inversion of the actual value (p0410).- check the motor encoder connection.- check the encoder pulse number (p0408).- for SERVO with sensorless operation and motors with low power ratings (< 300 W), increase the pulse frequency (p1800).- after de-selecting basic positioning, check the torque limits when motoring (p1528) and when regenerating (p1529).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07900 (N, A)	Drive: Motor locked/speed controller at its limit
Drive object:	VECTOR
Reaction:	OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	Motor has been operating at the torque limit longer than the time specified in p2177 and below the speed threshold set in p2175. This signal can also be initiated if the speed actual value is oscillating and the speed controller output repeatedly goes to its limit. If the simulation mode is enabled (p1272 = 1) and the closed-loop control with speed encoder activated (p1300 = 21), then the inhibit signal is generated if the encoder signal is not received from a motor that is driven with the torque setpoint of the closed-loop control. See also: p2175 (Motor locked speed threshold), p2177 (Motor locked delay time)

- Remedy:**
- check that the motor can freely rotate.
 - check the torque limit: For a positive direction of rotation r1538, for a negative direction of rotation r1539.
 - check the parameter, message "Motor locked" and if required, correct (p2175, p2177).
 - check the inversion of the actual value (p0410).
 - check the motor encoder connection.
 - check the encoder pulse number (p0408).
 - for SERVO with sensorless operation and motors with low power ratings (< 300 W), increase the pulse frequency (p1800).
 - after de-selecting basic positioning, check the torque limits when motoring (p1528) and when regenerating (p1529).
 - in the simulation mode and operation with speed encoder, the power unit to which the motor is connected must be powered-up and must be supplied with the torque setpoint of the simulated closed-loop control. Otherwise, change over to sensorless control (refer to p1300).

Reaction upon N: NONE

Acknowled. upon N: NONE

Reaction upon A: NONE

Acknowled. upon A: NONE

F07901 Drive: Motor overspeed

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The maximum permissible speed was either positively or negatively exceeded.
The maximum permissible positive speed is formed as follows: Minimum(p1082, Cl: p1085) + p2162. The maximum permissible negative speed is formed as follows: Maximum(-p1082, Cl: 1088) - p2162.

- Remedy:**
- For a positive direction of rotation:
- check r1084 and if required, correct p1082, Cl:p1085 and p2162.
- For a negative direction of rotation:
- check r1087 and if required, correct p1082, Cl:p1088 and p2162.

F07902 (N, A) Drive: Motor stalled

Drive object: SERVO

Reaction: OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: For a vector drive the system has identified that the motor has stall for a time longer than is set in p2178.

Fault value (r0949, interpret decimal):

1: Stall detection using r1408.11 (p1744 or p0492).

2: Stall detection using r1408.12 (p1745).

3: Stall detection using r0056.11 (only for separately excited synchronous motors).

See also: p1744 (Motor model speed threshold stall detection), p2178 (Motor stalled delay time)

- Remedy:**
- For closed-loop speed and torque control with speed encoder, the following applies:
- check the speed signal (interrupted cable, polarity, pulse number, broken encoder shaft).
 - check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the same motor that is controlled for the data set changeover.
- If there is no fault, then the fault tolerance (p1744 and p0492) can be increased.
- For closed-loop speed and torque control without speed encoder, the following applies:
- check whether the drive in the open-loop controlled mode (r1750.0) stalls under load. If yes, then increase the current setpoint using p1610.
 - check whether the drive stalls due to the load if the speed setpoint is still zero. If yes, then increase the current setpoint using p1610.
 - if the motor excitation (magnetizing) time (r0346) was significantly reduced, then it should be increased again.
 - check the current limits (p0640, r0067). If the current limits are too low, then the drive cannot be magnetized.
 - check the current controller (p1715, p1717) and the speed adaptation controller (p1764, p1767). If the dynamic response was significantly reduced, then this should be increased again.
 - check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the motor that is controlled for the data set changeover.
- If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.
- For separately-excited synchronous motors (closed-loop control with speed encoder), the following applies:
- check the speed signal (interrupted cable, polarity, pulse number).
 - ensure the correct motor parameterization (rating plate and equivalent circuit diagram parameters).
 - check the excitation equipment and the interface to the closed-loop control.

- encoder the highest possible dynamic response of the closed-loop excitation current control.
 - check the speed control for any tendency to oscillate and if resonance effects occur, use a bandstop filter.
 - do not exceed the maximum speed (p2162).
- If there is no fault, then the delay time can be increased (p2178).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F07902 (N, A) Drive: Motor stalled

Drive object: VECTOR
Reaction: OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY

Cause: For a vector drive the system has identified that the motor has stall for a time longer than is set in p2178.

Fault value (r0949, interpret decimal):

1: Stall detection using r1408.11 (p1744 or p0492).

2: Stall detection using r1408.12 (p1745).

3: Stall detection using r0056.11 (only for separately excited synchronous motors).

See also: p1744 (Motor model speed threshold stall detection), p2178 (Motor stalled delay time)

Remedy: It should always be carefully ensured that the motor data identification (p1910) as well as the rotating measurement (p1960) were carried out (also refer to p3925). For synchronous motors with encoder, the encoder must have been adjusted (p1990).

For closed-loop speed and torque control with speed encoder, the following applies:

- check the speed signal (interrupted cable, polarity, pulse number, broken encoder shaft).

- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the same motor that is controlled for the data set changeover.

If there is no fault, then the fault tolerance (p1744 and p0492) can be increased.

If the stalled motor should take place in the range of the monitor model and for speeds of less than 30 % of the rated motor speed, then a change can be made directly from the current model into the flux impression (p1401 Bit 5 = 1).

In this case, we recommend that the time-controlled model change is switched-in (p1750 bit 4 = 1) or the model changeover limits are significantly increased (p1752 > 0.35 * p0311; p1753 = 5 %).

For closed-loop speed and torque control without speed encoder, the following applies:

- check whether the drive in the open-loop controlled mode (r1750.0) stalls under load. If yes, then increase the current setpoint using p1610.

- check whether the drive stalls due to the load if the speed setpoint is still zero. If yes, then increase the current setpoint using p1610.

- if the motor excitation (magnetizing) time (r0346) was significantly reduced, then it should be increased again.

- check the current limits (p0640, r0067). If the current limits are too low, then the drive cannot be magnetized.

- check the current controller (p1715, p1717) and the speed adaptation controller (p1764, p1767). If the dynamic response was significantly reduced, then this should be increased again.

- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the motor that is controlled for the data set changeover.

If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.

For separately-excited synchronous motors (closed-loop control with speed encoder), the following applies:

- check the speed signal (interrupted cable, polarity, pulse number).

- ensure the correct motor parameterization (rating plate and equivalent circuit diagram parameters).

- check the excitation equipment and the interface to the closed-loop control.

- encoder the highest possible dynamic response of the closed-loop excitation current control.

- check the speed control for any tendency to oscillate and if resonance effects occur, use a bandstop filter.

- do not exceed the maximum speed (p2162).

If there is no fault, then the delay time can be increased (p2178).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A07903	Drive: Motor speed deviation
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The absolute value of the speed difference from the two setpoints (p2151, p2154) and the speed actual value (r2169) exceeds the tolerance threshold (p2163) longer than tolerated (p2164, p2166).</p> <p>The alarm is only enabled for p2149.0 = 1.</p> <p>Possible causes could be:</p> <ul style="list-style-type: none"> - the load torque is greater than the torque setpoint. - when accelerating, the torque/current/power limit is reached. If the limits are not sufficient, then it is possible that the drive has been dimensioned too small. - the speed controller is inhibited (refer to p0856; refer to Kp/Tn adaptation of the speed controller). - for closed-loop torque control, the speed setpoint does not track the speed actual value. - for active Vdc controller. - the encoder pulse number was incorrectly parameterized (p0408). <p>The signal is not generated if the ramp-function generator tracking prevents the setpoint and actual speed from drifting (moving) apart.</p> <p>Only for vector drives:</p> <p>For V/f control, the overload condition is detected as the I_{max} controller is active.</p> <p>See also: p2149 (Monitoring configuration)</p>
Remedy:	<ul style="list-style-type: none"> - increase p2163 and/or p2166. - increase the torque/current/power limits. - enable the speed controller. - for closed-loop torque control: The speed setpoint should track the speed actual value. - correct the encoder pulse number in p0408 or mount the correct tachometer.
A07904 (N)	External armature short-circuit: Contactor feedback signal "Closed" missing
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	When closing, the contactor feedback signal (p1235) did not issue the signal "Closed" (r1239.1 = 1) within the monitoring time (p1236).
Remedy:	<ul style="list-style-type: none"> - check that the contactor feedback signal is correctly connected (p1235). - check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open"). - increase the monitoring time (p1236). - if required, set the external armature short-circuit without contactor feedback signal (p1231=2).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07905 (N, A)	External armature short-circuit: Contactor feedback signal "Open" missing
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	When opening, the contactor feedback signal (p1235) did not issue the signal "Open" (r1239.1 = 0) within the monitoring time (p1236).
Remedy:	<ul style="list-style-type: none"> - check that the contactor feedback signal is correctly connected (p1235). - check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open"). - increase the monitoring time (p1236). - if required, set the external armature short-circuit without contactor feedback signal (p1231=2).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07906	Armature short-circuit / internal voltage protection: Parameterization error
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>The armature short-circuit is incorrectly parameterized.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Low word: Motor data set number</p> <p>High word: Cause:</p> <p>1: A permanent-magnet synchronous motor has not been selected.</p> <p>101: External armature short-circuit: Output (r1239.0) not connected-up.</p> <p>102: External armature short-circuit with contactor feedback signal: No feedback signal connected (BI:p1235).</p> <p>103: External armature short-circuit without contactor feedback signal: Delay time when opening (p1237) is 0.</p> <p>201: Internal voltage protection: The maximum output current of the Motor Module (r0289) is less than 1.8 * motor short-circuit current (r0331).</p> <p>202: Internal voltage protection: A Motor Module in booksize format is not being used.</p> <p>203: Internal voltage protection: The motor short-circuit current (p0320) is greater than the maximum motor current (p0323).</p> <p>204: Internal voltage protection: The activation (p1231 = 4) is not given for all motor data sets with synchronous motors (p0300 = 2xx, 4xx).</p>
Remedy:	<p>Re cause 1:</p> <ul style="list-style-type: none"> - an armature short-circuit / voltage protection is only permissible for permanent-magnetic synchronous motors. The highest position of the motor type in p0300 must either be 2 or 4. <p>Re cause 101:</p> <ul style="list-style-type: none"> - the contactor for the external armature short-circuit configuration should be controlled using output signal r1239.0. The signal can, e.g. be connected to an output terminal BI: p0738. Before this fault can be acknowledged, p1231 must be set again. <p>Re cause 102:</p> <ul style="list-style-type: none"> - if the external armature short-circuit with contactor feedback signal (p1231 = 1) is selected, this feedback signal must be connected to an input terminal (e.g. r722.x) and then connected to BI: p1235. - alternatively, the external armature short-circuit without contactor feedback signal (p1231 = 2) can be selected. <p>Re cause 103:</p> <ul style="list-style-type: none"> - if the external armature short-circuit without contactor feedback signal (p1231 = 2) is selected, then a delay time must be parameterized in p1237. This time must always be greater than the actual contactor opening time, as otherwise the Motor Module would be short-circuited! <p>Re cause 201:</p> <ul style="list-style-type: none"> - a Motor Module with a higher maximum current or a motor with a lower short-circuit current must be used. The maximum Motor Module current must be higher than 1.8 * short-circuit current of the motor. <p>Re cause 202:</p> <ul style="list-style-type: none"> - for internal voltage protection, use a Motor Module in booksize format. <p>Re cause 203:</p> <ul style="list-style-type: none"> - for internal voltage protection, only use short-circuit proof motors. <p>Re cause 204:</p> <ul style="list-style-type: none"> - The internal voltage protection must either be activated for all motor data sets with synchronous motors (p0300 = 2xx, 4xx) (p1231 = 3) or it must be deactivated for all motor data sets (p1231 not equal to 3). This therefore ensures that the protection cannot be accidentally withdrawn as a result of a data set changeover. The fault can only be acknowledged if this condition is fulfilled.
F07907	Internal voltage protection: Motor terminals are not at zero potential after pulse cancellation
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>The function "Internal voltage protection" (p1231 = 3) was activated. The following must be observed:</p> <ul style="list-style-type: none"> - when the internal voltage protection is active, after pulse cancellation, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)! - it is only permissible to use motors that are short-circuit proof (p0320 < p0323). - the Motor Module must be able to continually conduct 180% short-circuit current (r0331) of the motor (r0289). - the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor.

- if the Motor Module does not support the autonomous, internal voltage protection ($r0192.10 = 0$), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components.
- if the Motor Module does support the autonomous, internal voltage protection ($r0192.10 = 1$), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module.
- if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor).

Remedy: None necessary.
This a note for the user.

A07908 Internal voltage protection / internal armature short-circuit active

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The Motor Module signals that the motor is short-circuited through the power semiconductors ($r1239.5 = 1$). The pulses cannot be enabled.

Remedy: 1) The internal voltage protection is selected ($p1231=3$):
If the Motor Module does not support the autonomous (independent) internal armature short-circuit ($r0192.10 = 0$) then none of the following activation criteria may apply.

- the signal at BI: $p1230$ (armature short-circuit activation) is 1.
- the drive is not in the state "S4: Operation" or in S5x.
- the internal pulse enable is missing ($r0046.19 = 0$).

If the Motor Module supports the autonomous internal voltage protection ($r0192.10 = 1$), then the Motor Module automatically decides - using the DC link voltage - as to whether the short-circuit should be activated. The short circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn. If the autonomous (independent) internal voltage protection is active ($r1239.5 = 1$) and the line supply returns ($450 \text{ V} < \text{DC link voltage} < 800 \text{ V}$), the short-circuit is withdrawn after 3 minutes. If the motor is still in a critical speed range, the short-circuit is re-activated once the DC link voltage exceeds the threshold of 800 V.

1) The internal armature short-circuit is selected ($p1231=4$):
None of the following activation criteria may apply:

- the signal at BI: $p1230$ (armature short-circuit activation) is 1.
-

F07909 Internal voltage protection: The de-activation only becomes effective after a POWER ON.

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The de-activation of the internal voltage protection ($p1231$ not equal to 3) only becomes effective after POWER ON. The status signal $r1239.6 = 1$ indicates that the internal voltage protection is ready.

Remedy: None necessary.
This a note for the user.

A07910 (N) Drive: Motor overtemperature

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: KTY:
The motor temperature has exceeded the fault threshold ($p0604$ or $p0616$).
VECTOR: The response parameterized in $p0610$ becomes active.
PTC:
The response threshold of 1650 Ohm was exceeded.
Alarm value ($r2124$, interpret decimal):
SME not selected in $p0601$:
1: No output current reduction.
2: Output current reduction active.
SME selected in $p0601$ ($p0601 = 10$):
The number specifies the sensor channel that resulted in the alarm being output.
See also: $p0604$ (Motor overtemperature alarm threshold), $p0610$ (Motor overtemperature response)

Remedy:

- check the motor load.
- check the motor ambient temperature.
- check KTY84.

Reaction upon N: NONE

Acknowled. upon N: NONE

F07913 Excitation current outside the tolerance range

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The difference between the excitation current actual value and setpoint has exceeded the tolerance:
 $\text{abs}(r1641 - r1626) > p3201 + p3202$
The cause of this fault is again reset for $\text{abs}(r1641 - r1626) < p3201$.

Remedy:

- check the parameterization (p1640, p3201, p3202).
- check the interfaces to the excitation equipment (r1626, p1640).
- check the excitation equipment.

F07914 Flux out of tolerance

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The difference between the flux actual value and setpoint has exceeded the tolerance:
 $\text{abs}(r0084 - r1598) > p3204 + p3205$
The cause of this fault is again reset for $\text{abs}(r0084 - r1598) < p3204$.
The fault is only issued after the delay time p3206 has expired.

Remedy:

- check the parameterization (p3204, p3205).
- check the interfaces to the excitation equipment (r1626, p1640).
- check the excitation equipment.
- check the flux control (p1592, p1592, p1597).
- check the control for oscillation and take the appropriate counter measures (e.g. optimize the speed control loop, parameterize a bandstop filter).

A07918 (N) Three-phase setpoint generator operation selected/active

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: Only for separately excited synchronous motors ($p0300 = 5$):
The actual open-loop/closed-loop control mode is I/f control (open-loop) with a fixed current ($p1300 = 18$).
The speed is entered via the setpoint channel and the current setpoint is given by the minimum current ($p1620$).
It must be ensured that in this mode, the control dynamic performance is very limited. This is the reason that longer ramp-up times should be set for the setpoint speed than for normal operation.
See also: p1620 (Stator current, minimum)

Remedy: Select another open-loop/closed-loop control mode
See also: p1300 (Open-loop/closed-loop control operating mode)

Reaction upon N: NONE

Acknowled. upon N: NONE

A07920 Drive: Torque too low

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The torque deviates from the torque/speed envelope characteristic in the negative direction (too low).
See also: p2181 (Load monitoring response)

Remedy: Adapt the load.

A07921 Drive: Torque too high
Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The torque deviates from the torque/speed envelope characteristic in the positive direction (too high).
Remedy: Adapt the load.

A07922 Drive: Torque outside the tolerance
Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The torque deviates from the torque/speed envelope characteristic.
Remedy: Adapt the load.

F07923 Drive: Torque too low
Drive object: SERVO, VECTOR
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The torque deviates from the torque/speed envelope characteristic in the negative direction (too low).
Remedy: Adapt the load.

F07924 Drive: Torque too high
Drive object: SERVO, VECTOR
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The torque deviates from the torque/speed envelope characteristic in the positive direction (too high).
Remedy: Adapt the load.

F07925 Drive: Torque outside the tolerance
Drive object: SERVO, VECTOR
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The torque deviates from the torque/speed envelope characteristic.
Remedy: Adapt the load.

A07926 Drive: Envelope curve, parameter invalid
Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: Invalid parameter values were entered for the envelope characteristic of the load monitoring.
The following rules apply for the speed thresholds:
p2182 < p2183 < p2184
The following rules apply for the torque thresholds:
p2185 > p2186
p2187 > p2188
p2189 > p2190
Alarm value (r2124, interpret decimal):
Number of the parameter with the invalid value.
Remedy: Set the parameters for the load monitoring according to the applicable rules.

A07927	DC brake active
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor is braked using DC current - the DC current brake is active.
Remedy:	1) An alarm with alarm response DC brake is active. The motor is braked with the DC braking current p1232 for the duration in p1233. If the standstill threshold p1226 is fallen below, then braking is prematurely canceled. 2) The DC braking function was activated at Bico input p1230 for a set DC brake p1230=4. Braking current p1232 should be impressed until the Bico activation is canceled again.

F07930	Drive: Brake control error
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The Control Unit has detected a brake control error. <ul style="list-style-type: none">- no motor holding brake connected.- motor holding brake incorrectly parameterized (p1278).- the motor holding brake control on the Motor Module is faulty.- a DRIVE-CLiQ communications error has occurred between the Control Unit and the Motor Module involved. Fault value (r0949, interpret decimal): <ul style="list-style-type: none">10: No brake connected or fault in the Motor Module brake control circuit ("open brake" operation).11: Defect in the brake control circuit of the Motor Module ("brake open" operation).20: Short-circuit in the brake winding or fault in the brake control circuit of the Motor Module ("brake open" state).30: No brake connected, short-circuit in the brake winding or fault in the Motor Module brake control circuit ("close brake" operation).31: Defect in the brake control circuit of the Motor Module ("close brake" operation).40: Defect in the brake control circuit of the Motor Module ("brake closed" state).50: Defect in the brake control circuit of the Motor Module or communications fault between the Control Unit and the Motor Module (brake control diagnostics). See also: p1278 (Brake control, diagnostics evaluation)
Remedy:	<ul style="list-style-type: none">- check the motor holding brake connection. If there is not motor holding brake, set p1215 to 0.- check the parameterization of the motor holding brake (p1278).- check the function of the motor holding brake.- check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified.- check the electrical cabinet design and cable routing for EMC compliance- replace the Motor Module involved.- operation with Safe Brake Module: Check the connection of the Safe Brake Module.- operation with Safe Brake Module: Replace the Safe Brake Module. See also: p1215 (Motor holding brake configuration), p1278 (Brake control, diagnostics evaluation)

A07931 (F, N)	Brake does not open
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	This alarm is output for r1229.4 = 1. See also: p1216 (Motor holding brake, opening time), r1229 (Motor holding brake status word)
Remedy:	<ul style="list-style-type: none">- check the functionality of the motor holding brake.- check the feedback signal (p1223).
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07932	Brake does not close
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	This alarm is output for $r1229.5 = 1$. For $r1229.5 = 1$, OFF/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective. See also: p1217 (Motor holding brake closing time), r1229 (Motor holding brake status word)
Remedy:	- check the functionality of the motor holding brake. - check the feedback signal (p1222).
F07935 (N)	Drv: Motor holding brake detected
Drive object:	SERVO, VECTOR
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A motor with integrated motor holding brake was detected where the brake control has not been configured (p1215 = 0). The brake control configuration was then set to "motor holding brake the same as sequence control" (p1215 = 1).
Remedy:	None necessary. See also: p1215 (Motor holding brake configuration)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07940	Sync-line-drive: Synchronization error
Drive object:	VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	After synchronization has been completed, the phase difference (r3808) is greater than the threshold value, phase synchronism (p3813). OFF1 or OFF3 response, while the closed-loop phase control is active ($r3819.6 = 1$) or synchronism reached ($r3819.2 = 1$). Enable signal withdrawn (p3802 = 0), while the closed-loop phase control was active ($r3819.6 = 1$).
Remedy:	If required increase the threshold value phase synchronism (p3813) for synchronizing the line supply to the drive. Before OFF1 or OFF3, complete synchronizing ($r03819.0 = 0$). Before withdrawing the enable signal (p3802 = 0), reach synchronism ($r3819.2 = 1$). See also: p3813 (Sync-line-drive phase synchronism threshold value)
A07941	Sync-line-drive: Target frequency not permissible
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The target frequency is outside the permissible value range. Alarm value (r2124, interpret decimal): 1084: Target frequency greater than the positive speed limit, $f_{sync} > f_{max}$ (r1084). 1087: Target frequency less than the negative speed limit, $f_{sync} < f_{min}$ (r1087).
Remedy:	Fulfill the conditions for the target frequency for line-drive synchronization. See also: r1084 (Speed limit positive effective), r1087 (Speed limit negative effective)
A07942	Sync-line-drive: Setpoint frequency is completely different than the target frequency
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	There is a considerable difference between the setpoint frequency and the target frequency ($f_{set} \neq f_{target}$). The deviation that can be tolerated is set in p3806.
Remedy:	The alarm automatically disappears after the difference that can be tolerated between the setpoint and target frequencies (p3806) is reached. See also: p3806 (Sync-line-drive frequency difference threshold value)

A07943	Sync-line-drive: Synchronization not permitted
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	Synchronization is not permitted. Alarm value (r2124, interpret decimal): 1300: The control mode (p1300) has not been set to sensorless closed-loop speed control or V/f characteristic. 1910: Motor data identification activated. 1960: Speed controller optimization activated. 1990: Encoder adjustment activated. 3801: Voltage Sensing Module (VSM) not found. 3845: Friction characteristic record activated.
Remedy:	Fulfill the conditions for the line-drive synchronization. Re alarm value = 1300: Set the control mode (p1300) to sensorless closed-loop speed control (p1300 = 20) or V/f characteristic (p1300 = 0 ... 19). Re alarm value = 1910: Exit the motor data identification routine (p1910). Re alarm value = 1960: Exist the speed controller optimization routine (p1960). Re alarm value = 1990: Exit the encoder adjustment (p1990). Re alarm value = 3801: Connect-up a Voltage Sensing Module (VSM) and when connecting to an adjacent drive object ensure that the drive objects have the same basis clock cycle. Re alarm value = 3845: Exit the friction characteristic record (p3845).

F07950 (A)	Drive: Incorrect motor parameter
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	- the motor parameters were incorrectly entered while commissioning (e.g. p0300 = 0, no motor) The braking resistor (p6811) has still not been parameterized - commissioning cannot be completed. Fault value (r0949, interpret decimal): The parameter number involved. See also: p0300 (Motor type selection), p0301 (Motor code number selection), p0304 (Rated motor voltage), p0305 (Rated motor current), p0307 (Rated motor power), p0310 (Rated motor frequency), p0311 (Rated motor speed), p0314 (Motor pole pair number), p0315 (Motor pole pair width), p0316 (Motor torque constant), p0320 (Motor rated magnetization current/short-circuit current), p0322 (Maximum motor speed), p0323 (Maximum motor current)
Remedy:	Compare the motor data with the rating plate data and if required, correct. See also: p0300 (Motor type selection), p0301 (Motor code number selection), p0304 (Rated motor voltage), p0305 (Rated motor current), p0307 (Rated motor power), p0310 (Rated motor frequency), p0311 (Rated motor speed), p0314 (Motor pole pair number), p0316 (Motor torque constant), p0320 (Motor rated magnetization current/short-circuit current), p0322 (Maximum motor speed), p0323 (Maximum motor current)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07955	Drive: Motor has been changed
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The code number of the actual motor with DRIVE-CLiQ does not match the saved number. Fault value (r0949, interpret decimal): Number of the incorrect parameter. See also: p0301 (Motor code number selection), r0302 (Motor code number of motor with DRIVE-CLiQ)

Remedy: Connect the original motor, power-up the Control Unit again (POWER ON) and exit the quick commissioning by setting p0010 to 0.
Or set p0300 = 10000 (load the motor parameter with DRIVE-CLiQ) and re-commission.
Quick commissioning (p0010 = 1) is automatically exited with p3900 > 0.
If quick commissioning was exited by setting p0010 to 0, then an automatic controller calculation (p0340 = 1) is not carried out.

F07956 (A) Drive: Motor code does not match the list (catalog) motor

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The motor code of the actual motor with DRIVE-CLiQ does not match the possible list motor types (refer to the selection, p0300).
Fault value (r0949, interpret decimal):
Motor code of the motor with DRIVE-CLiQ

Remedy: Use a motor with DRIVE-CLiQ and the matching motor code.
The first three digits of the motor code generally correspond to the matching list motor type.

Reaction upon A: NONE

Acknowl. upon A: NONE

A07960 Drive: Incorrect friction characteristic

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The friction characteristic is incorrect.
Alarm value (r2124, interpret decimal):
1538:
The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value.
1539:
The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value.
3820 ... 3829:
Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition:
 $0.0 < p3820 < p3821 < \dots < p3829 \leq p0322$ or $p1082$, if $p0322 = 0$
Therefore the output of the friction characteristic (r3841) is set to zero.
3830 ... 3839:
Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition:
 $0 \leq p3830, p3831 \dots p3839 \leq p0333$
Therefore the output of the friction characteristic (r3841) is set to zero.
See also: r3840 (Friction characteristic, status word)

Remedy: Fulfill the conditions for the friction characteristic.
Re alarm value = 1538:
Check the upper effective torque limit (e.g. in the field weakening range).
Re alarm value = 1539:
Check the lower effective torque limit (e.g. in the field weakening range).
Re alarm value = 3820 ... 3839:
Fulfill the conditions to set the parameters of the friction characteristic.
If the motor data (e.g. the maximum speed p0322) are changed during commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340= 5).

A07961	Drive: Friction characteristic record activated
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The automatic friction characteristic record is activated. The friction characteristic is recorded at the next power-on command.
Remedy:	None necessary. The alarm disappears automatically after the friction characteristic record has been successfully completed or the record is de-activated (p3845 = 0).
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F07963	Drive: Friction characteristic record interrupted
Drive object:	SERVO, VECTOR
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	The conditions to record the friction characteristic are not fulfilled. Fault value (r0949, interpret decimal): 0046: Missing enable signals (r0046). 0840: OFF1 (p0840) is selected before the friction characteristic has been completely recorded. 1082: The highest speed value to be approached (p3829) is greater than the maximum speed (p1082). 1084: The highest speed value to be approached (p3829) is greater than the maximum speed (r1084, p1083, p1085). 1087: The highest speed value to be approached (p3829) is greater than the maximum speed (r1087, p1086, p1088). 1110: Friction characteristic record, negative direction of rotation has been selected (p3845) and the negative direction of rotation is inhibited (p1110). 1111: Friction characteristic record, positive direction of rotation has been selected (p3845) and the positive direction of rotation is inhibited (p1111). 1198: Friction characteristic record selected (p3845 > 0) and the negative direction of rotation (p1110) and positive (p1111) are inhibited (r1198). 1300: The control mode (p1300) has not been set to closed-loop speed control. 1755: For sensorless closed-loop control (p1300 = 20), the lowest speed value to be approached (p3820) is less than or equal to the changeover speed, open-loop controlled operation (p1755). 1910: Motor data identification activated. 1960: Speed controller optimization activated. 3820 - 3829: Speed (p382x) cannot be approached. 3840: Friction characteristic incorrect. 3845: Friction characteristic record de-selected.
Remedy:	Fulfill the conditions to record the friction characteristic. Re fault value = 0046: Establish missing enable signals. Re fault value = 0840: Select OFF1 (p0840) only after the friction characteristic record has been completed. Re fault value = 1082, 1084, 1087: Select the highest speed value to be approached (p3829) less than or equal to the maximum speed (p1082, r1084, r1087). Re-calculate the speed points along the friction characteristic (p0340 = 5). Re fault value = 1110: Select the frequency characteristic record, positive direction of rotation (p3845). Re fault value = 1111: Select the frequency characteristic record, negative direction of rotation (p3845). Re fault value = 1198: Enable the permitted direction of rotation (p1110, p1111, r1198). Re fault value = 1300: Set the control mode (p1300) on the closed-loop speed control (p1300 = 20, 21). Re fault value = 1755: For sensorless closed-loop speed control (p1300 = 20) select the lowest speed value to be approached (p3820) greater than the changeover speed of open-loop controlled operation (p1755). Re-calculate the speed points along the friction characteristic (p0340 = 5). Re fault value = 1910: Exit the motor data identification routine (p1910). Re fault value = 1960: Exist the speed controller optimization routine (p1960).

Re fault value 3820 - 3829:
 - check the load at speed p382x.
 - check the speed signal (r0063) for oscillation at speed p382x. If required, check the speed controller settings.
 Re fault value = 3840:
 Make the friction characteristic error-free (p3820 - p3829, p3830 - p3839, p3840).
 Re fault value = 3845:
 Activate the friction characteristic record (p3845).

F07966	Drive: Check the commutation angle
Drive object:	SERVO
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The speed actual value was inverted and the associated angular commutation offset is not equal to zero and is therefore possibly incorrect.
Remedy:	Angular commutation offset after the actual value inversion or determine it again (p1990=1).
F07967	Drive: Automatic encoder adjustment incorrect
Drive object:	VECTOR
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred during the automatic encoder adjustment or the pole position identification. Only for internal Siemens troubleshooting.
Remedy:	Carry out a POWER ON.
F07968	Drive: Lq-Ld measurement incorrect
Drive object:	VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred during the Lq-Ld measurement. Fault value (r0949, interpret decimal): 10: Stage 1: The ratio between the measured current and zero current is too low. 12: Stage 1: The maximum current was exceeded. 15: Second harmonic too low. 16: Drive converter too small for the measuring technique. 17: Abort due to pulse inhibit.
Remedy:	Re fault value = 10: Check whether the motor is correctly connected. Replace the Motor Module involved. De-activate traversing (p1909). Re fault value = 12: Check whether motor data have been correctly entered. De-activate traversing (p1909). Re fault value = 16: De-activate traversing (p1909). Re fault value = 17: Repeat traversing.
F07969	Drive: Incorrect pole position identification
Drive object:	VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred during the pole position identification routine. Fault value (r0949, decimal): 1: Current controller limited 2: Motor shaft locked. 4: Encoder speed signal not plausible. 10: Stage 1: The ratio between the measured current and zero current is too low. 11: Stage 2: The ratio between the measured current and zero current is too low. 12: Stage 1: The maximum current was exceeded.

- 13: Stage 2: The maximum current was exceeded.
- 14: Current difference to determine the +d axis too low.
- 15: Second harmonic too low.
- 16: Drive converter too small for the measuring technique.
- 17: Abort due to pulse inhibit.
- 18: First harmonic too low.
- 20: Pole position identification requested with the motor shaft rotating and activated flying restart function.

Remedy:

Re fault value = 1:
Check whether the motor is correctly connected.
Check whether motor data have been correctly entered.
Replace the Motor Module involved.

Re fault value = 2:
Open the motor holding brake (p1215) and bring the motor into a no-load condition.

Re fault value = 4:
Check whether the encoder pulse number (p0408) and gearbox factor (p0432, p0433) are correct.
Check whether the motor pole pair number is correct (p0314).

Re fault value = 10:
When selecting p1980 = 4: Increase the value for p0325.
When selecting p1980 = 1: Increase the value for p0329.
Check whether the motor is correctly connected.
Replace the Motor Module involved.

Re fault value = 11:
Increase the value for p0329.
Check whether the motor is correctly connected.
Replace the Motor Module involved.

Re fault value = 12:
When selecting p1980 = 4: Reduce the value for p0325.
When selecting p1980 = 1: Reduce the value for p0329.
Check whether motor data have been correctly entered.

Re fault value = 13:
Reduce the value for p0329.
Check whether motor data have been correctly entered.

Re fault value = 14:
Increase the value for p0329.

Re fault value = 15:
Increase the value for p0325.
Motor not sufficiently anisotropic, change the technique (p1980==1 or 10).

Re fault value = 16:
De-activate traversing/moving (p1982).

Re fault value = 17:
Repeat traversing.

Re fault value 18:
Increase the value for p0329.
Saturation not sufficient, change the technique (p1980==10).

Re fault value = 20:
Before carrying out a pole position identification routine ensure that the motor shaft is absolutely stationary (zero speed).

F07970 Drive: Automatic encoder adjustment incorrect

Drive object: VECTOR

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: A fault has occurred during the automatic encoder adjustment.
Fault value (r0949, decimal):
1: Current controller limited
2: Motor shaft locked.
4: Encoder speed signal not plausible.
10: Stage 1: The ratio between the measured current and zero current is too low.
11: Stage 2: The ratio between the measured current and zero current is too low.
12: Stage 1: The maximum current was exceeded.
13: Stage 2: The maximum current was exceeded.
14: Current difference to determine the +d axis too low.

	15: Second harmonic too low.
	16: Drive converter too small for the measuring technique.
	17: Abort due to pulse inhibit.
Remedy:	<p>Re fault value = 1: Check whether the motor is correctly connected. Check whether motor data have been correctly entered. Replace the Motor Module involved.</p> <p>Re fault value = 2: Open the motor holding brake (p1215) and bring the motor into a no-load condition.</p> <p>Re fault value = 4: Check whether the speed actual value inversion is correct (p0410.0). Check whether the motor is correctly connected. Check whether the encoder pulse number (p0408) and gearbox factor (p0432, p0433) are correct. Check whether the motor pole pair number is correct (p0314).</p> <p>Re fault value = 10: Increase the value for p0325. Check whether the motor is correctly connected. Replace the Motor Module involved.</p> <p>Re fault value = 11: Increase the value for p0329. Check whether the motor is correctly connected. Replace the Motor Module involved.</p> <p>Re fault value = 12: Reduce the value for p0325. Check whether motor data have been correctly entered.</p> <p>Re fault value = 13: Reduce the value for p0329. Check whether motor data have been correctly entered.</p> <p>Re fault value = 14: Increase the value for p0329.</p> <p>Re fault value = 15: Increase the value for p0325.</p> <p>Re fault value = 16: De-activate traversing/moving (p1982).</p> <p>Re fault value = 17: Repeat traversing.</p>

A07971 (N)	Drive: Angular commutation offset determination activated
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The automatic determination of the angular commutation offset (encoder adjustment) is activated (p1990 = 1). The automatic determination is carried out with the next power-on command. For SERVO and fault F07414 present, the following applies: The determination of the angular commutation offset is automatically activated (p1990 = 1), if a pole position identification technique is set in p1980. See also: p1990 (Encoder adjustment, determine angular commutation offset)</p>
Remedy:	<p>None necessary. The alarm automatically disappears after determination or for the setting p1990 = 0.</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07980	Drive: Rotating measurement activated
Drive object:	SERVO
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The rotating measurement is activated. For the rotating measurement, the motor can accelerate up to the maximum speed and with maximum torque. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective. The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).</p> <p>The rotating measurement is carried out at the next power-on command.</p> <p>See also: p1960 (Rotating measurement selection)</p>
Remedy:	<p>None necessary.</p> <p>The alarm automatically disappears after the rotating measurement has been successfully completed or for the setting p1960 = 0.</p>

A07980	Drive: Rotating measurement activated
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The rotating measurement (automatic speed controller optimization) is activated.</p> <p>The rotating measurement is carried out at the next power-on command.</p> <p>See also: p1960 (Rotating measurement selection)</p>
Remedy:	<p>None necessary.</p> <p>The alarm disappears automatically after the speed controller optimization has been successfully completed or for the setting p1900 = 0.</p>

A07981	Drive: Enable signals for the rotating measurement missing
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The rotating measurement cannot be started due to missing enable signals.
Remedy:	<p>- acknowledge faults that are present.</p> <p>- establish missing enable signals.</p> <p>See also: r0002 (Control Unit operating display), r0046 (Missing enable sig)</p>

F07982	Drive: Rotating measurement encoder test
Drive object:	VECTOR
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	<p>A fault has occurred during the encoder test.</p> <p>Fault value (r0949, interpret decimal):</p> <ol style="list-style-type: none">1: The speed did not reach a steady-state condition.2: The speed setpoint was not able to be approached as the minimum limiting is active.3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.4: The speed setpoint was not able to be approached as the maximum limiting is active.5: The encoder does not supply a signal.6: Incorrect polarity.7: Incorrect pulse number.8: Noise in the encoder signal or speed controller unstable.9: Voltage Sensing Module (VSM) incorrectly connected.

Remedy:	<p>Re fault value = 1:</p> <ul style="list-style-type: none"> - check the motor parameters. - carry out a motor data identification routine (p1910). - if required, reduce the dynamic factor (p1967 < 25 %). <p>Re fault value = 2:</p> <ul style="list-style-type: none"> - adapt the speed setpoint (p1965) or adapt the minimum limit (p1080). <p>Re fault value = 3:</p> <ul style="list-style-type: none"> - adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101). <p>Re fault value = 4:</p> <ul style="list-style-type: none"> - adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086). <p>Re fault value = 5:</p> <ul style="list-style-type: none"> - check the encoder connection. If required, replace the encoder. <p>Re fault value = 6:</p> <ul style="list-style-type: none"> - check the connection assignment of the encoder cable. Adapt the polarity (p0410). <p>Re fault value = 7:</p> <ul style="list-style-type: none"> - adapt the pulse number (p0408). <p>Re fault value = 8:</p> <ul style="list-style-type: none"> - check the encoder connection and encoder cable. It is possible that there is a problem associated with the ground connection. - reduce the dynamic response of the speed controller (p1460, p1462 and p1470, p1472). <p>Re fault value = 9:</p> <ul style="list-style-type: none"> - check the connections of the Voltage Sensing Module (VSM). <p>Note:</p> <p>The encoder test can be switched-out (disabled) using p1959.0.</p> <p>See also: p1959 (Rotating measurement configuration)</p>
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F07983	Drive: Rotating measurement saturation characteristic
Drive object:	VECTOR
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	<p>A fault has occurred while determining the saturation characteristic.</p> <p>Fault value (r0949, interpret decimal):</p> <ol style="list-style-type: none"> 1: The speed did not reach a steady-state condition. 2: The rotor flux did not reach a steady-state condition. 3: The adaptation circuit did not reach a steady-state condition. 4: The adaptation circuit was not enabled. 5: Field weakening active. 6: The speed setpoint was not able to be approached as the minimum limiting is active. 7: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active. 8: The speed setpoint was not able to be approached as the maximum limiting is active. 9: Several values of the determined saturation characteristic are not plausible. 10: Saturation characteristic could not be sensibly determined because load torque too high.
Remedy:	<p>Re fault value = 1:</p> <ul style="list-style-type: none"> - the total drive moment of inertia is far higher than that of the motor (p0341, p0342). <p>De-select rotating measurement (p1960), enter the moment of inertia p0342, re-calculate the speed controller p0340 = 4 and repeat the measurement.</p> <p>Re fault value = 1 ... 2:</p> <ul style="list-style-type: none"> - increase the measuring speed (p1961) and repeat the measurement. <p>Re fault value = 1 ... 4:</p> <ul style="list-style-type: none"> - check the motor parameters (rating plate data). After the change: Calculate p0340 = 3. - check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3. - carry out a motor data identification routine (p1910). - if required, reduce the dynamic factor (p1967 < 25 %). <p>Re fault value = 5:</p> <ul style="list-style-type: none"> - the speed setpoint (p1961) is too high. Reduce the speed. <p>Re fault value = 6:</p> <ul style="list-style-type: none"> - adapt the speed setpoint (p1961) or minimum limiting (p1080). <p>Re fault value = 7:</p> <ul style="list-style-type: none"> - adapt the speed setpoint (p1961) or suppression (skip) bandwidths (p1091 ... p1094, p1101). <p>Re fault value = 8:</p> <ul style="list-style-type: none"> - adapt the speed setpoint (p1961) or maximum limit (p1082, p1083 and p1086).

Re fault value = 9, 10:

- the measurement was carried out at an operating point where the load torque is too high. Select a more suitable operating point, either by changing the speed setpoint (p1961) or by reducing the load torque. The load torque may not be varied while making measurements.

Note:

The saturation characteristic identification routine can be disabled using p1959.1.

See also: p1959 (Rotating measurement configuration)

F07984	Drive: Speed controller optimization, moment of inertia
Drive object:	VECTOR
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	<p>A fault has occurred while identifying the moment of inertia.</p> <p>Fault value (r0949, interpret decimal):</p> <ol style="list-style-type: none">1: The speed did not reach a steady-state condition.2: The speed setpoint was not able to be approached as the minimum limiting is active.3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.4: The speed setpoint was not able to be approached as the maximum limiting is active.5: It is not possible to increase the speed by 10% as the minimum limiting is active.6: It is not possible to increase the speed by 10% as the suppression (skip) bandwidth is active.7: It is not possible to increase the speed by 10% as the maximum limiting is active.8: The torque difference after the speed setpoint step is too low in order to be able to still reliably identify the moment of inertia.9: Too few data to be able to reliably identify the moment of inertia.10: After the setpoint step, the speed either changed too little or in the incorrect direction.11: The identified moment of inertia is not plausible.
Remedy:	<p>Re fault value = 1:</p> <ul style="list-style-type: none">- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.- carry out a motor data identification routine (p1910).- if required, reduce the dynamic factor (p1967 < 25 %). <p>Re fault value = 2, 5:</p> <ul style="list-style-type: none">- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080). <p>Re fault value = 3, 6:</p> <ul style="list-style-type: none">- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101). <p>Re fault value = 4, 7:</p> <ul style="list-style-type: none">- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086). <p>Re fault value = 8:</p> <ul style="list-style-type: none">- the total drive moment of inertia is far higher than that of the motor (refer to p0341, p0342). De-select rotating measurement (p1960), enter the moment of inertia p342, re-calculate the speed controller p0340 = 4 and repeat the measurement. <p>Re fault value = 9:</p> <ul style="list-style-type: none">- check the moment of inertia (p0341, p0342). After the change, re-calculate (p0340 = 3 or 4) <p>Re fault value = 10:</p> <ul style="list-style-type: none">- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3. <p>Note:</p> <p>The moment of inertia identification routine can be disabled using p1959.2.</p> <p>See also: p1959 (Rotating measurement configuration)</p>

F07985	Drive: Speed controller optimization (oscillation test)
Drive object:	VECTOR
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	<p>A fault has occurred during the vibration test.</p> <p>Fault value (r0949, interpret decimal):</p> <ol style="list-style-type: none">1: The speed did not reach a steady-state condition.2: The speed setpoint was not able to be approached as the minimum limiting is active.3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.4: The speed setpoint was not able to be approached as the maximum limiting is active.5: Torque limits too low for a torque step.6: No suitable speed controller setting was found.

Remedy:

- Re fault value = 1:
 - check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.
 - check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
 - carry out a motor data identification routine (p1910).
 - if required, reduce the dynamic factor (p1967 < 25 %).
- Re fault value = 2:
 - adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).
- Re fault value = 3:
 - adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).
- Re fault value = 4:
 - adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).
- Re fault value = 5:
 - increase the torque limits (e.g. p1520, p1521).
- Re fault value = 6:
 - reduce the dynamic factor (p1967).
 - disable the vibration test (p1959.4 = 0) and repeat the rotating measurement.

See also: p1959 (Rotating measurement configuration)

F07986 Drive: Rotating measurement ramp-function generator

Drive object: VECTOR
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: During the rotating measurements, problems with the ramp-function generator occurred.
 Fault value (r0949, interpret decimal):
 1: The positive and negative direction of rotation is inhibited.

Remedy: Re fault value = 1:
 Enable the direction of rotation (p1110 or p1111).

A07987 Drive: Rotating measurement, no encoder available

Drive object: VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: No encoder available. The rotating measurement was carried out without encoder (sensorless).
 Alarm value (r2124, interpret decimal):
 1: An encoder is not connected.
 2: It involves a SINAMICS G drive unit that only supports sensorless closed-loop control.

Remedy: Re alarm value = 1:
 Connect-up the encoder.
 Re alarm value = 2:
 None necessary.

F07988 Drive: Rotating measurement, no configuration selected

Drive object: VECTOR
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: When configuring the rotating measurement (p1959), no function was selected.
Remedy: Select at least one function for automatic optimization of the speed controller (p1959).
 See also: p1959 (Rotating measurement configuration)

F07989 Drive: Rotating measurement leakage inductance (q-axis)

Drive object: VECTOR
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: An error has occurred while measuring the dynamic leakage inductance.
 Fault value (r0949, interpret decimal):
 1: The speed did not reach a steady-state condition.
 2: The speed setpoint was not able to be approached as the minimum limiting is active.
 3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.
 4: The speed setpoint was not able to be approached as the maximum limiting is active.

- 5: The 100% flux setpoint was not reached.
- 6: No Lq measurement possible because field weakening is active.
- 7: Speed actual value exceeds the maximum speed p1082 or 75% of the rated motor speed.
- 8: Speed actual value is below 2 % of the rated motor speed.

Remedy:

Re fault value = 1:
 - check the motor parameters.
 - carry out a motor data identification routine (p1910).
 - if required, reduce the dynamic factor (p1967 < 25 %).

Re fault value = 2:
 - adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).

Re fault value = 3:
 - adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).

Re fault value = 4:
 - adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).

Re fault value = 5:
 - flux setpoint p1570 = 100% and current setpoint p1610 = 0% kept during the Lq measurement.

Re fault value = 6:
 - reduce the regenerative load so that the drive does not reach field weakening when accelerating.
 - reduce p1965 so that the q leakage inductance is recorded at lower speeds.

Re fault value = 7:
 - increase p1082 if this is technically permissible.
 - reduce p1965 so that the q leakage inductance is recorded at lower speeds.

Re fault value = 8:
 - reduce the load when motoring so that the drive is not braked.
 - increase p1965 so that the measurement is possibly done at higher speeds.

Note:
 The measurement of the q leakage inductance can be disabled using p1959.5. If only bit 5 is set in p1959, then only this measurement is carried out if p1960 is set to 1, 2 and the drive is powered-up.
 See also: p1959 (Rotating measurement configuration)

F07990	Drive: Incorrect motor data identification
Drive object:	SERVO, VECTOR
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	<p>A fault has occurred during the identification routine.</p> <p>Fault value (r0949, interpret decimal):</p> <ul style="list-style-type: none"> 1: Current limit value reached. 2: Identified stator resistance lies outside the expected range 0.1 ... 100 % of Zn. 3: Identified rotor resistance lies outside the expected range 0.1 ... 100 % of Zn. 4: Identified stator reactance lies outside the expected range 50 ... 500 % of Zn. 5: Identified magnetizing reactance lies outside the expected range 50 ... 500 % of Zn. 6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s. 7: Identified total leakage reactance lies outside the expected range 4 ... 50 % of Zn. 8: Identified stator leakage reactance lies outside the expected range 2 ... 50 % of Zn. 9: Identified rotor leakage reactance lies outside the expected range 2 ... 50 % of Zn. 10: Motor has been incorrectly connected. 11: Motor shaft rotates. 20: Identified threshold voltage of the semiconductor devices lies outside the expected range 0 ... 10 V. 30: Current controller in voltage limiting. 40: At least one identification contains errors. The identified parameters are not saved to prevent inconsistencies. 50: With the selected current controller sampling rate, the pulse frequency cannot be implemented. <p>Note: Percentage values are referred to the rated motor impedance: $Z_n = V_{mot,nom} / \sqrt{3} / I_{mot,nom}$</p> <ul style="list-style-type: none"> 101: Voltage amplitude even at 30% maximum current amplitude is too low to measure the inductance. 102, 104: Voltage limiting while measuring the inductance. 103: Maximum frequency exceeded during the rotating inductance measurement. 110: Motor not finely synchronized before the rotating measurement. 111: The zero mark is not received within 2 revolutions. 112: Fine synchronization is not realized within 8 seconds after the zero mark has been passed. 113: The power, torque or current limit is zero. 120: Error when evaluating the magnetizing inductance.

125: Cable resistance greater than the total resistance.
 126: Series inductance greater than the total leakage inductance.
 127: Identified leakage inductance negative.
 128: Identified stator resistance negative.
 129: Identified rotor resistance negative.
 130: Drive data set changeover during the motor data identification routine.
 140: The setpoint channel inhibits both directions of rotation.
 160: Accelerating when determining kT, moment of inertia or reluctance torque too short or the accelerating time is too long.
 173: Internal problem.
 180: Identification speed (maximum speed, rated speed, $0.9 \cdot p0348$) less than p1755.
 190: Speed setpoint not equal to zero.
 191: An actual speed of zero is not reached.
 192: Speed setpoint not reached.
 193: Inadmissible motion of the motor when identifying the voltage emulation error.
 194: Supplementary torque (r1515) not equal to zero.
 195: Closed-loop torque control active.
 200, 201: Not possible to identify the voltage emulation error characteristic of the drive converter (p1952, p1953).

Remedy:

Re fault value = 0:
 Check whether motor is correctly connected. Observe config. (star-delta).
 Re fault value = 1 ... 40:
 - check whether motor data have been correctly entered into p0300, p0304 - p0311.
 - is there an appropriate relationship between the motor power rating and that of the Motor Module? The ratio of the Motor Module to the rated motor current should not be less than 0.5 and not be greater than 4.
 - check motor config. (star-delta).
 Re fault value = 2:
 For parallel circuits: Check the motor winding system in p7003.
 If, for power units connected in parallel, a motor is specified with a single-winding system ($p7003 = 0$), although a multi-winding system is being used, then a large proportion of the stator resistance is interpreted as feeder cable resistance and entered in p0352.
 Re fault value = 4, 7:
 Check whether inductances are correctly entered in p0233 and p0353.
 Check whether motor was correctly connected (star/delta).
 Re fault value = 50:
 Reduce current controller sampling rate.
 Re fault value = 101:
 Increase current limit (p0640) or torque limit (p1520, p1521).
 Check current controller gain (p1715).
 Reduce current controller sampling time (p0115).
 It may be impossible to completely identify the L characteristic, as required current amplitude is too high.
 Suppress meas. (p1909, p1959).
 Re fault value = 102, 104:
 Reduce current limit (p0640).
 Check current controller P gain.
 Suppress meas. (p1909, p1959).
 Re fault value = 103:
 Increase external moment of inertia (if possible).
 Reduce current controller sampling time (p0115).
 Suppress meas. (p1909, p1959).
 Re fault value 110:
 Before rotating measurement, traverse motor over zero mark.
 Re fault value 111:
 It is possible that encoder does not have zero mark. Correct setting in p0404.Bit15.
 Encoder pulse number was incorrectly entered. Correct setting in p408.
 If zero mark signal is defective, replace encoder.
 Re fault value 112:
 Upgrade encoder software.
 Re fault value = 113:
 Check the limits (p0640, p1520, p1521, p1530, p1531), correct the zero values.
 Re fault value 120:
 Check current controller P gain (p1715) and if required, reduce.
 Increase pulse frequency (p1800).

Re fault 125:
Reduce cable resistance (p0352).

Re fault 126:
Reduce series inductance (p0353).

Re fault 127, 128, 129:
It is possible that current controller is oscillating. Reduce p1715 before next measurement.

Re fault 130:
Do not initiate a drive data set changeover during motor ident. routine.

Re fault value 140:
Before the measurement, enable at least one direction of rotation (value of p1110 = 0 or value of p1111 = 0 or p1959.14 = 1 or p1959.15 = 1).

Re fault value = 160:
- extend accelerating time when determining kT, moment of inertia and reluctance torque, e.g. by increasing max. speed (p1082), increasing moment of inertia or reducing max. current (p0640).
- in sensorless operation with load moment of inertia, parameterize the load moment of inertia (p1498).
- reduce the ramp-up time (p1958).
- increase speed controller P-gain (p1460).
- suppress meas. (p1959).

Re fault value 173:
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Re fault value 180:
Increase max. speed (p1082).
Reduce p1755.
Suppress meas. (p1909, p1959).

Re fault value 190:
Set speed setpoint to zero.

Re fault value 191:
Do not start motor data ident. routine while motor is still rotating.

Re fault value = 192:
Check closed-loop speed control (motor rotor may be locked or closed-loop speed control is not functioning).
For p1215 = 1, 3 (brake the same as the sequence control) check the control sense (p0410.0).
Ensure that enable signals are present during measurement.
Remove any pulling loads from motor.
Increase max. current (p0640).
Reduce max. speed (p1082).
Suppress meas. (p1959).

Re fault value 193:
The motor has moved through more than 5° electrical (r0093). Lock motor rotor at one of these pole position angles (r0093): 90°, 210° or 330° (+- 5°) and then start identification.

Re fault value 194:
Switch-out all supplementary torques (e.g. Cl:p1511).
For hanging/suspended axes: Lock motor rotor at one of these pole position angles (r0093): 90°, 210° or 330° (+- 1°) and then start identification.

Re fault value 195:
De-select closed-loop torque control (p1300 = 21 or 20, or set the signal source in p1501 to a 0 signal).

Re fault value = 200, 201:
- set pulse frequency to 0.5 * current controller frequency (e.g. 4 kHz for a current controller clock cycle of 125 us).
- reduce cable length between Motor Module and motor.
- read-out measured values (r1950, r1951) and therefore determine suitable values for p1952, p1953 according to your own estimation.

A07991 (N)	Drive: Motor data identification activated
Drive object:	SERVO
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor data ident. routine is activated. The motor data identification routine is carried out at the next power-on command. See also: p1910 (Motor data identification routine, stationary (standstill)), p1960 (Rotating measurement selection)
Remedy:	None necessary. The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1910 = 0 or p1960 = 0.

Reaction upon N: NONE

Acknowled. upon N: NONE

A07991 (N) Drive: Motor data identification activated

Drive object: VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The motor data ident. routine is activated.
The motor data identification routine is carried out at the next power-on command.
See also: p1910 (Motor data identification routine, stationary (standstill))

Remedy: None necessary.
The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1900 = 0.

Reaction upon N: NONE

Acknowled. upon N: NONE

F07993 Drive: Incorrect direction of rotation of the field or encoder actual value inversion

Drive object: SERVO

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: Either the direction of the rotating field or the encoder actual value has an incorrect sign. The motor data identification automatically changed the actual value inversion (p0410) in order to correct the control sense. This can result in a direction of rotation change. To acknowledge this fault, the correctness of the direction of rotation must first be acknowledged with p1910 = -2.

Remedy: Check the direction of rotation, also for the position controller, if one is being used.
If the direction of rotation is correct, the following applies:
No additional measures are required (except p1910 = -2 and acknowledge fault).
If the direction of rotation is incorrect, the following applies:
To change the direction of rotation, two phases must be interchanged and the motor identification routine must be repeated.

F07995 Drive: Pole position identification not successful

Drive object: SERVO

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The pole position identification routine was unsuccessful.
Fault value (r0949, interpret decimal):
1: No current is established.
2: The starting current is not zero.
3: The selected max. distance was exceeded (p1981).
4x: The measuring signal does not permit a clear evaluation.
5: The max. current was exceeded during the measurement.
6: The current measurement must be re-calibrated.
7x: The Sensor Module does not support the pole position identification routine.
70 ... 79: Only for internal Siemens troubleshooting.
8: The pole position identification routine current required is greater than the max. current.
9: The set pole position identification routine current is zero.
10: Data set changeover during the pole position identification.
11: The encoder adjustment to determine the commutation angle (p1990 = 1) and the encoder without zero mark is not finely synchronized or does not have any valid data.
100: Motion-based pole position identification, 1st and 2nd measurement different. Motor locked or current (p1993) too low.
101: Motion-based position position identification, insufficient motion, motor locked or current (p1993) too low.
102: Motion-based pole position identification, brake is being used and is closed. The motion-based position position identification in conjunction with the brake is not permitted.
103: Motion-based pole position identification without encoder.
104: Motion-based pole position identification, speed actual value not zero after stabilizing time.
Note: x = 0 ... 9

Remedy:	<p>Re fault value = 1: Check the motor connection and DC link voltage. For the following parameters, set practical values that are not zero (p0325, p0329). Re fault value = 3: Increase the max. distance (p1981). Reduce the currents for the pole position identification routine (p0325, p0329). Stop the motor in order to carry out the pole position identification routine. Re fault value = 40 ... 49: Increase the currents for the pole position identification routine (p0325, p0329). Stop the motor in order to carry out the pole position identification routine. Select another technique for pole position identification routine (p1980). Use another motor, absolute encoder or Hall sensors. Re fault value = 5: Reduce the currents for the pole position identification routine (p0325, p0329). Re fault value = 6: Re-calibrate the Motor Module. Re fault value = 7x: Upgrade the software in the Sensor Module. Re fault value = 8: Reduce the currents for the pole position identification routine (p0329, p0325, p1993). The power unit cannot provide the necessary pole position identification routine current (p0209 < p0329, p0325, p1993), replace the power unit by a power unit with a higher max. current. Re fault value = 9: Enter a value not equal to zero in the pole position identification routine current (p0329, p0325, p1993). Re fault value = 10: Do not initiate a data set changeover during the pole position identification. Re fault value = 11: - for incremental encoders without commutation with zero mark (p0404.15 = 0), it does not make sense to adjust the encoder to determine the commutation angle (p1990 = 1). In this case, the function should be de-selected (p1990 = 0) or, for an encoder with suitable zero mark, commutation with zero mark should be selected (p0404.15 = 1). - for absolute encoders, only adjust the encoder to determine the commutation angle (p1990 = 1) if the encoder supplies commutation information and is finely synchronized (p1992.8 = 1 and p1992.10 = 1). The encoder is possibly parked, de-activated (p0145), not ready to operate or signals a fault condition. - deselect the encoder adjustment to determine the commutation angle (set p1990 to 0). Re fault value = 100, 101: Check and ensure that the motor is free to move. Increase the current for motion-based pole position identification (p1993). Re fault value = 102: If the motor is to be operated with a brake: Select a different technique to identify the pole position (p1980). If the motor can be operated without a brake: Open the brake (p1215 = 2). Re fault value = 103: The motion-based pole position identification can only be carried out using an encoder. Connect an encoder or select another technique for pole position identification routine (p1980). Re fault value = 104: Pole position identification, increase the smoothing time, motion-based (p1997). Pole position identification, increase the rise time, motion-based (p1994). Pole position identification, check the gain, motion-based (p1995). Pole position identification, check the integral time, motion-based (p1996).</p>
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F07996	Drive: Pole position identification routine not carried out
Drive object:	SERVO
Reaction:	ENCODER (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	<p>In operation, the operating mode that requires a pole position identification was changed-over, which is not possible in this state:</p> <ul style="list-style-type: none">- the drive was changed over, flying, from sensorless operation to operation with encoder without having previously carried out a pole position identification for the encoder. p1404 is then at a value between zero and the max. speed and the pulses in the speed range above p1404 were enabled without a pole position ident. routine having been previously carried out in operation with encoder.- in operation, an EDS changeover was made to an encoder where it is necessary to carry out a pole position identification. However, this has still not been carried out (p1982 = 1 or 2 and p1992.7 = 0).

Remedy:

- for a flying changeover between operation with and without encoder with pole position identification after POWER ON or commissioning (p0010 not equal to zero) enable the pulses once at zero speed. This means that the pole position identification routine is carried out and the result is available for operation.
- carry out the EDS changeover with the pulses inhibited, or, before the changeover, carry out a pole position identification using this data set.

A07998 Drive: Motor data identification active on another drive

Drive object: SERVO

Reaction: NONE

Acknowledge: NONE

Cause: The motor data identification is activated on the drive object specified in the fault value and interlocks the other drive objects so they cannot be powered-up.
 Fault value (r0949, interpret decimal):
 Drive object with the active motor data identification.
 See also: p1910 (Motor data identification routine, stationary (standstill)), p1960 (Rotating measurement selection)

Remedy:

- wait for the complete execution of the motor data identification of the drive object designated in the fault value.
- de-select the motor data identification for the drive object designated in the fault value (p1910 = 0 or p1960 = 0).

A07999 Drive: Motor data identification cannot be activated

Drive object: SERVO

Reaction: NONE

Acknowledge: NONE

Cause: Closed-loop control is enabled on a SERVO drive object type. To select motor data identification, pulses must be canceled for all SERVO drive objects.
 Fault value (r0949, interpret decimal):
 Drive object with enabled closed-loop control.

Remedy: Withdraw the pulse enable on all drives and re-activate the motor data identification.

F08000 (N, A) TB: +/-15 V power supply faulted

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: Terminal Board 30 detects an incorrect internal power supply voltage.
 Fault value (r0949, interpret decimal):
 0: Error when testing the monitoring circuit.
 1: Fault in normal operation.

Remedy:

- replace Terminal Board 30.
- replace Control Unit.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F08010 (N, A) TB: Analog-digital converter

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The analog/digital converter on Terminal Board 30 has not supplied any converted data.

Remedy:

- check the power supply.
- replace Terminal Board 30.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F08500 (A) COMM BOARD: Monitoring time configuration expired

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: A_INFEED: OFF1 (OFF2)
SERVO: OFF1 (OFF2, OFF3)
VECTOR: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The monitoring time for the configuration has expired.
Fault value (r0949, interpret decimal):
0: The transfer of the send-configuration data has been exceeded (time).
1: The transfer of the receive-configuration data has been exceeded (time).

Remedy: Check communication line.

Reaction upon A: NONE
Acknowl. upon A: NONE

F08501 (A) COMM BOARD: Monitoring time process data expired

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: A_INFEED: OFF1 (OFF2)
SERVO: OFF1 (OFF2, OFF3)
VECTOR: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The set monitoring time expired while transferring process data via COMM BOARD.
See also: p8840 (COMM BOARD monitoring time)

Remedy: - check communications link.
- check the set monitoring time if the error persists.
See also: p8840 (COMM BOARD monitoring time)

Reaction upon A: NONE
Acknowl. upon A: NONE

F08502 (A) COMM BOARD: Monitoring time sign-of-life expired

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: A_INFEED: OFF1 (OFF2)
SERVO: OFF1 (OFF2, OFF3)
VECTOR: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The monitoring time for the sign-of-life counter has expired.
The connection to the COMM BOARD was interrupted.

Remedy: - check communications link.
- check COMM BOARD.

Reaction upon A: NONE
Acknowl. upon A: NONE

A08504 (F) COMM BOARD: Internal cyclic data transfer error

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The cyclic actual and/or setpoint values were not transferred within the specified times.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy: Check the parameterizing telegram (Ti, To, Tdp, etc.).
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F08510 (A) COMM BOARD: Send configuration data invalid

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction: A_INFEED: OFF1 (OFF2)
SERVO: OFF1 (OFF2, OFF3)
VECTOR: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: COMM BOARD did not accept the send-configuration data.
Fault value (r0949, interpret decimal):
Return value of the send-configuration data check.
Remedy: Check the send configuration data.
Reaction upon A: NONE
Acknowl. upon A: NONE

A08511 (F) COMM BOARD: Receive configuration data invalid

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The drive unit did not accept the receive-configuration data.
Alarm value (r2124, interpret decimal):
Return value of the receive-configuration data check.
0: Configuration accepted.
1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence was defined using p0978.
2: Too many data words for input or output to a drive object. A max. of 16 words is permitted for SERVO and VECTOR; a max. of 5 words for A_INF, TB30, TM31 and CU320.
3: Uneven number of bytes for input or output.
4: Setting data for synchronization not accepted.
5: Drive still not in cyclic operation.
6: Buffer system not accepted.
7: Cyclic channel length too short for this setting.
8: Cyclic channel address not initialized.
9: 3-buffer system not permitted.
10: DRIVE-CLiQ fault.
11: CU-Link fault.
12: CX32 not in cyclic operation.
Remedy: Check the receive configuration data.
Re alarm value = 1:
Check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A08520 (F)	COMM BOARD: Non-cyclic channel error
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The memory or the buffer status of the non-cyclic channel has an error. Alarm value (r2124, interpret decimal): 0: Error in the buffer status. 1: Error in the memory.
Remedy:	Check communication line.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A08526 (F)	COMM BOARD: No cyclic connection
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	There is no cyclic connection to the control.
Remedy:	Establish the cyclic connection and activate the control with cyclic operation. For PROFINET, check the parameters "Name of Station" and "IP of Station" (r61000, r61001).
Reaction upon F:	NONE (OFF1)
Acknowl. upon F:	IMMEDIATELY

A08530 (F)	COMM BOARD: Message channel error
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The memory or the buffer status of the message channel has an error. Alarm value (r2124, interpret decimal): 0: Error in the buffer status. 1: Error in the memory.
Remedy:	Check communication line.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A08550	PZD Interface Hardware assignment error
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The assignment of the hardware to the PZD interface has been incorrectly parameterized. Alarm value (r2124, interpret decimal): 1: Only one of the two indices is not equal to 99 (automatic). 2: Both PZD interfaces are assigned to the same hardware. 3: Assigned COMM BOARD missing. 4: CBC10 is assigned to interface 1. See also: p8839 (PZD interface hardware assignment)
Remedy:	Correct the parameterization (p8839).

F08700 (A)	CBC: Communications error
Drive object:	CU_LINK, CU_S, DMC20, SERVO, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	A_INFEED: NONE SERVO: OFF3 (NONE, OFF1, OFF2) VECTOR: OFF3 (NONE, OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A CAN communications error has occurred. Fault value (r0949, interpret decimal): 1: The error counter for the send telegrams has exceeded the BUS OFF value 255. The bus disables the CAN controller. - bus cable interrupted. - bus cable not connected. - incorrect baud rate. - incorrect bit timing. 2: The master no longer interrogated the CAN node status longer than for its "life time". The "life time" is obtained from the "guard time" (p8604[0]) multiplied by the "life time factor" (p8604[1]). - bus cable interrupted. - bus cable not connected. - incorrect baud rate. - incorrect bit timing. - master fault. Note: The fault response can be set as required using p8641. See also: p8604 (CBC node guarding), p8641 (CBC abort connection option code)
Remedy:	- check the bus cable - check the baud rate (p8622). - check the bit timing (p8623). - check the master. See also: p8622 (CBC baud rate), p8623 (CBC bit timing selection)
Reaction upon A:	NONE
Acknowled. upon A:	NONE
F08700 (A)	CBC: Communications error
Drive object:	A_INF, B_INF, S_INF
Reaction:	A_INFEED: NONE SERVO: OFF3 (NONE, OFF1, OFF2) VECTOR: OFF3 (NONE, OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A CAN communications error has occurred. Fault value (r0949, interpret decimal): 1: The error counter for the send telegrams has exceeded the BUS OFF value 255. The bus disables the CAN controller. - bus cable interrupted. - bus cable not connected. - incorrect baud rate. - incorrect bit timing. 2: The master no longer interrogated the CAN node status longer than for its "life time". The "life time" is obtained from the "guard time" (p8604[0]) multiplied by the "life time factor" (p8604[1]). - bus cable interrupted. - bus cable not connected. - incorrect baud rate. - incorrect bit timing. - master fault. See also: p8604 (CBC node guarding), p8641 (CBC abort connection option code)
Remedy:	- check the bus cable - check the baud rate (p8622). - check the bit timing (p8623). - check the master. See also: p8622 (CBC baud rate), p8623 (CBC bit timing selection)

Reaction upon A: NONE
Acknowl. upon A: NONE

F08701 CBC: NMT state change

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: A_INFEED: OFF2
SERVO: OFF3
VECTOR: OFF3

Acknowledge: IMMEDIATELY

Cause: A CANopen NMT state transition from "operational" to "pre-operational" or after "stopped".

Fault value (r0949, interpret decimal):

1: CANopen NMT state transition from "operational" to "pre-operational".

2: CANopen NMT state transition from "operational" to "stopped".

Note:

In the NMT state "pre-operational", process data cannot be transferred and in the NMT state "stopped", no process data and no service data can be transferred.

Remedy: None necessary.
Acknowledge the fault and continue operation.

A08751 CBC: Telegram loss

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The CAN controller has lost a receive message (telegram).

Remedy: Reduce the cycle times of the receive messages.

A08752 CBC: Error counter for error passive exceeded

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: The error counter for the send or receive telegrams has exceeded the value 127.

Remedy: - check the bus cable
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).
See also: p8622 (CBC baud rate), p8623 (CBC bit timing selection)

A08753 CBC: Message buffer overflow

Drive object: A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: NONE

Cause: A message buffer overflow.

Alarm value (r2124, interpret decimal):

1: Non-cyclic send buffer (SDO response buffer) overflow.

2: Non-cyclic receive buffer (SDO receive buffer) overflow.

3: Cyclic send buffer (PDO send buffer) overflow.

Remedy: Check the bus cable.
Set a higher baud rate (p8622).
Check the bit timing and if required optimize (p8623).
Re alarm value = 2:
- reduce the cycle times of the SDO receive messages.
See also: p8622 (CBC baud rate), p8623 (CBC bit timing selection)

A08754	CBC: Incorrect communications mode
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the "operational" mode, an attempt was made to change parameters p8700 ... p8737.
Remedy:	Change into the "pre-operational" or "stopped" mode.
A08755	CBC: Obj cannot be mapped
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The CANopen object is not provided for the Process Data Object (PDO) Mapping.
Remedy:	Use a CANopen object intended for the PDO mapping or enter 0. The following objects can be mapped in the Receive Process Data Object (RPDO) or Transmit Process Data Object (TPDO): - RPDO: 6040 hex, 6060 hex, 60FF hex, 6071 hex; 5800 hex - 580F hex; 5820 hex - 5827 hex - TPDO: 6041 hex, 6061 hex, 6063 hex, 6069 hex, 606B hex, 606C hex, 6074 hex; 5810 hex - 581F hex; 5830 hex - 5837 hex Only sub-index 0 of the specified objects can be mapped. Note: As long as A08755 is present, the COB-ID cannot be set to valid.
A08756	CBC: Number of mapped bytes exceeded
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The number of bytes of the mapped objects exceeds the telegram size for net data. A max. of 8 bytes is permissible.
Remedy:	Map fewer objects or objects with a smaller data type. See also: p8710 (CBC receive mapping for RPDO 1), p8711 (CBC receive mapping for RPDO 2), p8712 (CBC receive mapping for RPDO 3), p8713 (CBC receive mapping for RPDO 4), p8714 (CBC receive mapping for RPDO 5), p8715 (CBC receive mapping for RPDO 6), p8716 (CBC receive mapping for RPDO 7), p8717 (CBC receive mapping for RPDO 8), p8730 (CBC send mapping for TPDO 1), p8731 (CBC send mapping for TPDO 2), p8732 (CBC send mapping for TPDO 3), p8733 (CBC send mapping for TPDO 4), p8734 (CBC send mapping for TPDO 5), p8735 (CBC send mapping for TPDO 6), p8736 (CBC send mapping for TPDO 7), p8737 (CBC send mapping for TPDO 8)
A08757	CBC: Set COB-ID invalid
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	For online operation, the appropriate COB-ID must be set invalid before mapping. Example: Mapping for RPDO 1 should be changed (p8710[0]). --> set p8700[0] = C00006E0 hex (invalid COB-ID) --> set p8710[0] as required. --> p8700[0] enter a valid COB-ID
Remedy:	Set the COB-ID to invalid.

A08758	CBC: Number of PDO channels too low
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The number of PDO channels in p8740 has either been set to 0 or too low. See also: p8740 (CBC channel assignment)
Remedy:	The number of channels set in p8740 must be greater than or equal to the number of PDOs. There are 2 possibilities: Increase the number of channels in p8740 and confirm the selection using p8741. Reduce the number of PDOs by setting the COB-ID to invalid. See also: p8740 (CBC channel assignment), p8741 (CBC PDO configuration acknowledgement)

A08759	CBC: PDO COB-ID already available
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	An existing PDO COB-ID was allocated.
Remedy:	Select another PDO COB-ID.

A13000	License not adequate
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	- for the drive unit, the options that require a license are being used but the licenses are not sufficient. - an error occurred when checking the existing licenses. Alarm value (r2124, interpret decimal): 0: The existing license is not sufficient. 1: An adequate license was not able to be determined as the CompactFlash card with the required licensing data was withdrawn in operation. 2: An adequate license was not able to be determined, as an error occurred when reading-out the required licensing data from the CompactFlash card. 3: An adequate license was not able to be determined as there is a checksum error in the license key. 4: An internal error occurred when checking the license.
Remedy:	Re alarm value = 0: Additional licenses are required and these must be activated (p9920, p9921). Re alarm value = 1: With the system powered-down, re-insert the CompactFlash card that matches the system. Re alarm value = 2: Enter and activate the license key (p9920, p9921). Re alarm value = 3: Compare the license key (p9920) entered with the license key on the certificate of license. Re-enter the license key and activate (p9920, p9921). Re alarm value = 4: - carry out a POWER ON. - upgrade the firmware release. - contact the Hotline.

A13001	Error in license checksum
Drive object:	A_INF, B_INF, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	When checking the checksum of the license key, an error was detected.
Remedy:	Compare the license key (p9920) entered with the license key on the certificate of license. Re-enter the license key and activate (p9920, p9921).
F30001	Power unit: Overcurrent
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>The power unit has detected an overcurrent condition.</p> <ul style="list-style-type: none"> - closed-loop control is incorrectly parameterized. - motor has a short-circuit or fault to ground (frame). - V/f operation: Up ramp set too low. - V/f operation: Rated motor current is significantly greater than that of the Motor Module. - infeed: High discharge and post-charging current for line supply voltage interruptions. - infeed: High post-charging currents for overload when motoring and DC link voltage dip. - infeed: Short-circuit currents at power-on due to the missing commutating reactor. - power cables are not correctly connected. - power cables exceed the maximum permissible length. - power unit defective. <p>Additional causes for a parallel switching device (r0108.15 = 1):</p> <ul style="list-style-type: none"> - a power unit has tripped (powered-down) due to a ground fault. - the closed-loop circulating current control is either too slow or has been set too fast. <p>Fault value (r0949, interpret bitwise binary):</p> <p>Bit 0: Phase U. Bit 1: Phase V. Bit 2: Phase W.</p>
Remedy:	<ul style="list-style-type: none"> - check the motor data - if required, carry out commissioning. - check the motor circuit configuration (star-delta). - V/f operation: Increase up ramp. - V/f operation: Check the assignment of the rated currents of the motor and Motor Module. - infeed: Check the line supply quality. - infeed: Reduce the load when motoring. - infeed: Correct connection of the line commutating reactor. - check the power cable connections. - check the power cables for short-circuit or ground fault. - check the length of the power cables. - replace power unit. <p>For a parallel switching device (r0108.15 = 1) the following additionally applies:</p> <ul style="list-style-type: none"> - check the ground fault monitoring thresholds (p0287). - check the setting of the closed-loop circulating current control (p7036, p7037).
F30002	Power unit: DC link voltage, overvoltage
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>The power unit has detected an overvoltage condition in the DC link.</p> <ul style="list-style-type: none"> - motor regenerates too much energy. - line supply voltage too high. - when operating with a VSM, the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit. <p>Fault value (r0949, interpret decimal):</p> <p>DC link voltage [1 bit = 100 mV].</p> <p>For SINAMICS GM/SM, the following applies:</p> <p>Fault value (r0949, interpret decimal):</p> <p>32: Overvoltage in the negative partial DC link (VdcP)</p>

64: Overvoltage in the positive partial DC link (VdcN)
96: Overvoltage in both partial -DC links

Remedy:

- increase the ramp-down time.
- activate the DC link voltage controller.
- use a brake resistor or Active Line Module.
- increase the current limit of the infeed or use a larger module (for the Active Line Module).
- check the line supply voltage.
- check and correct the phase assignment at the VSM and at the power unit.

See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller or Vdc monitoring configuration)

F30003 Power unit: DC link voltage, undervoltage

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected an undervoltage condition in the DC link.

- line supply failure
- line supply voltage below the permissible value.
- line supply infeed failed or faulted.

Note:
The monitoring threshold for the DC link undervoltage is the minimum of the following values:

- 85% of the unit supply voltage (p0210).
- lowest permissible lower DC link voltage of the power units (descriptive data).

Remedy:

- check the line supply voltage
- check the line supply infeed and if necessary observe the fault messages of the line supply infeed.

Note:
The ready signal of the infeed r0863 must be connected to the associated inputs p0864 of the drives.
See also: p0210 (Drive unit line supply voltage)

F30004 Power unit: Overtemperature heatsink AC inverter

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature of the power unit heatsink has exceeded the permissible limit value.

- insufficient cooling, fan failure.
- overload
- ambient temperature too high.
- pulse frequency too high.

Fault value (r0949):
Temperature [1 bit = 0.01 °C].

Remedy:

- check whether the fan is running.
- check the fan elements
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.

Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05000 has been fallen below.
See also: p1800 (Pulse frequency)

F30005 Power unit: Overload I2t

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit was overloaded (r0036 = 100 %).

- the permissible rated power unit current was exceeded for an inadmissibly long time.
- the permissible load duty cycle was not maintained.

Fault value (r0949, interpret decimal):
I2t [100 % = 16384].

Remedy:

- reduce the continuous load.
- adapt the load duty cycle.
- check the motor and power unit rated currents.

See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)

F30006 Power unit: Thyristor Control Board

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The Thyristor Control Board (TCB) of the Basic Line Module signals a fault.

- there is not line supply voltage.
- the line contactor is not closed.
- the line supply voltage is too low.
- line supply frequency outside the permissible range (45 ... 66 Hz).
- there is a DC link short-circuit.
- there is a DC link short-circuit (during the pre-charging phase).
- voltage supply for the Thyristor Control Board outside the nominal range (5 ... 18 V) and line voltage >30 V.
- there is an internal fault in the Thyristor Control Board.

Remedy: The faults must be saved in the Thyristor Control Board and must be acknowledged. To do this, the supply voltage of the Thyristor Control Board must be switched-out for at least 10 s!

- check the line supply voltage
- check or energize the line contactor.
- check the monitoring time and, if required, increase (p0857).
- if required, observe additional power unit messages/signals.
- check the DC link regarding short-circuit or ground fault.
- evaluate diagnostic LEDs for the Thyristor Control Board.

F30008 Power unit: Sign-of-life error cyclic data

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved.
The cyclic setpoint telegrams of the Control Unit were not received on time by the power unit for at least two clock cycles within a time interval of 20 ms.

Remedy: - check the electrical cabinet design and cable routing for EMC compliance

A30010 (F) Power unit: Sign-of-life error cyclic data

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved.
The cyclic setpoint telegrams of the Control Unit were not received on time by the power unit for at least one clock cycle.

Remedy: - check the electrical cabinet design and cable routing for EMC compliance

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

F30011 Power unit: Line phase failure in main circuit

Drive object: All objects
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY
Cause: A line phase failure was detected at the power unit.
- the fuse of a phase of a main circuit has ruptured.
- the DC link voltage ripple has exceeded the permissible limit value.
Remedy: Check the fuses in the main circuit.

F30012 Power unit: Temperature sensor heatsink wire breakage

Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The connection to one of the heatsink temperature sensors in the power unit is interrupted.
Fault value (r0949, interpret hexadecimal):
Bit 0: Module slot (electronics slot)
Bit 1: Air intake
Bit 2: Inverter 1
Bit 3: Inverter 2
Bit 4: Inverter 3
Bit 5: Inverter 4
Bit 6: Inverter 5
Bit 7: Inverter 6
Bit 8: Rectifier 1
Bit 9: Rectifier 2
See also: r0949 (Fault value)
Remedy: Contact the manufacturer.

F30013 Power unit: Temperature sensor heatsink short-circuit

Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The heatsink temperature sensor in the Motor Module is short-circuited.
Fault value (r0949, interpret hexadecimal):
Bit 0: Module slot (electronics slot)
Bit 1: Air intake
Bit 2: Inverter 1
Bit 3: Inverter 2
Bit 4: Inverter 3
Bit 5: Inverter 4
Bit 6: Inverter 5
Bit 7: Inverter 6
Bit 8: Rectifier 1
Bit 9: Rectifier 2
Remedy: Contact the manufacturer.

A30016 (N) Power unit: Load supply switched-out

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: The following applies for CU31x and CUA31:
The DC link voltage is too low.
Fault value (r0949, interpret decimal):
DC link voltage in [V].
Remedy: The following applies for CU31x and CUA31:
Under certain circumstances, the AC line supply is not switched-in.
Reaction upon N: NONE
Acknowl. upon N: NONE

F30017	Power unit: Hardware current limit has responded too often
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>The hardware current limitation in the relevant phase (see A30031, A30032, A30033) has responded too often. The number of times the limit has been exceeded depends on the design and type of power unit.</p> <p>For infeed units, the following applies:</p> <ul style="list-style-type: none"> - closed-loop control is incorrectly parameterized. - load on the infeed is too high. - Voltage Sensing Module incorrectly connected. - commutating reactor missing or the incorrect type. - power unit defective. <p>The following applies to Motor Modules:</p> <ul style="list-style-type: none"> - closed-loop control is incorrectly parameterized. - fault in the motor or in the power cables. - the power cables exceed the maximum permissible length. - motor load too high - power unit defective. <p>Fault value (r0949, interpret binary):</p> <p>Bit 0: Phase U</p> <p>Bit 1: Phase V</p> <p>Bit 2: Phase W</p>
Remedy:	<p>For infeed units, the following applies:</p> <ul style="list-style-type: none"> - check the controller settings, if required, reset and identify the controller (p0340 = 2, p3410 = 5). - reduce the load, if required, increase the DC link capacitance or use a higher-rating infeed. - check the connection of the optional Voltage Sensing Module. - check the connection and technical data of the commutating reactor. - check the power cables for short-circuit or ground fault. - replace power unit. <p>The following applies to Motor Modules:</p> <ul style="list-style-type: none"> - check the motor data. - check the motor circuit configuration (star-delta). - check the motor load. - check the power cable connections. - check the power cables for short-circuit or ground fault. - check the length of the power cables. - replace power unit.
F30021	Power unit: Ground fault
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>Power unit has detected a ground fault.</p> <ul style="list-style-type: none"> - ground fault in the power cables - winding fault or ground fault at the motor. - CT defective. <p>Additional cause for CU310/CUA31:</p> <ul style="list-style-type: none"> - when the brake is applied, this causes the hardware DC current monitoring to respond. <p>Fault value (r0949, interpret decimal):</p> <p>Absolute value, summed current [32767 = 271 % rated current].</p> <p>Additional cause for parallel switching units (r0108 bit 15 = 1):</p> <ul style="list-style-type: none"> - the closed-loop circulating current control is either too slow or has been set too fast.
Remedy:	<ul style="list-style-type: none"> - check the power cable connections. - check the motor. - check the CT. <p>The following applies additionally for CU310 and CUA31:</p> <ul style="list-style-type: none"> - check the cables and contacts of the brake connection (a wire is possibly broken). <p>For parallel switching units (r0108 bit 15 = 1) the following also applies:</p> <ul style="list-style-type: none"> - check the ground fault monitoring thresholds (p0287). - check the setting of the closed-loop circulating current control (p7036, p7037). <p>See also: p0287 (Ground fault monitoring thresholds)</p>

F30022 Power unit: Monitoring V_{ce}

Drive object: All objects

Reaction: OFF2

Acknowledge: POWER ON

Cause: In the power unit, the monitoring of the collector-emitter voltage (V_{ce}) of the semiconductor has responded.

Possible causes:

- fiber-optic cable interrupted.
- power supply of the IGBT gating module missing.
- short-circuit at the Motor Module output.
- defective semiconductor in the power unit.

Fault value (r0949, interpret binary):

Bit 0: Short-circuit in phase U

Bit 1: Short circuit in phase V

Bit 2: Short-circuit in phase W

Bit 3: Light transmitter enable defective

Bit 4: V_{ce} group fault signal interrupted

See also: r0949 (Fault value)

- Remedy:**
- check the fiber-optic cable and if required, replace.
 - check the power supply of the IGBT gating module (24 V).
 - check the power cable connections.
 - select the defective semiconductor and replace.

A30023 Power unit: Overtemperature thermal model alarm

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The temperature difference between the heatsink and chip has exceeded the permissible limit value.

- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload
- ambient temperature too high.
- pulse frequency too high.

See also: r0037 (Control Unit temperature)

- Remedy:**
- adapt the load duty cycle.
 - check whether the fan is running.
 - check the fan elements
 - check whether the ambient temperature is in the permissible range.
 - check the motor load.
 - reduce the pulse frequency if this is higher than the rated pulse frequency.

F30024 Power unit: Overtemperature thermal model

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The temperature difference between the heatsink and chip has exceeded the permissible limit value.

- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload
- ambient temperature too high.
- pulse frequency too high.

See also: r0037 (Control Unit temperature)

- Remedy:**
- adapt the load duty cycle.
 - check whether the fan is running.
 - check the fan elements
 - check whether the ambient temperature is in the permissible range.
 - check the motor load.
 - reduce the pulse frequency if this is higher than the rated pulse frequency.

F30025	Power unit: Chip overtemperature
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>Chip temperature of the semiconductor has exceeded the permissible limit value.</p> <ul style="list-style-type: none"> - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload - ambient temperature too high. - pulse frequency too high. <p>Fault value (r0949): Temperature difference between the heatsink and chip [1 Bit = 0.01 °C].</p>
Remedy:	<ul style="list-style-type: none"> - adapt the load duty cycle. - check whether the fan is running. - check the fan elements - check whether the ambient temperature is in the permissible range. - check the motor load. - reduce the pulse frequency if this is higher than the rated pulse frequency. <p>Notice: This fault can only be acknowledged after this alarm threshold for alarm A05001 has been fallen below. See also: r0037 (Control Unit temperature)</p>
F30027	Power unit: Precharging DC link time monitoring
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>The power unit DC link was not able to be pre-charged within the expected time.</p> <ul style="list-style-type: none"> - line supply voltage too low. - line supply phase fault. - short-circuit or ground fault in the DC link. - pre-charging circuit defective. <p>Fault value (r0949): Missing internal enable signals, power unit (lower 16 bit): (Inverted bit-coded notation FFFF hex -> all internal enable signals available) Bit 0: Power supply of the IGBT gating shut down Bit 1: Reserved Bit 2: Reserved Bit 3: Ground fault detected Bit 4: Peak current intervention Bit 5: I2t exceeded Bit 6: Thermal model overtemperature calculated Bit 7: (heatsink, gating module, power unit) overtemperature measured Bit 8: Reserved Bit 9: Overvoltage detected Bit 10: Power unit has completed pre-charging, ready for pulse enable Bit 11: STO terminal missing Bit 12: Overcurrent detected Bit 13: Armature short-circuit active Bit 14: DRIVE-CLiQ fault active Bit 15: Uce fault detected, transistor de-saturated due to overcurrent/circuit-circuit Status, power unit (upper 16 bit, hexadecimal number): 0: Fault status (wait for OFF and fault acknowledgement) 1: Restart inhibit (wait for OFF) 2: Overvoltage condition detected -> change into the fault state 3: Undervoltage condition detected -> change into the fault state 4: Wait for bypass contactor to open -> change into the fault state 5: Wait for bypass contactor to open -> change into restart inhibit 6: Commissioning 7: Ready for pre-charging 8: Pre-charging started, DC link voltage lower than the minimum switch-on voltage 9: Pre-charging, DC link voltage end of pre-charging still not detected</p>

10: Wait for the end of the de-bounce time of the main contactor after pre-charging has been completed
11: Pre-charging completed, ready for pulse enable
12: It was detected that the STO terminal was energized at the power unit
See also: p0210 (Drive unit line supply voltage)

Remedy:

- check the line supply voltage
- check the line supply.
- line contactor was closed during the DC link fast discharge by the braking module, the pre-charging resistor must cool down, check the interconnection of the external line contactor.

See also: p0210 (Drive unit line supply voltage)

A30031 Power unit: Hardware current limiting, phase U

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Remedy:

- check the motor data.
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30032 Power unit: Hardware current limiting, phase V

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Remedy:

- check the motor data.
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30033 Power unit: Hardware current limiting, phase W

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Remedy:

- check the motor data.
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

F30035	Power unit: Air intake overtemperature
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	Power unit air intake temperature has exceeded the permissible limit value. For air-cooled power units, the limit is at 55 degrees Celsius. - ambient temperature too high. - insufficient cooling, fan failure Fault value (r0949): Temperature [1 bit = 0.01 °C].
Remedy:	- check whether the fan is running. - check the fan elements - check whether the ambient temperature is in the permissible range. Notice: This fault can only be acknowledged after this alarm threshold for alarm A05002 has been fallen below.
F30036	Power unit: Electronics board overtemperature
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Power unit temperature in the module slot of the drive converter has exceeded the permissible limit value. - insufficient cooling, fan failure. - overload - ambient temperature too high. Fault value (r0949): Temperature [1 bit = 0.01 °C].
Remedy:	- check whether the fan is running. - check the fan elements - check whether the ambient temperature is in the permissible range. Notice: This fault can only be acknowledged after this alarm threshold for alarm A05003 has been fallen below.
F30037	Power unit: Rectifier overtemperature
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Power unit rectifier temperature has exceeded the permissible limit value. - insufficient cooling, fan failure. - overload - ambient temperature too high. - line supply phase failure. Fault value (r0949): Temperature [1 bit = 0.01 °C].
Remedy:	- check whether the fan is running. - check the fan elements - check whether the ambient temperature is in the permissible range. - check the motor load. - check the line supply phases. Notice: This fault can only be acknowledged after this alarm threshold for alarm A05004 has been fallen below.
A30038	Power unit: Capacitor fan monitoring
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	The capacitor fan signals a fault.
Remedy:	Replace the capacitor fan in the power unit.

F30039	Power unit: Failure capacitor fan
Drive object:	B_INF
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	The capacitor fan has failed.
Remedy:	Replace the capacitor fan in the power unit.
F30040	Power unit: Undervolt 24 V
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	Failure of the 24 V power supply for the power unit. - the 16 V threshold was fallen below for longer than 3 ms. Fault value (r0949): 24 V voltage [1 bit = 0.1 V].
Remedy:	Check the 24 V DC voltage supply to power unit.
A30041 (F)	Power unit: Undervoltage 24 V alarm
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	24 V power supply fault for the power unit. - the 16 V threshold was fallen below. Fault value (r0949): 24 V voltage [1 bit = 0.1 V].
Remedy:	Check the 24 V DC voltage supply to power unit.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
A30042	Power unit: Fan operating time reached or exceeded
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The maximum operating time of the fan in the power unit is set in p0252. This message indicates the following: Fault value (r0949, interpret decimal): 0: The maximum fan operating time is 500 hours. 1: The maximum fan operating time has been exceeded.
Remedy:	Replace the fan in the power unit and reset the operating hours counter to 0 (p0251 = 0). See also: p0251 (Operating hours counter power unit fan), p0252 (Maximum operating time power unit fan)
F30043	Power unit: Overvolt 24 V
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The following applies for CU31x: Overvoltage of the 24 V power supply for the power unit. - the 31.5 V threshold was exceeded for more than 3 ms. Fault value (r0949): 24 V voltage [1 bit = 0.1 V].
Remedy:	Check the 24 V DC voltage supply to power unit.

A30044 (F) Power unit: Overvoltage 24 V alarm

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The following applies for CU31x:
 24 V power supply fault for the power unit.
 - the 32.0 V threshold was exceeded.
 Fault value (r0949):
 24 V voltage [1 bit = 0.1 V].
Remedy: Check the 24 V DC voltage supply to power unit.
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (OFF1, OFF2, OFF3)
 VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30045 Power unit: Supply undervoltage

Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: The following applies for CU31x:
 Power supply fault in the power unit.
 - the voltage monitoring on the DAC board signals an undervoltage fault on the module.
Remedy: Check the 24 V DC power supply for the power unit and if required replace the module.

A30046 (F) Power unit: Undervoltage, alarm

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Before the last new start, a problem occurred at the power unit power supply.
 - the voltage monitoring in the internal FPGA of the PSA signals an undervoltage fault on the module.
 Fault value (r0949):
 Register value of the voltage fault register.
Remedy: Check the 24 V DC power supply for the power unit and if required replace the module.
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (OFF1, OFF2, OFF3)
 VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30047 Cooling system: Cooling medium flow rate too low

Drive object: A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Cooling system: Fault - flow rate has fallen below the fault value
Remedy:

F30050 Power unit: Supply overvoltage

Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: The following applies for CU31x and CUA31:
 - the voltage monitoring on the DAC board signals an overvoltage fault on the module.
Remedy: - check the voltage supply for the Control Unit (24 V).
 - if required, replace the module.

F30052 EEPROM data error

Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: EEPROM data error of the power unit module.
Fault value (r0949, interpret hexadecimal):
0: The EEPROM data read-in from the power unit module is inconsistent.
1: EEPROM data is not compatible to the firmware of the power unit application.
Remedy: Re fault value = 0:
Replace the power unit module or update the EEPROM data.
Re fault value = 1:
The following applies for CU31x and CUA31:
Update the firmware \SIEMENS\SINAMICS\CODE\SAC\cu31xi.ufw (cua31.ufw)

F30070 Cycle requested by the power unit module not supported

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
A cycle is requested that is not supported by the power unit.
Fault value (r0949, interpret hexadecimal):
The following applies for CU31x and CUA31:
0: The current control cycle is not supported.
1: The DRIVE-CLiQ cycle is not supported.
2: Internal timing problem (clearance between RX and TX instants too low).
3: Internal timing problem (TX instant too early).
Remedy: The following applies for CU31x and CUA31:
The power unit only supports the following cycles:
62.5 µs, 125 µs, 250 µs and 500 µs
Fault value (r0949, interpret hexadecimal):
The following applies for CU31x and CUA31:
0: Set a permitted current control cycle.
1: Set a permitted DRIVE-CLiQ cycle.
2/3: Contact the manufacturer (there is possibly an incompatible firmware release).

F30071 No new actual values received from the power unit module

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
More than one actual value telegram from the power unit has failed.
Remedy: The following applies for CU31x and CUA31:
Check the interface (adjustment and locking) to the power unit.

F30072 Setpoints are no longer being transferred to the power unit

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
More than one setpoint telegram was not able to be transferred to the power unit.
Remedy: The following applies for CU31x and CUA31:
Check the interface (adjustment and locking) to the power unit.

A30073 (N)	Actual value/setpoint preprocessing no longer synchronous to DRIVE-CLiQ
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The following applies for CU31x and CUA31: Communications to the power unit module are no longer in synchronism with DRIVE-CLiQ.
Remedy:	The following applies for CU31x and CUA31: Wait until synchronization is re-established.
Reaction upon N:	NONE
Acknowled. upon N:	NONE
F30074	Communications error to the power unit module
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Communications is not possible to the power unit via the plug contact.
Remedy:	The following applies for CU31x and CUA31: Either replace the CU board or the power unit. You must check which of the two components must be replaced by replacing one and then the other component; if neither are available then both components must be returned.
F30105	PU: Actual value sensing fault
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA). The incorrect actual value channels are displayed in the following diagnostic parameters.
Remedy:	Evaluate the diagnostic parameters. If the actual value channel is incorrect, check the components and if required, replace.
F30600	SI MM: STOP A initiated
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-based "Safety Integrated" function in the Motor Module (MM) has detected a fault and initiated STOP A (pulse cancelation via the safety shutdown path of the Motor Module). - forced checking procedure of the safety shutdown path of the Motor Module unsuccessful. - subsequent response to fault F30611 (defect in a monitoring channel). Fault value (r0949, interpret decimal): 0: Stop request from the Control Unit. 1005: Pulses canceled although STO not selected and there is no internal STOP A present. 1010: Pulses enabled although STO is selected or an internal STOP A is present. 9999: Subsequent response to fault F30611.
Remedy:	- select Safe Torque Off and de-select again. - replace the Motor Module involved. Re fault value = 9999: - carry out diagnostics for fault F30611. Note: CU: Control Unit MM: Motor Module SI: Safety Integrated STO: Safe Torque Off / SH: Safe standstill

F30611	SI MM: Defect in a monitoring channel".
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function in the Motor Module (MM) has detected a fault in the data cross-check between the Control Unit (CU) and MM and initiated a STOP F.</p> <p>As a result of this fault, after the parameterized transition has expired (p9858), fault F30600 is output (SI MM: STOP A initiated).</p> <p>Fault value (r0949, interpret decimal):</p> <p>0: Stop request from the Control Unit.</p> <p>1 to 999:</p> <p>Number of the cross-checked data that resulted in this fault. This number is also displayed in r9895.</p> <p>1: SI monitoring clock cycle (r9780, r9880).</p> <p>2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.</p> <p>3: SI SGE changeover tolerance time (p9650, p9850).</p> <p>4: SI transition period STOP F to STOP A (p9658, p9858).</p> <p>5: SI enable Safe Brake Control (p9602, p9802).</p> <p>6: SI motion enable, safety-relevant functions (p9501, internal value).</p> <p>7: SI pulse cancelation delay time for Safe Stop 1 (p9652, p9852).</p> <p>8: SI PROFI-safe address (p9610, p9810).</p> <p>1000: Watchdog timer has expired. Within the time of approx. 5 * p9850 too many switching operations have occurred at the safety-related inputs of the Control Unit.</p> <p>1001, 1002: Initialization error, change timer / check timer.</p> <p>2000: Status of the STO terminals on the Control Unit and Motor Module are different.</p> <p>2001: Feedback signal for safe pulse cancelation on the Control Unit and Motor Module are different.</p> <p>2002: Status of the delay timer SS1 on the Control Unit and Motor Module are different.</p>
Remedy:	<p>Re fault value = 1 to 5 and 7 to 999:</p> <ul style="list-style-type: none">- check the cross-checked data that resulted in a STOP F.- carry out a POWER ON (power off/on) for all components.- upgrade the Motor Module software.- upgrade the Control Unit software. <p>Re fault value = 6:</p> <ul style="list-style-type: none">- carry out a POWER ON (power off/on) for all components.- upgrade the Motor Module software.- upgrade the Control Unit software. <p>Re fault value = 1000:</p> <ul style="list-style-type: none">- check the wiring of the safety-relevant inputs (SGE) on the Control Unit (contact problems). <p>Re fault value = 1001, 1002:</p> <ul style="list-style-type: none">- carry out a POWER ON (power off/on) for all components.- upgrade the Motor Module software.- upgrade the Control Unit software. <p>Re fault value = 2000, 2001, 2002:</p> <ul style="list-style-type: none">- check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852).- check the wiring of the safety-relevant inputs (SGE) (contact problems).- replace the Motor Module involved. <p>Note:</p> <p>CU: Control Unit</p> <p>MM: Motor Module</p> <p>SGE: Safety-relevant input</p> <p>SI: Safety Integrated</p> <p>SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)</p> <p>STO: Safe Torque Off / SH: Safe standstill</p>

N30620 (F, A)	SI MM: Safe Torque Off active
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "Safe Torque Off" function was selected on the Motor Module (MM) via the input terminal and is active. Note: This message does not result in a safety stop response.
Remedy:	None necessary. Note: MM: Motor Module SI: Safety Integrated STO: Safe Torque Off / SH: Safe standstill
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon A:	NONE
Acknowl. upon A:	NONE
N30621 (F, A)	SI MM: Safe Stop 1 active
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "Safe Stop 1" function (SS1) was selected on the Motor Module (MM) and is active. Note: This message does not result in a safety stop response.
Remedy:	None necessary. Note: MM: Motor Module SI: Safety Integrated SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
Reaction upon F:	A_INFEED: OFF2 SERVO: OFF3 VECTOR: OFF3
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F30625	SI MM: Sign-of-life error in safety data
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-based "Safety Integrated" function on the Motor Module (MM) has detected an error in the sign-of-life of the safety data between the Control Unit (CU) and MM and initiated a STOP A. - there is either a DRIVE-CLiQ communications error or communications have failed. - a time slice overflow of the safety software has occurred. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- select Safe Torque Off and de-select again. - carry out a POWER ON (power off/on) for all components. - check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified. - de-select all drive functions that are not absolutely necessary. - reduce the number of drives. - check the electrical cabinet design and cable routing for EMC compliance Note: CU: Control Unit MM: Motor Module SI: Safety Integrated

F30630 SI MM: Brake control error

Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function on the Motor Module (MM) has detected a brake control error and initiated a STOP A.</p> <ul style="list-style-type: none">- no motor holding brake connected.- the motor holding brake control on the Motor Module or the Control Unit is faulty.- a DRIVE-CLiQ communications error has occurred between the Control Unit and the Motor Module. <p>Fault value (r0949, interpret decimal):</p> <p>10: No brake connected or fault in the Motor Module brake control circuit ("open brake" operation).</p> <p>30: Short-circuit in the brake winding or fault in the Motor Module brake control circuit ("close brake" operation).</p> <p>40: Defect in the brake control circuit of the Motor Module ("brake closed" state).</p> <p>60, 70: Fault in the brake control of the Control Unit or communications fault between the Control Unit and Motor Module (brake control).</p>
Remedy:	<ul style="list-style-type: none">- select Safe Torque Off and de-select again.- check the motor holding brake connection.- check the function of the motor holding brake.- check whether there is a DRIVE-CLiQ communications error between the Control Unit and the Motor Module involved and if required, carry out a diagnostics routine for the faults identified.- check the electrical cabinet design and cable routing for EMC compliance- replace the Motor Module involved. <p>Operation with Safe Brake Module:</p> <ul style="list-style-type: none">- check the Safe Brake Modules connection.- replace the Safe Brake Module. <p>Note:</p> <p>CU: Control Unit</p> <p>MM: Motor Module</p> <p>SI: Safety Integrated</p>

F30640 SI MM: Fault in the shutdown path of the second channel

Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The Motor Module has detected a communications error with the higher-level control or the TM54F to transfer the safety-relevant information.</p> <p>Note:</p> <p>This fault results in a STOP A that can be acknowledged.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Only for internal Siemens troubleshooting.</p>
Remedy:	<p>For the higher-level control, the following applies:</p> <ul style="list-style-type: none">- check the PROFIsafe address in the higher-level control and Motor Modules and if required, align.- save all parameters (p0977 = 1).- carry out a POWER ON (power off/on) for all components. <p>For TM54F, carry out the following steps:</p> <ul style="list-style-type: none">- start the copy function for the node identifier (p9700 = 1D hex).- acknowledge hardware CRC (p9701 = EC hex).- save all parameters (p0977 = 1).- carry out a POWER ON (power off/on) for all components. <p>The following generally applies:</p> <ul style="list-style-type: none">- upgrade the Motor Module software. <p>Note:</p> <p>MM: Motor Module</p> <p>SI: Safety Integrated</p> <p>See also: p9810 (SI PROFIsafe address (Motor Module))</p>

F30649	SI MM: Internal software error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal error in the Safety Integrated software on the Motor Module has occurred. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	<ul style="list-style-type: none"> - carry out a POWER ON (power off/on) for all components. - re-commission the Safety Integrated function and carry out a POWER ON. - upgrade the Motor Module software. - contact the Hotline. - replace the Motor Module. Note: MM: Motor Module SI: Safety Integrated
F30650	SI MM: Acceptance test required
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The "Safety Integrated" function on the Motor Module requires an acceptance test. Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 130: Safety parameters for the Motor Module not available. 1000: Reference and actual checksum in the Motor Module are not identical (booting). - at least one checksum-checked piece of data is defective. 2000: Reference and actual checksum on the Motor Module are not identical (commissioning mode). - reference checksum incorrectly entered into the Motor Module (p9899 not equal to r9898). 2003: Acceptance test is required as a safety parameter has been changed. 2005: The safety logbook has identified that the safety checksums have changed. An acceptance test is required. 3003: Acceptance test is required as a hardware-related safety parameter has been changed. 9999: Subsequent response of another safety-related fault, which occurred when booting and requires an acceptance test.
Remedy:	Re fault value = 130: - carry out safety commissioning routine. Re fault value = 1000: - again carry out safety commissioning routine. - replace the CompactFlash card. Re fault value = 2000: - check the safety parameters in the Motor Module and adapt the reference checksum (p9899). Re fault value = 2003, 2005: - Carry out an acceptance test and generate an acceptance report. Re fault value 3003: - carry out the function checks for the modified hardware and generate an acceptance report. The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature: SINAMICS S120 Function Description Safety Integrated Re fault value = 9999: - carry out diagnostics for the other safety-related fault that is present. Note: MM: Motor Module SI: Safety Integrated See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI reference checksum SI parameters (Motor Module))

F30651 SI MM: Synchronization with Control Unit unsuccessful

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function is requesting synchronization of the safety time slices on the Control Unit and Motor Module. This synchronization routine was not successful.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
Note:
MM: Motor Module
SI: Safety Integrated

F30652 SI MM: Illegal monitoring clock cycle

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The Safety Integrated monitoring clock cycle cannot be maintained due to the communication conditions requested in the system.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy:
Upgrade the Motor Module software.
Note:
MM: Motor Module
SI: Safety Integrated

F30655 SI MM: Align monitoring functions

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An error has occurred when aligning the Safety Integrated monitoring functions on the Control Unit (CU) and Motor Module (MM). Control unit and Motor Module were not able to determine a common set of supported SI monitoring functions.
- there is either a DRIVE-CLiQ communications error or communications have failed.
- Safety Integrated software releases on the Control Unit and Motor Module are not compatible with one another.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- check the electrical cabinet design and cable routing for EMC compliance
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

F30656	SI MM: Motor Module parameter error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When accessing the Safety Integrated parameters for the Motor Module (MM) on the CompactFlash card, an error has occurred. Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 129: Safety parameters for the Motor Module corrupted. 131: Internal software error on the Control Unit. 255: Internal Motor Module software error.
Remedy:	- re-commission the safety functions. - upgrade the Control Unit software. - upgrade the Motor Module software. - replace the CompactFlash card. Note: MM: Motor Module SI: Safety Integrated
F30659	SI MM: Write request for parameter rejected
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The write request for one or several Safety Integrated parameters on the Motor Module (MM) was rejected. Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): 10: An attempt was made to enable the STO function although this cannot be supported. 11: An attempt was made to enable the SBC function although this cannot be supported. 13: An attempt was made to enable the SS1 function although this cannot be supported. 14: An attempt was made to enable the safe motion monitoring function with the higher-level control, although this cannot be supported. See also: r9771 (SI common functions (Control Unit)), r9871 (SI common functions (Motor Module))
Remedy:	Re fault value = 10, 11: - check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved. - use a Motor Module that supports the function "Safe Torque Off" or "Safe Brake Control". - upgrade the Motor Module software. - upgrade the Control Unit software. Note: MM: Motor Module SBC: Safe Brake Control SI: Safety Integrated SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204) STO: Safe Torque Off / SH: Safe standstill
F30672	SI Motion: Control Unit software incompatible
Drive object:	SERVO, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The existing Control Unit software does not support the safe drive-based motion monitoring function. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.

Remedy:

- check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.
- use a Control Unit that supports the safe motion monitoring function.
- upgrade the Control Unit software.

Note:
SI: Safety Integrated

F30680 **SI Motion MM: Checksum error safety monitoring functions**

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The actual checksum calculated by the Motor Module and entered in r9398 over the safety-relevant parameters does not match the reference checksum saved in p9399 at the last machine acceptance.
Safety-relevant parameters have been changed or a fault is present.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
0: Checksum error for SI parameters for motion monitoring.
1: Checksum error for SI parameters for component assignment.

Remedy:

- Check the safety-relevant parameters and if required, correct.
- set the reference checksum to the actual checksum.
- carry out a POWER ON.
- carry out an acceptance test.

Note:
SI: Safety Integrated

C30681 **SI Motion MM: Incorrect parameter value**

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The parameter value cannot be parameterized with this value.
Fault value (r0949, interpret decimal):
Parameter number with the incorrect value.

Remedy: Correct the parameter value.

F30682 **SI Motion MM: Monitoring function not supported**

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The monitoring function enabled in p9301, p9501, p9601 or p9801 is not supported in this firmware version.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
30: The firmware version of the Motor Module is older than the version of the Control Unit.

Remedy: De-select the monitoring function involved (p9301, p9301, p9303, p9601, p9801).
Upgrade the Motor Module firmware.
See also: p9301 (SI motion enable safety functions (Motor Module)), p9501 (SI motion enable safety functions (Control Unit)), p9503 (SI motion SCA (SN) enable (Control Unit)), p9601 (SI enable, functions integrated in the drive (Control Unit)), p9801 (SI enable, functions integrated in the drive (Motor Module))

F30683 **SI Motion MM: SOS/SLS enable missing**

Drive object: SERVO, VECTOR

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The safety-relevant basic function "SOS/SLS" is not enabled in p9301 although other safety-relevant monitoring functions are enabled.
Note:
This fault results in a STOP A that cannot be acknowledged.

Remedy: Enable the function "SOS/SLS" (p9301.0).
Note:
 SI: Safety Integrated
 SLS: Safely-Limited Speed / SG: Safely reduced speed
 SOS: Safe Operating Stop / SBH: Safe operating stop
 See also: p9301 (SI motion enable safety functions (Motor Module))

F30685 SI Motion MM: Safely-Limited Speed limit value too high

Drive object: SERVO, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz.
 Fault value (r0949, interpret decimal):
 Maximum permissible speed.
Remedy: Correct the limit values for SLS and carry out a POWER ON.
Note:
 SI: Safety Integrated
 SLS: Safely-Limited Speed / SG: Safely reduced speed
 See also: p9331 (SI motion SLS limit values (Motor Module))

F30688 SI Motion MM: Actual value synchronization not permissible

Drive object: SERVO, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: It is not permissible to simultaneously enable the actual value synchronization and a monitoring function with absolute reference (SCA/SLP).
Remedy: Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
Note:
 SCA: Safe Cam / SN: Safe software cam
 SI: Safety Integrated
 SLP: Safely-Limited Position / SE: Safe software limit switches
 See also: p9501 (SI motion enable safety functions (Control Unit))

C30700 SI Motion MM: STOP A initiated

Drive object: SERVO, VECTOR
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP A (pulses are canceled via the safety shutdown path of the Control Unit).
 Possible causes:
 - stop request from the Control Unit.
 - pulses not canceled after a parameterized time (p9357) after test stop selection.
 - subsequent response to the message C30706 "SI Motion: Safe brake ramp exceeded".
 - subsequent response to the message C30714 "SI Motion: Safely limited speed exceeded".
 - subsequent response to the message C30701 "SI Motion: STOP B initiated".
Remedy:
 - remove the cause to the fault on the Control Unit.
 - check the value in p9357, if required, increase the value.
 - check the shutdown path of Control Unit (check DRIVE-CLiQ communications).
 - carry out a diagnostics routine for message C30706.
 - carry out a diagnostics routine for message C30714.
 - carry out a diagnostics routine for message C30701.
 - replace Motor Module.
 - replace Control Unit.
 This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
 SI: Safety Integrated

C30701	SI Motion MM: STOP B initiated
Drive object:	SERVO, VECTOR
Reaction:	OFF3
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive is stopped via a STOP B (braking along the OFF3 ramp).</p> <p>As a result of this fault, after the time, parameterized in p9356 has expired, or the speed threshold, parameterized in p9360 has been fallen below, message C30700 "SI Motion MM: STOP A initiated" is output.</p> <p>Possible causes:</p> <ul style="list-style-type: none">- stop request from the Control Unit.- subsequent response to the message C30714 "SI Motion MM: Safely limited speed exceeded".- subsequent response to the message C30711 "SI Motion MM: Defect in a monitoring channel".
Remedy:	<ul style="list-style-type: none">- remove the fault cause in the control and carry out a POWER ON.- carry out a diagnostics routine for message C01714.- carry out a diagnostics routine for message C01711. <p>This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.</p> <p>Note:</p> <p>SI: Safety Integrated</p>
C30706	SI Motion MM: Safe Acceleration Monitor limit exceeded
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>After initiating STOP B or STOP C, the velocity has exceeded the selected tolerance.</p> <p>The drive is shut down by the message C30700 "SI Motion MM: STOP A initiated".</p>
Remedy:	<p>Check the braking behavior, if required, adapt the tolerance for "Safe Acceleration Monitor".</p> <p>This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.</p> <p>Note:</p> <p>SBR: Safe Acceleration Monitor</p> <p>SI: Safety Integrated</p> <p>See also: p9548 (SI motion SBR actual velocity tolerance (Control Unit))</p>
C30707	SI Motion MM: Tolerance for safe operating stop exceeded
Drive object:	SERVO, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The actual position has distanced itself further from the target position than the standstill tolerance.</p> <p>The drive is shut down by the message C30701 "SI Motion MM: STOP B initiated".</p>
Remedy:	<ul style="list-style-type: none">- check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.- carry out a POWER ON. <p>This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.</p> <p>Note:</p> <p>SI: Safety Integrated</p> <p>SOS: Safe Operating Stop / SBH: Safe operating stop</p> <p>See also: p9530 (SI motion standstill tolerance (Control Unit))</p>
C30708	SI Motion MM: STOP C initiated
Drive object:	SERVO, VECTOR
Reaction:	STOP2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive is stopped via a STOP C (braking along the OFF3 ramp).</p> <p>"Safe Operating Stop" (SOS) is activated after the parameterized timer stage has expired.</p> <p>Possible causes:</p> <ul style="list-style-type: none">- stop request from the higher-level control.- subsequent response to the message C30714 "SI Motion MM: Safely limited speed exceeded".

See also: p9552 (SI motion transition time STOP C to SOS (SBH) (Control Unit))

Remedy:

- remove the cause of the fault at the control.
- carry out a diagnostics routine for message C30714.

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:

SI: Safety Integrated

SOS: Safe Operating Stop / SBH: Safe operating stop

C30709 SI Motion MM: STOP D initiated

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive is stopped via a STOP D (braking along the path).
 "Safe Operating Stop" (SOS) is activated after the parameterized timer stage has expired.
 Possible causes:

- stop request from the Control Unit.
- subsequent response to the message C30714 "SI Motion: Safely limited speed exceeded".

See also: p9353 (SI Motion transition time STOP D to SOS (Motor Module)), p9553 (SI motion transition time STOP D to SOS (SBH) (Control Unit))

Remedy:

- remove the cause of the fault at the control.
- carry out a diagnostics routine for message C30714.

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:

SI: Safety Integrated

SOS: Safe Operating Stop / SBH: Safe operating stop

C30711 SI MM MM: Defect in a monitoring channel

Drive object: SERVO, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: When cross-checking and comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.
 If at least one monitoring function is active, then after the parameterized timer stage has expired, the message C30701 "SI Motion: STOP B initiated" is output. The alarm is output with message value 1031 when the Sensor Module hardware is replaced.
 Message value (r9749, interpret decimal):

- 0 ... 999: Number of the cross-checked data that resulted in this fault.
- 0: Stop request from the other monitoring channel.
- 1: Status image of monitoring functions SOS, SLS or SLP (result list 1) (r9710[0], r9710[1]).
- 2: Status image of monitoring function SCA or n < nx (result list 2) (r9711[0], r9711[1]).
- 3: Position actual value.
- 4: Error when synchronizing the crosswise data comparison between the two channels.
- 5: Function enable signals (p9501, p9301).
- 6: Limit value for SLS1 (p9531[0], p9331[0]).
- 7: Limit value for SLS2 (p9531[1], p9331[1]).
- 8: Limit value for SLS3 (p9531[2], p9331[2]).
- 9: Limit value for SLS4 (p9531[3], p9331[3]).
- 10: Standstill tol. (p9530, p9330).
- 31: Pos. tol. (p9542, p9342).
- 33: Time, velocity changeover (p9551, p9351).
- 35: Delay time, pulse canc. (p9556, p9356).
- 36: Checking time, pulse canc. (p9557, p9357).
- 37: Trans. time, STOP C to SOS (p9552, p9352).
- 38: Trans. time STOP D to SOS (p9553, p9353).
- 40: Stop response for SLS.
- 42: Shutdown speed, pulse canc. (p9560, p9360).
- 43: Memory test, stop response (STOP A).
- 44: Position actual value + limit value SLS1 / safety monitoring clock cycle.
- 45: Pos. act. val. - limit value SLS1 / safety monitoring clock cycle.
- 46: Pos. act. val. + limit value SLS2 / safety monitoring clock cycle.

- 47: Pos. act. val. - limit value SLS2 / safety monitoring clock cycle.
 - 48: Pos. act. val. + limit value SLS3 / safety monitoring clock cycle.
 - 49: Pos. act. val. - limit value SLS3 / safety monitoring clock cycle.
 - 50: Pos. act. val. + limit value SLS4 / safety monitoring clock cycle.
 - 51: Pos. act. val. - limit value SLS4 / safety monitoring clock cycle.
 - 52: Standstill position + tolerance.
 - 53: Standstill position - tolerance
 - 54: Pos. act. val. + limit value nx / safety monit. clock cycle + tolerance.
 - 55: Pos. act. val. + limit value nx / safety monit. clock cycle.
 - 56: Pos. act. val. - limit value nx / safety monit. clock cycle.
 - 57: Pos. act. val. - limit value nx / safety monit. clock cycle - tolerance.
 - 58: Actual stop request.
 - 75: Velocity limit nx (p9546, p9346).
 - 76: Stop response for SLS1 (p9563[0], p9363[0]).
 - 77: Stop response for SLS2 (p9563[1], p9363[1]).
 - 78: Stop response for SLS3 (p9563[2], p9363[2]).
 - 79: Stop response for SLS4 (p9563[3], p9363[3]).
 - 81: Velocity tolerance for SBR (p9548, p9348).
 - 82: SGEs for SLS correction factor.
 - 83: Acceptance test timer (p9558, p9358).
 - 84: Trans. time STOP F (p9555, p9355).
 - 85: Trans. time bus failure (p9580, p9380).
 - 86: Ident. 1-encoder system.
 - 87: Encoder assignment, 2nd channel (p9526, p9326).
 - 89: Encoder limit freq.
 - 1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.
 - 1001: Initialization error of watchdog timer.
 - 1005: Pulses already canceled for test stop selection.
 - 1011: Acceptance test status between the monitoring channels differ.
 - 1012: Plausibility violation of the actual value from the encoder.
 - 1020: Cyc. communication failure between the monit. cycles.
 - 1021: Cyc. communication failure between the monit. channel and Sensor Module.
 - 1030: Encoder fault detected from another monitoring channel.
 - 1031: Data transfer error between the monitoring channel and the Sensor Module.
 - 5000 ... 5140: PROFIsafe message values.
 - Message values 5000, 5014, 5023, 5024, 5030 ... 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:
 - an int. SW error has occurred. Only for int. Siemens troubleshooting.
 - 5012: Error when initializing the PROFIsafe driver.
 - 5013: The result of the initialization is different for the two controllers.
 - 5022: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.
 - 5025: The result of the F parameterization is different for the two controllers.
 - 5026: CRC error for the F parameters. The transferred CRC value of the F parameters does not match the value calculated in the PST.
 - 5065: A communications error was identified when receiving the PROFIsafe telegram.
 - 5066: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.
- See also: p9555 (SI motion transition time STOP F to STOP B (Control Unit)), r9725 (SI motion, diagnostics STOP F)

Remedy:

- Re message value = 1030:
 - check the encoder connection.
 - if required, replace the encoder.
- Re message value = 1031:
 - When replacing a Sensor Module, carry out the following steps:
 - start the copy function for the node identifier on the drive (p9700 = 1D hex).
 - acknowledge the hardware CRC on the drive (p9701 = EC hex).
 - save all parameters (p0977 = 1).
 - carry out a POWER ON (power off/on) for all components.
 - The following always applies:
 - check the encoder connection.
 - if required, replace the encoder.
- Re other message values:
 - the significance of the message values is described in safety message C01711 of the Control Unit.

Note:
 This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
 See also: p9300 (SI motion monitoring clock cycle (Motor Module)), p9500 (SI motion monitoring clock cycle (Control Unit))

C30714 SI Motion MM: Safely-Limited Speed exceeded

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive had moved faster than that specified by the velocity limit value (p9331). The drive is stopped as a result of the configured stop response (p9363).
 Message value (r9749, interpret decimal):
 100: SLS1 exceeded.
 200: SLS2 exceeded.
 300: SLS3 exceeded.
 400: SLS4 exceeded.
 1000: Encoder limit frequency exceeded.

Remedy:

- check the traversing/motion program in the control.
- check the limits for "Safely-Limited Speed" (SLS) and if required, adapt (p9331).

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:
 SI: Safety Integrated
 SLS: Safely-Limited Speed / SG: Safely reduced speed
 See also: p9331 (SI motion SLS limit values (Motor Module)), p9363 (SI motion SLS stop response (Motor Module))

C30798 SI Motion MM: Test stop running

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The test stop is active.

Remedy: None necessary.
 The message is withdrawn when the test stop is ended.

Note:
 SI: Safety Integrated

C30799 SI Motion MM: Acceptance test mode active

Drive object: SERVO, VECTOR
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The acceptance test mode is active. The POWER ON signals of the safety-relevant motion monitoring functions can be acknowledged during the acceptance test using the acknowledgement functions of the higher-level control.

Remedy: None necessary.
 The message is withdrawn when exiting the acceptance test mode.

Note:
 SI: Safety Integrated

N30800 (F) Power unit: Group signal

Drive object: All objects
Reaction: OFF2
Acknowledge: NONE
Cause: The power unit has detected at least one fault.
Remedy: Evaluates other actual messages.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F30801 Power unit DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved.
The computation time load might be too high.
Fault value (r0949, interpret hexadecimal):
0A: The sign-of-life bit in the receive telegram is not set.
Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- remove DRIVE-CLiQ components that are not required.
- de-select functions that are not required.
- if required, increase the sampling times (p0112, p0115).
- replace the component involved.

F30802 Power unit: Time slice overflow

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Time slice overflow.
Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade the firmware release.
- contact the Hotline.

A30804 (F) Power unit: CRC

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CRC error actuator
Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade the firmware release.
- contact the Hotline.

Reaction upon F: A_INFEED: OFF2 (OFF1)
SERVO: OFF2 (OFF1, OFF3)
VECTOR: OFF2 (OFF1, OFF3)
Acknowl. upon F: IMMEDIATELY

F30805 Power unit: EPROM checksum error

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: Replace the module.

F30809	Power unit: Switching information not valid
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	For 3P gating unit: The last switching status word in the setpoint telegram is identified by the end ID. Such an end ID was not found.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.
A30810 (F)	Power unit: Watchdog timer
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the firmware release. - contact the Hotline.
Reaction upon F:	NONE (OFF2)
Acknowled. upon F:	IMMEDIATELY
F30820	Power unit DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. Fault value (r0949, interpret hexadecimal): 01: CRC error. 02: Telegram is shorter than specified in the length byte or in the receive list. 03: Telegram is longer than specified in the length byte or in the receive list. 04: The length of the receive telegram does not match the receive list. 05: The type of the receive telegram does not match the receive list. 06: The address of the component in the telegram and in the receive list do not match. 07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
F30835	Power unit DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list.
Remedy:	- carry out a POWER ON. - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30836	Power unit DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.

F30837	Power unit DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error.
Remedy:	<ul style="list-style-type: none">- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).- check the electrical cabinet design and cable routing for EMC compliance- if required, use another DRIVE-CLiQ socket (p9904).- replace the component involved.

F30845	Power unit DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30850	Power unit: Internal software error
Drive object:	All objects
Reaction:	A_INFEED: OFF1 (NONE, OFF2) SERVO: OFF1 (NONE, OFF2, OFF3) VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	An internal software error in the power unit has occurred. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	<ul style="list-style-type: none">- replace power unit.- if required, upgrade the firmware in the power unit.- contact the Hotline.

F30851	CU DRIVE-CLiQ: Sign-of-life missing
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (NONE, OFF1, OFF3) VECTOR: OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. The DRIVE-CLiQ component did not set the sign of life to the Control Unit. Fault value (r0949, interpret hexadecimal): 0A: The sign-of-life bit in the receive telegram is not set.
Remedy:	Upgrade the firmware of the component involved.
F30860	CU DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. Fault value (r0949, interpret hexadecimal): 11: CRC error and the receive telegram is too early. 01: CRC error. 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 02: Telegram is shorter than specified in the length byte or in the receive list. 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 03: Telegram is longer than specified in the length byte or in the receive list. 14: The length of the receive telegram does not match the receive list and the receive telegram is too early. 04: The length of the receive telegram does not match the receive list. 15: The type of the receive telegram does not match the receive list and the receive telegram is too early. 05: The type of the receive telegram does not match the receive list. 16: The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 06: The address of the power unit in the telegram and in the receive list do not match. 19: The error bit in the receive telegram is set and the receive telegram is too early. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
F30885	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list. 62: Error at the transition to cyclic operation.
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F30886	CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.

F30887	CU DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component (power unit) involved. Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error. 60: Response received too late during runtime measurement. 61: Time taken to exchange characteristic data too long.
Remedy:	<ul style="list-style-type: none">- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).- check the electrical cabinet design and cable routing for EMC compliance- if required, use another DRIVE-CLiQ socket (p9904).- replace the component involved.

F30895	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the power unit involved. Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F30896	CU DRIVE-CLiQ: Inconsistent component characteristics
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (power unit), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.
Remedy:	<ul style="list-style-type: none">- when replacing cables, only use cables with the same length as the original cables.- when replacing components, use the same components and firmware releases.- carry out a POWER ON.

F30897	DRIVE-CLiQ: No communication to component
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Communications with the DRIVE-CLiQ component (power unit) specified by the fault value is not possible. One cause can be, e.g. that a DRIVE-CLiQ cable has been withdrawn. Fault value (r0949, interpret decimal): Component ID.
Remedy:	- check the DRIVE-CLiQ connections. - carry out a POWER ON.
F30899 (N, A)	Power unit: Unknown fault
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the power unit that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the power unit is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the power unit by an older firmware version (r0128). - upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A30903	Power unit: I2C bus error occurred
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Communications with EPROM not possible. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	Replace the module.
F30907	Power unit: FPGA configuration unsuccessful
Drive object:	A_INF, B_INF, CU_CX32, CU_LINK, CU_S, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	For the initialization within the power unit, an internal software error has occurred.
Remedy:	- replace power unit. - if required, upgrade the firmware in the power unit. - contact the Hotline.

A30920 (F) Power unit: Temperature sensor fault

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Remedy:
- check that the sensor is connected correctly.
- replace sensor.
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY

A30999 (F, N) Power unit: Unknown alarm

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on the power unit is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:
- replace the firmware on the power unit by an older firmware version (r0128).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F31100 (N, A) Encoder 1: Zero mark distance error

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: ENCODER (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: ENCODER (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31101 (N, A) Encoder 1: Zero marked failed

Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse). See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the clearance between zero marks (p0425). - replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31110 (N, A) Encoder 1: Serial communications error

Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Fault value (r0949, interpret binary): Bit 0: Alarm bit in the position protocol. Bit 1: Incorrect quiescent level on the data line. Bit 2: Encoder does not respond (does not supply a start bit within 50 ms). Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data. Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it. Bit 5: Internal error in the serial driver: An illegal mode command was requested. Bit 6: Timeout when cyclically reading. Bit 8: Protocol is too long (e.g. > 64 bits). Bit 9: Receive buffer overflow. Bit 10: Frame error when reading twice. Bit 11: Parity error. Bit 12: Data line signal level error during the monoflop time.
Remedy:	Re fault value: Bit 0 = 1: Encoder defective. F31111 may provide additional details. Bit 1 = 1: Incorrect encoder type / replace the encoder or encoder cable. Bit 2 = 1: Incorrect encoder type / replace the encoder or encoder cable. Bit 3 = 1: EMC / connect the cable shield, replace the encoder or encoder cable. Bit 4 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. Bit 5 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. Bit 6 = 1: Update the Sensor Module firmware. Bit 8 = 1: Check the parameterization (p0429.2). Bit 9 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. Bit 10 = 1: Check the parameterization (p0429.2, p0449). Bit 11 = 1: Check the parameterization (p0436). Bit 12 = 1: Check the parameterization (p0429.6).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31111 (N, A) Encoder 1: Absolute encoder EnDat, internal fault/error

Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The EnDat encoder fault word supplies fault bits that have been set. Fault value (r0949, interpret binary): Bit 0: Lighting system failed. Bit 1: Signal amplitude too low. Bit 2: Position value incorrect. Bit 3: Encoder power supply overvoltage condition. Bit 4: Encoder power supply undervoltage condition. Bit 5: Encoder power supply overcurrent condition. Bit 6: The battery must be changed. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	Re fault value, bit 0 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 1 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 2 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 3 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor. Re fault value, bit 4 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When using a motor with DRIVE-CLiQ: Replace the motor. Re fault value, bit 5 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 6 = 1: The battery must be changed (only for encoders with battery back-up).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31112 (N, A) Encoder 1: The error bit is set in the serial protocol

Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	Serial communication protocol transfer error between the encoder and evaluation module SMCxx. Fault value (r0949, interpret binary):
Remedy:	Re fault value:
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31115 (N, A)	Encoder 1: Amplitude error track A or B ($A^2 + B^2$)
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The amplitude ($A^2 + B^2$) does not lie within the tolerance bandwidth (software monitoring function). SMC20: The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %). On the other hand, the response threshold is < 230 mV (frequency characteristic). SMC10: The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV. Fault value (r0949, interpret decimal): Low word: Signal level, track A (16 bits with sign). High word: Signal level, track B (16 bits with sign). SMC20: A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. SMC10: A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel. - for measuring systems with their own bearing system: Ensure that the encoder housing is not subject to any axial force.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31116 (N, A)	Encoder 1: Amplitude error monitoring track A + B
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	The amplitude of the rectified encoder signals A and B is not within the tolerance bandwidth (hardware monitoring). The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %). On the other hand, the hardware response thresholds are at < 176 mV and > 1.35 V. Fault value (r0949, interpret decimal): Low word: Signal level, track A (16 bits with sign). High word: Signal level, track B (16 bits with sign). A signal level of 500 mV corresponds to the numerical value 5333 hex = 21299 dec. These analog values are not measured at the same time with the hardware fault output. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31117 (N, A) Encoder 1: Inversion error signals A and B and R

Drive object: All objects

Reaction: A_INFEED: NONE
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: For a square-wave signal encoder (TTL. bipolar. double ended) the A* and B* and R* signals are not inverted with respect to signals A and B and R.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Check the setting of p0405: p0405.2 = 1 is only possible if the encoder is connected at X520.
Check the encoder/cable: Does the encoder supply TTL signals and the associated inverted signals?

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31118 (N, A) Encoder 1: Speed difference outside the tolerance range

Drive object: All objects

Reaction: A_INFEED: NONE
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: PULSE INHIBIT

Cause: For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles.
Encoder 1 is used as motor encoder and can be effective has fault response to change over to sensorless operation.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31120 (N, A) Encoder 1: Power supply voltage

Drive object: All objects

Reaction: A_INFEED: NONE
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: PULSE INHIBIT

Cause: Encoder power supply voltage fault.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line (threshold 4.75 V).
Bit 1: Encoder power supply voltage overcurrent condition (threshold 450 mA).
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: For fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).
For fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31121 (N, A) Encoder 1: Coarse position error

Drive object: All objects
Reaction: A_INFEED: NONE
 SERVO: ENCODER (NONE)
 VECTOR: ENCODER (NONE)
Acknowledge: PULSE INHIBIT
Cause: For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31125 (N, A) Encoder 1: Amplitude error track A or B overcontrolled

Drive object: All objects
Reaction: A_INFEED: NONE
 SERVO: ENCODER (IASC / DCBRAKE, NONE)
 VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The amplitude (track A or B) does not lie within the tolerance bandwidth (software monitoring function).
 SMC20:
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %).
 On the other hand, the response threshold is > 760 mV (frequency characteristic).
 SMC10:
 The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.
 Fault value (r0949, interpret decimal):
 Low word:
 Signal level, track A (16 bits with sign).
 High word:
 Signal level, track B (16 bits with sign).
 SMC20:
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
 SMC10:
 A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - replace the encoder or encoder cable.
 - with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31129 (N, A)	Encoder 1: Position difference, hall sensor/track C/D and A/B too large
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	<p>The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.</p> <p>One period of track C/D corresponds to 360 ° mechanical.</p> <p>One period of the Hall signal corresponds to 360 ° electrical.</p> <p>The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.</p> <p>After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429.</p> <p>Fault value (r0949, interpret decimal):</p> <p>For track C/D, the following applies:</p> <p>Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).</p> <p>For Hall signals, the following applies:</p> <p>Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).</p> <p>See also: p0491 (Motor encoder fault response ENCODER)</p>
Remedy:	<ul style="list-style-type: none">- track C or D not connected.- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.- check that the encoder cables are routed in compliance with EMC.- check the adjustment of the Hall sensor.
Reaction upon N:	NONE
Acknowled. upon N:	NONE
Reaction upon A:	NONE
Acknowled. upon A:	NONE

F31130 (N, A)	Encoder 1: Zero mark and position error from the coarse synchronization
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	<p>After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.</p> <p>When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.</p> <p>When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked as to whether the zero mark occurs in an angular range of +/-60 ° electrical.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>yyyyxxxx hex</p> <p>yyyy: Determined mechanical zero mark position (can only be used for track C/D).</p> <p>xxxx: Deviation of the zero mark from the expected position as electrical angle.</p> <p>Normalization: 32768 dec = 180 °</p> <p>See also: p0491 (Motor encoder fault response ENCODER)</p>
Remedy:	<ul style="list-style-type: none">- check p0431 and if required, correct.- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- if the Hall sensor is used as an equivalent for track C/D, check the connection.- check the connection of track C or D.- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowled. upon N:	NONE
Reaction upon A:	NONE
Acknowled. upon A:	NONE

F31131 (N, A)	Encoder 1: Deviation, position incremental/absolute too large
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Fault value (r0949, interpret decimal): Deviation in quadrants (1 pulse = 4 quadrants). Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check whether the coding disk is dirty or there are strong ambient magnetic fields.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31150 (N, A)	Encoder 1: Initialization error
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Encoder functionality selected in p0404 is not operating correctly. Fault value (r0949, interpret hexadecimal): The fault value is a bit field. Every set bit indicates functionality that is faulted. The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D). See also: p0404 (Encoder configuration effective), p0491 (Motor encoder fault response ENCODER)
Remedy:	- Check that p0404 is correctly set. - check the encoder type used (incremental/absolute value) and for SMCxx, the encoder cable. - if relevant, note additional fault/error messages that describe the fault in detail.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A31400 (F, N)	Encoder 1: Alarm threshold zero mark distance error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Alarm value (r2124, interpret decimal): Last measured zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A31401 (F, N) Encoder 1: Alarm threshold zero marked failed

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F31405 (N, A) Encoder 1: Encoder evaluation temperature too high

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The encoder evaluation for a motor with DRIVE-CLiQ has detected an excessively high temperature.
The fault threshold is 125 °C.
Alarm value (r2124, interpret decimal):
Measured board/module temperature in 0.1 °C.

Remedy: Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A31410 (F, N)	Encoder 1: Serial communications
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>Serial communication protocol transfer error between the encoder and evaluation module.</p> <p>Alarm value (r2124, interpret binary):</p> <p>Bit 0: Alarm bit in the position protocol.</p> <p>Bit 1: Incorrect quiescent level on the data line.</p> <p>Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).</p> <p>Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.</p> <p>Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.</p> <p>Bit 5: Internal error in the serial driver: An illegal mode command was requested.</p> <p>Bit 6: Timeout when cyclically reading.</p> <p>Bit 8: Protocol is too long (e.g. > 64 bits).</p> <p>Bit 9: Receive buffer overflow.</p> <p>Bit 10: Frame error when reading twice.</p> <p>Bit 11: Parity error.</p> <p>Bit 12: Data line signal level error during the monoflop time.</p>
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder.
Reaction upon F:	<p>A_INFEED: NONE (OFF1, OFF2)</p> <p>SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p> <p>VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p>
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31411 (F, N)	Encoder 1: EnDat encoder signals alarms
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The error word of the EnDat encoder has alarm bits that have been set.</p> <p>Alarm value (r2124, interpret binary):</p> <p>Bit 0: Frequency exceeded (speed too high).</p> <p>Bit 1: Temperature exceeded.</p> <p>Bit 2: Control reserve, lighting system exceeded.</p> <p>Bit 3: Battery discharged.</p> <p>Bit 4: Reference point passed.</p> <p>See also: p0491 (Motor encoder fault response ENCODER)</p>
Remedy:	Replace encoder.
Reaction upon F:	<p>A_INFEED: NONE (OFF1, OFF2)</p> <p>SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p> <p>VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p>
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31414 (F, N)	Encoder 1: Amplitude error track C or D ($C^2 + D^2$)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The amplitude ($C^2 + D^2$) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.</p> <p>The nominal signal must be in the range 375 mV to 600 mV (500 mV -25 % / +20 %).</p> <p>On the other hand, the response thresholds are < 230 mV and > 750 mV (frequency characteristic).</p> <p>This fault also occurs if the A/D converter is overcontrolled.</p> <p>If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.</p>

Alarm value (r2124, interpret decimal):
 Low word: Signal level, track C (16 bits with sign).
 High word: Signal level, track D (16 bits with sign).
 A signal level of 500 mV corresponds to the numerical value 5333 hex = 21299 dec.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

N31415 (F, A) Encoder 1: Amplitude alarm track A or B ($A^2 + B^2$)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The amplitude ($A^2 + B^2$) of track A or B is not within the tolerance bandwidth.
 SMC20:
 The nominal signal level is at 500 mV (500 mV -25 % / +20 %). The response threshold is < 300 mV.
 SMC10:
 The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
 Alarm value (r2124, interpret decimal):
 Low word:
 Amplitude square root($A^2 + B^2$).
 SMC20:
 A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
 SMC10:
 A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
 High word:
 Angle 0 to 65535 corresponds to 0 to 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- dirty code disk
- aged lighting system.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon A: NONE

Acknowl. upon A: NONE

A31418 (F, N) Encoder 1: Speed difference per sampling rate exceeded

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492.
 Alarm value (r2124, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy:	<ul style="list-style-type: none"> - check the tachometer feeder cable for interruptions. - check the grounding of the tachometer shielding. - if required, increase the setting of p0492.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31419 (F, N) Encoder 1: Track A or B outside the tolerance range

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude, phase or offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27 Phase: <84 degrees or >96 degrees SMC20: Offset correction: +/-140 mV SMC10: Offset correction: +/-650 mV Alarm value (r2124, interpret hexadecimal): xxx1: Minimum of the offset correction, track B xxx2: Maximum of the offset correction, track B xx1x: Minimum of the offset correction, track A xx2x: Maximum of the offset correction, track A x1xx: Minimum of the amplitude correction, track B/A x2xx: Maximum of the amplitude correction, track B/A 1xxx: Minimum of the phase error correction 2xxx: Maximum of the phase error correction See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	<ul style="list-style-type: none"> - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders). - check the plug connections (also the transition resistance). - check the encoder signals. - replace the encoder or encoder cable.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31421 (F, N) Encoder 1: Coarse position error

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For this encoder, this coarse position is incorrect. Fault value (r0949, interpret decimal): 3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative otherwise the position can be incorrect by one encoder pulse.
Remedy:	Re fault value = 3: For Sensor Module Cabinet (SMC) and Sensor Module External (SME), the following applies: <ul style="list-style-type: none"> - use an encoder cable from Siemens. - for encoder cables that you have fabricated yourself, interchange track A with A* and B with B*. For Sensor Module Integrated (SMI), the following applies: <ul style="list-style-type: none"> - replace the component.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A31429 (F, N) Encoder 1: Position difference, hall sensor/track C/D and A/B too large

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
 One period of track C/D corresponds to 360 ° mechanical.
 One period of the Hall signal corresponds to 360 ° electrical.
 The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
 Alarm value (r2124, interpret decimal):
 For track C/D, the following applies:
 Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
 For Hall signals, the following applies:
 Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A31431 (F, N) Encoder 1: Deviation, position incremental/absolute too large

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: When the zero pulse is passed, a deviation in the incremental position was detected.
 Alarm value (r2124, interpret decimal):
 Deviation in quadrants (1 pulse = 4 quadrants).
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- coding disk dirty or strong magnetic fields.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A31432 (F, N)	Encoder 1: Rotor position adaptation corrects deviation
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of the zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check encoder limit frequency. - adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F31500 (N, A)	Encoder 1: Position tracking traversing range exceeded
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. For the configured linear axis, the maximum traversing range is defined to be 64x (+/- 32x) of p0421. The value should be read in p0412 and interpreted as the number of motor revolutions.
Remedy:	<p>The fault should be resolved as follows:</p> <ul style="list-style-type: none"> - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). <p>The fault should then be acknowledged and the absolute encoder adjusted.</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31501 (N, A)	Encoder 1: Position tracking encoder position outside tolerance window
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	<p>When powered-down, the drive/encoder was moved through a distance greater than what was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.</p> <p>Fault value (r0949, decimal): Deviation (difference) to the last encoder position in increments of the absolute value. The sign designates the traversing direction.</p> <p>Note: The deviation (difference) found is also displayed in r0477. See also: p0413 (Measuring gearbox, position tracking tolerance window), r0477 (Measuring gearbox, position difference)</p>
Remedy:	<p>Reset the position tracking as follows:</p> <ul style="list-style-type: none"> - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). <p>The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507). See also: p0010 (Infeed commissioning parameter filter), p2507 (LR absolute encoder adjustment status)</p>

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31502 (N, A) Encoder 1: Encoder with measuring gearbox, without valid signals

Drive object: SERVO, VECTOR
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The encoder with measuring gearbox no longer provides any valid signals.
Remedy: It must be ensured that all of the encoders, with mounted measuring gearbox, provide valid actual values in operation.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31503 (N, A) Encoder 1: Position tracking cannot be reset

Drive object: SERVO, VECTOR
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The position tracking for the measuring gearbox cannot be reset.
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

N31800 (F) Encoder 1: Group signal

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Evaluates other actual messages.
Reaction upon F: A_INFEED: OFF2 (NONE)
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowl. upon F: IMMEDIATELY

F31801 (N, A) Encoder 1 DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved.
Fault value (r0949, interpret hexadecimal):
0A: The sign-of-life bit in the receive telegram is not set.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31802 (N, A) Encoder 1: Time slice overflow

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE)
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: Time slice overflow, encoder 1.
Fault value (r0949, interpret decimal):
9: Time slice overflow of the fast (current controller clock cycle) time slice.
10: Time slice overflow of the average time slice.
12: Time slice overflow of the slow time slice.
999: Timeout when waiting for SYNO, e.g. unexpected return to non-cyclic operation.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Reduce the current controller frequency.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31804 (N, A) Encoder 1: Checksum error

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE)
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31805 (N, A) Encoder 1: EPROM checksum error

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE)
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31806 (N, A) Encoder 1: Initialization error

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
1, 2, 3: Encoder initialization with the motor rotating.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Acknowledge the fault.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31811 (F, N) Encoder 1: Encoder serial number changed

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
Cause 1:
The encoder was replaced.
Cause 2:
A third-party, build-in or linear motor was re-commissioned.
Cause 3:
The motor with integrated and adjusted encoder was replaced.
Cause 4:
The firmware was updated to a version that checks the encoder serial number.
Note:
With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Re causes 1, 2:
Carry out an automatic adjustment using the pole position identification routine. First, accept the serial number with p0440 = 1. Acknowledge the fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.
SERVO:
If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.
or
Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
or
Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Re causes 3, 4:
Accept the new serial number with p0440 = 1.

Reaction upon F: A_INFEED: OFF2 (NONE)
SERVO: NONE (ENCODER, OFF2)
VECTOR: NONE (ENCODER, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31812 (N, A) Encoder 1: Requested cycle or RX-/TX timing not supported

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.
Alarm value (r2124, interpret decimal):
0: Application cycle is not supported.
1: DQ cycle is not supported.
2: Clearance between RX and TX instants in time too low.
3: TX instant in time too early.
Remedy:
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31820 (N, A) Encoder 1 DRIVE-CLiQ: Telegram error

Drive object: All objects
Reaction: A_INFEED: OFF2
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved.
Fault value (r0949, interpret hexadecimal):
01: CRC error.
02: Telegram is shorter than specified in the length byte or in the receive list.
03: Telegram is longer than specified in the length byte or in the receive list.
04: The length of the receive telegram does not match the receive list.
05: The type of the receive telegram does not match the receive list.
06: The address of the component in the telegram and in the receive list do not match.
07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram.
09: The error bit in the receive telegram is set.
10: The receive telegram is too early.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31835 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects

Reaction: A_INFEED: OFF2
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved. The nodes do not send and receive in synchronism.
Fault value (r0949, interpret hexadecimal):
21: The cyclic telegram has not been received.
22: Timeout in the telegram receive list.
40: Timeout in the telegram send list.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - carry out a POWER ON.
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31836 (N, A) Encoder 1 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Drive object: All objects

Reaction: A_INFEED: OFF2
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved. Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
41: Telegram type does not match send list.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Carry out a POWER ON.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31837 (N, A) Encoder 1 DRIVE-CLiQ: Component fault

Drive object: All objects

Reaction: A_INFEED: OFF2
SERVO: ENCODER (IASC / DCBRAKE, NONE)
VECTOR: ENCODER (IASC / DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
20: Error in the telegram header.
23: Receive error: The telegram buffer memory contains an error.
42: Send error: The telegram buffer memory contains an error.
43: Send error: The telegram buffer memory contains an error.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31845 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: A_INFEED: OFF2
 SERVO: ENCODER (IASC / DCBRAKE, NONE)
 VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved.
 Fault value (r0949, interpret hexadecimal):
 0B: Synchronization error during alternating cyclic data transfer.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Carry out a POWER ON.
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31850 (N, A) Encoder 1: Sensor Module, internal software error

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
 SERVO: ENCODER (IASC / DCBRAKE, NONE)
 VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: POWER ON
Cause: Internal software error in the Sensor Module of encoder 1.
 Fault value (r0949, interpret decimal):
 1: Background time slice is blocked.
 2: Checksum over the code memory is not OK.
 10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - replace the Sensor Module.
 - if required, upgrade the firmware in the Sensor Module.
 - contact the Hotline.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31851 (N, A) CU DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: ENCODER (IASC / DCBRAKE, NONE)
 VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Sensor Module (encoder 1) involved. The DRIVE-CLiQ component did not set the sign of life to the Control Unit.
 Fault value (r0949, interpret hexadecimal):
 0A: The sign-of-life bit in the receive telegram is not set.
Remedy: Upgrade the firmware of the component involved.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31860 (N, A)	CU DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 1). Fault value (r0949, interpret hexadecimal): 11: CRC error and the receive telegram is too early. 01: CRC error. 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 02: Telegram is shorter than specified in the length byte or in the receive list. 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 03: Telegram is longer than specified in the length byte or in the receive list. 14: The length of the receive telegram does not match the receive list and the receive telegram is too early. 04: The length of the receive telegram does not match the receive list. 15: The type of the receive telegram does not match the receive list and the receive telegram is too early. 05: The type of the receive telegram does not match the receive list. 16: The address of the encoder in the telegram and in the receive list does not match and the receive telegram is too early. 06: The address of the encoder in the telegram and in the receive list do not match. 19: The error bit in the receive telegram is set and the receive telegram is too early. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31885 (N, A)	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 1). The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list. 62: Error at the transition to cyclic operation.
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31886 (N, A)	CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 1). Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	- carry out a POWER ON. - check whether the firmware version of the encoder (r0148) matches the firmware version of Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31887 (N, A)	CU DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 1). Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error. 60: Response received too late during runtime measurement. 61: Time taken to exchange characteristic data too long.
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31895 (N, A)	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 1). Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31896 (N, A) CU DRIVE-CLiQ: Inconsistent component characteristics

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
VECTOR: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 1), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.

Remedy: - when replacing cables, only use cables with the same length as the original cables.
- when replacing components, use the same components and firmware releases.
- carry out a POWER ON.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31897 (N, A) DRIVE-CLiQ: No communication to component

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: Communications with the DRIVE-CLiQ component (Sensor Module for encoder 1) specified by the fault value is not possible.
One cause can be, e.g. that a DRIVE-CLiQ cable has been withdrawn.
Fault value (r0949, interpret decimal):
Component ID.

Remedy: - check the DRIVE-CLiQ connections.
- carry out a POWER ON.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31899 (N, A) Encoder 1: Unknown fault

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: A fault occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on the Sensor Module for encoder 1 is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31902 (F, N) Encoder 1: SPI-BUS error occurred

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal SPI bus. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module. - if required, upgrade the firmware in the Sensor Module. - contact the Hotline.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31903 (F, N) Encoder 1: I2C-BUS error occurred

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal I2C bus. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module. - if required, upgrade the firmware in the Sensor Module. - contact the Hotline.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F31905 (N, A) Encoder 1: Parameterization error

Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: ENCODER (IASC / DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A parameter of encoder 1 was detected as being incorrect. It is possible that the parameterized encoder type does not match the connected encoder. The parameter involved can be determined as follows: - determine the parameter number using the fault value (r0949). - determine the parameter index (p0187). Fault value (r0949, interpret decimal): High word - low word = information - parameter number Info = 0: No information available. Info = 1: The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <-> -A/B (p0405.2 = 1). Info = 2: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification. Info = 3: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.

Info = 4:

This component does not support SSI encoders (p0404.9 = 1) without track A/B.

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number 314: Check the pole pair number and measuring gearbox ratio. The quotient of the "pole pair number" divided by the "measuring gearbox ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A31920 (F, N) Encoder 1: Temperature sensor fault

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
Low word low byte: Cause:
1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Additional values:
Only for internal Siemens troubleshooting.
Low word high byte: Channel number.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check that the encoder cable is the correct type and is correctly connected.
- check the temperature sensor selection in p0600 to p0603.
- replace the Sensor Module (hardware defect or incorrect calibration data).

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A31999 (F, N) Encoder 1: Unknown alarm

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A alarm has occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the Sensor Module for encoder 1 is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

F32100 (N, A)	Encoder 2: Zero mark clearance error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal): Last measured zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. . check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the distance between zero marks (p0424, p0425). - replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32101 (N, A)	Encoder 2: Zero marked failed
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. . check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the clearance between zero marks (p0425). - replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32110 (N, A)	Encoder 2: Serial communications error
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Fault value (r0949, interpret binary): Bit 0: Alarm bit in the position protocol. Bit 1: Incorrect quiescent level on the data line. Bit 2: Encoder does not respond (does not supply a start bit within 50 ms). Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data. Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.

Bit 5: Internal error in the serial driver: An illegal mode command was requested.
 Bit 6: Timeout when cyclically reading.
 Bit 8: Protocol is too long (e.g. > 64 bits).
 Bit 9: Receive buffer overflow.
 Bit 10: Frame error when reading twice.
 Bit 11: Parity error.
 Bit 12: Data line signal level error during the monoflop time.

Remedy:

Re fault value:
 Bit 0 = 1: Encoder defective. F31111 may provide additional details.
 Bit 1 = 1: Incorrect encoder type / replace the encoder or encoder cable.
 Bit 2 = 1: Incorrect encoder type / replace the encoder or encoder cable.
 Bit 3 = 1: EMC / connect the cable shield, replace the encoder or encoder cable.
 Bit 4 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
 Bit 5 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
 Bit 6 = 1: Update the Sensor Module firmware.
 Bit 8 = 1: Check the parameterization (p0429.2).
 Bit 9 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
 Bit 10 = 1: Check the parameterization (p0429.2, p0449).
 Bit 11 = 1: Check the parameterization (p0436).
 Bit 12 = 1: Check the parameterization (p0429.6).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32111 (N, A) Encoder 2: Absolute encoder EnDat, internal fault/error

Drive object: All objects

Reaction: A_INFEED: NONE
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The EnDat encoder fault word supplies fault bits that have been set.

Fault value (r0949, interpret binary):
 Bit 0: Lighting system failed.
 Bit 1: Signal amplitude too low.
 Bit 2: Position value incorrect.
 Bit 3: Encoder power supply overvoltage condition.
 Bit 4: Encoder power supply undervoltage condition.
 Bit 5: Encoder power supply overcurrent condition.
 Bit 6: The battery must be changed.

Remedy:

Re fault value, bit 0 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
 Re fault value, bit 1 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
 Re fault value, bit 2 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
 Re fault value, bit 3 = 1:
 5 V power supply voltage fault.
 When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
 When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
 Re fault value, bit 4 = 1:
 5 V power supply voltage fault.
 When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
 When using a motor with DRIVE-CLiQ: Replace the motor.
 Re fault value, bit 5 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 6 = 1:
The battery must be changed (only for encoders with battery back-up).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32112 (N, A) Encoder 2: The error bit is set in the serial protocol

Drive object: All objects
Reaction: A_INFEED: NONE
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: Serial communication protocol transfer error between the encoder and evaluation module SMCxx.
Fault value (r0949, interpret decimal):
Remedy: Re fault value:
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32115 (N, A) Encoder 2: Amplitude error track A or B ($A^2 + B^2$)

Drive object: All objects
Reaction: A_INFEED: NONE
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The amplitude ($A^2 + B^2$) does not lie within the tolerance bandwidth (software monitoring function).
SMC20:
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %).
On the other hand, the response threshold is < 230 mV (frequency characteristic).
SMC10:
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV.
Fault value (r0949, interpret decimal):
Low word:
Signal level, track A (16 bits with sign).
High word:
Signal level, track B (16 bits with sign).
SMC20:
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
SMC10:
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel.
- for measuring systems with their own bearing system: Ensure that the encoder housing is not subject to any axial force.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32116 (N, A)	Encoder 2: Amplitude error monitoring track A + B
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The amplitude of the rectified encoder signals A and B is not within the tolerance bandwidth (hardware monitoring). The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %). On the other hand, the hardware response thresholds are at < 176 mV and > 1.35 V. Fault value (r0949, interpret decimal): Low word: Signal level, track A (16 bits with sign). High word: Signal level, track B (16 bits with sign). A signal level of 500 mV corresponds to the numerical value 5333 hex = 21299 dec. These analog values are not measured at the same time with the hardware fault output.
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- replace the encoder or encoder cable.- check the Sensor Module (e.g. contacts).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32117 (N, A)	Encoder 2: Inversion error signals A and B and R
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a square-wave signal encoder (TTL. bipolar. double ended) the A* and B* and R* signals are not inverted with respect to signals A and B and R.
Remedy:	Check the setting of p0405: p0405.2 = 1 is only possible if the encoder is connected at X520. Check the encoder/cable: Does the encoder supply TTL signals and the associated inverted signals?
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32118 (N, A)	Encoder 2: Speed difference outside the tolerance range
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	<ul style="list-style-type: none">- check the tachometer feeder cable for interruptions.- check the grounding of the tachometer shielding.- if required, increase the maximum speed difference per sampling cycle (p0492).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32120 (N, A)	Encoder 2: Power supply voltage
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	Encoder power supply voltage fault. Note: If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed. Fault value (r0949, interpret binary): Bit 0: Undervoltage condition on the sense line (threshold 4.75 V). Bit 1: Encoder power supply voltage overcurrent condition (threshold 450 mA).
Remedy:	For fault value, bit 0 = 1: - correct encoder cable connected? - check the plug connections of the encoder cable. - SMC30: Check the parameterization (p0404.22). For fault value, bit 1 = 1: - correct encoder cable connected? - replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32121 (N, A)	Encoder 2: Coarse position error
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (NONE, OFF2, OFF3) VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32125 (N, A)	Encoder 1: Amplitude error track A or B overcontrolled
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The amplitude (track A or B) does not lie within the tolerance bandwidth (software monitoring function). SMC20: The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %). On the other hand, the response threshold is > 760 mV (frequency characteristic). SMC10: The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV. Fault value (r0949, interpret decimal): Low word: Signal level, track A (16 bits with sign). High word: Signal level, track B (16 bits with sign). SMC20: A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

SMC10:

A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- replace the encoder or encoder cable.
- with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32129 (N, A) Encoder 2: Position difference, hall sensor/track C/D and A/B too large

Drive object: All objects

Reaction: A_INFEED: NONE
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.

One period of track C/D corresponds to 360 ° mechanical.

One period of the Hall signal corresponds to 360 ° electrical.

The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.

After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429.

Fault value (r0949, interpret decimal):

For track C/D, the following applies:

Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).

For Hall signals, the following applies:

Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy:

- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32130 (N, A) Encoder 2: Zero mark and position error from the coarse synchronization

Drive object: All objects

Reaction: A_INFEED: NONE
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

Acknowledge: PULSE INHIBIT

Cause: After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.

When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.

When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked as to whether the zero mark occurs in an angular range of +/-60 ° electrical.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex

yyyy: Determined mechanical zero mark position (can only be used for track C/D).

xxxx: Deviation of the zero mark from the expected position as electrical angle.

Normalization: 32768 dec = 180 °

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- check the connection of track C or D.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32131 (N, A) Encoder 2: Deviation, position incremental/absolute too large

Drive object: All objects

Reaction: A_INFEED: NONE
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

Acknowledge: PULSE INHIBIT

Cause: Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
 Limit value for the deviation:
 - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQ1 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
 - other encoders: 15 pulses = 60 quadrants.
 Fault value (r0949, interpret decimal):
 Deviation in quadrants (1 pulse = 4 quadrants).
 Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check whether the coding disk is dirty or there are strong ambient magnetic fields.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32150 (N, A) Encoder 2: Initialization error

Drive object: All objects

Reaction: A_INFEED: NONE
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

Acknowledge: PULSE INHIBIT

Cause: Encoder functionality selected in p0404 is not operating correctly.
 Fault value (r0949, interpret hexadecimal):
 The fault value is a bit field. Every set bit indicates functionality that is faulted.
 The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).

Remedy:

- Check that p0404 is correctly set.
- check the encoder type used (incremental/absolute value) and for SMCxx, the encoder cable.
- if relevant, note additional fault/error messages that describe the fault in detail.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A32400 (F, N)	Encoder 2: Alarm threshold zero mark distance error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The measured zero mark distance does not correspond to the parameterized zero mark distance.</p> <p>For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.</p> <p>The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Last measured zero mark distance in increments (4 increments = 1 encoder pulse).</p> <p>The sign designates the direction of motion when detecting the zero mark distance.</p>
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- check the encoder type (encoder with equidistant zero marks).- adapt the parameter for the distance between zero marks (p0424, p0425).- replace the encoder or encoder cable.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32401 (F, N)	Encoder 2: Alarm threshold zero marked failed
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The 1.5 x parameterized zero mark distance was exceeded.</p> <p>The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).</p>
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- check the encoder type (encoder with equidistant zero marks).- adapt the parameter for the clearance between zero marks (p0425).- replace the encoder or encoder cable.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32405 (N, A)	Encoder 2: Encoder evaluation temperature too high
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The encoder evaluation for a motor with DRIVE-CLiQ has detected an excessively high temperature.</p> <p>The fault threshold is 125 °C.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Measured board/module temperature in 0.1 °C.</p>
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A32410 (F, N) Encoder 2: Serial communications

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
 Alarm value (r2124, interpret binary):
 Bit 0: Alarm bit in the position protocol.
 Bit 1: Incorrect quiescent level on the data line.
 Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
 Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
 Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
 Bit 5: Internal error in the serial driver: An illegal mode command was requested.
 Bit 6: Timeout when cyclically reading.
 Bit 8: Protocol is too long (e.g. > 64 bits).
 Bit 9: Receive buffer overflow.
 Bit 10: Frame error when reading twice.
 Bit 11: Parity error.
 Bit 12: Data line signal level error during the monoflop time.
Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder.
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32411 (F, N) Encoder 2: EnDat encoder signals alarms

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The error word of the EnDat encoder has alarm bits that have been set.
 Alarm value (r2124, interpret binary):
 Bit 0: Frequency exceeded (speed too high).
 Bit 1: Temperature exceeded.
 Bit 2: Control reserve, lighting system exceeded.
 Bit 3: Battery discharged.
 Bit 4: Reference point passed.
Remedy: Replace encoder.
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32414 (F, N)	Encoder 2: Amplitude error track C or D ($C^2 + D^2$)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The amplitude ($C^2 + D^2$) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.</p> <p>The nominal signal must be in the range 375 mV to 600 mV (500 mV -25 % / +20 %).</p> <p>On the other hand, the response thresholds are < 230 mV and > 750 mV (frequency characteristic).</p> <p>This fault also occurs if the A/D converter is overcontrolled.</p> <p>If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Low word: Signal level, track C (16 bits with sign).</p> <p>High word: Signal level, track D (16 bits with sign).</p> <p>A signal level of 500 mV corresponds to the numerical value 5333 hex = 21299 dec.</p>
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - check the Hall sensor box
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
N32415 (F, A)	Encoder 2: Amplitude alarm track A or B ($A^2 + B^2$)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The amplitude ($A^2 + B^2$) of track A or B is not within the tolerance bandwidth.</p> <p>SMC20:</p> <p>The nominal signal level is at 500 mV (500 mV -25 % / +20 %). The response threshold is < 300 mV.</p> <p>SMC10:</p> <p>The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Low word:</p> <p>Amplitude square root($A^2 + B^2$).</p> <p>SMC20:</p> <p>A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.</p> <p>SMC10:</p> <p>A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.</p> <p>High word:</p> <p>Angle 0 to 65535 corresponds to 0 to 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.</p>
Remedy:	<ul style="list-style-type: none"> - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - dirty code disk - aged lighting system.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32418 (F, N) Encoder 2: Speed difference per sampling rate exceeded

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- check the tachometer feeder cable for interruptions. - check the grounding of the tachometer shielding. - if required, increase the setting of p0492.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32419 (F, N) Encoder 2: Track A or B outside the tolerance range

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude, phase or offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27 Phase: <84 degrees or >96 degrees SMC20: Offset correction: +/-140 mV SMC10: Offset correction: +/-650 mV Alarm value (r2124, interpret hexadecimal): xxx1: Minimum of the offset correction, track B xxx2: Maximum of the offset correction, track B xx1x: Minimum of the offset correction, track A xx2x: Maximum of the offset correction, track A x1xx: Minimum of the amplitude correction, track B/A x2xx: Maximum of the amplitude correction, track B/A 1xxx: Minimum of the phase error correction 2xxx: Maximum of the phase error correction
Remedy:	- check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders). - check the plug connections (also the transition resistance). - check the encoder signals. - replace the encoder or encoder cable.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32421 (F, N) Encoder 2: Coarse position error

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For this encoder, this coarse position is incorrect. Fault value (r0949, interpret decimal): 3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative otherwise the position can be incorrect by one encoder pulse.

Remedy: Re fault value = 3:
For Sensor Module Cabinet (SMC) and Sensor Module External (SME), the following applies:
- use an encoder cable from Siemens.
- for encoder cables that you have fabricated yourself, interchange track A with A* and B with B*.
For Sensor Module Integrated (SMI), the following applies:
- replace the component.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A32429 (F, N) Encoder 2: Position difference, hall sensor/track C/D and A/B too large

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
Alarm value (r2124, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy: - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A32431 (F, N) Encoder 2: Deviation, position incremental/absolute too large

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: When the zero pulse is passed, a deviation in the incremental position was detected.
Alarm value (r2124, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- coding disk dirty or strong magnetic fields.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A32432 (F, N)	Encoder 2: Rotor position adaptation corrects deviation
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of the zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check encoder limit frequency. - adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F32500 (N, A)	Encoder 2: Position tracking traversing range exceeded
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. For the configured linear axis, the maximum traversing range is defined to be 64x (+/- 32x) of p0421. The value should be read in p0412 and interpreted as the number of motor revolutions.
Remedy:	<p>The fault should be resolved as follows:</p> <ul style="list-style-type: none"> - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). <p>The fault should then be acknowledged and the absolute encoder adjusted.</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32501 (N, A)	Encoder 2: Position tracking encoder position outside tolerance window
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	<p>When powered-down, the drive/encoder was moved through a distance greater than what was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.</p> <p>Fault value (r0949, decimal): Deviation (difference) to the last encoder position in increments of the absolute value. The sign designates the traversing direction.</p> <p>Note: The deviation (difference) found is also displayed in r0477. See also: p0413 (Measuring gearbox, position tracking tolerance window), r0477 (Measuring gearbox, position difference)</p>
Remedy:	<p>Reset the position tracking as follows:</p> <ul style="list-style-type: none"> - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). <p>The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507). See also: p0010 (Infeed commissioning parameter filter), p2507 (LR absolute encoder adjustment status)</p>

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32502 (N, A) Encoder 2: Encoder with measuring gearbox, without valid signals

Drive object: SERVO, VECTOR
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The encoder with measuring gearbox no longer provides any valid signals.
Remedy: It must be ensured that all of the encoders, with mounted measuring gearbox, provide valid actual values in operation.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32503 (N, A) Encoder 2: Position tracking cannot be reset

Drive object: SERVO, VECTOR
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The position tracking for the measuring gearbox cannot be reset.
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

N32800 (F) Encoder 2: Group signal

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluates other actual messages.
Reaction upon F: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F32801 (N, A) Encoder 2 DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved.
Fault value (r0949, interpret hexadecimal):
0A: The sign-of-life bit in the receive telegram is not set.

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32802 (N, A) Encoder 2: Time slice overflow

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Time slice overflow, encoder 2.
Fault value (r0949, interpret decimal):
9: Time slice overflow of the fast (current controller clock cycle) time slice.
10: Time slice overflow of the average time slice.
12: Time slice overflow of the slow time slice.
999: Timeout when waiting for SYNO, e.g. unexpected return to non-cyclic operation.

Remedy: Reduce the current controller frequency.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32804 (N, A) Encoder 2: Checksum error

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.

Remedy:

- check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32805 (N, A) Encoder 2: EPROM checksum error

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.

Remedy: Replace the module.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32806 (N, A) Encoder 2: Initialization error

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
1, 2, 3: Encoder initialization with the motor rotating.

Remedy: Acknowledge the fault.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32811 (N, A) Encoder 2: Encoder serial number changed

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (NONE, OFF2, OFF3)
VECTOR: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).
Cause:
The encoder was replaced.
Note:
With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).

Remedy: Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32812 (N, A) Encoder 2: Requested cycle or RX-/TX timing not supported

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.
Alarm value (r2124, interpret decimal):
0: Application cycle is not supported.
1: DQ cycle is not supported.
2: Clearance between RX and TX instants in time too low.
3: TX instant in time too early.

Remedy:

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32820 (N, A)	Encoder 2 DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved. Fault value (r0949, interpret hexadecimal): 01: CRC error. 02: Telegram is shorter than specified in the length byte or in the receive list. 03: Telegram is longer than specified in the length byte or in the receive list. 04: The length of the receive telegram does not match the receive list. 05: The type of the receive telegram does not match the receive list. 06: The address of the component in the telegram and in the receive list do not match. 07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32835 (N, A)	Encoder 2 DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved. The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list.
Remedy:	- carry out a POWER ON. - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32836 (N, A)	Encoder 2 DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Drive object:	All objects
Reaction:	A_INFEED: OFF2 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32837 (N, A) Encoder 2 DRIVE-CLiQ: Component fault

Drive object: All objects
Reaction: A_INFEED: OFF2
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
20: Error in the telegram header.
23: Receive error: The telegram buffer memory contains an error.
42: Send error: The telegram buffer memory contains an error.
43: Send error: The telegram buffer memory contains an error.
Remedy:
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32845 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: A_INFEED: OFF2
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved.
Fault value (r0949, interpret hexadecimal):
0B: Synchronization error during alternating cyclic data transfer.
Remedy: Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32850 (N, A) Encoder 2: Sensor Module, internal software error

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: Internal software error in the Sensor Module of encoder 2.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
Remedy:
- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32851 (N, A) CU DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Sensor Module (encoder 2) involved. The DRIVE-CLiQ component did not set the sign of life to the Control Unit.
 Fault value (r0949, interpret hexadecimal):
 0A: The sign-of-life bit in the receive telegram is not set.
Remedy: Upgrade the firmware of the component involved.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32860 (N, A) CU DRIVE-CLiQ: Telegram error

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 2).
 Fault value (r0949, interpret hexadecimal):
 11: CRC error and the receive telegram is too early.
 01: CRC error.
 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
 02: Telegram is shorter than specified in the length byte or in the receive list.
 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
 03: Telegram is longer than specified in the length byte or in the receive list.
 14: The length of the receive telegram does not match the receive list and the receive telegram is too early.
 04: The length of the receive telegram does not match the receive list.
 15: The type of the receive telegram does not match the receive list and the receive telegram is too early.
 05: The type of the receive telegram does not match the receive list.
 16: The address of the encoder in the telegram and in the receive list does not match and the receive telegram is too early.
 06: The address of the encoder in the telegram and in the receive list do not match.
 19: The error bit in the receive telegram is set and the receive telegram is too early.
 09: The error bit in the receive telegram is set.
 10: The receive telegram is too early.
Remedy:
 - carry out a POWER ON.
 - check the electrical cabinet design and cable routing for EMC compliance
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
 See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32885 (N, A)	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 2). The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list. 62: Error at the transition to cyclic operation.
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowled. upon N:	NONE
Reaction upon A:	NONE
Acknowled. upon A:	NONE

F32886 (N, A)	CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 2). Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.
Reaction upon N:	NONE
Acknowled. upon N:	NONE
Reaction upon A:	NONE
Acknowled. upon A:	NONE

F32887 (N, A)	CU DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 2). Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error. 60: Response received too late during runtime measurement. 61: Time taken to exchange characteristic data too long.
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32895 (N, A) CU DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 2).
 Fault value (r0949, interpret hexadecimal):
 0B: Synchronization error during alternating cyclic data transfer.
Remedy: Carry out a POWER ON.
 See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32896 (N, A) CU DRIVE-CLiQ: Inconsistent component characteristics

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
 VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 2), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
 Fault value (r0949, interpret decimal):
 Component number.
Remedy: - when replacing cables, only use cables with the same length as the original cables.
 - when replacing components, use the same components and firmware releases.
 - carry out a POWER ON.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32897 (N, A) DRIVE-CLiQ: No communication to component

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Communications with the DRIVE-CLiQ component (Sensor Module for encoder 2) specified by the fault value is not possible.
 One cause can be, e.g. that a DRIVE-CLiQ cable has been withdrawn.
 Fault value (r0949, interpret decimal):
 Component ID.
Remedy: - check the DRIVE-CLiQ connections.
 - carry out a POWER ON.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32899 (N, A) Encoder 2: Unknown fault

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: A fault occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on the Sensor Module for encoder 2 is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.

Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32902 (F, N) Encoder 2: SPI-BUS error occurred

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Error when operating the internal SPI bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32903 (F, N) Encoder 2: I2C-BUS error occurred

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Error when operating the internal I2C bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32905 (N, A)	Encoder 2: Parameterization error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A parameter of encoder 1 was detected as being incorrect. It is possible that the parameterized encoder type does not match the connected encoder. The parameter involved can be determined as follows: - determine the parameter number using the fault value (r0949). - determine the parameter index (p0187). Fault value (r0949, interpret decimal): High word - low word = information - parameter number Info = 0: No information available. Info = 1: The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1). Info = 2: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification. Info = 3: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000. Info = 4: This component does not support SSI encoders (p0404.9 = 1) without track A/B.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized. - correct the parameter specified by the fault value (r0949) and p0187. - re parameter number 314: Check the pole pair number and measuring gearbox ratio. The quotient of the "pole pair number" divided by the "measuring gearbox ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A32920 (F, N)	Encoder 2: Temperature sensor fault
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): Low word low byte: Cause: 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm). 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm). Additional values: Only for internal Siemens troubleshooting. Low word high byte: Channel number.
Remedy:	- check that the encoder cable is the correct type and is correctly connected. - check the temperature sensor selection in p0600 to p0603. - replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32999 (F, N)	Encoder 2: Unknown alarm
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A alarm has occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the Sensor Module for encoder 2 is more recent than the firmware on the Control Unit.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Alarm number.</p> <p>If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.</p>
Remedy:	<ul style="list-style-type: none">- replace the firmware on the Sensor Module by an older firmware version (r0148).- upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F33100 (N, A)	Encoder 3: Zero mark clearance error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	<p>The measured zero mark distance does not correspond to the parameterized zero mark distance.</p> <p>For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.</p> <p>The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).</p> <p>Fault value (r0949, interpret decimal):</p> <p>Last measured zero mark distance in increments (4 increments = 1 encoder pulse).</p> <p>The sign designates the direction of motion when detecting the zero mark distance.</p>
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- check the encoder type (encoder with equidistant zero marks).- adapt the parameter for the distance between zero marks (p0424, p0425).- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33101 (N, A)	Encoder 3: Zero marked failed
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	<p>The 1.5 x parameterized zero mark distance was exceeded.</p> <p>The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).</p> <p>Fault value (r0949, interpret decimal):</p> <p>Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).</p>

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33110 (N, A) Encoder 3: Serial communications error

Drive object: All objects

Reaction: A_INFEED: NONE
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: Serial communication protocol transfer error between the encoder and evaluation module.
 Fault value (r0949, interpret binary):
 Bit 0: Alarm bit in the position protocol.
 Bit 1: Incorrect quiescent level on the data line.
 Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
 Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
 Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
 Bit 5: Internal error in the serial driver: An illegal mode command was requested.
 Bit 6: Timeout when cyclically reading.
 Bit 8: Protocol is too long (e.g. > 64 bits).
 Bit 9: Receive buffer overflow.
 Bit 10: Frame error when reading twice.
 Bit 11: Parity error.
 Bit 12: Data line signal level error during the monoflop time.

Remedy: Re fault value:
 Bit 0 = 1: Encoder defective. F31111 may provide additional details.
 Bit 1 = 1: Incorrect encoder type / replace the encoder or encoder cable.
 Bit 2 = 1: Incorrect encoder type / replace the encoder or encoder cable.
 Bit 3 = 1: EMC / connect the cable shield, replace the encoder or encoder cable.
 Bit 4 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
 Bit 5 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
 Bit 6 = 1: Update the Sensor Module firmware.
 Bit 8 = 1: Check the parameterization (p0429.2).
 Bit 9 = 1: EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
 Bit 10 = 1: Check the parameterization (p0429.2, p0449).
 Bit 11 = 1: Check the parameterization (p0436).
 Bit 12 = 1: Check the parameterization (p0429.6).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33111 (N, A) Encoder 3: Absolute encoder EnDat, internal fault/error

Drive object: All objects

Reaction: A_INFEED: NONE
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The EnDat encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Bit 0: Lighting system failed.
 Bit 1: Signal amplitude too low.
 Bit 2: Position value incorrect.
 Bit 3: Encoder power supply overvoltage condition.

	<p>Bit 4: Encoder power supply undervoltage condition.</p> <p>Bit 5: Encoder power supply overcurrent condition.</p> <p>Bit 6: The battery must be changed.</p>
Remedy:	<p>Re fault value, bit 0 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.</p> <p>Re fault value, bit 1 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.</p> <p>Re fault value, bit 2 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.</p> <p>Re fault value, bit 3 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.</p> <p>Re fault value, bit 4 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When using a motor with DRIVE-CLiQ: Replace the motor.</p> <p>Re fault value, bit 5 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.</p> <p>Re fault value, bit 6 = 1: The battery must be changed (only for encoders with battery back-up).</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33112 (N, A) Encoder 3: The error bit is set in the serial protocol

Drive object:	All objects
Reaction:	<p>A_INFEED: NONE</p> <p>SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)</p> <p>VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)</p>
Acknowledge:	PULSE INHIBIT
Cause:	<p>Serial communication protocol transfer error between the encoder and evaluation module SMCxx.</p> <p>Fault value (r0949, interpret decimal):</p>
Remedy:	Re fault value:
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33115 (N, A) Encoder 3: Amplitude error track A or B ($A^2 + B^2$)

Drive object:	All objects
Reaction:	<p>A_INFEED: NONE</p> <p>SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)</p> <p>VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)</p>
Acknowledge:	PULSE INHIBIT
Cause:	<p>The amplitude ($A^2 + B^2$) does not lie within the tolerance bandwidth (software monitoring function).</p> <p>SMC20: The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %). On the other hand, the response threshold is < 230 mV (frequency characteristic).</p> <p>SMC10: The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Low word: Signal level, track A (16 bits with sign).</p>

	<p>High word: Signal level, track B (16 bits with sign). SMC20: A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. SMC10: A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.</p>
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel. - for measuring systems with their own bearing system: Ensure that the encoder housing is not subject to any axial force.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33116 (N, A)	Encoder 3: Amplitude error monitoring track A + B
Drive object:	All objects
Reaction:	<p>A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)</p>
Acknowledge:	IMMEDIATELY
Cause:	<p>The amplitude of the rectified encoder signals A and B is not within the tolerance bandwidth (hardware monitoring). The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %). On the other hand, the hardware response thresholds are at < 176 mV and > 1.35 V. Fault value (r0949, interpret decimal): Low word: Signal level, track A (16 bits with sign). High word: Signal level, track B (16 bits with sign). A signal level of 500 mV corresponds to the numerical value 5333 hex = 21299 dec. These analog values are not measured at the same time with the hardware fault output.</p>
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33117 (N, A)	Encoder 3: Inversion error signals A and B and R
Drive object:	All objects
Reaction:	<p>A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)</p>
Acknowledge:	IMMEDIATELY
Cause:	For a square-wave signal encoder (TTL. bipolar. double ended) the A* and B* and R* signals are not inverted with respect to signals A and B and R.
Remedy:	<p>Check the setting of p0405: p0405.2 = 1 is only possible if the encoder is connected at X520. Check the encoder/cable: Does the encoder supply TTL signals and the associated inverted signals?</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33118 (N, A) Encoder 3: Speed difference outside the tolerance range

Drive object: All objects

Reaction: A_INFEED: NONE
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33120 (N, A) Encoder 3: Power supply voltage

Drive object: All objects

Reaction: A_INFEED: NONE
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: Encoder power supply voltage fault.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line (threshold 4.75 V).
Bit 1: Encoder power supply voltage overcurrent condition (threshold 450 mA).

Remedy: For fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).
For fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33121 (N, A) Encoder 3: Coarse position error

Drive object: All objects

Reaction: A_INFEED: NONE
SERVO: OFF1 (NONE, OFF2, OFF3)
VECTOR: OFF1 (NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.

Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33125 (N, A)	Encoder 1: Amplitude error track A or B overcontrolled
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: ENCODER (IASC / DCBRAKE, NONE) VECTOR: ENCODER (IASC / DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The amplitude (track A or B) does not lie within the tolerance bandwidth (software monitoring function). SMC20: The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25 % / +20 %). On the other hand, the response threshold is > 760 mV (frequency characteristic). SMC10: The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV. Fault value (r0949, interpret decimal): Low word: Signal level, track A (16 bits with sign). High word: Signal level, track B (16 bits with sign). SMC20: A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. SMC10: A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check that the encoder cables are routed in compliance with EMC. - replace the encoder or encoder cable. - with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33129 (N, A)	Encoder 3: Position difference, hall sensor/track C/D and A/B too large
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy:	- track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33130 (N, A)	Encoder 3: Zero mark and position error from the coarse synchronization
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out. When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical. When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked as to whether the zero mark occurs in an angular range of +/-60 ° electrical. Fault value (r0949, interpret hexadecimal): yyyyxxxx hex yyyy: Determined mechanical zero mark position (can only be used for track C/D). xxxx: Deviation of the zero mark from the expected position as electrical angle. Normalization: 32768 dec = 180 °
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- if the Hall sensor is used as an equivalent for track C/D, check the connection.- check the connection of track C or D.- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33131 (N, A)	Encoder 3: Deviation, position incremental/absolute too large
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Fault value (r0949, interpret decimal): Deviation in quadrants (1 pulse = 4 quadrants). Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected.
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- replace the encoder or encoder cable.- check whether the coding disk is dirty or there are strong ambient magnetic fields.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33150 (N, A)	Encoder 3: Initialization error
Drive object:	All objects
Reaction:	A_INFEED: NONE SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Encoder functionality selected in p0404 is not operating correctly. Fault value (r0949, interpret hexadecimal): The fault value is a bit field. Every set bit indicates functionality that is faulted. The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
Remedy:	- Check that p0404 is correctly set. - check the encoder type used (incremental/absolute value) and for SMCxx, the encoder cable. - if relevant, note additional fault/error messages that describe the fault in detail.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A33400 (F, N)	Encoder 3: Alarm threshold zero mark distance error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Alarm value (r2124, interpret decimal): Last measured zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the distance between zero marks (p0424, p0425). - replace the encoder or encoder cable.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A33401 (F, N)	Encoder 3: Alarm threshold zero marked failed
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Alarm value (r2124, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the clearance between zero marks (p0425). - replace the encoder or encoder cable.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F33405 (N, A) Encoder 3: Encoder evaluation temperature too high

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The encoder evaluation for a motor with DRIVE-CLiQ has detected an excessively high temperature.
The fault threshold is 125 °C.
Alarm value (r2124, interpret decimal):
Measured board/module temperature in 0.1 °C.

Remedy: Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A33410 (F, N) Encoder 3: Serial communications

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A33411 (F, N)	Encoder 3: EnDat encoder signals alarms
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The error word of the EnDat encoder has alarm bits that have been set.</p> <p>Alarm value (r2124, interpret binary):</p> <p>Bit 0: Frequency exceeded (speed too high).</p> <p>Bit 1: Temperature exceeded.</p> <p>Bit 2: Control reserve, lighting system exceeded.</p> <p>Bit 3: Battery discharged.</p> <p>Bit 4: Reference point passed.</p>
Remedy:	Replace encoder.
Reaction upon F:	<p>A_INFEED: NONE (OFF1, OFF2)</p> <p>SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p> <p>VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p>
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A33414 (F, N)	Encoder 3: Amplitude error track C or D ($C^2 + D^2$)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The amplitude ($C^2 + D^2$) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.</p> <p>The nominal signal must be in the range 375 mV to 600 mV (500 mV -25 % / +20 %).</p> <p>On the other hand, the response thresholds are < 230 mV and > 750 mV (frequency characteristic).</p> <p>This fault also occurs if the A/D converter is overcontrolled.</p> <p>If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Low word: Signal level, track C (16 bits with sign).</p> <p>High word: Signal level, track D (16 bits with sign).</p> <p>A signal level of 500 mV corresponds to the numerical value 5333 hex = 21299 dec.</p>
Remedy:	<ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - check the Hall sensor box
Reaction upon F:	<p>A_INFEED: NONE (OFF1, OFF2)</p> <p>SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p> <p>VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p>
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
N33415 (F, A)	Encoder 3: Amplitude alarm track A or B ($A^2 + B^2$)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The amplitude ($A^2 + B^2$) of track A or B is not within the tolerance bandwidth.</p> <p>SMC20:</p> <p>The nominal signal level is at 500 mV (500 mV -25 % / +20 %). The response threshold is < 300 mV.</p> <p>SMC10:</p> <p>The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Low word:</p> <p>Amplitude square root($A^2 + B^2$).</p>

SMC20:

A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.

SMC10:

A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.

High word:

Angle 0 to 65535 corresponds to 0 to 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.

Remedy:

- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- dirty code disk
- aged lighting system.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon A: NONE

Acknowl. upon A: NONE

A33418 (F, N) Encoder 3: Speed difference per sampling rate exceeded

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy:

- check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the setting of p0492.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A33419 (F, N) Encoder 3: Track A or B outside the tolerance range

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The amplitude, phase or offset correction for track A or B is at the limit.
Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
Phase: <84 degrees or >96 degrees
SMC20: Offset correction: +/-140 mV
SMC10: Offset correction: +/-650 mV
Alarm value (r2124, interpret hexadecimal):
xxx1: Minimum of the offset correction, track B
xxx2: Maximum of the offset correction, track B
xx1x: Minimum of the offset correction, track A
xx2x: Maximum of the offset correction, track A
x1xx: Minimum of the amplitude correction, track B/A
x2xx: Maximum of the amplitude correction, track B/A
1xxx: Minimum of the phase error correction
2xxx: Maximum of the phase error correction

Remedy:

- check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A33421 (F, N) Encoder 3: Coarse position error

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: For this encoder, this coarse position is incorrect.
 Fault value (r0949, interpret decimal):
 3:
 The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative otherwise the position can be incorrect by one encoder pulse.

Remedy: Re fault value = 3:
 For Sensor Module Cabinet (SMC) and Sensor Module External (SME), the following applies:
 - use an encoder cable from Siemens.
 - for encoder cables that you have fabricated yourself, interchange track A with A* and B with B*.
 For Sensor Module Integrated (SMI), the following applies:
 - replace the component.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A33429 (F, N) Encoder 3: Position difference, hall sensor/track C/D and A/B too large

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
 One period of track C/D corresponds to 360 ° mechanical.
 One period of the Hall signal corresponds to 360 ° electrical.
 The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
 Alarm value (r2124, interpret decimal):
 For track C/D, the following applies:
 Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
 For Hall signals, the following applies:
 Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy:

- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A33431 (F, N)	Encoder 3: Deviation, position incremental/absolute too large
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the zero pulse is passed, a deviation in the incremental position was detected. Alarm value (r2124, interpret decimal): Deviation in quadrants (1 pulse = 4 quadrants).
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- replace the encoder or encoder cable.- coding disk dirty or strong magnetic fields.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33432 (F, N)	Encoder 3: Rotor position adaptation corrects deviation
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of the zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	<ul style="list-style-type: none">- check that the encoder cables are routed in compliance with EMC.- check the plug connections.- replace the encoder or encoder cable.- check encoder limit frequency.- adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F33500 (N, A)	Encoder 3: Position tracking traversing range exceeded
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. For the configured linear axis, the maximum traversing range is defined to be 64x (+/- 32x) of p0421. The value should be read in p0412 and interpreted as the number of motor revolutions.
Remedy:	The fault should be resolved as follows: <ul style="list-style-type: none">- select encoder commissioning (p0010 = 4).- reset the position tracking as follows (p0411.2 = 1).- de-select encoder commissioning (p0010 = 0). The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33501 (N, A)	Encoder 3: Position tracking encoder position outside tolerance window
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	<p>When powered-down, the drive/encoder was moved through a distance greater than what was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.</p> <p>Fault value (r0949, decimal):</p> <p>Deviation (difference) to the last encoder position in increments of the absolute value.</p> <p>The sign designates the traversing direction.</p> <p>Note:</p> <p>The deviation (difference) found is also displayed in r0477.</p> <p>See also: p0413 (Measuring gearbox, position tracking tolerance window), r0477 (Measuring gearbox, position difference)</p>
Remedy:	<p>Reset the position tracking as follows:</p> <ul style="list-style-type: none"> - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). <p>The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).</p> <p>See also: p0010 (Infeed commissioning parameter filter), p2507 (LR absolute encoder adjustment status)</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33502 (N, A)	Encoder 3: Encoder with measuring gearbox, without valid signals
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The encoder with measuring gearbox no longer provides any valid signals.
Remedy:	It must be ensured that all of the encoders, with mounted measuring gearbox, provide valid actual values in operation.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33503 (N, A)	Encoder 3: Position tracking cannot be reset
Drive object:	SERVO, VECTOR
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The position tracking for the measuring gearbox cannot be reset.
Remedy:	<p>The fault should be resolved as follows:</p> <ul style="list-style-type: none"> - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). <p>The fault should then be acknowledged and the absolute encoder adjusted.</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

N33800 (F) Encoder 3: Group signal

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluates other actual messages.
Reaction upon F: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved.
Fault value (r0949, interpret hexadecimal):
0A: The sign-of-life bit in the receive telegram is not set.
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33802 (N, A) Encoder 3: Time slice overflow

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Time slice overflow, encoder 3.
Fault value (r0949, interpret decimal):
9: Time slice overflow of the fast (current controller clock cycle) time slice.
10: Time slice overflow of the average time slice.
12: Time slice overflow of the slow time slice.
999: Timeout when waiting for SYNO, e.g. unexpected return to non-cyclic operation.
Remedy: Reduce the current controller frequency.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33804 (N, A) Encoder 3: Checksum error

Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A checksum error has occurred when reading-out the program memory on the Sensor Module. Fault value (r0949, interpret hexadecimal): yyyyxxxx hex yyyy: Memory area involved. xxxx: Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- check whether the permissible ambient temperature for the component is maintained. - replace the Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33805 (N, A) Encoder 3: EPROM checksum error

Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Internal parameter data is corrupted. Fault value (r0949, interpret hexadecimal): 01: EEPROM access error. 02: Too many blocks in the EEPROM.
Remedy:	Replace the module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33806 (N, A) Encoder 3: Initialization error

Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder was not successfully initialized. Fault value (r0949, interpret hexadecimal): 1, 2, 3: Encoder initialization with the motor rotating.
Remedy:	Acknowledge the fault.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33811 (N, A)	Encoder 3: Encoder serial number changed
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE) SERVO: OFF1 (NONE, OFF2, OFF3) VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders). Cause: The encoder was replaced. Note: With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2). When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
Remedy:	Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33812 (N, A)	Encoder 3: Requested cycle or RX-/TX timing not supported
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A cycle requested from the Control Unit or RX/TX timing is not supported. Alarm value (r2124, interpret decimal): 0: Application cycle is not supported. 1: DQ cycle is not supported. 2: Clearance between RX and TX instants in time too low. 3: TX instant in time too early.
Remedy:	
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33820 (N, A)	Encoder 3 DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved. Fault value (r0949, interpret hexadecimal): 01: CRC error. 02: Telegram is shorter than specified in the length byte or in the receive list. 03: Telegram is longer than specified in the length byte or in the receive list. 04: The length of the receive telegram does not match the receive list. 05: The type of the receive telegram does not match the receive list. 06: The address of the component in the telegram and in the receive list do not match. 07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F33835 (N, A) Encoder 3 DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: A_INFEED: OFF2
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved. The nodes do not send and receive in synchronism.
 Fault value (r0949, interpret hexadecimal):
 21: The cyclic telegram has not been received.
 22: Timeout in the telegram receive list.
 40: Timeout in the telegram send list.
Remedy: - carry out a POWER ON.
 - replace the component involved.
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F33836 (N, A) Encoder 3 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Drive object: All objects
Reaction: A_INFEED: OFF2
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved. Data were not able to be sent.
 Fault value (r0949, interpret hexadecimal):
 41: Telegram type does not match send list.
Remedy: Carry out a POWER ON.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F33837 (N, A) Encoder 3 DRIVE-CLiQ: Component fault

Drive object: All objects
Reaction: A_INFEED: OFF2
 SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
 VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded.
 Fault value (r0949, interpret hexadecimal):
 20: Error in the telegram header.
 23: Receive error: The telegram buffer memory contains an error.
 42: Send error: The telegram buffer memory contains an error.
 43: Send error: The telegram buffer memory contains an error.
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
 - check the electrical cabinet design and cable routing for EMC compliance
 - if required, use another DRIVE-CLiQ socket (p9904).
 - replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33845 (N, A) Encoder 3 DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: A_INFEED: OFF2
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved.
Fault value (r0949, interpret hexadecimal):
0B: Synchronization error during alternating cyclic data transfer.
Remedy: Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33850 (N, A) Encoder 3: Sensor Module, internal software error

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: Internal software error in the Sensor Module of encoder 3.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33851 (N, A) CU DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Sensor Module (encoder 3) involved. The DRIVE-CLiQ component did not set the sign of life to the Control Unit.
Fault value (r0949, interpret hexadecimal):
0A: The sign-of-life bit in the receive telegram is not set.
Remedy: Upgrade the firmware of the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33860 (N, A)	CU DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 3). Fault value (r0949, interpret hexadecimal): 11: CRC error and the receive telegram is too early. 01: CRC error. 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 02: Telegram is shorter than specified in the length byte or in the receive list. 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 03: Telegram is longer than specified in the length byte or in the receive list. 14: The length of the receive telegram does not match the receive list and the receive telegram is too early. 04: The length of the receive telegram does not match the receive list. 15: The type of the receive telegram does not match the receive list and the receive telegram is too early. 05: The type of the receive telegram does not match the receive list. 16: The address of the encoder in the telegram and in the receive list does not match and the receive telegram is too early. 06: The address of the encoder in the telegram and in the receive list do not match. 19: The error bit in the receive telegram is set and the receive telegram is too early. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33885 (N, A)	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 3). The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list. 62: Error at the transition to cyclic operation.
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33886 (N, A) CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 3). Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
41: Telegram type does not match send list.

Remedy: Carry out a POWER ON.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33887 (N, A) CU DRIVE-CLiQ: Component fault

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 3). Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
20: Error in the telegram header.
23: Receive error: The telegram buffer memory contains an error.
42: Send error: The telegram buffer memory contains an error.
43: Send error: The telegram buffer memory contains an error.
60: Response received too late during runtime measurement.
61: Time taken to exchange characteristic data too long.

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33895 (N, A) CU DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects

Reaction: A_INFEED: NONE (OFF1, OFF2)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: DRIVE-CLiQ communications error between the Control Unit and the encoder involved (encoder 3).
Fault value (r0949, interpret hexadecimal):
0B: Synchronization error during alternating cyclic data transfer.

Remedy: Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33896 (N, A)	CU DRIVE-CLiQ: Inconsistent component characteristics
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Sensor Module for encoder 3), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.
Remedy:	- when replacing cables, only use cables with the same length as the original cables. - when replacing components, use the same components and firmware releases. - carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33897 (N, A)	DRIVE-CLiQ: No communication to component
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Communications with the DRIVE-CLiQ component (Sensor Module for encoder 3) specified by the fault value is not possible. One cause can be, e.g. that a DRIVE-CLiQ cable has been withdrawn. Fault value (r0949, interpret decimal): Component ID.
Remedy:	- check the DRIVE-CLiQ connections. - carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33899 (N, A)	Encoder 3: Unknown fault
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2) VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the Sensor Module for encoder 3 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the Sensor Module for encoder 3 is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148). - upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33902 (F, N) Encoder 3: SPI-BUS error occurred

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33903 (F, N) Encoder 3: I2C-BUS error occurred

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal I2C bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.
Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
VECTOR: NONE (ENCODER, IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F33905 (N, A) Encoder 3: Parameterization error

Drive object: All objects
Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
VECTOR: OFF1 (IASC / DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: A parameter of encoder 1 was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
High word - low word = information - parameter number
Info = 0:
No information available.
Info = 1:
The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <-> -A/B (p0405.2 = 1).
Info = 2:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
Please start a new encoder identification.
Info = 3:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
Please select a listed encoder in p0400 with a code number < 10000.

	Info = 4: This component does not support SSI encoders (p0404.9 = 1) without track A/B.
Remedy:	<ul style="list-style-type: none"> - check whether the connected encoder type matches the encoder that has been parameterized. - correct the parameter specified by the fault value (r0949) and p0187. - re parameter number 314: Check the pole pair number and measuring gearbox ratio. The quotient of the "pole pair number" divided by the "measuring gearbox ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33920 (F, N) Encoder 3: Temperature sensor fault

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>When evaluating the temperature sensor, an error occurred.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Low word low byte: Cause:</p> <p>1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).</p> <p>2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).</p> <p>Additional values:</p> <p>Only for internal Siemens troubleshooting.</p> <p>Low word high byte: Channel number.</p>
Remedy:	<ul style="list-style-type: none"> - check that the encoder cable is the correct type and is correctly connected. - check the temperature sensor selection in p0600 to p0603. - replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon F:	<p>A_INFEED: NONE (OFF1, OFF2)</p> <p>SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p> <p>VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p>
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33999 (F, N) Encoder 3: Unknown alarm

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>A alarm has occurred on the Sensor Module for encoder 3 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the Sensor Module for encoder 3 is more recent than the firmware on the Control Unit.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Alarm number.</p> <p>If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.</p>
Remedy:	<ul style="list-style-type: none"> - replace the firmware on the Sensor Module by an older firmware version (r0148). - upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	<p>A_INFEED: NONE (OFF1, OFF2)</p> <p>SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p> <p>VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)</p>
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F34207 (N, A) VSM: Temperature fault threshold exceeded

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE
VECTOR: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The temperature (r3666) measured using the Voltage Sensing Module (VSM) has exceeded the threshold value (p3668).
This fault can only be initiated if the temperature evaluation was activated (p3665 = 2 for a KTY sensor or p3665 = 1 for a PTC sensor).
Fault value (r0949, interpret decimal):
The hundred thousands and ten thousands position specifies the component number of the VSM where the fault occurred.

Remedy: - check the fan.
- reduce the power.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A34211 (F, N) VSM: Temperature alarm threshold exceeded

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The temperature (r3666) measured using the Voltage Sensing Module (VSM) has exceeded the threshold value (p3667).
Alarm value (r2124, interpret decimal):
The hundred thousands and ten thousands position specifies the component number of the VSM where the fault occurred.

Remedy: - check the fan.
- reduce the power.

Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
SERVO: NONE
VECTOR: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

N34800 (F) VSM: Group signal

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: NONE

Cause: The Voltage Sensing Module (VSM) has detected at least one fault.

Remedy: Evaluates other actual messages.

Reaction upon F: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

F34801 VSM DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module (VSM).
Fault value (r0949, interpret hexadecimal):
0A: The sign-of-life bit in the receive telegram is not set.

Remedy: - check the DRIVE-CLiQ connection.
- replace the Terminal Module.

F34802 VSM: Time slice overflow

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Time slice overflow on the Voltage Sensing Module.

Remedy: Replace the Voltage Sensing Module.

F34803 VSM: Memory test

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: An error has occurred during the memory test on the Voltage Sensing Module.

Remedy: - check whether the permissible ambient temperature for the Voltage Sensing Module is being maintained.
- replace the Voltage Sensing Module.

F34804 VSM: CRC

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A checksum error has occurred when reading-out the program memory on the Voltage Sensing Module (VSM).

Remedy: - check whether the permissible ambient temperature for the component is maintained.
- replace the Voltage Sensing Module.

F34805 VSM: EPROM checksum error

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2, OFF3)
VECTOR: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.

Remedy: - check whether the permissible ambient temperature for the component is maintained.
- replace the Voltage Sensing Module (VSM).

F34806	VSM: Initialization
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For the Voltage Sensing Module (VSM), a fault has occurred while initializing.
Remedy:	Replace the Voltage Sensing Module.

A34807 (F, N)	VSM: Sequence control time monitoring
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error, timeout in the sequence control on the Voltage Sensing Module (VSM).
Remedy:	Replace the Voltage Sensing Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F34820	VSM DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module. Fault value (r0949, interpret hexadecimal): 01: CRC error. 02: Telegram is shorter than specified in the length byte or in the receive list. 03: Telegram is longer than specified in the length byte or in the receive list. 04: The length of the receive telegram does not match the receive list. 05: The type of the receive telegram does not match the receive list. 06: The address of the component in the telegram and in the receive list do not match. 07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F34835	VSM DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module. The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list.
Remedy:	- carry out a POWER ON. - replace the component involved.

F34836	VSM DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.
F34837	VSM DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error.
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
F34845	VSM DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module (VSM). Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
F34850	VSM: Internal software error
Drive object:	All objects
Reaction:	A_INFEED: OFF1 (NONE, OFF2) SERVO: OFF1 (NONE, OFF2, OFF3) VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	An internal software error in the Voltage Sensing Module (VSM) has occurred. Fault value (r0949, interpret decimal): 1: Background time slice is blocked. 2: Checksum over the code memory is not OK.
Remedy:	- replace the Voltage Sensing Module (VSM). - if required, upgrade the firmware in the Voltage Sensing Module. - contact the Hotline.

F34851	CU DRIVE-CLiQ: Sign-of-life missing
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module (VSM). The DRIVE-CLiQ component did not set the sign of life to the Control Unit. Fault value (r0949, interpret hexadecimal): 0A: The sign-of-life bit in the receive telegram is not set.
Remedy:	Upgrade the firmware of the component involved.

F34860	CU DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module (VSM). Fault value (r0949, interpret hexadecimal): 11: CRC error and the receive telegram is too early. 01: CRC error. 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 02: Telegram is shorter than specified in the length byte or in the receive list. 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 03: Telegram is longer than specified in the length byte or in the receive list. 14: The length of the receive telegram does not match the receive list and the receive telegram is too early. 04: The length of the receive telegram does not match the receive list. 15: The type of the receive telegram does not match the receive list and the receive telegram is too early. 05: The type of the receive telegram does not match the receive list. 16: The address of the Voltage Sensing Module in the telegram and in the receive list does not match and the receive telegram is too early. 06: The address of the Voltage Sensing Module in the telegram and in the receive list do not match. 19: The error bit in the receive telegram is set and the receive telegram is too early. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34885	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: NONE (OFF1, OFF2) VECTOR: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module (VSM). The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list. 62: Error at the transition to cyclic operation.

Remedy:

- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34886 CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2)
VECTOR: NONE (OFF1, OFF2)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module (VSM). Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
41: Telegram type does not match send list.

Remedy: Carry out a POWER ON.

F34887 CU DRIVE-CLiQ: Component fault

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2)
VECTOR: NONE (OFF1, OFF2)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component (Voltage Sensing Module) involved. Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
20: Error in the telegram header.
23: Receive error: The telegram buffer memory contains an error.
42: Send error: The telegram buffer memory contains an error.
43: Send error: The telegram buffer memory contains an error.
60: Response received too late during runtime measurement.
61: Time taken to exchange characteristic data too long.

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F34895 CU DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: NONE (OFF1, OFF2)
VECTOR: NONE (OFF1, OFF2)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Voltage Sensing Module (VSM).
Fault value (r0949, interpret hexadecimal):
0B: Synchronization error during alternating cyclic data transfer.

Remedy: Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34896	CU DRIVE-CLiQ: Inconsistent component characteristics
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Voltage Sensing Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.
Remedy:	- when replacing cables, only use cables with the same length as the original cables. - when replacing components, use the same components and firmware releases. - carry out a POWER ON.

F34897	DRIVE-CLiQ: No communication to component
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Communications with the DRIVE-CLiQ component (Voltage Sensing Module) specified by the fault value is not possible. One cause can be, e.g. that a DRIVE-CLiQ cable has been withdrawn. Fault value (r0949, interpret decimal): Component ID.
Remedy:	- check the DRIVE-CLiQ connections. - carry out a POWER ON.

F34899 (N, A)	VSM: Unknown fault
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the Voltage Sensing Module that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the Voltage Sensing Module is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Voltage Sensing Module by an older firmware version (r0158). - upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A34903 (F, N)	VSM: I2C bus error occurred
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred in while accessing via the internal TM I2C bus.
Remedy:	Replace the Terminal Module.
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE VECTOR: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A34904 (F, N) VSM: EEPROM

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred accessing the non-volatile memory on the Terminal Module.
Remedy: Replace the Terminal Module.
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE
 VECTOR: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A34905 (F, N) VSM: Parameter access

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The Control Unit attempted to write an illegal parameter value into the Voltage Sensing Module (VSM).
Remedy: - check whether the firmware version of the VSM (r0158) matches the firmware version of Control Unit (r0018).
 - if required, replace the Voltage Sensing Module.
Note:
 The firmware versions that match each other are in the readme.txt file on the CompactFlash card.
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE
 VECTOR: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A34920 (F, N) VSM: Temperature sensor fault

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
 Alarm value (r2124, interpret decimal):
 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Remedy: - check that the sensor is connected correctly.
 - replace sensor.
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE
 VECTOR: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A34999 (F, N)	VSM: Unknown alarm
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A fault occurred on the Voltage Sensing Module (VSM) an alarm has occurred that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the module is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Voltage Sensing Module by an older firmware version (r0148). - upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F35000	TM54F: Sampling time invalid
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	The set sampling time is invalid. - not a multiple integer of the DP clock cycle. Fault value (r0949, floating point): Recommended valid sampling time.
Remedy:	Adapt the sampling time (e.g. set the recommended valid sampling time). See also: p10000 (SI sampling time)

F35001	TM54F: Parameter value invalid
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The entered value is invalid. Fault value (r0949, interpret decimal): Parameter number with the invalid value.
Remedy:	Correct the parameter value.

F35002	TM54F: Commissioning not possible
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The commissioning mode setting was rejected because for at least one drive belonging to the TM54F, the pulses had not been canceled. Fault value (r0949, interpret decimal): Drive object number of the first drive found without pulse cancelation.
Remedy:	Cancel the pulses for the drive specified in the fault value.

F35011	TM54F: Drive object number assignment illegal
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A drive object number was assigned twice. Each drive object number can be assigned only once.
Remedy:	Correct the assignment of the drive object numbers. See also: p10010 (SI drive object assignment)
A35012	TM54F: Test stop active
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The test stop for the Terminal Module 54F (TM54F) is presently being executed. F35013 is output when a error occurs during the test stop.
Remedy:	The alarm disappears automatically after successfully ending or canceling (when a fault condition occurs) the test stop.
F35013	TM54F: Test stop error
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An error was detected when carrying out the test stop on the TM54F. As fault response, instead of the fail-safe input image, a logical 0 signal is transferred to the motion monitoring function. Fault value (r0949, interpret hexadecimal): 0xaaaabbcc hex aaaa: Specifies the DOs or F-DIs (dependent on test step cc) for which the expected state was not assumed. The number is bit-coded (bit 0 = F-DI 0 or F-DO 0; bit 3 = F-DI 3 or F-DO 3). bb: Precise problem: 0x01 = Internal error (error state on the opposite side). 0x02 = Error when comparing the switching signals. 0x03 = Internal error (delay time in the new state has still not expired). cc: Test step of the test stop in which the error has occurred. Test stop step cc for slave (hexadecimal): 0x00: Action: L1+ switched-out, L2+ switched-in - error: Master not in initial state 0x00 and 0x0A. 0x0A: Action: L1+ switched-out, L2+ switched-in - error: Master not in state 0x15. 0x15: Action: L1+ switched-out, L2+ switched-out - error: F-DIs 0...4 of the master do not correspond to those of the slave (expected: level 0) or master not in state 0x20. 0x20: Action: L1+ switched-out, L2+ switched-out - error: Master not in state 0x2B. 0x2B: Action: L1+ switched-in, L2+ switched-in - error: F-DIs 5...9 of the master do not correspond to those of the slave (expected: level 0) or master not in state 0x36. 0x36: Action: All slave DOs at OFF - error: Master not in state 0x41. 0x41: Action: All slave DOs at OFF - error: Master not in state 0x4C. 0x4C: Action: All slave-DOs at ON - error: State of DI 20...23 does not correspond to the expected state (24V) or the master not in state 0x57. 0x57: Action: All slave DOs at ON - error: Master not in state 0x62. 0x62: Action: All slave-DOs at OFF - error: State of DI 20...23 does not correspond to the expected state (0V) or the master not in state 0x6D. 0x6D: Action: All slave DOs at OFF - error: Master not in state 0x78. 0x78: Action: All slave-DOs at ON - error: State of DI 20...23 does not correspond to the expected state (0V) or the master not in state 0x83. 0x83: Action: All slave DOs at ON - error: Master not in state 0x8E. 0x8E: Action: All slave-DOs at OFF - error: State of DI 20...23 does not correspond to the expected state (0V) or the master not in state 0x99. 0x99: Action: All slave DOs at OFF - error: Master not in state 0xA4. 0xA4: Action: All slave-DOs at OFF - error: State of DI 20...23 do not correspond to the expected state (24V) or the master not in state 0xAF. 0xAF: Action: All slave DOs at the original state - error: Master not in state 0xBA.

0xBA: Action: All slave DOs at the original state - error: Master not in state 0xC5.
 0xC5: Action: Return to start state, test stop completed on the slave side. Error: Master not in state 0xD0.
 Test stop step cc for master (hexadecimal):
 0x0A: No actions - error: Slave not in initial state 0x00.
 0x15: No actions - error: Slave not in initial state 0x0A.
 0x20: No actions - error: F-DIs 0...4 of the slave do not correspond with those of the master (expected: level 0) or slave not in state 0x15.
 0x2B: No actions - error: Slave not in initial state 0x20.
 0x36: No actions - error: F-DIs 0...5 of the slave do not correspond with those of the master (expected: level 0) or slave not in state 0x2B.
 0x41: Action: All master DOs at OFF - error: Slave not in state 0x36.
 0x4C: Action: All master DOs at OFF - error: Slave not in state 0x41.
 0x57: Action: All master-DOs at ON - error: Status of DI 20...23 of the slave does not correspond to the expected state (24V) or the slave not in state 0x4C.
 0x62: Action: All master DOs at ON - error: Slave not in initial state 0x57.
 0x6D: Action: All master-DOs at ON - error: State of DI 20...23 of the slave does not correspond to the expected state (0V) or the slave not in state 0x62.
 0x78: Action: All master DOs at ON - error: Slave not in state 0x6D.
 0x83: Action: All master-DOs at OFF - error: State of DI 20...23 of the slave does not correspond to the expected state (0V) or the slave not in state 0x78.
 0x8E: Action: All master DOs at OFF - error: Slave not in state 0x83.
 0x99: Action: All master-DOs at OFF - error: State of DI 20...23 of the slave does not correspond to the expected state (0V) or the slave not in state 0x8E.
 0xA4: Action: All master DOs at OFF - error: Slave not in state 0x99.
 0xAF: Action: All master-DOs at OFF - error: Status of DI 20...23 of the slave does not correspond to the expected state (24V) or the slave not in state 0xA4.
 0xBA: Action: All master DOs at the original state - error: Slave not in state 0xAF.
 0xC5: Action: All master DOs at the original state - error: Slave not in state 0xBA.
 0xD0: Wait for the end of the test stop and return to the start state
 Note: A check of the switching state of the F-DIs and DIs always refers to the switching operation of the previous state. The actions in one state are always only carried out after the actual state has been checked.

Remedy: Check the wiring of the F-DIs and F-DOs and restart the test stop. The fault is withdrawn if the test stop is successfully completed.

A35014 TM54F: Test stop required

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: - after powering-up the drive, a test stop has still not been carried out.
 - a new test stop is required after commissioning.
 - the time to carry out the forced checking procedure (test stop) has expired (p10003).
Remedy: Initiate test stop (BI: p10007).

A35015 TM54F: Communication with drive not established

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction: NONE
Acknowledge: NONE
Cause: Cyclic communication of one or several drives with the Terminal Module 54F (TM54F) is not active.
 Fault value (r0949, interpret binary):
 Bit 0 = 1: No communication with drive 1.
 ...
 Bit 5 = 1: No communication with drive 6.
 For fault value = 0, the following applies:
 The number of drive objects specified in p10010 is not equal to the number of drives that have drive-based motion monitoring functions that have been enabled.
 The drive object number for drive n is set in p10010[n-1].
 When this fault is present, none of the drives that have drive-based motion monitoring functions operating with TM54F, are enabled.

Remedy: For all drive objects specified in p10010, check whether the drive-based motion monitoring functions with TM54F are enabled (p9601).

A35016	TM54F: Net data communication with drive not established
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cyclic net data communication within the Terminal Module 54F (TM54F) is still not active. This message is output after the TM54F master and TM54F slave have booted and is automatically withdrawn as soon as communications have been established. If a drive does not communicate with the TM54F, then none of the drives parameterized in p10010 are enabled.
Remedy:	When replacing a Motor Module, carry out the following steps: - start the copy function for the node identifier on the TM54F (p9700 = 1D hex). - acknowledge the hardware CRC on the TM54F (p9701 = EC hex). - save all parameters (p0977 = 1). - carry out a POWER ON (power off/on) for all components. The following always applies: - for all drive objects specified in p10010, check whether the drive-based motion monitoring functions with TM54F are enabled (p9601). - check whether fault F35150 is present and if required, remove the cause of the fault. See also: r10055 (SI TM54F communication status drive-specific)
F35040	TM54F: 24V undervoltage
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	For the 24 V power supply for the Terminal Module 54F (TM54F) an undervoltage condition was detected. As fault response at the F-DIs involved, fail-safe signals are transferred to the motion monitoring functions instead of the actual terminal signals. Fault value (r0949, interpret binary): Bit 0 = 1: Power supply undervoltage at connection X524. Bit 1 = 1: Power supply undervoltage at connection X514.
Remedy:	Check the 24 V DC power supply for the TM54F.
F35043	TM54F: 24V overvoltage
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	For the 24 V power supply for the Terminal Module 54F (TM54F) an overvoltage condition was detected. As fault response at the F-DIs involved, fail-safe signals are transferred to the motion monitoring functions instead of the actual terminal signals.
Remedy:	Check the 24 V DC power supply for the TM54F.
F35051	TM54F: Defect in a monitoring channel
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The Terminal Module 54F (TM54F) has identified an error in the data cross check between the two control channels. As fault response, instead of the fail-safe input image, a logical 0 signal is transferred to the motion monitoring function. Fault value (r0949, interpret hexadecimal): aaaabbcc hex aaaa: A value greater than zero indicates an internal software error. bb: Data to be cross-checked that resulted in the error. bb = 00 hex: p10000

bb = 01 hex: p10001
 bb = 02 hex: p10002
 bb = 03 hex: p10006
 bb = 04 hex: p10008
 bb = 05 hex: p10010
 bb = 06 hex: p10011
 bb = 07 hex: p10020
 bb = 08 hex: p10021
 bb = 09 hex: p10022
 bb = 0A hex: p10023
 bb = 0B hex: p10024
 bb = 0C hex: p10025
 bb = 0D hex: p10026
 bb = 0E hex: p10027
 bb = 0F hex: p10028
 bb = 10 hex: p10036
 bb = 11 hex: p10037
 bb = 12 hex: p10038
 bb = 13 hex: p10039
 bb = 14 hex: p10040
 bb = 15 hex: p10041
 bb = 16 hex: p10042
 bb = 17 hex: p10043
 bb = 18 hex: p10044
 bb = 19 hex: p10045
 bb = 1A hex: p10046
 cc: Index of the data to be cross-checked that resulted in the error.

Remedy:

Carry out the following steps on the TM54F:
 - activate the safety commissioning mode (p0010 = 95).
 - start the copy function for SI parameters (p9700 = 57 hex).
 - acknowledge complete data change (p9701 = AC hex).
 - exit the safety commissioning mode (p0010 = 0).
 - save all parameters (p0977 = 1).
 - carry out a POWER ON (power off/on) for all components.
 For an internal software error (aaaa greater than zero):
 - upgrade the software on the TM54F.
 - contact the Hotline.
 - replace the TM54F.

F35052 (A)

TM54F: Internal hardware fault

Drive object:

A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction:

NONE

Acknowledge:

IMMEDIATELY (POWER ON)

Cause:

An internal software/hardware fault on the TM54F was identified.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
 - upgrade the software on the TM54F.
 - contact the Hotline.
 - replace the TM54F.

Reaction upon A:

NONE

Acknowl. upon A:

NONE

F35053	TM54F: Temperature fault threshold exceeded
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The temperature measured using the temperature sensing on the TM54F has exceeded the threshold value to initiate this fault. As fault response, instead of the fail-safe input image, a logical 0 signal is transferred to the motion monitoring function. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- allow the TM54F to cool down. - carry out a POWER ON.
A35075 (F)	TM54F: Internal communications
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	An internal communications error has occurred in the Terminal Module 54F (TM54F). Fault value (r0949, interpret decimal): Only for internal Siemens diagnostics.
Remedy:	- check the electrical cabinet design and cable routing for EMC compliance - upgrade the software on the TM54F. - contact the Hotline. - replace the TM54F.
Reaction upon F:	NONE
Acknowled. upon F:	IMMEDIATELY (POWER ON)
A35080 (F)	TM54F: Checksum error safety parameters
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The calculated checksum entered in r10004 over the safety-relevant parameters does not match the reference checksum saved in p10005 at the last machine acceptance. Fault value (r0949, interpret decimal): 1: Checksum error for functional SI parameters. 2: Checksum error for SI parameters for component assignment.
Remedy:	- Check the safety-relevant parameters and if required, correct. - set the reference checksum to the actual checksum. - acknowledge that hardware was replaced - carry out a POWER ON. - carry out an acceptance test.
Reaction upon F:	NONE
Acknowled. upon F:	IMMEDIATELY (POWER ON)
F35150	TM54F: Communication error
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A communication error between the TM54F master and Control Unit or between the TM54F slave and the Motor Module was detected. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.

Remedy:

When replacing a Motor Module, carry out the following steps:

- start the copy function for the node identifier on the TM54F (p9700 = 1D hex).
- acknowledge the hardware CRC on the TM54F (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

The following always applies:

- check the electrical cabinet design and cable routing for EMC compliance
- upgrade the software on the TM54F.
- contact the Hotline.
- replace the TM54F.

F35151 TM54F: Discrepancy error

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The safety input terminals or output terminals show a different state longer than that parameterized in p10002.
 Fault value (r0949, interpret hexadecimal):
 yyyyyxxx hex
 xxxx:
 The safety-relevant input terminals F-DI indicate a discrepancy.
 Bit 0: Discrepancy for F-DI 0
 ...
 Bit 9: Discrepancy for F-DI 9
 yyyy:
 The safety-relevant output terminals F-DO indicate a discrepancy.
 Bit 0: Discrepancy for F-DO 0
 ...
 Bit 3: Discrepancy for F-DO 3
 Note:
 If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs.
 The following possibilities exist of diagnosing all of the discrepancy errors:
 - in the commissioning software, evaluate the input states and output states of the TM54F. All discrepancy errors are displayed here.
 - compare parameters p10051 and p10052 from the TM54F master and TM54F slave for discrepancy.

Remedy: Check the wiring of the F-DI and F-DO (contact problems).
 Note:
 A discrepancy of the F-DO also occurs (in this special case, in conjunction with fault F35150 for the TM54F slave), if, after replacing a Motor Module, it was forgotten to acknowledge this.
 When replacing a Motor Module, carry out the following steps:
 - start the copy function for the node identifier on the TM54F (p9700 = 1D hex).
 - acknowledge the hardware CRC on the TM54F (p9701 = EC hex).
 - save all parameters (p0977 = 1).
 - carry out a POWER ON (power off/on) for all components.
 F-DI: Failsafe Digital Input
 F-DO: Failsafe Digital Output

A35200 (F, N) TM: Calibration data

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: An error was detected in the calibration data of the Terminal Module.
 Alarm value (r2124, interpret decimal):
 The hundred thousands and ten thousands location specifies the component Id of the Terminal Module where the fault occurred.
 The thousands location specifies whether the analog input 0 (=0) or analog output 1 (= 1) is involved.
 The hundreds location specifies the fault type:
 0: No calibration data available.
 1: Offset too high (> 100 mV).
 The tens and ones location specifies the number of the input involved.

Remedy: Power-down the unit and power-up again.
If the fault is still present, replace the module/board.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

F35207 (N, A) TM: Temperature fault threshold exceeded

Drive object: All objects

Reaction: A_INFEED: OFF2 (NONE, OFF1)
SERVO: OFF2 (NONE, OFF1, OFF3)
VECTOR: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105) has exceeded the threshold value to initiate this fault (p4102[1]).
Please note that this fault can only be initiated if the temperature evaluation was activated (p4100 = 2 for KTY sensor or p4100 = 1 for PTC sensor).
Fault value (r0949, interpret decimal):
The hundred thousands and ten thousands location specifies the component number of the TMxx where the fault occurred.
Alarm:
Please note that Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.

Remedy: - allow the temperature sensor to cool down.
- if required, set the fault response to NONE (p2100, p2101).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A35211 (F, N) TM: Temperature alarm threshold exceeded

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105) has exceeded the threshold value to initiate this alarm (p4102[0]).
Alarm value (r2124, interpret decimal):
The hundred thousands and ten thousands location specifies the component number of the TMxx where the fault occurred.

Remedy: Allow the temperature sensor to cool down.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

F35220 (N, A) TM: Frequency limit reached for signal output

Drive object: All objects

Reaction: A_INFEED: OFF1 (NONE, OFF2)
SERVO: OFF1 (NONE, OFF2, OFF3)
VECTOR: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The signals output from the Terminal Module 41 (TM41) for tracks A/B have reached the limit frequency. The output signals are no longer in synchronism with the specified setpoint.

Remedy: - enter a lower speed setpoint (p1155).
- reduce the encoder pulse number (p0408).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35221 (N, A) TM: Setpoint - actual value deviation, outside the tolerance range

Drive object: All objects
Reaction: A_INFEED: OFF1 (NONE, OFF2)
SERVO: OFF1 (NONE, OFF2, OFF3)
VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The deviation between the setpoint and the output signals (track A/B) exceeds the tolerance of +/-3 %.
Remedy: - reduce the basic clock cycle (p0110, p0111).
- replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35222 (F, N) TM: Encoder pulse number not permissible

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The encoder pulse number entered does not match the permissible pulse number from a hardware perspective.
Fault value (r0949, interpret decimal):
1: Encoder pulse number is too high.
2: Encoder pulse number is too low.
4: Encoder pulse number is less than the zero mark offset (p4426).
Remedy: Enter the encoder pulse number in the permissible range (p0408).
Reaction upon F: A_INFEED: OFF1 (NONE, OFF2)
SERVO: OFF1 (NONE, OFF2, OFF3)
VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35223 (F, N) TM: Zero mark offset not permissible

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The entered zero mark offset is not permissible.
Fault value (r0949, interpret decimal):
1: Zero mark offset is too high.
See also: p4426 (Incremental encoder emulation, pulses for zero mark)
Remedy: Enter the zero mark offset in the permissible range (p4426).
Reaction upon F: A_INFEED: OFF1 (NONE, OFF2)
SERVO: OFF1 (NONE, OFF2, OFF3)
VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35224 (N)	TM: Zero mark synchronization interrupted
Drive object:	TM41
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The zero mark synchronization with the encoder to be emulated was interrupted.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>0: The encoder is not in the ready state (e.g. encoder parked)</p> <p>1: An absolute encoder was connected.</p> <p>2: The encoder r0479[0...2] interconnected with CI: p4420 is already communicating with another TM41 (precisely one TM41 can be interconnected with a specific r0479[0...2]).</p> <p>3: The BICO interconnection to Terminal Module 41 (TM41) was removed (CI: p4420 = 0 signal).</p> <p>4: The encoder connected with CI: p4420 has carried out an EDS changeover (this operation is not supported, set p4420 to 0 and interconnect again).</p> <p>5: The maximum number of revolutions of the encoder was exceeded.</p> <p>6: Encoder in an invalid state.</p> <p>7: Encoder in an invalid state.</p> <p>8: Encoder in an invalid state (the encoder is not parameterized or the interconnected signal source is not in the cyclic state).</p>
Remedy:	<p>None necessary.</p> <ul style="list-style-type: none"> - if the encoder changes into the ready state, then a synchronization operation that was previously interrupted is carried out again. - if the synchronization was interrupted due to the maximum permissible synchronization duration, then a new synchronization is not carried out. - for an absolute encoder, no synchronization is carried out, the zero mark is always output at the zero revolution of the TM41.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A35225	TM: Zero mark synchronization held - encoder not in the ready state
Drive object:	TM41
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The zero mark synchronization with the encoder to be emulated was held.</p> <p>The encoder is not in the "ready" state.</p>
Remedy:	Bring the encoder into the "ready" state.
A35226	TM: Tracks A/B are de-activated
Drive object:	TM41
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The output of tracks A/B of the Terminal Module 41 (TM41) has been held (frozen). This means:</p> <p>The encoder emulation of the TM41 hardware is enabled (this is necessary so that no TRI state of the AB tracks occurs). The hardware receives a setpoint of zero so that no motion occurs at the TM41 AB tracks.</p> <p>Reasons for Alarm 35226:</p> <ul style="list-style-type: none"> - CI: p4420 was not interconnected (in this case, the encoder emulation of the hardware is de-activated) - the encoder is not in the "ready" state (parking encoder or non-parameterized encoder data set). - for TM41 there is an additional fault.
Remedy:	<ul style="list-style-type: none"> - establish an interconnection from CI: p4420. - bring the encoder into the "ready" state. - remove any TM41 faults.
A35227	TM: Zero mark synchronization interrupted - EDS changeover not supported
Drive object:	TM41
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The interconnected encoder has carried out an EDS changeover.</p> <p>Terminal Module 41 (TM41) does not support this particular application case.</p>
Remedy:	Bring the encoder into the ready state, carry out RAM to ROM and then Power On.

F35228	TM: Sampling time p4099[3] invalid
Drive object:	TM41
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The value of the cycle time for the incremental encoder emulation, specified in p4099[3] does not correspond to a valid value. The system already changed the p4099[3] to a valid value. The parameters of the TM41 involved must be saved on the CompactFlash card and a POWER ON carried out.
Remedy:	
F35229	TM time slice de-activated
Drive object:	TM41
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The required value of a cycle time in P4099 () is invalid. The corresponding time slice was not activated. Alarm value: 0 Digital input/outputs (P4099(0)) 1 Analog input (P4099 (1)) 3 Encoder emulation position setpoint (P4099 (3)) 4 Encoder emulation speed setpoint (P4099 (3)) 5 Encoder emulation speed setpoint (P4099 (3)) 6 Internal sequencer of the TM41 (internal error)
Remedy:	The sampling time P4099 (0) may not be zero. Change the sampling time corresponding to the error code.
F35230	HW problem with the TM module
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	A_INFEED: OFF1 (NONE, OFF2) SERVO: NONE VECTOR: NONE
Acknowledge:	POWER ON
Cause:	The terminal module used has signaled an internal error. Signals of this module may not be evaluated and are potentially incorrect.
Remedy:	The module must be replaced if no other alarms that refer to a communications error are present in the system.
N35800 (F)	TM: Group signal
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	NONE
Cause:	The Terminal Module has detected at least one fault.
Remedy:	Evaluates other actual messages.
Reaction upon F:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
A35801 (F, N)	TM DRIVE-CLiQ: Sign-of-life missing
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module involved. Alarm value (r2124, interpret hexadecimal): 0A: The sign-of-life bit in the receive telegram is not set.

Remedy:

- check the DRIVE-CLiQ connection.
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A35802 (F, N) TM: Time slice overflow

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Time slice overflow on Terminal Module.

Remedy: Replace the Terminal Module.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35803 (F, N) TM: Memory test

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: An error has occurred during the memory test on the Terminal Module.

Remedy:

- check whether the permissible ambient temperature for the Terminal Module is being maintained.
- replace the Terminal Module.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35804 (F, N) TM: CRC

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A checksum error has occurred when reading-out the program memory on the Terminal Module.
Fault value (r0949, interpret hexadecimal):
Difference between the checksum at POWER ON and the actual checksum.

Remedy:

- check whether the permissible ambient temperature for the component is maintained.
- replace the Terminal Module.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35805 (F, N) TM: EPROM checksum error

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Internal parameter data is corrupted.
Alarm value (r2124, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.

Remedy:

- check whether the permissible ambient temperature for the component is maintained.
- replace the Terminal Module 31 (TM31).

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35807 (F, N) TM: Sequence control time monitoring

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error, timeout, sequence control on the Terminal Module.
Remedy: Replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35820 TM DRIVE-CLiQ: Telegram error

Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module involved.
Fault value (r0949, interpret hexadecimal):
01: CRC error.
02: Telegram is shorter than specified in the length byte or in the receive list.
03: Telegram is longer than specified in the length byte or in the receive list.
04: The length of the receive telegram does not match the receive list.
05: The type of the receive telegram does not match the receive list.
06: The address of the component in the telegram and in the receive list do not match.
07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram.
09: The error bit in the receive telegram is set.
10: The receive telegram is too early.
Remedy: - carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35835 TM DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module involved. The nodes do not send and receive in synchronism.
Fault value (r0949, interpret hexadecimal):
21: The cyclic telegram has not been received.
22: Timeout in the telegram receive list.
40: Timeout in the telegram send list.
Remedy: - carry out a POWER ON.
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35836	TM DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module involved. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.
F35837	PTM DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error.
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
F35845	TM DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module (TM) involved. Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
F35850	TM: Internal software error
Drive object:	All objects
Reaction:	A_INFEED: OFF1 (NONE, OFF2) SERVO: OFF1 (NONE, OFF2, OFF3) VECTOR: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	An internal software error in the Terminal Module (TM) has occurred. Fault value (r0949, interpret decimal): 1: Background time slice is blocked. 2: Checksum over the code memory is not OK.
Remedy:	- replace the Terminal Module (TM). - if required, upgrade the firmware in the Terminal Module. - contact the Hotline.

F35851	CU DRIVE-CLiQ: Sign-of-life missing
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module (TM) involved. The DRIVE-CLiQ component did not set the sign of life to the Control Unit. Fault value (r0949, interpret hexadecimal): 0A: The sign-of-life bit in the receive telegram is not set.
Remedy:	Upgrade the firmware of the component involved.

F35860	CU DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module (TM) involved. Fault value (r0949, interpret hexadecimal): 11: CRC error and the receive telegram is too early. 01: CRC error. 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 02: Telegram is shorter than specified in the length byte or in the receive list. 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 03: Telegram is longer than specified in the length byte or in the receive list. 14: The length of the receive telegram does not match the receive list and the receive telegram is too early. 04: The length of the receive telegram does not match the receive list. 15: The type of the receive telegram does not match the receive list and the receive telegram is too early. 05: The type of the receive telegram does not match the receive list. 16: The address of the Terminal Module in the telegram and in the receive list does not match and the receive telegram is too early. 06: The address of the Terminal Module in the telegram and in the receive list do not match. 19: The error bit in the receive telegram is set and the receive telegram is too early. 09: The error bit in the receive telegram is set. 10: The receive telegram is too early.
Remedy:	- carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F35885	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module (TM) involved. The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 21: The cyclic telegram has not been received. 22: Timeout in the telegram receive list. 40: Timeout in the telegram send list. 62: Error at the transition to cyclic operation.
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F35886	CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module (TM) involved. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.
F35887	CU DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component (Terminal Module) involved. Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error. 60: Response received too late during runtime measurement. 61: Time taken to exchange characteristic data too long.
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
F35895	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the Terminal Module (TM) involved. Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
F35896	CU DRIVE-CLiQ: Inconsistent component characteristics
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.
Remedy:	- when replacing cables, only use cables with the same length as the original cables. - when replacing components, use the same components and firmware releases. - carry out a POWER ON.

F35897	DRIVE-CLiQ: No communication to component
Drive object:	All objects
Reaction:	A_INFEED: OFF2 (NONE, OFF1) SERVO: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2) VECTOR: OFF2 (ENCODER, IASC / DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Communications with the DRIVE-CLiQ component (Terminal Module) specified by the fault value is not possible. One cause can be, e.g. that a DRIVE-CLiQ cable has been withdrawn. Fault value (r0949, interpret decimal): Component ID.
Remedy:	- check the DRIVE-CLiQ connections. - carry out a POWER ON.

F35899 (N, A)	TM: Unknown fault
Drive object:	All objects
Reaction:	A_INFEED: NONE (OFF1, OFF2) SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2) VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on the Terminal Module is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Terminal Module by an older firmware version (r0158). - upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A35903 (F, N)	TM: I2C bus error occurred
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred while accessing the internal I2C bus of the Terminal Module.
Remedy:	Replace the Terminal Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35904 (F, N)	TM: EEPROM
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred accessing the non-volatile memory on the Terminal Module.
Remedy:	Replace the Terminal Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35905 (F, N)	TM: Parameter access
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The Control Unit attempted to write an illegal parameter value into the Terminal Module.
Remedy:	<ul style="list-style-type: none"> - check whether the firmware version of the Terminal Module (r0158) matches the firmware version of Control Unit (r0018). - if required, replace the Terminal Module.
	Note:
	The firmware versions that match each other are in the readme.txt file on the CompactFlash card.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A35906 (F, N)	TM: 24 V power supply missing
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The 24 V power supply for the digital outputs is missing.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>01: TM17 24 V power supply for DI/DO 0 ... 7 missing.</p> <p>02: TM17 24 V power supply for DI/DO 8 ... 15 missing.</p> <p>04: TM15 24 V power supply for DI/DO 0 ... 7 (X520) missing.</p> <p>08: TM15 24 V power supply for DI/DO 8 ... 15 (X521) missing.</p> <p>10: TM15 24 V power supply for DI/DO 16 ... 23 (X522) missing.</p> <p>20: TM41 24 V power supply for DI/DO 0 ... 3 missing.</p>
Remedy:	Check the terminals for the power supply voltage (L1+, L2+, L3+, M).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A35907 (F, N)	TM: Hardware initialization error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The Terminal Module was not successfully initialized.</p> <p>Alarm value (r2124, interpret hexadecimal):</p> <p>01: TM17 or TM41 - incorrect configuration request.</p> <p>02: TM17 or TM41 - programming not successful.</p> <p>04: TM17 or TM41 - invalid time stamp</p>
Remedy:	Carry out a POWER ON.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A35910 (F, N)	TM: Module overtemperature
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature in the module has exceeded the highest permissible limit.
Remedy:	<ul style="list-style-type: none"> - reduce the ambient temperature. - replace the Terminal Module.

Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A35911 (F, N) TM: Clock synchronous operation sign-of-life missing

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The maximum permissible number of errors in the master sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.
 When the alarm is output, the module outputs are reset up to the next synchronization.
Remedy:
 - check the physical bus configuration (terminating resistor, shielding, etc.).
 - check the interconnection of the master sign-of-life (r4201 via p0915).
 - check whether the master correctly sends the sign-of-life (e.g. set-up a trace with r4201.12 ... r4201.15 and trigger signal r4301.9).
 - check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).
 Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A35920 (F, N) TM: Temperature sensor fault

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
 Alarm value (r2124, interpret decimal):
 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Remedy:
 - check that the sensor is connected correctly.
 - replace sensor.
 Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A35999 (F, N) TM: Unknown alarm

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware.
 This can occur if the firmware on the Terminal Module is more recent than the firmware on the Control Unit.
 Alarm value (r2124, interpret decimal):
 Alarm number.
 If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:
 - replace the firmware on the Terminal Module by an older firmware version (r0158).
 - upgrade the firmware on the Control Unit (r0018).
 Reaction upon F: A_INFEED: NONE (OFF1, OFF2)
 SERVO: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 VECTOR: NONE (IASC / DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A36800 (F)	DMC: Group signal
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DRIVE-CLiQ Hub Module Cabinet (DMC) has detected at least one fault.
Remedy:	Evaluates other actual messages.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
A36801 (F, N)	DMC DRIVE-CLiQ: Sign-of-life missing
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. Alarm value (r2124, interpret hexadecimal): 0A: The sign-of-life bit in the receive telegram is not set.
Remedy:	- check the DRIVE-CLiQ connection. - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A36804 (F, N)	DMC: CRC
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	A checksum error has occurred when reading-out the program memory on the DRIVE-CLiQ Hub Module Cabinet (DMC). Fault value (r0949, interpret hexadecimal): Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- check whether the permissible ambient temperature for the component is maintained. - replace the DRIVE-CLiQ Hub Module Cabinet (DMC).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A36805 (F, N)	DMC: EPROM checksum error
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	Internal parameter data is corrupted. Alarm value (r2124, interpret hexadecimal): 01: EEPROM access error. 02: Too many blocks in the EEPROM.
Remedy:	- check whether the permissible ambient temperature for the component is maintained. - replace the DRIVE-CLiQ Hub Module Cabinet (DMC).

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F36820 DMC DRIVE-CLiQ: Telegram error

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved.
Fault value (r0949, interpret hexadecimal):
01: CRC error.
02: Telegram is shorter than specified in the length byte or in the receive list.
03: Telegram is longer than specified in the length byte or in the receive list.
04: The length of the receive telegram does not match the receive list.
05: The type of the receive telegram does not match the receive list.
06: The address of the component in the telegram and in the receive list do not match.
07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram.
09: The error bit in the receive telegram is set.
10: The receive telegram is too early.

Remedy: - carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F36835 DMC DRIVE-CLiQ: Cyclic data transfer error

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. The nodes do not send and receive in synchronism.
Fault value (r0949, interpret hexadecimal):
21: The cyclic telegram has not been received.
22: Timeout in the telegram receive list.
40: Timeout in the telegram send list.

Remedy: - carry out a POWER ON.
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F36836 DMC DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Drive object: A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
41: Telegram type does not match send list.

Remedy: Carry out a POWER ON.

F36837	DMC DRIVE-CLiQ: Component fault
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error.
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
F36845	DMC DRIVE-CLiQ: Cyclic data transfer error
Drive object:	A_INF, B_INF, CU_LINK, DMC20, SERVO, S_INF, TB30, TM15, TM15DI_DO, TM17, TM31, TM41, TM54F_MA, TM54F_SL, VECTOR
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
F36851	CU DRIVE-CLiQ: Sign-of-life missing
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. The DRIVE-CLiQ component did not set the sign of life to the Control Unit. Fault value (r0949, interpret hexadecimal): 0A: The sign-of-life bit in the receive telegram is not set.
Remedy:	Upgrade the firmware of the component involved.
F36860	CU DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. Fault value (r0949, interpret hexadecimal): 11: CRC error and the receive telegram is too early. 01: CRC error. 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 02: Telegram is shorter than specified in the length byte or in the receive list. 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 03: Telegram is longer than specified in the length byte or in the receive list. 14: The length of the receive telegram does not match the receive list and the receive telegram is too early. 04: The length of the receive telegram does not match the receive list. 15: The type of the receive telegram does not match the receive list and the receive telegram is too early. 05: The type of the receive telegram does not match the receive list. 16: The address of the Terminal Module in the telegram and in the receive list does not match and the receive telegram is too early.

06: The address of the Terminal Module in the telegram and in the receive list do not match.
19: The error bit in the receive telegram is set and the receive telegram is too early.
09: The error bit in the receive telegram is set.
10: The receive telegram is too early.

Remedy:

- carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F36885 CU DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. The nodes do not send and receive in synchronism.
Fault value (r0949, interpret hexadecimal):
1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
21: The cyclic telegram has not been received.
22: Timeout in the telegram receive list.
40: Timeout in the telegram send list.
62: Error at the transition to cyclic operation.

Remedy:

- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

F36886 CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
41: Telegram type does not match send list.

Remedy: Carry out a POWER ON.

F36887 CU DRIVE-CLiQ: Component fault

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module Cabinet) involved. Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
20: Error in the telegram header.
23: Receive error: The telegram buffer memory contains an error.
42: Send error: The telegram buffer memory contains an error.
43: Send error: The telegram buffer memory contains an error.
60: Response received too late during runtime measurement.
61: Time taken to exchange characteristic data too long.

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F36895	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the DRIVE-CLiQ Hub Module Cabinet (DMC) involved. Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
F36896	CU DRIVE-CLiQ: Inconsistent component characteristics
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module Cabinet), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.
Remedy:	- when replacing cables, only use cables with the same length as the original cables. - when replacing components, use the same components and firmware releases. - carry out a POWER ON.
F40000	Fault at DRIVE-CLiQ socket X100
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X100. Fault value (r0949, interpret decimal): First fault that has occurred for this drive object.
Remedy:	Evaluate the fault buffer of the specified object.
F40001	Fault at DRIVE-CLiQ socket X101
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X101. Fault value (r0949, interpret decimal): First fault that has occurred for this drive object.
Remedy:	Evaluate the fault buffer of the specified object.
F40002	Fault at DRIVE-CLiQ socket X102
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X102. Fault value (r0949, interpret decimal): First fault that has occurred for this drive object.
Remedy:	Evaluate the fault buffer of the specified object.

F40003 Fault at DRIVE-CLiQ socket X103

Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X103.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40004 Fault at DRIVE-CLiQ socket X104

Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X104.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40005 Fault at DRIVE-CLiQ socket X105

Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X105.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

A40100 Alarm at DRIVE-CLiQ socket X100

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X100.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40101 Alarm at DRIVE-CLiQ socket X101

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X101.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40102 Alarm at DRIVE-CLiQ socket X102

Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X102.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40103	Alarm at DRIVE-CLiQ socket X103
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X103. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.
A40104	Alarm at DRIVE-CLiQ socket X104
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X104. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.
A40105	Alarm at DRIVE-CLiQ socket X105
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X105. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.
F40799	CU-Link: Configured transfer end time exceeded
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The configured transfer end time when transferring the cyclic actual values was exceeded.
Remedy:	- carry out a POWER ON (power off/on) for all components. - contact the Hotline.
F40801	CX32 DRIVE-CLiQ: Sign-of-life missing
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved. The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): 0A: The sign-of-life bit in the receive telegram is not set.
Remedy:	- carry out a POWER ON. - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
F40820	CX32 DRIVE-CLiQ: Telegram error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved. Fault value (r0949, interpret hexadecimal): 01: CRC error. 02: Telegram is shorter than specified in the length byte or in the receive list. 03: Telegram is longer than specified in the length byte or in the receive list.

- 04: The length of the receive telegram does not match the receive list.
- 05: The type of the receive telegram does not match the receive list.
- 06: The address of the component in the telegram and in the receive list do not match.
- 07: A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
- 08: A SYNC telegram is not expected - but the received telegram is a SYNC telegram.
- 09: The error bit in the receive telegram is set.
- 10: The receive telegram is too early.

Remedy:

- carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40835 CX32 DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved.
The nodes do not send and receive in synchronism.
Fault value (r0949, interpret hexadecimal):
21: The cyclic telegram has not been received.
22: Timeout in the telegram receive list.
40: Timeout in the telegram send list.

Remedy:

- carry out a POWER ON.
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40836 CX32 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved.
Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
41: Telegram type does not match send list.

Remedy:

Carry out a POWER ON.

F40837 CX32 DRIVE-CLiQ: Component fault

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
20: Error in the telegram header.
23: Receive error: The telegram buffer memory contains an error.
42: Send error: The telegram buffer memory contains an error.
43: Send error: The telegram buffer memory contains an error.

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F40845 CX32 DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved.
Fault value (r0949, interpret hexadecimal):
0B: Synchronization error during alternating cyclic data transfer.

Remedy: Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40851 CU DRIVE-CLiQ: Sign-of-life missing

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved. The DRIVE-CLiQ component did not set the sign of life to the Control Unit.
 Fault value (r0949, interpret hexadecimal):
 0A: The sign-of-life bit in the receive telegram is not set.
Remedy: Upgrade the firmware of the component involved.

F40860 CU DRIVE-CLiQ: Telegram error

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved.
 Fault value (r0949, interpret hexadecimal):
 11: CRC error and the receive telegram is too early.
 01: CRC error.
 12: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
 02: Telegram is shorter than specified in the length byte or in the receive list.
 13: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
 03: Telegram is longer than specified in the length byte or in the receive list.
 14: The length of the receive telegram does not match the receive list and the receive telegram is too early.
 04: The length of the receive telegram does not match the receive list.
 15: The type of the receive telegram does not match the receive list and the receive telegram is too early.
 05: The type of the receive telegram does not match the receive list.
 16: The address of the controller extension in the telegram and in the receive list does not match and the receive telegram is too early.
 06: The address of the controller extension in the telegram and in the receive list do not match.
 19: The error bit in the receive telegram is set and the receive telegram is too early.
 09: The error bit in the receive telegram is set.
 10: The receive telegram is too early.
Remedy: - carry out a POWER ON.
 - check the electrical cabinet design and cable routing for EMC compliance
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
 See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F40885 CU DRIVE-CLiQ: Cyclic data transfer error

Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved. The nodes do not send and receive in synchronism.
 Fault value (r0949, interpret hexadecimal):
 0A: The sign-of-life bit in the receive telegram is not set.
 1A: Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
 21: The cyclic telegram has not been received.
 22: Timeout in the telegram receive list.
 40: Timeout in the telegram send list.
 62: Error at the transition to cyclic operation.
Remedy: - check the power supply voltage of the component involved.
 - carry out a POWER ON.
 - replace the component involved.
 See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F40886	CU DRIVE-CLiQ: Error when sending DRIVE-CLiQ data
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): 41: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.

F40887	CU DRIVE-CLiQ: Component fault
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): 20: Error in the telegram header. 23: Receive error: The telegram buffer memory contains an error. 42: Send error: The telegram buffer memory contains an error. 43: Send error: The telegram buffer memory contains an error. 60: Response received too late during runtime measurement. 61: Time taken to exchange characteristic data too long.
Remedy:	<ul style="list-style-type: none">- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).- check the electrical cabinet design and cable routing for EMC compliance- if required, use another DRIVE-CLiQ socket (p9904).- replace the component involved.

F40895	CU DRIVE-CLiQ: Cyclic data transfer error
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred between the Control Unit and the controller extension involved. Fault value (r0949, interpret hexadecimal): 0B: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F49150	Cooling system: Fault occurred
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The cooling system signals a general fault.
Remedy:	<ul style="list-style-type: none">- check the wiring between the cooling system and the input terminal (Terminal Module).- check the external Control Unit for the cooling system. See also: p0266 (Cooling system, feedback signals, signal source)

F49151	Cooling system: Conductivity has exceeded the fault threshold
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The conductivity of the cooling liquid has exceeded the selected fault threshold (p0269[2]). See also: p0261 (Cooling system, starting time 2), p0262 (Cooling system, fault conductivity delay time), p0266 (Cooling system, feedback signals, signal source)
Remedy:	Check the device to de-ionize the cooling liquid.

F49152	Cooling system: ON command feedback signal missing
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The feedback signal of the ON command of the cooling system is missing. - after the ON command, the feedback signal has not been received within the selected starting time (p0260). - the feedback signal has failed in operation. See also: p0260 (Cooling system, starting time 1), r0267 (Cooling system status word)
Remedy:	- check the wiring between the cooling system and the input terminal (Terminal Module). - check the external Control Unit for the cooling system.
F49153	Cooling system: Liquid flow too low
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The drive converter cooling system signals that the cooling liquid flow is too low. - after the ON command, the feedback signal has not been received within the selected starting time (p0260). - in operation, the feedback signal has failed for longer than the permitted failure time (p0263). See also: p0260 (Cooling system, starting time 1), p0263 (Cooling system fault liquid flow, delay time), r0267 (Cooling system status word)
Remedy:	- check the wiring between the cooling system and the input terminal (Terminal Module). - check the external Control Unit for the cooling system.
F49154 (A)	Cooling system: Liquid leak is present
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The liquid leakage monitoring function has responded. See also: r0267 (Cooling system status word)
Remedy:	- check the cooling system for leaks in the cooling circuit. - check the wiring of the input terminal (Terminal Module) used to monitor leaking fluid.
Reaction upon A:	NONE
Acknowled. upon A:	NONE
F49155	Cooling system: Power Stack Adapter, firmware version too old
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The firmware version in the Power Stack Adapter (PSA) is too old and does not support the liquid cooling.
Remedy:	Upgrade the firmware.
F49156	Cooling system: Cooling liquid temperature has exceeded the fault threshold
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The cooling liquid intake temperature has exceeded the permanently set fault threshold.
Remedy:	Check the cooling system and the ambient conditions.
A49170	Cooling system: Alarm has occurred
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cooling system signals a general alarm.
Remedy:	- check the wiring between the cooling system and the input terminal (Terminal Module). - check the external Control Unit for the cooling system.

A49171	Cooling system: Conductivity has exceeded the alarm threshold
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The conductivity of the cooling liquid has exceeded the selected alarm threshold (p0269[1]). See also: p0261 (Cooling system, starting time 2), p0262 (Cooling system, fault conductivity delay time), p0266 (Cooling system, feedback signals, signal source)
Remedy:	Check the device to de-ionize the cooling liquid.

A49172	Cooling system: Conductivity actual value is not valid
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	When monitoring the conductivity of the cooling liquid, there is a fault in the wiring or in the sensor.
Remedy:	- check the wiring between the cooling system and the Power Stack Adapter (PSA). - check the function of the sensor to measure the conductivity.

A49173	Cooling system: Cooling liquid temperature has exceeded the alarm threshold
Drive object:	A_INF, B_INF, SERVO, S_INF, VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cooling liquid intake temperature has exceeded the permanently set alarm threshold.
Remedy:	Check the cooling system and the ambient conditions.

F49200	Excitation group signal fault
Drive object:	VECTOR
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The excitation sequence control signals a fault. Fault value (r0949, hexadecimal): Bit 0: When powered-down or when powering-down the excitation, the signal "excitation ready to power-up feedback signal" was not received within the monitoring time. Bit 1: After an ON command, the signal "excitation ready feedback signal" was not received within the monitoring time. Bit 2: After the pulses were enabled, the signal "excitation operational feedback signal" was not received within the monitoring time. Bit 3: The "excitation group signal fault" signal is present.
Remedy:	- check the excitation. - check commands, feedback signals and BICO interconnections.

A49201 (F)	Excitation, group signal alarm
Drive object:	VECTOR
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "excitation group signal alarm" signal is present.
Remedy:	Check the excitation equipment.
Reaction upon F:	NONE
Acknowled. upon F:	IMMEDIATELY

Appendix

A

Content

A.1	ASCII table (excerpt)	A-1752
A.2	List for motor code/encoder code	A-1753

A.1 ASCII table (excerpt)

The following table includes the decimal and hexadecimal notation of selected ASCII characters.

Table A-1 ASCII table (excerpt)

Letter/number	Decimal	Hexadecimal	Letter/number	Decimal	Hexadecimal
Blanks	32	20	H	72	48
-	45	2D	I	73	49
0	48	30	J	74	4A
1	49	31	K	75	4B
2	50	32	L	76	4C
3	51	33	M	77	4D
4	52	34	N	78	4E
5	53	35	O	79	4F
6	54	36	P	80	50
7	55	37	Q	81	51
8	56	38	R	82	52
9	57	39	S	83	53
A	65	41	T	84	54
B	66	42	U	85	55
C	67	43	V	86	56
D	68	44	W	87	57
E	69	45	X	88	58
F	70	46	Y	89	59
G	71	47	Z	90	5A

A.2 List for motor code/encoder code

A.2.1 Motor code

Induction motors (Version: 2502900)

Table A-2 Motor code for induction motors

Order number	Motor type (p0300)	Motor code (p0301)
1PH2092-4WG4x-xxxx	102	10201
1PH2093-6WF4x-xxxx	102	10202
1PH2095-6WF4x-xxxx	102	10203
1PH2096-4WG4x-xxxx	102	10204
1PH2113-6WF4x-xxxx	102	10205
1PH2115-6WF4x-xxxx	102	10206
1PH2117-6WF4x-xxxx	102	10207
1PH2118-6WF4x-xxxx	102	10208
1PH2123-4WF4x-xxxx	102	10209
1PH2127-4WF4x-xxxx	102	10210
1PH2128-4WF4x-xxxx	102	10211
1PH2143-4WF4x-xxxx	102	10212
1PH2147-4WF4x-xxxx	102	10213
1PH2182-6WC4x-xxxx	102	10214
1PH2184-6WP4x-xxxx	102	10215
1PH2186-6WB4x-xxxx	102	10216
1PH2188-6WB4x-xxxx	102	10217
1PH2254-6WB4x-xxxx	102	10218
1PH2256-6WB4x-xxxx	102	10219
1PH4103-4NF2x-xxxx	104	10401
1PH4105-4NF2x-xxxx	104	10403
1PH4107-4NF2x-xxxx	104	10405
1PH4133-4NF2x-xxxx	104	10407
1PH4135-4NF2x-xxxx	104	10409
1PH4137-4NF2x-xxxx	104	10411
1PH4138-4NF2x-xxxx	104	10413
1PH4163-4NF2x-xxxx	104	10416
1PH4167-4NF2x-xxxx	104	10418
1PH4168-4NF2x-xxxx	104	10420

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PH7101-xxFxx-xLxx	107	12701
1PH7101-xxFxx-xxxx	107	10701
1PH7103-xxDxx-xLxx	107	12702
1PH7103-xxDxx-xxxx	107	10702
1PH7103-xxFxx-xLxx	107	12703
1PH7103-xxFxx-xxxx	107	10703
1PH7103-xxGxx-xLxx	107	12704
1PH7103-xxGxx-xxxx	107	10704
1PH7105-xxFxx-xLxx	107	12705
1PH7105-xxFxx-xxxx	107	10705
1PH7107-xxDxx-xLxx	107	12706
1PH7107-xxDxx-xxxx	107	10706
1PH7107-xxFxx-xLxx	107	12707
1PH7107-xxFxx-xxxx	107	10707
1PH7107-xxGxx-xLxx	107	12708
1PH7107-xxGxx-xxxx	107	10708
1PH7131-xxFxx-xLxx	107	12709
1PH7131-xxFxx-xxxx	107	10709
1PH7133-xxDxx-xLxx	107	12710
1PH7133-xxDxx-xxxx	107	10710
1PH7133-xxFxx-xLxx	107	12711
1PH7133-xxFxx-xxxx	107	10711
1PH7133-xxGxx-xLxx	107	12712
1PH7133-xxGxx-xxxx	107	10712
1PH7135-xxFxx-xLxx	107	12713
1PH7135-xxFxx-xxxx	107	10713
1PH7137-xxDxx-xLxx	107	12714
1PH7137-xxDxx-xxxx	107	10714
1PH7137-xxFxx-xLxx	107	12715
1PH7137-xxFxx-xxxx	107	10715
1PH7137-xxGxx-xLxx	107	12716
1PH7137-xxGxx-xxxx	107	10716
1PH7163-xxBxx-xLxx	107	12717
1PH7163-xxBxx-xxxx	107	10717
1PH7163-xxDxx-xLxx	107	12718

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PH7163-xxDxx-xxxx	107	10718
1PH7163-xxFxx-xLxx	107	12719
1PH7163-xxFxx-xxxx	107	10719
1PH7163-xxGxx-xLxx	107	12720
1PH7163-xxGxx-xxxx	107	10720
1PH7167-xxBxx-xLxx	107	12721
1PH7167-xxBxx-xxxx	107	10721
1PH7167-xxDxx-xLxx	107	12722
1PH7167-xxDxx-xxxx	107	10722
1PH7167-xxFxx-xLxx	107	12723
1PH7167-xxFxx-xxxx	107	10723
1PH7167-xxGxx-xLxx	107	12724
1PH7167-xxGxx-xxxx	107	10724
1PH7184-xxBxx-xxxx	107	10725
1PH7184-xxDxx-xxxx	107	10735
1PH7184-xxExx-xxxx	107	10727
1PH7184-xxFxx-xxxx	107	10736
1PH7184-xxLxx-xxxx	107	10737
1PH7184-xxTxx-xxxx	107	10726
1PH7186-xxBxx-xxxx	107	10728
1PH7186-xxDxx-xxxx	107	10734
1PH7186-xxExx-xxxx	107	10730
1PH7186-xxFxx-xxxx	107	10740
1PH7186-xxLxx-xxxx	107	10742
1PH7186-xxTxx-xxxx	107	10729
1PH7224-xxBxx-xxxx	107	10743
1PH7224-xxCxx-xxxx	107	10731
1PH7224-xxDxx-xxxx	107	10738
1PH7224-xxFxx-xxxx	107	10732
1PH7224-xxLxx-xxxx	107	10744
1PH7224-xxUxx-xxxx	107	10745
1PH7226-xxBxx-xxxx	107	10746
1PH7226-xxDxx-xxxx	107	10747
1PH7226-xxFxx-xxxx	107	10739
1PH7226-xxLxx-xxxx	107	10748

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PH7228-xxBxx-xxxx	107	10749
1PH7228-xxDxx-xxxx	107	10750
1PH7228-xxFxx-xxxx	107	10741
1PH7228-xxLxx-xxxx	107	10751
1PH7284-xxBxx-xxxx	107	10752
1PH7284-xxCxx-xxxx	107	10753
1PH7284-xxDxx-xxxx	107	10754
1PH7284-xxFxx-xxxx	107	10755
1PH7286-xxBxx-xxxx	107	10756
1PH7286-xxCxx-xxxx	107	10757
1PH7286-xxDxx-xxxx	107	10758
1PH7286-xxFxx-xxxx	107	10759
1PH7288-xxBxx-xxxx	107	10760
1PH7288-xxCxx-xxxx	107	10761
1PH7288-xxDxx-xxxx	107	10762
1PH7288-xxFxx-xxxx	107	10763
1PL6184-xxBxx-xxxx	166	16600
1PL6184-xxDxx-xxxx	166	16601
1PL6184-xxFxx-xxxx	166	16602
1PL6184-xxLxx-xxxx	166	16603
1PL6186-xxBxx-xxxx	166	16604
1PL6186-xxDxx-xxxx	166	16605
1PL6186-xxFxx-xxxx	166	16606
1PL6224-xxBxx-xxxx	166	16608
1PL6224-xxDxx-xxxx	166	16609
1PL6224-xxFxx-xxxx	166	16610
1PL6224-xxLxx-xxxx	166	16611
1PL6226-xxBxx-xxxx	166	16612
1PL6226-xxDxx-xxxx	166	16614
1PL6226-xxFxx-xxxx	166	16615
1PL6226-xxLxx-xxxx	166	16616
1PL6228-xxBxx-xxxx	166	16617
1PL6228-xxDxx-xxxx	166	16618
1PL6228-xxFxx-xxxx	166	16619
1PL6228-xxLxx-xxxx	166	16620

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PL6284-xxCxx-xxxx	166	16621
1PL6284-xxDxx-xxxx	166	16622
1PL6284-xxFxx-xxxx	166	16623
1PL6286-xxCxx-xxxx	166	16624
1PL6286-xxDxx-xxxx	166	16626
1PL6286-xxFxx-xxxx	166	16625
1PL6288-xxCxx-xxxx	166	16627
1PL6288-xxDxx-xxxx	166	16628
1PL6288-xxFxx-xxxx	166	16629
1PM4101-xxF8x-xxxx	134	14401
1PM4101-xxF8x-xxxx	134	14402
1PM4101-xxW2x-xxxx	134	13401
1PM4105-xxF8x-xxxx	134	14403
1PM4105-xxF8x-xxxx	134	14404
1PM4105-xxW2x-xxxx	134	13403
1PM4133-xxF8x-xxxx	134	14405
1PM4133-xxF8x-xxxx	134	14406
1PM4133-xxW2x-xxxx	134	13405
1PM4137-xxF8x-xxxx	134	14407
1PM4137-xxF8x-xxxx	134	14408
1PM4137-xxW2x-xxxx	134	13407
1PM6101-xxF8x-xxxx	136	14601
1PM6101-xxF8x-xxxx	136	14602
1PM6105-xxF8x-xxxx	136	14603
1PM6105-xxF8x-xxxx	136	14604
1PM6133-xxF8x-xxxx	136	14605
1PM6133-xxF8x-xxxx	136	14606
1PM6137-xxF8x-xxxx	136	14607
1PM6137-xxF8x-xxxx	136	14608
1PM6138-xxF8x-xxxx	136	14609

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PM6138-xxF8x-xxxx	136	14610
2SP1253-8xAxx-0xxx	191	19102
2SP1253-8xAxx-0xxx	191	19101
2SP1255-8xAxx-0xxx	191	19103
2SP1255-8xAxx-0xxx	191	19104
DMR160.80.6RIF	1	19901

Synchronous motors (Version: 2502900)

Table A-3 Motor code for synchronous motors

Order number	Motor type (p0300)	Motor code (p0301)
1FE1051-4WL11-xxxx	261	26103
1FE1051-4WL51-xxxx	261	26104
1FE1051-4WN11-xxxx	261	26105
1FE1051-6WK10-xxxx	261	26106
1FE1051-6WN00-xxxx	261	26107
1FE1051-6WN10-xxxx	261	26108
1FE1051-6WN20-xxxx	261	26109
1FE1051-6WN30-xxxx	261	26110
1FE1052-4WK11-xxxx	261	26111
1FE1052-4WN11-xxxx	261	26112
1FE1052-4WN51-xxxx	261	26113
1FE1052-6LK00-xxxx	261	26114
1FE1052-6WK10-xxxx	261	26115
1FE1052-6WN00-xxxx	261	26116
1FE1052-6WN10-xxxx	261	26117
1FE1052-6WY10-xxxx	261	26118
1FE1053-4WN11-xxxx	261	26119
1FE1054-6LR00-xxxx	261	26120
1FE1054-6WQ10-xxxx	261	26122
1FE1054-6WR10-xxxx	261	26287
1FE1055-6LU00-xxxx	261	26123
1FE1055-6LX00-xxxx	261	26124
1FE1061-6LW00-xxxx	261	26125
1FE1061-6WV10-xxxx	261	26284
1FE1061-6WY10-xxxx	261	26126
1FE1064-6LQ00-xxxx	261	26127
1FE1064-6WN11-xxxx	261	26128
1FE1072-4WH11-xxxx	261	26129
1FE1072-4WL11-xxxx	261	26130
1FE1072-4WN01-xxxx	261	26131
1FE1072-4WN11-xxxx	261	26132
1FE1072-4WN31-xxxx	261	26133
1FE1073-4WL11-xxxx	261	26289
1FE1073-4WN01-xxxx	261	26134

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FE1073-4WN11-xxxx	261	26135
1FE1073-4WR01-xxxx	261	26136
1FE1073-4WT11-xxxx	261	26137
1FE1073-4WT31-xxxx	261	26138
1FE1074-4WM11-xxxx	261	26139
1FE1074-4WN11-xxxx	261	26140
1FE1074-4WN51-xxxx	261	26141
1FE1082-4WN01-xxxx	261	26142
1FE1082-4WN11-xxxx	261	26143
1FE1082-4WN51-xxxx	261	26144
1FE1082-4WP11-xxxx	261	26145
1FE1082-4WR11-xxxx	261	26146
1FE1082-4WR31-xxxx	261	26147
1FE1082-6WE11-xxxx	261	26285
1FE1082-6WP10-xxxx	261	26148
1FE1082-6WQ11-xxxx	261	26149
1FE1082-6WS10-xxxx	261	26150
1FE1082-6WS30-xxxx	261	26151
1FE1082-6WW11-xxxx	261	26152
1FE1083-4WN01-xxxx	261	26153
1FE1083-4WN11-xxxx	261	26154
1FE1084-4WN11-xxxx	261	26155
1FE1084-4WN31-xxxx	261	26156
1FE1084-4WP11-xxxx	261	26157
1FE1084-4WQ11-xxxx	261	26158
1FE1084-4WQ51-xxxx	261	26159
1FE1084-4WT11-xxxx	261	26160
1FE1084-4WT51-xxxx	261	26161
1FE1084-6LN00-xxxx	261	26162
1FE1084-6WN11-xxxx	261	26163
1FE1084-6WR11-xxxx	261	26164
1FE1084-6WX11-xxxx	261	26165
1FE1085-4WN11-xxxx	261	26166
1FE1085-4WQ11-xxxx	261	26167
1FE1085-4WT11-xxxx	261	26168

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FE1091-6WN10-xxxx	261	26169
1FE1091-6WN30-xxxx	261	26170
1FE1091-6WS10-xxxx	261	26171
1FE1092-4WV11-xxxx	261	26172
1FE1092-6WN00-xxxx	261	26173
1FE1092-6WN10-xxxx	261	26174
1FE1092-6WN30-xxxx	261	26175
1FE1092-6WR11-xxxx	261	26176
1FE1093-4WF01-xxxx	261	26177
1FE1093-4WH11-xxxx	261	26178
1FE1093-4WK01-xxxx	261	26179
1FE1093-4WM11-xxxx	261	26180
1FE1093-4WN01-xxxx	261	26181
1FE1093-4WN10-xxxx	261	26182
1FE1093-4WN11-xxxx	261	26183
1FE1093-6WN10-xxxx	261	26184
1FE1093-6WS10-xxxx	261	26185
1FE1093-6WS30-xxxx	261	26186
1FE1093-6WV01-xxxx	261	26286
1FE1093-6WV11-xxxx	261	26187
1FE1093-6WV31-xxxx	261	26188
1FE1093-7LN00-xxxx	261	26189
1FE1094-4LW01-xxxx	261	26190
1FE1094-4WK11-xxxx	261	26191
1FE1094-4WL11-xxxx	261	26192
1FE1094-4WS11-xxxx	261	26193
1FE1094-4WU11-xxxx	261	26243
1FE1095-4WN11-xxxx	261	26194
1FE1095-6LT01-xxxx	261	26195
1FE1095-6WU11-xxxx	261	26290
1FE1096-4WK10-xxxx	261	26196
1FE1096-4WN11-xxxx	261	26197
1FE1103-4WN01-xxxx	261	26245
1FE1103-4WN11-xxxx	261	26198
1FE1103-4WN31-xxxx	261	26199

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FE1103-4WQ01-xxxx	261	26200
1FE1103-4WQ11-xxxx	261	26201
1FE1103-4WT01-xxxx	261	26202
1FE1103-4WT11-xxxx	261	26203
1FE1103-4WU01-xxxx	261	26204
1FE1104-4WN11-xxxx	261	26205
1FE1105-4WN01-xxxx	261	26206
1FE1105-4WN11-xxxx	261	26207
1FE1105-4WQ01-xxxx	261	26208
1FE1105-4WQ11-xxxx	261	26209
1FE1106-4WN11-xxxx	261	26210
1FE1106-4WS11-xxxx	261	26211
1FE1106-4WY11-xxxx	261	26212
1FE1112-6LW01-xxxx	261	26213
1FE1113-6LU01-xxxx	261	26214
1FE1114-6LU11-xxxx	261	26215
1FE1114-6WR11-xxxx	261	26216
1FE1114-6WR31-xxxx	261	26217
1FE1114-6WT10-xxxx	261	26218
1FE1114-6WT11-xxxx	261	26219
1FE1114-6WT31-xxxx	261	26220
1FE1114-6WT51-xxxx	261	26221
1FE1114-6WW11-xxxx	261	26222
1FE1114-6WW31-xxxx	261	26223
1FE1116-6LS01-xxxx	261	26224
1FE1116-6LT01-xxxx	261	26225
1FE1116-6WR11-xxxx	261	26226
1FE1116-6WT11-xxxx	261	26227
1FE1116-6WW11-xxxx	261	26242
1FE1116-6WY11-xxxx	261	26228
1FE1124-4WN11-xxxx	261	26229
1FE1125-4WN11-xxxx	261	26230
1FE1125-4WP11-xxxx	261	26231
1FE1126-4WN11-xxxx	261	26232
1FE1126-4WP11-xxxx	261	26233

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FE1126-4WQ11-xxxx	261	26234
1FE1144-8WT10-xxxx	261	26244
1FE1145-8WN11-xxxx	261	26235
1FE1145-8WS11-xxxx	261	26237
1FE1147-8WN11-xxxx	261	26238
1FE1147-8WQ11-xxxx	261	26239
1FE1147-8WQ31-xxxx	261	26240
1FE1147-8WS11-xxxx	261	26241
1FK6032-6AK7x-xxxx	236	23601
1FK6033-7AK7x-xxxx	236	23602
1FK6040-6AK7x-xxxx	236	23603
1FK6042-6AF7x-xxxx	236	23604
1FK6043-7AH7x-xxxx	236	23605
1FK6043-7AK7x-xxxx	236	23606
1FK6044-7AF7x-xxxx	236	23607
1FK6044-7AH7x-xxxx	236	23608
1FK6060-6AF7x-xxxx	236	23609
1FK6061-7AF7x-xxxx	236	23610
1FK6061-7AH7x-xxxx	236	23611
1FK6063-6AF7x-xxxx	236	23612
1FK6064-7AF7x-xxxx	236	23613
1FK6064-7AH7x-xxxx	236	23614
1FK6080-6AF7x-xxxx	236	23615
1FK6082-7AF7x-xxxx	236	23616
1FK6083-6AF7x-xxxx	236	23617
1FK6085-7AF7x-xxxx	236	23618
1FK6100-8AF7x-xxxx	236	23619
1FK6101-8AF7x-xxxx	236	23620
1FK6103-8AF7x-xxxx	236	23621
1FK7011-5AK2x-xxxx	237	23738
1FK7011-5AK7x-xxxx	237	23747
1FK7015-5AK2x-xxxx	237	23739
1FK7015-5AK7x-xxxx	237	23748
1FK7022-5AK2x-xxxx	237	23733
1FK7022-5AK7x-xxxx	237	23726

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FK7032-5AF2x-xxxx	237	23742
1FK7032-5AK7x-xxxx	237	23727
1FK7033-7AF2x-xxxx	237	23741
1FK7033-7AK7x-xxxx	237	23701
1FK7034-5AF2x-xxxx	237	23740
1FK7034-5AK7x-xxxx	237	23732
1FK7040-5AK7x-xxxx	237	23702
1FK7042-5AF2x-xxxx	237	23735
1FK7042-5AF7x-xxxx	237	23703
1FK7042-5AK7x-xxxx	237	23704
1FK7043-7AF2x-xxxx	237	23743
1FK7043-7AH7x-xxxx	237	23705
1FK7043-7AK7x-xxxx	237	23706
1FK7044-7AF7x-xxxx	237	23707
1FK7044-7AH7x-xxxx	237	23708
1FK7060-5AF7x-xxxx	237	23709
1FK7060-5AH7x-xxxx	237	23710
1FK7061-7AF7x-xxxx	237	23711
1FK7061-7AH7x-xxxx	237	23712
1FK7063-5AF7x-xxxx	237	23713
1FK7063-5AH7x-xxxx	237	23714
1FK7064-7AF7x-xxxx	237	23715
1FK7064-7AH7x-xxxx	237	23716
1FK7080-5AF7x-xxxx	237	23717
1FK7080-5AH7x-xxxx	237	23718
1FK7082-7AF7x-xxxx	237	23719
1FK7083-5AF7x-xxxx	237	23720
1FK7083-5AH7x-xxxx	237	23721
1FK7085-7AF7x-xxxx	237	23722
1FK7086-7AA7x-xxxx	237	23737
1FK7086-7AC7x-xxxx	237	23744
1FK7086-7AF7x-xxxx	237	23731
1FK7086-7SF7x-xxxx	237	23730
1FK7100-5AF7x-xxxx	237	23723
1FK7101-5AC7x-xxxx	237	23745

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FK7101-5AF7x-xxxx	237	23724
1FK7103-5AC7x-xxxx	237	23746
1FK7103-5AF7x-xxxx	237	23725
1FK7105-5AC7x-xxxx	237	23728
1FK7105-5AF7x-xxxx	237	23729
1FS6074-xAC7x-xxxx	276	27601
1FS6074-xAF7x-xxxx	276	27602
1FS6074-xAH7x-xxxx	276	27603
1FS6074-xAK7x-xxxx	276	27604
1FS6096-xAC7x-xxxx	276	27605
1FS6096-xAF7x-xxxx	276	27606
1FS6096-xAH7x-xxxx	276	27607
1FS6115-xAB7x-xxxx	276	27608
1FS6115-xAC7x-xxxx	276	27609
1FS6115-xAF7x-xxxx	276	27610
1FS6134-xAB7x-xxxx	276	27611
1FS6134-xAC7x-xxxx	276	27612
1FS6134-xAF7x-xxxx	276	27613
1FT6021-6AK7x-xxxx	206	20601
1FT6024-6AK7x-xxxx	206	20602
1FT6031-xAK7x-xxxx	206	20603
1FT6034-xAK7x-xxxx	206	20604
1FT6041-xAF7x-xxxx	206	20605
1FT6041-xAK7x-xxxx	206	20606
1FT6044-xAF7x-xxxx	206	20607
1FT6044-xAK7x-xxxx	206	20608
1FT6061-xAC7x-xxxx	206	20609
1FT6061-xAF7x-xxxx	206	20610
1FT6061-xAH7x-xxxx	206	20611
1FT6061-xAK7x-xxxx	206	20612
1FT6062-xAC7x-xxxx	206	20613
1FT6062-xAF7x-xxxx	206	20614
1FT6062-xAH7x-xxxx	206	20615
1FT6062-xAK7x-xxxx	206	20616
1FT6062-xWF7x-xxxx	206	22601

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT6062-xWH7x-xxxx	206	22602
1FT6062-xWK7x-xxxx	206	22603
1FT6064-xAC7x-xxxx	206	20617
1FT6064-xAF7x-xxxx	206	20618
1FT6064-xAH7x-xxxx	206	20619
1FT6064-xAK7x-xxxx	206	20620
1FT6064-xWF7x-xxxx	206	22604
1FT6064-xWH7x-xxxx	206	22605
1FT6064-xWK7x-xxxx	206	22606
1FT6081-xAC7x-xxxx	206	20621
1FT6081-xAF7x-xxxx	206	20622
1FT6081-xAH7x-xxxx	206	20623
1FT6081-xAK7x-xxxx	206	20624
1FT6082-xAC7x-xxxx	206	20625
1FT6082-xAF7x-xxxx	206	20626
1FT6082-xAH7x-xxxx	206	20627
1FT6082-xAK7x-xxxx	206	20628
1FT6084-xAC7x-xxxx	206	20629
1FT6084-xAF7x-xxxx	206	20630
1FT6084-xAH7x-xxxx	206	20631
1FT6084-xAK7x-xxxx	206	20632
1FT6084-xSF7x-xxxx	206	21601
1FT6084-xSH7x-xxxx	206	21602
1FT6084-xSK7x-xxxx	206	21603
1FT6084-xWF7x-xxxx	206	22607
1FT6084-xWH7x-xxxx	206	22608
1FT6084-xWK7x-xxxx	206	22609
1FT6086-xAC7x-xxxx	206	20633
1FT6086-xAF7x-xxxx	206	20634
1FT6086-xAH7x-xxxx	206	20635
1FT6086-xSF7x-xxxx	206	21604
1FT6086-xSH7x-xxxx	206	21605
1FT6086-xSK7x-xxxx	206	21606
1FT6086-xWF7x-xxxx	206	22610
1FT6086-xWH7x-xxxx	206	22611

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT6086-xWK7x-xxxx	206	22612
1FT6102-xAB7x-xxxx	206	20636
1FT6102-xAC7x-xxxx	206	20637
1FT6102-xAF7x-xxxx	206	20638
1FT6102-xAH7x-xxxx	206	20639
1FT6105-xAB7x-xxxx	206	20640
1FT6105-xAC7x-xxxx	206	20641
1FT6105-xAF7x-xxxx	206	20642
1FT6105-xSB7x-xxxx	206	21607
1FT6105-xSC7x-xxxx	206	21608
1FT6105-xSF7x-xxxx	206	21609
1FT6105-xSH7x-xxxx	206	21610
1FT6105-xWC7x-xxxx	206	22613
1FT6105-xWF7x-xxxx	206	22614
1FT6108-xAB7x-xxxx	206	20643
1FT6108-xAC7x-xxxx	206	20644
1FT6108-xAF7x-xxxx	206	20645
1FT6108-xSB7x-xxxx	206	21611
1FT6108-xSC7x-xxxx	206	21612
1FT6108-xSF7x-xxxx	206	21613
1FT6108-xWB7x-xxxx	206	22615
1FT6108-xWC7x-xxxx	206	22616
1FT6108-xWF7x-xxxx	206	22617
1FT6132-xAB7x-xxxx	206	20646
1FT6132-xAC7x-xxxx	206	20647
1FT6132-xAF7x-xxxx	206	20648
1FT6132-xSB7x-xxxx	206	21614
1FT6132-xSC7x-xxxx	206	21615
1FT6132-xSF7x-xxxx	206	21616
1FT6132-xWB7x-xxxx	206	22618
1FT6132-xWD7x-xxxx	206	22619
1FT6134-xAB7x-xxxx	206	20649
1FT6134-xAC7x-xxxx	206	20650
1FT6134-xSB7x-xxxx	206	21617
1FT6134-xSC7x-xxxx	206	21618

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT6134-xSF7x-xxxx	206	21619
1FT6134-xWB7x-xxxx	206	22620
1FT6134-xWD7x-xxxx	206	22621
1FT6136-xAB7x-xxxx	206	20651
1FT6136-xAC7x-xxxx	206	20652
1FT6136-xSB7x-xxxx	206	21620
1FT6136-xSC7x-xxxx	206	21621
1FT6136-xSF7x-xxxx	206	21622
1FT6136-xWB7x-xxxx	206	22622
1FT6136-xWD7x-xxxx	206	22623
1FT6138-xWB7x-xxxx	206	22624
1FT6138-xWD7x-xxxx	206	22625
1FT6163-xSB7x-xxxx	206	21623
1FT6163-xSD7x-xxxx	206	21624
1FT6163-xWB7x-xxxx	206	22626
1FT6163-xWD7x-xxxx	206	22627
1FT6168-xSB7x-xxxx	206	21625
1FT6168-xWB7x-xxxx	206	22628
1FT7042-xAF7x-xxxx	207	20701
1FT7042-xAK7x-xxxx	207	20702
1FT7044-xAF7x-xxxx	207	20703
1FT7044-xAK7x-xxxx	207	20704
1FT7046-xAF7x-xxxx	207	20705
1FT7046-xAH7x-xxxx	207	20732
1FT7062-xAF7x-xxxx	207	20716
1FT7062-xAK7x-xxxx	207	20717
1FT7064-xAF7x-xxxx	207	20720
1FT7064-xAK7x-xxxx	207	20721
1FT7066-xAF7x-xxxx	207	20722
1FT7066-xAH7x-xxxx	207	20733
1FT7068-xAF7x-xxxx	207	20725
1FT7082-xAC7x-xxxx	207	20734
1FT7082-xAF7x-xxxx	207	20709
1FT7082-xAH7x-xxxx	207	20707
1FT7084-xAC7x-xxxx	207	20735

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT7084-xAF7x-xxxx	207	20711
1FT7084-xAH7x-xxxx	207	20712
1FT7086-xAC7x-xxxx	207	20736
1FT7086-xAF7x-xxxx	207	20714
1FT7086-xAH7x-xxxx	207	20715
1FT7102-xAB7x-xxxx	207	20726
1FT7102-xAC7x-xxxx	207	20737
1FT7102-xAF7x-xxxx	207	20727
1FT7105-xAB7x-xxxx	207	20728
1FT7105-xAC7x-xxxx	207	20738
1FT7105-xAF7x-xxxx	207	20729
1FT7108-xAB7x-xxxx	207	20730
1FT7108-xAC7x-xxxx	207	20739
1FT7108-xWB7x-xxxx	207	20742
1FW3150-1xH7x-xxxx	283	28301
1FW3150-1xL7x-xxxx	283	28302
1FW3150-1xP7x-xxxx	283	28303
1FW3152-1xH7x-xxxx	283	28304
1FW3152-1xL7x-xxxx	283	28305
1FW3152-1xP7x-xxxx	283	28306
1FW3154-1xH7x-xxxx	283	28307
1FW3154-1xL7x-xxxx	283	28308
1FW3154-1xP7x-xxxx	283	28309
1FW3155-1xH7x-xxxx	283	28310
1FW3155-1xL7x-xxxx	283	28311
1FW3155-1xP7x-xxxx	283	28312
1FW3156-1xH7x-xxxx	283	28313
1FW3156-1xL7x-xxxx	283	28314
1FW3156-1xP7x-xxxx	283	28315
1FW3201-1xE7x-xxxx	283	28316
1FW3201-1xH7x-xxxx	283	28317
1FW3201-1xL7x-xxxx	283	28318
1FW3202-1xE7x-xxxx	283	28319
1FW3202-1xH7x-xxxx	283	28320
1FW3202-1xL7x-xxxx	283	28321

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FW3203-1xE7x-xxxx	283	28322
1FW3203-1xH7x-xxxx	283	28323
1FW3203-1xL7x-xxxx	283	28324
1FW3204-1xE7x-xxxx	283	28325
1FW3204-1xH7x-xxxx	283	28326
1FW3204-1xL7x-xxxx	283	28327
1FW3206-1xE7x-xxxx	283	28328
1FW3206-1xH7x-xxxx	283	28329
1FW3206-1xL7x-xxxx	283	28330
1FW3208-1xE7x-xxxx	283	28331
1FW3208-1xH7x-xxxx	283	28332
1FW3208-1xL7x-xxxx	283	28333
1FW3281-1xE7x-xxxx	283	28334
1FW3281-1xG7x-xxxx	283	28335
1FW3283-1xE7x-xxxx	283	28336
1FW3283-1xG7x-xxxx	283	28337
1FW3285-1xE7x-xxxx	283	28338
1FW3285-1xG7x-xxxx	283	28339
1FW3288-1xE7x-xxxx	283	28340
1FW3288-1xG7x-xxxx	283	28341
1FW6090-0xx05-0Fxx	286	28601
1FW6090-0xx05-0Kxx	286	28602
1FW6090-0xx07-0Kxx	286	28603
1FW6090-0xx07-1Jxx	286	28604
1FW6090-0xx10-0Kxx	286	28605
1FW6090-0xx10-1Jxx	286	28606
1FW6090-0xx15-1Jxx	286	28607
1FW6090-0xx15-2Jxx	286	28608
1FW6130-0xx05-0Kxx	286	28620
1FW6130-0xx05-1Jxx	286	28621
1FW6130-0xx07-0Kxx	286	28622
1FW6130-0xx07-1Jxx	286	28623
1FW6130-0xx10-1Jxx	286	28624
1FW6130-0xx10-2Jxx	286	28625
1FW6130-0xx15-1Jxx	286	28626

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FW6130-0xx15-2Jxx	286	28627
1FW6160-0xx05-1Jxx	286	28628
1FW6160-0xx05-2Jxx	286	28629
1FW6160-0xx07-1Jxx	286	28630
1FW6160-0xx07-2Jxx	286	28631
1FW6160-0xx10-1Jxx	286	28632
1FW6160-0xx10-2Jxx	286	28633
1FW6160-0xx15-2Jxx	286	28634
1FW6160-0xx15-5Gxx	286	28635
1FW6190-0xx05-1Jxx	286	28636
1FW6190-0xx05-2Jxx	286	28637
1FW6190-0xx07-1Jxx	286	28638
1FW6190-0xx07-2Jxx	286	28639
1FW6190-0xx10-1Jxx	286	28640
1FW6190-0xx10-2Jxx	286	28641
1FW6190-0xx15-2Jxx	286	28609
1FW6190-0xx15-5Gxx	286	28610
1FW6230-0xx05-1Jxx	286	28611
1FW6230-0xx05-2Jxx	286	28612
1FW6230-0xx07-1Jxxx	286	28613
1FW6230-0xx07-2Jxx	286	28614
1FW6230-0xx10-2Jxx	286	28615
1FW6230-0xx10-5Gxx	286	28616
1FW6230-0xx15-4Cxx	286	28617
1FW6230-0xx15-5Gxx	286	28618
1FW6290-0xx15-7Axx	286	28619
2SP1202-1HAxx-xxxx	291	29101
2SP1202-1HBxx-xxxx	291	29102
2SP1204-1HAxx-xxxx	291	29103
2SP1204-1HBxx-xxxx	291	29104
2SP1253-1xAxx-xxxx	291	29105
2SP1253-1xBxx-xxxx	291	29106
2SP1255-1xAxx-xxxx	291	29107
2SP1255-1xBxx-xxxx	291	29108

Linear motors (Version: 2502900)

Table A-4 Motor code for linear motors

Order number	Motor type (p0300)	Motor code (p0301)
1FN1072-3xF7x-xxxx	401	40131
1FN1076-3xF7x-xxxx	401	40132
1FN1122-5xC7x-xxxx	401	40103
1FN1122-5xF7x-xxxx	401	40121
1FN1124-5xC7x-xxxx	401	40101
1FN1124-5xF7x-xxxx	401	40123
1FN1126-5xC7x-xxxx	401	40104
1FN1126-5xF7x-xxxx	401	40122
1FN1184-5xC7x-xxxx	401	40102
1FN1184-5xF7x-xxxx	401	40124
1FN1186-5xC7x-xxxx	401	40105
1FN1186-5xF7x-xxxx	401	40125
1FN1244-5xC7x-xxxx	401	40106
1FN1244-5xF7x-xxxx	401	40126
1FN1246-5xC7x-xxxx	401	40107
1FN1246-5xF7x-xxxx	401	40127
1FN3050-1ND0x-xxxx	403	41301
1FN3050-2NB8x-xxxx	403	41302
1FN3050-2WC0x-xxxx	403	40349
1FN3100-1NC0x-xxxx	403	41303
1FN3100-1WC0x-xxxx	403	40341
1FN3100-2NC8x-xxxx	403	41304
1FN3100-2WC0x-xxxx	403	40302
1FN3100-2WE0x-xxxx	403	40303
1FN3100-3NC0x-xxxx	403	41305
1FN3100-3WC0x-xxxx	403	40342
1FN3100-3WE0x-xxxx	403	40304
1FN3100-4NC8x-xxxx	403	41306
1FN3100-4WC0x-xxxx	403	40305
1FN3100-4WE0x-xxxx	403	40306
1FN3100-5WC0x-xxxx	403	40307
1FN3150-1NC2x-xxxx	403	41307
1FN3150-1WC0x-xxxx	403	40308
1FN3150-1WE0x-xxxx	403	40309

Table A-4 Motor code for linear motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FN3150-2NB8x-xxxx	403	41308
1FN3150-2WC0x-xxxx	403	40310
1FN3150-3NC7x-xxxx	403	41309
1FN3150-3WC0x-xxxx	403	40311
1FN3150-4NB8x-xxxx	403	41310
1FN3150-4WC0x-xxxx	403	40312
1FN3150-5WC0x-xxxx	403	40313
1FN3300-1NC1x-xxxx	403	41311
1FN3300-1WC0x-xxxx	403	40343
1FN3300-2NC1x-xxxx	403	41312
1FN3300-2WB0x-xxxx	403	40314
1FN3300-2WC0x-xxxx	403	40315
1FN3300-2WG0x-xxxx	403	40316
1FN3300-3NC4x-xxxx	403	41313
1FN3300-3WC0x-xxxx	403	40317
1FN3300-3WG0x-xxxx	403	40318
1FN3300-4NB8x-xxxx	403	41314
1FN3300-4WB0x-xxxx	403	40319
1FN3300-4WC0x-xxxx	403	40320
1FN3450-2NC5x-xxxx	403	41315
1FN3450-2WA5x-xxxx	403	40344
1FN3450-2WC0x-xxxx	403	40321
1FN3450-2WE0x-xxxx	403	40322
1FN3450-3NC5x-xxxx	403	41316
1FN3450-3WA5x-xxxx	403	40345
1FN3450-3WB0x-xxxx	403	40323
1FN3450-3WB5x-xxxx	403	40324
1FN3450-3WC0x-xxxx	403	40325
1FN3450-3WE0x-xxxx	403	40326
1FN3450-4NB8x-xxxx	403	41317
1FN3450-4WB0x-xxxx	403	40327
1FN3450-4WB5x-xxxx	403	40328
1FN3450-4WC0x-xxxx	403	40329
1FN3450-4WE0x-xxxx	403	40330
1FN3600-2NB8x-xxxx	403	41318

Table A-4 Motor code for linear motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FN3600-2WA5x-xxxx	403	40346
1FN3600-3NB8x-xxxx	403	41319
1FN3600-3WB0x-xxxx	403	40331
1FN3600-3WC0x-xxxx	403	40332
1FN3600-4NB8x-xxxx	403	41320
1FN3600-4WA3x-xxxx	403	40347
1FN3600-4WB0x-xxxx	403	40333
1FN3600-4WB5x-xxxx	403	40334
1FN3600-4WC0x-xxxx	403	40335
1FN3900-2NB2x-xxxx	403	41321
1FN3900-2WB0x-xxxx	403	40336
1FN3900-2WC0x-xxxx	403	40337
1FN3900-3NB2x-xxxx	403	41322
1FN3900-3WB0x-xxxx	403	40348
1FN3900-4NB2x-xxxx	403	41323
1FN3900-4WB0x-xxxx	403	40338
1FN3900-4WB5x-xxxx	403	40339
1FN3900-4WC0x-xxxx	403	40340

A.2.2 Encoder code

1FK6 encoders

Table A-5 Encoder code for 1FK6 encoders

Order number	Encoder code (p0400)	Comments
1FK6xxx-xxxxx-xAxx	2001	-
1FK6xxx-xxxxx-xExx	2051	-
1FK6xxx-xxxxx-xGxx	2052	-
1FK6xxx-xxxxx-xHxx	2053	-
1FK6xxx-xxxxx-xJxx	2054	-
1FK6xxx-xxxxx-xSxx	1002 1003 1004	4p (2-speed) 6p (3-speed) 8p (4-speed) The pole number of the resolver corresponds to the pole number of the motor (see catalog).
1FK6xxx-xxxxx-xTxx	1001	-

1FK7 encoders

Table A-6 Encoder code for 1FK7 encoders

Order number	Encoder code (p0400)	Comments
1FK7xxx-xxxxx-xAxx	2001	-
1FK7xxx-xxxxx-xExx	2051	-
1FK7xxx-xxxxx-xGxx	2052	-
1FK7xxx-xxxxx-xHxx	2053	-
1FK7xxx-xxxxx-xJxx	2054	-
1FK7xxx-xxxxx-xSxx	1002 1003 1004	4p (2-speed) 6p (3-speed) 8p (4-speed) The pole number of the resolver corresponds to the pole number of the motor (see catalog).
1FK7xxx-xxxxx-xTxx	1001	-

1FS6 encoders

Table A-7 Encoder code for 1FS6 encoders

Order number	Encoder code (p0400)	Comments
1FS6xxx-xxxxx-xAxx	2001	-
1FS6xxx-xxxxx-xExx	2051	-

1FT6 encoders

Table A-8 Encoder code for 1FT6 encoders

Order number	Encoder code (p0400)	Comments
1FT6xxx-xxxxx-xAxx	2001	-
1FT6xxx-xxxxx-xExx	2051	-
1FT6xxx-xxxxx-xHxx	2053	-
1FT6xxx-4xxxx-xSxx	1002	4p (2-speed)
1FT6xxx-6xxxx-xSxx	1003	6p (3-speed)
1FT6xxx-8xxxx-xSxx	1004	8p (4-speed)
1FT6xxx-xxxxx-xTxx	1001	-

1FW3 encoders

Table A-9 Encoder code for 1FW3 encoders

Order number	Encoder code (p0400)	Comments
1FW3xxx-xAxxx-xxxx	2001	-
1FW3xxx-xExxx-xxxx	2051	-
1FW3xxx-xGxxx-xxxx	2052	-
1FW3xxx-xSxxx-xxxx	1003	-

1PH4 encoders

Table A-10 Encoder code for 1PH4 encoders

Order number	Encoder code (p0400)	Comments
1PH4xxx-xNxxx-xxxx	2002	-

1PH7 encoders

Table A-11 Encoder code for 1PH7 encoders

Order number	Encoder code (p0400)	Comments
1PH7xxx-xExxx-xxxx	2051	-
1PH7xxx-xHxxx-xxxx	3002	-
1PH7xxx-xJxxx-xxxx	3003	-
1PH7xxx-xMxxx-xxxx	2001	-
1PH7xxx-xNxxx-xxxx	2002	-
1PH7xxx-xRxxx-xxxx	1001	-

1PM4 encoders

Table A-12 Encoder code for 1PM4 encoders

Order number	Encoder code (p0400)	Comments
1PM4xxx-xGxxx-xxxx	2002	-
1PM4xxx-xLxxx-xxxx	2003	-

1PM6 encoders

Table A-13 Encoder code for 1PM6 encoders

Order number	Encoder code (p0400)	Comments
1PM6xxx-xGxxx-xxxx	2002	-
1PM6xxx-xLxxx-xxxx	2003	-

2SP1 encoders

Table A-14 Encoder code for 2SP1 encoders

Order number	Encoder code (p0400)	Comments
2SP1xxx-xHxxx-xxxx	2003	-

List of abbreviations

B

Note:

The following list of abbreviations contains the abbreviations and their meanings used in the entire SINAMICS user documentation.

Abbreviation	German	English
A		
A...	Warnung	Alarm
AC	Wechselstrom	Alternating current
ADC	Analog-Digital-Konverter	Analog Digital Converter
AI	Analogeingang	Analog Input
AIM	Active Interface Module	Active Interface Module
ALM	Active Line Module	Active Line Module
AO	Analogausgang	Analog Output
AOP	Advanced Operator Panel	Advanced Operator Panel
APC	Advanced Positioning Control	Advanced Positioning Control
ASC	Ankerkurzschluss	Armature Short-Circuit
ASCII	Amerikanische Code-Norm für den Informationsaustausch	American Standard Code for Information Interchange
ASM	Asynchronmotor	Induction motor
B		
BB	Betriebsbedingung	Operating condition
BERO	Firmenname für einen Näherungsschalter	Tradename for a type of proximity switch
BI	Binektoreingang	Binector input
BIA	Berufsgenossenschaftliches Institut für Arbeitssicherheit	German Institute for Occupational Safety
BICO	Binektor-Konnektor-Technologie	Binector Connector Technology
BLM	Basic Line Module	Basic Line Module
BO	Binektorausgang	Binector Output
BOP	Basic Operator Panel	Basic Operator Panel
C		
C	Kapazität	Capacitance
C...	Safety-Meldung	Safety message
CAN	Serielles Bussystem	Controller Area Network
CBC	Kommunikationsbaugruppe CAN	Communication Board CAN

Abbreviation	German	English
CD	Compact Disc	Compact Disc
CDS	Befehlsdatensatz	Command Data Set
CF	Compact Flash	Compact Flash
CI	Konnektoreingang	Connector Input
CNC	Computerunterstützte numerische Steuerung	Computer Numerical Control
CO	Konnektorausgang	Connector Output
CO/BO	Konnektor-/Binektorausgang	Connector Output/Binector Output
COB-ID	CAN Object-Identification	CAN Object-Identification
COM	Mittelkontakt eines Wechselkontaktes	Common contact of a change-over relay
CP	Kommunikationsprozessor	Communications Processor
CPU	Zentrale Recheneinheit	Central Processing Unit
CRC	Zyklische Redundanzprüfung	Cyclic Redundancy Check
CSM	Control Supply Module	Control Supply Module
CU	Control Unit	Control Unit
D		
DAC	Digital-Analog-Konverter	Digital Analog Converter
DC	Gleichstrom	Direct Current
DCB	Drive Control Block	Drive Control Block
DCC	Drive Control Chart	Drive Control Chart
DCN	Gleichstrom negativ	Direct Current Negative
DCP	Gleichstrom positiv	Direct Current Positive
DDS	Antriebsdatensatz	Drive Data Set
DI	Digitaleingang	Digital Input
DI/DO	Digitaleingang/-ausgang bidirektional	Bidirectional Digital Input/Output
DMC	DRIVE-CLiQ Module Cabinet (Hub)	DRIVE-CLiQ Module Cabinet (Hub)
DO	Digitalausgang	Digital Output
DO	Antriebsobjekt	Drive Object
DP	Dezentrale Peripherie	Distributed I/Os
DPRAM	Speicher mit beidseitigem Zugriff	Dual-Port Random Access Memory
DRAM	Dynamischer Speicher	Dynamic Random Access Memory
DRIVE-CLiQ	Drive Component Link with IQ	Drive Component Link with IQ
DSC	Dynamic Servo Control	Dynamic Servo Control
E		
EASC	Externer Ankerkurzschluss	External Armature Short-Circuit
EDS	Geberdatensatz	Encoder Data Set
EGB	Elektrostatisch gefährdete Baugruppen	Electrostatic Sensitive Devices (ESD)
ELP	Erdschlussüberwachung	Earth Leakage Protection
EMK	Elektromagnetische Kraft	Electromagnetic Force (EMF)
EMV	Elektromagnetische Verträglichkeit	Electromagnetic Compatibility (EMC)
EN	Europäische Norm	European Standard

Abbreviation	German	English
EnDat	Geber-Schnittstelle	Encoder-Data-Interface
EP	Impulsfreigabe	Enable Pulses
EPOS	Einfachpositionierer	Basic positioner
ES	Engineering System	Engineering System
ESB	Ersatzschaltbild	Equivalent circuit diagram
ESR	Erweitertes Stillsetzen und Rückziehen	Extended Stop and Retract
F		
F...	Störung	Fault
FAQ	Häufig gestellte Fragen	Frequently Asked Questions
FBL	Freie Funktionsblöcke	Free Blocks
FCC	Function Control Chart	Function Control Chart
FCC	Flussstromregelung	Flux Current Control
F-DI	Fehlersicherer Digitaleingang	Failsafe Digital Input
F-DO	Fehlersicherer Digitalausgang	Failsafe Digital Output
FEM	Fremderregter Synchronmotor	Separately excited synchronous motor
FEPROM	Schreib- und Lesespeicher nichtflüchtig	Flash-EPROM
FG	Funktionsgenerator	Function Generator
FI	Fehlerstrom-Schutzschalter	Residual-Current Circuit-Breaker (RCCB)
FP	Funktionsplan	Function diagram
FPGA	Field Programmable Gate Array	Field Programmable Gate Array
FW	Firmware	Firmware
G		
GB	Gigabyte	Gigabyte
GC	Global-Control-Telegramm (Broadcast-Telegramm)	Global Control Telegram (Broadcast Telegram)
GSD	Gerätetammdatei: beschreibt die Merkmale eines PROFIBUS-Slaves	Device master file: describes the features of a PROFIBUS slave
GSV	Gate Supply Voltage	Gate Supply Voltage
GUID	Globally Unique Identifier	Globally Unique Identifier
H		
HF	Hochfrequenz	High Frequency
HFD	Hochfrequenzdrossel	High Frequency Reactor
HLG	Hochlaufgeber	Ramp-function generator
HMI	Mensch-Maschine-Schnittstelle	Human Machine Interface
HTL	Logik mit hoher Störschwelle	High-Threshold Logic
HW	Hardware	Hardware
I		
i. V.	In Vorbereitung: diese Eigenschaft steht zur Zeit nicht zur Verfügung	In preparation: this feature is currently not available
I/O	Eingang/Ausgang	Input/Output
I2C	Serieller interner Datenbus	Inter Integrated Circuit
IASC	Interner Ankerkurzschluss	Internal Armature Short-Circuit

Abbreviation	German	English
IBN	Inbetriebnahme	Commissioning
ID	Identifizierung	Identifier
IEC	Internationale Norm in der Elektrotechnik	International Electrotechnical Commission
IF	Interface	Interface
IGBT	Bipolartransistor mit isolierter Steuerelektrode	Insulated Gate Bipolar Transistor
IGCT	Halbleiter-Leistungsschalter mit integrierter Steuerelektrode	Integrated Gate-Controlled Thyristor
IL	Impulslöschung	Pulse suppression
IP	Internet Protokoll	Internet Protocol
IPO	Interpolatortakt	Interpolator clock
IT	Drehstromversorgungsnetz ungeerdet	Insulated three-phase supply network
IVP	Interner Spannungsschutz	Internal Voltage Protection
J		
JOG	Tippen	Jogging
K		
KDV	Kreuzweiser Datenvergleich	Data cross-checking
KIP	Kinetische Pufferung	Kinetic buffering
Kp	Proportionalverstärkung	Proportional gain
KTY	Spezieller Temperatursensor	Special temperature sensor
L		
L	Induktivität	Inductance
LED	Leuchtdiode	Light Emitting Diode
LIN	Linearmotor	Linear motor
LR	Lageregler	Position controller
LSB	Niederwertiges Bit	Least Significant Bit
LSS	Netzschalter	Line Side Switch
LU	Längeneinheit	Length Unit
LWL	Lichtwellenleiter	Fiber-optic cable
M		
M	Masse	Reference potential, zero potential
MB	Megabyte	Megabyte
MCC	Motion Control Chart	Motion Control Chart
MDS	Motordatensatz	Motor Data Set
MLFB	Maschinenlesbare Fabrikatebezeichnung	Machine-readable product designation
MMC	Mensch Maschine Kommunikation	Man-Machine Communication
MSB	Höchstwertiges Bit	Most Significant Bit
MSCY_C1	Zyklische Kommunikation zwischen Master (Klasse 1) und Slave	Master Slave Cycle Class 1
MSC	Motorstromrichter	Motor power converter
MT	Messtaster	Measuring probe

Abbreviation	German	English
N		
N. C.	Nicht angeschlossen	Not Connected
N...	Keine Meldung oder Interne Meldung	No Report
NAMUR	Normenarbeitsgemeinschaft für Mess- und Regeltechnik in der chemischen Industrie	Standardization association for instrumentation and control in the chemical industry
NC	Öffner	Normally Closed (contact)
NC	Numerische Steuerung	Numerical Control
NEMA	Normengremium in USA (United States of America)	National Electrical Manufacturers Association
NM	Nullmarke	Zero Mark
NO	Schließer	Normally Open (contact)
NSR	Netzstromrichter	Line side converter (LSC)
O		
OA	Open Architecture	Open Architecture
OEM	Original Equipment Manufacturer	Original Equipment Manufacturer
OLP	Busstecker für Lichtleiter	Optical Link Plug
OMI	Option Module Interface	Option Module Interface
P		
p...	Einstellparameter	Adjustable parameter
PB	PROFIBUS	PROFIBUS
PcCtrl	Steuerungshoheit	Master Control
PD	PROFIdrive	PROFIdrive
PDS	Leistungsteildatensatz	Power unit Data Set
PE	Schutzerde	Protective Earth
PELV	Schutzkleinspannung	Protective Extra Low Voltage
PEM	Permanenterregter Synchronmotor	Permanent-magnet synchronous motor
PG	Programmiergerät	Programming terminal
PI	Proportional Integral	Proportional Integral
PID	Proportional Integral Differential	Proportional Integral Differential
PLC	Speicherprogrammierbare Steuerung (SPS)	Programmable Logic Controller
PLL	Phase-Locked Loop	Phase-Locked Loop
PN	PROFINET	PROFINET
PNO	PROFIBUS Nutzerorganisation	PROFIBUS user organisation
PPI	Punkt zu Punkt Schnittstelle	Point to Point Interface
PRBS	Weißes Rauschen	Pseudo Random Binary Signal
PROFIBUS	Serieller Datenbus	Process Field Bus
PS	Stromversorgung	Power Supply
PSA	Power Stack Adapter	Power Stack Adapter
PTC	Positiver Temperaturkoeffizient	Positive Temperature Coefficient
PTP	Punkt zu Punkt	Point-To-Point
PWM	Pulsweitenmodulation	Pulse Width Modulation
PZD	PROFIBUS Prozessdaten	PROFIBUS process data

Abbreviation	German	English
Q		
R		
r...	Beobachtungsparameter (nur lesbar)	Display parameter (read only)
RAM	Speicher zum Lesen und Schreiben	Random Access Memory
RCCB	Fehlerstrom-Schutzschalter	Residual Current Circuit Breaker
RCD	Fehlerstrom-Schutzschalter	Residual Current Device
RJ45	Norm. Beschreibt eine 8-polige Steckverbindung mit Twisted-Pair Ethernet.	Standard. Describes an 8-pole plug connector with twisted pair Ethernet.
RKA	Rückkühlanlage	Cooling unit
RO	Nur lesbar	Read Only
RPDO	Receive Process Data Object	Receive Process Data Object
RS232	Serielle Schnittstelle	Serial Interface
RS485	Norm. Beschreibt die Physik einer digitalen seriellen Schnittstelle.	Standard. Describes the physical characteristics of a digital serial interface.
RTC	Echtzeituhr	Real Time Clock
RZA	Raumzeigerapproximation	Space vector approximation (SVA)
S		
S1	Dauerbetrieb	Continuous operation
S3	Aussetzbetrieb	Periodic duty
SBC	Sichere Bremsenansteuerung	Safe Brake Control
SBH	Sicherer Betriebshalt	Safe operating stop
SBR	Sichere Beschleunigungsüberwachung	Safe Acceleration Monitor
SBT	Sicherer Bremsentest	Safe Brake Test
SCA	Sicherer Nocken	Safe Cam
SDI	Sichere Richtung	Safe Direction
SE	Sicherer Software-Endschalter	Safe software limit switch
SG	Sicher reduzierte Geschwindigkeit	Safely reduced speed
SGA	Sicherheitsgerichteter Ausgang	Safety-related output
SGE	Sicherheitsgerichteter Eingang	Safety-related input
SH	Sicherer Halt	Safe standstill
SP	Safety Integrated	Safety Integrated
SIL	Sicherheitsintegritätsgrad	Safety Integrity Level
SLI	Sicheres Schrittmaß	Safely Limited Increment
SLM	Smart Line Module	Smart Line Module
SLP	Sicher begrenzte Position	Safely-Limited Position
SLS	Sicher begrenzte Geschwindigkeit	Safely-Limited Speed
SLVC	Geberlose Vektorregelung	Sensorless Vector Control
SM	Sensor Module	Sensor Module
SMC	Sensor Module Cabinet	Sensor Module Cabinet
SME	Sensor Module External	Sensor Module External
SN	Sicherer Software-Nocken	Safe software cam
SOS	Sicherer Betriebshalt	Safe Operating Stop

Abbreviation	German	English
SP	Service Pack	Service Pack
SPC	Sollwertkanal	Setpoint Channel
SPI	Serielle Schnittstelle für Peripherieanbindung	Serial Peripheral Interface
SPS	Speicherprogrammierbare Steuerung	Programmable Logic Controller (PLC)
SS1	Sicherer Stop 1	Safe Stop 1
SS2	Sicherer Stop 2	Safe Stop 2
SSI	Synchron Serielle Schnittstelle	Synchronous Serial Interface
SSM	Sichere Rückmeldung der Geschwindigkeitsüberwachung (n < nx)	Safe Speed Monitor
SSR	Sichere Bremsrampe	Safe Stop Ramp
STO	Sicher abgeschaltetes Moment	Safe Torque Off
STW	PROFIdrive Steuerwort	PROFIdrive control word
T		
TB	Terminal Board	Terminal Board
TIA	Totally Integrated Automation	Totally Integrated Automation
TM	Terminal Module	Terminal Module
TN	Drehstromversorgungsnetz geerdet	Grounded three-phase supply network
Tn	Nachstellzeit	Integral time
TPDO	Transmit Process Data Object	Transmit Process Data Object
TT	Drehstromversorgungsnetz geerdet	Grounded three-phase supply network
TTL	Transistor-Transistor-Logik	Transistor-Transistor Logic
Tv	Vorhaltezeit	Derivation-action time
U		
UL	Underwriters Laboratories Inc.	Underwriters Laboratories Inc.
USV	Unterbrechungsfreie Stromversorgung	Uninterruptible power supply
V		
VC	Vektorregelung	Vector Control
Vdc	Zwischenkreisspannung	DC link voltage
VdcN	Teilzwischenkreisspannung negativ	Partial DC link voltage negative
VdcP	Teilzwischenkreisspannung positiv	Partial DC link voltage positive
VDE	Verband Deutscher Elektrotechniker	Association of German Electrical Engineers
VDI	Verein Deutscher Ingenieure	Association of German Engineers
Vpp	Volt Spitze zu Spitze	Volt peak to peak
VSM	Voltage Sensing Module	Voltage Sensing Module
W		
WEA	Wiedereinschaltautomatik	Automatic restart
WZM	Werkzeugmaschine	Machine tool
X		
XML	Erweiterbare Auszeichnungssprache (Standardsprache für Web-Publishing und Dokumentenmanagement)	Extensible Markup Language

Abbreviation	German	English
Y		
Z		
ZK	Zwischenkreis	DC Link
ZSW	PROFIdrive Zustandswort	PROFIdrive status word

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Note

For more information about technical documentation for Safety Integrated, visit the following address:

<http://www.siemens.de/safety>

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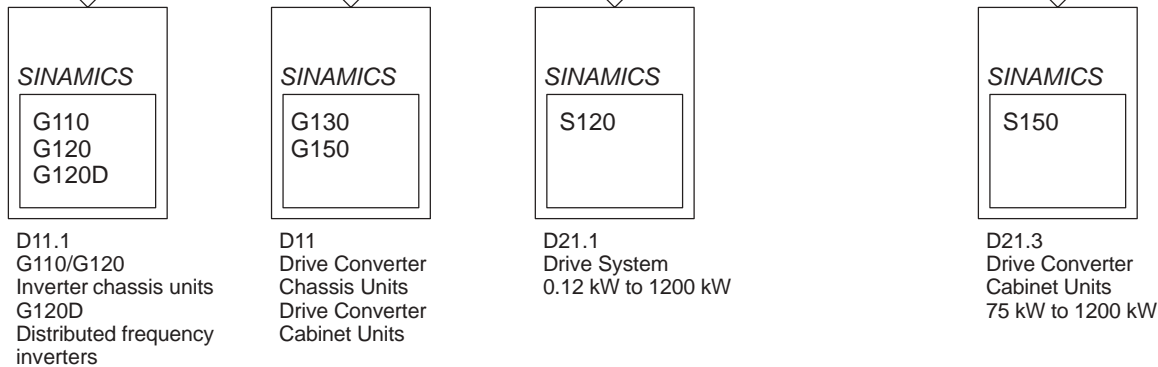
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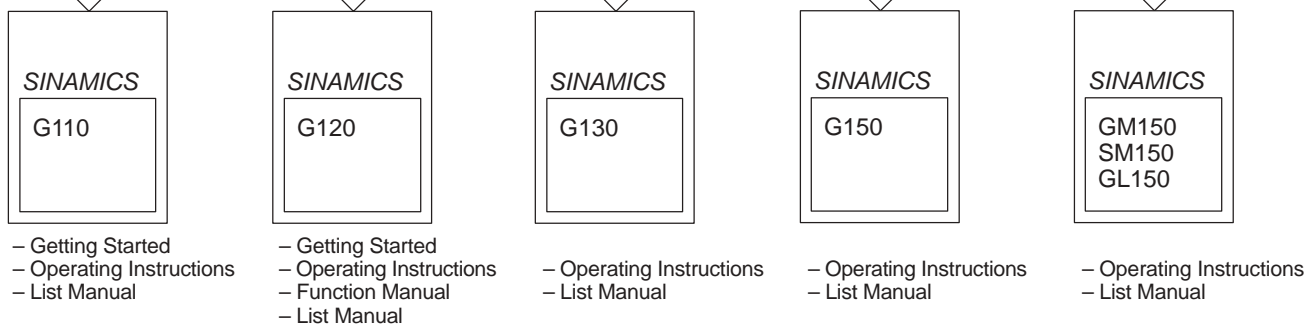
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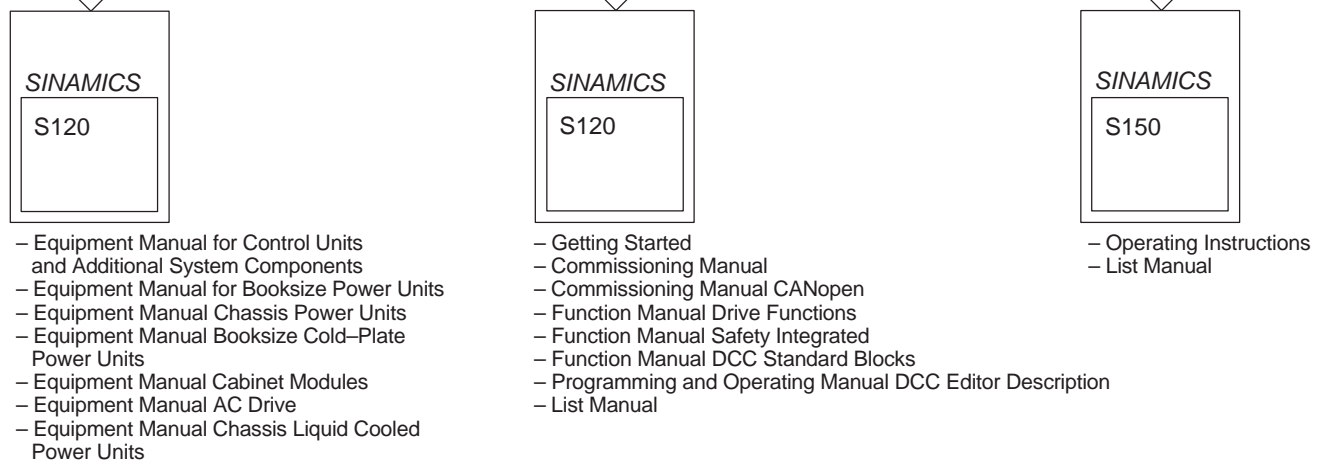
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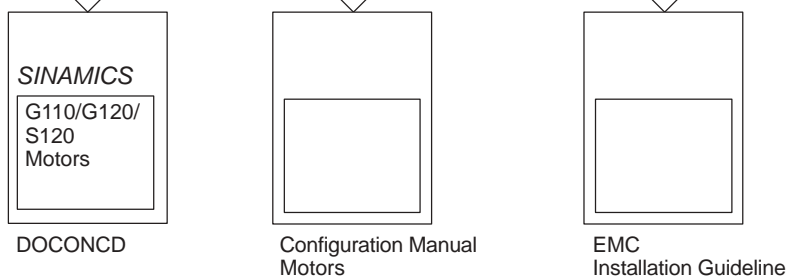
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