

# SINAMICS G120

Control Units CU240B-2

Control Units CU240E-2

List Manual · 01/2012

SINAMICS

**SIEMENS**



# SIEMENS

## SINAMICS

### SINAMICS G120 CU240B/E-2 Control Units

#### List Manual

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**01/2012**

## Safety Notices

This manual contains information that you should observe to ensure your own personal safety and prevent material damage. The notices referring to your personal safety are highlighted in the manual by a warning triangle; notices that relate to material damage only have no warning triangle. The notices shown below are graded according to the level of hazard (from most to least hazardous):



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### Danger

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

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### Warning

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

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### Caution

With a warning triangle, indicates that minor injury **may** result if proper precautions are not taken.

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### Caution

Without a warning triangle, indicates that material damage may result if proper precautions are not taken.

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### Notice

Indicates that an undesirable result or state may occur if the corresponding instructions are not observed.

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If more than one level of danger is simultaneously applicable, the warning notice for the highest level is used. A warning notice with a warning triangle indicating possible personal injury may also include a warning relating to material damage.

## Qualified Personnel

The associated device/system may only be installed and operated in conjunction with this documentation. The device/system may only be commissioned and operated by **qualified personnel**. For the purpose of the safety notices in this documentation, "qualified personnel" are those authorized to commission, ground, and label equipment, systems, and circuits in accordance with established safety procedures.

## Proper Use of Siemens Products

Note the following:



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### Warning

Siemens products are only permitted to be used for the applications specified in the catalog and in the associated technical documentation. If third-party products and components are to be used, they must be recommended or approved by Siemens. To ensure proper and safe operation of these products, they must be correctly transported, stored, set up, mounted, installed, commissioned, operated, and maintained. The permissible ambient conditions must be met. Information in the associated documentation must be observed.

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# Parameters

# 1

## Contents

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## 1.1 Introduction to the parameters

### 1.1.1 Explanation of the parameter list

The layout of the parameter description is as follows (principle):

Index	BICO (if available)
<b>r0068[0...1]</b>	<b>CO: Absolute current actual value / i_act absolute value</b>
	Access level: 3      Calculated: -      Data type: FloatingPoint32
	Can be changed: -      Scaling: p2002      Data set: -
	Unit group: 6_2      Unit selection: p0505
	Min      Max      Factory setting
	- [Arms]      - [Arms]      - [Arms]

Fig. 1-1 Read parameter

Index	BICO (if available)
<b>p0700[0...n]</b>	<b>Command source selection / Cmd src sel</b>
CU240E-2	Access level: 1      Calculated: -      Data type: Integer16
CU240E-2_F	Can be changed: T      Scaling: -      Data set: CDS, p0170
	Unit group: -      Unit selection: -
	Min      Max      Factory setting
	0      184      0

CU/PM variants

Fig. 1-2 Write parameter

#### Parameter number

Indicates the respective parameter number. The numbers used have four to five digits. Numbers prefixed with an "r" indicate that the parameter is "write-protected" and displays a specific value, but cannot be changed directly by specifying a different value via this parameter number.

All other parameters begin with a "p". The values of these parameters can be changed directly in the range indicated by the "Min" and "Max" settings in the header. If these values have a physical unit, this is shown in the square brackets.

**[Index]** indicates that the parameter is indexed, and which indices are available.

**.0...15** indicates that the parameter has several bits that can be evaluated or connected individually.

#### CU/PM variants

Indicates for which Control Units (CU) and/or Power Modules (PM) the parameter is valid. If no CU or PM is listed, then the parameter is valid for all variants.

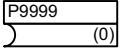
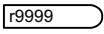
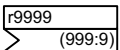
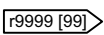
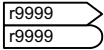


### Parameter text (long name / short name)

Specifies the name of the respective parameter.

Certain parameter names contain the following abbreviated prefixes: BI, BO, CI, CO and BO/CO followed by a colon.

These abbreviations have the following meanings:

BI	=		Binector input, i.e. the parameter selects the source of a binary signal
BO	=		Binector output, i.e. the parameter connects as a binary signal
CI	=		Connector input, i.e. the parameter selects the source of an analog signal
CO	=		Connector output, i.e. the parameter connects as an analog signal
CO/BO	=		Connector/binector output, i.e. the parameter connects as an analog signal and/or as a binary signal

CoBo.pdf

To be able to use BICO, you require access to the entire parameter list. At this level many new parameter settings are possible, including the BICO functionality. BICO functionality is a different, more flexible way of setting and combining input and output functions.

The BICO System enables complex functions to be programmed. Boolean and mathematical relationships can be set up between inputs (digital, analog, serial, etc.) and outputs (converter current, frequency, analog output, relay, etc.).

With BI and CI parameters, the parameter number is specified at Factory setting with which the parameter is connected. In this case, the Min and Max values only have dashes.

### Access level

Indicates the level of user access. Only a freely accessible access level is effective for the parameters of all CU240B-2 and CU240E-2 Control Units. This covers the parameters using the "Access level 1" to "Access level 3". The parameters of the "Access level 4" are service parameters and password-protected.

## Data type

The available data types are listed in Table 1-1.

Table 1-1 Available data types

Character	Meaning
Unsigned8 (U8)	8-bit without sign
Unsigned16 (U16)	16-bit without sign
Unsigned32 (U32)	32-bit without sign
Integer16 (I16)	16-bit integer
Integer32 (I32)	32-bit integer
Floating Point (Float)	Floating-point number

The information on the data type for binector and connector inputs can consist of two specifications (separated by a slash):

- First specification: Data type of the parameter
- Second specification: Data type of the signal source preferably be interconnected (binector or connector outputs)

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:

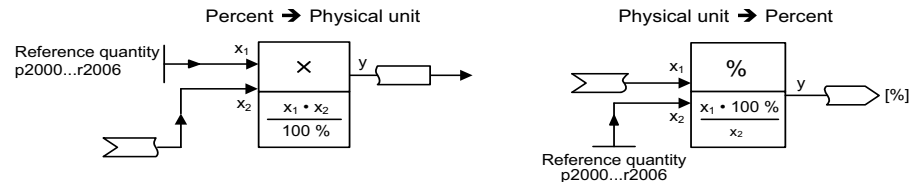
Table 1-2 Possible combinations of BICO interconnections

	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: Unsigned32	x	x	–	–
CO: Integer16	x	x	r2050	–
CO: Integer32	x	x	–	–
CO: FloatingPoint32	x	x	x	–
BO: Unsigned8	–	–	–	x
BO: Unsigned16	–	–	–	x
BO: Unsigned32	–	–	–	x
BO: Integer16	–	–	–	x
BO: Integer32	–	–	–	x
BO: FloatingPoint32	–	–	–	–
Legend: x: BICO interconnection permitted –: BICO interconnection not permitted				

## Scaling

Specification of the reference variable with which a signal value is automatically converted for a BICO interconnection.

Reference values, corresponding to 100%, are required for the display of physical units as percentages. These reference values are entered in parameters p2000 ... p2006.



In addition to p2000 ... p2006, the following scaling is used:

- PERCENT 1.0 = 100%
- 4000H 4000 hex = 100%

## Calculated

Specifies whether the parameter is influenced by automatic calculations.

p0340 determines which calculations are to be performed:

- p0340 = 1 includes the calculations from p0340 = 2, 3, 4, 5.
- p0340 = 2 calculates the motor parameters (p0350 ... p0360, p0625).
- p0340 = 3 includes the calculations from p0340 = 4, 5.
- p0340 = 4 only calculates the controller parameters.
- p0340 = 5 only calculates the controller limits.

---

### Note:

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

After p1900 = 1, 2, p0340 = 3 is also called automatically.

---

Parameters with a reference to p0340 after "Calculated", depend on the Power Module being used and the motor. In this case, the values at "Factory setting" do not correspond to the actual values because these values are calculated during the commissioning. This also applies to the motor parameters.

### Can be changed

Converter state in which a parameter can be changed.  
Three states are possible:

- Commissioning C(x)
- Operation U
- Ready for operation T

The parameter can be changed in these states. One, two or all states can be specified. If all three states are specified, the parameter setting can be changed in all three converter states.

(x) indicates that the parameter can only be changed when p0010 = x.

### Data set

Parameters that belong to data sets are identified as follows:

- **CDS (Command Data Set)**

They are always indexed with [0 ... n] (with n = 0 ... 3 depending on the setting in p0170).

[0] = command data set 0

[1] = command data set 1

etc.

- **DDS (Drive Data Set)**

They are always indexed with [0 ... n] (with n = 0 ... 3 depending on the setting in p0180).

[0] = drive data set 0

[1] = drive data set 1

etc.

- **MDS (Motor Data Set) and PDS (Power Unit Data Set)**

They are always indexed with [0 ... n] (with n = 0 ... 3 depending on the setting in p0180). The motor data sets and power unit data sets are assigned to the drive data sets, i.e. they are automatically selected with the selection of a drive data set (e.g. drive data set 1 contains motor data set 1 and power unit data set 1).

Data sets can only be created and deleted when p0010 = 15 is set.

### Unit group and unit selection

For parameters where the unit can be switched, the specifications for "Unit group" and "Unit selection" determine the group to which this parameter belongs and with which parameter the unit can be switched over.

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

#### Min

Specifies the lowest value to which the parameter can be set.

#### Max

Specifies the highest value to which the parameter can be set.

#### Factory setting

Specifies the default value, i.e. the value that is valid when the user does not specify a value for the parameter (see also "Calculated").

#### Example:

Unit group: 7\_1, unit selection: p0505

The parameter belongs to unit group 7\_1 and the unit can be switched over using p0505.

All the potential unit groups and possible unit selections are listed below.

Table 1-3 Unit group (p0100)

Unit group	Unit selection for p0100 =			Reference variable for %
	0	1	2	
7_4	Nm	lbf ft	Nm	-
14_6	kW	HP	kW	-
25_1	kgm <sup>2</sup>	lb ft <sup>2</sup>	kgm <sup>2</sup>	-
27_1	kg	lb	kg	-
28_1	Nm/A	lbf ft/A	Nm/A	-

Table 1-4 Unit group (p0505)

Unit group	Unit selection for p0505 =				Reference variable for %
	1	2	3	4	
2_1	Hz	%	Hz	%	p2000
3_1	rpm	%	rpm	%	p2000
5_1	Vrms	%	Vrms	%	p2001
5_2	V	%	V	%	p2001
5_3	V	%	V	%	p2001
6_2	Arms	%	Arms	%	p2002
6_5	A	%	A	%	p2002

Table 1-4 Unit group (p0505), continued

Unit group	Unit selection for p0505 =				Reference variable for %
	1	2	3	4	
7_1	Nm	%	lbf ft	%	p2003
7_2	Nm	Nm	lbf ft	lbf ft	-
14_5	kW	%	HP	%	r2004
14_10	kW	kW	HP	HP	-
21_1	°C	°C	°F	°F	-
21_2	K	K	°F	°F	-
39_1	1/s <sup>2</sup>	%	1/s <sup>2</sup>	%	p2007

Table 1-5 Unit group (p0595)

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

**Description**

Explanation of the function of a parameter

**Values**

List of 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, except for parameters that belong to a data set (see "Data set").

**Bit array**

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

- Bit number and signal name
- Meaning with signal states 0 and 1
- Function diagram (FP) (optional). The signal is shown on this function diagram.

**Dependency**

Conditions that must be fulfilled in conjunction with this parameter. Also includes special effects that can occur between this parameter and others.

## 1.1.2 Number ranges of parameters

### Note:

The following number ranges represent an overview for all of the parameters available for the SINAMICS drive family.

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

Parameters are grouped into the following number ranges:

Table 1-6 Number ranges for SINAMICS

Range		Description
From	To	
0000	0099	Display and operation
0100	0199	Commissioning
0200	0299	Power unit
0300	0399	Motor
0400	0499	Encoder
0500	0599	Technology and units, motor-specific data, probes
0600	0699	Thermal monitoring, maximum current, operating hours, motor data, central probe
0700	0799	Control Unit terminals, measuring sockets
0800	0839	CDS, DDS data sets, motor changeover
0840	0879	Sequence control (e.g. signal source for ON/OFF1)
0880	0899	ESR, parking, control and status words
0900	0999	PROFIBUS/PROFIdrive
1000	1199	Setpoint channel (e.g. ramp-function generator)
1200	1299	Functions (e.g. motor holding brake)
1300	1399	V/f control
1400	1799	Control
1800	1899	Gating unit
1900	1999	Power unit and motor identification
2000	2009	Reference values
2010	2099	Communication (fieldbus)
2100	2139	Faults and alarms
2140	2199	Signals and monitoring
2200	2359	Technology controller
2360	2399	Staging, hibernation

Table 1-6 Number ranges for SINAMICS, continued

Range		Description
From	To	
2500	2699	Position control (LR) and basic positioning (EPOS)
2700	2719	Reference values, display
2720	2729	Load gear
2800	2819	Logic operations
2900	2930	Fixed values (e.g. per cent, torque)
3000	3099	Motor identification results
3100	3109	Real time clock (RTC)
3110	3199	Faults and alarms
3200	3299	Signals and monitoring
3400	3659	Infeed control
3660	3699	Voltage Sensing Module (VSM), Braking Module internal
3700	3779	Advanced Positioning Control (APC)
3780	3819	Synchronization
3820	3849	Friction characteristic
3850	3899	Functions (e.g. long stator)
3900	3999	Management
4000	4599	Terminal Board, Terminal Module (e.g. TB30, TM31)
4600	4699	Sensor Module
4700	4799	Trace
4800	4849	Function generator
4950	4999	OA application
5000	5169	Spindle diagnostics
5400	5499	Line droop control (e.g. shaft generator)
5500	5599	Dynamic grid support (solar)
5600	5613	PROFenergy
5900	6999	SINAMICS GM/SM/GL/SL
7000	7499	Parallel connection of power units
7500	7599	SINAMICS SM120
7700	7729	External signals
7770	7789	NVRAM, system parameters
7800	7839	EEPROM read/write parameters
7840	8399	Internal system parameters
8400	8449	Real time clock (RTC)
8500	8599	Data and macro management



Table 1-6 Number ranges for SINAMICS, continued

Range		Description
From	To	
8600	8799	CAN bus
8800	8899	Communication Board Ethernet (CBE), PROFIdrive
8900	8999	Industrial Ethernet, PROFINET, CBE20
9000	9299	Topology
9300	9399	Safety Integrated
9400	9499	Parameter consistency and storage
9500	9899	Safety Integrated
9900	9949	Topology
9950	9999	Diagnostics, internal
10000	10199	Safety Integrated
11000	11299	Free technology controller 0, 1, 2
20000	20999	Free function blocks (FBLOCKS)
21000	25999	Drive Control Chart (DCC)
50000	53999	SINAMICS DC MASTER (DC control)
61000	61001	PROFINET

## 1.2 Parameter list

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng  
 Objects: CU240B-2, CU240B-2\_DP, CU240E-2, CU240E-2\_DP, CU240E-2\_DP\_F, CU240E-2\_F, CU240E-2\_PN\_F, CU240E-2\_PN

<b>r0002</b>	<b>Drive operating display / Drv op_display</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 200	<b>Factory setting</b> -
<b>Description:</b>	Operating display for the drive.		
<b>Value:</b>	0: Operation - everything enabled 10: Operation - set "enable setpoint" = "1" (p1142) 12: Operation - RFG frozen, set "RFG start" = "1" (p1141) 13: Operation - set "enable RFG" = "1" (p1140) 14: Operation - MotID, excit. running 16: Operation - withdraw braking with OFF1 using "ON/OFF1" = "1" 17: Operation - braking with OFF3 can only be interrupted with OFF2 18: Operation - brake on fault, remove fault, acknowledge 19: Operation - DC braking active (p1230, p1231) 21: Ready for operation - set "Operation enable" = "1" (p0852) 22: Ready for operation - de-magnetizing running (p0347) 31: Ready for switching on - set "ON/OFF1" = "0/1" (p0840) 35: Switching on inhibited - carry out first commissioning (p0010) 41: Switching on inhibited - set "ON/OFF1" = "0" (p0840) 42: Switching on inhibited - set "OC/OFF2" = "1" (p0844, p0845) 43: Switching on inhibited - set "OC/OFF3" = "1" (p0848, p0849) 45: Switching on inhibited - rectify fault, acknowledge fault, STO 46: Switching on inhibited - exit comm mode (p0010) 70: Initialization 200: Wait for booting/partial booting		
<b>Dependency:</b>	Refer to: r0046		
<b>Notice:</b>	For several missing enable signals, the corresponding value with the highest number is displayed.		
<b>Note:</b>	OC: Operating condition RFG: Ramp-function generator COMM: Commissioning MotID: Motor data identification		
<b>p0003</b>	<b>Access level / Acc_level</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C, U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 3	<b>Max</b> 4	<b>Factory setting</b> 3
<b>Description:</b>	Sets the access level to read and write parameters.		
<b>Value:</b>	3: Expert 4: Service		
<b>Note:</b>	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).		

<b>p0010</b>	<b>Drive commissioning parameter filter / Drv comm. par_filt</b>		
CU240B-2	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240B-2_DP	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 49	<b>Factory setting</b> 1
<b>Description:</b>	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.		
<b>Value:</b>	0: Ready 1: Quick commissioning 2: Power unit commissioning 3: Motor commissioning 5: Technological application/units 15: Data sets 29: Only Siemens int 30: Parameter reset 39: Only Siemens int 49: Only Siemens int		
<b>Dependency:</b>	Refer to: r3996		
<b>Notice:</b>	When the parameter is reset to a value of 0, short-term communication interruptions may occur.		
<b>Note:</b>	The drive can only be powered up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0. By setting p3900 to a value other than 0, the quick commissioning is completed, and this parameter is automatically reset to 0. Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1. Once the Control Unit has been booted up for the first time, the motor parameters suitable for the power unit have been defined, and the control parameters have been calculated accordingly, p0010 is automatically reset to 0. p0010 = 3 is used for the subsequent commissioning of additional drive data sets (creating data sets: see p0010 = 15). p0010 = 29, 39, 49: Only for internal Siemens use!		

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<b>p0010</b>	<b>Drive commissioning parameter filter / Drv comm. par_filt</b>		
PM230	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_DP_F			
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 49	<b>Factory setting</b> 1
<b>Description:</b>	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.		
<b>Value:</b>	0: Ready 1: Quick commissioning 2: Power unit commissioning 3: Motor commissioning 5: Technological application/units 15: Data sets 29: Only Siemens int 30: Parameter reset 39: Only Siemens int 49: Only Siemens int		
<b>Dependency:</b>	Refer to: r3996		
<b>Notice:</b>	When the parameter is reset to a value of 0, short-term communication interruptions may occur.		

**Note:** The drive can only be powered up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.

By setting p3900 to a value other than 0, the quick commissioning is completed, and this parameter is automatically reset to 0.

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

Once the Control Unit has been booted up for the first time, the motor parameters suitable for the power unit have been defined, and the control parameters have been calculated accordingly, p0010 is automatically reset to 0.

p0010 = 3 is used for the subsequent commissioning of additional drive data sets (creating data sets: see p0010 = 15).

p0010 = 29, 39, 49: Only for internal Siemens use!

<b>p0010 Drive commissioning parameter filter / Drv comm. par_filt</b>			
PM240	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
PM250	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> -
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2			
CU240E-2_DP			
CU240E-2_DP_F			
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	95	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.

**Value:**

- 0: Ready
- 1: Quick commissioning
- 2: Power unit commissioning
- 3: Motor commissioning
- 5: Technological application/units
- 15: Data sets
- 29: Only Siemens int
- 30: Parameter reset
- 39: Only Siemens int
- 49: Only Siemens int
- 95: Safety Integrated commissioning

**Dependency:** Refer to: r3996

**Notice:** When the parameter is reset to a value of 0, short-term communication interruptions may occur.

**Note:** The drive can only be powered up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.

By setting p3900 to a value other than 0, the quick commissioning is completed, and this parameter is automatically reset to 0.

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

Once the Control Unit has been booted up for the first time, the motor parameters suitable for the power unit have been defined, and the control parameters have been calculated accordingly, p0010 is automatically reset to 0.

p0010 = 3 is used for the subsequent commissioning of additional drive data sets (creating data sets: see p0010 = 15).

p0010 = 29, 39, 49: Only for internal Siemens use!

<b>p0014</b>			
<b>Buffer memory mode / Buf mem mode</b>			
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 0
<b>Description:</b>	Sets the mode for the buffer memory.		
<b>Value:</b>	0: Save in a non-volatile fashion (RAM) 1: Buffer memory active (non-volatile) 2: Clear buffer memory		
<b>Dependency:</b>	If p0014 = 1, changes in the same parameter, as well as in following parameters will not be copied to the buffer memory: Refer to: p0040, p0340, p0650, p0802, p0803, p0804, p0952, p0969, p0970, p0971, p0972, p1900, p1910, p1960, p2111, p3900, p3981 Refer to: A01066, A01067		
<b>Caution:</b>	For p0014 = 2, entries in the buffer memory are lost and cannot be retrieved.		
<b>Notice:</b>	After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		
<b>Note:</b>	The parameter is not influenced by setting the factory setting. Re p0014 = 0: Parameter changes are saved in the volatile memory (RAM). Non-volatile storage from RAM to ROM is carried out in the following cases: - p0971 = 1 - change from p0014 = 0 to 1 Re p0014 = 1: With this setting, alarm A01066 followed by alarm A01067 can occur if parameters are continually changed via a fieldbus system. Parameter changes are entered in the volatile memory (RAM) and also in the non-volatile buffer memory. In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared: - p0971 = 1 - power down/power up the Control Unit - change from p0014 = 1 to 0 Re p0014 = 2: The procedure to clear the entries in the buffer memory is initiated. p0014 is automatically set to 0 after the entries have been cleared.		

<b>p0015</b>			
<b>Macro drive unit / Macro drv unit</b>			
CU240B-2_DP	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> C, C(1)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 999999	<b>Factory setting</b> 7
<b>Description:</b>	Runs the corresponding macro files.		
<b>Caution:</b>	When executing a specific macro, the corresponding programmed settings are made and become active.		
<b>Notice:</b>	After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		
<b>Note:</b>	Macros available as standard are described in the technical documentation of the particular product. The parameter is not influenced by setting the factory setting.		

<b>p0015</b>	<b>Macro drive unit / Macro drv unit</b>		
CU240B-2	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2	<b>Can be changed:</b> C, C(1)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 999999	<b>Factory setting</b> 12
<b>Description:</b>	Runs the corresponding macro files.		
<b>Caution:</b>	When executing a specific macro, the corresponding programmed settings are made and become active.		
<b>Notice:</b>	After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		
<b>Note:</b>	Macros available as standard are described in the technical documentation of the particular product. The parameter is not influenced by setting the factory setting.		
<b>r0018</b>	<b>Control Unit firmware version / CU FW version</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 4294967295	<b>Factory setting</b> -
<b>Description:</b>	Displays the firmware version of the Control Unit.		
<b>Dependency:</b>	Refer to: r0197, r0198		
<b>Note:</b>	Example: The value 1010100 should be interpreted as V01.01.01.00.		
<b>r0020</b>	<b>Speed setpoint smoothed / n_set smth</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the currently smoothed speed setpoint at the input of the speed controller or U/f characteristic (after the interpolator).		
<b>Dependency:</b>	Refer to: r0060		
<b>Note:</b>	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).		
<b>r0021</b>	<b>CO: Actual speed smoothed / n_act smooth</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the smoothed actual value of the motor speed. For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0021.		
<b>Dependency:</b>	Refer to: r0022, r0063		

**Note:** Smoothing time constant = 100 ms  
The signal is not suitable as a process quantity and may only be used as a display quantity.  
The speed actual value is available smoothed (r0021, r0022) and unsmoothed (r0063).  
For U/f control, the mechanical speed calculated from the output frequency and the slip is shown in r0063[2] even if slip compensation is deactivated.

<b>r0022</b>	<b>Speed actual value rpm smoothed / n_act rpm smooth</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the smoothed actual value of the motor speed. r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over. For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0022.		
<b>Dependency:</b>	Refer to: r0021, r0063		
<b>Note:</b>	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The speed actual value is available smoothed (r0021, r0022) and unsmoothed (r0063). For U/f control, the mechanical speed calculated from the output frequency and the slip is shown in r0063[2] even if slip compensation is deactivated.		

<b>r0024</b>	<b>Output frequency smoothed / f_outp smooth</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Hz]	<b>Max</b> - [Hz]	<b>Factory setting</b> - [Hz]
<b>Description:</b>	Displays the smoothed converter frequency.		
<b>Dependency:</b>	Refer to: r0066		
<b>Note:</b>	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The output frequency is available smoothed (r0024) and unsmoothed (r0066).		

<b>r0025</b>	<b>CO: Output voltage smoothed / U_outp smooth</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the smoothed output voltage of the power unit.		
<b>Dependency:</b>	Refer to: r0072		
<b>Note:</b>	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The output voltage is available smoothed (r0025) and unsmoothed (r0072).		

<b>r0026</b>	<b>CO: DC link voltage smoothed / Vdc smooth</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	Displays the smoothed actual value of the DC link voltage.		
<b>Dependency:</b>	Refer to: r0070		
<b>Notice:</b>	When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM240) a valid measured value is not supplied. In this case, when an external 24 V power supply is connected, a value of approx. 24 V is displayed in the display parameter.		
<b>Note:</b>	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The DC link voltage is available smoothed (r0026) and unsmoothed (r0070). r0026 sets itself to the lower value of the pulsating DC link voltage.		
<b>r0027</b>	<b>CO: Absolute actual current smoothed / I_act abs val smth</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the smoothed absolute actual current value.		
<b>Dependency:</b>	Refer to: r0068		
<b>Notice:</b>	This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.		
<b>Note:</b>	Smoothing time constant = 300 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).		
<b>r0028</b>	<b>Modulation depth smoothed / Mod_depth smth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the smoothed actual value of the modulation depth.		
<b>Dependency:</b>	Refer to: r0074		
<b>Note:</b>	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The modulation depth is available smoothed (r0028) and unsmoothed (r0074).		
<b>r0029</b>	<b>Current actual value field-generating smoothed / Id_act smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the smoothed field-generating actual current.		
<b>Dependency:</b>	Refer to: r0076		



**Note:** Smoothing time constant = 300 ms  
The signal is not suitable as a process quantity and may only be used as a display quantity.  
The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

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<b>r0030</b>	<b>Current actual value torque-generating smoothed / Iq_act smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]

**Description:** Displays the smoothed torque-generating actual current.

**Dependency:** Refer to: r0078

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

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<b>r0031</b>	<b>Actual torque smoothed / M_act smooth</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]

**Description:** Displays the smoothed torque actual value.

**Dependency:** Refer to: r0080

**Note:** Smoothing time constant = 100 ms  
The signal is not suitable as a process quantity and may only be used as a display quantity.  
The active current actual value is available smoothed (r0031) and unsmoothed (r0080).

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<b>r0032</b>	<b>CO: Active power actual value smoothed / P_actv_act smth</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> r2004	<b>Data set:</b> -
	<b>Units group:</b> 14_10	<b>Unit selection:</b> p0505	
	<b>Min</b> - [kW]	<b>Max</b> - [kW]	<b>Factory setting</b> - [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:** Power delivered at the motor shaft.  
The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

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<b>r0033</b>	<b>Torque utilization smoothed / M_util smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]

**Description:** Displays the smoothed torque utilization as a percentage.

The torque utilization is obtained from the required smoothed torque in reference to the torque limit, scaled using p2196.

**Dependency:** This parameter is only available for vector control. For U/f control r0033 = 0 %.

**Note:** Smoothing time constant = 100 ms  
The signal is not suitable as a process quantity and may only be used as a display quantity.  
The torque utilization is available smoothed (r0033) and unsmoothed (r0081).  
For M\_set total (r0079) > 0, the following applies:  
- Required torque = M\_set total  
- Actual torque limit = M\_max upper effective (r1538)  
For M\_set total (r0079) ≤ 0, the following applies:  
- Required torque = - M\_set total  
- Actual torque limit = - 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 %

<b>r0034</b>	<b>CO: Motor utilization / Motor utilization</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [%]	- [%]	- [%]
<b>Description:</b>	Displays the motor utilization from motor temperature model 1 (I2t) or 3.		
<b>Dependency:</b>	The motor utilization is only determined for permanent-magnet synchronous motors when the motor temperature model 1 (I2t) or 3 is activated.		
	For motor temperature model 1 (I2t) (p0612.0 = 1), the following applies:		
	- r0034 = (motor model temperature - 40 K) / (p0605 - 40 K) * 100 %		
	For motor temperature model 3 (p0612.2 = 1), the following applies:		
	- r0034 = (motor model temperature - p0613) / (p5390 - p0613) * 100 %		
	Refer to: p0611, p0612, p0615		
<b>Notice:</b>	After the drive is switched on, the system starts to determine the motor temperature with an assumed model value. This means that the value for the motor utilization is only valid after a stabilization time.		
<b>Note:</b>	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. For r0034 = -200.0 %, the following applies: The value is invalid (e.g. the motor temperature model is not activated or has been incorrectly parameterized).		

<b>r0035</b>	<b>CO: Motor temperature / Mot temp</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2006	<b>Data set:</b> -
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [°C]	- [°C]	- [°C]
<b>Description:</b>	Displays the actual temperature in the motor.		
<b>Note:</b>	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 (p0601 = 0). For r0035 equal to -200.0 °C, the following applies: - this temperature display is not valid (temperature sensor error). - A PTC sensor or bimetallic NC contact is connected. - for synchronous motors, the thermal motor model is activated (p0601 = 0).		

<b>r0036</b>	<b>CO: Power unit overload I2t / PU overload I2t</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b>	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
	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.		
<b>Dependency:</b>	In the other case, the degree of thermal overload is calculated, whereby 100% results in a trip.		
	Refer to: p0290, p0294 Refer to: F30005		
<b>r0037[0...19]</b>	<b>CO: Power unit temperatures / PU temperatures</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2006	<b>Data set:</b> -
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
<b>Description:</b>	<b>Min</b> - [°C]	<b>Max</b> - [°C]	<b>Factory setting</b> - [°C]
	Displays the temperatures in the power unit.		
	<b>Index:</b> [0] = Inverter, maximum value [1] = Depletion layer maximum value [2] = Rectifier maximum value [3] = Air intake [4] = Interior of power unit [5] = Inverter 1 [6] = Inverter 2 [7...10] = Reserved [11] = Rectifier 1 [12] = Reserved [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] = Reserved		
	<b>Note:</b> 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]). The maximum value is the temperature of the hottest inverter, depletion layer, or rectifier. r0037[2,3,6,11,14...18] is only relevant for chassis power units.		
<b>r0038</b>	<b>Power factor smoothed / Cos phi smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b>	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
	Displays the smoothed actual power factor. This refers to the electrical power of the basic fundamental signals at the converter output terminals.		

**Notice:** For infeed units, the following applies:  
For active powers < 25 % of the rated power, this does not provide any useful information.

**Note:** Smoothing time constant = 300 ms  
The signal is not suitable as a process quantity and may only be used as a display quantity.

<b>r0039[0...2]</b>	<b>Energy display / Energy displ</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [kWh]	<b>Max</b> - [kWh]	<b>Factory setting</b> - [kWh]
<b>Description:</b>	Displays the energy values at the output terminals of the power unit.		
<b>Index:</b>	[0] = Energy balance (sum) [1] = Energy drawn [2] = Energy fed back		
<b>Dependency:</b>	Refer to: p0040		
<b>Note:</b>	Re index 0: Sum of the energy drawn and energy that is fed back.		

<b>p0040</b>	<b>Reset energy consumption display / Energy usage reset</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Setting to reset the display in r0039 and r0041. Procedure: Set p0040 = 0 --> 1 The displays are reset and the parameter is automatically set to zero.		
<b>Dependency:</b>	Refer to: r0039		

<b>r0041</b>	<b>Energy consumption saved / Energy cons saved</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [kWh]	<b>Max</b> - [kWh]	<b>Factory setting</b> - [kWh]
<b>Description:</b>	Displays the saved energy referred to 100 operating hours.		
<b>Dependency:</b>	Refer to: p0040		
<b>Note:</b>	This display is used for a fluid-flow machine. The flow characteristic is entered into p3320 ... p3329. For an operating time of below 100 hours, the display is interpolated up to 100 hours.		

<b>p0045</b>	<b>Display values smoothing time constant / Disp_val T_smooth</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 10000.00 [ms]	<b>Factory setting</b> 4.00 [ms]
<b>Description:</b>	Sets the smoothing time constant for the following display values: r0063[1], r0068[1], r0080[1], r0082[1].		

**r0046.0...31****CO/BO: Missing enable sig / Missing enable sig****Access level:** 1**Calculated:** -**Data type:** Unsigned32**Can be changed:** -**Scaling:** -**Data set:** -**Units group:** -**Unit selection:** -**Min****Max****Factory setting**

-

-

-

**Description:**

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

**Bit field:**

<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
02	OFF3 enable missing	Yes	No	-
03	Operation enable missing	Yes	No	-
04	DC braking 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	DC braking internal enable missing	Yes	No	-
21	PU enab. missing	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
27	De-magnetizing not completed	Yes	No	-
28	Brake open 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 "switching on inhibited".

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 (DC brake active) when:

- the signal source in p1230 has a 1 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.

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

- there is an OFF1 fault response. The system is only enabled if the fault is removed and was acknowledged and the "switching on inhibited" withdrawn with OFF1 = 0.

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

- commissioning mode is selected (p0010 > 0).
- there is an OFF2 fault response.
- the drive is not operational.

- Bit 18 = 1 (enable signal missing), if:
- OFF3 has still not been completed or an OFF3 fault response is present.
- Bit 19 = 1 (internal pulse enable missing), if:
- sequence control does not have a finished message.
- Bit 20 = 1 (internal DC brake active), if:
- the drive is not in the state "Operation" or in "OFF1/3".
  - the internal pulse enable is missing (r0046.19 = 0).
- Bit 21 = 1 (enable signal missing), if:
- the power unit does not issue an enable signal (e.g. because DC link voltage is too low).
  - the holding brake opening time (p1216) has still not expired.
  - hibernation is active.
- Bit 26 = 1 (enable signal missing), if:
- the drive is not operational.
- Bit 27 = 1 (enable signal missing), if:
- de-magnetization not completed.
- Bit 28 = 1 (enable signal missing), if:
- the holding brake is closed or has still not been opened.
- Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:
- the pole position identification is active.
  - motor data identification is active (only certain steps).
- Bit 31 = 1 (enable signal missing), if:
- the speed setpoint from jog 1 or 2 is entered.

<b>r0047</b>	<b>Motor data identification and speed controller optimization / MotID and n_opt</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 300	<b>Factory setting</b> -
<b>Description:</b>	Displays the actual status for the motor data identification (stationary measurement) and the speed/velocity controller optimization (rotating measurement).		
<b>Value:</b>	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 195: Measurement q leakage inductance (part 1) 200: Rotating measurement selected 220: identification, leakage inductance 230: Identification, rotor time constant 240: Identification, stator inductance 250: Identification, stator inductance LQLD 270: Identification, stator resistance 290: Identification, valve lockout time 300: Stationary measurement selected		
<b>Note:</b>	Re r0047 = 300: This value is also displayed if encoder calibration p1990 is selected.		

<b>r0050.0...1</b>						<b>CO/BO: Command Data Set CDS effective / CDS effective</b>									
<b>Access level:</b> 3			<b>Calculated:</b> -			<b>Data type:</b> Unsigned8									
<b>Can be changed:</b> -			<b>Scaling:</b> -			<b>Data set:</b> -									
<b>Units group:</b> -			<b>Unit selection:</b> -												
<b>Min</b>			<b>Max</b>			<b>Factory setting</b>									
-			-			-									
<b>Description:</b>						Displays the effective Command Data Set (CDS).									
<b>Bit field:</b>						<b>Bit</b>		<b>Signal name</b>		<b>1 signal</b>		<b>0 signal</b>		<b>FP</b>	
						00		CDS eff., bit 0		ON		OFF		-	
						01		CDS eff., bit 1		ON		OFF		-	
<b>Dependency:</b>						Refer to: p0810, p0811, r0836									
<b>Note:</b>						The Command Data Set selected using a binector input (e.g. p0810) is displayed using r0836.									

<b>r0051.0...1</b>						<b>CO/BO: Drive Data Set DDS effective / DDS effective</b>									
<b>Access level:</b> 2			<b>Calculated:</b> -			<b>Data type:</b> Unsigned8									
<b>Can be changed:</b> -			<b>Scaling:</b> -			<b>Data set:</b> -									
<b>Units group:</b> -			<b>Unit selection:</b> -												
<b>Min</b>			<b>Max</b>			<b>Factory setting</b>									
-			-			-									
<b>Description:</b>						Displays the effective Drive Data Set (DDS).									
<b>Bit field:</b>						<b>Bit</b>		<b>Signal name</b>		<b>1 signal</b>		<b>0 signal</b>		<b>FP</b>	
						00		DDS eff., bit 0		ON		OFF		-	
						01		DDS eff., bit 1		ON		OFF		-	
<b>Dependency:</b>						Refer to: p0820, p0821, r0837									
<b>Note:</b>						When selecting the motor data identification routine and the rotating measurement, the drive data set changeover is suppressed.									

<b>r0052.0...15</b>						<b>CO/BO: Status word 1 / ZSW 1</b>									
<b>Access level:</b> 2			<b>Calculated:</b> -			<b>Data type:</b> Unsigned16									
<b>Can be changed:</b> -			<b>Scaling:</b> -			<b>Data set:</b> -									
<b>Units group:</b> -			<b>Unit selection:</b> -												
<b>Min</b>			<b>Max</b>			<b>Factory setting</b>									
-			-			-									
<b>Description:</b>						Displays status word 1.									
<b>Bit field:</b>						<b>Bit</b>		<b>Signal name</b>		<b>1 signal</b>		<b>0 signal</b>		<b>FP</b>	
						00		Rdy for switch on		Yes		No		-	
						01		Ready		Yes		No		-	
						02		Operation enabled		Yes		No		-	
						03		Fault present		Yes		No		-	
						04		Coast down active (OFF2)		No		Yes		-	
						05		Quick Stop active (OFF3)		No		Yes		-	
						06		Switching on inhibited active		Yes		No		-	
						07		Alarm present		Yes		No		-	
						08		Deviation, setpoint/actual speed		No		Yes		-	
						09		Control request		Yes		No		-	
						10		Maximum speed reached		Yes		No		-	
						11		I, M, P limit reached		No		Yes		-	
						12		Motor holding brake open		Yes		No		-	
						13		Alarm motor overtemperature		No		Yes		-	
						14		Motor rotates forwards		Yes		No		-	
						15		Alarm drive converter overload		No		Yes		-	
<b>Caution:</b>						p2080 is used to define the signal sources of the PROFIdrive status word interconnection.									

**Note:** The following status bits are displayed in r0052.

Bit 00: r0899 Bit 0  
 Bit 01: r0899 Bit 1  
 Bit 02: r0899 Bit 2  
 Bit 03: r2139 Bit 3 (or r1214 Bit 10, if p1210 > 0)  
 Bit 04: r0899 Bit 4  
 Bit 05: r0899 Bit 5  
 Bit 06: r0899 Bit 6  
 Bit 07: r2139 Bit 7  
 Bit 08: r2197 Bit 7  
 Bit 09: r0899 Bit 7  
 Bit 10: r2197 Bit 6  
 Bit 11: r0056 Bit 13 (negated)  
 Bit 12: r0899 Bit 12  
 Bit 13: r2135 Bit 14 (negated)  
 Bit 14: r2197 Bit 3  
 Bit 15: r2135 Bit 15 (negated)

**r0053.0...11**

### CO/BO: Status word 2 / ZSW 2

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays status word 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DC braking active	Yes	No	-
	01	n_act  > p1226 (n_standstill)	Yes	No	-
	02	n_act  > p1080 (n_min)	Yes	No	-
	03	l_act  >= p2170	Yes	No	-
	04	n_act  > p2155	Yes	No	-
	05	n_act  <= p2155	Yes	No	-
	06	n_act  >= r1119 (n_set)	Yes	No	-
	07	Vdc <= p2172	Yes	No	-
	08	Vdc > p2172	Yes	No	-
	09	Ramp-up/ramp-down completed	Yes	No	-
	10	Technology controller output at the lower limit	Yes	No	-
	11	Technology controller output at the upper limit	Yes	No	-

**Caution:** p2081 is used to define the signal sources of the PROFIdrive status word interconnection.

**Note:** The following status bits are displayed in r0053:

Bit 00: r1239 Bit 8  
 Bit 01: r2197 Bit 5 (negated)  
 Bit 02: r2197 Bit 0 (negated)  
 Bit 03: r2197 Bit 8  
 Bit 04: r2197 Bit 2  
 Bit 05: r2197 Bit 1  
 Bit 06: r2197 Bit 4  
 Bit 07: r2197 Bit 9  
 Bit 08: r2197 Bit 10  
 Bit 09: r1199 Bit 2 (negated)  
 Bit 10: r2349 Bit 10  
 Bit 11: r2349 Bit 11



**r0054.0...15****CO/BO: Control word 1 / STW 1****Access level:** 2**Calculated:** -**Data type:** Unsigned16**Can be changed:** -**Scaling:** -**Data set:** -**Units group:** -**Unit selection:** -**Min****Max****Factory setting**

-

-

-

**Description:**

Displays control word 1.

**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	Operation enable	Yes	No	-
04	Ramp-function generator enable	Yes	No	-
05	Continue ramp-function generator	Yes	No	-
06	Speed setpoint enable	Yes	No	-
07	Acknowledge fault	Yes	No	-
08	Jog bit 0	Yes	No	3030
09	Jog bit 1	Yes	No	3030
10	Master ctrl by PLC	Yes	No	-
11	Direction reversal (setpoint)	Yes	No	-
13	Motorized potentiometer raise	Yes	No	-
14	Motorized potentiometer lower	Yes	No	-
15	CDS bit 0	Yes	No	-

**Note:**

The following control bits are displayed in r0054:

Bit 00: r0898 Bit 0

Bit 01: r0898 Bit 1

Bit 02: r0898 Bit 2

Bit 03: r0898 Bit 3

Bit 04: r0898 Bit 4

Bit 05: r0898 Bit 5

Bit 06: r0898 Bit 6

Bit 07: r2138 Bit 7

Bit 08: r0898 Bit 8

Bit 09: r0898 Bit 9

Bit 10: r0898 Bit 10

Bit 11: r1198 Bit 11

Bit 13: r1198 Bit 13

Bit 14: r1198 Bit 14

Bit 15: r0836 Bit 0

Re bit 10:

If p0700 = 2 is set, bit 10 always shows "1".

**r0055.0...15****CO/BO: Supplementary control word / Suppl STW****Access level:** 3**Calculated:** -**Data type:** Unsigned16**Can be changed:** -**Scaling:** -**Data set:** -**Units group:** -**Unit selection:** -**Min****Max****Factory setting**

-

-

-

**Description:**

Displays supplementary control word.

**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
00	Fixed setp bit 0	Yes	No	-
01	Fixed setp bit 1	Yes	No	-
02	Fixed setp bit 2	Yes	No	-
03	Fixed setp bit 3	Yes	No	-

04	DDS select. bit 0	Yes	No	-
05	DDS select. bit 1	Yes	No	-
08	Technology controller enable	Yes	No	-
09	DC braking enable	Yes	No	-
11	Droop enable	Yes	No	-
12	Torque control active	Yes	No	-
13	External fault 1 (F07860)	No	Yes	-
15	CDS bit 1	Yes	No	-

**Note:** The following control bits are displayed in r0055:

Bit 00: r1198 Bit 0  
 Bit 01: r1198 Bit 1  
 Bit 02: r1198 Bit 2  
 Bit 03: r1198 Bit 3  
 Bit 04: r0837 Bit 0  
 Bit 05: r0837 Bit 1  
 Bit 08: r2349 Bit 0 (negated)  
 Bit 09: r1239 Bit 11  
 Bit 11: r1406 Bit 11  
 Bit 12: r1406 Bit 12  
 Bit 13: r2138 Bit 13 (negated)  
 Bit 15: r0836 Bit 1

#### r0056.0...15 CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl

PM230 **Access level:** 3 **Calculated:** - **Data type:** Unsigned16  
 PM240 **Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

Min	Max	Factory setting
-	-	-

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

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	-
	05	Voltage boost when starting	Active	Inactive	6300
	06	Acceleration voltage	Active	Inactive	6300
	07	Frequency negative	Yes	No	-
	08	Field weakening active	Yes	No	-
	09	Voltage limit active	Yes	No	6714
	10	Slip limit active	Yes	No	6310
	11	Frequency limit active	Yes	No	-
	12	Current limiting controller voltage output active	Yes	No	-
	13	Current/torque limiting	Active	Inactive	6060
	14	Vdc_max controller active	Yes	No	6220, 6320
	15	Vdc_min controller active	Yes	No	6220, 6320

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**Index:** [0] = Unsmoothed  
[1] = Smoothed with p0045  
[2] = Calculated from f\_set - f\_slip

**Dependency:** Refer to: r0021, r0022

**Note:** 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**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]

**Description:** Displays the actual system deviation of the speed controller.

---

**r0065 Slip frequency / f\_Slip**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
<b>Units group:</b> 2_1	<b>Unit selection:</b> p0505	
<b>Min</b> - [Hz]	<b>Max</b> - [Hz]	<b>Factory setting</b> - [Hz]

**Description:** Displays the slip frequency for induction motors (ASM).

---

**r0066 CO: Output frequency / f\_outp**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
<b>Units group:</b> 2_1	<b>Unit selection:</b> p0505	
<b>Min</b> - [Hz]	<b>Max</b> - [Hz]	<b>Factory setting</b> - [Hz]

**Description:** Displays the output frequency of the power unit.

**Dependency:** Refer to: r0024

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

---

**r0067 CO: Output current, maximum / I\_outp max**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]

**Description:** Displays the maximum output current of the power unit.

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

---

**r0068[0...1] CO: Absolute current actual value / I\_act abs val**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]

**Description:** Displays actual absolute current.

<b>Index:</b>	[0] = Unsmoothed [1] = Smoothed with p0045		
<b>Dependency:</b>	Refer to: r0027		
<b>Notice:</b>	The value is updated with the current controller sampling time.		
<b>Note:</b>	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]).		
<b>r0069[0...6]</b>	<b>CO: Phase current actual value / I_phase act value</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_5	<b>Unit selection:</b> p0505	
	<b>Min</b> - [A]	<b>Max</b> - [A]	<b>Factory setting</b> - [A]
<b>Description:</b>	Displays the measured actual phase currents as peak value.		
<b>Index:</b>	[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		
<b>Note:</b>	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.		
<b>r0070</b>	<b>CO: Actual DC link voltage / Vdc act val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	Displays the measured actual value of the DC link voltage.		
<b>Dependency:</b>	Refer to: r0026		
<b>Notice:</b>	When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM240) a valid measured value is not supplied. In this case, when an external 24 V power supply is connected, a value of approx. 24 V is displayed in the display parameter.		
<b>Note:</b>	The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).		
<b>r0071</b>	<b>Maximum output voltage / U_output max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the maximum output voltage.		
<b>Dependency:</b>	The maximum output voltage depends on the actual DC link voltage (r0070) and the maximum modulation depth (p1803).		
<b>Note:</b>	As the (driven) motor load increases, the maximum output voltage drops as a result of the reduction in DC link voltage.		

<b>r0072</b>	<b>CO: Output voltage / U_output</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the actual output voltage of the power unit.		
<b>Dependency:</b>	Refer to: r0025		
<b>Note:</b>	The output voltage is available smoothed (r0025) and unsmoothed (r0072).		
<b>r0073</b>	<b>Maximum modulation depth / Modulat_depth max</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the maximum modulation depth.		
<b>Dependency:</b>	Refer to: p1803		
<b>r0074</b>	<b>CO: Modulat_depth / Modulat_depth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the actual modulation depth.		
<b>Dependency:</b>	Refer to: r0028		
<b>Note:</b>	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: $(r0074 \times r0070) / (\sqrt{2} \times 100 \%)$ . The modulation depth is available smoothed (r0028) and unsmoothed (r0074).		
<b>r0075</b>	<b>CO: Current setpoint field-generating / Id_set</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the field-generating current setpoint (Id_set).		
<b>Note:</b>	This value is irrelevant for the U/f control mode.		
<b>r0076</b>	<b>CO: Current actual value field-generating / Id_act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the field-generating current actual value (Id_act).		
<b>Dependency:</b>	Refer to: r0029		
<b>Note:</b>	This value is irrelevant for the U/f control mode.		

The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

<b>r0077</b>	<b>CO: Current setpoint torque-generating / Iq_set</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the torque/force generating current setpoint.		
<b>Note:</b>	This value is irrelevant for the U/f control mode.		
<b>r0078</b>	<b>CO: Current actual value torque-generating / Iq_act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the torque-generating current actual value (Iq_act).		
<b>Dependency:</b>	Refer to: r0030		
<b>Note:</b>	This value is irrelevant for the U/f control mode.		
	The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).		
<b>r0079</b>	<b>CO: Torque setpoint / M_set total</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the torque setpoint at the output of the speed controller.		
<b>r0080[0...1]</b>	<b>CO: Torque actual value / M_act</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the actual torque value.		
<b>Index:</b>	[0] = Unsmoothed [1] = Smoothed with p0045		
<b>Dependency:</b>	Refer to: r0031		
<b>Note:</b>	The torque actual value is available smoothed (r0031 with 100 ms, r0080[1] with p0045) and unsmoothed (r0080[0]).		
<b>r0081</b>	<b>CO: Torque utilization / M_Utilization</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the torque utilization as a percentage. The torque utilization is obtained from the required smoothed torque referred to the torque limit.		

**Dependency:** This parameter is only available for vector control. For U/f control r0081 = 0 %.  
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:  $r0081 = (r0079 / r1538) * 100 \%$   
- Negative torque:  $r0081 = (-r0079 / -r1539) * 100 \%$

<b>r0082[0...2]</b>	<b>CO: Active power actual value / P_act</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> r2004	<b>Data set:</b> -
	<b>Units group:</b> 14_5	<b>Unit selection:</b> p0505	
	<b>Min</b> - [kW]	<b>Max</b> - [kW]	<b>Factory setting</b> - [kW]
<b>Description:</b>	Displays the instantaneous active power.		
<b>Index:</b>	[0] = Unsmoothed [1] = Smoothed with p0045 [2] = Electric power		
<b>Dependency:</b>	Refer to: r0032		
<b>Note:</b>	The mechanical active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).		

<b>r0083</b>	<b>CO: Flux setpoint / Flex setp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the flux setpoint.		

<b>r0084[0...1]</b>	<b>CO: Flux actual value / Flux act val</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the flux actual value.		
<b>Index:</b>	[0] = Unsmoothed [1] = Smoothed		

<b>r0087</b>	<b>CO: Actual power factor / Cos phi act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the actual active power factor. This value refers to the electrical power of the basic fundamental signals at the output terminals of the converter.		



<b>r0089[0...2]</b>	<b>Actual phase voltage / U_phase act val</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_3	<b>Unit selection:</b> p0505	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	Displays the actual phase voltage.		
<b>Index:</b>	[0] = Phase U [1] = Phase V [2] = Phase W		
<b>Note:</b>	The values are determined from the transistor power-on duration.		
<b>r0094</b>	<b>CO: Transformation angle / Transformat_angle</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2005	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [°]	<b>Max</b> - [°]	<b>Factory setting</b> - [°]
<b>Description:</b>	Displays the transformation angle.		
<b>Dependency:</b>	Refer to: r1778		
<b>Note:</b>	The transformation angle corresponds to the electrical commutation angle.		
<b>p0100</b>	<b>IEC/NEMA mot stds / IEC/NEMA mot stds</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 0
<b>Description:</b>	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. For p0100 = 0, 2, the following applies: The power factor (p0308) should be parameterized. For p0100 = 1, the following applies: The efficiency (p0309) should be parameterized.		
<b>Value:</b>	0: IEC-Motor (50 Hz, SI units) 1: NEMA motor (60 Hz, US units) 2: NEMA motor (60 Hz, SI units)		
<b>Dependency:</b>	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, r0333, r0334, p0341, p0344, r1969). Refer to: r0206, p0210, p0300, p0304, p0305, p0307, p0308, p0309, p0310, p0311, p0314, p0320, p0322, p0323, p0335, r0337, p1800		
<b>Note:</b>	The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).		
<b>p0124[0...n]</b>	<b>CU detection via LED / CU detection LED</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> PDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Identification of the Control Unit using an LED.		
<b>Note:</b>	While p0124 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Control Unit.		

<b>p0170</b>	<b>Number of Command Data Sets (CDS) / CDS count</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> C(15)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 2	<b>Max</b> 4	<b>Factory setting</b> 2
<b>Description:</b>	Sets the number of Command Data Sets (CDS).		
<b>Dependency:</b>	Refer to: p0010, r3996		
<b>Notice:</b>	When the data sets are created, short-term communication interruptions may occur.		
<b>Note:</b>	It is possible to toggle between command parameters (BICO parameters) using this data set changeover.		
<b>p0180</b>	<b>Number of Drive Data Sets (DDS) / DDS count</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> C(15)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 4	<b>Factory setting</b> 1
<b>Description:</b>	Sets the number of Drive Data Sets (DDS).		
<b>Dependency:</b>	Refer to: p0010, r3996		
<b>Notice:</b>	When the data sets are created, short-term communication interruptions may occur.		
<b>r0197</b>	<b>Bootloader vers / Bootloader vers</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the bootloader version.		
<b>Dependency:</b>	Refer to: r0018, r0198		
<b>Note:</b>	Example: The value 1010100 should be interpreted as V01.01.01.00.		
<b>r0198[0...1]</b>	<b>BIOS/EEPROM data version / BIOS/EEPROM vers</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the BIOS and EEPROM data version. r0198[0]: BIOS version r0198[1]: EEPROM data version		
<b>Dependency:</b>	Refer to: r0018, r0197		
<b>Note:</b>	Example: The value 1010100 should be interpreted as V01.01.01.00.		

<b>p0199[0...24]</b>	<b>Drive object name / DO name</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> C	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 65535	<b>Factory setting</b> 0
<b>Description:</b>	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.		
<b>Note:</b>	The parameter is not influenced by setting the factory setting.		
<b>r0200[0...n]</b>	<b>Power unit code number actual / PU code no. act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> PDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the unique code number of the power unit.		
<b>Note:</b>	r0200 = 0: No power unit data found		
<b>p0201[0...n]</b>	<b>Power unit code number / PU code no</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> C(2)	<b>Scaling:</b> -	<b>Data set:</b> PDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 65535	<b>Factory setting</b> 0
<b>Description:</b>	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.		
<b>Note:</b>	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). When the code number is changed, the connection voltage (p0210) is checked and, if necessary, adjusted.		
<b>r0203[0...n]</b>	<b>Actual power unit type / PU actual type</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> PDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 2	<b>Max</b> 400	<b>Factory setting</b> -
<b>Description:</b>	Displays the type of power unit found.		
<b>Value:</b>	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 (value) 102: SINAMICS S (combi) 103: SINAMICS S120M (distributed) 112: PM220 (SINAMICS G120) 113: PM230 (SINAMICS G120)		

114:	PM240 (SINAMICS G120)
115:	PM250 (SINAMICS G120 / S120)
116:	PM260 (SINAMICS G120)
118:	SINAMICS G120 Px
120:	PM340 (SINAMICS S120)
130:	PM250D (SINAMICS G120D)
133:	SINAMICS G120C
150:	SINAMICS G
151:	PM330 (SINAMICS G120)
200:	SINAMICS GM
250:	SINAMICS SM
260:	SINAMICS MC
300:	SINAMICS GL
350:	SINAMICS SL
400:	SINAMICS DCM

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

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

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> PDS
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	RFI filter available	Yes	No	-
	07	F3E regenerative feedback into the line supply	Yes	No	-
	08	Internal Braking Module	Yes	No	-
	12	Safe Brake Control (SBC) supported	No	Yes	-
	13	Safety Integrated supported	Yes	No	-
	14	Internal LC output filter	Yes	No	-

### p0205 Power unit application / PU application

PM230	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1, 2)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	1	1

**Description:** The duty cycles can be overloaded provided that the drive converter is operated with its base load current before and after the overload. This is based on a load duty cycle of 300 s.

**Value:**  
 0: Load duty cycle with high overload for vector drives  
 1: Load duty cycle with low overload for vector drives

**Dependency:** Refer to: r3996

**Notice:** The parameter value is not reset when the factory setting is restored (see p0010 = 30, p0970).  
 When the power unit is not reset, short-term communication interruptions may occur.


**Note:** When the parameter is changed, all of the motor parameters (p0305 ... p0311), the technological application (p0500) and the control mode (p1300) are pre-assigned according to the selected application. The parameter has no influence when calculating the thermal overload.

p0205 can only be changed to the settings that are saved in the power unit EEPROM.

<b>p0205</b>	<b>Power unit application / PU application</b>		
PM240	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
PM250, PM260	<b>Can be changed:</b> C(1, 2)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	The duty cycles can be overloaded provided that the drive converter is operated with its base load current before and after the overload. This is based on a load duty cycle of 300 s.		
<b>Value:</b>	0: Load duty cycle with high overload for vector drives 1: Load duty cycle with low overload for vector drives		
<b>Dependency:</b>	Refer to: r3996		
<b>Notice:</b>	The parameter value is not reset when the factory setting is restored (see p0010 = 30, p0970). When the power unit use is changed, short-term communication interruptions may occur.		
<b>Note:</b>	When the parameter is changed, all of the motor parameters (p0305 ... p0311), the technological application (p0500) and the control mode (p1300) are pre-assigned according to the selected application. The parameter has no influence when calculating the thermal overload. p0205 can only be changed to the settings that are saved in the power unit EEPROM.		
<b>r0206[0...4]</b>	<b>Rated power unit power / PU P<sub>rated</sub></b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> 14_6	<b>Unit selection:</b> p0100	
	<b>Min</b> - [kW]	<b>Max</b> - [kW]	<b>Factory setting</b> - [kW]
<b>Description:</b>	Displays the rated power unit power for various load duty cycles.		
<b>Index:</b>	[0] = Rated value [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = Reserved [4] = Reserved		
<b>Dependency:</b>	IECdrives (p0100 = 0): Units kW NEMA drives (p0100 = 1): Units hp Refer to: p0100, p0205		
<b>r0207[0...4]</b>	<b>Rated power unit current / PU PI<sub>rated</sub></b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the rated power unit power for various load duty cycles.		
<b>Index:</b>	[0] = Rated value [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = Reserved [4] = Reserved		
<b>Dependency:</b>	Refer to: p0205		

<b>r0208</b>	<b>Rated power unit line supply voltage / PU U<sub>rated</sub></b>	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
		<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
		<b>Units group:</b> -	<b>Unit selection:</b> -	
		<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	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 %			

<b>r0209[0...4]</b>	<b>Power unit, maximum current / PU I<sub>max</sub></b>	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
		<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
		<b>Units group:</b> -	<b>Unit selection:</b> -	
		<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the maximum output current of the power unit.			
<b>Index:</b>	[0] = Catalog [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = Reserved [4] = Reserved			
<b>Dependency:</b>	Refer to: p0205			

<b>p0210</b>	<b>Drive unit line supply voltage / V<sub>connect</sub></b>	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
		<b>Can be changed:</b> C(2), T	<b>Scaling:</b> -	<b>Data set:</b> -
		<b>Units group:</b> -	<b>Unit selection:</b> -	
		<b>Min</b> 1 [V]	<b>Max</b> 63000 [V]	<b>Factory setting</b> 400 [V]
<b>Description:</b>	Sets the drive unit supply voltage (rms value of the phase-to-phase line supply voltage).			
<b>Dependency:</b>	Set p1254, p1294 (automatic detection of the V <sub>dc</sub> switch-on levels) = 0. The switch-in thresholds of the V <sub>dc</sub> controller are then directly determined using p0210.			
<b>Warning:</b>		In the case of regenerative power units (PM250, PM260), the regenerative power limit for U/f control current limitation control is calculated as a proportion of the supply voltage p0210. Therefore, p0210 should not be set to a value higher than the actual line voltage.		
<b>Caution:</b>		If the line supply voltage is higher than the entered value, the V <sub>dc</sub> controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.		
<b>Note:</b>	Setting ranges for p0210 as a function of the rated power unit voltage: U <sub>rated</sub> = 230 V: - p0210 = 200 ... 240 V U <sub>rated</sub> = 400 V: - p0210 = 380 ... 480 V U <sub>rated</sub> = 500 V: - p0210 = 500 ... 600 V U <sub>rated</sub> = 690 V: - p0210 = 660 ... 690 V The pre-charging switch-in threshold for the DC link voltage (V <sub>dc</sub> ) is calculated from p0210: V <sub>dc_pre</sub> = p0210 * 0.82 * 1.35			

The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power unit voltage:

U<sub>rated</sub> = 400 V:

- U<sub>min</sub> = p0210 \* 0.78 > 360 V

U<sub>rated</sub> = 500 V:

- U<sub>min</sub> = p0210 \* 0.76

U<sub>rated</sub> = 690 V:

- U<sub>min</sub> = p0210 \* 0.74 > 450 V

**p0219****Braking power of the braking resistor / Pw\_brake**

PM240

**Access level:** 3**Calculated:** -**Data type:** FloatingPoint32**Can be changed:** C(1, 2), T**Scaling:** -**Data set:** -**Units group:** 14\_6**Unit selection:** p0100**Min**

0.00 [kW]

**Max**

20000.00 [kW]

**Factory setting**

0.00 [kW]

**Description:**

Braking power of the connected braking resistor.

**Dependency:**

Refer to: p1127, p1240, p1280, p1531

**Note:**

If a braking power is entered into the parameter, then the following calculations are performed:

- p1240, p1280 the Vdc,max control is deactivated.

- p1531 = - p0219 the power limit when generating is set (limited to - p1530).

- The minimum ramp-down time is calculated (p1127) depending on p0341, p0342 and p1082

If the parameter is reset again to zero, then the Vdc,max controller is reactivated and the power limit as well as the ramp-down time are recalculated.

**p0230****Drive filter type, motor side / Drv filt type mot****Access level:** 1**Calculated:** -**Data type:** Integer16**Can be changed:** C(1, 2)**Scaling:** -**Data set:** -**Units group:** -**Unit selection:** -**Min**

0

**Max**

4

**Factory setting**

0

**Description:**

Sets the type of the filter at the motor side.

**Value:**

0: No filter  
 1: Motor reactor  
 2: dv/dt filter  
 3: Sine-wave filter, Siemens  
 4: Sine-wave filter, third-party

**Dependency:**

The following parameters are influenced using p0230:

p0230 = 1:

--&gt; p0233 (power unit, motor reactor) = filter inductance

p0230 = 3:

--&gt; p0233 (power unit, motor reactor) = filter inductance

--&gt; p0234 (power unit sine-wave filter capacitance) = filter capacitance

--&gt; p0290 (power unit overload response) = inhibit pulse frequency reduction

--&gt; p1082 (maximum speed) = Fmax filter / pole pair number

--&gt; p1800 (pulse frequency) &gt;= nominal pulse frequency of the filter

--&gt; p1802 (modulator modes) = space vector modulation without overcontrol

p0230 = 4:

--&gt; p0290 (power unit overload response) = inhibit pulse frequency reduction

--&gt; p1802 (modulator modes) = space vector modulation without overcontrol

The user must set the following parameters according to the data sheet of the sine-wave filter and also the user must check whether they are permitted.

--&gt; p0233 (power unit, motor reactor) = filter inductance

--&gt; p0234 (power unit sine-wave 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:** The parameter cannot be changed if the power unit (e.g. PM260) is equipped with an internal sine-wave filter. if a filter type cannot be selected, then this filter type is not permitted for the Motor Module.

p0230 = 1:

Power units with output reactor are limited to output frequencies of 150 Hz.

p0230 = 3:

Power units with sine-wave filter are limited to output frequencies of 200 Hz.

<b>r0231[0...1]</b>	<b>Power cable length, maximum / Cable length max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [m]	<b>Max</b> - [m]	<b>Factory setting</b> - [m]
<b>Description:</b>	Displays the maximum permissible cable lengths between the drive unit and motor.		
<b>Index:</b>	[0] = Unshielded [1] = Shielded		
<b>Note:</b>	The display value is used to provide information for service and maintenance.		
<b>p0233</b>	<b>Power unit motor reactor / PU mot reactor</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(2), U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [mH]	<b>Max</b> 1000.000 [mH]	<b>Factory setting</b> 0.000 [mH]
<b>Description:</b>	Enter the inductance of a filter connected at the power unit output.		
<b>Dependency:</b>	This parameter is automatically pre-set when you select a filter via p0230 if a SIEMENS filter is defined for the power unit. Refer to: p0230		
<b>Note:</b>	When exiting the quick commissioning using p3900 = 1, the parameter value is set to the value of the defined SIEMENS filter or to zero. For this reason, the parameter value of a third-party filter only has to be entered outside the commissioning phase (p0010 = 0) and then the controller calculation (p0340 = 3) is carried out. The parameter cannot be changed if the power unit (e.g. PM260) is equipped with an internal sine-wave filter.		
<b>p0234</b>	<b>Power unit sine-wave filter capacitance / PU sine filter C</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(2), U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [μF]	<b>Max</b> 1000.000 [μF]	<b>Factory setting</b> 0.000 [μF]
<b>Description:</b>	Enters the capacitance of a sine-wave filter connected at the power unit output.		
<b>Dependency:</b>	This parameter is automatically pre-set when you select a filter via p0230 if a SIEMENS filter is defined for the power unit. Refer to: p0230		
<b>Note:</b>	The parameter value includes the sum of all of the capacitances of a phase connected in series (phase - ground). When exiting the quick commissioning using p3900 = 1, the parameter value is set to the value of the defined SIEMENS filter or to zero. For this reason, the parameter value of a third-party filter only has to be entered outside the commissioning phase (p0010 = 0). The parameter cannot be changed if the power unit (e.g. PM260) is equipped with an internal sine-wave filter.		



<b>r0238</b>	<b>Internal power unit resistance / PU R internal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the internal resistance of the power unit (IGBT and line resistance).		
<b>p0278</b>	<b>DC link voltage undervoltage threshold reduction / Vdc U_under red</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -80 [V]	<b>Max</b> 0 [V]	<b>Factory setting</b> 0 [V]
<b>Description:</b>	Sets the absolute value by which the threshold to initiate the undervoltage fault (F30003) is reduced.		
<b>Dependency:</b>	Refer to: p0210, r0296 Refer to: F30003		
<b>Notice:</b>	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. For chassis power units, this parameter has no significance.		
<b>Note:</b>	The resulting shutdown threshold can be read in r0296 and is dependent on the selected rated voltage (p0210) and the power unit being used.		
<b>p0287[0...1]</b>	<b>Ground fault monitoring thresholds / Gnd flt threshold</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 100.0 [%]	<b>Factory setting</b> [0] 6.0 [%] [1] 16.0 [%]
<b>Description:</b>	Sets the shutdown thresholds for the ground fault monitoring. The setting is made as a percentage of the maximum power unit current (r0209).		
<b>Index:</b>	[0] = Threshold at which pre-charging starts [1] = Threshold at which pre-charging stops		
<b>Dependency:</b>	Refer to: p1901 Refer to: F30021		
<b>Note:</b>	This parameter is only relevant for chassis power units.		
<b>r0289</b>	<b>CO: Maximum power unit output current / PU I_outp max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the actual maximum output current of the power unit taking into account derating factors.		

<b>p0290</b>	<b>Power unit overload response / PU overld response</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 2
<b>Description:</b>	<p>Sets the response to a thermal overload condition of the power unit.</p> <p>The following quantities can result in a response to thermal overload:</p> <ul style="list-style-type: none"> <li>- heat sink temperature (r0037.0)</li> <li>- chip temperature (r0037.1)</li> <li>- power unit overload I2T (r0036)</li> </ul> <p>Possible measures to avoid thermal overload:</p> <ul style="list-style-type: none"> <li>- reduce the output current limit r0289 and r0067 (for closed-loop speed or torque control) or the output frequency (for U/f control) indirectly via the output current limit and the intervention of the current limiting controller).</li> <li>- reduce the pulse frequency.</li> </ul> <p>A reduction, if parameterized, is always realized after an appropriate alarm is output.</p>		
<b>Value:</b>	<p>0: Reduce output current or output frequency</p> <p>1: No reduction, shutdown when overload threshold is reached</p> <p>2: Reduce I_output or f_output and f_pulse (not using I2t)</p> <p>3: Reduce the pulse frequency (not using I2t)</p>		
<b>Dependency:</b>	<p>If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only responses can be selected without pulse frequency reduction (p0290 = 0, 1).</p> <p>If a fault or alarm is present, then r2135.13 or r2135.15 is set.</p> <p>Refer to: r0036, r0037, p0230, r2135</p> <p>Refer to: A05000, A05001, A07805</p>		
<b>Caution:</b>	<p>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 irrespective of the setting of this parameter.</p>		
<b>Note:</b>	<p>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).</p> <p>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.</p> <p>For p0290 = 2, 3, the I2t overload detection of the power unit does not influence the responses.</p> <p>When the motor data identification routine is selected, p0290 cannot be changed.</p>		
<b>p0292[0...1]</b>	<b>Power unit temperature alarm threshold / PU T_alarm thresh</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [°C]	<b>Max</b> 25 [°C]	<b>Factory setting</b> [0] 5 [°C] [1] 15 [°C]
<b>Description:</b>	<p>Sets the alarm threshold for power unit overtemperatures. The value is set as a difference to the tripping (shutdown) temperature.</p> <p>Drive:</p> <p>If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290.</p> <p>Infeed:</p> <p>When the threshold value is exceeded, only an overload alarm is output.</p>		
<b>Index:</b>	<p>[0] = Heat sink temperature</p> <p>[1] = Power semiconductor (chip) temperature</p>		
<b>Dependency:</b>	<p>Refer to: r0037, p0290</p> <p>Refer to: A05000</p>		

<b>p0294</b>	<b>Power unit alarm with I2t overload / PU I2t alarm thresh</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.0 [%]	<b>Max</b> 100.0 [%]	<b>Factory setting</b> 95.0 [%]
<b>Description:</b>	Sets the alarm threshold for the I2t power unit overload. If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290.		
<b>Dependency:</b>	Refer to: r0036, p0290 Refer to: A07805		
<b>Note:</b>	The I2t fault threshold is 100 %. If this value is exceeded, fault F30005 is output.		
<b>p0295</b>	<b>Fan run-on time / Fan run-on time</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [s]	<b>Max</b> 600 [s]	<b>Factory setting</b> 0 [s]
<b>Description:</b>	Sets the fan run-on time after the pulses for the power unit have been canceled.		
<b>Note:</b>	<ul style="list-style-type: none"> <li>- Under certain circumstances, the fan can continue to run for longer than was set (e.g. as a result of the excessively high heat sink temperature).</li> <li>- For values less than 1 s, a 1 s run on time for the fan is active.</li> <li>- for a PM230 power unit, sizes D - F the parameter is ineffective.</li> </ul>		
<b>r0296</b>	<b>DC link voltage undervoltage threshold / Vdc U_lower_thresh</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	If the DC link voltage falls below this threshold, the power unit is shut down due to a DC link undervoltage condition (F30003).		
<b>Dependency:</b>	Refer to: p0278 Refer to: F30003		
<b>r0297</b>	<b>DC link voltage overvoltage threshold / Vdc U_upper_thresh</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.		
<b>Dependency:</b>	Refer to: F30002		

<b>p0300[0...n]</b>	<b>Motor type selection / Mot type sel</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 204	<b>Factory setting</b> 0
<b>Description:</b>	<p>Selecting the motor type.</p> <p>The first digit of the parameter value always defines the general motor type and corresponds to the third-party motor belonging to a motor list:</p> <p>1 = Rotating induction motor</p> <p>2 = Rotating 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/IOP).</p>		
<b>Value:</b>	<p>0: No motor</p> <p>1: Induction motor (rotating)</p> <p>2: Synchronous motor (rotating, permanent-magnet)</p> <p>10: 1LE1 standard induction motor</p> <p>13: 1LG6 standard induction motor</p> <p>17: 1LA7 standard induction motor</p> <p>19: 1LA9 standard induction motor</p> <p>204: 1LE4 synchronous motor</p>		
<b>Dependency:</b>	When selecting a motor type from the 1LA7 series, parameters p0335, p0626, p0627, and p0628 of the thermal motor model are pre-assigned as a function of p0307 and p0311.		
<b>Note:</b>	<p>Once the Control Unit has been powered up for the first time or if the factory settings have been defined accordingly, the motor type is pre-configured to induction motor (p0300 = 1).</p> <p>If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.</p>		
<b>p0301[0...n]</b>	<b>Motor code number selection / Mot code No. sel</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 65535	<b>Factory setting</b> 0
<b>Description:</b>	<p>The parameter is used to select a motor from a motor parameter list.</p> <p>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.</p>		
<b>Dependency:</b>	Code numbers can only be selected for motor types that correspond to the motor type selected in p0300. Refer to: p0300		
<b>Note:</b>	<p>The motor code number can only be changed if the matching catalog motor was first selected in p0300.</p> <p>When selecting a catalog motor (p0300 &gt;= 100), drive commissioning can only be exited if a code number is selected.</p>		
<b>p0304[0...n]</b>	<b>Rated motor voltage / Mot U<sub>rated</sub></b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [Vrms]	<b>Max</b> 20000 [Vrms]	<b>Factory setting</b> 0 [Vrms]
<b>Description:</b>	Sets the rated motor voltage (rating plate).		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		

**Note:** When the parameter value is entered the connection type of the motor (star-delta) must be taken into account. Once the Control Unit has booted for the first time or if the factory settings have been restored, the parameter is pre-assigned to match the power unit.

<b>p0305[0...n]</b>	<b>Rated motor current / Mot I<sub>rated</sub></b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	Sets the rated motor current (rating plate).		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Notice:</b>	If p0305 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly.		
<b>Note:</b>	When the parameter value is entered the connection type of the motor (star-delta) must be taken into account. Once the Control Unit has booted for the first time or if the factory settings have been restored, the parameter is pre-assigned to match the power unit.		

<b>p0306[0...n]</b>	<b>Number of motors connected in parallel / Motor qty</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 50	<b>Factory setting</b> 1
<b>Description:</b>	<p>Sets the number (count) of motors that can be operated in parallel using one motor data set. Depending on the motor number entered, internally an equivalent motor is calculated.</p> <p>The following should be observed in motors connected in parallel:</p> <p>The following rating plate data should only be entered for one motor:</p> <ul style="list-style-type: none"> <li>- resistances and inductances: p0350 ... p0361</li> <li>- currents: p0305, p0320, p0323, p0325, p0329</li> <li>- power ratings: p0307</li> <li>- masses/moments of inertia: p0341, p0344</li> </ul> <p>All other parameters take into account the replacement/equivalent motor (e.g. r0331, r0333).</p>		
<b>Dependency:</b>	Refer to: r0331, r0370, r0373, r0374, r0376, r0377, r0382		
<b>Caution:</b>	<p>The motors to be connected in parallel must be of the same type and size (same order no. (MLFB)).</p> <p>The mounting regulations when connecting motors in parallel must be carefully maintained!</p> <p>The number of motors set must correspond to the number of motors that are actually connected in parallel.</p> <p>After changing p0306, it is imperative that the control parameters are adapted (e.g. using automatic calculation with p0340 = 1, p3900 &gt; 0).</p> <p>For synchronous motors connected in parallel with p1300 &gt;= 20, be following applies:</p> <ul style="list-style-type: none"> <li>- the individual motors must be mechanically coupled with one another and the EMF must be aligned to one another.</li> </ul> <p>For induction motors that are connected in parallel, but which are not mechanically coupled with one another, then the following applies:</p> <ul style="list-style-type: none"> <li>- an individual motor must not be loaded beyond its stall point.</li> </ul>		
<b>Notice:</b>	If p0306 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned.		
<b>Note:</b>	Only operation with U/f characteristic makes sense if more than 10 identical motors are connected in parallel.		



<b>p0307[0...n]</b>	<b>Rated motor power / Mot P<sub>rated</sub></b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 14_6	<b>Unit selection:</b> p0100	
	<b>Min</b> 0.00 [kW]	<b>Max</b> 100000.00 [kW]	<b>Factory setting</b> 0.00 [kW]
<b>Description:</b>	Sets the rated motor power (rating plate).		
<b>Dependency:</b>	IECdrives (p0100 = 0): Units kW NEMA drives (p0100 = 1): Units hp NEMA drives (p0100 = 2): Unit kW Refer to: p0100		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	Once the Control Unit has booted for the first time or if the factory settings have been restored, the parameter is pre-assigned to match the power unit.		
<b>p0308[0...n]</b>	<b>Rated motor power factor / Mot cos<sub>phi</sub><sub>rated</sub></b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 1.000	<b>Factory setting</b> 0.000
<b>Description:</b>	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.		
<b>Dependency:</b>	This parameter is only available for p0100 = 0, 2. Refer to: p0100, p0309, r0332		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2xx). Once the Control Unit has booted for the first time or if the factory settings have been restored, the parameter is pre-assigned to match the power unit.		
<b>p0309[0...n]</b>	<b>Rated motor efficiency / Mot eta<sub>rated</sub></b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 99.9 [%]	<b>Factory setting</b> 0.0 [%]
<b>Description:</b>	Sets the rated motor efficiency (rating plate). For a parameter value of 0.0, the power factor is internally calculated and displayed in r0332.		
<b>Dependency:</b>	This parameter is only available for NEMA motors (p0100 = 1). Refer to: p0100, p0308, r0332		
<b>Note:</b>	The parameter is not used for synchronous motors.		
<b>p0310[0...n]</b>	<b>Rated motor frequency / Mot f<sub>rated</sub></b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 650.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	Sets the rated motor frequency (rating plate).		

<b>Dependency:</b>	The number of pole pairs (r0313) is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0. The rated frequency is restricted to values between 1.00 Hz and 650.00 Hz. Refer to: p0311, r0313, p0314
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.
<b>Notice:</b>	If p0310 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).
<b>Note:</b>	Once the Control Unit has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.

<b>p0311[0...n]</b>	<b>Rated motor speed / Mot n<sub>rated</sub></b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [rpm]	<b>Max</b> 210000.0 [rpm]	<b>Factory setting</b> 0.0 [rpm]
<b>Description:</b>	Sets the rated motor speed (rating plate). 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 U/f control.		
<b>Dependency:</b>	If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically. Refer to: p0310, r0313, p0314		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Notice:</b>	If p0311 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).		
<b>Note:</b>	Once the Control Unit has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.		

<b>r0313[0...n]</b>	<b>Motor pole pair number, actual (or calculated) / Mot PolePairNo act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the number of motor pole pairs. The value is used for internal calculations. r0313 = 1: 2-pole motor r0313 = 2: 4-pole motor, etc.		
<b>Dependency:</b>	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		
<b>Note:</b>	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.		

<b>p0314[0...n]</b>	<b>Motor pole pair number / Mot pole pair No.</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> C(1, 3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 255	<b>Factory setting</b> 0
<b>Description:</b>	Sets the motor pole pair number. p0314 = 1: 2-pole motor r0314 = 2: 4-pole motor, etc.		
<b>Dependency:</b>	For p0314 = 0, the pole pair number is automatically calculated from the rated frequency (p0310) and the rated speed (p0311) and displayed in r0313.		
<b>Notice:</b>	If p0314 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly.  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.		
<b>p0316[0...n]</b>	<b>Motor torque constant / Mot kT</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 28_1	<b>Unit selection:</b> p0100	
	<b>Min</b> 0.00 [Nm/A]	<b>Max</b> 400.00 [Nm/A]	<b>Factory setting</b> 0.00 [Nm/A]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: r0334		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	This parameter is not used for induction motors (p0300 = 1xx).		
<b>p0318[0...n]</b>	<b>Motor stall current / Mot I_standstill</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3)	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	Sets the stall current for synchronous motors (p0300 = 2xx).		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The parameter is used for the I2t monitoring of the motor (refer to p0611). This parameter is not used for induction motors (p0300 = 1xx).		
<b>p0320[0...n]</b>	<b>Motor rated magnetizing current/short-circuit current / Mot I_mag_rated</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [Arms]	<b>Max</b> 5000.000 [Arms]	<b>Factory setting</b> 0.000 [Arms]
<b>Description:</b>	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:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:** The magnetizing current p0320 for induction motors is reset when quick commissioning is exited with p3900 > 0. 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

**Access level:** 1

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** C(1, 3)

**Scaling:** -

**Data set:** MDS

**Units group:** -

**Unit selection:** -

**Min**

0.0 [rpm]

**Max**

210000.0 [rpm]

**Factory setting**

0.0 [rpm]

**Description:** Sets the maximum motor speed.

**Dependency:** Refer to: p1082

**Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Notice:** If p0322 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly.

### p0323[0...n] Maximum motor current / Mot I\_max

**Access level:** 1

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** C(1, 3)

**Scaling:** -

**Data set:** MDS

**Units group:** -

**Unit selection:** -

**Min**

0.00 [Arms]

**Max**

20000.00 [Arms]

**Factory setting**

0.00 [Arms]

**Description:** Sets the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).

**Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Notice:** If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly.

**Note:** 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

**Access level:** 4

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** -

**Data set:** MDS

**Units group:** -

**Unit selection:** -

**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, r1984, r1985, r1987

**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).

<b>p0326[0...n]</b>	<b>Motor stall torque correction factor / Mot M_stall_corr</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5 [%]	<b>Max</b> 300 [%]	<b>Factory setting</b> 100 [%]
<b>Description:</b>	Sets the correction factor for the stall torque/force at a 600 V DC link voltage.		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
<b>p0327[0...n]</b>	<b>Optimum motor load angle / Mot phi_load_opt</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [°]	<b>Max</b> 135.0 [°]	<b>Factory setting</b> 90.0 [°]
<b>Description:</b>	Sets the optimum load angle for synchronous motors with reluctance torque. The load angle is measured at the rated motor current.		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	This parameter has no significance for induction motors. For synchronous motors without reluctance torque, a angle of 90 degrees must be set. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
<b>p0328[0...n]</b>	<b>Motor reluctance torque constant / Mot kT_reluctance</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -1000.00 [mH]	<b>Max</b> 1000.00 [mH]	<b>Factory setting</b> 0.00 [mH]
<b>Description:</b>	Sets the reluctance torque constant for synchronous motors with reluctance torque (e.g. 1FE ... motors). This parameter has no significance for induction motors.		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	For synchronous motors without reluctance torque, the value 0 must be set.		
<b>p0329[0...n]</b>	<b>Motor pole position identification current / Mot PolID current</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	Sets the current for the pole position identification routine (p1980 = 1). For a two-stage technique (p1980 = 4), the current is set for the 2nd phase. The current for the 1st phase is set in p0325.		
<b>Dependency:</b>	Refer to: p0325, p1980, r1984, r1985, r1987		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		

<b>r0330[0...n]</b>	<b>Rated motor slip / Mot slip_rated</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Hz]	<b>Max</b> - [Hz]	<b>Factory setting</b> - [Hz]
<b>Description:</b>	Displays the rated motor slip.		
<b>Dependency:</b>	The rated slip is calculated from the rated frequency, rated speed and number of pole pairs. Refer to: p0310, p0311, r0313		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2xx).		
<b>r0331[0...n]</b>	<b>Actual motor magnetizing current/short-circuit current / Mot I_mag_rtd act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	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.		
<b>Dependency:</b>	If p0320 was not entered, then the parameter is calculated from the rating plate parameters.		
<b>r0332[0...n]</b>	<b>Rated motor power factor / Mot cos_phi_rated</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	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.		
<b>Dependency:</b>	If p0308 is not entered, the parameter is calculated from the rating plate parameters.		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2xx).		
<b>r0333[0...n]</b>	<b>Rated motor torque / Mot M_rated</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 7_4	<b>Unit selection:</b> p0100	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the rated motor torque.		
<b>Dependency:</b>	IEC drives (p0100 = 0): unit Nm NEMA drives (p0100 = 1): unit lbf ft		

**Note:** For induction motors, r0333 is calculated from p0307 and p0311.  
For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328.

<b>r0334[0...n]</b>	<b>Actual motor-torque constant / Mot kT act</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 28_1	<b>Unit selection:</b> p0100	
	<b>Min</b> - [Nm/A]	<b>Max</b> - [Nm/A]	<b>Factory setting</b> - [Nm/A]
<b>Description:</b>	Displays the torque constant of the synchronous motor used.		
<b>Dependency:</b>	IEC drives (p0100 = 0): unit Nm / A NEMA drives (p0100 = 1): unit lbf ft / A		
<b>Note:</b>	This parameter is not used for induction motors (p0300 = 1xx). For synchronous motors, parameter r0334 is calculated from p0305, p0307 and p0311.		
<b>p0335[0...n]</b>	<b>Motor cooling type / Motor cooling type</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1, 3), T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 128	<b>Factory setting</b> 0
<b>Description:</b>	Sets the motor cooling system used.		
<b>Value:</b>	0: Non-ventilated 1: Forced cooling 2: Liquid cooling 128: No fan		
<b>Dependency:</b>	For 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The parameter influences the thermal 3-mass motor model. 1LA7 motors, frame size 56 are operated without fan.		
<b>r0337[0...n]</b>	<b>Rated motor EMF / Mot EMF_rated</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the rated EMF of the motor.		
<b>Note:</b>	EMF: Electromagnetic force		
<b>p0340[0...n]</b>	<b>Automatic calculation, motor/control parameters / Calc auto par</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(3), T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 5	<b>Factory setting</b> 0
<b>Description:</b>	Setting to automatically calculate motor parameters and U/f open-loop and closed-loop control parameters from the rating plate data.		
<b>Value:</b>	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:**

After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

The following parameters are influenced using p0340:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341, p0342, p0344, p0612, p0640, p1082, p1231, p1232, p1333, p1349, p1611, p1654, p1726, p1825, p1828 ... p1832, p1909, p1959, p2000, p2001, p2002, p2003, p3927, p3928

p0340 = 2:

--> p0350, p0354 ... p0360

--> p0625 (matching p0350), p0626 ... p0628

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0346, p0347, p0622, p1320 ... p1327, p1582, p1584, p1616, p1755, p1756, p2178

p0340 = 4:

--> p1290, p1292, p1293, p1338, p1339, p1340, p1341, p1345, p1346, p1461, p1463, p1464, p1465, p1470, p1472, p1703, p1715, p1717, p1740, p1756, p1764, p1767, p1781, p1783, p1785, p1786, p1795

p0340 = 5:

--> p1037, p1038, p1520, p1521, p1530, p1531, p1574, p1802, p1803, p2140, p2142, p2148, p2150, p2161, p2162, p2163, p2164, p2175, p2177, p2194, p2390, p2392, p2393

**Note:**

p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5.

p0340 = 2 calculates the motor parameters (p0350 ... p0360).

p0340 = 3 contains the calculations of p0340 = 4, 5.

p0340 = 4 only calculates the controller parameters.

p0340 = 5 only calculates the controller limits.

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

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

**p0341[0...n]****Motor moment of inertia / Mot M\_mom of inert**

**Access level:** 3

**Calculated:** p0340 = 1

**Data type:** FloatingPoint32

**Can be changed:** C(3), U, T

**Scaling:** -

**Data set:** MDS

**Units group:** 25\_1

**Unit selection:** p0100

**Min**

0.000000 [kgm<sup>2</sup>]

**Max**

100000.000000 [kgm<sup>2</sup>]

**Factory setting**

0.000000 [kgm<sup>2</sup>]

**Description:**

Sets the motor moment of inertia (without load).

**Dependency:**

IEC drives (p0100 = 0): unit kg m<sup>2</sup>

NEMA drives (p0100 = 1): unit lb ft<sup>2</sup>

The parameter value is included, together with p0342, in the rated starting time of the motor.

Refer to: p0342, r0345

**Caution:**

When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**

The product of p0341 \* p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

**p0342[0...n]****Ratio between the total and motor moment of inertia / Mot MomInert Ratio**

**Access level:** 3

**Calculated:** p0340 = 1

**Data type:** FloatingPoint32

**Can be changed:** C(3), U, T

**Scaling:** -

**Data set:** MDS

**Units group:** -

**Unit selection:** -

**Min**

1.000

**Max**

10000.000

**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
- Note:** The product of p0341 \* p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

<b>r0343[0...n]</b>	<b>Rated motor current identified / Mot I<sub>rated</sub> ident</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the identified rated motor current.		

<b>p0344[0...n]</b>	<b>Motor weight (for the thermal motor model) / Mot weight th mod</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 27_1	<b>Unit selection:</b> p0100	
	<b>Min</b> 0.0 [kg]	<b>Max</b> 50000.0 [kg]	<b>Factory setting</b> 0.0 [kg]
<b>Description:</b>	Sets the motor weight.		
<b>Dependency:</b>	IEC drives (p0100 = 0): unit kg NEMA drives (p0100 = 1): unit lb		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The parameter influences the thermal 3 mass model of the induction motor. The parameter is not used for synchronous motors (p0300 = 2xx).		

<b>r0345[0...n]</b>	<b>Nominal motor starting time / Mot t<sub>start</sub> rated</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [s]	<b>Max</b> - [s]	<b>Factory setting</b> - [s]
<b>Description:</b>	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).		
<b>Dependency:</b>	Refer to: r0313, r0333, p0341, p0342		

<b>p0346[0...n]</b>	<b>Motor excitation build-up time / Mot t<sub>excitation</sub></b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 20.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	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.		
<b>Caution:</b>	If there is insufficient magnetization under load or if the acceleration rate is too high, then an induction motor can stall (refer to the note).		



**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 magnetizing of the induction motor. This is the case if the current limit is reached while building up magnetizing. 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 encoderless operation immediately after the pulses have been enabled.

<b>p0347[0...n]</b>	<b>Motor de-excitation time / Mot t_de-excitat.</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 20.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	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.		
<b>Note:</b>	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-magnetizing 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).		

<b>p0350[0...n]</b>	<b>Motor stator resistance, cold / Mot R_stator cold</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00000 [ohm]	<b>Max</b> 2000.00000 [ohm]	<b>Factory setting</b> 0.00000 [ohm]
<b>Description:</b>	Sets the stator resistance of the motor at ambient temperature p0625 (phase value).		
<b>Dependency:</b>	Refer to: p0625, r1912		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The motor identification routine determines the stator resistance from the total stator resistance minus the cable resistance (p0352).		

<b>p0352[0...n]</b>	<b>Cable resistance / Mot R_cable cold</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00000 [ohm]	<b>Max</b> 120.00000 [ohm]	<b>Factory setting</b> 0.00000 [ohm]
<b>Description:</b>	Resistance of the power cable between the power unit and motor.		
<b>Caution:</b>	The cable resistance should be entered prior to motor data identification. If it is used subsequently, the difference by which p0352 was changed must be subtracted from the stator resistance p0350 or motor data identification must be repeated.		



**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.  
 The cable resistance is reset when quick commissioning is exited with p3900 > 0.

<b>p0354[0...n]</b>	<b>Motor rotor resistance cold / Mot R_r cold</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00000 [ohm]	<b>Max</b> 300.00000 [ohm]	<b>Factory setting</b> 0.00000 [ohm]
<b>Description:</b>	Sets the rotor/secondary section resistance of the motor at the ambient temperature p0625. This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor data identification routine (p1910).		
<b>Dependency:</b>	Refer to: p0625		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2).		
<b>p0356[0...n]</b>	<b>Motor stator leakage inductance / Mot L_stator leak.</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00000 [mH]	<b>Max</b> 1000.00000 [mH]	<b>Factory setting</b> 0.00000 [mH]
<b>Description:</b>	Induction machine: sets the stator 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).		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	If the stator leakage inductance (p0356) for induction motors is changed outside the commissioning phase (p0010 > 0), the magnetizing inductance (p0360) is automatically adapted to the new EMF (r0337). You are then advised to repeat the measurement for the saturation characteristic (p1960). For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is, therefore, ideal for a low current.		
<b>p0357[0...n]</b>	<b>Motor stator inductance, d axis / Mot L_stator d</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00000 [mH]	<b>Max</b> 1000.00000 [mH]	<b>Factory setting</b> 0.00000 [mH]
<b>Description:</b>	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).		
<b>Note:</b>	For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is ideal for a low current.		
<b>p0358[0...n]</b>	<b>Motor rotor leakage inductance / Mot L_rot leak</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00000 [mH]	<b>Max</b> 1000.00000 [mH]	<b>Factory setting</b> 0.00000 [mH]
<b>Description:</b>	Sets the rotor/secondary section leakage inductance of the motor.		



The value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

**Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:** If the rotor 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). You are then advised to repeat the measurement for the saturation characteristic (p1960).

<b>p0360[0...n]</b>	<b>Motor magnetizing inductance / Mot Lh</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00000 [mH]	<b>Max</b> 10000.00000 [mH]	<b>Factory setting</b> 0.00000 [mH]
<b>Description:</b>	Sets the magnetizing inductance of the motor. This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2).		

<b>p0362[0...n]</b>	<b>Motor saturation characteristic flux 1 / Mot saturat.flux 1</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.0 [%]	<b>Max</b> 300.0 [%]	<b>Factory setting</b> 60.0 [%]
<b>Description:</b>	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 %).		
<b>Dependency:</b>	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0366		
<b>Note:</b>	For induction motors, p0362 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		

<b>p0363[0...n]</b>	<b>Motor saturation characteristic flux 2 / Mot saturat.flux 2</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.0 [%]	<b>Max</b> 300.0 [%]	<b>Factory setting</b> 85.0 [%]
<b>Description:</b>	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 %).		
<b>Dependency:</b>	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0367		
<b>Note:</b>	For induction motors, p0363 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		

<b>p0364[0...n]</b>	<b>Motor saturation characteristic flux 3 / Mot saturat.flux 3</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.0 [%]	<b>Max</b> 300.0 [%]	<b>Factory setting</b> 115.0 [%]
<b>Description:</b>	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 %).		
<b>Dependency:</b>	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0368		
<b>Note:</b>	For induction motors, p0364 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
<b>p0365[0...n]</b>	<b>Motor saturation characteristic flux 4 / Mot saturat.flux 4</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.0 [%]	<b>Max</b> 300.0 [%]	<b>Factory setting</b> 125.0 [%]
<b>Description:</b>	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 %).		
<b>Dependency:</b>	The following applies for the flux values: p0362 < p0363 < p0364 < p0365 Refer to: p0369		
<b>Note:</b>	For induction motors, p0365 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
<b>p0366[0...n]</b>	<b>Motor saturation characteristic I_mag 1 / Mot sat. I_mag 1</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5.0 [%]	<b>Max</b> 800.0 [%]	<b>Factory setting</b> 50.0 [%]
<b>Description:</b>	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 magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).		
<b>Dependency:</b>	The following applies for the magnetizing currents: p0366 < p0367 < p0368 < p0369 Refer to: p0362		
<b>Note:</b>	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		

<b>p0367[0...n]</b>	<b>Motor saturation characteristic I_mag 2 / Mot sat. I_mag 2</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5.0 [%]	<b>Max</b> 800.0 [%]	<b>Factory setting</b> 75.0 [%]
<b>Description:</b>	<p>The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.</p> <p>This parameter specifies the x coordinate (magnetizing current) for the 2nd value pair of the characteristic.</p> <p>Sets the second magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).</p>		
<b>Dependency:</b>	<p>The following applies for the magnetizing currents:</p> <p>p0366 &lt; p0367 &lt; p0368 &lt; p0369</p> <p>Refer to: p0363</p>		
<b>Note:</b>	<p>When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).</p>		
<b>p0368[0...n]</b>	<b>Motor saturation characteristic I_mag 3 / Mot sat. I_mag 3</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5.0 [%]	<b>Max</b> 800.0 [%]	<b>Factory setting</b> 150.0 [%]
<b>Description:</b>	<p>The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.</p> <p>This parameter specifies the x coordinate (magnetizing current) for the 3rd value pair of the characteristic.</p> <p>Sets the third magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).</p>		
<b>Dependency:</b>	<p>The following applies for the magnetizing currents:</p> <p>p0366 &lt; p0367 &lt; p0368 &lt; p0369</p> <p>Refer to: p0364</p>		
<b>Note:</b>	<p>When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).</p>		
<b>p0369[0...n]</b>	<b>Motor saturation characteristic I_mag 4 / Mot sat. I_mag 4</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5.0 [%]	<b>Max</b> 800.0 [%]	<b>Factory setting</b> 210.0 [%]
<b>Description:</b>	<p>The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.</p> <p>This parameter specifies the x coordinate (magnetizing current) for the 4th value pair of the characteristic.</p> <p>Sets the fourth magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).</p>		
<b>Dependency:</b>	<p>The following applies for the magnetizing currents:</p> <p>p0366 &lt; p0367 &lt; p0368 &lt; p0369</p> <p>Refer to: p0365</p>		
<b>Note:</b>	<p>When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).</p>		

<b>r0370[0...n]</b>	<b>Motor stator resistance, cold / Mot R_stator cold</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the motor stator resistance at an ambient temperature (p0625). The value does not include the cable resistance.		
<b>Dependency:</b>	Refer to: p0625		
<b>r0372[0...n]</b>	<b>Cable resistance / Mot R_cable</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the total cable resistance between power unit and motor, as well as the internal converter resistance.		
<b>Dependency:</b>	Refer to: r0238, p0352		
<b>r0373[0...n]</b>	<b>Motor rated stator resistance / Mot R_stator rated</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the rated motor stator resistance at rated temperature (total of p0625 and p0627).		
<b>Dependency:</b>	Refer to: p0627		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2xx).		
<b>r0374[0...n]</b>	<b>Motor rotor resistance cold / Mot R_r cold</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the motor rotor resistance at an ambient temperature p0625.		
<b>Dependency:</b>	Refer to: p0625		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2xx).		
<b>r0376[0...n]</b>	<b>Rated motor rotor resistance / Mot R_rotor rated</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the rated motor rotor resistance at rated temperature (total of p0625 and p0628).		
<b>Dependency:</b>	Refer to: p0628		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2xx).		

<b>r0377[0...n]</b>	<b>Motor leakage inductance, total / Mot L_leak total</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [mH]
<b>Description:</b>	Displays the stator leakage inductance of the motor including the motor reactor (p0233).		
<b>r0378[0...n]</b>	<b>Motor stator inductance, d axis / Mot L_stator d</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [mH]
<b>Description:</b>	Displays the stator longitudinal inductance of the synchronous motor including the motor reactor (p0233).		
<b>r0382[0...n]</b>	<b>Motor magnetizing inductance transformed / Mot L_magn transf</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [mH]
<b>Description:</b>	Displays the magnetizing inductance of the motor.		
<b>Note:</b>	The parameter is not used for synchronous motors (p0300 = 2xx).		
<b>r0384[0...n]</b>	<b>Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ms]	<b>Max</b> - [ms]	<b>Factory setting</b> - [ms]
<b>Description:</b>	Displays the rotor time constant.		
<b>Note:</b>	The parameter is not used for synchronous motors. The value is calculated from the total of the inductances on the rotor side (p0358, p0360) divided by the rotor resistance (p0354). The temperature adaptation of the rotor resistance for induction motors is not taken into account.		
<b>r0386[0...n]</b>	<b>Motor stator leakage time constant / Mot T_stator leak</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ms]	<b>Max</b> - [ms]	<b>Factory setting</b> - [ms]
<b>Description:</b>	Displays the stator leakage time constant.		
<b>Note:</b>	The value is calculated from the total of all leakage inductances (p0233, p0356, p0358) divided by the total of all motor resistances (p0350, p0352, p0354). The temperature adaptation of the resistances is not taken into account.		

<b>r0395[0...n]</b>		<b>Actual stator resistance / R_stator act</b>		
<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> MDS
<b>Units group:</b> -		<b>Unit selection:</b> -		
<b>Min</b> - [ohm]		<b>Max</b> - [ohm]		<b>Factory setting</b> - [ohm]
<b>Description:</b> Displays the actual stator resistance (phase value). The parameter value also contains the temperature-independent cable resistance.				
<b>Dependency:</b> In the case of induction motors the parameter is also affected by the motor temperature model. Refer to: p0350, p0352, p0620				
<b>Note:</b> In each case, only the stator resistance of the active Motor Data Set is included with the stator temperature of the thermal motor model.				

<b>r0396[0...n]</b>		<b>Actual rotor resistance / R_rotor act</b>		
<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> MDS
<b>Units group:</b> -		<b>Unit selection:</b> -		
<b>Min</b> - [ohm]		<b>Max</b> - [ohm]		<b>Factory setting</b> - [ohm]
<b>Description:</b> Displays the actual rotor resistance (phase value). The parameter is affected by the motor temperature model.				
<b>Dependency:</b> Refer to: p0354, p0620				
<b>Note:</b> In each case, only the rotor resistance of the active Motor Data Set is included with the rotor temperature of the thermal motor model. This parameter is not used for synchronous motors (p0300 = 2xx).				

<b>p0422[0...n]</b>		<b>Absolute encoder linear measuring step resolution / Enc abs meas step</b>		
<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
<b>Can be changed:</b> C(4)		<b>Scaling:</b> -		<b>Data set:</b> EDS
<b>Units group:</b> -		<b>Unit selection:</b> -		
<b>Min</b> 0 [nm]		<b>Max</b> 4294967295 [nm]		<b>Factory setting</b> 100 [nm]
<b>Description:</b> Sets the resolution of the absolute position for a linear absolute encoder.				
<b>Caution:</b> This parameter is automatically pre-set 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.				
<b>Note:</b> The serial protocol of an absolute encoder provides the position with a certain resolution , e.g. 100 nm. This value must be entered here.				

<b>p0490</b>		<b>Meas. probe invert / Probe inv</b>			
<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32	
<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> -	
<b>Units group:</b> -		<b>Unit selection:</b> -			
<b>Min</b> -		<b>Max</b> -		<b>Factory setting</b> 0000 bin	
<b>Description:</b> Setting to invert the digital input signals to connect a measuring probe.					
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	03	DI 3 (T. 8)	Inverted	Not inverted	-

**Dependency:** Refer to: p0580

**Note:** When the measuring probe is inverted, this has no effect on the status displays of the digital inputs (r0721, r0722, r0723).

<b>p0500</b>	<b>Technology application / Tec application</b>		
PM230	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1, 5), T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 3	<b>Max</b> 3	<b>Factory setting</b> 3
<b>Description:</b>	Sets the technology application. The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0340 = 5.		
<b>Value:</b>	3: Pumps and fans, efficiency optimization		
<b>Notice:</b>	If the technological application is set to p0500 = 0 ... 3 during commissioning (p0010 = 1, 5, 30), the operating mode (p1300) is pre-set accordingly.		
<b>Note:</b>	The calculation of parameters dependent on the technology application can be called up as follows: - when exiting quick commissioning using p3900 > 0 - when writing p0340 = 1, 3, 5 For p0500 = 3 and when the calculation is initiated, the following parameters are set: - p1574 = 2 V - p1580 = 100 % (efficiency optimization) - p1750.2 = 1: Encoderless control of the induction motor is effective down to zero frequency. - p1802 = 10 (SVM/FLB with overmodulation and modulation depth reduction over 57 Hz) - p1803 = 115 %		

<b>p0500</b>	<b>Technology application / Tec application</b>		
PM240	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
PM250, PM260	<b>Can be changed:</b> C(1, 5), T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0
<b>Description:</b>	Sets the technology application. The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0340 = 5.		
<b>Value:</b>	0: Standard drive 1: Pumps and fans 2: Sensorless closed-loop control down to f = 0 (passive loads) 3: Pumps and fans, efficiency optimization		
<b>Notice:</b>	If the technological application is set to p0500 = 0 ... 3 during commissioning (p0010 = 1, 5, 30), the operating mode (p1300) is pre-set accordingly.		
<b>Note:</b>	The calculation of parameters dependent on the technology application can be called up as follows: - when exiting quick commissioning using p3900 > 0 - when writing p0340 = 1, 3, 5 For p0500 = 0 and when the calculation is initiated, the following parameters are set: - p1574 = 10 V - p1750.2 = 0 - p1802 = 4 (SVM/FLB without overcontrol) (PM240: p1802 = 0, PM260: p1802 = 2) - p1803 = 106 % (PM260: p1803 = 103 %) For p0500 = 1 and when the calculation is initiated, the following parameters are set: - p1574 = 2 V - p1750.2 = 0 - p1802 = 4 (SVM/FLB without overcontrol) (PM240: p1802 = 0) - p1803 = 106 % (PM260: p1803 = 103 %)		

For p0500 = 2 and when the calculation is initiated, the following parameters are set:

- p1574 = 2 V (for separately-excited synchronous motors: 4 V)
- p1750.2 = 1
- p1802 = 4 (SVM/FLB without overcontrol) (PM240: p1802 = 0)
- p1803 = 106 % (PM260: p1803 = 103 %)

For p0500 = 3 and when the calculation is initiated, the following parameters are set:

- p1574 = 2 V
- p1750.2 = 1
- p1802 = 4 (SVM/FLB without overcontrol) (PM240: p1802 = 0)
- p1803 = 106 % (PM260: p1803 = 103 %)

Re p1750:

The setting of p1750 is only relevant for induction motors.

p1750.2 = 1: Encoderless control of the induction motor is effective down to zero frequency.

This operating mode is possible for passive loads. These include applications where the load does not generate regenerative torque when breaking away and the motor comes to a standstill (zero speed) itself when the pulses are inhibited.

Re p1802 / p1803:

p1802 and p1803 are only changed, in all cases, if a sine-wave output filter (p0230 = 3, 4) has not been selected.

## p0505

### Selecting the system of units / Unit sys select

<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> C(5)	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 1	<b>Max</b> 4	<b>Factory setting</b> 1

#### Description:

Sets the actual system of units.

#### Value:

- 1: SI system of units
- 2: System of units, referred/SI
- 3: US system of units
- 4: System of units, referred/US

#### Dependency:

The parameter cannot be changed when master control is active.

#### Caution:

If a per unit representation is selected and if the reference parameters (e.g. p2000) are subsequently changed, then the physical significance of several control parameters is also adapted at the same time. As a consequence, the control behavior can change (see 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.

## p0573

### Inhibit automatic reference value calculation / Inhibit calc

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0

#### Description:

Setting to inhibit the calculation of reference parameters (e.g. p2000) when automatically calculating the motor and closed-loop control parameters (p0340, p3900).

#### Value:

- 0: No
- 1: Yes

#### Notice:

The inhibit for the reference value calculation is canceled when new motor parameters (e.g. p0305) are entered and only one drive data set exists (p0180 = 1). This is the case during initial commissioning.

Once the motor and control parameters have been calculated (p0340, p3900), the inhibit for the reference value calculation is automatically re-activated.



**Note:** If value = 0:  
The automatic calculation (p0340, p3900) overwrites the reference parameters.  
If value = 1:  
The automatic calculation (p0340, p3900) does not overwrite the reference parameters.

<b>p0580 Measuring probe, input terminal / MT input terminal</b>			
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 23	<b>Factory setting</b> 0
<b>Description:</b>	Sets the input terminal for the measuring probe for speed actual value measurement.		
<b>Value:</b>	0: No meas probe 23: DI 3 (T. 8)		
<b>Dependency:</b>	Refer to: p0581		
<b>Note:</b>	DI: Digital Input		

<b>p0581 Measuring probe, edge / MT edge</b>			
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Sets the edge to evaluate the measuring probe signal for speed actual value measurement. 0: 0/1 edge 1: 1/0 edge		
<b>Dependency:</b>	Refer to: p0580		

<b>p0582 Measuring probe, pulses per revolution / MT pulses per rev</b>			
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 1	<b>Max</b> 12	<b>Factory setting</b> 1
<b>Description:</b>	Sets the number of pulses per revolution (e.g. for disks with holes).		

<b>p0583</b>	<b>Measuring probe, maximum measuring time / MT t_meas max</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0.040 [s]	<b>Max</b> 10.000 [s]	<b>Factory setting</b> 10.000 [s]
<b>Description:</b>	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 is re-started with the next pulse.		
<b>Dependency:</b>	Refer to: r0586		
<b>p0585</b>	<b>Measuring probe gear factor / Probe gear factor</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0.00000	<b>Max</b> 1000.00000	<b>Factory setting</b> 1.00000
<b>Description:</b>	Sets the BERO gear factor. The measured speed is multiplied by the BERO gear factor and is displayed in r0586.		
<b>r0586</b>	<b>CO: Measuring probe, speed actual value / MT n_act</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the speed actual value measured using the BERO.		
<b>Dependency:</b>	Refer to: p0580, p0583		
<b>Note:</b>	For p0580 = 0 (no measuring probe), a value of zero is displayed here.		
<b>r0587</b>	<b>CO: Measuring probe, measuring time measured / MT t_meas measured</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	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**

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

Min	Max	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**

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

Min	Max	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  $\mu$ s.  
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****Technological unit selection / Tech unit select**

<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> C(5)	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	

Min	Max	Factory setting
1	46	1

**Description:**

Selects the units for the parameters of the technology controller.

**Value:**

- 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


## Parameter list

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
33:	K
34:	rpm
35:	parts/min
36:	m/s
37:	ft³/s
38:	ft³/min
39:	BTU/min
40:	BTU/h
41:	mbar
42:	inch wg
43:	ft wg
44:	m wg
45:	% r.h.
46:	g/kg

**Dependency:** Only units of parameters with unit group 9\_1 can be changed over using this parameter.  
Refer to: p0596

<b>p0596</b>	<b>Technological unit reference quantity / Tech unit ref qty</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.01	<b>Max</b> 340.28235E36	<b>Factory setting</b> 1.00
<b>Description:</b>	Sets the reference quantity for the technological units. When changing over using changeover parameter p0595 to absolute units, all of the parameters involved refer to the reference quantity.		
<b>Dependency:</b>	Refer to: p0595		
<b>Notice:</b>	When changing over from one technological unit into another, or when changing the reference parameter, a changeover is not made.		

<b>p0601[0...n]</b>	<b>Motor temperature sensor type / Mot_temp_sens type</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 4	<b>Factory setting</b> 0
<b>Description:</b>	Sets the sensor type for the motor temperature monitoring.		
<b>Value:</b>	0: No sensor 1: PTC alarm & timer		

	2: KTY84
	4: Bimetallic NC contact alarm & timer
<b>Dependency:</b>	The thermal motor model is only calculated for p0612.1 = 1.
<b>Caution:</b>	Re sensor type "KTY84" (p0601 = 2):
	If the motor temperature sensor is not connected but another encoder, then the temperature adaptation of the motor resistances must be switched out (p0620 = 0). Otherwise, in controlled-loop operation, torque errors will occur that will mean that the motor will not be able to be stopped.
<b>Note:</b>	Re sensor type "PTC thermistor" (p0601 = 1):
	Tripping resistance = 1650 Ohm.

<b>p0604[0...n]</b>	<b>Mot_temp_mod 1/KTY alarm threshold / Mod 1/KTY A thresh</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.0 [°C]	<b>Max</b> 240.0 [°C]	<b>Factory setting</b> 130.0 [°C]
<b>Description:</b>	Sets the alarm threshold for monitoring the motor temperature for motor temperature model 1 or KTY. After the alarm threshold is exceeded, alarm A07910 is output and timer (p0606) is started. If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F07011 is output.		
<b>Dependency:</b>	Refer to: p0606, p0612 Refer to: F07011, A07910		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The hysteresis is 2 K. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		

<b>p0605[0...n]</b>	<b>Mot_temp_mod 1/2 threshold / Threshold</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.0 [°C]	<b>Max</b> 240.0 [°C]	<b>Factory setting</b> 145.0 [°C]
<b>Description:</b>	Sets the threshold for monitoring the motor temperature for motor temperature model 1/2. Motor temperature model 1 (p0612.0 = 1): alarm threshold - Alarm A07910 is output after the alarm threshold is exceeded. Motor temperature model 2 (p0612.1 = 1): fault threshold - Fault F07911 is output after the fault threshold is exceeded.		
<b>Dependency:</b>	Refer to: p0606, p0611, p0612 Refer to: F07011, A07012		
<b>Caution:</b>	When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.		
<b>Note:</b>	The hysteresis is 2 K. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		

<b>p0606[0...n]</b>	<b>Mot_temp_mod 2/KTY timer / Mod 2/KTY t_timer</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 600.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	<p>Sets the timer for monitoring the motor temperature for motor temperature model 2 or KTY. This timer is started when the temperature alarm threshold (p0604) is exceeded.</p> <p>If the timer has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F07011 is output.</p> <p>If the temperature fault threshold (p0605) is prematurely exceeded before the timer has expired, then fault F07011 is immediately output.</p>		
<b>Dependency:</b>	<p>Refer to: p0604, p0605</p> <p>Refer to: F07011, A07910</p>		
<b>Note:</b>	<p>With p0606 = 0 s, the timer is de-activated and only the fault threshold is effective.</p> <p>KTY sensor: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded.</p> <p>PTC sensor, bimetallic NC contact: The timer minimum value has no special significance.</p>		
<b>p0607[0...n]</b>	<b>Temperature sensor fault timer / Sensor fault time</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 600.000 [s]	<b>Factory setting</b> 0.100 [s]
<b>Description:</b>	<p>Sets the timer between the output of alarm and fault for a temperature sensor fault.</p> <p>If there is a sensor fault, this timer is started.</p> <p>If the sensor fault is still present after the timer has expired, a corresponding fault is output.</p>		
<b>Notice:</b>	The parameterized time is internally rounded-off to an integer multiple of 48 ms.		
<b>Note:</b>	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.		
<b>p0610[0...n]</b>	<b>Motor overtemperature response / Mot temp response</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(3), T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 2
<b>Description:</b>	Sets the system response when the motor temperature reaches the alarm threshold.		
<b>Value:</b>	<p>0: No response only alarm no reduction of I_max</p> <p>1: Alarm with reduction of I_max and fault</p> <p>2: Alarm and fault no reduction of I_max</p>		
<b>Dependency:</b>	<p>Refer to: p0601, p0604, p0605</p> <p>Refer to: F07011, A07910</p>		
<b>Note:</b>	<p>The I_max reduction is not executed for PTC (p0601 = 1) or bimetallic NC contact (p0601 = 4).</p> <p>The I_max reduction results in a lower output frequency.</p> <p>If value = 0:</p> <p>p0606 is not started, therefore only alarm A07910 is output.</p> <p>If value = 1:</p> <p>PTC: Same as value = 2 because there is no reduction in I_max.</p> <p>KTY84: Alarm A07910 is output, I_max is reduced and p0606 is started. After p0606 has elapsed, fault F0711 is set.</p>		

If value = 2:

Alarm A07910 is output and p0606 is started. After p0606 has elapsed, fault F0711 is set.

<b>p0611[0...n]</b>	<b>I2t motor model thermal time constant / I2t mot_mod T</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T		<b>Scaling:</b> -		<b>Data set:</b> MDS
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b> 0 [s]		<b>Max</b> 20000 [s]		<b>Factory setting</b> 0 [s]
<b>Description:</b>	Sets the winding time constant. The time constant specifies the warm-up time of the cold stator winding when loaded with the motor standstill current up until a temperature rise of 63 % of the continuously permissible winding temperature has been reached.				
<b>Dependency:</b>	This parameter is only used for synchronous motors (p0300 = 2xx). Refer to: r0034, p0612, p0615 Refer to: F07011, A07012, A07910				
<b>Caution:</b>	This parameter is automatically pre-set from the motor database 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.				
<b>Note:</b>	When parameter p0611 is reset to 0, then this switches out the thermal I2t motor model (also refer to p0612). If no temperature sensor is parameterized, then the ambient temperature for the thermal motor model is referred to p0625.				
<b>p0612[0...n]</b>	<b>Mot_temp_mod activation / Mot_temp_mod act</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> p0340 = 1		<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> MDS
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b> -		<b>Max</b> -		<b>Factory setting</b> 0010 bin
<b>Description:</b>	Setting to activate the motor temperature model.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Activating motor temperature model 1 (I2t)	Yes	No	-
	01	Activate motor temperature model 2	Yes	No	-
<b>Dependency:</b>	Refer to: r0034, p0604, p0605, p0606, p0611, p0615, p0625, p0626, p0627, p0628 Refer to: F07011, A07012, A07910				
<b>Note:</b>	Mot_temp_mod: motor temperature model Re bit 00: This bit is only used for permanent-magnet synchronous motors (p0300 = 2xx). It is only possible to activate this motor temperature model (I2t) for a time constant greater than zero (p0611 > 0). Re bit 01: This bit is used to activate/deactivate the motor temperature model for induction motors.				
<b>p0615[0...n]</b>	<b>Mot_temp_mod 1 (I2t) fault threshold / I2t F thresh</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T		<b>Scaling:</b> -		<b>Data set:</b> MDS
	<b>Units group:</b> 21_1		<b>Unit selection:</b> p0505		
	<b>Min</b> 0.0 [°C]		<b>Max</b> 220.0 [°C]		<b>Factory setting</b> 180.0 [°C]
<b>Description:</b>	Sets the fault threshold for monitoring the motor temperature for motor temperature model 1 (I2t). - Fault F07911 is output after the fault threshold is exceeded.				
<b>Dependency:</b>	The parameter is only used for permanent-magnet synchronous motors (p0300 = 2xx). Refer to: r0034, p0611, p0612 Refer to: F07011, A07012				

- Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.
- Note:** The hysteresis is 2 K.

<b>p0620[0...n]</b>	<b>Thermal adaptation, stator and rotor resistance / Mot therm_adapt R</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 1
<b>Description:</b>	Sets the thermal adaptation of the stator/primary section resistance and rotor/secondary section resistance according to r0395 and r0396.		
<b>Value:</b>	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		
<b>Note:</b>	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. If applicable, the rotor temperature for adapting the rotor resistance is calculated from the stator temperature (r0035) as follows: $\theta_{\text{stator\_R}} = (r0628 + r0625) / (r0627 + r0625) * r0035$		
<b>p0621[0...n]</b>	<b>Identification stator resistance after restart / Rst_ident Restart</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(3), T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 0
<b>Description:</b>	Selects the identification of the stator resistance after booting the Control Unit (only for vector control). The identification is used to measure the actual stator resistance and from the ratio of the result of motor data identification (p0350) to the matching ambient temperature (p0625) the actual mean temperature of the stator winding is calculated. The result is used to initialize the thermal motor model. p0621 = 1: Identification of the stator resistance only when the drive is powered up for the first time (pulse enable) after booting the Control Unit. p0621 = 2: Identification of the stator resistance every time the drive is powered up (pulse enable).		
<b>Value:</b>	0: No Rs identification 1: Rs identification after switching-on again 2: Rs identification after switching-on each time		
<b>Dependency:</b>	- perform motor data identification (see p1910) with cold motor. - enter ambient temperature at time of motor data identification in p0625. Refer to: p0622, r0623		
<b>Notice:</b>	The calculated stator temperature can only be compared with the measured value of a temperature sensor (KTY) to a certain extent, as the sensor is usually the warmest point of the stator winding, whereas the measured value of identification reflects the mean value of the stator winding. Furthermore this is a short-time measurement with limited accuracy that is performed during the magnetizing phase of the induction motor.		
<b>Note:</b>	The measurement is carried out: - For induction motors - When vector control is active (see p1300) - If a temperature sensor (KTY) has not been connected - When the motor is at a standstill when switched on		



When a flying restart is performed on a rotating motor, the temperatures of the thermal motor model are set to a third of the overtemperatures. This occurs only once, however, when the CU is booted (e.g. after a power failure). If identification is activated, the magnetizing time is determined via p0622 and not via p0346. Quick magnetizing (p1401.6) is de-energized internally and alarm A07416 is displayed. The speed is enabled after completion of the measurement.

<b>p0622[0...n]</b>	<b>Motor excitation time for Rs_ident after powering up again / t_excit Rs_id</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 20.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the excitation time of the motor for the stator resistance identification after powering up again (restart).		
<b>Dependency:</b>	Refer to: p0621, r0623		
<b>Note:</b>	<p>For p0622 &lt; p0346 the following applies:</p> <p>If identification is activated, the magnetizing time is influenced by p0622. The speed is enabled after measurement is complete, but not before the time in p0346 has elapsed (see r0056 bit 4). The time taken for measurement also depends on the settling time of the measured current.</p> <p>For p0622 &gt;= p0346 the following applies:</p> <p>Parameter p0622 is internally limited to the magnetizing time p0346, so that p0346 represents the maximum possible magnetizing time during identification. The entire measurement period (magnetizing plus measurement settling time plus measuring time) will always be greater than p0346.</p>		
<b>r0623</b>	<b>Stator resistance of Rs identification after powering up again / R_stator Rs-Id</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the identified stator resistance after the Rs identification after powering up again.		
<b>Dependency:</b>	Refer to: p0621, p0622		
<b>p0625[0...n]</b>	<b>Motor ambient temperature / Mot T_ambient</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -40 [°C]	<b>Max</b> 80 [°C]	<b>Factory setting</b> 20 [°C]
<b>Description:</b>	Defines the ambient temperature of the motor for calculating the motor temperature model.		
<b>Note:</b>	<p>The parameters for stator and rotor resistance (p0350, p0354) refer to this temperature.</p> <p>If the thermal I2t motor model is activated for permanent-magnet synchronous motors (refer to p0611), p0625 is included in the model calculation if a temperature sensor is not being used (see p0601).</p>		
<b>p0626[0...n]</b>	<b>Motor overtemperature, stator core / Mot T_over core</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 21_2	<b>Unit selection:</b> p0505	
	<b>Min</b> 20 [K]	<b>Max</b> 200 [K]	<b>Factory setting</b> 50 [K]
<b>Description:</b>	Defines the rated overtemperature of the stator core referred to the ambient temperature.		
<b>Dependency:</b>	<p>For 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.</p> <p>Refer to: p0625</p>		

**Note:** When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

<b>p0627[0...n]</b>	<b>Motor overtemperature, stator winding / Mot T<sub>over</sub> stator</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 21_2	<b>Unit selection:</b> p0505	
	<b>Min</b> 20 [K]	<b>Max</b> 200 [K]	<b>Factory setting</b> 80 [K]
<b>Description:</b>	Defines the rated overtemperature of the stator winding referred to the ambient temperature.		
<b>Dependency:</b>	For 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		
<b>Note:</b>	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
<b>p0628[0...n]</b>	<b>Motor overtemperature rotor winding / Mot T<sub>over</sub> rotor</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,2	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> 21_2	<b>Unit selection:</b> p0505	
	<b>Min</b> 20 [K]	<b>Max</b> 200 [K]	<b>Factory setting</b> 100 [K]
<b>Description:</b>	Defines the rated overtemperature of the squirrel cage rotor referred to ambient temperature.		
<b>Dependency:</b>	For 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		
<b>Note:</b>	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
<b>r0630[0...n]</b>	<b>Mot_temp_mod ambient temperature / Mod T<sub>ambient</sub></b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2006	<b>Data set:</b> MDS
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [°C]	<b>Max</b> - [°C]	<b>Factory setting</b> - [°C]
<b>Description:</b>	Displays the ambient temperature of the motor temperature model.		
<b>r0631[0...n]</b>	<b>Mot_temp_mod stator iron temperature / Mod T<sub>stator</sub></b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2006	<b>Data set:</b> MDS
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [°C]	<b>Max</b> - [°C]	<b>Factory setting</b> - [°C]
<b>Description:</b>	Displays the stator core temperature of the motor temperature model.		
<b>r0632[0...n]</b>	<b>Mot_temp_mod stator winding temperature / Mod T<sub>winding</sub></b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2006	<b>Data set:</b> MDS
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [°C]	<b>Max</b> - [°C]	<b>Factory setting</b> - [°C]
<b>Description:</b>	Displays the stator winding temperature of the motor temperature model.		

<b>r0633[0...n]</b>	<b>Mot_temp_mod rotor temperature / Mod T_rotor</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2006	<b>Data set:</b> MDS
	<b>Units group:</b> 21_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [°C]	<b>Max</b> - [°C]	<b>Factory setting</b> - [°C]
<b>Description:</b>	Displays the rotor temperature of the motor temperature model.		
<b>Note:</b>	For motor temperature model 3 (p0612.2 = 1), this parameter is not valid:		
<b>p0634[0...n]</b>	<b>Q flux flux constant unsaturated / PSIQ KPSI UNSAT</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [Vs rms]	<b>Max</b> 100.000 [Vs rms]	<b>Factory setting</b> 0.000 [Vs rms]
<b>Description:</b>	The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients. The parameter weights the unsaturated component of the quadrature axis flux function.		
<b>p0635[0...n]</b>	<b>Q flux quadrature axis current constant unsaturated / PSIQ KIQ UNSAT</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients. This parameter describes the interdependency of the unsaturated component of the quadrature axis current.		
<b>Dependency:</b>	Refer to: p0634		
<b>p0636[0...n]</b>	<b>Q flux direct axis current constant unsaturated / PSIQ KID UNSAT</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients. This parameter describes the interdependency of the unsaturated component of the direct axis current.		
<b>Dependency:</b>	Refer to: p0634		
<b>p0637[0...n]</b>	<b>Q flux flux gradient saturated / PSIQ Grad SAT</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(3), U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [mH]	<b>Max</b> 10000.00 [mH]	<b>Factory setting</b> 0.00 [mH]
<b>Description:</b>	The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients. This parameter describes the gradients of the saturated component over the quadrature axis current.		
<b>Dependency:</b>	Refer to: p0634, p0635, p0636		

<b>p0640[0...n]</b>	<b>Current limit / Current limit</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3), U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	Sets the current limit.		
<b>Dependency:</b>	Refer to: r0209, p0323		
<b>Note:</b>	<p>The parameter is part of the quick commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0305. The current limit p0640 is limited to r0209.</p> <p>The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the power unit.</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 &gt; 0 or using the automatic parameterization with p0340 = 3, 5. p0640 is limited to 4.0 x p0305.</p> <p>p0640 is pre-assigned for the automatic self commissioning routine (e.g. to 1.5 x p0305, with p0305 = r0207[1]). p0640 must be entered when commissioning the system. This is the reason that p0640 is not calculated by the automatic parameterization when exiting the quick commissioning (p3900 &gt; 0).</p>		
<b>p0641[0...n]</b>	<b>CI: Current limit, variable / Curr lim var</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	<p>Sets the signal source for the variable current limit.</p> <p>The value is referred to p0640.</p>		
<b>p0650[0...n]</b>	<b>Actual motor operating hours / Mot t_oper act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [h]	<b>Max</b> 4294967295 [h]	<b>Factory setting</b> 0 [h]
<b>Description:</b>	<p>Displays the operating hours for the corresponding motor.</p> <p>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.</p>		
<b>Dependency:</b>	<p>Refer to: p0651</p> <p>Refer to: A01590</p>		
<b>Note:</b>	<p>The operating hours counter in p0650 can only be reset to 0.</p> <p>The operating hours counter only runs with drive data set 0 and 1 (DDS).</p>		
<b>p0651[0...n]</b>	<b>Motor operating hours maintenance interval / Mot t_op maint</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [h]	<b>Max</b> 150000 [h]	<b>Factory setting</b> 0 [h]
<b>Description:</b>	<p>Sets the service/maintenance intervals in hours for the appropriate motor.</p> <p>An appropriate fault is output when the operating hours set here are reached.</p>		

**Dependency:** Refer to: p0650  
Refer to: A01590

**Note:** For p0651 = 0, the operating hours counter is disabled.  
When setting p0651 to 0, then p0650 is automatically set to 0.  
The operating hours counter only runs with drive data set 0 and 1 (DDS).

<b>r0720[0...4]</b>	<b>CU number of inputs and outputs / CU I/O count</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the number of inputs and outputs

**Index:** [0] = Number of digital inputs  
[1] = Number of digital outputs  
[2] = Number of digital input/outputs bidirectional  
[3] = Number of analog inputs  
[4] = Number of analog outputs

<b>r0721</b>	<b>CU digital inputs, terminal actual value / CU DI actual value</b>		
CU240B-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240B-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**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).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-
	11	DI 11 (T. 3, 4) AI 0	High	Low	-

**Note:** DI: Digital Input  
T: Terminal

<b>r0721</b>	<b>CU digital inputs, terminal actual value / CU DI actual value</b>		
CU240E-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**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).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-

## Parameter list

04	DI 4 (T. 16)	High	Low	-
05	DI 5 (T. 17)	High	Low	-
11	DI 11 (T. 3, 4) AI 0	High	Low	-
12	DI 12 (T. 10, 11) AI 1	High	Low	-

**Note:** DI: Digital Input  
T: Terminal

**r0722.0...11 CO/BO: CU digital inputs, status / CU DI status**

CU240B-2 **Access level:** 2 **Calculated:** - **Data type:** Unsigned32  
CU240B-2\_DP **Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

**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 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-
	11	DI 11 (T. 3, 4) AI 0	High	Low	-

**Dependency:** Refer to: r0723

**Note:** AI: Analog Input  
DI: Digital Input  
T: Terminal

**r0722.0...12 CO/BO: CU digital inputs, status / CU DI status**

CU240E-2 **Access level:** 2 **Calculated:** - **Data type:** Unsigned32  
CU240E-2\_DP **Can be changed:** - **Scaling:** - **Data set:** -  
CU240E-2\_DP\_F **Units group:** - **Unit selection:** -  
CU240E-2\_F  
CU240E-2\_PN\_F  
CU240E-2 PN

**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 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-
	04	DI 4 (T. 16)	High	Low	-
	05	DI 5 (T. 17)	High	Low	-
	11	DI 11 (T. 3, 4) AI 0	High	Low	-
	12	DI 12 (T. 10, 11) AI 1	High	Low	-

**Dependency:** Refer to: r0723

**Note:** AI: Analog Input  
DI: Digital Input  
T: Terminal

<b>r0723.0...11</b>	<b>CO/BO: CU digital inputs, status inverted / CU DI status inv</b>				
CU240B-2	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
CU240B-2_DP	<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		-
<b>Description:</b>	Displays the inverted status of the digital inputs.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	DI 0 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-
	11	DI 11 (T. 3, 4) AI 0	High	Low	-
<b>Dependency:</b>	Refer to: r0722				
<b>Note:</b>	DI: Digital Input T: Terminal				

<b>r0723.0...12</b>	<b>CO/BO: CU digital inputs, status inverted / CU DI status inv</b>				
CU240E-2	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -		<b>Unit selection:</b> -		
CU240E-2_F					
CU240E-2_PN_F					
CU240E-2 PN					
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		-
<b>Description:</b>	Displays the inverted status of the digital inputs.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	DI 0 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-
	04	DI 4 (T. 16)	High	Low	-
	05	DI 5 (T. 17)	High	Low	-
	11	DI 11 (T. 3, 4) AI 0	High	Low	-
	12	DI 12 (T. 10, 11) AI 1	High	Low	-
<b>Dependency:</b>	Refer to: r0722				
<b>Note:</b>	DI: Digital Input T: Terminal				

<b>p0724</b>	<b>CU digital inputs debounce time / CU DI t_debounce</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	0.000 [ms]		20.000 [ms]		4.000 [ms]
<b>Description:</b>	Sets the debounce time for digital inputs.				
<b>Note:</b>	The digital inputs are read in cyclically every 2 ms (DI 11, DI 12 every 4 ms). To debounce the signals, the set debounce time is converted into integer multiple debounce clock cycles Tp (Tp = p0724 / 2 ms). DI: Digital Input				

<b>p0730</b>	<b>BI: CU signal source for terminal DO 0 / CU S_src DO 0</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	52.3
<b>Description:</b>	Sets the signal source for terminal DO 0 (NO: T. 19 / NC: T. 18).		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	DO: Digital Output T: Terminal Relay output: NO = normally open, NC = normally closed		

<b>p0731</b>	<b>BI: CU signal source for terminal DO 1 / CU S_src DO 1</b>		
CU240E-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	52.7
<b>Description:</b>	Sets the signal source for terminal DO 1 (NO: T. 21).		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	DO: Digital Output T: Terminal Relay output: NO = normally open, NC = normally closed		

<b>p0732</b>	<b>BI: CU signal source for terminal DO 2 / CU S_src DO 2</b>		
CU240E-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	52.2
<b>Description:</b>	Sets the signal source for terminal DO 2 (NO: T. 24 / NC: T. 23).		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	DO: Digital Output T: Terminal Relay output: NO = normally open, NC = normally closed		

<b>r0747</b>	<b>CU, digital outputs status / CU DO status</b>				
CU240B-2	<b>Access level:</b> 3		<b>Calculated:</b> -	<b>Data type:</b> Unsigned32	
CU240B-2_DP	<b>Can be changed:</b> -		<b>Scaling:</b> -	<b>Data set:</b> -	
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>	<b>Factory setting</b>	
	-		-	-	
<b>Description:</b>	Displays the status of digital outputs.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	DO 0 (NO: T. 19 / NC: T. 18)	High	Low	-



**Note:** DO: Digital Output  
T: Terminal  
Relay output: NO = normally open, NC = normally closed  
Inversion using p0748 has been taken into account.

### r0747 CU, digital outputs status / CU DO status

CU240E-2 **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
CU240E-2\_DP **Can be changed:** - **Scaling:** - **Data set:** -  
CU240E-2\_DP\_F **Units group:** - **Unit selection:** -  
CU240E-2\_F  
CU240E-2\_PN\_F  
CU240E-2 PN

Min	Max	Factory setting
-	-	-

**Description:** Displays the status of digital outputs.

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (NO: T. 19 / NC: T. 18)	High	Low	-
01	DO 1 (NO: T. 21)	High	Low	-
02	DO 2 (NO: T. 24 / NC: T. 23)	High	Low	-

**Note:** DO: Digital Output  
T: Terminal  
Relay output: NO = normally open, NC = normally closed  
Inversion using p0748 has been taken into account.

### p0748 CU, invert digital outputs / CU DO inv

CU240B-2 **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
CU240B-2\_DP **Can be changed:** U, T **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

Min	Max	Factory setting
-	-	0000 bin

**Description:** Setting to invert the signals at the digital outputs.

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (NO: T. 19 / NC: T. 18)	Inverted	Not inverted	-

**Note:** DO: Digital Output  
T: Terminal  
Relay output: NO = normally open, NC = normally closed

### p0748 CU, invert digital outputs / CU DO inv

CU240E-2 **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
CU240E-2\_DP **Can be changed:** U, T **Scaling:** - **Data set:** -  
CU240E-2\_DP\_F **Units group:** - **Unit selection:** -  
CU240E-2\_F  
CU240E-2\_PN\_F  
CU240E-2 PN

Min	Max	Factory setting
-	-	0000 bin

**Description:** Setting to invert the signals at the digital outputs.

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (NO: T. 19 / NC: T. 18)	Inverted	Not inverted	-
01	DO 1 (NO: T. 21)	Inverted	Not inverted	-
02	DO 2 (NO: T. 24 / NC: T. 23)	Inverted	Not inverted	-

**Note:** DO: Digital Output  
T: Terminal  
Relay output: NO = normally open, NC = normally closed

**r0751.0...9 BO: CU analog inputs status word / CU AI status word**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the status of analog inputs.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Analog input AI0 wire breakage	Yes	No	-
	01	Analog input AI1 wire breakage	Yes	No	-
	08	Analog input AI0 no wire breakage	Yes	No	-
	09	Analog input AI1 no wire breakage	Yes	No	-

**Note:** AI: Analog Input

**r0752[0...1] CO: CU analog inputs input voltage/current actual / CU AI U/I\_inp act**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**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] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Dependency:** The type of analog input AIx (voltage or current input) is set using p0756.  
Refer to: p0756

**Note:** AI: Analog Input  
T: Terminal


**p0753[0...1] CU analog inputs smoothing time constant / CU AI T\_smooth**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0.0 [ms]	1000.0 [ms]	0.0 [ms]

**Description:** Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs.

**Index:** [0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Note:** AI: Analog Input  
T: Terminal

<b>r0755[0...1]</b>	<b>CO: CU analog inputs actual value in percent / CU AI value in %</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the currently referred input value of the analog inputs. When interconnected, the signals are referred to the reference quantities p200x and p205x.		
<b>Index:</b>	[0] = AI0 (T. 3/4) [1] = AI1 (T. 10/11)		
<b>Note:</b>	AI: Analog Input T: Terminal		
<b>p0756[0...1]</b>	<b>CU analog inputs type / CU AI type</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 8	<b>Factory setting</b> [0] 4 [1] 4
<b>Description:</b>	Sets the type of analog inputs. p0756[0...1] = 0, 1, 4 corresponds to a voltage input (r0752, p0757, p0759 are displayed in V). p0756[0...1] = 2, 3 corresponds to a current input (r0752, p0757, p0759 are displayed in mA). In addition, the associated DIP switch must be set. For the voltage input, DIP switch AI0/1 must be set to "U". For the current input, DIP switch AI0/1 or AI2 must be set to "I".		
<b>Value:</b>	0: Unipolar voltage input (0 V ... +10 V) 1: Unipolar voltage input monitored (+2 V ... +10 V) 2: Unipolar current input (0 mA ... +20 mA) 3: Unipolar current input monitored (+4 mA to +20 mA) 4: Bipolar voltage input (-10 V ... +10 V) 8: No sensor connected		
<b>Index:</b>	[0] = AI0 (T. 3/4) [1] = AI1 (T. 10/11)		
<b>Warning:</b>	The maximum voltage difference between analog input terminals AI+, AI-, and the ground must not exceed 35 V. If the system is operated when the load resistor is switched on (DIP switch set to "I"), the voltage between differential inputs AI+ and AI- must not exceed 10 V or the injected 80 mA current otherwise the input will be damaged.		
			
<b>Note:</b>	When changing p0756, the parameters of the scaling characteristic (p0757, p0758, p0759, p0760) are overwritten with the following default values: For p0756 = 0, 1, 4, p0757 is set to 0.0 V, p0758 = 0.0 %, p0759 = 10.0 V and p0760 = 100.0 %. For p0756 = 2, p0757 is set to 0.0 mA, p0758 = 0.0 %, p0759 = 20.0 mA and p0760 = 100.0 %. For p0756 = 3, p0757 is set to 4.0 mA, p0758 = 0.0 %, p0759 = 20.0 mA and p0760 = 100.0 %.		
<b>p0757[0...1]</b>	<b>CU analog inputs characteristic value x1 / CU AI char x1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -50.000	<b>Max</b> 160.000	<b>Factory setting</b> 0.000
<b>Description:</b>	Sets the scaling characteristic for the analog inputs. The scaling characteristic for the analog inputs is defined using 2 points. This parameter specifies the x coordinate (V, mA) of the 1st value pair of the characteristic.		

**Index:** [0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Note:** The parameters for the characteristic do not have a limiting effect.

---

**p0758[0...1] CU analog inputs characteristic value y1 / CU AI char y1**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -1000.00 [%]	<b>Max</b> 1000.00 [%]	<b>Factory setting</b> 0.00 [%]

**Description:** Sets the scaling characteristic for the analog inputs.  
The scaling characteristic for the analog inputs is defined using 2 points.  
This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.

**Index:** [0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Note:** The parameters for the characteristic do not have a limiting effect.

---

**p0759[0...1] CU analog inputs characteristic value x2 / CU AI char x2**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -50.000	<b>Max</b> 160.000	<b>Factory setting</b> 10.000

**Description:** Sets the scaling characteristic for the analog inputs.  
The scaling characteristic for the analog inputs is defined using 2 points.  
This parameter specifies the x coordinate (V, mA) of the 2nd value pair of the characteristic.

**Index:** [0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Note:** The parameters for the characteristic do not have a limiting effect.

---

**p0760[0...1] CU analog inputs characteristic value y2 / CU AI char y2**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -1000.00 [%]	<b>Max</b> 1000.00 [%]	<b>Factory setting</b> 100.00 [%]

**Description:** Sets the scaling characteristic for the analog inputs.  
The scaling characteristic for the analog inputs is defined using 2 points.  
This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.

**Index:** [0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Note:** The parameters for the characteristic do not have a limiting effect.

---

**p0761[0...1] CU analog inputs wire breakage monitoring response threshold / CU WireBrkThresh**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.00	<b>Max</b> 20.00	<b>Factory setting</b> 2.00

**Description:** Sets the response threshold for the wire breakage monitoring of the analog inputs.  
The unit for the parameter value depends on the set analog input type.

**Index:** [0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Dependency:** For the following analog input type, the wire breakage monitoring is active:  
p0756[0...1] = 1 (unipolar voltage input monitored (+2 V ... +10 V)), unit [V]  
p0756[0...1] = 3 (unipolar current input monitored (+4 mA ... +20 mA)), unit [mA]  
Refer to: p0756

**Note:** AI: Analog Input  
When p0761 = 0, wire breakage monitoring is not carried out.

---

**p0762[0...1] CU analog inputs wire breakage monitoring delay time / CU wire brk t\_del**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0 [ms]	<b>Max</b> 1000 [ms]	<b>Factory setting</b> 100 [ms]

**Description:** Sets the delay time for the wire breakage monitoring of the analog inputs.

**Index:** [0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

**Note:** AI: Analog Input

---

**p0771[0...1] CI: CU analog outputs signal source / CU AO S\_src**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> [0] 21[0] [1] 27[0]

**Description:** Sets the signal source for the analog outputs.

**Index:** [0] = AO0 (T 12/13)  
[1] = AO1 (T 26/27)

**Note:** AO: Analog Output  
T: Terminal

---

**r0772[0...1] CU analog outputs, output value currently referred / CU AO outp\_val**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]

**Description:** Displays the actual referred output value of the analog outputs.

**Index:** [0] = AO0 (T 12/13)  
[1] = AO1 (T 26/27)

**Note:** AO: Analog Output  
T: Terminal

---

**p0773[0...1] CU analog outputs smoothing time constant / CU AO T\_smooth**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.0 [ms]	<b>Max</b> 1000.0 [ms]	<b>Factory setting</b> 0.0 [ms]

**Description:** Sets the smoothing time constant of the 1st-order low pass filter for the analog outputs.

**Index:** [0] = AO0 (T 12/13)  
[1] = AO1 (T 26/27)

**Note:** AO: Analog Output  
T: Terminal

---

<b>r0774[0...1]</b>	<b>CU analog outputs output voltage/current actual / CU AO U/I_outp</b>		
<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32	
<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Displays the actual output voltage or output current at the analog outputs.

**Index:** [0] = AO0 (T 12/13)  
[1] = AO1 (T 26/27)

**Dependency:** Refer to: p0776

**Note:** AO: Analog Output  
T: Terminal

---

<b>p0775[0...1]</b>	<b>CU analog outputs activate absolute value generation / CU AO absVal act</b>		
<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16	
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
0	1	0	

**Description:** Activates the absolute value generation for the analog outputs.

**Value:** 0: No absolute value generation  
1: Absolute value generation switched in

**Index:** [0] = AO0 (T 12/13)  
[1] = AO1 (T 26/27)

**Note:** AO: Analog Output  
T: Terminal

---

<b>p0776[0...1]</b>	<b>CU analog outputs type / CU AO type</b>		
<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16	
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
0	2	0	

**Description:** Sets the analog output type.

p0776[x] = 1 corresponds to a voltage output (p0774, p0778, p0780 are displayed in V).

p0776[x] = 0, 2 corresponds to a current output (p0774, p0778, p0780 are displayed in mA).

**Value:** 0: Current output (0 mA ... +20 mA)  
1: Voltage output (0 V ... +10 V)  
2: Current output (+4 mA ... +20 mA)

**Index:** [0] = AO0 (T 12/13)  
[1] = AO1 (T 26/27)

**Note:** When changing p0776, the parameters of the scaling characteristic (p0777, p0778, p0779, p0780) are overwritten with the following default values:

For p0776 = 0, p0777 is set to 0.0 %, p0778 = 0.0 mA, p0779 = 100.0 % and p0780 to 20.0 mA.

For p0776 = 1, p0777 is set to 0.0 %, p0778 = 0.0 V, p0779 = 100.0 % and p0780 to 10.0 V.

For p0776 = 2, p0777 is set to 0.0 %, p0778 = 4.0 mA, p0779 = 100.0 % and p0780 to 20.0 mA.

<b>p0777[0...1]</b>	<b>CU analog outputs characteristic value x1 / CU AO char x1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -1000.00 [%]	<b>Max</b> 1000.00 [%]	<b>Factory setting</b> 0.00 [%]
<b>Description:</b>	Sets the scaling characteristic for the analog outputs. The scaling 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.		
<b>Index:</b>	[0] = AO0 (T 12/13) [1] = AO1 (T 26/27)		
<b>Dependency:</b>	Refer to: p0776		
<b>Notice:</b>	This parameter is automatically overwritten when changing p0776 (type of analog outputs).		
<b>Note:</b>	The parameters for the characteristic do not have a limiting effect.		
<b>p0778[0...1]</b>	<b>CU analog outputs characteristic value y1 / CU char y1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -20.000 [V]	<b>Max</b> 20.000 [V]	<b>Factory setting</b> 0.000 [V]
<b>Description:</b>	Sets the scaling characteristic for the analog outputs. The scaling 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.		
<b>Index:</b>	[0] = AO0 (T 12/13) [1] = AO1 (T 26/27)		
<b>Dependency:</b>	The unit of this parameter (V or mA) depends on the analog output type. Refer to: p0776		
<b>Notice:</b>	This parameter is automatically overwritten when changing p0776 (type of analog outputs).		
<b>Note:</b>	The parameters for the characteristic do not have a limiting effect.		
<b>p0779[0...1]</b>	<b>CU analog outputs characteristic value x2 / CU char x2</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -1000.00 [%]	<b>Max</b> 1000.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the scaling characteristic for the analog outputs. The scaling 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.		
<b>Index:</b>	[0] = AO0 (T 12/13) [1] = AO1 (T 26/27)		
<b>Dependency:</b>	Refer to: p0776		
<b>Notice:</b>	This parameter is automatically overwritten when changing p0776 (type of analog outputs).		
<b>Note:</b>	The parameters for the characteristic do not have a limiting effect.		

<b>p0780[0...1]</b>	<b>CU analog outputs characteristic value y2 / CU char y2</b>				
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32		
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -20.000 [V]	<b>Max</b> 20.000 [V]	<b>Factory setting</b> 20.000 [V]		
<b>Description:</b>	Sets the scaling characteristic for the analog outputs. The scaling 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.				
<b>Index:</b>	[0] = AO0 (T 12/13) [1] = AO1 (T 26/27)				
<b>Dependency:</b>	The unit of this parameter (V or mA) depends on the analog output type. Refer to: p0776				
<b>Notice:</b>	This parameter is automatically overwritten when changing p0776 (type of analog outputs).				
<b>Note:</b>	The parameters for the characteristic do not have a limiting effect.				
<b>p0782[0...1]</b>	<b>BI: CU analog outputs invert signal source / CU AO inv S_src</b>				
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary		
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0		
<b>Description:</b>	Sets the signal source to invert the analog output signals.				
<b>Index:</b>	[0] = AO0 (T 12/13) [1] = AO1 (T 26/27)				
<b>Note:</b>	AO: Analog Output T: Terminal				
<b>r0785.0...1</b>	<b>BO: CU analog outputs status word / CU AO ZSW</b>				
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16		
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -		
<b>Description:</b>	Displays the status of analog outputs.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	AO 0 negative	Yes	No	-
	01	AO 1 negative	Yes	No	-
<b>Note:</b>	AO: Analog Output				
<b>p0795</b>	<b>CU digital inputs simulation mode / CU DI simulation</b>				
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
CU240B-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0000 0000 0000 0000 bin		
<b>Description:</b>	Sets the simulation mode for digital inputs.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	DI 0 (T. 5)	Simulation	Terminal eval	-
	01	DI 1 (T. 6)	Simulation	Terminal eval	-



02	DI 2 (T. 7)	Simulation	Terminal eval	-
03	DI 3 (T. 8)	Simulation	Terminal eval	-
11	DI 11 (T. 3, 4) AI 0	Simulation	Terminal eval	-

**Dependency:** The setpoint for the input signals is specified using p0796.  
Refer to: p0796

**Note:** This parameter is not saved when data is backed up (p0971).  
DI: Digital Input  
T: Terminal

### p0795 CU digital inputs simulation mode / CU DI simulation

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

Min	Max	Factory setting
-	-	0000 0000 0000 0000 bin

**Description:** Sets the simulation mode for digital inputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (T. 5)	Simulation	Terminal eval	-
	01	DI 1 (T. 6)	Simulation	Terminal eval	-
	02	DI 2 (T. 7)	Simulation	Terminal eval	-
	03	DI 3 (T. 8)	Simulation	Terminal eval	-
	04	DI 4 (T. 16)	Simulation	Terminal eval	-
	05	DI 5 (T. 17)	Simulation	Terminal eval	-
	11	DI 11 (T. 3, 4) AI 0	Simulation	Terminal eval	-
	12	DI 12 (T. 10, 11) AI 1	Simulation	Terminal eval	-

**Dependency:** The setpoint for the input signals is specified using p0796.  
Refer to: p0796

**Note:** This parameter is not saved when data is backed up (p0971).  
DI: Digital Input  
T: Terminal

### p0796 CU digital inputs simulation mode setpoint / CU DI simul setp

CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240B-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

Min	Max	Factory setting
-	-	0000 0000 0000 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 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-
	11	DI 11 (T. 3, 4) AI 0	High	Low	-

**Dependency:** The simulation of a digital input is selected using p0795.  
Refer to: p0795

**Note:** This parameter is not saved when data is backed up (p0971).  
AI: Analog Input  
DI: Digital Input  
T: Terminal

p0796 CU digital inputs simulation mode setpoint / CU DI simul setp					
CU240E-2	Access level: 3		Calculated: -	Data type: Unsigned32	
CU240E-2_DP	Can be changed: U, T		Scaling: -	Data set: -	
CU240E-2_DP_F	Units group: -		Unit selection: -		
CU240E-2_F					
CU240E-2_PN_F					
CU240E-2 PN					
	Min		Max	Factory setting	
	-		-	0000 0000 0000 0000 bin	
<b>Description:</b> Sets the setpoint for the input signals in the digital input simulation mode.					
<b>Bit field:</b>	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (T. 5)	High	Low	-
	01	DI 1 (T. 6)	High	Low	-
	02	DI 2 (T. 7)	High	Low	-
	03	DI 3 (T. 8)	High	Low	-
	04	DI 4 (T. 16)	High	Low	-
	05	DI 5 (T. 17)	High	Low	-
	11	DI 11 (T. 3, 4) AI 0	High	Low	-
	12	DI 12 (T. 10, 11) AI 1	High	Low	-
<b>Dependency:</b> The simulation of a digital input is selected using p0795. Refer to: p0795					
<b>Note:</b> This parameter is not saved when data is backed up (p0971). AI: Analog Input DI: Digital Input T: Terminal					

<b>p0797[0...1] CU analog inputs simulation mode / CU AI sim_mode</b>			
	<b>Access level:</b> 3		<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	1	0
<b>Description:</b>	Sets the simulation mode for the analog inputs.		
<b>Value:</b>	0: Terminal evaluation for analog input x 1: Simulation for analog input x		
<b>Index:</b>	[0] = AI0 (T. 3/4) [1] = AI1 (T. 10/11)		
<b>Dependency:</b>	The setpoint for the input voltage is specified via p0798. Refer to: p0798		
<b>Note:</b>	This parameter is not saved when data is backed up (p0971). AI: Analog Input		

<b>p0798[0...1] CU analog inputs simulation mode setpoint / CU AI sim setp</b>			
	<b>Access level:</b> 3		<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-50.000	2000.000	0.000
<b>Description:</b>	Sets the setpoint for the input value in the simulation mode of the analog inputs.		
<b>Index:</b>	[0] = AI0 (T. 3/4) [1] = AI1 (T. 10/11)		

**Dependency:** The simulation of an analog input is selected using p0797.  
 If AI x is parameterized as a voltage input (p0756), the setpoint is a voltage in V.  
 If AI x is parameterized as a current input (p0756), the setpoint is a current in mA.  
 Refer to: p0756, p0797

**Note:** This parameter is not saved when data is backed up (p0971).  
 AI: Analog Input

<b>p0802</b>	<b>Data transfer: memory card as source/target / mem_card src/targ</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 100	<b>Factory setting</b> 0
<b>Description:</b>	Sets the number for data transfer of a parameter backup from/to memory card. Transfer from memory card to device memory (p0804 = 1): - Sets the source of parameter backup (e.g. p0802 = 48 --> PS048xxx.ACX is the source). Transfer from non-volatile device memory to memory card (p0804 = 2): - Sets the target of parameter backup (e.g. p0802 = 23 --> PS023xxx.ACX is the target).		
<b>Dependency:</b>	Refer to: p0803, p0804		
<b>Notice:</b>	If the data between the volatile and non-volatile device memories differ, then it may be necessary to save the data on the memory card in a non-volatile fashion prior to the transfer (e.g. p0971 = 1).		
<b>p0803</b>	<b>Data transfer: device memory as source/target / Dev_mem src/targ</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 12	<b>Factory setting</b> 0
<b>Description:</b>	Sets the number for data transfer of a parameter backup from/to device memory. Transfer from memory card to device memory (p0804 = 1): - Sets the target of the parameter backup (e.g. p0803 = 10 --> PS010xxx.ACX is the target). Transfer from non-volatile device memory to memory card (p0804 = 2): - Sets the source of the parameter backup (e.g. p0803 = 11 --> PS011xxx.ACX is the source).		
<b>Value:</b>	0: Source/target standard 10: Source/target with setting 10 11: Source/target with setting 11 12: Source/target with setting 12		
<b>Dependency:</b>	Refer to: p0802, p0804		
<b>Notice:</b>	If the data between the volatile and non-volatile device memories differ, then it may be necessary to save the data on the memory card in a non-volatile fashion prior to the transfer (e.g. p0971 = 1).		

<b>p0804</b>	<b>Data transfer start / Data transf start</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 1100	<b>Factory setting</b> 0
<b>Description:</b>	Sets the transfer direction and start of data transfer between the memory card and non-volatile device memory.		

## Example 1:

The parameter backup is to be transferred from the device memory to the memory card with setting 0. The parameter backup is to be stored on the memory card with setting 22.

p0802 = 22 (parameter backup stored on memory card as target with setting 22)

p0803 = 0 (parameter backup stored in device memory as source with setting 0)

p0804 = 2 (start data transfer from device memory to memory card)

--> PS000xxx.ACX is transferred from device memory to memory card and stored as PS022xxx.ACX.

## Example 2:

The parameter backup is to be transferred from the memory card to the device memory with setting 22. The parameter backup is to be stored in the device memory as setting 0.

p0802 = 22 (parameter backup stored on memory card as source with setting 22)

p0803 = 0 (parameter backup stored in device memory as target with setting 0)

p0804 = 1 (start data transfer from memory card to device memory)

--> PS022xxx.ACX is transferred from memory card to device memory and stored as PS000xxx.ACX.

## Example 3 (only supported for PROFIBUS/PROFINET):

The PROFIBUS or PROFINET device master data (GSD) should be transferred from the device memory to the memory card.

p0802 = (not relevant)

p0803 = (not relevant)

p0804 = 12 (start transferring the GSD files to the memory card)

--> The GSD files are transferred from the device memory to the memory card and stored in the /SIEMENS/SINAMICS/DATA/CFG directory.

**Value:**

0: Inactive  
 1: Memory card to device memory  
 2: Device memory to memory card  
 12: Device memory (GSD files) to memory card  
 1001: File on memory card cannot be opened  
 1002: File in device memory cannot be opened  
 1003: Memory card not found  
 1100: File cannot be transferred

**Dependency:**

Refer to: p0802, p0803

**Notice:**

The memory card must not be removed while data is being transferred.

For p0014 = 1, the following applies:

After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

**Note:**

If a parameter backup with setting 0 is detected on the memory card when the Control Unit is switched on (PS000xxx.ACX), this is transferred automatically to the device memory.

When the memory card is inserted, a parameter backup with setting 0 (PS000xxx.ACX) is automatically written to the memory card when the parameters are saved in a non-volatile memory (e.g. by means of "Copy RAM to ROM").

Once the data has been successfully transferred, this parameter is automatically reset to 0. If an error occurs, the parameter is set to a value > 1000. Possible fault causes:

p0804 = 1001:

The parameter backup set in p0802 as the source on the memory card does not exist or there is not sufficient memory space available on the memory card.

p0804 = 1002:

The parameter backup set in p0803 as the source in the device memory does not exist or there is not sufficient memory space available in the device memory.

p0804 = 1003:

No memory card has been inserted.

<b>p0804 Data transfer start / Data transf start</b>			
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1100	<b>Factory setting</b> 0
<b>Description:</b>	<p>Sets the transfer direction and start of data transfer between the memory card and non-volatile device memory.</p> <p>Example 1:</p> <p>The parameter backup is to be transferred from the device memory to the memory card with setting 0. The parameter backup is to be stored on the memory card with setting 22.</p> <p>p0802 = 22 (parameter backup stored on memory card as target with setting 22)</p> <p>p0803 = 0 (parameter backup stored in device memory as source with setting 0)</p> <p>p0804 = 2 (start data transfer from device memory to memory card)</p> <p>--&gt; PS000xxx.ACX is transferred from device memory to memory card and stored as PS022xxx.ACX.</p> <p>Example 2:</p> <p>The parameter backup is to be transferred from the memory card to the device memory with setting 22. The parameter backup is to be stored in the device memory as setting 0.</p> <p>p0802 = 22 (parameter backup stored on memory card as source with setting 22)</p> <p>p0803 = 0 (parameter backup stored in device memory as target with setting 0)</p> <p>p0804 = 1 (start data transfer from memory card to device memory)</p> <p>--&gt; PS022xxx.ACX is transferred from memory card to device memory and stored as PS000xxx.ACX.</p> <p>Example 3 (only supported for PROFIBUS/PROFINET):</p> <p>The PROFIBUS or PROFINET device master data (GSD) should be transferred from the device memory to the memory card.</p> <p>p0802 = (not relevant)</p> <p>p0803 = (not relevant)</p> <p>p0804 = 12 (start transferring the GSD files to the memory card)</p> <p>--&gt; The GSD files are transferred from the device memory to the memory card and stored in the /SIEMENS/SINAMICS/DATA/CFG directory.</p>		
<b>Value:</b>	<p>0: Inactive</p> <p>1: Memory card to device memory</p> <p>2: Device memory to memory card</p> <p>1001: File on memory card cannot be opened</p> <p>1002: File in device memory cannot be opened</p> <p>1003: Memory card not found</p> <p>1100: File cannot be transferred</p>		
<b>Dependency:</b>	Refer to: p0802, p0803		
<b>Notice:</b>	<p>The memory card must not be removed while data is being transferred.</p> <p>For p0014 = 1, the following applies:</p> <p>After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.</p>		
<b>Note:</b>	<p>If a parameter backup with setting 0 is detected on the memory card when the Control Unit is switched on (PS000xxx.ACX), this is transferred automatically to the device memory.</p> <p>When the memory card is inserted, a parameter backup with setting 0 (PS000xxx.ACX) is automatically written to the memory card when the parameters are saved in a non-volatile memory (e.g. by means of "Copy RAM to ROM").</p> <p>Once the data has been successfully transferred, this parameter is automatically reset to 0. If an error occurs, the parameter is set to a value &gt; 1000. Possible fault causes:</p> <p>p0804 = 1001:</p> <p>The parameter backup set in p0802 as the source on the memory card does not exist or there is not sufficient memory space available on the memory card.</p> <p>p0804 = 1002:</p> <p>The parameter backup set in p0803 as the source in the device memory does not exist or there is not sufficient memory space available in the device memory.</p>		

p0804 = 1003:  
No memory card has been inserted.

p0806	BI: Inhibit master control / PcCtrl inhibit				
	Access level: 3		Calculated: -	Data type: U32 / Binary	
	Can be changed: T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min	Max	Factory setting		
	-	-	0		
Description: Sets the signal source to block the master control.					
Dependency: Refer to: r0807					
Note: The commissioning software (drive control panel) uses the master control, for example.					
r0807.0	BO: Master control active / PcCtrl active				
	Access level: 3		Calculated: -	Data type: Unsigned8	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	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	FP
	00	Master control active	Yes	No	5030, 6031
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 commissioning software (drive control panel) uses the master control, for example.					
p0809[0...2]	Copy Command Data Set CDS / Copy CDS				
	Access level: 2		Calculated: -	Data type: Unsigned8	
	Can be changed: T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min	Max	Factory setting		
	0	3	0		
Description: Copies one Command Data Set (CDS) into another.					
Index: [0] = Source Command Data Set					
[1] = Target Command Data Set					
[2] = Start copying procedure					
Dependency: Refer to: r3996					
Notice: When the command data sets are copied, short-term communication interruptions may occur.					
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.					

<b>p0810</b>	<b>BI: Command data set selection CDS bit 0 / CDS select., bit 0</b>		
CU240B-2_DP	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	722.3
<b>Description:</b>	Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).		
<b>Dependency:</b>	Refer to: r0050, p0811, r0836		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	The 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.		
<b>p0810</b>	<b>BI: Command data set selection CDS bit 0 / CDS select., bit 0</b>		
CU240B-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).		
<b>Dependency:</b>	Refer to: r0050, p0811, r0836		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	The 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.		
<b>p0811</b>	<b>BI: Command data set selection CDS bit 1 / CDS select., bit 1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to select the Command Data Set bit 1 (CDS bit 1).		
<b>Dependency:</b>	Refer to: r0050, p0810, r0836		
<b>Note:</b>	The 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.		
<b>p0819[0...2]</b>	<b>Copy Drive Data Set DDS / Copy DDS</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> C(15)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	3	0
<b>Description:</b>	Copies one Drive Data Set (DDS) into another.		
<b>Index:</b>	[0] = Source Drive Data Set [1] = Target Drive Data Set [2] = Start copying procedure		
<b>Dependency:</b>	Refer to: r3996		

**Notice:** When the drive data sets are copied, short-term communication interruptions may occur.

**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.

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**p0820[0...n] BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
<b>Can be changed:</b> C(15), T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0

**Description:** Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).  
**Dependency:** Refer to: r0051, p0826, r0837  
**Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

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**p0821[0...n] BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
<b>Can be changed:</b> C(15), T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 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.

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**p0826[0...n] Motor changeover, motor number / Mot\_chng mot No.**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> C(3), T	<b>Scaling:</b> -	<b>Data set:</b> MDS
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0

**Description:** Sets the freely-assignable motor number for the drive data set changeover.  
 If the same motor is driven by different drive data sets, the same motor number must also be entered in these data sets.  
 If the motor is also switched with the drive data set, different motor numbers must be used. In this case, the data set can only be switched when the pulse inhibit is set.

**Note:** If the motor numbers are identical, the same thermal motor model is used for calculation after data set changeover. If different motor numbers are used, different models are also used for calculating (the inactive motor cools down in each case).  
 For the same motor number, the correction values of the Rs, Lh or kT adaptation are applied for the data set changeover (refer to r1782, r1787, r1797).

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**r0835.2...8 CO/BO: Data set changeover status word / DDS\_ZSW**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -

**Description:** Displays the status word for the drive data set changeover.



Bit field:	Bit	Signal name	1 signal	0 signal	FP
	02	Internal parameter calculation active	Yes	No	-
	04	Armature short circuit active	Yes	No	-
	05	Identification running	Yes	No	-
	07	Rotating measurement running	Yes	No	-
	08	Motor data identification running	Yes	No	-

**Note:**

Re bit 02:  
A data set changeover is delayed by the time required for the internal parameter calculation.

Re bit 04:  
A data set changeover is only carried out when the armature short circuit is not activated.

Re bit 05:  
A data set changeover is only carried out when pole position identification is not running.

Re bit 07:  
A data set changeover is only carried out when rotating measurement is not running.

Re bit 08:  
A data set changeover is only carried out when motor data identification is not running.

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**r0836.0...1 CO/BO: Command Data Set CDS selected / CDS selected**


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**Access level:** 3                      **Calculated:** -                      **Data type:** Unsigned8  
**Can be changed:** -                      **Scaling:** -                      **Data set:** -  
**Units group:** -                      **Unit selection:** -

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

**Description:** Displays the command data set (CDS) selected via the binector input.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	CDS select. bit 0	ON	OFF	-
	01	CDS select. bit 1	ON	OFF	-

**Dependency:** Refer to: r0050, p0810, p0811

**Note:** Command data sets are selected via binector input p0810 and following.  
The currently effective command data set is displayed in r0050.

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**r0837.0...1 CO/BO: Drive Data Set DDS selected / DDS selected**


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**Access level:** 3                      **Calculated:** -                      **Data type:** Unsigned8  
**Can be changed:** -                      **Scaling:** -                      **Data set:** -  
**Units group:** -                      **Unit selection:** -



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

**Description:** Displays the drive data set (DDS) selected via the binector input.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DDS select. bit 0	ON	OFF	-
	01	DDS select. bit 1	ON	OFF	-

**Dependency:** Refer to: r0051, p0820, p0821

**Note:** Drive data sets are selected via binector input p0820 and following.  
The currently effective drive data set is displayed in r0051.  
If there is only one data set, then a value of 0 is displayed in this parameter and not the selection via binector inputs.

<b>p0840[0...n]</b>	<b>BI: ON / OFF (OFF1) / ON / OFF (OFF1)</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.0
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b>	Sets the signal source for the command "ON/OFF (OFF1)". For the PROFIdrive profile, this command corresponds to control word 1 bit 0 (STW1.0).		
<b>Dependency:</b>	Refer to: p1055, p1056		
<b>Caution:</b>	When "master control from PC" is activated, this binector input is ineffective.		
			
<b>Notice:</b>	For binector input p0840 = 0 signal, the motor can be moved, jogging using binector input p1055 or p1056. The command "ON/OFF (OFF1)" can be issued using binector input p0840 or p1055/p1056. For binector input p0840 = 0 signal, the switch-on inhibit is acknowledged. 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.		
<b>Note:</b>	For drives with closed-loop speed control (p1300 = 20), the following applies: - BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression and switch-on inhibit) For drives with closed-loop torque control (p1300 = 22), the following applies: - BI: p0840 = 0 signal: immediate pulse suppression For drives with closed-loop torque control (activated using p1501), the following applies: - BI: p0840 = 0 signal: No dedicated braking response, but pulse cancelation when standstill is detected (p1226, p1227) For drives with closed-loop speed/torque control, the following applies: - BI: p0840 = 0/1 signal: ON (pulses can be enabled)		
<b>p0840[0...n]</b>	<b>BI: ON / OFF (OFF1) / ON / OFF (OFF1)</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 722.0
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b>	Sets the signal source for the command "ON/OFF (OFF1)". For the PROFIdrive profile, this command corresponds to control word 1 bit 0 (STW1.0).		
<b>Dependency:</b>	Refer to: p1055, p1056		
<b>Caution:</b>	When "master control from PC" is activated, this binector input is ineffective.		
			
<b>Notice:</b>	For binector input p0840 = 0 signal, the motor can be moved, jogging using binector input p1055 or p1056. The command "ON/OFF (OFF1)" can be issued using binector input p0840 or p1055/p1056. For binector input p0840 = 0 signal, the switch-on inhibit is acknowledged.		

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), the following applies:

- BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression and switch-on inhibit)

For drives with closed-loop torque control (p1300 = 22), the following applies:

- BI: p0840 = 0 signal: immediate pulse suppression

For drives with closed-loop torque control (activated using p1501), the following applies:

- BI: p0840 = 0 signal: No dedicated braking response, but pulse cancelation when standstill is detected (p1226, p1227)

For drives with closed-loop speed/torque control, the following applies:

- BI: p0840 = 0/1 signal: ON (pulses can be enabled)

<b>p0844[0...n]</b>	<b>BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.1
			[1] 1
			[2] 2090.1
			[3] 2090.1

**Description:**

Sets the first signal source for the command "No coast down/coast down (OFF2)".

The following signals are AND'ed:

- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"

- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).

BI: p0844 = 0 signal or BI: p0845 = 0 signal

- OFF2 (immediate pulse suppression and switch on inhibit)

BI: p0844 = 1 signal and BI: p0845 = 1 signal

- No OFF2 (enable is possible)

**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.

<b>p0844[0...n]</b>	<b>BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1

**Description:**

Sets the first signal source for the command "No coast down/coast down (OFF2)".

The following signals are AND'ed:

- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"

- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).

BI: p0844 = 0 signal or BI: p0845 = 0 signal

- OFF2 (immediate pulse suppression and switch on inhibit)

BI: p0844 = 1 signal and BI: p0845 = 1 signal

- No OFF2 (enable is possible)

**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.

### p0845[0...n] BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S\_src 2

**Access level:** 3

**Calculated:** -

**Data type:** U32 / Binary

**Can be changed:** T

**Scaling:** -

**Data set:** CDS, p0170

**Units group:** -

**Unit selection:** -

**Min**

**Max**

**Factory setting**

-

-

1

**Description:**

Sets the second signal source for the command "No coast down/coast down (OFF2)".

The following signals are AND'ed:

- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"

- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).

BI: p0844 = 0 signal or BI: p0845 = 0 signal

- OFF2 (immediate pulse suppression and switch on inhibit)

BI: p0844 = 1 signal and BI: p0845 = 1 signal

- No OFF2 (enable is possible)

**Caution:**



When "master control from PC" is activated, this binector input is effective.

### p0848[0...n] BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S\_src 1

CU240B-2\_DP

**Access level:** 3

**Calculated:** -

**Data type:** U32 / Binary

CU240E-2\_DP

**Can be changed:** T

**Scaling:** -

**Data set:** CDS, p0170

CU240E-2\_DP\_F

**Units group:** -

**Unit selection:** -

CU240E-2\_PN\_F

CU240E-2 PN

**Min**

**Max**

**Factory setting**

-

-

[0] 2090.2

[1] 1

[2] 2090.2

[3] 2090.2

**Description:**

Sets the first signal source for the command "No quick stop/quick stop (OFF3)".

The following signals are AND'ed:

- BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"

- BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).

BI: p0848 = 0 signal or BI: p0849 = 0 signal

- OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switch on inhibit)

BI: p0848 = 1 signal and BI: p0849 = 1 signal

- No OFF3 (enable is possible)


**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.

<b>p0848[0...n]</b>	<b>BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	Sets the first signal source for the command "No quick stop/quick stop (OFF3)". The following signals are AND'ed: - BI: p0848 "No quick stop / quick stop (OFF3) signal source 1" - BI: p0849 "No quick stop / quick stop (OFF3) signal source 2" For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2). BI: p0848 = 0 signal or BI: p0849 = 0 signal - OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switch on inhibit) BI: p0848 = 1 signal and BI: p0849 = 1 signal - No OFF3 (enable is possible) When "master control from PC" is activated, this binector input is ineffective.		
<b>Caution:</b>			
			
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

<b>p0849[0...n]</b>	<b>BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	Sets the second signal source for the command "No quick stop/quick stop (OFF3)". The following signals are AND'ed: - BI: p0848 "No quick stop / quick stop (OFF3) signal source 1" - BI: p0849 "No quick stop / quick stop (OFF3) signal source 2" For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2). BI: p0848 = 0 signal or BI: p0849 = 0 signal - OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switch on inhibit) BI: p0848 = 1 signal and BI: p0849 = 1 signal - No OFF3 (enable is possible) When "master control from PC" is activated, this binector input is effective.		
<b>Caution:</b>			
			

<b>p0852[0...n]</b>	<b>BI: Enable operation/inhibit operation / Operation enable</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.3
			[1] 1
			[2] 2090.3
			[3] 2090.3

**Description:** Sets the signal source for the command "enable operation/inhibit operation".  
For the PROFIdrive profile, this command corresponds to control word 1 bit 3 (STW1.3).  
BI: p0852 = 0 signal  
Inhibit operation (suppress pulses).  
BI: p0852 = 1 signal  
Enable operation (pulses can be enabled).  
When "master control from PC" is activated, this binector input is ineffective.

**Caution:**



**Notice:**

The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

<b>p0852[0...n]</b>	<b>BI: Enable operation/inhibit operation / Operation enable</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1

**Description:** Sets the signal source for the command "enable operation/inhibit operation".  
For the PROFIdrive profile, this command corresponds to control word 1 bit 3 (STW1.3).  
BI: p0852 = 0 signal  
Inhibit operation (suppress pulses).  
BI: p0852 = 1 signal  
Enable operation (pulses can be enabled).  
When "master control from PC" is activated, this binector input is ineffective.

**Caution:**



**Notice:**

The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

<b>p0854[0...n]</b>	<b>BI: Control by PLC/no control by PLC / Master ctrl by PLC</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.10
			[1] 1
			[2] 2090.10
			[3] 2090.10

**Description:** Sets the signal source for the command "control by PLC/no control by PLC".  
For the PROFIdrive profile, this command corresponds to control word 1 bit 10 (STW1.10).

BI: p0854 = 0 signal

No control by PLC

BI: p0852 = 1 signal

Master ctrl by PLC.

**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:**

This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then binector input p0854 should be set to 1.

If a control is available, then STW1.10 must be set to 1 (PZD1) so that the received data is updated. This applies regardless of the setting in p0854 and even in the case of free telegram configuration (p0922 = 999).

<b>p0854[0...n]</b>	<b>BI: Control by PLC/no control by PLC / Master ctrl by PLC</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1

**Description:** Sets the signal source for the command "control by PLC/no control by PLC".  
For the PROFIdrive profile, this command corresponds to control word 1 bit 10 (STW1.10).

BI: p0854 = 0 signal

No control by PLC

BI: p0852 = 1 signal

Master ctrl by PLC.

**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:**

This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then binector input p0854 should be set to 1.

If a control is available, then STW1.10 must be set to 1 (PZD1) so that the received data is updated. This applies regardless of the setting in p0854 and even in the case of free telegram configuration (p0922 = 999).

<b>p0855[0...n]</b>	<b>BI: Unconditionally release holding brake / Uncond open brake</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for the command "unconditionally open holding brake".		
<b>Dependency:</b>	Refer to: p0858		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).		
<b>p0856[0...n]</b>	<b>BI: Speed controller enable / n_ctrl enable</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: r0898		
<b>Note:</b>	If "enable speed controller" is withdrawn, then an existing brake will be closed. If "speed controller enable" is withdrawn, the pulses are not suppressed.		
<b>p0857</b>	<b>Power unit monitoring time / PU t_monit</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	100.0 [ms]	60000.0 [ms]	10000.0 [ms]
<b>Description:</b>	Sets the monitoring time for the power unit. 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, fault F07802 is output.		
<b>Dependency:</b>	Refer to: F07802, F30027		
<b>Notice:</b>	The maximum time to pre-charge the DC link is monitored in the power unit and cannot be changed. The maximum pre-charging duration depends on the power unit. 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.		
<b>Note:</b>	The factory setting for p0857 depends on 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 the corresponding fault.		
<b>p0858[0...n]</b>	<b>BI: Unconditionally close holding brake / Uncond close brake</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	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.

### p0897 BI: Parking axis selection / Parking axis sel

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	0

**Description:** Sets the signal source to select the "parking axis" function.

**Dependency:** BI: p0897 = 0 signal

The function "parking axis" is not selected.

BI: p0897 = 1 signal

The function "parking axis" is selected.

**Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

**Note:** After it has been selected the "parking axis" function only becomes active when the pulses are suppressed.

### r0898.0...14 CO/BO: Control word sequence control / STW seq\_ctrl

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**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	Operation enable	Yes	No	-
	04	Ramp-function generator enable	Yes	No	-
	05	Continue ramp-function generator	Yes	No	-
	06	Speed setpoint enable	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

Re bit 10:

If p0700 = 2 is set, bit 10 always shows "1".

### r0899.0...13 CO/BO: Status word sequence control / ZSW seq\_ctrl

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the status word of the sequence control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Rdy for switch on	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	Switching on inhibited active	Yes	No	-
	07	Drive ready	Yes	No	-
	08	Controller enable	Yes	No	-
	09	Control request	Yes	No	-
	11	Pulses enabled	Yes	No	-
	12	Open holding brake	Yes	No	-
	13	Command close holding brake	Yes	No	-

**Note:** Re bits 00, 01, 02, 04, 05, 06, 09:  
For PROFIdrive, these signals are used for status word 1.

### p0918 PROFIBUS address / PB address

CU240B-2\_DP **Access level:** 2 **Calculated:** - **Data type:** Unsigned16  
CU240E-2\_DP **Can be changed:** T **Scaling:** - **Data set:** -  
CU240E-2\_DP\_F **Units group:** - **Unit selection:** -

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
1	126	126

**Description:** Displays or sets the PROFIBUS address for PROFIBUS interface on the Control Unit.  
The address can be set as follows:

- 1) Using the DIP switch on 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 are 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.

**Notice:** For p0014 = 1, the following applies:  
After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.  
For p0014 = 0, the following applies:  
Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do this, set p0971 = 1 or p0014 = 1.

**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

CU240B-2\_DP **Access level:** 1 **Calculated:** - **Data type:** Unsigned16  
CU240E-2\_DP **Can be changed:** C(1), T **Scaling:** - **Data set:** -  
CU240E-2\_DP\_F **Units group:** - **Unit selection:** -  
CU240E-2\_PN\_F  
CU240E-2 PN

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
1	999	1

**Description:** Sets the send and receive telegram.

**Value:** 1: Standard telegram 1, PZD-2/2  
20: Standard telegram 20, PZD-2/6  
350: SIEMENS telegram 350, PZD-4/4  
352: SIEMENS telegram 352, PZD-6/6

353: SIEMENS telegram 353, PZD-2/2, PKW-4/4  
 354: SIEMENS telegram 354, PZD-6/6, PKW-4/4  
 999: Free telegram configuration with BICO

**Dependency:**

Refer to: F01505

**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.

**r0944****CO: Counter for fault buffer changes / Fault buff change**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:**

Displays fault buffer changes. This counter is incremented every time the fault buffer changes.

**Dependency:**

Refer to: r0945, r0947, r0948, r0949, r2109

**r0945[0...63]****Fault code / Fault code**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:**

Displays the numbers of faults that have occurred.

**Dependency:**

Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136

**Notice:**

The properties of the fault buffer should be taken from the corresponding product documentation.

**Note:**

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

Fault buffer structure (general principle):

r0945[0], r0949[0], r0948[0], r2109[0] --> actual fault case, fault 1

...

r0945[7], r0949[7], r0948[7], r2109[7] --> actual fault case, fault 8

r0945[8], r0949[8], r0948[8], r2109[8] --> 1st acknowledged fault case, fault 1

...

r0945[15], r0949[15], r0948[15], r2109[15] --> 1st acknowledged fault case, fault 8

...

r0945[56], r0949[56], r0948[56], r2109[56] --> 7th acknowledged fault case, fault 1

...

r0945[63], r0949[63], r0948[63], r2109[63] --> 7th acknowledged fault case, fault 8

**r0946[0...65534] Fault code list / Fault code list**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:**

Lists the fault codes stored in the drive unit.

The indices can only be accessed with a valid fault code.

**Dependency:**

The parameter assigned to the fault code is entered in r0951 under the same index.

<b>r0947[0...63]</b>	<b>Fault number / Fault number</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	This parameter is identical to r0945.		
<b>r0948[0...63]</b>	<b>Fault time received in milliseconds / t_fault recv ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [ms]	- [ms]	- [ms]
<b>Description:</b>	Displays the system runtime in milliseconds when the fault occurred.		
<b>Dependency:</b>	Refer to: r0945, r0947, r0949, r2109, r2130, r2133, r2136		
<b>Notice:</b>	The time comprises r2130 (days) and r0948 (milliseconds).		
<b>Note:</b>	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. When the parameter is read via PROFIdrive, the TimeDifference data type applies.		
<b>r0949[0...63]</b>	<b>Fault value / Fault value</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays additional information about the fault that occurred (as integer number).		
<b>Dependency:</b>	Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136		
<b>Note:</b>	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.		
<b>p0952</b>	<b>Fault cases, counter / Fault cases qty</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	65535	0
<b>Description:</b>	Number of fault situations that have occurred since the last reset.		
<b>Dependency:</b>	The fault buffer is deleted (cleared) by setting p0952 to 0. Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136		
<b>r0963</b>	<b>PROFIBUS baud rate / PB baud rate</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	255	-
<b>Description:</b>	Displays the corresponding value for the PROFIBUS baud rate.		

<b>Value:</b>	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

<b>r0964[0...6]</b>	<b>Device identification / Device ident.</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the device identification.		
<b>Index:</b>	[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		
<b>Note:</b>	Example: r0964[0] = 42 --> SIEMENS r0964[1] = device type, see below r0964[2] = 403 --> first part of the firmware version V04.03 (for second part, refer to index 6) r0964[3] = 2010 --> year 2010 r0964[4] = 1705 --> 17th of May r0964[5] = 1 --> 1 drive object r0964[6] = 200 --> second part, firmware version (complete version: V04.03.02.00) Device type: r0964[1] = 6100 --> SINAMICS G120 CU240B-2_DP r0964[1] = 6103 --> SINAMICS G120 CU240B-2 r0964[1] = 6210 --> SINAMICS G120 CU240E-2_DP r0964[1] = 6211 --> SINAMICS G120 CU240E-2_PN r0964[1] = 6213 --> SINAMICS G120 CU240E-2 r0964[1] = 6220 --> SINAMICS G120 CU240E-2_DP_F r0964[1] = 6221 --> SINAMICS G120 CU240E-2_PN_F r0964[1] = 6223 --> SINAMICS G120 CU240E-2_F		

<b>r0965</b>	<b>PROFdrive profile number / PD profile number</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the PROFdrive profile number and profile version. Constant value = 0329 hex.		

Byte 1: Profile number = 03 hex = PROFIdrive profile

Byte 2: Profile version = 29 hex = Version 4.1

**Note:** When the parameter is read via PROFIdrive, the Octet String 2 data type applies.

<b>p0969</b>	<b>System runtime relative / t_System relative</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 4294967295 [ms]	<b>Factory setting</b> 0 [ms]
<b>Description:</b>	Displays the system runtime in ms since the last POWER ON.		
<b>Note:</b>	<p>The value in p0969 can only be reset to 0.</p> <p>The value overflows after approx. 49 days.</p> <p>When the parameter is read via PROFIdrive, the TimeDifference data type applies.</p>		
<b>p0970</b>	<b>Reset drive parameters / Drive par reset</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> C(1, 30)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 300	<b>Factory setting</b> 0
<b>Description:</b>	<p>The parameter is used to initiate the reset of the drive parameters.</p> <p>Parameters p0100, p0205 are not reset.</p> <p>The following motor parameters are defined in accordance with the power unit: p0300 ... p0311.</p> <p>When downloading settings 10, 11, 12, the buffer memory mode is automatically deactivated (p0014 = 0).</p>		
<b>Value:</b>	<p>0: Inactive</p> <p>1: Start a parameter reset</p> <p>3: Start dnlod of volatile parameters from RAM</p> <p>5: Starts a safety parameter reset</p> <p>10: Starts to download setting 10</p> <p>11: Starts to download setting 11</p> <p>12: Starts to download setting 12</p> <p>100: Start a BICO interconnection reset</p> <p>300: Only Siemens int</p>		
<b>Dependency:</b>	Refer to: F01659		
<b>Caution:</b>	When the buffer memory is active (see p0014), the actual parameters are backed up from RAM to ROM when a parameter set is loaded (p0970 = 10, 11, 12).		
<b>Notice:</b>	<p>After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.</p> <p>Peculiarities of communication via PROFIBUS DP:</p> <ul style="list-style-type: none"> <li>- Communication with Class 1 masters (e.g. S7 controllers) is interrupted.</li> <li>- Communication with Class 2 masters (e.g. STARTER) is retained.</li> </ul>		
<b>Note:</b>	<p>A factory setting run can only be started if p0010 was first set to 30 (parameter reset).</p> <p>At the end of the calculations, p0970 is automatically set to 0.</p> <p>Parameter reset has been completed if p0970 and p0010 have been set to 0.</p> <p>For p0970 = 5 the following applies:</p> <p>The password for Safety Integrated must be set.</p> <p>When Safety Integrated is enabled, this can result in error messages, which then require an acceptance test to be performed.</p> <p>Then save the parameters and carry out a POWER ON.</p> <p>For p0970 = 1 the following applies:</p> <p>If a Safety Integrated function is parameterized (p9601), then the safety parameters are not reset. In this case, an error message (F01659) is output with fault value 2.</p>		

The following generally applies:

One index of parameters p2100, p2101, p2118, p2119, p2126, p2127 is not reset, if a parameterized message is precisely active in this index.

## p0971

### Save parameters / Save par

<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0	<b>Max</b> 12	<b>Factory setting</b> 0

**Description:** Setting to save parameters in the non-volatile memory.

**Value:**

- 0: Inactive
- 1: Save drive object
- 10: Save in non-volatile memory as setting 10
- 11: Save in non-volatile memory as setting 11
- 12: Save in non-volatile memory as setting 12

**Dependency:** Refer to: p1960, r3996

**Caution:** If a memory card (optional) is inserted, the following applies:  
The parameters are also saved on the card and therefore overwrite any existing data!



**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).

**Notice:** Writing to parameters is inhibited while saving.  
The progress while saving is displayed in r3996.

## p0972

### Drive unit reset / Drv\_unit reset

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0

**Description:** Sets the required procedure to execute a hardware reset for the drive unit.

**Value:**

- 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.  
The memory card/device memory of the Control Unit must not be accessed.



**Note:**

If value = 1:  
Reset is immediately executed and communications interrupted.  
After communications have been established, check the reset operation (refer below).

If 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).

If 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 cyclic communication is not active, then the reset is immediately executed.  
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.

<b>r0980[0...299]</b>	<b>List of existing parameters 1 / List avail par 1</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the parameters that exist for this drive.		
<b>Dependency:</b>	Refer to: r0981, r0989		
<b>Note:</b>	<p>The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.</p> <p>This list consists solely of the following parameters: r0980[0...299], r0981[0...299] ... r0989[0...299]</p> <p>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).</p>		
<b>r0981[0...299]</b>	<b>List of existing parameters 2 / List avail par 2</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the parameters that exist for this drive.		
<b>Dependency:</b>	Refer to: r0980, r0989		
<b>Note:</b>	<p>The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.</p> <p>This list consists solely of the following parameters: r0980[0...299], r0981[0...299] ... r0989[0...299]</p> <p>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).</p>		
<b>r0989[0...299]</b>	<b>List of existing parameters 10 / List avail par 10</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the parameters that exist for this drive.		
<b>Dependency:</b>	Refer to: r0980, r0981		
<b>Note:</b>	<p>The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. This list consists solely of the following parameters: r0980[0...299], r0981[0...299] ... r0989[0...299]</p> <p>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).</p>		



<b>r0990[0...99]</b>	<b>List of modified parameters 1 / List chang. par 1</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays those parameters with a value other than the factory setting for this drive.		
<b>Dependency:</b>	Refer to: r0991, r0999		
<b>Note:</b>	<p>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.</p> <p>This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99]</p> <p>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).</p>		
<b>r0991[0...99]</b>	<b>List of modified parameters 2 / List chang. par 2</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays those parameters with a value other than the factory setting for this drive.		
<b>Dependency:</b>	Refer to: r0990, r0999		
<b>Note:</b>	<p>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.</p> <p>This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99]</p> <p>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).</p>		
<b>r0999[0...99]</b>	<b>List of modified parameters 10 / List chang. par 10</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays those parameters with a value other than the factory setting for this drive.		
<b>Dependency:</b>	Refer to: r0990, r0991		
<b>Note:</b>	<p>Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.</p> <p>This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99]</p> <p>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).</p>		

<b>p1000[0...n]</b>		<b>Speed setpoint selection / n_set sel</b>	
CU240B-2	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 200	<b>Factory setting</b> 2
<b>Description:</b>	<p>Sets the source for the speed setpoint.</p> <p>For single-digit values, the following applies:</p> <p>The value specifies the main setpoint.</p> <p>For double-digit values, the following applies:</p> <p>The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.</p> <p>Example:</p> <p>Value = 26</p> <p>--&gt; The analog setpoint (2) supplies the supplementary setpoint.</p> <p>--&gt; The fieldbus (6) supplies the main setpoint.</p>		
<b>Value:</b>	<p>0: No main setpoint</p> <p>1: Motorized potentiometer</p> <p>2: Analog setpoint</p> <p>3: Fixed speed setpoint</p> <p>6: Fieldbus</p> <p>10: Motor potentiometer + no main setpoint</p> <p>11: Motor potentiometer + motor potentiometer</p> <p>12: Motor potentiometer + analog setpoint</p> <p>13: Motor potentiometer + fixed speed setpoint</p> <p>16: Motor potentiometer + fieldbus</p> <p>20: Analog setpoint + no main setpoint</p> <p>21: Analog setpoint + motor potentiometer</p> <p>22: Analog setpoint + analog setpoint</p> <p>23: Analog setpoint + fixed speed setpoint</p> <p>26: Analog setpoint + fieldbus</p> <p>30: Fixed speed setpoint + no main setpoint</p> <p>31: Fixed speed setpoint + motor potentiometer</p> <p>32: Fixed speed setpoint + analog setpoint</p> <p>33: Fixed speed setpoint + fixed speed setpoint</p> <p>36: Fixed speed setpoint + fieldbus</p> <p>60: Fieldbus + no main setpoint</p> <p>61: Fieldbus + motor potentiometer</p> <p>62: Fieldbus + analog setpoint</p> <p>63: Fieldbus + fixed speed setpoint</p> <p>66: Fieldbus+fieldbus</p> <p>200: Analog output connection</p>		
<b>Dependency:</b>	<p>When changing this parameter, the following settings are influenced:</p> <p>Refer to: p1070, p1071, p1075, p1076</p>		
<b>Caution:</b>	<p>If p1000 is selected as the main setpoint of the fieldbus, the following BICO interconnection is set automatically:</p> <p>p2051[1] = r0063</p>		
			
<b>Caution:</b>	<p>When executing a specific macro, the corresponding programmed settings are made and become active.</p>		
<b>Notice:</b>	<p>The parameter is possibly protected as a result of p0922.</p> <p>For PROFIBUS/PROFINET Control Units, the following applies: The parameter can be freely set by setting p0922 = 999.</p>		

<b>p1000[0...n]</b>			
CU240B-2_DP	<b>Speed setpoint selection / n_set sel</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	200	6
<b>Description:</b>	<p>Sets the source for the speed setpoint.</p> <p>For single-digit values, the following applies:</p> <p>The value specifies the main setpoint.</p> <p>For double-digit values, the following applies:</p> <p>The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.</p> <p>Example:</p> <p>Value = 26</p> <p>--&gt; The analog setpoint (2) supplies the supplementary setpoint.</p> <p>--&gt; The fieldbus (6) supplies the main setpoint.</p>		
<b>Value:</b>	<p>0: No main setpoint</p> <p>1: Motorized potentiometer</p> <p>2: Analog setpoint</p> <p>3: Fixed speed setpoint</p> <p>6: Fieldbus</p> <p>10: Motor potentiometer + no main setpoint</p> <p>11: Motor potentiometer + motor potentiometer</p> <p>12: Motor potentiometer + analog setpoint</p> <p>13: Motor potentiometer + fixed speed setpoint</p> <p>16: Motor potentiometer + fieldbus</p> <p>20: Analog setpoint + no main setpoint</p> <p>21: Analog setpoint + motor potentiometer</p> <p>22: Analog setpoint + analog setpoint</p> <p>23: Analog setpoint + fixed speed setpoint</p> <p>26: Analog setpoint + fieldbus</p> <p>30: Fixed speed setpoint + no main setpoint</p> <p>31: Fixed speed setpoint + motor potentiometer</p> <p>32: Fixed speed setpoint + analog setpoint</p> <p>33: Fixed speed setpoint + fixed speed setpoint</p> <p>36: Fixed speed setpoint + fieldbus</p> <p>60: Fieldbus + no main setpoint</p> <p>61: Fieldbus + motor potentiometer</p> <p>62: Fieldbus + analog setpoint</p> <p>63: Fieldbus + fixed speed setpoint</p> <p>66: Fieldbus+fieldbus</p> <p>200: Analog output connection</p>		
<b>Dependency:</b>	<p>When changing this parameter, the following settings are influenced:</p> <p>Refer to: p1070, p1071, p1075, p1076</p>		
<b>Caution:</b>	<p>If p1000 is selected as the main setpoint of the fieldbus, the following BICO interconnection is set automatically:</p> <p>p2051[1] = r0063</p>		
			
<b>Caution:</b>	<p>When executing a specific macro, the corresponding programmed settings are made and become active.</p>		
<b>Notice:</b>	<p>The parameter is possibly protected as a result of p0922.</p> <p>For PROFIBUS/PROFINET Control Units, the following applies: The parameter can be freely set by setting p0922 = 999.</p>		

p1000[0...n]	Speed setpoint selection / n_set sel		
CU240E-2_DP	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP_F	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2 PN			

Min	Max	Factory setting
0	200	6

**Description:** Sets the source for the speed setpoint.  
 For single-digit values, the following applies:  
 The value specifies the main setpoint.  
 For double-digit values, the following applies:  
 The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.  
 Example:  
 Value = 26  
 --> The analog setpoint (2) supplies the supplementary setpoint.  
 --> The fieldbus (6) supplies the main setpoint.

**Value:**

- 0: No main setpoint
- 1: Motorized potentiometer
- 2: Analog setpoint
- 3: Fixed speed setpoint
- 6: Fieldbus
- 7: Analog setpoint 2
- 10: Motor potentiometer + no main setpoint
- 11: Motor potentiometer + motor potentiometer
- 12: Motor potentiometer + analog setpoint
- 13: Motor potentiometer + fixed speed setpoint
- 16: Motor potentiometer + fieldbus
- 17: Motor potentiometer + analog setpoint 2
- 20: Analog setpoint + no main setpoint
- 21: Analog setpoint + motor potentiometer
- 22: Analog setpoint + analog setpoint
- 23: Analog setpoint + fixed speed setpoint
- 26: Analog setpoint + fieldbus
- 27: Analog setpoint + analog setpoint 2
- 30: Fixed speed setpoint + no main setpoint
- 31: Fixed speed setpoint + motor potentiometer
- 32: Fixed speed setpoint + analog setpoint
- 33: Fixed speed setpoint + fixed speed setpoint
- 36: Fixed speed setpoint + fieldbus
- 37: Fixed speed setpoint + analog setpoint 2
- 60: Fieldbus + no main setpoint
- 61: Fieldbus + motor potentiometer
- 62: Fieldbus + analog setpoint
- 63: Fieldbus + fixed speed setpoint
- 66: Fieldbus+fieldbus
- 67: Fieldbus + analog setpoint 2
- 70: Analog setpoint 2 + no main setpoint
- 71: Analog setpoint 2 + motor potentiometer
- 72: Analog setpoint 2 + analog setpoint
- 73: Analog setpoint 2 + fixed speed setpoint
- 76: Analog setpoint 2 + fieldbus
- 77: Analog setpoint 2 + analog setpoint 2
- 200: Analog output connection

**Dependency:** When changing this parameter, the following settings are influenced:  
 Refer to: p1070, p1071, p1075, p1076

**Caution:** If p1000 is selected as the main setpoint of the fieldbus, the following BICO interconnection is set automatically:  
 p2051[1] = r0063



**Caution:** When executing a specific macro, the corresponding programmed settings are made and become active.

**Notice:** The parameter is possibly protected as a result of p0922.

For PROFIBUS/PROFINET Control Units, the following applies: The parameter can be freely set by setting p0922 = 999.

p1000[0...n]		Speed setpoint selection / n_set sel	
CU240E-2	Access level: 1	Calculated: -	Data type: Integer16
CU240E-2_F	Can be changed: T	Scaling: -	Data set: CDS, p0170
	Units group: -	Unit selection: -	
	Min 0	Max 200	Factory setting 2
Description:	<p>Sets the source for the speed setpoint.</p> <p>For single-digit values, the following applies:</p> <p>The value specifies the main setpoint.</p> <p>For double-digit values, the following applies:</p> <p>The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.</p> <p>Example:</p> <p>Value = 26</p> <p>--&gt; The analog setpoint (2) supplies the supplementary setpoint.</p> <p>--&gt; The fieldbus (6) supplies the main setpoint.</p>		
Value:	<p>0: No main setpoint</p> <p>1: Motorized potentiometer</p> <p>2: Analog setpoint</p> <p>3: Fixed speed setpoint</p> <p>6: Fieldbus</p> <p>7: Analog setpoint 2</p> <p>10: Motor potentiometer + no main setpoint</p> <p>11: Motor potentiometer + motor potentiometer</p> <p>12: Motor potentiometer + analog setpoint</p> <p>13: Motor potentiometer + fixed speed setpoint</p> <p>16: Motor potentiometer + fieldbus</p> <p>17: Motor potentiometer + analog setpoint 2</p> <p>20: Analog setpoint + no main setpoint</p> <p>21: Analog setpoint + motor potentiometer</p> <p>22: Analog setpoint + analog setpoint</p> <p>23: Analog setpoint + fixed speed setpoint</p> <p>26: Analog setpoint + fieldbus</p> <p>27: Analog setpoint + analog setpoint 2</p> <p>30: Fixed speed setpoint + no main setpoint</p> <p>31: Fixed speed setpoint + motor potentiometer</p> <p>32: Fixed speed setpoint + analog setpoint</p> <p>33: Fixed speed setpoint + fixed speed setpoint</p> <p>36: Fixed speed setpoint + fieldbus</p> <p>37: Fixed speed setpoint + analog setpoint 2</p> <p>60: Fieldbus + no main setpoint</p> <p>61: Fieldbus + motor potentiometer</p> <p>62: Fieldbus + analog setpoint</p> <p>63: Fieldbus + fixed speed setpoint</p> <p>66: Fieldbus+fieldbus</p> <p>67: Fieldbus + analog setpoint 2</p> <p>70: Analog setpoint 2 + no main setpoint</p> <p>71: Analog setpoint 2 + motor potentiometer</p> <p>72: Analog setpoint 2 + analog setpoint</p> <p>73: Analog setpoint 2 + fixed speed setpoint</p> <p>76: Analog setpoint 2 + fieldbus</p> <p>77: Analog setpoint 2 + analog setpoint 2</p> <p>200: Analog output connection</p>		
Dependency:	<p>When changing this parameter, the following settings are influenced:</p> <p>Refer to: p1070, p1071, p1075, p1076</p>		

**Caution:**

If p1000 is selected as the main setpoint of the fieldbus, the following BICO interconnection is set automatically:  
p2051[1] = r0063

**Caution:**

When executing a specific macro, the corresponding programmed settings are made and become active.

**Notice:**

The parameter is possibly protected as a result of p0922.

For PROFIBUS/PROFINET Control Units, the following applies: The parameter can be freely set by setting p0922 = 999.

**p1001[0...n]****CO: Fixed speed setpoint 1 / n\_set\_fixed 1**

**Access level:** 2

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** p2000

**Data set:** DDS, p0180

**Units group:** 3\_1

**Unit selection:** p0505

**Min**

-210000.000 [rpm]

**Max**

210000.000 [rpm]

**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 data set always acts on the effective data set.

**p1002[0...n]****CO: Fixed speed setpoint 2 / n\_set\_fixed 2**

**Access level:** 2

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** p2000

**Data set:** DDS, p0180

**Units group:** 3\_1

**Unit selection:** p0505

**Min**

-210000.000 [rpm]

**Max**

210000.000 [rpm]

**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 data set always acts on the effective data set.

**p1003[0...n]****CO: Fixed speed setpoint 3 / n\_set\_fixed 3**

**Access level:** 2

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** p2000

**Data set:** DDS, p0180

**Units group:** 3\_1

**Unit selection:** p0505

**Min**

-210000.000 [rpm]

**Max**

210000.000 [rpm]

**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 data set always acts on the effective data set.

**p1004[0...n]****CO: Fixed speed setpoint 4 / n\_set\_fixed 4**

**Access level:** 2

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** p2000

**Data set:** DDS, p0180

**Units group:** 3\_1

**Unit selection:** p0505

**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 data set always acts on the effective data set.

<b>p1005[0...n]</b>	<b>CO: Fixed speed setpoint 5 / n_set_fixed 5</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 5.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1006[0...n]</b>	<b>CO: Fixed speed setpoint 6 / n_set_fixed 6</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 6.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1007[0...n]</b>	<b>CO: Fixed speed setpoint 7 / n_set_fixed 7</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 7.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1008[0...n]</b>	<b>CO: Fixed speed setpoint 8 / n_set_fixed 8</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 8.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1009[0...n]</b>	<b>CO: Fixed speed setpoint 9 / n_set_fixed 9</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 9.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		

<b>p1010[0...n]</b>	<b>CO: Fixed speed setpoint 10 / n_set_fixed 10</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 10.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1011[0...n]</b>	<b>CO: Fixed speed setpoint 11 / n_set_fixed 11</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 11.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1012[0...n]</b>	<b>CO: Fixed speed setpoint 12 / n_set_fixed 12</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 12.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1013[0...n]</b>	<b>CO: Fixed speed setpoint 13 / n_set_fixed 13</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 13.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1014[0...n]</b>	<b>CO: Fixed speed setpoint 14 / n_set_fixed 14</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 14.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		



<b>p1015[0...n]</b>	<b>CO: Fixed speed setpoint 15 / n_set_fixed 15</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets a value for the fixed speed / velocity setpoint 15.		
<b>Dependency:</b>	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p1016</b>	<b>Fixed speed setpoint mode / n_setp_fixed mode</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 2	<b>Factory setting</b> 1
<b>Description:</b>	Sets the mode to select the fixed speed setpoint.		
<b>Value:</b>	1: Direct selection 2: Selection binary coded		
<b>Note:</b>	Re p1016 = 1: In this mode, the fixed speed setpoint is entered using p1001 ... p1004. Re p1016 = 2: In this mode, the fixed speed setpoint is entered using p1001 ... p1015.		
<b>p1020[0...n]</b>	<b>BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for selecting the fixed speed setpoint.		
<b>Dependency:</b>	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1021, p1022, p1023, r1197		
<b>Note:</b>	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		
<b>p1021[0...n]</b>	<b>BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for selecting the fixed speed setpoint.		
<b>Dependency:</b>	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1022, p1023, r1197		
<b>Note:</b>	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		

<b>p1022[0...n]</b>	<b>BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T		<b>Scaling:</b> -		<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		0
<b>Description:</b>	Sets the signal source for selecting the fixed speed setpoint.				
<b>Dependency:</b>	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1021, p1023, r1197				
<b>Note:</b>	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).				

<b>p1023[0...n]</b>	<b>BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T		<b>Scaling:</b> -		<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		0
<b>Description:</b>	Sets the signal source for selecting the fixed speed setpoint.				
<b>Dependency:</b>	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1021, p1022, r1197				
<b>Note:</b>	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).				

<b>r1024</b>	<b>CO: Fixed speed setpoint effective / n_set_fixed eff</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -		<b>Scaling:</b> p2000		<b>Data set:</b> -
	<b>Units group:</b> 3_1		<b>Unit selection:</b> p0505		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	- [rpm]		- [rpm]		- [rpm]
<b>Description:</b>	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).				
<b>Dependency:</b>	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the actual fixed speed setpoint in r1197. Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1070, r1197				
<b>Note:</b>	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).				

<b>r1025.0</b>	<b>BO: Fixed speed setpoint status / n_setp_fix status</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		-
<b>Description:</b>	Displays the status when selecting the fixed speed setpoints.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Fixed speed setpoint selected	Yes	No	-

**Dependency:** Refer to: p1016

**Note:** Re bit 00:  
When the fixed speed setpoints are directly selected (p1016 = 1), this bit is set if at least 1 fixed speed setpoint is selected.

p1030[0...n] Motorized potentiometer configuration / Mop configuration			
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	0000 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	-
	04	Ramp-function generator always active	Yes	No	-

**Notice:** For p0014 = 1, the following applies:

After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

**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).

Re bit 04:

When the bit is set, the ramp-function generator is computed independent of the pulse enable. The actual output value of the motorized potentiometer is always in r1050.

<b>p1035[0...n]</b>	<b>BI: Motorized potentiometer setpoint raise / Mop raise</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.13
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b>	Sets the signal source to continually increase the setpoint for the motorized potentiometer. The setpoint change (CO: r1050) depends on the set ramp-up time (p1047) and the duration of the signal that is present (BI: p1035).		
<b>Dependency:</b>	Refer to: p1036		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1035[0...n]</b>	<b>BI: Motorized potentiometer setpoint raise / Mop raise</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to continually increase the setpoint for the motorized potentiometer. The setpoint change (CO: r1050) depends on the set ramp-up time (p1047) and the duration of the signal that is present (BI: p1035).		
<b>Dependency:</b>	Refer to: p1036		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1036[0...n]</b>	<b>BI: Motorized potentiometer lower setpoint / Mop lower</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.14
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b>	Sets the signal source to continuously lower the setpoint for the motorized potentiometer. The setpoint change (CO: r1050) depends on the set ramp-down time (p1048) and the duration of the signal that is present (BI: p1036).		
<b>Dependency:</b>	Refer to: p1035		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

<b>p1036[0...n]</b>	<b>BI: Motorized potentiometer lower setpoint / Mop lower</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to continuously lower the setpoint for the motorized potentiometer. The setpoint change (CO: r1050) depends on the set ramp-down time (p1048) and the duration of the signal that is present (BI: p1036).		
<b>Dependency:</b>	Refer to: p1035		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1037[0...n]</b>	<b>Motorized potentiometer maximum speed / MotP n_max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]
<b>Description:</b>	Sets the maximum speed/velocity for the motorized potentiometer.		
<b>Note:</b>	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value (see function diagram 3020).		
<b>p1038[0...n]</b>	<b>Motorized potentiometer minimum speed / MotP n_min</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]
<b>Description:</b>	Sets the minimum speed/velocity for the motorized potentiometer.		
<b>Note:</b>	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value (see function diagram 3020).		
<b>p1039[0...n]</b>	<b>BI: Motorized potentiometer inversion / MotP inv</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to invert the minimum speed/velocity or the maximum speed/velocity for the motorized potentiometer.		
<b>Dependency:</b>	Refer to: p1037, p1038		
<b>Note:</b>	The inversion is only active during "motorized potentiometer raise" or "motorized potentiometer lower".		

<b>p1040[0...n]</b>	<b>Motorized potentiometer starting value / Mop start value</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered up.		
<b>Dependency:</b>	Only effective if p1030.0 = 0. Refer to: p1030		
<b>p1041[0...n]</b>	<b>BI: Motorized potentiometer manual/automatic / Mop manual/auto</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: p1030, p1035, p1036, p1042		
<b>Note:</b>	The effectiveness of the internal ramp-function generator can be set in automatic mode.		
<b>p1042[0...n]</b>	<b>CI: Motorized potentiometer automatic setpoint / Mop auto setpoint</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the setpoint of the motorized potentiometer in the automatic mode.		
<b>Dependency:</b>	Refer to: p1041		
<b>p1043[0...n]</b>	<b>BI: Motorized potentiometer accept setting value / MotP acc set val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to accept the setting value for the motorized potentiometer.		
<b>Dependency:</b>	Refer to: p1044		
<b>Note:</b>	The setting value (CI: p1044) becomes effective for a 0/1 edge of the setting command (BI: p1043).		
<b>p1044[0...n]</b>	<b>CI: Motorized potentiometer setting value / Mop set val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the setting value for the motorized potentiometer.		
<b>Dependency:</b>	Refer to: p1043		

**Note:** The setting value (CI: p1044) becomes effective for a 0/1 edge of the setting command (BI: p1043).

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**r1045 CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n\_set bef RFG**


---

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]

**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**


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<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.000 [s]	<b>Max</b> 1000.000 [s]	<b>Factory setting</b> 10.000 [s]

**Description:** Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer.  
The setpoint is changed from 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**


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<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.000 [s]	<b>Max</b> 1000.000 [s]	<b>Factory setting</b> 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**


---

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [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).

**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, suppress pulses) the ramp-function generator output (r1050) is set to the starting value (configuration via p1030.0).

<b>p1051[0...n]</b>	<b>CI: Speed limit RFG positive direction of rotation / n_limit RFG pos</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
CU240B-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
CU240E-2	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_DP			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1083[0]

**Description:** Sets the signal source for the speed limit of the positive direction on the ramp-function generator input.

<b>p1051[0...n]</b>	<b>CI: Speed limit RFG positive direction of rotation / n_limit RFG pos</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	9733[0]

**Description:** Sets the signal source for the speed limit of the positive direction on the ramp-function generator input.

<b>p1052[0...n]</b>	<b>CI: Speed limit RFG negative direction of rotation / n_limit RFG neg</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
CU240B-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
CU240E-2	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_DP			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1086[0]

**Description:** Sets the signal source for the speed limit of the negative direction on the ramp-function generator input.

<b>p1052[0...n]</b>	<b>CI: Speed limit RFG negative direction of rotation / n_limit RFG neg</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	9733[1]

**Description:** Sets the signal source for the speed limit of the negative direction on the ramp-function generator input.

<b>p1055[0...n]</b>	<b>BI: Jog bit 0 / Jog bit 0</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 0
			[1] 722.0
			[2] 0
			[3] 0

**Description:** Sets the signal source for jog 1.

**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.

<b>p1055[0...n]</b>	<b>BI: Jog bit 0 / Jog bit 0</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for jog 1.		
<b>Dependency:</b>	Refer to: p0840, p1058		
<b>Notice:</b>	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.		

<b>p1056[0...n]</b>	<b>BI: Jog bit 1 / Jog bit 1</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 0
			[1] 722.1
			[2] 0
			[3] 0
<b>Description:</b>	Sets the signal source for jog 2.		
<b>Dependency:</b>	Refer to: p0840, p1059		
<b>Notice:</b>	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.		

<b>p1056[0...n]</b>	<b>BI: Jog bit 1 / Jog bit 1</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for jog 2.		
<b>Dependency:</b>	Refer to: p0840, p1059		
<b>Notice:</b>	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.		

<b>p1058[0...n]</b>	<b>Jog 1 speed setpoint / Jog 1 n_set</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-210000.000 [rpm]	210000.000 [rpm]	150.000 [rpm]
<b>Description:</b>	Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.		
<b>Dependency:</b>	Refer to: p1055, p1056		

<b>p1059[0...n]</b>	<b>Jog 2 speed setpoint / Jog 2 n_set</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> -150.000 [rpm]
<b>Description:</b>	Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.		
<b>Dependency:</b>	Refer to: p1055, p1056		
<b>p1063[0...n]</b>	<b>Speed limit setpoint channel / n_limit setp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 210000.000 [rpm]
<b>Description:</b>	Sets the speed limit/velocity limit effective in the setpoint channel.		
<b>Dependency:</b>	Refer to: p1082, p1083, p1085, p1086, p1088		
<b>p1070[0...n]</b>	<b>CI: Main setpoint / Main setpoint</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> [0] 2050[1] [1] 0 [2] 0 [3] 0
<b>Description:</b>	Sets the signal source for the main setpoint. Examples: r1024: Fixed speed setpoint effective r1050: Motor. potentiometer setpoint after the ramp-function generator		
<b>Dependency:</b>	Refer to: p1071, r1073, r1078		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1070[0...n]</b>	<b>CI: Main setpoint / Main setpoint</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> [0] 755[0] [1] 0 [2] 0 [3] 0
<b>Description:</b>	Sets the signal source for the main setpoint. Examples: r1024: Fixed speed setpoint effective r1050: Motor. potentiometer setpoint after the ramp-function generator		
<b>Dependency:</b>	Refer to: p1071, r1073, r1078		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

<b>p1071[0...n]</b>	<b>CI: Main setpoint scaling / Main setp scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for scaling the main setpoint.		
<b>r1073</b>	<b>CO: Main setpoint effective / Main setpoint eff</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the effective main setpoint. The value shown is the main setpoint after scaling.		
<b>p1075[0...n]</b>	<b>CI: Supplementary setpoint / Suppl setp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the supplementary setpoint.		
<b>Dependency:</b>	Refer to: p1076, r1077, r1078		
<b>p1076[0...n]</b>	<b>CI: Supplementary setpoint scaling / Suppl setp scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for scaling the supplementary setpoint.		
<b>r1077</b>	<b>CO: Supplementary setpoint effective / Suppl setpoint eff</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.		
<b>r1078</b>	<b>CO: Total setpoint effective / Total setpoint eff</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.		


<b>p1080[0...n]</b>	<b>Minimum speed / n_min</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 19500.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets the lowest possible motor speed. This value is not undershot in operation.		
<b>Dependency:</b>	Refer to: p1106		
<b>Notice:</b>	The effective minimum speed is formed from p1080 and p1106.		
<b>Note:</b>	The parameter value applies for both motor directions. In exceptional cases, the motor can operate below this value (e.g. when reversing).		
<b>p1082[0...n]</b>	<b>Maximum speed / n_max</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 1500.000 [rpm]
<b>Description:</b>	Sets the highest possible speed.		
<b>Dependency:</b>	For vector control, the maximum speed is restricted to $60.0 / (8.333 \times 500 \mu\text{s} \times r0313)$ . 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. If a sine-wave 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). When using sine-wave filters (p0230 = 3, 4), the maximum speed r1084 is limited to 70% of the resonant frequency of the filter capacitance and the motor leakage inductance. For reactors and dU/dt filters, it is limited to 120 Hz / r0313. Refer to: p0230, r0313, p0322		
<b>Notice:</b>	After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		
<b>Note:</b>	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). Since the parameter is part of quick commissioning (p0010 = 1), it is defined appropriately when p0310, p0311, p0322, p0324, p0530, p0531, and p0532 are changed. The following limits are always effective for p1082: $p1082 \leq \min(p0324, p0532) \text{ if } p0324 > 0 \text{ and } p0532 > 0$ $p1082 \leq p0322 \text{ if } p0324 = 0 \text{ or } p0532 = 0 \text{ and } p0322 > 0$ $p1082 \leq 60 \times \max(15 \times r0310, 650 \text{ Hz}) / r0313$ $p1082 \leq 60 \times \max(\text{power unit pulse frequency} / (k \times r0313), \text{ with } k = 12 \text{ (vector control), } k = 6.5 \text{ (U/f control)})$ During automatic calculation (p0340 = 1, p3900 > 0), the parameter value is assigned the maximum motor speed (p0322). If p0322 = 0, the rated motor speed (p0311) is used as default (pre-assignment) value. For induction motors, the synchronous no-load speed is used as the default value (p0310 x 60 / r0313). For synchronous motors, the following additionally applies: During automatic calculation (p0340, p3900), p1082 is limited to speeds where the EMF does not exceed the DC link voltage. p1082 is also available in the quick commissioning (p0010 = 1); this means that when exiting via p3900 > 0, the value is not changed.		

<b>p1083[0...n]</b>	<b>CO: Speed limit in positive direction of rotation / n_limit pos</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 210000.000 [rpm]
<b>Description:</b>	Sets the maximum speed for the positive direction.		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>r1084</b>	<b>CO: Speed limit positive effective / n_limit pos eff</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the effective positive speed limit.		
<b>Dependency:</b>	Refer to: p1082, p1083, p1085		
<b>p1085[0...n]</b>	<b>CI: Speed limit in positive direction of rotation / n_limit pos</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1083[0]
<b>Description:</b>	Sets the signal source for the speed limit of the positive direction.		
<b>p1086[0...n]</b>	<b>CO: Speed limit in negative direction of rotation / n_limit neg</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -210000.000 [rpm]	<b>Max</b> 0.000 [rpm]	<b>Factory setting</b> -210000.000 [rpm]
<b>Description:</b>	Sets the speed limit for the negative direction.		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>r1087</b>	<b>CO: Speed limit negative effective / n_limit neg eff</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the effective negative speed limit.		
<b>Dependency:</b>	Refer to: p1082, p1086, p1088		



<b>p1088[0...n]</b>	<b>Cl: Speed limit in negative direction of rotation / n_limit neg</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1086[0]
<b>Description:</b>	Sets the signal source for the speed/velocity limit of the negative direction.		
<b>p1091[0...n]</b>	<b>Skip speed 1 / n_skip 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets skip speed 1.		
<b>Dependency:</b>	Refer to: p1092, p1093, p1094, p1101		
<b>Notice:</b>	Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.		
<b>Note:</b>	The skip (suppression) speeds can be used to prevent the effects of mechanical resonance.		
<b>p1092[0...n]</b>	<b>Skip speed 2 / n_skip 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets skip speed 2.		
<b>Dependency:</b>	Refer to: p1091, p1093, p1094, p1101		
<b>Notice:</b>	Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.		
<b>p1093[0...n]</b>	<b>Skip speed 3 / n_skip 3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets skip speed 3.		
<b>Dependency:</b>	Refer to: p1091, p1092, p1094, p1101		
<b>Notice:</b>	Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.		
<b>p1094[0...n]</b>	<b>Skip speed 4 / n_skip 4</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets skip speed 4.		
<b>Dependency:</b>	Refer to: p1091, p1092, p1093, p1101		
<b>Notice:</b>	Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.		

<b>p1101[0...n]</b>	<b>Skip speed bandwidth / n_skip bandwidth</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 210000.000 [rpm]	<b>Factory setting</b> 0.000 [rpm]
<b>Description:</b>	Sets the bandwidth for the skip speeds/velocities 1 to 4.		
<b>Dependency:</b>	Refer to: p1091, p1092, p1093, p1094		
<b>Note:</b>	<p>The setpoint (reference) speeds are skipped (suppressed) in the range of the skip speed +/-p1101.</p> <p>Steady-state operation is not possible in the skipped (suppressed) speed range. The skip (suppression) range is skipped.</p> <p>Example:</p> <p>p1091 = 600 and p1101 = 20</p> <p>--&gt; setpoint speeds between 580 and 620 [rpm] are skipped.</p> <p>For the skip bandwidths, the following hysteresis behavior applies:</p> <p>For a setpoint speed coming from below, the following applies:</p> <p>r1170 &lt; 580 [rpm] and 580 [rpm] &lt;= r1114 &lt;= 620 [rpm] --&gt; r1119 = 580 [rpm]</p> <p>For a setpoint speed coming from above, the following applies:</p> <p>r1170 &gt; 620 [rpm] and 580 [rpm] &lt;= r1114 &lt;= 620 [rpm] --&gt; r1119 = 620 [rpm]</p>		
<b>p1106[0...n]</b>	<b>CI: Minimum speed signal source / n_min s_src</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for lowest possible motor speed.		
<b>Dependency:</b>	Refer to: p1080		
<b>Notice:</b>	The effective minimum speed is formed from p1080 and p1106.		
<b>p1108[0...n]</b>	<b>BI: Total setpoint selection / Total setp sel</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to select the total setpoint.		
<b>Dependency:</b>	<p>The selection of the total speed setpoint is automatically interconnected to the status word of the technology controller (r2349.4) if the technology controller is selected (p2200 &gt; 0) and operated in the mode p2251 = 0.</p> <p>Refer to: p1109</p>		
<b>Caution:</b>	If the technology controller is to supply the total setpoint using p1109, then it is not permissible to withdraw the interconnection to its status word (r2349.4).		



<b>p1109[0...n]</b>	<b>CI: Total setpoint / Total setp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for the total setpoint. For p1108 = 1 signal, the total setpoint is read in via p1109.		
<b>Dependency:</b>	The signal source of the total setpoint is automatically interconnected to the output of the technology controller (r2294) if the technology controller is selected (p2200 > 0) and operated in the mode p2251 = 0. Refer to: p1108		
<b>Caution:</b>	If the technology controller is to supply the total setpoint using p1109, then it is not permissible to disable the inter-connection to its output (r2294).		
			
<b>p1110[0...n]</b>	<b>BI: Inhibit negative direction / Inhib neg dir</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to disable the negative direction.		
<b>Dependency:</b>	Refer to: p1111		
<b>p1111[0...n]</b>	<b>BI: Inhibit positive direction / Inhib pos dir</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to disable the positive direction.		
<b>Dependency:</b>	Refer to: p1110		
<b>r1112</b>	<b>CO: Speed setpoint after minimum limiting / n_set aft min_lim</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [rpm]	- [rpm]	- [rpm]
<b>Description:</b>	Displays the speed setpoint after the minimum limiting.		
<b>Dependency:</b>	Refer to: p1091, p1092, p1093, p1094, p1101		



<b>p1113[0...n]</b>			
CU240B-2_DP	<b>BI: Setpoint inversion / Setp inv</b>		
CU240E-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP_F	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.11
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b> Sets the signal source to invert the setpoint.			
<b>Dependency:</b> Refer to: r1198			
<b>Caution:</b> If the technology controller is being used as the speed main setpoint (p2251 = 0), do not invert the setpoint using p1113 when the technology controller is enabled because this can cause the speed to change suddenly and lead to positive couplings in the control loop.			
			
<b>Notice:</b> The parameter may be protected as a result of p0922 or p2079 and cannot be changed.			
<b>p1113[0...n]</b>			
CU240B-2	<b>BI: Setpoint inversion / Setp inv</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_F	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 722.1
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b> Sets the signal source to invert the setpoint.			
<b>Dependency:</b> Refer to: r1198			
<b>Caution:</b> If the technology controller is being used as the speed main setpoint (p2251 = 0), do not invert the setpoint using p1113 when the technology controller is enabled because this can cause the speed to change suddenly and lead to positive couplings in the control loop.			
			
<b>Notice:</b> The parameter may be protected as a result of p0922 or p2079 and cannot be changed.			
<b>r1114</b>			
	<b>CO: Setpoint after the direction limiting / Setp after limit</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [rpm]	- [rpm]	- [rpm]
<b>Description:</b> Displays the speed/velocity setpoint after the changeover and limiting the direction.			
<b>p1115</b>			
	<b>Ramp-function generator selection / RFG selection</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	1	1
<b>Description:</b> Sets the ramp-function generator type.			

**Value:** 0: Basic 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**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [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.

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**p1120[0...n] Ramp-function generator ramp-up time / RFG ramp-up time**

<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> C(1), U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.000 [s]	<b>Max</b> 999999.000 [s]	<b>Factory setting</b> 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, p1123

**Note:** The ramp-up time can be scaled via connector input p1138.  
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.  
For U/f control and sensorless vector control (see p1300), ramp-up times of 0 s are not expedient. The setting should be based on the startup times (r0345) of the motor.

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**p1121[0...n] Ramp-function generator ramp-down time / RFG ramp-down time**

PM230

<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> C(1), U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.000 [s]	<b>Max</b> 999999.000 [s]	<b>Factory setting</b> 30.000 [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:** The parameter is pre-assigned depending on the size of the power unit.  
Refer to: p1082, p1123

**Note:** For U/f control and sensorless vector control (see p1300), ramp-down times of 0 s are not recommended. The setting should be based on the startup times (r0345) of the motor.

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**p1121[0...n] Ramp-function generator ramp-down time / RFG ramp-down time**

PM240  
PM250, PM260


<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> C(1), U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.000 [s]	<b>Max</b> 999999.000 [s]	<b>Factory setting</b> 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, p1123

---

**Note:** For U/f control and sensorless vector control (see p1300), ramp-down times of 0 s are not recommended. The setting should be based on the startup times (r0345) of the motor.

<b>p1122[0...n]</b>	<b>BI: Bypass ramp-function generator / Bypass RFG</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for bypassing the ramp generator (ramp-up and ramp-down times = 0).		
<b>Caution:</b>	If the technology controller is operated in mode p2251 = 0 (technology controller as main speed setpoint), then it is not permissible to disable the interconnection to its status word (r2349).		
			
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	In the case of sensorless vector control, the ramp-function generator must not be bypassed, other than indirectly by means of interconnection with r2349.		

<b>p1123[0...n]</b>	<b>Ramp-function generator minimum ramp-up time / RFG t_RU min</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 999999.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the minimum ramp-up time. The ramp-up time (p1120) is limited internally to this minimum value.		
<b>Dependency:</b>	Refer to: p1082		
<b>Note:</b>	The setting should be based on the startup times (r0345) of the motor. If the maximum speed p1082 changes, p1123 is re-calculated.		

<b>p1127[0...n]</b>	<b>Ramp-function generator minimum ramp-down time / RFG t_RD min</b>		
PM230	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
PM250, PM260	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 999999.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the minimum ramp-down time. The ramp-down time (p1121) is limited internally to this minimum value.		
<b>Dependency:</b>	Refer to: p1082		
<b>Note:</b>	For U/f control and sensorless vector control (see p1300), ramp-down times of 0 s are not recommended. The setting should be based on the startup times (r0345) of the motor. If the maximum speed p1082 changes, p1127 is re-calculated.		

<b>p1127[0...n]</b>	<b>Ramp-function generator minimum ramp-down time / RFG t_RD min</b>		
PM240	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 999999.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the minimum ramp-down time. The ramp-down time (p1121) is limited internally to this minimum value.		
<b>Dependency:</b>	Refer to: p1082		

**Note:** For U/f control and sensorless vector control (see p1300), ramp-down times of 0 s are not recommended. The setting should be based on the startup times (r0345) of the motor. If the maximum speed p1082 changes, p1127 is re-calculated.

If a braking resistor is connected to the DC link (p0219 > 0), then the minimum ramp-down time is automatically adapted using p1127.

<b>p1130[0...n]</b>			
<b>Ramp-function generator initial rounding-off time / RFG t_start_round</b>			
PM230	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 30.000 [s]	<b>Factory setting</b> 2.000 [s]
<b>Description:</b>	Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
<b>Note:</b>	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		
<b>p1130[0...n]</b>			
<b>Ramp-function generator initial rounding-off time / RFG t_start_round</b>			
PM240	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM250, PM260	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 30.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
<b>Note:</b>	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		
<b>p1131[0...n]</b>			
<b>Ramp-function generator final rounding-off time / RFG t_end_delay</b>			
PM230	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 30.000 [s]	<b>Factory setting</b> 2.000 [s]
<b>Description:</b>	Sets the final rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
<b>Note:</b>	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		
<b>p1131[0...n]</b>			
<b>Ramp-function generator final rounding-off time / RFG t_end_delay</b>			
PM240	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM250, PM260	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 30.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the final rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
<b>Note:</b>	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		
<b>p1134[0...n]</b>			
<b>Ramp-function generator rounding-off type / RFG round-off type</b>			
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Sets the smoothed response to the OFF1 command or the reduced setpoint for the extended ramp-function generator.		
<b>Value:</b>	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.

<b>p1135[0...n]</b>		<b>OFF3 ramp-down time / OFF3 t_RD</b>	
PM230	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1), U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 5400.000 [s]	<b>Factory setting</b> 30.000 [s]

**Description:** Sets the ramp-down time from the maximum speed down to zero speed for the OFF3 command.

**Dependency:** The parameter is pre-assigned depending on the size of the power unit.

**Note:** This time can be exceeded if the DC link voltage reaches its maximum value.

<b>p1135[0...n]</b>		<b>OFF3 ramp-down time / OFF3 t_RD</b>	
PM240 PM250, PM260	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1), U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 5400.000 [s]	<b>Factory setting</b> 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.

<b>p1136[0...n]</b>		<b>OFF3 initial rounding-off time / RFGOFF3 t_strt_rnd</b>	
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 30.000 [s]	<b>Factory setting</b> 2.000 [s]

**Description:** Sets the initial rounding-off time for OFF3 for the extended ramp generator.

<b>p1136[0...n]</b>		<b>OFF3 initial rounding-off time / RFGOFF3 t_strt_rnd</b>	
PM240 PM250, PM260	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 30.000 [s]	<b>Factory setting</b> 0.000 [s]

**Description:** Sets the initial rounding-off time for OFF3 for the extended ramp generator.

<b>p1137[0...n]</b>		<b>OFF3 final rounding-off time / RFG OFF3 t_end_del</b>	
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 30.000 [s]	<b>Factory setting</b> 0.000 [s]

**Description:** Sets the final rounding-off time for OFF3 for the extended ramp generator.

<b>p1138[0...n]</b>	<b>CI: Up ramp scaling / Up ramp scaling</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	Sets the signal source for scaling the up ramp.		
<b>Dependency:</b>	Refer to: p1120		
<b>Note:</b>	The ramp-up time is set in p1120.		

<b>p1139[0...n]</b>	<b>CI: Down ramp scaling / Down ramp scaling</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	Sets the signal source for scaling the down ramp.		
<b>Dependency:</b>	Refer to: p1121		
<b>Note:</b>	The ramp-down time is set in p1121.		

<b>p1140[0...n]</b>	<b>BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.4
			[1] 1
			[2] 2090.4
			[3] 2090.4



**Description:** Sets the signal source for the command "enable ramp-function generator/inhibit ramp-function generator".  
For the PROFIdrive profile, this command corresponds to control word 1 bit 4 (STW1.4).  
BI: p1140 = 0 signal:  
Inhibits the ramp-function generator (the ramp-function generator output is set to zero).  
BI: p1140 = 1 signal:  
Ramp-function generator enable.

**Dependency:** Refer to: r0054, p1141, p1142

**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.

<b>p1140[0...n]</b>	<b>BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	Sets the signal source for the command "enable ramp-function generator/inhibit ramp-function generator". For the PROFIdrive profile, this command corresponds to control word 1 bit 4 (STW1.4). BI: p1140 = 0 signal: Inhibits the ramp-function generator (the ramp-function generator output is set to zero). BI: p1140 = 1 signal: Ramp-function generator enable.		
<b>Dependency:</b>	Refer to: r0054, p1141, p1142		
<b>Caution:</b>	When "master control from PC" is activated, this binector input is ineffective.		
			
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1141[0...n]</b>	<b>BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2090.5
			[1] 1
			[2] 2090.5
			[3] 2090.5
<b>Description:</b>	Sets the signal source for the command "continue ramp-function generator/freeze ramp-function generator". For the PROFIdrive profile, this command corresponds to control word 1 bit 5 (STW1.5). BI: p1141 = 0 signal: Freezes the ramp-function generator. BI: p1141 = 1 signal: Continue ramp-function generator.		
<b>Dependency:</b>	Refer to: r0054, p1140, p1142		
<b>Caution:</b>	When "master control from PC" is activated, this binector input is ineffective.		
			
<b>Notice:</b>	The ramp-function generator is, independent of the state 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.		

**p1141[0...n] BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG**

CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	1

**Description:** Sets the signal source for the command "continue ramp-function generator/freeze ramp-function generator".  
For the PROFIdrive profile, this command corresponds to control word 1 bit 5 (STW1.5).

BI: p1141 = 0 signal:

Freezes the ramp-function generator.

BI: p1141 = 1 signal:

Continue ramp-function generator.

**Dependency:**

Refer to: r0054, p1140, p1142

**Caution:**

When "master control from PC" is activated, this binector input is ineffective.



**Notice:**

The ramp-function generator is, independent of the state 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.

**p1142[0...n] BI: Enable setpoint/inhibit setpoint / Setpoint enable**

CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

CU240E-2\_PN\_F  
CU240E-2 PN

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	[0] 2090.6
		[1] 1
		[2] 2090.6
		[3] 2090.6

**Description:** Sets the signal source for the command "enable setpoint/inhibit setpoint".  
For the PROFIdrive profile, this command corresponds to control word 1 bit 6 (STW1.6).

BI: p1142 = 0 signal

Inhibits the setpoint (the ramp-function generator input is set to zero).

BI: p1142 = 1 signal

Setpoint enable.

**Dependency:**

Refer to: p1140, p1141

**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:**


When the function module "position control" (r0108.3 = 1) is activated, this binector input is interconnected as follows as standard:

BI: p1142 = 0 signal



<b>p1142[0...n]</b>	<b>BI: Enable setpoint/inhibit setpoint / Setpoint enable</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	Sets the signal source for the command "enable setpoint/inhibit setpoint". For the PROFIdrive profile, this command corresponds to control word 1 bit 6 (STW1.6). BI: p1142 = 0 signal Inhibits the setpoint (the ramp-function generator input is set to zero). BI: p1142 = 1 signal Setpoint enable.		
<b>Dependency:</b>	Refer to: p1140, p1141		
<b>Caution:</b>	When "master control from PC" is activated, this binector input is ineffective.		
			
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	When the function module "position control" (r0108.3 = 1) is activated, this binector input is interconnected as follows as standard: BI: p1142 = 0 signal		
<b>p1143[0...n]</b>	<b>BI: Ramp-function generator, accept setting value / RFG accept set v</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for accepting the setting value of the ramp-function generator.		
<b>Dependency:</b>	The signal source for the ramp-function generator setting value is set using parameters. Refer to: p1144		
<b>Note:</b>	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.		
<b>p1144[0...n]</b>	<b>CI: Ramp-function generator setting value / RFG setting value</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for the ramp-function generator setting value.		
<b>Dependency:</b>	The signal source for accepting the setting value is set using parameters. Refer to: p1143		

<b>p1145[0...n]</b>	<b>Ramp-function generator tracking intensity. / RFG track intens</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0	<b>Max</b> 50.0	<b>Factory setting</b> 0.0
<b>Description:</b>	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.		
<b>Notice:</b>	If ramp-function generator tracking is activated and the ramp time is set too short, this can cause unsteady acceleration. Remedy: - switch off ramp-function generator tracking (p1145 = 0). - increase the ramp-up/ramp-down time (p1120, p1121).		
<b>Note:</b>	In the U/f mode, ramp-function generator tracking is not active.		
<b>p1148[0...n]</b>	<b>Ramp-function gen., tolerance for ramp-up and ramp-down active / RFG tol HL/RL act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.000 [rpm]	<b>Max</b> 1000.000 [rpm]	<b>Factory setting</b> 19.800 [rpm]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: r1199		
<b>r1149</b>	<b>CO: Ramp-function generator, acceleration / RFG acceleration</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2007	<b>Data set:</b> -
	<b>Units group:</b> 39_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rev/s <sup>2</sup> ]	<b>Max</b> - [rev/s <sup>2</sup> ]	<b>Factory setting</b> - [rev/s <sup>2</sup> ]
<b>Description:</b>	Displays the acceleration of the ramp-function generator.		
<b>Dependency:</b>	Refer to: p1145		
<b>r1150</b>	<b>CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the setpoint at the output of the ramp-function generator.		

<b>p1155[0...n]</b>	<b>CI: Speed controller speed setpoint 1 / n_ctrl n_set 1</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for speed setpoint 1 of the speed controller.		
<b>Dependency:</b>	The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6. The signal source of the total setpoint is automatically interconnected to the output of the technology controller (r2294) if the technology controller is selected (p2200 > 0) and operated in the mode p2251 = 1. Refer to: r0002, p0840, p0844, p0848, p0852, p0854, r0898, p1140, p1142, p1160, r1170 If the technology controller is activated, then it is not permissible to withdraw the parameter interconnection.		
<b>Caution:</b>			
			
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1160[0...n]</b>	<b>CI: Speed controller speed setpoint 2 / n_ctrl n_set 2</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for speed setpoint 2 of the speed controller.		
<b>Dependency:</b>	Refer to: p1155, r1170		
<b>Note:</b>	For OFF1/OFF3, the ramp-function generator ramp is effective. The ramp-function generator is set (to the setpoint (r1170)) and stops the drive corresponding to the ramp-down time (p1121 or p1135). While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator).		
<b>r1169</b>	<b>CO: Speed controller, speed setpoints 1 and 2 / n_ctrl n_set 1/2</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [rpm]	- [rpm]	- [rpm]
<b>Description:</b>	Displays the speed setpoint after the addition of the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).		
<b>Dependency:</b>	Refer to: p1155, p1160		
<b>Note:</b>	The value is only correctly displayed at r0899.2 = 1 (operation enabled).		
<b>r1170</b>	<b>CO: Speed controller, setpoint sum / n_ctrl setp sum</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [rpm]	- [rpm]	- [rpm]
<b>Description:</b>	Displays the speed setpoint after selecting the ramp-function generator and adding the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).		
<b>Dependency:</b>	Refer to: r1150, p1155, p1160		

**r1197 Fixed speed setpoint number actual / n\_set\_fixed No act**

<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**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**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the control word for the setpoint channel.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Fixed setp bit 0	Yes	No	3010
	01	Fixed setp bit 1	Yes	No	3010
	02	Fixed setp bit 2	Yes	No	3010
	03	Fixed setp bit 3	Yes	No	3010
	05	Inhibit negative direction	Yes	No	3040
	06	Inhibit positive direction	Yes	No	3040
	11	Setpoint inversion	Yes	No	3040
	13	Motorized potentiometer raise	Yes	No	3020
	14	Motorized potentiometer lower	Yes	No	3020
	15	Bypass ramp-function generator	Yes	No	3060, 3070

**r1199.0...8 CO/BO: Ramp-function generator status word / RFG ZSW**

<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the status word for the ramp-function generator (RFG).

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Ramp-up active	Yes	No	-
	01	Ramp-down active	Yes	No	-
	02	RFG 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	-
	07	Ramp-function generator, acceleration positive	Yes	No	-
	08	Ramp-function generator, acceleration negative	Yes	No	-

**Note:** Re bit 02:

The bit is an OR logic operation - bit 00 and bit 01.

<b>p1200[0...n]</b>	<b>Flying restart operating mode / FlyRest op_mode</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 4	<b>Factory setting</b> 0
<b>Description:</b>	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-function generator setting.		
<b>Value:</b>	0: Flying restart inactive 1: Flying restart always active (start in setpoint direction) 4: Flying restart always active (start only in setpoint direction)		
<b>Dependency:</b>	A differentiation is made between flying restart for U/f control and for vector control (p1300). Flying restart, U/f control: p1202, p1203, r1204 Flying restart, vector control: p1202, p1203, r1205 For synchronous motors, flying restart cannot be activated. Refer to: p1201 Refer to: F07330, F07331		
<b>Notice:</b>	The "flying restart" function must be used in cases where the motor may still be 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.		
<b>Note:</b>	When p1200 = 1, 4: Flying restart is active after faults, OFF1, OFF2, OFF3. When p1200 = 1: The search is made in both directions. When p1200 = 4: The search is only made in the setpoint direction. For U/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 during commissioning (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).		
<b>p1201[0...n]</b>	<b>BI: Flying restart enable signal source / Fly_res enab S_src</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source to enable the "flying restart" function.		
<b>Dependency:</b>	Refer to: p1200		
<b>Note:</b>	Withdrawing the enable signal has the same effect as setting p1200 = 0.		
<b>p1202[0...n]</b>	<b>Flying restart search current / FlyRest I_srch</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10 [%]	<b>Max</b> 400 [%]	<b>Factory setting</b> 90 [%]
<b>Description:</b>	Sets the search current for the "flying restart" function. The value is referred to the motor magnetizing current.		
<b>Dependency:</b>	Refer to: r0331		

**Caution:**

An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

**Note:**

In U/f control mode, the parameter serves as a threshold value for establishing the current at the beginning of the flying restart function. When the threshold value is reached, the prevailing search current is set dependent upon the frequency on the basis of voltage inputs.

Reducing the search current can also improve flying restart performance (if the system moment of inertia is not very high, for example).

**p1202[0...n]****Flying restart search current / FlyRest I\_srch**

PM240

**Access level:** 3**Calculated:** -**Data type:** FloatingPoint32

PM250, PM260

**Can be changed:** U, T**Scaling:** -**Data set:** DDS, p0180**Units group:** -**Unit selection:** -**Min**  
10 [%]**Max**  
400 [%]**Factory setting**  
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:**

In U/f control mode, the parameter serves as a threshold value for establishing the current at the beginning of the flying restart function. When the threshold value is reached, the prevailing search current is set dependent upon the frequency on the basis of voltage inputs.

Reducing the search current can also improve flying restart performance (if the system moment of inertia is not very high, for example).

**p1203[0...n]****Flying restart search rate factor / FlyRst v\_Srch Fact**

PM230

**Access level:** 3**Calculated:** -**Data type:** FloatingPoint32**Can be changed:** U, T**Scaling:** -**Data set:** DDS, p0180**Units group:** -**Unit selection:** -**Min**  
10 [%]**Max**  
4000 [%]**Factory setting**  
150 [%]**Description:**

Sets the factor for the search speed for flying restart.  
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, if the motor is not found (e.g. for motors that are accelerated as a result of active loads or with U/f control and low speeds), we recommend that the search rate is reduced (by increasing p1203).

**p1203[0...n]****Flying restart search rate factor / FlyRst v\_Srch Fact**

PM240

**Access level:** 3**Calculated:** -**Data type:** FloatingPoint32

PM250, PM260

**Can be changed:** U, T**Scaling:** -**Data set:** DDS, p0180**Units group:** -**Unit selection:** -**Min**  
10 [%]**Max**  
4000 [%]**Factory setting**  
100 [%]**Description:**

Sets the factor for the search speed for flying restart.  
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, if the motor is not found (e.g. for motors that are accelerated as a result of active loads or with U/f control and low speeds), we recommend that the search rate is reduced (by increasing p1203).

**r1204.0...13****CO/BO: Flying restart, U/f control status / FlyRest Uf st**

**Access level:** 4                      **Calculated:** -                      **Data type:** Unsigned16  
**Can be changed:** -                      **Scaling:** -                      **Data set:** -  
**Units group:** -                      **Unit selection:** -

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

**Description:**

Displays the status for checking and monitoring flying restart states in the U/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 / FlyRest vector st**

**Access level:** 4                      **Calculated:** -                      **Data type:** Unsigned16  
**Can be changed:** -                      **Scaling:** -                      **Data set:** -  
**Units group:** -                      **Unit selection:** -

**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	Speed adaptation circuit record angle	Yes	No	-
01	Speed adaptation circuit set gain to 0	Yes	No	-
02	Isd channel enable	Yes	No	-
03	Speed control switched out	Yes	No	-
04	Quadrature arm switched in	Yes	No	-
05	Special transformation active	Yes	No	-
06	Speed adaptation circuit set I comp to 0	Yes	No	-
07	Current control on	Yes	No	-
08	Isd_set = 0 A	Yes	No	-
09	Frequency held	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	Speed adaptation circuit deviation = 0	Yes	No	-
15	Speed control activated	Yes	No	-

**Note:** Re bit 00 ... 09:  
Used to control internal sequences during the flying restart.  
Depending on the motor type (p0300), the number of active bits differs.  
Re bits 10 ... 15:  
Are used to monitor the flying restart sequence.

<b>p1206[0...9]</b>	<b>Faults without automatic restart / F w/out auto AR</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 65535	<b>Factory setting</b> 0
<b>Description:</b>	Sets faults for which automatic restart should not be effective.		
<b>Dependency:</b>	The setting is only effective for p1210 = 6, 16. Refer to: p1210		

<b>p1210</b>	<b>Automatic restart, mode / AR mode</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 26	<b>Factory setting</b> 0
<b>Description:</b>	Sets the automatic restart mode (AR). The parameters must be saved in the non-volatile memory p0971 = 1 in order that the setting becomes effective.		
<b>Value:</b>	0: Inhibit automatic restart 1: Acknowledge all faults without restarting 4: Restart after line supply failure w/o additional start attempts 6: Restart after fault with additional start attempts 14: Restart after line supply failure following man. acknowledgment 16: Restart after fault following manual acknowledgment 26: Acknowledging all faults and reclosing for an ON command		
<b>Dependency:</b>	The automatic restart requires an active ON command (e.g., via a digital input). If, for p1210 > 1, there is no active ON command, then the automatic restart is interrupted. When using an Operator Panel in the LOCAL mode, then there is no automatic start. For p1210 = 14, 16, a manual acknowledgement is required for an automatic restart. Refer to: p0840, p0857 Refer to: F30003		
<b>Danger:</b>	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 Control Unit boots if the DC link voltage is present again. This automatic power-up sequence can only be interrupted by withdrawing the ON command.		
			
<b>Caution:</b>	A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1). When faults are present, therefore, the parameter cannot be changed. For p1210 > 1, the motor is automatically started.		
<b>Note:</b>	Re p1210 = 1: Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgment, then these are also automatically acknowledged again. p1211 has no influence on the number of acknowledgment attempts. Re p1210 = 4: An automatic restart is only performed if fault F30003 has occurred on the power unit. If additional faults are present, then these faults are also acknowledged and when successful, starting continues. If the 24 V Control Unit power supply fails, then this is interpreted as a line supply failure. Re p1210 = 6: An automatic restart is carried out if any fault has occurred.		



Re p1210 = 14:

As for p1210 = 4. However, faults that are present must be manually acknowledged.

Re p1210 = 16:

As for p1210 = 6. However, faults that are present must be manually acknowledged.

Re p1210 = 26:

The same as for p1210 = 6. For this mode, the switch-on command can be entered with a delay. To restart after the line supply returns or after acknowledging faults, the switch-on command must be set within the monitoring time (p1213[0]), otherwise fault F07320 will be output. The restart is interrupted with either OFF2 or OFF3.

<b>p1211</b>	<b>Automatic restart, start attempts / AR start attempts</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 10	<b>Factory setting</b> 3
<b>Description:</b>	Sets the start attempts of the automatic restart function for p1210 = 4, 6, 14, 16, 26.		
<b>Dependency:</b>	Refer to: p1210, r1214 Refer to: F07320		
<b>Caution:</b>	A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).		
<b>Notice:</b>	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. After a complete power failure the start counter always starts with the counter value that applied before the power failure, and decrements this start attempt by 1. If a further attempt to acknowledge is started by the automatic restart function prior to power failure, e.g. when the CU remains active on power failure longer than the time p1212 / 2, the fault counter will already have been decremented once. In this case, the start counter is thus decreased by the value 2.		
<b>Note:</b>	A start 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. For p1210 = 26, the start counter is decremented if after a successful fault acknowledgement, the on command is present.		

<b>p1212</b>	<b>Automatic restart, delay time start attempts / AR t_wait start</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.1 [s]	<b>Max</b> 1000.0 [s]	<b>Factory setting</b> 1.0 [s]
<b>Description:</b>	Sets the delay time up to restart.		
<b>Dependency:</b>	This parameter setting is active for p1210 = 4, 6, 26. For p1210 = 1, the following applies: Faults are only automatically acknowledged in half of the waiting time, no restart. Refer to: p1210, r1214		
<b>Caution:</b>	A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).		

**Note:** The faults are automatically acknowledged after half of the delay time has expired and the full delay 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 delay time.

<b>p1213[0...1]</b>	<b>Automatic restart, monitoring time / AR t_monit</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [s]	<b>Max</b> 10000.0 [s]	<b>Factory setting</b> [0] 60.0 [s] [1] 0.0 [s]
<b>Description:</b>	Sets the monitoring time of the automatic restart (AR).		
<b>Index:</b>	[0] = Restart [1] = Reset start counter		
<b>Dependency:</b>	Refer to: p1210, r1214		
<b>Caution:</b>	A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).		
<b>Notice:</b>	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.		
<b>Note:</b>	<p>Index 0:</p> <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 magnetizing of the motor must have been completed: r0056.4 = 1), then fault F07320 is output. 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. The monitoring time must be extended if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present). In the case of p1210 = 14, 16, the faults which are present must be acknowledged manually within the time in p1213[0]. Otherwise, fault F07320 is generated after the set time.</p> <p>Index 1:</p> <p>The start counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213[1] has expired. The delay time is not effective for fault acknowledgement without automatic restart (p1210 = 1). After a power failure (blackout) the delay time only starts after the line supply returns and the Control Unit boots. The start counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged. The start counter is immediately updated if the starting value p1211 or the mode p1210 is changed. For p1210 = 26, the fault must have been successfully acknowledged and the switch-on command issued within the time in p1213[0]. Otherwise, fault F07320 is generated after the set time.</p>		

r1214.0...15	CO/BO: Automatic restart, status / AR status				
	Access level: 4		Calculated: -	Data type: Unsigned16	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min		Max	Factory setting	
	-		-	-	
Description: Displays the status of the automatic restart (AR).					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Initialization	Yes	No	-
	01	Wait for alarm	Yes	No	-
	02	Auto restart act	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	-

10	Effective 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:

State 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" state (bit 4 = 1). For bit 5 = 1 or bit 6 = 1, the acknowledge command is continually displayed.

Re bit 04:

State in which the faults that are present are acknowledged. The state 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 magnetizing 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. This is only reset after acknowledging the fault and withdrawing the power-on command.

Re bit 10:

When the automatic restart function is active, r1214 bit 7 is displayed, otherwise the effective fault r2139 bit 3.

Re bits 12 ... 15:

Actual state of the start counter (binary coded).

In addition to bit 04:

For p1210 = 26, the system waits in this state until the switch-on command is available.

**p1215****Motor holding brake configuration / Brake config**

PM230

**Access level:** 2**Calculated:** -**Data type:** Integer16**Can be changed:** T**Scaling:** -**Data set:** -**Units group:** -**Unit selection:** -**Min****Max****Factory setting**

0

3

0

**Description:**

Sets the holding brake configuration.

**Value:**

0: No motor holding brake available

3: Motor holding brake like sequence control, connection via BICO

**Dependency:**

Refer to: p1216, p1217, p1226, p1227, p1228

**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 3, then when the pulses are suppressed, the brake is closed even if the motor is still rotating. Pulse suppression 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 an external motor holding brake is being used, then p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

The parameter can only be set to zero when the pulses are inhibited.

<b>p1215</b>	<b>Motor holding brake configuration / Brake config</b>		
PM240	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
PM250, PM260	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0
<b>Description:</b>	Sets the holding brake configuration.		
<b>Value:</b>	0: No motor holding brake available 1: Motor holding brake acc. to sequence control 2: Motor holding brake always open 3: Motor holding brake like sequence control, connection via BICO		
<b>Dependency:</b>	Refer to: p1216, p1217, p1226, p1227, p1228		
<b>Caution:</b>	For the setting p1215 = 0, if a brake is used, it remains closed. If the motor moves, this will destroy the brake.		
<b>Notice:</b>	If p1215 was set to 1 or if p1215 was set to 3, then when the pulses are suppressed, the brake is closed even if the motor is still rotating. Pulse suppression 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.		
<b>Note:</b>	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. The parameter can only be set to zero when the pulses are inhibited.		
<b>p1216</b>	<b>Motor holding brake, opening time / Brake t<sub>open</sub></b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 100 [ms]
<b>Description:</b>	Sets the time to open the motor holding brake. After the holding brake has been controlled (opened), the speed setpoint remains at zero for this time. After this, the speed setpoint is enabled.		
<b>Dependency:</b>	Refer to: p1215, p1217		
<b>Note:</b>	For a motor with DRIVE-CLiQ and integrated brake, for p0300 = 10000, this time is pre-assigned the value saved in the motor.		
<b>p1217</b>	<b>Motor holding brake closing time / Brake t<sub>close</sub></b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 100 [ms]
<b>Description:</b>	Sets the time to apply the motor holding brake. After OFF1 or OFF3 and the controlling (closing) of the holding brake, the drive remains stationary under closed-loop control for this time with a speed setpoint of zero. The pulses are suppressed when the time expires.		
<b>Dependency:</b>	Refer to: p1215, p1216		
<b>Notice:</b>	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.		
<b>Note:</b>	For a motor with DRIVE-CLiQ and integrated brake, for p0300 = 10000, this time is pre-assigned the value saved in the motor.		

<b>p1226[0...n]</b>	<b>Threshold for zero speed detection / n_standst n_thresh</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 20.00 [rpm]
<b>Description:</b>	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 undershot, standstill is identified.		
<b>Dependency:</b>	Refer to: p1227		
<b>Note:</b>	Standstill is identified in the following cases: - the speed actual value falls below the speed threshold in p1226 and the time started after this in p1228 has expired. - the speed setpoint falls below the speed threshold in p1226 and the time started after this in p1227 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.		
<b>p1227</b>	<b>Zero speed detection monitoring time / n_standst t_monit</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 300.000 [s]	<b>Factory setting</b> 300.000 [s]
<b>Description:</b>	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).		
<b>Dependency:</b>	The parameter is pre-assigned depending on the size of the power unit. Refer to: p1226		
<b>Notice:</b>	For p1145 > 0.0 (RFG tracking) 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 suppressed.		
<b>Note:</b>	Standstill is identified in the following cases: - the speed actual value falls below the speed threshold in p1226 and the time started after this in p1228 has expired. - the speed setpoint falls below the speed threshold in p1226 and the time started after this in p1227 has expired. For p1227 = 300.000 s, the following applies: Monitoring is de-activated. For p1227 = 0.000 s, the following applies: With OFF1 or OFF3 and a ramp-down time = 0, the pulses are immediately suppressed and the motor "coasts" down. Once the Control Unit has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.		
<b>p1228</b>	<b>Pulse suppression delay time / Pulse suppr t_del</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 299.000 [s]	<b>Factory setting</b> 0.010 [s]
<b>Description:</b>	Sets the delay time for pulse suppression.		

After OFF1 or OFF3, the pulses are canceled, if at least one of the following conditions is fulfilled:

- the speed actual value falls below the threshold in p1226 and the time started after this in p1228 has expired.
- the speed setpoint falls below the threshold in p1226 and the time started after this in p1227 has expired.

**Dependency:** Refer to: p1226, p1227

**Notice:** When the motor holding brake is activated, pulse cancellation is additionally delayed by the brake closing time (p1217).

<b>p1230[0...n]</b>	<b>BI: DC braking activation / DC brake act</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to activate DC braking.		
<b>Dependency:</b>	Refer to: p1231, p1232, p1233, p1234, r1239		
<b>Note:</b>	1 signal: DC braking activated. 0 signal: DC braking de-activated.		

<b>p1231[0...n]</b>	<b>DC braking configuration / DCBRK config</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 14	<b>Factory setting</b> 0
<b>Description:</b>	Setting to activate DC braking.		
<b>Value:</b>	0: No function 4: DC braking 5: DC braking for OFF1/OFF3 14: DC braking below starting speed		
<b>Dependency:</b>	Refer to: p0300, p1232, p1233, p1234, r1239		
<b>Note:</b>	Re p1231 = 4: The function is activated as soon as the activation criterion is fulfilled. - the function can be superseded by an OFF2 response. Activation criterion (one of the following criteria is fulfilled): - binector input p1230 = 1 signal (DC braking activation). - the drive is not in the state "S4: Operation" or in "S5x" (refer to function diagram 2610). - the internal pulse enable is missing (r0046.19 = 0). The function can only be used for induction motors (p0300 = 1). DC braking can only be withdrawn (p1231 = 0) if it is not being used as a fault response in p2101. Re p1231 = 5: DC braking can only be set for induction motors. DC braking is activated if the OFF1 or OFF3 command is present. Binector input p1230 is ineffective. If the drive speed still lies above the speed threshold p1234, then initially, the drive is ramped-down to this threshold, demagnetized (see p0347) and is then switched into DC braking for the time set in p1233. After this, the drive is switched-off. If, at OFF1, the drive speed is below p1234, then it is immediately demagnetized and switched into DC braking. A change is made into normal operation if the OFF1 command is withdrawn prematurely. Flying restart must be activated if the motor is still rotating. DC braking by means of fault response continues to be possible. Re p1231 = 14: In addition to the function for p1231 = 5, binector input p1230 is evaluated. DC braking is only automatically activated when the speed threshold p1234 is fallen below if binector input p1230 = 1 signal.		

Notice:

This is also the case, if no OFF command is present. After demagnetization and after the time in p1233 has expired, the drive changes back into normal operation or is switched-off (for OFF1/OFF3).

If a 0 signal is applied to binector input p1230, for OFF1 and OFF3 no DC braking is executed.

Note:

DCBRK: DC Braking

p1232[0...n]	DC braking, braking current / DCBRK I_brake				
	Access level: 2		Calculated: p0340 = 1	Data type: FloatingPoint32	
	Can be changed: U, T		Scaling: -	Data set: MDS	
	Units group: -		Unit selection: -		
	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 DC braking is switched on.				
	The value for p1232 is specified as an rms value in the 3-phase system. The magnitude of the braking current is the same as that of an identical output current at frequency zero (see r0067, r0068, p0640). The braking current is internally limited to r0067.				
	For the current controller, the settings of parameters p1345 and p1346 (I_max limiting controller) are used.				

p1233[0...n]	DC braking time / DCBRK time				
	Access level: 2		Calculated: -	Data type: FloatingPoint32	
	Can be changed: U, T		Scaling: -	Data set: MDS	
	Units group: -		Unit selection: -		
	Min 0.0 [s]		Max 3600.0 [s]	Factory setting 1.0 [s]	
Description:	Sets the DC braking time (as fault response).				
Dependency:	Refer to: p1230, p1231, p1232, p1234, r1239				

p1234[0...n]	Speed at the start of DC braking / DCBRK n_start				
	Access level: 2		Calculated: -	Data type: FloatingPoint32	
	Can be changed: U, T		Scaling: -	Data set: MDS	
	Units group: -		Unit selection: -		
	Min 0.00 [rpm]		Max 210000.00 [rpm]	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				

r1239.8...13	CO/BO: DC braking status word / DCBRK ZSW				
	Access level: 2		Calculated: -	Data type: Unsigned32	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min -		Max -	Factory setting -	
Description:	Status word of the DC braking.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DC braking active	Yes	No	7017
	10	DC braking ready	Yes	No	7017
	11	DC braking selected	Yes	No	-

12	DC braking selection internally inhibited	Yes	No	-
13	DC braking for OFF1/OFF3	Yes	No	-

**Dependency:** Refer to: p1231, p1232, p1233, p1234

**Note:** Re bit 12, 13:  
Only effective for p1231 = 14.

p1240[0...n]		Vdc controller configuration (vector control) / Vdc_ctr config vec	
PM230	Access level: 3	Calculated: -	Data type: Integer16
	Can be changed: U, T	Scaling: -	Data set: DDS, p0180
	Units group: -	Unit selection: -	
	Min 0	Max 3	Factory setting 1
Description:	Sets the controller configuration of the DC link voltage (Vdc controller) in the closed-loop control mode. For U/f control: see p1280.		
Value:	0: Inhib Vdc ctrl 1: Vdc_max controller enable 3: Vdc_min controller and Vdc_max controller enable		
Dependency:	Refer to: p1245 Refer to: A07400, A07401, A07402, 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 power unit 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. If overvoltage faults occur in spite of the Vdc_max controller being active, the ramp-down time in p1121 might need to be increased. - set the input voltage p0210 as low as possible in line with the supply voltage (in so doing avoid A07401). p1240 = 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. - the Vdc_min controller cannot be used when the line voltage is permanently below 380 V (if required, p1247 should be reduced).		

p1240[0...n]	Vdc controller configuration (vector control) / Vdc_ctr config vec		
PM240	Access level: 3	Calculated: -	Data type: Integer16
	Can be changed: U, T	Scaling: -	Data set: DDS, p0180
	Units group: -	Unit selection: -	
	Min 0	Max 3	Factory setting 1
Description:	Sets the controller configuration of the DC link voltage (Vdc controller) in the closed-loop control mode. For U/f control: see p1280.		
Value:	0:       Inhib Vdc ctrl 1:       Vdc_max controller enable 2:       Vdc_min controller (kinetic buffering) enable 3:       Vdc_min controller and Vdc_max controller enable		
Dependency:	Refer to: p1245 Refer to: A07400, A07401, A07402, 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 power unit 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.


If a braking resistor is connected to the DC link (p0219 > 0), then the Vdc\_max control is automatically deactivated.

<b>r1242 Vdc_max controller switch-in level / Vdc_max on_level</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	<p>Displays the switch-in level for the Vdc_max controller.</p> <p>If p1254 = 0 (automatic sensing of the switch-in level = off), then the following applies:</p> <p><math>r1242 = 1.15 \cdot \sqrt{2} \cdot p0210</math> (supply voltage)</p> <p>PM230: r1242 is limited to Vdc_max - 50.0 V.</p> <p>If p1254 = 1 (automatic sensing of the switch-in level = on), then the following applies:</p> <p><math>r1242 = Vdc\_max - 50.0 \text{ V}</math> (Vdc_max: Overvoltage threshold of the power unit)</p> <p><math>r1242 = Vdc\_max - 25.0 \text{ V}</math> (for 230 V power units)</p>		
<b>Note:</b>	The Vdc_max controller is not switched back off until the DC-link voltage falls below the threshold $0.95 \cdot p1242$ and the controller output is zero.		

<b>p1243[0...n] Vdc_max controller dynamic factor / Vdc_max dyn_factor</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1 [%]	<b>Max</b> 10000 [%]	<b>Factory setting</b> 100 [%]
<b>Description:</b>	<p>Sets the dynamic factor for the DC link voltage controller (Vdc_max controller).</p> <p>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.</p> <p>If subsequent optimization is required, this can be carried out using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1243.</p>		

<b>p1245[0...n] Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 65 [%]	<b>Max</b> 150 [%]	<b>Factory setting</b> 73 [%]
<b>Description:</b>	<p>Sets the switch-in level for the Vdc-min controller (kinetic buffering).</p> <p>The value is obtained as follows:</p> <p><math>r1246[V] = p1245[\%] \cdot \sqrt{2} \cdot p0210</math></p>		
<b>Dependency:</b>	Refer to: p0210		
<b>Warning:</b>	An excessively high value may adversely affect normal drive operation.		



<b>p1245[0...n]</b>	<b>Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 65 [%]	<b>Max</b> 150 [%]	<b>Factory setting</b> 76 [%]
<b>Description:</b>	Sets the switch-in level for the Vdc-min controller (kinetic buffering). The value is obtained as follows: $r1246[V] = p1245[\%] * \sqrt{2} * p0210$		
<b>Dependency:</b>	Refer to: p0210		
<b>Warning:</b>	An excessively high value may adversely affect normal drive operation.		
			
<b>r1246</b>	<b>Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	Displays the switch-in level for the Vdc_min controller (kinetic buffering).		
<b>Note:</b>	The Vdc_min controller is not switched back off until the DC-link voltage rises above the threshold $1.05 * p1246$ and the controller output is zero.		
<b>p1247[0...n]</b>	<b>Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1 [%]	<b>Max</b> 10000 [%]	<b>Factory setting</b> 300 [%]
<b>Description:</b>	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, this can be carried out using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1247.		
<b>p1249[0...n]</b>	<b>Vdc_max controller speed threshold / Vdc_max n_thresh</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 10.00 [rpm]
<b>Description:</b>	Sets the lower speed threshold for the Vdc_max controller. When this speed threshold is undershot, the Vdc_max control is switched out and the speed is controlled using the ramp-function generator.		
<b>Note:</b>	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.		

<b>p1250[0...n]</b>			
<b>Vdc controller proportional gain / Vdc_ctrl Kp</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 1.00
<b>Description:</b> Sets the proportional gain for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).			
<b>Dependency:</b> The effective proportional gain is obtained taking into account p1243 (Vdc_max controller dynamic factor) and the DC link capacitance of the power unit.			
<b>p1251[0...n]</b>			
<b>Vdc controller integral time / Vdc_ctrl Tn</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 0 [ms]
<b>Description:</b> Sets the integral time for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).			
<b>Dependency:</b> The effective integral time is obtained taking into account p1243 (Vdc_max controller dynamic factor).			
<b>Note:</b> p1251 = 0: The integral component is de-activated.			
<b>p1252[0...n]</b>			
<b>Vdc controller rate time / Vdc_ctrl t_rate</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 1000 [ms]	<b>Factory setting</b> 0 [ms]
<b>Description:</b> Sets the rate time constant for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).			
<b>Dependency:</b> The effective rate time is obtained taking into account p1243 (Vdc_max controller dynamic factor).			
<b>p1254</b>			
<b>Vdc_max controller automatic ON level detection / Vdc_max SenseOnLev</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b> Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller.			
<b>Value:</b> 0: Automatic detection inhibited 1: Automatic detection enabled			
<b>p1254</b>			
<b>Vdc_max controller automatic ON level detection / Vdc_max SenseOnLev</b>			
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 1
<b>Description:</b> Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller.			
<b>Value:</b> 0: Automatic detection inhibited 1: Automatic detection enabled			

<b>p1255[0...n]</b>	<b>Vdc_min controller time threshold / Vdc_min t_thresh</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 1800.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	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		
<b>Dependency:</b>	Refer to: F07406		
<b>Notice:</b>	If a time threshold has been parameterized, the Vdc_max controller should also be activated (p1240 = 3) so that the drive does not shut down with overvoltage when Vdc_min control is exited (due to the time violation) and in the event of fault response OFF3. It is also possible to increase the OFF3 ramp-down time p1135.		
<b>p1256[0...n]</b>	<b>Vdc_min controller response (kinetic buffering) / Vdc_min response</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Sets the response for the Vdc_min controller (kinetic buffering).		
<b>Value:</b>	0: Buffer Vdc until undervoltage, n<p1257 -> F07405 1: Buff. Vdc until undervolt., n<p1257 -> F07405, t>p1255 -> F07406		
<b>Dependency:</b>	Refer to: F07405, F07406		
<b>p1257[0...n]</b>	<b>Vdc_min controller speed threshold / Vdc_min n_thresh</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 50.00 [rpm]
<b>Description:</b>	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 .		
<b>r1258</b>	<b>CO: Vdc controller output / Vdc_ctrl output</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the actual output of the Vdc controller (DC link voltage controller)		
<b>Note:</b>	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.		
<b>p1280[0...n]</b>	<b>Vdc controller configuration (U/f) / Vdc_ctr config U/f</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 1
<b>Description:</b>	Sets the configuration of the controller for the DC link voltage (Vdc controller) in the U/f operating mode.		

**Value:** 0: Inhib Vdc ctrl  
1: Vdc\_max controller enable

**Note:** For high input voltages (see p0210), the following settings can improve the degree of ruggedness of the Vdc\_max controller:

- Set the input voltage p0210 as low as possible (in so doing avoid A07401).
- Set the rounding times (p1130, p1136).
- Increase the ramp-down times (p1121).
- Reduce the integral time of the controller (p1291) (factor 0.5).
- Activate the Vdc correction in the current controller (p1810 bit 1 = 1) or reduce the derivative action time of the controller (p1292) (factor 0.5).

In this case, we generally recommend to use vector control (p1300 = 20) (Vdc controller, see p1240).

### p1280[0...n] Vdc controller configuration (U/f) / Vdc\_ctr config U/f

PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 1

**Description:** Sets the configuration of the controller for the DC link voltage (Vdc controller) in the U/f operating mode.

**Value:** 0: Inhib Vdc ctrl  
1: Vdc\_max controller enable  
2: Vdc\_min controller (kinetic buffering) enable  
3: Vdc\_min controller and Vdc\_max controller enable

**Note:** For high input voltages (see p0210), the following settings can improve the degree of ruggedness of the Vdc\_max controller:

- Set the input voltage p0210 as low as possible (in so doing avoid A07401).
- Set the rounding times (p1130, p1136).
- Increase the ramp-down times (p1121).
- Reduce the integral time of the controller (p1291) (factor 0.5).
- Activate the Vdc correction in the current controller (p1810 bit 1 = 1) or reduce the derivative action time of the controller (p1292) (factor 0.5).

In this case, we generally recommend to use vector control (p1300 = 20) (Vdc controller, see p1240).

The following measures are suitable to improve the Vdc\_min controller:

- Optimize the Vdc\_min controller (see p1287).
- Activate the Vdc correction in the current controller (p1810 bit 1 = 1).

If a braking resistor is connected to the DC link (p0219 > 0), then the Vdc\_max control is automatically deactivated.

### r1282 Vdc\_max controller switch-in level (U/f) / Vdc\_max on\_level


PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]

**Description:** Displays the switch-in level for the Vdc\_max controller.

If p1294 = 0 (automatic sensing of the switch-in level = off), then the following applies:  
 $r1282 = 1.15 * \sqrt{2} * p0210$  (supply voltage)

If p1294 = 1 (automatic sensing of the switch-in level = on), then the following applies:  
 $r1282 = Vdc\_max - 50.0 \text{ V}$  (Vdc\_max: Overvoltage threshold of the power unit)  
 $r1282 = Vdc\_max - 25.0 \text{ V}$  (for 230 V power units)

**Note:** The Vdc\_max controller is not switched back off until the DC-link voltage falls below the threshold  $0.95 * p1282$  and the controller output is zero.

<b>p1283[0...n]</b>	<b>Vdc_max controller dynamic factor (U/f) / Vdc_max dyn_factor</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1 [%]	<b>Max</b> 10000 [%]	<b>Factory setting</b> 100 [%]
<b>Description:</b>	<p>Sets the dynamic factor for the DC link voltage controller (Vdc_max controller).</p> <p>100% means that p1290, p1291, and p1292 (gain, integral time, and rate time) are used in accordance with their basic settings and on the basis of a theoretical controller optimization.</p> <p>If subsequent optimization is required, this can be carried out using the dynamic factor. In this case, p1290, p1291, and p1292 are weighted with the dynamic factor p1283.</p>		
<b>p1285[0...n]</b>	<b>Vdc_min controller switch-in level (kinetic buffering) (U/f) / Vdc_min on_level</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 65 [%]	<b>Max</b> 150 [%]	<b>Factory setting</b> 76 [%]
<b>Description:</b>	<p>Sets the switch-in level for the Vdc-min controller (kinetic buffering).</p> <p>The value is obtained as follows:</p> $p1286[V] = p1285[\%] * \sqrt{2} * p0210$		
<b>Warning:</b>	An excessively high value may adversely affect normal drive operation.		
			
<b>r1286</b>	<b>Vdc_min controller switch-in level (kinetic buffering) (U/f) / Vdc_min on_level</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [V]	<b>Max</b> - [V]	<b>Factory setting</b> - [V]
<b>Description:</b>	Displays the switch-in level for the Vdc_min controller (kinetic buffering).		
<b>Note:</b>	The Vdc_min controller is not switched back off until the DC-link voltage rises above the threshold $1.05 * p1286$ and the controller output is zero.		
<b>p1287[0...n]</b>	<b>Vdc_min controller dynamic factor (kinetic buffering) (U/f) / Vdc_min dyn_factor</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1 [%]	<b>Max</b> 10000 [%]	<b>Factory setting</b> 100 [%]
<b>Description:</b>	<p>Sets the dynamic factor for the Vdc_min controller (kinetic buffering).</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, this can be carried out using the dynamic factor. In this case, p1290, p1291, and p1292 are weighted with the dynamic factor p1287.</p>		

<b>p1288[0...n]</b>			
<b>Vdc_max controller feedback coupling factor ramp-fct. gen. (U/f) / Vdc_max factor RFG</b>			
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 100.000	<b>Factory setting</b> 0.500
<b>Description:</b>	Sets the feedback factor for the ramp-function generator. Its ramp times are decelerated relative to the output signal of the Vdc_max controller.		
<b>Note:</b>	For values p1288 = 0.0 to 0.5, the controller dynamics are automatically adapted internally.		

<b>p1290[0...n]</b>			
<b>Vdc controller proportional gain (U/f) / Vdc_ctrl Kp</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 1.00
<b>Description:</b>	Sets the proportional gain for the Vdc controller (DC link voltage controller).		
<b>Note:</b>	The gain factor is proportional to the capacitance of the DC link. The parameter is pre-set to a value that is optimally adapted to the capacitance of the power unit.		

<b>p1291[0...n]</b>			
<b>Vdc controller integral time (U/f) / Vdc_ctrl Tn</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 40 [ms]
<b>Description:</b>	Sets the integral time for the Vdc controller (DC link voltage controller).		

<b>p1292[0...n]</b>			
<b>Vdc controller rate time (U/f) / Vdc_ctrl t_rate</b>			
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 1000 [ms]	<b>Factory setting</b> 10 [ms]
<b>Description:</b>	Sets the rate time constant for the Vdc controller (DC link voltage controller).		

<b>p1293[0...n]</b>			
<b>Vdc min controller output limit (U/f) / Vdc_min outp_lim</b>			
PM240	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 600.00 [Hz]	<b>Factory setting</b> 600.00 [Hz]
<b>Description:</b>	Sets the output limit for the Vdc min controller (DC link undervoltage controller).		

<b>p1294</b>	<b>Vdc_max controller automatic detection ON signal level (U/f) / Vdc_max SenseOnLev</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
PM240	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller. When the sensing function is de-activated, the activation threshold r1282 for the Vdc_max controller is determined from the parameterized connection voltage p0210.		
<b>Value:</b>	0: Automatic detection inhibited 1: Automatic detection enabled		
<b>p1295[0...n]</b>	<b>Vdc_min controller time threshold (U/f) / Vdc_min t_thresh</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 10000.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	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.		
<b>Notice:</b>	If a time threshold has been parameterized, the Vdc_max controller should also be activated (p1280 = 3) so that the drive does not shut down with overvoltage when Vdc_min control is exited (due to the time violation) and in the event of fault response OFF3. It is also possible to increase the OFF3 ramp-down time p1135.		
<b>p1296[0...n]</b>	<b>Vdc_min controller response (kinetic buffering) (U/f / Vdc_min response</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Sets the response for the Vdc_min controller (kinetic buffering).		
<b>Value:</b>	0: Buffer Vdc until undervoltage, n<p1297 -> F07405 1: Buff. Vdc until undervolt., n<p1297 -> F07405, t>p1295 -> F07406		
<b>Note:</b>	Re p1296 = 1: The quick stop ramp entered in p1135 must not be equal to zero, to prevent overcurrent shutdown if F07406 is triggered.		
<b>p1297[0...n]</b>	<b>Vdc_min controller speed threshold (U/f) / Vdc_min n_thresh</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 50.00 [rpm]
<b>Description:</b>	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 .		



<b>r1298</b>	<b>CO: Vdc controller output (U/f) / Vdc_ctrl output</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM240	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the actual output of the Vdc controller (DC link voltage controller)		
<b>p1300[0...n]</b>	<b>Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 22	<b>Factory setting</b> 0
<b>Description:</b>	Sets the open and closed-loop control mode of a drive.		
<b>Value:</b>	0: U/f control with linear characteristic 1: U/f control with linear characteristic and FCC 2: U/f control with parabolic characteristic 3: U/f control with parameterizable characteristic 4: U/f control with linear characteristic and ECO 5: U/f control for drives requiring a precise freq. (e.g. textiles) 6: U/f control for drives requiring a precise frequency and FCC 7: U/f control for a parabolic characteristic and ECO 19: U/f control with independent voltage setpoint 20: Speed control (encoderless) 22: Torque control (encoderless)		
<b>Dependency:</b>	Only operation with U/f characteristic is possible if the rated motor speed is not entered (p0311). Operation with a U/f characteristic is not supported for 1LE4 synchronous motors. Refer to: p0300, p0311, p0500, p1501		
<b>Notice:</b>	Active slip compensation is required in the U/f control types with Eco mode (p1300 = 4, 7). The scaling of the slip compensation (p1335) should be set so that the slip is completely compensated (generally 100%). The Eco mode is only effective in steady-state operation and when the ramp-function generator is not bypassed. In the case of analog setpoints, if required the tolerance for ramp-up and ramp-down should be actively increased for the ramp-function generator using p1148 in order to reliably signal a steady-state condition.		
<b>Note:</b>	Only by selecting closed-loop speed control (p1300 = 20) is it possible to change over in operation to closed-loop torque 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), slip compensation p1335, resonance damping p1338, and the I <sub>max</sub> frequency controller are switched off internally so that the output frequency can be set precisely. The I <sub>max</sub> voltage controller remains active. During operation (the pulses enabled) the open-loop/closed-loop control mode cannot be changed by changing over drive data sets.		
<b>p1310[0...n]</b>	<b>Voltage boost permanent / U_boost perm</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 250.0 [%]	<b>Factory setting</b> 50.0 [%]
<b>Description:</b>	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] =  $1.732 \times p0305$  (rated motor current [A])  $\times r0395$  (stator/primary section resistance [ohm])  $\times p1310$  (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 U/f characteristics.

**Dependency:**

The current limit p0640 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, p1312, r1315

**Notice:**

The voltage boost increases the motor temperature (particularly at zero speed).

**Note:**

The voltage boost is only effective for U/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), voltage boost for starting (p1312)).

However, these parameters are assigned the following priorities: p1310 > p1311, p1312

**p1311[0...n] Voltage boost at acceleration / U\_boost accelerate**

**Access level:** 2

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** -

**Data set:** DDS, p0180

**Units group:** -

**Unit selection:** -

**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 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 build-up and withdrawal of the voltage boost are smoothed.

The magnitude of the boost in Volt at a frequency of zero is defined as follows:

Voltage boost [V] =  $1.732 \times p0305$  (rated motor current [A])  $\times r0395$  (stator/primary section resistance [ohm])  $\times p1311$  (voltage boost when accelerating [%]) / 100 %

**Dependency:**

The current limit p0640 limits the boost.

Refer to: p1300, p1310, p1312, 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

**p1312[0...n] Voltage boost when starting / U\_boost starting**

**Access level:** 2

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** -

**Data set:** DDS, p0180

**Units group:** -

**Unit selection:** -

**Min**

0.0 [%]

**Max**

250.0 [%]

**Factory setting**

0.0 [%]

**Description:**

Setting for an additional voltage boost when powering-up, however, only for the first acceleration phase.

The voltage boost becomes effective for a positive setpoint increase and disappears as soon as the setpoint has been reached. The build-up and withdrawal of the voltage boost are smoothed.

**Dependency:**

The current limit p0640 limits the boost.

Refer to: p1300, p1310, p1311, 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

<b>r1315</b>	<b>Voltage boost total / U_boost total</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the total resulting voltage boost in volt. $r1315 = p1310 + p1311 + p1312$		
<b>Dependency:</b>	Refer to: p1310, p1311, p1312		
<b>p1320[0...n]</b>	<b>U/f control programmable characteristic frequency 1 / Uf char f1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 3000.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the first point along the characteristic.		
<b>Dependency:</b>	Selects the freely programmable characteristic using p1300 = 3. The following applies to the frequency values: $p1320 \leq p1322 \leq p1324 \leq p1326$ . 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		
<b>Note:</b>	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 U/f characteristic.		
<b>p1321[0...n]</b>	<b>U/f control programmable characteristic voltage 1 / Uf char U1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [Vrms]	<b>Max</b> 10000.0 [Vrms]	<b>Factory setting</b> 0.0 [Vrms]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the first point along the characteristic.		
<b>Dependency:</b>	Selects the freely programmable characteristic using p1300 = 3. Refer to: p1310, p1311, p1320, p1322, p1323, p1324, p1325, p1326, p1327		
<b>Note:</b>	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 U/f characteristic.		
<b>p1322[0...n]</b>	<b>U/f control programmable characteristic frequency 2 / Uf char f2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 3000.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the second point along the characteristic.		
<b>Dependency:</b>	The following applies to the frequency values: $p1320 \leq p1322 \leq p1324 \leq p1326$ . Otherwise, a standard characteristic is used that contains the rated motor operating point. Refer to: p1310, p1311, p1320, p1321, p1323, p1324, p1325, p1326, p1327		

<b>p1323[0...n]</b>	<b>U/f control programmable characteristic voltage 2 / Uf char U2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [Vrms]	<b>Max</b> 10000.0 [Vrms]	<b>Factory setting</b> 0.0 [Vrms]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the second point along the characteristic.		
<b>Dependency:</b>	Refer to: p1310, p1311, p1320, p1321, p1322, p1324, p1325, p1326, p1327		
<b>p1324[0...n]</b>	<b>U/f control programmable characteristic frequency 3 / Uf char f3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 3000.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the third point along the characteristic.		
<b>Dependency:</b>	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		
<b>p1325[0...n]</b>	<b>U/f control programmable characteristic voltage 3 / Uf char U3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [Vrms]	<b>Max</b> 10000.0 [Vrms]	<b>Factory setting</b> 0.0 [Vrms]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the third point along the characteristic.		
<b>Dependency:</b>	Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1326, p1327		
<b>p1326[0...n]</b>	<b>U/f control programmable characteristic frequency 4 / Uf char f4</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 10000.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the frequency of the fourth point along the characteristic.		
<b>Dependency:</b>	Selects the freely programmable characteristic using p1300 = 3. The following applies for 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, p1324, p1325, p1327		
<b>Note:</b>	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 U/f characteristic.		

<b>p1327[0...n]</b>	<b>U/f control programmable characteristic voltage 4 / Uf char U4</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [Vrms]	<b>Max</b> 10000.0 [Vrms]	<b>Factory setting</b> 0.0 [Vrms]
<b>Description:</b>	The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the fourth point along the characteristic.		
<b>Dependency:</b>	Selects the freely programmable characteristic using p1300 = 3. Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1325, p1326		
<b>Note:</b>	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 U/f characteristic.		

<b>p1330[0...n]</b>	<b>CI: U/f control independent voltage setpoint / Uf U_set independ.</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2001	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the voltage setpoint for U/f control with an independent voltage setpoint (p1300 = 19).		
<b>Dependency:</b>	Selects the U/f control with independent voltage setpoint via p1300 = 19. Refer to: p1300		

<b>p1333[0...n]</b>	<b>U/f control FCC starting frequency / U/f FCC f_start</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 3000.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	Sets the starting frequency at which FCC (Flux Current Control) is activated.		
<b>Dependency:</b>	The correct operating mode must be set (p1300 = 1, 6).		
<b>Warning:</b>	An excessively low value can result in instability.		
			
<b>Note:</b>	For p1333 = 0 Hz, the FCC starting frequency is automatically set to 6 % of the rated motor frequency.		

<b>p1334[0...n]</b>	<b>U/f control slip compensation starting frequency / Slip comp start</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 3000.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	Sets the starting frequency of the slip compensation.		
<b>Note:</b>	For p1334 = 0, the starting frequency of the slip compensation is automatically set to 6 % of the rated motor frequency.		

<b>p1335[0...n]</b>	<b>Slip compensation, scaling / Slip comp scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 600.0 [%]	<b>Factory setting</b> 0.0 [%]
<b>Description:</b>	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.		
<b>Dependency:</b>	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. For U/f control types with Eco optimization (4 and 7), the slip compensation must be activated in order to guarantee correct operation.		
<b>Note:</b>	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 during commissioning (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).		
<b>p1336[0...n]</b>	<b>Slip compensation limit value / Slip comp lim val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 600.00 [%]	<b>Factory setting</b> 250.00 [%]
<b>Description:</b>	Sets the limit value for slip compensation in [%] referred to r0330 (motor rated slip).		
<b>r1337</b>	<b>CO: Actual slip compensation / Slip comp act val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the actual compensated slip [%] referred to r0330 (rated motor slip).		
<b>Dependency:</b>	p1335 > 0 %: Slip compensation active. Refer to: p1335		
<b>p1338[0...n]</b>	<b>U/f mode resonance damping gain / Uf Res_damp gain</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Sets the gain for resonance damping for U/f control.		
<b>Dependency:</b>	Refer to: p1300, p1339, p1349		
<b>Note:</b>	The resonance damping function dampens active current oscillations that frequency occur under no-load conditions.		

The resonance damping is active in a range from approximately 6 % of the rated motor frequency (p0310). The shutoff frequency is determined by p1349.

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.

<b>p1339[0...n]</b>	<b>U/f mode resonance damping filter time constant / Uf Res_damp T</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1.00 [ms]	<b>Max</b> 1000.00 [ms]	<b>Factory setting</b> 20.00 [ms]
<b>Description:</b>	Sets the filter time constant for resonance damping for U/f control.		
<b>Dependency:</b>	Refer to: p1300, p1338, p1349		
<b>p1340[0...n]</b>	<b>I_max frequency controller proportional gain / I_max_ctrl Kp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 0.500	<b>Factory setting</b> 0.000
<b>Description:</b>	Sets the proportional gain of the I_max frequency controller. The I_max controller reduces the drive converter output current if the maximum current (r0067) is exceeded. In the U/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).		
<b>Dependency:</b>	In the U/f modes (p1300) for textile applications and for external voltage setpoints, only the I_max voltage controller is used.		
<b>Notice:</b>	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.		
<b>Note:</b>	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.		
<b>p1341[0...n]</b>	<b>I_max frequency controller integral time / I_max_ctrl Tn</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 50.000 [s]	<b>Factory setting</b> 0.300 [s]
<b>Description:</b>	Sets the integral time for the I_max frequency controller.		
<b>Dependency:</b>	Refer to: p1340		
<b>Note:</b>	When p1341 = 0, the current limiting controller influencing the frequency is de-activated and only the current limiting controller influencing the output voltage remains active (p1345, p1346). In the case of power units with regenerative feedback (PM250, PM260), current limitation control for a regenerative load is always implemented by influencing the frequency. This current limiting function is de-activated with p1340 = p1341 = 0.		

<b>r1343</b>	<b>CO: I_max controller frequency output / I_max_ctrl f_outp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the effective frequency limit.		
<b>Dependency:</b>	Refer to: p1340		
<b>r1344</b>	<b>I_max controller voltage output / I_max_ctrl U_outp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the amount by which the converter output voltage is reduced.		
<b>Dependency:</b>	Refer to: p1340		
<b>p1345[0...n]</b>	<b>I_max voltage controller proportional gain / I_max_U_ctrl Kp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 100000.000	<b>Factory setting</b> 0.000
<b>Description:</b>	Sets the proportional gain for the I_max voltage controller.		
<b>Dependency:</b>	Refer to: p1340		
<b>Note:</b>	The controller settings are also used in the current controller of the DC braking (refer to p1232).		
<b>p1346[0...n]</b>	<b>I_max voltage controller integral time / I_max_U_ctrl Tn</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 50.000 [s]	<b>Factory setting</b> 0.030 [s]
<b>Description:</b>	Sets the integral time for the I_max voltage controller.		
<b>Dependency:</b>	Refer to: p1340		
<b>Note:</b>	The controller settings are also used in the current controller of the DC braking (refer to p1232). For p1346 = 0, the following applies: The integral time of the I_max voltage controller is de-activated.		
<b>r1348</b>	<b>CO: U/f control Eco factor actual value / U/f Eco fac act v</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the economic factor determined for optimizing motor consumption.		
<b>Dependency:</b>	Refer to: p1335		
<b>Note:</b>	The value is only determined for operating modes with Economic (p1300 = 4, 7).		



<b>p1349[0...n]</b>	<b>U/f mode resonance damping maximum frequency / Uf res_damp f_max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [Hz]	<b>Max</b> 3000.00 [Hz]	<b>Factory setting</b> 0.00 [Hz]
<b>Description:</b>	Sets the maximum output frequency for resonance damping for U/f control. Resonance damping is inactive above this output frequency.		
<b>Dependency:</b>	Refer to: p1338, p1339		
<b>Note:</b>	For p1349 = 0, the changeover limit is automatically set to 95 % of the rated motor frequency - however, to a max. of 45 Hz.		
<b>p1350[0...n]</b>	<b>Soft starting / Soft starting</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	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).		
<b>Value:</b>	0: OFF 1: ON		
<b>Note:</b>	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		
<b>p1351[0...n]</b>	<b>CO: Motor holding brake starting frequency / Brake f_start</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -300.00 [%]	<b>Max</b> 300.00 [%]	<b>Factory setting</b> 0.00 [%]
<b>Description:</b>	Sets the frequency setting value at the slip compensation output for starting up with motor holding brake.		
<b>Dependency:</b>	When setting p1351 > 0, then slip compensation is automatically activated (p1335 = 100 %). Refer to: p1352		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	Connected with p1352 a value of 100% corresponds to the motor rated slip (r0330).		
<b>p1352[0...n]</b>	<b>CI: Motor holding brake starting frequency signal source / Brake f_start</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1351[0]
<b>Description:</b>	Sets the signal source for the frequency setting value at the slip compensation output for starting up with motor holding brake.		
<b>Dependency:</b>	Refer to: p1216		

**Note:** A value of 100% corresponds to the motor rated slip (r0330).  
The setting of the starting frequency begins after magnetizing (see p0346, r0056.4) and ends once the brake opening time (p1216) has elapsed and the starting frequency (p1334) has been reached.  
A setting value of zero means that no setting procedure will take place.

<b>p1400[0...n]</b>		<b>Speed control configuration / n_ctrl config</b>		
		<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
		<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
		<b>Units group:</b> -	<b>Unit selection:</b> -	
		<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
		-	-	1000 0000 0010 0001 bin
<b>Description:</b>		Sets the configuration for the closed-loop speed control.		
<b>Bit field:</b>		<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>
		00	Automatic Kp/Tn adaptation active	No
		01	Sensorless vector control freeze I comp	No
		05	Kp/Tn adaptation active	No
		06	Free Tn adaptation active	No
		14	Torque pre-control	Always active
		15	Sensorless vector control, speed pre-control	No
				<b>FP</b>
				6040
				6040
				6040
				6050
				6060
				6030
<b>Note:</b>		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.		

<b>p1401[0...n]</b>		<b>Flux control configuration / Flux ctrl config</b>		
		<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
		<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
		<b>Units group:</b> -	<b>Unit selection:</b> -	
		<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
		-	-	0000 0110 bin
<b>Description:</b>		Sets the configuration for flux setpoint control		
<b>Bit field:</b>		<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>
		00	Flux setpoint soft starting active	No
		01	Flux setpoint differentiation active	No
		02	Flux build-up control active	No
				<b>FP</b>
				6722
				6723
				6722,
				6723
		06	Quick magnetizing	No
		07	Pre-control speed limitation	No
				6640
<b>Note:</b>		Re bit 00 (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 magnetizing time p0346. Re bit 01 (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 magnetizing time p0346. When quick magnetizing (p1401.6 = 1) is selected, soft starting is internally de-activated and alarm A07416 is displayed. 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 02 (not for permanent-magnet synchronous motors): The flux build-up control operates during the magnetizing phase p0346 of the induction motor. If it is switched out, a constant current setpoint is injected and the flux is built up corresponding to the rotor time constant. When quick magnetizing (p1401.6 = 1) is selected and when flux build-up control is de-energized alarm A07416 is displayed. Re bit 06 (not for induction motors): Magnetizing is performed with maximum current (0.9 * r0067). With active identification of the stator resistance (see p0621) quick magnetizing is internally de-activated and alarm A07416 is displayed. During a flying restart of a rotating motor (see p1200) no quick magnetizing takes place.		

Re bit 07:

if the speed of the drive exceeds the effective speed limit of the speed limiting controller, the torque limit is reduced linearly to zero as the deviation becomes greater. This reduces the integral component of the speed controller and, in turn, the overshoot during load shedding (see also F07901 and p2162).

p1402[0...n]					
Closed-loop current control and motor model configuration / I_ctrl config					
Access level: 4		Calculated: p0340 = 1,3		Data type: Unsigned16	
Can be changed: U, T		Scaling: -		Data set: DDS, p0180	
Units group: -		Unit selection: -			
Min		Max		Factory setting	
-		-		0000 bin	
Description: Sets the configuration for the closed-loop control and the motor model.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	02	Current controller adaptation active	Yes	No	-

r1406.4...15					
CO/BO: Control word speed controller / STW n_ctrl					
Access level: 3		Calculated: -		Data type: Unsigned16	
Can be changed: -		Scaling: -		Data set: -	
Units group: -		Unit selection: -			
Min		Max		Factory setting	
-		-		-	
Description: Displays the control word of the speed controller.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	Hold speed controller I component	Yes	No	6040
	05	Set speed controller I component	Yes	No	6040
	11	Droop enable	Yes	No	6030
	12	Torque control active	Yes	No	6060
	15	Set speed adaptation controller I component	Yes	No	-

r1407.0...17					
CO/BO: Status word speed controller / ZSW n_ctrl					
Access level: 3		Calculated: -		Data type: Unsigned32	
Can be changed: -		Scaling: -		Data set: -	
Units group: -		Unit selection: -			
Min		Max		Factory setting	
-		-		-	
Description: Displays the status word of the speed controller.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	U/f control active	Yes	No	-
	01	Encoderless operation active	Yes	No	-
	02	Torque control active	Yes	No	6030, 6060, 8010
	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	6060
	09	Lower torque limit active	Yes	No	6060
	10	Droop enabled	Yes	No	6030
	11	Speed setpoint limited	Yes	No	6030
	12	Ramp-function generator set	Yes	No	-
	13	Encoderless operation due to a fault	Yes	No	-
	14	I/f control active	Yes	No	-
	15	Torque limit reached (without pre-control)	Yes	No	6060
	17	Speed limiting control active	Yes	No	6640

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<b>r1444</b>	<b>Speed controller, speed setpoint steady-state (static) / n_ctrl n_set stat</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	<p>Displays the sum of all speed setpoints that are present.</p> <p>The following sources are available for the displayed setpoint:</p> <ul style="list-style-type: none"> <li>- setpoint at the ramp-function generator input (r1119).</li> <li>- speed setpoint 1 (p1155).</li> <li>- speed setpoint 2 (p1160).</li> <li>- speed setpoint for the speed pre-control (p1430).</li> <li>- setpoint from DSC (for DSC active).</li> <li>- setpoint via PC (for master control active).</li> </ul>		
<b>Dependency:</b>	Refer to: r1119, p1155, p1160		
<b>r1445</b>	<b>CO: Actual speed smoothed / n_act smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the actual smoothed actual speed for speed control.		
<b>p1452[0...n]</b>	<b>Speed controller speed actual value smoothing time (SLVC) / n_C n_act T_s SLVC</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 32000.00 [ms]	<b>Factory setting</b> 10.00 [ms]
<b>Description:</b>	Sets the smoothing time for the actual speed of the speed controller for encoderless closed-loop speed control.		
<b>Note:</b>	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).		
<b>r1454</b>	<b>CO: Speed controller system deviation I component / n_ctrl sys dev Tn</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the system deviation of the I component of the speed controller.		
<b>p1455[0...n]</b>	<b>CI: Speed controller P gain adaptation signal / n_ctr adapt_sig Kp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the source for the adaptation signal to additionally adapt the P gain of the speed controller.		
<b>Dependency:</b>	Refer to: p1456, p1457, p1458, p1459		

<b>p1456[0...n]</b>	<b>Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 400.00 [%]	<b>Factory setting</b> 0.00 [%]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: p1455, p1457, p1458, p1459		
<b>Note:</b>	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.		
<b>p1457[0...n]</b>	<b>Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 400.00 [%]	<b>Factory setting</b> 0.00 [%]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: p1455, p1456, p1458, p1459		
<b>Note:</b>	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.		
<b>p1458[0...n]</b>	<b>Adaptation factor, lower / Adapt_factor lower</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/velocity controller.		
<b>Dependency:</b>	Refer to: p1455, p1456, p1457, p1459		
<b>Note:</b>	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.		
<b>p1459[0...n]</b>	<b>Adaptation factor, upper / Adapt_factor upper</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller.		
<b>Dependency:</b>	Refer to: p1455, p1456, p1457, p1458		
<b>Note:</b>	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.		

<b>p1461[0...n]</b>	<b>Speed controller Kp adaptation speed, upper scaling / n_ctr Kp n up scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	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 p1470).		
<b>Dependency:</b>	Refer to: p1464, p1465		
<b>Note:</b>	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.		
<b>p1463[0...n]</b>	<b>Speed controller Tn adaptation speed, upper scaling / n_ctr Tn n up scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	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 p1472).		
<b>Dependency:</b>	Refer to: p1464, p1465		
<b>Note:</b>	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.		
<b>p1464[0...n]</b>	<b>Speed controller adaptation speed, lower / n_ctrl n lower</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 0.00 [rpm]
<b>Description:</b>	Sets the lower adaptation speed of the speed controller. No adaptation is effective below this speed.		
<b>Dependency:</b>	Refer to: p1461, p1463, p1465		
<b>Note:</b>	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 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.		
<b>p1465[0...n]</b>	<b>Speed controller adaptation speed, upper / n_ctrl n upper</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 210000.00 [rpm]
<b>Description:</b>	Sets the upper adaptation speed of the speed controller. No adaptation is effective above this speed. For P gain, p1470 x p1461 is effective. For the integral time, p1472 x p1463 is effective.		
<b>Dependency:</b>	Refer to: p1461, p1463, p1464		

**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 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.

<b>p1466[0...n]</b>	<b>CI: Speed controller P-gain scaling / n_ctrl Kp scal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	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.		
<b>r1468</b>	<b>CO: Speed controller P-gain effective / n_ctr Kp eff</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the effective P gain of the speed controller.		
<b>r1469</b>	<b>Speed controller integral time effective / n_ctr Tn eff</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ms]	<b>Max</b> - [ms]	<b>Factory setting</b> - [ms]
<b>Description:</b>	Displays the effective integral time of the speed controller.		
<b>p1470[0...n]</b>	<b>Speed controller encoderless operation P-gain / n_ctrl SLVC Kp</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 999999.000	<b>Factory setting</b> 0.300
<b>Description:</b>	Sets the P gain for encoderless operation for the speed controller.		
<b>Note:</b>	The product p0341 x p0342 is taken into account when automatically calculating the speed controller (p0340 = 1, 3, 4).		
<b>p1472[0...n]</b>	<b>Speed controller encoderless operation integral time / n_ctrl SLVC Tn</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [ms]	<b>Max</b> 100000.0 [ms]	<b>Factory setting</b> 20.0 [ms]
<b>Description:</b>	Set the integral time for encoderless operation for the speed controller.		
<b>Note:</b>	The integral component is stopped if the complete controller output or the sum of controller output and torque pre-control reach the torque limit.		



<b>p1475[0...n]</b>	<b>CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for the torque setting value when starting up with motor holding brake.		
<b>Dependency:</b>	The switching in of the torque setting value for the motor holding brake has a higher priority than the setting of the integrator value using p1477 and p1478.		
<b>Note:</b>	<p>The setting of the integral output of the speed controller begins after magnetizing (see p0346, r0056 bit 4) and ends at the end of the brake control opening time p1216. A setting value of zero means that no setting procedure will take place.</p> <p>If p1351 is used as a signal source for the torque setting value, the percentage value is interpreted in relation to the rated torque (p2003).</p>		
<b>p1476[0...n]</b>	<b>BI: Speed controller hold integrator / n_ctrl integ stop</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to hold the integrator for the speed controller.		
<b>p1477[0...n]</b>	<b>BI: Speed controller set integrator value / n_ctrl integ set</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source to set the integrator setting value (p1478).		
<b>Dependency:</b>	Refer to: p1478, p1479		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1478[0...n]</b>	<b>CI: Speed controller integrator setting value / n_ctr integ_setVal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	<p>Sets the signal source for the integrator setting value for the velocity controller.</p> <p>The signal to set this integrator setting value is interconnected via p1477.</p>		
<b>Dependency:</b>	<p>The setting value of the speed controller integrator is weighted with the scaling factor of the signal source in p1479.</p> <p>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.</p> <p>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).</p> <p>If p1478 is interconnected to another output other than r1482, then after magnetizing and speed controller enable, the integral output is set once if the setting command is not interconnected (p1477 = 0).</p>		

Refer to: p1477, p1479

**Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

<b>p1479[0...n]</b>	<b>CI: Speed controller integrator setting value scaling / n_ctrl I_val scal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for scaling the integrator setting value (p1478) of the speed controller.		
<b>Dependency:</b>	Refer to: p1477, p1478		

<b>r1482</b>	<b>CO: Speed controller I torque output / n_ctrl I-M_output</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the torque setpoint at the output of the I speed controller.		

<b>p1486[0...n]</b>	<b>CI: Droop compensation torque / Droop M_comp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the compensation torque to be output within the droop calculation. p1486 should be connected with the torque setpoint (corresponding to the selection p1488) of the drive, with which load equalization should take place.		

<b>p1487[0...n]</b>	<b>Droop compensation torque scaling / Droop M_comp scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -2000.0 [%]	<b>Max</b> 2000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the scaling for the compensation torque within the droop calculation.		

<b>p1488[0...n]</b>	<b>Droop input source / Droop input source</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0
<b>Description:</b>	Sets the source for droop feedback. With increasing torque, the speed setpoint is reduced (enabled using p1492), so that for mechanically coupled drives a load equalization (load compensation) is obtained. A load difference compensation is also possible, if p1486 is connected with the torque setpoint of the other drive.		
<b>Value:</b>	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: p1486, p1487, p1489, r1490, p1492

**Caution:**

For active acceleration precontrol of the speed controller (refer to p1496), it is not recommended that p1488 is set to 1, as this could result in positive coupling effects. Instead of this, as source of the droop feedback, the output signal of the speed controller should be used, which generally sets the load torque.

**p1489[0...n]****Droop feedback scaling / Droop scaling****Access level:** 3**Calculated:** -**Data type:** FloatingPoint32**Can be changed:** U, T**Scaling:** -**Data set:** DDS, p0180**Units group:** -**Unit selection:** -**Min**  
0.000**Max**  
0.500**Factory setting**  
0.050**Description:**

Sets the scaling for the droop feedback

**Dependency:**

Refer to: p1486, p1487, 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****Access level:** 3**Calculated:** -**Data type:** FloatingPoint32**Can be changed:** -**Scaling:** p2000**Data set:** -**Units group:** 3\_1**Unit selection:** p0505**Min**  
- [rpm]**Max**  
- [rpm]**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: p1486, p1487, p1488, p1489, p1492

**p1492[0...n]****BI: Droop feedback enable / Droop enable****Access level:** 3**Calculated:** -**Data type:** U32 / Binary**Can be changed:** U, T**Scaling:** -**Data set:** CDS, p0170**Units group:** -**Unit selection:** -**Min**  
-**Max**  
-**Factory setting**  
0**Description:**

Enables the droop to be applied to the speed/velocity setpoint.

**Dependency:**

Refer to: p1486, p1487, 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 / M\_inertia total****Access level:** 3**Calculated:** -**Data type:** FloatingPoint32**Can be changed:** -**Scaling:** -**Data set:** -**Units group:** 25\_1**Unit selection:** p0100**Min**  
- [kgm²]**Max**  
- [kgm²]**Factory setting**  
- [kgm²]**Description:**

Displays the parameterized total moment of inertia ((p0341 \* p0342) \* p1496).

<b>p1496[0...n]</b>	<b>Acceleration pre-control scaling / a_prectrl scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 10000.0 [%]	<b>Factory setting</b> 0.0 [%]
<b>Description:</b>	Sets the scaling for the acceleration pre-control of the speed/velocity controller.		
<b>Dependency:</b>	Refer to: p0341, p0342		
<b>Warning:</b> 	The acceleration precontrol r1518 is kept at the old value if the ramp-function generator tracking (r1199.5) is active or the ramp-function generator output is set (r1199.3). This is used to avoid torque peaks. Depending on the application, it may therefore be necessary to disable the ramp-function generator tracking (p1145 = 0) or the acceleration precontrol (p1496 = 0).		
	The acceleration precontrol is set to zero, if the Vdc control is active (r0056.14/15).		
<b>Note:</b>	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.		
<b>p1499[0...n]</b>	<b>Accelerating for torque control, scaling / a for M_ctrl scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 400.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the scaling for the acceleration integrator at low speeds (only for encoderless torque control).		
<b>Dependency:</b>	Refer to: p0341, p0342		
<b>p1500[0...n]</b>	<b>Torque setpoint selection / M_set sel</b>		
CU240B-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 66	<b>Factory setting</b> 2
<b>Description:</b>	Sets the source for the torque setpoint. For single-digit values, the following applies: The value specifies the main setpoint. For double-digit values, the following applies: The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint. Example: Value = 26 --> The analog setpoint (2) supplies the supplementary setpoint. --> The fieldbus (6) supplies the main setpoint.		
<b>Value:</b>	0: No main setpoint 2: Analog setpoint 6: Fieldbus 20: Analog setpoint + no main setpoint 22: Analog setpoint + analog setpoint 26: Analog setpoint + fieldbus 60: Fieldbus + no main setpoint 62: Fieldbus + analog setpoint 66: Fieldbus+fieldbus		
<b>Dependency:</b>	When changing this parameter, the following settings are influenced: Refer to: p1503, p1511		

**Caution:** When executing a specific macro, the corresponding programmed settings are made and become active.

<b>p1500[0...n]</b>	<b>Torque setpoint selection / M_set sel</b>		
CU240B-2_DP	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 66	<b>Factory setting</b> 6
<b>Description:</b>	Sets the source for the torque setpoint. For single-digit values, the following applies: The value specifies the main setpoint. For double-digit values, the following applies: The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint. Example: Value = 26 --> The analog setpoint (2) supplies the supplementary setpoint. --> The fieldbus (6) supplies the main setpoint.		
<b>Value:</b>	0: No main setpoint 2: Analog setpoint 6: Fieldbus 20: Analog setpoint + no main setpoint 22: Analog setpoint + analog setpoint 26: Analog setpoint + fieldbus 60: Fieldbus + no main setpoint 62: Fieldbus + analog setpoint 66: Fieldbus+fieldbus		
<b>Dependency:</b>	When changing this parameter, the following settings are influenced: Refer to: p1503, p1511		
<b>Caution:</b>	When executing a specific macro, the corresponding programmed settings are made and become active.		

<b>p1500[0...n]</b>	<b>Torque setpoint selection / M_set sel</b>		
CU240E-2_DP	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP_F	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 77	<b>Factory setting</b> 6
<b>Description:</b>	Sets the source for the torque setpoint. For single-digit values, the following applies: The value specifies the main setpoint. For double-digit values, the following applies: The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint. Example: Value = 26 --> The analog setpoint (2) supplies the supplementary setpoint. --> The fieldbus (6) supplies the main setpoint.		
<b>Value:</b>	0: No main setpoint 2: Analog setpoint 6: Fieldbus 7: Analog setpoint 2 20: Analog setpoint + no main setpoint 22: Analog setpoint + analog setpoint 26: Analog setpoint + fieldbus 27: Analog setpoint + analog setpoint 2 60: Fieldbus + no main setpoint		

- 62: Fieldbus + analog setpoint
- 66: Fieldbus+fieldbus
- 67: Fieldbus + analog setpoint 2
- 70: Analog setpoint 2 + no main setpoint
- 72: Analog setpoint 2 + analog setpoint
- 76: Analog setpoint 2 + fieldbus
- 77: Analog setpoint 2 + analog setpoint 2

**Dependency:** When changing this parameter, the following settings are influenced:  
Refer to: p1503, p1511

**Caution:** When executing a specific macro, the corresponding programmed settings are made and become active.

<b>p1500[0...n]</b>		<b>Torque setpoint selection / M_set sel</b>	
CU240E-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	77	2

**Description:** Sets the source for the torque setpoint.  
For single-digit values, the following applies:  
The value specifies the main setpoint.  
For double-digit values, the following applies:  
The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.  
Example:  
Value = 26  
--> The analog setpoint (2) supplies the supplementary setpoint.  
--> The fieldbus (6) supplies the main setpoint.

**Value:**

- 0: No main setpoint
- 2: Analog setpoint
- 6: Fieldbus
- 7: Analog setpoint 2
- 20: Analog setpoint + no main setpoint
- 22: Analog setpoint + analog setpoint
- 26: Analog setpoint + fieldbus
- 27: Analog setpoint + analog setpoint 2
- 60: Fieldbus + no main setpoint
- 62: Fieldbus + analog setpoint
- 66: Fieldbus+fieldbus
- 67: Fieldbus + analog setpoint 2
- 70: Analog setpoint 2 + no main setpoint
- 72: Analog setpoint 2 + analog setpoint
- 76: Analog setpoint 2 + fieldbus
- 77: Analog setpoint 2 + analog setpoint 2

**Dependency:** When changing this parameter, the following settings are influenced:  
Refer to: p1503, p1511

**Caution:** When executing a specific macro, the corresponding programmed settings are made and become active.

<b>p1501[0...n]</b>		<b>BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl</b>	
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	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 suppression 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

<b>p1503[0...n]</b>	<b>CI: Torque setpoint / M_set</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the torque setpoint for torque control.		
<b>Note:</b>	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.		

<b>r1508</b>	<b>CO: Torque setpoint before supplementary torque / M_set bef. M_suppl</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	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.		




<b>p1511[0...n]</b>	<b>CI: Supplementary torque 1 / M_suppl 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for supplementary torque 1.		

<b>p1512[0...n]</b>	<b>CI: Supplementary torque 1 scaling / M_suppl 1 scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for scaling the supplementary torque 1.		

<b>p1513[0...n]</b>	<b>CI: Supplementary torque 2 / M_suppl 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for supplementary torque 2.		

<b>p1514[0...n]</b>	<b>Supplementary torque 2 scaling / M_suppl 2 scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -2000.0 [%]	<b>Max</b> 2000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the scaling for supplementary torque 2.		
<b>r1515</b>	<b>Supplementary torque total / M_suppl total</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the total supplementary torque. The displayed value is the total of supplementary torque values 1 and 2 (p1511, p1512, p1513, p1514).		
<b>r1516</b>	<b>CO: Supplementary torque and acceleration torque / M_suppl + M_accel</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the total supplementary torque and the accelerating torque. The displayed value is the total of the smoothed supplementary torque and the accelerating torque (p1516 = p1518[1] + r1515).		
<b>p1517[0...n]</b>	<b>Accelerating torque smoothing time constant / M_accel T_smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 100.00 [ms]	<b>Factory setting</b> 4.00 [ms]
<b>Description:</b>	Sets the smoothing time constant of the accelerating torque.		
<b>Note:</b>	The acceleration pre-control is inhibited if the smoothing is set to the maximum value.		
<b>r1518[0...1]</b>	<b>CO: Accelerating torque / M_accel</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the accelerating torque for pre-control of the speed controller.		
<b>Index:</b>	[0] = Unsmoothed [1] = Smoothed		
<b>Dependency:</b>	Refer to: p0341, p0342, p1496		





<b>p1520[0...n]</b>	<b>CO: Torque limit upper / M_max upper</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2003	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -1000000.00 [Nm]	<b>Max</b> 2000000.00 [Nm]	<b>Factory setting</b> 0.00 [Nm]
<b>Description:</b>	Sets the fixed, upper torque limit.		
<b>Dependency:</b>	Refer to: p1521, p1522, p1523, r1538, r1539		
<b>Danger:</b>	Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.		
			
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	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).		
<b>p1521[0...n]</b>	<b>CO: Torque limit lower / M_max lower</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2003	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> -20000000.00 [Nm]	<b>Max</b> 1000000.00 [Nm]	<b>Factory setting</b> 0.00 [Nm]
<b>Description:</b>	Sets the fixed, lower torque limit.		
<b>Dependency:</b>	Refer to: p1520, p1522, p1523		
<b>Danger:</b>	Positive values when setting the lower torque limit (p1521 > 0) can result in the motor accelerating in an uncontrollable fashion.		
			
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	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).		
<b>p1522[0...n]</b>	<b>CI: Torque limit upper / M_max upper</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1520[0]
<b>Description:</b>	Sets the signal source for the upper torque limit.		
<b>Dependency:</b>	Refer to: p1520, p1521, p1523		
<b>Danger:</b>	Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.		
			
<b>p1523[0...n]</b>	<b>CI: Torque limit lower / M_max lower</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2003	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1521[0]
<b>Description:</b>	Sets the signal source for the lower torque limit.		
<b>Dependency:</b>	Refer to: p1520, p1521, p1522		

**Danger:**

Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

<b>p1524[0...n]</b>	<b>CO: Torque limit upper/motoring scaling / M_max up/mot scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -2000.0 [%]	<b>Max</b> 2000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the scaling for the upper torque limit or the torque limit when motoring.		
<b>Dependency:</b>	p1400.4 = 0: upper/lower p1400.4 = 1: motoring / regenerating		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	This parameter can be freely interconnected. The value has the meaning stated above if it is interconnected from connector input p1528.		
<b>p1525[0...n]</b>	<b>CO: Torque limit lower scaling / M_max lower scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -2000.0 [%]	<b>Max</b> 2000.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the scaling for the lower torque limit.		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	This parameter can be freely interconnected. The value has the meaning stated above if it is interconnected from connector input p1528.		
<b>r1526</b>	<b>CO: Torque limit upper without offset / M_max up w/o offs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the upper torque limit of all torque limits without offset.		
<b>Dependency:</b>	Refer to: p1520, p1521, p1522, p1523, p1528, p1529		
<b>r1527</b>	<b>CO: Torque limit lower without offset / M_max low w/o offs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the lower torque limit of all torque limits without offset.		
<b>Dependency:</b>	Refer to: p1520, p1521, p1522, p1523, p1528, p1529		

<b>p1528[0...n]</b>	<b>Cl: Torque limit upper scaling / M_max upper scal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1524[0]
<b>Description:</b>	Sets the signal source for the scaling of the upper torque limit in p1522.		
<b>Danger:</b>	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.		
			
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1529[0...n]</b>	<b>Cl: Torque limit lower scaling / M_max lower scal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1525[0]
<b>Description:</b>	Sets the signal source for the scaling of the lower torque limit in p1523.		
<b>Danger:</b>	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.		
			
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>p1530[0...n]</b>	<b>Power limit motoring / P_max mot</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 14_5	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [kW]	<b>Max</b> 100000.00 [kW]	<b>Factory setting</b> 0.00 [kW]
<b>Description:</b>	Sets the power limit when motoring.		
<b>Dependency:</b>	Refer to: p0500, p1531		
<b>Note:</b>	The power limit is limited to 300% of the rated motor power.		
<b>p1531[0...n]</b>	<b>Power limit regenerative / P_max gen</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 14_5	<b>Unit selection:</b> p0505	
	<b>Min</b> -100000.00 [kW]	<b>Max</b> -0.01 [kW]	<b>Factory setting</b> -0.01 [kW]
<b>Description:</b>	Sets the regenerative power limit.		
<b>Dependency:</b>	Refer to: r0206, p0500, p1530		
<b>Note:</b>	The power limit is limited to 300% of the rated motor power. For power units without energy recovery capability, the regenerative power limit is preset to 30 % of the power r0206[0]. For a braking resistor connected to the DC link (p0219 > 0), the power limit when generating is automatically adapted. For power units with energy recovery, the parameter is limited to the negative value of r0206[2].		

<b>r1533</b>	<b>Current limit torque-generating total / Iq_max total</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the maximum torque/force generating current as a result if all current limits.		
<b>r1536[0...1]</b>	<b>Current limit maximum torque-generating current / Isq_max</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the maximum limit for the torque-generating current component. Index 0 indicates the signal limited by the Vdc controller.		
<b>Index:</b>	[0] = Limited [1] = Unlimited		
<b>r1537[0...1]</b>	<b>Current limit minimum torque-generating current / Isq_min</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the minimum limit for the torque-generating current component. Index 0 indicates the signal limited by the Vdc controller.		
<b>Index:</b>	[0] = Limited [1] = Unlimited		
<b>r1538</b>	<b>CO: Upper effective torque limit / M_max upper eff</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the currently effective upper torque limit.		
<b>Note:</b>	The effective upper torque limit is reduced with respect to the selected upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased. This may be the case for rotating measurements (see p1960). The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.		
<b>r1539</b>	<b>CO: Lower effective torque limit / M_max lower eff</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the currently effective lower torque limit.		
<b>Note:</b>	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.		

This may be the case for rotating measurements (see p1960).  
The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

<b>r1547[0...1]</b>	<b>CO: Torque limit for speed controller output / M_max outp n_ctrl</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2003	<b>Data set:</b> -
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Nm]	<b>Max</b> - [Nm]	<b>Factory setting</b> - [Nm]
<b>Description:</b>	Displays the torque limit to limit the speed controller output.		
<b>Index:</b>	[0] = Upper limit [1] = Lower limit		
<b>r1548[0...1]</b>	<b>CO: Stall current limit torque-generating maximum / Isq_max stall</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the limit for the torque-generating current component using the stall calculation, the current limit of the power unit as well as the parameterization in p0640.		
<b>Index:</b>	[0] = Upper limit [1] = Lower limit		
<b>p1552[0...n]</b>	<b>CI: Torque limit upper scaling without offset / M_max up w/o offs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	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.		
<b>p1554[0...n]</b>	<b>CI: Torque limit lower scaling without offset / M_max low w/o offs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	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.		
<b>p1570[0...n]</b>	<b>CO: Flux setpoint / Flux setpoint</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 50.0 [%]	<b>Max</b> 200.0 [%]	<b>Factory setting</b> 100.0 [%]
<b>Description:</b>	Sets the flux setpoint referred to rated motor flux.		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	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), if p1580 > 0% has been set.		

<b>p1573[0...n]</b>				<b>Flux threshold value magnetizing / Flux thresh magnet</b>			
<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32			
<b>Can be changed:</b> U, T		<b>Scaling:</b> PERCENT		<b>Data set:</b> DDS, p0180			
<b>Units group:</b> -		<b>Unit selection:</b> -					
<b>Min</b> 10.0 [%]		<b>Max</b> 200.0 [%]		<b>Factory setting</b> 100.0 [%]			
<b>Description:</b>		Sets the flux threshold value for enabling the speed setpoint and the end of magnetizing (r0056.4).					
<b>Note:</b>		The parameter only has an influence if the flux actual value reaches the threshold value p1573 more quickly during magnetizing than the time set in p0346.					
		The parameter has no influence for flying restart (see p1200) and after DC braking (see p1231).					
<hr/>							
<b>p1574[0...n]</b>		<b>Voltage reserve dynamic / U_reserve dyn</b>					
PM230		<b>Access level:</b> 3		<b>Calculated:</b> p0340 = 1,3,5		<b>Data type:</b> FloatingPoint32	
		<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> DDS, p0180	
		<b>Units group:</b> 5_1		<b>Unit selection:</b> p0505			
		<b>Min</b> 0.0 [Vrms]		<b>Max</b> 150.0 [Vrms]		<b>Factory setting</b> 2.0 [Vrms]	
<b>Description:</b>		Sets a dynamic voltage reserve.					
<b>Dependency:</b>		Refer to: p0500					
<b>Note:</b>		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 reserve. Increasing the reserve reduces the steady-state maximum output voltage (r0071).					
<hr/>							
<b>p1574[0...n]</b>		<b>Voltage reserve dynamic / U_reserve dyn</b>					
PM240		<b>Access level:</b> 3		<b>Calculated:</b> p0340 = 1,3,5		<b>Data type:</b> FloatingPoint32	
PM250, PM260		<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> DDS, p0180	
		<b>Units group:</b> 5_1		<b>Unit selection:</b> p0505			
		<b>Min</b> 0.0 [Vrms]		<b>Max</b> 150.0 [Vrms]		<b>Factory setting</b> 10.0 [Vrms]	
<b>Description:</b>		Sets a dynamic voltage reserve.					
<b>Dependency:</b>		Refer to: p0500					
<b>Note:</b>		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 reserve. Increasing the reserve reduces the steady-state maximum output voltage (r0071).					
<hr/>							
<b>p1580[0...n]</b>		<b>Efficiency optimization / Efficiency opt.</b>					
PM230		<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> FloatingPoint32	
		<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> DDS, p0180	
		<b>Units group:</b> -		<b>Unit selection:</b> -			
		<b>Min</b> 0 [%]		<b>Max</b> 100 [%]		<b>Factory setting</b> 80 [%]	
<b>Description:</b>		Sets the efficiency optimization.					
		When optimizing the efficiency, the flux setpoint of the closed-loop control is adapted as a function of the load.					
		For p1580 = 100 %, under no-load operating conditions, the flux setpoint is reduced to 50 % of the rated motor flux.					
<b>Note:</b>		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.					

<b>p1580[0...n]</b>	<b>Efficiency optimization / Efficiency opt.</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM250, PM260	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [%]	<b>Max</b> 100 [%]	<b>Factory setting</b> 0 [%]
<b>Description:</b>	Sets the efficiency optimization. When optimizing the efficiency, the flux setpoint of the closed-loop control is adapted as a function of the load. For p1580 = 100 %, under no-load operating conditions, the flux setpoint is reduced to 50 % of the rated motor flux.		
<b>Note:</b>	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.		
<b>p1582[0...n]</b>	<b>Flux setpoint smoothing time / Flux setp T_smth</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 4 [ms]	<b>Max</b> 5000 [ms]	<b>Factory setting</b> 15 [ms]
<b>Description:</b>	Sets the smoothing time for the flux setpoint.		
<b>r1583</b>	<b>Flux setpoint smoothed / Flux setp smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the smoothed flux setpoint. The value is referred to the rated motor flux.		
<b>p1584[0...n]</b>	<b>Field weakening operation, flux setpoint smoothing time / Field weak T_smth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 20000 [ms]	<b>Factory setting</b> 0 [ms]
<b>Description:</b>	Sets the smoothing time for the flux setpoint in the field-weakening range		
<b>Note:</b>	Only the flux setpoint rise is smoothed		
<b>r1589</b>	<b>Field-weakening current, pre-control value / I_FieldWeak prectr</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the pre-control value for the field weakening current.		

<b>r1593[0...1]</b>	<b>CO: Field weakening controller / flux controller output / Field/FI_ctrl outp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the output of the field weakening controller (synchronous motor).		
<b>Index:</b>	[0] = PI output [1] = I output		
<b>p1594[0...n]</b>	<b>Field-weakening controller, P gain / Field_ctrl Kp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 1000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Sets the P gain of the field-weakening controller.		
<b>p1596[0...n]</b>	<b>Field weakening controller integral-action time / Field_ctrl Tn</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 300 [ms]
<b>Description:</b>	Sets the integral-action time of the field-weakening controller.		
<b>r1597</b>	<b>CO: Field weakening controller output / Field_ctrl outp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the output of the field weakening controller. The value is referred to the rated motor flux.		
<b>r1598</b>	<b>CO: Total flux setpoint / Flux setp total</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the effective flux setpoint. The value is referred to the rated motor flux.		




<b>p1610[0...n]</b>	<b>Torque setpoint static (SLVC) / M_set static</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -200.0 [%]	<b>Max</b> 200.0 [%]	<b>Factory setting</b> 50.0 [%]
<b>Description:</b>	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.		
<b>Notice:</b>	p1610 should always be set to at least 10 % higher than the maximum steady-state load that can occur.		
<b>Note:</b>	For p1610 = 0%, a current setpoint is calculated that corresponds to the no-load case (ASM: rated magnetizing current). For p1610 = 100 %, a current setpoint is calculated that corresponds to the rated motor torque. Negative values are converted into positive setpoints in the case of induction and permanent-magnet synchronous motors.		
<b>p1611[0...n]</b>	<b>Supplementary accelerating torque (SLVC) / M_suppl_accel</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200.0 [%]	<b>Factory setting</b> 30.0 [%]
<b>Description:</b>	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).		
<b>Note:</b>	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).		
<b>r1614</b>	<b>EMF maximum / EMF max</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the actual maximum possible electromotive force (EMF) of the separately-excited synchronous motor.		
<b>Dependency:</b>	The value is the basis for the flux setpoint. The maximum possible EMF depends on the following factors: - Actual DC link voltage (r0070). - Maximum modulation depth (p1803). - Field-generating and torque-generating current setpoint.		
<b>p1616[0...n]</b>	<b>Current setpoint smoothing time / I_set T_smooth</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 4 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 40 [ms]
<b>Description:</b>	Sets the smoothing time for the current setpoint. The current setpoint is generated from p1610 and p1611.		
<b>Note:</b>	This parameter is only effective in the range where current is injected for sensorless vector control.		

<b>r1623[0...1]</b>	<b>Field-generating current setpoint (steady-state) / Id_set stationary</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the steady-state field generating current setpoint (Id_set).		
<b>Note:</b>	Re index 1: Reserved.		
<b>r1624</b>	<b>Field-generating current setpoint, total / Id_setp total</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2002	<b>Data set:</b> -
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the limited field-generating current setpoint (Id_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.		
<b>p1654[0...n]</b>	<b>Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.1 [ms]	<b>Max</b> 50.0 [ms]	<b>Factory setting</b> 4.8 [ms]
<b>Description:</b>	Sets the smoothing time constant for the setpoint of the torque-generating current components.		
<b>Note:</b>	The smoothing time does not become effective until the field-weakening range is reached.		
<b>p1702[0...n]</b>	<b>Isd current controller pre-control scaling / Isd_ctr_prectrScal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200.0 [%]	<b>Factory setting</b> 70.0 [%]
<b>Description:</b>	Sets the scaling of the dynamic current controller pre-control for the flux-generating current component Isd.		
<b>Note:</b>	The parameter is effective for permanent-magnet synchronous motors.		
<b>p1703[0...n]</b>	<b>Isq current controller pre-control scaling / Isq_ctr_prectrScal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200.0 [%]	<b>Factory setting</b> 60.0 [%]
<b>Description:</b>	Sets the scaling of the dynamic current controller pre-control for the torque/force-generating current component Isq.		

<b>p1715[0...n]</b>	<b>Current controller P gain / I_ctrl Kp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 100000.000	<b>Factory setting</b> 0.000
<b>Description:</b>	Sets the proportional gain of the current controller. This value is automatically pre-set using p3900 or p0340 when commissioning has been completed.		
<b>p1717[0...n]</b>	<b>Current controller integral-action time / I_ctrl Tn</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 1000.00 [ms]	<b>Factory setting</b> 2.00 [ms]
<b>Description:</b>	Sets the integral-action time of the current controller.		
<b>Dependency:</b>	Refer to: p1715		
<b>r1718</b>	<b>CO: Isq controller output / Isq_ctrl outp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	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.		
<b>r1719</b>	<b>Isq controller integral component / Isq_ctrl I_comp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the integral component of the Isq current controller (torque/force-generating current, PI controller).		
<b>r1723</b>	<b>CO: Isd controller output / Isd_ctrl outp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	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.		

<b>r1724</b>	<b>Isd controller integral component / Isd_ctrl I_comp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the integral component of the Isd current controller (flux-generating current, PI controller).		
<b>r1725</b>	<b>Isd controller integral component limit / Isd_ctrl I_limit</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the limit value for the integral component of the Isd current controller.		
<b>p1726[0...n]</b>	<b>Quadrature arm decoupling, scaling / Transv_decpl scal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200.0 [%]	<b>Factory setting</b> 75.0 [%]
<b>Description:</b>	Sets the scaling of the quadrature arm decoupling		
<b>Note:</b>	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 in the complete speed control range. For the closed-loop control of synchronous motors, this parameter is used to scale the current controller de-coupling.		
<b>p1727[0...n]</b>	<b>Quadrature arm decoupling at voltage limit scaling / TrnsvDecplVmaxScal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 200.0 [%]	<b>Factory setting</b> 50.0 [%]
<b>Description:</b>	Sets the scaling of quadrature arm decoupling when the voltage limit is reached.		
<b>r1728</b>	<b>De-coupling voltage, in-line axis / U_dir-axis_decoupl</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the actual output of the quadrature channel de-coupling for the d axis.		

<b>r1729</b>	<b>De-coupling voltage, quadrature axis / U_quad_decoupl</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b> Displays the actual output of the quadrature channel de-coupling for the q axis.			
<b>p1730[0...n]</b>	<b>Isd controller integral component shutdown threshold / Isd_ctr I_compDeac</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 30 [%]	<b>Max</b> 150 [%]	<b>Factory setting</b> 30 [%]
<b>Description:</b> Sets the speed threshold for deactivating the integral component of the Isd controller. The d current controller is only effective as P controller for speeds greater than the threshold value. Instead of the integral component, the quadrature arm decoupling is effective.			
<b>Warning:</b> For settings above 80%, the d current controller is active up to the field weakening limit. When operated at the voltage limit, this can result in an unstable behavior. In order to avoid this, the dynamic voltage reserve p1574 should be increased.			
			
<b>Note:</b> The parameter value is referred to the synchronous rated motor speed.			
<b>p1731[0...n]</b>	<b>Isd controller combination current time component / Isd ctrl iCombi T1</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 10000.00 [ms]	<b>Factory setting</b> 0.00 [ms]
<b>Description:</b> Sets the time constant to calculate the d current DC component difference (combination current) to add to the d current controller actual value. The additional input is de-activated with p1731 = 0.			
<b>r1732[0...1]</b>	<b>CO: Direct-axis voltage setpoint / Direct U set</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b> Displays the direct-axis voltage setpoint Ud.			
<b>Index:</b> [0] = Unsmoothed [1] = Smoothed with p0045			
<b>r1733[0...1]</b>	<b>CO: Quadrature-axis voltage setpoint / Quad U set</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> 5_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b> Displays the quadrature-axis component of voltage setpoint Uq.			
<b>Index:</b> [0] = Unsmoothed [1] = Smoothed with p0045			

<b>p1740[0...n]</b>	<b>Gain resonance damping for encoderless closed-loop control / Gain res_damp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 10.000	<b>Factory setting</b> 0.025
<b>Description:</b>	Defines the gain of the controller for resonance damping for operation with sensorless vector control in the range that current is injected.		
<b>p1745[0...n]</b>	<b>Motor model error threshold stall detection / MotMod ThreshStall</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 1000.0 [%]	<b>Factory setting</b> 5.0 [%]
<b>Description:</b>	Sets the fault threshold in order to detect a motor that has stalled. If the error signal (r1746) exceeds the parameterized error threshold, then status signal r1408.12 is set to 1.		
<b>Dependency:</b>	If a stalled drive is detected (r1408.12 = 1), fault F07902 is output after the delay time set in p2178. Refer to: p2178		
<b>Note:</b>	Monitoring is only effective in the low-speed range (below p1755 * (100% - p1756)).		
<b>r1746</b>	<b>Motor model error signal stall detection / MotMod sig stall</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Signal to initiate stall detection		
<b>Note:</b>	The signal is not calculated while magnetizing and only in the low speed range (below p1755 * (100 % - p1756)).		
<b>p1749[0...n]</b>	<b>Motor model increase changeover speed encoderless operation / IncrChgov enc-less</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [%]	<b>Max</b> 99.0 [%]	<b>Factory setting</b> 50.0 [%]
<b>Description:</b>	Depending on the machine data, the drive has calculated a minimum value of the operating frequency for rugged operation. If the minimum value is greater than the lower changeover limit parameterized with p1755 * (1 - 2 * p1756), then the difference is displayed using p1749 * p1755.		
<b>Dependency:</b>	Refer to: p1755, p1756		
<b>p1750[0...n]</b>	<b>Motor model configuration / MotMod config</b>		
PM230	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0000 1100 bin
<b>Description:</b>	Sets the configuration for the motor model. Bit 0 = 1: Forces open-loop speed-controlled starting (ASM).		

Bit 1 = 1: Forces the system to pass through frequency zero, open-loop-controlled (ASM).

Bit 2 = 1: Drive remains in full closed-loop control mode, even at zero frequency (ASM).

Bit 3 = 1: Motor model evaluates the saturation characteristic (ASM).

Bit 6 = 1: If the motor is blocked, sensorless vector control remains speed-controlled (ASM).

Bit 7 = 1: Use rugged switchover limits to switchover the model (open-loop/closed-loop controlled) for regenerative operation (ASM).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Controlled start	Yes	No	-
	01	Controlled through 0 Hz	Yes	No	-
	02	Closed-loop ctrl oper. down to zero freq. for passive loads	Yes	No	-
	03	Motor model Lh_pre = f(PsiEst)	Yes	No	-
	06	Closed-loop control when motor is blocked	Yes	No	-
	07	Use rugged changeover limits	Yes	No	-

#### Dependency:

Refer to: p0500

#### Caution:



Do not use bit 6 = 1 if the motor can be slowly reversed by the load at the torque limit. Long delay times due to blocking (p2177 > p1758) can cause the motor to stall. In this case you should de-activate the function or use closed-loop control throughout the speed range (note the information re bit 2 = 1).

#### Note:

Bits 0 ... 2 only have an influence for encoderless vector control, bit 2 is pre-assigned depending on p0500.

Re bit 2 = 1:

The sensorless vector control is effective down to zero frequency. A change is not made into the open-loop speed controlled mode.

This operating mode is possible for passive loads. These include applications where the load itself does not generate any active torque and therefore only acts reactively to the drive torque of the induction motor.

If bit 2 = 1, then bit 3 is automatically set to 1. Manual de-selection is possible and may be sensible if the saturation characteristic (p1960) was not measured for third-party motors. Generally, for standard SIEMENS motors, the already pre-assigned (default value) saturation characteristic is adequate.

When the bit is set, the selection of bits 0 and 1 is ignored.

Re bit 2 = 0:

Bit 3 is also automatically deactivated.

Re bit 6 = 1:

The following applies for encoderless vector control of induction motors:

For a blocked motor (see p2175, p2177) the time condition in p1758 is bypassed and a change is not made into open-loop controlled operation.

Re bit 7 = 1:

The following applies for encoderless vector control of induction motors:

If the changeover limits are parameterized too low (p1755, p1756), then they are automatically increased to rugged values by the absolute amount  $p1749 * p1755$ .

The effective time condition for changing over into open-controlled operation is given by  $\text{Min}(p1758, 0.5 * r0384)$ .

Activation can make sense for applications that demand a high torque at low frequencies and therefore low speed gradients.

It must be ensured that p1610, p1611 have been adequately parameterized.

p1750[0...n]	Motor model configuration / MotMod config		
PM240	Access level: 3	Calculated: p0340 = 1,3,5	Data type: Unsigned8
PM250, PM260	Can be changed: U, T	Scaling: -	Data set: DDS, p0180
	Units group: -	Unit selection: -	
	Min	Max	Factory setting
	-	-	0000 0000 bin

#### Description:

Sets the configuration for the motor model.

Bit 0 = 1: Forces open-loop speed-controlled starting (ASM).

Bit 1 = 1: Forces the system to pass through frequency zero, open-loop-controlled (ASM).

Bit 2 = 1: Drive remains in full closed-loop control mode, even at zero frequency (ASM).

Bit 3 = 1: Motor model evaluates the saturation characteristic (ASM).

Bit 6 = 1: If the motor is blocked, sensorless vector control remains speed-controlled (ASM).

Bit 7 = 1: Use rugged switchover limits to switchover the model (open-loop/closed-loop controlled) for regenerative operation (ASM).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Controlled start	Yes	No	-
	01	Controlled through 0 Hz	Yes	No	-
	02	Closed-loop ctrl oper. down to zero freq. for passive loads	Yes	No	-
	03	Motor model Lh_pre = f(PsiEst)	Yes	No	-
	06	Closed-loop control when motor is blocked	Yes	No	-
	07	Use rugged changeover limits	Yes	No	-

**Dependency:**

Refer to: p0500

**Caution:**

Do not use bit 6 = 1 if the motor can be slowly reversed by the load at the torque limit. Long delay times due to blocking ( $p2177 > p1758$ ) can cause the motor to stall. In this case you should de-activate the function or use closed-loop control throughout the speed range (note the information re bit 2 = 1).

**Note:**

Bits 0 ... 2 only have an influence for encoderless vector control, bit 2 is pre-assigned depending on p0500.

Re bit 2 = 1:

The sensorless vector control is effective down to zero frequency. A change is not made into the open-loop speed controlled mode.

This operating mode is possible for passive loads. These include applications where the load itself does not generate any active torque and therefore only acts reactively to the drive torque of the induction motor.

If bit 2 = 1, then bit 3 is automatically set to 1. Manual de-selection is possible and may be sensible if the saturation characteristic (p1960) was not measured for third-party motors. Generally, for standard SIEMENS motors, the already pre-assigned (default value) saturation characteristic is adequate.

When the bit is set, the selection of bits 0 and 1 is ignored.

Re bit 2 = 0:

Bit 3 is also automatically deactivated.

Re bit 6 = 1:

The following applies for encoderless vector control of induction motors:

For a blocked motor (see p2175, p2177) the time condition in p1758 is bypassed and a change is not made into open-loop controlled operation.

Re bit 7 = 1:

The following applies for encoderless vector control of induction motors:

If the changeover limits are parameterized too low (p1755, p1756), then they are automatically increased to rugged values by the absolute amount  $p1749 * p1755$ .

The effective time condition for changing over into open-controlled operation is given by  $\text{Min}(p1758, 0.5 * r0384)$ .

Activation can make sense for applications that demand a high torque at low frequencies and therefore low speed gradients.

It must be ensured that p1610, p1611 have been adequately parameterized.

**r1751****Motor model status / MotMod status**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:**

Displays the status of the motor model.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Controlled operation	Active	Inactive	6721
	01	Set ramp-function generator	Active	Inactive	-
	02	Stop RsLh adaptation	Yes	No	-
	03	Feedback	Active	Inactive	-
	05	Holding angle	Yes	No	-
	06	Acceleration criterion	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	mot oper	Yes	No	-
14	Stator frequency sign	Positive	Negative	-
15	Torque sign	Motor mode	Regenerative mode	-
16	Pulse injection active PEM	Yes	No	-
17	Operation with rugged model feedback	Enabled	Inhibited	-
18	Operation of the current model with current feedback	Enabled	Inhibited	-
19	Current feedback in the current model	Active	Inactive	-
20	Rugged increase of the changeover limits	Active	Inactive	-

**Note:**

Re bit 17:

Displays the status when enabling the rugged model feedback (p1784) for operation with and without encoder. The feedback is used to increase the parameter ruggedness of the motor model and is effective in the operating range of the two-component closed loop current control.

Re bit 18:

Displays the status when enabling the differential current feedback in the current model for operation with encoder. The function is automatically enabled with p1784 > 0 or p1731 > 0. The feedback is used for a rugged change between the current model and complete machine model with active rugged model feedback and combination current.

Re bit 19:

Displays the currently active stator circuit feedback in current model operation.

Re bit 20:

Displays the currently effective increase of the changeover limits by the value p1749 \* p1755.

**p1755[0...n] Motor model changeover speed encoderless operation / MotMod n\_chgSnsorl**

<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 210000.00 [rpm]

**Description:** Sets the speed to change over the motor model to encoderless operation.**Dependency:** Refer to: p1749, 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.

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 encoderless operation / MotMod n\_chgov hys**

<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.0 [%]	<b>Max</b> 95.0 [%]	<b>Factory setting</b> 50.0 [%]

**Description:** Sets the hysteresis for the changeover speed of the motor model for encoderless operation.**Dependency:** Refer to: p1755**Note:** The parameter value refers to p1755.

<b>p1758[0...n]</b>	<b>Motor model changeover delay time closed/open-loop control / MotMod t cl_op</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 100 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 500 [ms]
<b>Description:</b>	Sets the minimum time for falling below the changeover speed when changing from closed-loop controlled operation to open-loop controlled operation.		
<b>Dependency:</b>	Refer to: p1755, p1756		
<b>p1759[0...n]</b>	<b>Motor model changeover delay time open/closed-loop control / MotMod t op_cl</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 2000 [ms]	<b>Factory setting</b> 0 [ms]
<b>Description:</b>	Sets the minimum time for exceeding the changeover speed when changing from open-loop controlled operation to closed-loop controlled operation.		
<b>Dependency:</b>	Refer to: p1755, p1756		
<b>Note:</b>	When p1759 = 2000 ms, the delay time becomes ineffective and the model changeover is determined by the output frequency only.		
<b>r1762[0...1]</b>	<b>Motor model deviation component 1 / MotMod dev comp 1</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Induction motor (ASM): Displays the referred imaginary system deviation for the adaptation circuit of the motor model. Permanent-magnet synchronous motor (PESM): Displays the system deviation for speed adaptation. r1762.0: Angular deviation [rad-el] of the estimated EMF. r1762.1: Angular deviation [rad-el] of the low-level signal response for pulse technique.		
<b>Index:</b>	[0] = Deviation Model1 [1] = Deviation Model2		
<b>r1763</b>	<b>Motor model deviation component 2 / MotMod dev comp 2</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Induction motor (ASM): Displays the referred real system deviation for the adaptation circuit of the motor model. Permanent-magnet synchronous motor (PESM): Not used.		

<b>p1764[0...n]</b>	<b>Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 100000.000	<b>Factory setting</b> 1000.000
<b>Description:</b>	Sets the proportional gain of the controller for speed adaptation without encoder.		
<b>r1765</b>	<b>Motor model, speed adaptation Kp effective / MotM n_ada Kp act</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the effective proportional gain of the controller for the speed adaptation.		
<b>p1767[0...n]</b>	<b>Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1 [ms]	<b>Max</b> 200 [ms]	<b>Factory setting</b> 4 [ms]
<b>Description:</b>	Sets the integral time of the controller for speed adaptation without encoder		
<b>r1768</b>	<b>Motor model, speed adaptation Vi effective / MotM n_ada Vi act</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2001	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the effective gain of the integral component of the controller for speed adaptation.		
<b>r1770</b>	<b>CO: Motor model speed adaptation proportional component / MotMod n_adapt Kp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the P component of the controller for speed adaptation.		
<b>r1771</b>	<b>CO: Motor model speed adaptation I comp. / MotMod n_adapt Tn</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the I component of the controller for speed adaptation.		

<b>r1773[0...1]</b>	<b>Motor model slip speed / MotMod slip</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays estimated (speed) signals of the motor model. r1773[0]: Displays the estimated (mechanical) slip of the motor model. r1773[1]: Displays the estimated input speed of the motor model.		
<b>Index:</b>	[0] = Slip speed estimated [1] = Speed estimated		
<b>p1774[0...n]</b>	<b>Motor model, offset voltage compensation alpha / MotMod offs comp A</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -5.000 [V]	<b>Max</b> 5.000 [V]	<b>Factory setting</b> 0.000 [V]
<b>Description:</b>	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 power unit.		
<b>Note:</b>	The value is pre-set during the rotating measurement.		
<b>p1775[0...n]</b>	<b>Motor model, offset voltage compensation beta / MotMod offs comp B</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -5.000 [V]	<b>Max</b> 5.000 [V]	<b>Factory setting</b> 0.000 [V]
<b>Description:</b>	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 power unit.		
<b>Note:</b>	The value is pre-set during the rotating measurement.		
<b>r1776[0...6]</b>	<b>Motor model status signals / MotMod status sig</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the internal status signals of the motor model: Index 0: Changeover ramp between current and voltage models Index 1: Changeover ramp for model tracking (encoderless induction motors only) Index 2: Changeover ramp for zero frequency range (encoderless induction motors only) Index 6: Transition ramp for EMF deviation at PLL input (encoderless PESM)		
<b>Index:</b>	[0] = Changeover ramp motor model [1] = Changeover ramp model tracking [2] = Changeover ramp zero frequency encoderless ASM [3] = Reserved [4] = Reserved [5] = Reserved [6] = Changeover ramp motor model encoderless PESM		

<b>r1778</b>	<b>Motor model flux angle difference / MotMod ang. diff.</b>				
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32		
	<b>Can be changed:</b> -	<b>Scaling:</b> p2005	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> - [°]	<b>Max</b> - [°]	<b>Factory setting</b> - [°]		
<b>Description:</b>	Displays the difference between the motor model flux angle and the transformation angle.				
<b>Dependency:</b>	A setting for smoothing the display can be made using p1754.				
<b>p1780[0...n]</b>	<b>Motor model adaptation configuration / MotMod adapt conf</b>				
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16		
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0000 0000 0101 1100 bin		
<b>Description:</b>	Sets the configuration for the adaptation circuit of the motor model. Induction motor (ASM): Rs, Lh, and offset compensation. Permanent magnet synchronous motor (PEM): kT				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	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	-
	06	Select pole position identification PEM encoderless	Yes	No	-
	07	Select T(valve) with Rs adaptation	Yes	No	-
	10	Filter time combination current like current ctrl integral time	Yes	No	-
<b>Dependency:</b>	In U/f characteristic operating mode only bit 7 is relevant. For active motor model feedback (see p1784), the Lh adaptation is internally deactivated automatically.				
<b>Note:</b>	ASM: Induction motor PEM: Permanent magnet synchronous motor 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. In order that the correction values of the Rs, Lh and kT adaptation (selected using Bit 0 ... Bit 2) are correctly accepted when changing over the drive data set, a dedicated motor number must be entered into p0826 for each different motor.				
<b>p1784[0...n]</b>	<b>Motor model feedback scaling / MotMod fdbk scal</b>				
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32		
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> 0.0 [%]	<b>Max</b> 1000.0 [%]	<b>Factory setting</b> 0.0 [%]		
<b>Description:</b>	Sets the scaling for model fault feedback.				
<b>Note:</b>	Feeding back the measured model fault to the model states increases the control stability and makes the motor model rugged against parameter errors. When feedback is selected (p1784 > 0), Lh adaptation is not effective.				

<b>p1785[0...n]</b>	<b>Motor model Lh adaptation Kp / MotMod Lh Kp</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 10.000	<b>Factory setting</b> 0.100
<b>Description:</b>	Sets the proportional gain for the Lh adaptation of the motor model for an induction motor (ASM).		
<b>p1786[0...n]</b>	<b>Motor model Lh adaptation integral time / MotMod Lh Tn</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 100 [ms]
<b>Description:</b>	Sets the integral time for the Lh adaptation of the motor model for an induction motor (ASM).		
<b>r1787[0...n]</b>	<b>Motor model Lh adaptation corrective value / MotMod Lh corr</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [mH]
<b>Description:</b>	Displays the corrective value for the Lh adaptation of the motor model for an induction motor (ASM).		
<b>Dependency:</b>	Refer to: p0826, p1780		
<b>Note:</b>	The adaptation result is reset if the magnetizing inductance of the induction motor is changed (p0360, r0382). This also happens when changing over the data set if a different motor is not being used (p0826). The display of the inactive data sets is only updated when changing over the data set.		
<b>r1791</b>	<b>Motor model Lh adaptation power-on frequency / MotMod Lh f_on</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Hz]	<b>Max</b> - [Hz]	<b>Factory setting</b> - [Hz]
<b>Description:</b>	Displays the power-on stator frequency/ primary section frequency for the Lh adaptation for the induction motor (ASM).		
<b>r1792</b>	<b>Motor model Lh adaptation power-on slip / MotMod Lh fslip</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Hz]	<b>Max</b> - [Hz]	<b>Factory setting</b> - [Hz]
<b>Description:</b>	Displays the power-on slip frequency for the Lh adaptation for the induction motor (ASM).		

<b>p1795[0...n]</b>	<b>Motor model kT adaptation integral time / MotMod kT Tn</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1,3,4	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 100 [ms]
<b>Description:</b>	Sets the integral time of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).		
<b>r1797[0...n]</b>	<b>Motor model kT adaptation corrective value / MotMod kT corr</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Nm/A]	<b>Max</b> - [Nm/A]	<b>Factory setting</b> - [Nm/A]
<b>Description:</b>	Displays the corrective value of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).		
<b>Dependency:</b>	Refer to: p0826, p1780		
<b>Note:</b>	The display of the inactive data sets is only updated when changing over the data set.		
<b>p1800[0...n]</b>	<b>Pulse frequency setpoint / Pulse freq setp</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 2.000 [kHz]	<b>Max</b> 16.000 [kHz]	<b>Factory setting</b> 4.000 [kHz]
<b>Description:</b>	Sets the pulse frequency for the converter. This parameter is pre-set to the rated converter value when the drive is first commissioned.		
<b>Dependency:</b>	Refer to: p0230		
<b>Note:</b>	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 (derating, refer to r0067). If a sine-wave filter is parameterized as output filter (p0230 = 3), then the pulse frequency cannot be set below the minimum value required for the filter. For operation with output reactors, the pulse frequency is limited to 4 kHz (see p0230). If p1800 is changed during commissioning (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).		
<b>r1801[0...1]</b>	<b>CO: Pulse frequency / Pulse frequency</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [kHz]	<b>Max</b> - [kHz]	<b>Factory setting</b> - [kHz]
<b>Description:</b>	Display and connector output for the actual converter switching frequency.		
<b>Index:</b>	[0] = Actual [1] = Modulator minimum value		
<b>Note:</b>	The selected pulse frequency (p1800) may be reduced if the drive converter has an overload condition (p0290).		

p1802[0...n]		Modulator mode / Modulator mode				
PM230	Access level:	3	Calculated:	p0340 = 1,3,5	Data type:	Integer16
	Can be changed:	T	Scaling:	-	Data set:	DDS, p0180
	Units group:	-	Unit selection:	-		
	Min	0	Max	19	Factory setting	10
Description:	Sets the modulator mode.					
Value:	0: Automatic changeover SVM/FLB 2: Space vector modulation (SVM) 3: SVM without overcontrol 4: SVM/FLB without overcontrol 10: SVM/FLB with modulation depth reduction 19: Optimized pulse pattern					
Dependency:	If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only space vector modulation without overcontrol can be selected as modulation type (p1802 = 3). This is not valid for the power units PM260. p1802 = 10 can only be set for the PM230 and PM240 power units. Refer to: p0230, p0500					
Note:	When modulation modes are enabled that could lead to overmodulation (p1802 = 0, 2, 10), the modulation depth must be limited using p1803 (default, p1803 = 98%). The higher the overmodulation, the greater the current ripple and torque ripple. With p1802 = 10, the modulation depth limit is automatically reduced to 100% in the critical output frequency range (over approx. 57 Hz). When changing p1802[x], the values for all of the other existing indices are also changed.					
p1802[0...n]		Modulator mode / Modulator mode				
PM240	Access level:	3	Calculated:	p0340 = 1,3,5	Data type:	Integer16
	Can be changed:	T	Scaling:	-	Data set:	DDS, p0180
	Units group:	-	Unit selection:	-		
	Min	0	Max	10	Factory setting	0
Description:	Sets the modulator mode.					
Value:	0: Automatic changeover SVM/FLB 2: Space vector modulation (SVM) 3: SVM without overcontrol 4: SVM/FLB without overcontrol 10: SVM/FLB with modulation depth reduction					
Dependency:	If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only space vector modulation without overcontrol can be selected as modulation type (p1802 = 3). This is not valid for the power units PM260. p1802 = 10 can only be set for the PM230 and PM240 power units. Refer to: p0230, p0500					
Note:	When modulation modes are enabled that could lead to overmodulation (p1802 = 0, 2,10), the modulation depth must be limited using p1803 (default p1803 < 100 %). 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[0...n]		Modulator mode / Modulator mode				
PM250 PM260	Access level:	3	Calculated:	p0340 = 1,3,5	Data type:	Integer16
	Can be changed:	T	Scaling:	-	Data set:	DDS, p0180
	Units group:	-	Unit selection:	-		
	Min	0	Max	4	Factory setting	4
Description:	Sets the modulator mode.					
Value:	0: Automatic changeover SVM/FLB 2: Space vector modulation (SVM)					



- 3: SVM without overcontrol  
 4: SVM/FLB without overcontrol

**Dependency:** If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only space vector modulation without overcontrol can be selected as modulation type (p1802 = 3). This is not valid for the power units PM260. p1802 = 10 can only be set for the PM230 and PM240 power units.

Refer to: p0230, p0500

**Note:** When modulation modes are enabled that could lead to overmodulation (p1802 = 0, 2, 10), the modulation depth must be limited using p1803 (default p1803 < 100 %). 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.

p1803[0...n]		Maximum modulation depth / Modulat depth max	
PM230	Access level: 3	Calculated: p0340 = 1,3,5	Data type: FloatingPoint32
	Can be changed: U, T	Scaling: -	Data set: DDS, p0180
	Units group: -	Unit selection: -	
	Min 20.0 [%]	Max 120.0 [%]	Factory setting 115.0 [%]
Description:	Defines the maximum modulation depth.		
Dependency:	Refer to: p0500		
Note:	p1803 = 100% is the overcontrol limit for space vector modulation (for an ideal drive converter without any switching delay).		

p1803[0...n]		Maximum modulation depth / Modulat depth max	
PM240	Access level: 3	Calculated: p0340 = 1,3,5	Data type: FloatingPoint32
	Can be changed: U, T	Scaling: -	Data set: DDS, p0180
	Units group: -	Unit selection: -	
	Min	Max	Factory setting
	20.0 [%]	150.0 [%]	106.0 [%]
Description:	Defines the maximum modulation depth.		
Dependency:	Refer to: p0500		
Note:	p1803 = 100% is the overcontrol limit for space vector modulation (for an ideal drive converter without any switching delay).		

p1803[0...n]		Maximum modulation depth / Modulat depth max				
PM250 PM260	Access level:	3	Calculated:	p0340 = 1,3,5	Data type:	FloatingPoint32
	Can be changed:	U, T	Scaling:	-	Data set:	DDS, p0180
	Units group:	-	Unit selection:	-		
	Min		Max		Factory setting	
	20.0 [%]		150.0 [%]		106.0 [%]	
Description:	Defines the maximum modulation depth.					
Dependency:	Default setting PM260: 103 %.					
	Refer to: p0500					
Note:	p1803 = 100% is the overcontrol limit for space vector modulation (for an ideal drive converter without any switching delay).					

p1806[0...n]				Filter time constant Vdc correction / T_filt Vdc_corr	
	Access level: 4		Calculated: p0340 = 1,3		Data type: FloatingPoint32
	Can be changed: U, T		Scaling: -		Data set: DDS, p0180
	Units group: -		Unit selection: -		
	Min		Max		Factory setting
	0.0 [ms]		10000.0 [ms]		0.0 [ms]
Description:		Sets the filter time constant of the DC link voltage used to calculate the modulation depth.			

r1808	DC link voltage actual value for U_max calculation / Vdc act val U_max				
	Access level: 4		Calculated: -	Data type: FloatingPoint32	
	Can be changed: -		Scaling: p2001	Data set: -	
	Units group: 5_2		Unit selection: p0505		
	Min - [V]	Max - [V]	Factory setting - [V]		
Description:	DC link voltage used to determine the maximum possible output voltage.				

r1809	CO: Modulator mode actual / Modulator mode act				
	Access level: 4		Calculated: -	Data type: Integer16	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min 1	Max 9	Factory setting -		
Description:	Displays the effective modulator mode.				
Value:	1: Flat top modulation (FLB) 2: Space vector modulation (SVM) 9: Optimized pulse pattern				

p1810	Modulator configuration / Modulator config				
	Access level: 3		Calculated: -	Data type: Unsigned16	
	Can be changed: U, T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min -	Max -	Factory setting 0000 bin		
Description:	Sets the configuration for the modulator.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Avg value filter for U_lim (only for Vdc_comp. in modulator)	Yes	No	-
	01	DC link voltage compensation in the current control	Yes	No	-
Notice:	Bit 1 = 1 can only be set under a pulse inhibit and for r0192.14 = 1.				
Note:	Re bit 00 = 0: Voltage limitation from the minimum of the DC link voltage (lower ripple in the output current, reduced output voltage). Re bit 00 = 1: Voltage limitation from averaged DC link voltage (higher output voltage with increased ripple in the output current). The selection is only valid if the DC link compensation is not performed in the Control Unit (bit 1 = 0). Re bit 01 = 0: DC link voltage compensation in the modulator. Re bit 01 = 1: DC link voltage compensation in the current control.				

p1820[0...n]	Reverse the output phase sequence / Outp_ph_seq rev				
	Access level: 2		Calculated: -	Data type: Integer16	
	Can be changed: C(2), T		Scaling: -	Data set: DDS, p0180	
	Units group: -		Unit selection: -		
	Min 0	Max 1	Factory setting 0		
Description:	Sets the phase sequence reversal for the motor without setpoint change.  If the motor does not rotate in the required direction, then the output phase sequence can be reversed using this parameter. This means that the direction of the motor is reversed without the setpoint being changed.				

**Value:** 0: OFF  
1: ON

**Note:** This setting can only be changed when the pulses are inhibited.

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<b>p1825</b>	<b>Converter valve threshold voltage / Threshold voltage</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [Vrms]	<b>Max</b> 100.0 [Vrms]	<b>Factory setting</b> 0.6 [Vrms]
<b>Description:</b>	Sets the threshold voltage drop of the valves (power semiconductor devices) to be compensated.		
<b>Note:</b>	The value is automatically calculated in the motor data identification routine.		

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<b>p1828</b>	<b>Compensation valve lockout time phase U / Comp t_lock ph U</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [μs]	<b>Max</b> 3.99 [μs]	<b>Factory setting</b> 0.00 [μs]
<b>Description:</b>	Sets the valve lockout time to compensate for phase U.		
<b>Note:</b>	The value is automatically calculated in the motor data identification routine.		

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<b>p1829</b>	<b>Compensation valve lockout time phase V / Comp t_lock ph V</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [μs]	<b>Max</b> 3.99 [μs]	<b>Factory setting</b> 0.00 [μs]
<b>Description:</b>	Sets the valve lockout time to compensate for phase V.		

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<b>p1830</b>	<b>Compensation valve lockout time phase W / Comp t_lock ph W</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [μs]	<b>Max</b> 3.99 [μs]	<b>Factory setting</b> 0.00 [μs]
<b>Description:</b>	Sets the valve lockout time to compensate for phase W.		

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<b>p1832</b>	<b>Dead time compensation current level / t_dead_comp I_lev</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [Arms]	<b>Max</b> 10000.0 [Arms]	<b>Factory setting</b> 0.0 [Arms]
<b>Description:</b>	Sets the current level for the dead time compensation. 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.		
<b>Dependency:</b>	The factory setting of p1832 is automatically set to 0.02 * rated drive converter current (r0207).		

p1900	Motor data identification and rotating measurement / MotID and rot meas		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1), T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	3	0
<b>Description:</b>	<p>Sets the motor data identification and speed controller optimization.</p> <p>The motor identification should first be performed with the motor stationary (p1900 = 1, 2; also refer to p1910). Based on this, additional motor and control parameters can be determined using the motor data identification with the motor rotating (p1900 = 1, 3; also refer to p1960).</p> <p>p1900 = 0: Function inhibited.</p> <p>p1900 = 1: Sets p1910 = 1 and p1960 = 0, 1 depending on p1300</p> <p>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.</p> <p>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.</p> <p>p1900 = 2: Sets p1910 = 1 and p1960 = 0</p> <p>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.</p> <p>p1900 = 3: Sets p1960 = 0, 1 depending on p1300</p> <p>This setting should only be selected if the motor data identification was already carried out at standstill.</p> <p>When the drive enable signals are present, with the next power-on command, a rotating motor data identification routine is carried out - and in addition, speed controller optimization by taking measurements at different motor speeds.</p>		
<b>Value:</b>	<p>0:     Inhibited</p> <p>1:     Identify motor data at standstill and with motor rotating</p> <p>2:     Identify motor data at standstill</p> <p>3:     Identify motor data with motor rotating</p>		
<b>Dependency:</b>	<p>Refer to: p1300, p1910, p1960</p> <p>Refer to: A07980, A07981, F07983, F07984, F07985, F07986, F07988, F07990, A07991</p>		
<b>Notice:</b>	<p>p1900 = 3: This setting should only be selected if the motor data identification was already carried out at standstill.</p> <p>If there is a motor holding brake, it must be open (p1215 = 2).</p> <p>To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971).</p> <p>For p0014 = 1, the following applies:</p>		
<b>Note:</b>	<p>After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.</p> <p>The motor and control parameters are only optimally set when both measurements are carried out (initially at standstill, and then with the motor rotating).</p> <p>An appropriate alarm is output when the parameter is set.</p> <p>The power-on command must remain set during a measurement and after the measurement has been completed, the drive automatically resets it.</p> <p>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.</p> <p>p1900 is automatically set to 0 after the motor data identification routine has been completed.</p>		

p1901	Test pulse evaluation configuration / Test puls config				
	Access level: 3		Calculated: p0340 = 1	Data type: Unsigned32	
	Can be changed: T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min		Max	Factory setting	
	-		-	0000 bin	
Description:	Sets the configuration for the test pulse evaluation. Bit 00: Check for conductor-to-conductor short circuit once/always when the pulses are enabled. Bit 01: Check for ground fault once/always when the pulses are enabled. Bit 02: Activation of the tests selected using bit 00 and/or bit 01 each time the pulses are enabled				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Phase short-circuit test pulse active	Yes	No	-
	01	Ground fault detection test pulse active	Yes	No	-
	02	Test pulse at each pulse enable	Yes	No	-
Dependency:	Refer to: p0287				
Note:	Re bit 02=0: If the test was successful once after POWER ON (see r1902.0), it is not repeated. Re bit 02=1: The test is not only performed after POWER ON, but also each time the pulses are enabled. If a conductor-to-conductor short-circuit is detected during the test, this is displayed in r1902.1. If a ground fault is detected during the test, this is displayed in r1902.2.				
r1902	Test pulse evaluation status / Test puls ev stat				
	Access level: 4		Calculated: -	Data type: Unsigned32	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min		Max	Factory setting	
	-		-	-	
Description:	Displays the status of the test pulse evaluation. Short-circuit test: Bit 0: The short-circuit test was executed without any fault. Bit 1: A phase short circuit has been detected. Bit 2: A ground fault test was successfully performed. Bit 3: A ground fault was detected. Bit 4: A test pulse longer than one sampling time has occurred				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Short-circuit test executed	Yes	No	-
	01	Phase short-circuit detected	Yes	No	-
	02	Ground fault test successfully performed	Yes	No	-
	03	Ground fault detected	Yes	No	-
	04	Identification pulse width greater than the minimum pulse width	Yes	No	-
Note:	If the ground fault test was selected, but not successfully performed, then sufficient current will not be able to be established during the test pulse.				

r1902	Test pulse evaluation status / Test puls ev stat				
	Access level: 4		Calculated: -	Data type: Unsigned32	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min		Max	Factory setting	
	-		-	-	
Description:	Displays the status of the test pulse evaluation. Short-circuit test: Bit 0: The short-circuit test was executed without any fault. Bit 1: A phase short circuit has been detected. Bit 2: A ground fault test was successfully performed. Bit 3: A ground fault was detected. Bit 4: A test pulse longer than one sampling time has occurred				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Short-circuit test executed	Yes	No	-
	01	Phase short-circuit detected	Yes	No	-
	02	Ground fault test successfully performed	Yes	No	-
	03	Ground fault detected	Yes	No	-
	04	Identification pulse width greater than the minimum pulse width	Yes	No	-
Note:	If the ground fault test was selected, but not successfully performed, then sufficient current will not be able to be established during the test pulse.				

p1909[0...n]	Motor data identification control word / MotID STW				
	Access level: 3		Calculated: p0340 = 1	Data type: Unsigned32	
	Can be changed: T		Scaling: -	Data set: MDS	
	Units group: -		Unit selection: -		
	Min		Max	Factory setting	
	-		-	0000 0000 0000 0000 0000 0000 0000 0000 bin	
Description:	Sets the configuration for the motor data identification.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Stator inductance estimate no measurement	Yes	No	-
	02	Rotor time constant estimate no measurement	Yes	No	-
	03	Leakage inductance estimate no measurement	Yes	No	-
	05	Determine Tr and Lsig evaluation in the time range	Yes	No	-
	06	Activate vibration damping	Yes	No	-
	07	De-activate vibration detection	Yes	No	-
	11	De-activate pulse measurement Lq Ld	Yes	No	-
	12	De-activate rotor resistance Rr measurement	Yes	No	-
	14	De-activate valve interlocking time measurement	Yes	No	-
	15	Determine only stator resistance, valve voltage fault, dead time	Yes	No	-
	16	Short motor identification (lower quality)	Yes	No	-
Note:	The following applies to permanent-magnet synchronous motors: 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 U/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 selection / MotID selection				
	Access level: 3		Calculated: -	Data type: Integer16	
	Can be changed: T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min		Max	Factory setting	
	0		26	0	
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. p1910 = 20: Only for internal SIEMENS use.				
Value:	0: Inhibited 1: Complete identification (ID) and acceptance of motor data 2: Complete identification (ID) of motor data without acceptance 20: Voltage vector input 21: Voltage vector input without filter 22: Rectangular voltage vector input without filter 23: Triangular voltage vector input without filter				

	24: Rectangular voltage vector input with filter 25: Triangular voltage vector input with filter 26: Enter voltage vector with DTC correction
<b>Dependency:</b>	"Quick commissioning" must be carried out (p0010 = 1, p3900 > 0) before executing the motor data identification routine! When selecting the motor data identification routine, the drive data set changeover is suppressed. Refer to: p1900
<b>Caution:</b>	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: <ul style="list-style-type: none"> <li>- current flows through the motor and a voltage is present at the drive converter output terminals.</li> <li>- during the identification routine, the motor shaft can rotate through a maximum of half a revolution.</li> <li>- however, no torque is generated.</li> </ul>
<b>Notice:</b>	If there is a motor holding brake, it must be open (p1215 = 2). To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971).
<b>Note:</b>	When setting p1910, the following should be observed: <ol style="list-style-type: none"> <li>1. "With acceptance" means: The parameters specified in the description are overwritten with the identified values and therefore have an influence on the controller setting.</li> <li>2. "Without acceptance" means: The identified parameters are only displayed in the range r1912 ... r1926 (service parameters). The controller settings remain unchanged.</li> </ol>

<b>p1911</b>	<b>Number of phases to be identified / Qty ph to ident</b>
	<b>Access level:</b> 4 <b>Can be changed:</b> T <b>Units group:</b> - <b>Min</b> 1 <b>Max</b> 3 <b>Calculated:</b> - <b>Scaling:</b> - <b>Unit selection:</b> - <b>Data type:</b> Integer16 <b>Data set:</b> - <b>Factory setting</b> 1
<b>Description:</b>	Sets the number of phases to be identified.
<b>Value:</b>	1: 1 phase U 2: 2 phases U, V 3: 3 phases U, V, W
<b>Note:</b>	When identifying with several phases, the accuracy increases and also the time it takes to make the measurement.

<b>r1912[0...2]</b>	<b>Identified stator resistance / R_stator ident</b>
	<b>Access level:</b> 4 <b>Can be changed:</b> - <b>Units group:</b> - <b>Min</b> - [ohm] <b>Max</b> - [ohm] <b>Calculated:</b> - <b>Scaling:</b> - <b>Unit selection:</b> - <b>Data type:</b> FloatingPoint32 <b>Data set:</b> - <b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays the identified stator resistance.
<b>Index:</b>	[0] = Phase U [1] = Phase V [2] = Phase W

<b>r1913[0...2]</b>	<b>Identified rotor time constant / T_rotor ident</b>
	<b>Access level:</b> 4 <b>Can be changed:</b> - <b>Units group:</b> - <b>Min</b> - [ms] <b>Max</b> - [ms] <b>Calculated:</b> - <b>Scaling:</b> - <b>Unit selection:</b> - <b>Data type:</b> FloatingPoint32 <b>Data set:</b> - <b>Factory setting</b> - [ms]
<b>Description:</b>	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**

<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [mH]

**Description:** Displays the identified total leakage inductance.

**Index:**  
 [0] = Phase U  
 [1] = Phase V  
 [2] = Phase W

---

**r1915[0...2] Identified nominal stator inductance / L\_stator ident**

<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [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**

<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [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**

<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [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



<b>r1918[0...2]</b>	<b>Identified stator inductance 3 / L_stator 3 ident</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [mH]
<b>Description:</b>	Displays the nominal stator inductance identified for the 3rd point of the saturation characteristic.		
<b>Index:</b>	[0] = Phase U [1] = Phase V [2] = Phase W		
<b>r1919[0...2]</b>	<b>Identified stator inductance 4 / L_stator 4 ident</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [mH]	<b>Max</b> - [mH]	<b>Factory setting</b> - [mH]
<b>Description:</b>	Displays the nominal stator inductance identified for the 4th point of the saturation characteristic.		
<b>Index:</b>	[0] = Phase U [1] = Phase V [2] = Phase W		
<b>r1925[0...2]</b>	<b>Identified threshold voltage / U_threshold ident</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Vrms]	<b>Max</b> - [Vrms]	<b>Factory setting</b> - [Vrms]
<b>Description:</b>	Displays the identified IGBT threshold voltage.		
<b>Index:</b>	[0] = Phase U [1] = Phase V [2] = Phase W		
<b>r1926[0...2]</b>	<b>Identified effective valve lockout time / t_lock_valve id</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [μs]	<b>Max</b> - [μs]	<b>Factory setting</b> - [μs]
<b>Description:</b>	Displays the identified effective valve lockout time.		
<b>Index:</b>	[0] = Phase U [1] = Phase V [2] = Phase W		
<b>r1927[0...2]</b>	<b>Identified rotor resistance / R_rotor ident</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ohm]	<b>Max</b> - [ohm]	<b>Factory setting</b> - [ohm]
<b>Description:</b>	Displays identified rotor resistance (on separately excited synchronous motors: damping resistance).		

Index: [0] = Phase U  
[1] = Phase V  
[2] = Phase W

<b>p1959[0...n]</b>	<b>Rotating measurement configuration / Rot meas config</b>		
<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	0001 1110 bin	

**Description:** Sets the configuration of the rotating measurement.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Saturation characteristic identification	Yes	No	-
	02	Moment of inertia identification	Yes	No	-
	03	Re-calculates the speed controller parameters	Yes	No	-
	04	Speed controller optimization (vibration test)	Yes	No	-

**Dependency:** Refer to: F07988

**Note:** The following parameters are influenced for the individual optimization steps:

Bit 01: p0320, p0360, p0362 ... p0369

Bit 02: p0341, p0342

Bit 03: p1400.0, p1458, p1459, p1463, p1470, p1472, p1496

Bit 04: Dependent on p1960

p1960 = 1, 3: p1400.0, p1458, p1459, p1470, p1472, p1496

<b>p1960</b>	<b>Rotating measurement selection / Rot meas sel</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16	
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
0	3	0	

**Description:** Sets the rotating measurement.

The rotating measurement is carried out after the next power-on command.

The setting possibilities of the parameter depend on the open-loop/closed-loop control mode (p1300).

p1300 < 20 (U/f open-loop control):

It is not possible to select rotating measurement or speed controller optimization.

p1300 = 20, 22 (encoderless operation):

Only rotating measurement or speed controller optimization can be selected in the encoderless mode.

**Value:**  
0: Inhibited  
1: Rotating measurement in encoderless operation  
3: Speed controller optimization in encoderless operation

**Dependency:** Before the rotating measurement is carried out, the motor data identification routine (p1900, p1910, r3925) should have already been done.

When selecting the rotating measurement, the drive data set changeover is suppressed.

Refer to: p1300, p1900, p1959

**Danger:**



For drives with a mechanical system that limits the distance moved, it must be ensured that this is not reached during the rotating measurement. If this is not the case, then it is not permissible that the measurement is carried out.

**Notice:**

If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971).

**Note:**

When the rotating measurement is activated, it is not possible to save the parameters (p0971).

Parameter changes are automatically made for the rotating measurement (e.g. p1120); this is the reason that up to the end of the measurement, and if no faults are present, no manual changes should be made.

The ramp-up and ramp-down times (p1120, p1121) are limited, for the rotating measurement, to 900 s.

<b>p1961</b>	<b>Saturation characteristic speed to determine / Sat_char n determ</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 26 [%]	<b>Max</b> 75 [%]	<b>Factory setting</b> 40 [%]
<b>Description:</b>	Sets the speed to determine the saturation characteristic. The percentage value is referred to p0310 (rated motor frequency).		
<b>Dependency:</b>	Refer to: p0310, p1959 Refer to: F07983		
<b>Note:</b>	The saturation characteristics should be determined at an operating point with the lowest possible load.		
<b>p1965</b>	<b>Speed_ctrl_opt speed / n_opt speed</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10 [%]	<b>Max</b> 75 [%]	<b>Factory setting</b> 40 [%]
<b>Description:</b>	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).		
<b>Dependency:</b>	Refer to: p0310, p1959 Refer to: F07984, F07985		
<b>Note:</b>	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.		
<b>p1967</b>	<b>Speed_ctrl_opt dynamic factor / n_opt dyn_factor</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1 [%]	<b>Max</b> 400 [%]	<b>Factory setting</b> 100 [%]
<b>Description:</b>	Sets the dynamic response factor for speed controller optimization.		
<b>Dependency:</b>	For power units with a reduced DC link capacitance (e.g., PM250), the dynamic response of the controller is set to 40%. Refer to: p1959 Refer to: F07985		
<b>Note:</b>	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).		

<b>r1968</b>	<b>Speed_ctrl_opt dynamic factor actual / n_opt dyn_fact act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the dynamic factor which is actually achieved for the vibration test		
<b>Dependency:</b>	Refer to: p1959, p1967 Refer to: F07985		
<b>Note:</b>	This dynamic factor only refers to the control mode of the speed controller set in p1960.		
<b>r1969</b>	<b>Speed_ctrl_opt moment of inertia determined / n_opt M_inert det</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> 25_1	<b>Unit selection:</b> p0100	
	<b>Min</b> - [kgm <sup>2</sup> ]	<b>Max</b> - [kgm <sup>2</sup> ]	<b>Factory setting</b> - [kgm <sup>2</sup> ]
<b>Description:</b>	Displays the determined moment of inertia of the drive. After it has been determined, the value is transferred to p0341, p0342.		
<b>Dependency:</b>	IEC drives (p0100 = 0): unit kg m <sup>2</sup> NEMA drives (p0100 = 1): unit lb ft <sup>2</sup> Refer to: p0341, p0342, p1959 Refer to: F07984		
<b>r1970[0...1]</b>	<b>Speed_ctrl_opt vibration test vibration frequency determined / n_opt f_vibration</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Hz]	<b>Max</b> - [Hz]	<b>Factory setting</b> - [Hz]
<b>Description:</b>	Displays the vibration frequencies determined by the vibration test.		
<b>Index:</b>	[0] = Frequency low [1] = Frequency high		
<b>Dependency:</b>	Refer to: p1959 Refer to: F07985		
<b>p1980[0...n]</b>	<b>PoIID technique / PoIID technique</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 10	<b>Factory setting</b> 4
<b>Description:</b>	Sets the pole position identification technique.		
<b>Value:</b>	1: Voltage pulsing 1st harmonics 4: Voltage pulsing 2-stage 6: Voltage pulsing 2-stage inverse 10: DC current injection		
<b>Dependency:</b>	Refer to: p1780		
<b>Note:</b>	Voltage pulse technique (p1980 = 1, 4) cannot be applied to operation with sine-wave output filters (p0230).		

<b>r1984</b>	<b>PolID angular difference / PolID ang diff</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [°]	<b>Max</b> - [°]	<b>Factory setting</b> - [°]
<b>Description:</b>	Displays the angular difference between the actual electrical commutation angle and the angle determined by the pole position identification.		
<b>Dependency:</b>	Refer to: p0325, p0329, p1980, r1985, r1987		
<b>Note:</b>	When the pole position identification routine is executed several times, 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.		
<b>r1985</b>	<b>PolID saturation curve / PolID sat_char</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [Arms]	<b>Max</b> - [Arms]	<b>Factory setting</b> - [Arms]
<b>Description:</b>	Displays the saturation characteristic of the pole position identification routine (saturation technique). Displays the current characteristic of the pole position identification routine (elasticity technique).		
<b>Dependency:</b>	Refer to: p0325, p0329, p1980, r1984, r1987		
<b>Note:</b>	PolID: Pole position identification Regarding the saturation technique: 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).		
<b>r1987</b>	<b>PolID trigger characteristic / PolID trig_char</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the trigger characteristic of the pole position identification routine. 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). The values for trigger characteristic and saturation characteristic are always output in synchronism from a time perspective.		
<b>Dependency:</b>	Refer to: p0325, p0329, p1980, r1984, r1985		
<b>Note:</b>	PolID: Pole position identification The following information and data can be taken from the trigger characteristic. - 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.		
<b>p1999[0...n]</b>	<b>Ang. commutation offset calibr. and PolID scaling / Com_ang_offs scal</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> MDS
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10 [%]	<b>Max</b> 5000 [%]	<b>Factory setting</b> 100 [%]
<b>Description:</b>	Sets the scaling for the runtime of the pole position identification technique in which the current is injected.		
<b>Dependency:</b>	Refer to: p0341, p0342		

**Caution:**

For p1999 > 100 % (setting large moments of inertia) the following applies:  
There is no locked rotor monitoring (F07970 fault value 2).

**Note:**

For high moments of inertia, it is practical to scale the runtime of the calibration higher.

<b>p2000</b>	<b>Reference speed reference frequency / n_ref f_ref</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 6.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 1500.00 [rpm]
<b>Description:</b>	<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 corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).</p> <p>The following applies: Reference frequency (in Hz) = reference speed (in ((rpm) / 60) x pole pair number)</p>		
<b>Dependency:</b>	<p>This parameter is only updated during the automatic calculation (p0340 = 1, p3900 &gt; 0) if motor commissioning was carried out beforehand for drive data set zero. This means that the parameter is not locked against overwriting using p0573 = 1.</p> <p>Refer to: p2001, p2002, p2003, r2004, r3996</p>		
<b>Notice:</b>	When the reference speed / reference frequency is changed, short-term communication interruptions may occur.		
<b>Note:</b>	<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. r0755[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 actual input value is cyclically converted into a percentage value via the pre-specified scaling 4000 hex. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).</p>		
<b>p2001</b>	<b>Reference voltage / Reference voltage</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10 [Vrms]	<b>Max</b> 100000 [Vrms]	<b>Factory setting</b> 1000 [Vrms]
<b>Description:</b>	<p>Sets the reference quantity for voltages.</p> <p>All voltages specified as relative value are referred to this reference quantity. This also applies for direct voltage values (= rms value) like the DC-link voltage.</p> <p>The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).</p> <p>Note:</p> <p>This reference quantity also applies to direct voltage values. It is not interpreted as rms value, but as DC voltage value.</p>		
<b>Dependency:</b>	<p>p2001 is only updated during automatic calculation (p0340 = 1, p3900 &gt; 0) if motor commissioning has been carried out first for drive data set zero and as a result overwriting of the parameter has not been blocked by setting p0573 = 1.</p> <p>Refer to: r3996</p>		
<b>Notice:</b>	When the reference voltage is changed, short-term communication interruptions may occur.		
<b>Note:</b>	<p>If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.</p> <p>For infeed units, the parameterized device supply voltage (p0210) is pre-assigned as the reference quantity.</p>		

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.

<b>p2002</b>	<b>Reference current / I<sub>ref</sub></b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.10 [Arms]	<b>Max</b> 100000.00 [Arms]	<b>Factory setting</b> 100.00 [Arms]
<b>Description:</b>	Sets the reference quantity for currents. All currents specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).		
<b>Dependency:</b>	This parameter is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero. This means that the parameter is not locked against overwriting using p0573 = 1. Refer to: r3996		
<b>Notice:</b>	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 must be taken into account. Example: p2002 = 100 A Reference quantity 100 A corresponds to 100 % p0305[0] = 100 A Rated motor current 100 A for MDS0 in DDS0 --> 100 % corresponds to 100 % of the rated motor current p0305[1] = 50 A Rated motor current 50 A for MDS1 in DDS1 --> 100 % corresponds to 200 % of the rated motor current When the reference current is changed, short-term communication interruptions may occur. 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, which 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.		
<b>p2003</b>	<b>Reference torque / M<sub>ref</sub></b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> 7_2	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.01 [Nm]	<b>Max</b> 20000000.00 [Nm]	<b>Factory setting</b> 1.00 [Nm]
<b>Description:</b>	Sets the reference quantity for torque. All torques specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).		
<b>Dependency:</b>	This parameter is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero. This means that the parameter is not locked against overwriting using p0573 = 1. Refer to: r3996		
<b>Notice:</b>	When the reference torque is changed, short-term communication interruptions may occur.		

**Note:** 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.

<b>r2004</b>	<b>Reference power / P_ref</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> 14_10	<b>Unit selection:</b> p0505	
	<b>Min</b> - [kW]	<b>Max</b> - [kW]	<b>Factory setting</b> - [kW]
<b>Description:</b>	Displays the reference quantity for power. All power ratings specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).		
<b>Dependency:</b>	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		
<b>Note:</b>	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: - $2 * \pi * \text{reference speed} / 60 * \text{reference torque (motor)}$ - $\text{reference voltage} * \text{reference current} * \text{root}(3) \text{ (infeed)}$		
<b>p2005</b>	<b>Reference angle / Reference angle</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 90.00 [°]	<b>Max</b> 180.00 [°]	<b>Factory setting</b> 90.00 [°]
<b>Description:</b>	Sets the reference quantity for angle. All angles specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).		
<b>Dependency:</b>	This parameter is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero. This means that the parameter is not locked against overwriting using p0573 = 1.		
<b>Note:</b>	If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.		
<b>p2006</b>	<b>Reference temp / Ref temp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 50.00 [°C]	<b>Max</b> 300.00 [°C]	<b>Factory setting</b> 100.00 [°C]
<b>Description:</b>	Sets the reference quantity for temperature. All temperatures specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).		



<b>p2007</b>	<b>Reference acceleration / a_ref</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.01 [rev/s <sup>2</sup> ]	<b>Max</b> 500000.00 [rev/s <sup>2</sup> ]	<b>Factory setting</b> 0.01 [rev/s <sup>2</sup> ]
<b>Description:</b>	Sets the reference quantity for acceleration rates. All acceleration rates specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).		
<b>Dependency:</b>	This parameter is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero. This means that the parameter is not locked against overwriting using p0573 = 1.		
<b>Note:</b>	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: $p2007 = p2000 / 1 [s]$		
<b>p2010</b>	<b>Comm interface baud rate / Comm baud</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 4	<b>Max</b> 12	<b>Factory setting</b> 12
<b>Description:</b>	Sets the baud rate for the commissioning interface (USS, RS232).		
<b>Value:</b>	4: 2400 baud 5: 4800 baud 6: 9600 baud 7: 19200 baud 8: 38400 baud 9: 57600 baud 10: 76800 baud 11: 93750 baud 12: 115200 baud		
<b>Note:</b>	Commissioning interface The parameter is not influenced by setting the factory setting.		
<b>p2011</b>	<b>Comm int address / Comm add</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 31	<b>Factory setting</b> 2
<b>Description:</b>	Sets the address for the commissioning interface (USS, RS232).		
<b>Note:</b>	The parameter is not influenced by setting the factory setting.		
<b>p2016[0...3]</b>	<b>CI: Comm IF USS PZD send word / Comm USS send word</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> 4000H	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Selects the PZD (actual values) to be sent via the commissioning interface USS.		

The actual values are displayed on an intelligent operator panel (IOP).

**Index:**

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4

<b>r2019[0...7]</b>	<b>Comm int error statistics / Comm err</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the receive errors at the commissioning interface (USS, RS232).		
<b>Index:</b>	<ul style="list-style-type: none"> <li>[0] = Number of error-free telegrams</li> <li>[1] = Number of rejected telegrams</li> <li>[2] = Number of framing errors</li> <li>[3] = Number of overrun errors</li> <li>[4] = Number of parity errors</li> <li>[5] = Number of starting character errors</li> <li>[6] = Number of checksum errors</li> <li>[7] = Number of length errors</li> </ul>		

<b>p2020</b>	<b>Field bus interface baud rate / Field bus baud</b>		
CU240B-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	4	13	8
<b>Description:</b>	Sets the baud rate for the field bus interface (RS485).		
<b>Value:</b>	<ul style="list-style-type: none"> <li>4: 2400 baud</li> <li>5: 4800 baud</li> <li>6: 9600 baud</li> <li>7: 19200 baud</li> <li>8: 38400 baud</li> <li>9: 57600 baud</li> <li>10: 76800 baud</li> <li>11: 93750 baud</li> <li>12: 115200 baud</li> <li>13: 187500 baud</li> </ul>		
<b>Notice:</b>	<p>For p0014 = 1, the following applies:</p> <p>After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.</p> <p>For p0014 = 0, the following applies:</p> <p>Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do this, set p0971 = 1 or p0014 = 1.</p>		
<b>Note:</b>	<p>Fieldbus IF: Fieldbus interface</p> <p>Changes only become effective after POWER ON.</p> <p>The parameter is not influenced by setting the factory setting.</p> <p>The parameter is set to the factory setting when the protocol is reselected.</p> <p>When p2030 = 1 (USS), the following applies:</p> <p>Min./max./factory setting: 4/13/8</p> <p>When p2030 = 2 (MODBUS), the following applies:</p> <p>Min./max./factory setting: 5/13/7</p>		

<b>p2021</b>	<b>Field bus interface address / Field bus address</b>		
CU240B-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 247	<b>Factory setting</b> 0
<b>Description:</b>	<p>Displays or sets the address for the fieldbus interface (RS485).  The address can be set as follows:  1) Using the address switch on the Control Unit.  --&gt; p2021 displays the address setting.  --&gt; A change only becomes effective after a POWER ON.  2) Using p2021  --&gt; Only if an address of 0 or an address which is invalid for the fieldbus selected in p2030 has been set using the address switch.  --&gt; The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".  --&gt; A change only becomes effective after a POWER ON.</p>		
<b>Dependency:</b>	Refer to: p2030		
<b>Notice:</b>	<p>For p0014 = 1, the following applies:  After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.  For p0014 = 0, the following applies:  Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do this, set p0971 = 1 or p0014 = 1.</p>		
<b>Note:</b>	<p>Changes only become effective after POWER ON.  The parameter is not influenced by setting the factory setting.  The parameter is set to the factory setting when the protocol is reselected.  When p2030 = 1 (USS), the following applies:  Min./max./factory setting: 0/30/0  When p2030 = 2 (MODBUS), the following applies:  Min./max./factory setting: 1/247/1</p>		
<b>p2022</b>	<b>Field bus int USS PZD no. / Field bus USS PZD</b>		
CU240B-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 8	<b>Factory setting</b> 2
<b>Description:</b>	Sets the number of 16-bit words in the PZD part of the USS telegram for the field bus interface.		
<b>Dependency:</b>	Refer to: p2030		
<b>Note:</b>	The parameter is not influenced by setting the factory setting.		
<b>p2023</b>	<b>Field bus int USS PKW no. / Field bus USS PKW</b>		
CU240B-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 127	<b>Factory setting</b> 127
<b>Description:</b>	Sets the number of 16-bit words in the PKW part of the USS telegram for the field bus interface.		
<b>Value:</b>	<p>0: PKW 0 words  3: PKW 3 words  4: PKW 4 words  127: PKW variable</p>		

**Dependency:** Refer to: p2030  
**Note:** The parameter is not influenced by setting the factory setting.

<b>p2024[0...2]</b>		<b>Fieldbus interface times / Fieldbus times</b>	
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> [0] 1000 [ms] [1] 0 [ms] [2] 0 [ms]
<b>Description:</b>	Sets the time values for the fieldbus interface. The following applies for MODBUS: p2024[0]: Maximum permissible telegram processing time of the MODBUS slave in which a reply is sent back to the MODBUS master. p2024[1]: Character delay time (time between individual characters in the telegram). p2024[2]: Telegram pause time (pause time between two telegrams).		
<b>Index:</b>	[0] = Max. processing time [1] = Character delay time [2] = Telegram pause time		
<b>Dependency:</b>	Refer to: p2020, p2030		
<b>Note:</b>	Re p2024[1,2] (MODBUS): If the field bus baud rate is changed (p2020), the default time settings are restored. The default setting is the time required for 1.5 characters (p2024[1]) or 3.5 characters (p2024[2]) (depending on the set baud rate).		

<b>r2029[0...7]</b>		<b>Field bus int error statistics / Field bus error</b>	
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the receive errors on the field bus interface (RS485).		
<b>Index:</b>	[0] = Number of error-free telegrams [1] = Number of rejected telegrams [2] = Number of framing errors [3] = Number of overrun errors [4] = Number of parity errors [5] = Number of starting character errors [6] = Number of checksum errors [7] = Number of length errors		

<b>p2030</b>		<b>Field bus int protocol selection / Field bus protocol</b>	
CU240B-2_DP	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 3
<b>Description:</b>	Sets the communication protocol for the field bus interface.		
<b>Value:</b>	0: No protocol 3: PROFIBUS		
<b>Notice:</b>	For p0014 = 1, the following applies: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		

**Note:** Changes only become effective after POWER ON.  
The parameter is not influenced by setting the factory setting.

<b>p2030</b>	<b>Field bus int protocol selection / Field bus protocol</b>		
CU240B-2	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 0
<b>Description:</b>	Sets the communication protocol for the field bus interface.		
<b>Value:</b>	0: No protocol 1: USS 2: MODBUS		
<b>Notice:</b>	For p0014 = 1, the following applies: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		
<b>Note:</b>	Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting.		

<b>p2030</b>	<b>Field bus int protocol selection / Field bus protocol</b>		
CU240E-2_PN_F	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2 PN	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 7	<b>Factory setting</b> 7
<b>Description:</b>	Sets the communication protocol for the field bus interface.		
<b>Value:</b>	0: No protocol 7: PROFINET		
<b>Notice:</b>	For p0014 = 1, the following applies: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		
<b>Note:</b>	Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting.		

<b>r2032</b>	<b>Master control, control word effective / PcCtrl STW eff</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		-
<b>Description:</b>	Displays the effective control word 1 (STW1) of the drive for the master control.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	02	OC / OFF3	Yes	No	-
	03	Operation enable	Yes	No	-
	04	Ramp-function generator enable	Yes	No	-
	05	Start ramp-function generator	Yes	No	-
	06	Speed setpoint enable	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	08	Jog bit 0	Yes	No	3030
	09	Jog bit 1	Yes	No	3030
	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:** OC: Operating condition

<b>p2037</b>	<b>PROFdrive STW1.10 = 0 mode / PD STW1.10=0</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 0
<b>Description:</b>	Sets the processing mode for PROFdrive STW1.10 "master control by PLC". Generally, control word 1 is received with the first receive word (PZD1) (this is in conformance to the PROFdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.		
<b>Value:</b>	0: Freeze setpoints and continue to process sign-of-life 1: Freeze setpoints and sign-of-life 2: Do not freeze setpoints		
<b>Note:</b>	If the STW1 is not transferred according to the PROFdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.		
<b>p2038</b>	<b>PROFdrive STW/ZSW interface mode / PD STW/ZSW IF mode</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 0
<b>Description:</b>	Sets the interface mode of the PROFdrive control words 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.		
<b>Value:</b>	0: SINAMICS 2: VIK-NAMUR		
<b>Dependency:</b>	Refer to: p0922, p2079		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	- For p0922 (p2079) = 1, 350 ... 999, p2038 is automatically set to 0. - For p0922 (p2079) = 20, p2038 is automatically set to 2. It is not then possible to change p2038.		
<b>p2039</b>	<b>Select debug monitor interface / Debug monit select</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0
<b>Description:</b>	The serial interface for the debug monitor is COM1 (commissioning interface, RS232) or COM2 (fieldbus interface, RS485). Value = 0: De-activated Value = 1: COM1, commissioning protocol is de-activated Value = 2: COM2, field bus is de-activated Value = 3: Reserved		
<b>Note:</b>	Value = 2 is only possible for Control Units with RS485 as a field bus interface.		

<b>p2040</b>	<b>Fieldbus interface monitoring time / Fieldbus t_monit</b>			
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32	
CU240E-2	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -	
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -		
	<b>Min</b> 0 [ms]	<b>Max</b> 1999999 [ms]	<b>Factory setting</b> 100 [ms]	
<b>Description:</b>	Sets the monitoring time to monitor the process data received via the fieldbus interface. If no process data is received within this time, an appropriate message is output.			
<b>Dependency:</b>	Refer to: F01910			
<b>Note:</b>	0: The monitoring is de-activated.			

<b>p2042</b>	<b>PROFIBUS Ident Number / PB Ident No.</b>			
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16	
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -		
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0	
<b>Description:</b>	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).			
<b>Value:</b>	0: SINAMICS 1: VIK-NAMUR			
<b>Notice:</b>	For p0014 = 1, the following applies: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.			
<b>Note:</b>	Every change only becomes effective after a POWER ON.			

<b>r2043.0...2</b>	<b>BO: PROFIdrive PZD state / PD PZD state</b>				
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8		
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -			
CU240E-2_PN_F					
CU240E-2 PN					
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -		
<b>Description:</b>	Displays the PROFIdrive PZD state.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Setpoint failure	Yes	No	-
	02	Fieldbus oper	Yes	No	-
<b>Dependency:</b>	Refer to: p2044				
<b>Note:</b>	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**

CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
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 it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).

**Dependency:** Refer to: r2043  
Refer to: F01910

**p2047 PROFIBUS additional monitoring time / PB suppl t\_monit**

CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0 [ms]	20000 [ms]	0 [ms]

**Description:** Sets the additional monitoring time to monitor the process data received via PROFIBUS.  
The additional monitoring time enables short bus faults to be compensated.  
If no process data is received within this time, an appropriate message is output.

**Dependency:** Refer to: F01910

**Note:** For controller STOP, the additional monitoring time is not effective.

**r2050[0...11] CO: PROFIBUS PZD receive word / PZD rcv word**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> -	<b>Scaling:</b> 4000H	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

**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



<b>p2051[0...11]</b>	<b>CI: PROFIdrive PZD send word / PZD send word</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Integer16
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> 4000H	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 2089[0] [1] 63[0] [2...11] 0
<b>Description:</b>	Selects the PZD (actual values) with word format to be sent to the fieldbus controller.		
<b>Index:</b>	[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		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

<b>p2051[0...11]</b>	<b>CI: PROFIdrive PZD send word / PZD send word</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Integer16
CU240E-2	<b>Can be changed:</b> U, T	<b>Scaling:</b> 4000H	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Selects the PZD (actual values) with word format to be sent to the fieldbus controller.		
<b>Index:</b>	[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		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

<b>r2053[0...11]</b>	<b>PROFIdrive diagnostics send PZD word / Diag send word</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the PZD (actual values) with word format sent to the fieldbus controller.		

**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

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	-

**r2054 PROFIBUS status / PB status**

CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	4	-

**Description:** Status display for the PROFIBUS interface.

**Value:**

- 0: OFF
- 1: No connection (search for baud rate)
- 2: Connection OK (baud rate found)
- 3: Cyclic connection with master (data exchange)
- 4: Cyclic data OK

**r2055[0...2] PROFIBUS diagnostics standard / PB diag standard**

CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Diagnostics display for the PROFIBUS interface.

**Index:**

- [0] = Master bus address
- [1] = Master input total length bytes
- [2] = Master output total length bytes

<b>r2057 PROFIBUS address switch diagnostics / PB addr_sw diag</b>			
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the setting of the PROFIBUS address switch "DP ADDRESS" on the Control Unit.		
<b>Dependency:</b>	Refer to: p0918		
<hr/>			
<b>r2060[0...10]</b>	<b>CO: PROFIdrive PZD receive double word / PZD recv DW</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer32
	<b>Can be changed:</b> -	<b>Scaling:</b> 4000H	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Connector output to interconnect PZD (setpoints) with double word format received from the fieldbus controller.		
<b>Index:</b>	[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		
<b>Dependency:</b>	Refer to: r2050		
<b>Notice:</b>	Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types. A BICO interconnection for a single PZD can only take place either on r2050 or r2060.		
<hr/>			
<b>p2061[0...10]</b>	<b>CI: PROFIBUS PZD send double word / PZD send DW</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Integer32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> 4000H	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Selects the PZD (actual values) with double word format to be sent to the fieldbus controller.		
<b>Index:</b>	[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		
<b>Dependency:</b>	Refer to: p2051		
<b>Notice:</b>	A BICO interconnection for a single PZD can only take place either on r2051 or r2061. The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

r2063[0...10]						PROFdrive diagnostics PZD send double word / Diag send DW					
Access level: 3			Calculated: -			Data type: Unsigned32					
Can be changed: -			Scaling: -			Data set: -					
Units group: -			Unit selection: -								
Min			Max			Factory setting					
-			-			-					
Description:						Displays the PZD (actual values) with double word format sent to the fieldbus controller.					
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					
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		-	
Notice:						A maximum of 4 indices of the "trace" function can be used.					

<b>r2067[0...1]</b>	<b>PZD maximum interconnected / PZDmaxIntercon</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Display for the maximum interconnected PZD in the receive/send direction Index 0: receive (r2050, r2060) Index 1: send (p2051, p2061)		
<b>r2074[0...11]</b>	<b>PROFIdrive diagnostics bus address PZD receive / Diag addr recv</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the PROFIBUS address of the sender from which the process data (PZD) is received.		
<b>Index:</b>	[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		
<b>Note:</b>	Value range: 0 - 125: Bus address of the sender 65535: not assigned		
<b>r2075[0...11]</b>	<b>PROFIdrive diagnostics telegram offset PZD receive / Diag offs recv</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).		
<b>Index:</b>	[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		

**Note:** Value range:  
0 - 242: Byte offset  
65535: not assigned

<b>r2076[0...11] PROFIdrive diagnostics telegram offset PZD send / Diag offs send</b>			
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the PZD byte offset in the PROFIdrive send telegram (controller input).		
<b>Index:</b>	[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		
<b>Note:</b>	Value range: 0 - 242: Byte offset 65535: not assigned		

<b>r2077[0...15] PROFIBUS diagnostics peer-to-peer data transfer addresses / PB diag peer addr</b>			
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the addresses of the slaves (peers) where peer-to-peer data transfer has been configured via PROFIBUS.		

<b>p2079 PROFIdrive PZD telegram selection extended / PD PZD tel ext</b>			
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	1	999	1
<b>Description:</b>	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.		

**Value:**

- 1: Standard telegram 1, PZD-2/2
- 20: Standard telegram 20, PZD-2/6
- 350: SIEMENS telegram 350, PZD-4/4
- 352: SIEMENS telegram 352, PZD-6/6
- 353: SIEMENS telegram 353, PZD-2/2, PKW-4/4
- 354: SIEMENS telegram 354, PZD-6/6, PKW-4/4
- 999: Free telegram configuration with BICO

**Dependency:** Refer to: p0922

**p2080[0...15]****BI: Binector-connector converter status word 1 / Bin/con ZSW1**

CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			

Min	Max	Factory setting
-	-	[0] 899.0
		[1] 899.1
		[2] 899.2
		[3] 2139.3
		[4] 899.4
		[5] 899.5
		[6] 899.6
		[7] 2139.7
		[8] 2197.7
		[9] 899.9
		[10] 2199.1
		[11] 1407.7
		[12] 899.12
		[13] 2135.14
		[14] 2197.3
		[15] 2135.15

**Description:** Selects bits to be sent to the PROFIdrive controller.  
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.

<b>p2080[0...15]</b>	<b>BI: Binector-connector converter status word 1 / Bin/con ZSW1</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Selects bits to be sent to the PROFIdrive controller. The individual bits are combined to form status word 1.		
<b>Index:</b>	[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		
<b>Dependency:</b>	Refer to: p2088, r2089		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

<b>p2081[0...15]</b>	<b>BI: Binector-connector converter status word 2 / Bin/con ZSW2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Selects bits to be sent to the PROFIdrive controller. The individual bits are combined to form status word 2.		
<b>Index:</b>	[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		
<b>Dependency:</b>	Refer to: p2088, r2089		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		



<b>p2082[0...15]</b>	<b>BI: Binector-connector converter status word 3 / Bin/con ZSW3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Selects bits to be sent to the PROFIdrive controller. The individual bits are combined to form free status word 3.		
<b>Index:</b>	[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		
<b>Dependency:</b>	Refer to: p2088, r2089		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

<b>p2083[0...15]</b>	<b>BI: Binector-connector converter status word 4 / Bin/con ZSW4</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Selects bits to be sent to the PROFIdrive controller. The individual bits are combined to form free status word 4.		
<b>Index:</b>	[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		
<b>Dependency:</b>	Refer to: p2088, r2089		

<b>p2084[0...15] BI: Binector-connector converter status word 5 / Bin/con ZSW5</b>					
	<b>Access level:</b> 3		<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary	
	<b>Can be changed:</b> U, T		<b>Scaling:</b> -	<b>Data set:</b> -	
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>	<b>Factory setting</b>	
	-		-	0	
<b>Description:</b>	Selects bits to be sent to the PROFIdrive controller. The individual bits are combined to form free status word 5.				
<b>Index:</b>	[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				
<b>Dependency:</b>	Refer to: p2088, r2089				
<b>p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv</b>					
CU240B-2_DP	<b>Access level:</b> 3		<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
CU240E-2_DP	<b>Can be changed:</b> U, T		<b>Scaling:</b> -	<b>Data set:</b> -	
CU240E-2_DP_F	<b>Units group:</b> -		<b>Unit selection:</b> -		
CU240E-2_PN_F					
CU240E-2 PN					
	<b>Min</b>		<b>Max</b>	<b>Factory setting</b>	
	-		-	[0] 1010 1000 0000 0000 bin [1...4] 0000 0000 0000 0000 bin	
<b>Description:</b>	Setting to invert the individual binector inputs of the binector connector converter.				
<b>Index:</b>	[0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4 [4] = Free status word 5				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	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

#### p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0000 0000 0000 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  
 [4] = Free status word 5

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...4] CO: Send binector-connector converter status word / Bin/con ZSW send

	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**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  
 [4] = Free status word 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	-

**Dependency:** Refer to: p2051, p2080, p2081, p2082, p2083

**Note:** r2089 together with p2080 to p2084 forms five binector-connector converters.

#### r2090.0...15 **BO: PROFIdrive PZD1 receive bit-serial / PZD1 recv bitw**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIdrive controller.

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	-

#### r2091.0...15 **BO: PROFIdrive PZD2 receive bit-serial / PZD2 recv bitw**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

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	-

**r2092.0...15 BO: PROFIdrive PZD3 receive bit-serial / PZD3 recv bitw**

Access level: 3      Calculated: -      Data type: Unsigned16  
Can be changed: -      Scaling: -      Data set: -  
Units group: -      Unit selection: -

Min      Max      Factory setting  
-      -      -

**Description:** Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.

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	-

**r2093.0...15 BO: PROFIdrive PZD4 receive bit-serial / PZD4 recv bitw**

Access level: 3      Calculated: -      Data type: Unsigned16  
Can be changed: -      Scaling: -      Data set: -  
Units group: -      Unit selection: -

Min      Max      Factory setting  
-      -      -

**Description:** Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIdrive controller.

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	-

r2094.0...15	BO: Connector-binector converter binector output / Con/bin outp				
	Access level: 3		Calculated: -	Data type: Unsigned16	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min	Max		Factory setting	
	-		-		-
Description:	Binector output for bit-serial onward interconnection of a PZD word received from the PROFIdrive controller. 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				
	Access level: 3		Calculated: -	Data type: Unsigned16	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min	Max		Factory setting	
	-		-		-
Description:	Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller. 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				

<b>p2098[0...1]</b>	<b>Inverter connector-binector converter binector output / Con/bin outp inv</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		0000 0000 0000 0000 bin
<b>Description:</b>	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.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	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	-
<b>Dependency:</b>	Refer to: r2094, r2095, p2099				

<b>p2099[0...1]</b>	<b>CI: Connector-binector converter signal source / Con/bin S_src</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> U32 / Integer16
	<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		0
<b>Description:</b>	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).				
<b>Dependency:</b>	Refer to: r2094, r2095				
<b>Note:</b>	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				

<b>p2100[0...19]</b>	<b>Setting the fault number for fault response / F_no F response</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	0		65535		0
<b>Description:</b>	Selects the faults for which the fault response should be changed				
<b>Dependency:</b>	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).
- Note:** Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

### p2101[0...19] Setting the fault response / Fault response

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0	<b>Max</b> 6	<b>Factory setting</b> 0

**Description:** Sets the fault response for the selected fault.

**Value:**

- 0: NONE
- 1: OFF1
- 2: OFF2
- 3: OFF3
- 5: STOP2
- 6: Internal armature short-circuit / DC braking

**Dependency:** The fault is selected and the required response is set under the same index.  
Refer to: p2100

**Note:** Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The fault response can only be changed for faults with the appropriate identification.

Example:

F12345 and fault response = NONE (OFF1, OFF2)

--> The fault response NONE can be changed to OFF1 or OFF2.

Re value = 1 (OFF1):

Braking along the ramp-function generator down ramp followed by a pulse inhibit.

Re value = 2 (OFF2):

Internal/external pulse inhibit.

Re value = 3 (OFF3):

Braking along the OFF3 down ramp followed by a pulse inhibit.

Re value = 5 (STOP2):

n\_set = 0

Re value = 6 (armature short-circuit, internal/DC braking):

This value can only be set for all drive data sets when p1231 = 4.

a) DC braking is not possible for synchronous motors.

b) DC braking is possible for induction motors.

### p2103[0...n] BI: 1. Acknowledge faults / 1. Acknowledge

CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			

<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b>
		[0] 2090.7
		[1] 722.2
		[2] 2090.7
		[3] 2090.7

**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.



<b>p2103[0...n]</b>	<b>BI: 1. Acknowledge faults / 1. Acknowledge</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 722.2
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b>	Sets the first signal source to acknowledge faults.		
<b>Notice:</b>	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
<b>Note:</b>	A fault acknowledgement is triggered with a 0/1 signal.		

<b>p2104[0...n]</b>	<b>BI: 2. Acknowledge faults / 2. Acknowledge</b>		
CU240B-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_DP	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	[0] 722.2
			[1] 0
			[2] 0
			[3] 0
<b>Description:</b>	Sets the second signal source to acknowledge faults.		
<b>Note:</b>	A fault acknowledgement is triggered with a 0/1 signal.		

<b>p2104[0...n]</b>	<b>BI: 2. Acknowledge faults / 2. Acknowledge</b>		
CU240B-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
CU240E-2_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the second signal source to acknowledge faults.		
<b>Note:</b>	A fault acknowledgement is triggered with a 0/1 signal.		

<b>p2105[0...n]</b>	<b>BI: 3. Acknowledge faults / 3. Acknowledge</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the third signal source to acknowledge faults.		
<b>Note:</b>	A fault acknowledgement is triggered with a 0/1 signal.		

<b>p2106[0...n]</b>	<b>BI: External fault 1 / External fault 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for external fault 1.		
<b>Dependency:</b>	Refer to: F07860		
<b>Note:</b>	An external fault is triggered with a 1/0 signal.		
<b>p2107[0...n]</b>	<b>BI: External fault 2 / External fault 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for external fault 2.		
<b>Dependency:</b>	Refer to: F07861		
<b>Note:</b>	An external fault is triggered with a 1/0 signal.		
<b>p2108[0...n]</b>	<b>BI: External fault 3 / External fault 3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	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		
<b>Dependency:</b>	Refer to: p3110, p3111, p3112 Refer to: F07862		
<b>Note:</b>	An external fault is triggered with a 1/0 signal.		
<b>r2109[0...63]</b>	<b>Fault time removed in milliseconds / tflt resolved ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [ms]	<b>Max</b> - [ms]	<b>Factory setting</b> - [ms]
<b>Description:</b>	Displays the system runtime in milliseconds when the fault was removed.		
<b>Dependency:</b>	Refer to: r0945, r0947, r0948, r0949, r2130, r2133, r2136		
<b>Notice:</b>	The time comprises r2136 (days) and r2109 (milliseconds).		
<b>Note:</b>	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.		

<b>r2110[0...63]</b>	<b>Alarm number / Alarm number</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	This parameter is identical to r2122.		
<b>p2111</b>	<b>Alarm counter / Alarm counter</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	65535	0
<b>Description:</b>	Number of alarms that have occurred after the last reset.		
<b>Dependency:</b>	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		
<b>Note:</b>	The parameter is reset to 0 at POWER ON.		
<b>p2112[0...n]</b>	<b>BI: External alarm 1 / External alarm 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	1
<b>Description:</b>	Sets the signal source for external alarm 1.		
<b>Dependency:</b>	Refer to: A07850		
<b>Note:</b>	An external alarm is triggered with a 1/0 signal.		
<b>r2114[0...1]</b>	<b>System runtime total / Sys runtime tot</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	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.		
<b>Index:</b>	[0] = Milliseconds [1] = Days		
<b>Dependency:</b>	Refer to: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146		
<b>Note:</b>	When the electronic power supply is switched out, the counter values are saved. After the drive unit is powered up, the counter continues to run with the last value that was saved.		

<b>p2116[0...n]</b>	<b>BI: External alarm 2 / External alarm 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for external alarm 2.		
<b>Dependency:</b>	Refer to: A07851		
<b>Note:</b>	An external alarm is triggered with a 1/0 signal.		
<b>p2117[0...n]</b>	<b>BI: External alarm 3 / External alarm 3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for external alarm 3.		
<b>Dependency:</b>	Refer to: A07852		
<b>Note:</b>	An external alarm is triggered with a 1/0 signal.		
<b>p2118[0...19]</b>	<b>Sets the message number for message type. / Msg_no Msg_type</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 65535	<b>Factory setting</b> 0
<b>Description:</b>	Selects faults or alarms for which the message type should be changed.		
<b>Dependency:</b>	Selects the fault or alarm selection and sets the required type of message realized under the same index. Refer to: p2119		
<b>Notice:</b>	It is not possible to re-parameterize the message type in the following cases: - if there is no existing message number.		
<b>Note:</b>	Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.		
<b>p2119[0...19]</b>	<b>Setting the message type / Message type</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 3	<b>Factory setting</b> 1
<b>Description:</b>	Sets the message type for the selected fault or alarm.		
<b>Value:</b>	1: Fault (F) 2: Alarm (A) 3: No message (N)		
<b>Dependency:</b>	Selects the fault or alarm selection and sets the required type of message realized under the same index. Refer to: p2118		
<b>Note:</b>	Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone. 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.

<b>r2120</b>	<b>CO: Sum of fault and alarm buffer changes / Sum buffer changed</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the sum of all of the fault and alarm buffer changes in the drive unit.		
<b>Dependency:</b>	Refer to: r0944, r2121		
<b>r2121</b>	<b>CO: Counter, alarm buffer changes / Alrm buff changed</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	This counter is incremented every time the alarm buffer changes.		
<b>Dependency:</b>	Refer to: r2110, r2122, r2123, r2124, r2125		
<b>r2122[0...63]</b>	<b>Alarm code / Alarm code</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the number of alarms that have occurred.		
<b>Dependency:</b>	Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146		
<b>Notice:</b>	The properties of the alarm buffer should be taken from the corresponding product documentation.		
<b>Note:</b>	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)		
<b>r2123[0...63]</b>	<b>Alarm time received in milliseconds / t_alarm recv ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [ms]	- [ms]	- [ms]
<b>Description:</b>	Displays the system runtime in milliseconds when the alarm occurred.		
<b>Dependency:</b>	Refer to: r2110, r2122, r2124, r2125, r2134, r2145, r2146		
<b>Notice:</b>	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.

<b>r2124[0...63]</b>	<b>Alarm value / Alarm value</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays additional information about the active alarm (as integer number).		
<b>Dependency:</b>	Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146		
<b>Note:</b>	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.		

<b>r2125[0...63]</b>	<b>Alarm time removed in milliseconds / t_alarm res ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [ms]	- [ms]	- [ms]
<b>Description:</b>	Displays the system runtime in milliseconds when the alarm was cleared.		
<b>Dependency:</b>	Refer to: r2110, r2122, r2123, r2124, r2134, r2145, r2146		
<b>Notice:</b>	The time comprises r2146 (days) and r2125 (milliseconds).		
<b>Note:</b>	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.		

<b>p2126[0...19]</b>	<b>Setting fault number for acknowledge mode / Fault_no ackn_mode</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	65535	0
<b>Description:</b>	Selects the faults for which the acknowledge mode is to be changed		
<b>Dependency:</b>	Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2127		
<b>Notice:</b>	It is not possible to re-parameterize the acknowledge mode of a fault in the following cases: - Fault number does not exist. - Message type is not "fault" (F).		
<b>Note:</b>	Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.		

<b>p2127[0...19]</b>	<b>Sets acknowledgement mode / Acknowledge mode</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	1	2	1
<b>Description:</b>	Sets the acknowledge mode for selected fault.		
<b>Value:</b>	1: Acknowledgment only using POWER ON 2: Ack IMMEDIATELY after the fault cause has been removed		
<b>Dependency:</b>	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).

**Note:** Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The acknowledge mode can only be changed for faults with the appropriate identification.

Example:

F12345 and acknowledge mode = IMMEDIATELY (POWER ON)

--> The acknowledge mode can be changed from IMMEDIATELY to POWER ON.

### p2128[0...15] Selecting fault/alarm code for trigger / Message trigger

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0	<b>Max</b> 65535	<b>Factory setting</b> 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

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -

**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.

<b>r2130[0...63]</b>	<b>Fault time received in days / t_fault recv days</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the system runtime in days when the fault occurred.		
<b>Dependency:</b>	Refer to: r0945, r0947, r0948, r0949, r2109, r2133, r2136		
<b>Notice:</b>	The time comprises r2130 (days) and r0948 (milliseconds). The value displayed in p2130 refers to 01.01.1970.		
<b>Note:</b>	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		
<b>r2131</b>	<b>CO: Actual fault code / Actual fault code</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the code of the oldest active fault.		
<b>Dependency:</b>	Refer to: r3131, r3132		
<b>Note:</b>	0: No fault present.		
<b>r2132</b>	<b>CO: Actual alarm code / Actual alarm code</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the code of the last alarm that occurred.		
<b>Note:</b>	0: No alarm present.		
<b>r2133[0...63]</b>	<b>Fault value for float values / Fault val float</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays additional information about the fault that occurred for float values.		
<b>Dependency:</b>	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136		
<b>Note:</b>	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		
<b>r2134[0...63]</b>	<b>Alarm value for float values / Alarm value float</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays additional information about the active alarm for float values.		
<b>Dependency:</b>	Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146		
<b>Note:</b>	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		



<b>r2135.12...15</b>	<b>CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2</b>		
<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Displays the second status word of faults and alarms.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	12	Fault motor overtemperature	Yes	No	-
	13	Fault power unit thermal overload	Yes	No	-
	14	Alarm motor overtemperature	Yes	No	-
	15	Alarm power unit thermal overload	Yes	No	-

<b>r2136[0...63]</b>	<b>Fault time removed in days / t_flt resolv. days</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Displays the system runtime in days when the fault was removed.

**Dependency:** Refer to: r0945, r0947, r0948, r0949, r2109, 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).

<b>r2138.7...15</b>	<b>CO/BO: Control word faults/alarms / STW fault/alarm</b>		
<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Displays the control word of the faults and alarms.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	07	Acknowledge fault	Yes	No	-
	10	External alarm 1 (A07850) effective	Yes	No	-
	11	External alarm 2 (A07851) effective	Yes	No	-
	12	External alarm 3 (A07852) effective	Yes	No	-
	13	External fault 1 (F07860) effective	Yes	No	-
	14	External fault 2 (F07861) effective	Yes	No	-
	15	External fault 3 (F07862) effective	Yes	No	-

**Dependency:** Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

<b>r2139.0...12</b>	<b>CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1</b>		
<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Displays the first status word of faults and alarms.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Being acknowledged	Yes	No	-
	01	Acknowledgment required	Yes	No	-
	03	Fault present	Yes	No	-

06	Internal message 1 present	Yes	No	-
07	Alarm present	Yes	No	-
08	Internal message 2 present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-

**Note:**

Re bit 03, 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).

Re bit 06, 08:

These status bits are used for internal diagnostic purposes only.

Re bit 11, 12:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

<b>p2140[0...n]</b>	<b>Hysteresis speed 2 / n_hysteresis 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 300.00 [rpm]	<b>Factory setting</b> 90.00 [rpm]
<b>Description:</b>	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)		
<b>Dependency:</b>	Refer to: p2155, r2197		
<b>p2141[0...n]</b>	<b>Speed threshold 1 / n_thresh val 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 5.00 [rpm]
<b>Description:</b>	Sets the speed threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).		
<b>Dependency:</b>	Refer to: p2142, r2199		
<b>p2142[0...n]</b>	<b>Hysteresis speed 1 / n_hysteresis 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 300.00 [rpm]	<b>Factory setting</b> 2.00 [rpm]
<b>Description:</b>	Sets the hysteresis speed (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).		
<b>Dependency:</b>	Refer to: p2141, r2199		
<b>p2144[0...n]</b>	<b>BI: Motor stall monitoring enable (negated) / Mot stall enab neg</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	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:** When interconnecting the enable signal with r2197.7 then the stall signal is suppressed if there is no speed setpoint  
- actual value deviation.

<b>r2145[0...63] Alarm time received in days / t_alarm rcv days</b>			
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Displays the system runtime in days when the alarm occurred.

**Dependency:** Refer to: r2110, 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).

<b>r2146[0...63] Alarm time removed in days / t_alarm res days</b>			
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Displays the system runtime in days when the alarm was cleared.

**Dependency:** Refer to: r2110, 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).

<b>p2148[0...n] BI: RFG active / RFG active</b>			
<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> U32 / Binary	
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	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 interconnected to r1199.2 as a default setting.

<b>p2149[0...n] Monitoring configuration / Monit config</b>			
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	1001 bin	

**Description:** Sets the configuration for messages and monitoring functions.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable alarm A07903	Yes	No	8010
	01	Load monitoring only in the 1st quadrant	Yes	No	8013
	03	n_act > p2155 own hysteresis	Yes	No	8010

**Dependency:** Refer to: r2197

Refer to: A07903

**Note:**

Re bit 00:  
Alarm A07903 is output when the bit is set with  $r2197.7 = 0$  ( $n\_set \neq n\_act$ ).

Re bit 01:  
When the bit is set, load monitoring is only carried out in the 1st quadrant as a result of the positive characteristic parameters (p2182 ... p2190).

Re bit 03:  
When the bit is set, r2197 bit 1 and bit 2 are determined via separate hystereses.

<b>p2150[0...n]</b>	<b>Hysteresis speed 3 / n_hysteresis 3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 300.00 [rpm]	<b>Factory setting</b> 2.00 [rpm]
<b>Description:</b>	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)		
<b>Dependency:</b>	Refer to: p2161, r2197, r2199		
<b>p2151[0...n]</b>	<b>CI: Speed setpoint for messages/signals / n_set for msg</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1170[0]
<b>Description:</b>	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)		
<b>Dependency:</b>	Refer to: r2197, r2198, r2199		
<b>p2152[0...n]</b>	<b>Delay for comparison n &gt; n_max / Del n &gt; n_max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 200 [ms]
<b>Description:</b>	Delay time for the comparison of the speed with the maximum speed.		
<b>Dependency:</b>	Refer to: p1082, r1084, r1087, p2162		
<b>p2153[0...n]</b>	<b>Speed actual value filter time constant / n_act_filt T</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 1000000 [ms]	<b>Factory setting</b> 0 [ms]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: r2169		

<b>p2155[0...n]</b>	<b>Speed threshold 2 / n_thresh val 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 900.00 [rpm]
<b>Description:</b>	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)		
<b>Dependency:</b>	Refer to: p2140, r2197		
<b>p2156[0...n]</b>	<b>On delay, comparison value reached / t_on cmpr val rchd</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [ms]	<b>Max</b> 10000.0 [ms]	<b>Factory setting</b> 0.0 [ms]
<b>Description:</b>	Sets the switch-in delay time for the signal "comparison value reached" (BO: r2199.1).		
<b>Dependency:</b>	Refer to: p2141, p2142, r2199		
<b>p2157[0...n]</b>	<b>Speed threshold 5 / n_thresh val 5</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 900.00 [rpm]
<b>Description:</b>	Sets the speed threshold value for the following messages: " n_act  <= speed threshold value 5" (BO: r2198.0) " n_act  > speed threshold value 5" (BO: r2198.1)		
<b>Dependency:</b>	Refer to: p2150, p2158		
<b>p2158[0...n]</b>	<b>Delay for n_act comparison with speed threshold value 5 / Del compar n_5</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 10 [ms]
<b>Description:</b>	Delay time for the comparison of the speed with the speed threshold value 5 (P2157).		
<b>Dependency:</b>	Refer to: p2150, p2157		
<b>p2159[0...n]</b>	<b>Speed threshold 6 / n_thresh val 6</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 900.00 [rpm]
<b>Description:</b>	Sets the speed threshold value for the following messages: " n_act  <= speed threshold value 6" (BO: r2198.2) " n_act  > speed threshold value 6" (BO: r2198.3)		
<b>Dependency:</b>	Refer to: p2150, p2160		

<b>p2160[0...n]</b>	<b>Delay for n_act comparison with speed threshold value 6 / Del compar n_6</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 10 [ms]
<b>Description:</b>	Sets the delay time for the comparison of the speed with the speed threshold value 6 (p2159).		
<b>Dependency:</b>	Refer to: p2150, p2159		
<b>p2161[0...n]</b>	<b>Speed threshold 3 / n_thresh val 3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 5.00 [rpm]
<b>Description:</b>	Sets the speed threshold value for the signal " n_act  < speed threshold value 3" (BO: r2199.0).		
<b>Dependency:</b>	Refer to: p2150, r2199		
<b>p2162[0...n]</b>	<b>Hysteresis speed n_act &gt; n_max / Hyst n_act&gt;n_max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 60000.00 [rpm]	<b>Factory setting</b> 0.00 [rpm]
<b>Description:</b>	Sets the hysteresis speed (bandwidth) for the signal "n_act > n_max" (BO: r2197.6).		
<b>Dependency:</b>	Refer to: r1084, r1087, r2197		
<b>Notice:</b>	For p0322 = 0, the following applies: p2162 ≤ 0.1 * p0311 For p0322 > 0, the following applies: p2162 ≤ 1.02 * p0322 - p1082 If one of the conditions is violated, p2162 is appropriately and automatically reduced when exiting the commissioning mode.		
<b>Note:</b>	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. If significant overshoot occurs in the maximum speed range (e.g. due to load shedding), you are advised to increase the dynamic response of the speed controller (if possible). If this is insufficient, the hysteresis p2162 can only be increased by more than 10% of the rated speed when the maximum speed (p0322) of the motor is sufficiently greater than the speed limit p1082.		
<b>p2163[0...n]</b>	<b>Speed threshold 4 / n_thresh val 4</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 90.00 [rpm]
<b>Description:</b>	Sets the speed threshold value for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
<b>Dependency:</b>	Refer to: p2164, p2166, r2197		

<b>p2164[0...n]</b>	<b>Hysteresis speed 4 / n_hysteresis 4</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 200.00 [rpm]	<b>Factory setting</b> 2.00 [rpm]
<b>Description:</b>	Sets the hysteresis speed (bandwidth) for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
<b>Dependency:</b>	Refer to: p2163, p2166, r2197		
<b>p2166[0...n]</b>	<b>Off delay n_act = n_set / t_del_off n_i=n_so</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [ms]	<b>Max</b> 10000.0 [ms]	<b>Factory setting</b> 200.0 [ms]
<b>Description:</b>	Sets the switch-off delay time for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
<b>Dependency:</b>	Refer to: p2163, p2164, r2197		
<b>p2167[0...n]</b>	<b>Switch-on delay n_act = n_set / t_on n_act=n_set</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [ms]	<b>Max</b> 10000.0 [ms]	<b>Factory setting</b> 200.0 [ms]
<b>Description:</b>	Sets the switch-on delay for the "speed setpoint - actual value deviation in tolerance t_on" signal/message (BO: r2199.4).		
<b>r2169</b>	<b>CO: Actual speed smoothed signals / n_act smth message</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the smoothed actual speed for messages/signals.		
<b>Dependency:</b>	Refer to: p2153		
<b>p2170[0...n]</b>	<b>Current threshold value / I_thres</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2002	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 10000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	Sets the absolute current threshold for the messages. "I_act >= I_threshold p2170" (BO: r2197.8) "I_act < I_threshold p2170" (BO: r2198.8)		
<b>Dependency:</b>	Refer to: p2171		

<b>p2171[0...n]</b>	<b>Current threshold value reached delay time / t_del I_thresh rch</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 10 [ms]
<b>Description:</b>	Sets the delay time for the comparison of the current actual value (r0068) with the current threshold value (p2170).		
<b>Dependency:</b>	Refer to: p2170		
<b>p2172[0...n]</b>	<b>DC link voltage, threshold value / Vdc thresh val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2001	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 5_2	<b>Unit selection:</b> p0505	
	<b>Min</b> 0 [V]	<b>Max</b> 2000 [V]	<b>Factory setting</b> 800 [V]
<b>Description:</b>	Sets the DC link voltage threshold value for the following messages: "Vdc_act <= Vdc_threshold p2172" (BO: r2197.9) "Vdc_act > Vdc_threshold p2172" (BO: r2197.10)		
<b>Dependency:</b>	Refer to: p2173		
<b>p2173[0...n]</b>	<b>DC link voltage comparison delay time / t_del Vdc</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 10 [ms]
<b>Description:</b>	Sets the delay time for the comparison of the DC link voltage r0070 with the threshold value p2172.		
<b>Dependency:</b>	Refer to: p2172		
<b>p2174[0...n]</b>	<b>Torque threshold value 1 / M_thresh val 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [Nm]	<b>Max</b> 20000000.00 [Nm]	<b>Factory setting</b> 5.13 [Nm]
<b>Description:</b>	Sets the torque threshold value for the messages: "Torque setpoint < torque threshold value 1 and n_set reached" (BO: r2198.9) "Torque setpoint < torque threshold value 1" (BO: r2198.10) "Torque setpoint > torque threshold value 1" (BO: r2198.13)		
<b>Dependency:</b>	Refer to: p2195, r2198		
<b>p2175[0...n]</b>	<b>Motor blocked speed threshold / Mot lock n_thresh</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 120.00 [rpm]
<b>Description:</b>	Sets the speed threshold for the message "Motor blocked" (BO: r2198.6).		
<b>Dependency:</b>	Refer to: p0500, p2177, r2198		



**Note:** The following applies for sensorless vector control:  
At low speeds in open-loop speed controlled operation (see p1755, p1756), a blocked motor cannot be detected.

<b>p2176[0...n]</b>	<b>Torque threshold value comparison delay time / M_thrsh comp T_del</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 200 [ms]
<b>Description:</b>	Sets the delay time for the comparison of the torque actual value (r0080) with torque threshold value 1 (p2174).		
<b>Dependency:</b>	Refer to: p2174		
<b>p2177[0...n]</b>	<b>Motor blocked delay time / Mot lock t_del</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 65.000 [s]	<b>Factory setting</b> 3.000 [s]
<b>Description:</b>	Sets the delay time for the message "Motor blocked" (BO: r2198.6).		
<b>Dependency:</b>	Refer to: p0500, p2175, r2198		
<b>Note:</b>	<p>The following applies for sensorless vector control:</p> <p>At low speeds a locked motor can only be detected if no change is made to open-loop speed controlled operation. If this is the case, the value in p2177 must be reduced accordingly (p2177 &lt; p1758) before time p2177 has elapsed in order to detect the locked state reliably.</p> <p>As countermeasure, it is generally also possible to set p1750.6. This is only not permitted if the drive is slowly reversed by the load at the torque limit (speed below p1755 for longer than p1758).</p>		
<b>p2178[0...n]</b>	<b>Motor stalled delay time / Mot stall t_del</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 10.000 [s]	<b>Factory setting</b> 0.010 [s]
<b>Description:</b>	Sets the delay time for the message "Motor stalled" (BO: r2198.7).		
<b>Dependency:</b>	Refer to: r2198		
<b>Note:</b>	<p>In the open-loop speed controlled operating range (see p1755, p1756), vector control stall monitoring depends on threshold p1745.</p> <p>At higher speeds, the difference between flux setpoint r0083 and flux actual value r0084 is monitored.</p>		
<b>p2179[0...n]</b>	<b>Output load identification current limit / Outp_Id iden I_lim</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2002	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 6_2	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [Arms]	<b>Max</b> 1000.00 [Arms]	<b>Factory setting</b> 0.00 [Arms]
<b>Description:</b>	Sets the current limit for output load identification.		
<b>Dependency:</b>	Refer to: p2180		
<b>Notice:</b>	For synchronous motors the output current can be almost zero under no load conditions.		
<b>Note:</b>	A missing output load condition exists if the motor is either not connected or a phase has failed.		

<b>p2180[0...n]</b>	<b>Missing output load delay time / No load t_delay</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 10000 [ms]	<b>Factory setting</b> 2000 [ms]
<b>Description:</b>	Sets the delay time to detect a missing output load.		
<b>Dependency:</b>	Refer to: p2179		
<b>p2181[0...n]</b>	<b>Load monitoring response / Load monit resp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 6	<b>Factory setting</b> 0
<b>Description:</b>	Sets the response when evaluating the load monitoring.		
<b>Value:</b>	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		
<b>Dependency:</b>	Refer to: p2182, p2183, p2184, p2185, p2186, p2187, p2188, p2189, p2190, p2192, p2193, r2198, p3230, p3231 Refer to: A07920, A07921, A07922, F07923, F07924, F07925		
<b>Note:</b>	The response to the faults F07923 ... F07925 can be set. F07926 is evaluated only if p2181 is not zero. This parameter setting has no effect on the production of fault F07936.		
<b>p2182[0...n]</b>	<b>Load monitoring speed threshold value 1 / n_thresh 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 150.00 [rpm]
<b>Description:</b>	Sets the speed/torque envelope curve for 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)		
<b>Dependency:</b>	The following applies: p2182 < p2183 < p2184 Refer to: p2183, p2184, p2185, p2186		
<b>p2183[0...n]</b>	<b>Load monitoring speed threshold value 2 / n_thresh 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 210000.00 [rpm]	<b>Factory setting</b> 900.00 [rpm]
<b>Description:</b>	Sets the speed/torque envelope curve for 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

#### p2184[0...n] Load monitoring speed threshold value 3 / n\_thresh 3

**Access level:** 3

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** -

**Data set:** DDS, p0180

**Units group:** 3\_1

**Unit selection:** p0505

**Min**

0.00 [rpm]

**Max**

210000.00 [rpm]

**Factory setting**

1500.00 [rpm]

**Description:** Sets the speed/torque envelope curve for 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

#### p2185[0...n] Load monitoring torque threshold 1, upper / M\_thresh 1 upper

**Access level:** 3

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** -

**Data set:** DDS, p0180

**Units group:** 7\_1

**Unit selection:** p0505

**Min**

0.00 [Nm]

**Max**

20000000.00 [Nm]

**Factory setting**

10000000.00 [Nm]

**Description:** Sets the speed/torque envelope curve for load monitoring.

**Dependency:** The following applies: p2185 > p2186

Refer to: p2182, p2186

**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

**Access level:** 3

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** -

**Data set:** DDS, p0180

**Units group:** 7\_1

**Unit selection:** p0505

**Min**

0.00 [Nm]

**Max**

20000000.00 [Nm]

**Factory setting**

0.00 [Nm]

**Description:** Sets the speed/torque envelope curve for load monitoring.

**Dependency:** The following applies: p2186 < p2185

Refer to: p2182, p2185

**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

**Access level:** 3

**Calculated:** -

**Data type:** FloatingPoint32

**Can be changed:** U, T

**Scaling:** -

**Data set:** DDS, p0180

**Units group:** 7\_1

**Unit selection:** p0505

**Min**

0.00 [Nm]

**Max**

20000000.00 [Nm]

**Factory setting**

10000000.00 [Nm]

**Description:** Sets the speed/torque envelope curve for load monitoring.

**Dependency:** The following applies: p2187 > p2188  
Refer to: p2183, p2188

**Note:** The upper envelope curve is defined by p2185, p2187 and p2189.

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**p2188[0...n] Load monitoring torque threshold 2, lower / M\_thresh 2 lower**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
<b>Min</b> 0.00 [Nm]	<b>Max</b> 20000000.00 [Nm]	<b>Factory setting</b> 0.00 [Nm]

**Description:** Sets the speed/torque envelope curve for load monitoring.

**Dependency:** The following applies: p2188 < p2187  
Refer to: p2183, p2187

**Note:** The lower envelope curve is defined by p2186, p2188 and p2190.

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**p2189[0...n] Load monitoring torque threshold 3, upper / M\_thresh 3 upper**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
<b>Min</b> 0.00 [Nm]	<b>Max</b> 20000000.00 [Nm]	<b>Factory setting</b> 10000000.00 [Nm]

**Description:** Sets the speed/torque envelope curve for load monitoring.

**Dependency:** The following applies: p2189 > p2190  
Refer to: p2184, p2190

**Note:** The upper envelope curve is defined by p2185, p2187 and p2189.

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**p2190[0...n] Load monitoring torque threshold 3, lower / M\_thresh 3 lower**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> 7_1	<b>Unit selection:</b> p0505	
<b>Min</b> 0.00 [Nm]	<b>Max</b> 20000000.00 [Nm]	<b>Factory setting</b> 0.00 [Nm]

**Description:** Sets the speed/torque envelope curve for load monitoring.

**Dependency:** The following applies: p2190 < p2189  
Refer to: p2184, p2189

**Note:** The lower envelope curve is defined by p2186, p2188 and p2190.

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**p2192[0...n] Load monitoring delay time / Load monit t\_del**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0.00 [s]	<b>Max</b> 65.00 [s]	<b>Factory setting</b> 10.00 [s]

**Description:** Sets the delay time to evaluate the load monitoring.

<b>p2193[0...n]</b>	<b>Load monitoring configuration / Load monit config</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 1
<b>Description:</b>	Sets the load monitoring configuration.		
<b>Value:</b>	0: Monitoring switched out 1: Monitoring torque and load drop 2: Monitoring speed and load drop 3: Monitoring load drop		
<b>Dependency:</b>	Refer to: p2182, p2183, p2184, p2185, p2186, p2187, p2188, p2189, p2190, p2192, r2198, p3230, p3231, p3232 Refer to: A07920, A07921, A07922, F07923, F07924, F07925, F07936		
<b>p2194[0...n]</b>	<b>Torque threshold value 2 / M_thresh val 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1,3,5	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 100.00 [%]	<b>Factory setting</b> 90.00 [%]
<b>Description:</b>	Sets the torque threshold value for the message "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.		
<b>Dependency:</b>	Refer to: r0033, p2195, r2199		
<b>p2195[0...n]</b>	<b>Torque utilization switch-off delay / M_util t_off</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [ms]	<b>Max</b> 1000.0 [ms]	<b>Factory setting</b> 800.0 [ms]
<b>Description:</b>	Sets the switch-off 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.		
<b>Dependency:</b>	Refer to: p2174, p2194		
<b>p2196[0...n]</b>	<b>Torque utilization scaling / M_util scal</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> C(1, 3), U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 1000.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the scaling factor for torque utilization (r0033).		
<b>r2197.0...13</b>	<b>CO/BO: Status word monitoring 1 / ZSW monitor 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the first status word for monitoring functions.		

## Parameter list

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	n_act  <= n_min p1080	Yes	No	8020
	01	n_act  <= speed threshold value 2 p2155	Yes	No	8010
	02	n_act  > speed threshold value 2 p2155	Yes	No	8010
	03	n_act >= 0	Yes	No	8011
	04	n_act  >= n_set	Yes	No	8020
	05	n_act  <= n_standstill p1226	Yes	No	8020
	06	n_act  > n_max	Yes	No	8010
	07	Speed setp - act val deviation in tolerance t_off	Yes	No	8011
	08	I_act >= I_threshold value p2170	Yes	No	8020
	09	Vdc_act <= Vdc_threshold value p2172	Yes	No	8020
	10	Vdc_act > Vdc_threshold value p2172	Yes	No	8020
	11	Output load is not present	Yes	No	8020
	12	n_act  > n_max (delayed)	Yes	No	8021
	13	n_act  > n_max (F07901)	Yes	No	-

**Notice:** Re bit 06:  
When the overspeed is reached, this bit is set and F07901 output immediately following this. The bit is canceled again as soon as the next pulse inhibit is present.

**Note:** Re bit 00:  
The threshold value is set in p1080 and the hysteresis in p2150.  
Re bit 01, 02:  
The threshold value is set in p2155 and the hysteresis in p2140.  
Re bit 03:  
1 signal direction of rotation positive.  
0 signal: direction of rotation negative.  
The hysteresis is set in p2150.  
Re bit 04:  
The threshold value is set in r1119 and the hysteresis in p2150.  
Re bit 05:  
The threshold value is set in p1266 and the delay time in p1228.  
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.  
Re bit 08:  
The threshold value is set in p2170 and the delay time in p2171.  
Re bit 09, 10:  
The threshold value is set in p2172 and the delay time in p2173.  
Re bit 11:  
The threshold value is set in p2179 and the delay time in p2180.  
Re bit 12:  
The threshold value is set in p2182, the hysteresis in p2162, and the delay time (for canceling the signal) in p2152.  
Re bit 13:  
Only for internal Siemens use.

r2198.0...13	CO/BO: Status word monitoring 2 / ZSW monitor 2		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the second status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	n_act  <= speed threshold value 5	Yes	No	8021
	01	n_act  > speed threshold value 5	Yes	No	8021
	02	n_act  <= speed threshold value 6	Yes	No	8021
	03	n_act  > speed threshold value 6	Yes	No	8021
	04	n_set  < p2161	Yes	No	8011
	05	n_set > 0	Yes	No	8011
	06	Motor blocked	Yes	No	8012
	07	Motor stalled	Yes	No	8012
	08	I_act  < I_threshold value p2170	Yes	No	8020
	09	M_act  > torque threshold value 1 and n_set reached	Yes	No	8021
	10	M_set  < 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
	13	M_act  > torque threshold value 1	Yes	No	8021

**Note:** Re bit 10:  
The torque threshold value 1 is set in p2174.  
Re bit 12:  
This bit is reset after the fault cause disappears, even if the fault itself is still present.

### r2199.0...11 CO/BO: Status word monitoring 3 / ZSW monitor 3

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**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	8011
	05	Ramp-up/ramp-down completed	Yes	No	8011
	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. We recommend setting the hysteresis (p2142) for canceling the bit to a value lower than that in p2141. Otherwise, the bit is not reset.  
Re bit 11:  
The torque threshold value 2 is set in p2194.

### p2200[0...n] BI: Technology controller enable / Tec\_ctrl enable

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	0

**Description:** Sets the signal source to switch in/switch out the technology controller.  
The technology controller is switched in with a 1 signal.

<b>p2201[0...n]</b>	<b>CO: Technology controller, fixed value 1 / Tec_ctrl fix val1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 10.00 [%]
<b>Description:</b>	Sets the value for fixed value 1 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2202[0...n]</b>	<b>CO: Technology controller, fixed value 2 / Tec_ctr fix val 2</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 20.00 [%]
<b>Description:</b>	Sets the value for fixed value 2 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2203[0...n]</b>	<b>CO: Technology controller, fixed value 3 / Tec_ctr fix val 3</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 30.00 [%]
<b>Description:</b>	Sets the value for fixed value 3 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2204[0...n]</b>	<b>CO: Technology controller, fixed value 4 / Tec_ctr fix val 4</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 40.00 [%]
<b>Description:</b>	Sets the value for fixed value 4 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2205[0...n]</b>	<b>CO: Technology controller, fixed value 5 / Tec_ctr fix val 5</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 50.00 [%]
<b>Description:</b>	Sets the value for fixed value 5 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		



<b>p2206[0...n]</b>	<b>CO: Technology controller, fixed value 6 / Tec_ctr fix val 6</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 60.00 [%]
<b>Description:</b>	Sets the value for fixed value 6 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2207[0...n]</b>	<b>CO: Technology controller, fixed value 7 / Tec_ctr fix val 7</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 70.00 [%]
<b>Description:</b>	Sets the value for fixed value 7 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2208[0...n]</b>	<b>CO: Technology controller, fixed value 8 / Tec_ctr fix val 8</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 80.00 [%]
<b>Description:</b>	Sets the value for fixed value 8 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2209[0...n]</b>	<b>CO: Technology controller, fixed value 9 / Tec_ctr fix val 9</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 90.00 [%]
<b>Description:</b>	Sets the value for fixed value 9 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2210[0...n]</b>	<b>CO: Technology controller, fixed value 10 / Tec_ctr fix val 10</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the value for fixed value 10 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		

<b>p2211[0...n]</b>	<b>CO: Technology controller, fixed value 11 / Tec_ctr fix val 11</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 110.00 [%]
<b>Description:</b>	Sets the value for fixed value 11 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2212[0...n]</b>	<b>CO: Technology controller, fixed value 12 / Tec_ctr fix val 12</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 120.00 [%]
<b>Description:</b>	Sets the value for fixed value 12 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2213[0...n]</b>	<b>CO: Technology controller, fixed value 13 / Tec_ctr fix val 13</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 130.00 [%]
<b>Description:</b>	Sets the value for fixed value 13 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2214[0...n]</b>	<b>CO: Technology controller, fixed value 14 / Tec_ctr fix val 14</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 140.00 [%]
<b>Description:</b>	Sets the value for fixed value 14 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>p2215[0...n]</b>	<b>CO: Technology controller, fixed value 15 / Tec_ctr fix val 15</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 150.00 [%]
<b>Description:</b>	Sets the value for fixed value 15 of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		

<b>p2216[0...n]</b>	<b>Technology controller fixed value selection method / Tec_ctr FixVal sel</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 2	<b>Factory setting</b> 1
<b>Description:</b>	Sets the method to select the fixed setpoints.		
<b>Value:</b>	1: Direct selection 2: Binary selection		
<b>p2220[0...n]</b>	<b>BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to select the fixed value of the technology controller.		
<b>Dependency:</b>	Refer to: p2221, p2222, p2223		
<b>p2221[0...n]</b>	<b>BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to select the fixed value of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2222, p2223		
<b>p2222[0...n]</b>	<b>BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to select the fixed value of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2223		
<b>p2223[0...n]</b>	<b>BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to select the fixed value of the technology controller.		
<b>Dependency:</b>	Refer to: p2220, p2221, p2222		

r2224	CO: Technology controller, fixed value effective / Tec_ctr FixVal eff				
	Access level: 3		Calculated: -	Data type: FloatingPoint32	
	Can be changed: -		Scaling: PERCENT	Data set: -	
	Units group: 9_1		Unit selection: p0595		
Description:	Min		Max		Factory setting
	- [%]		- [%]		- [%]
	Displays the selected and effective fixed value of the technology controller.				
	Dependency: Refer to: r2229				

r2225.0	CO/BO: Technology controller fixed value selection status word / Tec_ctr FixVal ZSW				
	Access level: 3		Calculated: -	Data type: Unsigned16	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
Description:	Min		Max		Factory setting
	-		-		-
	Displays the status word for the fixed value selection of the technology controller.				
	Bit field:				
Bit	Signal name	1 signal	0 signal	FP	
00	Technology controller fixed value selected	Yes	No	7950, 7951	

r2229	Technology controller number actual / Tec_ctrl No. act				
	Access level: 3		Calculated: -	Data type: Unsigned32	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
Description:	Min		Max		Factory setting
	-		-		-
	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				
	Access level: 3		Calculated: -	Data type: Unsigned32	
	Can be changed: U, T		Scaling: -	Data set: DDS, p0180	
	Units group: -		Unit selection: -		
Description:	Min		Max		Factory setting
	-		-		0000 0100 bin
	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	-	
04	Ramp-function generator always active	Yes	No	-	
Dependency:	Refer to: r2231, p2240				
	Notice:				
	For p0014 = 1, the following applies:				
	After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.				
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 initial rounding is independent of the ramp-up time and only depends on the selected maximum value (p2237).

It is calculated as follows:

$$r = 0.0001 \times \max(p2237, |p2238|) [\%] / 0.13^2 [s^2]$$

The jerk is effective until the maximum acceleration is reached ( $a_{\max} = p2237 [\%] / p2247 [s]$  or  $a_{\max} = p2238 [\%] / p2248 [s]$ ), after which the drive continues to run linearly with constant 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).

Re bit 04:

When the bit is set, the ramp-function generator is computed independent of the pulse enable. The actual output value of the motorized potentiometer is always in r2250.

<b>r2231</b>	<b>Technology controller motorized potentiometer setpoint memory / Tec_ctrl mop mem</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: p2230		
<b>p2235[0...n]</b>	<b>BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to continually increase the setpoint for the motorized potentiometer of the technology controller. The setpoint change (CO: r2250) depends on the set ramp-up time (p2247) and the duration of the signal that is present (BI: p2235).		
<b>Dependency:</b>	Refer to: p2236		
<b>p2236[0...n]</b>	<b>BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source to continually reduce the setpoint for the motorized potentiometer of the technology controller. The setpoint change (CO: r2250) depends on the set ramp-down time (p2248) and the duration of the signal that is present (BI: p2236).		
<b>Dependency:</b>	Refer to: p2235		

<b>p2237[0...n]</b>	<b>Technology controller motorized potentiometer maximum value / Tec_ctrl mop max</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the maximum value for the motorized potentiometer of the technology controller.		
<b>Dependency:</b>	Refer to: p2238		
<b>p2238[0...n]</b>	<b>Technology controller motorized potentiometer minimum value / Tec_ctrl mop min</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> -100.00 [%]
<b>Description:</b>	Sets the minimum value for the motorized potentiometer of the technology controller.		
<b>Dependency:</b>	Refer to: p2237		
<b>p2240[0...n]</b>	<b>Technology controller motorized potentiometer starting value / Tec_ctrl mop start</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 0.00 [%]
<b>Description:</b>	Sets the starting value for the motorized potentiometer of the technology controller. For p2230.0 = 0, this setpoint is entered after ON.		
<b>Dependency:</b>	Refer to: p2230		
<b>r2245</b>	<b>CO: Technology controller mot. potentiometer setpoint before RFG / Tec_ctr mop befRFG</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator of the technology controller.		
<b>Dependency:</b>	Refer to: r2250		
<b>p2247[0...n]</b>	<b>Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [s]	<b>Max</b> 1000.0 [s]	<b>Factory setting</b> 10.0 [s]
<b>Description:</b>	Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer of the technology controller.		
<b>Dependency:</b>	Refer to: p2248		
<b>Note:</b>	The time is referred to 100 %. When the initial rounding-off is activated (p2230.2 = 1) the ramp-up is correspondingly extended.		

<b>p2248[0...n]</b>	<b>Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_rdown</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0 [s]	<b>Max</b> 1000.0 [s]	<b>Factory setting</b> 10.0 [s]
<b>Description:</b>	Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer of the technology controller.		
<b>Dependency:</b>	Refer to: p2247		
<b>Note:</b>	The time is referred to 100 %. When the initial rounding-off is activated (p2230.2 = 1) the ramp-down is correspondingly extended.		
<b>r2250</b>	<b>CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctr mop aftRFG</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the effective setpoint after the internal ramp-function generator for the motorized potentiometer of the technology controller.		
<b>Dependency:</b>	Refer to: r2245		
<b>p2251</b>	<b>Technology controller mode / Tec_ctrl mode</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Sets the mode for using the technology controller output.		
<b>Value:</b>	0: Technology controller as main speed setpoint 1: Technology controller as supplementary speed setpoint		
<b>Dependency:</b>	p2251 = 0, 1 is only effective if the enable signal of the technology controller is interconnected (p2200 > 0).		
<b>p2253[0...n]</b>	<b>CI: Technology controller setpoint 1 / Tec_ctrl setp 1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the setpoint 1 of the technology controller.		
<b>Dependency:</b>	Refer to: p2254, p2255		

<b>p2254[0...n]</b>	<b>CI: Technology controller setpoint 2 / Tec_ctrl setp 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the setpoint 2 of the technology controller.		
<b>Dependency:</b>	Refer to: p2253, p2256		
<b>p2255</b>	<b>Technology controller setpoint 1 scaling / Tec_ctrl set1 scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 100.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the scaling for the setpoint 1 of the technology controller.		
<b>Dependency:</b>	Refer to: p2253		
<b>p2256</b>	<b>Technology controller setpoint 2 scaling / Tec_ctrl set2 scal</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 100.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the scaling for the setpoint 2 of the technology controller.		
<b>Dependency:</b>	Refer to: p2254		
<b>p2257</b>	<b>Technology controller, ramp-up time / Tec_ctrl t_ramp-up</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [s]	<b>Max</b> 650.00 [s]	<b>Factory setting</b> 1.00 [s]
<b>Description:</b>	Sets the ramp-up time of the technology controller.		
<b>Dependency:</b>	Refer to: p2258		
<b>Note:</b>	The ramp-up time is referred to 100 %.		
<b>p2258</b>	<b>Technology controller ramp-down time / Tec_ctrl t_ramp-dn</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [s]	<b>Max</b> 650.00 [s]	<b>Factory setting</b> 1.00 [s]
<b>Description:</b>	Sets the ramp-down time of the technology controller.		
<b>Dependency:</b>	Refer to: p2257		
<b>Note:</b>	The ramp-down time is referred to 100 %.		




<b>r2260</b>	<b>CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Sets the setpoint after the ramp-function generator of the technology controller.		
<b>p2261</b>	<b>Technology controller setpoint filter time constant / Tec_ctrl set T</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 60.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the time constant for the setpoint filter (PT1) of the technology controller.		
<b>r2262</b>	<b>CO: Technology controller setpoint after filter / Tec_ctr set aftFit</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the smoothed setpoint after the setpoint filter (PT1) of the technology controller.		
<b>p2263</b>	<b>Technology controller type / Tec_ctrl type</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Sets the technology controller type.		
<b>Value:</b>	0: D component in the actual value signal 1: D component in the fault signal		
<b>p2264[0...n]</b>	<b>CI: Technology controller actual value / Tec_ctrl act val</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the actual value of the technology controller.		
<b>p2265</b>	<b>Technology controller actual value filter time constant / Tec_ctrl act T</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 60.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the time constant for the actual value filter (PT1) of the technology controller.		

<b>r2266</b>	<b>CO: Technology controller actual value after filter / Tec_ctr act aftFlt</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the smoothed actual value after the filter (PT1) of the technology controller		
<b>p2267</b>	<b>Technology controller upper limit actual value / Tec_ctrl u_lim act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the upper limit for the actual value signal of the technology controller.		
<b>Dependency:</b>	Refer to: p2264, p2265, p2271 Refer to: F07426		
<b>Notice:</b>	If the actual value exceeds this upper limit, this results in fault F07426.		
<b>p2268</b>	<b>Technology controller lower limit actual value / Tec_ctrl l_lim act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> -100.00 [%]
<b>Description:</b>	Sets the lower limit for the actual value signal of the technology controller.		
<b>Dependency:</b>	Refer to: p2264, p2265, p2271 Refer to: F07426		
<b>Notice:</b>	If the actual value falls below this lower limit, this results in fault F07426.		
<b>p2269</b>	<b>Technology controller gain actual value / Tech_ctrl gain act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 500.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the scaling factor for the actual value of the technology controller.		
<b>Dependency:</b>	Refer to: p2264, p2265, p2267, p2268, p2271		
<b>Note:</b>	For 100%, the actual value is not changed.		
<b>p2270</b>	<b>Technology controller actual value function / Tec_ctr ActVal fct</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0
<b>Description:</b>	Setting to use an arithmetic function for the actual value signal of the technology controller.		
<b>Value:</b>	0: No function 1: Root function (root from x)		

- 2: Square function ( $x * x$ )  
 3: Cube function ( $x * x * x$ )

**Dependency:** Refer to: p2264, p2265, p2267, p2268, p2269, p2271

<b>p2271</b>	<b>Technology controller actual value inversion (sensor type) / Tech_ctrl act inv</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Setting to invert the actual value signal of the technology controller. The inversion depends on the sensor type for the actual value signal.		
<b>Value:</b>	0: No inversion 1: Inversion actual value signal		
<b>Caution:</b>	If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!		
			
<b>Note:</b>	The correct setting can be determined as follows: - inhibit the technology controller (p2200 = 0). - increase the motor speed and in so doing, measure the actual value signal of the technology controller. --> If the actual value increases as the motor speed increases, then p2271 should be set to 0 (no inversion). --> If the actual value decreases as the motor speed increases, then p2271 should be set to 1 (the actual value signal is inverted).		

<b>r2272</b>	<b>CO: Technology controller actual value scaled / Tech_ctrl act scal</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the scaled actual value signal of the technology controller.		
<b>Dependency:</b>	Refer to: p2264, p2265, r2266, p2267, p2268, p2269, p2270, p2271		
<b>r2273</b>	<b>CO: Technology controller error / Tec_ctrl error</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> 9_1	<b>Unit selection:</b> p0595	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the error (system deviation) between the setpoint and actual value of the technology controller.		
<b>Dependency:</b>	Refer to: p2263		

<b>p2274</b>	<b>Technology controller differentiation, time constant / Tec_ctrl D comp T</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 60.000 [s]	<b>Factory setting</b> 0.000 [s]
<b>Description:</b>	Sets the time constant for the differentiation (D component) of the technology controller.		
<b>Note:</b>	p2274 = 0: Differentiation is disabled.		

<b>p2280</b>	<b>Technology controller proportional gain / Tec_ctrl Kp</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000	<b>Max</b> 1000.000	<b>Factory setting</b> 1.000
<b>Description:</b>	Sets the proportional gain (P component) of the technology controller.		
<b>Note:</b>	p2280 = 0: The proportional gain is disabled.		
<b>p2285</b>	<b>Technology controller integral time / Tec_ctrl Tn</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.000 [s]	<b>Max</b> 10000.000 [s]	<b>Factory setting</b> 30.000 [s]
<b>Description:</b>	Sets the integral time (I component, integrating time constant) of the technology controller.		
<b>Notice:</b>	The following applies for p2251 = 0: If the output of the technology controller lies within the range of a suppression (skip) bandwidth (p1091 ... p1094, p1101) or below the minimum speed (p1080), the integral component of the controller is held so that the controller temporarily works as a P controller. This is necessary in order to prevent the controller from behaving in an unstable manner, as the ramp-function generator switches to the parameterized up and down ramps (p1120, p1121) at the same time in order to avoid setpoint steps. This state can be exited or avoided by changing the controller setpoint or by using the start speed (= minimum speed).		
<b>Note:</b>	When the controller output reaches the limit, the I component of the controller is held. p2285 = 0: The integral time is disabled and the I component of the controller is reset.		
<b>p2286[0...n]</b>	<b>BI: Hold technology controller integrator / Tec_ctr integ stop</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 56.13
<b>Description:</b>	Sets the signal source to hold the integrator for the technology controller.		
<b>p2289[0...n]</b>	<b>CI: Technology controller pre-control signal / Tec_ctrl prectrl</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the pre-control signal of the technology controller.		
<b>p2291</b>	<b>CO: Technology controller maximum limiting / Tec_ctrl max_lim</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the maximum limit of the technology controller.		
<b>Dependency:</b>	Refer to: p2292		

**Caution:**

The maximum limit must always be greater than the minimum limit (p2291 > p2292).



<b>p2292</b>	<b>CO: Technology controller minimum limiting / Tec_ctrl min_lim</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32	
<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b> -200.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 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).



<b>p2293</b>	<b>Technology controller ramp-up/ramp-down time / Tec_ctr ramp up/dn</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32	
<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b> 0.00 [s]	<b>Max</b> 100.00 [s]	<b>Factory setting</b> 1.00 [s]	

**Description:** Sets the ramping time for the output signal of the technology controller.

**Dependency:** Refer to: p2291, p2292

**Note:** The time refers to the set maximum and minimum limits (p2291, p2292).

<b>r2294</b>	<b>CO: Technology controller output signal / Tec_ctrl outp_sig</b>		
<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32	
<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]	

**Description:** Displays the output signal of the technology controller.

**Dependency:** Refer to: p2295

<b>p2295</b>	<b>CO: Technology controller output scaling / Tec_ctrl outp_scal</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32	
<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b> -100.00 [%]	<b>Max</b> 100.00 [%]	<b>Factory setting</b> 100.00 [%]	

**Description:** Sets the scaling for the output signal of the technology controller.


<b>p2296[0...n]</b>	<b>CI: Technology controller output scaling / Tec_ctrl outp_scal</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32	
<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 2295[0]	

**Description:** Sets the signal source for the scaling value of the technology controller.

Dependency: Refer to: p2295

<b>p2297[0...n]</b>	<b>CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1084[0]
<b>Description:</b>	Sets the signal source for the maximum limiting of the technology controller.		
<b>Dependency:</b>	Refer to: p2291		
<b>Note:</b>	In order that the output of the technology controller does not exceed the maximum speed limit, its upper limit p2297 should be connected to the actual maximum speed r1084. In mode p2251 = 1, p2299 must also be connected to the output of the ramp-function generator r1150.		
<b>p2298[0...n]</b>	<b>CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1087[0]
<b>Description:</b>	Sets the signal source for the minimum limiting of the technology controller.		
<b>Dependency:</b>	Refer to: p2292		
<b>Note:</b>	If the technology controller is rotated in a negative direction in mode p2251 = 0, its lower limit p2298 should be connected to the actual minimum speed r1087. In mode p2251 = 1, p2299 must also be connected to the output of the ramp-function generator r1150.		
<b>p2299[0...n]</b>	<b>CI: Technology controller limit offset / Tech_ctrl lim offs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the offset of the output limiting of the technology controller.		
<b>Note:</b>	In mode p2251 = 1, p2299 must be connected to the output of ramp-function generator r1150 so that the technology controller stops when the speed limits are reached (see also p2297, p2298).		
<b>p2302</b>	<b>Technology controller output signal starting value / Tec_ctr start val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 200.00 [%]	<b>Factory setting</b> 0.00 [%]
<b>Description:</b>	Sets the start value for the output of the technology controller. If the drive is switched on and the technology controller is already enabled (see p2200, r0056.3), then it's output signal r2294 first goes to the start value p2302, before the controller starts to operate.		
<b>Dependency:</b>	The starting value is only effective in the mode "technology controller as main speed setpoint" (p2251 = 0). If the technology controller is first enabled when the drive is switched on, a start speed remains ineffective, and the controller output starts with the actual setpoint speed of the ramp-function generator.		
<b>Note:</b>	If the technology controller operates on the speed/setpoint channel (p2251 = 0), then the starting value is interpreted as the starting speed and when operation is enabled, is connected to the output of the technology controller (r2294).		

If fault F07426 "technology controller actual value limited" occurs while ramping up to the starting value and if the associated reaction has been set to "NONE" (see p2100, p2101), the starting value is kept as the speed setpoint instead of a switch to closed-loop control operation.

<b>p2306</b>	<b>Technology controller fault signal inversion / Tec_ctrl fault inv</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Setting to invert the fault signal of the technology controller. The setting depends on the type of control loop.		
<b>Value:</b>	0: No inversion 1: Inversion		
<b>Caution:</b>	If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!		
			
<b>Note:</b>	<p>The correct setting can be determined as follows:</p> <ul style="list-style-type: none"> <li>- inhibit the technology controller (p2200 = 0).</li> <li>- increase the motor speed and in so doing, measure the actual value signal (of the technology controller).</li> <li>- if the actual value increases with increasing motor speed, then the inversion should be switched out.</li> <li>- if the actual value decreases with increasing motor speed, then the inversion should be set.</li> </ul> <p>If value = 0: The drive reduces the output speed when the actual value rises (e.g. for heating fans, intake pump, compressor). If value = 1: The drive increases the output speed when the actual value increases (e.g. for cooling fans, discharge pumps).</p>		
<b>r2344</b>	<b>CO: Technology controller last speed setpoint (smoothed) / Tec_ctrl n_setp_sm</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the smoothed speed setpoint of the technology controller prior to switching to operation with fault response (see p2345).		
<b>Dependency:</b>	Refer to: p2345		
<b>Note:</b>	The smoothing time is 10 s.		
<b>p2345</b>	<b>Technology controller fault response / Tech_ctrl flt resp</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 2	<b>Factory setting</b> 0
<b>Description:</b>	Sets the response of the technology controller to the occurrence of a fault F07426 (technology controller actual value limited). The fault response is executed if status bits 8 or 9 in technology controller status word r2349 are set. If both status bits are zero, a switch back to technology controller operation will follow.		
<b>Value:</b>	0: Function inhibited 1: On fault: Changeover to r2344 (or p2302) 2: On fault: Changeover to p2215		

<b>Dependency:</b>	The parameterized fault response is only effective if the technology controller mode is set to p2251 = 0 (technology controller as main setpoint). Refer to: p2267, p2268, r2344 Refer to: F07426
<b>Notice:</b>	Dependent upon the application, the changing over of the setpoint when fault F07426 occurs can lead to the fault condition disappearing and the re-activation of the technology controller. This can repeat itself and cause limit oscillations. In this case a suitable fault response or a different fixed setpoint 15 for the fault response p2345 = 2 should be selected.
<b>Note:</b>	The parameterized fault response can only be achieved if the default fault response of the technology controller fault F07426 is set to "NONE" (see p2100, p2101). If a fault response other than "NONE" is entered in p2101 for F07426, p2345 must be set to zero. If the fault occurs during ramping up to the starting setpoint p2302, this starting setpoint is retained as the final value (there is no changeover to the fault response setpoint).

**r2349.0...12****CO/BO: Technology controller status word / Tec\_ctrl status**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the status word of the technology controller.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	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	-
	04	Technology controller speed setpoint total in setpoint channel	Yes	No	-
	05	Technology controller RFG bypassed in the setpoint channel	Yes	No	-
	06	Technology controller starting value at the current limit	No	Yes	-
	08	Technology controller actual value at the minimum	Yes	No	-
	09	Technology controller actual value at the maximum	Yes	No	-
	10	Technology controller output at the minimum	Yes	No	-
	11	Technology controller output at the maximum	Yes	No	-
	12	Fault response active	Yes	No	-

**p2900[0...n]****CO: Fixed value 1 [%] / Fixed value 1 [%]**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-10000.00 [%]	10000.00 [%]	0.00 [%]

**Description:** Sets a fixed percentage.

**Dependency:** Refer to: p2901, p2930

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set 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)



<b>p2901[0...n]</b>	<b>CO: Fixed value 2 [%] / Fixed value 2 [%]</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> PERCENT	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -10000.00 [%]	<b>Max</b> 10000.00 [%]	<b>Factory setting</b> 0.00 [%]
<b>Description:</b>	Sets a fixed percentage.		
<b>Dependency:</b>	Refer to: p2900, p2930		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)		
<b>r2902[0...14]</b>	<b>CO: Fixed values [%] / Fixed values [%]</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Signal sources for frequently used percentage values.		
<b>Index:</b>	[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 %		
<b>Dependency:</b>	Refer to: p2900, p2901, p2930		
<b>Note:</b>	The signal sources can, for example, be used to interconnect scalings.		
<b>p2930[0...n]</b>	<b>CO: Fixed value M [Nm] / Fixed value M [Nm]</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> p2003	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -100000.00 [Nm]	<b>Max</b> 100000.00 [Nm]	<b>Factory setting</b> 0.00 [Nm]
<b>Description:</b>	Sets a fixed value for torque.		
<b>Dependency:</b>	Refer to: p2900, p2901		
<b>Notice:</b>	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
<b>Note:</b>	The value can, for example, be used to interconnect a supplementary torque.		

<b>p3110</b>	<b>External fault 3, power-up delay / Ext fault 3 t_on</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 1000 [ms]	<b>Factory setting</b> 0 [ms]
<b>Description:</b>	Sets the delay time for external fault 3.		
<b>Dependency:</b>	Refer to: p2108, p3111, p3112 Refer to: F07862		
<b>p3111[0...n]</b>	<b>BI: External fault 3, enable / Ext fault 3 enab</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	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		
<b>Dependency:</b>	Refer to: p2108, p3110, p3112 Refer to: F07862		
<b>p3112[0...n]</b>	<b>BI: External fault 3 enable negated / Ext fit 3 enab neg</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	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		
<b>Dependency:</b>	Refer to: p2108, p3110, p3111 Refer to: F07862		
<b>r3113.0...15</b>	<b>CO/BO: NAMUR message bit bar / NAMUR bit bar</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	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	Network 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	-
	10	Error communication internal	Yes	No	-
	11	Fault infeed	Yes	No	-
	15	Other faults	Yes	No	-

<b>r3131</b>	<b>CO: Actual flt value / Actual flt value</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the fault value of the oldest active fault.		
<b>Dependency:</b>	Refer to: r2131, r3132		

<b>r3132</b>	<b>CO: Actual component number / Act comp_no.</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the component number of the oldest fault that is still active.		
<b>Dependency:</b>	Refer to: r2131, r3131		

<b>p3230[0...n]</b>	<b>CI: Load monitoring, speed actual value / Load monit n_act</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> p2000	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source for the speed actual value of the load monitoring.		
<b>Dependency:</b>	Refer to: r2169, p2181, p2192, p2193, p3231 Refer to: A07920, A07921, A07922, F07923, F07924, F07925		
<b>Note:</b>	The parameter is only effective for p2193 = 2.		

<b>p3231[0...n]</b>	<b>Load monitoring speed deviation / Load monit n_dev</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0.00 [rpm]	210000.00 [rpm]	150.00 [rpm]
<b>Description:</b>	Sets the permissible speed deviation during load monitoring (for p2193 = 2).		
<b>Dependency:</b>	Refer to: r2169, p2181, p2193, p3230 Refer to: A07920, A07921, A07922, F07923, F07924, F07925		

<b>p3232[0...n]</b>	<b>BI: Load monitoring failure detection / Load_moni fail_det</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 1
<b>Description:</b>	Sets the signal source for detecting a failure.		
<b>Dependency:</b>	Refer to: p2192, p2193 Refer to: F07936		
<b>Note:</b>	Monitoring is triggered with a 0 signal, as soon as the time in p2192 has expired.		
<b>p3233[0...n]</b>	<b>Torque actual value filter, time constant / M_act_filt T</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 1000000 [ms]	<b>Factory setting</b> 100 [ms]
<b>Description:</b>	Sets the time constant for the PT1 element to smooth the torque actual value. The smoothed torque actual value is compared with the threshold values and is only used for messages and signals.		
<b>p3235</b>	<b>Phase failure signal motor monitoring time / Ph_fail t_monit</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0 [ms]	<b>Max</b> 2000 [ms]	<b>Factory setting</b> 320 [ms]
<b>Description:</b>	Sets the monitoring time for phase failure detection of the motor.		
<b>Notice:</b>	After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.		
<b>Note:</b>	For p3235 = 0 the function is deactivated. The monitoring is automatically de-activated during the flying restart operation for a motor that is still rotating. 3-phase phase failures cannot be detected and are indicated by other messages (e.g. F07902).		
<b>p3320[0...n]</b>	<b>Fluid flow machine power point 1 / Fluid_mach P1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 25.00
<b>Description:</b>	For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the power (P) of point 1 as a [%]. The characteristic comprises the following value pairs: Power (P) / speed (n) p3320 / p3321 --> point 1 (P1 / n1) p3322 / p3323 --> point 2 (P2 / n2) p3324 / p3325 --> point 3 (P3 / n3) p3326 / p3327 --> point 4 (P4 / n4) p3328 / p3329 --> point 5 (P5 / n5)		
<b>Dependency:</b>	Refer to: r0041, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329		

**Note:** The reference value for power and speed is the rated power/rated speed.  
The energy saved is displayed in r0041.

<b>p3321[0...n]</b>	<b>Fluid flow machine speed point 1 / Fluid_mach n1</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 0.00
<b>Description:</b>	<p>For the energy-saving display of a fluid-flow machine, a typical flow characteristic <math>P = f(n)</math> with 5 points along the characteristic is required.</p> <p>This parameter specifies the speed (n) of point 1 as a [%].</p> <p>The characteristic comprises the following value pairs:</p> <p>Power (P) / speed (n)</p> <p>p3320 / p3321 → point 1 (P1 / n1)</p> <p>p3322 / p3323 → point 2 (P2 / n2)</p> <p>p3324 / p3325 → point 3 (P3 / n3)</p> <p>p3326 / p3327 → point 4 (P4 / n4)</p> <p>p3328 / p3329 → point 5 (P5 / n5)</p>		
<b>Dependency:</b>	Refer to: r0041, p3320, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329		
<b>Note:</b>	<p>The reference value for power and speed is the rated power/rated speed.</p> <p>The energy saved is displayed in r0041.</p>		
<b>p3322[0...n]</b>	<b>Fluid flow machine power point 2 / Fluid_mach P2</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 50.00
<b>Description:</b>	<p>For the energy-saving display of a fluid-flow machine, a typical flow characteristic <math>P = f(n)</math> with 5 points along the characteristic is required.</p> <p>This parameter specifies the power (P) of point 2 as a [%].</p>		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3323, p3324, p3325, p3326, p3327, p3328, p3329		
<b>Note:</b>	<p>The reference value for power and speed is the rated power/rated speed.</p> <p>The energy saved is displayed in r0041.</p>		
<b>p3323[0...n]</b>	<b>Fluid flow machine speed point 2 / Fluid_mach n2</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 25.00
<b>Description:</b>	<p>For the energy-saving display of a fluid-flow machine, a typical flow characteristic <math>P = f(n)</math> with 5 points along the characteristic is required.</p> <p>This parameter specifies the speed (n) of point 2 as a [%].</p>		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3322, p3324, p3325, p3326, p3327, p3328, p3329		
<b>Note:</b>	<p>The reference value for power and speed is the rated power/rated speed.</p> <p>The energy saved is displayed in r0041.</p>		

<b>p3324[0...n]</b>	<b>Fluid flow machine power point 3 / Fluid_mach P3</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 77.00
<b>Description:</b>	For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the power (P) of point 3 as a [%].		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3322, p3323, p3325, p3326, p3327, p3328, p3329		
<b>Note:</b>	The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.		
<b>p3325[0...n]</b>	<b>Fluid flow machine speed point 3 / Fluid_mach n3</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 50.00
<b>Description:</b>	For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the speed (n) of point 3 as a [%].		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3326, p3327, p3328, p3329		
<b>Note:</b>	The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.		
<b>p3326[0...n]</b>	<b>Fluid flow machine power point 4 / Fluid_mach P4</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 92.00
<b>Description:</b>	For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the power (P) of point 4 as a [%].		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3327, p3328, p3329		
<b>Note:</b>	The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.		
<b>p3327[0...n]</b>	<b>Fluid flow machine speed point 4 / Fluid_mach n4</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 75.00
<b>Description:</b>	For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the speed (n) of point 4 as a [%].		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3328, p3329		
<b>Note:</b>	The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.		

<b>p3328[0...n]</b>	<b>Fluid flow machine power point 5 / Fluid_mach P5</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 100.00
<b>Description:</b>	For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required.		
	This parameter specifies the power (P) of point 5 as a [%].		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3329		
<b>Note:</b>	The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.		
<b>p3329[0...n]</b>	<b>Fluid flow machine speed point 5 / Fluid_mach n5</b>		
	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 100.00	<b>Factory setting</b> 100.00
<b>Description:</b>	For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required.		
	This parameter specifies the speed (n) of point 5 as a [%].		
<b>Dependency:</b>	Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328		
<b>Note:</b>	The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.		
<b>p3330[0...n]</b>	<b>BI: 2/3 wire control command 1 / 2/3 wire cmd 1</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for command 1 for the two-wire control/three-wire control.		
<b>Dependency:</b>	Refer to: p0015, p3331, p3332, r3333, p3334		
<b>Note:</b>	The mode of operation of this binector input is dependent on the wire control set in p0015.		
<b>p3331[0...n]</b>	<b>BI: 2/3 wire control command 2 / 2/3 wire cmd 2</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> CDS, p0170
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for command 2 for the two-wire control/three-wire control.		
<b>Dependency:</b>	Refer to: p0015, p3330, p3332, r3333, p3334		
<b>Note:</b>	The mode of operation of this binector input is dependent on the wire control set in p0015.		

p3332[0...n]	BI: 2/3 wire control command 3 / 2/3 wire cmd 3				
	Access level: 3		Calculated: -	Data type: U32 / Binary	
	Can be changed: U, T		Scaling: -	Data set: CDS, p0170	
	Units group: -		Unit selection: -		
	Min -	Max -	Factory setting 0		
Description:	Sets the signal source for command 3 for the two-wire control/three-wire control.				
Dependency:	Refer to: p0015, p3330, p3331, r3333, p3334				
Note:	The mode of operation of this binector input is dependent on the wire control set in p0015.				

r3333.0...3	CO/BO: 2/3 wire control control word / 2/3 wire STW				
	Access level: 3		Calculated: -	Data type: Unsigned32	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min -	Max -	Factory setting -		
Description:	Displays the control word for the two wire control/three wire control. The control signals are dependent on the wire control set in p0015 and the signal states at the digital inputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON	Yes	No	-
	01	Reversing	Yes	No	-
	02	ON/inverting	Yes	No	-
	03	Reversing/inverting	Yes	No	-
Dependency:	Refer to: p0015, p3330, p3331, p3332, p3334				

p3334	2/3 wire control selection / 2/3 wire select				
	Access level: 4		Calculated: -	Data type: Integer16	
	Can be changed: U, T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min 0	Max 4	Factory setting 0		
Description:	Sets the two wire control/three wire control.				
Value:	0: No wire control 1: Two wire control clockwise/counterclockwise 1 2: Two wire control clockwise/counterclockwise 2 3: Three wire control enable clockwise/counterclockwise 4: Three wire control enable ON/reversing				
Dependency:	Refer to: p0015, p3330, p3331, p3332, r3333				
Note:	This value depends on the wire control set in p0015.				

p3856[0...n]	Compound braking current / Compound I_brake				
	PM240	Access level: 3		Calculated: -	Data type: FloatingPoint32
		Can be changed: U, T		Scaling: PERCENT	Data set: DDS, p0180
		Units group: -		Unit selection: -	
		Min 0.00 [%]	Max 250.00 [%]	Factory setting 0.00 [%]	
Description:	Compound braking current is used to define the amount of DC current that is produced on stopping the motor during U/f operation to further increase the DC brake function.  Compound braking is a superimposition of the DC brake function with regenerative braking (net braking along the ramp) after OFF1 or OFF3. This permits braking with controlled motor frequency and minimum power input into the motor. Effective braking without using additional hardware components is obtained by optimizing the ramp down time and compound braking.				



<b>Dependency:</b>	The compound braking current is only activated if the DC link voltage exceeds the threshold value in r1282. Compound braking does not operate: - when DC braking is active (refer to p1230, r1239) - as long as the motor is not magnetized (e.g. for flying restart) - for vector control (p1300 >= 20) - for synchronous motors (p0300 = 2xx)
<b>Caution:</b>	Generally, increasing the braking current improves the braking effect when stopping the motor. However, if the value is set too high, then the drive can be tripped (shut down) as a result of overcurrent or ground fault. Recommendation: $p3856 < 100 \% \times (r0209 - r0331) / p0305 / 2$ Compound braking generates a current in the motor with a ripple manifesting the rotational frequency. The higher the braking current is set, the higher the resulting ripple, especially when the Vdc(max) control is simultaneously active (refer to p1280).
<b>Note:</b>	The parameter value is entered relative to the rated motor current (p0305). Compound braking is deactivated with $p3856 = 0\%$ .

<b>r3859.0</b>	<b>CO/BO: Compound braking status word / Compound Br ZSW</b>				
PM240	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		-
<b>Description:</b>	Displays the status word of the compound braking.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Compound braking active	Yes	No	-
<b>Dependency:</b>	Refer to: p3856				

<b>p3900</b>	<b>Completion of quick commissioning / Compl quick_comm</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C(1)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	3	0
<b>Description:</b>	<p>Exits quick commissioning (p0010 = 1) with automatic calculation of all parameters of all existing drive data sets that depend on the entries made during quick commissioning.</p> <p>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.</p> <p>The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p15 and p1500 are re-established and all of the dependent motor, open-loop and control-loop control parameters are calculated (corresponding to p0340 = 1).</p> <p>p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p15 and p1500 and the calculations corresponding to p0340 = 1.</p> <p>p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.</p>		
<b>Value:</b>	<p>0: No quick parameterization</p> <p>1: Quick parameterization after parameter reset</p> <p>2: Quick parameterization (only) for BICO and motor parameters</p> <p>3: Quick parameterization for motor parameters (only)</p>		
<b>Notice:</b>	<p>After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.</p>		
<b>Note:</b>	<p>When the calculations have been completed, p3900 and p0010 are automatically reset to a value of 0.</p> <p>When calculating motor, open-loop and closed-loop control parameters (such as for p0340 = 1) parameters associated with a selected Siemens catalog motor are not overwritten.</p>		

If a catalog motor has not been selected (see p0300), then the following parameters are reset with p3900 > 0 in order to restore the situation that applied when commissioning the drive for the first time:

induction motor: p0320, p0352, p0362 ... p0369, p0604, p0605, p0626 ... p0628

synchronous motor: p0326, p0327, p0352, p0604, p0605

<b>r3925[0...n]</b>	<b>Identification final display / Ident final_disp</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> p0340 = 1	<b>Data type:</b> Unsigned32	
	<b>Can be changed:</b> -		<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180	
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>	<b>Factory setting</b>	
	-		-	-	
<b>Description:</b>	Displays the commissioning steps that have been carried out.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Motor/control parameters calculated (p0340 = 1, p3900 > 0)	Yes	No	-
	02	Motor data identification carried out at standstill (p1910 = 1)	Yes	No	-
	03	Rotating measurement carried out (p1960 = 1, 2)	Yes	No	-
	15	Motor equivalent circuit diagram parameters changed	Changed	Not changed	-
<b>Note:</b>	The individual bits are only set if the appropriate action has been initiated and successfully completed. 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.				

<b>r3926[0...n]</b>	<b>Voltage generation alternating base voltage amplitude / U_gen altern base</b>				
	<b>Access level:</b> 4		<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32	
	<b>Can be changed:</b> -		<b>Scaling:</b> -	<b>Data set:</b> MDS	
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>	<b>Factory setting</b>	
	- [V]		- [V]	- [V]	
<b>Description:</b>	Displays the base voltage for the alternating voltage in the context of motor data identification. 0: No alternating voltages. The function is de-activated. <0: Automatic determination of the base voltage and wobulation / self-setting based on the converter and the connected motor. Otherwise: Base voltage for alternating current generation in volts (wobulation active).				

<b>r3927[0...n]</b>	<b>Motor data identification control word / MotID STW</b>				
	<b>Access level:</b> 3		<b>Calculated:</b> p0340 = 1	<b>Data type:</b> Unsigned32	
	<b>Can be changed:</b> -		<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180	
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>	<b>Factory setting</b>	
	-		-	-	
<b>Description:</b>	Successfully completed component of the last motor data identification carried out.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Stator inductance estimate no measurement	Yes	No	-
	02	Rotor time constant estimate no measurement	Yes	No	-
	03	Leakage inductance estimate no measurement	Yes	No	-

05	Determine Tr and Lsig evaluation in the time range	Yes	No	-
06	Activate vibration damping	Yes	No	-
07	De-activate vibration detection	Yes	No	-
11	De-activate pulse measurement Lq Ld	Yes	No	-
12	De-activate rotor resistance Rr measurement	Yes	No	-
14	De-activate valve interlocking time measurement	Yes	No	-
15	Determine only stator resistance, valve voltage fault, dead time	Yes	No	-
16	Short motor identification (lower quality)	Yes	No	-

**Dependency:**

Refer to: r3925

**Note:**

The parameter is a copy of p1909.

**r3928[0...n] Rotating measurement configuration / Rot meas config**

<b>Access level:</b> 3	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:**

Successfully completed component of the last rotating measurement carried out.

**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
01	Saturation characteristic identification	Yes	No	-
02	Moment of inertia identification	Yes	No	-
03	Re-calculates 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	-
12	Measurement shortened	Yes	No	-

**Dependency:**

Refer to: r3925

**Note:**

The parameter is a copy of p1959.

**r3929[0...n] Motor data identification modulated voltage generation / MotID U\_gen mod**

<b>Access level:</b> 4	<b>Calculated:</b> p0340 = 1	<b>Data type:</b> Unsigned32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> DDS, p0180
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:**

Configuration of voltage generation for the various MotID sections in the case of the most recent successful MotID.

**Bit field:**

Bit	Signal name	1 signal	0 signal	FP
00	Wobble U_generate to determine dead-time correction	Yes	No	-
01	Wobble U_generate to determine stator resistance	Yes	No	-
02	Wobble U_generation to determine rotor time constant	Yes	No	-
03	Wobble U_generation to determine leakage inductance	Yes	No	-
04	Wobble U_generation to determine dynamic leakage inductance	Yes	No	-
05	Wobble U_generation to determine magnetizing inductance	Yes	No	-
08	Alternating U_generate to determine dead-time correction	Yes	No	-

09	Alternating U_generate to determine stator resistance	Yes	No	-
10	Alternating U_generate to determine rotor time constant	Yes	No	-
11	Alternating U_generate to determine leakage inductance	Yes	No	-
12	Alternating U_generate to determine dyn. leakage inductance	Yes	No	-
13	Alternating U_generate to determine magnetizing inductance	Yes	No	-

**r3930[0...4] Power unit EEPROM characteristics / PU characteristics**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the characteristics (A5E number and versions) of the power unit.  
 [0]: A5E number xxxx (A5Exxxxxyyy)  
 [1]: A5E number yyyy (A5Exxxxxyyy)  
 [2]: File version (logistic)  
 [3]: File version (fixed data)  
 [4]: File version (calib data)

**p3950 Service parameter / Serv. par.**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> C, U, T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** For service personnel only.

**r3960[0...1] Control Unit temperature measured / CU temp measured**

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> p2006	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
- [°C]	- [°C]	- [°C]

**Description:** Displays the measured Control Unit temperature.

An appropriate message is output when 87 °C is exceeded.

**Index:** [0] = Actual measured value  
 [1] = Maximum measured value

**Dependency:** Refer to: A01009

**Note:** The value of -200 indicates that there is no measuring signal.

Re r3960[0]:

Displays the currently measured Control Unit temperature.

Re r3960[1]:

Displays the highest measured Control Unit temperature. This value is saved on the module in a non-volatile fashion.

r3974	Drive unit status word / Drv_unit ZSW				
	Access level: 1		Calculated: -	Data type: Unsigned32	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min -	Max -	Factory setting -		
Description:		Displays the status word for the drive unit.			
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Software reset active	Yes	No	-
	01	Writing of parameters disabled as parameter save in progress	Yes	No	-
	02	Writing of parameters disabled as macro is running	Yes	No	-
r3978	BICO CounterDevice / BICO CounterDevice				
	Access level: 4		Calculated: -	Data type: Unsigned32	
	Can be changed: -		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min -	Max -	Factory setting -		
Description:		Displays the counter reading for modified BICO interconnections on this device. The counter is incremented by one for each modified BICO interconnection.			
p3981	Faults, acknowledge drive object / Faults ackn DO				
	Access level: 3		Calculated: -	Data type: Unsigned8	
	Can be changed: U, T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min 0	Max 1	Factory setting 0		
Description:		Setting to acknowledge all active faults of a drive object.			
Notice:		Safety messages cannot be acknowledged using this parameter.			
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				
	Access level: 3		Calculated: -	Data type: Integer16	
	Can be changed: U, T		Scaling: -	Data set: -	
	Units group: -		Unit selection: -		
	Min 0	Max 1	Factory setting 0		
Description:		Sets the mode to change over the master control / LOCAL mode.			
Value:		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.			

<b>r3986</b>	<b>Parameter count / Parameter No.</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the number of parameters for this drive unit. The number comprises the device-specific and the drive-specific parameters.		
<b>Dependency:</b>	Refer to: r0980, r0981, r0989		

<b>r3988[0...1]</b>	<b>Boot state / Boot_state</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	800	-
<b>Description:</b>	Index 0: Displays the boot state. Index 1: Displays the partial boot state		
<b>Value:</b>	0: Not active 1: Fatal fault 10: Fault 20: Reset all parameters 30: Drive object modified 40: Download using commissioning software 50: Parameter download using commissioning software 90: Reset Control Unit 100: Start initialization 101: Only for internal Siemens use 110: Instantiate Control Unit basis 111: Insert drive object 112: Only for internal Siemens use 113: Only for internal Siemens use 114: Only for internal Siemens use 115: Parameter download using commissioning software 117: Only for internal Siemens use 150: Wait until Power Module is determined 160: Evaluate Power Module 170: Instantiate Control Unit reset 180: Only for internal Siemens use 200: First commissioning 210: Create drive packages 250: Wait for fault acknowledge 325: Wait for input of drive type 350: Determine drive type 360: Only for internal Siemens use 370: Wait until p0010 is set to 0 380: Only for internal Siemens use 550: Call conversion functions for parameter 625: Wait for non-cyclic start 650: Start cyclic operation 660: Evaluate drive commissioning status 670: Only for internal Siemens use 680: Only for internal Siemens use 690: Wait for non-cyclic start 700: Save parameters		

725: Wait for cyclic  
 740: Check the ability to operate  
 745: Start cyclic calculations  
 750: Interrupt enable  
 800: Initialization finished

**Index:**  
 [0] = System  
 [1] = Partial boot

<b>r3996[0...1]</b>	<b>Parameter write inhibit status / Par_write inhib st</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays whether writing to parameters is inhibited.  
 r3996[0] = 0:  
 Parameter write not inhibited.  
 0 < r3996[0] < 100:  
 Parameter write inhibited. The value shows how the calculations are progressing.

**Index:**  
 [0] = Progress calculations  
 [1] = Cause

**Note:**  
 Re index 1:  
 Only for internal Siemens troubleshooting.

<b>r5600</b>	<b>Pe energy saving mode ID / Pe mode ID</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	255	-

**Description:** Displays the PROFenergy mode ID of the effective energy saving mode.

**Value:**  
 0: POWER OFF  
 2: En-saving mode 2  
 255: Ready

**Note:** Pe: PROFenergy profiles

<b>p5602[0...1]</b>	<b>Pe energy-saving mode pause time minimal / Pe mod t_pause min</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2 PN	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	300000 [ms]	4294967295 [ms]	[0] 300000 [ms] [1] 480000 [ms]

**Description:** Sets the minimum possible pause time for the energy-saving mode.  
 The value is the sum of the following times:  
 - Energy-saving mode transition time  
 - Operating state transition time  
 - Energy-saving mode, dwell time minimal

**Index:**  
 [0] = Reserved  
 [1] = Mode 2

**Note:** It is not permissible that the value is less than the sum of the "energy-saving mode transition time" and the "operating state transition time" (system properties).  
 Pe: PROFenergy profiles

<b>p5606[0...1]</b>		<b>Pe energy-saving mode dwell time maximum / Pe t_dwell max</b>			
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -		<b>Data type:</b> Unsigned32	
CU240E-2 PN	<b>Can be changed:</b> T	<b>Scaling:</b> -		<b>Data set:</b> -	
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> 0 [ms]	<b>Max</b> 4294967295 [ms]		<b>Factory setting</b> 4294967295 [ms]	
<b>Description:</b>	Sets the maximum dwell time for the energy-saving mode.				
<b>Index:</b>	[0] = Reserved [1] = Mode 2				
<b>Note:</b>	Pe: PROFenergy profiles				

<b>p5611</b>		<b>Pe energy-saving properties general / Pe properties gen</b>			
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -		<b>Data type:</b> Unsigned32	
CU240E-2 PN	<b>Can be changed:</b> T	<b>Scaling:</b> -		<b>Data set:</b> -	
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -		<b>Factory setting</b> 0000 bin	
<b>Description:</b>	Sets the general properties for energy-saving.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Inhibit PROFenergy	Yes	No	-
	01	Drive initiates OFF1	Yes	No	-
	02	Trans into energy-saving mode from PRO- Fdrive state S4 poss	Yes	No	-
<b>Note:</b>	Pe: PROFenergy profiles				

<b>p5612[0...1]</b>		<b>Pe energy-saving properties mode-dependent / Pe properties mod</b>			
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -		<b>Data type:</b> Unsigned32	
CU240E-2 PN	<b>Can be changed:</b> T	<b>Scaling:</b> -		<b>Data set:</b> -	
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -		<b>Factory setting</b> [0] 0110 bin [1] 0000 bin	
<b>Description:</b>	Sets the mode-dependent properties for energy-saving.				
<b>Index:</b>	[0] = Reserved [1] = Mode 2				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Reserved	Yes	No	-
<b>Note:</b>	Pe: PROFenergy profiles				

<b>r5613.0...1</b>		<b>CO/BO: Pe energy-saving active/inactive / Pe save act/inact</b>			
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -		<b>Data type:</b> Unsigned8	
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -		<b>Data set:</b> -	
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -		<b>Factory setting</b> -	
<b>Description:</b>	Display and binector output for the state display PROFenergy energy saving active or inactive.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Pe active	Yes	No	-
	01	Pe inactive	Yes	No	-
<b>Note:</b>	Bit 0 and bit 1 are inverse of one another. Pe: PROFenergy profiles				



<b>p5614</b>				
<b>BI: Pe set switch-on inhibit signal source / Pe sw on_inh s_src</b>				
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary	
CU240E-2 PN	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
	<b>Units group:</b> -	<b>Unit selection:</b> -		
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
	-	-	0	
<b>Description:</b>	Sets the signal source to set in the PROFIdrive state S1 "switching-on inhibit".			
<b>Dependency:</b>	Refer to: r5613			
<b>Note:</b>	Pe: PROFenergy profiles			

<b>r7758[0...19]</b>				
<b>KHP Control Unit serial number / KHP CU ser_no</b>				
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8	
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
	<b>Units group:</b> -	<b>Unit selection:</b> -		
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
	-	-	-	
<b>Description:</b>	Displays the actual serial number of the Control Unit. The individual characters of the serial number are displayed in the ASCII code in the indices. For the commissioning software, the ASCII characters are displayed uncoded.			
<b>Dependency:</b>	Refer to: p7765, p7766, p7767, p7768			
<b>Notice:</b>	An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.			
<b>Note:</b>	KHP: Know-How Protection			

<b>p7759[0...19]</b>				
<b>KHP Control Unit reference serial number / KHP CU ref ser_no</b>				
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8	
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
	<b>Units group:</b> -	<b>Unit selection:</b> -		
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
	-	-	-	
<b>Description:</b>	Sets the reference serial number for the Control Unit. Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware.			
<b>Dependency:</b>	Refer to: p7765, p7766, p7767, p7768			
<b>Note:</b>	KHP: Know-How Protection - The OEM may only change this parameter for the use case "Sending encrypted SINAMICS data". - SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated.			

<b>r7760</b>					
<b>Write protection/know-how protection status / Wr_prot/KHP stat</b>					
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16		
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Displays the status for the write protection and know-how protection.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Write protection active	Yes	No	-
	01	Know-how protection active	Yes	No	-
	02	Know-how protection temporarily withdrawn	Yes	No	-

03	Know-how protection cannot be deactivated	Yes	No	-
04	Memory card copy protection active	Yes	No	-

**Dependency:** Refer to: p7761, p7765, p7766, p7767, p7768

**Notice:** For bits 01 ... 04, the following applies:

For SIMOTION D410-2 these bits have no significance (they are always 0).

**Note:** KHP: Know-How Protection

Re bit 00:

Write protection can be activated/deactivated via p7761 on the Control Unit.

Re bit 01:

The know-how protection can be activated by entering a password (p7766 ... p7768).

Re bit 02:

If it has already been activated, know-how protection can be temporarily deactivated by entering the valid password in p7766. In this case, bit 1 = 0 and bit 2 = 1 offset.

Re bit 03:

Know-how protection cannot be deactivated, as p7766 is not entered in the OEM exception list (only the factory setting is possible). This bit is only set if know-how protection is active (bit 1 = 1) and p7766 has not been entered in the OEM exception list.

Re bit 04:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards. This bit is only set if know-how protection is active and p7765 = 1.

## p7761

### Write protection / Write protection

**Access level:** 3

**Calculated:** -

**Data type:** Integer16

**Can be changed:** U, T

**Scaling:** -

**Data set:** -

**Units group:** -

**Unit selection:** -

**Min**

**Max**

**Factory setting**

0

1

0

**Description:** Setting for activating/de-activating the write protection for adjustable parameters.

**Value:**  
0: Deactivate write protection  
1: Activate write protection

**Dependency:** Refer to: r7760

**Note:** The following parameters are excluded from the write protection:  
p0003, p0971, p3950, p3981, p7761, p9400

## p7762

### Write protection multi-master fieldbus system access behavior / Fieldbus acc\_behav

**Access level:** 3

**Calculated:** -

**Data type:** Integer16

**Can be changed:** U, T

**Scaling:** -

**Data set:** -

**Units group:** -

**Unit selection:** -

**Min**

**Max**

**Factory setting**

0

1

0

**Description:** Sets the behavior for write protection when accessing via multi-master fieldbus systems (e.g. CAN, BACnet).

**Value:**  
0: Write access independent of p7761  
1: Write access dependent on p7761

**Dependency:** Refer to: r7760, p7761

<b>p7763</b>	<b>KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 500	<b>Factory setting</b> 1
<b>Description:</b>	Sets the number of parameters for the OEM exception list (p7764[0...n]). p7764[0...n], with n = p7763 - 1		
<b>Dependency:</b>	Refer to: p7764		
<b>Notice:</b>	For SIMOTION D410-2, this parameter has no significance.		
<b>Note:</b>	KHP: Know-How Protection Even if know-how protection is set, parameters in this list can be read and written to.		
<b>p7764[0...n]</b>	<b>KHP OEM exception list / KHP OEM excep list</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> p7763
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 65535	<b>Factory setting</b> [0] 7766 [1...499] 0
<b>Description:</b>	OEM exception list (p7764[0...n]) for setting parameters that should be excluded from know-how protection. p7764[0...n], with n = p7763 - 1		
<b>Dependency:</b>	The number of indices depends on p7763. Refer to: p7763		
<b>Notice:</b>	For SIMOTION D410-2, this parameter has no significance.		
<b>Note:</b>	KHP: Know-How Protection Even if know-how protection is set, parameters in this list can be read and written to.		
<b>p7765</b>	<b>KHP memory card copy protection / KHP copy protect</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Setting for activating/de-activating copy protection for the memory card. This means that the OEM can define whether the parameters and DCC data encrypted on the memory card should be protected before using on other memory cards.		
<b>Value:</b>	0: Deactivating protection 1: Activating protection		
<b>Dependency:</b>	Refer to: p7766, p7767, p7768		
<b>Note:</b>	KHP: Know-How Protection The memory card copy protection is only effective when the know-how protection has been activated.		
<b>p7766[0...29]</b>	<b>KHP password input / KHP passw input</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Sets the password for know-how protection.		

Example of a password:  
 123aBc = 49 50 51 97 66 99 dec (ASCII characters)  
 [0] = character 1 (e.g. 49 dec)  
 [1] = character 2 (e.g. 50 dec)  
 ...

[5] = character 6 (e.g. 99 dec)  
 [29] = 0 dec (completes the entry)

**Dependency:** Refer to: p7767, p7768

**Notice:** An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.  
 When using the STARTER commissioning software, the password should be entered using the associated dialogs.

**Note:** KHP: Know-How Protection  
 When reading, p7766[0...29] = 42 dec (ASCII character = "\*\*\*") is displayed.  
 When using the STARTER commissioning software, when reading via the expert list, p7766[0...29] is displayed with "\*\*\*\*\*".  
 The following rules apply when entering the password:  
 - Password entry must start with p7766[0].  
 - No gaps are permissible in the password.  
 - Entering a password is completed when writing to p7766[29] (p7766[29] = 0 for passwords less than 30 characters).

<b>p7767[0...29]</b>	<b>KHP password new / KHP passw new</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Sets the new password for know-how protection.		
<b>Dependency:</b>	Refer to: p7766, p7768		
<b>Note:</b>	KHP: Know-How Protection When reading, p7767[0...29] = 42 dec (ASCII character = "***") is displayed.		

<b>p7768[0...29]</b>	<b>KHP password confirmation / KHP passw confirm</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Confirms the new password for know-how protection.		
<b>Dependency:</b>	Refer to: p7766, p7767		
<b>Note:</b>	KHP: Know-How Protection When reading, p7768[0...29] = 42 dec (ASCII character = "***") is displayed.		

<b>p7769[0...20]</b>	<b>KHP memory card reference serial number / KHP mem ref ser_no</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Sets the reference serial number for the memory card. Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware.		
<b>Dependency:</b>	Refer to: p7765, p7766, p7767, p7768		

**Note:** KHP: Know-How Protection

- The OEM may only change this parameter for the use case "Sending encrypted SINAMICS data".
- SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated.

<b>p7775</b>	<b>NVRAM data backup/import/delete / NVRAM backup</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> C, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 17	<b>Factory setting</b> 0
<b>Description:</b>	Setting to backup/import/delete NVRAM data. NVRAM data are non-volatile data in the device (e.g. fault buffer). For NVRAM data actions, the following data are excluded: <ul style="list-style-type: none"> <li>- Crash diagnostics</li> <li>- CU operating hours counter</li> <li>- CU temperature</li> <li>- Safety logbook</li> </ul>		
<b>Value:</b>	0: Inactive 1: NVRAM data backup to memory card 2: Import NVRAM data from the memory card 3: Delete NVRAM data in the device 10: Error when clearing 11: Error when backing up, memory card not available 12: Error when backing up, insufficient memory space 13: Error when backing up 14: Error when importing, memory card not available 15: Error when importing, checksum error 16: Error when importing, no NVRAM data available 17: Error when importing		
<b>Notice:</b>	Re value = 2, 3: These actions are only possible when pulses are inhibited.		
<b>Note:</b>	After the action has been successfully completed, the parameter is automatically set to zero. The actions importing and deleting NVRAM data immediately initiate a warm restart. If the procedure was not successfully completed, then an appropriate fault value is displayed (p7775 >= 10).		

<b>r7841[0...15]</b>	<b>Power Module serial number / PM serial no.</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the actual serial number of the Power Module. The individual characters of the serial number are displayed in the ASCII code in the indices.		
<b>Notice:</b>	An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.		

<b>r7843[0...20]</b>	<b>Memory card serial number / Mem_card ser.no</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the actual serial number of the memory card. The individual characters of the serial number are displayed in the ASCII code in the indices.		
<b>Notice:</b>	An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.		
<b>Note:</b>	Example: displaying the serial number for a memory card: 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 r7843[20] = 0 dec Serial number = 111923E		
<b>r7901[0...43]</b>	<b>Sampling times / t_sample</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [µs]	- [µs]	- [µs]
<b>Description:</b>	Displays the sampling times currently present on the drive unit. For r7901[x] = 0, the following applies: The time slice is not active.		
<b>r7903</b>	<b>Hardware sampling times still assignable / HW t_samp free</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the number of hardware sampling times that can still be assigned. These free sampling times can be used by OA applications such as DCC (Drive Control Chart) or FBLOCKS (free function blocks).		
<b>Note:</b>	OA: Open Architecture		
<b>r8570[0...39]</b>	<b>Macro drive object / Macro DO</b>		
	<b>Access level:</b> 1	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the macro file saved in the appropriate directory on the memory card/device memory.		

**Dependency:** Refer to: p0015

**Note:** For a value = 9999999, the following applies: The read operation is still running.

---

<b>r8571[0...39]</b>	<b>Macro Binector Input (BI) / Macro BI</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the ACX file saved in the appropriate directory in the non-volatile memory.

**Note:** For a value = 9999999, the following applies: The read operation is still running.

---

<b>r8572[0...39]</b>	<b>Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the ACX file saved in the appropriate directory in the non-volatile memory.

**Dependency:** Refer to: p1000

**Note:** For a value = 9999999, the following applies: The read operation is still running.

---

<b>r8573[0...39]</b>	<b>Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the ACX file saved in the appropriate directory in the non-volatile memory.

**Dependency:** Refer to: p1500

**Note:** For a value = 9999999, the following applies: The read operation is still running.

---

<b>r8585</b>	<b>Macro execution actual / Macro executed</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the macro currently being executed on the drive object.

**Dependency:** Refer to: p0015, p1000, p1500, r8570, r8571, r8572, r8573

---

<b>r8854</b>	<b>PROFINET state / PN state</b>		
CU240E-2_PN_F	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	255	-

**Description:** State display for PROFINET.

**Value:**  
 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

**r8854****PROFINET state / PN state**

PROFINET	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240B-2	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240B-2_DP	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2			
CU240E-2_DP			
CU240E-2_DP_F			
CU240E-2_F			

Min	Max	Factory setting
0	255	-

**Description:** State display for PROFINET.

**Value:**

- 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]****PROFINET read diagnostics channel / PN diag\_chan read**

CU240E-2_PN_F	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

Min	Max	Factory setting
-	-	-

**Description:** Displays the PROFINET diagnostics data.

**Note:** Only for internal Siemens diagnostics.

**r8858[0...39]****PROFINET read diagnostics channel / PN diag\_chan read**

PROFINET	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240B-2	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240B-2_DP	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2			
CU240E-2_DP			
CU240E-2_DP_F			
CU240E-2_F			

Min	Max	Factory setting
-	-	-

**Description:** Displays the PROFINET diagnostics data.

**Note:** Only for internal Siemens diagnostics.



<b>r8859[0...7]</b>	<b>PROFINET identification data / PN ident_data</b>		
CU240E-2_PN_F	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the PROFINET identification data		
<b>Index:</b>	[0] = Version interface structure [1] = Version interface driver [2] = Company (Siemens = 42) [3] = CB type [4] = Firmware version [5] = Firmware date (year) [6] = Firmware date (day/month) [7] = Firmware patch/hot fix		
<b>Note:</b>	Example: r8859[0] = 100 --> version of the interface structure V1.00 r8859[1] = 111 --> version of the interface driver V1.11 r8859[2] = 42 --> SIEMENS r8859[3] = 0 r8859[4] = 1300 --> first part, firmware version V13.00 (second part, see index 7) r8859[5] = 2011 --> year 2011 r8859[6] = 2306 --> 23rd June r8859[7] = 1700 --> second part, firmware version (complete version: V13.00.17.00)		

<b>r8859[0...7]</b>	<b>PROFINET identification data / PN ident_data</b>		
PROFINET	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240B-2	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240B-2_DP	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2			
CU240E-2_DP			
CU240E-2_DP_F			
CU240E-2_F			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the PROFINET identification data		
<b>Index:</b>	[0] = Version interface structure [1] = Version interface driver [2] = Company (Siemens = 42) [3] = CB type [4] = Firmware version [5] = Firmware date (year) [6] = Firmware date (day/month) [7] = Firmware patch/hot fix		
<b>Note:</b>	Example: r8859[0] = 100 --> version of the interface structure V1.00 r8859[1] = 111 --> version of the interface driver V1.11 r8859[2] = 42 --> SIEMENS r8859[3] = 0 r8859[4] = 1300 --> first part, firmware version V13.00 (second part, see index 7) r8859[5] = 2011 --> year 2011 r8859[6] = 2306 --> 23rd June r8859[7] = 1700 --> second part, firmware version (complete version: V13.00.17.00)		

**r8909 PN device ID / PN device ID**

CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the PROFINET Device ID.  
Every SINAMICS device type has its own PROFINET Device ID and its own PROFINET GSD.

**Note:** List of the SINAMICS Device IDs:

0501 hex: S120/S150  
0504 hex: G130/G150  
0505 hex: GM150  
0509 hex: GL150  
050A hex: DC MASTER  
050B hex: SL150  
050C hex: SM120  
050E hex: S110  
050F hex: G120P  
0510 hex: G120C  
0511 hex: G120  
0512 hex: G120D

**p8920[0...239] PN Name of Station / PN Name Stat**

CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Sets the station name for the onboard PROFINET interface on the Control Unit.  
The active station name is displayed in r8930.

**Note:** An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.  
The interface configuration (p8920 and following) is activated with p8925 = 1.  
The parameter is not influenced by setting the factory setting.  
PN: PROFINET

**p8921[0...3] PN IP address of station / PN IP of stat**

CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the IP address for the onboard PROFINET interface on the Control Unit.  
The active IP address is displayed in r8931.

**Note:** The interface configuration (p8920 and following) is activated with p8925 = 1.  
The parameter is not influenced by setting the factory setting.

<b>p8922[0...3]</b>	<b>PN Default Gateway of Station / PN Def Gateway</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 255	<b>Factory setting</b> 0
<b>Description:</b>	Sets the default gateway for the onboard PROFINET interface on the Control Unit. The active default gateway is displayed in r8932.		
<b>Note:</b>	The interface configuration (p8920 and following) is activated with p8925 = 1. The parameter is not influenced by setting the factory setting.		
<b>p8923[0...3]</b>	<b>PN Subnet Mask of Station / PN Subnet Mask</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 255	<b>Factory setting</b> 0
<b>Description:</b>	Sets the subnet mask for the onboard PROFINET interface on the Control Unit. The active subnet mask is displayed in r8933.		
<b>Note:</b>	The interface configuration (p8920 and following) is activated with p8925 = 1. The parameter is not influenced by setting the factory setting.		
<b>p8925</b>	<b>PN interface configuration / PN IF config</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2 PN	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 3	<b>Factory setting</b> 0
<b>Description:</b>	Setting to activate the interface configuration for the onboard PROFINET interface on the Control Unit. p8925 is automatically set to 0 at the end of the operation.		
<b>Value:</b>	0: No function 1: Activate configuration 2: Activate and save configuration 3: Delete configuration		
<b>Note:</b>	Re p8925 = 1: The interface configuration (p8920 and following) is activated. Re p8925 = 2: The interface configuration (p8920 and following) is activated and saved to non-volatile memory. Re p8925 = 3: Restores all memory locations for the interface configuration to the factory settings. The factory settings for the interface configuration are loaded on activation (p8925 = 1) or at the next POWER ON.		
<b>p8929</b>	<b>PN remote controller number / PN rem ctrl num</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2 PN	<b>Can be changed:</b> C	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 2	<b>Factory setting</b> 1
<b>Description:</b>	Sets the number of remote controllers expected for PROFINET onboard. The "Shared Device" functionality is activated with a value = 2.		

The drive is being accessed by two PROFINET controllers simultaneously:

- automation controller (SIMOTION or SIMATIC A-CPU).
- safety controller (SIMATIC F-CPU).

**Value:** 1: Automation or Safety  
2: Automation and Safety

**Notice:** The F CPU may only use PROFIsafe telegrams.

**Note:** A change only becomes effective after POWER ON, reset or download.

<b>r8930[0...239]</b>	<b>PN Name of Station active / PN Name Stat act</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the active station name for the onboard PROFINET interface on the Control Unit.		

<b>r8931[0...3]</b>	<b>PN IP Address of Station active / PN IP of Stat act</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the active IP address for the onboard PROFINET interface on the Control Unit.		

<b>r8932[0...3]</b>	<b>PN Default Gateway of Station active / PN Def Gateway act</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the active default gateway for the onboard PROFINET interface on the Control Unit.		

<b>r8933[0...3]</b>	<b>PN Subnet Mask of Station active / PN Subnet Mask act</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the active subnet mask for the onboard PROFINET interface on the Control Unit.		

<b>r8935[0...5]</b>	<b>PN MAC Address of Station / PN MAC of Station</b>		
CU240E-2_PN_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the MAC address for the onboard PROFINET interface on the Control Unit.		

**r8939 PN DAP ID / PN DAP ID**

CU240E-2\_PN\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2 PN **Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

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

**Description:** Displays the PROFINET Device Access Point ID (DAP ID) for the onboard PROFINET interface.  
 The combination of device ID (r8909) and DAP ID uniquely identifies a PROFINET access point.

**Note:** List of the SINAMICS DAP IDs:  
 20005 hex: CBE20 V4.3  
 20006 hex: CBE20 V4.4  
 20007 hex: CBE20 V4.5  
 20106 hex: CU310-2 PN V4.4  
 20107 hex: CU310-2 PN V4.5  
 20206 hex: CU305 PN V4.4  
 20306 hex: CU320-2 PN V4.4  
 20307 hex: CU320-2 PN V4.5  
 20407 hex: CU230-2 PN /CU240-2PN  
 20507 hex: CU250-2 PN

**r8960[0...2] PN subslot controller assignment / PN subslot assign**

**Access level:** 3 **Calculated:** - **Data type:** Unsigned8  
**Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

**Min** **Max** **Factory setting**  
 0 8 -

**Description:** Displays the controller assignment of a PROFINET subslot on the actual drive object.

**Index:** [0] = Subslot 2 PROFIsafe  
 [1] = Subslot 3 PZD telegram  
 [2] = Subslot 4 PZD supplementary data

**Dependency:** Refer to: r8961, r8962

**Note:** Example:  
 If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

**r8961[0...3] PN IP Address Remote Controller 1 / IP Addr Rem Ctrl1**

CU240E-2\_PN\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned8  
 CU240E-2 PN **Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

**Min** **Max** **Factory setting**  
 0 255 -

**Description:** Displays the IP address of the first PROFINET controller connected with the device via PN onboard.

**r8962[0...3] PN IP Address Remote Controller 2 / IP Addr Rem Ctrl2**

CU240E-2\_PN\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned8  
 CU240E-2 PN **Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

**Min** **Max** **Factory setting**  
 0 255 -

**Description:** Displays the IP address of the second PROFINET controller connected with the device via PN onboard.

<b>p8991 USB memory access / USB mem acc</b>					
<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Integer16	
<b>Can be changed:</b> T		<b>Scaling:</b> -		<b>Data set:</b> -	
<b>Units group:</b> -		<b>Unit selection:</b> -			
<b>Min</b> 1		<b>Max</b> 2		<b>Factory setting</b> 1	
<b>Description:</b>	Selects the storage medium for access via the USB mass storage.				
<b>Value:</b>	1: Memory card 2: Flash r/w internal				
<b>Note:</b>	A change only becomes effective after a POWER ON. The parameter is not influenced by setting the factory setting.				
<hr/>					
<b>p8999 USB functionality / USB functionality</b>					
<b>Access level:</b> 4		<b>Calculated:</b> -		<b>Data type:</b> Integer16	
<b>Can be changed:</b> T		<b>Scaling:</b> -		<b>Data set:</b> -	
<b>Units group:</b> -		<b>Unit selection:</b> -			
<b>Min</b> 1		<b>Max</b> 3		<b>Factory setting</b> 3	
<b>Description:</b>	Selecting the USB functionality.				
<b>Value:</b>	1: USS commissioning via the virtual COM port 2: Only memory access 3: USB commissioning and memory access				
<b>Note:</b>	COMM: Commissioning. A change only becomes effective after a POWER ON. The parameter is not influenced by setting the factory setting.				
<hr/>					
<b>p9301 SI Motion enable safety functions (processor 2) / SI Mtn enable P2</b>					
PM240	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
PM250	<b>Can be changed:</b> C(95)		<b>Scaling:</b> -		<b>Data set:</b> -
PM260	<b>Units group:</b> -		<b>Unit selection:</b> -		
CU240E-2_DP_F					
CU240E-2_PN_F					
	<b>Min</b> -		<b>Max</b> -		<b>Factory setting</b> 0000 0000 0000 0000 0000 0000 0000 0000 bin
<b>Description:</b>	Sets the enable signals for the safe motion monitoring.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable SI Motion	Enable	Inhibit	-
	16	Enable SSM hysteresis and filtering	Enable	Inhibit	2860
	17	Enable SDI	Enable	Inhibit	2861
	30	Enable F-DI in PROFIsafe telegram 900	Enable	Inhibit	-
<b>Dependency:</b>	Refer to: p9501 Refer to: F01682, F01683				
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
<b>Note:</b>	For bit 30 = 1, PROFIsafe telegram 900 must be configured in the F host. A change only becomes effective after a POWER ON. F-DI: Failsafe Digital Input SDI: Safe Direction (safe motion direction) SLS: Safely-Limited Speed SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)				

<b>p9301</b>	<b>SI Motion enable safety functions (processor 2) / SI Mtn enable P2</b>				
PM240	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
PM250	<b>Can be changed:</b> C(95)		<b>Scaling:</b> -		<b>Data set:</b> -
PM260	<b>Units group:</b> -		<b>Unit selection:</b> -		
CU240E-2_F					
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		0000 0000 0000 0000 0000 0000 0000 0000 bin
<b>Description:</b>	Sets the enable signals for the safe motion monitoring.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable SI Motion	Enable	Inhibit	-
	17	Enable SDI	Enable	Inhibit	2861
<b>Dependency:</b>	Refer to: p9501 Refer to: F01682, F01683				
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
<b>Note:</b>	For bit 30 = 1, PROFIsafe telegram 900 must be configured in the F host. A change only becomes effective after a POWER ON. F-DI: Failsafe Digital Input SDI: Safe Direction (safe motion direction) SLS: Safely-Limited Speed SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)				

<b>p9306</b>	<b>SI Motion function specification (processor 2) / SI Mtn fct spec P2</b>				
CU240E-2_DP_F	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)		<b>Scaling:</b> -		<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	1		3		1
<b>Description:</b>	Sets the function specification for the safe motion monitoring.				
<b>Value:</b>	1: Safety without encoder and braking ramp(SBR) 3: Safety without encoder with accel_monitoring(SAM) / delay time				
<b>Dependency:</b>	Refer to: C30711				
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				

<b>p9307</b>	<b>SI Motion function configuration (processor 2) / SI Mtn config P2</b>				
PM240	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
PM250	<b>Can be changed:</b> C(95)		<b>Scaling:</b> -		<b>Data set:</b> -
PM260	<b>Units group:</b> -		<b>Unit selection:</b> -		
CU240E-2_DP_F					
CU240E-2_F					
CU240E-2_PN_F					
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		0011 bin
<b>Description:</b>	Sets the function configuration for safe motion monitoring.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Extended message acknowledgement	Yes	No	-
	01	Setpoint velocity limit for STOP F	No	Yes	-
<b>Dependency:</b>	Refer to: C01711				
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
<b>Note:</b>	Re bit 00: When the function is activated, a safety-relevant acknowledgement (internal event acknowledge) can be performed by selecting/deselecting STO.				

Re bit 01:

When the function is activated, the active setpoint velocity limit (CO: r9733) is set to zero when STOP F is active.

p9309 SI Motion behavior during pulse suppression (processor 2) / SI Mtn behav IL P2					
PM240	Access level: 3		Calculated: -	Data type: Unsigned32	
PM250	Can be changed: C(95)		Scaling: -	Data set: -	
PM260	Units group: -		Unit selection: -		
CU240E-2_DP_F					
CU240E-2_PN_F					
	Min		Max	Factory setting	
	-		-	0000 0000 1111 1111 bin	
Description:	Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SSM during pulse suppression and sensorless	Becomes inactive	Remains active	-
	08	SDI during pulse suppression and sensorless	Becomes inactive	Remains active	-
Dependency:	Refer to: C01711				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
	Re bit 00:				
	If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.				
Note:	SDI: Safe Direction (safe motion direction)				
	SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)				
	Re bit 00:				
	For bit = 1 and with the SSM safety function activated, the following applies:				
	- During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.				
	For bit = 0 and with the SSM safety function activated, the following applies:				
	- Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.				
	Re bit 08:				
	For bit = 1 and with the SDI safety function activated, the following applies:				
	- During pulse suppression, monitoring is switched off and the status signal indicates inactive.				
	For bit = 0 and with the SDI safety function activated, the following applies:				
	- Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.				

p9309	SI Motion behavior during pulse suppression (processor 2) / SI Mtn behav IL P2				
PM240	Access level: 3		Calculated: -	Data type: Unsigned32	
PM250	Can be changed: C(95)		Scaling: -	Data set: -	
PM260	Units group: -		Unit selection: -		
CU240E-2_F					
	Min		Max	Factory setting	
	-		-	0000 0000 1111 1111 bin	
Description:	Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	SDI during pulse suppression and sensorless	Becomes inactive	Remains active	-
Dependency:	Refer to: C01711				



- Notice:** This parameter is overwritten by the copy function of the safety functions integrated in the drive.  
 Re bit 00:  
 If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.
- Note:** SDI: Safe Direction (safe motion direction)  
 SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)  
 Re bit 00:  
 For bit = 1 and with the SSM safety function activated, the following applies:  
 - During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.  
 For bit = 0 and with the SSM safety function activated, the following applies:  
 - Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.  
 Re bit 08:  
 For bit = 1 and with the SDI safety function activated, the following applies:  
 - During pulse suppression, monitoring is switched off and the status signal indicates inactive.  
 For bit = 0 and with the SDI safety function activated, the following applies:  
 - Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.

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**p9321[0...7] SI Motion gearbox motor/load denominator (processor 2) / SI Mtn gear den P2**


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CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
1	2147000000	1

**Description:** Sets the denominator for the gearbox between the motor and the load.

**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

**Notice:** It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.

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**p9322[0...7] SI Motion gearbox motor/load numerator (processor 2) / SI Mtn gear num P2**


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CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
1	2147000000	1

**Description:** Sets the numerator for the gearbox between the motor and the load.

**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

**Notice:** It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.

**Note:** In the case of encoderless monitoring functions, the pole pair number must be multiplied by the numerator of the gearbox ratio.  
 Example:  
 Gearbox ratio 1:4, pole pair number (r0313) = 2  
 --> p9321 = 1, p9322 = 8 (4 x 2)

<b>p9331[0...3]</b>	<b>SI Motion SLS limit values (processor 2) / SI Mtn SLS lim P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.01 [rpm]	<b>Max</b> 100000.00 [rpm]	<b>Factory setting</b> 2000.00 [rpm]
<b>Description:</b>	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
<b>Index:</b>	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
<b>Dependency:</b>	Refer to: p9363, p9531 Refer to: C01714		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>Note:</b>	SLS: Safely-Limited Speed		
<b>p9342</b>	<b>SI Motion act. val. comparison tolerance (crossw.) (processor 2) / SI Mtn actV tol P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0010 [°]	<b>Max</b> 360.0000 [°]	<b>Factory setting</b> 12.0000 [°]
<b>Description:</b>	Sets the tolerance for the crosswise data comparison of the actual position between processors 1 and 2.		
<b>Dependency:</b>	Refer to: p9542 Refer to: C01711		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>Note:</b>	For a linear axis, the tolerance is internally limited to 10 mm. For a "linear axis with rotating motor" and standard setting of p9320, p9321 and p9322, the standard setting of p9342 corresponds to a position tolerance of 36 ° on the motor side.		
<b>p9345</b>	<b>SI Motion SSM filter time (processor 2) / SI Mtn SSM filt P2</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_DP_F			
CU240E-2_PN_F			
	<b>Min</b> 0.00 [µs]	<b>Max</b> 100000.00 [µs]	<b>Factory setting</b> 0.00 [µs]
<b>Description:</b>	Sets the filter time for the SSM feedback signal to detect standstill.		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>Note:</b>	The filter time is effective only if the function is enabled (p9301.16 = p9501.16 = 1). The parameter is included in the crosswise data comparison of the two monitoring channels. SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		

<b>p9346</b>	<b>SI Motion SSM velocity limit (processor 2) / SI Mtn SSM v_limP2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0.00 [rpm]	100000.00 [rpm]	20.00 [rpm]

**Description:** Sets the velocity limit for the SSM feedback signal to detect standstill ( $n < n_x$ ).  
When this limit value is undershot, the signal "SSM feedback signal active" is set.

**Dependency:** Refer to: p9546

**Caution:** The following applies for p9306 = 3:



The "SAM" function is switched out if the selected threshold value is undershot.

**Notice:** This parameter is overwritten by the copy function of the safety functions integrated in the drive.

**Note:** SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

<b>p9347</b>	<b>SI Motion SSM velocity hysteresis (processor 2) / SI Mtn SSM Hyst P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_PN_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0.0010 [rpm]	500.0000 [rpm]	10.0000 [rpm]

**Description:** Sets the velocity hysteresis for the SSM feedback signal to detect standstill ( $n < n_x$ ).

**Dependency:** Refer to: C01711

**Notice:** This parameter is overwritten by the copy function of the safety functions integrated in the drive.

**Note:** The velocity hysteresis is effective only if the function is enabled ( $p9301.16 = p9501.16 = 1$ ).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

<b>p9348</b>	<b>SI Motion SAM actual velocity tolerance (processor 2) / SI mtn SAM tol P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0.00 [rpm]	120000.00 [rpm]	300.00 [rpm]

**Description:** Sets the velocity tolerance for the "SAM" function.

**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:** SAM: Safe Acceleration Monitor (safe acceleration monitoring)

<b>p9351</b>	<b>SI Motion SLS changeover delay time (processor 2) / SI Mtn SLS t P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [µs]	<b>Max</b> 600000000.00 [µs]	<b>Factory setting</b> 100000.00 [µs]
<b>Description:</b>	Sets the delay time for the SLS changeover for the function "safely limited speed" (SLS). When transitioning from a higher to a lower safely-limited velocity/speed stage, within this delay time, the "old" velocity stage remains active. Even if SLS is activated from the state "SLS in active", then this delay is still applied.		
<b>Dependency:</b>	Refer to: p9551		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>Note:</b>	SLS: Safely-Limited Speed		
<b>p9356</b>	<b>SI Motion pulse suppression delay time (processor 2) / SI Mtn IL t_del P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [µs]	<b>Max</b> 3600000000.00 [µs]	<b>Factory setting</b> 600000000.00 [µs]
<b>Description:</b>	Sets the delay time for the safe pulse suppression after STOP B / SS1. In the case of encoderless motion monitoring functions with safe brake ramp monitoring (p9306 = 1) and the OFF3 ramp enabled at the same time (p9507.3 = 0), the parameter has no effect.		
<b>Dependency:</b>	Refer to: p9360, p9556 Refer to: C01701		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>Note:</b>	SS1: Safe Stop 1		
<b>p9358</b>	<b>SI Motion acceptance test mode time limit (processor 2) / SI Mtn acc t P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5000000.00 [µs]	<b>Max</b> 100000000.00 [µs]	<b>Factory setting</b> 40000000.00 [µs]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: p9558 Refer to: C01799		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>p9360</b>	<b>SI Motion pulse suppression shutdown speed (processor 2) / SI Mtn IL n_sh P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.00 [rpm]	<b>Max</b> 6000.00 [rpm]	<b>Factory setting</b> 10.00 [rpm]
<b>Description:</b>	Sets the shutdown speed for the pulse suppression. Below this speed "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).		
<b>Dependency:</b>	Refer to: p9356, p9560		

**Notice:** This parameter is overwritten by the copy function of the safety functions integrated in the drive.

**Note:** SS1: Safe Stop 1

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### p9363[0...3] SI Motion SLS stop response (processor 2) / SI Mtn SLS stop P2

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0

**Description:** Sets the stop response for the function "Safely-Limited Speed" (SLS).  
These settings apply to the individual limit values for SLS.

**Value:**  
0: STOP A  
1: STOP B

**Index:**  
[0] = Limit value SLS1  
[1] = Limit value SLS2  
[2] = Limit value SLS3  
[3] = Limit value SLP4

**Dependency:** Refer to: p9331, p9563

**Notice:** This parameter is overwritten by the copy function of the safety functions integrated in the drive.

**Note:** SLS: Safely-Limited Speed

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### p9364 SI Motion SDI tolerance (processor 2) / SI Mtn SDI tol P2

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.001 [°]	<b>Max</b> 360.000 [°]	<b>Factory setting</b> 12.000 [°]

**Description:** Sets the tolerance for the function "Safe motion direction" (SDI).  
This motion in the monitored direction is still permissible before safety message C30716 is initiated.

**Dependency:** Refer to: p9365, p9366  
Refer to: C30716

**Notice:** This parameter is overwritten by the copy function of the safety functions integrated in the drive.

**Note:** SDI: Safe Direction (safe motion direction)

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### p9365 SI Motion SDI delay time (processor 2) / SI Mtn SDI t P2

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [µs]	<b>Max</b> 600000000.00 [µs]	<b>Factory setting</b> 100000.00 [µs]

**Description:** Sets the delay time for the function "Safe motion direction" (SDI). When selecting the SDI function, motion in the monitored direction is permissible as a maximum for this time; this means that this time can be used for braking existing motion.

**Dependency:** Refer to: p9364, p9366  
Refer to: C30716

**Notice:** This parameter is overwritten by the copy function of the safety functions integrated in the drive.

**Note:** SDI: Safe Direction (safe motion direction)

<b>p9366</b>	<b>SI Motion SDI stop response (processor 2) / SI Mtn SDI Stop P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 1
<b>Description:</b>	Sets the stop response for the function "Safe motion direction" (SDI). This setting applies to both directions of motion. In the case of encoderless motion monitoring (p9306 = 1), only a value of 0 or 1 is permitted.		
<b>Value:</b>	0: STOP A 1: STOP B		
<b>Dependency:</b>	Refer to: p9364, p9365 Refer to: C30716		
<b>Note:</b>	SDI: Safe Direction (safe motion direction)		
<b>p9368</b>	<b>SI Motion SAM velocity limit (processor 2) / SI Mtn SAM v_limP2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 1000.00 [rpm]	<b>Factory setting</b> 0.00 [rpm]
<b>Description:</b>	Sets the velocity tolerance limit for the "SAM" function. SAM is de-activated once the set velocity limit has been undershot.		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>Note:</b>	SAM: Safe Acceleration Monitor (safe acceleration monitoring) SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) For p9568 = p9368 = 0, the following applies: The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.		
<b>p9370</b>	<b>SI Motion acceptance test mode (processor 2) / SI Mtn acc_mod P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0000 hex	<b>Max</b> 00AC hex	<b>Factory setting</b> 0000 hex
<b>Description:</b>	Setting to select and de-select the acceptance test mode.		
<b>Value:</b>	0: [00 hex] De-select the acceptance test mode 172: [AC hex] Select the acceptance test mode		
<b>Dependency:</b>	Refer to: p9358, r9371 Refer to: C01799		
<b>Note:</b>	Acceptance test mode can only be selected if the motion monitoring functions, which are integrated in the drives, are enabled (p9601.2/p9801.2).		
<b>r9371</b>	<b>SI Motion acceptance test status (processor 2) / SI Mtn acc_stat P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0000 hex	<b>Max</b> 00AC hex	<b>Factory setting</b> -
<b>Description:</b>	Displays the status of the acceptance test mode.		

<b>Value:</b>	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
<b>Dependency:</b>	Refer to: p9358, p9370
	Refer to: C01799

<b>p9381</b>	<b>SI Motion brake ramp reference value (processor 2) / SI Mtn ramp ref P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 600.0000 [rpm]	<b>Max</b> 240000.0000 [rpm]	<b>Factory setting</b> 1500.0000 [rpm]
<b>Description:</b>	Sets the reference value to define the brake ramp. The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).		
<b>Dependency:</b>	Refer to: p9382, p9383		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		

<b>p9382</b>	<b>SI Motion brake ramp delay time (processor 2) / SI Mtn rp t_del P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10000.00 [μs]	<b>Max</b> 99000000.00 [μs]	<b>Factory setting</b> 250000.00 [μs]
<b>Description:</b>	Sets the delay time for monitoring the brake ramp. Monitoring of the brake ramp starts once the delay time has elapsed.		
<b>Dependency:</b>	Refer to: p9381, p9383		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		

<b>p9383</b>	<b>SI Motion brake ramp monitoring time (processor 2) / SI Mtn rp t_mon P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 500.00 [ms]	<b>Max</b> 3600000.00 [ms]	<b>Factory setting</b> 10000.00 [ms]
<b>Description:</b>	Sets the monitoring time to define the brake ramp. The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).		
<b>Dependency:</b>	Refer to: p9381, p9382		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		

<b>p9385</b>	<b>SI Motion fault tolerance actual value sensing sensorless (MM) / SI mtn SI to si MM</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -1	<b>Max</b> 4	<b>Factory setting</b> -1
<b>Description:</b>	Sets the tolerance of the plausibility monitoring of the current and voltage angle p9385 = 4 must be parameterized for synchronous motors.		
<b>Dependency:</b>	Refer to: p9507 Refer to: C01711, F30681		

<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive. Reducing this value can adversely affect the actual value sensing and the plausibility check. When the value is increased, this results in a longer evaluation delay.		
<b>Note:</b>	This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3). For a value of -1, for synchronous motors, the value 4 is used automatically for the calculation – and for induction motors, the value 0.		
<b>p9386</b>	<b>SI Motion delay time of the evaluation sensorless (processor 2) / SI mtn t_del SL P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5.00 [ms]	<b>Max</b> 1000.00 [ms]	<b>Factory setting</b> 100.00 [ms]
<b>Description:</b>	Sets the evaluation delay for encoderless actual value sensing after pulse enable. The value should be greater than or equal to the motor magnetizing time.		
<b>Dependency:</b>	Refer to: C30711		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive. If this value is reduced, this can have a negative impact on the actual value acquisition and plausibility check – and result in Safety message C30711 with the message value 1041 or 1042. When the value is increased, this results in a longer evaluation delay.		
<b>Note:</b>	This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).		
<b>p9387</b>	<b>SI Motion encoderless act val sensing filter time (processor 2) / SI Mtn SL filt P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [µs]	<b>Max</b> 100000.00 [µs]	<b>Factory setting</b> 25000.00 [µs]
<b>Description:</b>	Sets the filter time for smoothing the actual value with sensorless actual value sensing.		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
<b>p9388</b>	<b>SI Motion actual value sensing minimum current (processor 2) / SI Mtn SL I_min P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 1000.00 [%]	<b>Factory setting</b> 10.00 [%]
<b>Description:</b>	Sets the minimum current for encoderless actual value sensing in reference to 10 mA (i.e. when 1 % = 10 mA). - The value must be increased if C30711 has occurred with message value 1042. - The value must be decreased if C30711 has occurred with message value 1041.		
<b>Dependency:</b>	Refer to: C30711		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive. Reducing this percentage value can adversely affect actual value sensing.		
<b>p9389</b>	<b>SI Motion voltage tolerance acceleration (processor 2) / SI Mtn U tol P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.00 [%]	<b>Max</b> 3300.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the voltage tolerance for suppressing acceleration peaks.		



An increase in this percentage value means that voltage peaks will need to have a higher amplitude when accelerating if they are not to affect actual value sensing.

- The value must be increased if C30711 with message value 1042 has occurred.

- The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.

**Dependency:**

Refer to: C30711

**Notice:**

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

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**r9398[0...1] SI Motion actual checksum SI parameters (processor 2) / SI Mtn act CRC P2**


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CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32

CU240E-2\_F **Can be changed:** - **Scaling:** - **Data set:** -

CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

Min	Max	Factory setting
-	-	-

**Description:** Displays the checksum over the checked Safety Integrated parameters of the motion monitoring functions (actual checksum) on processor 2.

**Index:** [0] = Checksum over SI parameters for motion monitoring  
[1] = Checksum over SI parameters with hardware reference

**Dependency:** Refer to: p9399

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**p9399[0...1] SI Motion setpoint checksum SI parameters (processor 2) / SI Mtn setp CRC P2**


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CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32

CU240E-2\_F **Can be changed:** C(95) **Scaling:** - **Data set:** -

CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

**Description:** Sets the checksum over the checked Safety Integrated parameters of the motion monitoring functions (actual checksum) on processor 2.

**Index:** [0] = Checksum over SI parameters for motion monitoring  
[1] = Checksum over SI parameters with hardware reference

**Dependency:** Refer to: r9398

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**p9400 Safely remove memory card / Mem\_card rem**


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**Access level:** 2 **Calculated:** - **Data type:** Integer16

**Can be changed:** T **Scaling:** - **Data set:** -

**Units group:** - **Unit selection:** -

Min	Max	Factory setting
0	100	0

**Description:** Setting and display when memory card is "removed safely".

Procedure:

Setting p9400 = 2 results in a value of 3

--> The memory card can be removed safely. After removal the value sets itself to 0 automatically.

Setting p9400 = 2 results in a value of 100

--> The memory card cannot be removed safely. Removal may destroy the file system on the memory card. It may be necessary to set p9400 = 2 again.

**Value:** 0: No memory card inserted  
1: Memory card inserted  
2: Request "safe removal" of the memory card  
3: "Safe removal" possible  
100: "Safe removal" not possible due to access

**Dependency:** Refer to: r9401

**Caution:** Removing the memory card without a request (p9400 = 2) and confirmation (p9400 = 3) may destroy the file system on the memory card. The memory card will then no longer work properly and must be repaired.

**Note:** The status when the memory card is being "removed safely" is shown in r9401.  
Re value = 0, 1, 3, 100:  
These values can only be displayed, not set.

**r9401****Safely remove memory card status / Mem\_card rem stat**

<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the status of the memory card.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Memory card inserted	Yes	No	-
	01	Memory card activated	Yes	No	-
	02	SIEMENS memory card	Yes	No	-
	03	Memory card as USB data storage medium from the PC used	Yes	No	-

**Dependency:** Refer to: p9400

**Note:** Re bit 00 and bit 01:  
Bit 1/0 = 0/0: No memory card inserted (corresponds to p9400 = 0).  
Bit 1/0 = 0/1: "Safe removal" possible (corresponds to p9400 = 3).  
Bit 1/0 = 1/0: Status not possible.  
Bit 1/0 = 1/1: Memory card inserted (corresponds to p9400 = 1, 2, 100).  
Re bit 00 and bit 02:  
Bit 2/0 = 0/0: No memory card inserted.  
Bit 2/0 = 0/1: No memory card inserted, but not a SIEMENS memory card  
Bit 2/0 = 1/0: Status not possible.  
Bit 2/0 = 1/1: SIEMENS memory card inserted.

**r9406[0...19]****PS file parameter number parameter not transferred / PS par\_no n transf**

<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the parameters that were not able to be transferred when reading the parameter back-up files (PS files) from the non-volatile memory (e.g. memory card).

r9406[0] = 0

--> All of the parameter values were able to be transferred error-free.

r9406[0...x] > 0

--> indicates the parameter number in the following cases:

- parameter, whose value was not able to be completely accepted.

- indexed parameter, where at least 1 index was not able to be accepted. 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

<b>r9407[0...19]</b>	<b>PS file parameter index parameter not transferred / PS parameter index</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	<p>Displays the first index of the parameters that could not be transferred when the parameter backup files (PS files) were read from the non-volatile memory (e.g. memory card).</p> <p>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].</p> <p>r9406[0] = 0</p> <p>--&gt; All of the parameter values were able to be transferred error-free.</p> <p>r9406[n] &gt; 0</p> <p>--&gt; Displays r9407[n] the first index of the parameter number r9406[n] that was not transferred.</p>		
<b>Dependency:</b>	Refer to: r9406, r9408		
<b>Note:</b>	<p>All indices from r9406 to r9408 designate the same parameter.</p> <p>r9406[x] parameter number, parameter not accepted</p> <p>r9407[x] parameter index, parameter not accepted</p> <p>r9408[x] fault code, parameter not accepted</p>		
<b>r9408[0...19]</b>	<b>PS file fault code parameter not transferred / PS fault code</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Only for internal Siemens service purposes.		
<b>Dependency:</b>	Refer to: r9406, r9407		
<b>Note:</b>	<p>All indices from r9406 to r9408 designate the same parameter.</p> <p>r9406[x] parameter number, parameter not accepted</p> <p>r9407[x] parameter index, parameter not accepted</p> <p>r9408[x] fault code, parameter not accepted</p>		
<b>r9409</b>	<b>Number of parameters to be saved / Qty par to save</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the number of modified parameters and those that have still not be saved for this drive object.		
<b>Dependency:</b>	Refer to: p0971		
<b>Notice:</b>	<p>Inherent to the system, the list of the parameters to be backed up is empty after the following actions:</p> <ul style="list-style-type: none"> <li>- Download</li> <li>- Warm restart</li> <li>- Factory setting</li> </ul> <p>In these cases, a new parameter backup must be initiated, which is then the starting point for the list of modified parameters.</p>		
<b>Note:</b>	The modified parameters that still need to be saved are internally listed in r9410 ... r9419.		

<b>r9451[0...29]</b>	<b>Units changeover adapted parameters / Unit_chngov par</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the parameters whose parameter would have to be changed during a units changeover.		
<b>Dependency:</b>	Refer to: F07088		
<b>r9463</b>	<b>Actual macro / Actual macro</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	999999	-
<b>Description:</b>	Displays the set valid macro.		
<b>Note:</b>	A value of 0 is displayed if a parameter set by a macro is changed.		
<b>p9484</b>	<b>BICO interconnections search signal source / BICO S_src srch</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	4294967295	0
<b>Description:</b>	Sets the signal source (BO/CO parameter, BICO coded) to search in the signal sinks. The signal source to be searched for is set in p9484 (BICO-coded) and the search result is specified using the number (r9485) and the first index (r9486).		
<b>Dependency:</b>	Refer to: r9485, r9486		
<b>r9485</b>	<b>BICO interconnections signal source search count / BICO S_src srchQty</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the number of BICO interconnections to the signal sink being searched for.		
<b>Dependency:</b>	Refer to: p9484, r9486		
<b>Note:</b>	The signal source to be searched is set in p9484 (BICO-coded). The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).		
<b>r9486</b>	<b>BICO interconnections signal source search first index / BICO S_src srchIdx</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the first index of the signal source being searched for. The signal source to be searched for is set in p9484 (BICO-coded) and the search result is specified using the number (r9485) and the first index (r9486).		
<b>Dependency:</b>	Refer to: p9484, r9485		

**Note:** The signal source to be searched is set in p9484 (BICO-coded).  
The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

<b>p9501</b>		<b>SI Motion enable safety functions (processor 1) / SI Mtn enable P1</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32	
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -	
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -		
CU240E-2_DP_F				
CU240E-2_PN_F				
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
	-	-	0000 0000 0000 0000 0000 0000	
			0000 0000 bin	

**Description:** Sets the enable signals for the safe motion monitoring.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable SI Motion	Enable	Inhibit	-
	16	Enable SSM hysteresis and filtering	Enable	Inhibit	2860
	17	Enable SDI	Enable	Inhibit	2861
	30	Enable F-DI in PROFIsafe telegram	Enable	Inhibit	-

**Dependency:** Refer to: F01682, F01683

**Note:** For bit 30 = 1, PROFIsafe telegram 900 must be configured in the F host.

A change only becomes effective after a POWER ON.

F-DI: Failsafe Digital Input

SDI: Safe Direction (safe motion direction)

SLS: Safely-Limited Speed

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

<b>p9501</b>		<b>SI Motion enable safety functions (processor 1) / SI Mtn enable P1</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32	
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -	
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -		
CU240E-2_F				
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
	-	-	0000 0000 0000 0000 0000 0000	
			0000 0000 bin	

**Description:** Sets the enable signals for the safe motion monitoring.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable SI Motion	Enable	Inhibit	-
	17	Enable SDI	Enable	Inhibit	2861

**Dependency:** Refer to: F01682, F01683

**Note:** For bit 30 = 1, PROFIsafe telegram 900 must be configured in the F host.

A change only becomes effective after a POWER ON.

F-DI: Failsafe Digital Input

SDI: Safe Direction (safe motion direction)

SLS: Safely-Limited Speed

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

<b>p9506</b>		<b>SI Motion function specification (processor 1) / SI Mtn fct_spc P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16	
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -	
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -		
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
	1	3	1	

**Description:** Sets the function specification for the safe motion monitoring.

**Value:** 1: Safety without encoder with braking ramp (SBR)  
3: Safety without encoder with accel\_monitoring(SAM) / delay time

**Dependency:** Refer to: C01711

**p9507 SI Motion function configuration (processor 1) / SI Mtn config P1**

PM240 **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 PM250 **Can be changed:** C(95) **Scaling:** - **Data set:** -  
 PM260 **Units group:** - **Unit selection:** -  
 CU240E-2\_DP\_F  
 CU240E-2\_F  
 CU240E-2\_PN\_F

Min	Max	Factory setting
-	-	0011 bin

**Description:** Sets the function configuration for safe motion monitoring.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Extended message acknowledgement	Yes	No	-
	01	Setpoint velocity limit for STOP F	No	Yes	-

**Dependency:** Refer to: C01711

**Note:** Re bit 00:  
When the function is activated, a safety-relevant acknowledgement (internal event acknowledge) can be performed by selecting/deselecting STO.  
Re bit 01:  
When the function is activated, the active setpoint velocity limit (CO: r9733) is set to zero when STOP F is active.

**p9509 SI Motion behavior during pulse suppression (processor 1) / SI Mtn behav IL P1**

PM240 **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 PM250 **Can be changed:** C(95) **Scaling:** - **Data set:** -  
 PM260 **Units group:** - **Unit selection:** -  
 CU240E-2\_DP\_F  
 CU240E-2\_PN\_F

Min	Max	Factory setting
-	-	0000 0000 1111 1111 bin

**Description:** Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SSM during pulse suppression and sensorless	Becomes inactive	Remains active	-
	08	SDI during pulse suppression and sensorless	Becomes inactive	Remains active	-

**Dependency:** Refer to: C01711

**Notice:** Re bit 00:  
If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.

**Note:** SDI: Safe Direction (safe motion direction)  
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)  
Re bit 00:  
For bit = 1 and with the SSM safety function activated, the following applies:  
- During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.  
For bit = 0 and with the SSM safety function activated, the following applies:  
- Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.

Re bit 08:

For bit = 1 and with the SDI safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the status signal indicates inactive.

For bit = 0 and with the SDI safety function activated, the following applies:

- Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.

p9509 SI Motion behavior during pulse suppression (processor 1) / SI Mtn behav IL P1					
PM240	Access level: 3		Calculated: -	Data type: Unsigned32	
PM250	Can be changed: C(95)		Scaling: -	Data set: -	
PM260	Units group: -		Unit selection: -		
CU240E-2_F					
	Min		Max	Factory setting	
	-		-	0000 0000 1111 1111 bin	
Description:	Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	SDI during pulse suppression and sensor-less	Becomes inactive	Remains active	-
Dependency:	Refer to: C01711				
Notice:	Re bit 00:  If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.				
Note:	SDI: Safe Direction (safe motion direction)  SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)  Re bit 00:  For bit = 1 and with the SSM safety function activated, the following applies: - During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.  For bit = 0 and with the SSM safety function activated, the following applies: - Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.  Re bit 08:  For bit = 1 and with the SDI safety function activated, the following applies: - During pulse suppression, monitoring is switched off and the status signal indicates inactive.  For bit = 0 and with the SDI safety function activated, the following applies: - Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.				

p9521[0...7] SI Motion gearbox motor/load denominator (processor 1) / SI Mtn gear den P1			
CU240E-2_DP_F	Access level: 3	Calculated: -	Data type: Unsigned32
CU240E-2_F	Can be changed: C(95)	Scaling: -	Data set: -
CU240E-2_PN_F	Units group: -	Unit selection: -	
	Min	Max	Factory setting
	1	2147000000	1
Description:	Sets the denominator for the gearbox between the motor and the load.		
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

**Notice:** It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.

### p9522[0...7] SI Motion gearbox motor/load numerator (processor 1) / SI Mtn gear num P1

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32

CU240E-2\_F **Can be changed:** C(95) **Scaling:** - **Data set:** -

CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
1	2147000000	1

**Description:** Sets the numerator for the gearbox between the motor and the load.

**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

**Notice:** It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.

**Note:** In the case of encoderless monitoring functions, the pole pair number must be multiplied by the numerator of the gearbox ratio.

Example:

Gearbox ratio 1:4, pole pair number (r0313) = 2

--> p9521 = 1, p9522 = 8 (4 x 2)

### p9531[0...3] SI Motion SLS limit values (processor 1) / SI Mtn SLS lim P1

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** FloatingPoint32

CU240E-2\_F **Can be changed:** C(95) **Scaling:** - **Data set:** -

CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0.01 [rpm]	100000.00 [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: p9563

Refer to: C01714

**Note:** SLS: Safely-Limited Speed

### p9533 SI Motion SLS setpoint speed limit (processor 1) / SI Mtn SLS set\_lim

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** FloatingPoint32

CU240E-2\_F **Can be changed:** U, T **Scaling:** - **Data set:** -

CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0.000 [%]	100.000 [%]	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.

**Dependency:** This parameter only has to be parameterized for the motion monitoring functions integrated in the drive (p9601.2 = 1)

r9733[0] = p9531[x] x p9533 (converted from the load side to the motor side)

r9733[1] = - p9531[x] x p9533 (converted from the load side to the motor side)

[x] = Selected SLS stage



Conversion factor from the motor side to the load side:

- motor type = rotary and axis type = linear:  $p9522 / (p9521 \times p9520)$

- otherwise:  $p9522 / p9521$

Refer to: p9501, p9531, p9601

**Note:**

The active actual speed limit is selected via PROFIsafe.

With STOP A, B, setpoint 0 is specified in r9733.

If p9533 = 0 is set, the setpoint speed limit is de-activated, and r9733[0] = p1082 and r9733[1] = -p1082 are set

SLS: Safely-Limited Speed

**p9542****SI Motion act. val. comparison tolerance (crossw.) (processor 1) / SI Mtn act tol P1**

CU240E-2\_DP\_F

**Access level:** 3**Calculated:** -**Data type:** FloatingPoint32

CU240E-2\_F

**Can be changed:** C(95)**Scaling:** -**Data set:** -

CU240E-2\_PN\_F

**Units group:** -**Unit selection:** -**Min**

0.0010 [°]

**Max**

360.0000 [°]

**Factory setting**

12.0000 [°]

**Description:**

Sets the tolerance for the crosswise data comparison of the actual position between processors 1 and 2.

**Dependency:**

Refer to: C01711

**Note:**

For a linear axis, the tolerance is internally limited to 10 mm.

For a "linear axis with rotating motor" and standard setting of p9520, p9521 and p9522, the standard setting of p9542 corresponds to a position tolerance of 36 ° on the motor side.

**p9545****SI Motion SSM filter time (processor 1) / SI Mtn SSM filt P1**

PM240

**Access level:** 3**Calculated:** -**Data type:** FloatingPoint32

PM250

**Can be changed:** C(95)**Scaling:** -**Data set:** -

PM260

**Units group:** -**Unit selection:** -

CU240E-2\_DP\_F

**Min**

0.00 [ms]

**Max**

100.00 [ms]

**Factory setting**

0.00 [ms]

**Description:**

Sets the filter time for the SSM feedback signal to detect standstill.

**Note:**

The filter time is effective only if the function is enabled (p9501.16 = 1).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

**p9546****SI Motion SSM velocity limit (processor 1) / SI Mtn SSM v\_limP1**

CU240E-2\_DP\_F

**Access level:** 3**Calculated:** -**Data type:** FloatingPoint32

CU240E-2\_F

**Can be changed:** C(95)**Scaling:** -**Data set:** -

CU240E-2\_PN\_F

**Units group:** -**Unit selection:** -**Min**

0.00 [rpm]

**Max**

100000.00 [rpm]

**Factory setting**

20.00 [rpm]

**Description:**

Sets the velocity limit for the SSM feedback signal to detect standstill ( $n < n_x$ ).

When this limit value is undershot, the signal "SSM feedback signal active" is set.

**Caution:**

The following applies for p9506 = 3:

The "SAM" function is switched out if the selected threshold value is undershot.

**Note:**

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

<b>p9547</b>	<b>SI Motion SSM velocity hysteresis (processor 1) / SI Mtn SSM hyst P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_PN_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.0010 [rpm]	<b>Max</b> 500.0000 [rpm]	<b>Factory setting</b> 10.0000 [rpm]
<b>Description:</b>	Sets the velocity hysteresis for the SSM feedback signal to detect standstill ( $n < n_x$ ).		
<b>Dependency:</b>	Refer to: C01711		
<b>Note:</b>	<p>The velocity hysteresis is effective only if the function is enabled (<math>p9501.16 = 1</math>).</p> <p>The parameter is included in the crosswise data comparison of the two monitoring channels.</p> <p>SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)</p>		
<b>p9548</b>	<b>SI Motion SAM actual velocity tolerance (processor 1) / SI mtn SAM tol P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 120000.00 [rpm]	<b>Factory setting</b> 300.00 [rpm]
<b>Description:</b>	Sets the velocity tolerance for the "SAM" function.		
<b>Dependency:</b>	Refer to: C01706		
<b>Note:</b>	SAM: Safe Acceleration Monitor (safe acceleration monitoring)		
<b>p9551</b>	<b>SI Motion SLS changeover delay time (processor 1) / SI Mtn SLS t P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 600000.00 [ms]	<b>Factory setting</b> 100.00 [ms]
<b>Description:</b>	<p>Sets the delay time for the SLS changeover for the function "safely limited speed" (SLS).</p> <p>When transitioning from a higher to a lower safely-limited velocity/speed stage, within this delay time, the "old" velocity stage remains active.</p> <p>Even if SLS is activated from the state "SLS in active", then this delay is still applied.</p>		
<b>Note:</b>	SLS: Safely-Limited Speed		
<b>p9556</b>	<b>SI Motion pulse suppression delay time (processor 1) / SI Mtn IL t_del P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 3600000.00 [ms]	<b>Factory setting</b> 600000.00 [ms]
<b>Description:</b>	<p>Sets the delay time for the safe pulse suppression after STOP B.</p> <p>In the case of encoderless motion monitoring functions with safe brake ramp monitoring (<math>p9506 = 1</math>) and the OFF3 ramp enabled at the same time (<math>p9507.3 = 0</math>), the parameter has no effect.</p>		
<b>Dependency:</b>	<p>Refer to: p9560</p> <p>Refer to: C01701</p>		

<b>p9558</b>	<b>SI Motion acceptance test mode time limit (processor 1) / SI Mtn acc t P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5000.00 [ms]	<b>Max</b> 100000.00 [ms]	<b>Factory setting</b> 40000.00 [ms]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: C01799		
<b>p9559</b>	<b>SI Motion forced checking procedure timer (processor 1) / SI Mtn dyn timer</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [h]	<b>Max</b> 9000.00 [h]	<b>Factory setting</b> 8.00 [h]
<b>Description:</b>	Sets the time interval for carrying out the forced checking procedure and testing 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-selection of the "STO" function). This monitoring time is reset each time the test is carried out. The signal source to initiate the forced checking procedure is set in p9705.		
<b>Dependency:</b>	Refer to: p9705 Refer to: A01697, C01798		
<b>Note:</b>	STO: Safe Torque Off		
<b>p9560</b>	<b>SI Motion pulse suppression shutdown speed (processor 1) / SI Mtn IL v_sh P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.00 [rpm]	<b>Max</b> 6000.00 [rpm]	<b>Factory setting</b> 10.00 [rpm]
<b>Description:</b>	Sets the shutdown speed for the pulse suppression. Below this speed "standstill" is assumed and for STOP B, the pulses are suppressed by changing to STOP A).		
<b>Dependency:</b>	Refer to: p9556		
<b>p9563[0...3]</b>	<b>SI Motion SLS-specific stop response (processor 1) / SI Mtn SLS stop P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 0
<b>Description:</b>	Sets the SLS-specific stop response for the function "Safely-Limited Speed" (SLS). These settings apply to the individual limit values for SLS.		
<b>Value:</b>	0: STOP A 1: STOP B		
<b>Index:</b>	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		

**Dependency:** Refer to: p9531  
**Note:** SLS: Safely-Limited Speed

#### p9564 SI Motion SDI tolerance (processor 1) / SI Mtn SDI tol P1

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.001 [°]	<b>Max</b> 360.000 [°]	<b>Factory setting</b> 12.000 [°]

**Description:** Sets the tolerance for the function "Safe motion direction" (SDI).  
This motion in the monitored direction is still permissible before safety message C01716 is initiated.

**Dependency:** Refer to: p9565, p9566  
Refer to: C01716

**Note:** SDI: Safe Direction (safe motion direction)

#### p9565 SI Motion SDI delay time (processor 1) / SI Mtn SDI t P1

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 600000.00 [ms]	<b>Factory setting</b> 100.00 [ms]

**Description:** Sets the delay time for the function "Safe motion direction" (SDI). When selecting the SDI function, motion in the monitored direction is permissible as a maximum for this time; this means that this time can be used for braking existing motion.

**Dependency:** Refer to: p9564, p9566  
Refer to: C01716

**Note:** SDI: Safe Direction (safe motion direction)

#### p9566 SI Motion SDI stop response (processor 1) / SI Mtn SDI Stop P1

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 1	<b>Factory setting</b> 1

**Description:** Sets the stop response for the function "Safe motion direction" (SDI).  
This setting applies to both directions of motion.

**Value:** 0: STOP A  
1: STOP B

**Dependency:** Refer to: p9564, p9565  
Refer to: C01716

**Note:** SDI: Safe Direction (safe motion direction)

#### p9568 SI Motion SAM velocity limit (processor 1) / SI Mtn SAM v\_limP1

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [rpm]	<b>Max</b> 1000.00 [rpm]	<b>Factory setting</b> 0.00 [rpm]

**Description:** Sets the velocity tolerance limit for the "SAM" function.  
SAM is de-activated once the set velocity limit has been undershot.

**Note:** SAM: Safe Acceleration Monitor (safe acceleration monitoring)  
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)  
For p9568 = p9368 = 0, the following applies:  
The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

<b>p9570</b>			
<b>SI Motion acceptance test mode (processor 1) / SI Mtn acc_mod P1</b>			
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0000 hex	<b>Max</b> 00AC hex	<b>Factory setting</b> 0000 hex
<b>Description:</b>	Setting to select and de-select the acceptance test mode.		
<b>Value:</b>	0: [00 hex] De-select the acceptance test mode 172: [AC hex] Select the acceptance test mode		
<b>Dependency:</b>	Refer to: p9558, r9571, p9601 Refer to: C01799		
<b>Note:</b>	Acceptance test mode can only be selected if the motion monitoring functions, which are integrated in the drives, are enabled (p9601.2/p9801.2).		
<b>r9571</b>			
<b>SI Motion acceptance test status (processor 1) / SI Mtn acc_status</b>			
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0000 hex	<b>Max</b> 00AC hex	<b>Factory setting</b> -
<b>Description:</b>	Displays the status of the acceptance test mode.		
<b>Value:</b>	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		
<b>Dependency:</b>	Refer to: p9558, p9570 Refer to: C01799		
<b>p9581</b>			
<b>SI Motion brake ramp reference value (processor 1) / SI Mtn ramp ref P1</b>			
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 600.0000 [rpm]	<b>Max</b> 240000.0000 [rpm]	<b>Factory setting</b> 1500.0000 [rpm]
<b>Description:</b>	Sets the reference value to define the brake ramp. The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).		
<b>Dependency:</b>	Refer to: p9582, p9583		

<b>p9582</b>	<b>SI Motion brake ramp delay time (processor 1) / SI Mtn ramp t P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.00 [ms]	<b>Max</b> 99000.00 [ms]	<b>Factory setting</b> 250.00 [ms]
<b>Description:</b>	Sets the delay time for monitoring the brake ramp. Monitoring of the brake ramp starts once the delay time has elapsed.		
<b>Dependency:</b>	Refer to: p9581, p9583		
<b>p9583</b>	<b>SI Motion brake ramp monitoring time (processor 1) / SI Mtn rp t_mon P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.50 [s]	<b>Max</b> 3600.00 [s]	<b>Factory setting</b> 10.00 [s]
<b>Description:</b>	Sets the monitoring time to define the brake ramp. The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).		
<b>Dependency:</b>	Refer to: p9581, p9582		
<b>p9585</b>	<b>SI Motion fault tolerance actual value sensing sensorless (CU) / SI mtn SI to SL CU</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -1	<b>Max</b> 4	<b>Factory setting</b> -1
<b>Description:</b>	Sets the tolerance of the plausibility monitoring of the current and voltage angle p9585 = 4 must be parameterized for synchronous motors.		
<b>Dependency:</b>	Refer to: r9787 Refer to: F01681, C01711		
<b>Notice:</b>	Reducing this value can adversely affect the actual value sensing and the plausibility check. When the value is increased, this results in a longer evaluation delay.		
<b>Note:</b>	This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3). For a value of -1, for synchronous motors, the value 4 is used automatically for the calculation – and for induction motors, the value 0.		
<b>p9586</b>	<b>SI Motion delay time of the evaluation sensorless (CU) / SI Mtn t_del SL CU</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5.00 [ms]	<b>Max</b> 1000.00 [ms]	<b>Factory setting</b> 100.00 [ms]
<b>Description:</b>	Sets the evaluation delay for encoderless actual value sensing after pulse enable. The value should be greater than or equal to the motor magnetizing time.		
<b>Dependency:</b>	Refer to: C01711		
<b>Notice:</b>	If this value is reduced, this can have a negative impact on the actual value acquisition and plausibility check – and result in Safety message C01711 with the message value 1041 or 1042. When the value is increased, this results in a longer evaluation delay.		
<b>Note:</b>	This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).		

<b>p9587</b>	<b>SI Motion encoderless act val sensing filter time (processor 1) / SI Mtn SL filt P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 100.00 [ms]	<b>Factory setting</b> 25.00 [ms]
<b>Description:</b>	Sets the filter time for smoothing the actual value with sensorless actual value sensing.		
<b>p9588</b>	<b>SI Motion act val sensing sensorless min current (processor 1) / SI Mtn SL I_min P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [%]	<b>Max</b> 1000.00 [%]	<b>Factory setting</b> 10.00 [%]
<b>Description:</b>	Sets the minimum current for encoderless actual value sensing in reference to 10 mA (i.e. when 1 % = 10 mA). - The value must be increased if C01711 has occurred with message value 1042. - The value must be decreased if C01711 has occurred with message value 1041.		
<b>Dependency:</b>	Refer to: r9785 Refer to: C01711		
<b>Notice:</b>	Reducing this percentage value can adversely affect actual value sensing.		
<b>p9589</b>	<b>SI Motion voltage tolerance acceleration (processor 1) / SI Mtn U tol P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 10.00 [%]	<b>Max</b> 3300.00 [%]	<b>Factory setting</b> 100.00 [%]
<b>Description:</b>	Sets the voltage tolerance for suppressing acceleration peaks. An increase in this percentage value means that voltage peaks will need to have a higher amplitude when accelerating if they are not to affect actual value sensing. - The value must be increased if C01711 with message value 1043 has occurred. - The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.		
<b>Dependency:</b>	Refer to: r9784 Refer to: C01711		
<b>r9590[0...3]</b>	<b>SI Motion version safety motion monitoring (processor 1) / SI Mtn version P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the Safety Integrated version for the safe monitoring functions.		
<b>Index:</b>	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch) [3] = Safety Version (hotfix)		
<b>Dependency:</b>	Refer to: r9770		
<b>Note:</b>	Example: r9590[0] = 2, r9590[1] = 60, r9590[2] = 1, r9590[3] = 0 --> SI Motion version V02.60.01.00		

<b>p9601</b>	<b>SI enable, functions integrated in the drive (processor 1) / SI enable fct P1</b>				
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -		
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -			
CU240E-2					
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	0000 bin		
<b>Description:</b>	Sets the enable signals for the safety functions integrated in the drive and the type of selection on processor 1. 0000 hex: Safety functions integrated in the drive inhibited (no safety function). 0001 hex: Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1). 0004 hex: Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9771.5 = 1). 0005 hex: Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9771.5 = 1). 0008 hex: Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1). 0009 hex: Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1). 000C hex: Extended functions are enabled via PROFIsafe (permissible for r9771.4 = 1). 000D hex: Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9771.4 = 1).				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable STO via terminals (processor 1)	Enable	Inhibit	2810
<b>Dependency:</b>	Refer to: r9771, p9801				
<b>Note:</b>	A change only becomes effective after a POWER ON. F-DI: Failsafe Digital Input. STO: Safe Torque Off				

<b>p9601</b>	<b>SI enable, functions integrated in the drive (processor 1) / SI enable fct P1</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_DP_F			
CU240E-2_PN_F			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0000 bin
<b>Description:</b>	Sets the enable signals for the safety functions integrated in the drive and the type of selection on processor 1.		
	0000 hex: Safety functions integrated in the drive inhibited (no safety function).		
	0001 hex: Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1).		
	0004 hex: Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9771.5 = 1).		
	0005 hex: Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9771.5 = 1).		



0008 hex:

Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1).

0009 hex:

Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1).

000C hex:

Extended functions are enabled via PROFIsafe (permissible for r9771.4 = 1).

000D hex:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9771.4 = 1).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable STO via terminals (processor 1)	Enable	Inhibit	2810
	02	Enable drive_integr motion_monitoring functions (processor 1)	Enable	Inhibit	-
	03	Enable PROFIsafe (processor 1)	Enable	Inhibit	-

**Dependency:** Refer to: r9771, p9801

**Note:** A change only becomes effective after a POWER ON.

F-DI: Failsafe Digital Input.

STO: Safe Torque Off

### p9601 SI enable, functions integrated in the drive (processor 1) / SI enable fct P1

PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_DP			
CU240E-2 PN			

Min	Max	Factory setting
-	-	0000 bin

**Description:** Sets the enable signals for the safety functions integrated in the drive and the type of selection on processor 1.

0000 hex:

Safety functions integrated in the drive inhibited (no safety function).

0001 hex:

Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1).

0004 hex:

Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9771.5 = 1).

0005 hex:

Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9771.5 = 1).

0008 hex:

Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1).

0009 hex:

Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1).

000C hex:

Extended functions are enabled via PROFIsafe (permissible for r9771.4 = 1).

000D hex:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9771.4 = 1).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable STO via terminals (processor 1)	Enable	Inhibit	2810
	03	Enable PROFIsafe (processor 1)	Enable	Inhibit	-

**Dependency:** Refer to: r9771, p9801

**Note:** A change only becomes effective after a POWER ON.

F-DI: Failsafe Digital Input.

STO: Safe Torque Off

<b>p9601</b>	<b>SI enable, functions integrated in the drive (processor 1) / SI enable fct P1</b>				
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -		
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -			
CU240E-2_F					
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	0000 bin		
<b>Description:</b>	Sets the enable signals for the safety functions integrated in the drive and the type of selection on processor 1. 0000 hex: Safety functions integrated in the drive inhibited (no safety function). 0001 hex: Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1). 0004 hex: Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9771.5 = 1). 0005 hex: Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9771.5 = 1). 0008 hex: Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1). 0009 hex: Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1). 000C hex: Extended functions are enabled via PROFIsafe (permissible for r9771.4 = 1). 000D hex: Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9771.4 = 1).				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable STO via terminals (processor 1)	Enable	Inhibit	2810
	02	Enable drive_integr motion_monitoring functions (processor 1)	Enable	Inhibit	-
<b>Dependency:</b>	Refer to: r9771, p9801				
<b>Note:</b>	A change only becomes effective after a POWER ON. F-DI: Failsafe Digital Input. STO: Safe Torque Off				

<b>p9610</b>	<b>SI PROFIsafe address (processor 1) / SI PROFIsafe P1</b>			
CU240E-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
CU240E-2_DP_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -	
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -		
CU240E-2 PN				
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
	0000 hex	FFFE hex	0000 hex	
<b>Description:</b>	Sets the PROFIsafe address for processor 1.			
<b>Dependency:</b>	Refer to: p9810			

<b>p9650</b>	<b>SI F-DI changeover tolerance time (processor 1) / SI F-DI_chg tol P1</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0.00 [ms]	<b>Max</b> 2000.00 [ms]	<b>Factory setting</b> 500.00 [ms]
<b>Description:</b>	Sets the tolerance time for the changeover of the failsafe digital input for STO on processor 1. An F-DI changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an F-DI changeover, dynamic data is not subject to a crosswise data comparison during this tolerance time.		
<b>Dependency:</b>	Refer to: p9850		
<b>Note:</b>	For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is rounded internally to an integer multiple of the monitoring clock cycle. F-DI: Failsafe Digital Input		
<b>p9651</b>	<b>SI STO debounce time (processor 1) / SI STO t_debou P1</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0.00 [ms]	<b>Max</b> 100.00 [ms]	<b>Factory setting</b> 1.00 [ms]
<b>Description:</b>	Sets the debounce time for the failsafe digital inputs used to control the "STO" function. The debounce time is rounded to whole milliseconds.		
<b>Note:</b>	The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe digital inputs with no reaction/influence on the selection or deselection of the Safety Basic Functions. Example: Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed. Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed.		
<b>p9659</b>	<b>SI forced checking procedure timer / SI FCP Timer</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0.00 [h]	<b>Max</b> 9000.00 [h]	<b>Factory setting</b> 8.00 [h]
<b>Description:</b>	Sets the time interval for carrying out the forced checking procedure and testing the Safety shutdown paths. 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.		
<b>Dependency:</b>	Refer to: A01699		
<b>Note:</b>	STO: Safe Torque Off		

<b>r9660</b>	<b>SI forced checking procedure remaining time / SI frc chk remain</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> - [h]	<b>Max</b> - [h]	<b>Factory setting</b> - [h]
<b>Description:</b>	Displays the time remaining before dynamization and testing of the safety shutdown paths (forced checking procedure).		
<b>Dependency:</b>	Refer to: A01699		
<b>p9700</b>	<b>SI copy function / SI copy function</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> C(95), U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0000 hex	<b>Max</b> 00D0 hex	<b>Factory setting</b> 0000 hex
<b>Description:</b>	Setting to start the required copy function. After starting, the corresponding parameters are copied from processor 1 to processor 2. Once copying is complete, the parameter is automatically reset to zero.		
<b>Value:</b>	0: [00 hex] Copy function ended 29: [1D hex] Start copy function node identifier 87: [57 hex] Start copy function SI parameters 208: [D0 hex] Start copy function SI basic parameters		
<b>Dependency:</b>	Refer to: r3996		
<b>Notice:</b>	When the parameters are copied, short-term communication interruptions may occur.		
<b>Note:</b>	Re value = 57 hex and D0 hex: The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered. Re value = D0 hex: The following parameters are copied after starting the copy function: p9601 --> p9801, p9610 --> 9810, p9650 --> p9850, p9651 --> p9851		
<b>p9701</b>	<b>Acknowledge SI data change / Ackn SI data</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_DP	<b>Can be changed:</b> C(95), U, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0000 hex	<b>Max</b> 00EC hex	<b>Factory setting</b> 0000 hex
<b>Description:</b>	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 zero.		
<b>Value:</b>	0: [00 hex] Data unchanged 172: [AC hex] Acknowledge data change complete 220: [DC hex] Acknowledge SI basic parameter change 236: [EC hex] Acknowledge hardware CRC		

**Dependency:** Refer to: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899

**Note:** Re value = AC and DC hex:

These values can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

<b>p9705</b>	<b>BI: SI Motion: Test stop signal source / SI Mtn test stop</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0

**Description:** Sets the signal source for the test stop of the safety-relevant motion monitoring functions.

<b>r9708[0...4]</b>	<b>SI Motion diagnostics safe position / SI mtn safe pos</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	- [°]	- [°]	- [°]

**Description:** Displays the actual load-side actual values of both monitoring channels and their difference.

**Index:**  
 [0] = Load-side actual value on the CU  
 [1] = Load-side actual value on the second channel  
 [2] = Load-side actual value difference CU - second channel  
 [3] = Load-side max. actual value difference CU - second channel  
 [4] = Load-side actual value as safe position via PROFIsafe

**Dependency:** Refer to: r9713

**Note:** Re index 0:

The display of the load-side position actual value on processor 1 is updated in the monitoring clock cycle.

Re index 1:

The display of the load-side position actual value on processor 2 is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 2:

The difference between the load-side position actual value on processor 1 and load-side position actual value on processor 2 is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 3:

The maximum difference between the load-side position actual value on processor 1 and the load-side position actual value on processor 2.

Re index 4:

The content corresponds to the value in index 0.

CDC: Crosswise Data Comparison

<b>r9710[0...1]</b>	<b>SI Motion diagnostics result list 1 / SI Mtn res_list 1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays result list 1 that, for the crosswise data comparison between the monitoring channels, led to the fault.

**Index:**  
 [0] = Result list processor 2  
 [1] = Result list processor 1

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	06	Actual value > upper limit, SLS1	Yes	No	-
	07	Actual value > lower limit, SLS1	Yes	No	-
	08	Actual value > upper limit, SLS2	Yes	No	-

09	Actual value > lower limit, SLS2	Yes	No	-
10	Actual value > upper limit, SLS3	Yes	No	-
11	Actual value > lower limit, SLS3	Yes	No	-
12	Actual value > upper limit, SLS4	Yes	No	-
13	Actual value > lower limit, SLS4	Yes	No	-
16	Actual value > upper limit, SAM/SBR	Yes	No	-
17	Actual value > lower limit, SAM/SBR	Yes	No	-
18	Actual value > upper limit SDI positive	Yes	No	-
19	Actual value > lower limit SDI positive	Yes	No	-
20	Actual value > upper limit SDI negative	Yes	No	-
21	Actual value > lower limit SDI negative	Yes	No	-

**Dependency:** Refer to: C01711

**Note:** SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SBR: Safe Brake Ramp (safe brake ramp monitoring)

SLS: Safely-Limited Speed

#### **r9712 CO: SI Motion diagnostics pos. act. val. motor side (processor 1) / SI Mtn s\_act motP1**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the actual motor-side position actual value for the motion monitoring functions on processor 1. The "milledegrees" unit applies.

**Note:** The display is updated in the safety monitoring clock cycle.

#### **r9713[0...4] CO: SI Motion diagnostics position actual value load side / SI Mtn s\_act load**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the actual load-side actual values of both monitoring channels and their difference. The "milledegrees" unit applies.

**Index:**  
 [0] = Load-side actual value on processor 1 (P1)  
 [1] = Load-side actual value on processor 2 (P2)  
 [2] = Load-side actual value difference P1 - P2  
 [3] = Load-side maximum actual value difference P1 - P2  
 [4] = Load-side actual value as safe position via PROFIsafe

**Dependency:** Refer to: r9708, r9724

**Note:** The value of this parameter is displayed in r9708 with units (mm or degrees).

The display is updated in the safety monitoring clock cycle.

Re index 0:

The display of the load-side position actual value on processor 1 is updated in the monitoring clock cycle.

Re index 1:

The display of the load-side position actual value on processor 2 is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 2:

The difference between the load-side position actual value on processor 1 and load-side position actual value on processor 2 is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 3:

The maximum difference between the load-side position actual value on processor 1 and the load-side position actual value on processor 2.

Re index 4:

The content corresponds to the value in index 0.

CDC: Crosswise Data Comparison

<b>r9714[0...2]</b>	<b>CO: SI Motion diagnostics velocity (processor 1) / SI Mtn diag v P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [rpm]	<b>Max</b> - [rpm]	<b>Factory setting</b> - [rpm]
<b>Description:</b>	Displays the actual velocity values for the motion monitoring functions on processor 1.		
<b>Index:</b>	[0] = Load-side velocity actual value on processor 1 [1] = Actual SAM/SBR velocity limit on processor 1 [2] = Actual SLS velocity limit on the processor 1		
<b>Dependency:</b>	Refer to: r9732		
<b>Notice:</b>	Re index 2: This SLS velocity limit can, as a result of conversion into the internal monitoring format, deviate from the specified SLS velocity limit (see r9732).		
<b>Note:</b>	The display is updated in the safety monitoring clock cycle.		

<b>r9720.0...13</b>	<b>CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW</b>				
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
CU240E-2_PN_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Control signals for safety-relevant motion monitoring functions integrated in the drive.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	De-select STO	Yes	No	-
	01	De-select SS1	Yes	No	-
	04	De-select SLS	Yes	No	-
	06	Deselect SLP	Yes	No	2822
	07	Acknowledgement	Signal edge active	No	-
	09	Select SLS bit 0	Set	Not set	-
	10	Select SLS bit 1	Set	Not set	-
	12	Deselect SDI positive	Yes	No	2861
	13	Deselect SDI negative	Yes	No	2861
<b>Note:</b>	This parameter is only supplied with actual values if SI Motion functions are active. For Safety Integrated Basic Functions (STO), the value is equal to zero.				

<b>r9720.0...13</b>	<b>CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW</b>				
CU240E-2_F	<b>Access level:</b> 3		<b>Calculated:</b> -		<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -		<b>Scaling:</b> -		<b>Data set:</b> -
	<b>Units group:</b> -		<b>Unit selection:</b> -		
	<b>Min</b>		<b>Max</b>		<b>Factory setting</b>
	-		-		-
<b>Description:</b>	Control signals for safety-relevant motion monitoring functions integrated in the drive.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	De-select STO	Yes	No	-
	01	De-select SS1	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	-

12	Deselect SDI positive	Yes	No	2861
13	Deselect SDI negative	Yes	No	2861

**Note:** This parameter is only supplied with actual values if SI Motion functions are active. For Safety Integrated Basic Functions (STO), the value is equal to zero.

#### r9722.0...15 CO/BO: SI Motion status signals integrated in the drive / SI Mtn integ stat

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_PN\_F **Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

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 or safe pulse cancellation active	Yes	No	-
	01	SS1 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	-
	12	SDI pos active	Yes	No	2861
	13	SDI neg active	Yes	No	2861
	15	SSM (speed below limit value)	Yes	No	2860

**Notice:** Re bit 07:

An internal event is displayed if a STOP A ... F is active.

The signal state behaves in an opposite way to the PROFIsafe Standard.

**Note:** This parameter is only supplied with actual values if SI Motion functions are active. For Safety Integrated Basic Functions (STO), the value is equal to zero.

#### r9722.0...13 CO/BO: SI Motion status signals integrated in the drive / SI Mtn integ stat

CU240E-2\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
**Can be changed:** - **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

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 or safe pulse cancellation active	Yes	No	-
	01	SS1 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	-
	12	SDI pos active	Yes	No	2861
	13	SDI neg active	Yes	No	2861

**Notice:** Re bit 07:

An internal event is displayed if a STOP A ... F is active.

The signal state behaves in an opposite way to the PROFIsafe Standard.

**Note:** This parameter is only supplied with actual values if SI Motion functions are active. For Safety Integrated Basic Functions (STO), the value is equal to zero.



**r9723.0...16 CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag**

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_F **Can be changed:** - **Scaling:** - **Data set:** -  
 CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

**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	-
	01	For ESR, STOP F and subsequent stop B is active	Yes	No	-
	02	Communication failure	Yes	No	-
	03	Actual value sensing supplies valid value	Yes	No	-
	04	Encoderless act val sensing acc to technique for U/f control	Yes	No	-
	09	Safe pulse cancellation active	Yes	No	-
	16	SAM/SBR active	Yes	No	-

**Note:** ESR: Extended Stop and Retract  
 SAM: Safe Acceleration Monitor (safe acceleration monitoring)  
 SBR: Safe Brake Ramp (safe brake ramp monitoring)

**r9724 SI Motion crosswise comparison clock cycle / SI Mtn CDC clk cyc**

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** FloatingPoint32  
 CU240E-2\_F **Can be changed:** - **Scaling:** - **Data set:** -  
 CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

**Min** **Max** **Factory setting**  
 - [ms] - [ms] - [ms]

**Description:** Displays the crosswise comparison clock cycle.

The value indicates the clock cycle time with which each individual CDC value is compared between the two monitoring channels.

**Note:** CDC: Crosswise Data Comparison

**r9725[0...2] SI Motion, diagnostics STOP F / SI Mtn Diag STOP F**

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_F **Can be changed:** - **Scaling:** - **Data set:** -  
 CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

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

**Description:** Re index 0:  
 Displays the message value that resulted in the STOP F on the drive.  
 Value = 0:  
 Processor 1 signaled a STOP F.  
 Value = 1 ... 999:  
 Number of the incorrect date in the crosswise data comparison between the monitoring channels.  
 Value >= 1000:  
 Additional diagnostic values of the drive.  
 Re index 1:  
 Displays the value from processor 1 that resulted in the STOP F.  
 Re index 2:  
 Displays the value from processor 2 that resulted in the STOP F.

**Index:** [0] = Message value for CDC  
 [1] = Processor 1 CDC actual value  
 [2] = Processor 2 CDC actual value

**Dependency:** Refer to: C01711

**Note:** The significance of the individual message values is described in message C01711.  
CDC: Crosswise Data Comparison

### **r9728[0...2] SI Motion actual checksum SI parameters (processor 1) / SI Mtn act CRC P1**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**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  
[2] = Checksum over SI parameters for hardware

**Dependency:** Refer to: p9729  
Refer to: F01680

### **p9729[0...2] SI Motion setpoint checksum SI parameters (processor 1) / SI Mtn setp CRC P1**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0000 hex	FFFF FFFF hex	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  
[2] = Checksum over SI parameters for hardware

**Dependency:** Refer to: r9728  
Refer to: F01680

### **r9732 SI Motion velocity resolution / SI Mtn v\_res**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
- [rpm]	- [rpm]	- [rpm]

**Description:** Displays the safe velocity resolution (load side).

Setpoints for velocity limits or parameter changes for velocities below this threshold have no effect.

**Note:** This parameter does not provide any information about the actual accuracy of the velocity sensing. This depends on the type of actual value sensing, the gear factors as well as the quality of the encoder being used.

### **r9733[0...2] CO: SI Motion setpoint speed limit effective / SI Mtn setp\_lim**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> p2000	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> 3_1	<b>Unit selection:</b> p0505	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
- [rpm]	- [rpm]	- [rpm]

**Description:** Displays the necessary setpoint speed limit as a result of the selected 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.

<b>Index:</b>	[0] = Setpoint limiting positive [1] = Setpoint limiting negative [2] = Setpoint limit absolute
<b>Dependency:</b>	For SLS: $r9733[0] = p9531[x] \times p9533$ (converted from the load side to the motor side) For SDI negative: $r9733[0] = 0$ For SLS: $r9733[1] = -p9531[x] \times p9533$ (converted from the load side to the motor side) For SDI positive: $r9733[1] = 0$ [x] = Selected SLS stage Conversion factor from the motor side to the load side: - motor type = rotary and axis type = linear: $p9522 / (p9521 \times p9520)$ - otherwise: $p9522 / p9521$ Refer to: p9531, p9533
<b>Notice:</b>	If $p1051 = r9733[0]$ is interconnected, $p1052 = r9733[1]$ must also be interconnected and vice versa. If only the absolute value of the setpoint velocity limiting is required, $r9733[2]$ must be interconnected.
<b>Note:</b>	If the "SLS" function is not selected, $r9733[0]$ shows p1082 and $r9733[1]$ shows -p1082. The display in r9733 can be delayed by up to one Safety monitoring clock cycle as compared to the display in r9720 and r9722.

#### r9734.0...14 CO/BO: SI Motion Safety Info Channel status word / SI Mtn info ch ZSW

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Displays the status word for the Safety information channel.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO active	Yes	No	-
	01	SS1 active	Yes	No	-
	04	SLS active	Yes	No	-
	06	SLS selected	Yes	No	-
	07	Internal event	Yes	No	-
	12	SDI positive selected	Yes	No	-
	13	SDI neg selected	Yes	No	-
	14	ESR retract requested	Yes	No	-

**Notice:** Re bit 07:

An internal event is displayed if a STOP A ... F is active.

The signal state behaves in an opposite way to the PROFIsafe Standard.

**Note:** This parameter is only supplied with actual values if SI Motion functions are active. For Safety Integrated Basic Functions (STO), the value is equal to zero.

#### r9742.0...15 CO/BO: SI Motion drive-integrated status signals (processor 2) / SI Mtn int stat P2

CU240E-2_DP_F	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_PN_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-

**Description:** Status signal for safety-relevant motion monitoring functions integrated in the drive.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO or safe pulse cancellation active	Yes	No	-
	01	SS1 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	-
	12	SDI pos active	Yes	No	-

## Parameter list

13	SDI neg active	Yes	No	-
15	SSM (speed below limit value)	Yes	No	2860

**Notice:** Re bit 07:

An internal event is displayed if a STOP A ... F is active.

The signal state behaves in an opposite way to the PROFIsafe Standard.

**Note:** This parameter is only supplied with actual values if SI Motion functions are active. For Safety Integrated Basic Functions (STO), the value is equal to zero.

### r9742.0...15 CO/BO: SI Motion drive-integrated status signals (processor 2) / SI Mtn int stat P2

CU240E-2_F	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

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 or safe pulse cancellation active	Yes	No	-
	01	SS1 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	-
	15	SSM (speed below limit value)	Yes	No	2860

**Notice:** Re bit 07:

An internal event is displayed if a STOP A ... F is active.

The signal state behaves in an opposite way to the PROFIsafe Standard.

**Note:** This parameter is only supplied with actual values if SI Motion functions are active. For Safety Integrated Basic Functions (STO), the value is equal to zero.

### p9761 SI password input / SI password inp

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> C, T	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

CU240E-2\_F  
CU240E-2\_PN\_F  
CU240E-2 PN

Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

**Description:** Enters the Safety Integrated password.

**Dependency:** Refer to: F01659

**Note:** It is not possible to change Safety Integrated parameters until the Safety Integrated password has been entered.

### p9762 SI password new / SI password new

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

CU240E-2\_F  
CU240E-2\_PN\_F  
CU240E-2 PN

Min	Max	Factory setting
0000 hex	FFFF FFFF hex	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

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**p9763 SI password acknowledgement / SI ackn password**

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0000 hex	FFFF FFFF hex	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.

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**r9765 SI Motion forced checking procedure remaining time (processor 1) / SI Mtn dyn rem P1**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
- [h]	- [h]	- [h]

**Description:** Displays the time remaining until the next dynamization and testing of the safety motion monitoring functions integrated in the drives.

The signal source to initiate the forced checking procedure is parameterized in p9705.

**Dependency:** Refer to: p9705  
Refer to: C01798

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**r9768[0...7] SI PROFIsafe receive control words (processor 1) / SI Ps PZD recv P1**

CU240E-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2 PN			

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the received PROFIsafe telegram on processor 1.

**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

**Dependency:** Refer to: r9769

**Note:** The PROFIsafe trailer at the end of the telegram is also displayed (2 words).

<b>r9769[0...7]</b>	<b>SI PROFIsafe send status words (processor 1) / SI Ps PZD send P1</b>						
CU240E-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16				
CU240E-2_DP_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -				
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -					
CU240E-2 PN							
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>				
	-	-	-				
<b>Description:</b>	Displays the PROFIsafe telegram to be sent on processor 1.						
<b>Index:</b>	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8						
<b>Dependency:</b>	Refer to: r9768						
<b>Note:</b>	The PROFIsafe trailer at the end of the telegram is also displayed (2 words).						
<b>r9770[0...3]</b>	<b>SI version drive-integrated safety function (processor 1) / SI version Drv P1</b>						
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16				
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -				
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -					
CU240E-2_F							
CU240E-2_PN_F							
CU240E-2 PN							
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>				
	-	-	-				
<b>Description:</b>	Displays the Safety Integrated version for the drive-integrated safety functions on processor 1.						
<b>Index:</b>	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch) [3] = Safety Version (hotfix)						
<b>Note:</b>	Example: r9770[0] = 2, r9770[1] = 60, r9770[2] = 1, r9770[3] = 0 --> Safety version V02.60.01.00						
<b>r9771</b>	<b>SI common functions (processor 1) / SI general fct P1</b>						
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32				
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -				
	<b>Units group:</b> -	<b>Unit selection:</b> -					
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>				
	-	-	-				
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 1 determines this display.						
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>		
	00	STO supported via terminals	Yes	No	2804		
<b>Dependency:</b>	Refer to: r9871						
<b>Note:</b>	STO: Safe Torque Off						

<b>r9771</b>	<b>SI common functions (processor 1) / SI general fct P1</b>				
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
CU240E-2_PN_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 1 determines this display.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO supported via terminals	Yes	No	2804
	02	Extended Functions supported (p9501 > 0)	Yes	No	2804
	04	Extended Functions PROFIsafe supported	Yes	No	-
	05	Extended Functions integrated in drive supported (p9601.2 = 1)	Yes	No	-
	06	Basic Functions PROFIsafe supported	Yes	No	-
	07	Extended Functions encoderless supported	Yes	No	-
	11	Extended Functions SDI supported	Yes	No	-
	12	Extended Functions SSM encoderless supported	Yes	No	-
<b>Dependency:</b>	Refer to: r9871				
<b>Note:</b>	STO: Safe Torque Off				

<b>r9771</b>	<b>SI common functions (processor 1) / SI general fct P1</b>				
CU240E-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 1 determines this display.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO supported via terminals	Yes	No	2804
	06	Basic Functions PROFIsafe supported	Yes	No	-
<b>Dependency:</b>	Refer to: r9871				
<b>Note:</b>	STO: Safe Torque Off				

<b>r9771</b>	<b>SI common functions (processor 1) / SI general fct P1</b>				
CU240E-2_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 1 determines this display.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO supported via terminals	Yes	No	2804
	02	Extended Functions supported (p9501 > 0)	Yes	No	2804
	05	Extended Functions integrated in drive supported (p9601.2 = 1)	Yes	No	-
	07	Extended Functions encoderless supported	Yes	No	-
	11	Extended Functions SDI supported	Yes	No	-
	12	Extended Functions SSM encoderless supported	Yes	No	-

**Dependency:** Refer to: r9871  
**Note:** STO: Safe Torque Off

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**r9772.0...20 CO/BO: SI status (processor 1) / SI status P1**

CU240E-2 **Access level:** 2 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_DP **Can be changed:** - **Scaling:** - **Data set:** -  
 CU240E-2\_DP\_F **Units group:** - **Unit selection:** -  
 CU240E-2\_F  
 CU240E-2\_PN\_F  
 CU240E-2 PN

Min	Max	Factory setting
-	-	-

**Description:** Displays the Safety Integrated status on processor 1.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected on processor 1	Yes	No	2810
	01	STO active on processor 1	Yes	No	2810
	09	STOP A cannot be acknowledged, active	Yes	No	2802
	10	STOP A active	Yes	No	2802
	15	STOP F active	Yes	No	2802
	16	STO cause: Safety comm. mode	Yes	No	-
	17	STO cause selection via terminal (Basic Functions)	Yes	No	-
	18	STO cause: Selection via motion monitoring functions	Yes	No	-
	19	STO cause actual value missing or safe pulse cancellation	Yes	No	-
	20	STO cause selection PROFIsafe (Basic Functions)	Yes	No	-

**Dependency:** Refer to: r9872

**Note:** Re bit 00:  
 When STO is selected, the cause is displayed in bits 16 ... 20.  
 Re bit 18:  
 When the bit is set, STO is selected via PROFIsafe.  
 Re bit 19:  
 For the drive-integrated motion monitoring functions, due to OFF2, no actual value sensing possible.

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**r9773.0...31 CO/BO: SI status (processor 1 + processor 2) / SI status P1+P2**

CU240E-2 **Access level:** 2 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_DP **Can be changed:** - **Scaling:** - **Data set:** -  
 CU240E-2\_DP\_F **Units group:** - **Unit selection:** -  
 CU240E-2\_F  
 CU240E-2\_PN\_F  
 CU240E-2 PN

Min	Max	Factory setting
-	-	-

**Description:** Displays the Safety Integrated status on the drive (processor 1 + processor 2).

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
	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.



r9776		SI diagnostics / SI diagnostics				
CU240E-2	Access level: 4	Calculated: -			Data type: Unsigned32	
CU240E-2_DP	Can be changed: -	Scaling: -			Data set: -	
CU240E-2_DP_F	Units group: -	Unit selection: -				
CU240E-2_F						
CU240E-2_PN_F						
CU240E-2 PN						
	Min		Max		Factory setting	
	-		-		-	
Description:	The parameter is used for diagnostics.					
Bit field:	Bit	Signal name	1 signal	0 signal	FP	
	00	Safety parameter changed POWER ON required	Yes	No	-	
Note:	Re bit 00 = 1: At least one Safety parameter has been changed that will only take effect after a POWER ON.					

r9780		SI monitoring clock cycle (processor 1) / SI mon_clk cyc P1				
CU240E-2	Access level: 3	Calculated: -			Data type: FloatingPoint32	
CU240E-2_DP	Can be changed: -	Scaling: -			Data set: -	
CU240E-2_DP_F	Units group: -	Unit selection: -				
CU240E-2_F						
CU240E-2_PN_F						
CU240E-2 PN						
	Min		Max		Factory setting	
	- [ms]		- [ms]		- [ms]	
Description:	Displays the clock cycle time for the Safety Integrated Basic Functions on processor 1.					

r9781[0...1]		SI checksum to check changes (processor 1) / SI chg chksm P1				
CU240E-2	Access level: 3	Calculated: -			Data type: Unsigned32	
CU240E-2_DP	Can be changed: -	Scaling: -			Data set: -	
CU240E-2_DP_F	Units group: -	Unit selection: -				
CU240E-2_F						
CU240E-2_PN_F						
CU240E-2 PN						
	Min		Max		Factory setting	
	-		-		-	
Description:	Displays the checksum for tracking changes for Safety Integrated. These are additional checksums that are created to track changes (fingerprint for the "safety logbook" functionality) to safety parameters (that are relevant for checksums).					
Index:	[0] = SI checksum to track functional changes [1] = SI checksum to track hardware-specific changes					
Dependency:	Refer to: p9601, p9729, p9799 Refer to: F01690					

<b>r9782[0...1]</b>	<b>SI time stamp to check changes (processor 1) / SI chg t P1</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> - [h]	<b>Max</b> - [h]	<b>Factory setting</b> - [h]
<b>Description:</b>	Displays the time stamps for the checksums for tracking changes for Safety Integrated. The time stamps for the checksums for tracking changes (fingerprint for the "safety logbook" functionality) made to safety parameters are saved in parameters p9781[0] and p9781[1].		
<b>Index:</b>	[0] = SI time stamp for checksum to track functional changes [1] = SI time stamp for checksum to track hardware-specific changes		
<b>Dependency:</b>	Refer to: p9601, p9729, p9799 Refer to: F01690		
<b>r9784[0...1]</b>	<b>SI Motion diagnostics acceleration encoderless / SI Mtn diag a sl</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [rev/s <sup>2</sup> ]	<b>Max</b> - [rev/s <sup>2</sup> ]	<b>Factory setting</b> - [rev/s <sup>2</sup> ]
<b>Description:</b>	Display to diagnose acceleration values of the encoderless actual values sensing. Re index 0: Shows the parameterized acceleration values of p9389/p9589. Re index 1: Shows the actually measured acceleration values of the encoderless actual value sensing		
<b>Index:</b>	[0] = Setpoint acceleration value [1] = Actual acceleration value		
<b>Dependency:</b>	Refer to: p9389, p9589		
<b>r9785[0...1]</b>	<b>SI Motion diagnostics absolute current value encoderless / SI Mtn diag l sl</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> 6_3	<b>Unit selection:</b> p0505	
	<b>Min</b> - [mA]	<b>Max</b> - [mA]	<b>Factory setting</b> - [mA]
<b>Description:</b>	Display to diagnose currents of the encoderless actual value sensing. Re index 0: Shows the parameterized minimum current of p9388/p9588. Re index 1: Shows the actually measured current of the encoderless actual value sensing		
<b>Index:</b>	[0] = Minimum current parameterized [1] = Minimum current measured		
<b>Dependency:</b>	Refer to: p9388, p9588		

**r9786[0...2] SI Motion diagnostics plausibility angle value encoderless / SI mtn diag phi sl**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
- [°]	- [°]	- [°]

**Description:** Display to diagnose the plausibility angle of the encoderless actual value sensing.

Re index 0:

Shows the actual plausibility angle

Re index 1:

Shows the actual plausibility voltage angle

Re index 2:

Shows the actual current angle

**Index:** [0] = Actual plausibility angle

[1] = Actual voltage angle

[2] = Actual current angle

**Dependency:** Refer to: p9385, p9585

**r9787 SI Motion possible error tolerance sensorless / SI Mtn poss tol sl**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
- [rpm]	- [rpm]	- [rpm]

**Description:** Displays the actual velocity deviation of the encoderless actual value sensing that is obtained when setting p9585/p9385.

**Dependency:** Refer to: p9385, p9585

**Note:** For linear axes, the following unit applies: millimeters per minute  
For rotary axes, the following unit applies: revolutions per minute

**r9794[0...19] SI crosswise comparison list (processor 1) / SI CDC\_list P1**

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

CU240E-2\_F  
CU240E-2\_PN\_F  
CU240E-2 PN

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the numbers of the data items that are currently being compared crosswise on processor 1.  
The content of the list of crosswise-compared data is dependent upon the particular application.

**Note:** Example:

r9794[0] = 1 (monitoring clock cycle)

r9794[1] = 2 (enable safety functions)

r9794[2] = 3 (F-DI changeover, tolerance time)

...

A complete list of numbers for crosswise-compared data items appears in fault F01611.

<b>r9795</b>	<b>SI diagnostics STOP F (processor 1) / SI diag STOP F P1</b>		
CU240E-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the number of the cross-compared data item which caused STOP F on processor 1.		
<b>Dependency:</b>	Refer to: F01611		
<b>Note:</b>	A complete list of numbers for crosswise-compared data items appears in fault F01611.		
<b>r9798</b>	<b>SI actual checksum SI parameters (processor 1) / SI act chksm P1</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Displays the checksum for the Safety Integrated parameters checked using checksums on processor 1 (actual checksum).		
<b>Dependency:</b>	Refer to: p9799, r9898		
<b>p9799</b>	<b>SI setpoint checksum SI parameters (processor 1) / SI setp_chksm P1</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0000 hex	FFFF FFFF hex	0000 hex
<b>Description:</b>	Sets the checksum for the Safety Integrated parameters checked using checksums on processor 1 (setpoint checksum).		
<b>Dependency:</b>	Refer to: r9798, p9899		
<b>p9801</b>	<b>SI enable, functions integrated in the drive (processor 2) / SI enable fct P2</b>		
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0000 bin
<b>Description:</b>	Sets the enable signals for safety functions on processor 2 that are integrated in the drive. Not all of the settings listed below will be permissible, depending on the Control Unit being used: 0000: Safety functions integrated in the drive inhibited (no safety function).		

0001:

Basic functions are enabled via onboard terminals (permissible for r9871.0 = 1).

0004:

Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9871.5 = 1).

0005:

Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9871.5 = 1).

0008:

Basic functions are enabled via PROFIsafe (permissible for r9871.6 = 1).

0009:

Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9871.6 = 1).

000C:

Extended functions are enabled via PROFIsafe (permissible for r9871.4 = 1).

000D:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9871.4 = 1).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable STO via terminals (processor 2)	Enable	Inhibit	2810

**Dependency:** Refer to: p9601, r9871**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.

F-DI: Failsafe Digital Input.

STO: Safe Torque Off

**p9801 SI enable, functions integrated in the drive (processor 2) / SI enable fct P2**PM240 **Access level:** 3 **Calculated:** - **Data type:** Unsigned16PM250 **Can be changed:** C(95) **Scaling:** - **Data set:** -PM260 **Units group:** - **Unit selection:** -

CU240E-2\_DP\_F

CU240E-2\_PN\_F

Min	Max	Factory setting
-	-	0000 bin

**Description:** Sets the enable signals for safety functions on processor 2 that are integrated in the drive.  
Not all of the settings listed below will be permissible, depending on the Control Unit being used:

0000:

Safety functions integrated in the drive inhibited (no safety function).

0001:

Basic functions are enabled via onboard terminals (permissible for r9871.0 = 1).

0004:

Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9871.5 = 1).

0005:

Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9871.5 = 1).

0008:

Basic functions are enabled via PROFIsafe (permissible for r9871.6 = 1).

0009:

Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9871.6 = 1).

000C:

Extended functions are enabled via PROFIsafe (permissible for r9871.4 = 1).

000D:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9871.4 = 1).

## Parameter list

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable STO via terminals (processor 2)	Enable	Inhibit	2810
	02	Enable drive_integr motion_monitoring functions (processor 2)	Enable	Inhibit	-
	03	Enable PROFIsafe (processor 2)	Enable	Inhibit	-

**Dependency:** Refer to: p9601, r9871

**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.

F-DI: Failsafe Digital Input.

STO: Safe Torque Off

### p9801 SI enable, functions integrated in the drive (processor 2) / SI enable fct P2

PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_DP			
CU240E-2 PN			

Min	Max	Factory setting
-	-	0000 bin

**Description:** Sets the enable signals for safety functions on processor 2 that are integrated in the drive. Not all of the settings listed below will be permissible, depending on the Control Unit being used:

0000:  
Safety functions integrated in the drive inhibited (no safety function).

0001:  
Basic functions are enabled via onboard terminals (permissible for r9871.0 = 1).

0004:  
Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9871.5 = 1).

0005:  
Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9871.5 = 1).

0008:  
Basic functions are enabled via PROFIsafe (permissible for r9871.6 = 1).

0009:  
Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9871.6 = 1).

000C:  
Extended functions are enabled via PROFIsafe (permissible for r9871.4 = 1).

000D:  
Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9871.4 = 1).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable STO via terminals (processor 2)	Enable	Inhibit	2810
	03	Enable PROFIsafe (processor 2)	Enable	Inhibit	-

**Dependency:** Refer to: p9601, r9871

**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.

F-DI: Failsafe Digital Input.

STO: Safe Torque Off

<b>p9801</b>	<b>SI enable, functions integrated in the drive (processor 2) / SI enable fct P2</b>				
PM240	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16		
PM250	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -		
PM260	<b>Units group:</b> -	<b>Unit selection:</b> -			
CU240E-2_F					
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0000 bin		
<b>Description:</b>	Sets the enable signals for safety functions on processor 2 that are integrated in the drive. Not all of the settings listed below will be permissible, depending on the Control Unit being used: 0000: Safety functions integrated in the drive inhibited (no safety function). 0001: Basic functions are enabled via onboard terminals (permissible for r9871.0 = 1). 0004: Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9871.5 = 1). 0005: Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9871.5 = 1). 0008: Basic functions are enabled via PROFIsafe (permissible for r9871.6 = 1). 0009: Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9871.6 = 1). 000C: Extended functions are enabled via PROFIsafe (permissible for r9871.4 = 1). 000D: Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9871.4 = 1).				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	Enable STO via terminals (processor 2)	Enable	Inhibit	2810
	02	Enable drive_integr motion_monitoring functions (processor 2)	Enable	Inhibit	-
<b>Dependency:</b>	Refer to: p9601, r9871				
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
<b>Note:</b>	A change only becomes effective after a POWER ON. F-DI: Failsafe Digital Input. STO: Safe Torque Off				

<b>p9810</b>	<b>SI PROFIsafe address (processor 2) / SI PROFIsafe P2</b>		
CU240E-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
CU240E-2_DP_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2 PN			
	<b>Min</b> 0000 hex	<b>Max</b> FFFE hex	<b>Factory setting</b> 0000 hex
<b>Description:</b>	Sets the PROFIsafe address on processor 2.		
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		

<b>p9850</b>	<b>SI F-DI changeover tolerance time (processor 2) / SI F-DI_chg tol P2</b>				
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32		
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -		
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -			
CU240E-2_F					
CU240E-2_PN_F					
CU240E-2 PN					
	<b>Min</b> 0.00 [µs]	<b>Max</b> 2000000.00 [µs]	<b>Factory setting</b> 500000.00 [µs]		
<b>Description:</b>	Sets the tolerance time for the changeover of the failsafe digital input for STO on processor 2. An F-DI changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an F-DI changeover, dynamic data is not subject to a crosswise data comparison during this tolerance time.				
<b>Dependency:</b>	Refer to: p9650				
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
<b>Note:</b>	For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is rounded internally to an integer multiple of the monitoring clock cycle. F-DI: Failsafe Digital Input				

<b>p9851</b>	<b>SI STO debounce time (processor 2) / SI STO t_debou P2</b>				
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32		
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -		
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -			
CU240E-2_F					
CU240E-2_PN_F					
CU240E-2 PN					
	<b>Min</b> 0.00 [µs]	<b>Max</b> 100000.00 [µs]	<b>Factory setting</b> 0.00 [µs]		
<b>Description:</b>	Sets the debounce time for the failsafe digital inputs used to control the "STO" function. The debounce time is rounded to whole milliseconds.				
<b>Dependency:</b>	Refer to: p9651				
<b>Notice:</b>	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
<b>Note:</b>	The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe digital inputs with no reaction/influence on the selection or deselection of the Safety Basic Functions. Example: Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed. Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed.				

<b>r9871</b>	<b>SI common functions (processor 2) / SI common fct P2</b>				
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -		
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 2 determines this display.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO supported via terminals	Yes	No	2804
<b>Dependency:</b>	Refer to: r9771				
<b>Note:</b>	STO: Safe Torque Off				



<b>r9871</b>	<b>SI common functions (processor 2) / SI common fct P2</b>				
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
CU240E-2_PN_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 2 determines this display.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO supported via terminals	Yes	No	2804
	02	Extended Functions supported (p9501 > 0)	Yes	No	2804
	04	Extended Functions PROFIsafe supported	Yes	No	-
	05	Extended Functions integrated in drive supported (p9601.2 = 1)	Yes	No	-
	06	Basic Functions PROFIsafe supported	Yes	No	-
	07	Extended Functions encoderless supported	Yes	No	-
	11	Extended Functions SDI supported	Yes	No	-
	12	Extended Functions SSM encoderless supported	Yes	No	-
<b>Dependency:</b>	Refer to: r9771				
<b>Note:</b>	STO: Safe Torque Off				

<b>r9871</b>	<b>SI common functions (processor 2) / SI common fct P2</b>				
CU240E-2_DP	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
CU240E-2 PN	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 2 determines this display.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO supported via terminals	Yes	No	2804
	06	Basic Functions PROFIsafe supported	Yes	No	-
<b>Dependency:</b>	Refer to: r9771				
<b>Note:</b>	STO: Safe Torque Off				

<b>r9871</b>	<b>SI common functions (processor 2) / SI common fct P2</b>				
CU240E-2_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32		
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -		
	<b>Units group:</b> -	<b>Unit selection:</b> -			
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>		
	-	-	-		
<b>Description:</b>	Displays the supported Safety Integrated monitoring functions. Processor 2 determines this display.				
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO supported via terminals	Yes	No	2804
	02	Extended Functions supported (p9501 > 0)	Yes	No	2804
	05	Extended Functions integrated in drive supported (p9601.2 = 1)	Yes	No	-
	07	Extended Functions encoderless supported	Yes	No	-
	11	Extended Functions SDI supported	Yes	No	-
	12	Extended Functions SSM encoderless supported	Yes	No	-

**Dependency:** Refer to: r9771  
**Note:** STO: Safe Torque Off

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**r9872.0...20 CO/BO: SI status (processor 2) / SI Status P2**

CU240E-2	<b>Access level:</b> 2	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the Safety Integrated status on processor 2.

<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>1 signal</b>	<b>0 signal</b>	<b>FP</b>
	00	STO selected on processor 2	Yes	No	2810
	01	STO active on processor 2	Yes	No	2810
	09	STOP A cannot be acknowledged, active	Yes	No	2802
	10	STOP A active	Yes	No	2802
	15	STOP F active	Yes	No	2802
	16	STO cause: Safety comm. mode	Yes	No	-
	17	STO cause selection via terminal (Basic Functions)	Yes	No	-
	18	STO cause: Selection via motion monitoring functions	Yes	No	-
	20	STO cause selection PROFIsafe (Basic Functions)	Yes	No	-

**Dependency:** Refer to: r9772  
**Note:** Re bit 00:  
 When STO is selected, the cause is displayed in bits 16 ... 20.  
 Re bit 18:  
 When the bit is set, STO is selected via PROFIsafe.

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**r9898 SI actual checksum SI parameters (processor 2) / SI act\_chksm P2**

CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the checksum for the Safety Integrated parameters checked using checksums on processor 2 (actual checksum).

**Dependency:** Refer to: r9798, p9899

<b>p9899</b>	<b>SI setpoint checksum SI parameters (processor 2) / SI setp_chksm P2</b>		
CU240E-2	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_DP	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_DP_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
CU240E-2_F			
CU240E-2_PN_F			
CU240E-2 PN			
	<b>Min</b> 0000 hex	<b>Max</b> FFFF FFFF hex	<b>Factory setting</b> 0000 hex
<b>Description:</b>	Sets the checksum for the Safety Integrated parameters checked using checksums on processor 2 (setpoint checksum).		
<b>Dependency:</b>	Refer to: p9799, r9898		
<b>r9925[0...99]</b>	<b>Firmware file incorrect / FW file incorr</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.		
<b>Dependency:</b>	Refer to: r9926 Refer to: A01016		
<b>Note:</b>	The directory and name of the file is displayed in the ASCII code.		
<b>r9926</b>	<b>Firmware check status / FW check status</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Displays the status when the firmware is checked when the system is booted. 0: Firmware not yet checked. 1: Check running. 2: Check successfully completed. 3: Check indicates an error.		
<b>Dependency:</b>	Refer to: r9925 Refer to: A01016		
<b>p9930[0...8]</b>	<b>System logbook activation / SYSLOG activation</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned8
	<b>Can be changed:</b> U, T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 255	<b>Factory setting</b> 0
<b>Description:</b>	Only for service purposes.		
<b>Index:</b>	[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...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).  
If writing to the file is activated (p9930[2] = 1), writing to the file must be de-activated again before switching off the Control Unit (p9930[2] = 0) in order to ensure that the system logbook has been completely written to the file.

p9931[0...129]					System logbook module selection / SYSLOG mod select.						
					Access level: 4		Calculated: -		Data type: Unsigned32		
					Can be changed: U, T		Scaling: -		Data set: -		
					Units group: -		Unit selection: -				
					Min 0000 hex		Max FFFF FFFF hex		Factory setting 0000 hex		
Description:					Only for service purposes.						
p9932					Save system logbook EEPROM / SYSLOG EEPROM save						
					Access level: 4		Calculated: -		Data type: Unsigned8		
					Can be changed: U, T		Scaling: -		Data set: -		
					Units group: -		Unit selection: -				
					Min 0		Max 255		Factory setting 0		
Description:					Only for service purposes.						
r9935.0					BO: POWER ON delay signal / POWER ON t_delay						
					Access level: 4		Calculated: -		Data type: Unsigned8		
					Can be changed: -		Scaling: -		Data set: -		
					Units group: -		Unit selection: -				
					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	FP		
					00	POWER ON delay signal	High	Low	-		
r9975[0...7]					System utilization measured / Sys util meas						
					Access level: 4		Calculated: -		Data type: FloatingPoint32		
					Can be changed: -		Scaling: -		Data set: -		
					Units group: -		Unit selection: -				
					Min - [%]		Max - [%]		Factory setting - [%]		
Description:					Displays the measured system utilization. The higher the value displayed, the higher the system utilization.						
Index:					[0] = Computing time utilization (min) [1] = Computing time utilization (averaged) [2] = Computing time utilization (max) [3] = Largest total utilization (min) [4] = Largest total utilization (averaged) [5] = Largest total utilization (max) [6] = Reserved [7] = Reserved						
Dependency:					Refer to: r9976 Refer to: F01054, F01205						

**Note:** Re index 3 ... 5:  
The total utilizations are determined using all sampling times used. The largest total utilizations are mapped here.  
The sampling time with the largest total utilization is displayed in r9979.  
Total utilization:  
Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

<b>r9976[0...7]</b>	<b>System utilization / Sys util</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> - [%]	<b>Max</b> - [%]	<b>Factory setting</b> - [%]
<b>Description:</b>	Displays the system utilization. If the utilization is greater than 100%, fault F01054 is output.		
<b>Index:</b>	[0] = Reserved [1] = Computing time utilization [2] = Reserved [3] = Reserved [4] = Reserved [5] = Largest total utilization [6] = Reserved [7] = Reserved		
<b>Dependency:</b>	Refer to: F01054, F01205		
<b>Note:</b>	Re index 1: The value shows the total computing time load of the system. Re index 5: The total utilization is determined using all sampling times used. The largest total utilization is mapped here. The sampling time with the largest total utilization is displayed in r9979. Total utilization: Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).		

<b>r9999[0...99]</b>	<b>Software error internal supplementary diagnostics / SW_err int diag</b>		
	<b>Access level:</b> 4	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Diagnostics parameter to display additional information for internal software errors.		
<b>Note:</b>	Only for internal Siemens troubleshooting.		

<b>p10002</b>	<b>SI discrepancy monitoring time (processor 1) / SI discrpt t_mon P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1.00 [ms]	<b>Max</b> 2000.00 [ms]	<b>Factory setting</b> 500.00 [ms]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: p10102		
<b>Note:</b>	F-DI: Failsafe Digital Input		

<b>p10006</b>	<b>SI acknowledgement internal event F-DI (processor 1) / SI ackn int evt P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 255	<b>Factory setting</b> 0
<b>Description:</b>	Select a fail-safe digital input for the signal "acknowledge internal event" (internal fault). The falling edge at this input resets the status "internal event" in the drives. The rising edge at this input acknowledges any existing discrepancy errors.		
<b>Value:</b>	0:      Statically active 1:      F-DI 0 2:      F-DI 1 3:      F-DI 2 255:   Statically inactive		
<b>Dependency:</b>	Refer to: p10106 Refer to: A01666, A30666		
<b>Note:</b>	The values "static active" and "static inactive" result in an inactive function of the safe acknowledgment. F-DI: Failsafe Digital Input		
<b>p10017</b>	<b>SI digital inputs debounce time (processor 1) / SI DI t_debounceP1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 100.00 [ms]	<b>Factory setting</b> 1.00 [ms]
<b>Description:</b>	Sets the debounce time for digital inputs. The debounce time is accepted rounded off to whole milliseconds. The debounce time acts on the following digital inputs: - Fail-safe digital inputs (F-DI). - Single-channel digital inputs (DI). - Single-channel digital input 2 (DI 2, read back input for the forced checking procedure).		
<b>Dependency:</b>	Refer to: p10117		
<b>Note:</b>	Example: Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed. Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed. The debounce result can be read in r10051.		
<b>p10022</b>	<b>SI STO input terminal (processor 1) / SI STO F-DI P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 255	<b>Factory setting</b> 0
<b>Description:</b>	Sets the fail-safe digital input (F-DI) for the "STO" function.		
<b>Value:</b>	0:      Statically active 1:      F-DI 0 2:      F-DI 1 3:      F-DI 2 255:   Statically inactive		
<b>Dependency:</b>	Refer to: p10122		

**Note:** If value = 0:  
No terminal assigned, safety function always active.  
If value = 255:  
No terminal assigned, safety function always inactive.  
F-DI: Failsafe Digital Input  
STO: Safe Torque Off

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**p10023 SI SS1 input terminal (processor 1) / SI SS1 F-DI P1**


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CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the fail-safe digital input (F-DI) for the "SS1" function.

**Value:** 0: Statically active  
1: F-DI 0  
2: F-DI 1  
3: F-DI 2  
255: Statically inact

**Dependency:** Refer to: p10123

**Note:** If value = 0:  
No terminal assigned, safety function always active.  
If value = 255:  
No terminal assigned, safety function always inactive.  
F-DI: Failsafe Digital Input  
SS1: Safe Stop 1

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**p10026 SI SLS input terminal (processor 1) / SI SLS F-DI P1**


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CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the fail-safe digital input (F-DI) for the "SLS" function.

**Value:** 0: Statically active  
1: F-DI 0  
2: F-DI 1  
3: F-DI 2  
255: Statically inact

**Dependency:** Refer to: p10126

**Note:** If value = 0:  
No terminal assigned, safety function always active.  
If value = 255:  
No terminal assigned, safety function always inactive.  
F-DI: Failsafe Digital Input  
SLS: Safely-Limited Speed

<b>p10030</b>	<b>SI SDI positive input terminal (processor 1) / SI SDI pos F-DI P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the fail-safe digital input (F-DI) for the "SDI positive" function.

**Value:**  
 0: Statically active  
 1: F-DI 0  
 2: F-DI 1  
 3: F-DI 2  
 255: Statically inactive

**Note:**  
 If value = 0:  
 No terminal assigned, safety function always active.  
 If value = 255:  
 No terminal assigned, safety function always inactive.  
 F-DI: Failsafe Digital Input  
 SDI: Safe Direction (safe motion direction)

<b>p10031</b>	<b>SI SDI negative input terminal (processor 1) / SI SDI neg F-DI P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the fail-safe digital input (F-DI) for the "SDI negative" function.

**Value:**  
 0: Statically active  
 1: F-DI 0  
 2: F-DI 1  
 3: F-DI 2  
 255: Statically inactive

**Note:**  
 If value = 0:  
 No terminal assigned, safety function always active.  
 If value = 255:  
 No terminal assigned, safety function always inactive.  
 F-DI: Failsafe Digital Input  
 SDI: Safe Direction (safe motion direction)

<b>r10049</b>	<b>SI F-DI monitoring status (processor 1) / SI F-DI status P1</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:**  
 Displays the monitoring status of the fail-safe digital inputs (F-DI).  
 The F-DIs that are being used by the Safety Integrated functions are displayed.  
 If the module used has fewer than 3 F-DIs, "Freely available" is displayed for the F-DIs which are not in use.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0	Safety monitored	Freely available	-
	01	F-DI 1	Safety monitored	Freely available	-
	02	F-DI 2	Safety monitored	Freely available	-



**Dependency:** p10006 / p10106  
p10022 / p10122  
p10023 / p10123  
p10026 / p10126  
p10030 / p10130  
p10031 / p10131  
p10050 / p10150  
Refer to: r10149

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**p10050 SI PROFIsafe F-DI transfer (processor 1) / SI Ps F-DI tran P1**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_PN_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	0000 bin

**Description:** Setting for the transfer and evaluation of failsafe digital inputs (F-DI) via PROFIsafe.  
The safe state of the selected F-DIs is transferred to the F-control via PROFIsafe. The F-DIs are monitored for discrepancies. Discrepancy faults can be acknowledged via PROFIsafe.

Bit	Signal name	1 signal	0 signal	FP
00	F-DI 0 processor 1	Transfer	No transfer	-
01	F-DI 1 processor 1	Transfer	No transfer	-
02	F-DI 2 processor 1	Transfer	No transfer	-

**Dependency:** Refer to: p10150

**Note:** F-DI: Failsafe Digital Input

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**r10051.0...2 CO/BO: SI digital inputs status (processor 1) / SI DI status P1**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
CU240E-2_F	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Displays the single-channel, logical, and debounced status of the fail-safe digital inputs (F-DI).  
The parameter is updated in the SI Motion monitoring clock cycle.

Bit	Signal name	1 signal	0 signal	FP
00	F-DI 0 processor 1	High	Low	-
01	F-DI 1 processor 1	High	Low	-
02	F-DI 2 processor 1	High	Low	-

**Dependency:** Refer to: p9501, p9601, p10017, p10050, r10151

**Note:** If a safety function is assigned to an input (e.g. via p10022), then the following applies:

- logical "0": Safety function is selected
- logical "1": Safety function is de-selected

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, de-selects 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 de-selects the safety function.

F-DI: Failsafe Digital Input

The state of parameter r10151 is delayed by one monitoring clock cycle in relation to r10051.

The parameter is only updated in the following cases:

- If the Safety Extended Functions are enabled by means of activation via F-DI.
- If transfer of the F-DIs via PROFIsafe is enabled (see p9501).

In this case only the F-DIs transferred for PROFIsafe are displayed and updated (see p10050/p10150). All F-DIs which have not been transferred have a static zero value.

<b>p10102</b>	<b>SI discrepancy monitoring time (processor 2) / SI discr t_mon P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1.00 [ms]	<b>Max</b> 2000.00 [ms]	<b>Factory setting</b> 500.00 [ms]
<b>Description:</b>	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.		
<b>Dependency:</b>	Refer to: p10002		
<b>Note:</b>	F-DI: Failsafe Digital Input		
<b>p10106</b>	<b>SI acknowledgement internal event F-DI (processor 2) / SI ackn int evt P2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 255	<b>Factory setting</b> 0
<b>Description:</b>	Select a fail-safe digital input for the signal "acknowledge internal event" (internal fault). The falling edge at this input resets the status "internal event" in the drives.		
<b>Value:</b>	0:      Statically active 1:      F-DI 0 2:      F-DI 1 3:      F-DI 2 255:   Statically inactive		
<b>Dependency:</b>	Refer to: p10006		
<b>Note:</b>	The values "static active" and "static inactive" result in an inactive function of the safe acknowledgment. F-DI: Failsafe Digital Input		
<b>p10117</b>	<b>SI digital inputs debounce time (processor 2) / SI DI t_debounceP2</b>		
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00 [ms]	<b>Max</b> 100.00 [ms]	<b>Factory setting</b> 1.00 [ms]
<b>Description:</b>	Sets the debounce time for digital inputs. The debounce time acts on the following digital inputs: - Fail-safe digital inputs (F-DI). - Single-channel digital input 2 (DI 2, read back input for the forced checking procedure). The debounce time is accepted rounded off to whole milliseconds.		
<b>Dependency:</b>	Refer to: p10017		
<b>Note:</b>	Example: Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed. Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed. The debounce result can be read in r10151.		

**p10122 SI STO input terminal (processor 2) / SI STO F-DI P2**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the fail-safe digital input (F-DI) for the "STO" function.

**Value:**

0:	Statically active
1:	F-DI 0
2:	F-DI 1
3:	F-DI 2
255:	Statically inactive

**Dependency:** Refer to: p10022

**Note:**

If value = 0:  
No terminal assigned, safety function always active.

If value = 255:  
No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input  
STO: Safe Torque Off

**p10123 SI SS1 input terminal (processor 2) / SI SS1 F-DI P2**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the fail-safe digital input (F-DI) for the "SS1" function.

**Value:**

0:	Statically active
1:	F-DI 0
2:	F-DI 1
3:	F-DI 2
255:	Statically inactive

**Dependency:** Refer to: p10023

**Note:**

If value = 0:  
No terminal assigned, safety function always active.

If value = 255:  
No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input  
SS1: Safe Stop 1

**p10126 SI SLS input terminal (processor 2) / SI SLS F-DI P2**

CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	

<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	255	0

**Description:** Sets the fail-safe digital input (F-DI) for the "SLS" function.

**Value:**

0:	Statically active
1:	F-DI 0
2:	F-DI 1
3:	F-DI 2
255:	Statically inactive

**Dependency:** Refer to: p10026

**Note:** If value = 0:  
No terminal assigned, safety function always active.  
If value = 255:  
No terminal assigned, safety function always inactive.  
F-DI: Failsafe Digital Input  
SLS: Safely-Limited Speed

<b>p10130 SI SDI positive input terminal (processor 2) / SI SDI pos DI P2</b>			
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	255	0
<b>Description:</b>	Sets the fail-safe digital input (F-DI) for the "SDI positive" function.		
<b>Value:</b>	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inact		
<b>Note:</b>	If value = 0: No terminal assigned, safety function always active. If value = 255: No terminal assigned, safety function always inactive. F-DI: Failsafe Digital Input SDI: Safe Direction (safe motion direction)		

<b>p10131 SI SDI negative input terminal (processor 2) / SI SDI neg DI P2</b>			
CU240E-2_DP_F	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
CU240E-2_F	<b>Can be changed:</b> C(95)	<b>Scaling:</b> -	<b>Data set:</b> -
CU240E-2_PN_F	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	255	0
<b>Description:</b>	Sets the fail-safe digital input (F-DI) for the "SDI negative" function.		
<b>Value:</b>	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inact		
<b>Note:</b>	If value = 0: No terminal assigned, safety function always active. If value = 255: No terminal assigned, safety function always inactive. F-DI: Failsafe Digital Input SDI: Safe Direction (safe motion direction)		

**r10149 SI F-DI monitoring status (processor 2) / SI F-DI status P2**

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_F **Can be changed:** - **Scaling:** - **Data set:** -  
 CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

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

**Description:** Displays the monitoring status of the fail-safe digital inputs (F-DI).  
 The F-DIs that are being used by the Safety Integrated functions are displayed.  
 If the module used has fewer than 3 F-DIs, "Freely available" is displayed for the F-DIs which are not in use.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0	Safety monitored	Freely available	-
	01	F-DI 1	Safety monitored	Freely available	-
	02	F-DI 2	Safety monitored	Freely available	-

**Dependency:** p10006 / p10106  
 p10022 / p10122  
 p10023 / p10123  
 p10026 / p10126  
 p10030 / p10130  
 p10031 / p10131  
 p10050 / p10150  
 Refer to: r10049

**p10150 SI PROFIsafe F-DI transfer (processor 2) / SI Ps F-DI tran P2**

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_PN\_F **Can be changed:** C(95) **Scaling:** - **Data set:** -  
**Units group:** - **Unit selection:** -

**Min** **Max** **Factory setting**  
 - - 0000 bin

**Description:** Setting for the transfer and evaluation of failsafe digital inputs (F-DI) via PROFIsafe.  
 The safe state of the selected F-DIs is transferred to the F-control via PROFIsafe. The F-DIs are monitored for discrepancies. Discrepancy faults can be acknowledged via PROFIsafe.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0 processor 2	Transfer	No transfer	-
	01	F-DI 1 processor 2	Transfer	No transfer	-
	02	F-DI 2 processor 2	Transfer	No transfer	-

**Dependency:** Refer to: p10050

**Note:** F-DI: Failsafe Digital Input

**r10151.0...2 CO/BO: SI digital inputs status (processor 2) / SI DI status P2**

CU240E-2\_DP\_F **Access level:** 3 **Calculated:** - **Data type:** Unsigned32  
 CU240E-2\_F **Can be changed:** - **Scaling:** - **Data set:** -  
 CU240E-2\_PN\_F **Units group:** - **Unit selection:** -

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

**Description:** Displays the single-channel, logical, and debounced status of the fail-safe digital inputs (F-DI).  
 The parameter is updated in the SI Motion monitoring clock cycle.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0 processor 2	High	Low	-
	01	F-DI 1 processor 2	High	Low	-
	02	F-DI 2 processor 2	High	Low	-

**Dependency:** Refer to: p9501, p9601, p10117, p10150

**Note:**

F-DI: Failsafe Digital Input

If a safety function is assigned to an input (e.g. via p10122), then the following applies:

- logical "0": Safety function is selected
- logical "1": Safety function is de-selected

The interrelationship between the logical level and the external voltage level at the input depends on the parameterization (refer to p10140) 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, de-selects 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 de-selects the safety function.

The state of parameter r10151 is delayed by one monitoring clock cycle in relation to r10051.

The parameter is only updated in the following cases:

- If the Safety Extended Functions are enabled by means of activation via F-DI.
- If transfer of the F-DIs via PROFIsafe is enabled (see p9501).

In this case only the F-DIs transferred for PROFIsafe are displayed and updated (see p10050/p10150). All F-DIs which have not been transferred have a static zero value.

r20001[0...9]	Run-time group sampling time / RTG sampling time		
	Access level: 3	Calculated: -	Data type: FloatingPoint32
	Can be changed: -	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the current sampling time of the run-time group 0 to 9.		
Index:	[0] = Run-time group 0 [1] = Run-time group 1 [2] = Run-time group 2 [3] = Run-time group 3 [4] = Run-time group 4 [5] = Run-time group 5 [6] = Run-time group 6 [7] = Run-time group 7 [8] = Run-time group 8 [9] = Run-time group 9		

p20030[0...3] BI: AND 0 inputs / AND 0 inputs			
Access level: 3		Calculated: -	Data type: U32 / Binary
Can be changed: T		Scaling: -	Data set: -
Units group: -		Unit selection: -	
Min		Max	Factory setting
-		-	0
Description:	Sets the signal source of input quantities I0, I1, I2, I3 of instance AND 0 of the AND function block.		
Index:	[0] = Input I0 [1] = Input I1 [2] = Input I2 [3] = Input I3		

<b>r20031</b>	<b>BO: AND 0 output Q / AND 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Display parameter for binary quantity Q = I0 & I1 & I2 & I3 of instance AND 0 of the AND function block.		
<b>p20032</b>	<b>AND 0 run-time group / AND 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	1	9999	9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance AND 0 of the AND function block is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20033</b>	<b>AND 0 run sequence / AND 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	32000	10
<b>Description:</b>	Setting parameter for the run sequence of instance AND 0 within the run-time group set in p20032.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20034[0...3]</b>	<b>BI: AND 1 inputs / AND 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
<b>Description:</b>	Sets the signal source of input quantities I0, I1, I2, I3 of instance AND 1 of the AND function block.		
<b>Index:</b>	[0] = Input I0 [1] = Input I1 [2] = Input I2 [3] = Input I3		
<b>r20035</b>	<b>BO: AND 1 output Q / AND 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Display parameter for binary quantity Q = I0 & I1 & I2 & I3 of instance AND 1 of the AND function block.		

<b>p20036</b>	<b>AND 1 run-time group / AND 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b> <b>Value:</b>	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
	Setting parameter for the run-time group in which the instance AND 1 of the AND function block is to be called.		
	1: Run-time group 1		
	2: Run-time group 2		
<b>Description:</b> <b>Note:</b>	3: Run-time group 3		
	4: Run-time group 4		
	5: Run-time group 5		
	6: Run-time group 6		
9999: Do not calculate			
<b>p20037</b>	<b>AND 1 run sequence / AND 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b> <b>Note:</b>	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 20
	Setting parameter for the run sequence of instance AND 1 within the run-time group set in p20036.		
	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20038[0...3]</b>	<b>BI: AND 2 inputs / AND 2 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b> <b>Index:</b>	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
	Sets the signal source of input quantities I0, I1, I2, I3 of instance AND 2 of the AND function block.		
	[0] = Input I0		
	[1] = Input I1		
<b>r20039</b>	<b>BO: AND 2 output Q / AND 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b>	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
	Display parameter for binary quantity Q = I0 & I1 & I2 & I3 of instance AND 2 of the AND function block.		



<b>p20040</b>	<b>AND 2 run-time group / AND 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance AND 2 of the AND function block is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20041</b>	<b>AND 2 run sequence / AND 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 30
<b>Description:</b>	Setting parameter for the run sequence of instance AND 2 within the run-time group set in p20040.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20042[0...3]</b>	<b>BI: AND 3 inputs / AND 3 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities I0, I1, I2, I3 of instance AND 3 of the AND function block.		
<b>Index:</b>	[0] = Input I0 [1] = Input I1 [2] = Input I2 [3] = Input I3		
<b>r20043</b>	<b>BO: AND 3 output Q / AND 3 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity Q = I0 & I1 & I2 & I3 of instance AND 3 of the AND function block.		
<b>p20044</b>	<b>AND 3 run-time group / AND 3 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance AND 3 of the AND function block is to be called.		

**Value:**

1:	Run-time group 1
2:	Run-time group 2
3:	Run-time group 3
4:	Run-time group 4
5:	Run-time group 5
6:	Run-time group 6
9999:	Do not calculate

**p20045 AND 3 run sequence / AND 3 RunSeq**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 40

**Description:** Setting parameter for the run sequence of instance AND 3 within the run-time group set in p20044.

**Note:** The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.

**p20046[0...3] BI: OR 0 inputs / OR 0 inputs**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0

**Description:** Sets the signal source of input quantities I0, I1, I2, I3 of instance OR 0 of the OR function block.

**Index:**

[0]	= Input I0
[1]	= Input I1
[2]	= Input I2
[3]	= Input I3

**r20047 BO: OR 0 output Q / OR 0 output Q**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -

**Description:** Display parameter for binary quantity Q = I0 | I1 | I2 | I3 of instance OR 0 of the OR function block.

**p20048 OR 0 run-time group / OR 0 RTG**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999

**Description:** Setting parameter for the run-time group in which the instance OR 0 of the OR function block is to be called.

**Value:**

1:	Run-time group 1
2:	Run-time group 2
3:	Run-time group 3
4:	Run-time group 4
5:	Run-time group 5
6:	Run-time group 6
9999:	Do not calculate

<b>p20049</b>	<b>OR 0 run sequence / OR 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 60
<b>Description:</b>	Setting parameter for the run sequence of instance OR 0 within the run-time group set in p20048.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20050[0...3]</b>	<b>BI: OR 1 inputs / OR 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities I0, I1, I2, I3 of instance OR 1 of the OR function block.		
<b>Index:</b>	[0] = Input I0 [1] = Input I1 [2] = Input I2 [3] = Input I3		
<b>r20051</b>	<b>BO: OR 1 output Q / OR 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity Q = I0   I1   I2   I3 of instance OR 1 of the OR function block.		
<b>p20052</b>	<b>OR 1 run-time group / OR 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance OR 1 of the OR function block is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20053</b>	<b>OR 1 run sequence / OR 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 70
<b>Description:</b>	Setting parameter for the run sequence of instance OR 1 within the run-time group set in p20052.		

**Note:** The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.

<b>p20054[0...3]</b>	<b>BI: OR 2 inputs / OR 2 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities I0, I1, I2, I3 of instance OR 2 of the OR function block.		
<b>Index:</b>	[0] = Input I0 [1] = Input I1 [2] = Input I2 [3] = Input I3		
<b>r20055</b>	<b>BO: OR 2 output Q / OR 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity Q = I0   I1   I2   I3 of instance OR 2 of the OR function block.		
<b>p20056</b>	<b>OR 2 run-time group / OR 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance OR 2 of the OR function block is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20057</b>	<b>OR 2 run sequence / OR 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 80
<b>Description:</b>	Setting parameter for the run sequence of instance OR 2 within the run-time group set in p20056.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		

<b>p20058[0...3]</b>	<b>BI: OR 3 inputs / OR 3 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
	<b>Description:</b> Sets the signal source of input quantities I0, I1, I2, I3 of instance OR 3 of the OR function block.		
	<b>Index:</b> [0] = Input I0 [1] = Input I1 [2] = Input I2 [3] = Input I3		
<b>r20059</b>	<b>BO: OR 3 output Q / OR 3 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
	<b>Description:</b> Display parameter for binary quantity Q = I0   I1   I2   I3 of instance OR 3 of the OR function block.		
<b>p20060</b>	<b>OR 3 run-time group / OR 3 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	1	9999	9999
	<b>Description:</b> Setting parameter for the run-time group in which the instance OR 3 of the OR function block is to be called.		
	<b>Value:</b> 1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20061</b>	<b>OR 3 run sequence / OR 3 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	32000	90
	<b>Description:</b> Setting parameter for the run sequence of instance OR 3 within the run-time group set in p20060.		
	<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20062[0...3]</b>	<b>BI: XOR 0 inputs / XOR 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
	<b>Description:</b> Sets the signal source of input quantities I0, I1, I2, I3 of instance XOR 0 of the XOR function block.		

**Index:**  
 [0] = Input I0  
 [1] = Input I1  
 [2] = Input I2  
 [3] = Input I3

<b>r20063</b>	<b>BO: XOR 0 output Q / XOR 0 output Q</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32	
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	-	

**Description:** Display parameter for binary quantity Q of instance XOR 0 of the XOR function block.

<b>p20064</b>	<b>XOR 0 run-time group / XOR 0 RTG</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16	
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
1	9999	9999	

**Description:** Setting parameter for the run-time group in which the instance XOR 0 of the XOR function block is to be called.

**Value:**  
 1: Run-time group 1  
 2: Run-time group 2  
 3: Run-time group 3  
 4: Run-time group 4  
 5: Run-time group 5  
 6: Run-time group 6  
 9999: Do not calculate

<b>p20065</b>	<b>XOR 0 run sequence / XOR 0 RunSeq</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16	
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
0	32000	110	

**Description:** Setting parameter for the run sequence of instance XOR 0 within the run-time group set in p20064.

**Note:** The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.

<b>p20066[0...3]</b>	<b>BI: XOR 1 inputs / XOR 1 inputs</b>		
<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary	
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -	
<b>Units group:</b> -	<b>Unit selection:</b> -		
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>	
-	-	0	

**Description:** Sets the signal source of input quantities I0, I1, I2, I3 of instance XOR 1 of the XOR function block.

**Index:**  
 [0] = Input I0  
 [1] = Input I1  
 [2] = Input I2  
 [3] = Input I3

<b>r20067</b>	<b>BO: XOR 1 output Q / XOR 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for binary quantity Q of instance XOR 1 of the XOR function block.			
<b>p20068</b>	<b>XOR 1 run-time group / XOR 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which the instance XOR 1 of the XOR function block is to be called.			
<b>Value:</b>			
1: Run-time group 1			
2: Run-time group 2			
3: Run-time group 3			
4: Run-time group 4			
5: Run-time group 5			
6: Run-time group 6			
9999: Do not calculate			
<b>p20069</b>	<b>XOR 1 run sequence / XOR 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 120
<b>Description:</b> Setting parameter for the run sequence of instance XOR 1 within the run-time group set in p20068.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20070[0...3]</b>	<b>BI: XOR 2 inputs / XOR 2 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantities I0, I1, I2, I3 of instance XOR 2 of the XOR function block.			
<b>Index:</b>			
[0] = Input I0			
[1] = Input I1			
[2] = Input I2			
[3] = Input I3			
<b>r20071</b>	<b>BO: XOR 2 output Q / XOR 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for binary quantity Q of instance XOR 2 of the XOR function block.			

<b>p20072</b>	<b>XOR 2 run-time group / XOR 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance XOR 2 of the XOR function block is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20073</b>	<b>XOR 2 run sequence / XOR 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 130
<b>Description:</b>	Setting parameter for the run sequence of instance XOR 2 within the run-time group set in p20072.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20074[0...3]</b>	<b>BI: XOR 3 inputs / XOR 3 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities I0, I1, I2, I3 of instance XOR 3 of the XOR function block.		
<b>Index:</b>	[0] = Input I0 [1] = Input I1 [2] = Input I2 [3] = Input I3		
<b>r20075</b>	<b>BO: XOR 3 output Q / XOR 3 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity Q of instance XOR 3 of the XOR function block.		
<b>p20076</b>	<b>XOR 3 run-time group / XOR 3 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance XOR 3 of the XOR function block is to be called.		



<b>Value:</b>	1:	Run-time group 1
	2:	Run-time group 2
	3:	Run-time group 3
	4:	Run-time group 4
	5:	Run-time group 5
	6:	Run-time group 6
	9999:	Do not calculate

<b>p20077</b>	<b>XOR 3 run sequence / XOR 3 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 140
<b>Description:</b>	Setting parameter for the run sequence of instance XOR 3 within the run-time group set in p20076.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		

<b>p20078</b>	<b>BI: NOT 0 input I / NOT 0 input I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantity I of instance NOT 0 of the inverter.		

<b>r20079</b>	<b>BO: NOT 0 inverted output / NOT 0 inv output</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the inverted output of instance NOT 0 of the inverter.		

<b>p20080</b>	<b>NOT 0 run-time group / NOT 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance NOT 0 of the inverter is to be called.		
<b>Value:</b>	1:	Run-time group 1	
	2:	Run-time group 2	
	3:	Run-time group 3	
	4:	Run-time group 4	
	5:	Run-time group 5	
	6:	Run-time group 6	
	9999:	Do not calculate	

<b>p20081</b>	<b>NOT 0 run sequence / NOT 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 160
<b>Description:</b>	Setting parameter for the run sequence of instance NOT 0 within the run-time group set in p20080.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20082</b>	<b>BI: NOT 1 input I / NOT 1 input I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantity I of instance NOT 1 of the inverter.		
<b>r20083</b>	<b>BO: NOT 1 inverted output / NOT 1 inv output</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the inverted output of instance NOT 1 of the inverter.		
<b>p20084</b>	<b>NOT 1 run-time group / NOT 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance NOT 1 of the inverter is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20085</b>	<b>NOT 1 run sequence / NOT 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 170
<b>Description:</b>	Setting parameter for the run sequence of instance NOT 1 within the run-time group set in p20084.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		

<b>p20086</b>	<b>BI: NOT 2 input I / NOT 2 input I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantity I of instance NOT 2 of the inverter.			
<b>r20087</b>	<b>BO: NOT 2 inverted output / NOT 2 inv output</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the inverted output of instance NOT 2 of the inverter.			
<b>p20088</b>	<b>NOT 2 run-time group / NOT 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which the instance NOT 2 of the inverter is to be called.			
<b>Value:</b> 1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20089</b>	<b>NOT 2 run sequence / NOT 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 180
<b>Description:</b> Setting parameter for the run sequence of instance NOT 2 within the run-time group set in p20088.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20090</b>	<b>BI: NOT 3 input I / NOT 3 input I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantity I of instance NOT 3 of the inverter.			

<b>r20091</b>	<b>BO: NOT 3 inverted output / NOT 3 inv output</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the inverted output of instance NOT 3 of the inverter.			
<b>p20092</b>	<b>NOT 3 run-time group / NOT 3 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which the instance NOT 3 of the inverter is to be called.			
<b>Value:</b> 1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20093</b>	<b>NOT 3 run sequence / NOT 3 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 190
<b>Description:</b> Setting parameter for the run sequence of instance NOT 3 within the run-time group set in p20092.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20094[0...3]</b>	<b>CI: ADD 0 inputs / ADD 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantities X0, X1, X2, X3 of instance ADD 0 of the adder.			
<b>Index:</b> [0] = Input X0 [1] = Input X1 [2] = Input X2 [3] = Input X3			
<b>r20095</b>	<b>CO: ADD 0 output Y / ADD 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the output quantity $Y = X0 + X1 + X2 + X3$ of instance ADD 0 of the adder.			

<b>p20096</b>	<b>ADD 0 run-time group / ADD 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance ADD 0 of the adder is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20097</b>	<b>ADD 0 run sequence / ADD 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 210
<b>Description:</b>	Setting parameter for the run sequence of instance ADD 0 within the run-time group set in p20096.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20098[0...3]</b>	<b>CI: ADD 1 inputs / ADD 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities X0, X1, X2, X3 of instance ADD 1 of the adder.		
<b>Index:</b>	[0] = Input X0 [1] = Input X1 [2] = Input X2 [3] = Input X3		
<b>r20099</b>	<b>CO: ADD 1 output Y / ADD 1 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the output quantity $Y = X0 + X1 + X2 + X3$ of instance ADD 1 of the adder.		
<b>p20100</b>	<b>ADD 1 run-time group / ADD 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance ADD 1 of the adder is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		

<b>p20101</b>	<b>ADD 1 run sequence / ADD 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 220
<b>Description:</b>	Setting parameter for the run sequence of instance ADD 1 within the run-time group set in p20100.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20102[0...1]</b>	<b>CI: SUB 0 inputs / SUB 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of minuend X1 and subtrahend X2 of instance SUB 0 of the subtractor.		
<b>Index:</b>	[0] = Minuend X1 [1] = Subtrahend X2		
<b>r20103</b>	<b>CO: SUB 0 difference Y / SUB 0 difference Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the difference Y = X1 - X2 of instance SUB 0 of the subtractor.		
<b>p20104</b>	<b>SUB 0 run-time group / SUB 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance SUB 0 of the subtractor is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20105</b>	<b>SUB 0 run sequence / SUB 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 240
<b>Description:</b>	Setting parameter for the run sequence of instance SUB 0 within the run-time group set in p20104.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		

<b>p20106[0...1]</b>	<b>CI: SUB 1 inputs / SUB 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
	<b>Description:</b> Sets the signal source of minuend X1 and subtrahend X2 of instance SUB 1 of the subtractor.		
	<b>Index:</b> [0] = Minuend X1 [1] = Subtrahend X2		
<b>r20107</b>	<b>CO: SUB 1 difference Y / SUB 1 difference Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
	<b>Description:</b> Display parameter for the difference $Y = X1 - X2$ of instance SUB 1 of the subtractor.		
<b>p20108</b>	<b>SUB 1 run-time group / SUB 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	5	9999	9999
	<b>Description:</b> Setting parameter for the run-time group in which instance SUB 1 of the subtractor is to be called.		
	<b>Value:</b> 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20109</b>	<b>SUB 1 run sequence / SUB 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	32000	250
	<b>Description:</b> Setting parameter for the run sequence of instance SUB 1 within the run-time group set in p20108.		
	<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20110[0...3]</b>	<b>CI: MUL 0 inputs / MUL 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	0
	<b>Description:</b> Sets the signal source of the factors X0, X1, X2, X3 of instance MUL 0 of the multiplier.		
	<b>Index:</b> [0] = Factor X0 [1] = Factor X1 [2] = Factor X2 [3] = Factor X3		

<b>r20111</b>	<b>CO: MUL 0 product Y / MUL 0 product Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the product $Y = X0 * X1 * X2 * X3$ of instance MUL 0 of the multiplier.			
<b>p20112</b>	<b>MUL 0 run-time group / MUL 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which instance MUL 0 of the multiplier is to be called.			
<b>Value:</b> 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20113</b>	<b>MUL 0 run sequence / MUL 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 270
<b>Description:</b> Setting parameter for the run sequence of instance MUL 0 within the run-time group set in p20112.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20114[0...3]</b>	<b>CI: MUL 1 inputs / MUL 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of the factors X0, X1, X2, X3 of instance MUL 1 of the multiplier.			
<b>Index:</b> [0] = Factor X0 [1] = Factor X1 [2] = Factor X2 [3] = Factor X3			
<b>r20115</b>	<b>CO: MUL 1 product Y / MUL 1 product Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the product $Y = X0 * X1 * X2 * X3$ of instance MUL 1 of the multiplier.			



<b>p20116</b>	<b>MUL 1 run-time group / MUL 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance MUL 1 of the multiplier is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20117</b>	<b>MUL 1 run sequence / MUL 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 280
<b>Description:</b>	Setting parameter for the run sequence of instance MUL 1 within the run-time group set in p20116.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20118[0...1]</b>	<b>CI: DIV 0 inputs / DIV 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of dividend X1 and divisor X2 of instance DIV 0 of the divider.		
<b>Index:</b>	[0] = Dividend X0 [1] = Divisor X1		
<b>r20119[0...2]</b>	<b>CO: DIV 0 quotient / DIV 0 quotient</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for quotients $Y = X1/X2$ , integer number quotients YIN, and division remainder $MOD = (Y - YIN) \times X2$ of instance DIV 0 of the divider.		
<b>Index:</b>	[0] = Quotient Y [1] = Integer number quotient YIN [2] = Div remainder MOD		
<b>r20120</b>	<b>BO: DIV 0 divisor is zero QF / DIV 0 divisor=0 QF</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the signal QF that the divisor X2 of instance DIV 0 of the divider is zero. $X2 = 0.0 \Rightarrow QF = 1$		

<b>p20121</b>	<b>DIV 0 run-time group / DIV 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance DIV 0 of the divider is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20122</b>	<b>DIV 0 run sequence / DIV 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 300
<b>Description:</b>	Setting parameter for the run sequence of instance DIV 0 within the run-time group set in p20121.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20123[0...1]</b>	<b>CI: DIV 1 inputs / DIV 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of dividend X1 and divisor X2 of instance DIV 1 of the divider.		
<b>Index:</b>	[0] = Dividend X0 [1] = Divisor X1		
<b>r20124[0...2]</b>	<b>CO: DIV 1 quotient / DIV 1 quotient</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for quotients $Y = X1/X2$ , integer number quotients YIN, and division remainder $MOD = (Y - YIN) \times X2$ of instance DIV 1 of the divider.		
<b>Index:</b>	[0] = Quotient Y [1] = Integer number quotient YIN [2] = Div remainder MOD		
<b>r20125</b>	<b>BO: DIV 1 divisor is zero QF / DIV 1 divisor=0 QF</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the signal QF that the divisor X2 of instance DIV 1 of the divider is zero. $X2 = 0.0 \Rightarrow QF = 1$		

<b>p20126</b>	<b>DIV 1 run-time group / DIV 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance DIV 1 of the divider is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20127</b>	<b>DIV 1 run sequence / DIV 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 310
<b>Description:</b>	Setting parameter for the run sequence of instance DIV 1 within the run-time group set in p20126.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20128</b>	<b>CI: AVA 0 input X / AVA 0 input X</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of the input quantity X of instance AVA 0 of the absolute value generator with sign evaluation.		
<b>r20129</b>	<b>CO: AVA 0 output Y / AVA 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output quantity Y of instance AVA 0 of the absolute value generator with sign evaluation.		
<b>r20130</b>	<b>BO: AVA 0 input negative SN / AVA 0 input neg SN</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for signal SN that the input quantity X of instance AVA 0 of the absolute value generator with sign evaluation is negative. X < 0.0 => SN = 1		

<b>p20131</b>	<b>AVA 0 run-time group / AVA 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance AVA 0 of the absolute value generator with sign evaluation is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20132</b>	<b>AVA 0 run sequence / AVA 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 340
<b>Description:</b>	Setting parameter for the run sequence of instance AVA 0 within the run-time group set in p20131.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20133</b>	<b>CI: AVA 1 input X / AVA 1 input X</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of the input quantity X of instance AVA 1 of the absolute value generator with sign evaluation.		
<b>r20134</b>	<b>CO: AVA 1 output Y / AVA 1 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output quantity Y of instance AVA 1 of the absolute value generator with sign evaluation.		
<b>r20135</b>	<b>BO: AVA 1 input negative SN / AVA 1 input neg SN</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for signal SN that the input quantity X of instance AVA 1 of the absolute value generator with sign evaluation is negative. X < 0.0 => SN = 1		

<b>p20136</b>	<b>AVA 1 run-time group / AVA 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance AVA 1 of the absolute value generator with sign evaluation is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20137</b>	<b>AVA 1 run sequence / AVA 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 350
<b>Description:</b>	Setting parameter for the run sequence of instance AVA 1 within the run-time group set in p20136.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20138</b>	<b>BI: MFP 0 input pulse I / MFP 0 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance MFP 0 of the pulse generator.		
<b>p20139</b>	<b>MFP 0 pulse duration in ms / MFP 0 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse duration T in milliseconds of instance MFP 0 of the pulse generator.		
<b>r20140</b>	<b>BO: MFP 0 output Q / MFP 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance MFP 0 of the pulse generator.		

<b>p20141</b>	<b>MFP 0 run-time group / MFP 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance MFP 0 of the pulse generator is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20142</b>	<b>MFP 0 run sequence / MFP 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 370
<b>Description:</b>	Setting parameter for the run sequence of instance MFP 0 within the run-time group set in p20141.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20143</b>	<b>BI: MFP 1 input pulse I / MFP 1 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance MFP 1 of the pulse generator.		
<b>p20144</b>	<b>MFP 1 pulse duration in ms / MFP 1 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse duration T in milliseconds of instance MFP 1 of the pulse generator.		
<b>r20145</b>	<b>BO: MFP 1 output Q / MFP 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance MFP 1 of the pulse generator.		

<b>p20146</b>	<b>MFP 1 run-time group / MFP 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance MFP 1 of the pulse generator is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20147</b>	<b>MFP 1 run sequence / MFP 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 380
<b>Description:</b>	Setting parameter for the run sequence of instance MFP 1 within the run-time group set in p20146.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20148</b>	<b>BI: PCL 0 input pulse I / PCL 0 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PCL 0 of the pulse shortener.		
<b>p20149</b>	<b>PCL 0 pulse duration in ms / PCL 0 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse duration T in milliseconds of instance PCL 0 of the pulse shortener.		
<b>r20150</b>	<b>BO: PCL 0 output Q / PCL 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PCL 0 of the pulse shortener.		

<b>p20151</b>	<b>PCL 0 run-time group / PCL 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PCL 0 of the pulse shortener is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20152</b>	<b>PCL 0 run sequence / PCL 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 400
<b>Description:</b>	Setting parameter for the run sequence of instance PCL 0 within the run-time group set in p20151.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20153</b>	<b>BI: PCL 1 input pulse I / PCL 1 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PCL 1 of the pulse shortener.		
<b>p20154</b>	<b>PCL 1 pulse duration in ms / PCL 1 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse duration T in milliseconds of instance PCL 1 of the pulse shortener.		
<b>r20155</b>	<b>BO: PCL 1 output Q / PCL 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PCL 1 of the pulse shortener.		



<b>p20156</b>	<b>PCL 1 run-time group / PCL 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PCL 1 of the pulse shortener is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20157</b>	<b>PCL 1 run sequence / PCL 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 410
<b>Description:</b>	Setting parameter for the run sequence of instance PCL 1 within the run-time group set in p20156.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20158</b>	<b>BI: PDE 0 input pulse I / PDE 0 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PDE 0 of the closing delay device.		
<b>p20159</b>	<b>PDE 0 pulse delay time in ms / PDE 0 t_del ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse delay time T in milliseconds of instance PDE 0 of the closing delay device.		
<b>r20160</b>	<b>BO: PDE 0 output Q / PDE 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDE 0 of the closing delay device.		

<b>p20161</b>	<b>PDE 0 run-time group / PDE 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance PDE 0 of the closing delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20162</b>	<b>PDE 0 run sequence / PDE 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 430
<b>Description:</b>	Setting parameter for the run sequence of instance PDE 0 within the run-time group set in p20161.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20163</b>	<b>BI: PDE 1 input pulse I / PDE 1 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PDE 1 of the closing delay device.		
<b>p20164</b>	<b>PDE 1 pulse delay time in ms / PDE 1 t_del ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse delay time T in milliseconds of instance PDE 1 of the closing delay device.		
<b>r20165</b>	<b>BO: PDE 1 output Q / PDE 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDE 1 of the closing delay device.		

<b>p20166</b>	<b>PDE 1 run-time group / PDE 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance PDE 1 of the closing delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20167</b>	<b>PDE 1 run sequence / PDE 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 440
<b>Description:</b>	Setting parameter for the run sequence of instance PDE 1 within the run-time group set in p20166.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20168</b>	<b>BI: PDF 0 input pulse I / PDF 0 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PDF 0 of the breaking delay device.		
<b>p20169</b>	<b>PDF 0 pulse extension time in ms / PDF 0 t_ext ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse extension time T in milliseconds of instance PDF 0 of the breaking delay device.		
<b>r20170</b>	<b>BO: PDF 0 output Q / PDF 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDF 0 of the breaking delay device.		

<b>p20171</b>	<b>PDF 0 run-time group / PDF 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PDF 0 of the breaking delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20172</b>	<b>PDF 0 run sequence / PDF 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 460
<b>Description:</b>	Setting parameter for the run sequence of instance PDF 0 within the run-time group set in p20171.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20173</b>	<b>BI: PDF 1 input pulse I / PDF 1 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PDF 1 of the breaking delay device.		
<b>p20174</b>	<b>PDF 1 pulse extension time in ms / PDF 1 t_ext ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse extension time T in milliseconds of instance PDF 1 of the breaking delay device.		
<b>r20175</b>	<b>BO: PDF 1 output Q / PDF 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDF 1 of the breaking delay device.		

<b>p20176</b>	<b>PDF 1 run-time group / PDF 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PDF 1 of the breaking delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20177</b>	<b>PDF 1 run sequence / PDF 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 470
<b>Description:</b>	Setting parameter for the run sequence of instance PDF 1 within the run-time group set in p20176.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20178[0...1]</b>	<b>BI: PST 0 inputs / PST 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for input pulse I and the reset input R of instance PST 0 of the pulse extension element.		
<b>Index:</b>	[0] = Input pulse I [1] = Reset input R		
<b>p20179</b>	<b>PST 0 pulse duration in ms / PST 0 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse duration T in milliseconds of instance PST 0 of the pulse extension element.		
<b>r20180</b>	<b>BO: PST 0 output Q / PST 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PST 0 of the pulse extension element.		

<b>p20181</b>	<b>PST 0 run-time group / PST 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PST 0 of the pulse extension element is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20182</b>	<b>PST 0 run sequence / PST 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 7999	<b>Factory setting</b> 490
<b>Description:</b>	Setting parameter for the run sequence of instance PST 0 within the run-time group set in p20181.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20183[0...1]</b>	<b>BI: PST 1 inputs / PST 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for input pulse I and the reset input R of instance PST 1 of the pulse extension element.		
<b>Index:</b>	[0] = Input pulse I [1] = Reset input R		
<b>p20184</b>	<b>PST 1 pulse duration in ms / PST 1 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse duration T in milliseconds of instance PST 1 of the pulse extension element.		
<b>r20185</b>	<b>BO: PST 1 output Q / PST 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PST 1 of the pulse extension element.		

<b>p20186</b>	<b>PST 1 run-time group / PST 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PST 1 of the pulse extension element is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20187</b>	<b>PST 1 run sequence / PST 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 7999	<b>Factory setting</b> 500
<b>Description:</b>	Setting parameter for the run sequence of instance PST 1 within the run-time group set in p20186.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20188[0...1]</b>	<b>BI: RSR 0 inputs / RSR 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for set input S and reset input R of instance RSR 0 of the RS flipflop.		
<b>Index:</b>	[0] = Set S [1] = Reset R		
<b>r20189</b>	<b>BO: RSR 0 output Q / RSR 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output Q of instance RSR 0 of the RS flipflop		
<b>r20190</b>	<b>BO: RSR 0 inverted output QN / RSR 0 inv outp QN</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for inverted output QN of instance RSR 0 of the RS flipflop.		

p20191	RSR 0 run-time group / RSR 0 RTG		
	Access level: 3	Calculated: -	Data type: Integer16
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
Description:	Min	Max	Factory setting
	1	9999	9999
	Setting parameter for the run-time group in which instance RSR 0 of the RS flipflop is to be called.		
	Value:		
	1: Run-time group 1		
	2: Run-time group 2		
	3: Run-time group 3		
	4: Run-time group 4		
	5: Run-time group 5		
	6: Run-time group 6		
	9999: Do not calculate		
p20192	RSR 0 run sequence / RSR 0 RunSeq		
	Access level: 3	Calculated: -	Data type: Unsigned16
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
Description:	Min	Max	Factory setting
	0	7999	520
	Setting parameter for the run sequence of instance RSR 0 within the run-time group set in p20191.		
	Note:		
	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
p20193[0...1]	BI: RSR 1 inputs / RSR 1 inputs		
	Access level: 3	Calculated: -	Data type: U32 / Binary
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
Description:	Min	Max	Factory setting
	-	-	0
	Sets the signal source for set input S and reset input R of instance RSR 1 of the RS flipflop.		
	Index:		
	[0] = Set S		
	[1] = Reset R		
r20194	BO: RSR 1 output Q / RSR 1 output Q		
	Access level: 3	Calculated: -	Data type: Unsigned32
	Can be changed: -	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
Description:	Min	Max	Factory setting
	-	-	-
	Display parameter for output Q of instance RSR 1 of the RS flipflop		
r20195	BO: RSR 1 inverted output QN / RSR 1 inv outp QN		
	Access level: 3	Calculated: -	Data type: Unsigned32
	Can be changed: -	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
Description:	Min	Max	Factory setting
	-	-	-
	Display parameter for inverted output QN of instance RSR 1 of the RS flipflop.		



<b>p20196</b>	<b>RSR 1 run-time group / RSR 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b> <b>Value:</b>	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
	Setting parameter for the run-time group in which instance RSR 1 of the RS flipflop is to be called.		
	1: Run-time group 1		
	2: Run-time group 2		
<b>Note:</b>	3: Run-time group 3		
	4: Run-time group 4		
	5: Run-time group 5		
	6: Run-time group 6		
<b>p20197</b>	<b>RSR 1 run sequence / RSR 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b> <b>Note:</b>	<b>Min</b> 0	<b>Max</b> 7999	<b>Factory setting</b> 530
	Setting parameter for the run sequence of instance RSR 1 within the run-time group set in p20196.		
	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20198[0...3]</b>	<b>BI: DFR 0 inputs / DFR 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b> <b>Index:</b>	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
	Sets the signal source for trigger input I, D input D, set input S, and reset input R of instance DFR 0 of the D flipflop.		
	[0] = Trigger input I		
	[1] = D input D		
<b>r20199</b>	<b>BO: DFR 0 output Q / DFR 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b>	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
	Display parameter for output Q of instance DFR 0 of the D flipflop.		
<b>r20200</b>	<b>BO: DFR 0 inverted output QN / DFR 0 inv outp QN</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Description:</b>	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
	Display parameter for the inverted output QN of instance DFR 0 of the D flipflop.		

<b>p20201</b>	<b>DFR 0 run-time group / DFR 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance DFR 0 of the D flipflop is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20202</b>	<b>DFR 0 run sequence / DFR 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 550
<b>Description:</b>	Setting parameter for the run sequence of instance DFR 0 within the run-time group set in p20201.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20203[0...3]</b>	<b>BI: DFR 1 inputs / DFR 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for trigger input I, D input D, set input S, and reset input R of instance DFR 1 of the D flipflop.		
<b>Index:</b>	[0] = Trigger input I [1] = D input D [2] = Set S [3] = Reset R		
<b>r20204</b>	<b>BO: DFR 1 output Q / DFR 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output Q of instance DFR 1 of the D flipflop.		
<b>r20205</b>	<b>BO: DFR 1 inverted output QN / DFR 1 inv outp QN</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the inverted output QN of instance DFR 1 of the D flipflop.		

<b>p20206</b>	<b>DFR 1 run-time group / DFR 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance DFR 1 of the D flipflop is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20207</b>	<b>DFR 1 run sequence / DFR 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 560
<b>Description:</b>	Setting parameter for the run-time group of instance DFR 1 within the run-time group set in p20206.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20208[0...1]</b>	<b>BI: BSW 0 inputs / BSW 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities I0 and I1 of instance BSW 0 of the binary changeover switch.		
<b>Index:</b>	[0] = Input I0 [1] = Input I1		
<b>p20209</b>	<b>BI: BSW 0 switch setting I / BSW 0 sw_setting</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of the switch setting I of instance BSW 0 of the binary changeover switch.		
<b>r20210</b>	<b>BO: BSW 0 output Q / BSW 0 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output quantity Q of instance BSW 0 of the binary changeover switch.		

<b>p20211</b>	<b>BSW 0 run-time group / BSW 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance BSW 0 of the binary changeover switch is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20212</b>	<b>BSW 0 run sequence / BSW 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 7999	<b>Factory setting</b> 580
<b>Description:</b>	Setting parameter for the run sequence of instance BSW 0 within the run-time group set in p20211.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20213[0...1]</b>	<b>BI: BSW 1 inputs / BSW 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities I0 and I1 of instance BSW 1 of the binary changeover switch.		
<b>Index:</b>	[0] = Input I0 [1] = Input I1		
<b>p20214</b>	<b>BI: BSW 1 switch setting I / BSW 1 sw_setting</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of the switch setting I of instance BSW 1 of the binary changeover switch.		
<b>r20215</b>	<b>BO: BSW 1 output Q / BSW 1 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output quantity Q of instance BSW 1 of the binary changeover switch.		

<b>p20216</b>	<b>BSW 1 run-time group / BSW 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance BSW 1 of the binary changeover switch is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20217</b>	<b>BSW 1 run sequence / BSW 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 7999	<b>Factory setting</b> 590
<b>Description:</b>	Setting parameter for the run sequence of instance BSW 1 within the run-time group set in p20216.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20218[0...1]</b>	<b>CI: NSW 0 inputs / NSW 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities X0 and X1 of instance NSW 0 of the numeric changeover switch.		
<b>Index:</b>	[0] = Input X0 [1] = Input X1		
<b>p20219</b>	<b>BI: NSW 0 switch setting I / NSW 0 sw_setting</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of the switch setting I of instance NSW 0 of the numeric changeover switch.		
<b>r20220</b>	<b>CO: NSW 0 output Y / NSW 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output quantity Y of instance NSW 0 of the numeric changeover switch.		

<b>p20221</b>	<b>NSW 0 run-time group / NSW 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance NSW 0 of the numeric changeover switch is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20222</b>	<b>NSW 0 run sequence / NSW 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 610
<b>Description:</b>	Setting parameter for the run sequence of instance NSW 0 within the run-time group set in p20221.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20223[0...1]</b>	<b>CI: NSW 1 inputs / NSW 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities X0 and X1 of instance NSW 1 of the numeric changeover switch.		
<b>Index:</b>	[0] = Input X0 [1] = Input X1		
<b>p20224</b>	<b>BI: NSW 1 switch setting I / NSW 1 sw_setting</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of the switch setting I of instance NSW 1 of the numeric changeover switch.		
<b>r20225</b>	<b>CO: NSW 1 output Y / NSW 1 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output quantity Y of instance NSW 1 of the numeric changeover switch.		

<b>p20226</b>	<b>NSW 1 run-time group / NSW 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance NSW 1 of the numeric changeover switch is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20227</b>	<b>NSW 1 run sequence / NSW 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 620
<b>Description:</b>	Setting parameter for the run sequence of instance NSW 1 within the run-time group set in p20226.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20228</b>	<b>CI: LIM 0 input X / LIM 0 input X</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantity X of instance LIM 0 of the limiter.		
<b>p20229</b>	<b>LIM 0 upper limit value LU / LIM 0 upper lim LU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Setting parameter for the upper limit value LU of instance LIM 0 of the limiter.		
<b>p20230</b>	<b>LIM 0 lower limit value LL / LIM 0 lower lim LL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Setting parameter for the lower limit value LL of instance LIM 0 of the limiter.		

<b>r20231</b>	<b>CO: LIM 0 output Y / LIM 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Display parameter for the limited output quantity Y of instance LIM 0 of the limiter.		
<b>r20232</b>	<b>BO: LIM 0 input quantity at the upper limit QU / LIM 0 QU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Display parameter of instance LIM 0 of limiter QU (upper limit reached), i.e. QU = 1 for X >= LU.		
<b>r20233</b>	<b>BO: LIM 0 input quantity at the lower limit QL / LIM 0 QL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Display parameter of instance LIM 0 of limiter QL (lower limit reached), i.e. QL = 1 for X <= LL.		
<b>p20234</b>	<b>LIM 0 run-time group / LIM 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	5	9999	9999
<b>Description:</b>	Setting parameter for the run-time group in which instance LIM 0 of the limiter is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20235</b>	<b>LIM 0 run sequence / LIM 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	0	32000	640
<b>Description:</b>	Setting parameter for the run sequence of instance LIM 0 within the run-time group set in p20234.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		



<b>p20236</b>	<b>CI: LIM 1 input X / LIM 1 input X</b>		
	Access level: 3	Calculated: -	Data type: U32 / FloatingPoint32
	Can be changed: T	Scaling: PERCENT	Data set: -
	Units group: -	Unit selection: -	
	Min -	Max -	Factory setting 0
<b>Description:</b>	Sets the signal source of input quantity X of instance LIM 1 of the limiter.		
<b>p20237</b>	<b>LIM 1 upper limit value LU / LIM 1 upper lim LU</b>		
	Access level: 3	Calculated: -	Data type: FloatingPoint32
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.0000
<b>Description:</b>	Setting parameter for the upper limit value LU of instance LIM 1 of the limiter.		
<b>p20238</b>	<b>LIM 1 lower limit value LL / LIM 1 lower lim LL</b>		
	Access level: 3	Calculated: -	Data type: FloatingPoint32
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.0000
<b>Description:</b>	Setting parameter for the lower limit value LL of instance LIM 1 of the limiter.		
<b>r20239</b>	<b>CO: LIM 1 output Y / LIM 1 output Y</b>		
	Access level: 3	Calculated: -	Data type: FloatingPoint32
	Can be changed: -	Scaling: PERCENT	Data set: -
	Units group: -	Unit selection: -	
	Min -	Max -	Factory setting -
<b>Description:</b>	Display parameter for the limited output quantity Y of instance LIM 1 of the limiter.		
<b>r20240</b>	<b>BO: LIM 1 input quantity at the upper limit QU / LIM 1 QU</b>		
	Access level: 3	Calculated: -	Data type: Unsigned32
	Can be changed: -	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min -	Max -	Factory setting -
<b>Description:</b>	Display parameter of instance LIM 1 of limiter QU (upper limit reached), i.e. QU = 1 for X >= LU.		
<b>r20241</b>	<b>BO: LIM 1 input quantity at the lower limit QL / LIM 1 QL</b>		
	Access level: 3	Calculated: -	Data type: Unsigned32
	Can be changed: -	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min -	Max -	Factory setting -
<b>Description:</b>	Display parameter of instance LIM 1 of limiter QL (lower limit reached), i.e. QL = 1 for X <= LL.		

<b>p20242</b>	<b>LIM 1 run-time group / LIM 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance LIM 1 of the limiter is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20243</b>	<b>LIM 1 run sequence / LIM 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 650
<b>Description:</b>	Setting parameter for the run sequence of instance LIM 1 within the run-time group set in p20242.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20244[0...1]</b>	<b>CI: PT1 0 inputs / PT1 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantity X and of setting value SV of instance PT1 0 of the smoothing element.		
<b>Index:</b>	[0] = Input X [1] = Setting value SV		
<b>p20245</b>	<b>BI: PT1 0 accept setting value S / PT1 0 acc set val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the "accept setting value" signal of instant PT1 0 of the smoothing element.		
<b>p20246</b>	<b>PT1 0 smoothing time constant in ms / PT1 0 T_smooth ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.00
<b>Description:</b>	Sets the smoothing time constant T in milliseconds of instance PT1 0 of the smoothing element.		

<b>r20247</b>	<b>CO: PT1 0 output Y / PT1 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the smoothed output quantity Y of instance PT1 0 of the smoothing element.			
<b>p20248</b>	<b>PT1 0 run-time group / PT1 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which instance PT1 0 of the smoothing element is to be called.			
<b>Value:</b> 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20249</b>	<b>PT1 0 run sequence / PT1 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 670
<b>Description:</b> Setting parameter for the run sequence of instance PT1 0 within the run-time group set in p20248.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20250[0...1]</b>	<b>CI: PT1 1 inputs / PT1 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantity X and of setting value SV of instance PT1 1 of the smoothing element.			
<b>Index:</b> [0] = Input X [1] = Setting value SV			
<b>p20251</b>	<b>BI: PT1 1 accept setting value S / PT1 1 acc set val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source for the "accept setting value" signal of instant PT1 1 of the smoothing element.			

<b>p20252</b>	<b>PT1 1 smoothing time constant in ms / PT1 1 T_smooth ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.00
<b>Description:</b>	Sets the smoothing time constant T in milliseconds of instance PT1 1 of the smoothing element.		
<b>r20253</b>	<b>CO: PT1 1 output Y / PT1 1 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the smoothed output quantity Y of instance PT1 1 of the smoothing element.		
<b>p20254</b>	<b>PT1 1 run-time group / PT1 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance PT1 1 of the smoothing element is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20255</b>	<b>PT1 1 run sequence / PT1 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 680
<b>Description:</b>	Setting parameter for the run sequence of instance PT1 1 within the run-time group set in p20254.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20256[0...1]</b>	<b>CI: INT 0 inputs / INT 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantity X and of setting value SV of instance INT 0 of the integrator.		
<b>Index:</b>	[0] = Input X [1] = Setting value SV		

<b>p20257</b>	<b>INT 0 upper limit value LU / INT 0 upper lim LU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Sets the upper limit value LU of instance INT 0 of the integrator.		
<b>p20258</b>	<b>INT 0 lower limit value LL / INT 0 lower lim LL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Sets the lower limit value LL of instance INT 0 of the integrator.		
<b>p20259</b>	<b>INT 0 integrating time constant in ms / INT 0 T_Integr ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.00
<b>Description:</b>	Sets the integrating time constant Ti in milliseconds of instance INT 0 of the integrator.		
<b>p20260</b>	<b>BI: INT 0 accept setting value S / INT 0 acc set val</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the "accept setting value" signal of instant INT 0 of the integrator.		
<b>r20261</b>	<b>CO: INT 0 output Y / INT 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output quantity Y of instance INT 0 of the integrator. If LL >= LU, then the output quantity Y = LU.		
<b>r20262</b>	<b>BO: INT 0 integrator at the upper limit QU / INT 0 QU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the signal QU that output quantity Y of instance INT 0 of the integrator has reached the upper limit value LU.		

<b>r20263</b>	<b>BO: INT 0 integrator at the lower limit QL / INT 0 QL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the signal QL that output quantity Y of instance INT 0 of the integrator has reached the lower limit value LL.		
<b>p20264</b>	<b>INT 0 run-time group / INT 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance INT 0 of the integrator is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20265</b>	<b>INT 0 run sequence / INT 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 700
<b>Description:</b>	Setting parameter for the run sequence of instance INT 0 within the run-time group set in p20264.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20266</b>	<b>CI: LVM 0 input X / LVM 0 input X</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantity X of instance LVM 0 of the double-sided limiter.		
<b>p20267</b>	<b>LVM 0 interval average value M / LVM 0 avg value M</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Setting parameter for the interval average M of instance LVM 0 of the double-sided limiter.		

<b>p20268</b>	<b>LVM 0 interval limit L / LVM 0 limit L</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Setting parameter for the interval limit L of instance LVM 0 of the double-sided limiter.		
<b>p20269</b>	<b>LVM 0 hyst HY / LVM 0 hyst HY</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Setting parameter for hysteresis HY of instance LVM 0 of the double-sided limiter.		
<b>r20270</b>	<b>BO: LVM 0 input quantity above interval QU / LVM 0 X above QU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter of instance LVM 0 of the double-sided limiter that input quantity X was at least once $X > M + L$ and $X \geq M + L - HY$ .		
<b>r20271</b>	<b>BO: LVM 0 input quantity within interval QM / LVM 0 X within QM</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter of instance LVM 0 of the double-sided limiter that the input quantity X lies within the interval.		
<b>r20272</b>	<b>BO: LVM 0 input quantity below interval QL / LVM 0 X below QL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter of instance LVM 0 of the double-sided limiter that input quantity X was at least once $X < M - L$ and $X \leq M - L + HY$ .		
<b>p20273</b>	<b>LVM 0 run-time group / LVM 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance LVM 0 of the double-sided limiter is to be called.		

Value: 5: Run-time group 5  
 6: Run-time group 6  
 9999: Do not calculate

<b>p20274</b>	<b>LVM 0 run sequence / LVM 0 RunSeq</b>		
	Access level: 3	Calculated: -	Data type: Unsigned16
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min 0	Max 7999	Factory setting 720
<b>Description:</b>	Setting parameter for the run sequence of instance LVM 0 within the run-time group set in p20273.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20275</b>	<b>CI: LVM 1 input X / LVM 1 input X</b>		
	Access level: 3	Calculated: -	Data type: U32 / FloatingPoint32
	Can be changed: T	Scaling: PERCENT	Data set: -
	Units group: -	Unit selection: -	
	Min -	Max -	Factory setting 0
<b>Description:</b>	Sets the signal source of input quantity X of instance LVM 1 of the double-sided limiter.		
<b>p20276</b>	<b>LVM 1 interval average value M / LVM 1 avg value M</b>		
	Access level: 3	Calculated: -	Data type: FloatingPoint32
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.0000
<b>Description:</b>	Setting parameter for the interval average M of instance LVM 1 of the double-sided limiter.		
<b>p20277</b>	<b>LVM 1 interval limit L / LVM 1 limit L</b>		
	Access level: 3	Calculated: -	Data type: FloatingPoint32
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.0000
<b>Description:</b>	Setting parameter for the interval limit L of instance LVM 1 of the double-sided limiter.		
<b>p20278</b>	<b>LVM 1 hyst HY / LVM 1 hyst HY</b>		
	Access level: 3	Calculated: -	Data type: FloatingPoint32
	Can be changed: T	Scaling: -	Data set: -
	Units group: -	Unit selection: -	
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.0000
<b>Description:</b>	Setting parameter for hysteresis HY of instance LVM 1 of the double-sided limiter.		



<b>r20279</b>	<b>BO: LVM 1 input quantity above interval QU / LVM 1 X above QU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter of instance LVM 1 of the double-sided limiter that input quantity X was at least once $X > M + L$ and X is $\geq M + L - HY$ .		
<b>r20280</b>	<b>BO: LVM 1 input quantity within interval QM / LVM 1 X within QM</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter of instance LVM 1 of the double-sided limiter that the input quantity X lies within the interval.		
<b>r20281</b>	<b>BO: LVM 1 input quantity below interval QL / LVM 1 X below QL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter of instance LVM 1 of the double-sided limiter that input quantity X was at least once $X < M - L$ and X is $\leq M - L + HY$ .		
<b>p20282</b>	<b>LVM 1 run-time group / LVM 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance LVM 1 of the double-sided limiter is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20283</b>	<b>LVM 1 run sequence / LVM 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 7999	<b>Factory setting</b> 730
<b>Description:</b>	Setting parameter for the run sequence of instance LVM 1 within the run-time group set in p20282.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		

<b>p20284</b>	<b>CI: DIF 0 input X / DIF 0 input X</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantity X of instance DIF 0 of the differentiating element.			
<b>p20285</b>	<b>DIF 0 differentiating time constant in ms / DIF 0 T_diff ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.00
<b>Description:</b> Sets the differentiating time constant Td in milliseconds of instance DIF 0 of the differentiating element.			
<b>r20286</b>	<b>CO: DIF 0 output Y / DIF 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for output quantity Y of instance DIF 0 of the differentiating element.			
<b>p20287</b>	<b>DIF 0 run-time group / DIF 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which instance DIF 0 of the differentiating element is to be called.			
<b>Value:</b> 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20288</b>	<b>DIF 0 run sequence / DIF 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 750
<b>Description:</b> Setting parameter for the run sequence of instance DIF 0 within the run-time group set in p20287.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			

<b>p20300</b>	<b>BI: NOT 4 input I / NOT 4 input I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantity I of instance NOT 4 of the inverter.			
<b>r20301</b>	<b>BO: NOT 4 inverted output / NOT 4 inv output</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the inverted output of instance NOT 4 of the inverter.			
<b>p20302</b>	<b>NOT 4 run-time group / NOT 4 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which the instance NOT 4 of the inverter is to be called.			
<b>Value:</b> 1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20303</b>	<b>NOT 4 run sequence / NOT 4 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 770
<b>Description:</b> Setting parameter for the run sequence of instance NOT 4 within the run-time group set in p20302.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20304</b>	<b>BI: NOT 5 input I / NOT 5 input I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source of input quantity I of instance NOT 5 of the inverter.			

**r20305 BO: NOT 5 inverted output / NOT 5 inv output**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Display parameter for the inverted output of instance NOT 5 of the inverter.

**p20306 NOT 5 run-time group / NOT 5 RTG**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
1	9999	9999

**Description:** Setting parameter for the run-time group in which the instance NOT 5 of the inverter is to be called.

**Value:**

- 1: Run-time group 1
- 2: Run-time group 2
- 3: Run-time group 3
- 4: Run-time group 4
- 5: Run-time group 5
- 6: Run-time group 6
- 9999: Do not calculate

**p20307 NOT 5 run sequence / NOT 5 RunSeq**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
0	32000	780

**Description:** Setting parameter for the run sequence of instance NOT 5 within the run-time group set in p20306.

**Note:** The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.

**p20308[0...3] CI: ADD 2 inputs / ADD 2 inputs**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	0

**Description:** Sets the signal source of input quantities X0, X1, X2, X3 of instance ADD 2 of the adder.

**Index:**

- [0] = Input X0
- [1] = Input X1
- [2] = Input X2
- [3] = Input X3

**r20309 CO: ADD 2 output Y / ADD 2 output Y**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
-	-	-

**Description:** Display parameter for the output quantity  $Y = X0 + X1 + X2 + X3$  of instance ADD 2 of the adder.

<b>p20310</b>	<b>ADD 2 run-time group / ADD 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance ADD 2 of the adder is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20311</b>	<b>ADD 2 run sequence / ADD 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 800
<b>Description:</b>	Setting parameter for the run sequence of instance ADD 2 within the run-time group set in p20310.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20312[0...1]</b>	<b>CI: NCM 0 inputs / NCM 0 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities X0 and X1 of instance NCM 0 of the numeric comparator.		
<b>Index:</b>	[0] = Input X0 [1] = Input X1		
<b>r20313</b>	<b>BO: NCM 0 output QU / NCM 0 output QU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity QU of instance NCM 0 of the numeric comparator. QU is only set if X0 > X1.		
<b>r20314</b>	<b>BO: NCM 0 output QE / NCM 0 output QE</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity QE of instance NCM 0 of the numeric comparator. QE is only set if X0 = X1.		

<b>r20315</b>	<b>BO: NCM 0 output QL / NCM 0 output QL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity QL of instance NCM 0 of the numeric comparator. QL is only set if $X0 < X1$ .		
<b>p20316</b>	<b>NCM 0 run-time group / NCM 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance NCM 0 of the numeric comparator is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20317</b>	<b>NCM 0 run sequence / NCM 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 820
<b>Description:</b>	Setting parameter for the run sequence of instance NCM 0 within the run-time group set in p20316.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20318[0...1]</b>	<b>CI: NCM 1 inputs / NCM 1 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source of input quantities X0 and X1 of instance NCM 1 of the numeric comparator.		
<b>Index:</b>	[0] = Input X0 [1] = Input X1		
<b>r20319</b>	<b>BO: NCM 1 output QU / NCM 1 output QU</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity QU of instance NCM 1 of the numeric comparator. QU is only set if $X0 > X1$ .		

<b>r20320</b>	<b>BO: NCM 1 output QE / NCM 1 output QE</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity QE of instance NCM 1 of the numeric comparator. QE is only set if X0 = X1.		
<b>r20321</b>	<b>BO: NCM 1 output QL / NCM 1 output QL</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for binary quantity QL of instance NCM 1 of the numeric comparator. QL is only set if X0 < X1.		
<b>p20322</b>	<b>NCM 1 run-time group / NCM 1 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance NCM 1 of the numeric comparator is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20323</b>	<b>NCM 1 run sequence / NCM 1 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 830
<b>Description:</b>	Setting parameter for the run sequence of instance NCM 1 within the run-time group set in p20322.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20324[0...1]</b>	<b>BI: RSR 2 inputs / RSR 2 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for set input S and reset input R of instance RSR 2 of the RS flipflop.		
<b>Index:</b>	[0] = Set S [1] = Reset R		

<b>r20325</b>	<b>BO: RSR 2 output Q / RSR 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output Q of instance RSR 2 of the RS flipflop		
<b>r20326</b>	<b>BO: RSR 2 inverted output QN / RSR 2 inv outp QN</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for inverted output QN of instance RSR 2 of the RS flipflop.		
<b>p20327</b>	<b>RSR 2 run-time group / RSR 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance RSR 2 of the RS flipflop is to be called.		
<b>Value:</b>	1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20328</b>	<b>RSR 2 run sequence / RSR 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 7999	<b>Factory setting</b> 850
<b>Description:</b>	Setting parameter for the run sequence of instance RSR 2 within the run-time group set in p20327.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20329[0...3]</b>	<b>BI: DFR 2 inputs / DFR 2 inputs</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for trigger input I, D input D, set input S, and reset input R of instance DFR 2 of the D flipflop.		
<b>Index:</b>	[0] = Trigger input I [1] = D input D [2] = Set S [3] = Reset R		



<b>r20330</b>	<b>BO: DFR 2 output Q / DFR 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for output Q of instance DFR 2 of the D flipflop.			
<b>r20331</b>	<b>BO: DFR 2 inverted output QN / DFR 2 inv outp QN</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for the inverted output QN of instance DFR 2 of the D flipflop.			
<b>p20332</b>	<b>DFR 2 run-time group / DFR 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 1	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which instance DFR 2 of the D flipflop is to be called.			
<b>Value:</b> 1: Run-time group 1 2: Run-time group 2 3: Run-time group 3 4: Run-time group 4 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20333</b>	<b>DFR 2 run sequence / DFR 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 870
<b>Description:</b> Setting parameter for the run-time group of instance DFR 2 within the run-time group set in p20332.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20334</b>	<b>BI: PDE 2 input pulse I / PDE 2 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source for the input pulse I of instance PDE 2 of the closing delay device.			

<b>p20335</b>	<b>PDE 2 pulse delay time in ms / PDE 2 t_del ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse delay time T in milliseconds of instance PDE 2 of the closing delay device.		
<b>r20336</b>	<b>BO: PDE 2 output Q / PDE 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDE 2 of the closing delay device.		
<b>p20337</b>	<b>PDE 2 run-time group / PDE 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance PDE 2 of the closing delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20338</b>	<b>PDE 2 run sequence / PDE 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 890
<b>Description:</b>	Setting parameter for the run sequence of instance PDE 2 within the run-time group set in p20337.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20339</b>	<b>BI: PDE 3 input pulse I / PDE 3 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PDE 3 of the closing delay device.		

<b>p20340</b>	<b>PDE 3 pulse delay time in ms / PDE 3 t_del ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse delay time T in milliseconds of instance PDE 3 of the closing delay device.		
<b>r20341</b>	<b>BO: PDE 3 output Q / PDE 3 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDE 3 of the closing delay device.		
<b>p20342</b>	<b>PDE 3 run-time group / PDE 3 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance PDE 3 of the closing delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20343</b>	<b>PDE 3 run sequence / PDE 3 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 900
<b>Description:</b>	Setting parameter for the run sequence of instance PDE 3 within the run-time group set in p20342.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20344</b>	<b>BI: PDF 2 input pulse I / PDF 2 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PDF 2 of the breaking delay device.		

<b>p20345</b>	<b>PDF 2 pulse extension time in ms / PDF 2 t_ext ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse extension time T in milliseconds of instance PDF 2 of the breaking delay device.		
<b>r20346</b>	<b>BO: PDF 2 output Q / PDF 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDF 2 of the breaking delay device.		
<b>p20347</b>	<b>PDF 2 run-time group / PDF 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PDF 2 of the breaking delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20348</b>	<b>PDF 2 run sequence / PDF 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 920
<b>Description:</b>	Setting parameter for the run sequence of instance PDE 2 within the run-time group set in p20347.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20349</b>	<b>BI: PDF 3 input pulse I / PDF 3 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance PDF 3 of the breaking delay device.		

<b>p20350</b>	<b>PDF 3 pulse extension time in ms / PDF 3 t_ext ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse extension time T in milliseconds of instance PDF 3 of the breaking delay device.		
<b>r20351</b>	<b>BO: PDF 3 output Q / PDF 3 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance PDF 3 of the breaking delay device.		
<b>p20352</b>	<b>PDF 3 run-time group / PDF 3 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance PDF 3 of the breaking delay device is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20353</b>	<b>PDF 3 run sequence / PDF 3 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 930
<b>Description:</b>	Setting parameter for the run sequence of instance PDE 3 within the run-time group set in p20352.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20354</b>	<b>BI: MFP 2 input pulse I / MFP 2 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance MFP 2 of the pulse generator.		

<b>p20355</b>	<b>MFP 2 pulse duration in ms / MFP 2 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b>	Setting parameter for pulse duration T in milliseconds of instance MFP 2 of the pulse generator.		
<b>r20356</b>	<b>BO: MFP 2 output Q / MFP 2 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for output pulse Q of instance MFP 2 of the pulse generator.		
<b>p20357</b>	<b>MFP 2 run-time group / MFP 2 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which the instance MFP 2 of the pulse generator is to be called.		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20358</b>	<b>MFP 2 run sequence / MFP 2 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 950
<b>Description:</b>	Setting parameter for the run sequence of instance MFP 2 within the run-time group set in p20357.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20359</b>	<b>BI: MFP 3 input pulse I / MFP 3 inp_pulse I</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / Binary
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for the input pulse I of instance MFP 3 of the pulse generator.		

<b>p20360</b>	<b>MFP 3 pulse duration in ms / MFP 3 pulse_dur ms</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0.00	<b>Max</b> 5400000.00	<b>Factory setting</b> 0.00
<b>Description:</b> Setting parameter for pulse duration T in milliseconds of instance MFP 3 of the pulse generator.			
<b>r20361</b>	<b>BO: MFP 3 output Q / MFP 3 output Q</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned32
	<b>Can be changed:</b> -	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b> Display parameter for output pulse Q of instance MFP 3 of the pulse generator.			
<b>p20362</b>	<b>MFP 3 run-time group / MFP 3 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b> Setting parameter for the run-time group in which the instance MFP 3 of the pulse generator is to be called.			
<b>Value:</b> 5: Run-time group 5 6: Run-time group 6 9999: Do not calculate			
<b>p20363</b>	<b>MFP 3 run sequence / MFP 3 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 960
<b>Description:</b> Setting parameter for the run sequence of instance MFP 3 within the run-time group set in p20362.			
<b>Note:</b> The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.			
<b>p20372</b>	<b>CI: PLI 0 input X / PLI 0 input X</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b> Sets the signal source for input X of the polyline (20 breakpoints) of instance PLI 0.			

<b>r20373</b>	<b>CO: PLI 0 output Y / PLI 0 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-	-	-
<b>Description:</b>	Display parameter for the output quantity Y of the polyline (20 breakpoints) of instance PLI 0		

<b>p20374[0...19]</b>	<b>PLI 0 X-coordinate, A breakpoint / PLI 0 X-coordinate</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-340.28235E36	340.28235E36	0.0000
<b>Description:</b>	Sets the x-coordinates for the breakpoints (A0...A19) of the polyline (20 breakpoints) of instance PLI 0.		
<b>Index:</b>	[0] = Breakpoint 0 [1] = Breakpoint 1 [2] = Breakpoint 2 [3] = Breakpoint 3 [4] = Breakpoint 4 [5] = Breakpoint 5 [6] = Breakpoint 6 [7] = Breakpoint 7 [8] = Breakpoint 8 [9] = Breakpoint 9 [10] = Breakpoint 10 [11] = Breakpoint 11 [12] = Breakpoint 12 [13] = Breakpoint 13 [14] = Breakpoint 14 [15] = Breakpoint 15 [16] = Breakpoint 16 [17] = Breakpoint 17 [18] = Breakpoint 18 [19] = Breakpoint 19		

<b>p20375[0...19]</b>	<b>PLI 0 Y-coordinate, B breakpoint / PLI 0 Y-coordinate</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b>	<b>Max</b>	<b>Factory setting</b>
	-340.28235E36	340.28235E36	0.0000
<b>Description:</b>	Sets the y-coordinates for the breakpoints (B0...B19) of the polyline (20 breakpoints) of instance PLI 0.		
<b>Index:</b>	[0] = Breakpoint 0 [1] = Breakpoint 1 [2] = Breakpoint 2 [3] = Breakpoint 3 [4] = Breakpoint 4 [5] = Breakpoint 5 [6] = Breakpoint 6 [7] = Breakpoint 7 [8] = Breakpoint 8 [9] = Breakpoint 9 [10] = Breakpoint 10 [11] = Breakpoint 11 [12] = Breakpoint 12		



[13] = Breakpoint 13  
 [14] = Breakpoint 14  
 [15] = Breakpoint 15  
 [16] = Breakpoint 16  
 [17] = Breakpoint 17  
 [18] = Breakpoint 18  
 [19] = Breakpoint 19

<b>p20376</b>	<b>PLI 0 run-time group / PLI 0 RTG</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999
<b>Description:</b>	Setting parameter for the run-time group in which instance PLI 0 of the polyline is to be called		
<b>Value:</b>	5: Run-time group 5 6: Run-time group 6 9999: Do not calculate		
<b>p20377</b>	<b>PLI 0 run sequence / PLI 0 RunSeq</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Unsigned16
	<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> 0	<b>Max</b> 32000	<b>Factory setting</b> 980
<b>Description:</b>	Setting parameter for the run sequence of instance PLI 0 within the run-time group set in p20376.		
<b>Note:</b>	The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.		
<b>p20378</b>	<b>CI: PLI 1 input X / PLI 1 input X</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> U32 / FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> 0
<b>Description:</b>	Sets the signal source for input X of the polyline (20 breakpoints) of instance PLI 1.		
<b>r20379</b>	<b>CO: PLI 1 output Y / PLI 1 output Y</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> -	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -	<b>Max</b> -	<b>Factory setting</b> -
<b>Description:</b>	Display parameter for the output quantity Y of the polyline (20 breakpoints) of instance PLI 1		
<b>p20380[0...19]</b>	<b>PLI 1 X-coordinate, A breakpoint / PLI 1 X-coordinate</b>		
	<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
	<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
	<b>Units group:</b> -	<b>Unit selection:</b> -	
	<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000
<b>Description:</b>	Sets the x-coordinates for the breakpoints (A0...A19) of the polyline (20 breakpoints) of instance PLI 1.		

**Index:**

- [0] = Breakpoint 0
- [1] = Breakpoint 1
- [2] = Breakpoint 2
- [3] = Breakpoint 3
- [4] = Breakpoint 4
- [5] = Breakpoint 5
- [6] = Breakpoint 6
- [7] = Breakpoint 7
- [8] = Breakpoint 8
- [9] = Breakpoint 9
- [10] = Breakpoint 10
- [11] = Breakpoint 11
- [12] = Breakpoint 12
- [13] = Breakpoint 13
- [14] = Breakpoint 14
- [15] = Breakpoint 15
- [16] = Breakpoint 16
- [17] = Breakpoint 17
- [18] = Breakpoint 18
- [19] = Breakpoint 19

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**p20381[0...19]    PLI 1 Y-coordinate, B breakpoint / PLI 1 Y-coordinate**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> FloatingPoint32
<b>Can be changed:</b> T	<b>Scaling:</b> PERCENT	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> -340.28235E36	<b>Max</b> 340.28235E36	<b>Factory setting</b> 0.0000

**Description:** Sets the y-coordinates for the breakpoints (B0...B19) of the polyline (20 breakpoints) of instance PLI 1.

**Index:**

- [0] = Breakpoint 0
- [1] = Breakpoint 1
- [2] = Breakpoint 2
- [3] = Breakpoint 3
- [4] = Breakpoint 4
- [5] = Breakpoint 5
- [6] = Breakpoint 6
- [7] = Breakpoint 7
- [8] = Breakpoint 8
- [9] = Breakpoint 9
- [10] = Breakpoint 10
- [11] = Breakpoint 11
- [12] = Breakpoint 12
- [13] = Breakpoint 13
- [14] = Breakpoint 14
- [15] = Breakpoint 15
- [16] = Breakpoint 16
- [17] = Breakpoint 17
- [18] = Breakpoint 18
- [19] = Breakpoint 19

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**p20382    PLI 1 run-time group / PLI 1 RTG**

<b>Access level:</b> 3	<b>Calculated:</b> -	<b>Data type:</b> Integer16
<b>Can be changed:</b> T	<b>Scaling:</b> -	<b>Data set:</b> -
<b>Units group:</b> -	<b>Unit selection:</b> -	
<b>Min</b> 5	<b>Max</b> 9999	<b>Factory setting</b> 9999

**Description:** Setting parameter for the run-time group in which instance PLI 1 of the polyline is to be called

**Value:**

- 5:     Run-time group 5
- 6:     Run-time group 6
- 9999: Do not calculate

**p20383****PLI 1 run sequence / PLI 1 RunSeq****Access level:** 3**Calculated:** -**Data type:** Unsigned16**Can be changed:** T**Scaling:** -**Data set:** -**Units group:** -**Unit selection:** -**Min****Max****Factory setting**

0

32000

990

**Description:**

Setting parameter for the run sequence of instance PLI 1 within the run-time group set in p20382.

**Note:**

The function blocks with a lower run sequence value are calculated before function blocks with a higher run sequence value.

## 1.3 Command and drive data sets - overview

### 1.3.1 Command data sets (CDS)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: CDS

p0641[0...n]	Cl: Current limit, variable / Curr lim var
p0820[0...n]	Bl: Drive Data Set selection DDS bit 0 / DDS select., bit 0
p0821[0...n]	Bl: Drive Data Set selection DDS bit 1 / DDS select., bit 1
p0840[0...n]	Bl: ON / OFF (OFF1) / ON / OFF (OFF1)
p0844[0...n]	Bl: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1
p0845[0...n]	Bl: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2
p0848[0...n]	Bl: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1
p0849[0...n]	Bl: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2
p0852[0...n]	Bl: Enable operation/inhibit operation / Operation enable
p0854[0...n]	Bl: Control by PLC/no control by PLC / Master ctrl by PLC
p0855[0...n]	Bl: Unconditionally release holding brake / Uncond open brake
p0856[0...n]	Bl: Speed controller enable / n_ctrl enable
p0858[0...n]	Bl: Unconditionally close holding brake / Uncond close brake
p1000[0...n]	Speed setpoint selection / n_set sel
p1020[0...n]	Bl: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0
p1021[0...n]	Bl: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1
p1022[0...n]	Bl: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2
p1023[0...n]	Bl: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3
p1035[0...n]	Bl: Motorized potentiometer setpoint raise / Mop raise
p1036[0...n]	Bl: Motorized potentiometer lower setpoint / Mop lower
p1039[0...n]	Bl: Motorized potentiometer inversion / MotP inv
p1041[0...n]	Bl: Motorized potentiometer manual/automatic / Mop manual/auto
p1042[0...n]	Cl: Motorized potentiometer automatic setpoint / Mop auto setpoint
p1043[0...n]	Bl: Motorized potentiometer accept setting value / MotP acc set val
p1044[0...n]	Cl: Motorized potentiometer setting value / Mop set val
p1051[0...n]	Cl: Speed limit RFG positive direction of rotation / n_limit RFG pos
p1052[0...n]	Cl: Speed limit RFG negative direction of rotation / n_limit RFG neg
p1055[0...n]	Bl: Jog bit 0 / Jog bit 0
p1056[0...n]	Bl: Jog bit 1 / Jog bit 1
p1070[0...n]	Cl: Main setpoint / Main setpoint
p1071[0...n]	Cl: Main setpoint scaling / Main setp scal
p1075[0...n]	Cl: Supplementary setpoint / Suppl setp
p1076[0...n]	Cl: Supplementary setpoint scaling / Suppl setp scal
p1085[0...n]	Cl: Speed limit in positive direction of rotation / n_limit pos
p1088[0...n]	Cl: Speed limit in negative direction of rotation / n_limit neg
p1106[0...n]	Cl: Minimum speed signal source / n_min s_src
p1108[0...n]	Bl: Total setpoint selection / Total setp sel
p1109[0...n]	Cl: Total setpoint / Total setp
p1110[0...n]	Bl: Inhibit negative direction / Inhib neg dir
p1111[0...n]	Bl: Inhibit positive direction / Inhib pos dir
p1113[0...n]	Bl: Setpoint inversion / Setp inv
p1122[0...n]	Bl: Bypass ramp-function generator / Bypass RFG
p1138[0...n]	Cl: Up ramp scaling / Up ramp scaling
p1139[0...n]	Cl: Down ramp scaling / Down ramp scaling
p1140[0...n]	Bl: Enable ramp-function generator/inhibit ramp-function generator / RFG enable
p1141[0...n]	Bl: Continue ramp-function generator/freeze ramp-function generator / Continue RFG

p1142[0...n]	BI: Enable setpoint/inhibit setpoint / Setpoint enable
p1143[0...n]	BI: Ramp-function generator, accept setting value / RFG accept set v
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
p1160[0...n]	CI: Speed controller speed setpoint 2 / n_ctrl n_set 2
p1201[0...n]	BI: Flying restart enable signal source / Fly_res enab S_src
p1230[0...n]	BI: DC braking activation / DC brake act
p1330[0...n]	CI: U/f control independent voltage setpoint / Uf U_set independ.
p1352[0...n]	CI: Motor holding brake starting frequency signal source / Brake f_start
p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctr adapt_sig Kp
p1466[0...n]	CI: Speed controller P-gain scaling / n_ctrl Kp scal
p1475[0...n]	CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB
p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set
p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal
p1479[0...n]	CI: Speed controller integrator setting value scaling / n_ctrl I_val scal
p1486[0...n]	CI: Droop compensation torque / Droop M_comp
p1492[0...n]	BI: Droop feedback enable / Droop enable
p1500[0...n]	Torque setpoint selection / M_set sel
p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl
p1503[0...n]	CI: Torque setpoint / M_set
p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2
p1522[0...n]	CI: Torque limit upper / M_max upper
p1523[0...n]	CI: Torque limit lower / M_max lower
p1528[0...n]	CI: Torque limit upper scaling / M_max upper scal
p1529[0...n]	CI: Torque limit lower scaling / M_max lower scal
p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up w/o offs
p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low w/o offs
p2103[0...n]	BI: 1. Acknowledge faults / 1. Acknowledge
p2104[0...n]	BI: 2. Acknowledge faults / 2. Acknowledge
p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge
p2106[0...n]	BI: External fault 1 / External fault 1
p2107[0...n]	BI: External fault 2 / External fault 2
p2108[0...n]	BI: External fault 3 / External fault 3
p2112[0...n]	BI: External alarm 1 / External alarm 1
p2116[0...n]	BI: External alarm 2 / External alarm 2
p2117[0...n]	BI: External alarm 3 / External alarm 3
p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg
p2148[0...n]	BI: RFG active / RFG active
p2151[0...n]	CI: Speed setpoint for messages/signals / n_set for msg
p2200[0...n]	BI: Technology controller enable / Tec_ctrl enable
p2220[0...n]	BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0
p2221[0...n]	BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1
p2222[0...n]	BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2
p2223[0...n]	BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3
p2235[0...n]	BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise
p2236[0...n]	BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower
p2253[0...n]	CI: Technology controller setpoint 1 / Tec_ctrl setp 1
p2254[0...n]	CI: Technology controller setpoint 2 / Tec_ctrl setp 2
p2264[0...n]	CI: Technology controller actual value / Tec_ctrl act val
p2286[0...n]	BI: Hold technology controller integrator / Tec_ctr integ stop

p2289[0...n]	CI: Technology controller pre-control signal / Tec_ctrl prectrl
p2296[0...n]	CI: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n]	CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src
p2298[0...n]	CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s
p2299[0...n]	CI: Technology controller limit offset / Tech_ctrl lim offs
p3111[0...n]	BI: External fault 3, enable / Ext fault 3 enab
p3112[0...n]	BI: External fault 3 enable negated / Ext flt 3 enab neg
p3230[0...n]	CI: Load monitoring, speed actual value / Load monit n_act
p3232[0...n]	BI: Load monitoring failure detection / Load_moni fail_det
p3330[0...n]	BI: 2/3 wire control command 1 / 2/3 wire cmd 1
p3331[0...n]	BI: 2/3 wire control command 2 / 2/3 wire cmd 2
p3332[0...n]	BI: 2/3 wire control command 3 / 2/3 wire cmd 3

## 1.3.2 Drive data sets (DDS)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: DDS

p0340[0...n]	Automatic calculation, motor/control parameters / Calc auto par
p0640[0...n]	Current limit / Current limit
p1001[0...n]	CO: Fixed speed setpoint 1 / n_set_fixed 1
p1002[0...n]	CO: Fixed speed setpoint 2 / n_set_fixed 2
p1003[0...n]	CO: Fixed speed setpoint 3 / n_set_fixed 3
p1004[0...n]	CO: Fixed speed setpoint 4 / n_set_fixed 4
p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5
p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6
p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7
p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8
p1009[0...n]	CO: Fixed speed setpoint 9 / n_set_fixed 9
p1010[0...n]	CO: Fixed speed setpoint 10 / n_set_fixed 10
p1011[0...n]	CO: Fixed speed setpoint 11 / n_set_fixed 11
p1012[0...n]	CO: Fixed speed setpoint 12 / n_set_fixed 12
p1013[0...n]	CO: Fixed speed setpoint 13 / n_set_fixed 13
p1014[0...n]	CO: Fixed speed setpoint 14 / n_set_fixed 14
p1015[0...n]	CO: Fixed speed setpoint 15 / n_set_fixed 15
p1030[0...n]	Motorized potentiometer configuration / Mop configuration
p1037[0...n]	Motorized potentiometer maximum speed / MotP n_max
p1038[0...n]	Motorized potentiometer minimum speed / MotP 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
p1059[0...n]	Jog 2 speed setpoint / Jog 2 n_set
p1063[0...n]	Speed limit setpoint channel / n_limit setp
p1080[0...n]	Minimum speed / n_min
p1082[0...n]	Maximum speed / n_max
p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos
p1086[0...n]	CO: Speed limit in negative direction of rotation / n_limit neg
p1091[0...n]	Skip speed 1 / n_skip 1
p1092[0...n]	Skip speed 2 / n_skip 2
p1093[0...n]	Skip speed 3 / n_skip 3
p1094[0...n]	Skip speed 4 / n_skip 4
p1101[0...n]	Skip speed bandwidth / n_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
p1123[0...n]	Ramp-function generator minimum ramp-up time / RFG t_RU min
p1127[0...n]	Ramp-function generator minimum ramp-down time / RFG t_RD min
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 / OFF3 t_RD
p1136[0...n]	OFF3 initial rounding-off time / RFGOFF3 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
p1200[0...n]	Flying restart operating mode / FlyRest op_mode
p1202[0...n]	Flying restart search current / FlyRest I_srch
p1203[0...n]	Flying restart search rate factor / FlyRst v_Srch Fact

p1226[0...n]	Threshold for zero speed detection / $n\_standst\ n\_thresh$
p1240[0...n]	Vdc controller configuration (vector control) / Vdc_ctr config vec
p1243[0...n]	Vdc_max controller dynamic factor / Vdc_max dyn_factor
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
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
p1280[0...n]	Vdc controller configuration (U/f) / Vdc_ctr config U/f
p1283[0...n]	Vdc_max controller dynamic factor (U/f) / Vdc_max dyn_factor
p1285[0...n]	Vdc_min controller switch-in level (kinetic buffering) (U/f) / Vdc_min on_level
p1287[0...n]	Vdc_min controller dynamic factor (kinetic buffering) (U/f) / Vdc_min dyn_factor
p1288[0...n]	Vdc_max controller feedback coupling factor ramp-fct. gen. (U/f) / Vdc_max factor RFG
p1290[0...n]	Vdc controller proportional gain (U/f) / Vdc_ctrl Kp
p1291[0...n]	Vdc controller integral time (U/f) / Vdc_ctrl Tn
p1292[0...n]	Vdc controller rate time (U/f) / Vdc_ctrl t_rate
p1293[0...n]	Vdc min controller output limit (U/f) / Vdc_min outp_lim
p1295[0...n]	Vdc_min controller time threshold (U/f) / Vdc_min t_thresh
p1296[0...n]	Vdc_min controller response (kinetic buffering) (U/f) / Vdc_min response
p1297[0...n]	Vdc_min controller speed threshold (U/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 / U_boost perm
p1311[0...n]	Voltage boost at acceleration / U_boost accelerate
p1312[0...n]	Voltage boost when starting / U_boost starting
p1320[0...n]	U/f control programmable characteristic frequency 1 / Uf char f1
p1321[0...n]	U/f control programmable characteristic voltage 1 / Uf char U1
p1322[0...n]	U/f control programmable characteristic frequency 2 / Uf char f2
p1323[0...n]	U/f control programmable characteristic voltage 2 / Uf char U2
p1324[0...n]	U/f control programmable characteristic frequency 3 / Uf char f3
p1325[0...n]	U/f control programmable characteristic voltage 3 / Uf char U3
p1326[0...n]	U/f control programmable characteristic frequency 4 / Uf char f4
p1327[0...n]	U/f control programmable characteristic voltage 4 / Uf char U4
p1333[0...n]	U/f control FCC starting frequency / Uf FCC f_start
p1334[0...n]	U/f control slip compensation starting frequency / Slip comp start
p1335[0...n]	Slip compensation, scaling / Slip comp scal
p1336[0...n]	Slip compensation limit value / Slip comp lim val
p1338[0...n]	U/f mode resonance damping gain / Uf Res_damp gain
p1339[0...n]	U/f mode resonance damping filter time constant / Uf 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_U_ctrl Kp
p1346[0...n]	I_max voltage controller integral time / I_max_U_ctrl Tn
p1349[0...n]	U/f mode resonance damping maximum frequency / Uf res_damp f_max
p1350[0...n]	Soft starting / Soft starting
p1351[0...n]	CO: Motor holding brake starting frequency / Brake f_start
p1400[0...n]	Speed control configuration / n_ctrl config
p1401[0...n]	Flux control configuration / Flux ctrl config
p1402[0...n]	Closed-loop current control and motor model configuration / I_ctrl config
p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T



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
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up
p1458[0...n]	Adaptation factor, lower / Adapt_factor lower
p1459[0...n]	Adaptation factor, upper / Adapt_factor upper
p1461[0...n]	Speed controller Kp adaptation speed, upper scaling / n_ctr Kp n up scal
p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctr Tn n up scal
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower
p1465[0...n]	Speed controller adaptation speed, upper / n_ctrl n upper
p1470[0...n]	Speed controller encoderless operation P-gain / n_ctrl SLVC Kp
p1472[0...n]	Speed controller encoderless operation integral time / n_ctrl SLVC Tn
p1487[0...n]	Droop compensation torque scaling / Droop M_comp scal
p1488[0...n]	Droop input source / Droop input source
p1489[0...n]	Droop feedback scaling / Droop scaling
p1496[0...n]	Acceleration pre-control scaling / a_prectrl scal
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
p1520[0...n]	CO: Torque limit upper / M_max upper
p1521[0...n]	CO: Torque limit lower / M_max lower
p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot 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 regenerative / P_max gen
p1570[0...n]	CO: Flux setpoint / Flux setpoint
p1573[0...n]	Flux threshold value magnetizing / Flux thresh magnet
p1574[0...n]	Voltage reserve dynamic / U_reserve dyn
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
p1594[0...n]	Field-weakening controller, P gain / Field_ctrl Kp
p1596[0...n]	Field weakening controller integral-action time / Field_ctrl Tn
p1610[0...n]	Torque setpoint static (SLVC) / M_set static
p1611[0...n]	Supplementary accelerating torque (SLVC) / M_suppl_accel
p1616[0...n]	Current setpoint smoothing time / I_set T_smooth
p1654[0...n]	Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW
p1702[0...n]	Isd current controller pre-control scaling / Isd_ctr_prectrlScal
p1703[0...n]	Isq current controller pre-control scaling / Isq_ctr_prectrlScal
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
p1730[0...n]	Isd controller integral component shutdown threshold / Isd_ctr I_compDeac
p1731[0...n]	Isd controller combination current time component / Isd ctrl iCombi T1
p1740[0...n]	Gain resonance damping for encoderless closed-loop control / Gain res_damp
p1745[0...n]	Motor model error threshold stall detection / MotMod ThreshStall
p1749[0...n]	Motor model increase changeover speed encoderless operation / IncrChgov enc-less
p1750[0...n]	Motor model configuration / MotMod config
p1755[0...n]	Motor model changeover speed encoderless operation / MotMod n_chgSnsorI
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
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
p1784[0...n]	Motor model feedback scaling / MotMod fdbk scal
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 integral time / MotMod kT Tn
r1797[0...n]	Motor model kT adaptation corrective value / MotMod kT corr
p1800[0...n]	Pulse frequency setpoint / Pulse freq setp
p1802[0...n]	Modulator mode / Modulator mode
p1803[0...n]	Maximum modulation depth / Modulat depth max
p1806[0...n]	Filter time constant Vdc correction / T_filt Vdc_corr
p1820[0...n]	Reverse the output phase sequence / Outp_ph_seq rev
p1959[0...n]	Rotating measurement configuration / Rot meas config
p2140[0...n]	Hysteresis speed 2 / n_hysteresis 2
p2141[0...n]	Speed threshold 1 / n_thresh val 1
p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1
p2149[0...n]	Monitoring configuration / Monit config
p2150[0...n]	Hysteresis speed 3 / n_hysteresis 3
p2152[0...n]	Delay for comparison $n > n_{\max}$ / Del $n > n_{\max}$
p2153[0...n]	Speed actual value filter time constant / n_act_filt T
p2155[0...n]	Speed threshold 2 / n_thresh val 2
p2156[0...n]	On delay, comparison value reached / t_on cmpr val rchd
p2157[0...n]	Speed threshold 5 / n_thresh val 5
p2158[0...n]	Delay for $n_{\text{act}}$ comparison with speed threshold value 5 / Del compar $n_5$
p2159[0...n]	Speed threshold 6 / n_thresh val 6
p2160[0...n]	Delay for $n_{\text{act}}$ comparison with speed threshold value 6 / Del compar $n_6$
p2161[0...n]	Speed threshold 3 / n_thresh val 3
p2162[0...n]	Hysteresis speed $n_{\text{act}} > n_{\max}$ / Hyst $n_{\text{act}} > n_{\max}$
p2163[0...n]	Speed threshold 4 / n_thresh val 4
p2164[0...n]	Hysteresis speed 4 / n_hysteresis 4
p2166[0...n]	Off delay $n_{\text{act}} = n_{\text{set}} / t_{\text{del\_off}} n_i = n_{\text{so}}$
p2167[0...n]	Switch-on delay $n_{\text{act}} = n_{\text{set}} / t_{\text{on}} n_{\text{act}} = n_{\text{set}}$
p2170[0...n]	Current threshold value / I_thres
p2171[0...n]	Current threshold value reached delay time / t_del I_thresh rch
p2172[0...n]	DC link voltage, threshold value / Vdc thresh val
p2173[0...n]	DC link voltage comparison delay time / t_del Vdc
p2174[0...n]	Torque threshold value 1 / M_thresh val 1
p2175[0...n]	Motor blocked speed threshold / Mot lock n_thresh
p2176[0...n]	Torque threshold value comparison delay time / M_thrsh comp T_del
p2177[0...n]	Motor blocked delay time / Mot lock t_del
p2178[0...n]	Motor stalled delay time / Mot stall t_del
p2179[0...n]	Output load identification current limit / Outp_Id iden I_lim
p2180[0...n]	Missing output load delay time / No load t_delay
p2181[0...n]	Load monitoring response / Load monit resp
p2182[0...n]	Load monitoring speed threshold value 1 / n_thresh 1
p2183[0...n]	Load monitoring speed threshold value 2 / n_thresh 2
p2184[0...n]	Load monitoring speed threshold value 3 / n_thresh 3
p2185[0...n]	Load monitoring torque threshold 1, upper / M_thresh 1 upper
p2186[0...n]	Load monitoring torque threshold 1, lower / M_thresh 1 lower
p2187[0...n]	Load monitoring torque threshold 2, upper / M_thresh 2 upper
p2188[0...n]	Load monitoring torque threshold 2, lower / M_thresh 2 lower

p2189[0...n]	Load monitoring torque threshold 3, upper / M_thresh 3 upper
p2190[0...n]	Load monitoring torque threshold 3, lower / M_thresh 3 lower
p2192[0...n]	Load monitoring delay time / Load monit t_del
p2193[0...n]	Load monitoring configuration / Load monit config
p2194[0...n]	Torque threshold value 2 / M_thresh val 2
p2195[0...n]	Torque utilization switch-off delay / M_util t_off
p2196[0...n]	Torque utilization scaling / M_util scal
p2201[0...n]	CO: Technology controller, fixed value 1 / Tec_ctrl fix val1
p2202[0...n]	CO: Technology controller, fixed value 2 / Tec_ctr fix val 2
p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctr fix val 3
p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctr fix val 4
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctr fix val 5
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctr fix val 6
p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctr fix val 7
p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctr fix val 8
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctr fix val 9
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctr fix val 10
p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctr fix val 11
p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctr fix val 12
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctr fix val 13
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctr fix val 14
p2215[0...n]	CO: Technology controller, fixed value 15 / Tec_ctr fix val 15
p2216[0...n]	Technology controller fixed value selection method / Tec_ctr FixVal sel
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
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]
p3231[0...n]	Load monitoring speed deviation / Load monit n_dev
p3233[0...n]	Torque actual value filter, time constant / M_act_filt T
p3320[0...n]	Fluid flow machine power point 1 / Fluid_mach P1
p3321[0...n]	Fluid flow machine speed point 1 / Fluid_mach n1
p3322[0...n]	Fluid flow machine power point 2 / Fluid_mach P2
p3323[0...n]	Fluid flow machine speed point 2 / Fluid_mach n2
p3324[0...n]	Fluid flow machine power point 3 / Fluid_mach P3
p3325[0...n]	Fluid flow machine speed point 3 / Fluid_mach n3
p3326[0...n]	Fluid flow machine power point 4 / Fluid_mach P4
p3327[0...n]	Fluid flow machine speed point 4 / Fluid_mach n4
p3328[0...n]	Fluid flow machine power point 5 / Fluid_mach P5
p3329[0...n]	Fluid flow machine speed point 5 / Fluid_mach n5
p3856[0...n]	Compound braking current / Compound I_brake
r3925[0...n]	Identification final display / Ident final_disp
r3927[0...n]	Motor data identification control word / MotID STW
r3928[0...n]	Rotating measurement configuration / Rot meas config
r3929[0...n]	Motor data identification modulated voltage generation / MotID U_gen mod

### 1.3.3 Motor data sets (MDS)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: MDS

p0300[0...n]	Motor type selection / Mot type sel
p0301[0...n]	Motor code number selection / Mot code No. sel
p0304[0...n]	Rated motor voltage / Mot U <sub>rated</sub>
p0305[0...n]	Rated motor current / Mot I <sub>rated</sub>
p0306[0...n]	Number of motors connected in parallel / Motor qty
p0307[0...n]	Rated motor power / Mot P <sub>rated</sub>
p0308[0...n]	Rated motor power factor / Mot cos_phi <sub>rated</sub>
p0309[0...n]	Rated motor efficiency / Mot eta <sub>rated</sub>
p0310[0...n]	Rated motor frequency / Mot f <sub>rated</sub>
p0311[0...n]	Rated motor speed / Mot n <sub>rated</sub>
r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act
p0314[0...n]	Motor pole pair number / Mot pole pair No.
p0316[0...n]	Motor torque constant / Mot kT
p0318[0...n]	Motor stall current / Mot I <sub>standstill</sub>
p0320[0...n]	Motor rated magnetizing current/short-circuit current / Mot I <sub>mag<sub>rated</sub></sub>
p0322[0...n]	Maximum motor speed / Mot n <sub>max</sub>
p0323[0...n]	Maximum motor current / Mot I <sub>max</sub>
p0325[0...n]	Motor pole position identification current, 1st phase / Mot PolID 1 1st ph
p0326[0...n]	Motor stall torque correction factor / Mot M <sub>stall_corr</sub>
p0327[0...n]	Optimum motor load angle / Mot phi <sub>load opt</sub>
p0328[0...n]	Motor reluctance torque constant / Mot kT <sub>reluctance</sub>
p0329[0...n]	Motor pole position identification current / Mot PolID current
r0330[0...n]	Rated motor slip / Mot slip <sub>rated</sub>
r0331[0...n]	Actual motor magnetizing current/short-circuit current / Mot I <sub>mag<sub>rtd act</sub></sub>
r0332[0...n]	Rated motor power factor / Mot cos_phi <sub>rated</sub>
r0333[0...n]	Rated motor torque / Mot M <sub>rated</sub>
r0334[0...n]	Actual motor-torque constant / Mot kT <sub>act</sub>
p0335[0...n]	Motor cooling type / Motor cooling type
r0337[0...n]	Rated motor EMF / Mot EMF <sub>rated</sub>
p0341[0...n]	Motor moment of inertia / Mot M <sub>mom of inert</sub>
p0342[0...n]	Ratio between the total and motor moment of inertia / Mot MomInert Ratio
r0343[0...n]	Rated motor current identified / Mot I <sub>rated ident</sub>
p0344[0...n]	Motor weight (for the thermal motor model) / Mot weight th mod
r0345[0...n]	Nominal motor starting time / Mot t <sub>start<sub>rated</sub></sub>
p0346[0...n]	Motor excitation build-up time / Mot t <sub>excitation</sub>
p0347[0...n]	Motor de-excitation time / Mot t <sub>de-excitat.</sub>
p0350[0...n]	Motor stator resistance, cold / Mot R <sub>stator cold</sub>
p0352[0...n]	Cable resistance / Mot R <sub>cable cold</sub>
p0354[0...n]	Motor rotor resistance cold / Mot R <sub>r cold</sub>
p0356[0...n]	Motor stator leakage inductance / Mot L <sub>stator leak.</sub>
p0357[0...n]	Motor stator inductance, d axis / Mot L <sub>stator d</sub>
p0358[0...n]	Motor rotor leakage inductance / Mot L <sub>rot leak</sub>
p0360[0...n]	Motor magnetizing inductance / Mot L <sub>h</sub>
p0362[0...n]	Motor saturation characteristic flux 1 / Mot saturat.flux 1
p0363[0...n]	Motor saturation characteristic flux 2 / Mot saturat.flux 2
p0364[0...n]	Motor saturation characteristic flux 3 / Mot saturat.flux 3
p0365[0...n]	Motor saturation characteristic flux 4 / Mot saturat.flux 4
p0366[0...n]	Motor saturation characteristic I <sub>mag 1</sub> / Mot sat. I <sub>mag 1</sub>
p0367[0...n]	Motor saturation characteristic I <sub>mag 2</sub> / Mot sat. I <sub>mag 2</sub>
p0368[0...n]	Motor saturation characteristic I <sub>mag 3</sub> / Mot sat. I <sub>mag 3</sub>

p0369[0...n]	Motor saturation characteristic I_mag 4 / Mot sat. I_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 / Mot R_r cold
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
r0382[0...n]	Motor magnetizing inductance transformed / Mot L_magn transf
r0384[0...n]	Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd
r0386[0...n]	Motor stator leakage time constant / Mot T_stator leak
r0395[0...n]	Actual stator resistance / R_stator act
r0396[0...n]	Actual rotor resistance / R_rotor act
p0601[0...n]	Motor temperature sensor type / Mot_temp_sens type
p0604[0...n]	Mot_temp_mod 1/KTY alarm threshold / Mod 1/KTY A thresh
p0605[0...n]	Mot_temp_mod 1/2 threshold / Threshold
p0606[0...n]	Mot_temp_mod 2/KTY timer / Mod 2/KTY t_timer
p0607[0...n]	Temperature sensor fault timer / Sensor fault time
p0610[0...n]	Motor overtemperature response / Mot temp response
p0611[0...n]	I2t motor model thermal time constant / I2t mot_mod T
p0612[0...n]	Mot_temp_mod activation / Mot_temp_mod act
p0615[0...n]	Mot_temp_mod 1 (I2t) fault threshold / I2t F thresh
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R
p0621[0...n]	Identification stator resistance after restart / Rst_ident Restart
p0622[0...n]	Motor excitation time for Rs_ident after powering up again / t_excit Rs_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]	Motor overtemperature rotor winding / Mot T_over rotor
r0630[0...n]	Mot_temp_mod ambient temperature / Mod T_ambient
r0631[0...n]	Mot_temp_mod stator iron temperature / Mod T_stator
r0632[0...n]	Mot_temp_mod stator winding temperature / Mod T_winding
r0633[0...n]	Mot_temp_mod rotor temperature / Mod T_rotor
p0634[0...n]	Q flux flux constant unsaturated / PSIQ KPSI UNSAT
p0635[0...n]	Q flux quadrature axis current constant unsaturated / PSIQ KIQ UNSAT
p0636[0...n]	Q flux direct axis current constant unsaturated / PSIQ KID UNSAT
p0637[0...n]	Q flux flux gradient saturated / PSIQ Grad SAT
p0650[0...n]	Actual motor operating hours / Mot t_oper act
p0651[0...n]	Motor operating hours maintenance interval / Mot t_op maint
p0826[0...n]	Motor changeover, motor number / Mot_chng mot No.
p1231[0...n]	DC braking configuration / DCBRK 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
p1909[0...n]	Motor data identification control word / MotID STW
p1980[0...n]	PolID technique / PolID technique
p1999[0...n]	Ang. commutation offset calibr. and PolID scaling / Com_ang_offs scal
r3926[0...n]	Voltage generation alternating base voltage amplitude / U_gen altern base

### 1.3.4 Power unit data sets (PDS)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: PDS

p0124[0...n]	CU detection via LED / CU detection LED
r0200[0...n]	Power unit code number actual / PU code no. act
p0201[0...n]	Power unit code number / PU code no
r0203[0...n]	Actual power unit type / PU actual type
r0204[0...n]	Power unit hardware properties / PU HW property

### 1.3.5 Encoder data sets (EDS)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: EDS

p0422[0...n]	Absolute encoder linear measuring step resolution / Enc abs meas step
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## 1.4 BICO parameters (connectors/binectors)

### 1.4.1 Binector inputs (BI)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: BI

p0730	BI: CU signal source for terminal DO 0 / CU S_src DO 0
p0731	BI: CU signal source for terminal DO 1 / CU S_src DO 1
p0732	BI: CU signal source for terminal DO 2 / CU S_src DO 2
p0782[0...1]	BI: CU analog outputs invert signal source / CU AO inv S_src
p0806	BI: Inhibit master control / PcCtrl inhibit
p0810	BI: Command data set selection CDS bit 0 / CDS select., bit 0
p0811	BI: Command data set selection CDS bit 1 / CDS select., bit 1
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
p0840[0...n]	BI: ON / OFF (OFF1) / ON / OFF (OFF1)
p0844[0...n]	BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1
p0845[0...n]	BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2
p0848[0...n]	BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1
p0849[0...n]	BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2
p0852[0...n]	BI: Enable operation/inhibit operation / Operation enable
p0854[0...n]	BI: Control by PLC/no control by PLC / Master ctrl by PLC
p0855[0...n]	BI: Unconditionally release holding brake / Uncond open brake
p0856[0...n]	BI: Speed controller enable / n_ctrl enable
p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake
p0897	BI: Parking axis selection / Parking axis sel
p1020[0...n]	BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0
p1021[0...n]	BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1
p1022[0...n]	BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2
p1023[0...n]	BI: Fixed speed setpoint selection Bit 3 / n_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 / MotP inv
p1041[0...n]	BI: Motorized potentiometer manual/automatic / Mop manual/auto
p1043[0...n]	BI: Motorized potentiometer accept setting value / MotP acc set val
p1055[0...n]	BI: Jog bit 0 / Jog bit 0
p1056[0...n]	BI: Jog bit 1 / Jog bit 1
p1108[0...n]	BI: Total setpoint selection / Total setp sel
p1110[0...n]	BI: Inhibit negative direction / Inhib neg dir
p1111[0...n]	BI: Inhibit positive direction / Inhib pos dir
p1113[0...n]	BI: Setpoint inversion / Setp inv
p1122[0...n]	BI: Bypass ramp-function generator / Bypass RFG
p1140[0...n]	BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable
p1141[0...n]	BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG
p1142[0...n]	BI: Enable setpoint/inhibit setpoint / Setpoint enable
p1143[0...n]	BI: Ramp-function generator, accept setting value / RFG accept set v
p1201[0...n]	BI: Flying restart enable signal source / Fly_res enab S_src
p1230[0...n]	BI: DC braking activation / DC brake act
p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set
p1492[0...n]	BI: Droop feedback enable / Droop enable
p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl

p2080[0...15]	BI: Binector-connector converter status word 1 / Bin/con ZSW1
p2081[0...15]	BI: Binector-connector converter status word 2 / Bin/con ZSW2
p2082[0...15]	BI: Binector-connector converter status word 3 / Bin/con ZSW3
p2083[0...15]	BI: Binector-connector converter status word 4 / Bin/con ZSW4
p2084[0...15]	BI: Binector-connector converter status word 5 / Bin/con ZSW5
p2103[0...n]	BI: 1. Acknowledge faults / 1. Acknowledge
p2104[0...n]	BI: 2. Acknowledge faults / 2. Acknowledge
p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge
p2106[0...n]	BI: External fault 1 / External fault 1
p2107[0...n]	BI: External fault 2 / External fault 2
p2108[0...n]	BI: External fault 3 / External fault 3
p2112[0...n]	BI: External alarm 1 / External alarm 1
p2116[0...n]	BI: External alarm 2 / External alarm 2
p2117[0...n]	BI: External alarm 3 / External alarm 3
p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg
p2148[0...n]	BI: RFG active / RFG active
p2200[0...n]	BI: Technology controller enable / Tec_ctrl enable
p2220[0...n]	BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0
p2221[0...n]	BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1
p2222[0...n]	BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2
p2223[0...n]	BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3
p2235[0...n]	BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise
p2236[0...n]	BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower
p2286[0...n]	BI: Hold technology controller integrator / Tec_ctr integ stop
p3111[0...n]	BI: External fault 3, enable / Ext fault 3 enab
p3112[0...n]	BI: External fault 3 enable negated / Ext flt 3 enab neg
p3232[0...n]	BI: Load monitoring failure detection / Load_moni fail_det
p3330[0...n]	BI: 2/3 wire control command 1 / 2/3 wire cmd 1
p3331[0...n]	BI: 2/3 wire control command 2 / 2/3 wire cmd 2
p3332[0...n]	BI: 2/3 wire control command 3 / 2/3 wire cmd 3
p5614	BI: Pe set switch-on inhibit signal source / Pe sw on_inh s_src
p9705	BI: SI Motion: Test stop signal source / SI Mtn test stop
p20030[0...3]	BI: AND 0 inputs / AND 0 inputs
p20034[0...3]	BI: AND 1 inputs / AND 1 inputs
p20038[0...3]	BI: AND 2 inputs / AND 2 inputs
p20042[0...3]	BI: AND 3 inputs / AND 3 inputs
p20046[0...3]	BI: OR 0 inputs / OR 0 inputs
p20050[0...3]	BI: OR 1 inputs / OR 1 inputs
p20054[0...3]	BI: OR 2 inputs / OR 2 inputs
p20058[0...3]	BI: OR 3 inputs / OR 3 inputs
p20062[0...3]	BI: XOR 0 inputs / XOR 0 inputs
p20066[0...3]	BI: XOR 1 inputs / XOR 1 inputs
p20070[0...3]	BI: XOR 2 inputs / XOR 2 inputs
p20074[0...3]	BI: XOR 3 inputs / XOR 3 inputs
p20078	BI: NOT 0 input I / NOT 0 input I
p20082	BI: NOT 1 input I / NOT 1 input I
p20086	BI: NOT 2 input I / NOT 2 input I
p20090	BI: NOT 3 input I / NOT 3 input I
p20138	BI: MFP 0 input pulse I / MFP 0 inp_pulse I
p20143	BI: MFP 1 input pulse I / MFP 1 inp_pulse I
p20148	BI: PCL 0 input pulse I / PCL 0 inp_pulse I
p20153	BI: PCL 1 input pulse I / PCL 1 inp_pulse I
p20158	BI: PDE 0 input pulse I / PDE 0 inp_pulse I



p20163	BI: PDE 1 input pulse I / PDE 1 inp_pulse I
p20168	BI: PDF 0 input pulse I / PDF 0 inp_pulse I
p20173	BI: PDF 1 input pulse I / PDF 1 inp_pulse I
p20178[0...1]	BI: PST 0 inputs / PST 0 inputs
p20183[0...1]	BI: PST 1 inputs / PST 1 inputs
p20188[0...1]	BI: RSR 0 inputs / RSR 0 inputs
p20193[0...1]	BI: RSR 1 inputs / RSR 1 inputs
p20198[0...3]	BI: DFR 0 inputs / DFR 0 inputs
p20203[0...3]	BI: DFR 1 inputs / DFR 1 inputs
p20208[0...1]	BI: BSW 0 inputs / BSW 0 inputs
p20209	BI: BSW 0 switch setting I / BSW 0 sw_setting
p20213[0...1]	BI: BSW 1 inputs / BSW 1 inputs
p20214	BI: BSW 1 switch setting I / BSW 1 sw_setting
p20219	BI: NSW 0 switch setting I / NSW 0 sw_setting
p20224	BI: NSW 1 switch setting I / NSW 1 sw_setting
p20245	BI: PT1 0 accept setting value S / PT1 0 acc set val
p20251	BI: PT1 1 accept setting value S / PT1 1 acc set val
p20260	BI: INT 0 accept setting value S / INT 0 acc set val
p20300	BI: NOT 4 input I / NOT 4 input I
p20304	BI: NOT 5 input I / NOT 5 input I
p20324[0...1]	BI: RSR 2 inputs / RSR 2 inputs
p20329[0...3]	BI: DFR 2 inputs / DFR 2 inputs
p20334	BI: PDE 2 input pulse I / PDE 2 inp_pulse I
p20339	BI: PDE 3 input pulse I / PDE 3 inp_pulse I
p20344	BI: PDF 2 input pulse I / PDF 2 inp_pulse I
p20349	BI: PDF 3 input pulse I / PDF 3 inp_pulse I
p20354	BI: MFP 2 input pulse I / MFP 2 inp_pulse I
p20359	BI: MFP 3 input pulse I / MFP 3 inp_pulse I

## 1.4.2 Connector inputs (CI)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: CI

p0641[0...n]	CI: Current limit, variable / Curr lim var
p0771[0...1]	CI: CU analog outputs signal source / CU AO S_src
p1042[0...n]	CI: Motorized potentiometer automatic setpoint / Mop auto setpoint
p1044[0...n]	CI: Motorized potentiometer setting value / Mop set val
p1051[0...n]	CI: Speed limit RFG positive direction of rotation / n_limit RFG pos
p1052[0...n]	CI: Speed limit RFG negative direction of rotation / n_limit RFG neg
p1070[0...n]	CI: Main setpoint / Main setpoint
p1071[0...n]	CI: Main setpoint scaling / Main setp scal
p1075[0...n]	CI: Supplementary setpoint / Suppl setp
p1076[0...n]	CI: Supplementary setpoint scaling / Suppl setp scal
p1085[0...n]	CI: Speed limit in positive direction of rotation / n_limit pos
p1088[0...n]	CI: Speed limit in negative direction of rotation / n_limit neg
p1106[0...n]	CI: Minimum speed signal source / n_min s_src
p1109[0...n]	CI: Total setpoint / Total setp
p1138[0...n]	CI: Up ramp scaling / Up ramp scaling
p1139[0...n]	CI: Down ramp scaling / Down ramp scaling
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
p1160[0...n]	CI: Speed controller speed setpoint 2 / n_ctrl n_set 2
p1330[0...n]	CI: U/f control independent voltage setpoint / Uf U_set independ.
p1352[0...n]	CI: Motor holding brake starting frequency signal source / Brake f_start
p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctr adapt_sig Kp
p1466[0...n]	CI: Speed controller P-gain scaling / n_ctrl Kp scal
p1475[0...n]	CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB
p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal
p1479[0...n]	CI: Speed controller integrator setting value scaling / n_ctrl I_val scal
p1486[0...n]	CI: Droop compensation torque / Droop M_comp
p1503[0...n]	CI: Torque setpoint / M_set
p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2
p1522[0...n]	CI: Torque limit upper / M_max upper
p1523[0...n]	CI: Torque limit lower / M_max lower
p1528[0...n]	CI: Torque limit upper scaling / M_max upper scal
p1529[0...n]	CI: Torque limit lower scaling / M_max lower scal
p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up w/o offs
p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low w/o offs
p2016[0...3]	CI: Comm IF USS PZD send word / Comm USS send word
p2051[0...11]	CI: PROFIdrive PZD send word / PZD send word
p2061[0...10]	CI: PROFIBUS PZD send double word / PZD send DW
p2099[0...1]	CI: Connector-binector converter signal source / Con/bin S_src
p2151[0...n]	CI: Speed setpoint for messages/signals / n_set for msg
p2253[0...n]	CI: Technology controller setpoint 1 / Tec_ctrl setp 1
p2254[0...n]	CI: Technology controller setpoint 2 / Tec_ctrl setp 2
p2264[0...n]	CI: Technology controller actual value / Tec_ctrl act val
p2289[0...n]	CI: Technology controller pre-control signal / Tec_ctrl prectrl
p2296[0...n]	CI: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n]	CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src
p2298[0...n]	CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s
p2299[0...n]	CI: Technology controller limit offset / Tech_ctrl lim offs

p3230[0...n]	CI: Load monitoring, speed actual value / Load monit n_act
p20094[0...3]	CI: ADD 0 inputs / ADD 0 inputs
p20098[0...3]	CI: ADD 1 inputs / ADD 1 inputs
p20102[0...1]	CI: SUB 0 inputs / SUB 0 inputs
p20106[0...1]	CI: SUB 1 inputs / SUB 1 inputs
p20110[0...3]	CI: MUL 0 inputs / MUL 0 inputs
p20114[0...3]	CI: MUL 1 inputs / MUL 1 inputs
p20118[0...1]	CI: DIV 0 inputs / DIV 0 inputs
p20123[0...1]	CI: DIV 1 inputs / DIV 1 inputs
p20128	CI: AVA 0 input X / AVA 0 input X
p20133	CI: AVA 1 input X / AVA 1 input X
p20218[0...1]	CI: NSW 0 inputs / NSW 0 inputs
p20223[0...1]	CI: NSW 1 inputs / NSW 1 inputs
p20228	CI: LIM 0 input X / LIM 0 input X
p20236	CI: LIM 1 input X / LIM 1 input X
p20244[0...1]	CI: PT1 0 inputs / PT1 0 inputs
p20250[0...1]	CI: PT1 1 inputs / PT1 1 inputs
p20256[0...1]	CI: INT 0 inputs / INT 0 inputs
p20266	CI: LVM 0 input X / LVM 0 input X
p20275	CI: LVM 1 input X / LVM 1 input X
p20284	CI: DIF 0 input X / DIF 0 input X
p20308[0...3]	CI: ADD 2 inputs / ADD 2 inputs
p20312[0...1]	CI: NCM 0 inputs / NCM 0 inputs
p20318[0...1]	CI: NCM 1 inputs / NCM 1 inputs
p20372	CI: PLI 0 input X / PLI 0 input X
p20378	CI: PLI 1 input X / PLI 1 input X

### 1.4.3 Binector outputs (BO)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: BO

r0751.0...9	BO: CU analog inputs status word / CU AI status word
r0785.0...1	BO: CU analog outputs status word / CU AO ZSW
r0807.0	BO: Master control active / PcCtrl active
r1025.0	BO: Fixed speed setpoint status / n_setp_fix status
r2043.0...2	BO: PROFIdrive PZD state / PD PZD state
r2090.0...15	BO: PROFIdrive PZD1 receive bit-serial / PZD1 recv bitw
r2091.0...15	BO: PROFIdrive PZD2 receive bit-serial / PZD2 recv bitw
r2092.0...15	BO: PROFIdrive PZD3 receive bit-serial / PZD3 recv bitw
r2093.0...15	BO: PROFIdrive PZD4 receive bit-serial / PZD4 recv bitw
r2094.0...15	BO: Connector-binector converter binector output / Con/bin outp
r2095.0...15	BO: Connector-binector converter binector output / Con/bin outp
r9935.0	BO: POWER ON delay signal / POWER ON t_delay
r20031	BO: AND 0 output Q / AND 0 output Q
r20035	BO: AND 1 output Q / AND 1 output Q
r20039	BO: AND 2 output Q / AND 2 output Q
r20043	BO: AND 3 output Q / AND 3 output Q
r20047	BO: OR 0 output Q / OR 0 output Q
r20051	BO: OR 1 output Q / OR 1 output Q
r20055	BO: OR 2 output Q / OR 2 output Q
r20059	BO: OR 3 output Q / OR 3 output Q
r20063	BO: XOR 0 output Q / XOR 0 output Q
r20067	BO: XOR 1 output Q / XOR 1 output Q
r20071	BO: XOR 2 output Q / XOR 2 output Q
r20075	BO: XOR 3 output Q / XOR 3 output Q
r20079	BO: NOT 0 inverted output / NOT 0 inv output
r20083	BO: NOT 1 inverted output / NOT 1 inv output
r20087	BO: NOT 2 inverted output / NOT 2 inv output
r20091	BO: NOT 3 inverted output / NOT 3 inv output
r20120	BO: DIV 0 divisor is zero QF / DIV 0 divisor=0 QF
r20125	BO: DIV 1 divisor is zero QF / DIV 1 divisor=0 QF
r20130	BO: AVA 0 input negative SN / AVA 0 input neg SN
r20135	BO: AVA 1 input negative SN / AVA 1 input neg SN
r20140	BO: MFP 0 output Q / MFP 0 output Q
r20145	BO: MFP 1 output Q / MFP 1 output Q
r20150	BO: PCL 0 output Q / PCL 0 output Q
r20155	BO: PCL 1 output Q / PCL 1 output Q
r20160	BO: PDE 0 output Q / PDE 0 output Q
r20165	BO: PDE 1 output Q / PDE 1 output Q
r20170	BO: PDF 0 output Q / PDF 0 output Q
r20175	BO: PDF 1 output Q / PDF 1 output Q
r20180	BO: PST 0 output Q / PST 0 output Q
r20185	BO: PST 1 output Q / PST 1 output Q
r20189	BO: RSR 0 output Q / RSR 0 output Q
r20190	BO: RSR 0 inverted output QN / RSR 0 inv outp QN
r20194	BO: RSR 1 output Q / RSR 1 output Q
r20195	BO: RSR 1 inverted output QN / RSR 1 inv outp QN
r20199	BO: DFR 0 output Q / DFR 0 output Q
r20200	BO: DFR 0 inverted output QN / DFR 0 inv outp QN
r20204	BO: DFR 1 output Q / DFR 1 output Q
r20205	BO: DFR 1 inverted output QN / DFR 1 inv outp QN

r20210	BO: BSW 0 output Q / BSW 0 output Q
r20215	BO: BSW 1 output Q / BSW 1 output Q
r20232	BO: LIM 0 input quantity at the upper limit QU / LIM 0 QU
r20233	BO: LIM 0 input quantity at the lower limit QL / LIM 0 QL
r20240	BO: LIM 1 input quantity at the upper limit QU / LIM 1 QU
r20241	BO: LIM 1 input quantity at the lower limit QL / LIM 1 QL
r20262	BO: INT 0 integrator at the upper limit QU / INT 0 QU
r20263	BO: INT 0 integrator at the lower limit QL / INT 0 QL
r20270	BO: LVM 0 input quantity above interval QU / LVM 0 X above QU
r20271	BO: LVM 0 input quantity within interval QM / LVM 0 X within QM
r20272	BO: LVM 0 input quantity below interval QL / LVM 0 X below QL
r20279	BO: LVM 1 input quantity above interval QU / LVM 1 X above QU
r20280	BO: LVM 1 input quantity within interval QM / LVM 1 X within QM
r20281	BO: LVM 1 input quantity below interval QL / LVM 1 X below QL
r20301	BO: NOT 4 inverted output / NOT 4 inv output
r20305	BO: NOT 5 inverted output / NOT 5 inv output
r20313	BO: NCM 0 output QU / NCM 0 output QU
r20314	BO: NCM 0 output QE / NCM 0 output QE
r20315	BO: NCM 0 output QL / NCM 0 output QL
r20319	BO: NCM 1 output QU / NCM 1 output QU
r20320	BO: NCM 1 output QE / NCM 1 output QE
r20321	BO: NCM 1 output QL / NCM 1 output QL
r20325	BO: RSR 2 output Q / RSR 2 output Q
r20326	BO: RSR 2 inverted output QN / RSR 2 inv outp QN
r20330	BO: DFR 2 output Q / DFR 2 output Q
r20331	BO: DFR 2 inverted output QN / DFR 2 inv outp QN
r20336	BO: PDE 2 output Q / PDE 2 output Q
r20341	BO: PDE 3 output Q / PDE 3 output Q
r20346	BO: PDF 2 output Q / PDF 2 output Q
r20351	BO: PDF 3 output Q / PDF 3 output Q
r20356	BO: MFP 2 output Q / MFP 2 output Q
r20361	BO: MFP 3 output Q / MFP 3 output Q

### 1.4.4 Connector outputs (CO)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: CO

r0021	CO: Actual speed smoothed / n_act smooth
r0025	CO: Output voltage smoothed / U_outp smooth
r0026	CO: DC link voltage smoothed / Vdc smooth
r0027	CO: Absolute actual current smoothed / I_act abs val smth
r0032	CO: Active power actual value smoothed / P_actv_act smth
r0034	CO: Motor utilization / Motor utilization
r0035	CO: Motor temperature / Mot temp
r0036	CO: Power unit overload I2t / PU overload I2t
r0037[0...19]	CO: Power unit temperatures / PU temperatures
r0060	CO: Speed setpoint before the setpoint filter / n_set before filt.
r0062	CO: Speed setpoint after the filter / n_set after filter
r0063[0...2]	CO: Speed actual value / n_act
r0064	CO: Speed controller system deviation / n_ctrl system dev
r0066	CO: Output frequency / f_outp
r0067	CO: Output current, maximum / I_outp max
r0068[0...1]	CO: Absolute current actual value / I_act abs val
r0069[0...6]	CO: Phase current actual value / I_phase act value
r0070	CO: Actual DC link voltage / Vdc act val
r0072	CO: Output voltage / U_output
r0074	CO: Modulat_depth / Modulat_depth
r0075	CO: Current setpoint field-generating / Id_set
r0076	CO: Current actual value field-generating / Id_act
r0077	CO: Current setpoint torque-generating / Iq_set
r0078	CO: Current actual value torque-generating / Iq_act
r0079	CO: Torque setpoint / M_set total
r0080[0...1]	CO: Torque actual value / M_act
r0081	CO: Torque utilization / M_Utilization
r0082[0...2]	CO: Active power actual value / P_act
r0083	CO: Flux setpoint / Flex setp
r0084[0...1]	CO: Flux actual value / Flux act val
r0087	CO: Actual power factor / Cos phi act
r0094	CO: Transformation angle / Transformat_angle
r0289	CO: Maximum power unit output current / PU I_outp max
r0586	CO: Measuring probe, speed actual value / MT n_act
r0587	CO: Measuring probe, measuring time measured / MT t_meas measured
r0588	CO: Measuring probe, pulse counter / MT pulse counter
r0752[0...1]	CO: CU analog inputs input voltage/current actual / CU AI U/I_inp act
r0755[0...1]	CO: CU analog inputs actual value in percent / CU AI value in %
r0944	CO: Counter for fault buffer changes / Fault buff change
p1001[0...n]	CO: Fixed speed setpoint 1 / n_set_fixed 1
p1002[0...n]	CO: Fixed speed setpoint 2 / n_set_fixed 2
p1003[0...n]	CO: Fixed speed setpoint 3 / n_set_fixed 3
p1004[0...n]	CO: Fixed speed setpoint 4 / n_set_fixed 4
p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5
p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6
p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7
p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8
p1009[0...n]	CO: Fixed speed setpoint 9 / n_set_fixed 9
p1010[0...n]	CO: Fixed speed setpoint 10 / n_set_fixed 10
p1011[0...n]	CO: Fixed speed setpoint 11 / n_set_fixed 11

p1012[0...n]	CO: Fixed speed setpoint 12 / n_set_fixed 12
p1013[0...n]	CO: Fixed speed setpoint 13 / n_set_fixed 13
p1014[0...n]	CO: Fixed speed setpoint 14 / n_set_fixed 14
p1015[0...n]	CO: Fixed speed setpoint 15 / n_set_fixed 15
r1024	CO: Fixed speed setpoint effective / n_set_fixed eff
r1045	CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG
r1050	CO: Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG
r1073	CO: Main setpoint effective / Main setpoint eff
r1077	CO: Supplementary setpoint effective / Suppl setpoint eff
r1078	CO: Total setpoint effective / Total setpoint eff
p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos
r1084	CO: Speed limit positive effective / n_limit pos eff
p1086[0...n]	CO: Speed limit in negative direction of rotation / n_limit neg
r1087	CO: Speed limit negative effective / n_limit neg eff
r1112	CO: Speed setpoint after minimum limiting / n_set aft min_lim
r1114	CO: Setpoint after the direction limiting / Setp after limit
r1119	CO: Ramp-function generator setpoint at the input / RFG setp at inp
r1149	CO: Ramp-function generator, acceleration / RFG acceleration
r1150	CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp
r1169	CO: Speed controller, speed setpoints 1 and 2 / n_ctrl n_set 1/2
r1170	CO: Speed controller, setpoint sum / n_ctrl setp sum
r1258	CO: Vdc controller output / Vdc_ctrl output
r1298	CO: Vdc controller output (U/f) / Vdc_ctrl output
r1337	CO: Actual slip compensation / Slip comp act val
r1343	CO: I_max controller frequency output / I_max_ctrl f_outp
r1348	CO: U/f control Eco factor actual value / U/f Eco fac act v
p1351[0...n]	CO: Motor holding brake starting frequency / Brake f_start
r1438	CO: Speed controller, speed setpoint / n_ctrl n_set
r1445	CO: Actual speed smoothed / n_act smooth
r1454	CO: Speed controller system deviation I component / n_ctrl sys dev Tn
r1468	CO: Speed controller P-gain effective / n_ctr Kp eff
r1482	CO: Speed controller I torque output / n_ctrl I-M_output
r1490	CO: Droop feedback speed reduction / Droop n_reduction
r1493	CO: Moment of inertia, total / M_inertia total
r1508	CO: Torque setpoint before supplementary torque / M_set bef. M_suppl
r1516	CO: Supplementary torque and acceleration torque / M_suppl + M_accel
r1518[0...1]	CO: Accelerating torque / M_accel
p1520[0...n]	CO: Torque limit upper / M_max upper
p1521[0...n]	CO: Torque limit lower / M_max lower
p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot scal
p1525[0...n]	CO: Torque limit lower scaling / M_max lower scal
r1526	CO: Torque limit upper without offset / M_max up w/o offs
r1527	CO: Torque limit lower without offset / M_max low w/o offs
r1538	CO: Upper effective torque limit / M_max upper eff
r1539	CO: Lower effective torque limit / M_max lower eff
r1547[0...1]	CO: Torque limit for speed controller output / M_max outp n_ctrl
r1548[0...1]	CO: Stall current limit torque-generating maximum / Isq_max stall
p1570[0...n]	CO: Flux setpoint / Flux setpoint
r1593[0...1]	CO: Field weakening controller / flux controller output / Field/FI_ctrl outp
r1597	CO: Field weakening controller output / Field_ctrl outp
r1598	CO: Total flux setpoint / Flux setp total
r1718	CO: Isq controller output / Isq_ctrl outp
r1723	CO: Isd controller output / Isd_ctrl outp

r1732[0...1]	CO: Direct-axis voltage setpoint / Direct U set
r1733[0...1]	CO: Quadrature-axis voltage setpoint / Quad U set
r1770	CO: Motor model speed adaptation proportional component / MotMod n_adapt Kp
r1771	CO: Motor model speed adaptation I comp. / MotMod n_adapt Tn
r1801[0...1]	CO: Pulse frequency / Pulse frequency
r1809	CO: Modulator mode actual / Modulator mode act
r2050[0...11]	CO: PROFIBUS PZD receive word / PZD recv word
r2060[0...10]	CO: PROFIdrive PZD receive double word / PZD recv DW
r2089[0...4]	CO: Send binector-connector converter status word / Bin/con ZSW send
r2120	CO: Sum of fault and alarm buffer changes / Sum buffer changed
r2121	CO: Counter, alarm buffer changes / Alrm buff changed
r2131	CO: Actual fault code / Actual fault code
r2132	CO: Actual alarm code / Actual alarm code
r2169	CO: Actual speed smoothed signals / n_act smth message
p2201[0...n]	CO: Technology controller, fixed value 1 / Tec_ctrl fix val1
p2202[0...n]	CO: Technology controller, fixed value 2 / Tec_ctr fix val 2
p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctr fix val 3
p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctr fix val 4
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctr fix val 5
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctr fix val 6
p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctr fix val 7
p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctr fix val 8
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctr fix val 9
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctr fix val 10
p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctr fix val 11
p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctr fix val 12
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctr fix val 13
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctr fix val 14
p2215[0...n]	CO: Technology controller, fixed value 15 / Tec_ctr fix val 15
r2224	CO: Technology controller, fixed value effective / Tec_ctr FixVal eff
r2245	CO: Technology controller mot. potentiometer setpoint before RFG / Tec_ctr mop befRFG
r2250	CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctr mop aftRFG
r2260	CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG
r2262	CO: Technology controller setpoint after filter / Tec_ctr set aftFlt
r2266	CO: Technology controller actual value after filter / Tec_ctr act aftFlt
r2272	CO: Technology controller actual value scaled / Tech_ctrl act scal
r2273	CO: Technology controller error / Tec_ctrl error
p2291	CO: Technology controller maximum limiting / Tec_ctrl max_lim
p2292	CO: Technology controller minimum limiting / Tec_ctrl min_lim
r2294	CO: Technology controller output signal / Tec_ctrl outp_sig
p2295	CO: Technology controller output scaling / Tec_ctrl outp scal
r2344	CO: Technology controller last speed setpoint (smoothed) / Tec_ctrl n_setp_sm
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]
p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]
r2902[0...14]	CO: Fixed values [%] / Fixed values [%]
p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]
r3131	CO: Actual fit value / Actual fit value
r3132	CO: Actual component number / Act comp_no.
r9712	CO: SI Motion diagnostics pos. act. val. motor side (processor 1) / SI Mtn s_act motP1
r9713[0...4]	CO: SI Motion diagnostics position actual value load side / SI Mtn s_act load
r9714[0...2]	CO: SI Motion diagnostics velocity (processor 1) / SI Mtn diag v P1
r9733[0...2]	CO: SI Motion setpoint speed limit effective / SI Mtn setp_lim
r20095	CO: ADD 0 output Y / ADD 0 output Y



r20099	CO: ADD 1 output Y / ADD 1 output Y
r20103	CO: SUB 0 difference Y / SUB 0 difference Y
r20107	CO: SUB 1 difference Y / SUB 1 difference Y
r20111	CO: MUL 0 product Y / MUL 0 product Y
r20115	CO: MUL 1 product Y / MUL 1 product Y
r20119[0...2]	CO: DIV 0 quotient / DIV 0 quotient
r20124[0...2]	CO: DIV 1 quotient / DIV 1 quotient
r20129	CO: AVA 0 output Y / AVA 0 output Y
r20134	CO: AVA 1 output Y / AVA 1 output Y
r20220	CO: NSW 0 output Y / NSW 0 output Y
r20225	CO: NSW 1 output Y / NSW 1 output Y
r20231	CO: LIM 0 output Y / LIM 0 output Y
r20239	CO: LIM 1 output Y / LIM 1 output Y
r20247	CO: PT1 0 output Y / PT1 0 output Y
r20253	CO: PT1 1 output Y / PT1 1 output Y
r20261	CO: INT 0 output Y / INT 0 output Y
r20286	CO: DIF 0 output Y / DIF 0 output Y
r20309	CO: ADD 2 output Y / ADD 2 output Y
r20373	CO: PLI 0 output Y / PLI 0 output Y
r20379	CO: PLI 1 output Y / PLI 1 output Y

### 1.4.5 Connector/binector outputs (CO/BO)

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: CO/BO

r0046.0...31	CO/BO: Missing enable sig / Missing enable sig
r0050.0...1	CO/BO: Command Data Set CDS effective / CDS effective
r0051.0...1	CO/BO: Drive Data Set DDS effective / DDS effective
r0052.0...15	CO/BO: Status word 1 / ZSW 1
r0053.0...11	CO/BO: Status word 2 / ZSW 2
r0054.0...15	CO/BO: Control word 1 / STW 1
r0055.0...15	CO/BO: Supplementary control word / Suppl STW
r0056.0...15	CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl
r0056.0...13	CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl
r0722.0...11	CO/BO: CU digital inputs, status / CU DI status
r0722.0...12	CO/BO: CU digital inputs, status / CU DI status
r0723.0...11	CO/BO: CU digital inputs, status inverted / CU DI status inv
r0723.0...12	CO/BO: CU digital inputs, status inverted / CU DI status inv
r0835.2...8	CO/BO: Data set changeover status word / DDS_ZSW
r0836.0...1	CO/BO: Command Data Set CDS selected / CDS selected
r0837.0...1	CO/BO: Drive Data Set DDS selected / DDS selected
r0898.0...14	CO/BO: Control word sequence control / STW seq_ctrl
r0899.0...13	CO/BO: Status word sequence control / ZSW seq_ctrl
r1198.0...15	CO/BO: Control word setpoint channel / STW setpoint chan
r1199.0...8	CO/BO: Ramp-function generator status word / RFG ZSW
r1204.0...13	CO/BO: Flying restart, U/f control status / FlyRest Uf st
r1205.0...15	CO/BO: Flying restart, vector control status / FlyRest vector st
r1214.0...15	CO/BO: Automatic restart, status / AR status
r1239.8...13	CO/BO: DC braking status word / DCBRK ZSW
r1406.4...15	CO/BO: Control word speed controller / STW n_ctrl
r1407.0...17	CO/BO: Status word speed controller / ZSW n_ctrl
r1408.0...14	CO/BO: Status word current controller / ZSW I_ctrl
r2129.0...15	CO/BO: Trigger word for faults and alarms / Trigger word
r2135.12...15	CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2
r2138.7...15	CO/BO: Control word faults/alarms / STW fault/alarm
r2139.0...12	CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1
r2197.0...13	CO/BO: Status word monitoring 1 / ZSW monitor 1
r2198.0...13	CO/BO: Status word monitoring 2 / ZSW monitor 2
r2199.0...11	CO/BO: Status word monitoring 3 / ZSW monitor 3
r2225.0	CO/BO: Technology controller fixed value selection status word / Tec_ctr FixVal ZSW
r2349.0...12	CO/BO: Technology controller status word / Tec_ctrl status
r3113.0...15	CO/BO: NAMUR message bit bar / NAMUR bit bar
r3333.0...3	CO/BO: 2/3 wire control control word / 2/3 wire STW
r3859.0	CO/BO: Compound braking status word / Compound Br ZSW
r5613.0...1	CO/BO: Pe energy-saving active/inactive / Pe save act/inact
r9720.0...13	CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW
r9722.0...15	CO/BO: SI Motion status signals integrated in the drive / SI Mtn integ stat
r9722.0...13	CO/BO: SI Motion status signals integrated in the drive / SI Mtn integ stat
r9723.0...16	CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag
r9734.0...14	CO/BO: SI Motion Safety Info Channel status word / SI Mtn info ch ZSW
r9742.0...15	CO/BO: SI Motion drive-integrated status signals (processor 2) / SI Mtn int stat P2
r9772.0...20	CO/BO: SI status (processor 1) / SI status P1
r9773.0...31	CO/BO: SI status (processor 1 + processor 2) / SI status P1+P2
r9872.0...20	CO/BO: SI status (processor 2) / SI Status P2

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*BICO parameters (connectors/binectors)*

r10051.0...2	CO/BO: SI digital inputs status (processor 1) / SI DI status P1
r10151.0...2	CO/BO: SI digital inputs status (processor 2) / SI DI status P2

## 1.5 Parameters for write protection and know-how protection

### 1.5.1 Parameters with "WRITE\_NO\_LOCK"

The following list contains the parameters with the "WRITE\_NO\_LOCK" attribute.

These parameters are not affected by the write protection.

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: WRITE\_NO\_LOCK

p0003	Access level / Acc_level
p0010	Drive commissioning parameter filter / Drv comm. par_filt
p0124[0...n]	CU detection via LED / CU detection LED
p0970	Reset drive parameters / Drive par reset
p0971	Save parameters / Save par
p0972	Drive unit reset / Drv_unit reset
p2111	Alarm counter / Alarm counter
p3950	Service parameter / Serv. par.
p3981	Faults, acknowledge drive object / Faults ackn DO
p3985	Master control mode selection / PcCtrl mode select
p7761	Write protection / Write protection
p9400	Safely remove memory card / Mem_card rem
p9484	BICO interconnections search signal source / BICO S_src srch

### 1.5.2 Parameters with "KHP\_WRITE\_NO\_LOCK"

The following list contains the parameters with the "KHP\_WRITE\_NO\_LOCK" attribute.

These parameters are not affected by the know-how protection.

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: KHP\_WRITE\_NO\_LOCK

p0003	Access level / Acc_level
p0010	Drive commissioning parameter filter / Drv comm. par_filt
p0124[0...n]	CU detection via LED / CU detection LED
p0970	Reset drive parameters / Drive par reset
p0971	Save parameters / Save par
p0972	Drive unit reset / Drv_unit reset
p2111	Alarm counter / Alarm counter
p3950	Service parameter / Serv. par.
p3981	Faults, acknowledge drive object / Faults ackn DO
p3985	Master control mode selection / PcCtrl mode select
p7761	Write protection / Write protection
p9400	Safely remove memory card / Mem_card rem
p9484	BICO interconnections search signal source / BICO S_src srch

### 1.5.3 Parameters with "KHP\_ACTIVE\_READ"

The following list contains the parameters with the "KHP\_ACTIVE\_READ" attribute.

These parameters can also be read with activated know-how protection.

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng, Type: KHP\_ACTIVE\_READ

p0015	Macro drive unit / Macro drv unit
p0100	IEC/NEMA mot stds / IEC/NEMA mot stds
p0170	Number of Command Data Sets (CDS) / CDS count
p0180	Number of Drive Data Sets (DDS) / DDS count
p0199[0...24]	Drive object name / DO name
p0300[0...n]	Motor type selection / Mot type sel
p0304[0...n]	Rated motor voltage / Mot U <sub>rated</sub>
p0305[0...n]	Rated motor current / Mot I <sub>rated</sub>
p0505	Selecting the system of units / Unit sys select
p0595	Technological unit selection / Tech unit select
p0730	BI: CU signal source for terminal DO 0 / CU S <sub>src</sub> DO 0
p0731	BI: CU signal source for terminal DO 1 / CU S <sub>src</sub> DO 1
p0732	BI: CU signal source for terminal DO 2 / CU S <sub>src</sub> DO 2
p0806	BI: Inhibit master control / PcCtrl inhibit
p0922	PROFIdrive telegram selection / PD Telegr_sel
p1080[0...n]	Minimum speed / n <sub>min</sub>
p1082[0...n]	Maximum speed / n <sub>max</sub>
p1520[0...n]	CO: Torque limit upper / M <sub>max</sub> upper
p2000	Reference speed reference frequency / n <sub>ref</sub> f <sub>ref</sub>
p2001	Reference voltage / Reference voltage
p2002	Reference current / I <sub>ref</sub>
p2003	Reference torque / M <sub>ref</sub>
p2005	Reference angle / Reference angle
p2006	Reference temp / Ref temp
p2007	Reference acceleration / a <sub>ref</sub>
p2030	Field bus int protocol selection / Field bus protocol
p2038	PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode
p2079	PROFIdrive PZD telegram selection extended / PD PZD tel ext
p7763	KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764
p7764[0...n]	KHP OEM exception list / KHP OEM excep list
p9601	SI enable, functions integrated in the drive (processor 1) / SI enable fct P1
p9810	SI PROFIsafe address (processor 2) / SI PROFIsafe P2

## 1.6 Quick commissioning (p0010 = 1)

The parameters required for the quick commissioning (p0010 = 1) are shown in Table 1-7:

Table 1-7 Quick commissioning (p0010 = 1)

Par. no.	Name	Access level		Can be changed
p0010	Drive, commissioning parameter filter	1		C(1)T
p0015	Macro drive unit	1		C,C(1)
p0100	IEC/NEMA motor standard	1		C(1)
p0205	Power unit application	1		C(1,2)
p0230	Drive filter type, motor side	1		C(1,2)
p0300	Motor type selection	2		C(1,3)
p0301	Motor code number selection	2		C(1,3)
p0304	Rated motor voltage	1		C(1,3)
p0305	Rated motor current	1		C(1,3)
p0306	Number of motors connected in parallel:	1		C(1,3)
p0307	Rated motor power	1		C(1,3)
p0308	Rated motor power factor	1		C(1,3)
p0309	Rated motor efficiency	1		C(1,3)
p0310	Rated motor frequency	1		C(1,3)
p0311	Rated motor speed	1		C(1,3)
p0314	Motor pole pair number	3		C(1,3)
p0316	Motor torque constant	3		C(1,3)UT
p0322	Maximum motor speed	1		C(1,3)
p0323	Maximum motor current	1		C(1,3)
p0335	Motor cooling type	2		C(1,3)T
p0500	Technology application	4	PM230	C(1,5)T
p0500	Technology application	2	PM240 PM250 PM260, PM330	C(1,5)T
p0640	Current limit	2		C(1,3)UT
p0922	PROFIdrive telegram selection	1		C(1)T
p0970	Reset drive parameters	1		C(1,30)
p1080	Minimum speed	1		C(1)T
p1082	Maximum speed	1		C(1)T
p1120	Ramp-function generator, ramp-up time	1		C(1)UT
p1121	Ramp-function generator, ramp-down time	1		C(1)UT
p1135	OFF3 ramp-down time	2		C(1)UT

Table 1-7 Quick commissioning (p0010 = 1), continued

Par. no.	Name	Access level		Can be changed
p1300	Open-loop/closed-loop control operating mode	2		C(1)T
p1500	Torque setpoint selection	2		C(1)T
p1900	Motor data identification and rotating measurement	2		C(1)T
p1905	Parameter tuning selection	1		C(1)T
p2196	Torque utilization scaling	1		C(1,3)UT
p3900	Completion of quick commissioning	1		C(1)

If p0010 = 1 is selected, p0003 (user access level) can be used to select the parameters that are to be accessed.

At the end of the quick commissioning, set p3900 = 1 to perform the required motor calculations and reset all other parameters (not included in p0010 = 1) to their default settings.

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**Note:**

This only applies for the quick commissioning.

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# Function diagrams

# 2

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## 2.2 Explanation of the function diagrams

### Function diagrams

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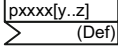
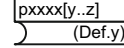


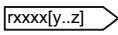
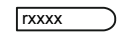

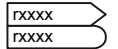

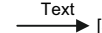
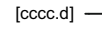
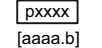
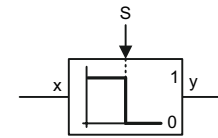
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<b>Symbol</b>	<b>Meaning</b>	<b>Symbol</b>	<b>Meaning</b>	<b>Symbol</b>	<b>Meaning</b>	<b>Symbol</b>	<b>Meaning</b>
Parameter name [Unit] rxxx[y..z] 	Monitoring parameter with unit [Unit] and index range [y..z] or data set [C/D]	Parameter name pxxx[y..z] 	Connector input CI with index range [y..z] or data set [C/D] and factory setting (Def) *)	Parameter name pxxx[y..z] 	Binector input BI with with index range [y..z] or data set [C/D] and factory setting.bit number (Def)	pxxx[C] 	Parameter belongs to the Command Data Set (CDS).
Parameter name from ... to [Unit] pxxx[C/D] (Def) 	Setting parameter with min/ max value and unit [Unit] data set [C/D] and factory setting (Def) *)	Parameter name [Unit] rxxx[y..z] 	Connector output CO with unit [Unit] and with index range [y..z]	Parameter name rxxx 	Binector output BO	pxxx[D] 	Parameter belongs to the Drive Data Set (DDS).
		<b>Connectors/binectors</b>		<b>Pre-assigned connectors</b>			
		<b>Symbol</b>	<b>Meaning</b>	<b>Symbol</b>	<b>Meaning</b>		
		Parameter name rxxx rxxx 	Connector/binector output CO/BO	Parameter name from ... to [Unit] pxxx[D] (Def) 	Setting parameter with min/ max value and unit [Unit] data set [D] and factory setting (Def)		
<b>Information on parameters, binectors, connectors</b>				<b>Cross references between diagrams</b>			
<b>Symbol</b>	<b>Meaning</b>			<b>Symbol</b>	<b>Meaning</b>		
Parameter name [Unit]  rxxx[y] or rxxx[y...z] or rxxx[y].ww or rxxx.ww  pxxxx[y] or pxxxx[y...z] or pxxxx[y].ww or pxxxx.ww  from ... to  (xxx[y].ww)  (Def)  (Def.w)  [aaaa.b]	Parameter name (up to 18 characters) [dimension unit]  "r" = monitoring parameter. These parameters are read-only "xxxx" stands for the parameter number "[y]" specifies the applicable index, "[y...z]" specifies the index range ".ww" specifies the bit number (e.g. 0...15).  "p" = setting parameter. These parameters can be changed. "xxxx" stands for the parameter number, "[y]" specifies the applicable index, "[y...z]" specifies the index range ".ww" specifies the bit number (e.g. 0...15).  Value range.  Parameter number (xxxx) with Index number [y] and bit number .ww.  Factory setting.  Factory setting with bit number as prefix.  Diagram references for setting parameters that occur a multiple number of times. [Function diagram number, signal path]			Signal path  Text  [cccc.d]  To "function diagram name" [aaaa.b] = binectors.	The function diagrams are sub-divided into signal paths 1...8 in order to facilitate orientation.  Text = Unique signal designation aaaa = Signal to target diagram aaa b = Signal to signal path b  Text = Unique signal designation cccc = Signal from source diagram cccc d =Signal from signal path d  To "function diagram name" [aaaa.b] = binectors.		
				<b>Cross references for control bits</b>			
				<b>Symbol</b>	<b>Meaning</b>		
				pxxx [aaaa.b] 	pxxx= Original parameter of signal aaaa = Signa from source diagram aaaa b = Signal from signal path b		
*) For some parameters the value for the factory setting is calculated during commissioning for they are dependent on Power Module and motor (see Section 1.1.1 "Calculated").							
1	2	3	4	5	6	7	8
Explanations for the function diagrams					fp_1020_97_61.vsd	Function diagram	
Explanation of the symbols (Part 1)					20.12.2011 V4.5	G120 CU240B/E-2	
							- 1020 -

Fig. 2-1

1020 – Explanation of the symbols (Part 1)

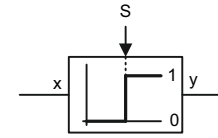


## Symbols for computational and closed-loop control functions



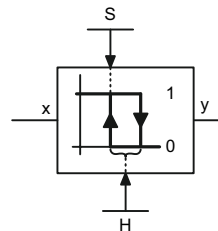
### Threshold value switch 1/0

Outputs at y a logical "1" if  $x < S$ .



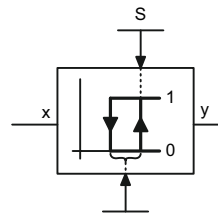
### Threshold value switch 0/1

Outputs at y a logical "1" if  $x > S$ .



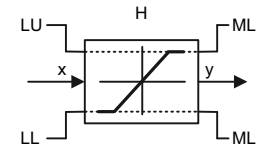
### Threshold value 1/0 with hysteresis

Outputs a logical "1" at y if  $x < S$ .  
If  $x \geq S + H$  then y returns to 0.



### Threshold value 0/1 with hysteresis

Outputs a logical "1" at y if  $x > S$ .  
If  $x \leq S - H$  then y returns to 0.



### Limiter

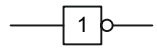
x is limited to the upper limit LU and the lower limit LL and output at y.  
The digital signals MLU and MLL have the value "1", if the upper or lower limit is active.



### Sample & Hold element

Sample and hold element.  
 $y = x$  if SET = 1  
(not retentively saved at POWER OFF)

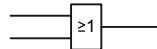
## Symbols for logic functions



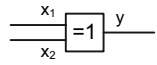
### Logical inversion



### AND element with logical inversion of an input signal

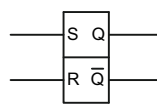


### OR element



### Exclusive-OR/XOR

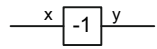
$y = 1$  when  $x1 \neq x2$  is.



### R/S flip-flop

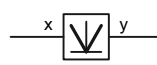
S = setting input  
R = reset input  
Q = non-inverted output  
Q = inverted output

## Symbols for computational and closed-loop control functions



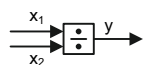
### Sign reversal

$y = -x$



### Absolute value generator

$y = |x|$



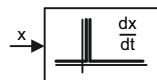
### Divider

$y = \frac{x_1}{x_2}$



### Comparator

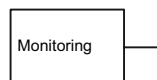
Output y = a logical "1", if the analog signal  $x > 0$ , i.e. is positive.



### Differentiator

$y = \frac{dx}{dt}$

## Symbol for monitoring



### Monitoring

Axxxxx  
or  
Fxxxxx

1	2	3	4	5	6	7	8
Explanations for the function diagrams					fp_1021_97_61.vsd	Function diagram	
Explanation of the symbols (Part 2)					20.12.2011 V4.5	G120 CU240B/E-2	
							- 1021 -

Fig. 2-2 1021 – Explanation of the symbols (Part 2)

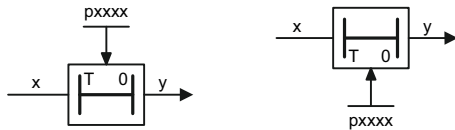
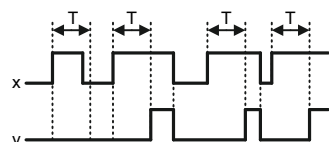
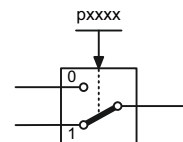
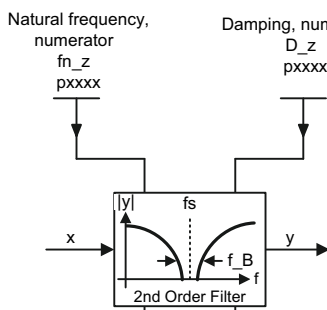
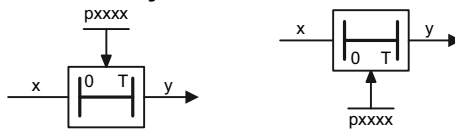
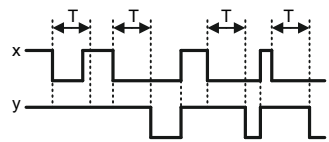
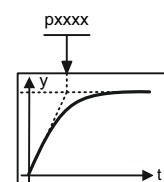
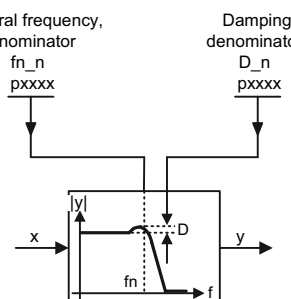
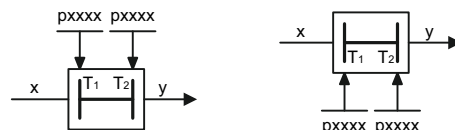
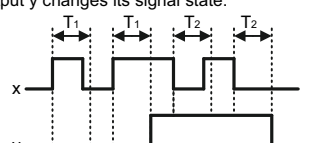
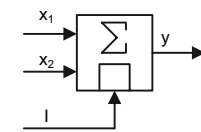
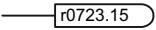
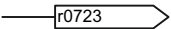
<div><h3>Switch-on delay</h3><div></div><p>The digital signal x must have the value "1" without any interruption during the time T before output y changes to "1".</p><div></div></div>		<div><h3>Switch symbol</h3><div></div><h4>Simple changeover switch</h4><p>The switch position is shown according to the factory setting (in this case, switch position 1 in the default state on delivery).</p></div>		<div><h3>2nd-order filter (bandstop/general filter)</h3><div></div><p>Natural frequency, numerator <math>fn\_z</math> pxxxx</p><p>Damping, numerator <math>D\_z</math> pxxxx</p><p>Natural frequency, denominator <math>fn\_n</math> pxxxx</p><p>Damping, denominator <math>D\_n</math> pxxxx</p><h4>Used as bandstop filter</h4><p>- center frequency <math>fs:fn\_z = fs</math></p><p>- bandwidth <math>f\_B:</math></p><math display="block">D\_n = \frac{f\_B}{2 \cdot fs}</math><p>Transfer function when used as general filter</p><math display="block">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}</math></div>													
<div><h3>Switch-off delay</h3><div></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>		<div><h3>PT1 element</h3><div></div><p>Delay element, first order.</p><p>pxxxx = time constant</p></div>		<div><h3>PT2 low pass</h3><div></div><p>Natural frequency, denominator <math>fn\_n</math> pxxxx</p><p>Damping, denominator <math>D\_n</math> pxxxx</p><h4>Transfer function</h4><math display="block">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}</math></div>													
<div><h3>Delay (switch-on and switch-off)</h3><div></div><p>The digital signal x must have the value "1" without interruption during time T1 or must have the value "0" during time T2 before output y changes its signal state.</p><div></div></div>		<div><h3>Analog adder can be activated</h3><div></div><p>The following applies to I = 1 signal: <math>y = x_1 + x_2</math></p><p>The following applies to I = 0 signal: <math>y = x_1</math></p></div>															
1		2		3		4		5		6		7		8			
Explanations for the function diagrams										fp_1022_97_61.vsd		Function diagram				- 1022 -	
Explanation of the symbols (Part 3)										20.12.2011 V4.5		G120 CU240B/E-2					

Fig. 2-3

1022 – Explanation of the symbols (Part 3)

Handling BICO technology

**Binector:**  r0723.15

**Connector:**  r0723

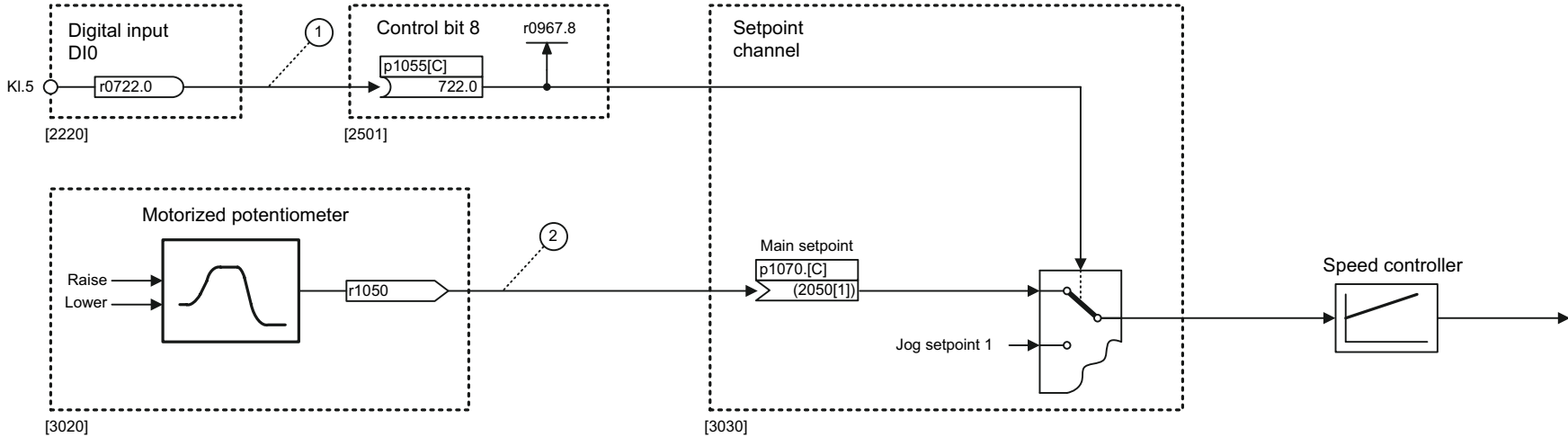
Connectors are "analog signals" that can be freely interconnected (e.g. percentage variables, speeds or torques).  
Connectors are also "CO:" display parameters (CO = Connector Output).

**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 DI0 (BO: r0722.0, Terminal 5 (KI.5)) on the CU.



**Parameterizing steps:**

- ① p1055[0] = 722.0      Terminal 5 (KI.5) 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
Explanations for the function diagrams					fp_1030_97_61.vsd	Function diagram	
Handling BICO technology					20.12.2011 V4.5	G120 CU240B/E-2	
							- 1030 -

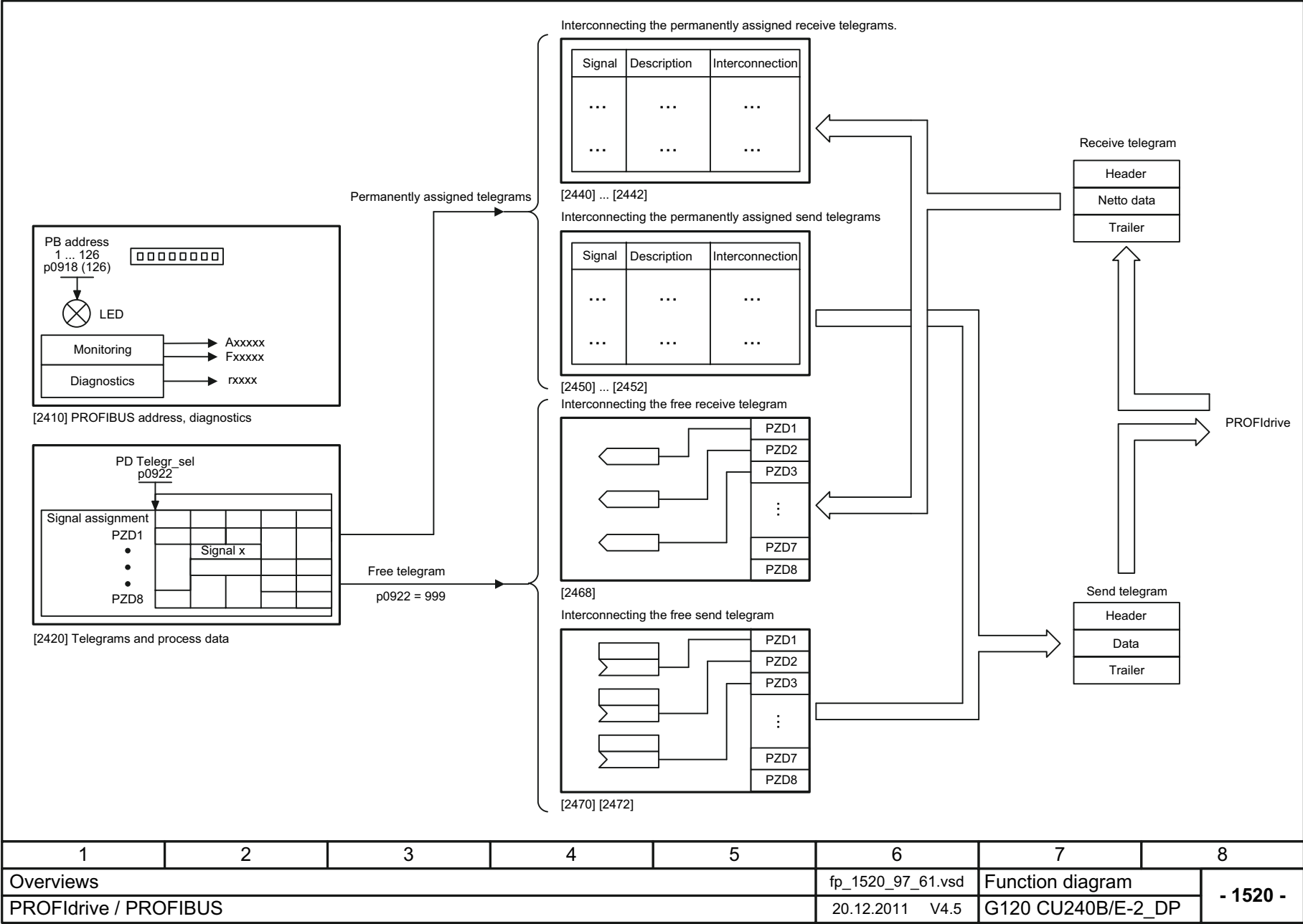
Fig. 2-4

1030 – Handling BICO technology

## **2.3            Overviews**

### **Function diagrams**

1520 – PROFIdrive/PROFIBUS	2-509
1530 – Internal control/status words, data sets	2-510
1550 – Setpoint channel	2-511
1690 – Vector control, V/f control	2-512
1700 – Vector control, speed control and generation of the torque limits	2-513
1710 – Vector control, current control	2-514
1750 – Monitoring functions, faults, alarms	2-515



1	2	3	4	5	6	7	8	
Overviews					fp_1520_97_61.vsd	Function diagram		- 1520 -
PROFIdrive / PROFIBUS					20.12.2011 V4.5	G120 CU240B/E-2_DP		

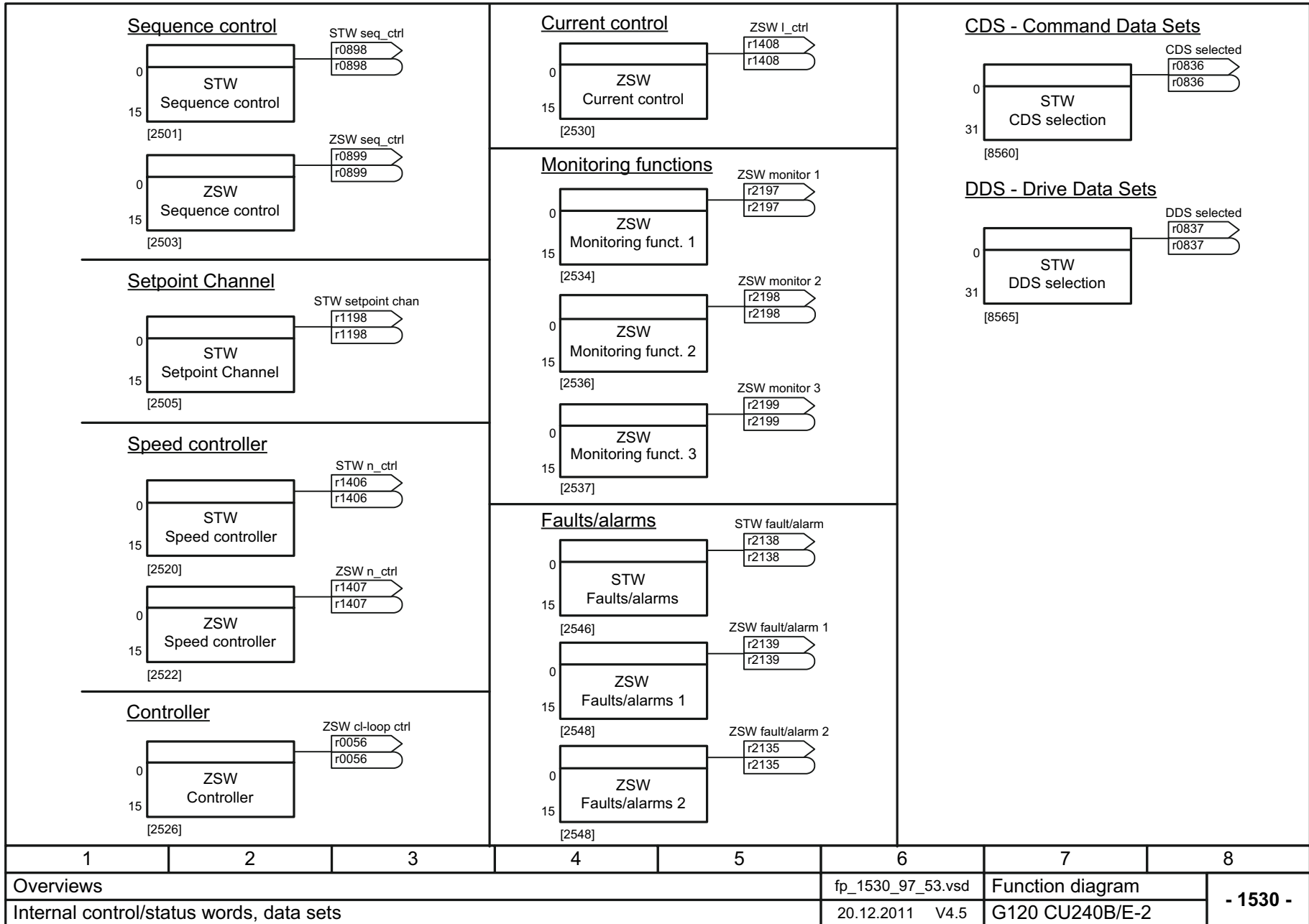


Fig. 2-6 1530 – Internal control/status words, data sets

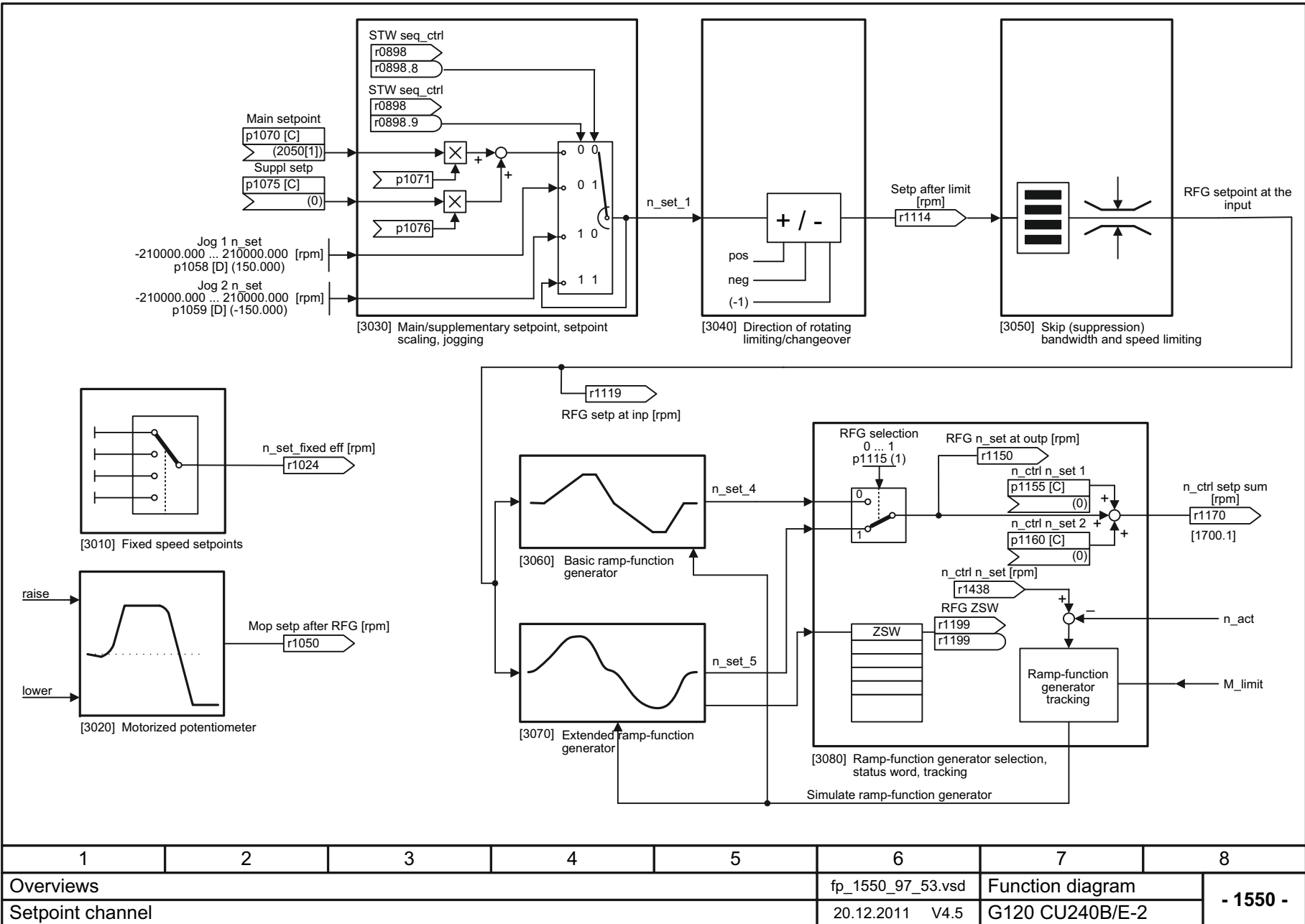
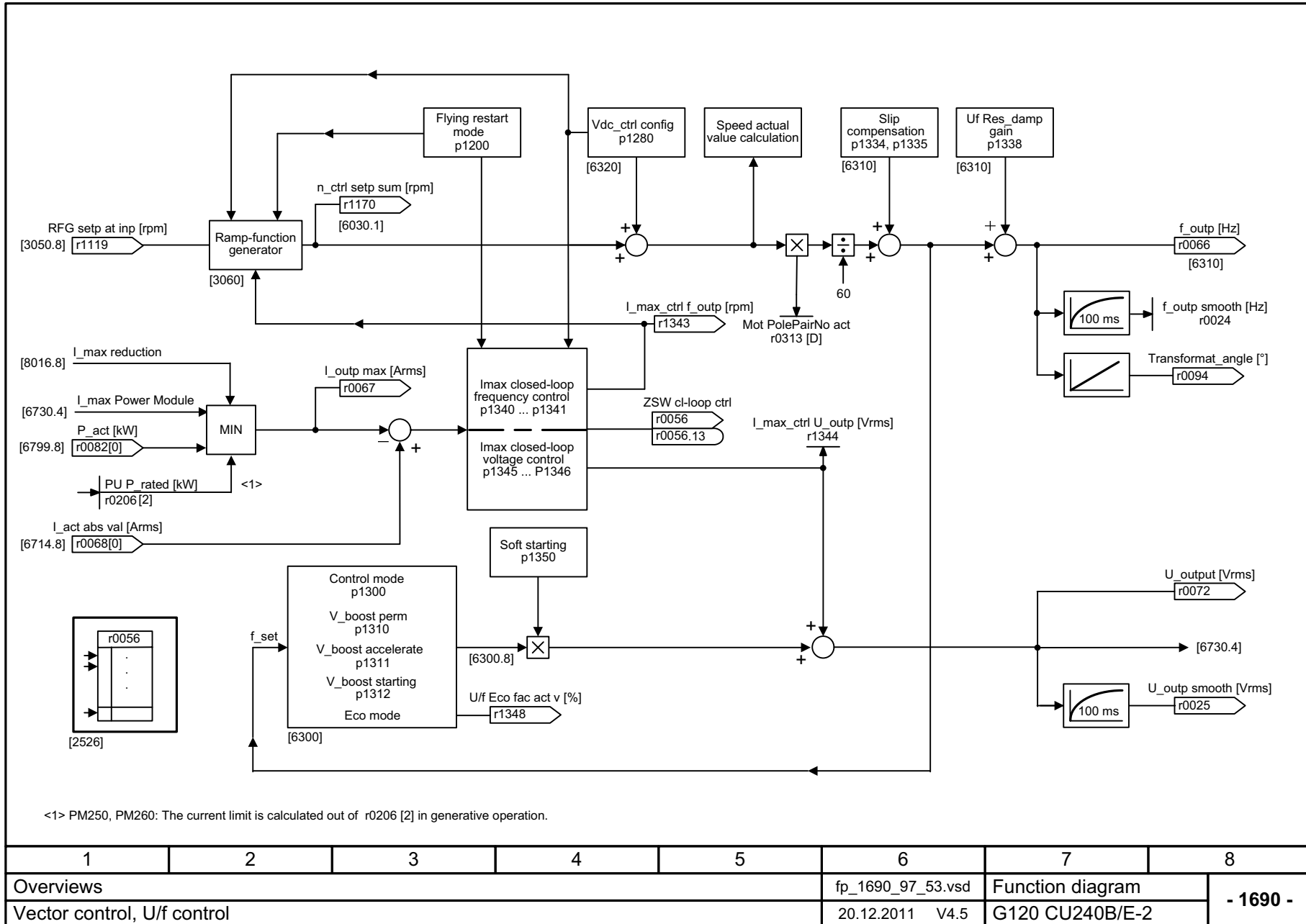
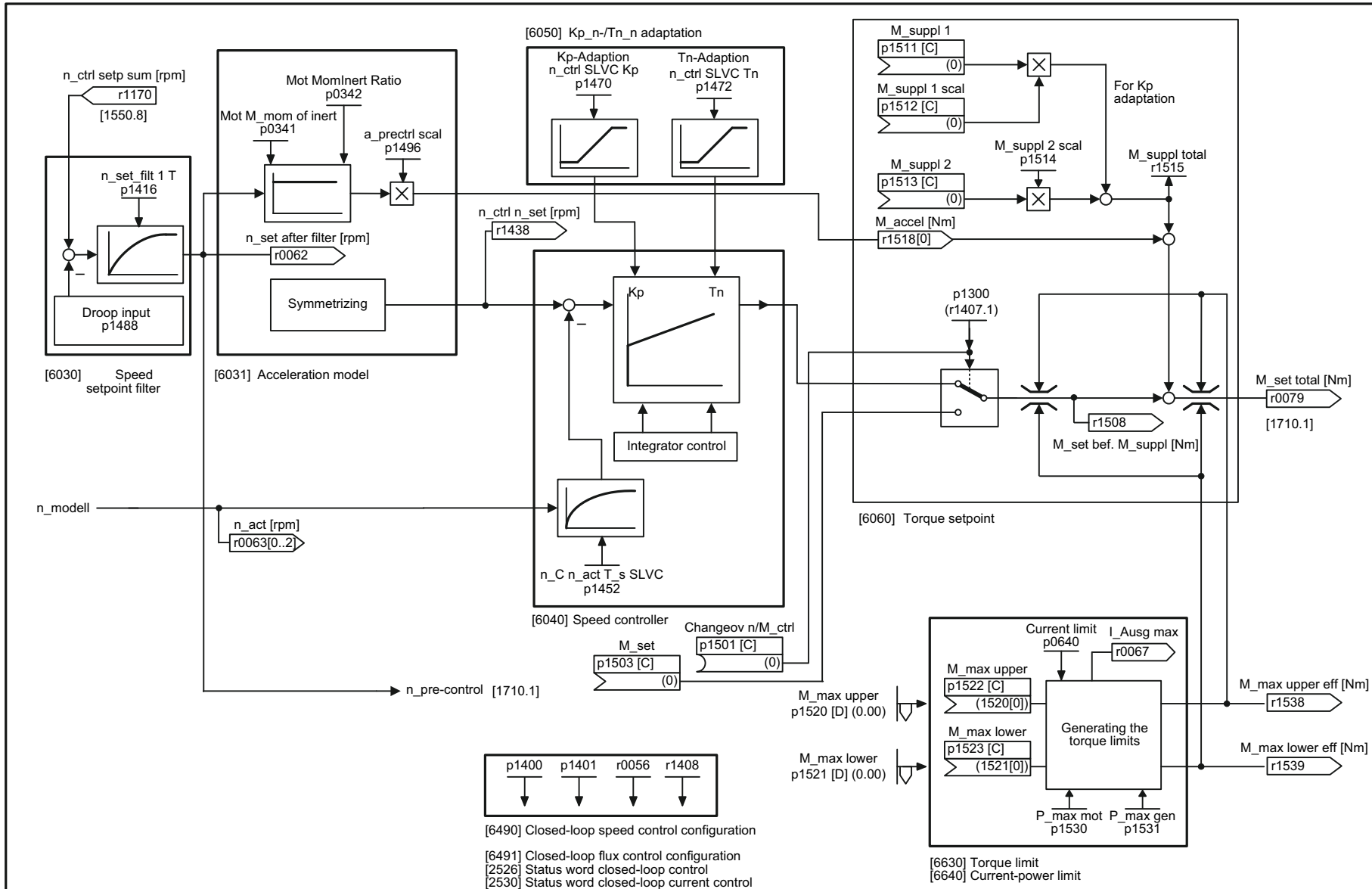


Fig. 2-7 1550 – Setpoint channel

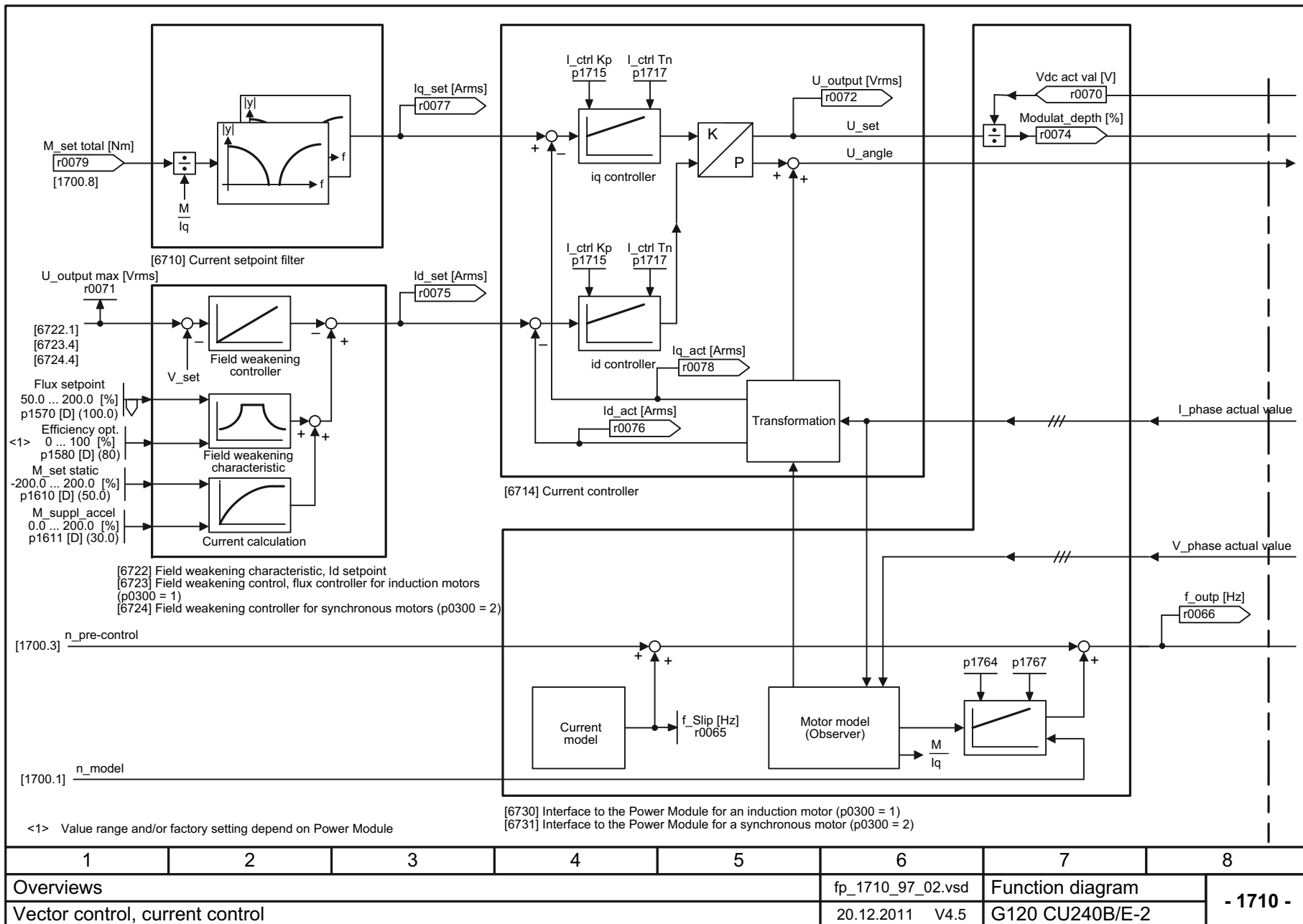
1	2	3	4	5	6	7	8
Overviews					fp_1550_97_53.vsd	Function diagram	
Setpoint channel					20.12.2011 V4.5	G120 CU240B/E-2	
							- 1550 -

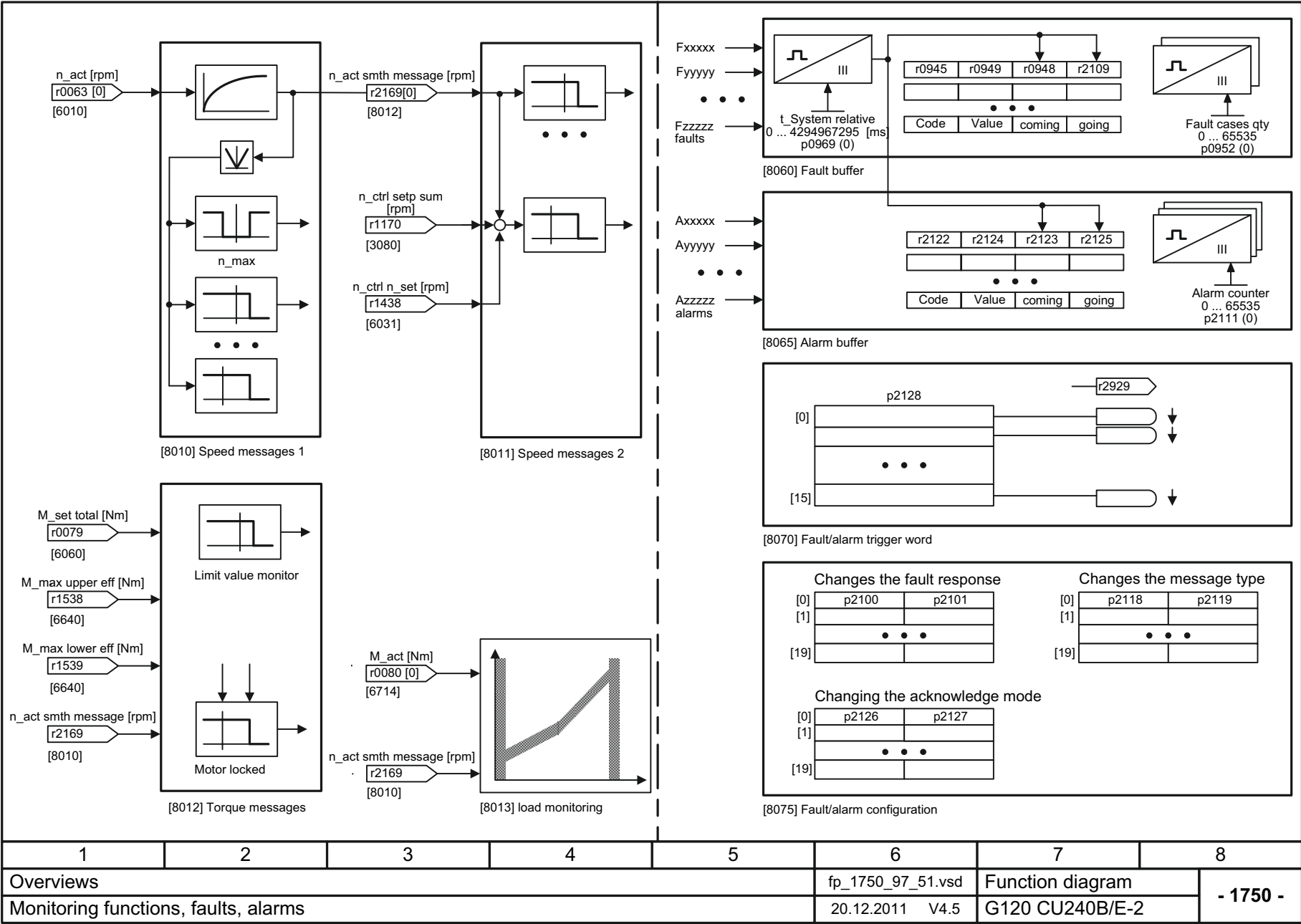






1	2	3	4	5	6	7	8
Overviews					fp_1700_97_02.vsd	Function diagram	
Vector control, speed control and generation of the torque limits					20.12.2011 V4.5	G120 CU240B/E-2	





1	2	3	4	5	6	7	8
Overviews					fp_1750_97_51.vsd	Function diagram	
Monitoring functions, faults, alarms					20.12.2011 V4.5	G120 CU240B/E-2	
							- 1750 -

## 2.4 Input/output terminals

### Function diagrams

2221 – CU240B-2: Digital inputs, electrically isolated (DI0 ... DI3)	2-517
2220 – CU240E-2: Digital inputs, electrically isolated (DI0 ... DI5)	2-518
2223 – CU240B-2: Analog inputs as digital inputs (DI11)	2-519
2222 – CU240E-2: Analog inputs as digital inputs (DI11 ... DI12)	2-520
2231 – CU240B-2: Digital output (DO0)	2-521
2230 – CU240E-2: Digital outputs (DO0 ... DO2)	2-522
9567 – CU240B-2: Analog input 0 (AI0)	2-523
9566 – CU240E-2: Analog inputs 0 ... 1 (AI0 ... AI1)	2-524
9573 – CU240B-2: Analog output 0 (AO0)	2-525
9572 – CU240E-2: Analog outputs 0 ... 1 (AO0 ... AO1)	2-526

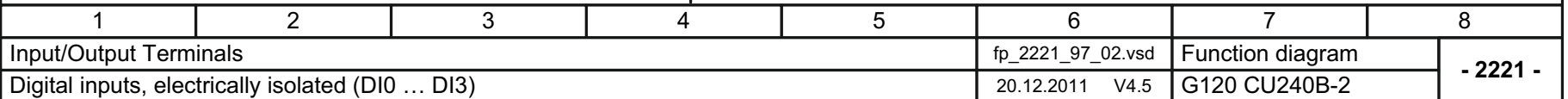
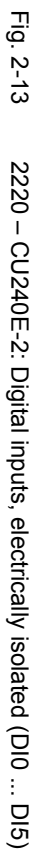


Fig. 2-12



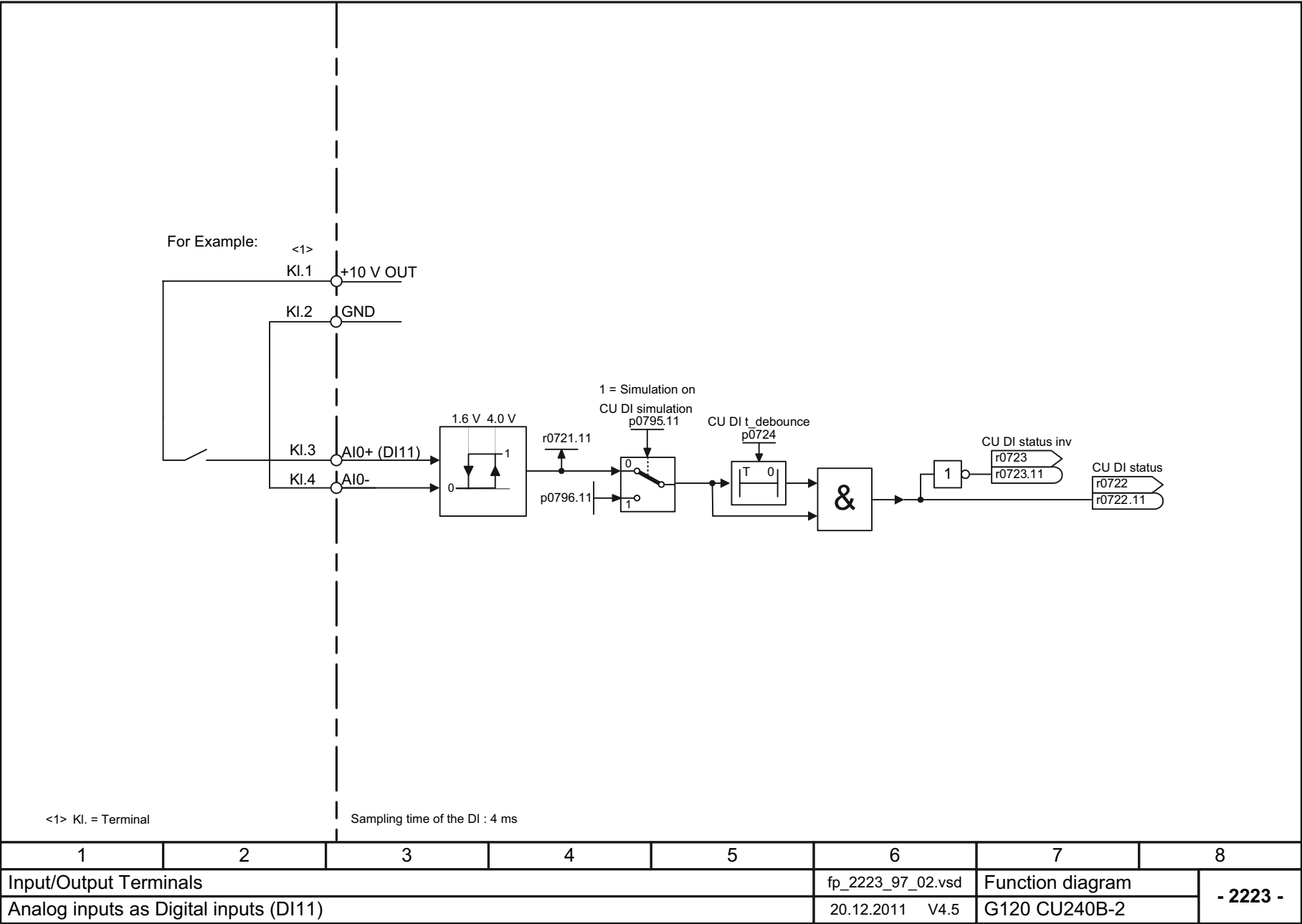


Fig. 2-14 2223 – CU240B-2: Analog inputs as digital inputs (DI11)



Fig. 2-15



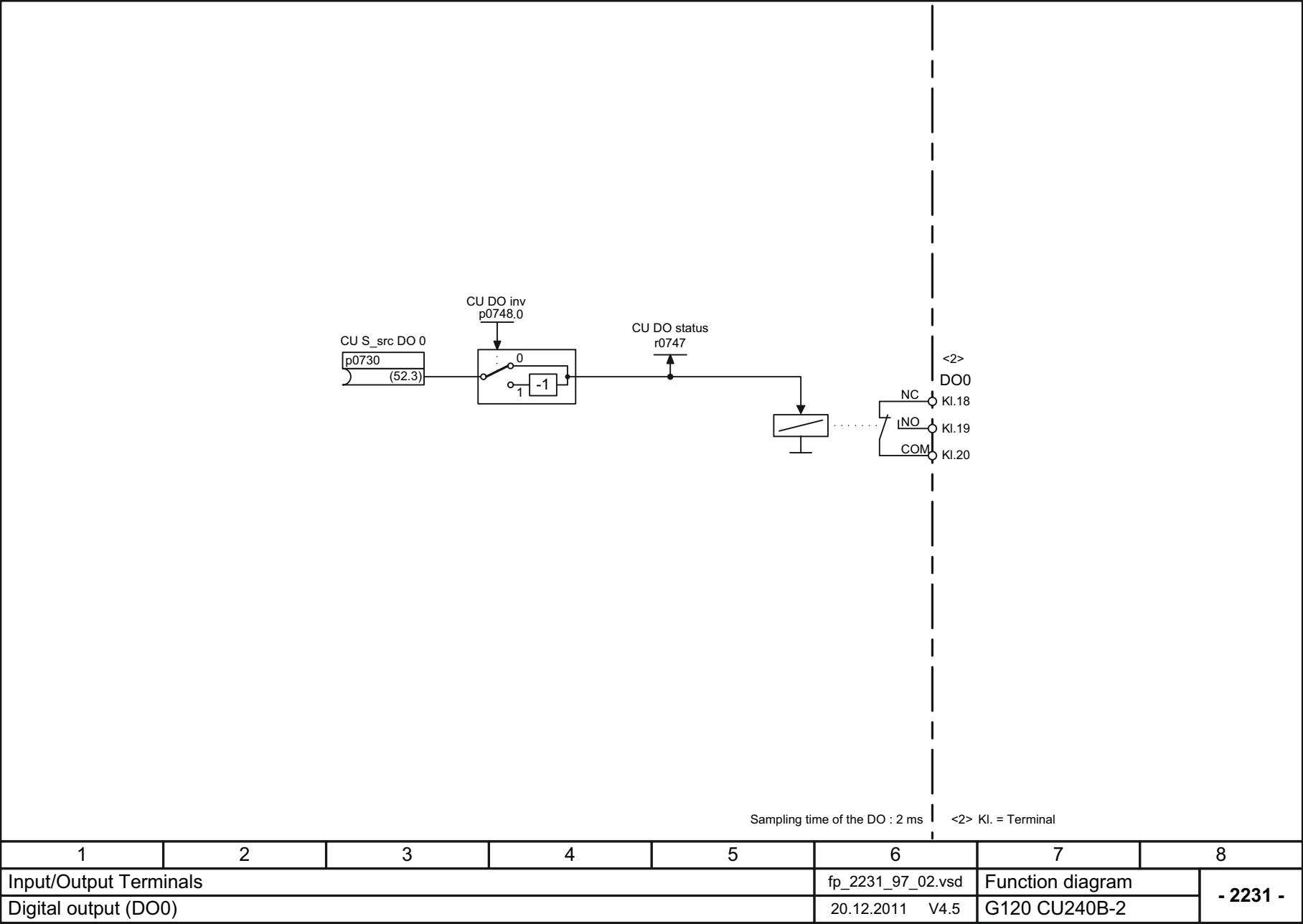


Fig. 2-16 2231 – CU240B-2: Digital output (DO0)

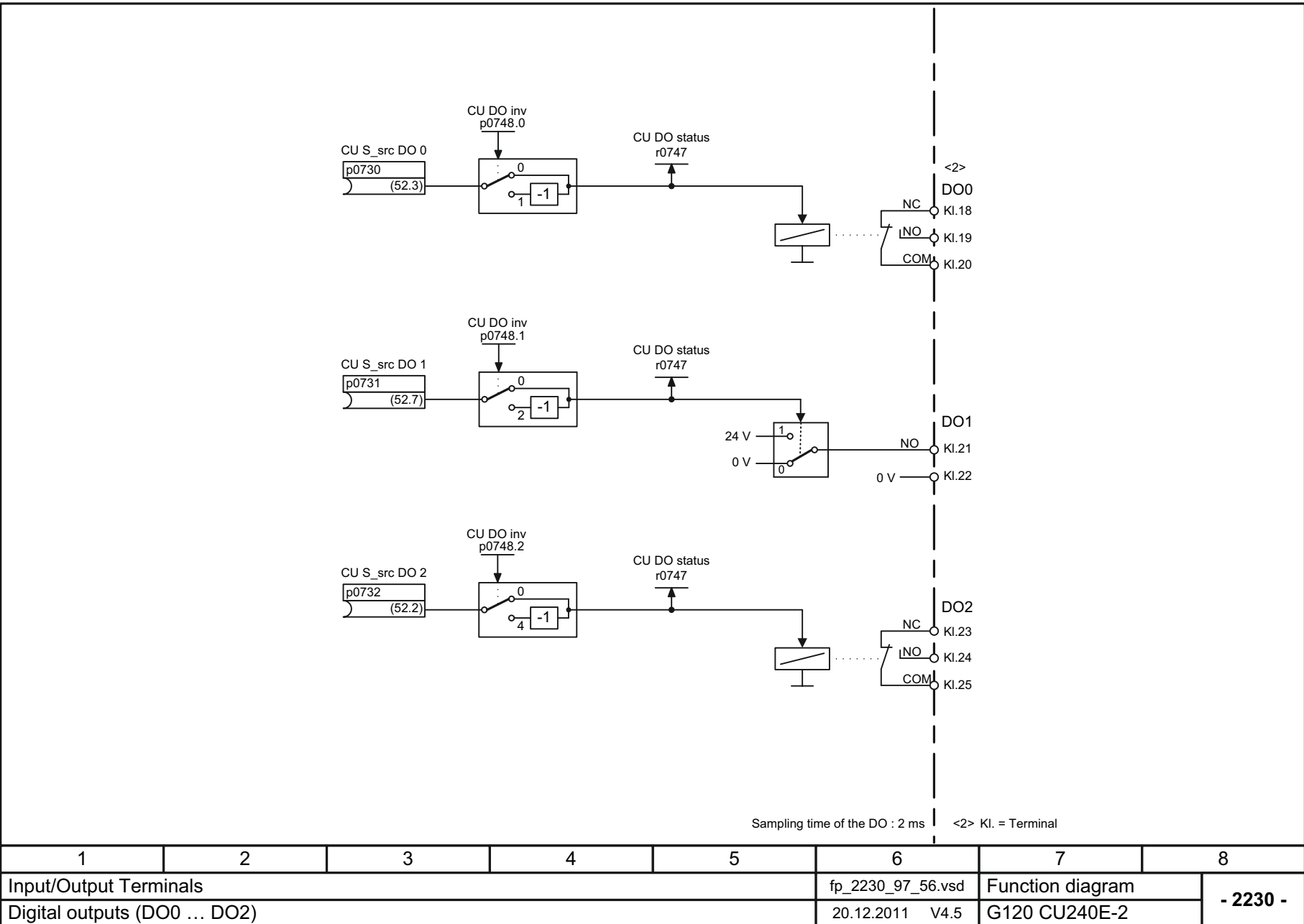
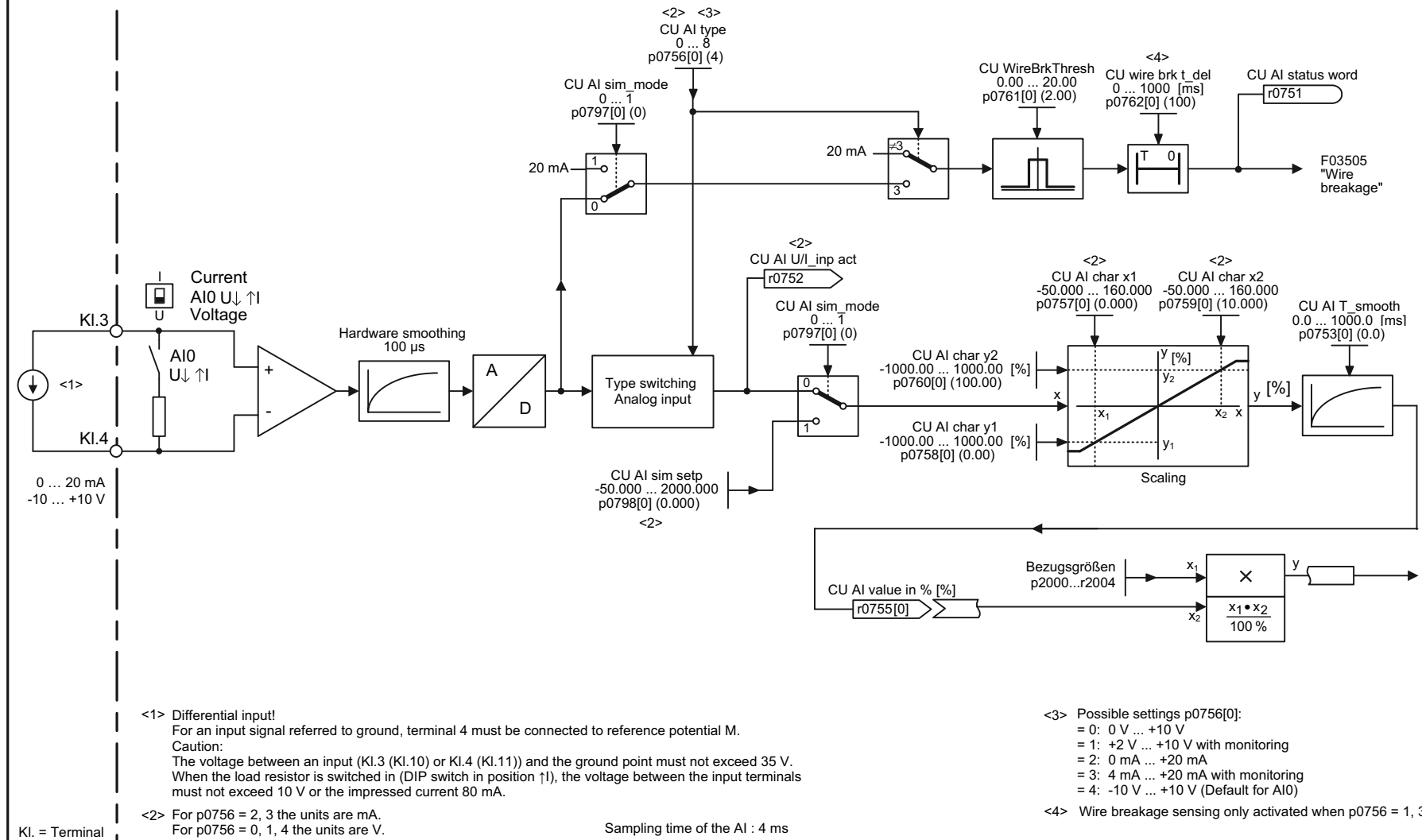
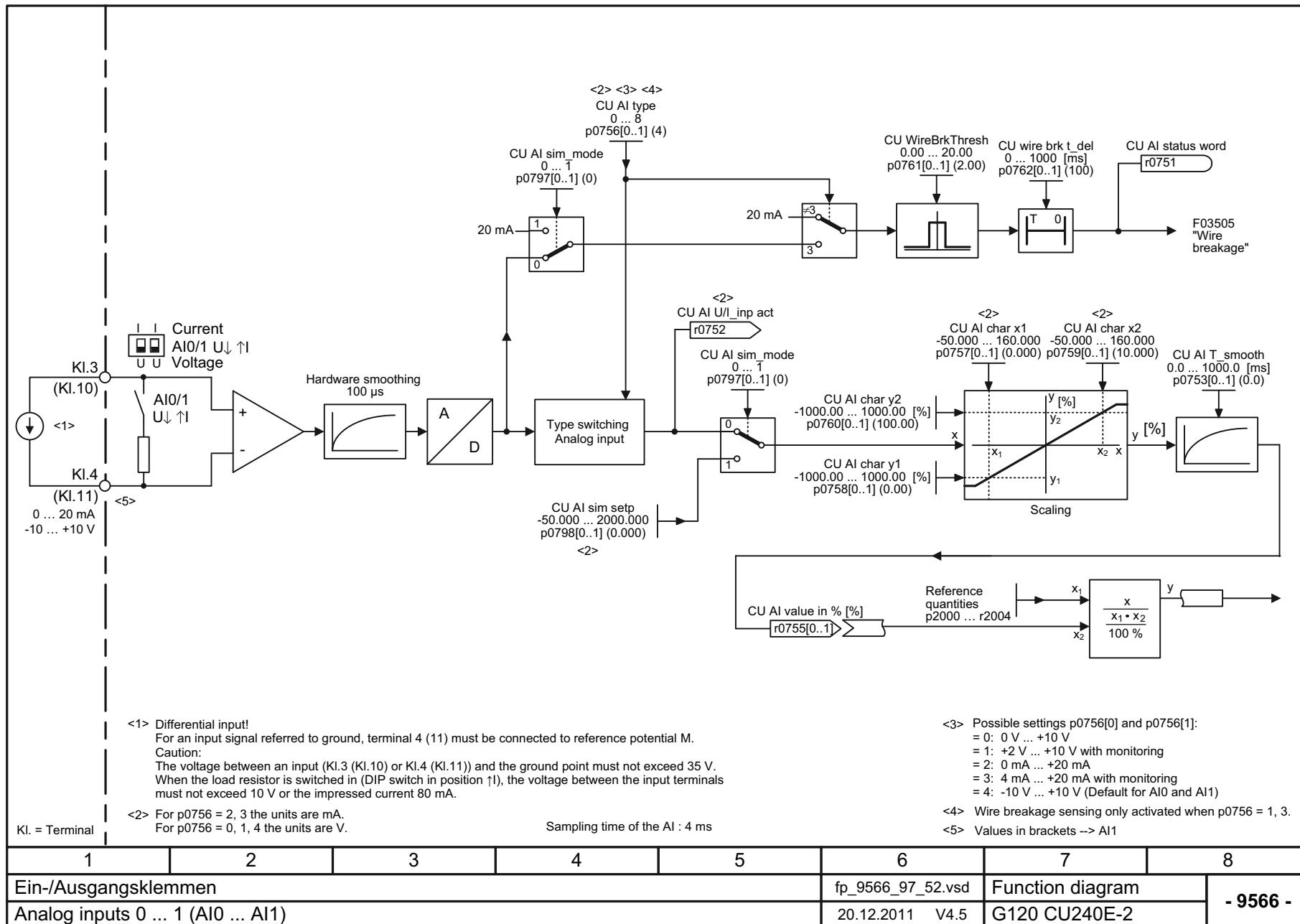


Fig. 2-17 2230 – CU240E-2: Digital outputs (DO0 ... DO2)

Fig. 2-18 9567 – CU240B-2: Analog input 0 (AI0)



1	2	3	4	5	6	7	8
Input/Output Terminals					fp_9567_97_02.vsd	Function diagram	
Analog input 0 (AI0)					20.12.2011 V4.5	G120 CU240B-2	
							- 9567 -



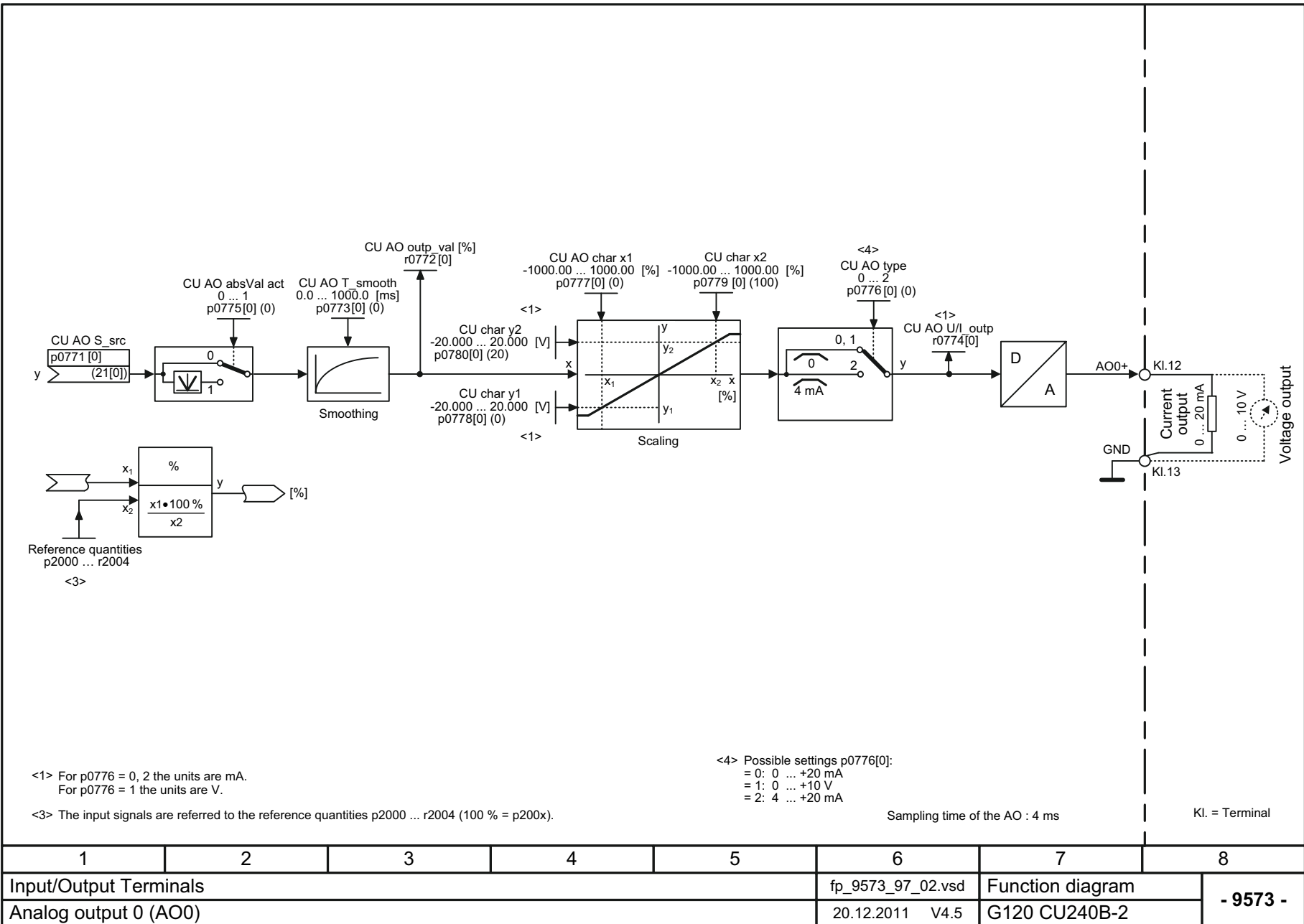
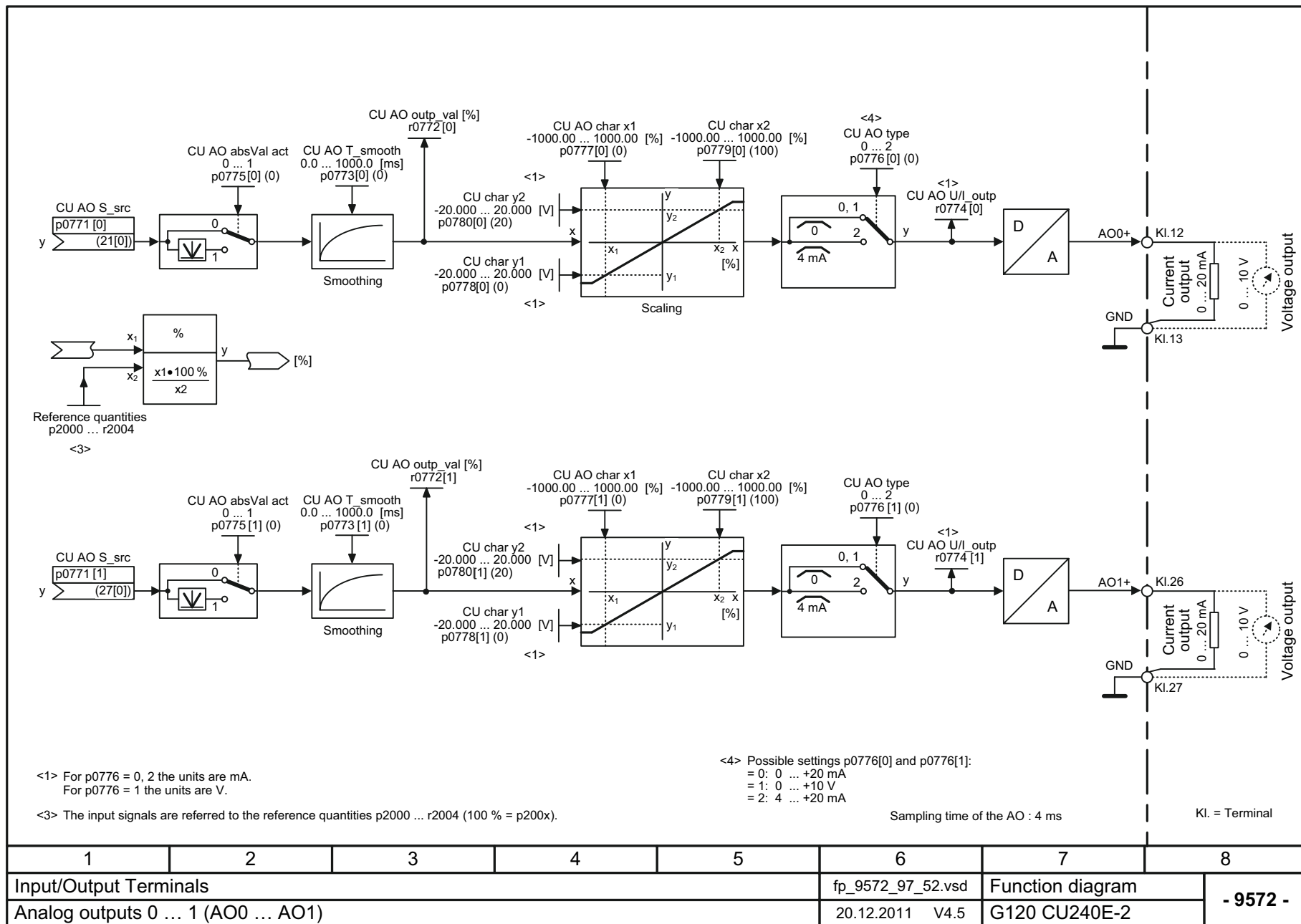


Fig. 2-20 9573 – CU240B-2: Analog output 0 (AO0)



1	2	3	4	5	6	7	8
Input/Output Terminals					fp_9572_97_52.vsd	Function diagram	- 9572 -
Analog outputs 0 ... 1 (AO0 ... AO1)					20.12.2011 V4.5	G120 CU240E-2	

Fig. 2-21 9572 – CU240E-2: Analog outputs 0 ... 1 (AO0 ... AO1)

## 2.5 Communication, fieldbus interface (USS, Modbus)

### Function diagrams (CU240B/E-2)

---

9310 – Configuration, addresses and diagnostics	2-528
9342 – STW1 control word interconnection	2-529
9352 – ZSW1 status word interconnection	2-530
9360 – Receive telegram, free interconnection via BICO	2-531
9370 – Send telegram, free interconnection via BICO	2-532
9372 – Status words, free interconnection	2-533

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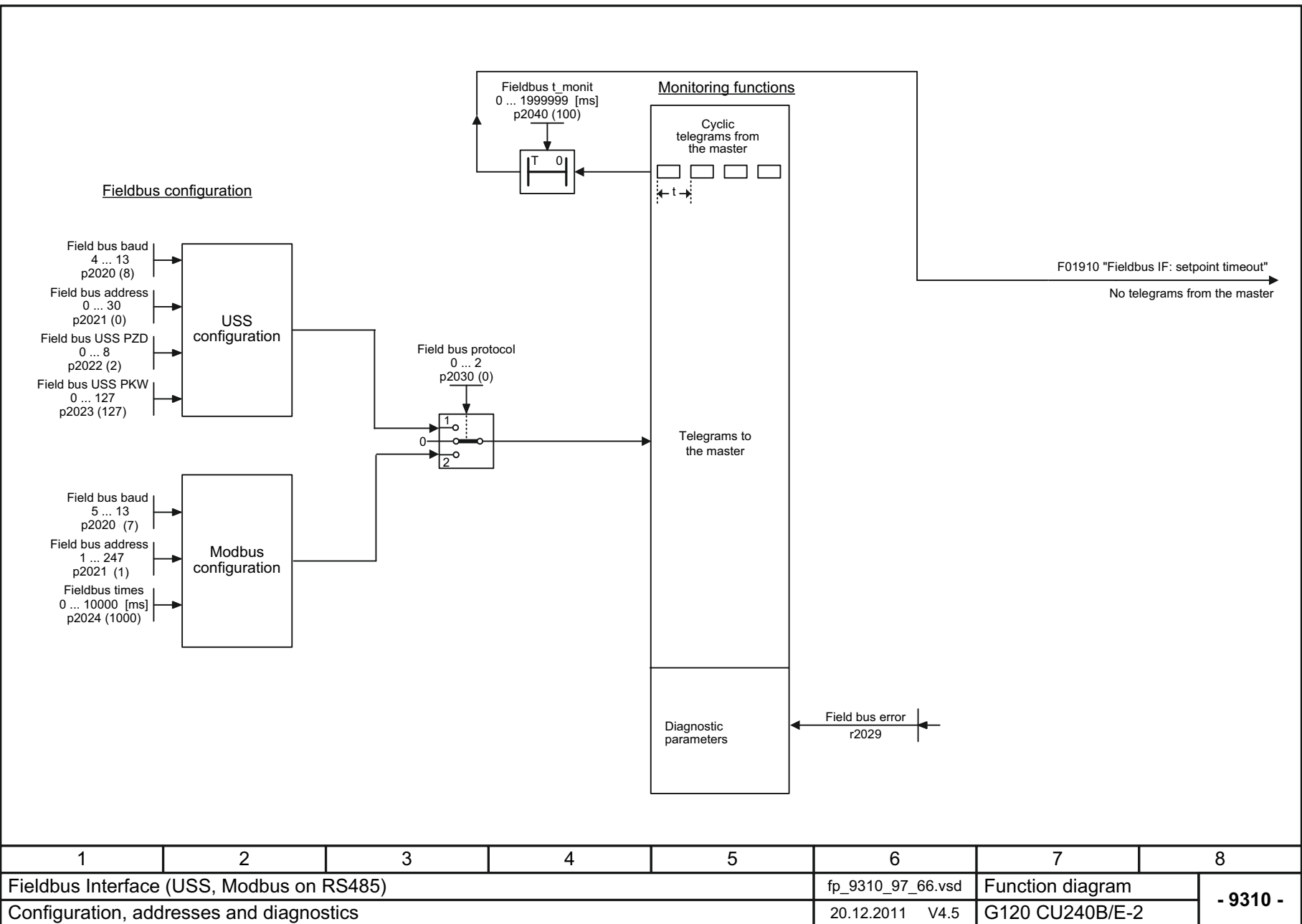




Fig. 2-22 9310 – Configuration, addresses and diagnostics



### Signal targets for fieldbus STW1 (p0700 = 6)

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 suppression & ready for switching on)	p0840[0] = r2090.0	[2501.3]	Sequence control	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse suppression and switching on inhibited)	p0844[0] = r2090.1	[2501.3]	Sequence control	-
STW1.2	1 = No OFF3 (enable is possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse suppression and switching on inhibited)	p0848[0] = r2090.2	[2501.3]	Sequence control	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (suppress pulses)	p0852[0] = r2090.3	[2501.3]	Sequence control	-
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 <1>	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	1 = Motorized potentiometer, setpoint, raise	p1035[0] = r2090.13	[2505.3]	[3020]	-
STW1.14	1 = Motorized potentiometer, setpoint, lower	p1036[0] = r2090.14	[2505.3]	[3020]	-
STW1.15	Reserved	-	-	-	-

<1> Bit 10 in STW1 must be set to ensure that the drive accepts the process data.

1	2	3	4	5	6	7	8
Fieldbus Interface (USS, Modbus on RS485)					fp_9342_97_62.vsd	Function diagram	- 9342 -
STW1 control word interconnection					20.12.2011 V4.5	G120 CU240B/E-2	

Fig. 2-23 9342 – STW1 control word interconnection

Signal sources for fieldbus ZSW1 (p0700 = 6)					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted <1>
ZSW1.0	1 = Ready for switching on	p2080[0] = r0899.0	[2503.7]	Sequence control	-
ZSW1.1	1 = Ready for operation (DC link loaded, pulses inhibited)	p2080[1] = r0899.1	[2503.7]	Sequence control	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	Sequence control	-
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]	Sequence control	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	Sequence control	-
ZSW1.6	1 = Switching on inhibited active	p2080[6] = r0899.6	[2503.7]	Sequence control	-
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]	[8011]	-
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	1 = I, M, or P limit not reached	p2080[11] = r1407.7	[2522.7]	[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]	[8011]	-
ZSW1.15	1 = No alarm, thermal overload, power unit	p2080[15] = r2135.15	[2548.7]	[8014]	✓

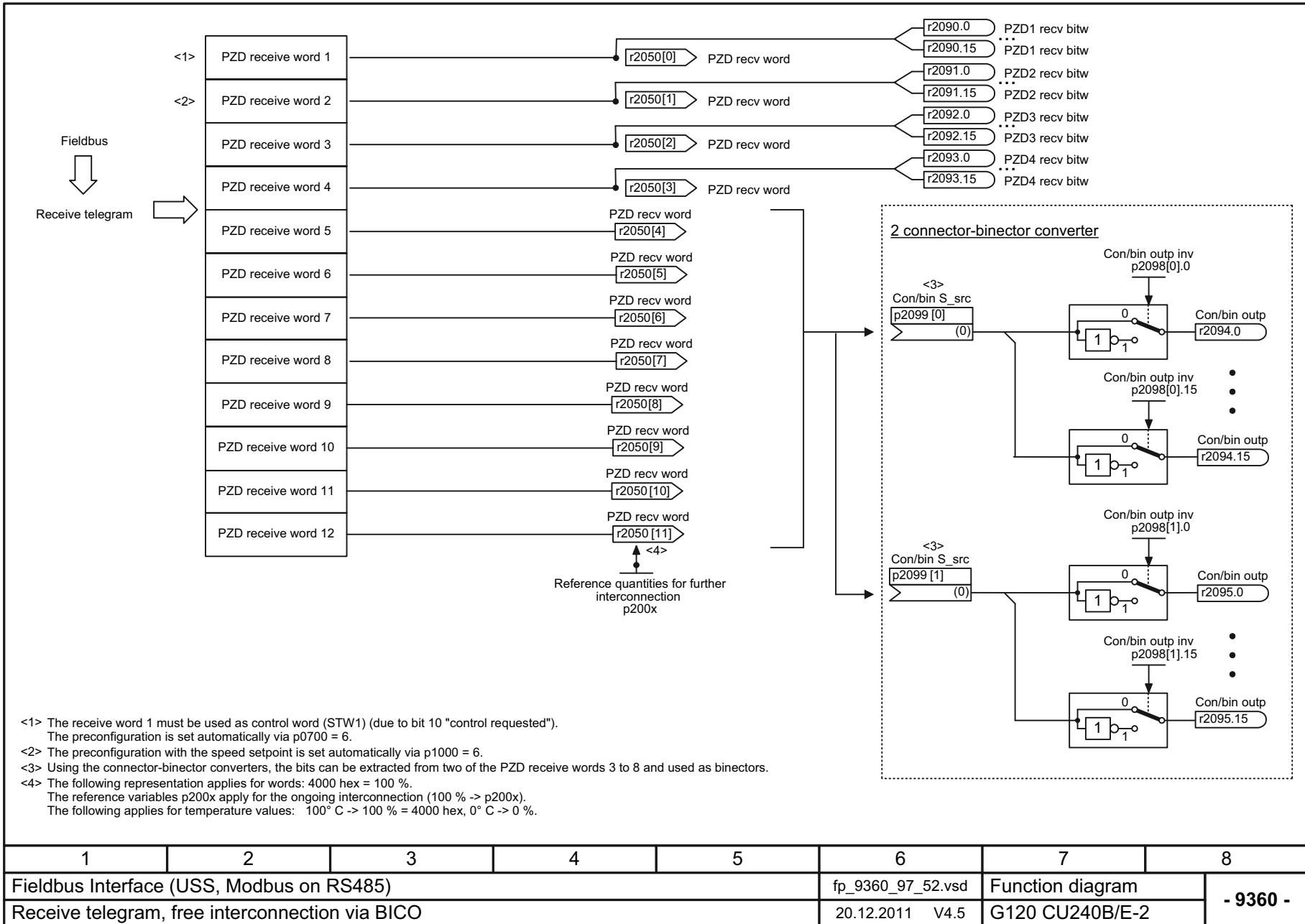
<1> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0]..p2088[0].15)

<2> The drive is ready to accept data.

1	2	3	4	5	6	7	8
Fieldbus Interface (USS, Modbus on RS485)					fp_9352_97_62.vsd	Function diagram	- 9352 -
ZSW1 status word interconnection					20.12.2011 V4.5	G120 CU240B/E-2	

Fig. 2-24

9352 – ZSW1 status word interconnection



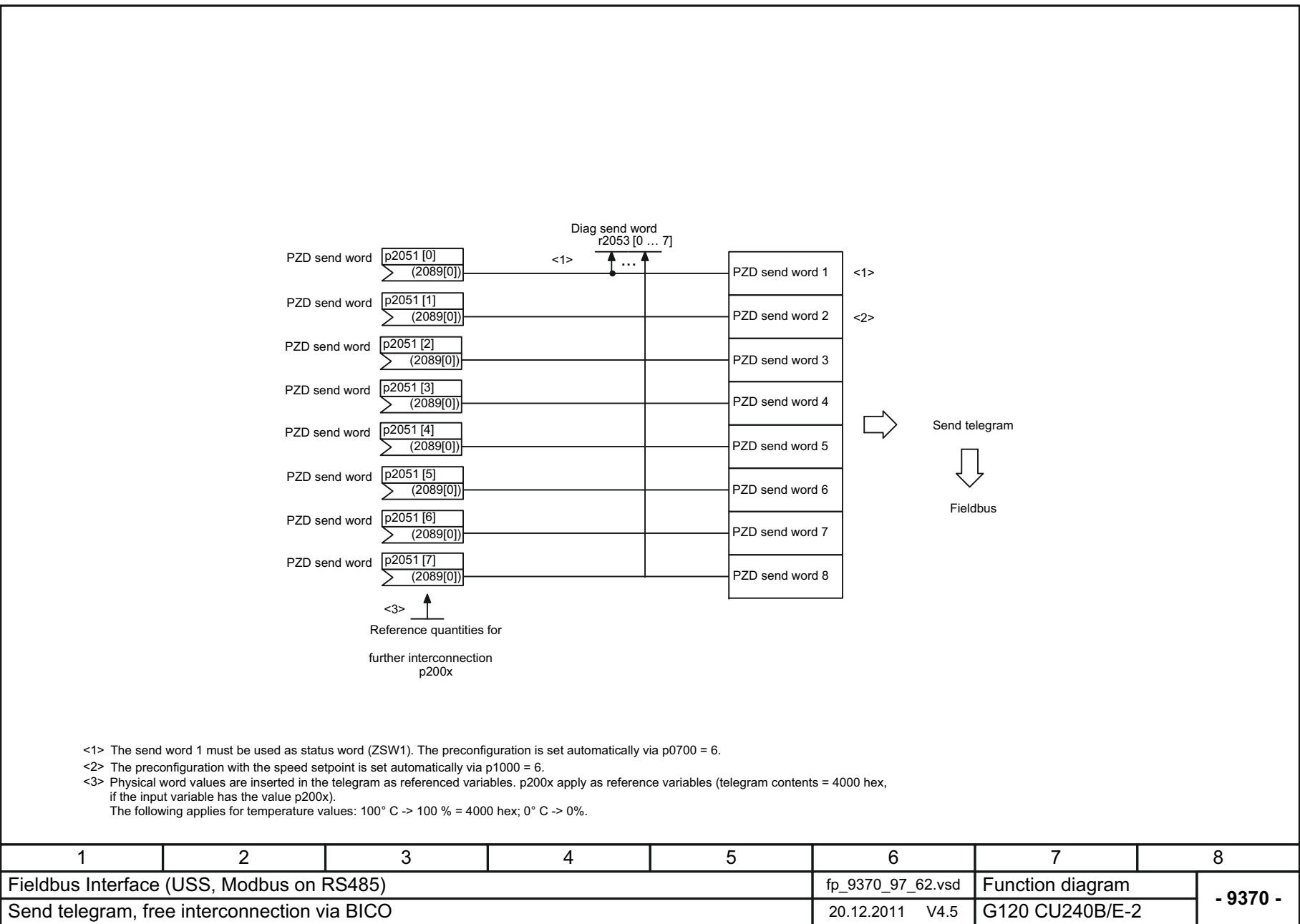


Fig. 2-26 9370 – Send telegram, free interconnection via BICO

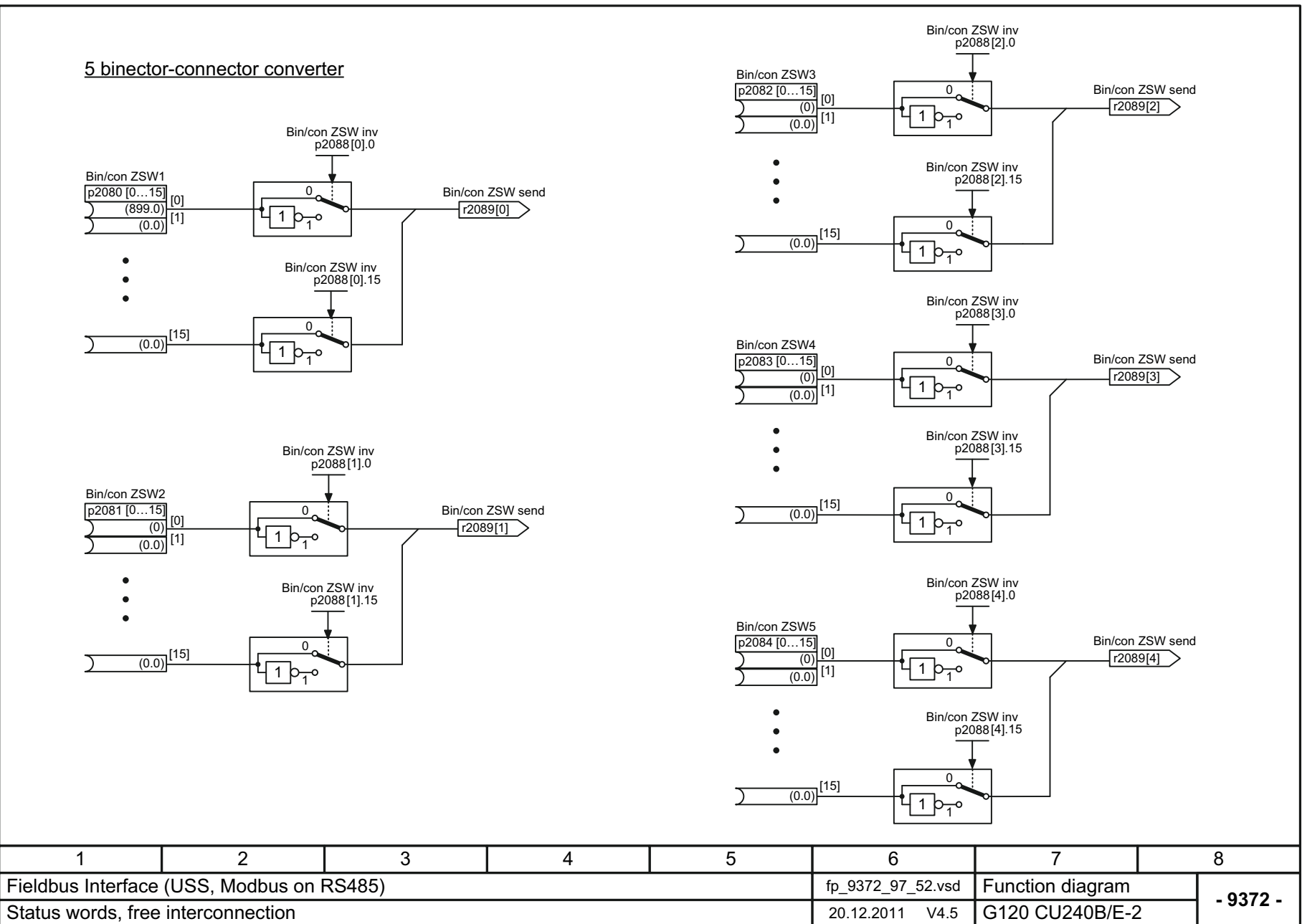


Fig. 2-27 9372 – Status words, free interconnection

## 2.6 PROFIdrive communication (PROFIBUS)

### Function diagrams (CU240B/E-2\_DP)

2410 – PROFIBUS, addresses and diagnostics	2-535
2420 – Telegrams and process data (PZD)	2-536
2440 – PZD receive signals interconnection	2-537
2441 – STW1 control word interconnection (p2038 = 2)	2-538
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2452 – ZSW1 status word interconnection (p2038 = 0)	2-543
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2468 – Receive telegram, free interconnection via BICO (p0922 = 999)	2-545
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2472 – Status words, free interconnection	2-547

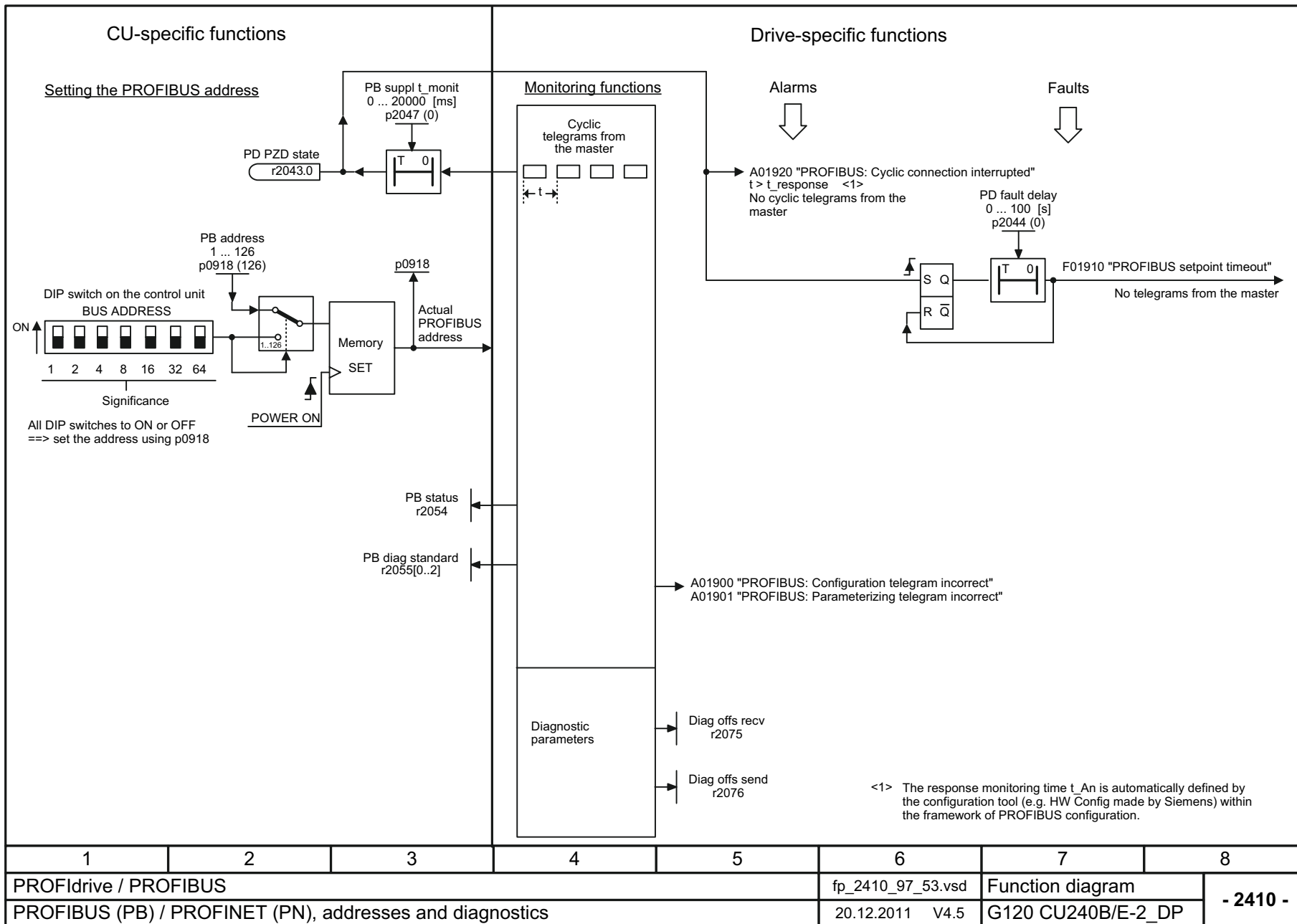
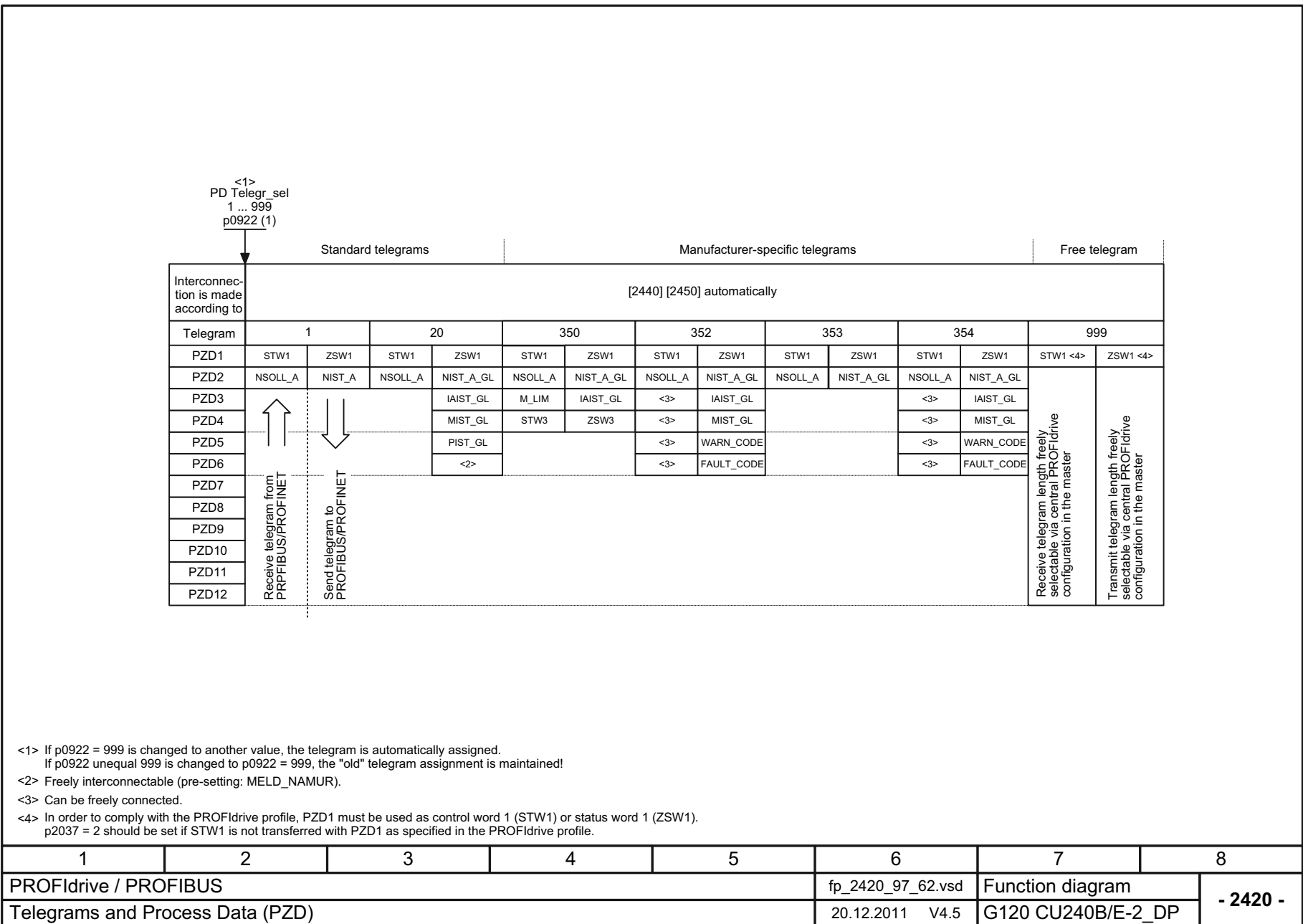
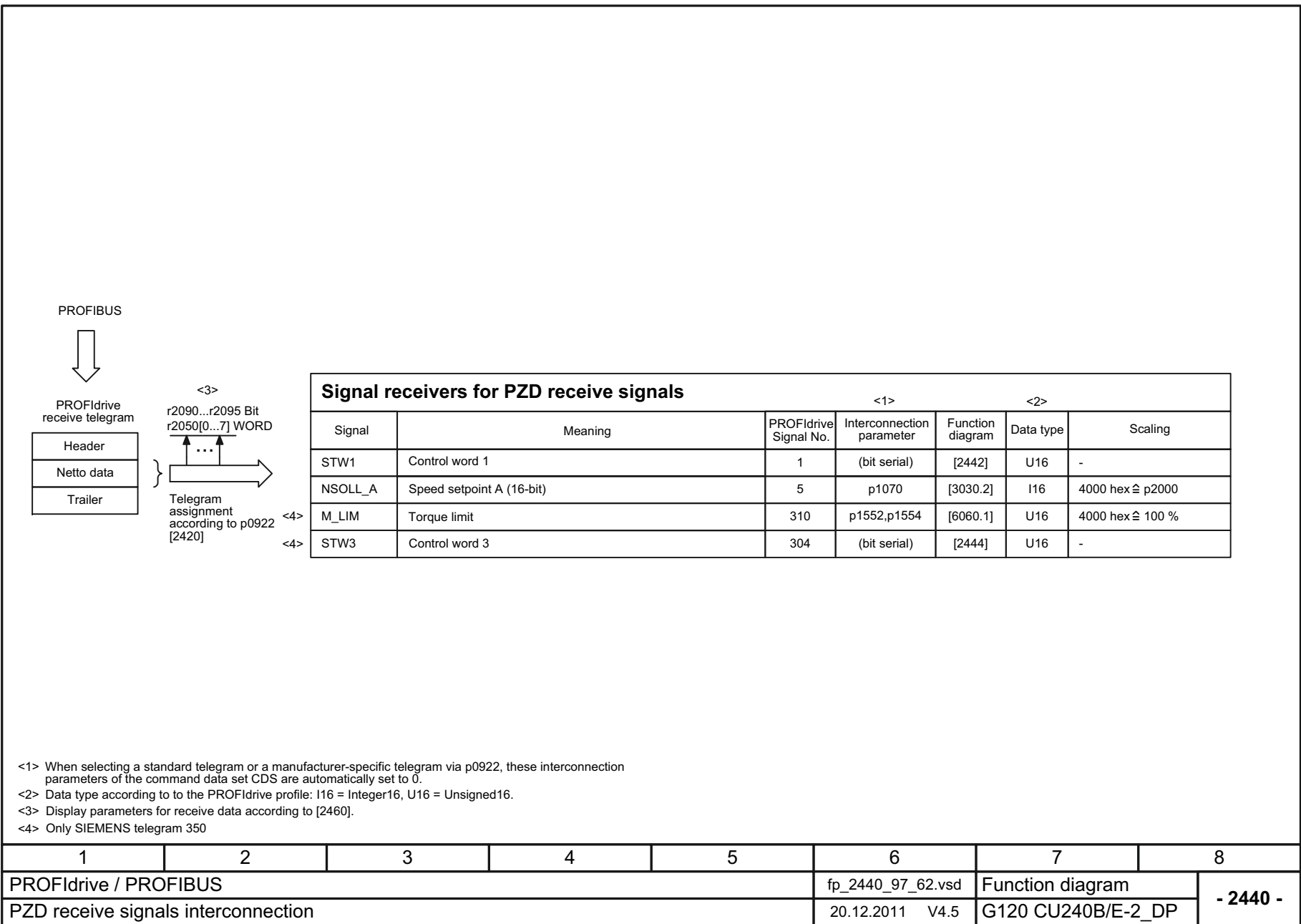




Fig. 2-28 2410 – PROFIBUS, addresses and diagnostics







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 suppression & ready for switching on)	p0840[0] = r2090.0	[2501.3]	Sequence control	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse suppression and switching on inhibited)	p0844[0] = r2090.1	[2501.3]	Sequence control	-
STW1.2	1 = No OFF3 (enable is possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse suppression and switching on inhibited)	p0848[0] = r2090.2	[2501.3]	Sequence control	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (suppress pulses)	p0852[0] = r2090.3	[2501.3]	Sequence control	-
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] = r2090.15 <3>	-	[8565]	-

&lt;1&gt; Used in telegram 20.

&lt;2&gt; Bit 10 in STW1 must be set to ensure that the drive accepts the process data.

&lt;3&gt; Interconnection is not disabled.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					fp_2441_97_61.vsd	Function diagram	- 2441 -
STW1 control word interconnection (p2038 = 2)					20.12.2011 V4.5	G120 CU240B/E-2_DP	

Fig. 2-31 2441 – STW1 control word interconnection (p2038 = 2)

Signal targets for STW1 in Interface Mode SINAMICS (p2038 = 0)						<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 suppression & ready for switching on)	p0840[0] = r2090.0	[2501.3]	Sequence control	-	
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse suppression and switching on inhibited)	p0844[0] = r2090.1	[2501.3]	Sequence control	-	
STW1.2	1 = No OFF3 (enable is possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse suppression and switching on inhibited)	p0848[0] = r2090.2	[2501.3]	Sequence control	-	
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (suppress pulses)	p0852[0] = r2090.3	[2501.3]	Sequence control	-	
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	1 = Motorized potentiometer, setpoint, raise	p1035[0] = r2090.13	[2505.3]	[3020]	-	
STW1.14	1 = Motorized potentiometer, setpoint, lower	p1036[0] = r2090.14	[2505.3]	[3020]	-	
STW1.15	Reserved	-	-	-	-	

<1> Used in telegrams 1, 350, 352, 353, 354.

<2> Bit 10 in STW1 must be set to ensure that the drive accepts the process data.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					fp_2442_97_61.vsd	Function diagram	- 2442 -
STW1 control word interconnection (p2038 = 0)					20.12.2011 V4.5	G120 CU240B/E-2_DP	

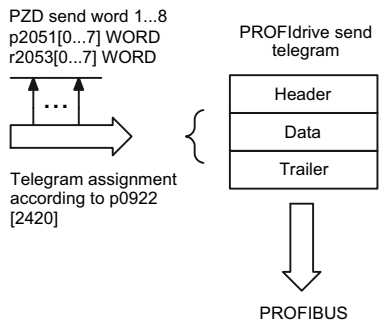
Fig. 2-32 2442 – STW1 control word interconnection (p2038 = 0)

Signal targets for STW3 in Interface Mode SINAMICS (p2038 = 0)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
STW3.0	1 = Fixed setp bit 0	p1020[0] = r2093.0	[3010.2]	[3010.2]	-	
STW3.1	1 = Fixed setp bit 1	p1021[0] = r2093.1	[2513.2]	[3010.2]	-	
STW3.2	1 = Fixed setp bit 2	p1022[0] = r2093.2	[2513.2]	[3010.2]	-	
STW3.3	1 = Fixed setp bit 3	p1023[0] = r2093.3	[2513.2]	[3010.2]	-	
STW3.4	1 = DDS select. bit 0	p0820 = r2093.4	[2513.2]	[8565.2]	-	
STW3.5	1 = DDS select. bit 1	p0821 = r2093.5	[2513.2]	[8565.2]	-	
STW3.6	Reserved	-	-	-	-	
STW3.7	Reserved	-	-	-	-	
STW3.8	1 = Technology controller enable	p2200[0] = r2093.8	[2513.2]	[7958.4]	-	
STW3.9	1 = DC brake enable	p1230[0] = r2093.9	[2513.2]	[7017.1]	-	
STW3.10	Reserved	-	-	-	-	
STW3.11	1 = Droop enable	p1492[0] = r2093.11	[2513.2]	[6030.1]	-	
STW3.12	1 = Torque control active	p1501[0] = r2093.12	[2513.2]	[6060.1]	-	
STW3.13	0 = External fault 1 (F07860)	p2106[0] = r2093.13	[2513.2]	[8060.1]	-	
STW3.14	Reserved	-	-	-	-	
STW3.15	1 = CDS bit 1	p0811[0] = r2093.15	[2513.2]	[8560.3]	-	

&lt;1&gt; Used in telegrams 350.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					fp_2444_97_51.vsd	Function diagram	- 2444 -
STW3 control word interconnection (p2038 = 0)					20.12.2011 V4.5	G120 CU240B/E-2_DP	

Fig. 2-33 2444 – STW3 control word interconnection (p2038 = 0)



Signal sources for PZD send signals

<1>						
Signal	Description	PROFIdrive Signal No.	Interconnection parameter	Function diagram	Data type	Scaling
ZSW1	Status word 1	2	r2089[0]	[2452]	U16	-
NIST_A	Actual speed A (16 bit)	6	r0063[0]	-	I16	4000 hex $\hat{=}$ p2000
IAIST_GLATT	Absolute actual current, smoothed	51	r0068[1]	[6799]	I16	4000 hex $\hat{=}$ p2002
MIST_GLATT	Actual torque smoothed	53	r0080[1]	[6799]	I16	4000 hex $\hat{=}$ p2003
PIST_GLATT	Power factor, smoothed	54	r0082[1]	[6799]	I16	4000 hex $\hat{=}$ p2004
NIST_A_GLATT	Actual speed, smoothed	57	r0063[1]	-	I16	4000 hex $\hat{=}$ p2000
MELD_NAMUR	VIK-NAMUR message bit bar	58	r3113	-	U16	
FAULT_CODE	Fault code	301	r2131	[8060]	U16	
WARN_CODE	Alarm code	303	r2132	[8065]	U16	
ZSW3	Status word 3	305	r0053	[2454]	U16	

<1> Data type according to the PROFIdrive profile: I16 = Integer16, U16 = Unsigned16.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					fp_2450_97_61.vsd	Function diagram	- 2450 -
PZD send signals interconnection					20.12.2011 V4.5	G120 CU240B/E-2_DP	

Fig. 2-34 2450 – PZD send signals interconnection

Signal sources for ZSW1 in Interface Mode VIK-NAMUR (p2038 = 2)					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted <2>
ZSW1.0	1 = Ready for switching on	p2080[0] = r0899.0	[2503.7]	Sequence control	-
ZSW1.1	1 = Ready for operation (DC link loaded, pulses inhibited)	p2080[1] = r0899.1	[2503.7]	Sequence control	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	Sequence control	-
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]	Sequence control	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	Sequence control	-
ZSW1.6	1 = Switching on inhibited active	p2080[6] = r0899.6	[2503.7]	Sequence control	-
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]	[8011]	-
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]	[8011]	-
ZSW1.15	1 = Display CDS	p2080[15] = r0836.0 <4>	-	-	-

&lt;1&gt; Used in telegram 20.

&lt;2&gt; The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)

&lt;3&gt; The drive object is ready to accept data.

&lt;4&gt; Interconnection is not disabled.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					fp_2451_97_61.vsd	Function diagram	- 2451 -
ZSW1 status word interconnection (p2038 = 2)					20.12.2011 V4.5	G120 CU240B/E-2_DP	

Fig. 2-35 2451 – ZSW1 status word interconnection (p2038 = 2)

Signal sources for ZSW1 im Interface Mode SINAMICS (p2038 = 0)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted <2>	
ZSW1.0	1 = Ready for switching on	p2080[0] = r0899.0	[2503.7]	Sequence control	-	
ZSW1.1	1 = Ready for operation (DC link loaded, pulses inhibited)	p2080[1] = r0899.1	[2503.7]	Sequence control	-	
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	Sequence control	-	
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]	Sequence control	-	
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	Sequence control	-	
ZSW1.6	1 = Switching on inhibited active	p2080[6] = r0899.6	[2503.7]	Sequence control	-	
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]	[8011]	-	
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] = r1407.7	[2522.7]	[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]	[8011]	-	
ZSW1.15	1 = No alarm, thermal overload, power unit	p2080[15] = r2135.15	[2548.7]	[8014]	✓	

<1> Used in telegrams 1, 350, 352, 353, 354.

<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)

<3> The drive is ready to accept data.

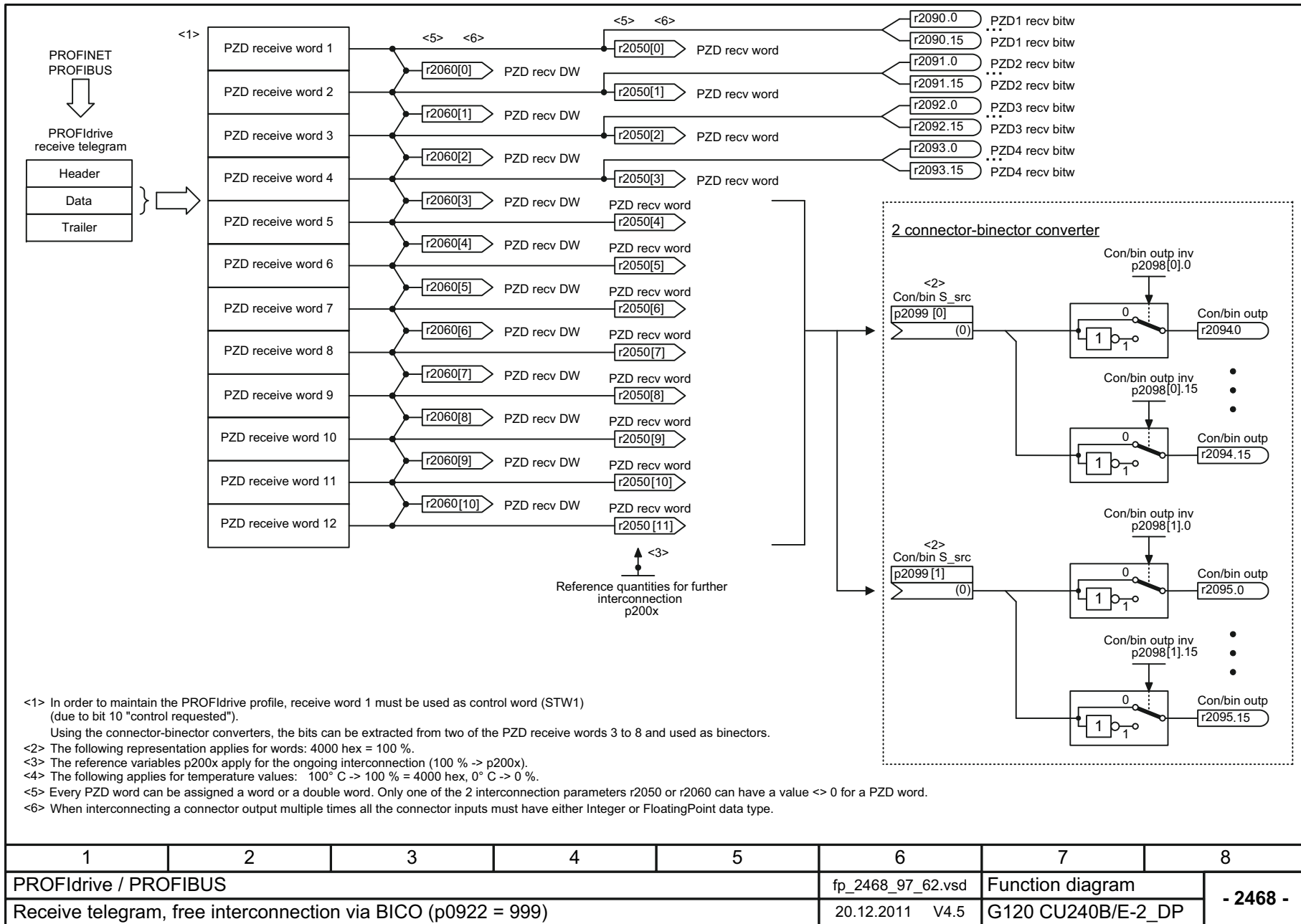
1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					fp_2452_97_61.vsd	Function diagram	- 2452 -
ZSW1 status word interconnection (p2038 = 0)					20.12.2011 V4.5	G120 CU240B/E-2_DP	

Fig. 2-36 2452 – ZSW1 status word interconnection (p2038 = 0)

Signal sources for ZSW3 im Interface Mode SINAMICS (p2038 = 0)					<1>			
Signal	Meaning	Interconnection parameters	[Function diagram] internal status word	[Function diagram] signal source	Inverted			
ZSW3.0	1 = DC brake active 0 = DC brake not active	p2051[3] = r0053	[2511.7]	[7017.5]	-			
ZSW3.1	1 =  n_act  > p1226 (n_standstill)		[2511.7]	[2534.7]	-			
ZSW3.2	1 =  n_act  > p1080 (n_min)		[2511.7]	[2534.7]	-			
ZSW3.3	1 = l_act >= p2170		[2511.7]	[2534.7]	-			
ZSW3.4	1 =  n_act  > p2155		[2511.7]	[2534.7]	-			
ZSW3.5	1 =  n_act  <= p2155		[2511.7]	[2534.7]	-			
ZSW3.6	1 =  n_act  >= r1119 (n_set)		[2511.7]	[2534.7]	-			
ZSW3.7	1 = Vdc <= p2172		[2511.7]	[2534.7]	-			
ZSW3.8	1 = Vdc > p2172		[2511.7]	[2534.7]	-			
ZSW3.9	1 = Ramping finished		[2511.7]	[3080.7]	-			
ZSW3.10	1 = Techn. contr. out at lower limit		[2511.7]	[7958.7]	-			
ZSW3.11	1 = Techn. contr. out at upper limit		[2511.7]	[7958.7]	-			
ZSW3.12	Reserved		-	-	-			
ZSW3.13	Reserved		-	-	-			
ZSW3.14	Reserved		-	-	-			
ZSW3.15	Reserved	-	-	-				
<1> Used in telegrams 350.								
1	2	3	4	5	6	7	8	
PROFIdrive / PROFIBUS					fp_2454_97_61.vsd	Function diagram		- 2454 -
ZSW3 status word interconnection (p2038 = 0)					20.12.2011 V4.5	G120 CU240B/E-2_DP		

Fig. 2-37 2454 – ZSW3 status word interconnection (p2038 = 0)





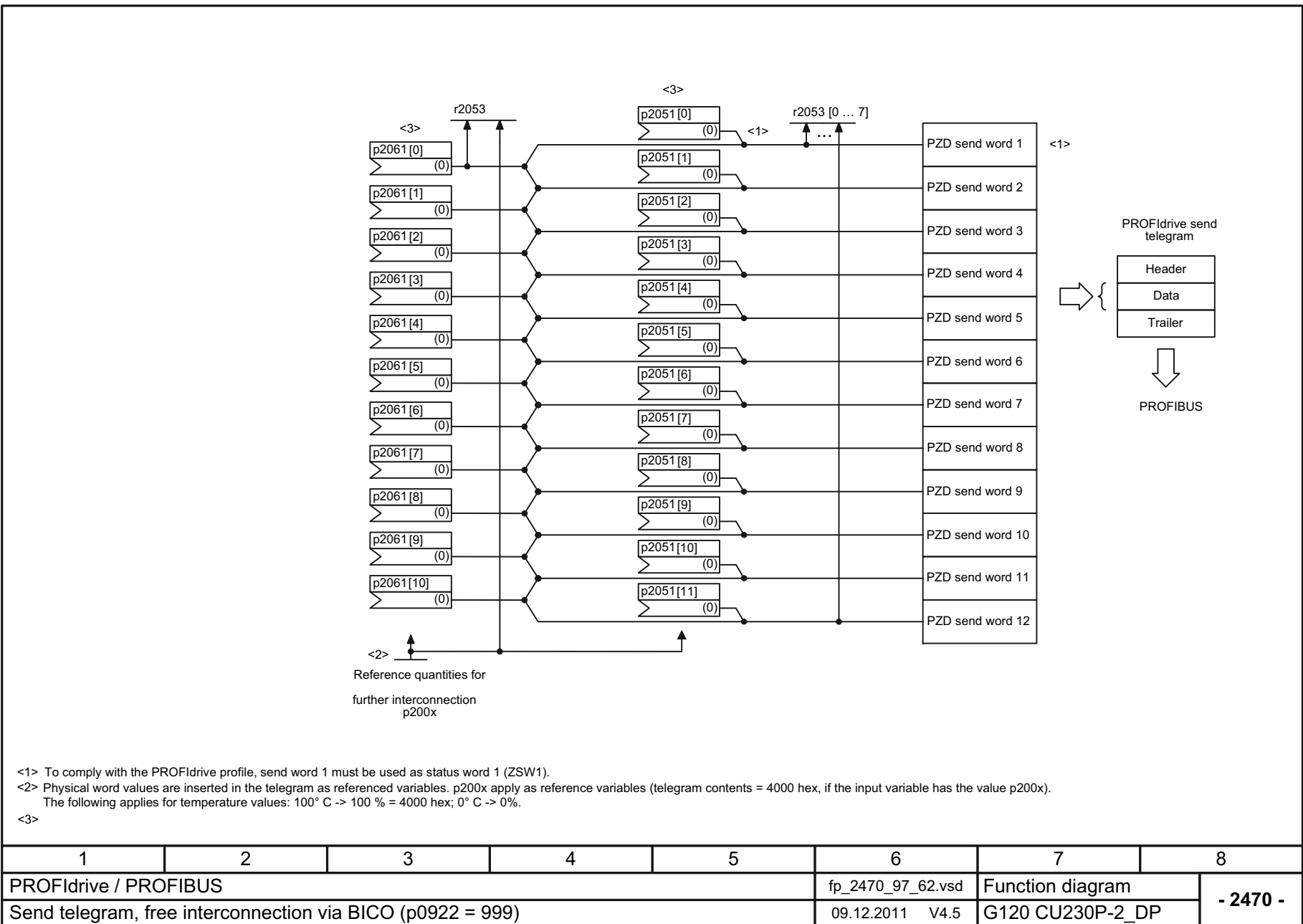


Fig. 2-39 2470 – Send telegram, free interconnection via BICO (p0922 = 999)

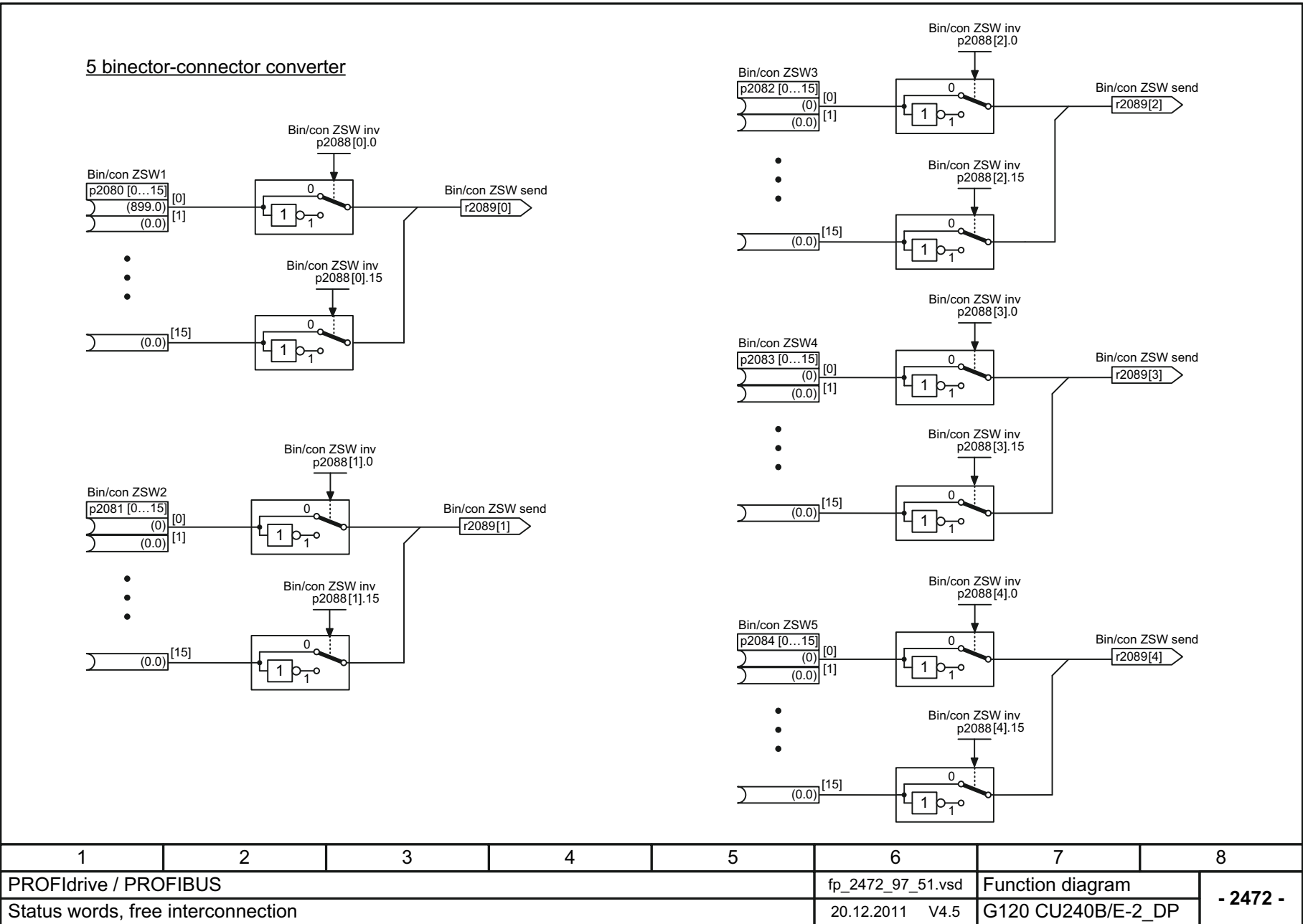


Fig. 2-40 2472 – Status words, free interconnection

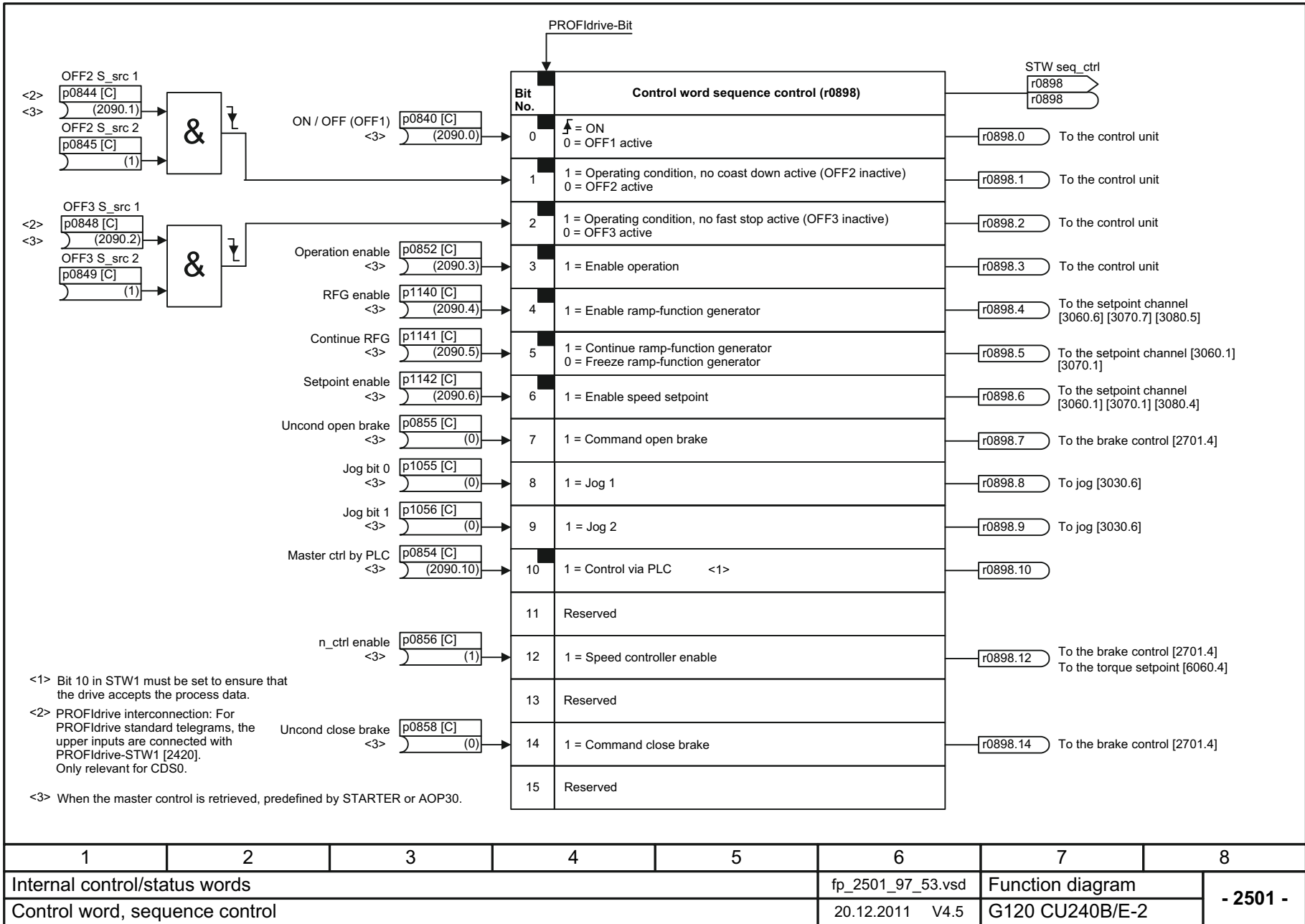
## 2.7 Internal control/status words

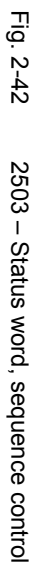
### Function diagrams

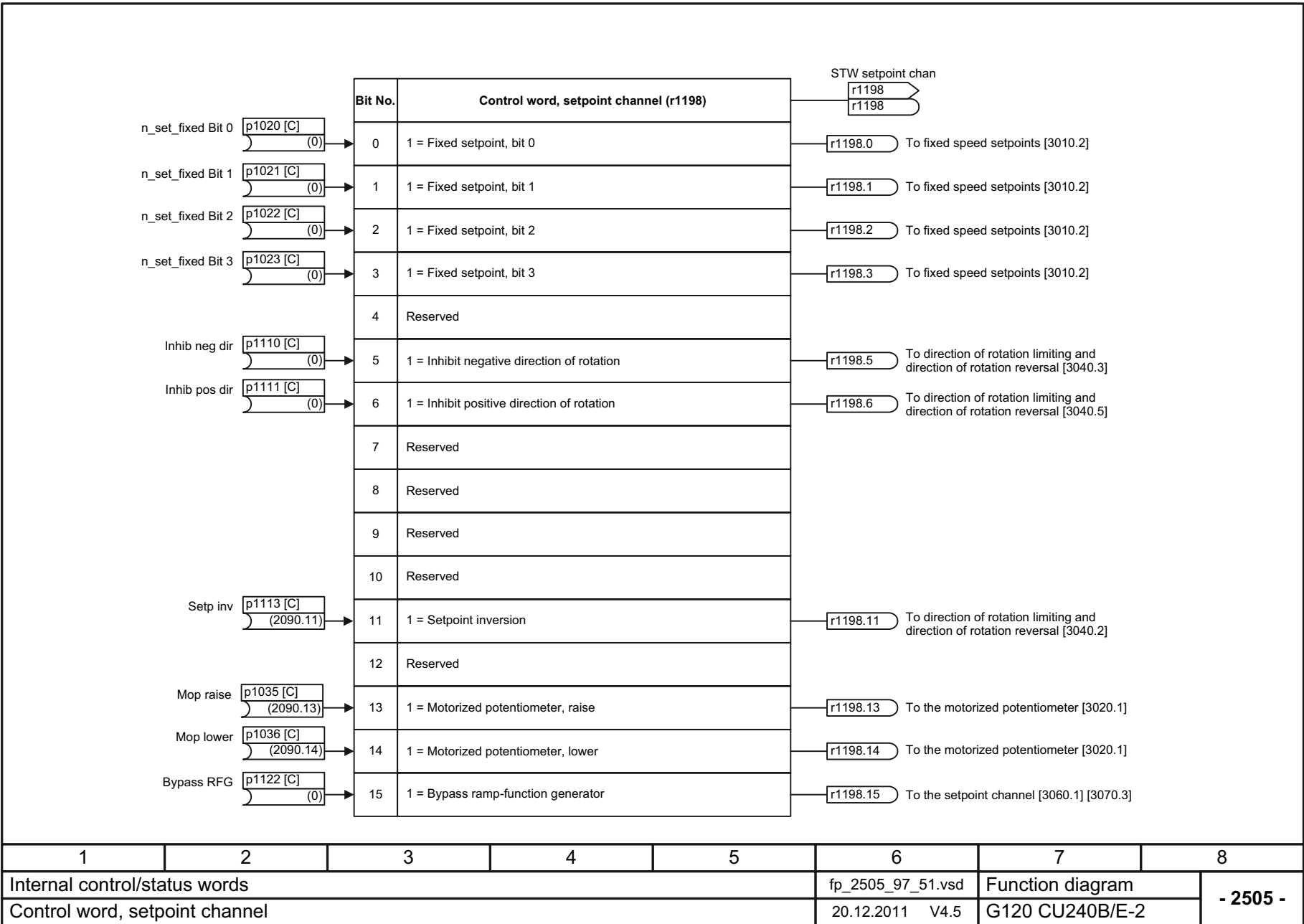
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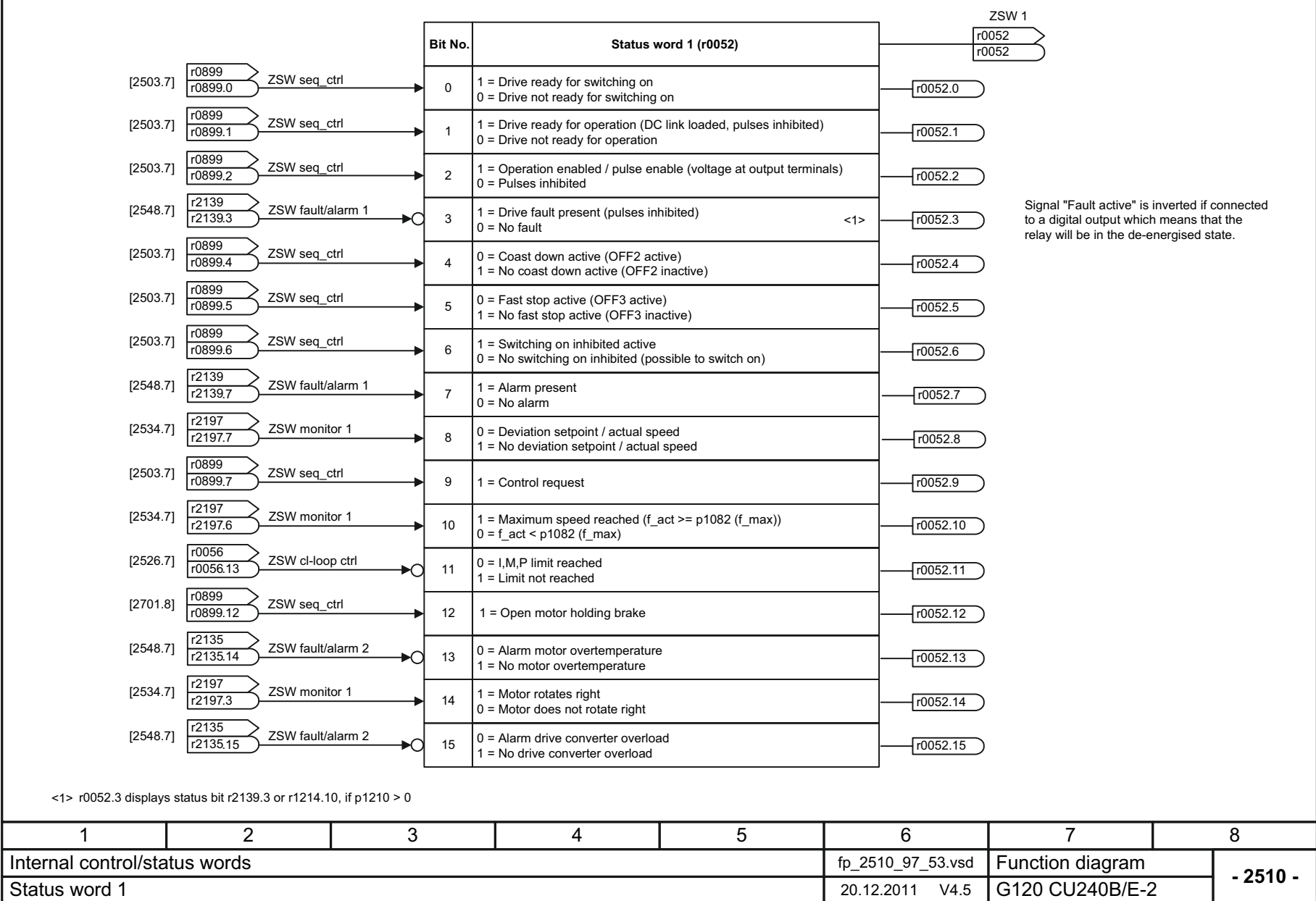
2501 – Control word, sequence control	2-549
2503 – Status word, sequence control	2-550
2505 – Control word, setpoint channel	2-551
2510 – Status word 1 (r0052)	2-552
2511 – Status word 2 (r0053)	2-553
2512 – Control word 1 (r0054)	2-554
2513 – Control word 2 (r0055)	2-555
2520 – Control word, speed controller	2-556
2522 – Status word, speed controller	2-557
2526 – Status word, closed-loop control	2-558
2530 – Status word, current control	2-559
2534 – Status word, monitoring functions 1	2-560
2536 – Status word, monitoring functions 2	2-561
2537 – Status word, monitoring functions 3	2-562
2546 – Control word, faults/alarms	2-563
2548 – Status word, faults/alarms 1 and 2	2-564
2634 – Sequence control - Missing enable signals	2-565

---

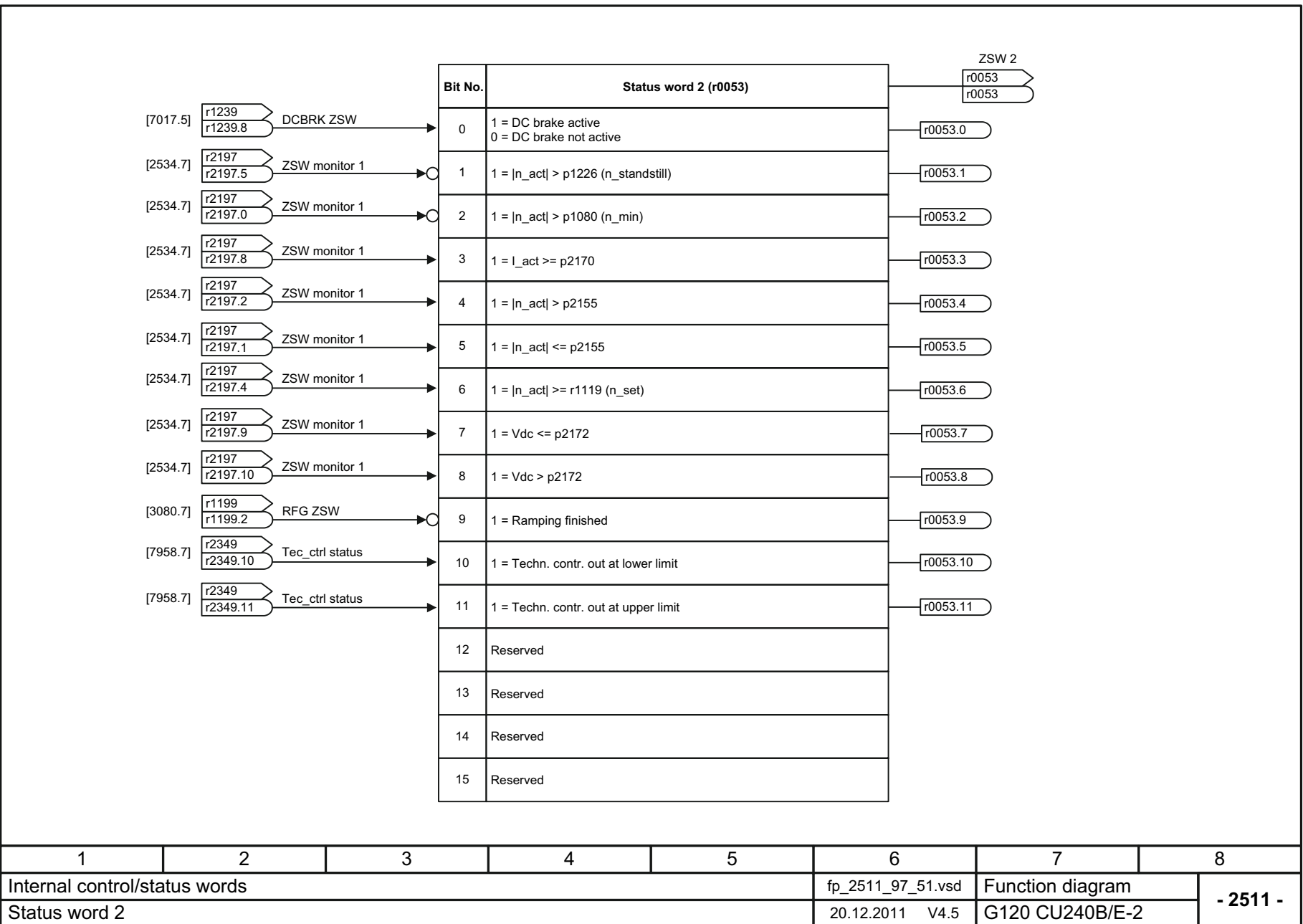


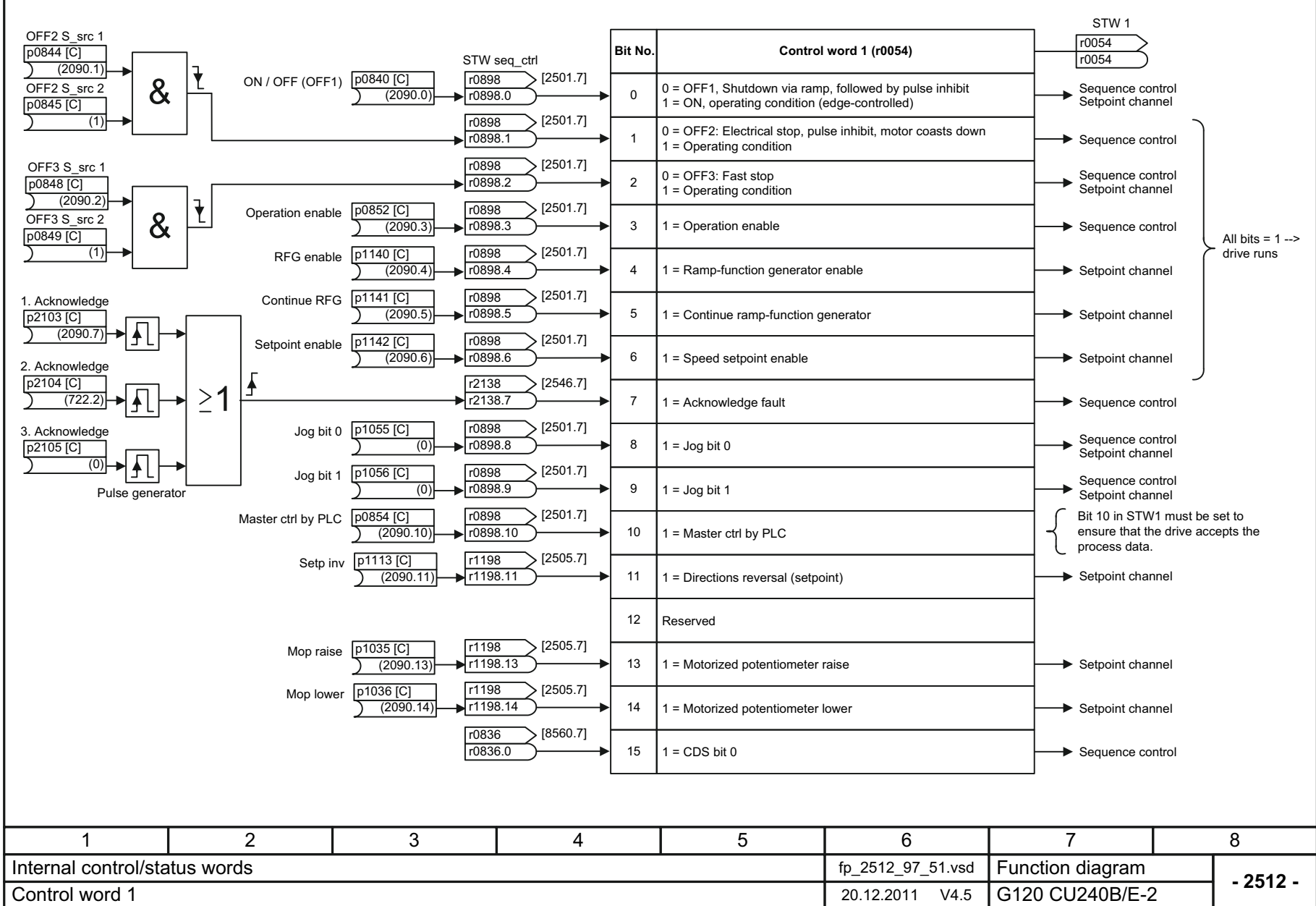












1	2	3	4	5	6	7	8
Internal control/status words					fp_2512_97_51.vsd	Function diagram	
Control word 1					20.12.2011 V4.5	G120 CU240B/E-2	
							- 2512 -

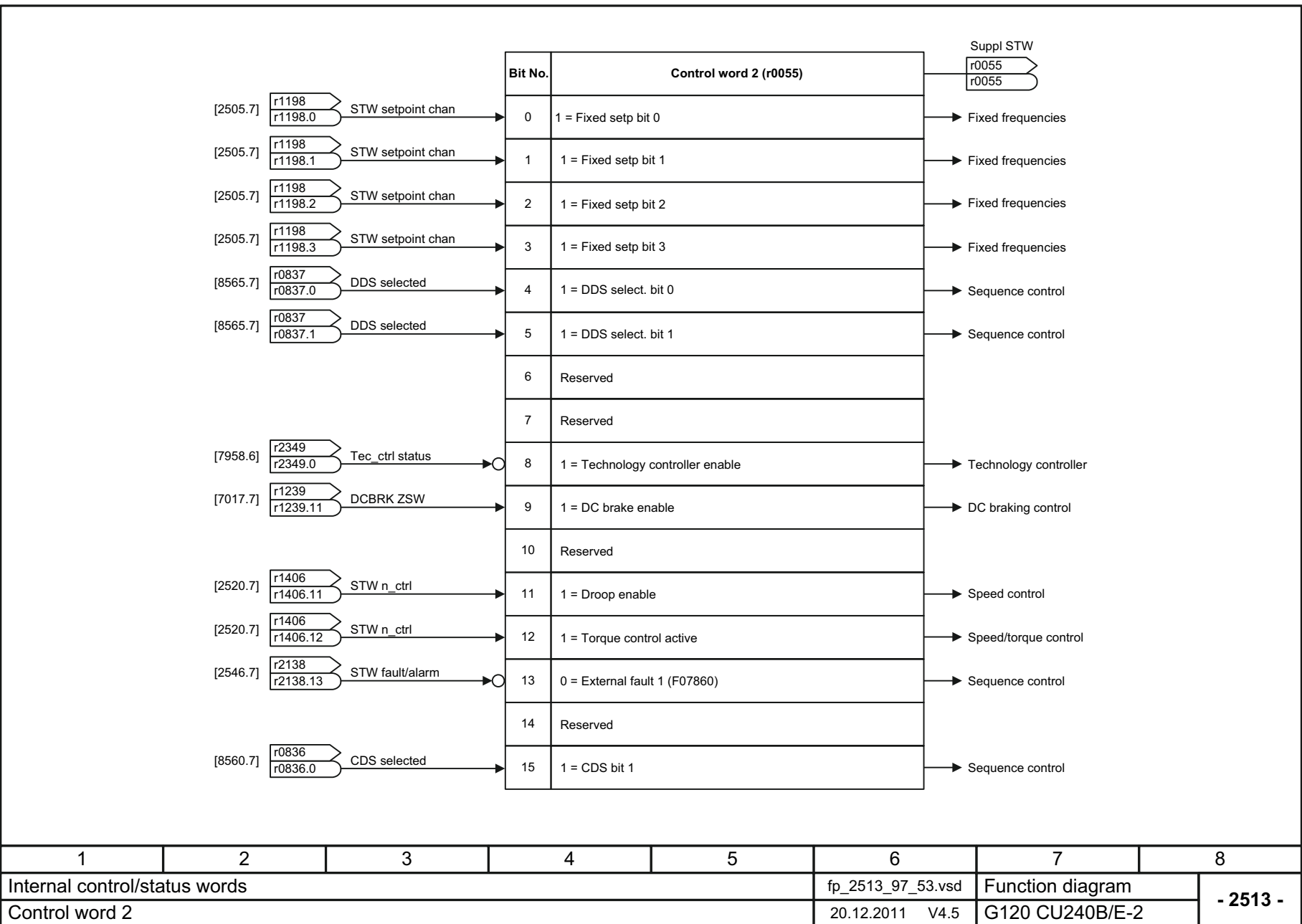
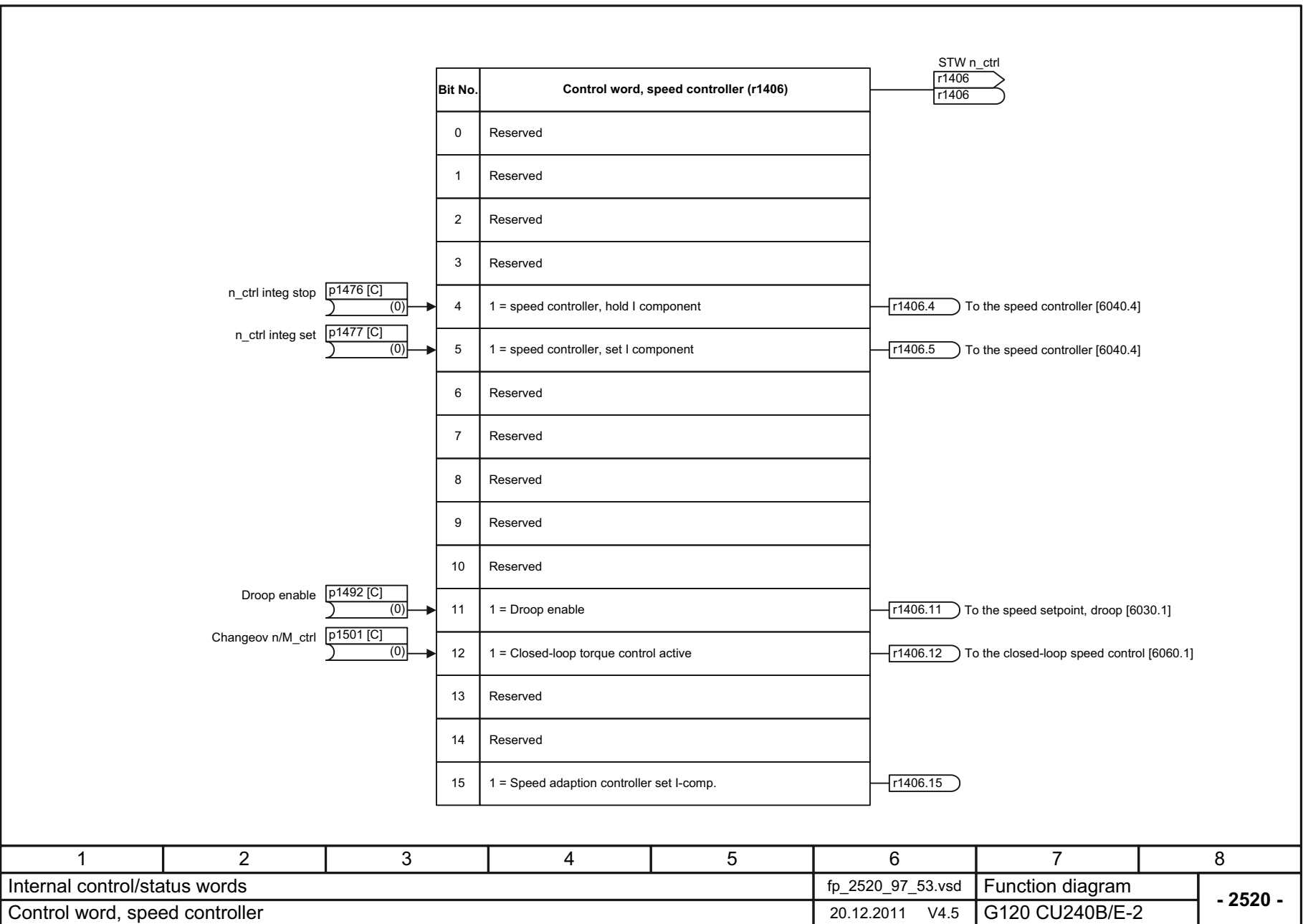


Fig. 2-47 2513 – Control word 2 (r0055)



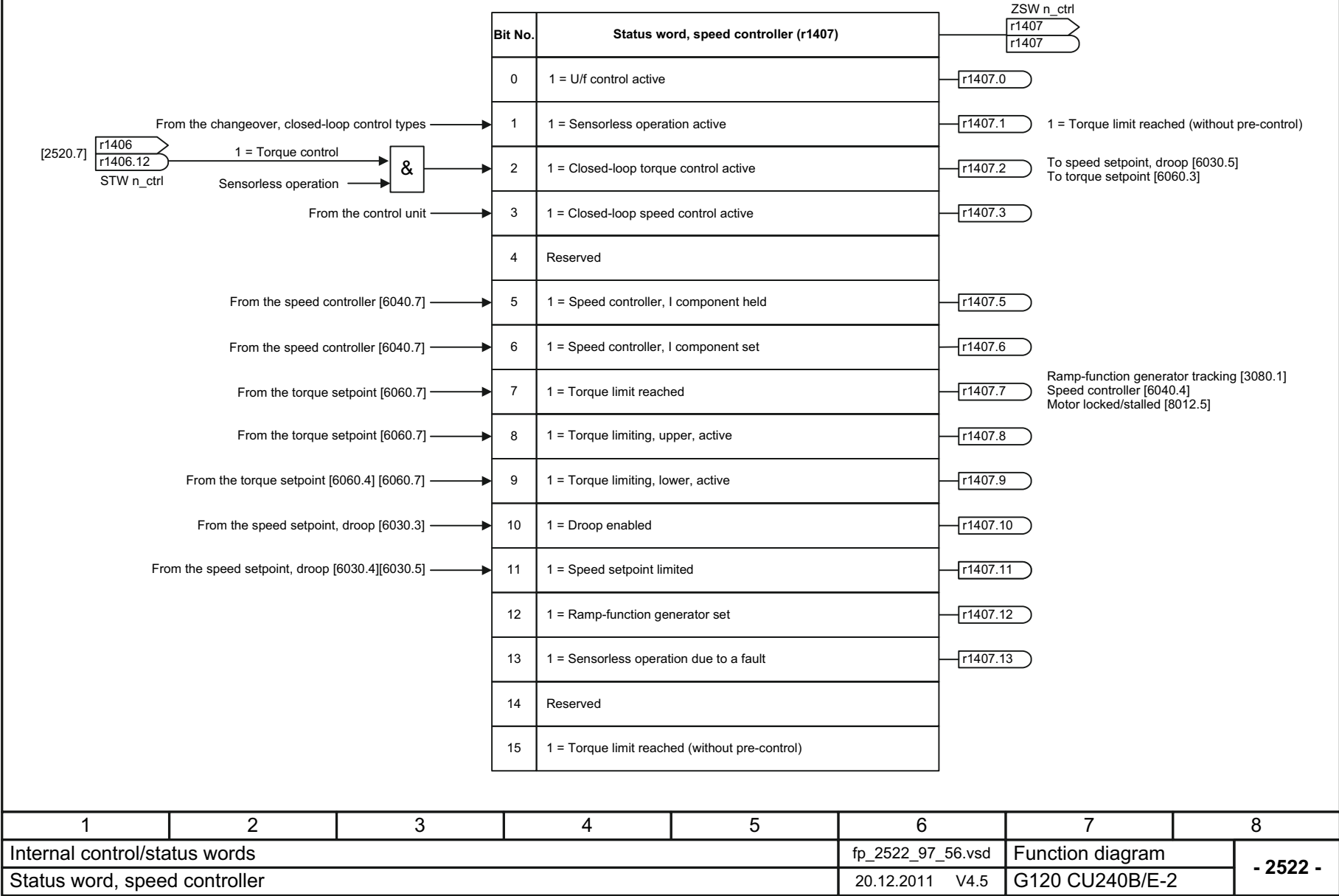
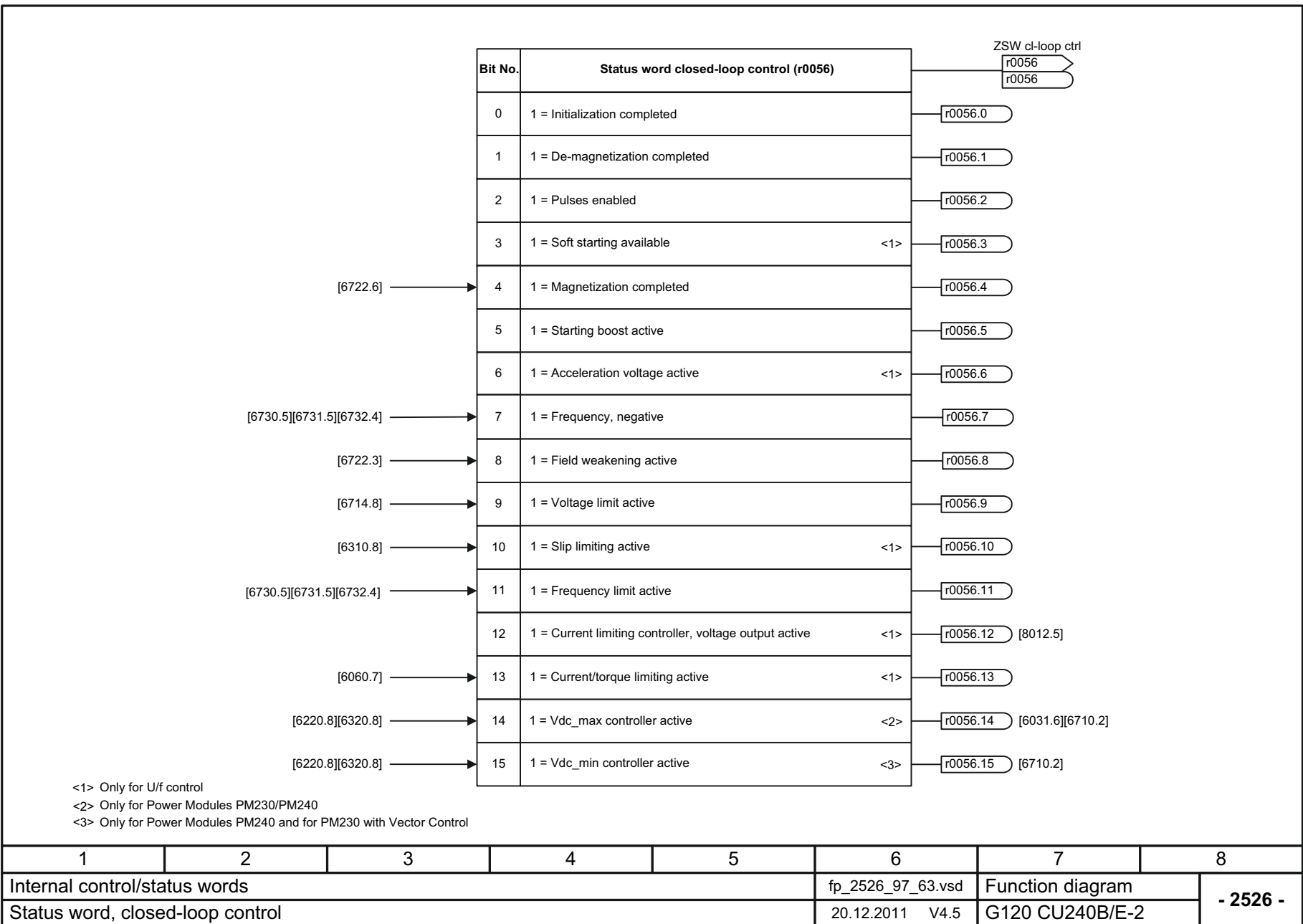


Fig. 2-49 2522 – Status word, speed controller



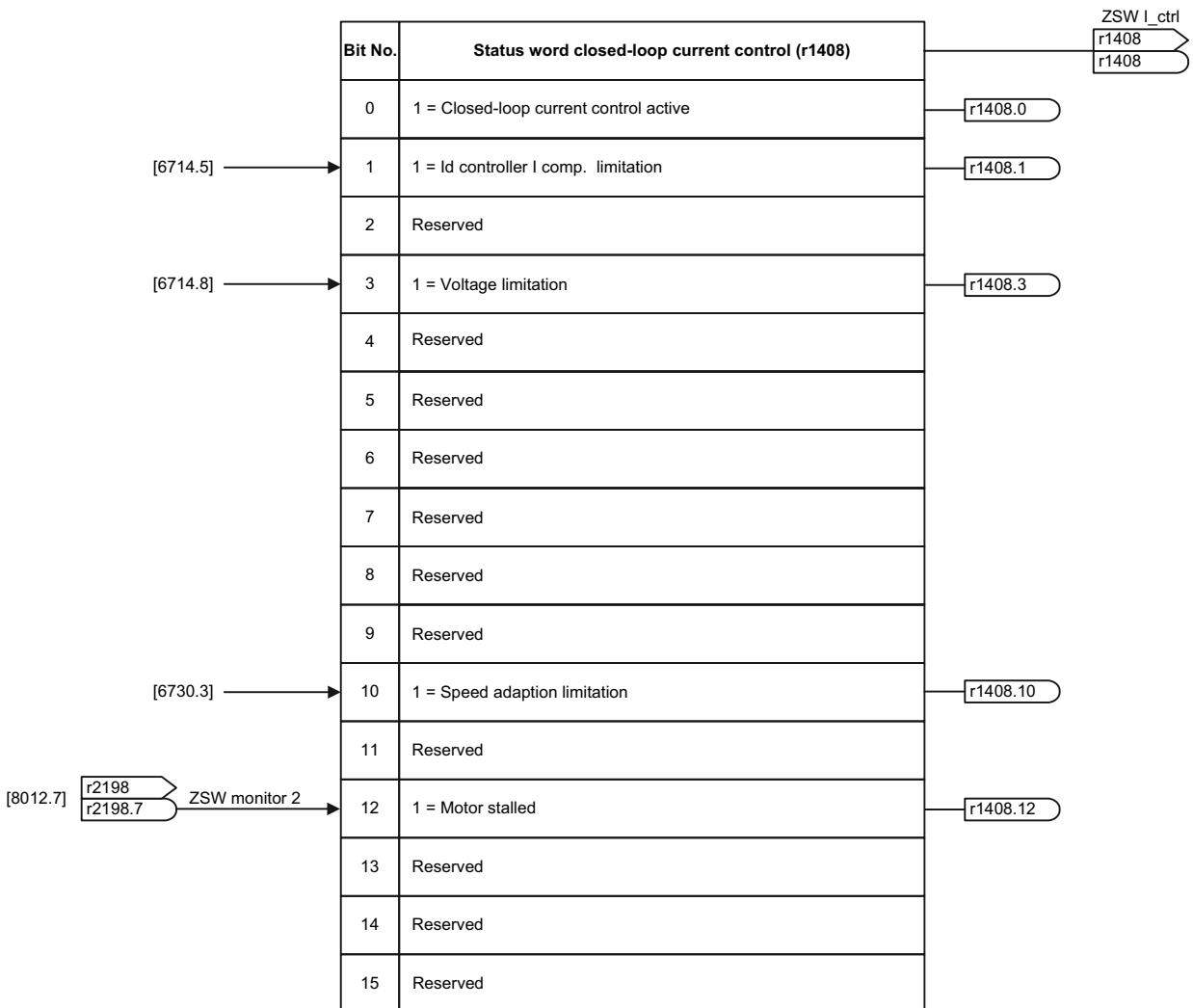
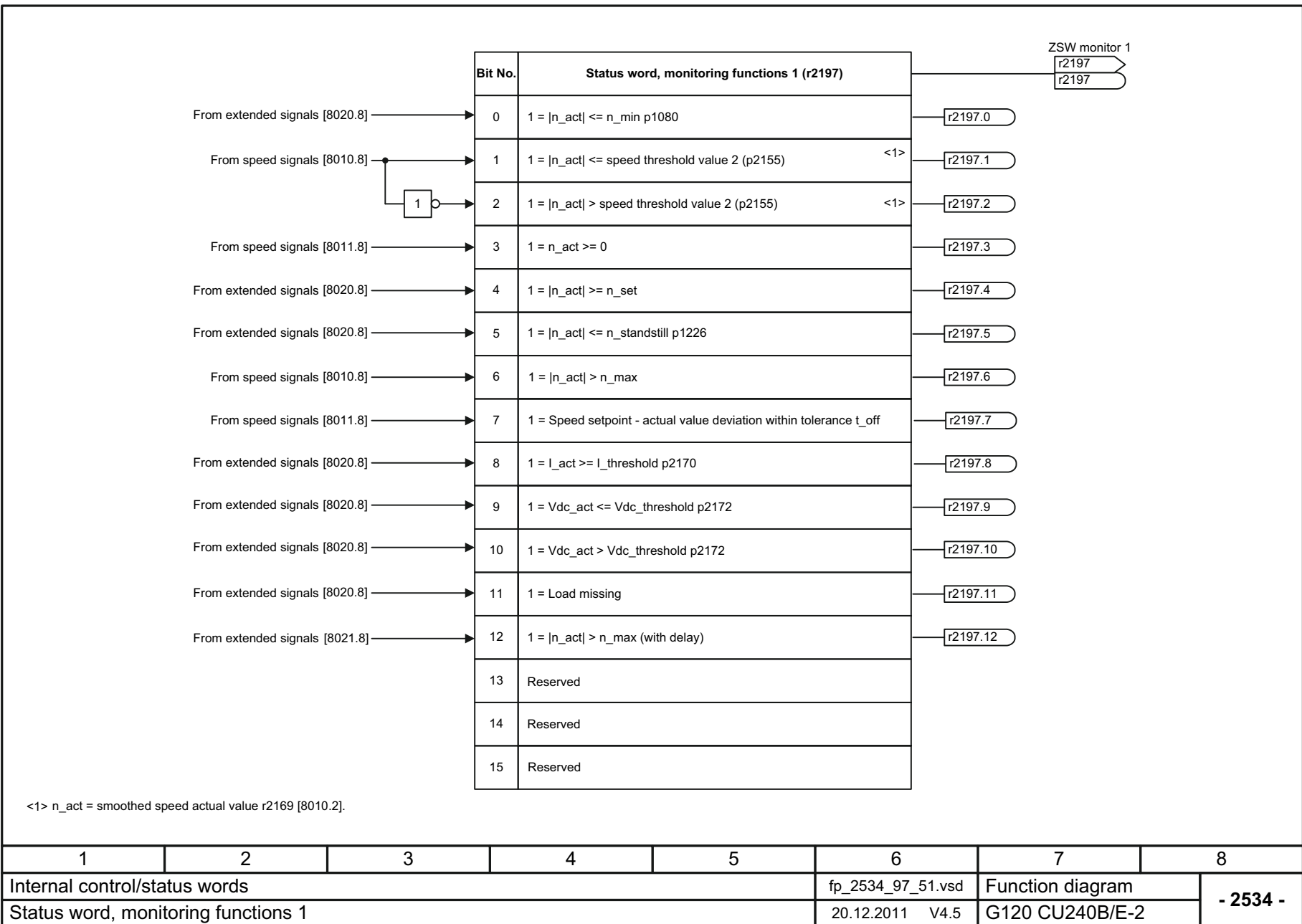
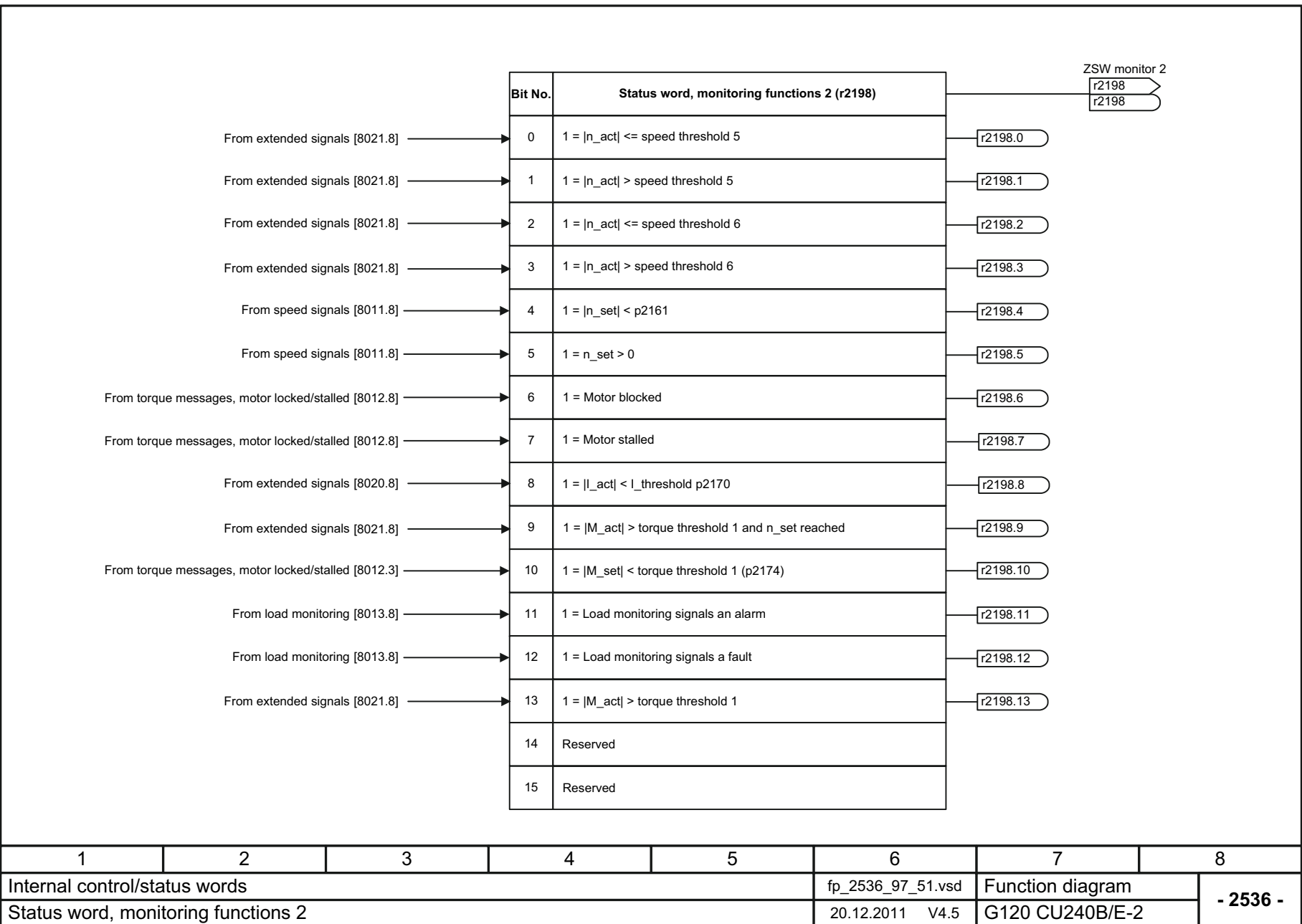


Fig. 2-51 2530 – Status word, current control

1	2	3	4	5	6	7	8
Internal control/status words					fp_2530_97_64.vsd	Function diagram	- 2530 -
Status word, current control					20.12.2011 V4.5	G120 CU240B/E-2	







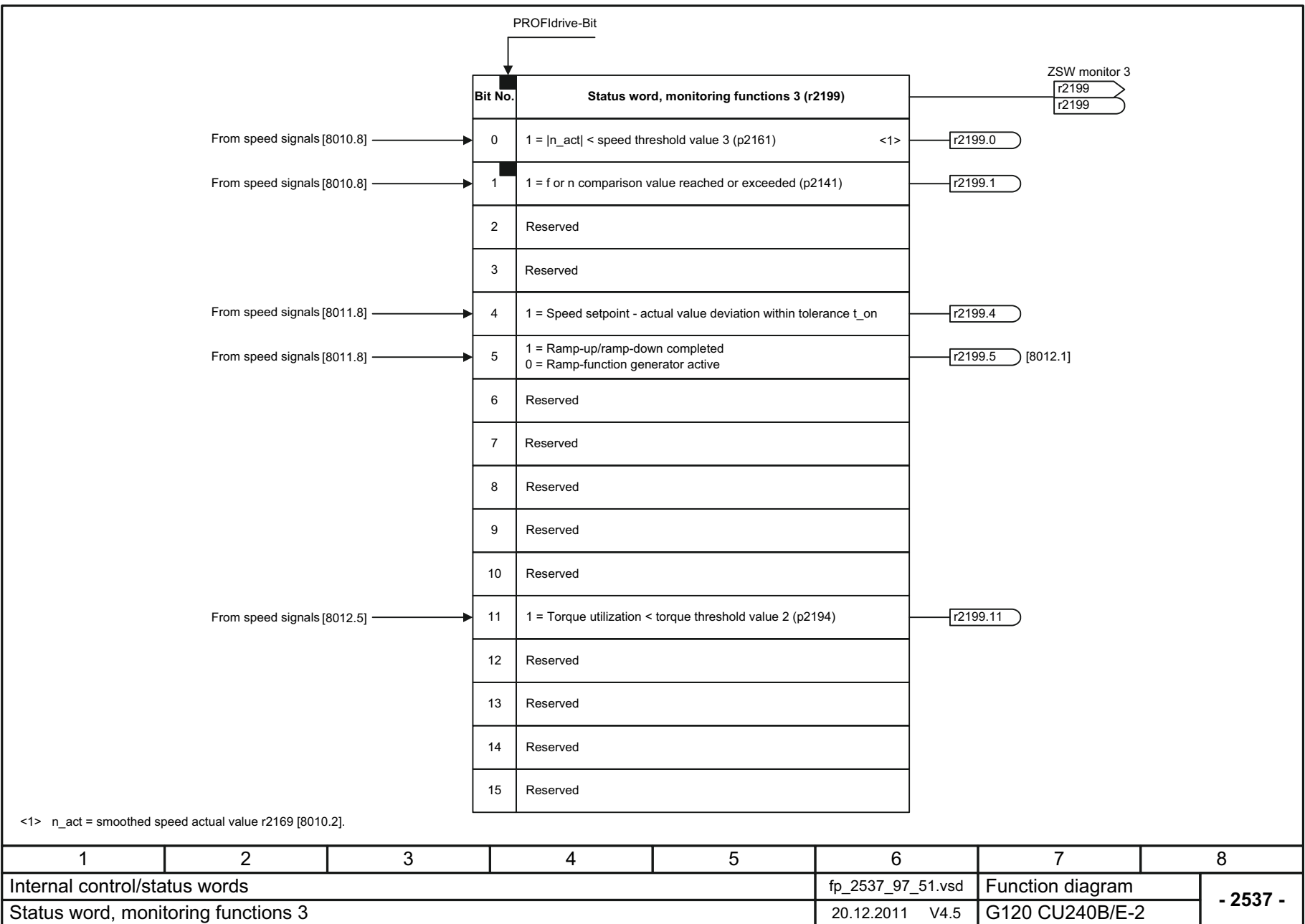


Fig. 2-54 2537 – Status word, monitoring functions 3

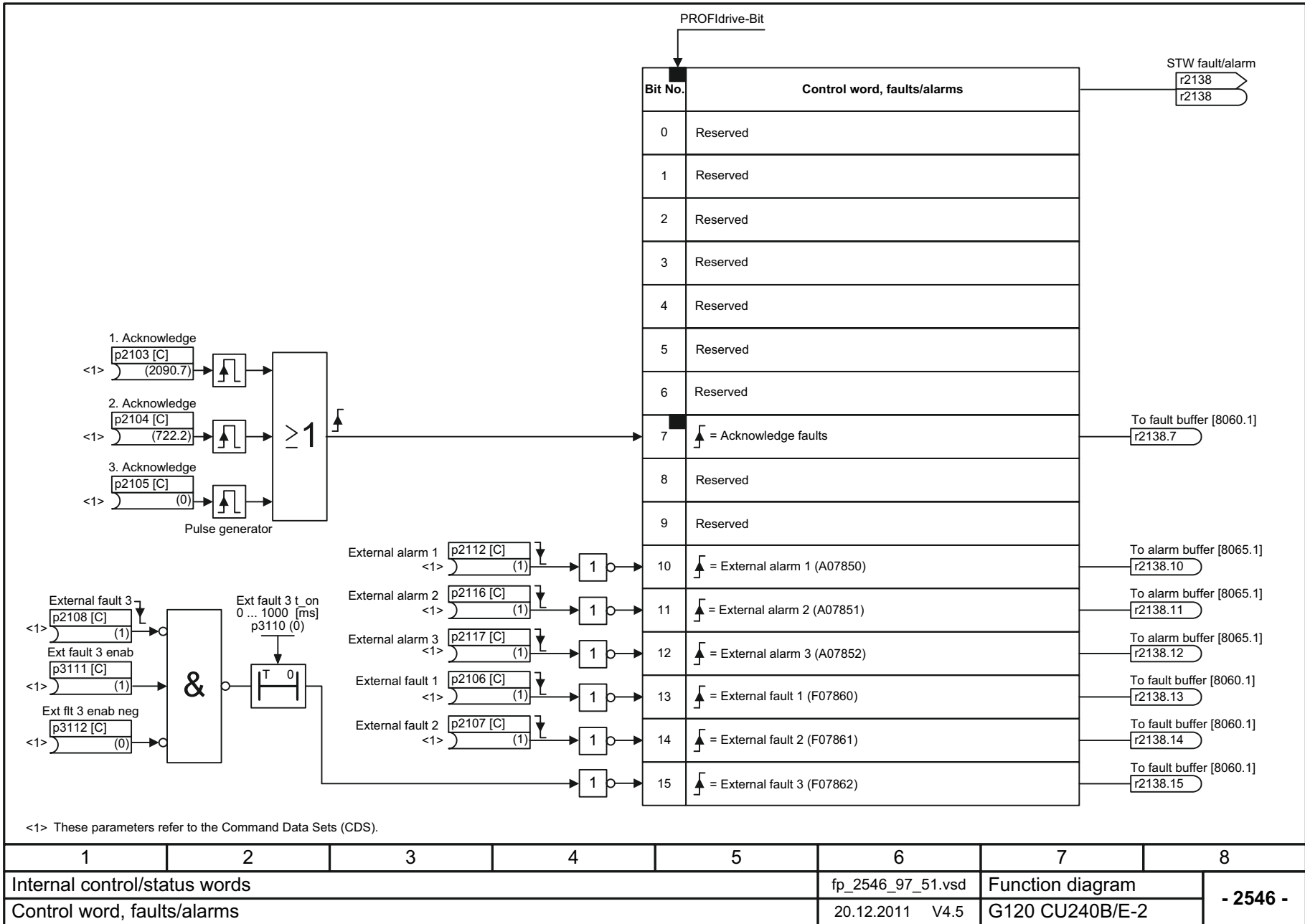
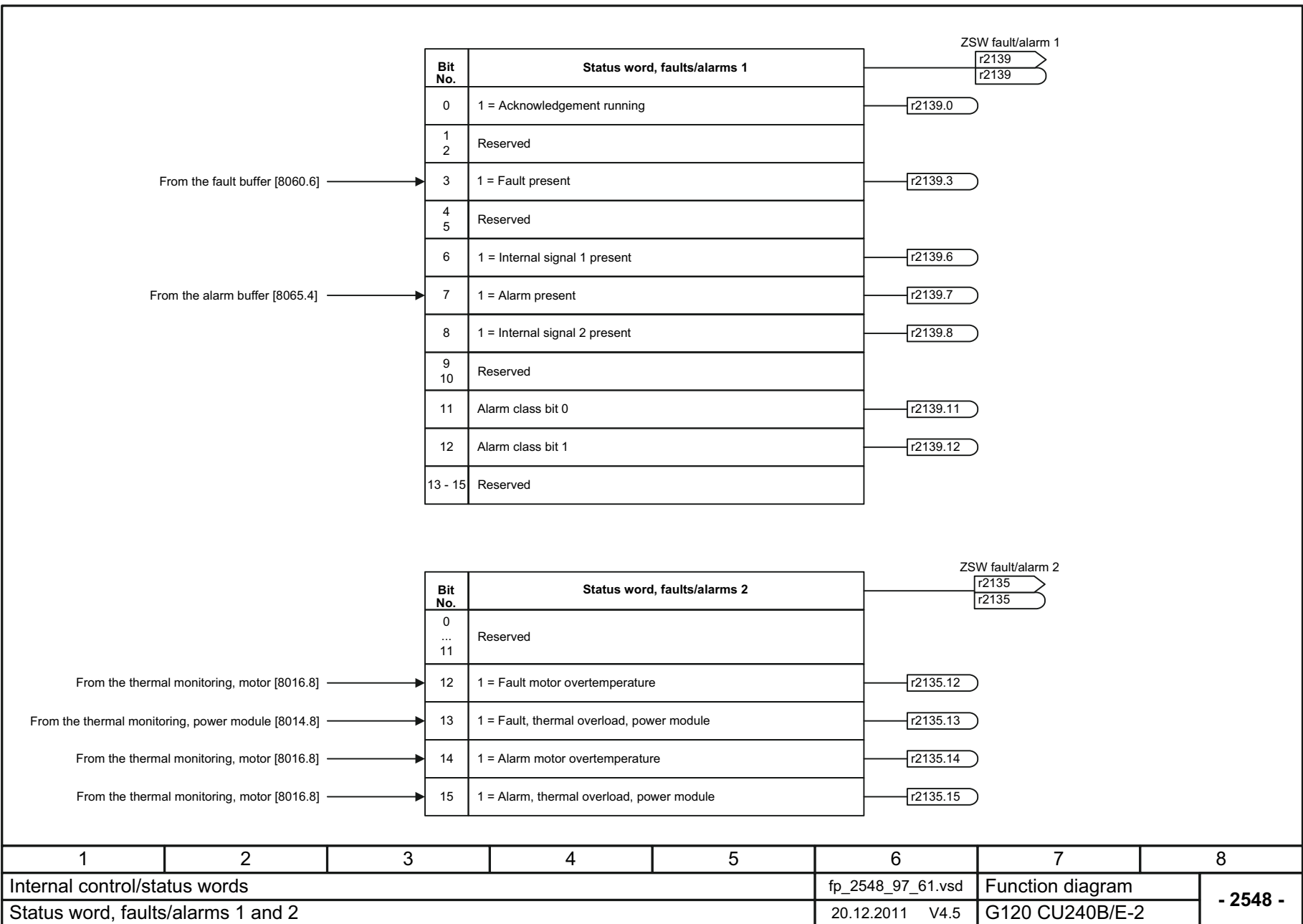


Fig. 2-55 2546 – Control word, faults/alarms



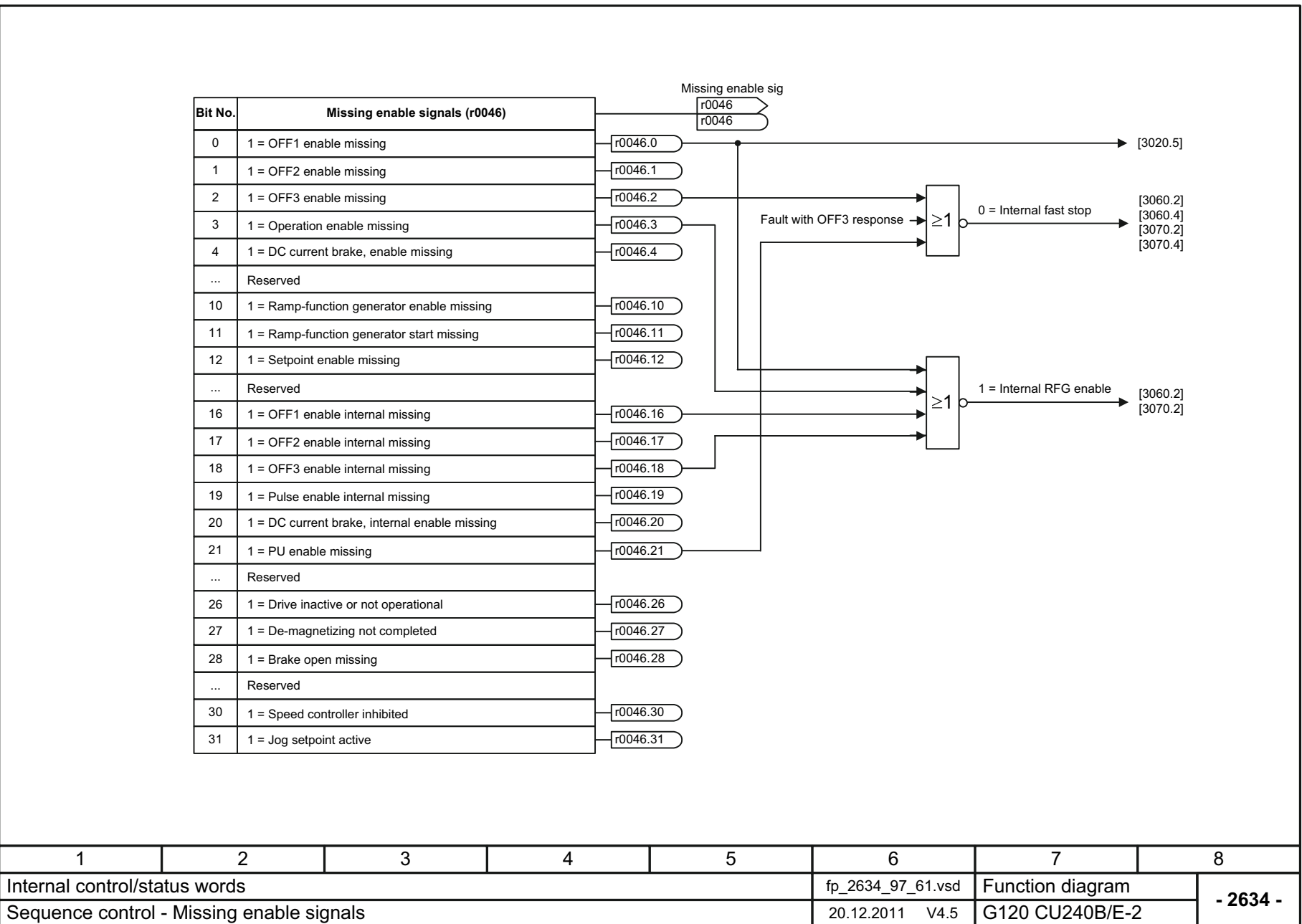


Fig. 2-57 2634 – Sequence control – Missing enable signals

1	2	3	4	5	6	7	8
Internal control/status words					fp_2634_97_61.vsd	Function diagram	<b>- 2634 -</b>
Sequence control - Missing enable signals					20.12.2011 V4.5	G120 CU240B/E-2	

## 2.8 Brake control

### Function diagrams

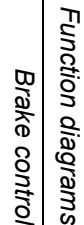
---

2701 – Basic brake control

2-567

---

2701 – Basic brake control



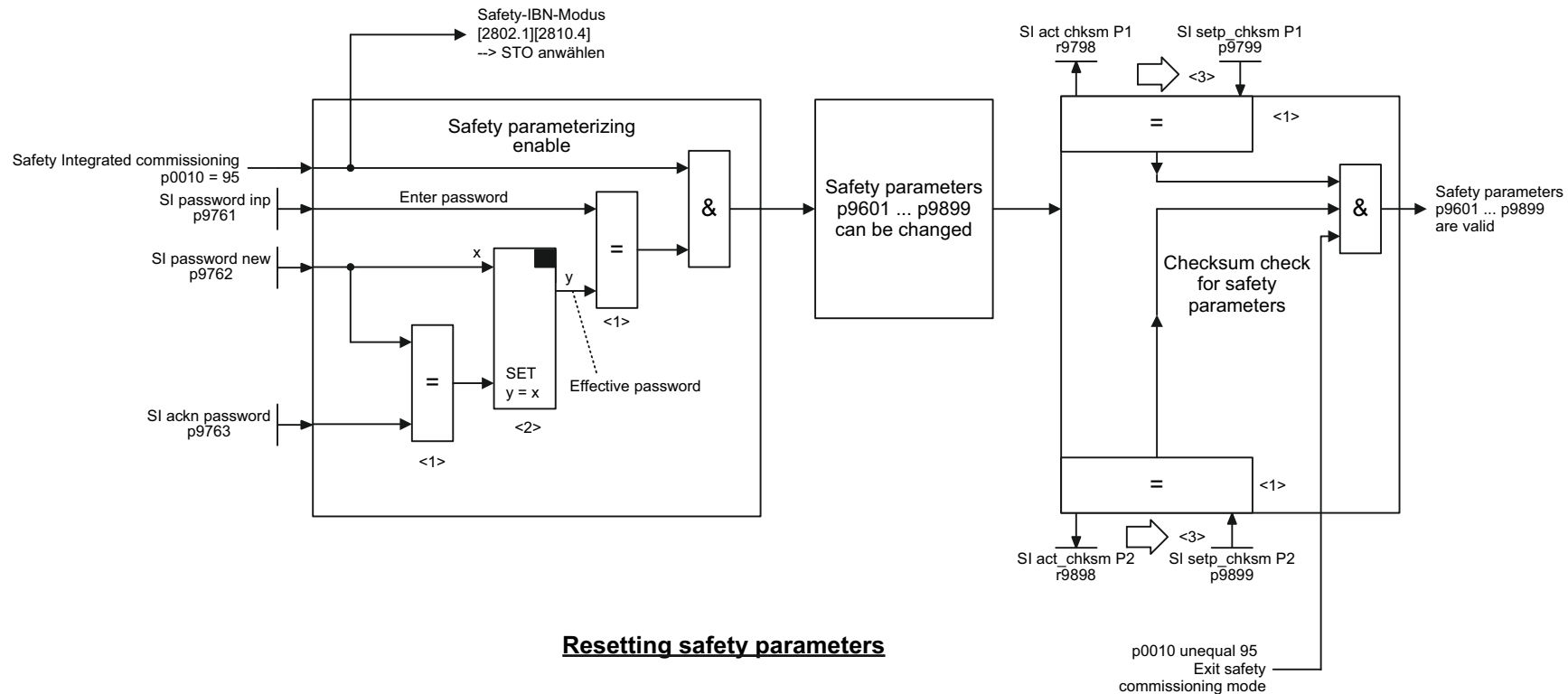
## 2.9 Safety Integrated

### Function diagrams

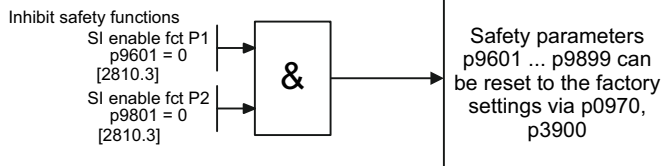
2800 – Basic functions, parameter manager	2-569
2802 – Basic functions, monitoring functions and faults/alarms	2-570
2804 – Basic functions, status words	2-571
2810 – Basic functions, STO: Safe Torque Off	2-572
2812 – Basic functions, F-DI: Fail-safe digital input	2-573
2820 – SI Motion, SLS: Safely-Limited Speed	2-574
2825 – SI Motion, SS1: Safe Stop 1, internal STOP A, B, F	2-575
2840 – SI Motion, PROFIsafe control and status word	2-576
2846 – SI Motion, parameter manager	2-577
2850 – SI Motion, fail-safe digital inputs (F-DI0 ... F-DI2)	2-578
2855 – SI Motion, F-DI assignment	2-579
2858 – SI Motion, extended functions via PROFIsafe (9601.2 = 1 and 9601.3 = 1)	2-580
2860 – SI Motion, SSM (Safe Speed Monitor)	2-581
2861 – SI Motion, SDI (Safe Direction)	2-582



## Changing safety parameters



## Resetting safety parameters



<1> Comparator, refer to [1021]

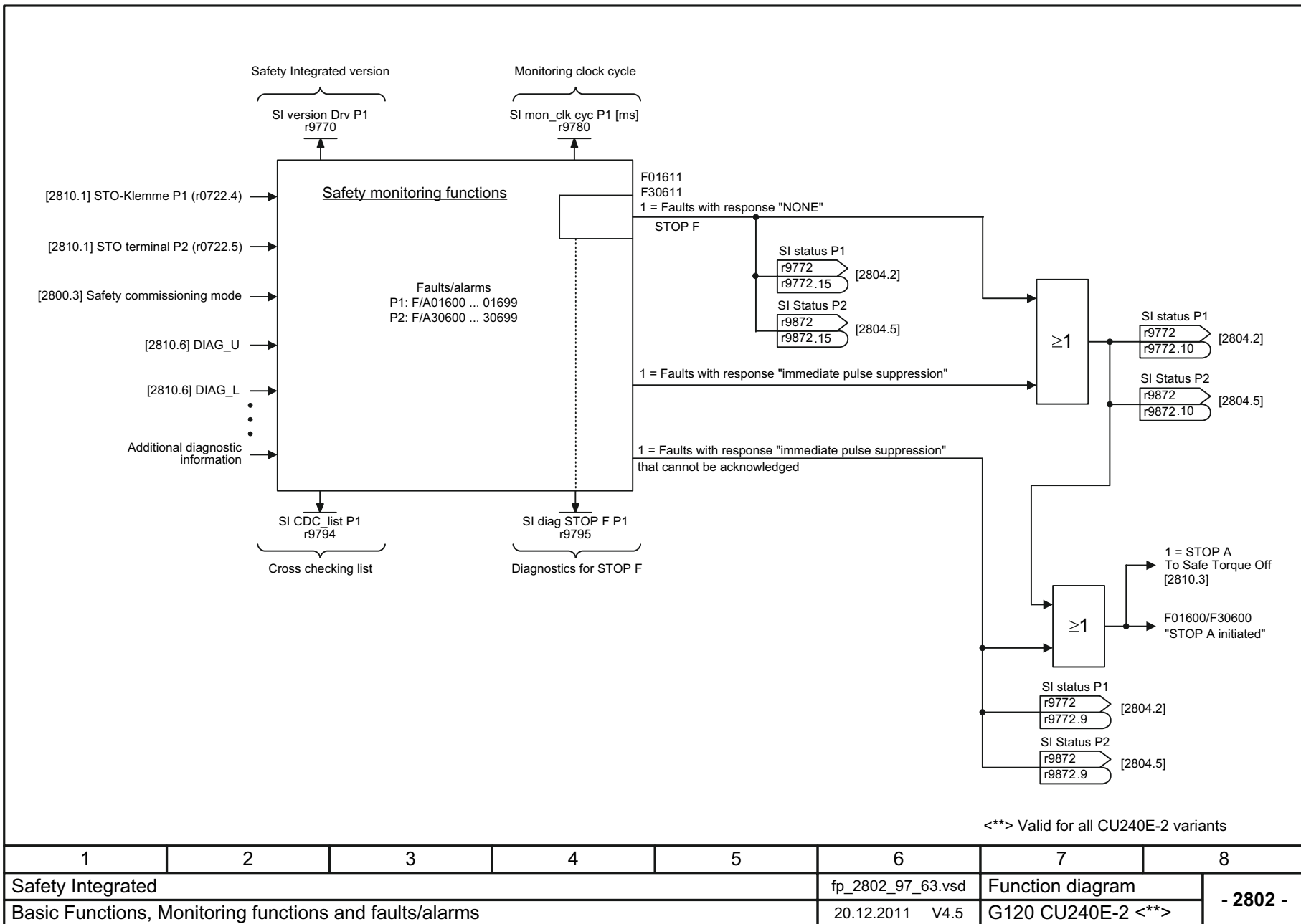
<2> Analog signal memory, refer to [1021]

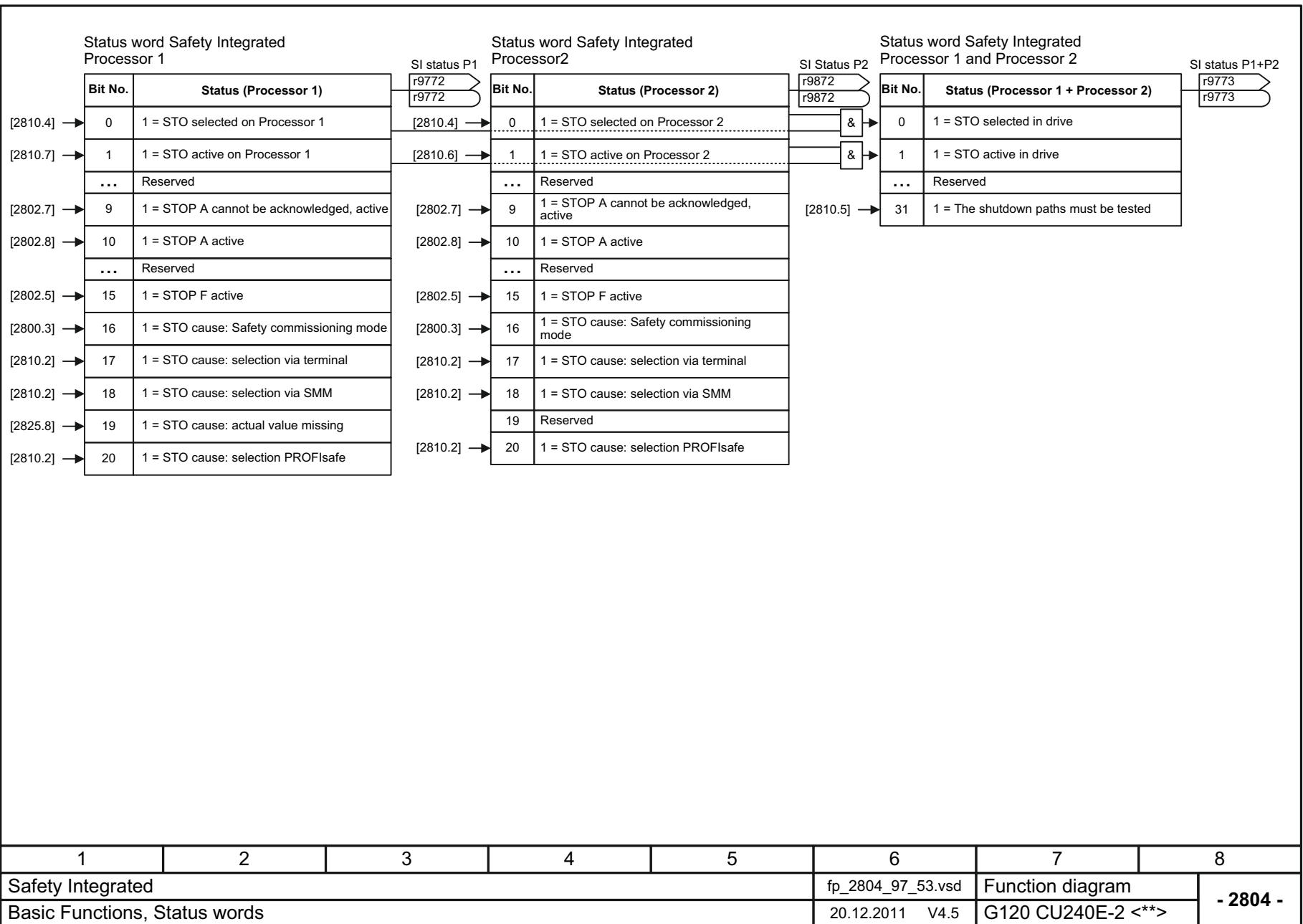
<3> The target checksum must be equal to the actual checksum.

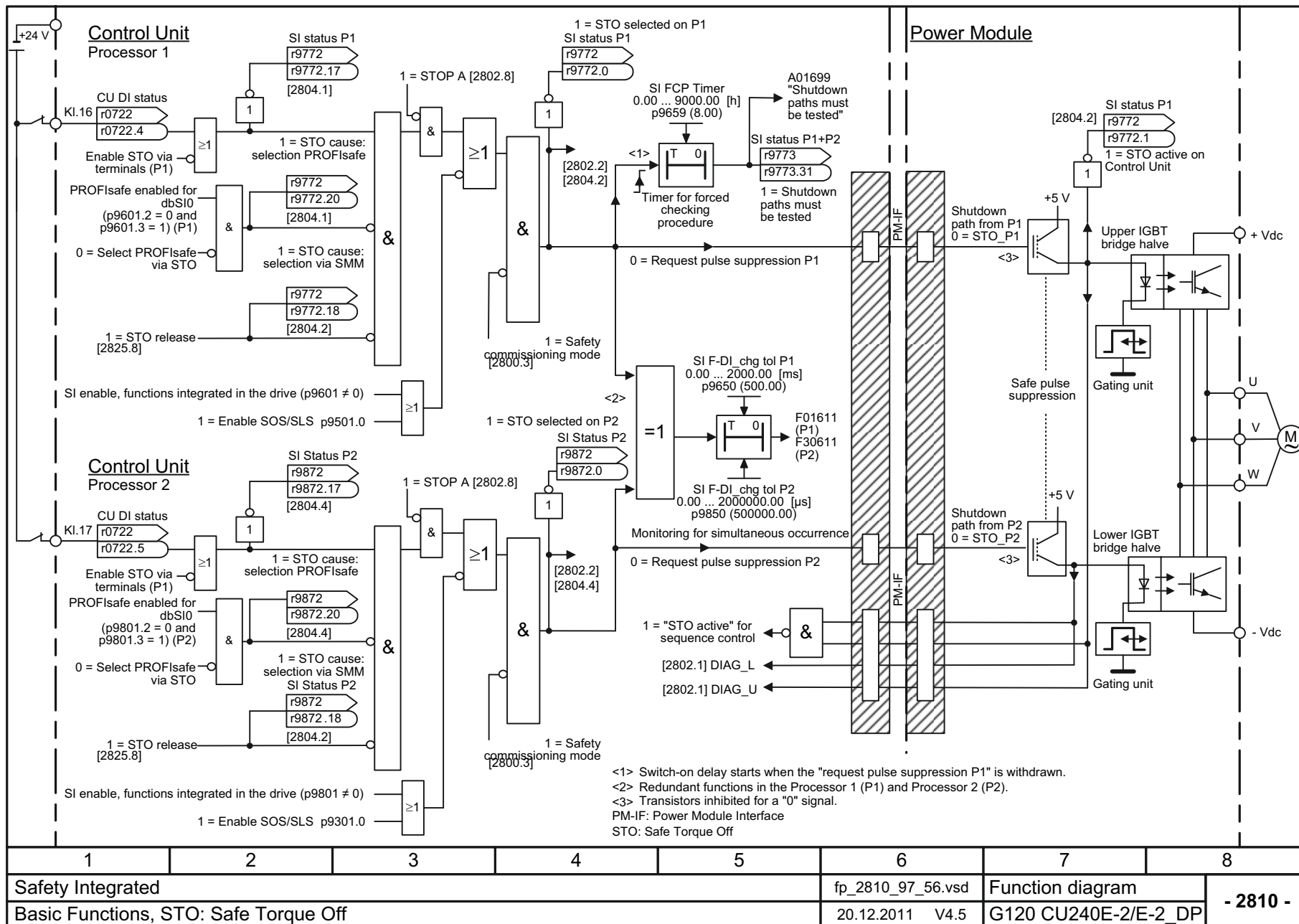
<\*> Valid for all CU240E-2 variants

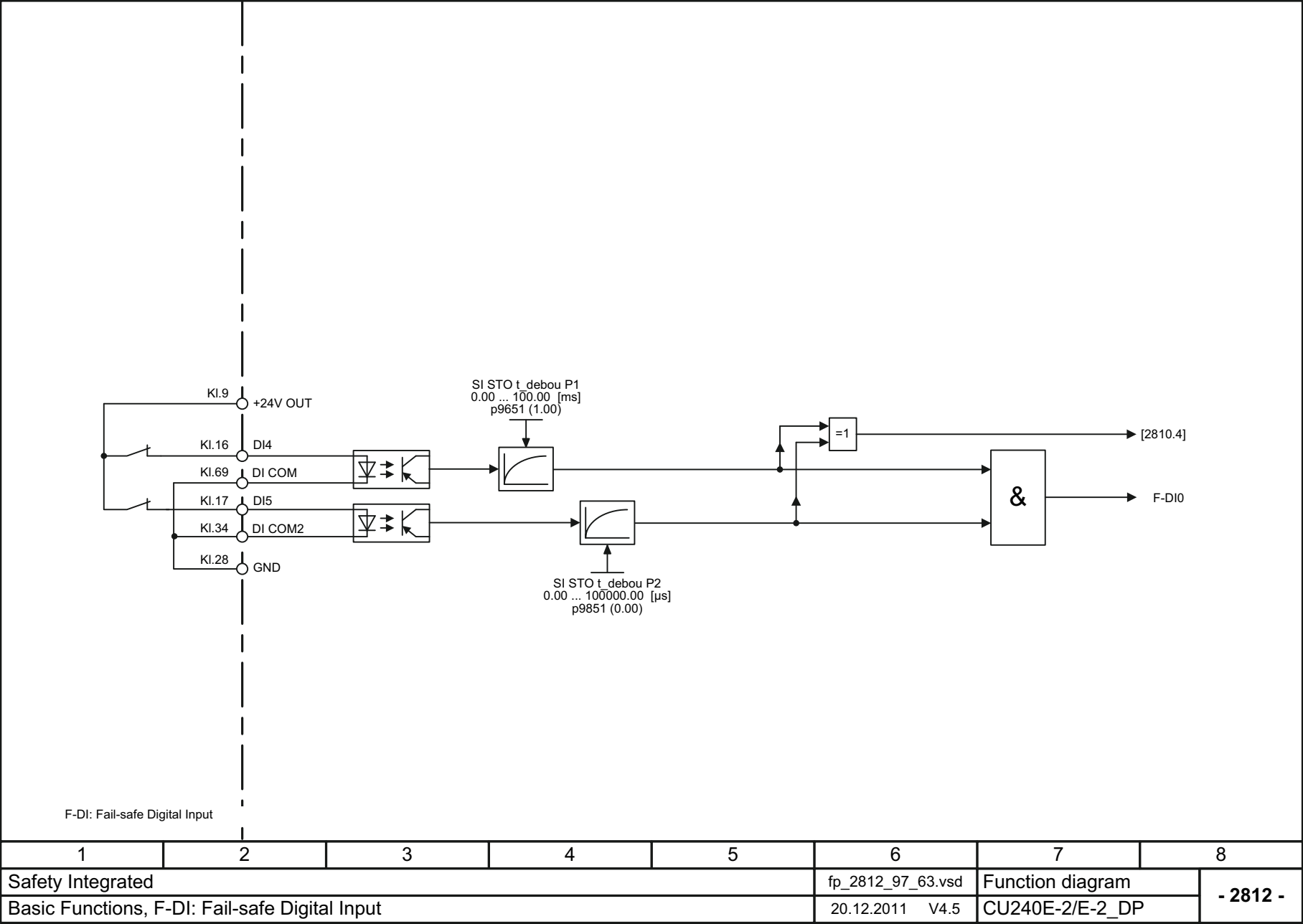
1	2	3	4	5	6	7	8
Safety Integrated					fp_2800_97_63.vsd	Function diagram	
Basic Functions, Parameter Manager					20.12.2011 V4.5	G120 CU240E-2 <*>	
							- 2800 -

Fig. 2-59 2800 – Basic functions, parameter manager









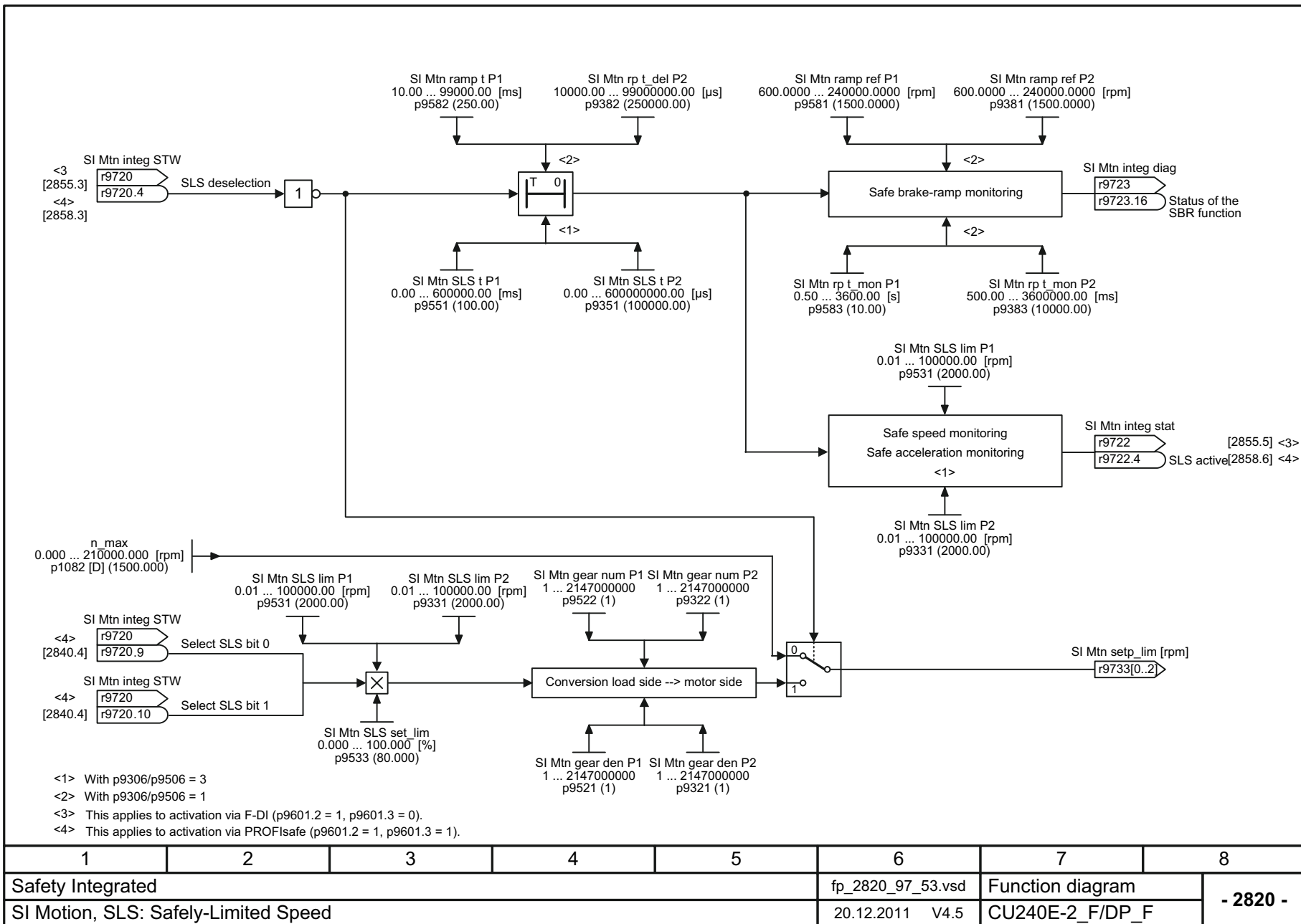
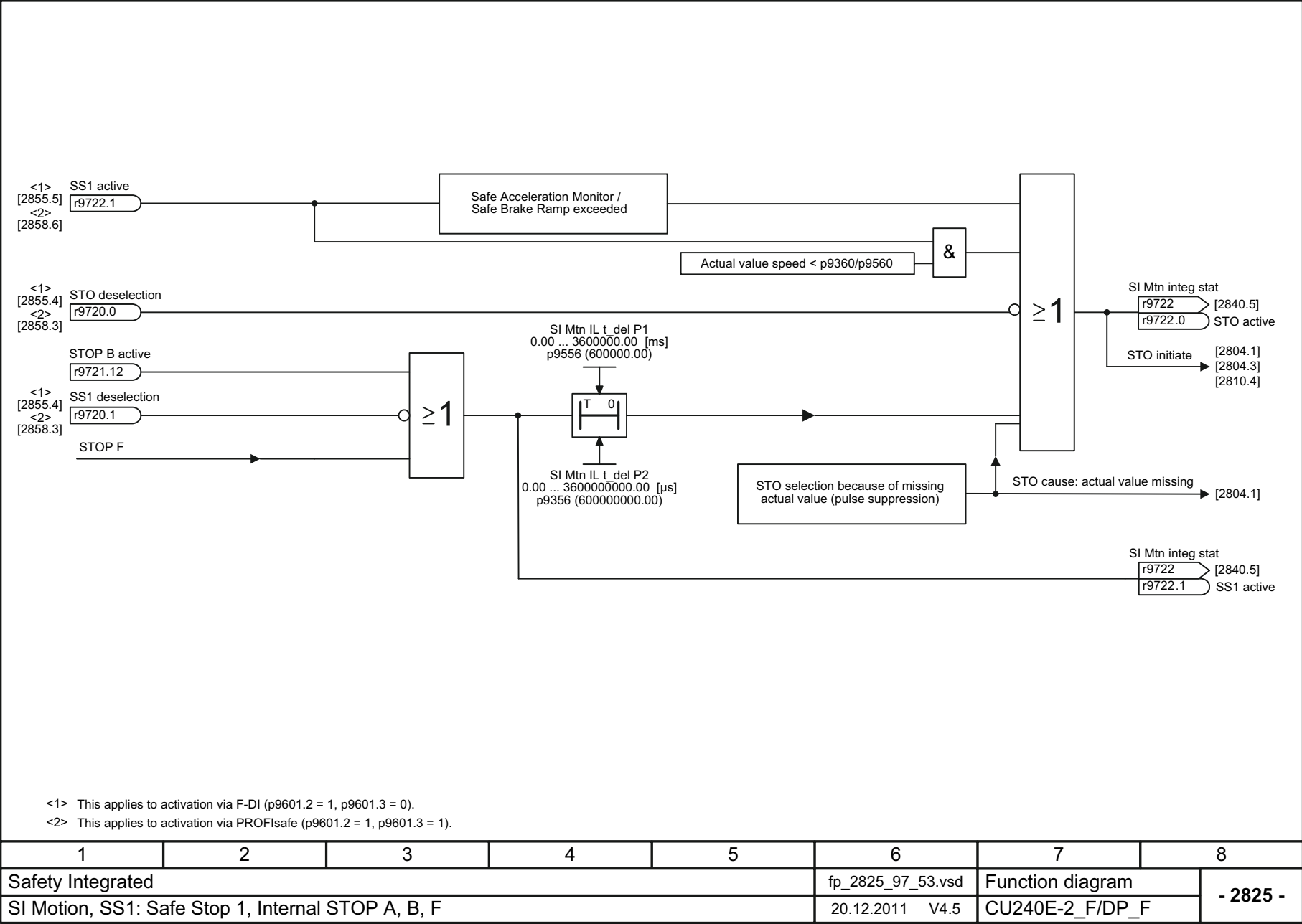
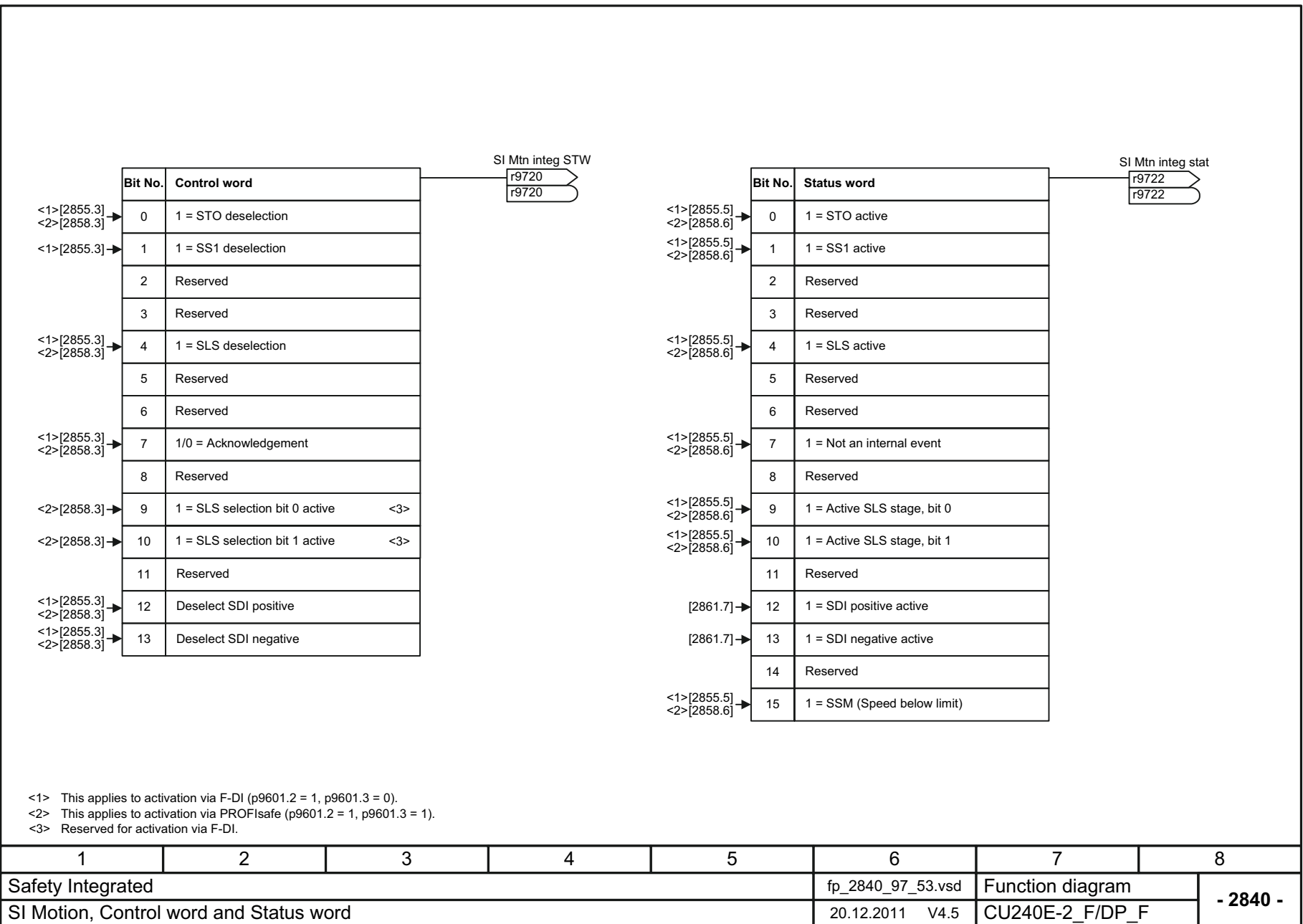


Fig. 2-64 2820 – SI Motion, SLS: Safely-Limited Speed







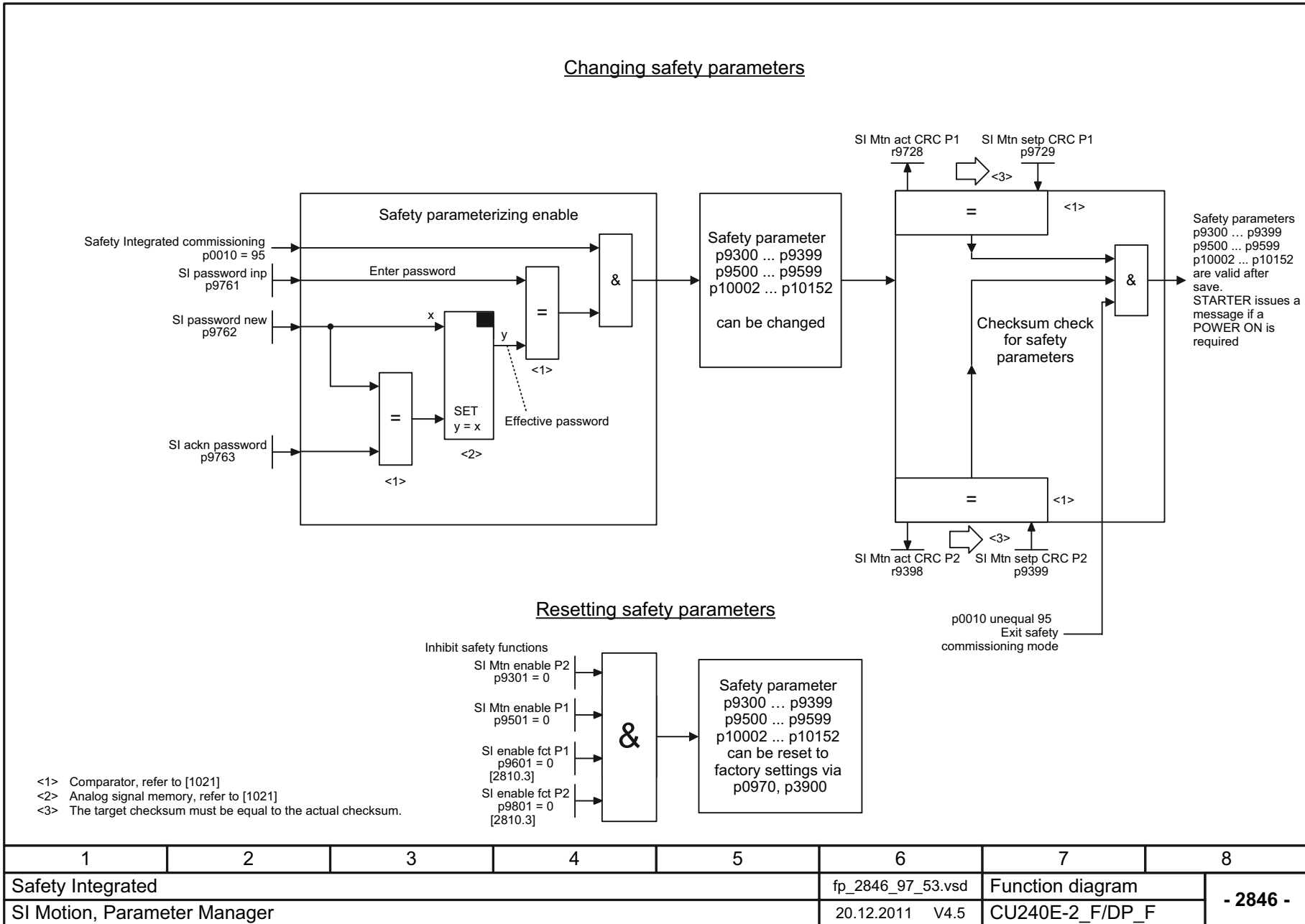
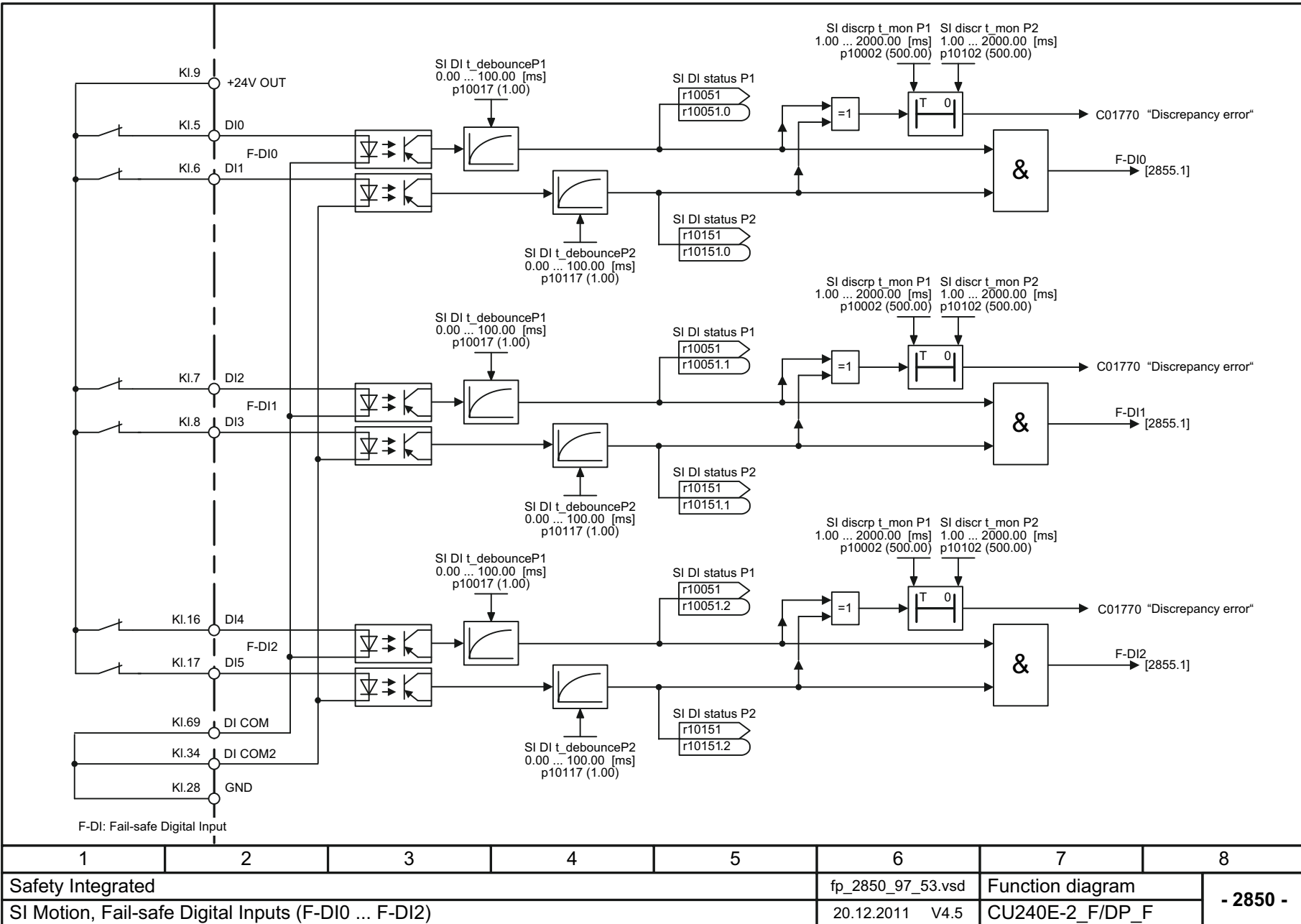


Fig. 2-67 2846 – SI Motion, parameter manager



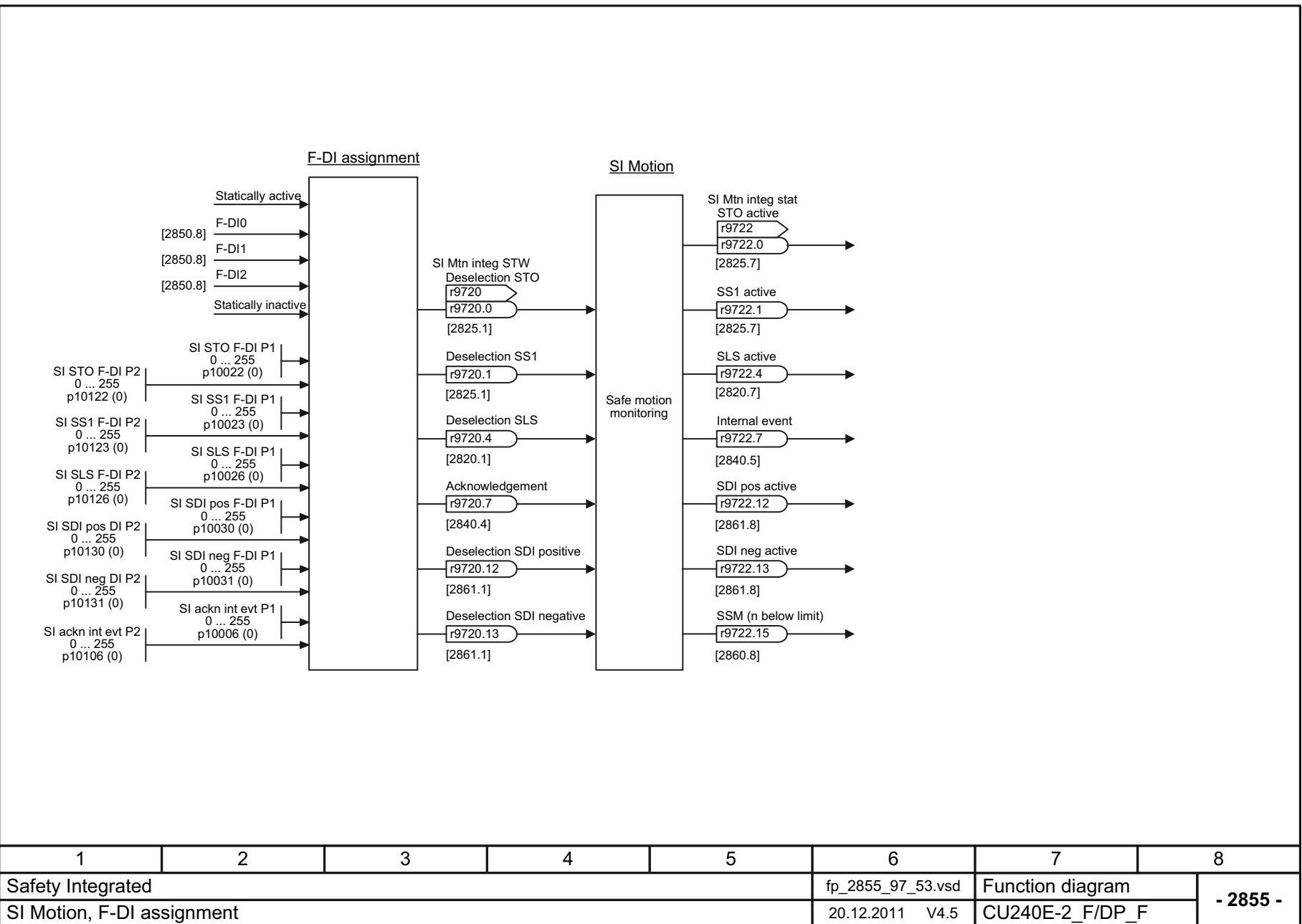


Fig. 2-69 2855 – SI Motion, F-DI assignment

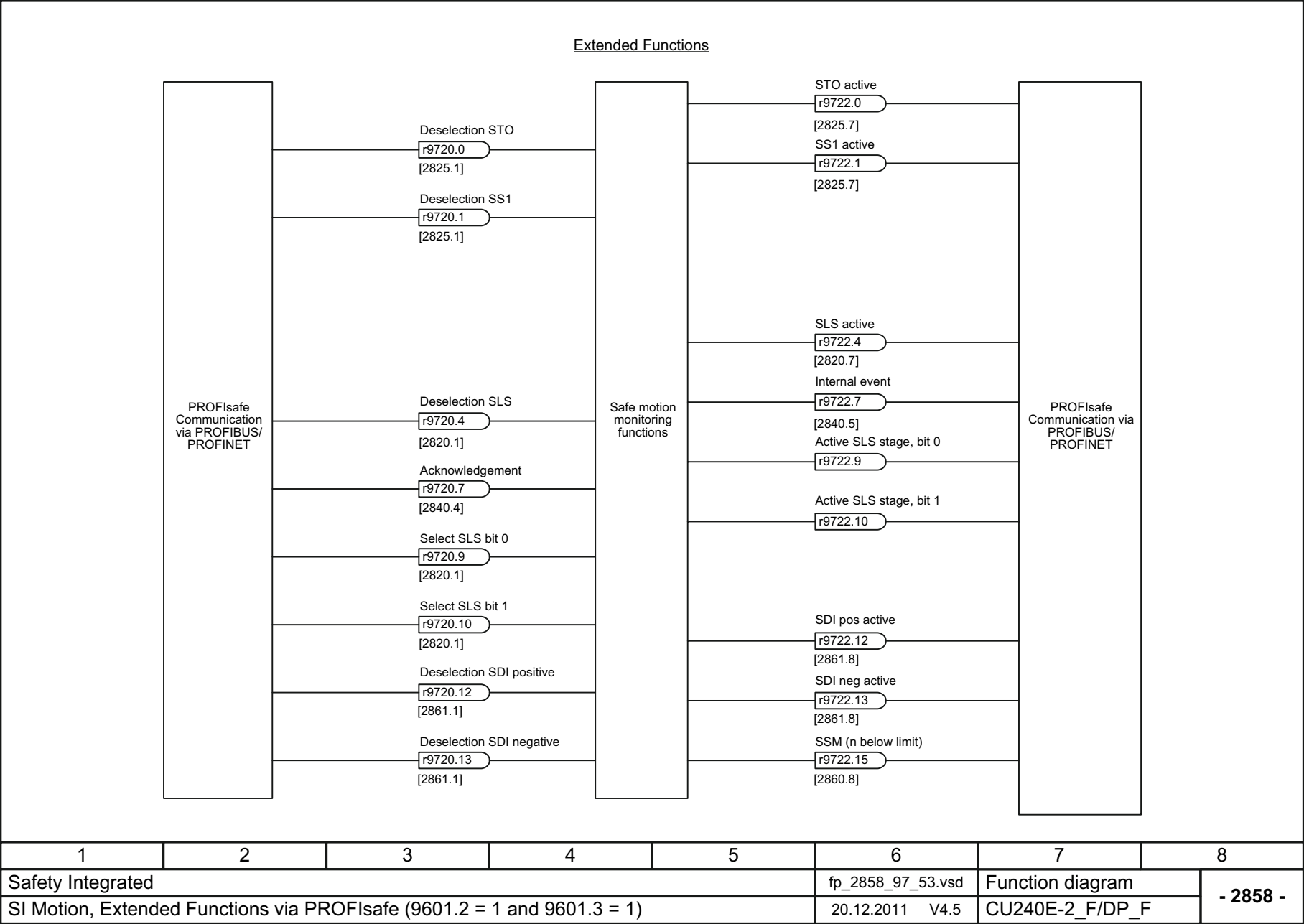


Fig. 2-70 2858 – SI Motion, extended functions via PROFIsafe (9601.2 = 1 and 9601.3 = 1)

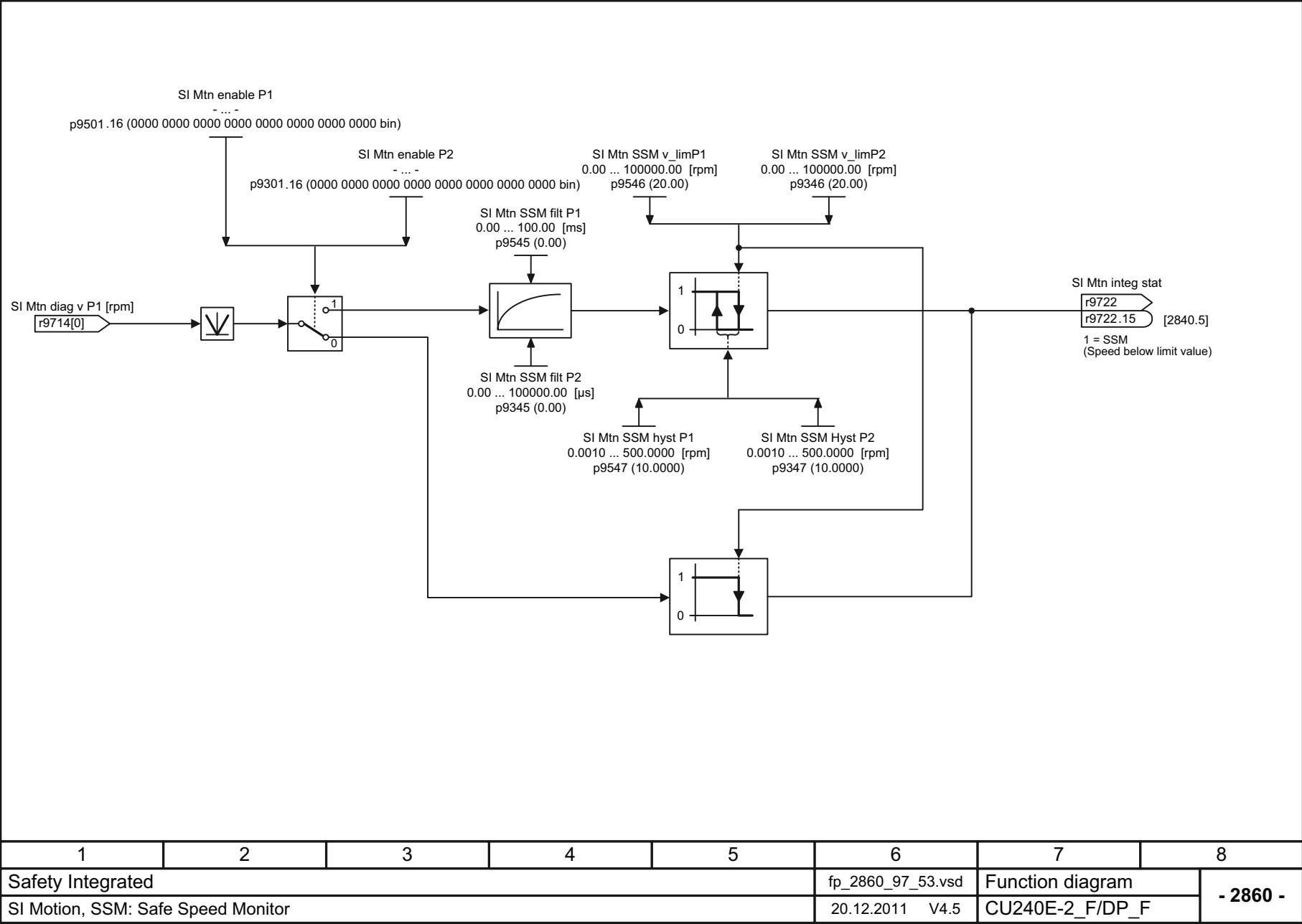
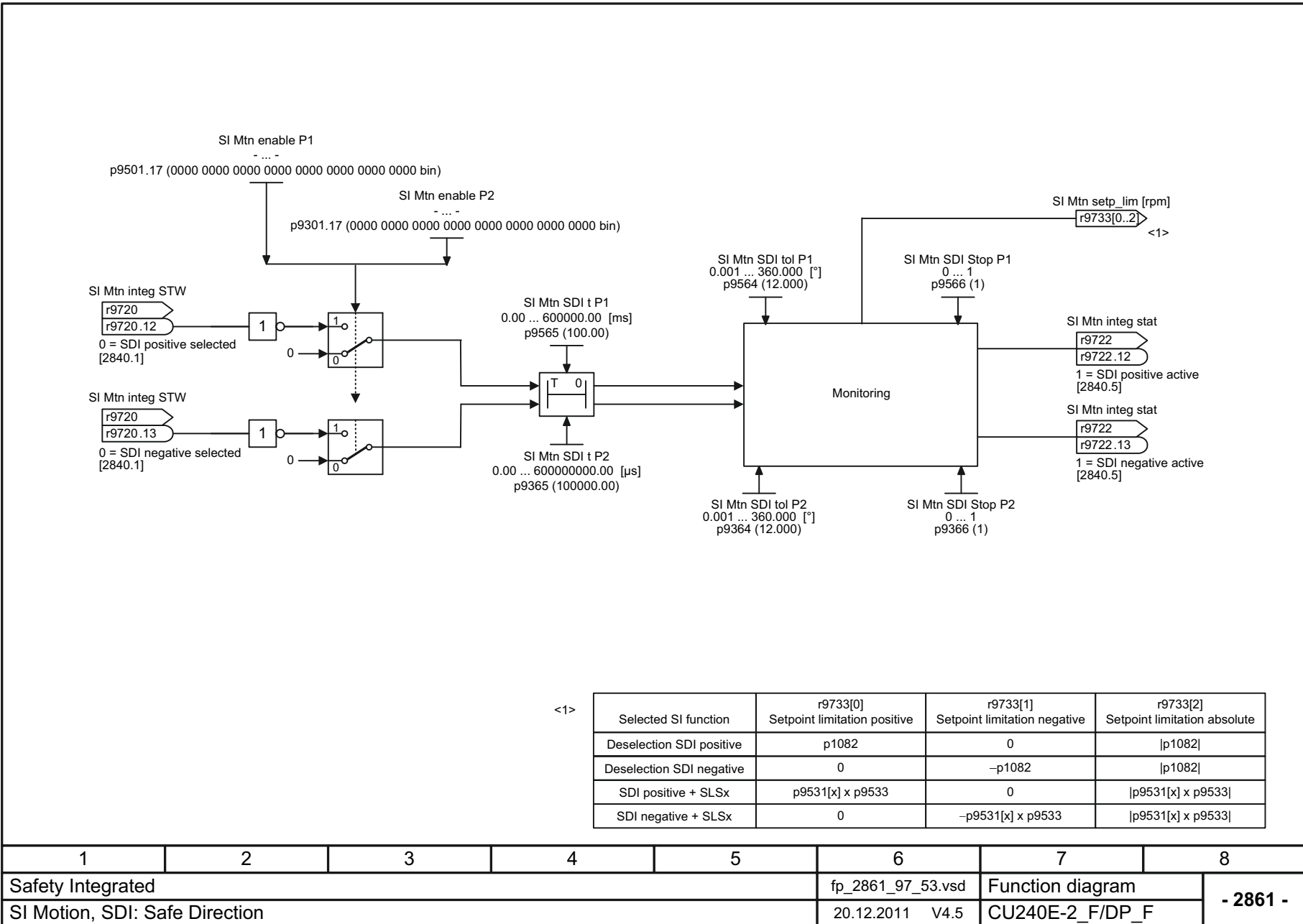


Fig. 2-71 2860 – SI Motion, SSM (Safe Speed Monitor)

1	2	3	4	5	6	7	8
Safety Integrated					fp_2860_97_53.vsd	Function diagram	
SI Motion, SSM: Safe Speed Monitor					20.12.2011 V4.5	CU240E-2_F/DP_F	
							- 2860 -



1	2	3	4	5	6	7	8
Safety Integrated					fp_2861_97_53.vsd	Function diagram	
SI Motion, SDI: Safe Direction					20.12.2011 V4.5	CU240E-2_F/DP_F	
							- 2861 -

## 2.10 Setpoint channel

### Function diagrams

3010 – Fixed speed setpoints, binary selection (p1016 = 2)	2-584
3011 – Fixed speed setpoints, direct selection (p1016 = 1)	2-585
3020 – Motorized potentiometer	2-586
3030 – Main/supplementary setpoint, setpoint scaling, jogging	2-587
3040 – Direction limitation and direction reversal	2-588
3050 – Skip frequency bands and speed limitations	2-589
3060 – Basic ramp-function generator	2-590
3070 – Extended ramp-function generator	2-591
3080 – Ramp-function generator selection, status word, tracking	2-592

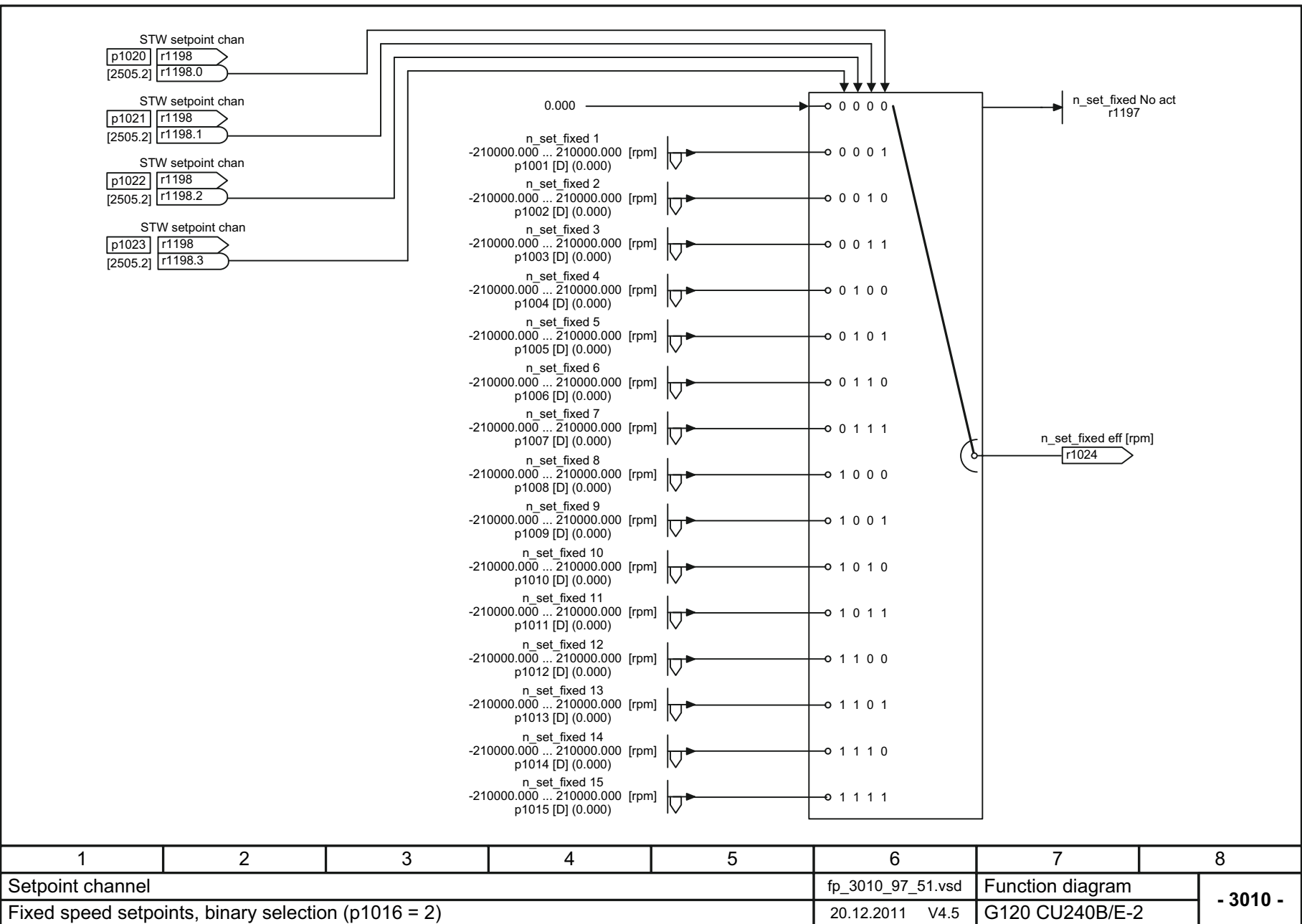
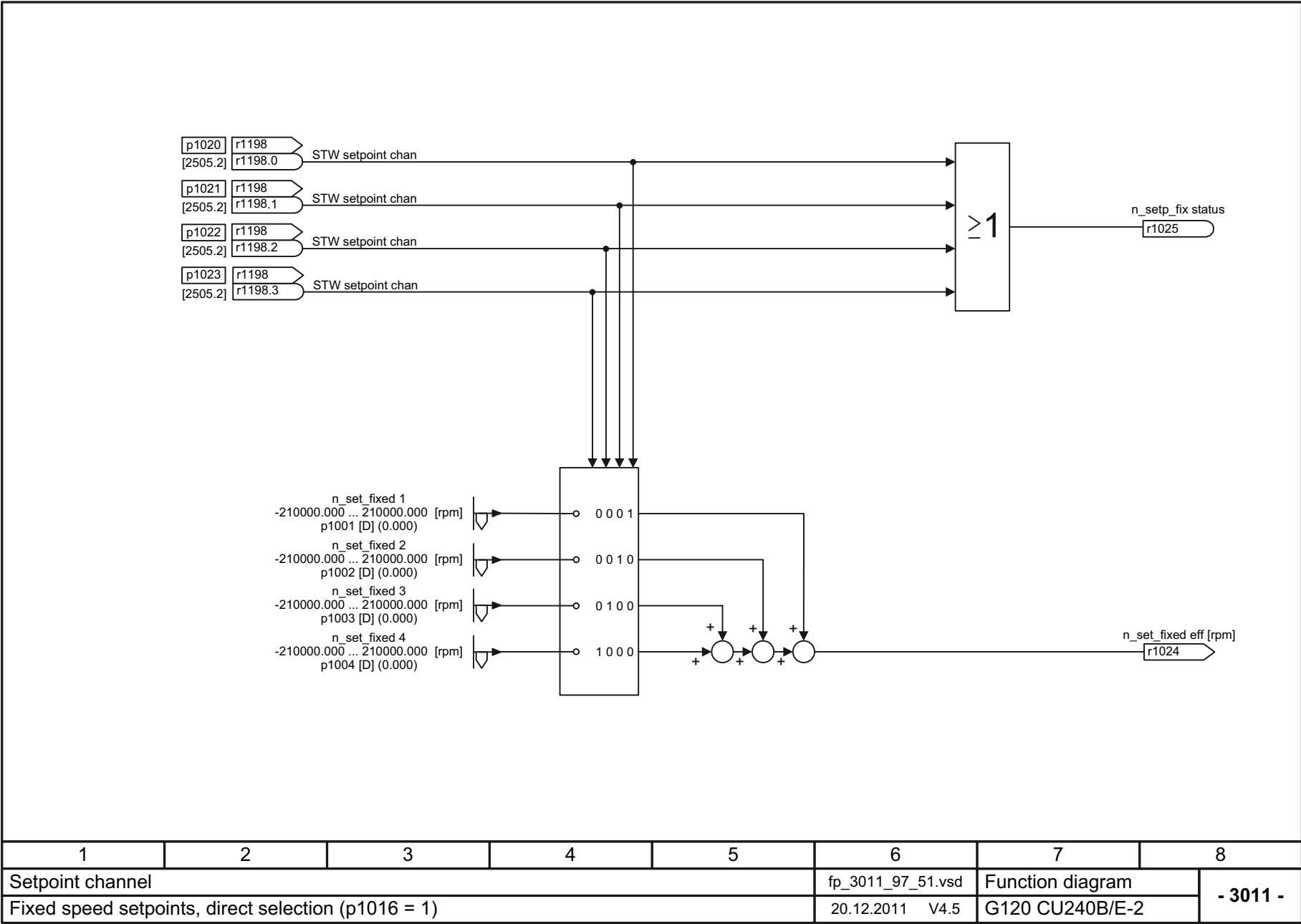
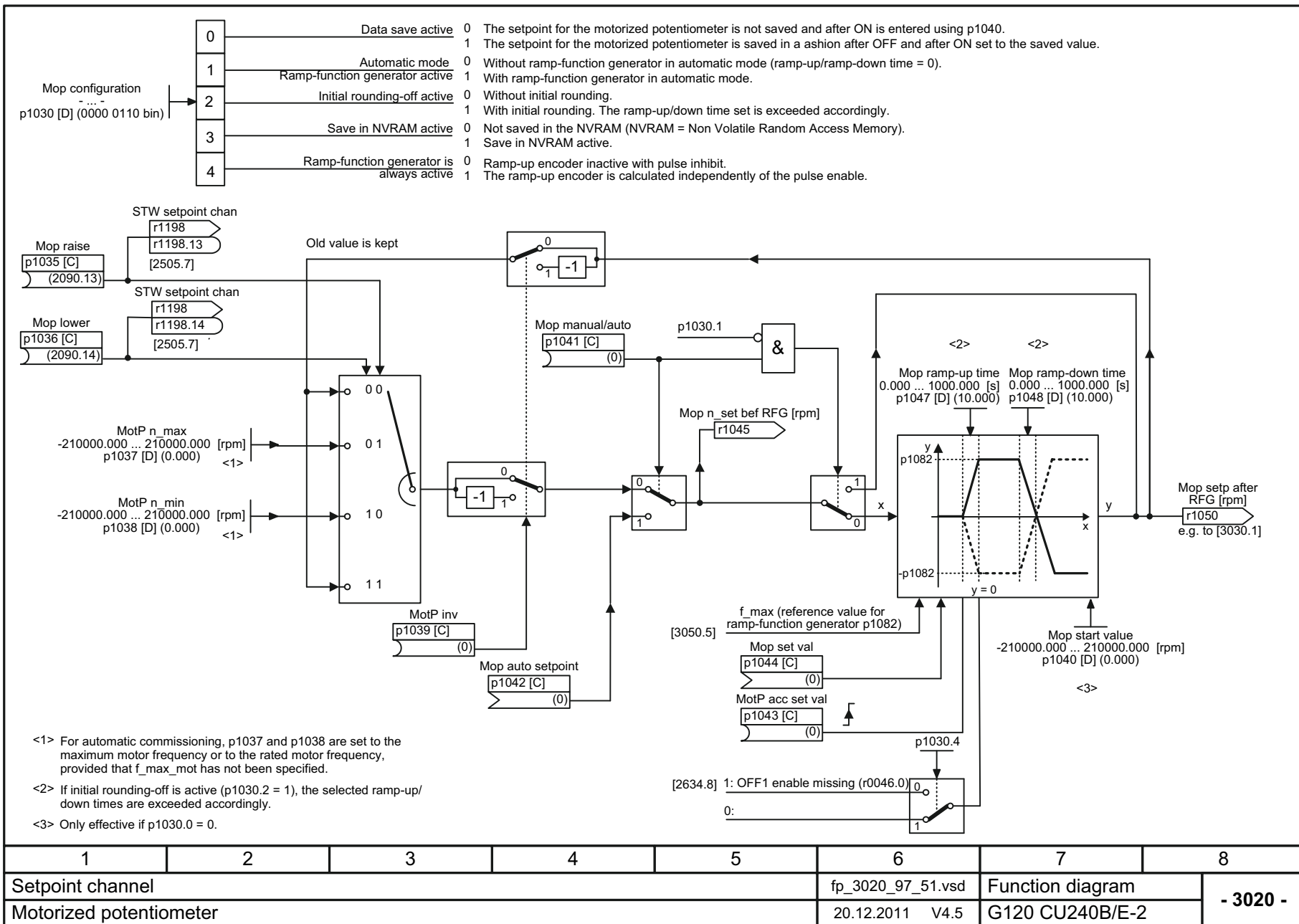
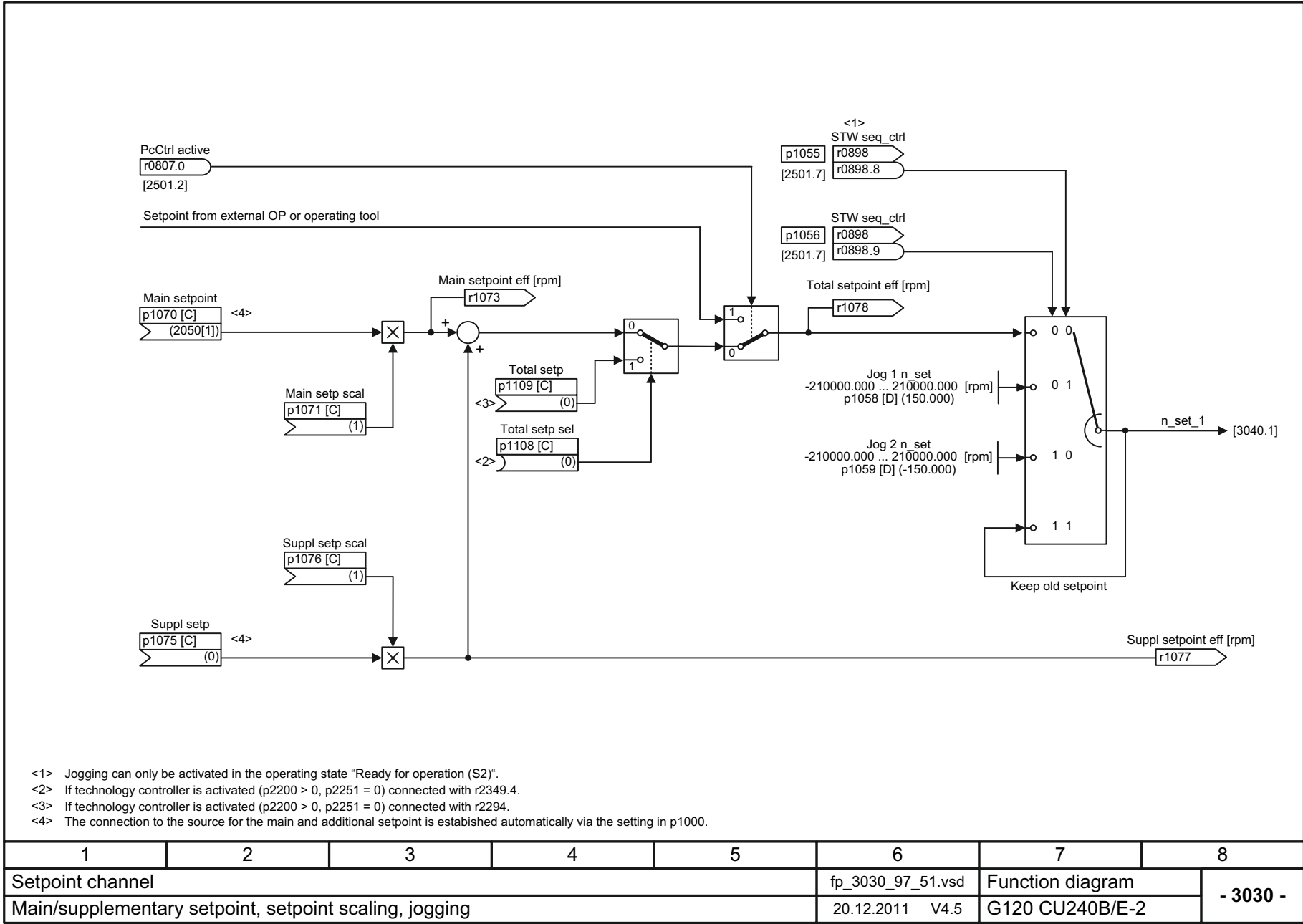


Fig. 2-73 3010 – Fixed speed setpoints, binary selection (p1016 = 2)









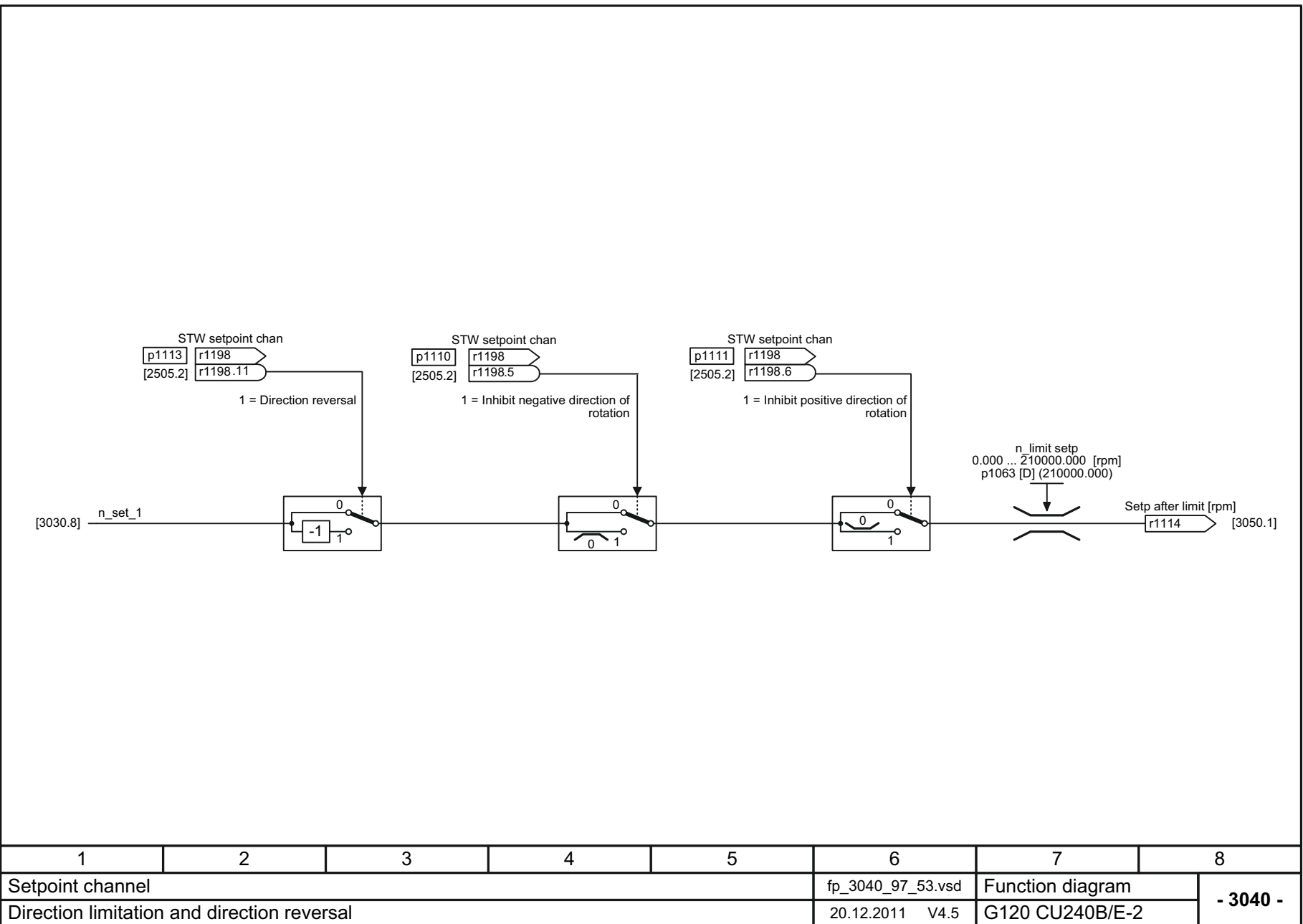
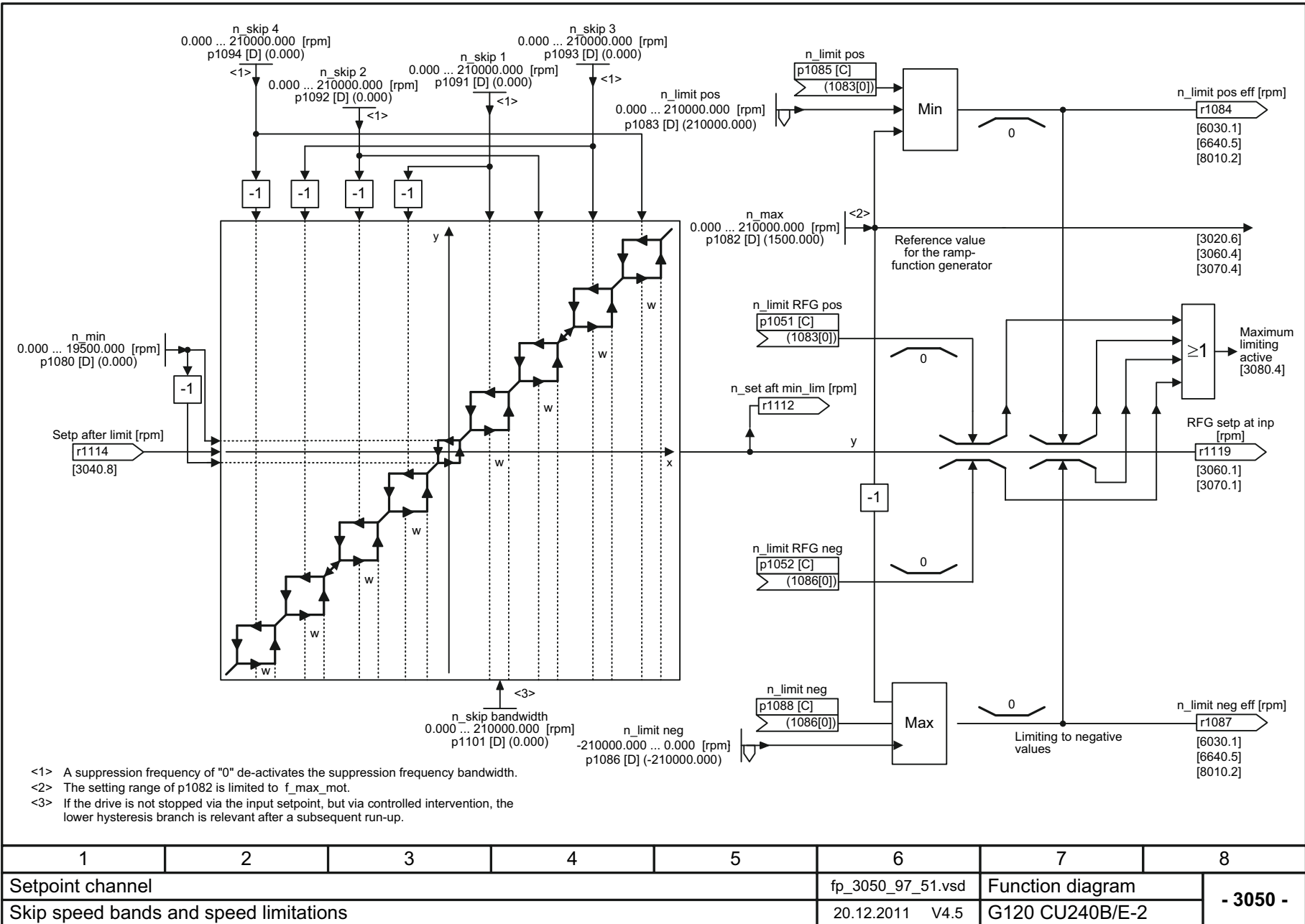
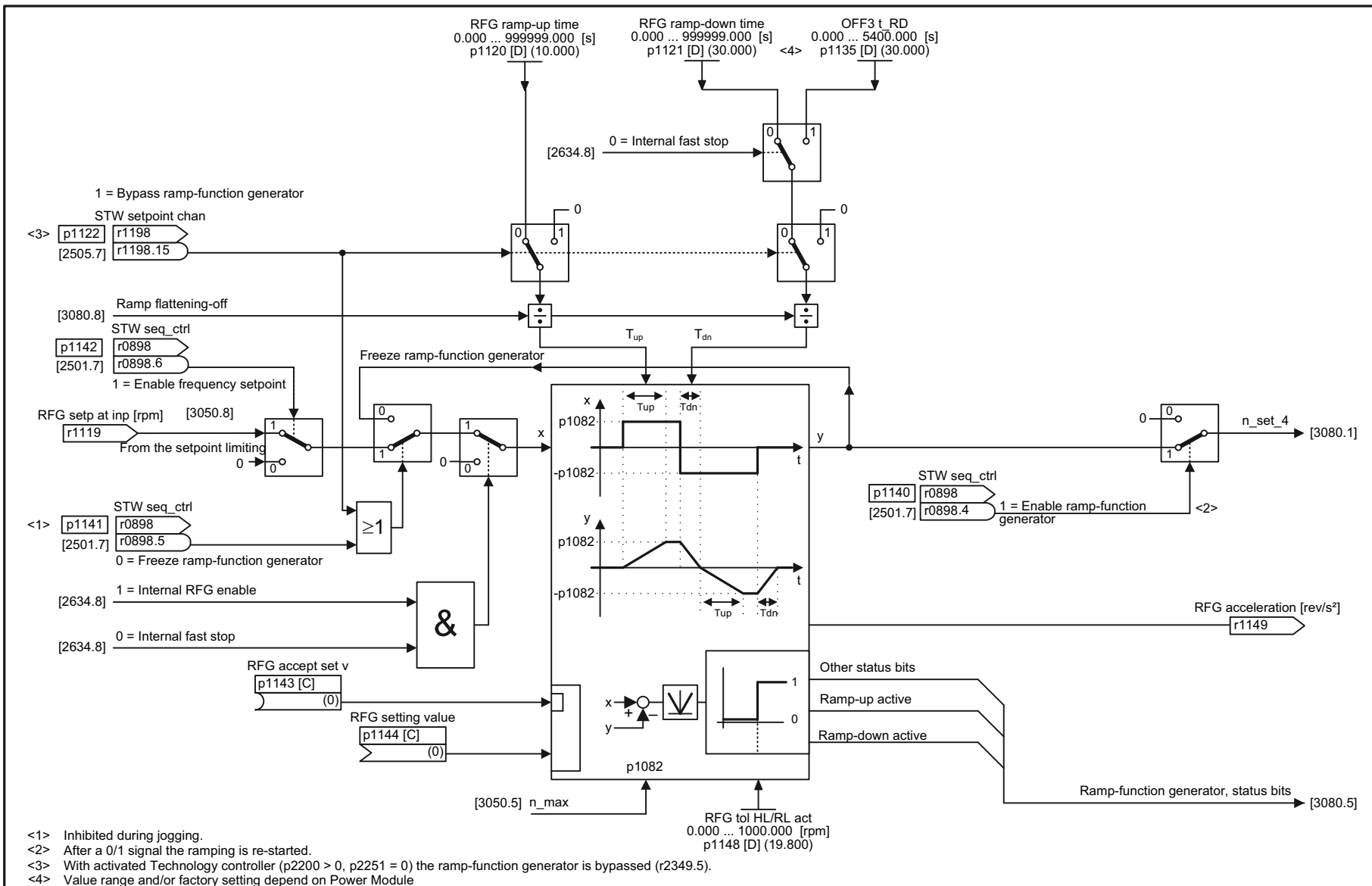


Fig. 2-77 3040 – Direction limitation and direction reversal

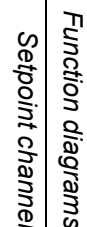


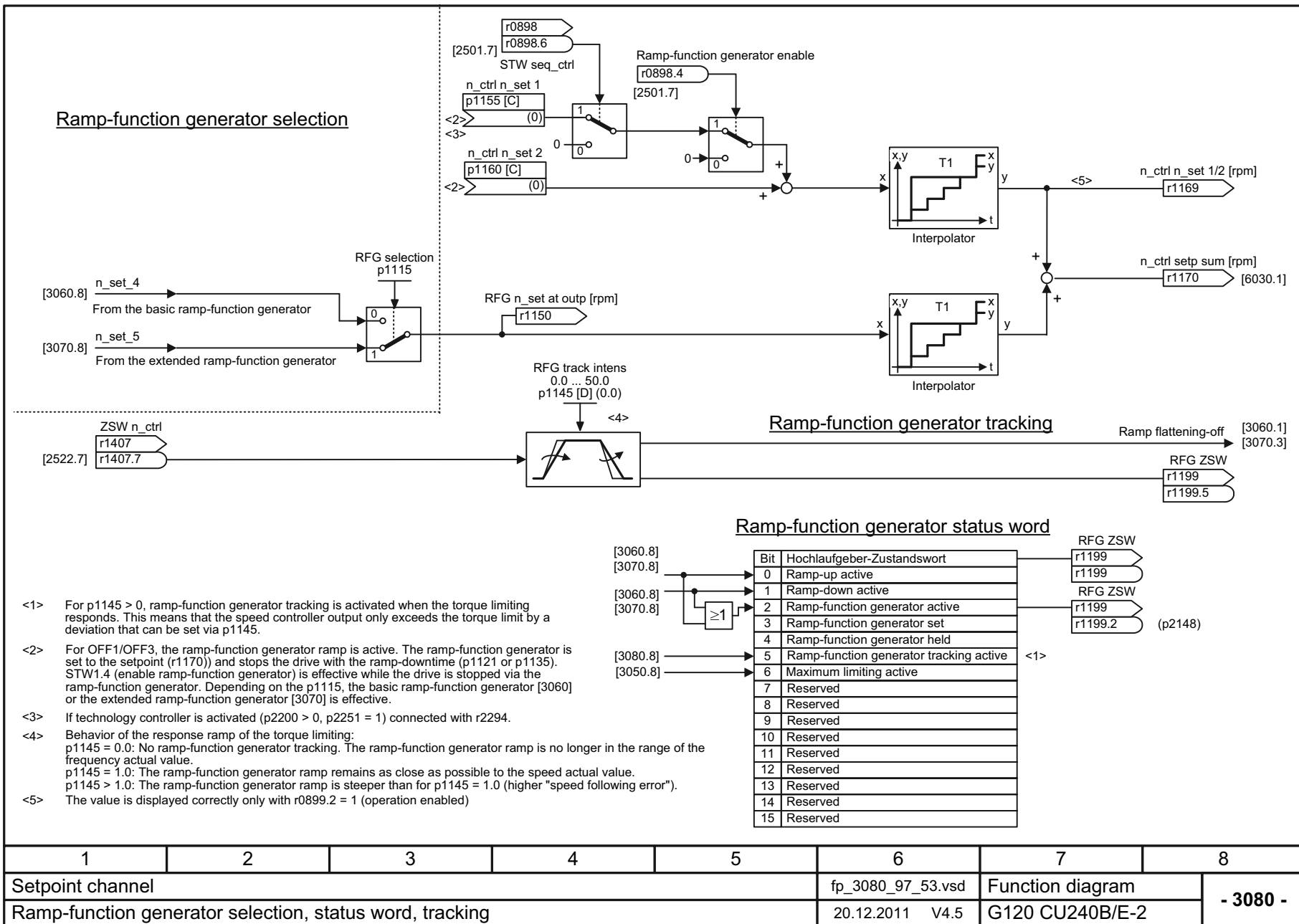


1	2	3	4	5	6	7	8
Setpoint channel					fp_3060_97_02.vsd	Function diagram	
Basic ramp-function generator					20.12.2011 V4.5	G120 CU240B/E-2	
					- 3060 -		

Fig. 2-79 3060 – Basic ramp-function generator

Fig. 2-80



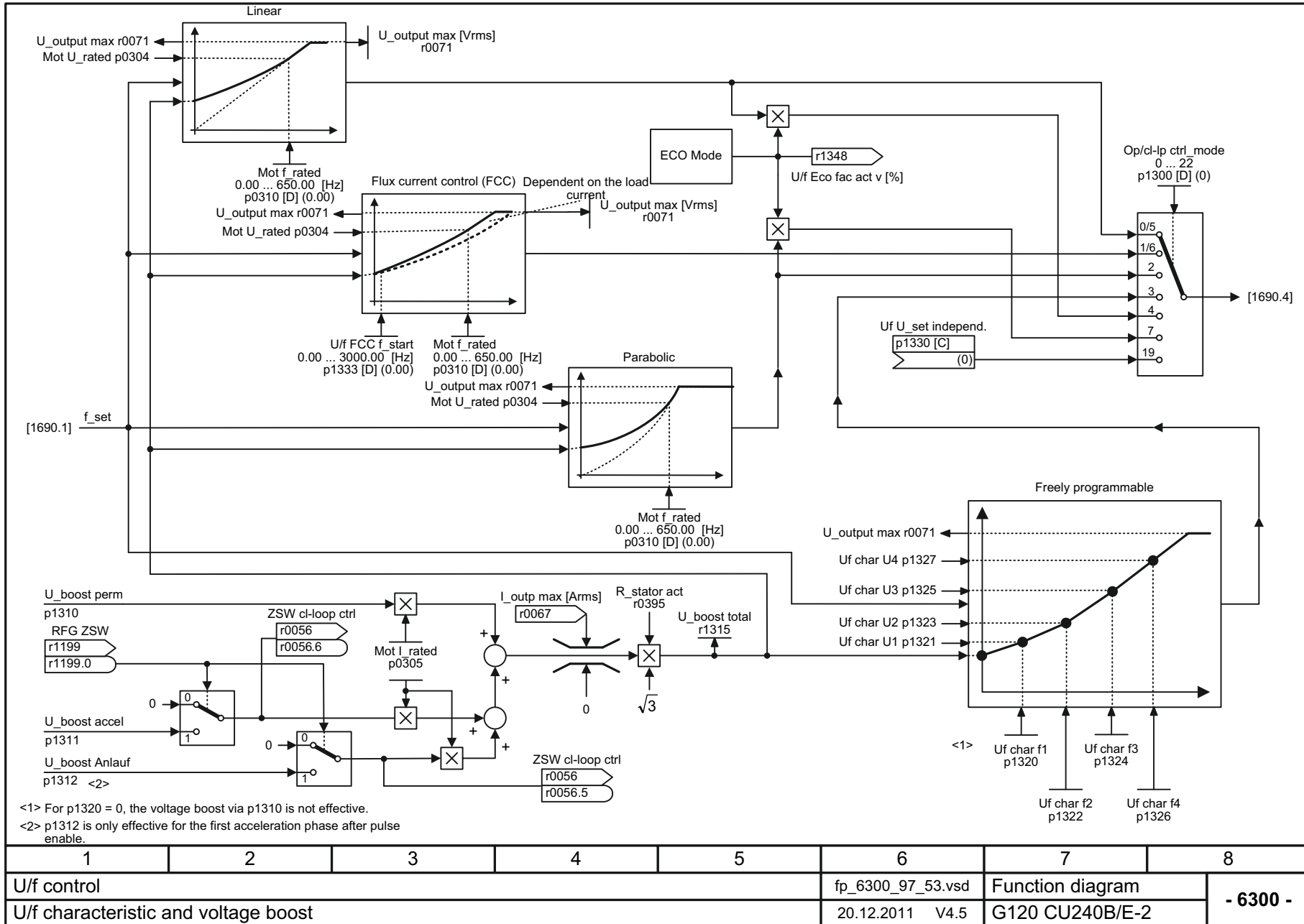


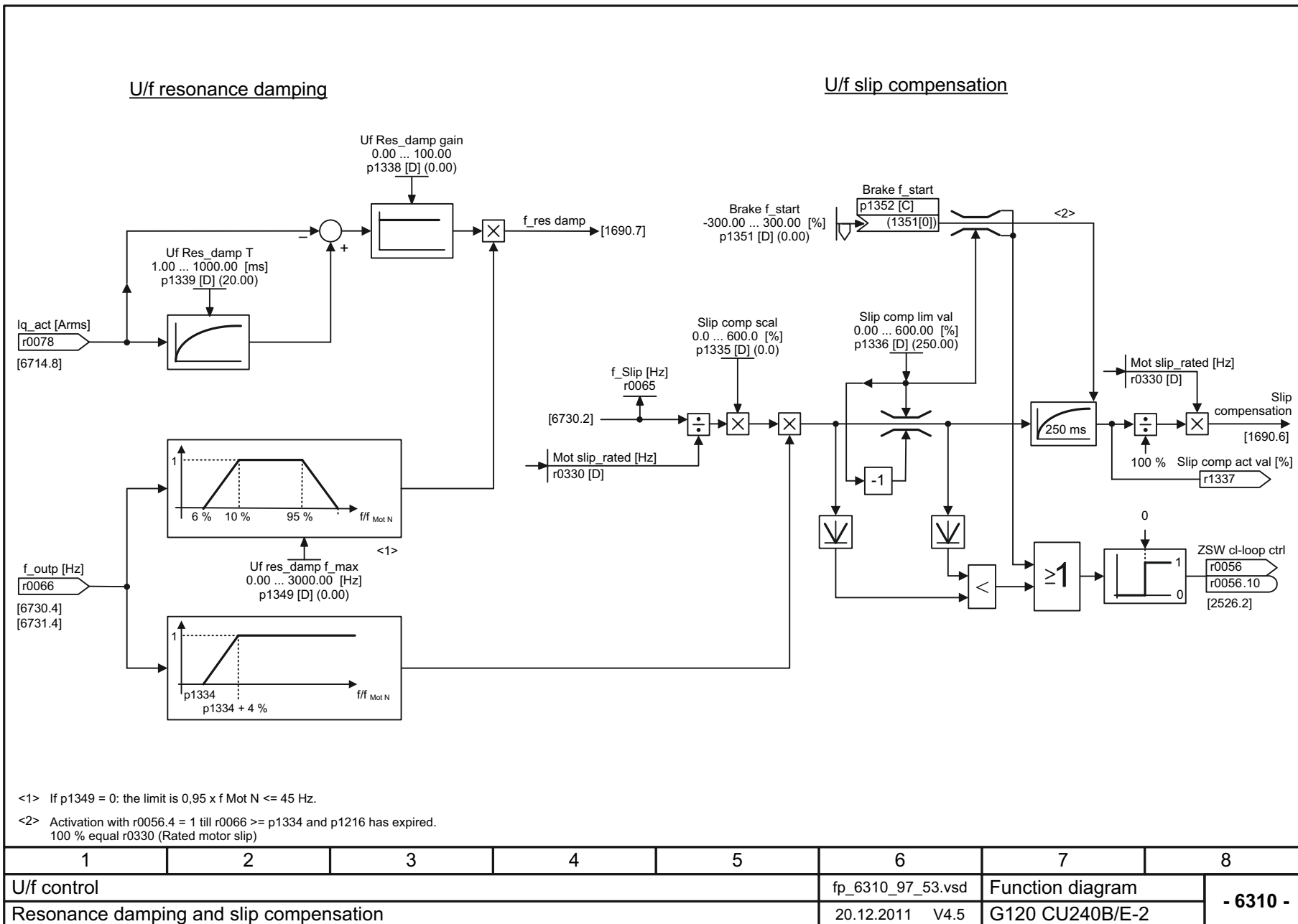


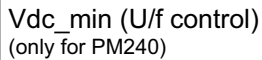
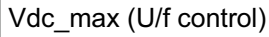
## 2.11 V/f control

### Function diagrams

6300 – V/f characteristic and voltage boost	2-594
6310 – Resonance damping and slip compensation	2-595
6320 – Vdc_max controller and Vdc_min controller (V/f control, PM230/PM240)	2-596







```
<1> p1280
0: Inhib Vdc ctrl
1: Enable Vdc_max controller
2: Enable Vdc_min controller (kinetic buffering) (only for PM240)
3: Enable Vdc_min controller and Vdc_max controller (only for PM240)
<2> Value range and/or factory setting depend on Power Module
```

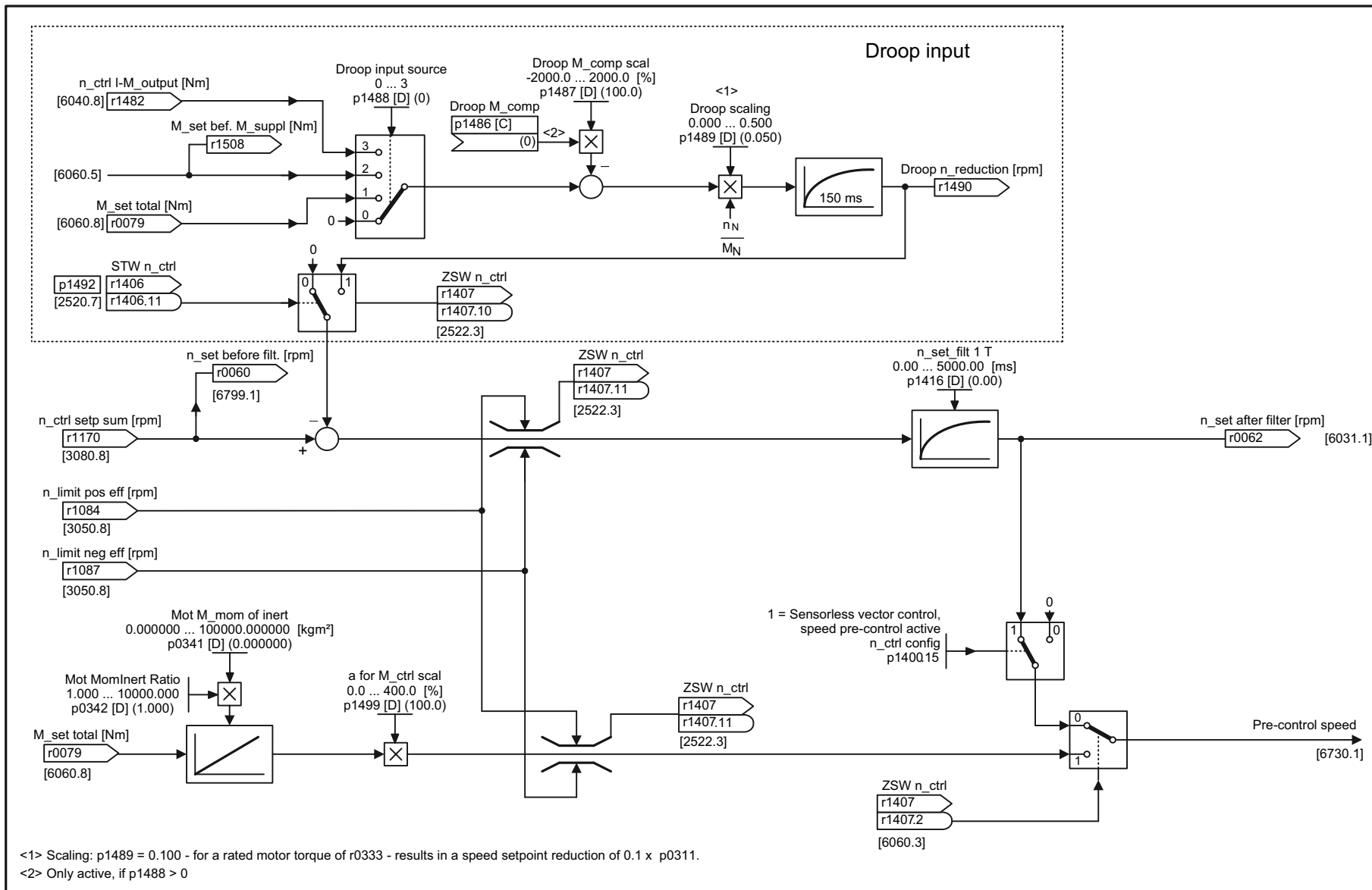
Fig. 2-84

6320 – Vdc\_max controller and Vdc\_min controller (V/f control, PM230/PM240)

## 2.12 Vector control

### Function diagrams

6030 – Speed setpoint, droop	2-598
6031 – Pre-control balancing, acceleration model	2-599
6040 – Speed controller	2-600
6050 – Kp_n-/Tn_n adaptation	2-601
6060 – Torque setpoint	2-602
6220 – Vdc_max controller and Vdc_min controller (vector control, PM230/PM240)	2-603
6490 – Speed control configuration	2-604
6491 – Flux control configuration	2-605
6630 – Upper/lower torque limit	2-606
6640 – Current/power/torque limits	2-607
6710 – Current setpoint filter	2-608
6714 – Iq and Id controller	2-609
6721 – Id setpoint (PEM, p0300 = 2xx)	2-610
6722 – Field weakening characteristic, Id setpoint (ASM, p0300 = 1)	2-611
6723 – Field weakening controller, flux controller (ASM, p0300 = 1)	2-612
6724 – Field weakening controller (PEM, p0300 = 2xx)	2-613
6730 – Interface to the Power Module (ASM, p0300 = 1)	2-614
6731 – Interface to the Power Module (PEM, p0300 = 2xx)	2-615
6799 – Display signals	2-616



1	2	3	4	5	6	7	8
Vector control					fp_6030_97_02.vsd	Function diagram	
Speed setpoint, droop					20.12.2011 V4.5	G120 CU240B/E-2	
					- 6030 -		

Fig. 2-85 6030 – Speed setpoint, droop

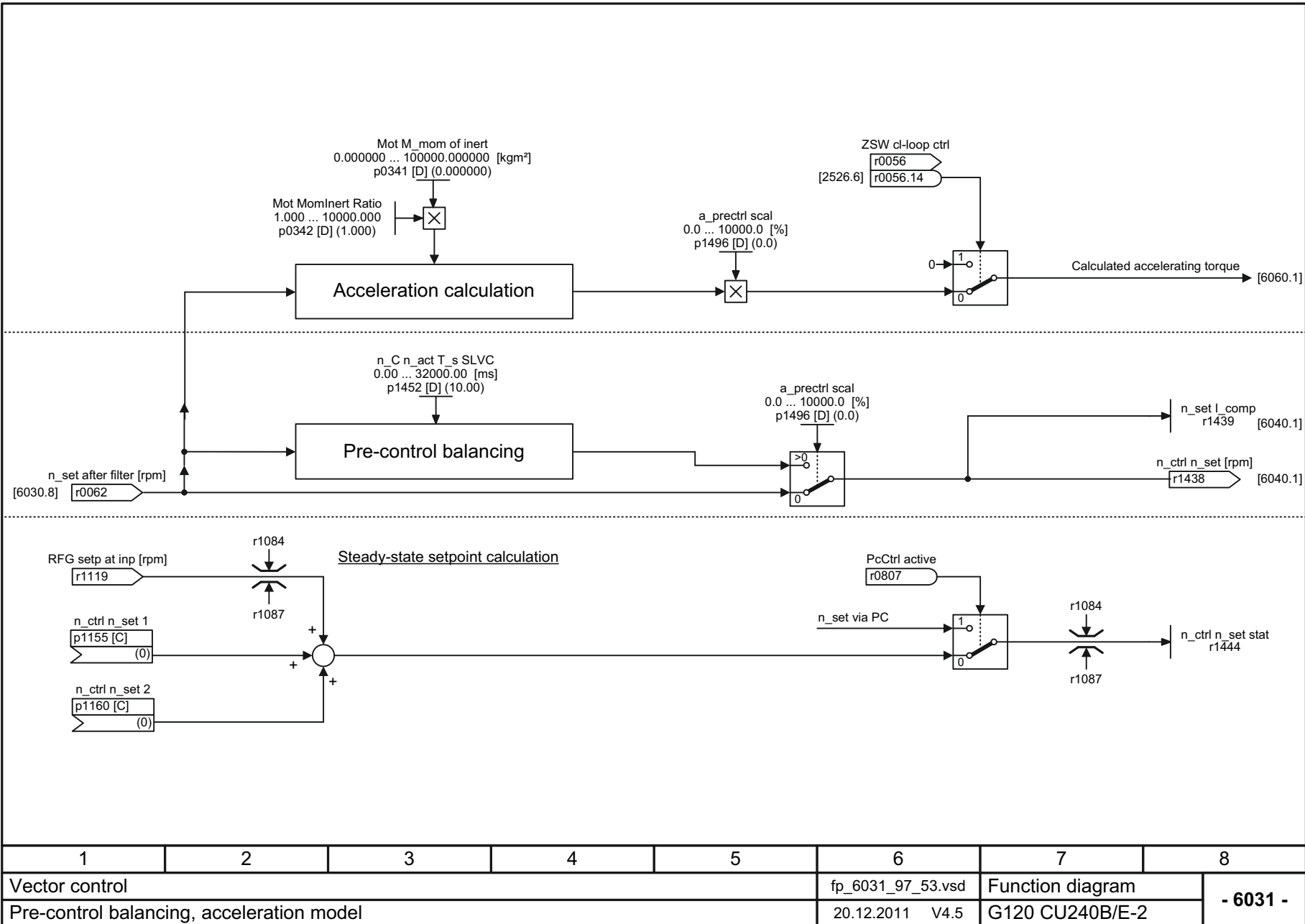
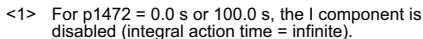


Fig. 2-86 6031 – Pre-control balancing, acceleration model

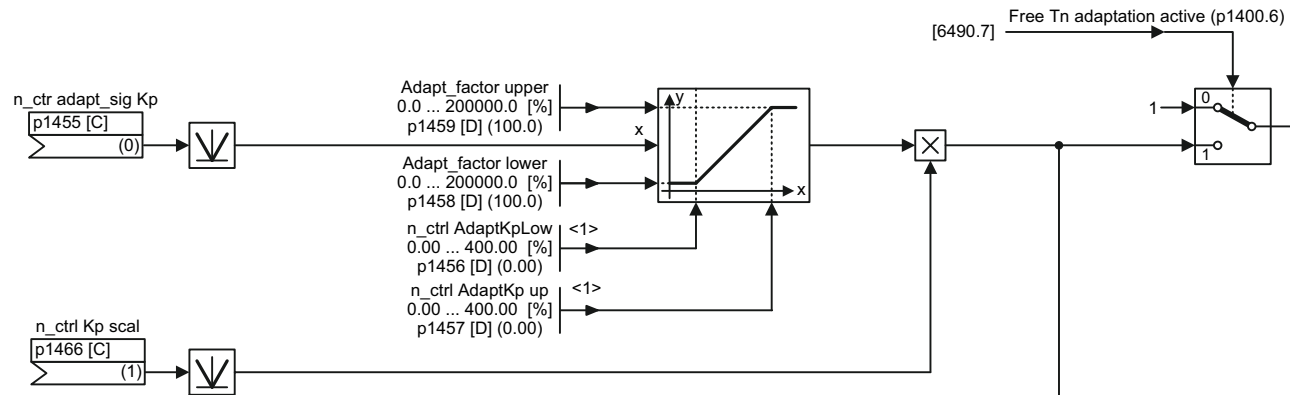


## 6040 – Speed controller

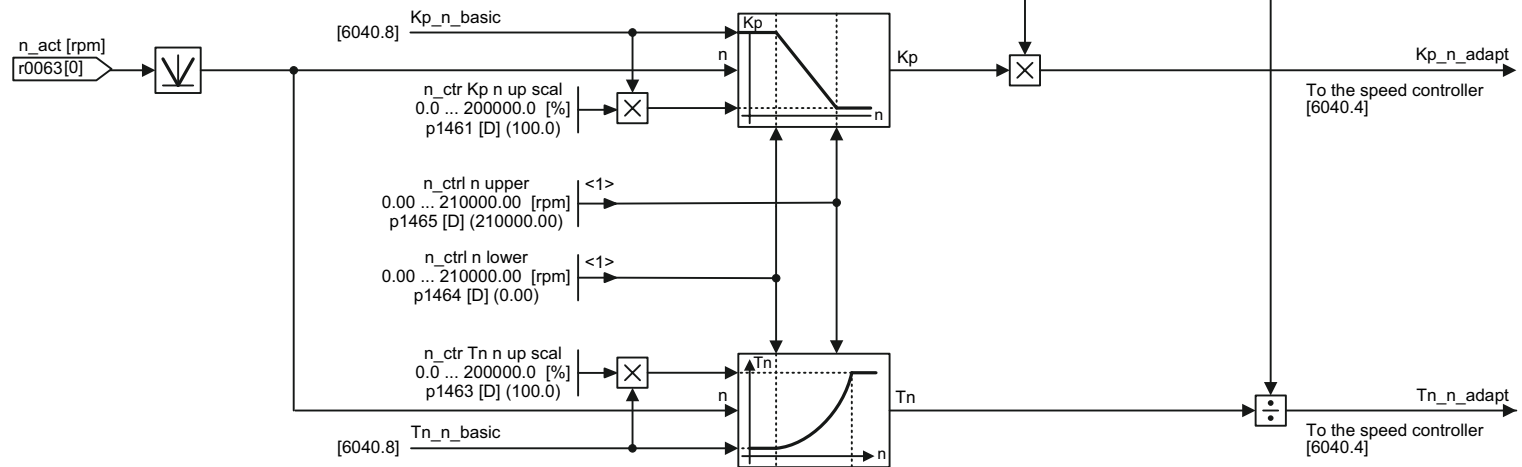
1	2	3	4	5	6	7	8	
Vector control					fp_6040_97_02.vsd	Function diagram		- 6040 -
Speed controller					20.12.2011 V4.5	G120 CU240B/E-2		



## Free Kp\_n adaptation



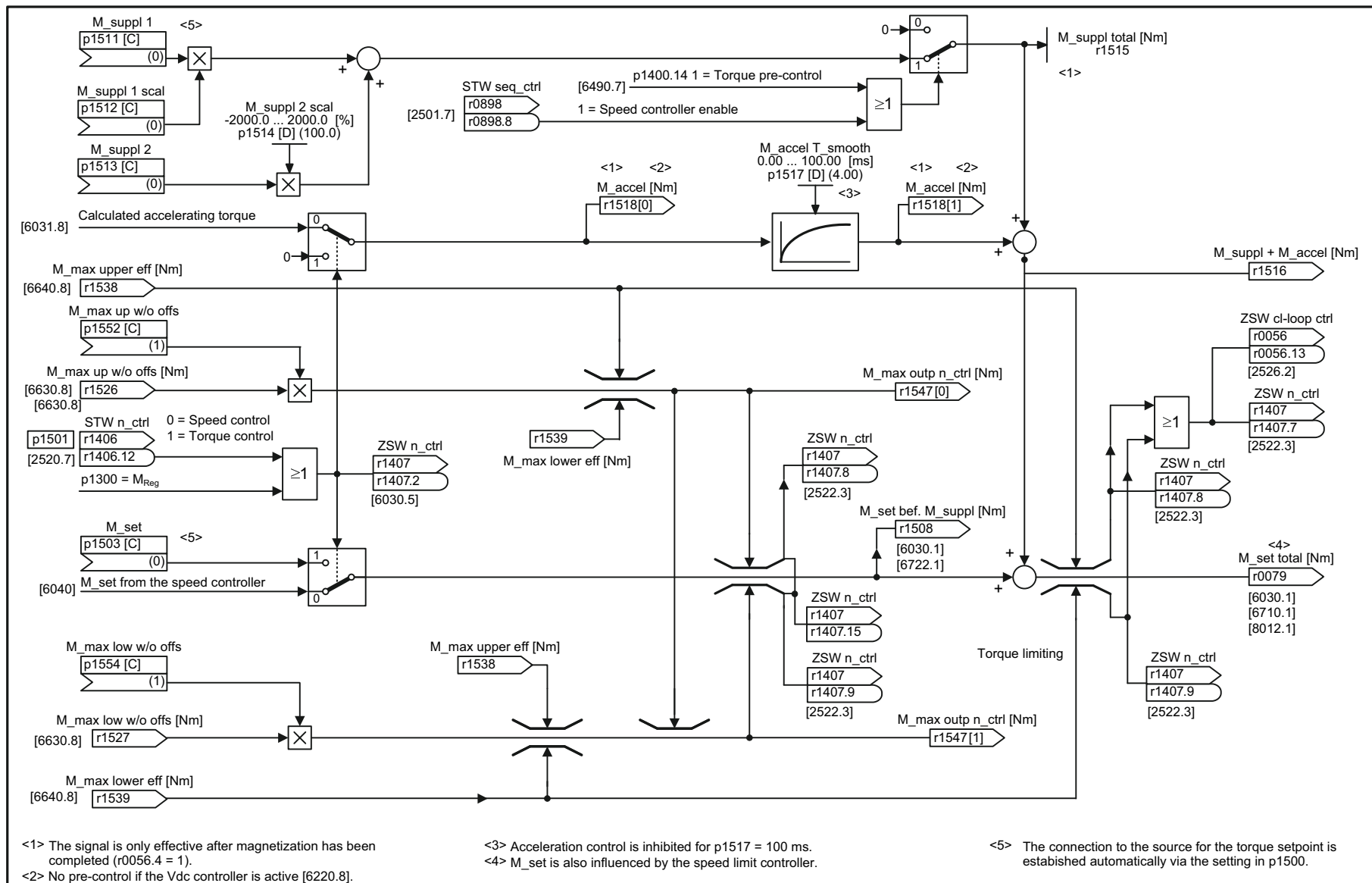
## Speed-dependent Kp\_n/Tn\_n adaptation



<1> If the lower transition point exceeds the upper transition point, the Kp-adaptation also changes over.

1	2	3	4	5	6	7	8
Vector control					fp_6050_97_53.vsd	Function diagram	
Kp_n/Tn_n adaption					20.12.2011 V4.5	G120 CU240B/E-2	
							- 6050 -

Fig. 2-88 6050 – Kp\_n-/Tn\_n adaptation



1	2	3	4	5	6	7	8
Vector control					fp_6060_97_53.vsd	Function diagram	
Torque setpoint					20.12.2011 V4.5	G120 CU240B/E-2	
							- 6060 -

Fig. 2-89 6060 – Torque setpoint

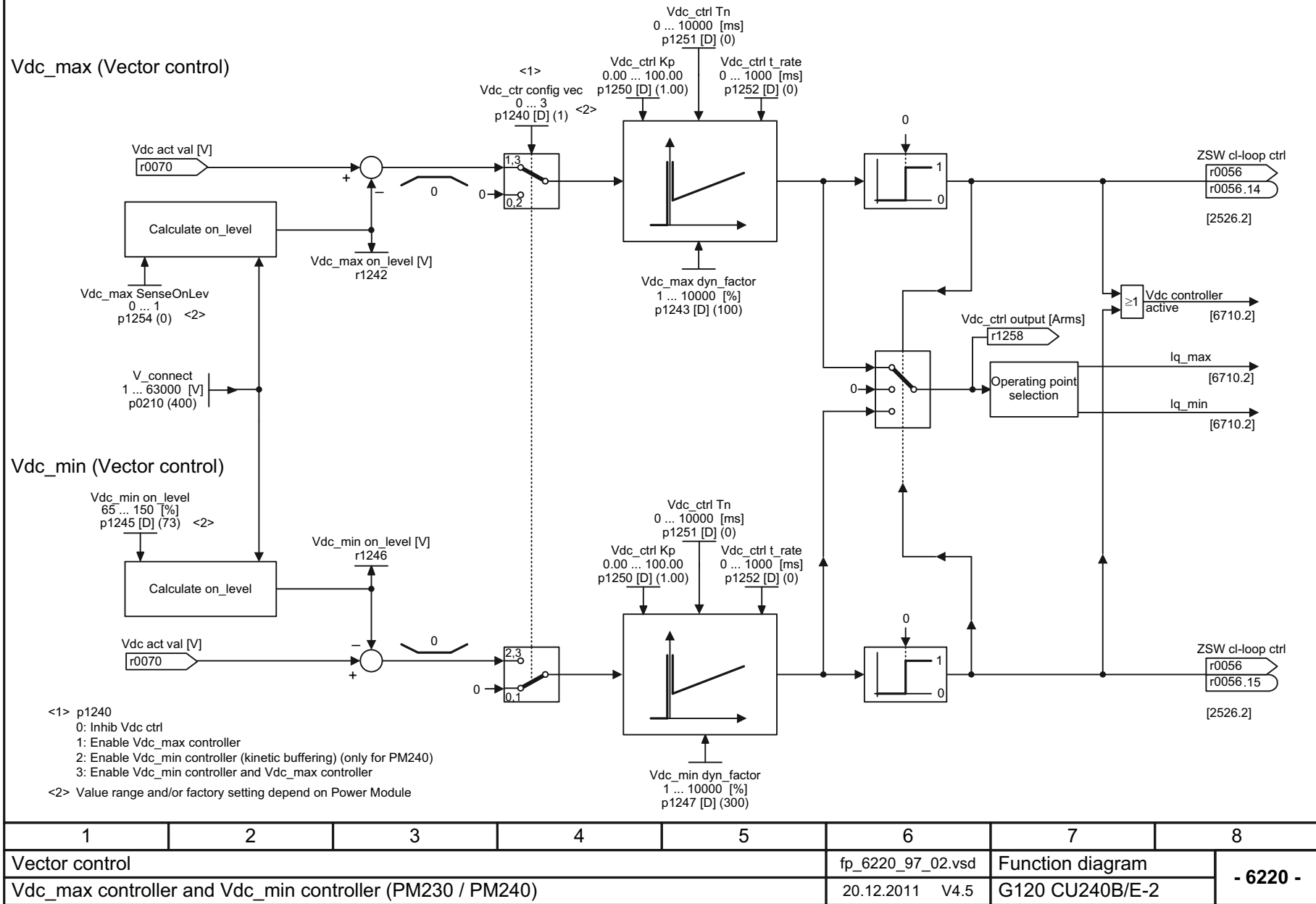


Fig. 2-90 6220 – Vdc\_max controller and Vdc\_min controller (vector control, PM230/PM240)

Speed control configuration							
n_reg Konfig p1400[D]				Factory setting			
Bit No.	Meaning						
00	1 = Automatic Kp/Tn adaptation active	1	→	[6040.3]			
01	1 = Sensorless vector control, freeze I component	0	→	[6040.3]			
02	Reserved						
03	Reserved						
04	Reserved						
05	1 = Kp/Tn adaptation active	1	→	[6040.3]			
06	1 = Free Tn adaptation active	0	→	[6050.6]			
07	Reserved						
08	Reserved						
09	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]			
1	2	3	4	5	6	7	8
Vector control					fp_6490_97_53.vsd	Function diagram	- 6490 -
Speed control configuration					20.12.2011 V4.5	G120 CU240B/E-2	

Fig. 2-91 6490 – Speed control configuration

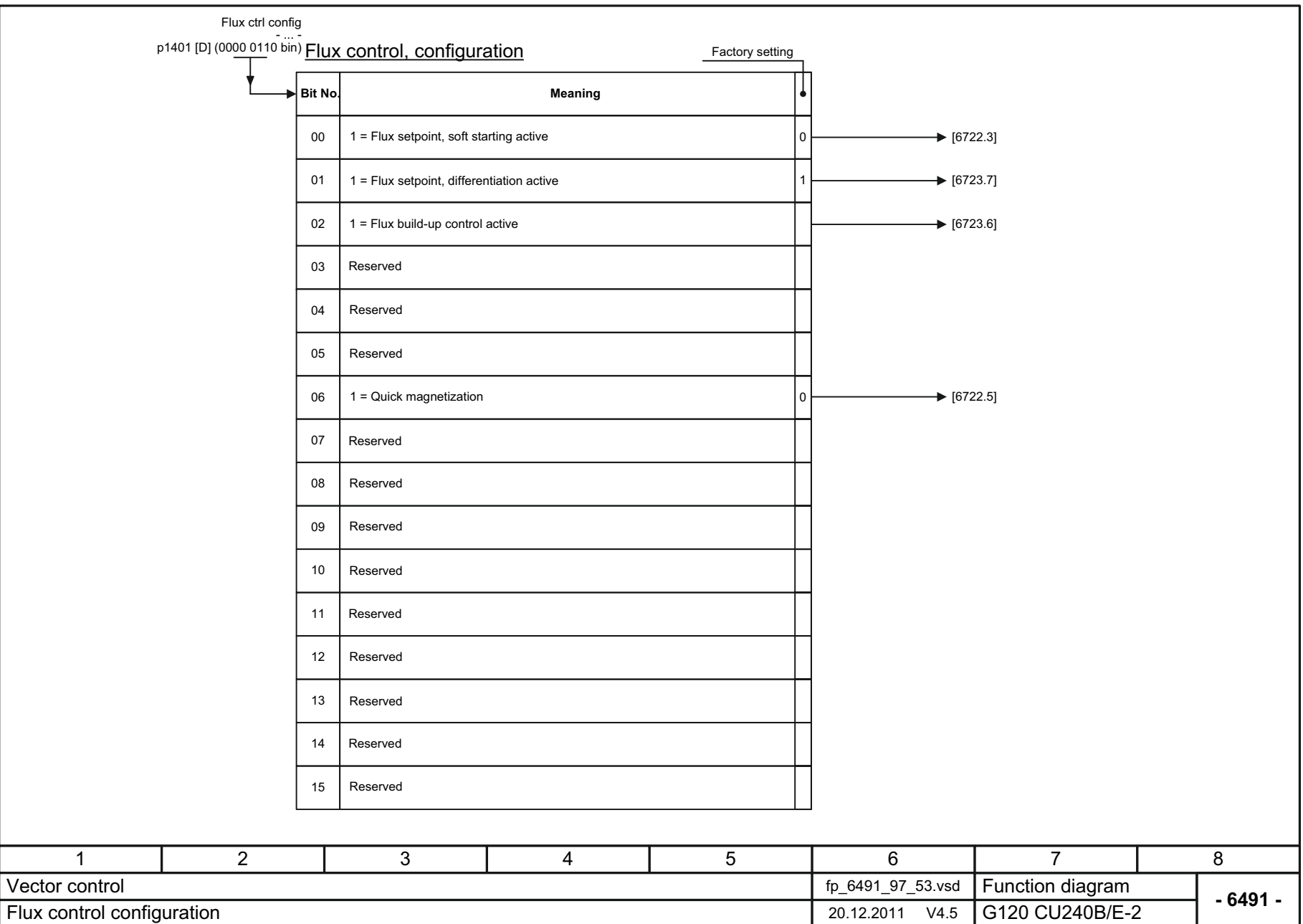


Fig. 2-92 6491 – Flux control configuration

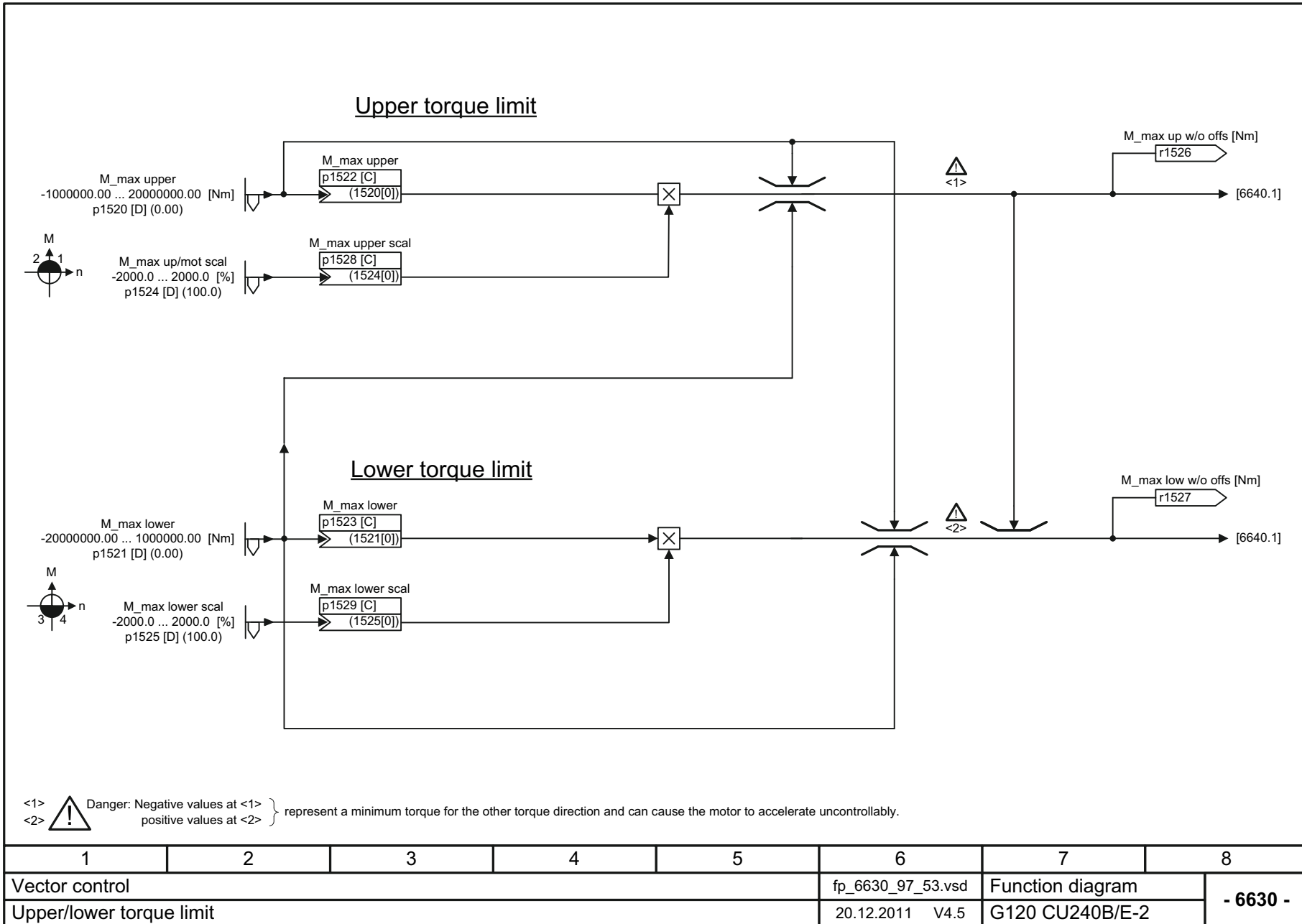
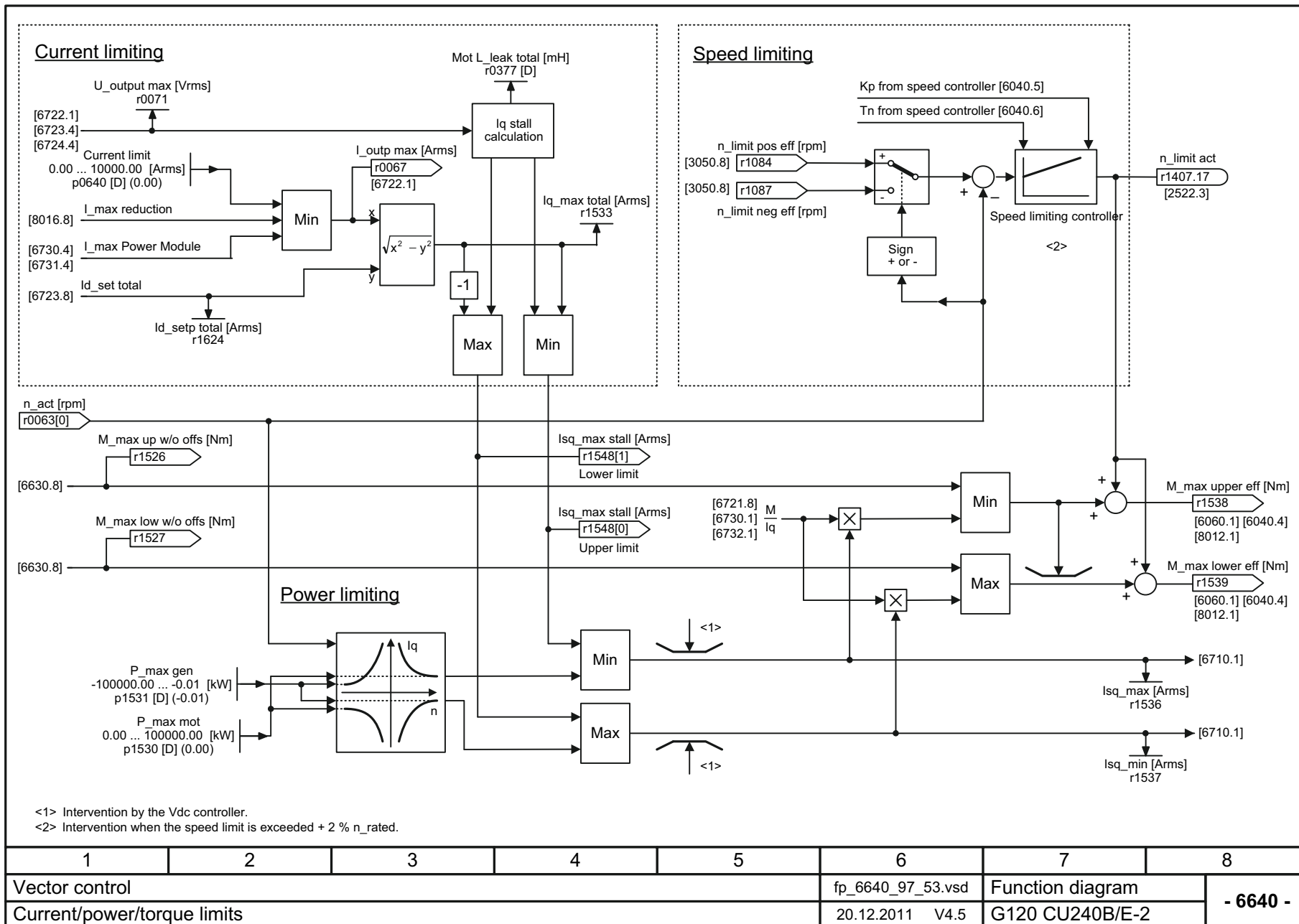


Fig. 2-93 6630 – Upper/lower torque limit

1	2	3	4	5	6	7	8
Vector control					fp_6630_97_53.vsd	Function diagram	- 6630 -
Upper/lower torque limit					20.12.2011 V4.5	G120 CU240B/E-2	



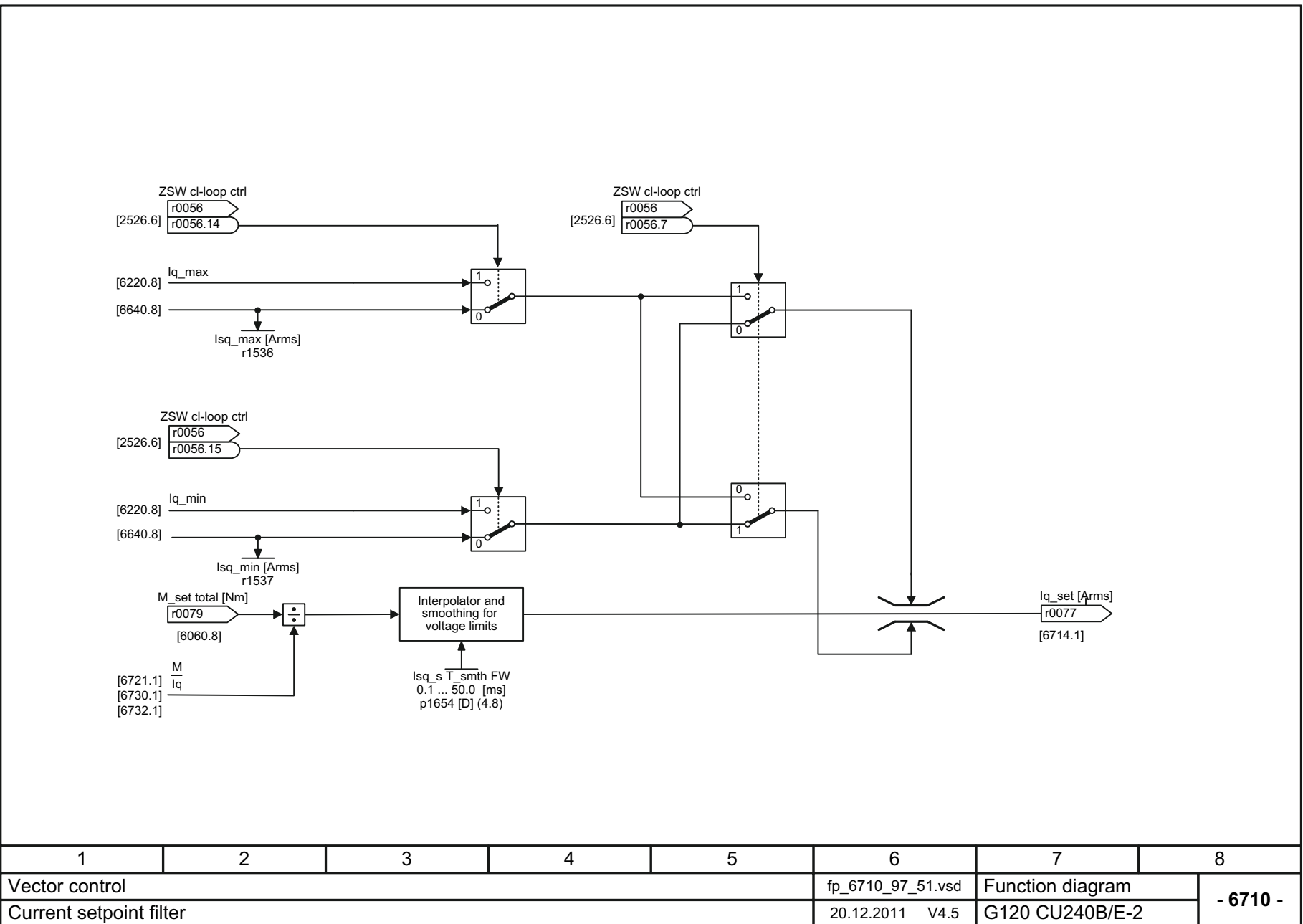
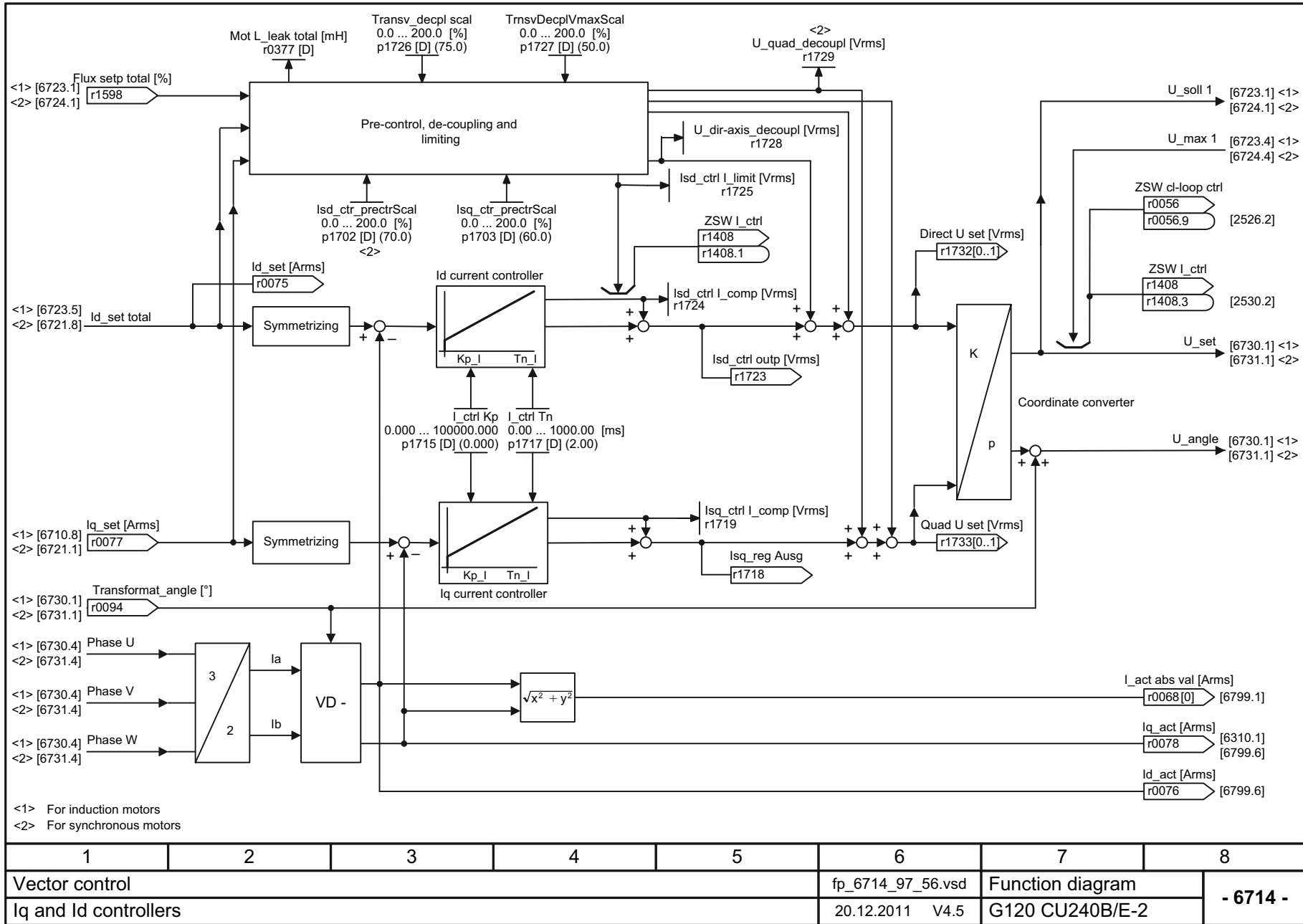
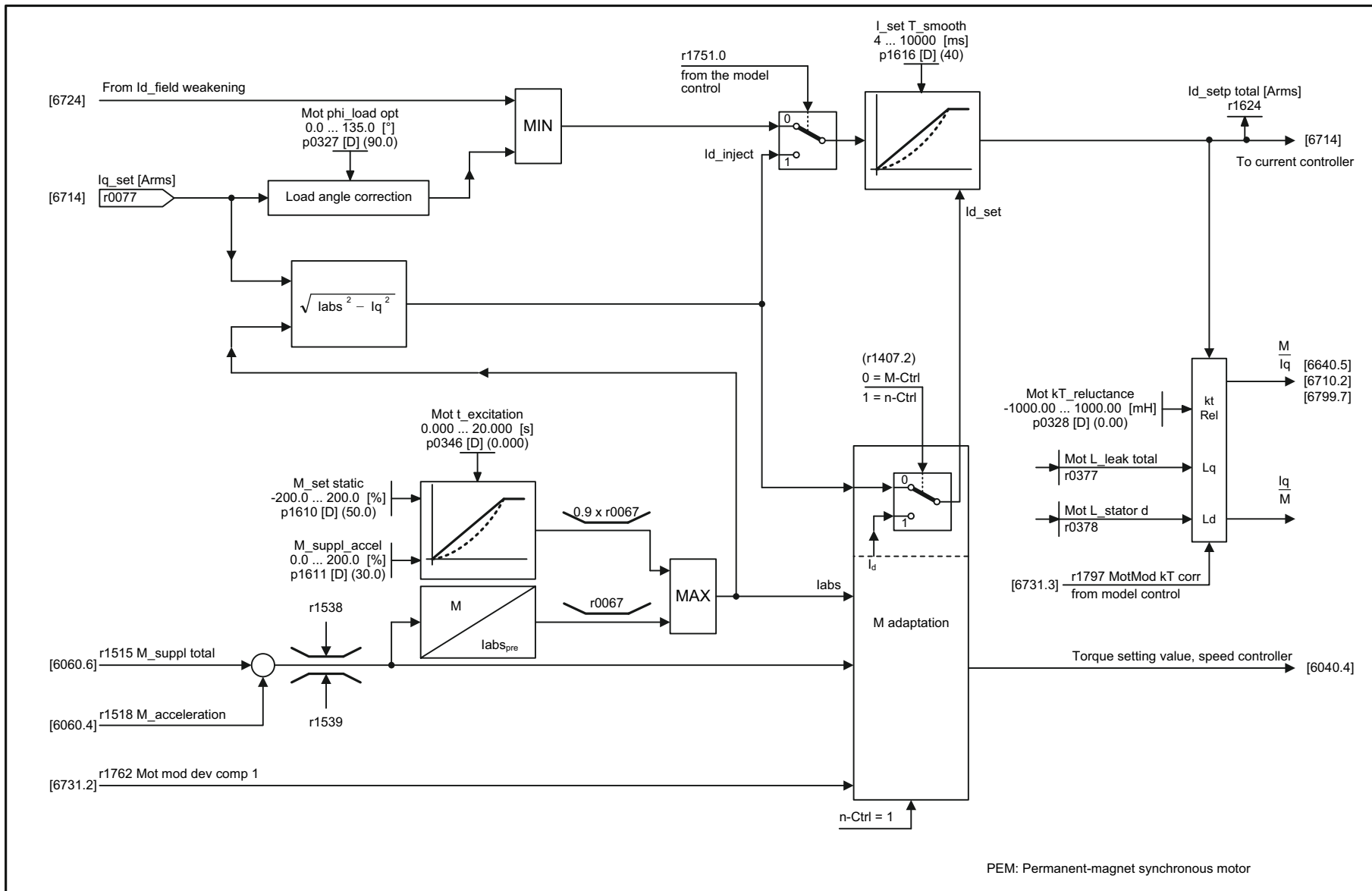


Fig. 2-95 6710 – Current setpoint filter



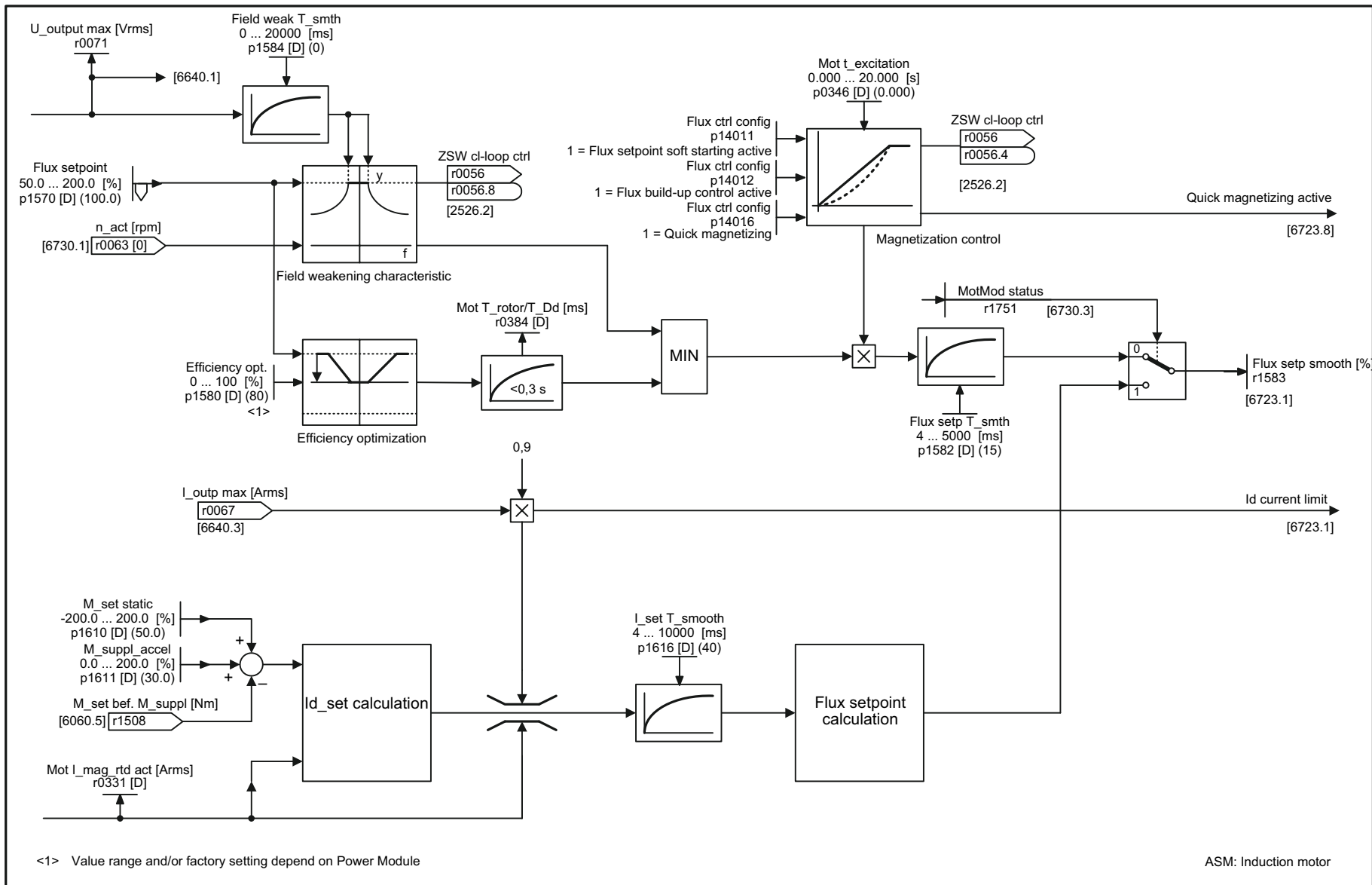




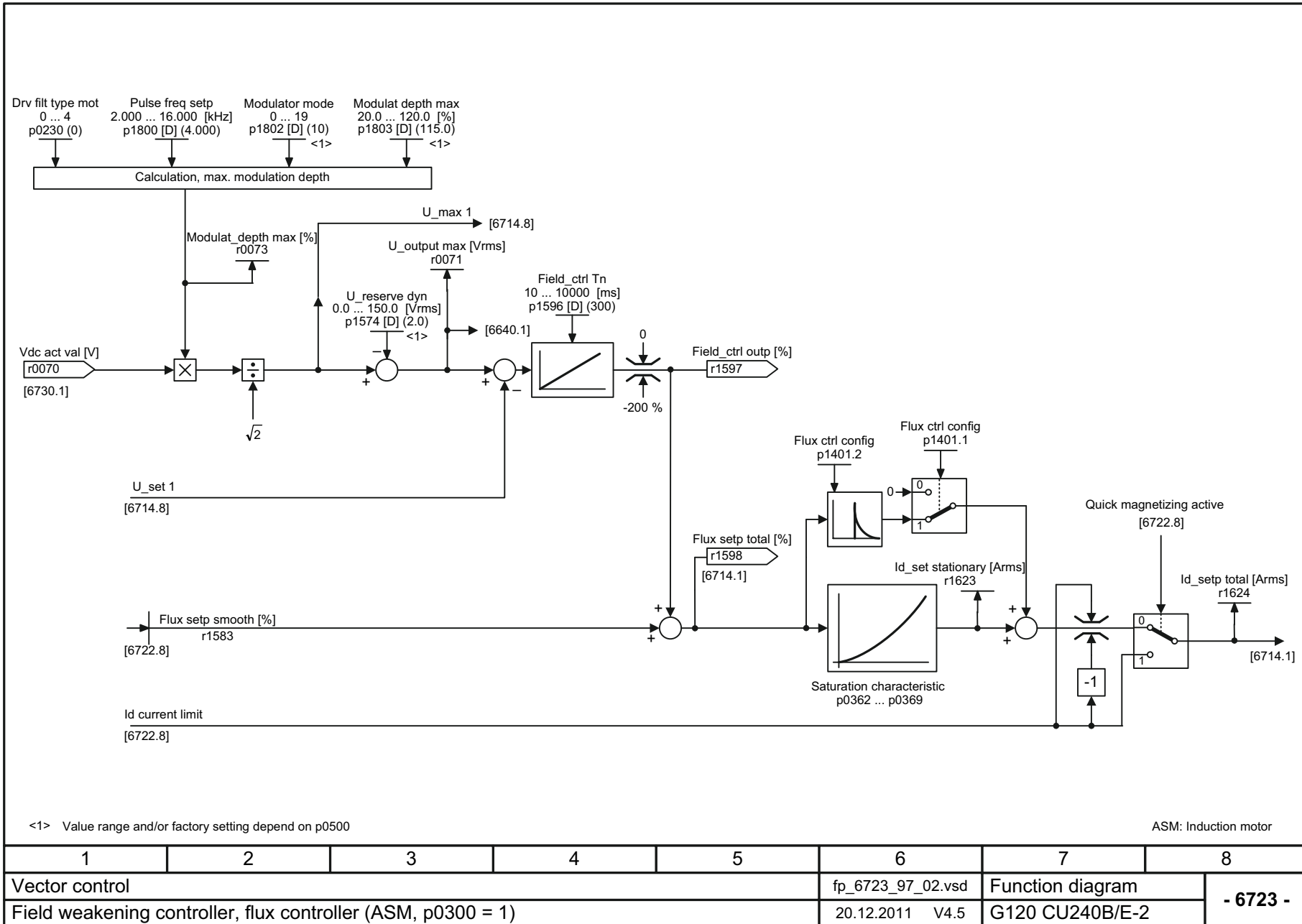
1	2	3	4	5	6	7	8
Vector control					fp_6721_97_53.vsd	Function diagram	
Id setpoint (PEM, p0300 = 2xx)					20.12.2011 V4.5	G120 CU240B/E-2	

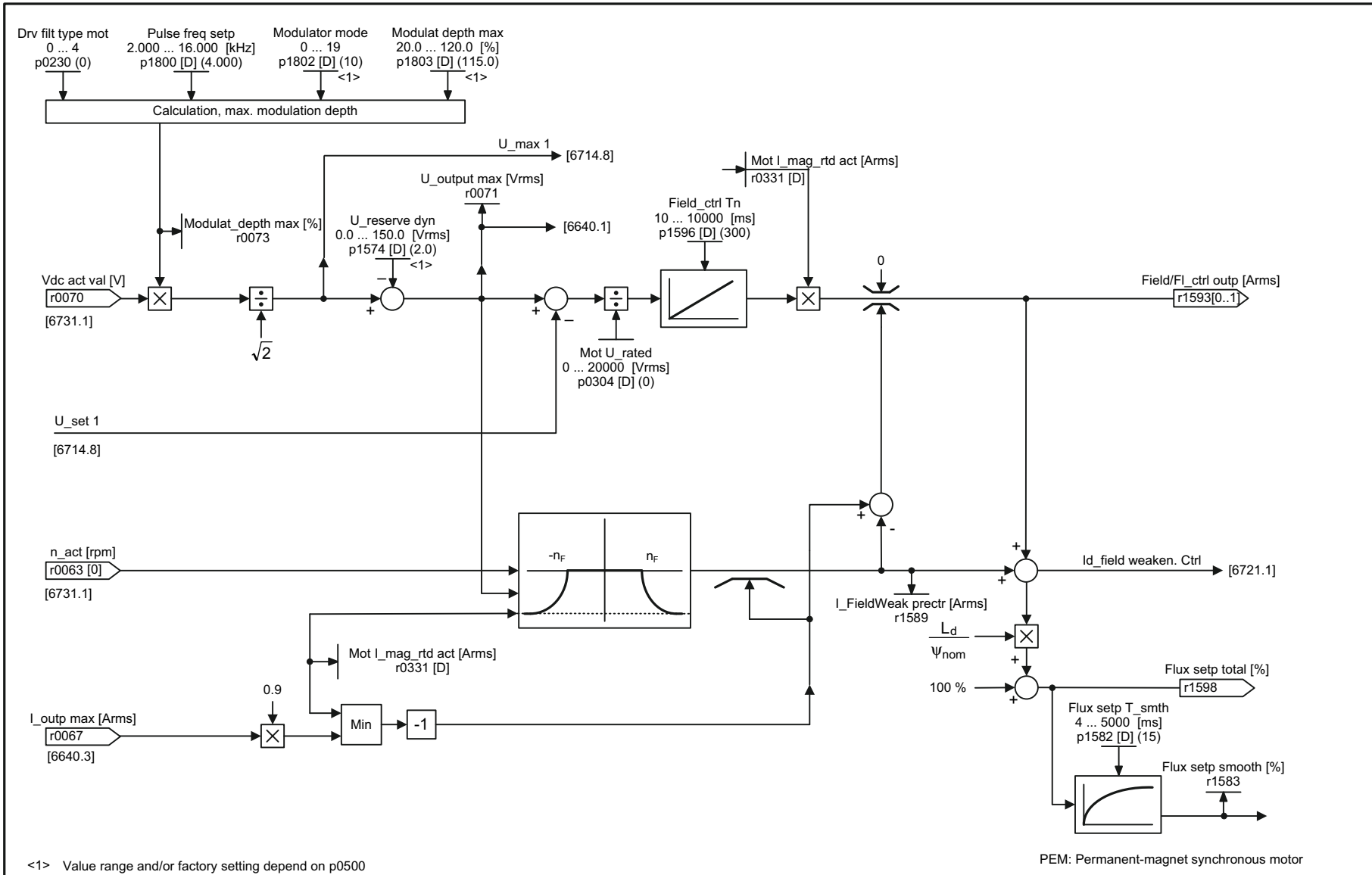
- 6721 -

Fig. 2-97 6721 – Id setpoint (PEM, p0300 = 2xx)



1	2	3	4	5	6	7	8
Vector control					fp_6722_97_02.vsd	Function diagram	- 6722 -
Field weakening characteristic, Id setpoint (ASM, p0300 = 1)					20.12.2011 V4.5	G120 CU240B/E-2	





1	2	3	4	5	6	7	8
Vector control					fp_6724_97_02.vsd	Function diagram	
Field weakening controller (PEM, p0300 = 2xx)					20.12.2011 V4.5	G120 CU240B/E-2	

- 6724 -

Fig. 2-100 6724 – Field weakening controller (PEM, p0300 = 2xx)

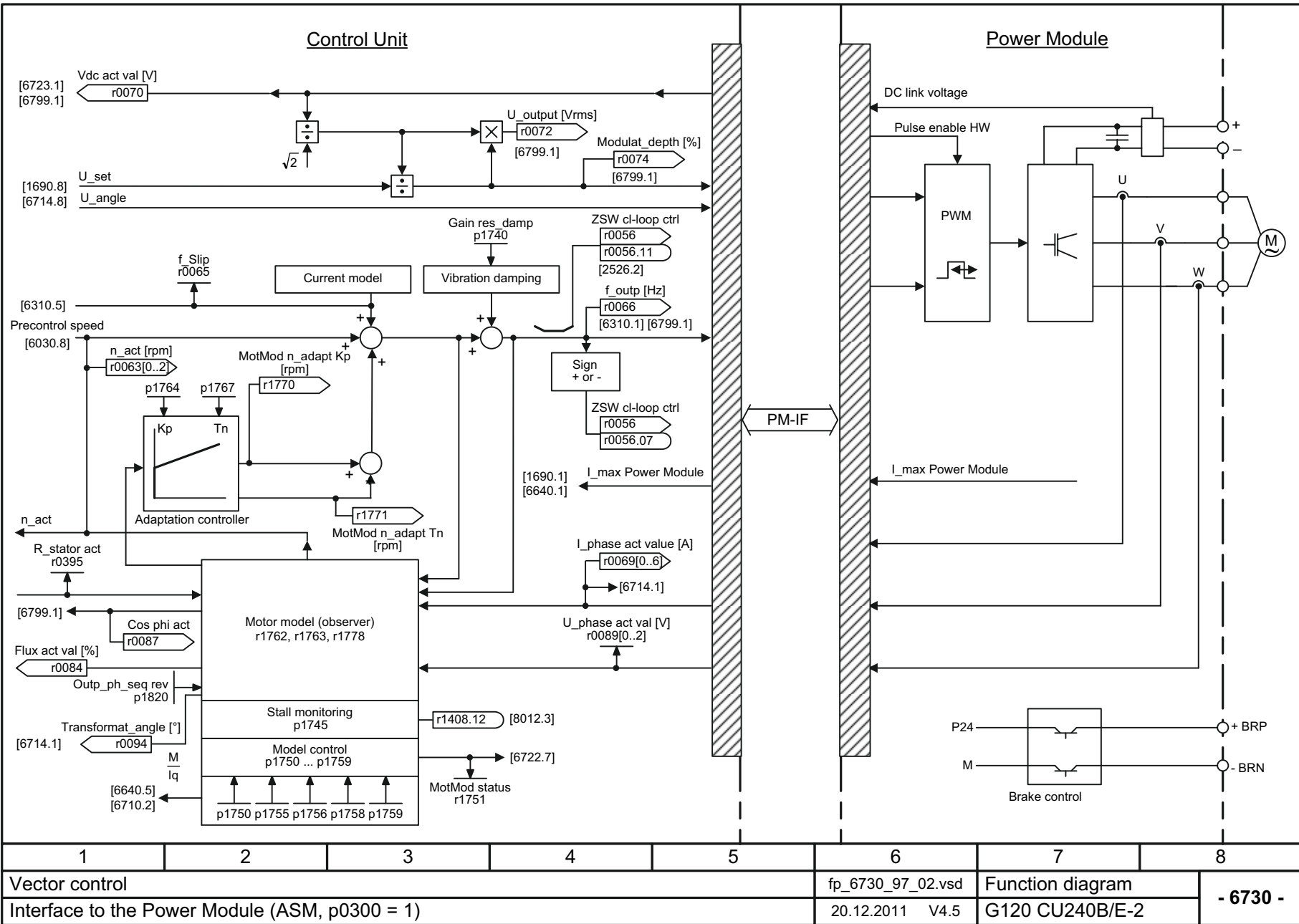
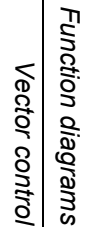


Fig. 2-101

Fig. 2-102



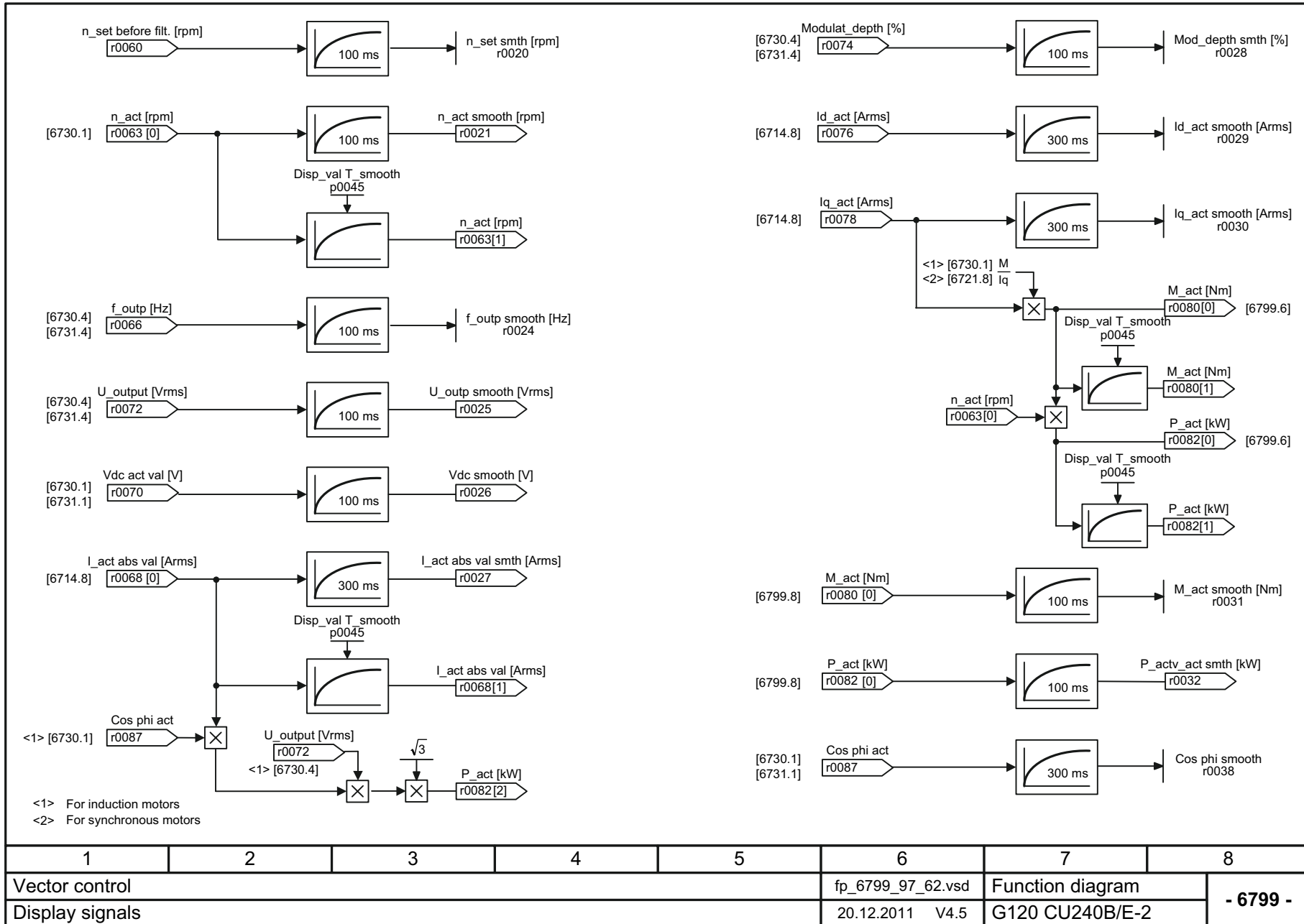


Fig. 2-103 6799 – Display signals



## 2.13 Free function blocks

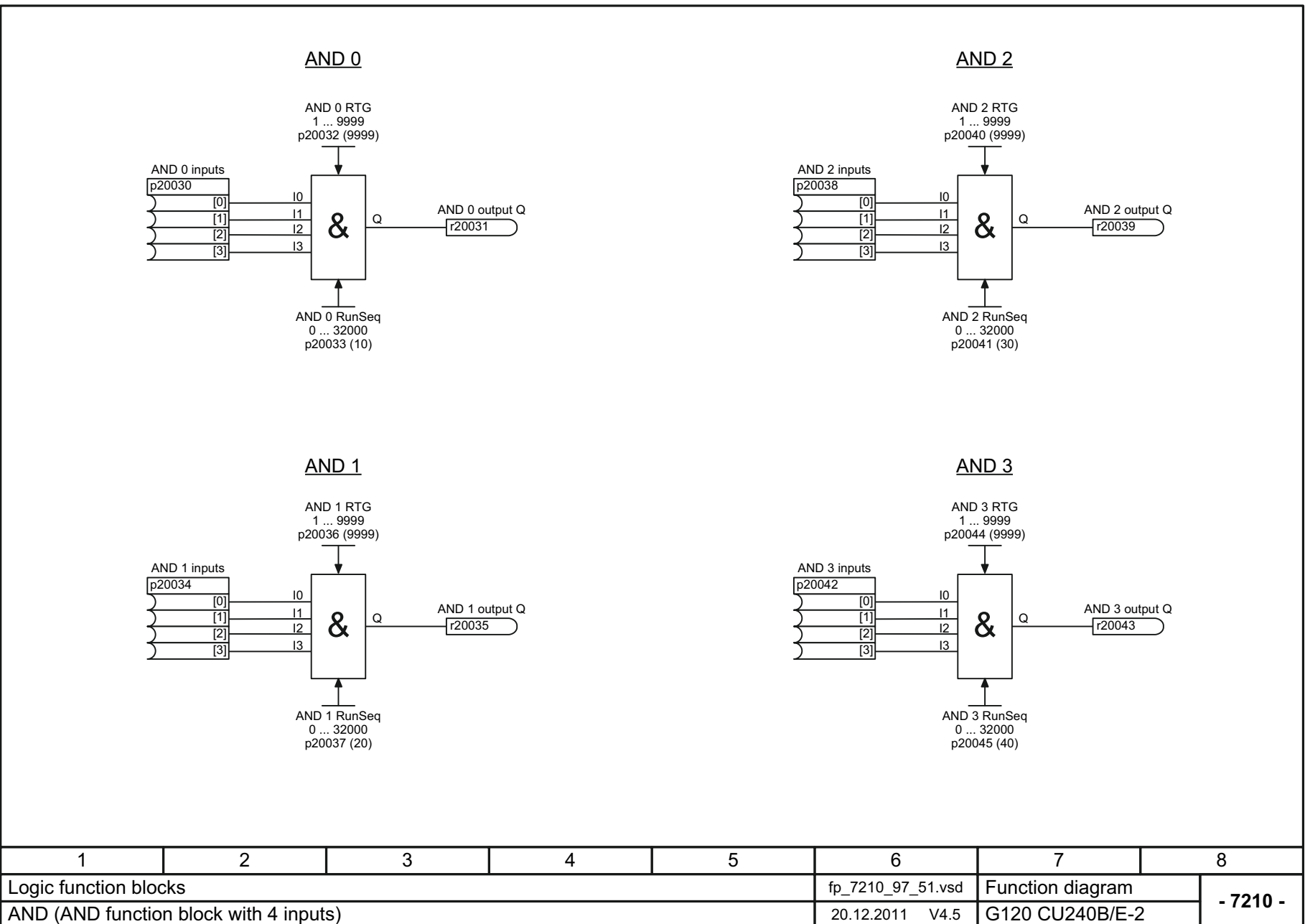
### Function diagrams

7200 – Run-time groups / sampling times	2-618
7210 – AND (AND function block with 4 inputs)	2-619
7212 – OR (OR function block with 4 inputs)	2-620
7214 – XOR (XOR function block with 4 inputs)	2-621
7216 – NOT (inverter)	2-622
7220 – ADD (adder with 4 inputs), SUB (subtractor)	2-623
7222 – MUL (multiplier), DIV (divider)	2-624
7224 – AVA (absolute value generator)	2-625
7225 – NCM (numeric comparator)	2-626
7226 – PLI (polyline scaling)	2-627
7230 – MFP (pulse generator), PCL (pulse contractor)	2-628
7232 – PDE (ON delay)	2-629
7233 – PDF (OFF delay)	2-630
7234 – PST (pulse stretcher)	2-631
7240 – RSR (RS flip-flop), DFR (D flip-flop)	2-632
7250 – BSW (binary change-over switch), NSW (numeric change-over switch)	2-633
7260 – LIM (limiter)	2-634
7262 – PT1 (smoothing element)	2-635
7264 – INT (integrator), DIF (derivative-action element)	2-636
7270 – LVM (double-sided limit monitor with hysteresis)	2-637

	Run-time group						RTG sampling time [ms] r20001[0..9]
	1	2	3	4	5	6	
	r20001[1] = 8 ms	r20001[2] = 16 ms	r20001[3] = 32 ms	r20001[4] = 64 ms	r20001[5] = 128 ms	r20001[6] = 256 ms	
Logic function blocks AND, OR, XOR, NOT	X	X	X	X	X	X	
Arithmetic function blocks ADD, SUB, MUL, DIV, AVA, NCM, PLI	-	-	-	-	X	X	
Time function blocks MFP, PCL, PDE, PDF, PST	-	-	-	-	X	X	
Memory function blocks RSR, DSR	X	X	X	X	X	X	
Switch function block NSW	-	-	-	-	X	X	
Switch function block BSW	X	X	X	X	X	X	
Control function blocks LIM, PT1, INT, DIF	-	-	-	-	X	X	
Complex function blocks LVM	-	-	-	-	X	X	

Fig. 2-104 7200 – Run-time groups / sampling times

1	2	3	4	5	6	7	8
Free Function Blocks					fp_7200_97_51.vsd	Function diagram	- 7200 -
Run-time groups / Sampling times					20.12.2011 V4.5	G120 CU240B/E-2	



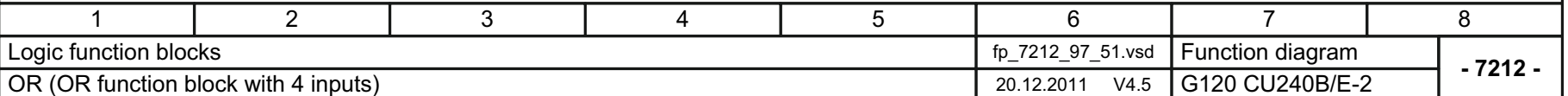


Fig. 2-106

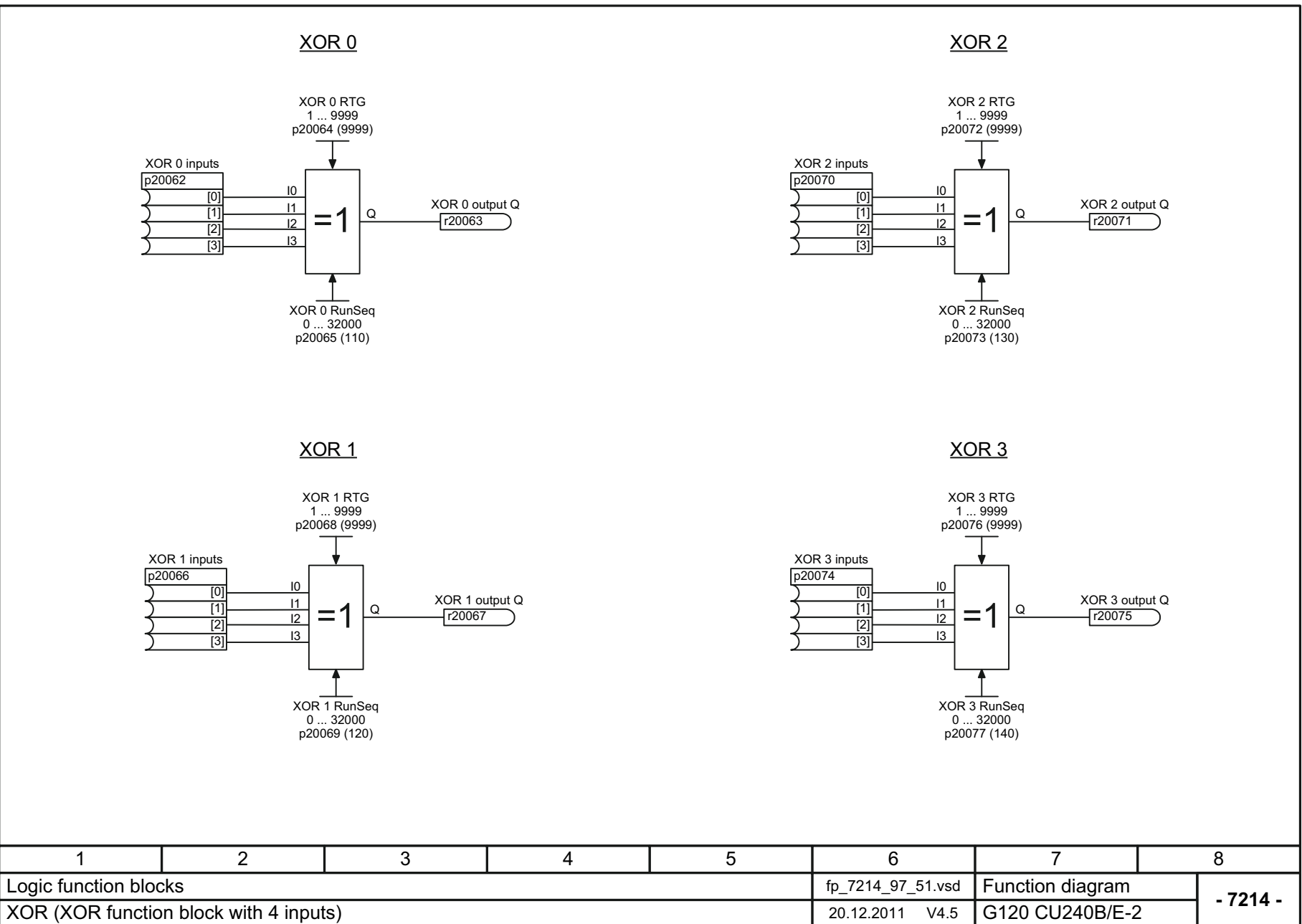


Fig. 2-107 7214 – XOR (XOR function block with 4 inputs)

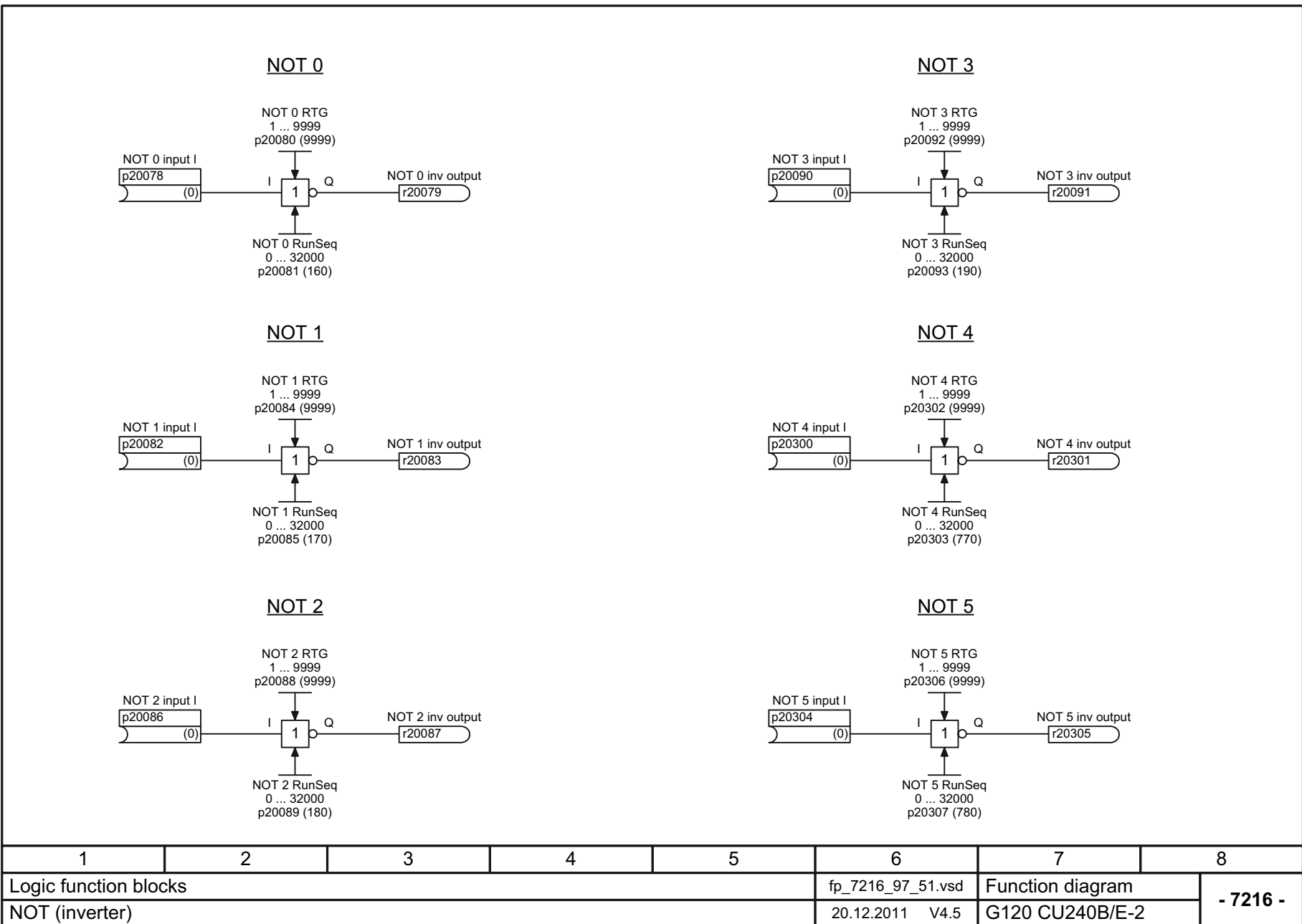


Fig. 2-108 7216 – NOT (inverter)

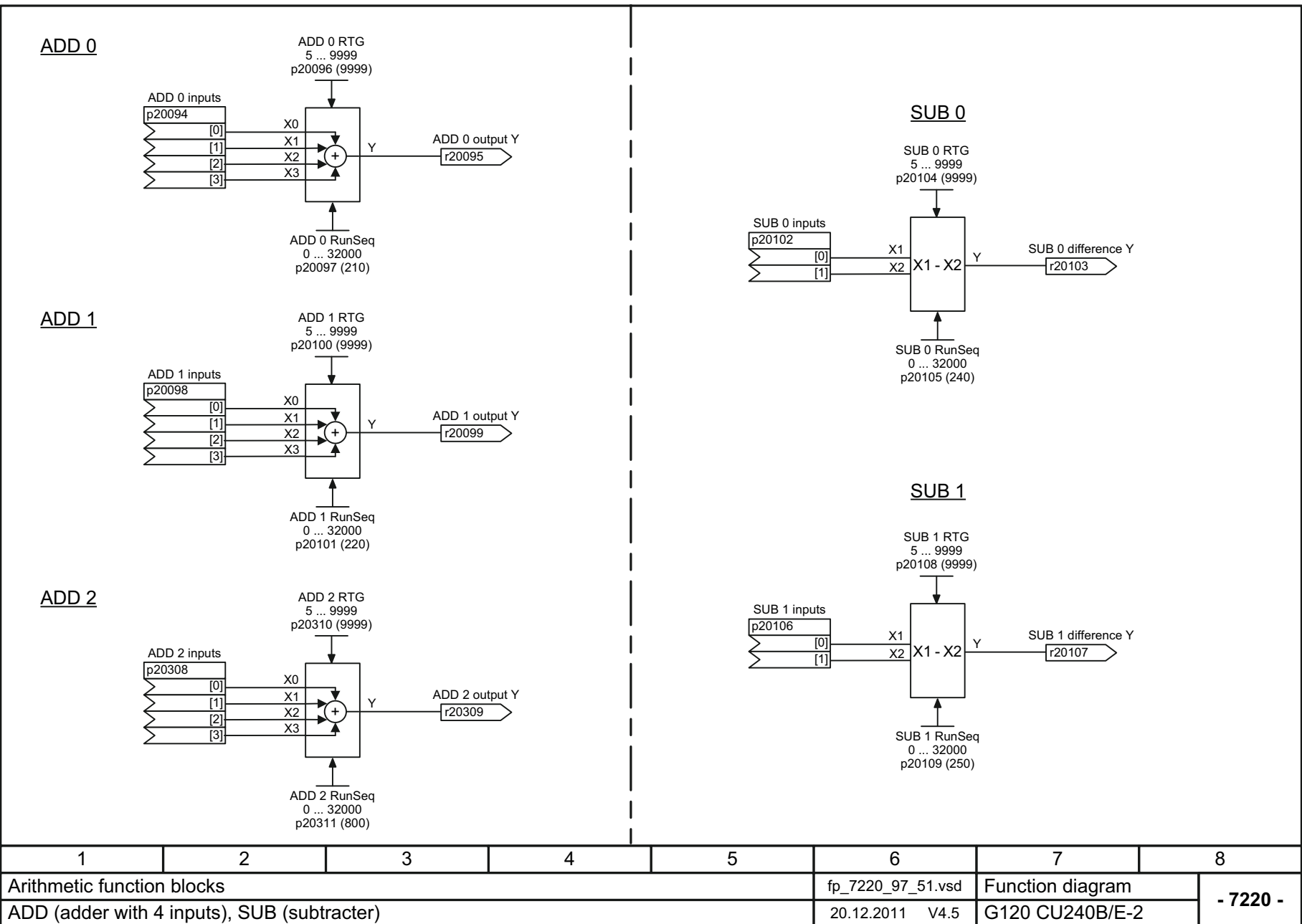


Fig. 2-109 7220 – ADD (adder with 4 inputs), SUB (subtractor)

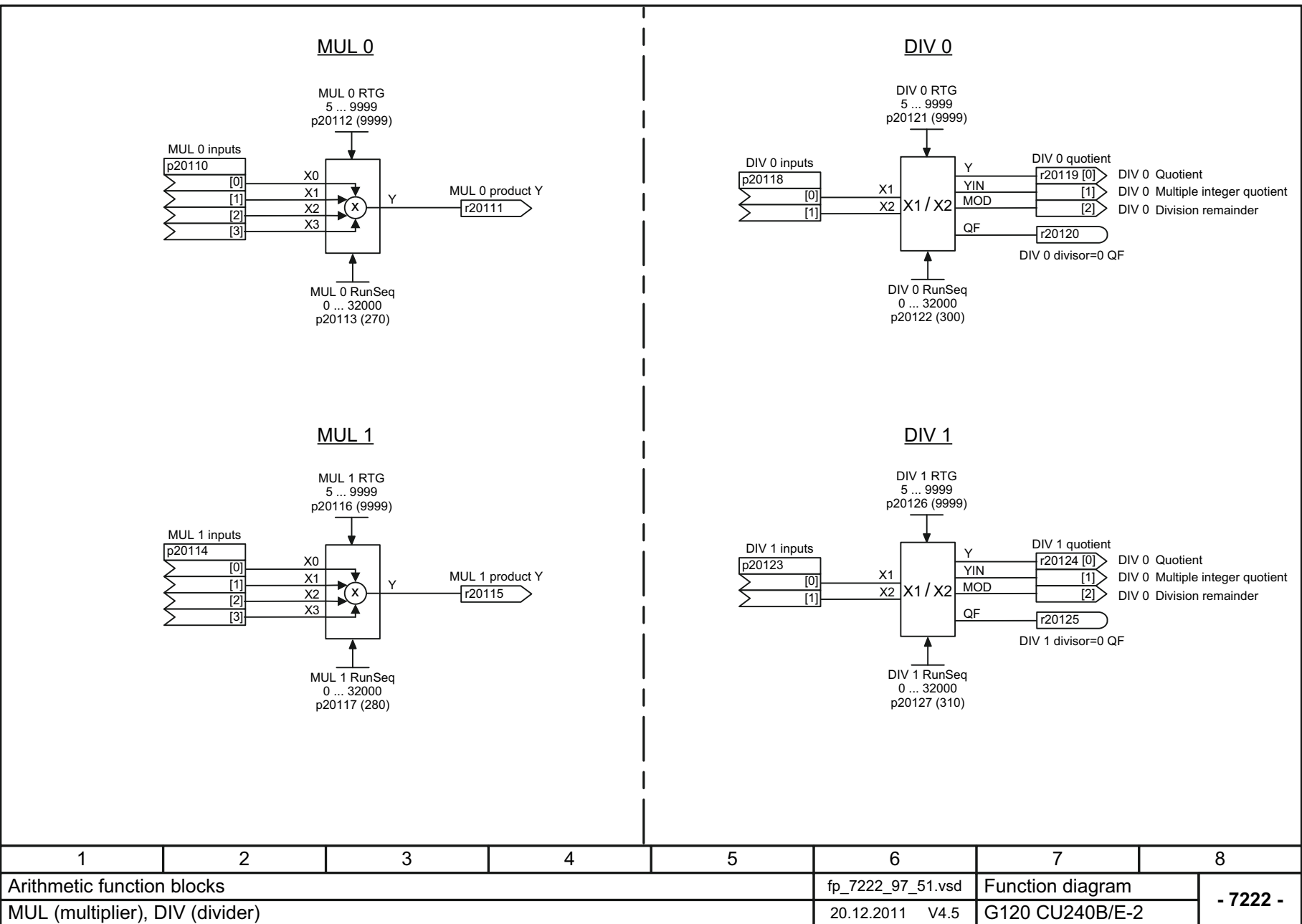


Fig. 2-110 7222 – MUL (multiplier), DIV (divider)



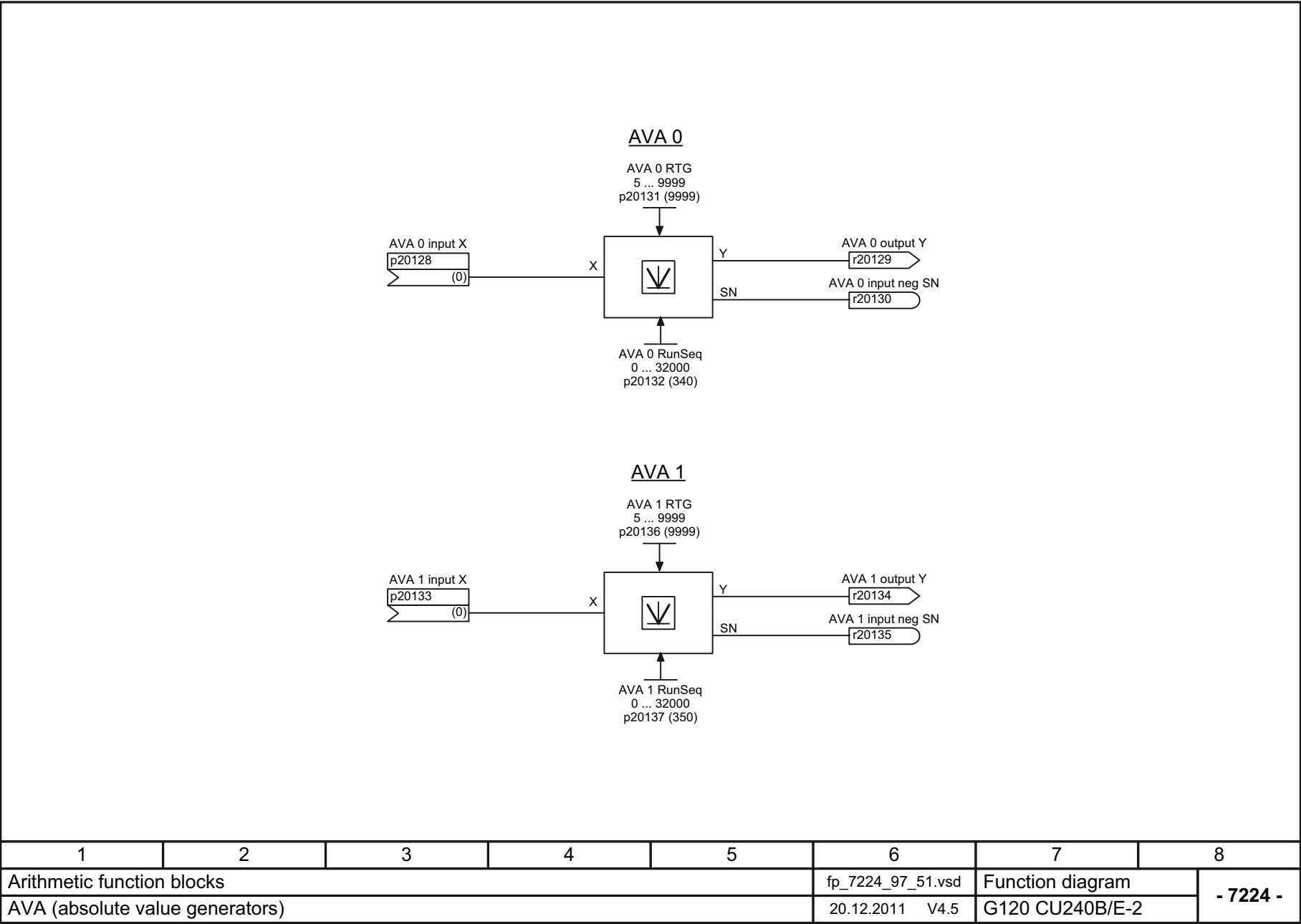
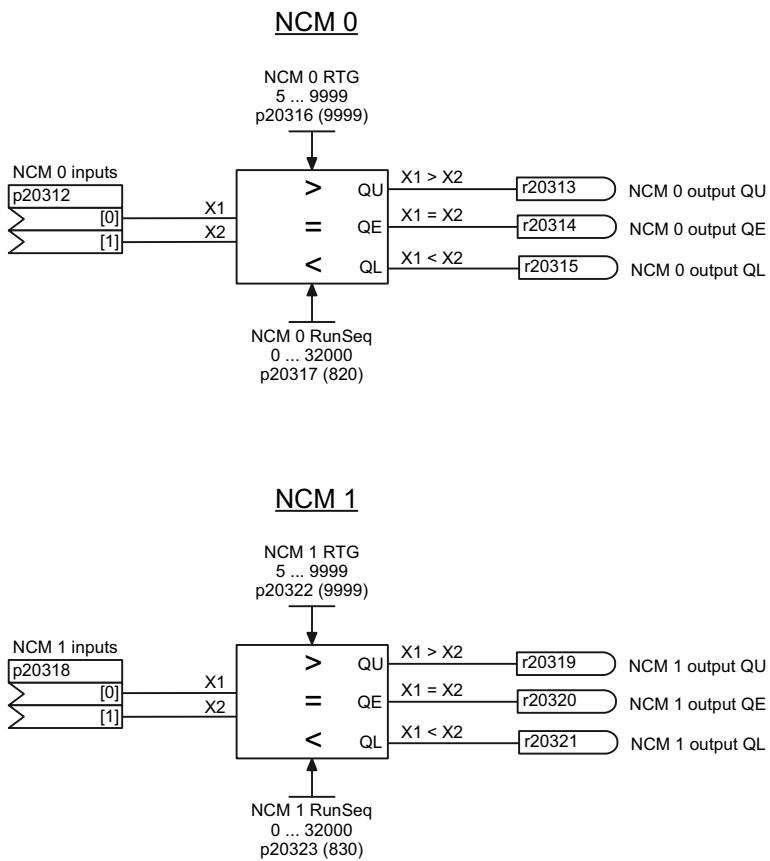


Fig. 2-111 7224 – AVA (absolute value generator)



1	2	3	4	5	6	7	8
Arithmetic function blocks					fp_7225_97_51.vsd	Function diagram	
NCM (numerical comparator)					20.12.2011 V4.5	G120 CU240B/E-2	
							- 7225 -

Fig. 2-112 7225 – NCM (numeric comparator)

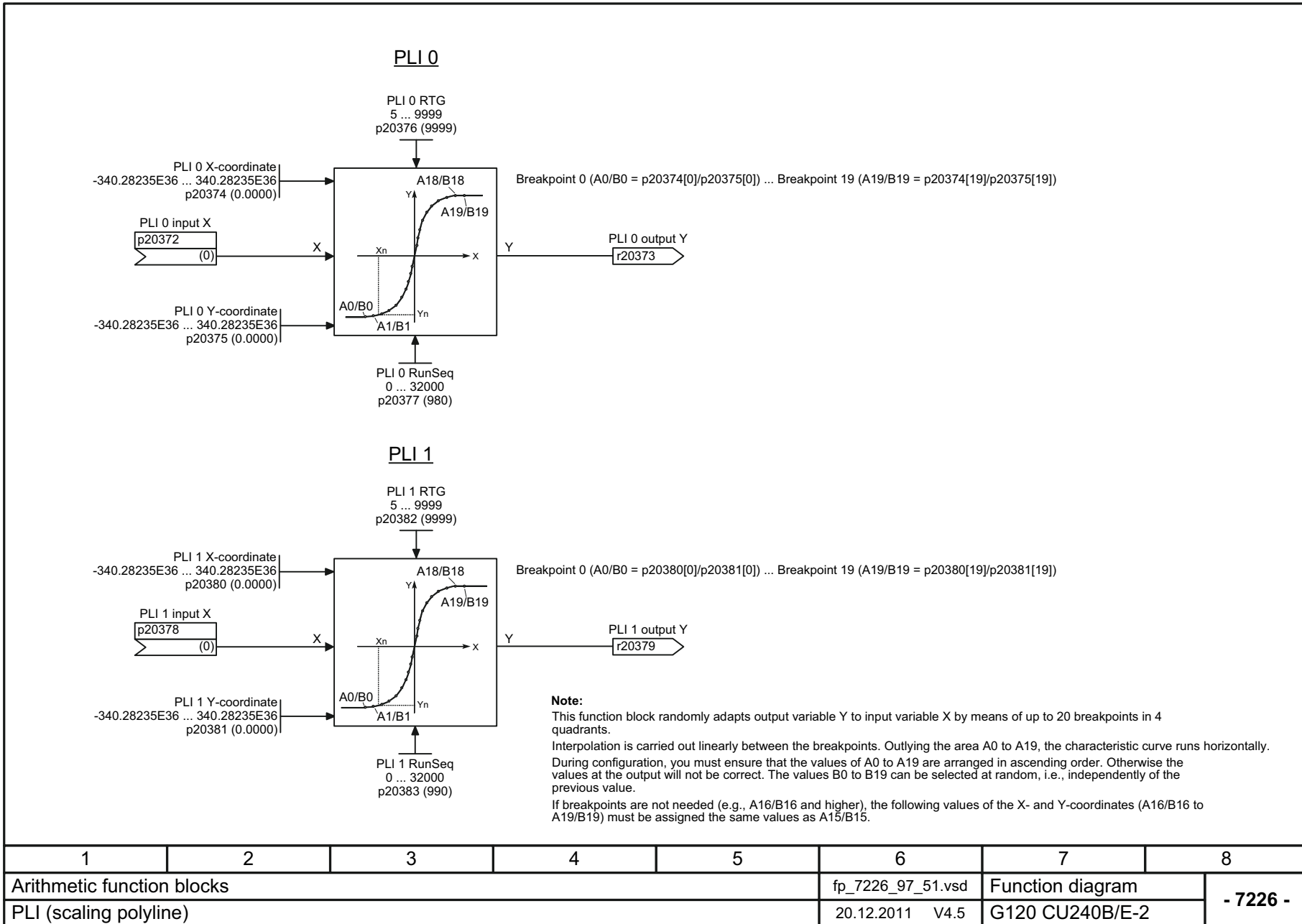


Fig. 2-113 7226 – PLI (polyline scaling)

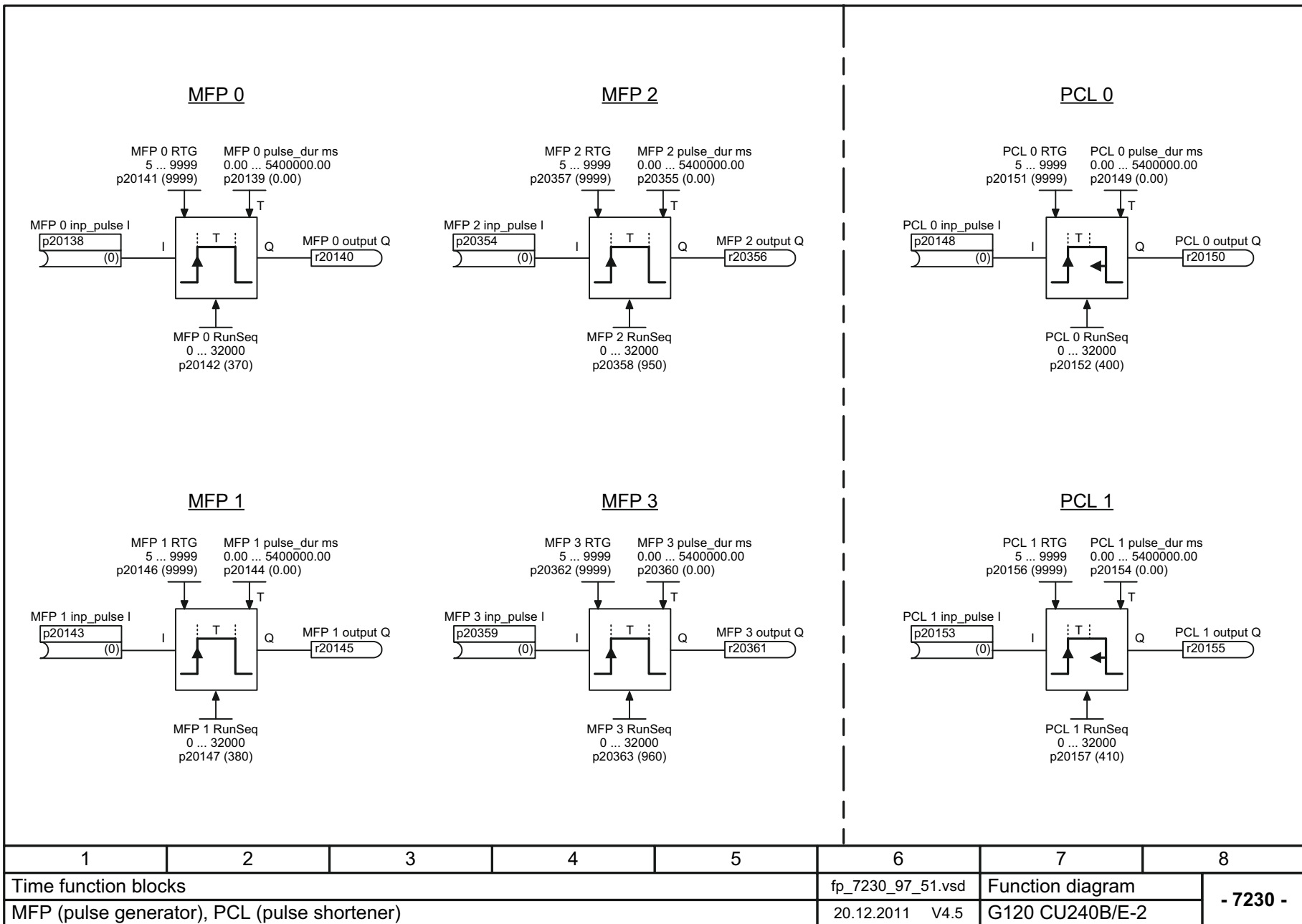


Fig. 2-114 7230 – MFP (pulse generator), PCL (pulse contractor)

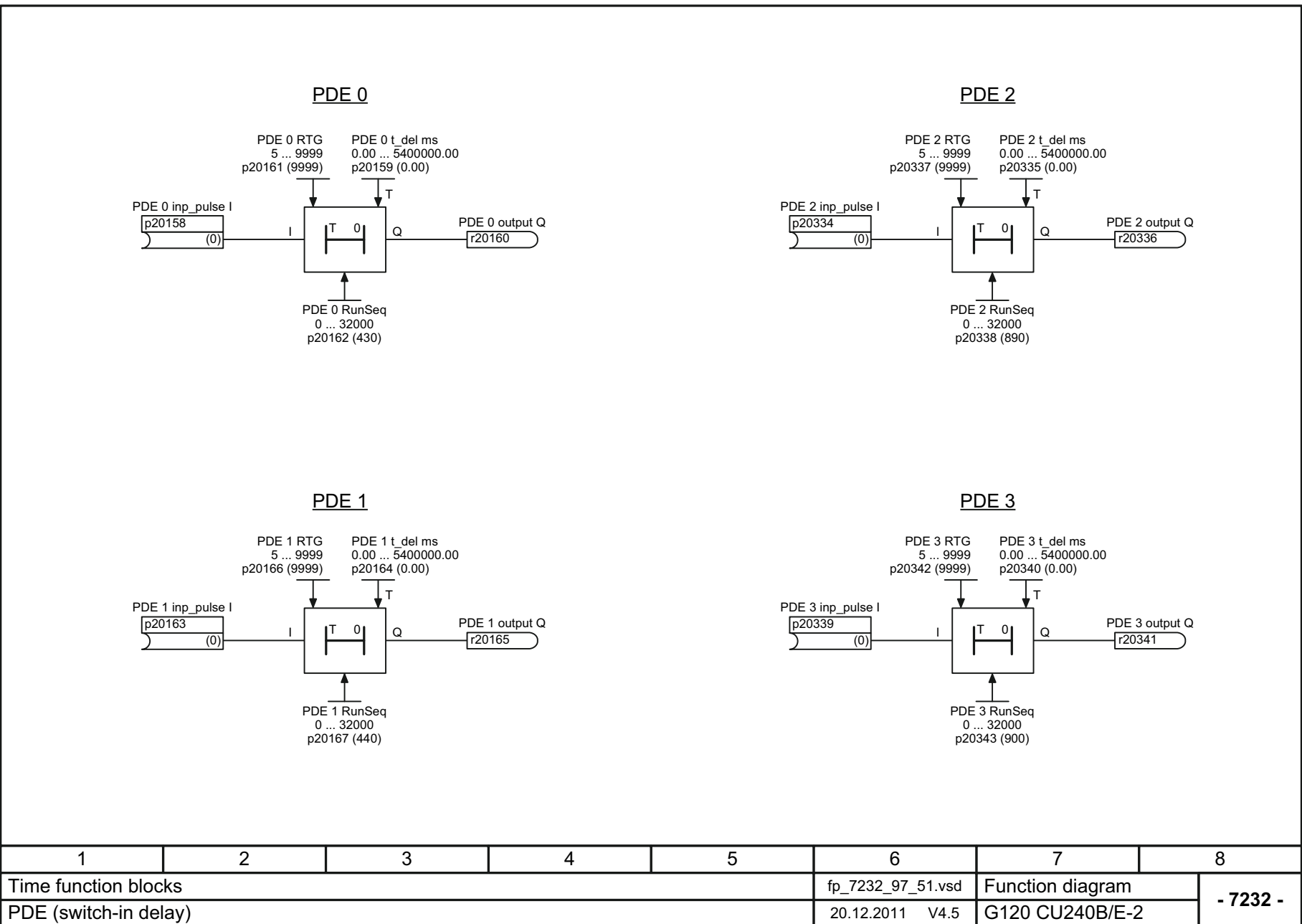


Fig. 2-115 7232 – PDE (ON delay)

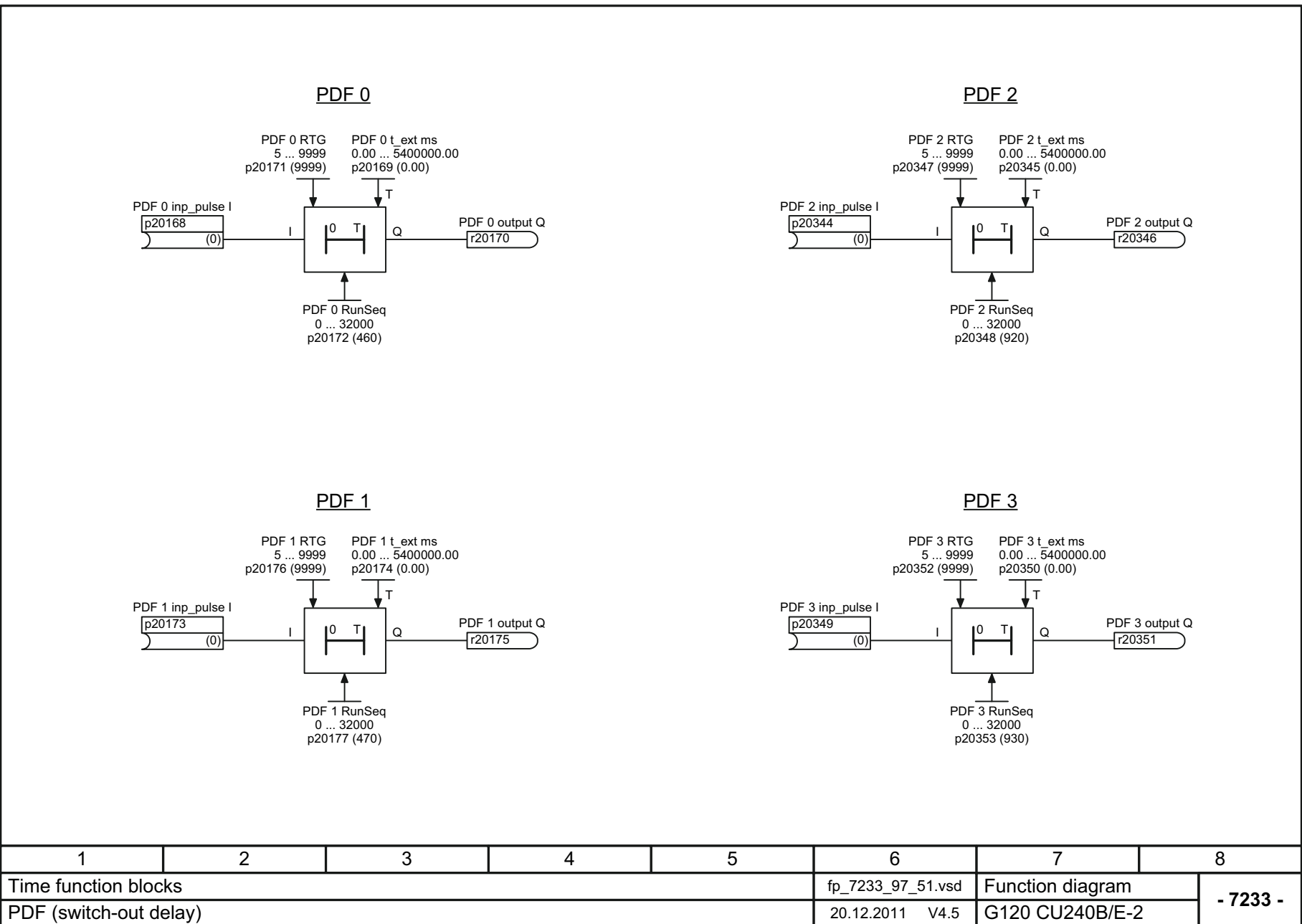


Fig. 2-116 7233 – PDF (OFF delay)

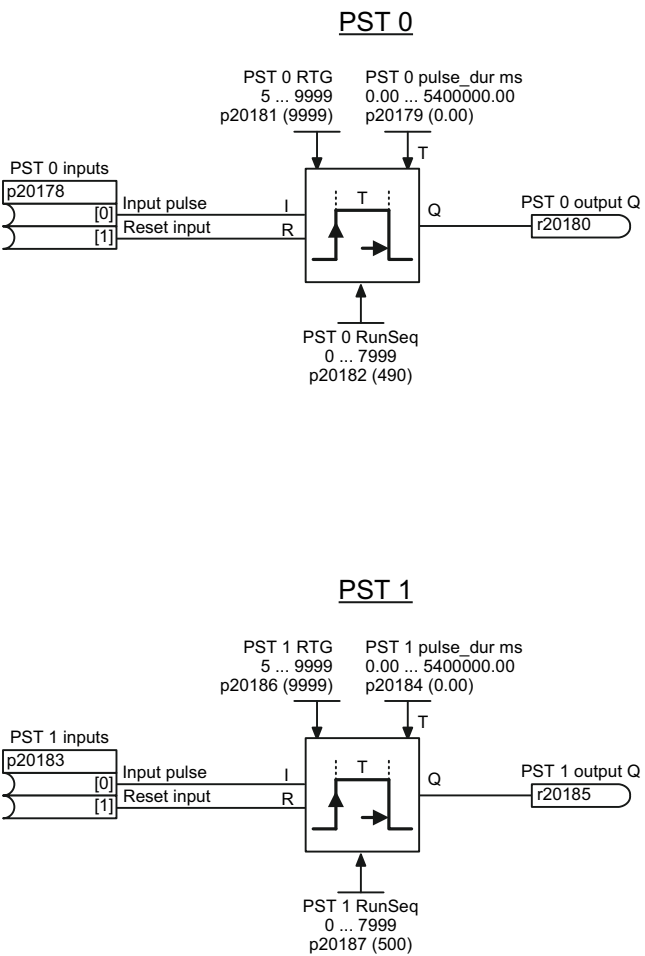


Fig. 2-117 7234 – PST (pulse stretcher)

1	2	3	4	5	6	7	8
Time function blocks					fp_7234_97_51.vsd	Function diagram	- 7234 -
PST (pulse extender)					20.12.2011 V4.5	G120 CU240B/E-2	

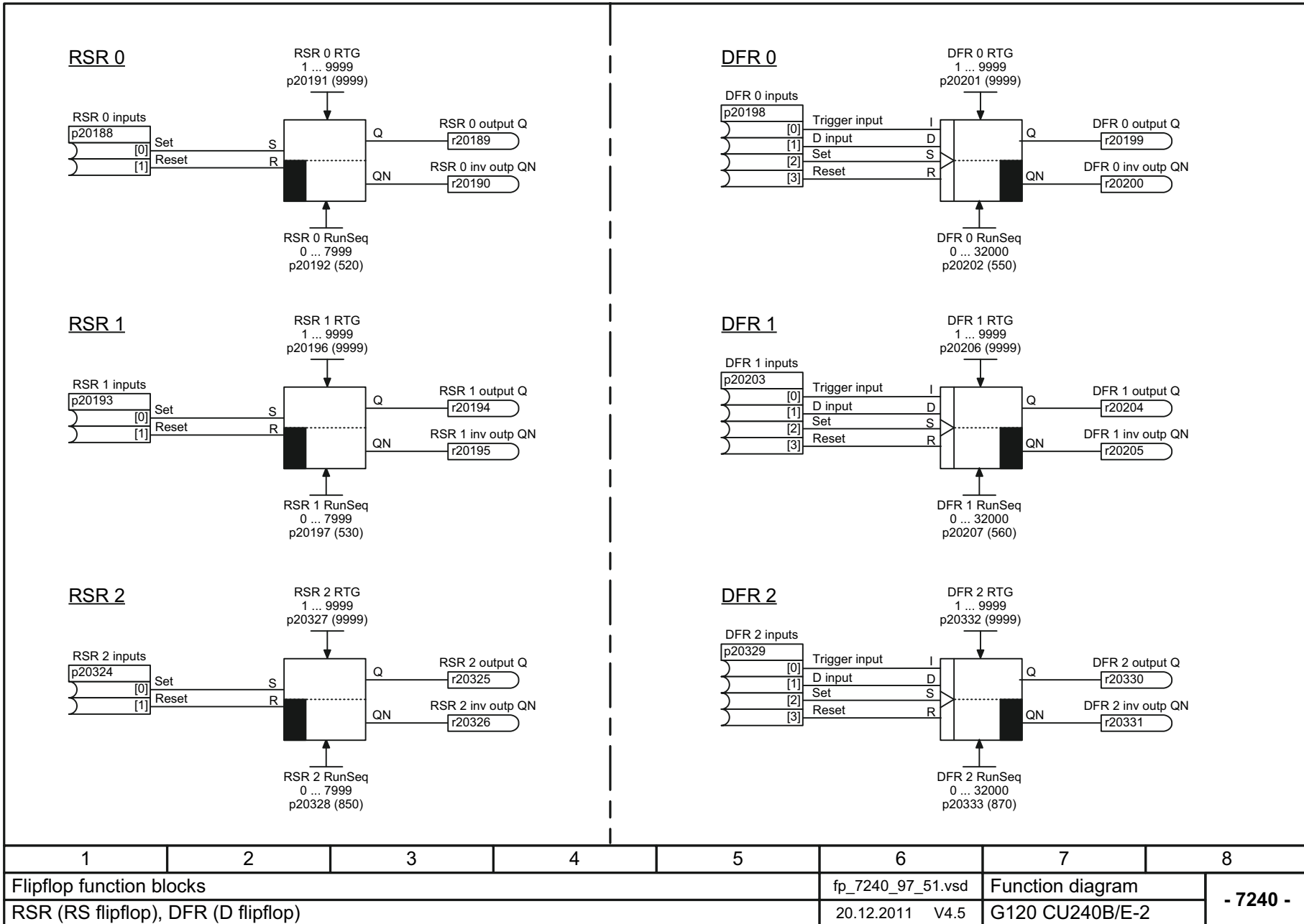


Fig. 2-118 7240 – RSR (RS flip-flop), DFR (D flip-flop)



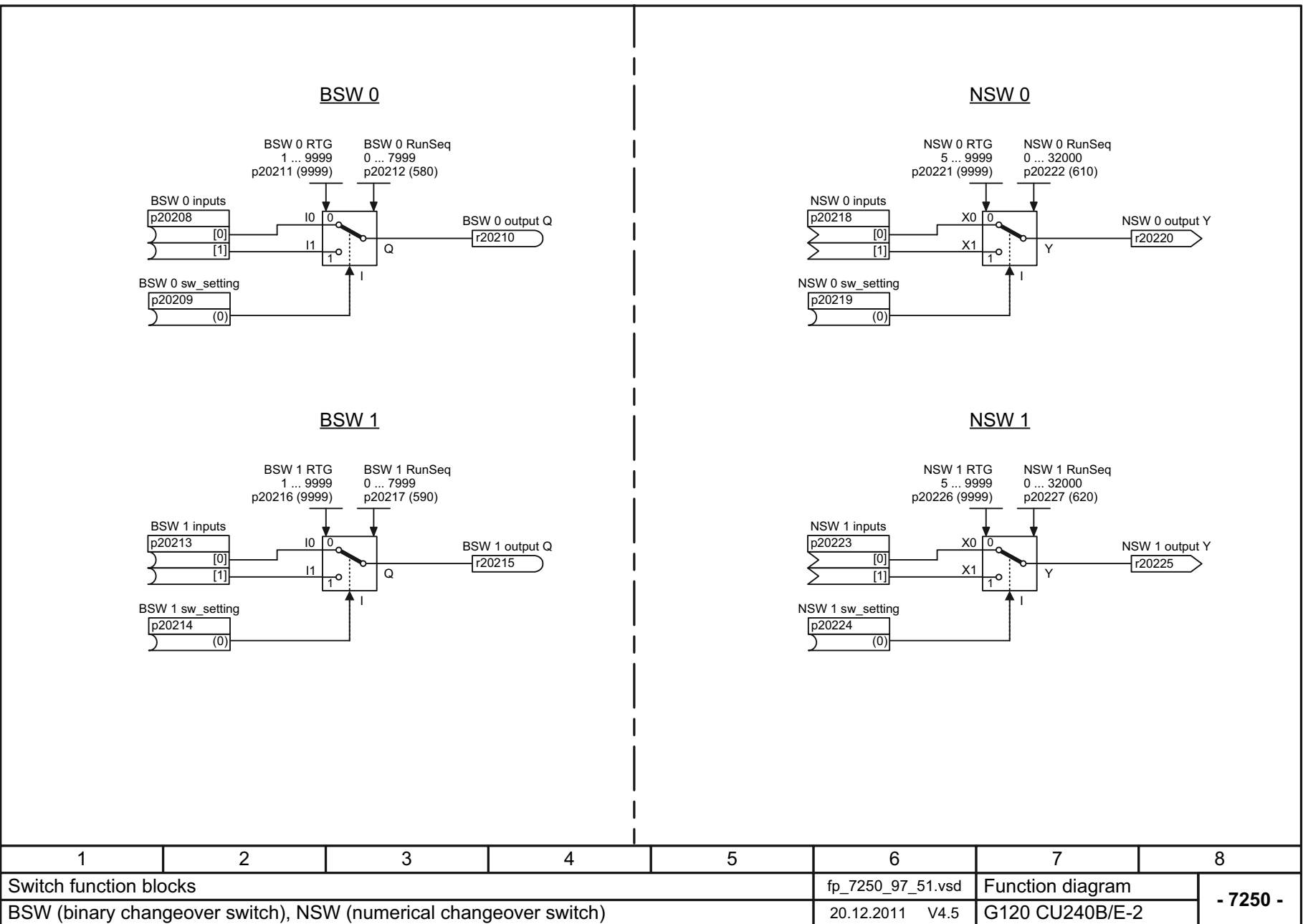


Fig. 2-119 7250 – BSW (binary change-over switch), NSW (numeric change-over switch)

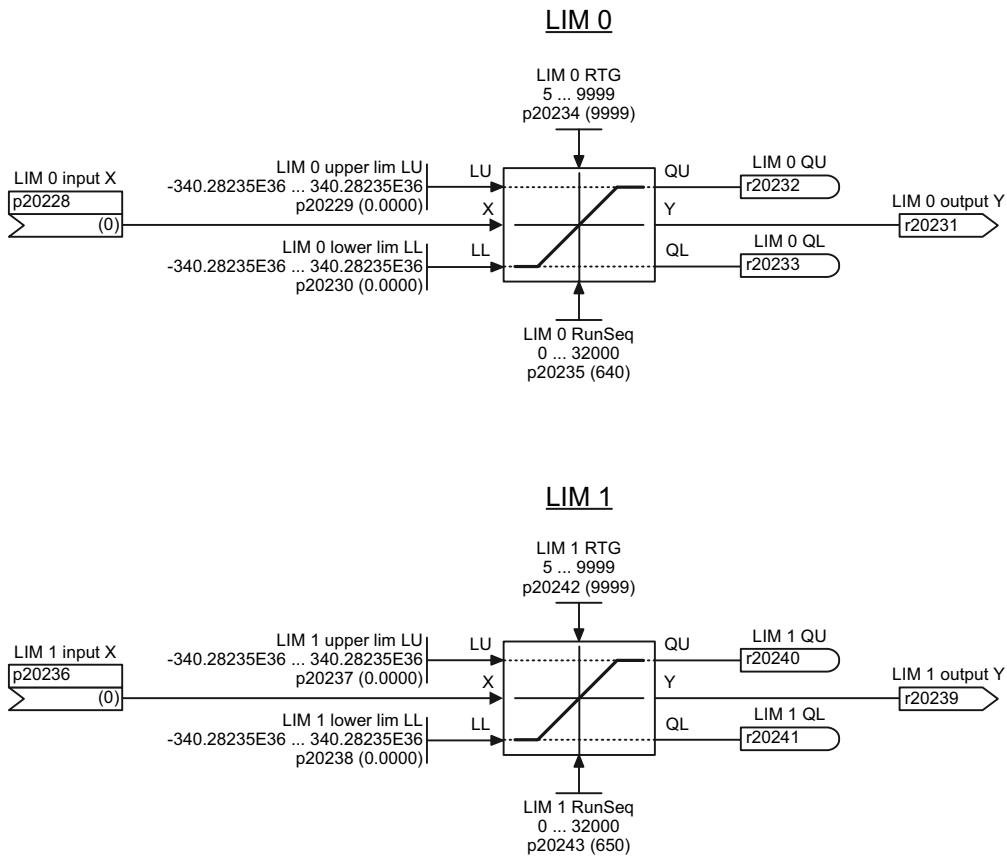
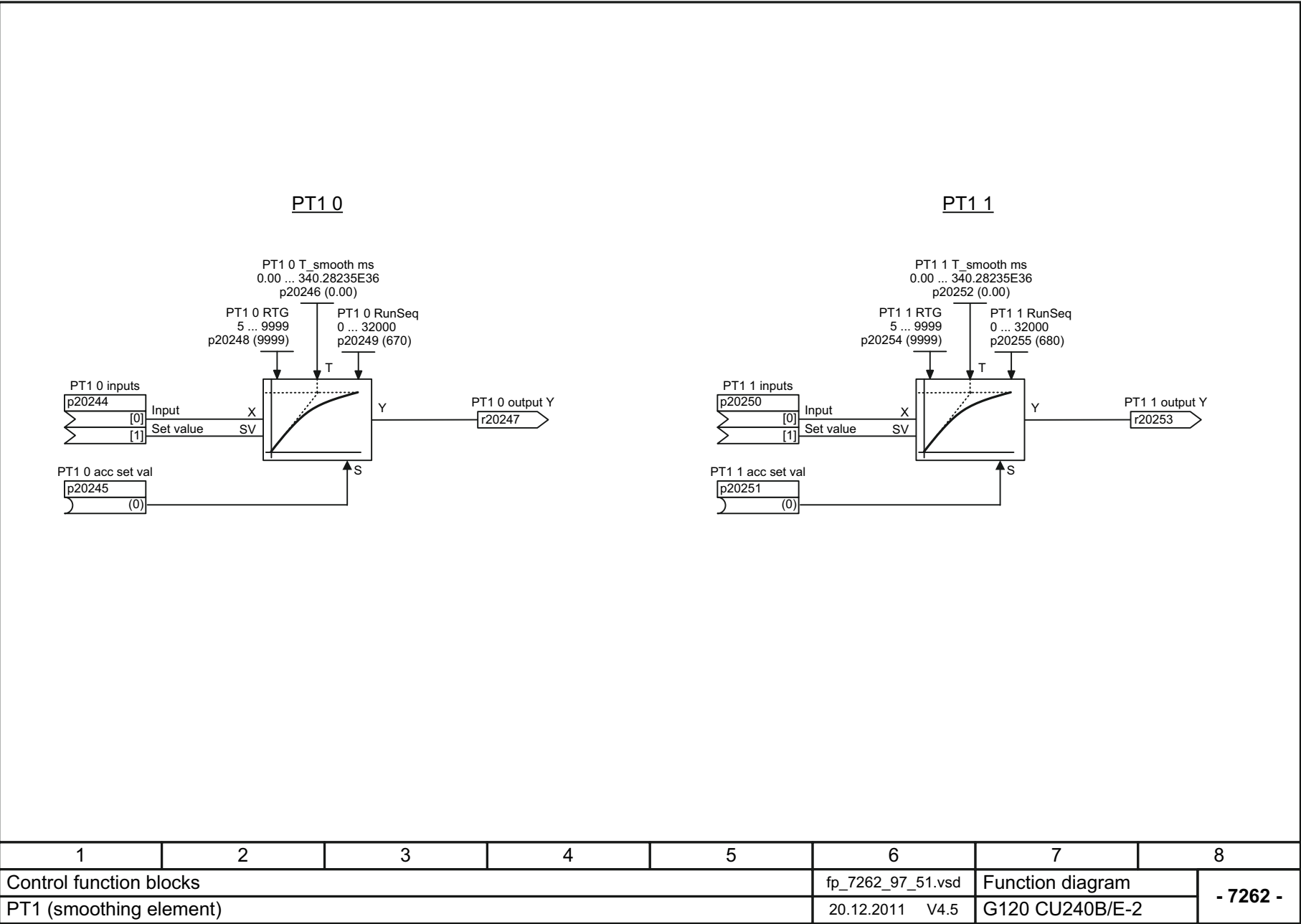
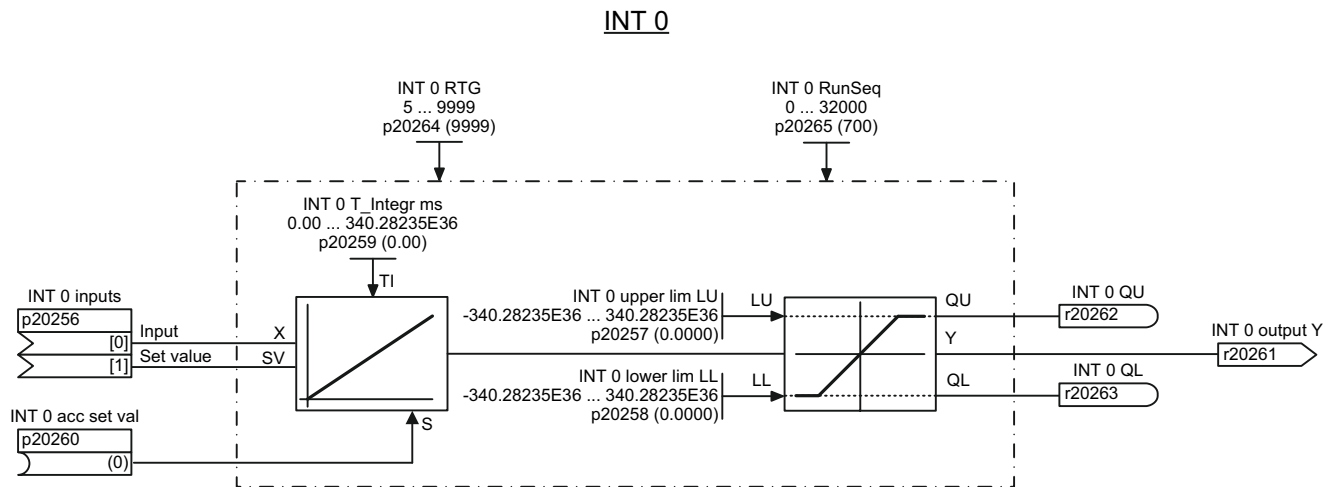


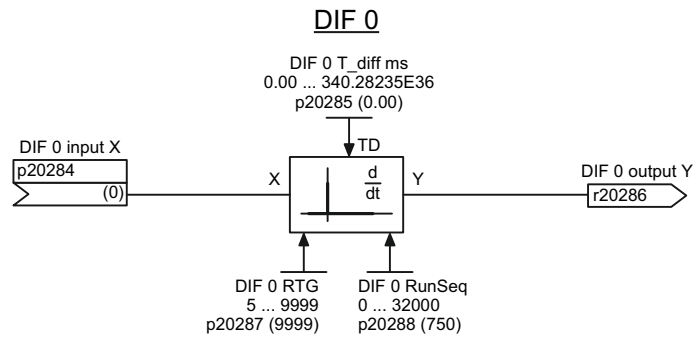
Fig. 2-120 7260 – LIM (limiter)

1	2	3	4	5	6	7	8
Control function blocks					fp_7260_97_51.vsd	Function diagram	
LIM (limiter)					20.12.2011 V4.5	G120 CU240B/E-2	
							- 7260 -





Integrating algorithm:  $Y(n) = Y(n-1) + (T_{\text{sample}} / T_i) * X(n)$



Differentiating algorithm:  $Y(n) = (X(n) - X(n-1)) * (T_D / T_{\text{sample}})$

1	2	3	4	5	6	7	8
Control function blocks					fp_7264_97_51.vsd	Function diagram	- 7264 -
INT (integrator), DIF (differentiating element)					20.12.2011 V4.5	G120 CU240B/E-2	

Fig. 2-122 7264 – INT (integrator), DIF (derivative-action element)

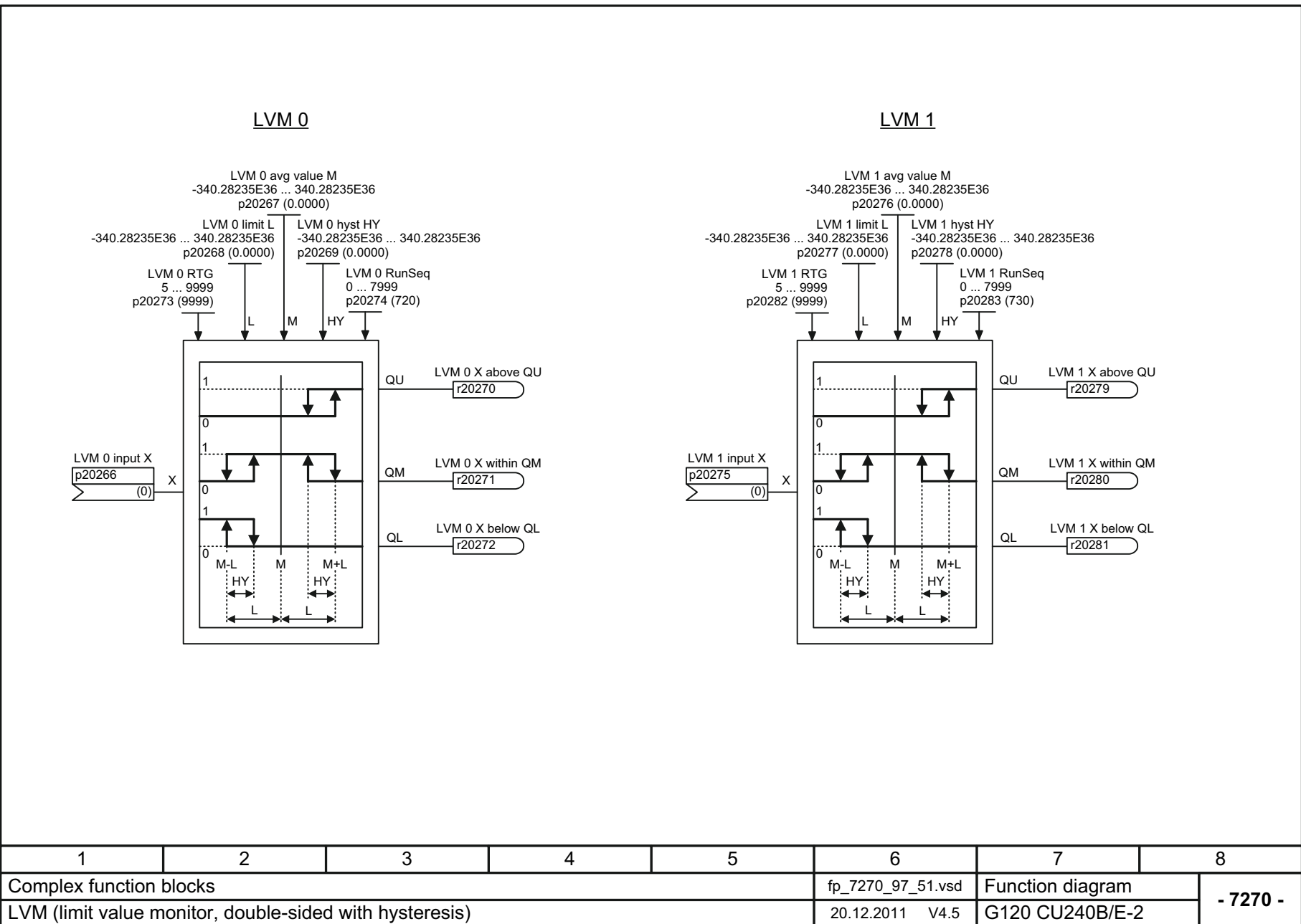


Fig. 2-123 7270 – LVM (double-sided limit monitor with hysteresis)

## 2.14 Technology functions

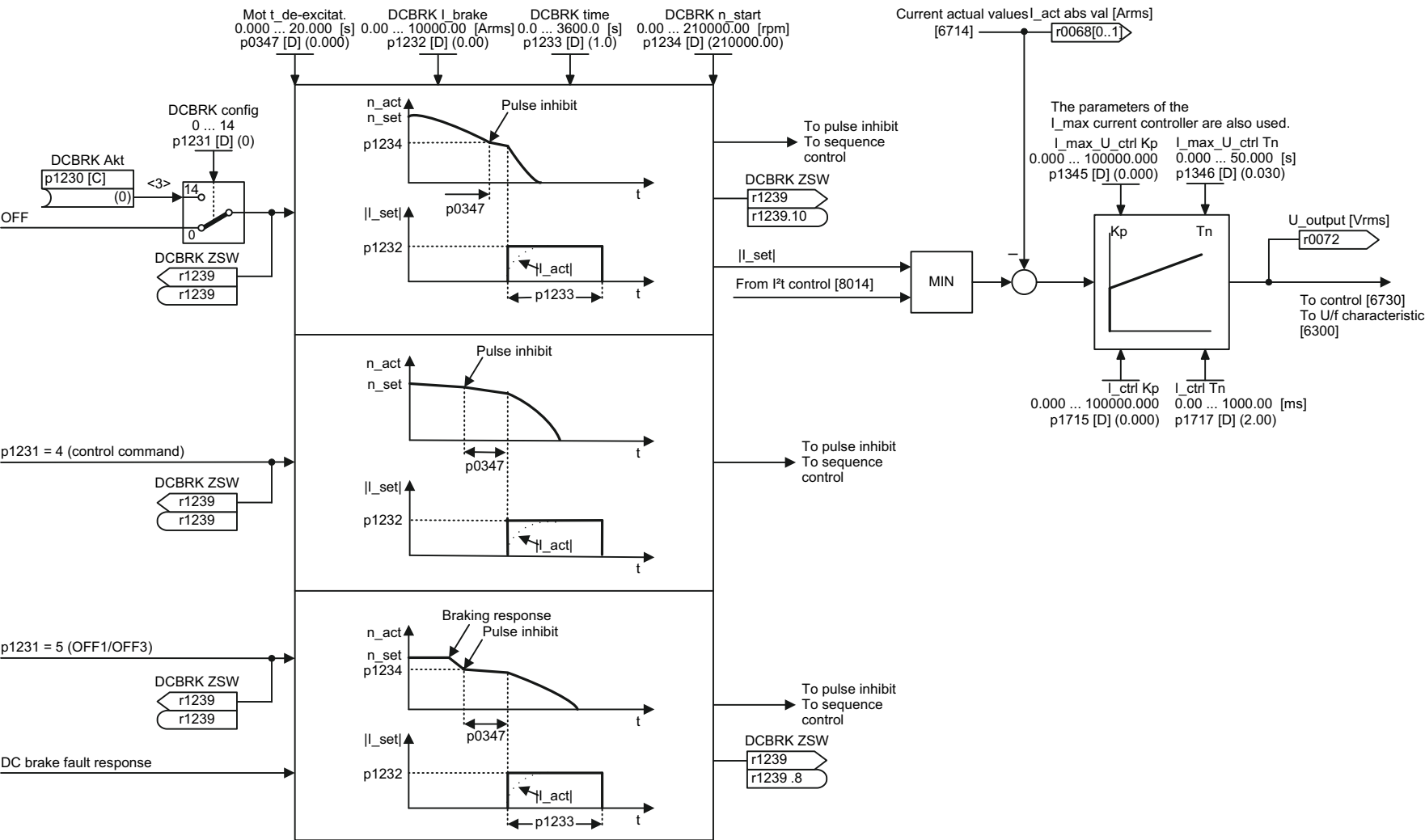
### Function diagrams

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7017 – DC braking (p0300 = 1)

2-639

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- <1> The de-magnetization time is determined during automatic calculation (p0340 = 1, 3).
- <2> The DC braking current is determined during automatic calculation (p0340 = 1).
- <3> DC braking when starting speed for DC braking (p1234) is fallen below.

1	2	3	4	5	6	7	8	
Technology functions					fp_7017_97_51.vsd	Function diagram		- 7017 -
DC brake (p0300 = 1)					20.12.2011 V4.5	G120 CU240B/E-2		

## **2.15      Technology controller**

### **Function diagrams**

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7950 – Fixed values, binary selection (p2216 = 2)	2-641
7951 – Fixed values, direct selection (p2216 = 1)	2-642
7954 – Motorized potentiometer	2-643
7958 – Closed-loop control	2-644

---



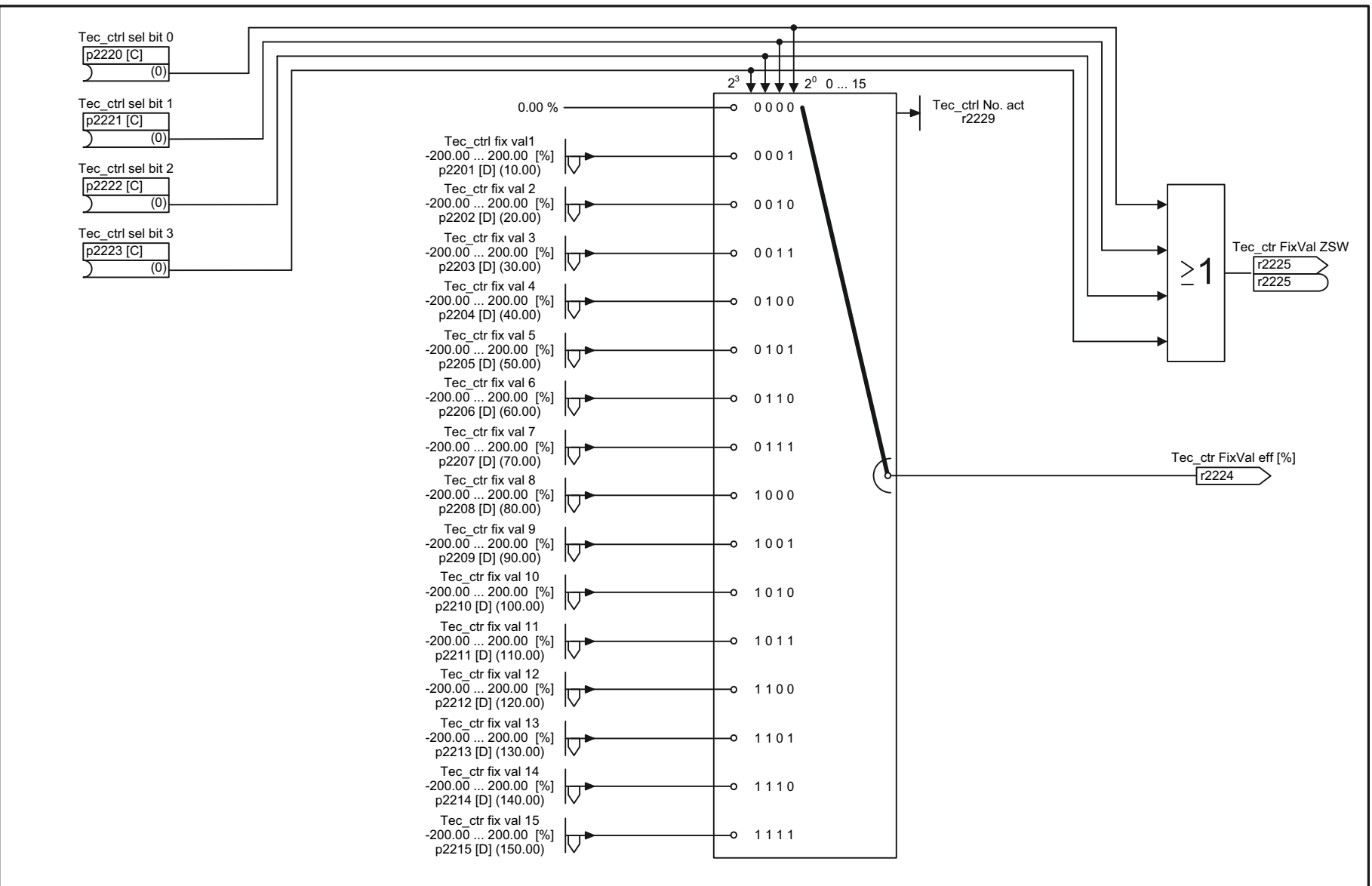


Fig. 2-125 7950 – Fixed values, binary selection (p2216 = 2)

1	2	3	4	5	6	7	8
Technology controller					fp_7950_97_51.vsd	Function diagram	- 7950 -
Fixed values, binary selection (p2216 = 2)					20.12.2011 V4.5	G120 CU240B/E-2	

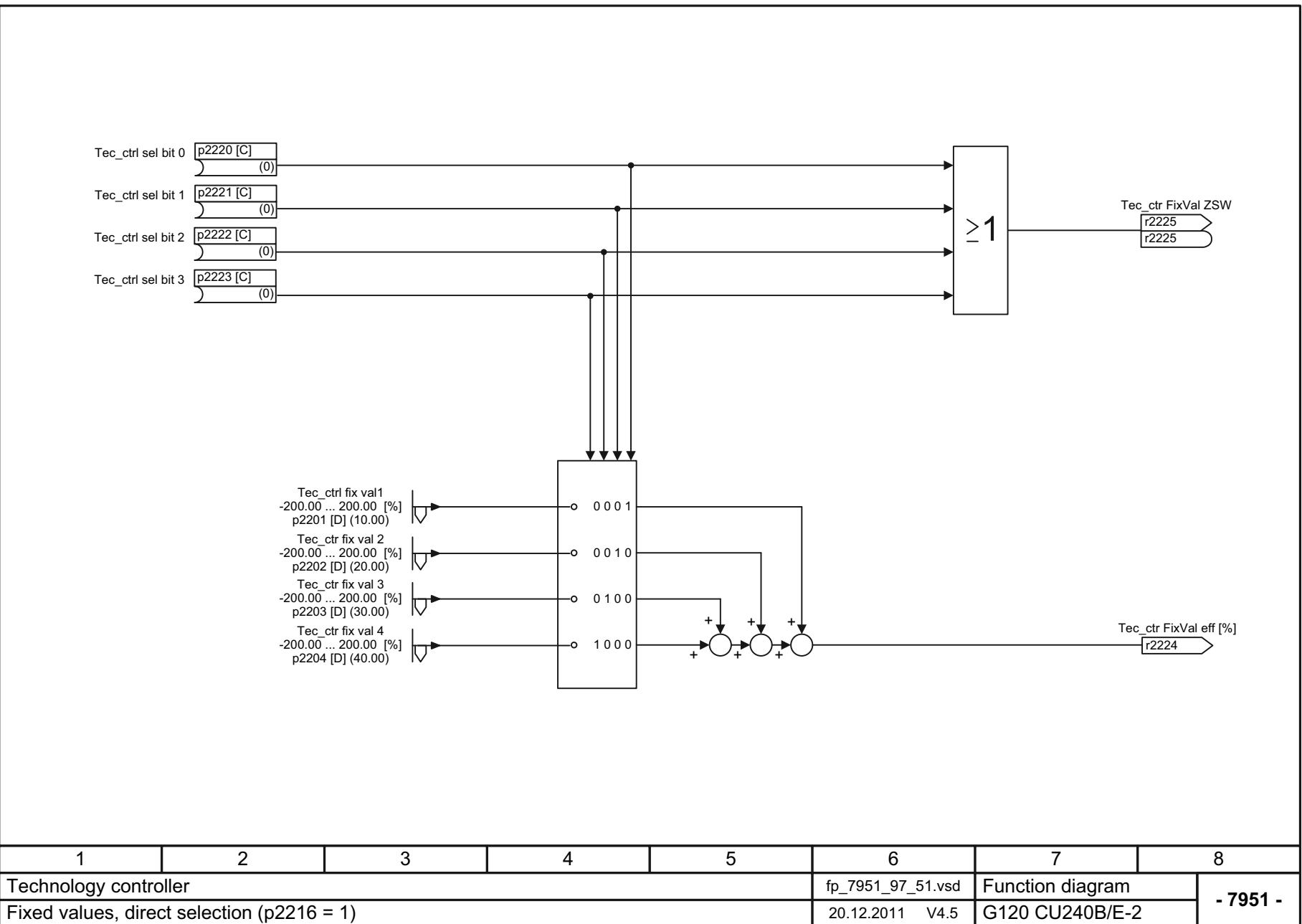
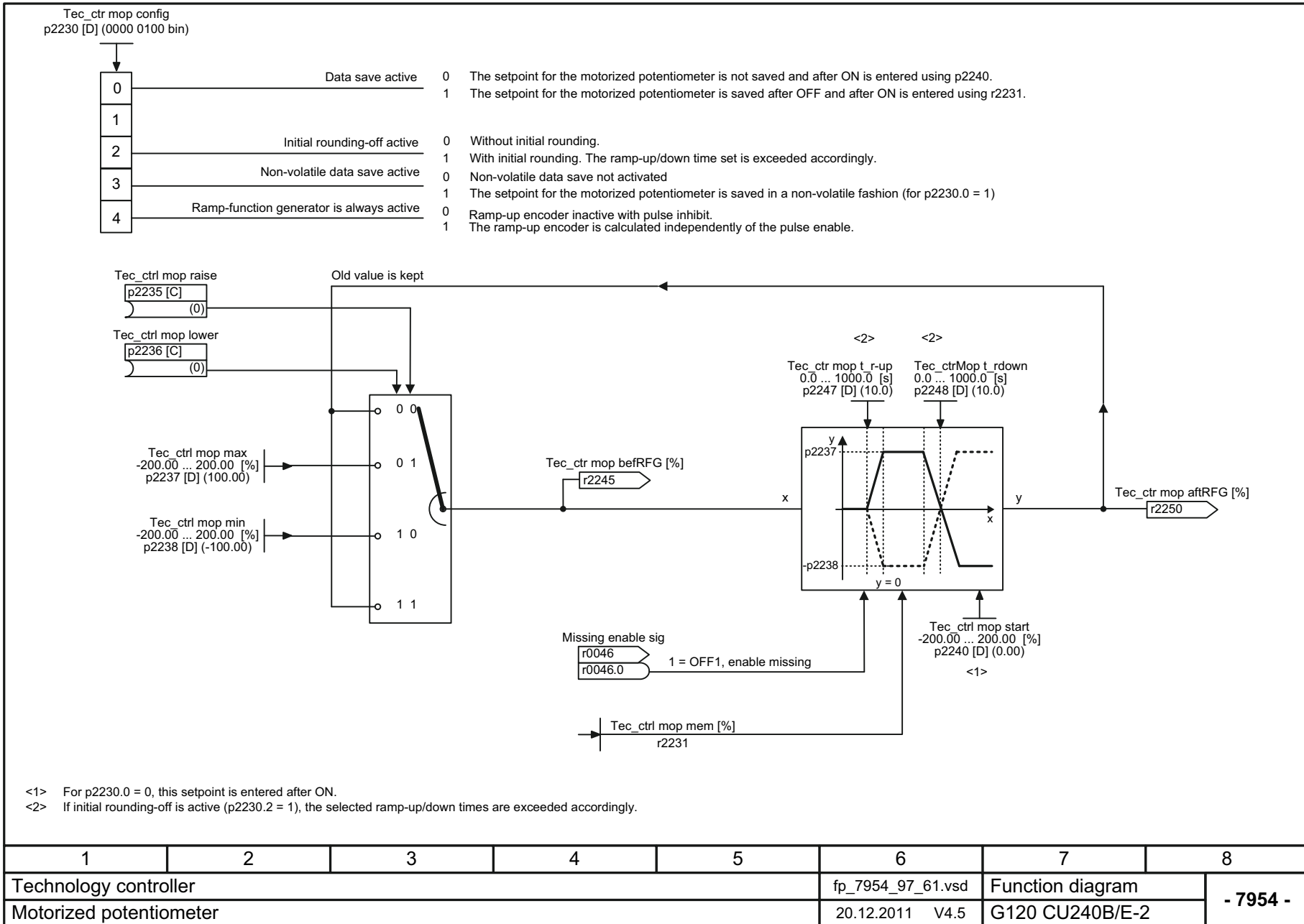
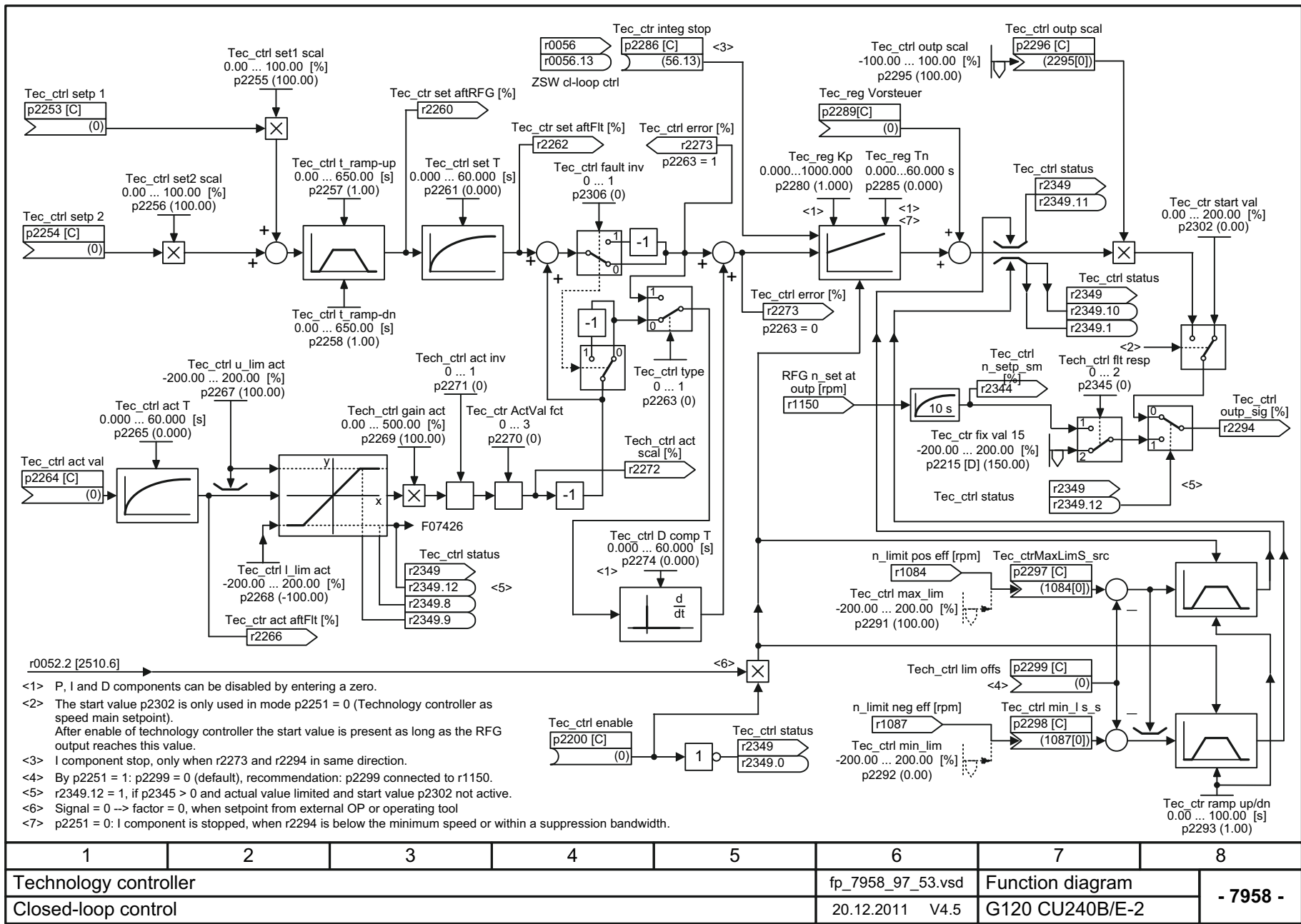


Fig. 2-126 7951 – Fixed values, direct selection (p2216 = 1)





## 2.16 Signals and monitoring functions

### Function diagrams

8010 – Speed signals 1	2-646
8011 – Speed signals 2	2-647
8012 – Torque signals, motor locked/stalled	2-648
8013 – Load monitoring	2-649
8014 – Thermal monitoring, power unit	2-650
8016 – Thermal monitoring, motor	2-651
8017 – Thermal I2t motor model (PEM, p0300 = 2xx)	2-652
8020 – Monitoring functions 1	2-653
8021 – Monitoring functions 2	2-654

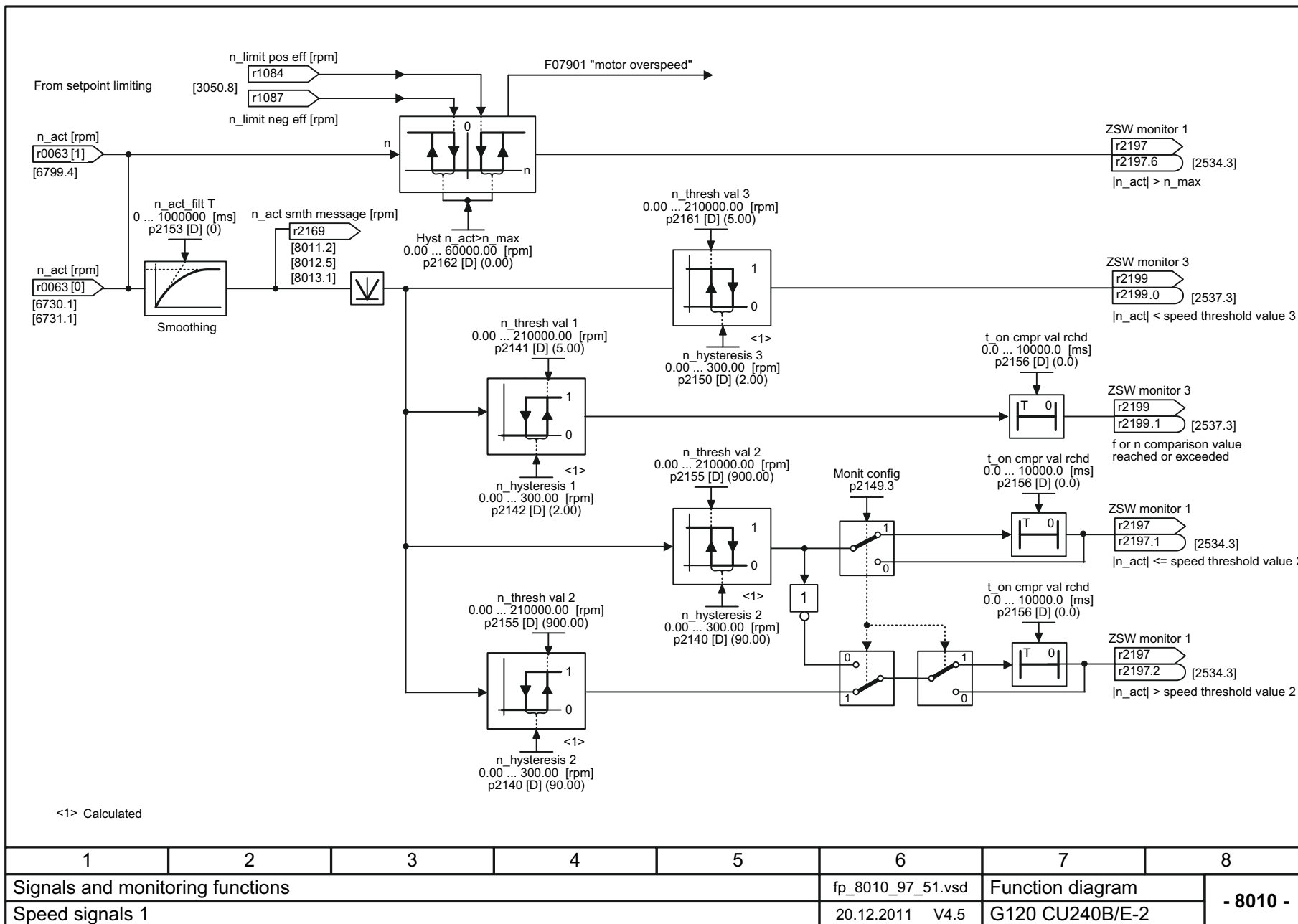
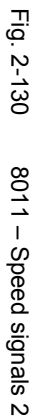
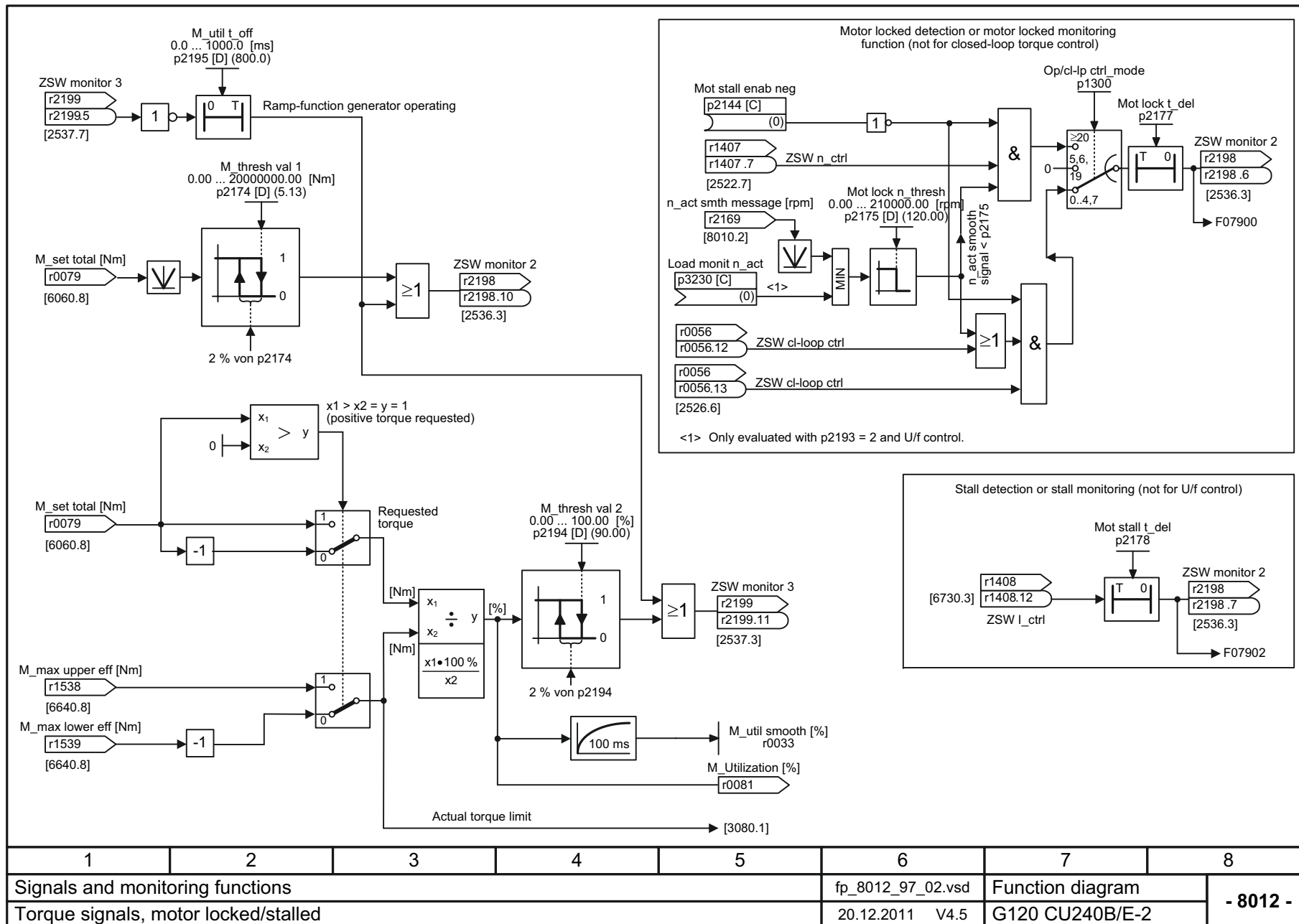
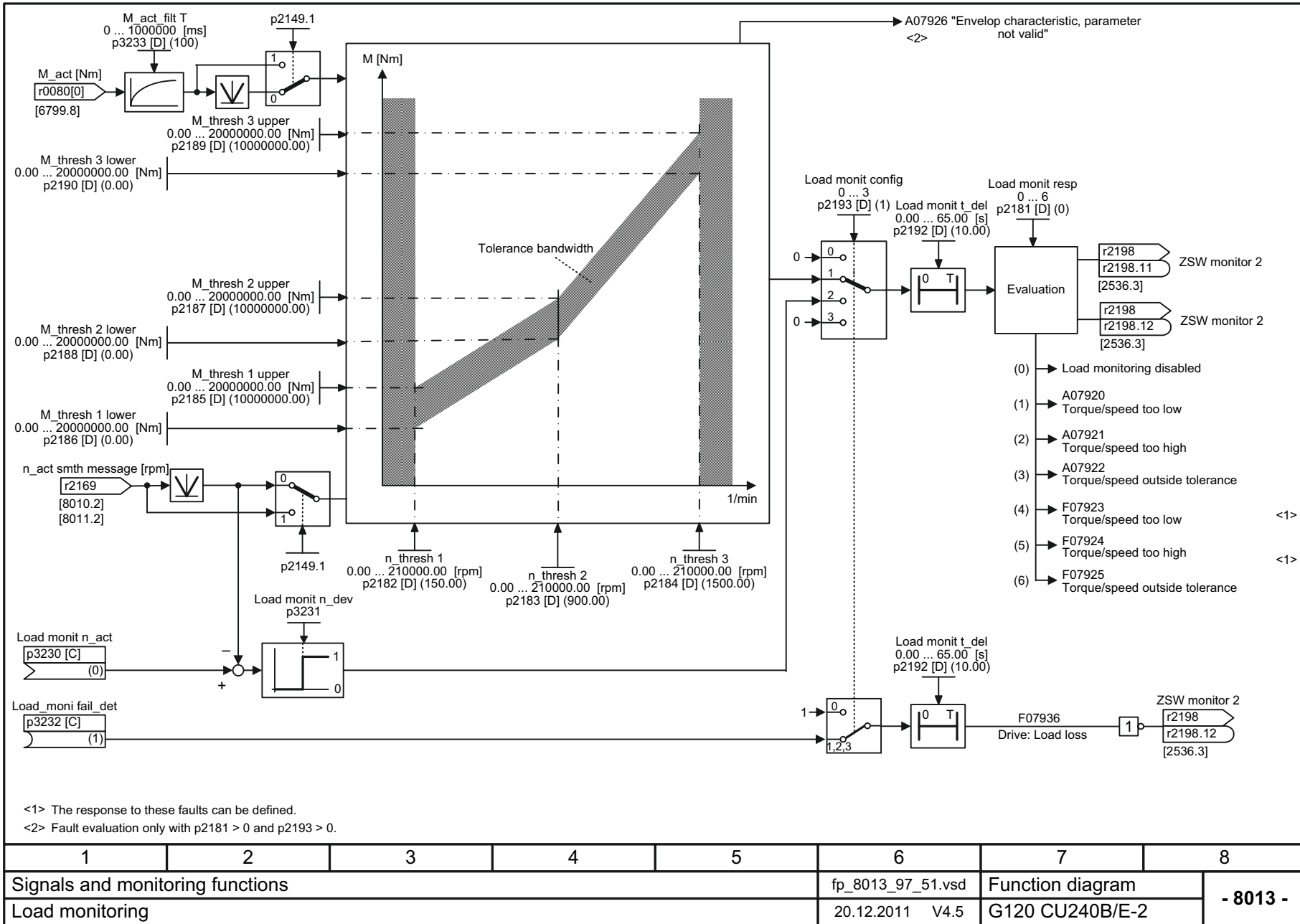


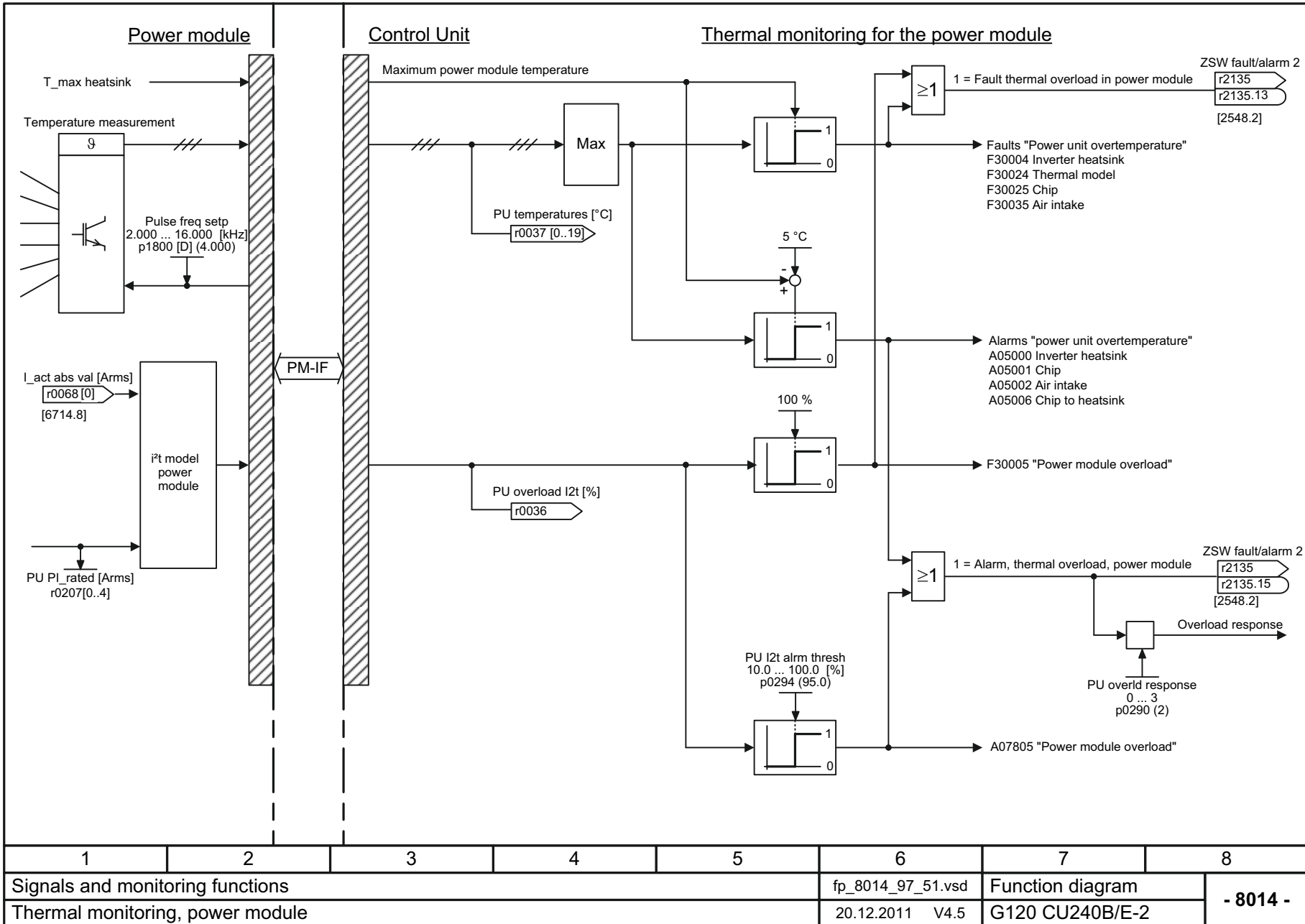
Fig. 2-129 8010 – Speed signals 1





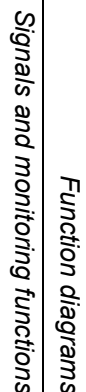


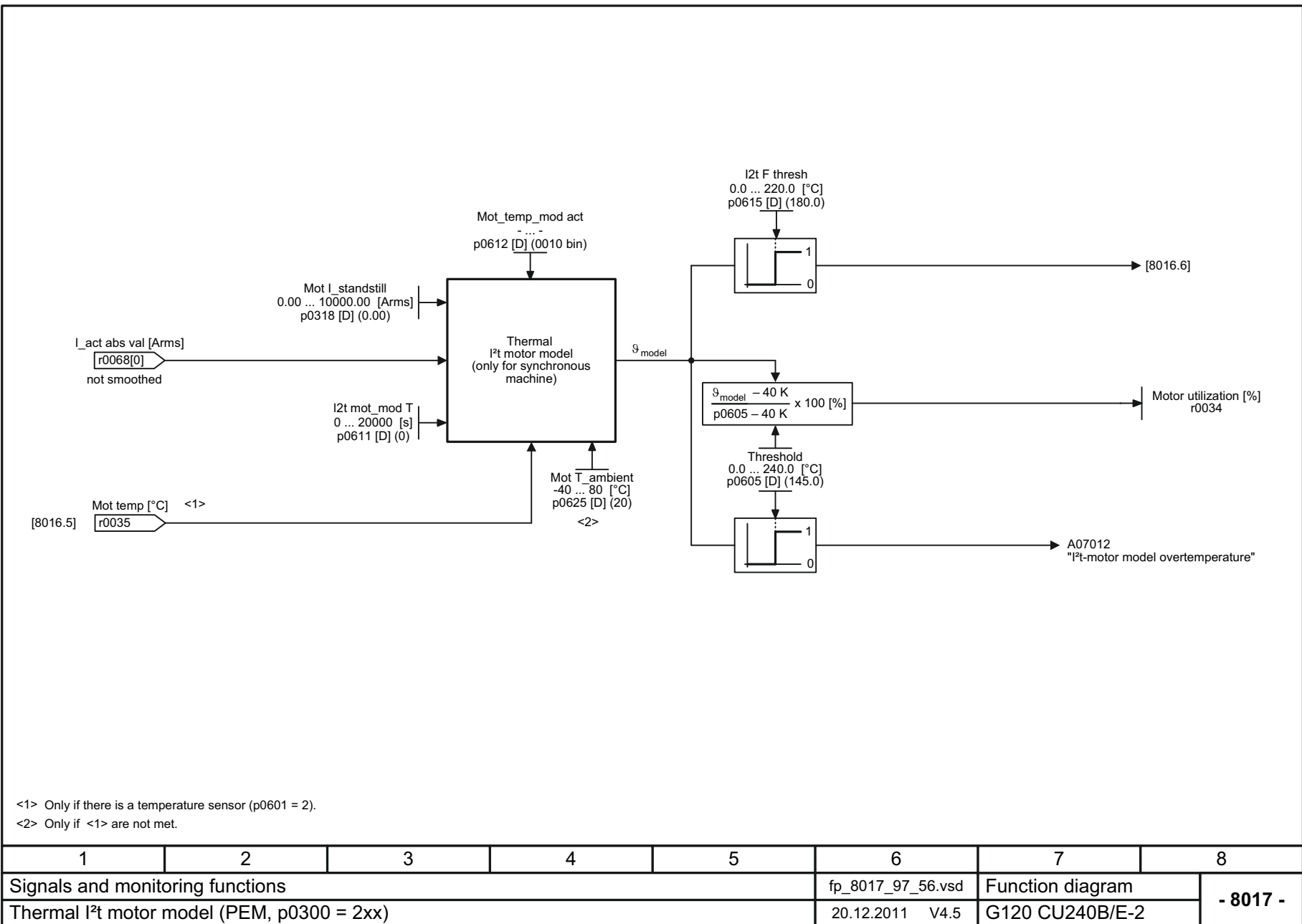




- 8014 -

Fig. 2-134





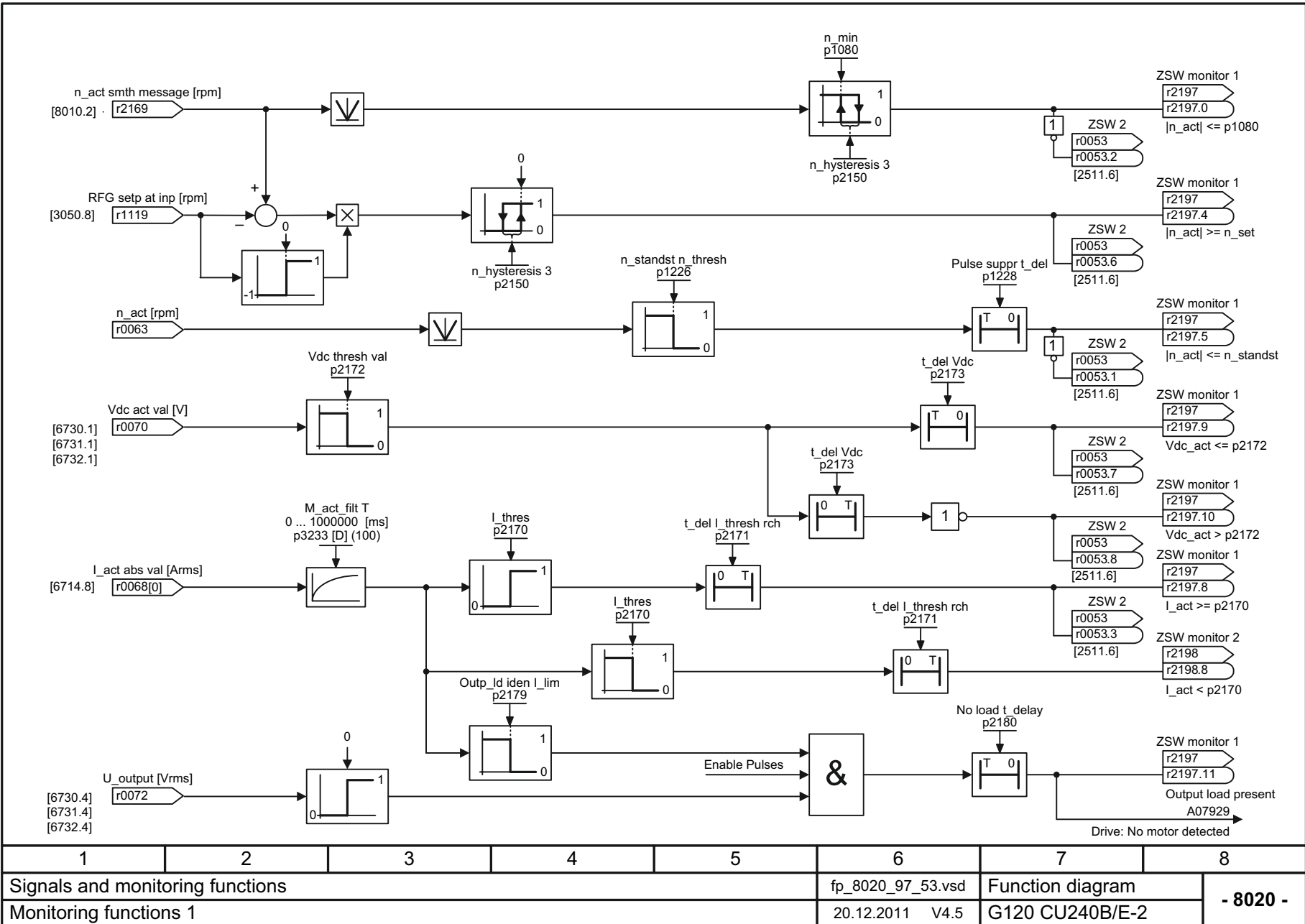


Fig. 2-136 8020 – Monitoring functions 1

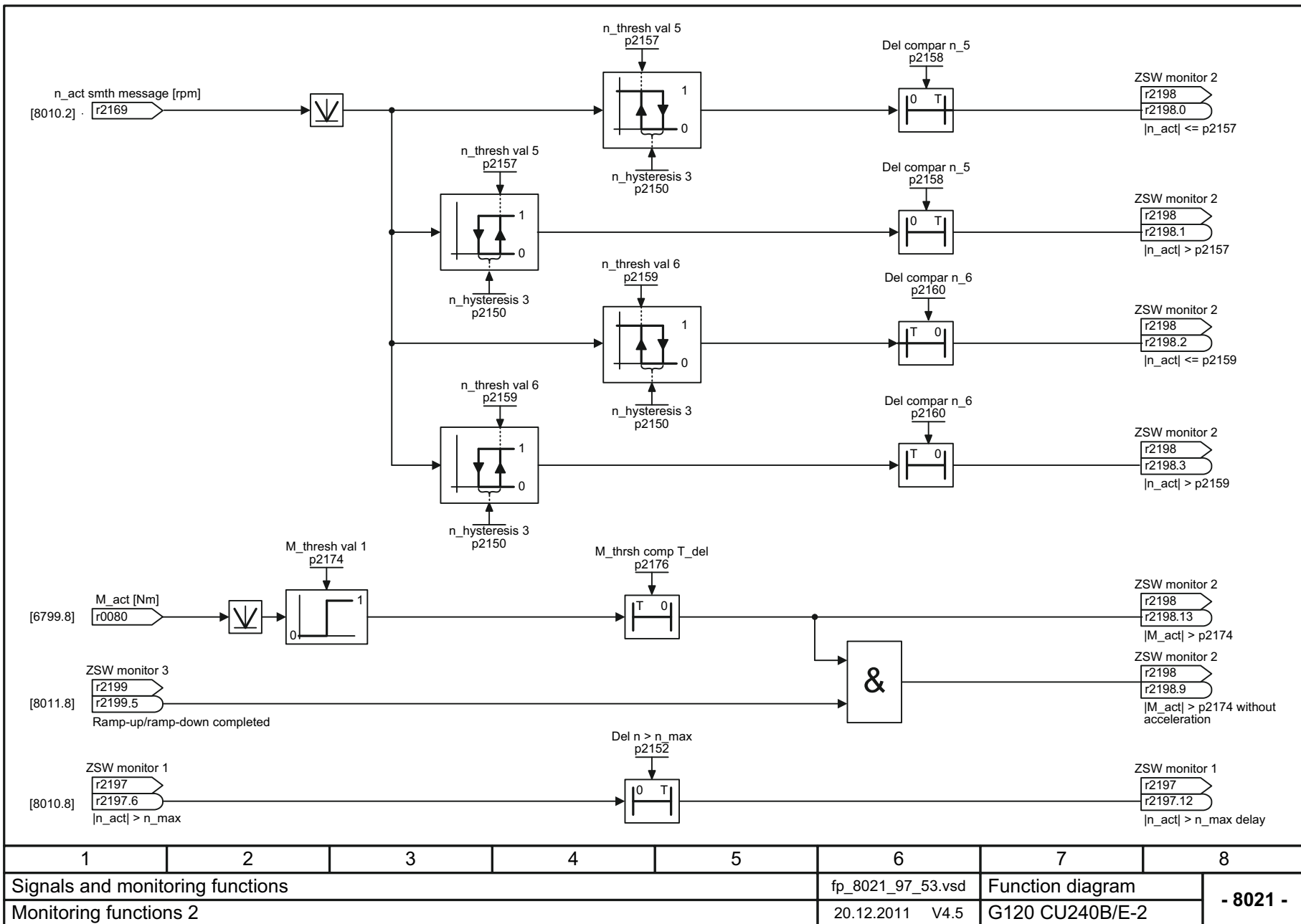


Fig. 2-137 8021 – Monitoring functions 2

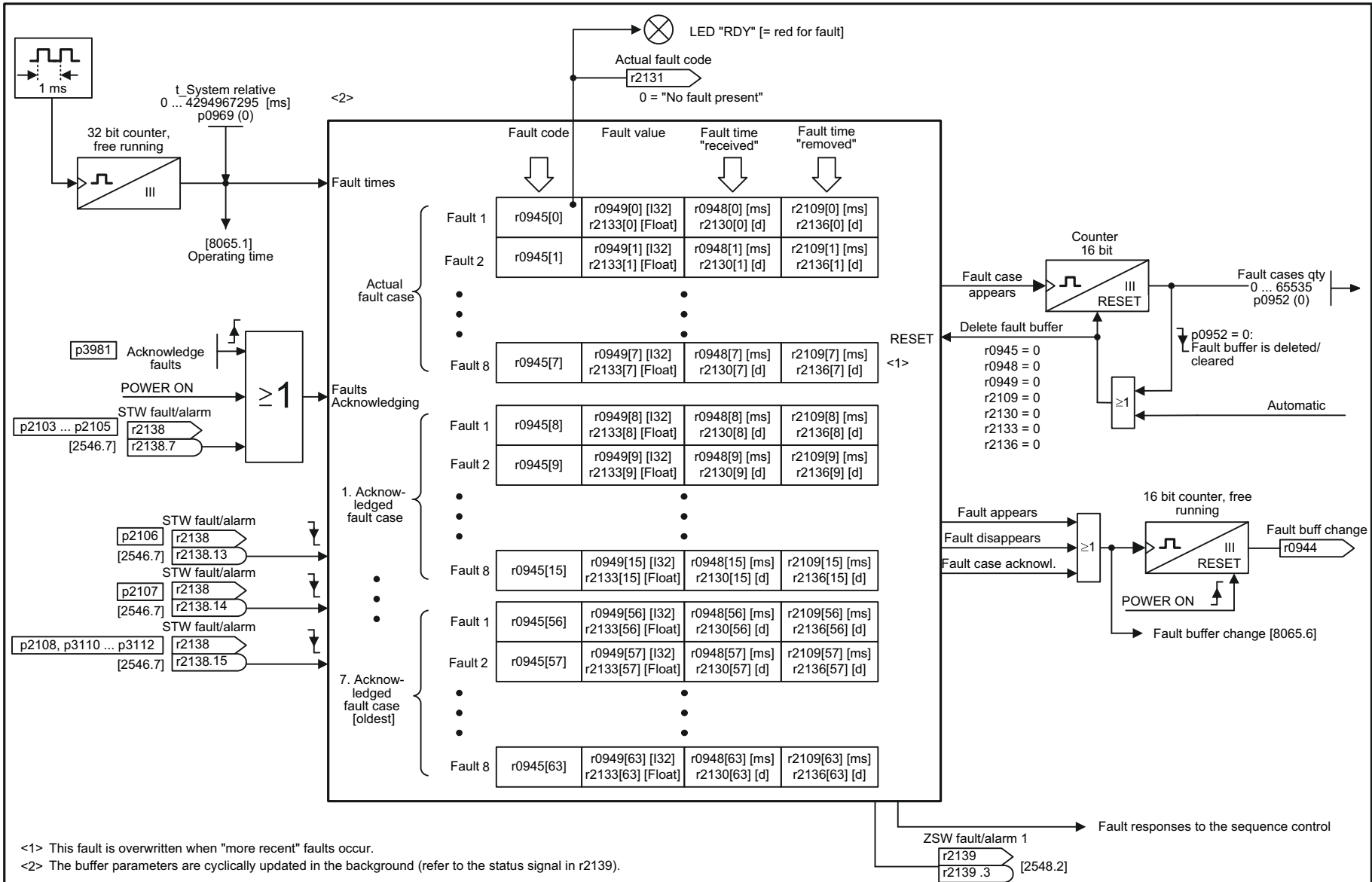
## 2.17        Faults and alarms

### Function diagrams

---

8060 – Fault buffer	2-656
8065 – Alarm buffer	2-657
8070 – Fault/alarm trigger word (r2129)	2-658
8075 – Fault/alarm configuration	2-659

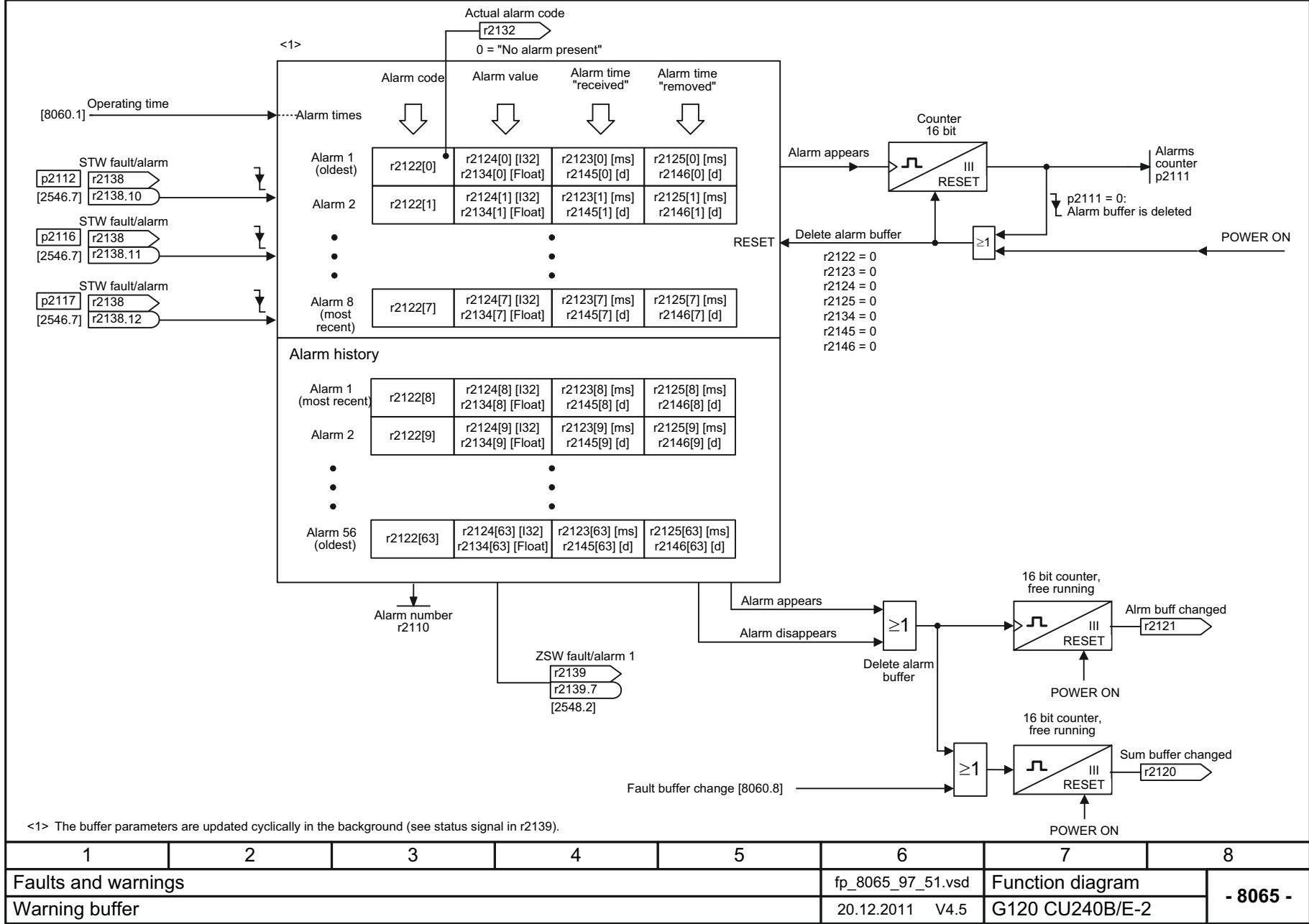
---



1	2	3	4	5	6	7	8
Faults and warnings					fp_8060_97_51.vsd	Function diagram	
Fault buffer					20.12.2011 V4.5	G120 CU240B/E-2	
- 8060 -							

Fig. 2-138 8060 – Fault buffer





1	2	3	4	5	6	7	8
Faults and warnings					fp_8065_97_51.vsd	Function diagram	- 8065 -
Warning buffer					20.12.2011 V4.5	G120 CU240B/E-2	

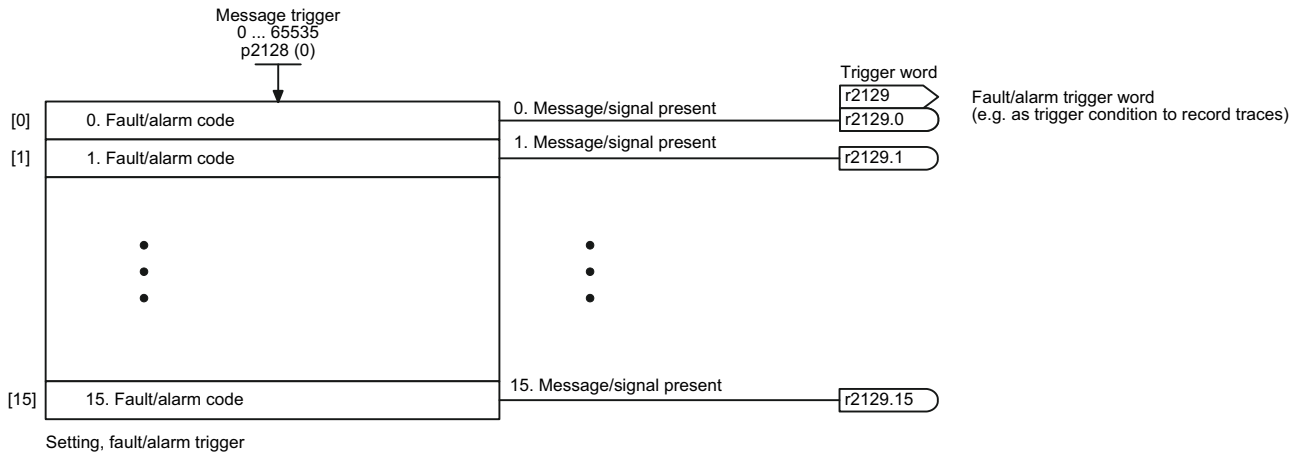
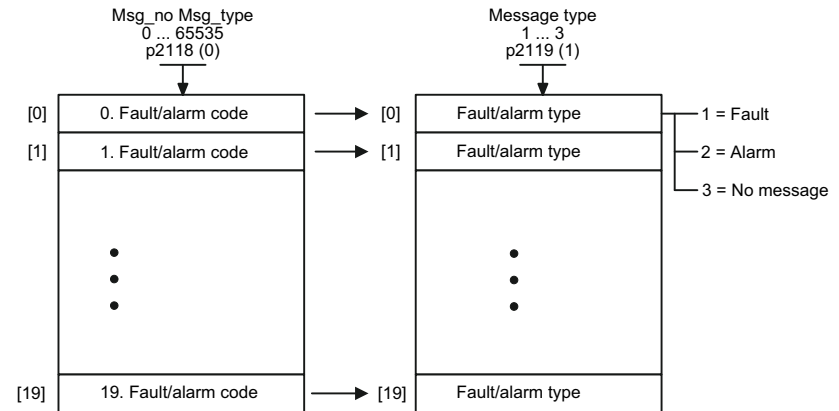


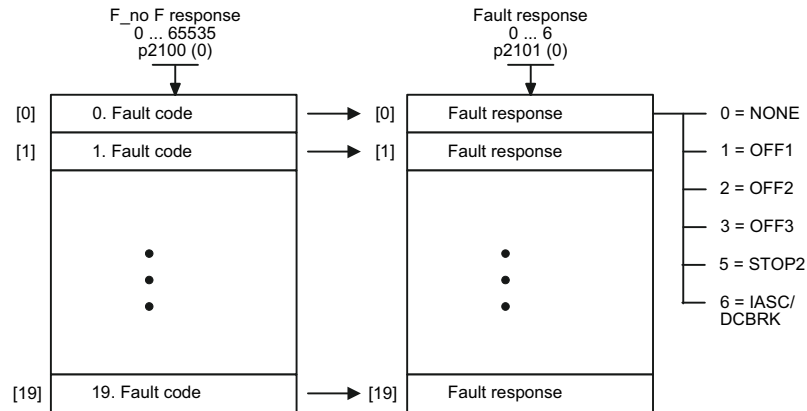
Fig. 2-140 8070 – Fault/alarm trigger word (r2129)

1	2	3	4	5	6	7	8
Faults and warnings					fp_8070_97_61.vsd	Function diagram	
Fault/warning trigger word (r2129)					20.12.2011 V4.5	G120 CU240B/E-2	
							- 8070 -

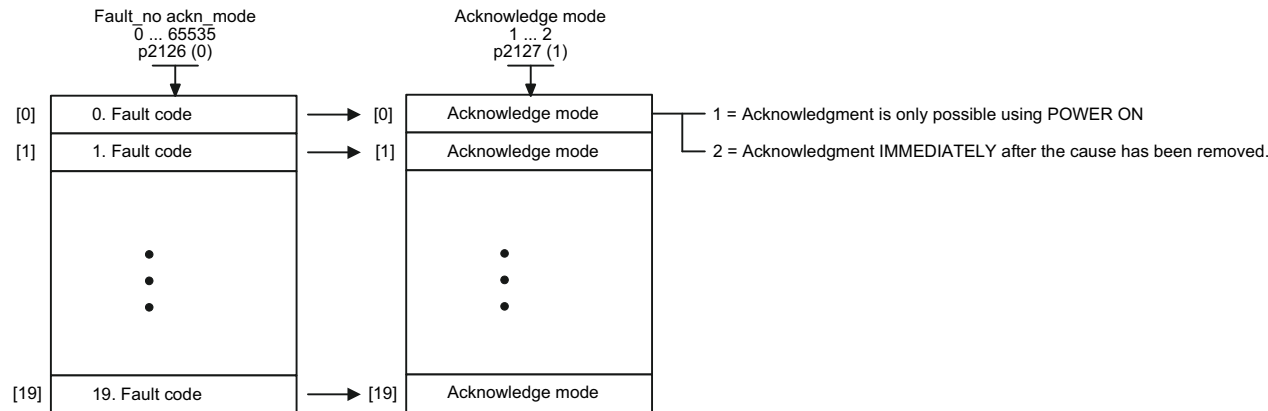
### Changing the message type - fault <==> alarm for maximum 20 faults/alarms <1>



### Changing the fault response for maximum 20 faults <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
Faults and warnings					fp_8075_97_51.vsd	Function diagram	- 8075 -
Fault/warning configuration					20.12.2011 V4.5	G120 CU240B/E-2	

Fig. 2-141 8075 – Fault/alarm configuration

## 2.18 Data sets

### Function diagrams

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8560 – Command Data Sets (CDS)	2-661
8565 – Drive Data Sets (DDS)	2-662

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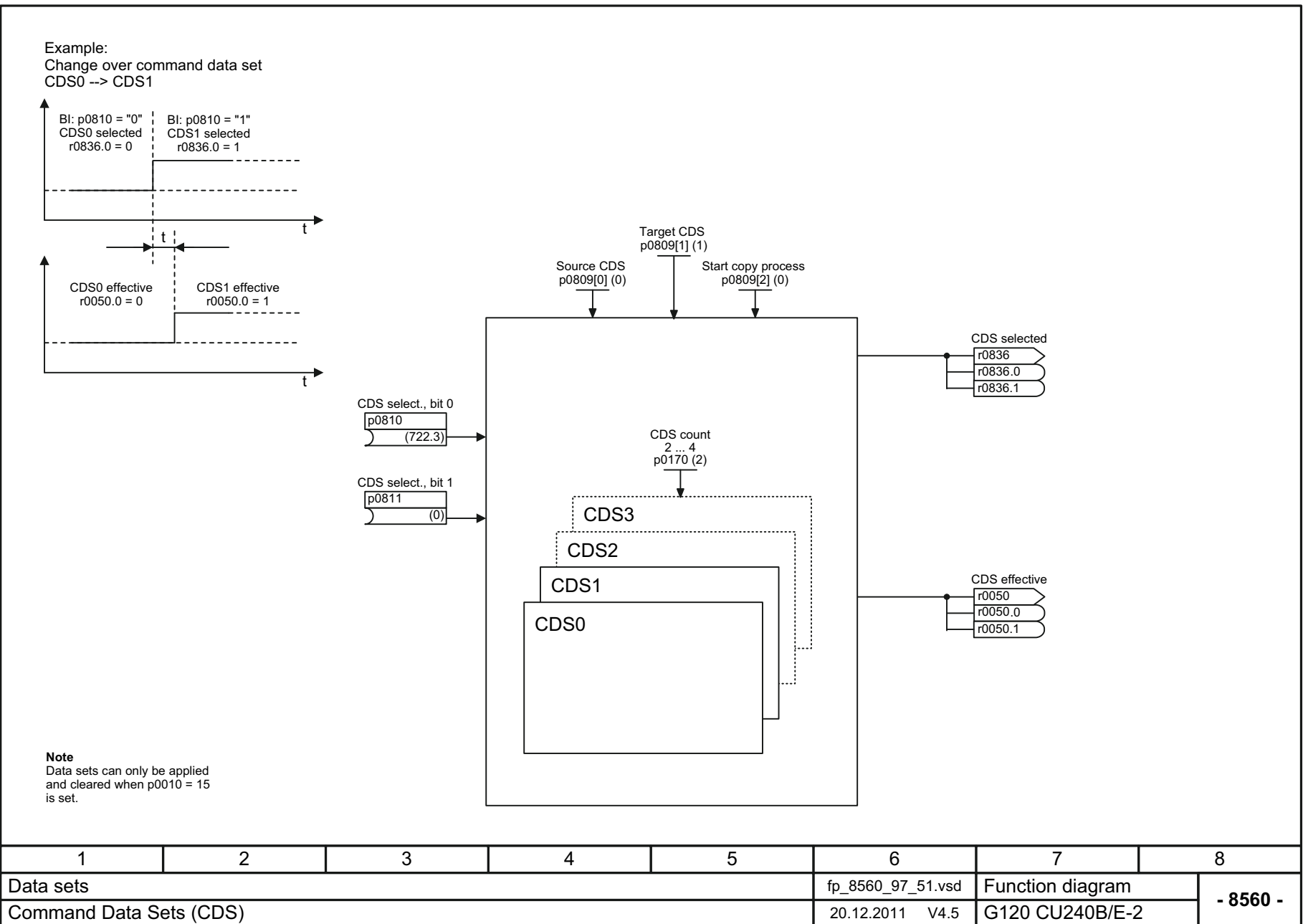


Fig. 2-142 8560 – Command Data Sets (CDS)

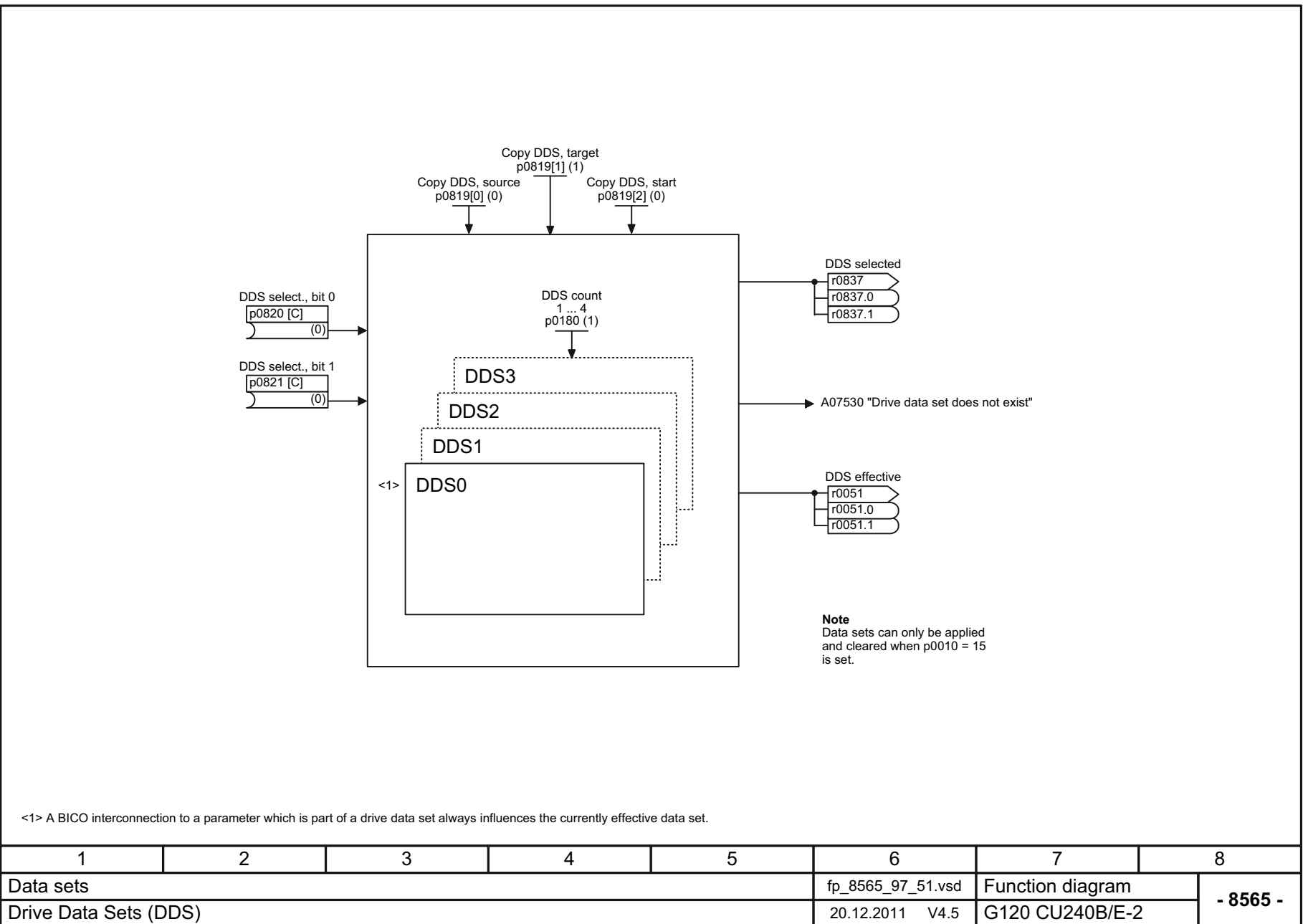


Fig. 2-143 8565 – Drive Data Sets (DDS)

# Faults and alarms

# 3

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## 3.1 Overview of faults and alarms

### 3.1.1 General information

#### Display of faults and alarms (fault and alarm messages)

A message comprises a letter followed by the relevant number.

The letter identifies the message type and has the following meaning:

- A means "Alarm"
- F means "Fault"
- N means "No message" or "Internal message" ("No report")
- C means "Safety message"

Brackets with the letters A, F or N indicate that the message type can be changed, e.g. A01016 (F) means that the alarm A01016 can also be parameterized as a fault. The letter in brackets specifies which message type can be set via parameters p2118 and p2119.

Example:

p2118[5] = 1016 (alarm A01016 (F) "Firmware changed")

p2119[5] = 1 (p2119 = 1 corresponds to fault (F))

This has changed the alarm "Firmware changed" to a fault.

Faults are stored in parameter r0945/r0947 under their code number (e.g. F01003 = 1003). The associated fault value can be found in parameter r0949. The value 0 is entered if a fault has no fault value. It is also possible to read out the time that a fault occurred (r0948) and the number of faults (p0952).

The alarms are stored in parameter r2110/r2122 under their code number (e.g. A01503 = 1503) and can be read out from there. The associated alarm value can be found in parameter r2124 and the time of the alarm occurrence in r2123.



## Differences between faults and alarms

The differences between faults and alarms are as follows:

Tabelle 3-1 Differences between faults and alarms

Type	Description
Faults	<p>What happens when a fault occurs?</p> <ul style="list-style-type: none"> <li>• The appropriate fault reaction is triggered.</li> <li>• Status bit ZSW1.3 is set.</li> <li>• The fault is entered in the fault buffer.</li> </ul> <p>How are faults eliminated?</p> <ul style="list-style-type: none"> <li>• Remove the original cause of the fault.</li> <li>• Acknowledge the fault.</li> </ul>
Alarms	<p>What happens when an alarm occurs?</p> <ul style="list-style-type: none"> <li>• Status signal ZSW1.7 is set.</li> <li>• The alarm is entered in the alarm buffer.</li> </ul> <p>How are alarms eliminated?</p> <ul style="list-style-type: none"> <li>• Alarms acknowledge themselves. If the cause of the alarm is no longer present, they automatically reset themselves.</li> </ul>

### 3.1.2 Fault reactions

Specifies the default reaction in the event of a fault. The optional brackets indicate whether the fault reaction can be changed and which fault reactions can be set (p2100, p2101). The following fault reactions are defined:

Table 3-2 Fault reactions

List	PROFId- rive	Reaction	Description
NONE	-	None	No reaction when a fault occurs.
OFF1	ON/ OFF	Brake along the ramp-function generator deceleration ramp followed by pulse disable	<b>Speed control</b> <ul style="list-style-type: none"> <li>n_set = 0 is input immediately to brake the drive along the ramp-function generator deceleration ramp (p1121).</li> <li>Zero speed is detected if the actual speed drops below the threshold (p1226) or if the monitoring time (p1227) started when the speed setpoint ≤ speed threshold (p1226) has expired.</li> </ul> <b>Torque control (p1300 = 22)</b> <ul style="list-style-type: none"> <li>The following applies for torque control: Reaction as for OFF2</li> <li>When the system switches to torque control with p1501, the following applies: There is no separate braking reaction.</li> </ul>
OFF2	COAST STOP	Internal/external pulse disable	<b>Speed and torque control</b> <ul style="list-style-type: none"> <li>Immediate pulse suppression, the drive “coasts” to a standstill.</li> <li>"Switching on inhibited" is activated.</li> </ul>
OFF3	QUICK STOP	Brake along the OFF3 deceleration ramp followed by pulse disable	<b>Speed control</b> <ul style="list-style-type: none"> <li>n_set = 0 is input immediately to brake the drive along the OFF3 deceleration ramp (p1135).</li> <li>Zero speed is detected if the actual speed drops below the threshold (p1226) or if the monitoring time (p1227) started when the speed setpoint ≤ speed threshold (p1226) has expired.</li> <li>"Switching on inhibited" is activated.</li> </ul> <b>Torque control (p1300 = 22)</b> <ul style="list-style-type: none"> <li>Changeover to speed-controlled operation and other reactions as described for speed-controlled operation.</li> </ul>
STOP2	-	n_set = 0	<ul style="list-style-type: none"> <li>n_set = 0 is input immediately to brake the drive along the OFF3 deceleration ramp (p1135). Although braking is performed on the OFF3 deceleration down, r0052 bit 5 = 1.</li> <li>The drive remains in speed control mode.</li> </ul>
IASC/DCBRK	-	-	<ul style="list-style-type: none"> <li>If a fault occurs with this fault reaction, DC braking is triggered.</li> <li>DC braking must have been commissioned (p1230 to p1239).</li> </ul>

### 3.1.3 Acknowledgement of faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been remedied. The optional brackets indicate whether the default acknowledgement can be changed and which acknowledgement can be adjusted via parameters (p2126, p2127).

Table 3-3 Acknowledgement of faults

Acknowledge-ment	Description						
POWER ON	<p>The fault is acknowledged via a POWER ON (switch Control Unit off and on again).</p> <p><b>Note:</b> 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 as follows:</p> <p>1 Acknowledge by setting parameter: p3981 = 0 --&gt; 1</p> <p>2 Acknowledge via binector inputs:</p> <table border="0"> <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 --&gt; 1 (edge)</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• These faults can also be acknowledged by a POWER ON.</li> <li>• If this action has not eliminated the fault cause, the fault will continue to be displayed after acknowledgement.</li> </ul>	p2103	BI: 1. Acknowledge faults	p2104	BI: 2. Acknowledge faults	p2105	BI: 3. Acknowledge faults
p2103	BI: 1. Acknowledge faults						
p2104	BI: 2. Acknowledge faults						
p2105	BI: 3. Acknowledge faults						

## 3.2 List of faults and alarms

Product: SINAMICS G120 CU240, Version: 4502400, Language: eng  
Objects: CU240B-2, CU240B-2\_DP, CU240E-2, CU240E-2\_DP, CU240E-2\_F, CU240E-2\_PN\_F, CU240E-2\_PN

<b>F01000</b>	<b>Internal software error</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	An internal software error has occurred. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- evaluate fault buffer (r0945).</li> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- upgrade firmware to later version.</li> <li>- contact the Hotline.</li> <li>- replace the Control Unit.</li> </ul>
<b>F01001</b>	<b>FloatingPoint exception</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	An exception occurred during an operation with the FloatingPoint data type. The error may be caused by the base system or an OA application (e.g., FBLOCKS, DCC). Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting. Note: Refer to r9999 for further information about this fault. r9999[0]: Fault number. r9999[1]: Program counter at the time when the exception occurred. r9999[2]: Cause of the FloatingPoint exception. Bit 0 = 1: Operation invalid Bit 1 = 1: Division by zero Bit 2 = 1: Overflow Bit 3 = 1: Underflow Bit 4 = 1: Imprecise result
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- check configuration and signals of the blocks in FBLOCKS.</li> <li>- check configuration and signals of DCC charts.</li> <li>- upgrade firmware to later version.</li> <li>- contact the Hotline.</li> </ul>
<b>F01002</b>	<b>Internal software error</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	An internal software error has occurred. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- upgrade firmware to later version.</li> <li>- contact the Hotline.</li> </ul>
<b>F01003</b>	<b>Acknowledgement delay when accessing the memory</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	A memory area was accessed that does not return a "READY". Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- contact the Hotline.</li> </ul>

<b>N01004 (F, A)</b>	<b>Internal software error</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	An internal software error has occurred. Fault value (r0949, hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- read out diagnostics parameter (r9999). - contact the Hotline. See also: r9999 (Software error internal supplementary diagnostics)
<b>F01005</b>	<b>File upload/download error</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The upload or download of EEPROM data was unsuccessful. Fault value (r0949, interpret hexadecimal): yyxxxx hex: yy = component number, xxxx = fault cause xxxx = 000B hex = 11 dec: Power unit component has detected a checksum error. xxxx = 000F hex = 15 dec: The selected power unit will not accept the content of the EEPROM file. xxxx = 0011 hex = 17 dec: Power unit component has detected an internal access error. xxxx = 0012 hex = 18 dec: After several communication attempts, no response from the power unit component. xxxx = 008B hex = 140 dec: EEPROM file for the power unit component not available on the memory card. xxxx = 008D hex = 141 dec: An inconsistent length of the firmware file was signaled. It is possible that the download/upload has been interrupted. xxxx = 0090 hex = 144 dec: When checking the file that was loaded, the component detected a fault (checksum). It is possible that the file on the memory card is defective. xxxx = 0092 hex = 146 dec: This SW or HW does not support the selected function. xxxx = 009C hex = 156 dec: Component with the specified component number is not available (p7828). xxxx = Additional values: Only for internal Siemens troubleshooting.
<b>Remedy:</b>	Save a suitable firmware file or EEPROM file for upload or download in folder "/ee_sac/" on the memory card.
<b>A01009 (N)</b>	<b>CU: Control module overtemperature</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The temperature (r0037[0]) of the control module (Control Unit) has exceeded the specified limit value.
<b>Remedy:</b>	- check the air intake for the Control Unit. - check the Control Unit fan. Note: The alarm automatically disappears after the limit value has been undershot.
<b>F01010</b>	<b>Drive type unknown</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	An unknown drive type was found.
<b>Remedy:</b>	- replace Power Module. - carry out a POWER ON (power off/on). - upgrade firmware to later version. - contact the Hotline.

<b>F01015</b>	<b>Internal software error</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	An internal software error has occurred. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.
<b>A01016 (F)</b>	<b>Firmware changed</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	At least one firmware file in the directory was illegally changed on the non-volatile memory (memory card/device memory) with respect to the version when shipped from the factory. 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.
<b>Remedy:</b>	For the non-volatile memory for the firmware (memory card/device memory), restore the delivery condition. Note: The file involved can be read out using parameter r9925. The status of the firmware check is displayed using r9926. See also: r9925 (Firmware file incorrect), r9926 (Firmware check status)
<b>A01017</b>	<b>Component lists changed</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	On the memory 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): zyx dec: x = Problem, y = Directory, x = File name x = 1: File does not exist. x = 2: Firmware version of the file does not match the software version. x = 3: File checksum is incorrect. y = 0: Directory /SIEMENS/SINAMICS/DATA/ y = 1: Directory /ADDON/SINAMICS/DATA/ z = 0: File MOTARM.ACX z = 1: File MOTSRM.ACX z = 2: File MOTSLM.ACX z = 3: File ENCDATA.ACX z = 4: File FILTDATA.ACX z = 5: File BRKDATA.ACX z = 6: File DAT_BEAR.ACX z = 7: File CFG_BEAR.ACX
<b>Remedy:</b>	For the file on the memory card involved, restore the status originally supplied from the factory.
<b>F01018</b>	<b>Bootling has been interrupted several times</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	Module bootling was interrupted several times. Possible reasons for bootling being interrupted: - POWER OFF of the module. - CPU crash. - USER data invalid. After this fault is output, then the module is booted with the factory settings.

**Remedy:** Power down the module and power it up again.  
**Note:**  
 After switching on, the module reboots from the USER data (if available).  
 If the fault situation is repeated, then this fault is again output after several interrupted boots.

---

**A01019 Writing to the removable data medium unsuccessful**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The write access to the removable data medium was unsuccessful.  
**Remedy:** Remove and check the removable data medium. Then run the data backup again.

---

**A01020 Writing to RAM disk unsuccessful**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** A write access to the internal RAM disk was unsuccessful.  
**Remedy:** Adapt the file size for the system logbook to the internal RAM disk (p9930).  
 See also: p9930 (System logbook activation)

---

**A01021 Removable data medium as USB data storage medium from the PC used**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The removable data medium is used as USB data storage medium from a PC. As a consequence, the drive cannot access the removable data medium. When backing up, the configuration data cannot be saved on the removable data medium.  
 Fault value (r0949, interpret decimal):  
 1: The know-how protection as well as the copy protection for the removable data medium is active. Backup is inhibited.  
 2: The configuration data are only backed up in the CU.  
 See also: r7760 (Write protection/know-how protection status), r9401 (Safely remove memory card status)  
**Remedy:** Deactivate the USB connection to the PC and back up the configuration data.  
**Note:**  
 The alarm is automatically canceled when disconnecting the USB connection or when removing the removable data medium.  
 See also: r9401 (Safely remove memory card status)

---

**F01023 Software timeout (internal)**

**Reaction:** NONE  
**Acknowledge:** IMMEDIATELY  
**Cause:** An internal software timeout 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 firmware to later version.  
 - contact the Hotline.

---

**A01028 Configuration error**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The parameterization that was downloaded was generated with a different module type (Order No., MLFB).  
**Remedy:** Save parameters in a non-volatile fashion (p0971 = 1).

---

**F01030 Sign-of-life failure for master control**

**Reaction:** OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, 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 communication fails!

---

**F01033 Units changeover: Reference parameter value invalid**

**Reaction:** NONE  
**Acknowledge:** IMMEDIATELY  
**Cause:** When changing over the units to the referred representation type, it is not permissible for any of the required reference parameters to be equal to 0.0  
Fault value (r0949, parameter):  
Reference parameter whose value is 0.0.  
See also: p0505 (Selecting the system of units), p0595 (Technological unit selection)  
**Remedy:** Set the value of the reference parameter to a number different than 0.0.  
See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

---

**F01034 Units changeover: Calculation parameter values after reference value change unsuccessful**

**Reaction:** NONE  
**Acknowledge:** IMMEDIATELY  
**Cause:** The change of a reference parameter meant that for an involved parameter the selected value was not able to be re-calculated in the per unit representation. 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, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004  
**Remedy:** Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation.  
See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

---

**A01035 (F) ACX: Parameter back-up file corrupted**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** When the Control Unit is 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.  
It is possible that the backup was interrupted by switching off or withdrawing the memory card.  
Alarm value (r2124, interpret hexadecimal):  
ddccbbaa hex:  
aa = 01 hex:  
Power up was realized without data backup. The drive is in the factory setting.  
aa = 02 hex:  
The last available internal backup data record was loaded. The parameterization must be checked. It is recommended that the parameterization is downloaded again.  
aa = 03 hex:  
The last available data record from the memory card was loaded. The parameterization must be checked.  
aa = 04 hex:  
An invalid data backup was loaded from the memory card into the drive. The drive is in the factory setting.  
dd, cc, bb:  
Only for internal Siemens troubleshooting.  
See also: p0971 (Save parameters)  
**Remedy:**  
- Download the project again with the commissioning software.  
- save all parameters (p0971 = 1 or "copy RAM to ROM").

---

**F01036 (A) ACX: Parameter back-up file missing**

**Reaction:** NONE (OFF1, OFF2, OFF3)  
**Acknowledge:** IMMEDIATELY  
**Cause:** When downloading the device parameterization, a parameter back-up file PSxxxxxyy.ACX associated with a drive object cannot be found.



Fault value (r0949, interpret hexadecimal):  
 Byte 1: yyy in the file name PSxxxxyy.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 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 p0971 = 1 so that all of the parameter files are again completely written to the non-volatile memory.  
 If you have not saved the project data, then first commissioning of the system has to be carried out again.

---

**F01038 (A) ACX: Loading the parameter back-up file unsuccessful**

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** An error has occurred when downloading PSxxxxyy.ACX or PTxxxxyy.ACX files from the non-volatile memory.

Fault value (r0949, interpret hexadecimal):  
 Byte 1: yyy in the file name PSxxxxyy.ACX  
 yyy = 000 --> consistency back-up file  
 yyy = 001 ... 062 --> drive object number  
 yyy = 099 --> PROFIBUS parameter back-up file  
 Byte 2:  
 255: Incorrect drive object type.  
 254: Topology comparison unsuccessful -> drive object type was not able to be identified.  
 Reasons could be:  
 - Incorrect component type in the actual topology  
 - Component does not exist in the actual topology.  
 - Component not active.  
 Additional values:  
 Only for internal Siemens troubleshooting.  
 Byte 4, 3:  
 Only for internal Siemens troubleshooting.

**Remedy:** - If you have saved the project data using the commissioning software, download the project again. Save using the function "Copy RAM to ROM" or with p0971 = 1 so that all of the parameter files are again completely written to the non-volatile memory.  
 - replace the memory card or Control Unit.

---

**F01039 (A) ACX: Writing to the parameter back-up file was unsuccessful**

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** Writing to at least one parameter back-up file PSxxxxyy.\*\*\* in the non-volatile memory was unsuccessful.  
 - In the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxxyy.\*\*\* has the "read only" file attribute and cannot be overwritten.  
 - There is not sufficient free memory space available.  
 - The non-volatile memory is defective and cannot be written to.

Fault value (r0949, interpret hexadecimal):  
 dcba hex  
 a = yyy in the file names PSxxxxyy.\*\*\*  
 a = 000 --> consistency back-up file  
 a = 001 ... 062 --> drive object number  
 a = 099 --> PROFIBUS parameter back-up file  
 b = xxx in the file names PSxxxxyy.\*\*\*  
 b = 000 --> data save started with p0971 = 1  
 b = 010 --> data save started with p0971 = 10  
 b = 011 --> data save started with p0971 = 11  
 b = 012 --> data save started with p0971 = 12  
 d, c:  
 Only for internal Siemens troubleshooting.

**Remedy:**

- check the file attribute of the files (PSxxxxxyy.\*\*\*, CAxxxxxyy.\*\*\*, CCxxxxxyy.\*\*\*) and, if required, change from "read only" to "writeable".
- check the free memory space in the non-volatile memory. Approx. 80 kbyte of free memory space is required for every drive object in the system.
- replace the memory card or Control Unit.

---

**F01040 Save parameter settings and carry out a POWER ON**

**Reaction:** OFF2

**Acknowledge:** POWER ON

**Cause:** A parameter has been changed that requires the parameters to be backed up and the Control Unit to be switched OFF and ON again.

**Remedy:**

- Save parameters (p0971).
- carry out a POWER ON (power off/on) for the Control Unit.

---

**F01042 Parameter error during project download**

**Reaction:** OFF2 (NONE, OFF1, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value).  
For the specified parameter, it was detected that dynamic limits were exceeded that may possibly depend on other parameters.  
Fault value (r0949, interpret hexadecimal):  
ccbbaaaa hex  
aaaa = Parameter  
bb = Index  
cc = fault cause  
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 available.  
17: Task cannot be executed due to operating state.  
20: Illegal value.  
21: Response too long.  
22: Parameter address illegal.  
23: Format illegal.  
24: Number of values not consistent.  
108: Unit unknown.  
Additional values:  
Only for internal Siemens troubleshooting.

**Remedy:**

- enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.

---

**F01043 Fatal error at project download**

**Reaction:** OFF2 (OFF1, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A fatal error was detected when downloading a project using the commissioning software.  
Fault value (r0949, interpret decimal):  
1: Device status cannot be changed to Device Download (drive object ON?).  
2: Incorrect drive object number.  
8: Maximum number of drive objects that can be generated exceeded.  
11: Error while generating a drive object (global component).  
12: Error while generating a drive object (drive component).  
13: Unknown drive object type.  
14: Drive status cannot be changed to "ready for operation" (p0947 and p0949).

15: Drive status cannot be changed to drive download.  
 16: Device status cannot be changed to "ready for operation".  
 18: A new download is only possible if the factory settings are restored for the drive unit.  
 20: The configuration is inconsistent.  
 21: Error when accepting the download parameters.  
 22: SW-internal download error.  
 100: The download was canceled, because no write requests were received from the commissioning client. ( e.g. for interrupted communication).  
 Additional values: only for internal Siemens troubleshooting.

**Remedy:**

- use the current version of the commissioning software.
- modify the offline project and download again (e.g. compare the motor and Power Module in the offline project and on the drive).
- change the drive state (is a drive rotating or is there a message/signal?).
- carefully note any other messages/signals and remove their cause.
- boot from previously saved files (power-down/power-up or p0970=10,...).

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**F01044 CU: Descriptive data error**

**Reaction:** OFF2  
**Acknowledge:** POWER ON  
**Cause:** An error was detected when loading the descriptive data saved in the non-volatile memory.  
**Remedy:** Replace the memory card or Control Unit.

---

**A01045 Configuring data invalid**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** An error was detected when evaluating the parameter files PSxxxxxy.ACX, PTxxxxxy.ACX, CAxxxxxy.ACX, or CCxxxxxy.ACX saved in the non-volatile memory. Because of this, under certain circumstances, several of the saved parameter values were not able to be accepted. Also see r9406 up to r9408.  
 Alarm value (r2124, interpret hexadecimal):  
 Only for internal Siemens troubleshooting.  
**Remedy:**

- Check the parameters displayed in r9406 up to r9408, and correct these if required.
- Restore the factory setting using (p0970 = 1) and re-load the project into the drive unit.

Then save the parameterization in STARTER using the "Copy RAM to ROM" function or with p0971 = 1. This overwrites the incorrect parameter files in the non-volatile memory – and the alarm is withdrawn.

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**A01049 It is not possible to write to file**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** It is not possible to write into a write-protected file (PSxxxxxx.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 in the non-volatile memory under .../USER/SINAMICS/DATA/... When required, remove write protection and save again (e.g. set p0971 to 1).

---

**F01054 CU: System limit exceeded**

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY  
**Cause:** At least one system overload has been identified.  
 Fault value (r0949, interpret decimal):  
 1: Computing time load too high (r9976[1]).  
 5: Peak load too high (r9976[5]).  
 See also: r9976 (System utilization)  
**Remedy:** Re fault value = 1, 5:

- reduce the computing time load of the drive unit (r9976[1] and r9976[5]) to under 100 %.
- check the sampling times and adjust if necessary (p0115, p0799, p4099).
- de-activate function modules.
- de-activate drive objects.
- remove drive objects from the target topology.
- note the DRIVE-CLiQ topology rules and if required, change the DRIVE-CLiQ topology.

When using the Drive Control Chart (DCC) or free function blocks (FBLOCKS), the following applies

- the computing time load of the individual run-time groups on a drive object can be read out in r21005 (DCC) or r20005 (FBLOCKS).
- if necessary, the assignment of the run-time group (p21000, p20000) can be changed in order to increase the sampling time (r21001, r20001).
- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

<b>A01064 (F)</b>	<b>CU: Internal error (CRC)</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	CRC error in the Control Unit program memory
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- upgrade firmware to later version.</li> <li>- contact the Hotline.</li> </ul>
<b>A01066</b>	<b>Buffer memory: 70% fill level reached or exceeded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The non-volatile buffer memory for parameter changes is filled to at least 70%. This can also occur if the buffer memory is active (p0014 = 1) and parameters are continually changed via a fieldbus system.</p>
<b>Remedy:</b>	<p>If required, de-activate and clear the buffer memory (p0014 = 0). If required, clear the buffer memory (p0014 = 2). In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared:</p> <ul style="list-style-type: none"> <li>- p0971 = 1</li> <li>- power down/power up the Control Unit</li> </ul> <p>See also: p0014 (Buffer memory mode)</p>
<b>A01067</b>	<b>Buffer memory: 100 % fill level reached</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The non-volatile buffer memory for parameter changes is filled to 100%. All additional parameter changes will no longer be taken into account in the non-volatile buffer memory. However, parameter changes can still be made in the volatile memory (RAM). This can also occur if the buffer memory is active (p0014 = 1) and parameters are continually changed via a fieldbus system.</p>
<b>Remedy:</b>	<p>If required, de-activate and clear the buffer memory (p0014 = 0). If required, clear the buffer memory (p0014 = 2). In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared:</p> <ul style="list-style-type: none"> <li>- p0971 = 1</li> <li>- power down/power up the Control Unit</li> </ul> <p>See also: p0014 (Buffer memory mode)</p>
<b>F01068</b>	<b>CU: Data memory, memory overflow</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The utilization for a data memory area is too large. Fault value (r0949, interpret binary): Bit 0 = 1: High-speed data memory 1 overloaded Bit 1 = 1: High-speed data memory 2 overloaded Bit 2 = 1: High-speed data memory 3 overloaded Bit 3 = 1: High-speed data memory 4 overloaded</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- de-activate the function module.</li> <li>- de-activate drive object.</li> <li>- remove the drive object from the target topology.</li> </ul>

<b>A01069</b>	<b>Parameter backup and device incompatible</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The parameter backup on the memory card and the drive unit do not match. The module boots with the factory settings. Example: Devices A and B. are not compatible and a memory card with the parameter backup for device A is inserted in device B.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- insert a memory card with compatible parameter backup and carry out a POWER ON.</li> <li>- insert a memory card without parameter backup and carry out a POWER ON.</li> <li>- If required, withdraw the memory card and carry out POWER ON.</li> <li>- save the parameters (p0971 = 1).</li> </ul>
<b>F01105 (A)</b>	<b>CU: Insufficient memory</b>
<b>Reaction:</b>	OFF1
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	Too many data sets are configured on this Control Unit. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- reduce the number of data sets.</li> </ul>
<b>F01107</b>	<b>Save to memory card unsuccessful</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	A data save to the memory card was not able to be successfully carried out. <ul style="list-style-type: none"> <li>- Memory card is defective.</li> <li>- Insufficient space on memory card.</li> </ul> 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 could not be created on the memory card. 4: A new file could not be created on the memory card. 5: A new file could not be written on the memory card.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- try to save again.</li> <li>- replace the memory card or Control Unit.</li> </ul>
<b>F01112</b>	<b>CU: Power unit not permissible</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	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. PM340).
<b>Remedy:</b>	Replace the power unit that is not permissible by a component that is permissible.
<b>F01120 (A)</b>	<b>Terminal initialization has failed</b>
<b>Reaction:</b>	OFF1 (OFF2)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	An internal software error occurred while the terminal functions were being initialized. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- upgrade firmware to later version.</li> <li>- contact the Hotline.</li> <li>- replace the Control Unit.</li> </ul>

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**F01122 (A)      Frequency at the measuring probe input too high**

**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 1 (term. 6)  
                     2: DI 3 (term. 8)

**Remedy:**      Reduce the frequency of the pulses at the measuring probe input.

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**F01205      CU: Time slice overflow**

**Reaction:**      OFF2

**Acknowledge:**      POWER ON

**Cause:**      Insufficient computation time.  
                     Fault value (r0949, interpret hexadecimal):  
                     Only for internal Siemens troubleshooting.

**Remedy:**      Contact the Hotline.

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**F01250      CU: CU-EEPROM incorrect read-only data**

**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.

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**A01251      CU: CU-EEPROM incorrect read-write data**

**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:  
                     - clear the fault memory (p0952 = 0).  
                     - replace the Control Unit.

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**F01257      CU: Firmware version out of date**

**Reaction:**      OFF2

**Acknowledge:**      POWER ON

**Cause:**      The Control Unit firmware is too old.  
                     Fault value (r0949, interpret hexadecimal):  
                     bbbbbbbaa hex: aa = unsupported component  
                     aa = 01 hex = 1 dec:  
                     The firmware being used does not support the Control Unit.  
                     aa = 02 hex = 2 dec:  
                     The firmware being used does not support the Control Unit.  
                     aa = 03 hex = 3 dec:  
                     The firmware being used does not support the Power Module.  
                     aa = 04 hex = 4 dec:  
                     The firmware being used does not support the Control Unit.

**Remedy:**      Re fault value = 1, 2, 4:  
                     - Upgrade the firmware of the Control Unit.  
                     For fault value = 3:  
                     - Upgrade the firmware of the Control Unit.  
                     - Replace the Power Module by a component that is supported.

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<b>F01340</b>	<b>Topology: Too many components on one line</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>For the selected communications clock cycle, too many DRIVE-CLiQ components are connected to one line of the Control Unit.</p> <p>Fault value (r0949, interpret hexadecimal):            xyy hex: x = fault cause, yy = component number or connection number.</p> <p>1yy:            The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all read transfers.</p> <p>2yy:            The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all write transfers.</p> <p>3yy:            Cyclic communication is fully utilized.</p> <p>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.</p> <p>The conditions of operation with a current controller sampling time of 31.25 µs have not been maintained.</p> <p>5yy:            Internal buffer overflow for net data of a DRIVE-CLiQ connection.</p> <p>6yy:            Internal buffer overflow for receive data of a DRIVE-CLiQ connection.</p> <p>7yy:            Internal buffer overflow for send data of a DRIVE-CLiQ connection.</p> <p>8yy:            The component clock cycles cannot be combined with one another</p> <p>900:            The lowest common multiple of the clock cycles in the system is too high to be determined.</p> <p>901:            The lowest common multiple of the clock cycles in the system cannot be generated with the hardware.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the DRIVE-CLiQ connection.</li> <li>- Reduce the number of components on the DRIVE-CLiQ line involved and distribute these to other DRIVE-CLiQ sockets of the Control Unit. This means that communication is uniformly distributed over several lines.</li> </ul> <p>Re fault value = 1yy - 4yy in addition:</p> <ul style="list-style-type: none"> <li>- increase the sampling times (p0112, p0115, p4099). If necessary, for DCC or FBLOCKS, change the assignment of the run-time group (p21000, p20000) so that the sampling time (r21001, r20001) is increased.</li> <li>- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).</li> <li>- reduce the function modules (r0108).</li> <li>- establish the conditions for operation with a current controller sampling time of 31.25 µs (at the DRIVE-CLiQ line, only operate Motor Modules and Sensor Modules with this sampling time and only use a permitted Sensor Module (e.g. SMC20, this means a 3 at the last position of the order number)).</li> <li>- For an NX, the corresponding Sensor Module for a possibly existing second measuring system should be connected to a free DRIVE-CLiQ socket of the NX.</li> </ul> <p>Re fault value = 8yy in addition:</p> <ul style="list-style-type: none"> <li>- check the clock cycles settings (p0112, p0115, p4099). Clock cycles on a DRIVE-CLiQ line must be perfect integer multiples of one another. As clock cycle on a line, all clock cycles of all drive objects in the previously mentioned parameters apply, which have components on the line involved.</li> </ul> <p>Re fault value = 9yy in addition:</p> <ul style="list-style-type: none"> <li>- check the clock cycles settings (p0112, p0115, p4099). The lower the numerical value difference between two clock cycles, the higher the lowest common multiple. This behavior has a significantly stronger influence, the higher the numerical values of the clock cycles.</li> </ul>
<b>F01505 (A)</b>	<b>BICO: Interconnection cannot be established</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A PROFIdrive telegram has been set (p0922).</p> <p>An interconnection contained in the telegram was not able to be established.</p> <p>Fault value (r0949, interpret decimal):            Parameter receiver that should be changed.</p>
<b>Remedy:</b>	Establish another interconnection.

<b>F01510</b>	<b>BICO: Signal source is not float type</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The requested 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).
<b>Remedy:</b>	Interconnect this connector input with a connector output having a float data type.
<b>F01511 (A)</b>	<b>BICO: Interconnection with different scalings</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values. - the BICO output has different normalized units than the BICO input. - message only for interconnections within a drive object. Example: The BICO output has, as normalized unit, voltage and the BICO input has current. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input. p2002: contains the reference value for current p2001: contains the reference value for voltage Fault value (r0949, interpret decimal): Parameter number of the BICO input (signal sink).
<b>Remedy:</b>	Not necessary.
<b>F01512</b>	<b>BICO: No scaling available</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	An attempt was made to determine a conversion factor for a scaling that does not exist. Fault value (r0949, interpret decimal): Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.
<b>Remedy:</b>	Apply scaling or check the transfer value.
<b>F01513 (A)</b>	<b>BICO: Interconnection cross DO with different scalings</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values. 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. Example 1: BICO output with voltage normalized unit, BICO input with current normalized unit, BICO output and BICO input lie in different drive objects. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input. p2002: contains the reference value for current p2001: contains the reference value for voltage Example 2: BICO output with voltage normalized unit in drive object 1 (DO1), BICO input with voltage normalized unit in drive object 2 (DO2). The reference values for voltage (p2001) of the two drive objects have different values. This means that the factor p2001(DO1)/p2001(DO2) is calculated between the BICO output and the BICO input. p2001: contains the reference value for voltage, drive objects 1, 2 Fault value (r0949, interpret decimal): Parameter number of the BICO input (signal sink).
<b>Remedy:</b>	Not necessary.



<b>A01514 (F)</b>	<b>BICO: Error when writing during a reconnect</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	During a reconnect operation (e.g. while booting or downloading - but can also occur in normal operation) a parameter was not able to be written to. Example: When writing to BICO input with double word format (DWORD), 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 sink).
<b>Remedy:</b>	Not necessary.
<b>F01515 (A)</b>	<b>BICO: Writing to parameter not permitted as the master control is active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	When changing the number of CDS or when copying from CDS, the master control is active.
<b>Remedy:</b>	If required, return the master control and repeat the operation.
<b>A01590 (F)</b>	<b>Drive: Motor maintenance interval expired</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	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)
<b>Remedy:</b>	carry out service/maintenance and reset the service/maintenance interval (p0651).
<b>F01600</b>	<b>SI P1: STOP A initiated</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The drive-integrated "Safety Integrated" function on processor 1 has detected an error and initiated a STOP A. - forced checking procedure of the safety shutdown path on processor 1 unsuccessful. - subsequent response to fault F01611 (defect in a monitoring channel). Fault value (r0949, interpret decimal): 0: Stop request from processor 2. 1005: Pulses suppressed 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 F01611.
<b>Remedy:</b>	- select Safe Torque Off and de-select again. For fault value = 9999: - carry out diagnostics for fault F01611. Note: STO: Safe Torque Off
<b>F01611</b>	<b>SI P1: Defect in a monitoring channel</b>
<b>Reaction:</b>	NONE (OFF1, OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The drive-integrated "Safety Integrated" function on processor 1 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F. Fault F01600 (SI P1: STOP A initiated) is output as a consequence of this fault. Fault value (r0949, interpret decimal): 0: Stop request from processor 2. 1 ... 999: Number of the cross-compared data that resulted in this fault. This number is also displayed in r9795. 2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits. 3: SI F-DI changeover tolerance time (p9650, p9850). 8: SI PROFIsafe address (p9610, p9810).

9: SI debounce time for STO (p9651, p9851).  
 1000: Watchdog timer has expired.  
 Within the time of approx. 5 x p9650, alternatively, the following was defined:  
 - Too many switching operations have occurred at the F-DI.  
 - Via PROFIsafe, STO was too frequently initiated (also as subsequent response).  
 1001, 1002: Initialization error, change timer / check timer.  
 2000: Status of the STO selection for both monitoring channels are different.  
 2001: Feedback of the safe pulse suppression on the two monitoring channels are different.  
 6000 ... 6999:  
 Error in the PROFIsafe control.  
 For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.  
 The significance of the individual message values is described in safety message C01711.

**Remedy:**

Re fault values 1 ... 999 described in "Cause":  
 - check the cross data comparison that resulted in a STOP F.  
 - carry out a POWER ON (power off/on).  
 For fault value = 1000:  
 - check the wiring of the F-DI (contact problems).  
 - PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.  
 Re fault value = 1001, 1002:  
 - carry out a POWER ON (power off/on).  
 Re fault value = 2000, 2001, 2002, 2004, 2005:  
 - check the tolerance time F-DI changeover and if required, increase the value (p9650/p9850).  
 - check the wiring of the F-DI (contact problems).  
 - check the causes of the STO selection in r9772. When the SI Motion functions are active (p9501 = 1), STO can also be selected using these functions.  
 Re fault value = 6000 ... 6999:  
 Refer to the description of the message values in safety message C01711.  
 Re fault values that are described in "Cause":  
 - carry out a POWER ON (power off/on).  
 - contact the Hotline.  
 - replace Control Unit.

**Note:**  
 F-DI: Failsafe Digital Input  
 STO: Safe Torque Off

#### **N01620 (F, A) SI P1: Safe Torque Off active**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The "Safe Torque Off" (STO) function has been selected on processor 1 using the input terminal and is active.  
**Note:**  
 This message does not result in a safety stop response.

**Remedy:** Not necessary.  
**Note:**  
 STO: Safe Torque Off

#### **F01625 SI P1: Sign-of-life error in safety data**

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The drive-integrated "Safety Integrated" function on processor 1 has detected an error in the sign-of-life of the safety data and initiated a STOP A.  
 - there is a communication error between processor 1 and processor 2 or communication has 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).  
 - check whether additional faults are present and if required, perform diagnostics.  
 - check the electrical cabinet design and cable routing for EMC compliance

<b>F01649</b>	<b>SI P1: Internal software error</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	An internal error in the Safety Integrated software on processor 1 has occurred. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on).</li> <li>- re-commission the "Safety Integrated" function and carry out a POWER ON.</li> <li>- contact the Hotline.</li> <li>- replace Control Unit.</li> </ul>
<b>F01650</b>	<b>SI P1: Acceptance test required</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The drive-integrated "Safety Integrated" function on processor 1 requires an acceptance test.</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>130: Safety parameters for processor 2 not available.</p> <p>Note:</p> <p>This fault value is always output when Safety Integrated is commissioned for the first time.</p> <p>1000: Reference and actual checksum on processor 1 are not identical (booting).</p> <ul style="list-style-type: none"> <li>- at least one checksum-checked piece of data is defective.</li> <li>- Safety parameters set offline and loaded into the Control Unit.</li> </ul> <p>2000: Reference and actual checksum on processor 1 are not identical (commissioning mode).</p> <ul style="list-style-type: none"> <li>- reference checksum incorrectly entered on processor 1 (p9799 not equal to r9798).</li> <li>- when de-activating the safety functions, p9501 was not deleted.</li> </ul> <p>2001: Reference and actual checksum on processor 2 are not identical (commissioning mode).</p> <ul style="list-style-type: none"> <li>- reference checksum incorrectly entered on processor 2 (p9899 not equal to r9898).</li> <li>- when de-activating the safety functions, p9501 was not deleted.</li> </ul> <p>2002: Enable of safety-related functions between the processor 1 and processor 2 differ (p9601 not equal to p9801).</p> <p>2003: Acceptance test is required as a safety parameter has been changed.</p> <p>2004: An acceptance test is required because a project with enabled safety-functions has been downloaded.</p> <p>2005: The Safety logbook has identified that a functional safety checksum has changed. An acceptance test is required.</p> <p>2020: Error when saving the safety parameters for the processor 2.</p> <p>9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.</p>
<b>Remedy:</b>	<p>For fault value = 130:</p> <ul style="list-style-type: none"> <li>- carry out safety commissioning routine.</li> </ul> <p>For fault value = 1000:</p> <ul style="list-style-type: none"> <li>- again carry out safety commissioning routine.</li> <li>- replace the memory card or Control Unit.</li> <li>- Using STARTER, activate the safety parameters for the drive involved (change settings, copy parameters, activate settings).</li> </ul> <p>For fault value = 2000:</p> <ul style="list-style-type: none"> <li>- check the safety parameters on processor 1 and adapt the reference checksum (p9799).</li> </ul> <p>For fault value = 2001:</p> <ul style="list-style-type: none"> <li>- check the safety parameters on processor 2 and adapt the reference checksum (p9899).</li> </ul> <p>For fault value = 2002:</p> <ul style="list-style-type: none"> <li>- enable the safety-related functions on processor 1 and check processor 2 (p9601 = p9801).</li> </ul> <p>Re fault value = 2003, 2004, 2005:</p> <ul style="list-style-type: none"> <li>- Carry out an acceptance test and generate an acceptance report.</li> </ul> <p>The fault with fault value 2005 can only be acknowledged when the "STO" function is de-selected.</p> <p>For fault value = 2020:</p> <ul style="list-style-type: none"> <li>- again carry out safety commissioning routine.</li> <li>- replace the memory card or Control Unit.</li> </ul> <p>For fault value = 9999:</p> <ul style="list-style-type: none"> <li>- carry out diagnostics for the other safety-related fault that is present.</li> </ul>

Note:

STO: Safe Torque Off

See also: p9799 (SI setpoint checksum SI parameters (processor 1)), p9899 (SI setpoint checksum SI parameters (processor 2))

<b>F01651</b>	<b>SI P1: Synchronization safety time slices unsuccessful</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The "Safety Integrated" function requires synchronization of the safety time slices between processor 1 and processor 2. This synchronization was unsuccessful. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- carry out a POWER ON (power off/on).
<b>F01653</b>	<b>SI P1: PROFIBUS/PROFINET configuration error</b>
<b>Reaction:</b>	NONE (OFF1, OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	There is a PROFIBUS/PROFINET configuration error for using Safety Integrated monitoring functions with a higher-level control. Note: For safety functions that have been enabled, this fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): 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. 231: The configured safety slot for the receive data from the F-PLC has the incorrect length. 250: A PROFIsafe slot is configured in the higher-level F control, however PROFIsafe is not enabled in the drive. 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. 331: The configured safety slot for the send data to the F-PLC has the incorrect length.
<b>Remedy:</b>	The following generally applies: - check and, if necessary, correct the PROFIBUS/PROFINET configuration of the safety slot on the master side. - upgrade the Control Unit software. For fault value = 250: - remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive. Re fault value = 231, 331: - configure the PROFIsafe telegram matching the parameterization in the F-PLC. The following applies for p9501.30 = 1 (F-DI via PROFIsafe is enabled): - PROFIsafe telegram 900 must be configured. For p9501.30 = 0 (F-DI not enabled via PROFIsafe), the following applies: - PROFIsafe telegram 30 must be configured.
<b>A01654 (F)</b>	<b>SI P1: Deviating PROFIsafe configuration</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The configuration of a PROFIsafe telegram in the higher-level control (F-PLC) does not match the parameterization in the drive. Note: This message does not result in a safety stop response. Alarm value (r2124, interpret decimal): 1: A PROFIsafe telegram is configured in the higher-level control, however PROFIsafe is not enabled in the drive (p9601.3). 2: PROFIsafe is parameterized in the drive; however, a PROFIsafe telegram has not been configured in the higher-level control.

**Remedy:**

The following generally applies:

- check and, if necessary, correct the PROFIsafe configuration in the higher-level control.

Re alarm value = 1:

- remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.

Re alarm value = 2:

- configure the PROFIsafe telegram to match the parameterization in the higher-level F-control.

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**F01655 SI P1: Align monitoring functions**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An error has occurred when aligning the Safety Integrated monitoring functions on processor 1 and processor 2. No common set of supported SI monitoring functions was able to be determined.

- there is a communication error between processor 1 and processor 2 or communication has failed.

**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).
- check the electrical cabinet design and cable routing for EMC compliance

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**F01656 SI P1: Parameter processor 2 parameter error**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When accessing the Safety Integrated parameters for the processor 2 in the non-volatile memory, 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 processor 2 corrupted.

131: Internal software error

132: Communication errors when uploading or downloading the safety parameters.

255: Internal software error on the Control Unit.

**Remedy:**

- re-commission the safety functions.
- replace the memory card or Control Unit.

For fault value = 129:

- activate the safety commissioning mode (p0010 = 95).
- adapt the PROFIsafe address (p9610).
- start the copy function for SI parameters (p9700 = D0 hex).
- acknowledge data change (p9701 = DC hex).
- exit the safety commissioning mode (p0010 = 0).
- save all parameters (p0971 = 1 or "copy RAM to ROM").
- carry out a POWER ON (power off/on) for the Control Unit.

For fault value = 132:

- check the electrical cabinet design and cable routing for EMC compliance

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**F01659 SI P1: Write request for parameter rejected**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The write request for one or several Safety Integrated parameters on processor 1 was rejected.

**Note:**

This fault does not result in a safety stop response.

Fault value (r0949, interpret decimal):

1: The Safety Integrated password is not set.

2: A reset of the drive parameters was selected. However, the Safety Integrated parameters were not reset, as Safety Integrated is presently enabled.

3: The interconnected STO input is in the simulation mode.

10: An attempt was made to enable the STO function although this cannot be supported.

14: An attempt was made to enable the PROFIsafe communications although this cannot be supported.

15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.

18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported.

20: An attempt was made to simultaneously enable both the drive-integrated motion monitoring functions via integrated F-DI and STO via terminals, even though these cannot be supported at the same time.  
 21: An attempt was made to enable the Safety Integrated functions although these cannot be supported by the connected Power Module.  
 26: At a digital input of the Control Unit, an attempt was made to activate the simulation mode (p0795), which is used by Safety Integrated (p10049).  
 See also: p0970, p3900, r9771, r9871

**Remedy:**

For fault value = 1:  
 - set the Safety Integrated password (p9761).  
 For fault value = 2:  
 - Inhibit Safety Integrated (p9501, p9601) or reset safety parameters (p0970 = 5), then reset the drive parameters again.  
 For fault value = 3:  
 - end the simulation mode for the digital input (p0795).  
 Re fault value = 10, 14, 15, 18, 20:  
 - check whether there are faults in the safety function alignment (F01655, F30655) and if required, carry out diagnostics for the faults involved.  
 - use a Control Unit that supports the required function.  
 For fault value = 21:  
 - use a Power Module that supports the Safety Integrated functions.  
 For fault value = 26:  
 - check whether p10049 is set. Also check p10006 and p10009. Check whether in p10046, p10047 a test top of the FDO with a read back input is parameterized.  
 Note:  
 STO: Safe Torque Off  
 See also: p9501, p9601, p9761, p9801

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**F01660**      **SI P1: Safety-related functions not supported**

**Reaction:**      OFF2

**Acknowledge:**      IMMEDIATELY (POWER ON)

**Cause:**      The Power Module does not support the safety-related functions. Safety Integrated cannot be commissioned.  
 Note:  
 This fault does not result in a safety stop response.

**Remedy:**      - use a Power Module that supports the safety-related functions.

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**F01661**      **SI CU: Simulation of the safety inputs active**

**Reaction:**      OFF2

**Acknowledge:**      IMMEDIATELY

**Cause:**      The simulation of the digital inputs of the Control Unit (p0795) is active.  
 It is not permissible that safety inputs (refer to p9620, p10022 ... p10032) are simulated.  
 Fault value (r0949, interpret binary):  
 The display bits indicate which DIs may not be simulated.

**Remedy:**      Deactivate the simulation of the digital inputs of the Control Unit for the safety inputs (refer to p795) and acknowledge the fault.

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**F01662**      **Error internal communications**

**Reaction:**      OFF2

**Acknowledge:**      POWER ON

**Cause:**      A module-internal communication error has occurred.  
 Fault value (r0949, interpret hexadecimal):  
 Only for internal Siemens troubleshooting.

**Remedy:**      - carry out a POWER ON (power off/on).  
 - upgrade firmware to later version.  
 - contact the Hotline.

<b>F01663</b>	<b>SI P1: Copying the SI parameters rejected</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>One of the following values is saved in p9700 or was entered offline: 87 or 208.</p> <p>This is the reason that when booting, an attempt is made to copy SI parameters from processor 1 to processor 2. However, no safety-relevant function has been selected on processor 1 (p9501 = 0, p9601 = 0). This is the reason that copying is not possible.</p> <p>Note:</p> <p>This fault does not result in a safety stop response.</p> <p>See also: p9700 (SI copy function)</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- Set p9700 to 0.</li> <li>- Check p9501 and/or p9601 and if required, correct.</li> <li>- Restart the copying function by entering the corresponding value into p9700.</li> </ul>
<b>F01665</b>	<b>SI P1: System is defective</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>200000 hex, 400000 hex, 8000yy hex (yy any):</p> <ul style="list-style-type: none"> <li>- Fault in the actual booting/operation.</li> </ul> <p>800004 hex:</p> <ul style="list-style-type: none"> <li>- Parameters p9500/p9300 are, under certain circumstances, not the same. In addition, Safety message C01711/C30711 is displayed.</li> </ul> <p>Additional values:</p> <ul style="list-style-type: none"> <li>- defect before the last time that the system booted.</li> </ul>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on).</li> <li>- upgrade firmware to later version.</li> <li>- contact the Hotline.</li> </ul> <p>Re fault value = 200000 hex, 400000 hex, 8000yy hex (yy any):</p> <ul style="list-style-type: none"> <li>- ensure that the Control Unit is connected to the Power Module.</li> </ul> <p>Re fault value = 800004 hex:</p> <ul style="list-style-type: none"> <li>- Check that parameters p9500/p9300 are the same.</li> </ul>
<b>A01666 (F)</b>	<b>SI Motion P1: Steady-state (static) 1 signal at the F-DI for safety-relevant acknowledgement</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>A logical 1 signal is present at the F-DI configured in p10006 for more than 10 seconds.</p> <p>If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal must be present. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.</p>
<b>Remedy:</b>	<p>Set the fail-safe digital input (F-DI) to a logical 0 signal (p10006).</p> <p>Note:</p> <p>F-DI: Failsafe Digital Input</p>
<b>A01669 (F, N)</b>	<b>SI Motion: Unfavorable combination of motor and power unit</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The combination of motor and power unit used is not suitable for using safe motion monitoring functions without an encoder.</p> <p>The ratio between the power unit rated current (r0207[0]) and rated motor current (p0305) is greater than 5.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>Number of the motor data set, which caused the fault.</p> <p>Notice:</p> <p>If this alarm is not observed, then message C01711 or C30711 – with the value 1041 ... 1044 – can sporadically occur.</p>
<b>Remedy:</b>	Use a suitable power unit with a lower power rating or a motor with a higher power rating.

<b>F01680</b>	<b>SI Motion P1: Checksum error safety monitoring functions</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The actual checksum calculated by the drive and entered in r9728 via the safety-relevant parameters does not match the reference checksum saved in p9729 at the last machine acceptance.</p> <p>Safety-relevant parameters have been changed or a fault is present.</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>0: Checksum error for SI parameters for motion monitoring.</p> <p>1: Checksum error for SI parameters for actual values.</p> <p>2: Checksum error for SI parameters for component assignment.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the safety-relevant parameters and if required, correct.</li> <li>- execute the function "Copy RAM to ROM".</li> <li>- perform a POWER ON if safety parameters requiring a POWER ON have been modified.</li> <li>- carry out an acceptance test.</li> </ul>
<b>F01681</b>	<b>SI Motion P1: Incorrect parameter value</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The parameter cannot be parameterized with this value.</p> <p>Note:</p> <p>This fault does not result in a safety stop response.</p> <p>Fault value (r0949, interpret decimal):</p> <p>yyyyxxxx dec:</p> <p>yyyy = supplementary information,</p> <p>xxxx = parameter</p> <p>yyyy = 0: no additional information available.</p> <p>xxxx = 9501:</p> <p>It is not permissible to enable the function "n&lt;nx hysteresis and filtering" (p9501.16) in conjunction with the function "extended functions without selection" (p9601.5).</p> <p>xxxx = 9522:</p> <p>The gear stage was set too high.</p> <p>xxxx = 9547:</p> <p>p9547 is too low.</p> <p>xxxx = 9585:</p> <p>For Safety without encoder and synchronous motor, a value of 4 must be entered into p9585.</p>
<b>Remedy:</b>	<p>Correct the parameter value.</p> <p>With hysteresis/filtering enabled (p9501.16 = 1), the following applies:</p> <ul style="list-style-type: none"> <li>- Set parameters p9546/p9346 and p9547/p9347 acc. to the following rule: <math>p9546 \geq 2 \times p9547</math>; <math>p9346 \geq 2 \times p9347</math>.</li> </ul> <p>xxxx = 9522:</p> <p>xxxx = 9585:</p> <ul style="list-style-type: none"> <li>- Correct parameters.</li> </ul>
<b>F01682</b>	<b>SI Motion P1: Monitoring function not supported</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<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).</p> <p>3: Monitoring function SLS override not supported (p9501.5).</p> <p>4: Monitoring function external ESR activation not supported (p9501.4).</p> <p>5: Monitoring function F-DI in PROFIsafe not supported (p9501.30).</p> <p>6: Enable actual value synchronization not supported (p9501.3).</p> <p>9: Monitoring function not supported by the firmware or enable bit not used.</p> <p>11: Only encoderless monitoring functions integrated in the drive are supported.</p> <p>12: Safety Integrated for SINUMERIK is not supported on this Control Unit.</p>



20: Motion monitoring functions integrated in the drive are only supported in conjunction with PROFIsafe (p9501/p9601.1 ... 2 and p9801.1 ... 2).  
 21: PROFIsafe only supported in conjunction with motion monitoring functions integrated in the drive (p9501/p9601.1 ... 2 and p9801.1 ... 2).  
 23: CU240 does not support monitoring functions requiring an encoder.  
 25: Drive-integrated motion monitoring functions not supported (p9501, p9601.2).

**Remedy:** De-select the monitoring function involved (p9501, p9601, p9801).  
 Note:  
 SCA: Safe Cam  
 SDI: Safe Direction (safe motion direction)  
 SLP: Safely-Limited Position  
 SLS: Safely-Limited Speed  
 See also: p9501 (SI Motion enable safety functions (processor 1)), r9771 (SI common functions (processor 1))

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**F01683 SI Motion P1: SLS enable missing**

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The safety-relevant function "SLS" is not enabled in p9501 although other safety-relevant monitoring functions are enabled.  
 Note:  
 This fault does not result in a safety stop response.  
**Remedy:** Enable the function "SLS" (p9501.0) and carry out a POWER ON.  
 Note:  
 Save the changes before POWER ON (copy from RAM to ROM).  
 SLS: Safely-Limited Speed  
 See also: p9501 (SI Motion enable safety functions (processor 1))

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**F01690 SI Motion: Data save problem for the NVRAM**

**Reaction:** NONE (OFF1, OFF2, OFF3)  
**Acknowledge:** POWER ON  
**Cause:** There is not sufficient memory space in the NVRAM on the drive to save parameters r9781 and r9782 (safety logbook).  
 Note:  
 This fault does not result in a safety stop response.  
 Fault value (r0949, interpret decimal):  
 0: There is no physical NVRAM available in the drive.  
 1: There is no longer any free memory space in the NVRAM.  
**Remedy:** For fault value = 0:  
 - use a Control Unit NVRAM.  
 For fault value = 1:  
 - de-select functions that are not required and that take up memory space in the NVRAM.  
 - contact the Hotline.  
 Note:  
 NVRAM: Non-Volatile Random Access Memory (non-volatile read and write memory)

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**F01692 SI Motion P1: Parameter value not permitted for encoderless**

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** For encoderless motion monitoring functions, the parameter cannot be parameterized with this value.  
 Note:  
 This fault does not result in a safety stop response.  
 Fault value (r0949, interpret decimal):  
 Parameter number with the incorrect value.  
 See also: p9501 (SI Motion enable safety functions (processor 1))  
**Remedy:** - Correct the parameter specified in the fault value.  
 See also: p9501 (SI Motion enable safety functions (processor 1))

<b>A01693 (F)</b>	<b>SI Motion P1: Safety parameter setting changed, POWER ON required</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	Safety parameters have been changed; these will only take effect following a POWER ON. Notice: All changed parameters of the safety motion monitoring functions will only take effect following a POWER ON. Alarm value (r2124, interpret decimal): Parameter number of the safety parameter which has changed, necessitating a POWER ON.
<b>Remedy:</b>	- execute the function "Copy RAM to ROM". - carry out a POWER ON (power off/on).
<b>A01696 (F)</b>	<b>SI Motion: Testing of the motion monitoring functions selected when booting</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The test of the motion monitoring functions was already illegally active when booting. This is the reason that the test is only carried out again after 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)
<b>Remedy:</b>	De-select the forced checking procedure of the safety motion monitoring functions and then select again. The signal source for initiation is parameterized in binector input p9705. See also: p9705 (SI Motion: Test stop signal source)
<b>A01697 (F)</b>	<b>SI Motion: Motion monitoring functions must be tested</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	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. - As the shutdown paths are not automatically checked during booting, an alarm is always issued once booting is complete. - The test must be performed within a defined, maximum time interval (p9559, maximum of 9000 hours) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFH value). Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning. See also: p9559 (SI Motion forced checking procedure timer (processor 1)), p9705 (SI Motion: Test stop signal source)
<b>Remedy:</b>	Carry out the forced checking procedure of the safety motion monitoring functions. The signal source for initiation is parameterized in binector input p9705. See also: p9705 (SI Motion: Test stop signal source)
<b>A01698 (F)</b>	<b>SI P1: Commissioning mode active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	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. - In the safety commissioning mode, the "STO" function is internally selected. See also: p0010 (Drive commissioning parameter filter)
<b>Remedy:</b>	Not necessary.

<b>A01699 (F)</b>	<b>SI P1: Shutdown path must be tested</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>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.</p> <p>After the next time the "STO" function is de-selected, the message is withdrawn and the monitoring time is reset.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>- This message does not result in a safety stop response.</li> <li>- The test must be performed within a defined, maximum time interval (p9659, maximum of 9000 hours) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFH value). Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning.</li> </ul> <p>See also: p9659 (SI forced checking procedure timer)</p>
<b>Remedy:</b>	<p>Select STO and then de-select again.</p> <p>Note:</p> <p>STO: Safe Torque Off</p>
<b>C01700</b>	<b>SI Motion P1: STOP A initiated</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The drive is stopped via a STOP A (pulses are suppressed via the safety shutdown path of processor 1).</p> <p>Possible causes:</p> <ul style="list-style-type: none"> <li>- stop request from processor 2.</li> <li>- Pulses not suppressed after test stop selection.</li> <li>- subsequent response to the message C01706 "SI Motion P1: SAM/SBR limit exceeded".</li> <li>- Subsequent response to the message C01714 "SI Motion P1: Safely-Limited Speed exceeded".</li> <li>- Subsequent response to the message C01701 "SI Motion P1: STOP B initiated".</li> </ul>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- remove the cause of the fault on the monitoring channel of processor 2.</li> <li>- carry out a diagnostics routine for message C01706.</li> <li>- carry out a diagnostics routine for message C01714.</li> <li>- carry out a diagnostics routine for message C01701.</li> <li>- check the shutdown path of processor 1.</li> <li>- replace Power Module.</li> <li>- replace Control Unit.</li> </ul> <p>This message can be acknowledged without a POWER ON as follows:</p> <ul style="list-style-type: none"> <li>- via F-DI or PROFIsafe.</li> </ul> <p>Note:</p> <p>F-DI: Failsafe Digital Input</p> <p>SAM: Safe Acceleration Monitor (safe acceleration monitoring)</p> <p>SBR: Safe Brake Ramp (safe brake ramp monitoring)</p>
<b>C01701</b>	<b>SI Motion P1: STOP B initiated</b>
<b>Reaction:</b>	NONE (OFF3)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The drive is stopped via a STOP B (braking along the OFF3 deceleration ramp).</p> <p>As a result of this fault, after the speed threshold parameterized in p9560 is fallen below, message C01700 "STOP A initiated" is output.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> <li>- stop request from processor 2.</li> <li>- Subsequent response to the message C01714 "SI Motion P1: Safely-Limited Speed exceeded".</li> <li>- subsequent response to the message C01711 "SI Motion P1: Defect in a monitoring channel".</li> <li>- subsequent response to the message C01707 "SI Motion P1: tolerance for safe operating stop exceeded".</li> </ul>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- remove the cause of the fault on the monitoring channel of processor 2.</li> <li>- carry out a diagnostics routine for message C01714.</li> <li>- carry out a diagnostics routine for message C01711.</li> <li>- carry out a diagnostics routine for message C01707.</li> </ul> <p>This message can be acknowledged without a POWER ON as follows:</p> <ul style="list-style-type: none"> <li>- motion monitoring functions integrated in the drive: F-DI or PROFIsafe.</li> </ul>

Note:  
F-DI: Failsafe Digital Input

<b>C01706</b>	<b>SI Motion P1: SAM/SBR limit exceeded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>Motion monitoring functions with set acceleration monitoring (p9506 = 3): SAM - safe acceleration monitoring. After initiating STOP B (SS1) the velocity has exceeded the selected tolerance.</p> <p>Motion monitoring functions with set brake ramp monitoring (p9506 = 1): SBR - Safe brake ramp monitoring. After initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance.</p> <p>The drive is shut down by the message C01700 "SI Motion: STOP A initiated".</p>
<b>Remedy:</b>	<p>Check the braking behavior and, if necessary, adapt the tolerance for the parameter settings of the "SAM" or the "SBR" function.</p> <p>This message can be acknowledged without a POWER ON as follows: - motion monitoring functions integrated in the drive: via F-DI or PROFIsafe.</p> <p>Note: F-DI: Failsafe Digital Input SAM: Safe Acceleration Monitor (safe acceleration monitoring) SBR: Safe Brake Ramp (safe brake ramp monitoring) See also: p9548 (SI Motion SAM actual velocity tolerance (processor 1)), p9581 (SI Motion brake ramp reference value (processor 1)), p9582 (SI Motion brake ramp delay time (processor 1)), p9583 (SI Motion brake ramp monitoring time (processor 1))</p>
<b>C01711</b>	<b>SI Motion P1: Defect in a monitoring channel</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>When cross-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.</p> <p>If at least one monitoring function is active, then message C01701 "SI Motion: STOP B initiated" is output.</p> <p>The message value that resulted in a STOP F is displayed in r9725. The message values described involve the crosswise data comparison between processor 1 and processor 2.</p> <p>The following message values may also occur in the following cases if the cause that is explicitly mentioned does not apply: - synchronization error between processor 1 and processor 2.</p> <p>Message value (r2124, interpret decimal): 0 to 999: Number of the cross-compared data that resulted in this fault.</p> <p>0: Stop request from the other monitoring channel. 1: Status image of monitoring functions SLS or SAM/SBR (result list 1) (r9710[0], r9710[1]). 2: Status image of monitoring function n &lt; nx (result list 2) (r9711[0], r9711[1]). 3: The position actual value differential (r9713) between the two monitoring channels is greater than the tolerance in p9542/p9342. 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]) 31: Position tolerance (p9542/p9342). 42: Shutdown speed, pulse canc. (p9560/p9360) 43: Memory test, stop response (STOP A). 44 ... 57: General</p> <p>Possible cause 1 (during commissioning or parameter modification) The tolerance value for the monitoring function is not the same on the two monitoring channels.</p> <p>Possible cause 2 (during active operation) The limit values are based on the actual value (r9713). If the safe actual values on the two monitoring channels do not match, the limit values, which have been set at a defined interval, will also be different (i.e. corresponding to fault value 3). This can be ascertained by checking the safe actual positions.</p>

- 44: Position actual value (r9713) + limit value for SLS1 (p9531[0]/p9331[0])
- 45: Position actual value (r9713) - limit value for SLS1 (p9531[0]/p9331[0])
- 46: Position actual value (r9713) + limit value for SLS2 (p9531[1]/p9331[1])
- 47: Position actual value (r9713) - limit value for SLS2 (p9531[1]/p9331[1])
- 48: Position actual value (r9713) + limit value for SLS3 (p9531[2]/p9331[2])
- 49: Position actual value (r9713) - limit value for SLS3 (p9531[2]/p9331[2])
- 50: Position actual value (r9713) + limit value for SLS4 (p9531[3]/p9331[3])
- 51: Position actual value (r9713) - limit value for SLS4 (p9531[3]/p9331[3])
- 54: Position actual value (r9713) + limit value nx (p9546/p9346) + tolerance (p9542/p9342)
- 55: Position actual value (r9713) + limit value nx (p9546/p9346)
- 56: Position actual value (r9713) - limit value nx (p9546/p9346)
- 57: Position actual value (r9713) - limit value nx (p9546/p9346) - tolerance (p9542/p9342)
- 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 SAM (p9548/p9348)
- 83: Acceptance test timer (p9558/p9358)
- 230: Filter time constant for n < nx.
- 231: Hysteresis tolerance for n < nx.
- 232: Smoothed velocity actual value.
- 233: Smoothed velocity actual value + limit value nx / safety monitoring clock cycle + hysteresis tolerance.
- 234: Smoothed velocity actual value + limit value nx / safety monitoring clock cycle.
- 235: Smoothed velocity actual value - limit value nx / safety monitoring clock cycle.
- 236: Smoothed velocity actual value - limit value nx / safety monitoring clock cycle - hysteresis tolerance.
- 237: SGA n < nx.
- 238: Speed limit value for SAM (p9568/p9368).
- 239: Acceleration for SBR (p9581/p9381 and p9583/p9383).
- 240: Inverse value of acceleration for SBR (p9581/p9381 and p9583/p9383).
- 241: Deceleration time for SBR (p9582/p9382).
- 244: Encoderless actual value sensing filter time (p9587/p9387).
- 245: Encoderless actual value sensing minimum current (p9588/p9388).
- 246: Voltage tolerance acceleration (p9589/p9389).
- 247: SDI tolerance (p9564/p9364).
- 248: SDI positive upper limit (0x7ffffff).
- 249: Position actual value (r9713) - SDI tolerance.
- 250: Position actual value (r9713) + SDI tolerance.
- 251: SDI negative lower limit (0x80000001).
- 252: SDI stop response (p9566/p9366).
- 253: SDI delay time (p9565/p9365).
- 254: Setting, behavior during pulse suppression (p9509/p9309).
- 1000: Watchdog timer has expired. Too many signal changes have occurred at the F-DI.
- 1001: Initialization error of watchdog timer.
- 1005: Pulses already suppressed for test stop selection.
- 1011: Acceptance test status between the monitoring channels differ.
- 1020: Cyc. communication failure between the monit. cycles.
- 1041: Current absolute value too low (encoderless)
- 1042: Current/voltage plausibility error
- 1043: Too many acceleration phases
- 1044: Actual current values plausibility error.
- 6000 ... 6166:
- PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).
- For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
- 6000: An internal software error has occurred (only for internal Siemens troubleshooting).
- 6064 ... 6071: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.
- 6064: Destination address and PROFIsafe address are different (F\_Dest\_Add).
- 6065: Destination address not valid (F\_Dest\_Add).
- 6066: Source address not valid (F\_Source\_Add).
- 6067: Watchdog time not valid (F\_WD\_Time).
- 6068: Incorrect SIL level (F\_SIL).
- 6069: Incorrect F-CRC length (F\_CRC\_Length).

6070: Incorrect F parameter version (F\_Par\_Version).

6071: CRC error for the F parameters (CRC1). The transferred CRC value of the F parameters does not match the value calculated in the PROFIsafe driver.

6072: F parameterization is inconsistent.

6165: A communications error was identified when receiving the PROFIsafe telegram. The fault may also occur if an inconsistent or out-of-date PROFIsafe telegram has been received after switching the Control Unit off and on or after plugging in the PROFIBUS/PROFINET cable.

6166: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.

Message values that have not been listed are only for internal Siemens troubleshooting.

See also: r9725 (SI Motion, diagnostics STOP F)

**Remedy:**

Re message value = 0:

- no error was identified in this monitoring channel. Note the error message of the other monitoring channel (for processor 2: C30711).

Re message value = 3:

Commissioning phase:

- check the setting of the gear parameters on both monitoring channels (p9521/p9321, p9522/p9322).

- check the numerator of the gear ratio to ensure that it takes into account the motor pole pair number (p9522/p9322).

In operation:

- increase the ramp-function generator ramp-up/down time (p1120/p1121), reduce the dynamic performance of the drive.

Re message value = 1 ... 999:

- if the message value is listed under cause: Check the crosswise-compared parameters to which the message value refers.

- copy the safety parameters.

- carry out a POWER ON (power off/on).

- upgrade the Control Unit software.

Re message value = 1000:

- investigate the signal associated with the F-DI (contact problems).

Re message value = 1001:

- carry out a POWER ON (power off/on).

- upgrade the Control Unit software.

Re message value = 1005:

- check the conditions for pulse enable.

Re message value = 1011:

- for diagnostics, refer to parameter (r9571).

Re message value = 1020:

- carry out a POWER ON (power off/on).

- replace Control Unit.

Re message value = 1041:

- reduce the minimum current (p9588).

Re message value = 1042:

- increase the ramp-function generator ramp-up/down time (p1120/p1121).

- check that the current/speed control is set correctly (torque-generating/field-generating current and actual speed value may not fluctuate).

- reduce the dynamic response of the setpoint value.

- increase the minimum current (p9588).

Re message value = 1043:

- increase the voltage tolerance (p9589).

- increase the ramp-function generator ramp-up/down time (p1120/p1121).

- check that the current/speed control is set correctly (torque-generating/field-generating current and actual speed value may not fluctuate).

- reduce the dynamic response of the setpoint value.

Re message value = 6000:

- carry out a POWER ON (power off/on).

- upgrade firmware to later version.

- contact the Hotline.

- replace Control Unit.

Re message value = 6064:

- check the setting of the value in the F parameter F\_Dest\_Add at the PROFIsafe slave.

- check the setting of the PROFIsafe address on processor 1 (p9610) and on processor 2 (p9810).

Re message value = 6065:

- check the setting of the value in the F parameter F\_Dest\_Add at the PROFIsafe slave. It is not permissible for the destination address to be either 0 or FFFF!

Re message value = 6066:

- check the setting of the value in the F parameter F\_Source\_Add at the PROFIsafe slave. It is not permissible for the source address to be either 0 or FFFF!

Re message value = 6067:

- check the setting of the value in the F parameter F\_WD\_Time at the PROFIsafe slave. It is not permissible for the watch time to be 0!

Re message value = 6068:

- check the setting of the value in the F parameter F\_SIL at the PROFIsafe slave. The SIL level must correspond to SIL2!

Re message value = 6069:

- check the setting of the value in the F parameter F\_CRC\_Length at the PROFIsafe slave. The setting of the CRC2 length is 2-byte CRC in the V1 mode and 3-byte CRC in the V2 mode!

Re message value = 6070:

- check the setting of the value in the F parameter F\_Par\_Version at the PROFIsafe slave. The value for the F parameter version is 0 in the V1 mode and 1 in the V2 mode!

Re message value = 6071:

- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and, if required, update.

Re message value = 6072:

- check the settings of the values for the F parameters and, if required, correct.

The following combinations are permissible for F parameters F\_CRC\_Length and F\_Par\_Version:

F\_CRC\_Length = 2-byte CRC and F\_Par\_Version = 0

F\_CRC\_Length = 3-byte CRC and F\_Par\_Version = 1

Re message value = 6165:

- if the fault occurs after powering up or after inserting the PROFIBUS/PROFINET cable, acknowledge the fault.

- check the configuration and communication at the PROFIsafe slave.

- check the setting of the value for F parameter F\_WD\_Time on the PROFIsafe slave and increase if necessary.

Re message value = 6166:

- check the configuration and communication at the PROFIsafe slave.

- check the setting of the value for F parameter F\_WD\_Time on the PROFIsafe slave and increase if necessary.

- evaluate diagnostic information in the F host.

- check PROFIsafe connection.

This message can be acknowledged as follows:

- motion monitoring functions integrated in the drive: via F-DI or PROFIsafe

## **C01712 SI Motion P1: Defect in F-IO processing**

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.  
The safety message C01711 with message value 0 is also displayed due to initiation of STOP F.  
If at least one monitoring function is active, then safety message C01701 "SI Motion: STOP B initiated" is output.

Message value (r2124, interpret decimal):

Number of the cross-compared data that resulted in this message.

1: SI discrepancy monitoring time inputs (p10002, p10102).

2: SI acknowledgement internal event input terminal (p10006, p10106).

3: SI STO input terminal (p10022, p10122).

4: SI SS1 input terminal (p10023, p10123).

7: SI SLS input terminal (p10026, p10126).

13: Different states for static inactive signal sources (p10006, p10022 ... p10026).

14: SI discrepancy monitoring time outputs (p10002, p10102).

15: SI acknowledgment internal event (p10006, p10106).

46: SI digital inputs debounce time (p10017, p10117)

47: Selection F-DI for PROFIsafe (p10050, p10150)

48: Selection F-DI for PROFIsafe (p10050, p10150)

49: SI SDI positive input terminal (p10030, p10130).

50: SI SDI negative input terminal (p10031, p10131).

**Remedy:** - check parameterization in the parameters involved and correct if required.

- ensure equality by copying the SI data to processor 2 and then carry out an acceptance test.

**Note:**

This message can be acknowledged via F-DI or PROFIsafe.

Note:  
F-DI: Failsafe Digital Input  
SLS: Safely-Limited Speed  
SS1: Safe Stop 1  
STO: Safe Torque Off

<b>C01714</b>	<b>SI Motion P1: Safely-Limited Speed exceeded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The drive has moved faster than that specified by the velocity limit value (p9531). The drive is stopped as a result of the configured stop response (p9563). Message value (r2124, interpret decimal): 100: SLS1 exceeded. 200: SLS2 exceeded. 300: SLS3 exceeded. 400: SLS4 exceeded.
<b>Remedy:</b>	- 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: - via F-DI or PROFIsafe. Note: SLS: Safely-Limited Speed See also: p9531 (SI Motion SLS limit values (processor 1)), p9563 (SI Motion SLS-specific stop response (processor 1))
<b>C01716</b>	<b>SI Motion P1: Tolerance for safe motion direction exceeded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response (p9566). Message value (r9749, interpret decimal): 0: Tolerance for the "safe motion direction positive" function exceeded. 1: Tolerance for the "safe motion direction negative" function exceeded.
<b>Remedy:</b>	- check the traversing/motion program in the control. - check the tolerance for "SDI" function and if required, adapt (p9564). This message can be acknowledged as follows: - Deselect the "SDI" function and select again. - Perform a safe acknowledgment via F-DI or PROFIsafe. Note: SDI: Safe Direction (safe motion direction) SI: Safety Integrated See also: p9564 (SI Motion SDI tolerance (processor 1)), p9565 (SI Motion SDI delay time (processor 1)), p9566 (SI Motion SDI stop response (processor 1))
<b>C01770</b>	<b>SI Motion P1: Discrepancy error of the failsafe inputs</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The fail-safe digital inputs (F-DI) show a different state longer than that parameterized in p10002 / p10102. Fault value (r0949, interpret binary): Bit 0: Discrepancy error for F-DI 0 Bit 1: Discrepancy error for F-DI 1 ...
<b>Remedy:</b>	Note: If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs. - check the wiring of the F-DI (contact problems). Note: This message can be acknowledged via F-DI or PROFIsafe. Discrepancy errors of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10006 or acknowledgment via PROFIsafe). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state internally.



For cyclic switching operations at the F-DI, it may be necessary to adapt the discrepancy time to the switching frequency.

If the period of a cyclic switching pulse has the order of magnitude of double the value of p10002, then the following formulas must be checked.

$p10002 < (tp / 2) - td$  (discrepancy time must be less than half the period minus the actual discrepancy time)

$p10002 \geq p9500$  (discrepancy time must be no less than P9500)

$p10002 > td$  (discrepancy time must be greater than the switch discrepancy time which may actually apply)

td = possible actual discrepancy time (in ms) that can occur with a switching operation. This must correspond to at least 1 SI sampling cycle (see p9500).

tp = period for a switching operation in ms.

When debounce p10017 is active, the discrepancy time is directly specified by the debounce time.

If the period of a cyclic switching pulse has the order of magnitude of twice the debounce time, then the following formulas should be checked.

$p10002 < p10017 + 1 \text{ ms} - td$

$p10002 > td$

$p10002 \geq p9500$

Example:

For a 12 ms SI sampling cycle and a switching frequency of 110 ms ( $p10017 = 0$ ), the maximum discrepancy time which can be set is as follows:

$p10002 \leq (110/2 \text{ ms}) - 12 \text{ ms} = 43 \text{ ms}$

Rounded-off,  $p10002 \leq 36 \text{ ms}$  is obtained (since the discrepancy time can only be accepted as a whole SI sampling cycle, the value will need to be rounded up or down to a whole SI sampling time value if the result is not an exact multiple of an SI sampling cycle).

Note:

F-DI: Failsafe Digital Input

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#### **A01796 (F, N) SI CU: Wait for communication**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The drive waits for communication to be established to execute the safety-relevant motion monitoring functions.

Note:

In this state, the pulses are safely suppressed.

Alarm value (r2124, interpret decimal):

3: Wait for communication to be established to PROFIsafe F-Host.

**Remedy:** If, after a longer period of time, the message is not automatically withdrawn, the following checks have to be made:

- Check any other PROFIsafe communication messages/signals present and evaluate them.

- check the operating state of the F-Host.

- Check the communication connection to the F Host.

See also: p9601, p9801

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#### **C01798 SI Motion P1: Test stop running**

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The test stop is active.

**Remedy:** Not necessary.

The message is withdrawn when the test stop is finished.

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#### **C01799 SI Motion P1: Acceptance test mode active**

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The acceptance test mode is active.

**Remedy:** Not necessary.

The message is withdrawn when exiting the acceptance test mode.

<b>A01900 (F)</b>	<b>PROFIBUS: Configuration telegram error</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>A PROFIBUS master attempts to establish a connection using an incorrect configuring telegram.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>2: Too many PZD data words for input or output. The number of possible PZD is specified by the number of indices in r2050/p2051.</p> <p>3: Uneven number of bytes for input or output.</p> <p>501: PROFIsafe parameter error (e.g. F_dest).</p> <p>502: PROFIsafe telegram does not match.</p>
<b>Remedy:</b>	<p>Check the bus configuration on the master and slave sides.</p> <p>Re alarm value = 2:</p> <p>Check the number of data words for input and output.</p> <p>Re alarm value = 501:</p> <p>Check the set PROFIsafe address (p9610).</p> <p>Re alarm value = 502:</p> <p>Check the enable of F-DI (p9501.30).</p>
<b>F01910 (N, A)</b>	<b>Fieldbus interface setpoint timeout</b>
<b>Reaction:</b>	OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The reception of setpoints from the fieldbus interface has been interrupted.</p> <ul style="list-style-type: none"> <li>- bus connection interrupted.</li> <li>- communication partner switched off.</li> </ul> <p>For PROFIBUS:</p> <ul style="list-style-type: none"> <li>- PROFIBUS master set into the STOP state.</li> </ul> <p>See also: p2047 (PROFIBUS additional monitoring time)</p>
<b>Remedy:</b>	<p>Ensure bus connection has been established and switch on communication peer.</p> <ul style="list-style-type: none"> <li>- if required, adapt p2040.</li> </ul> <p>For PROFIBUS:</p> <ul style="list-style-type: none"> <li>- set the PROFIBUS master to the RUN state.</li> <li>- slave redundancy: For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.</li> </ul> <p>See also: p2047 (PROFIBUS additional monitoring time)</p>
<b>A01920 (F)</b>	<b>PROFIBUS: Interruption cyclic connection</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The cyclic connection to the PROFIBUS master is interrupted.
<b>Remedy:</b>	Establish the PROFIBUS connection and activate the PROFIBUS master in the cyclic mode.
<b>A01945</b>	<b>PROFIBUS: Connection to the Publisher failed</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher has failed.</p> <p>Alarm value (r2124, interpret binary):</p> <p>Bit 0 = 1: Publisher with address in r2077[0], connection failed.</p> <p>...</p> <p>Bit 15 = 1: Publisher with address in r2077[15], connection failed.</p>
<b>Remedy:</b>	<p>Check the PROFIBUS cables.</p> <p>See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)</p>
<b>F01946 (A)</b>	<b>PROFIBUS: Connection to the Publisher aborted</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation has been aborted.

Fault value (r0949, interpret binary):  
 Bit 0 = 1: Publisher with address in r2077[0], connection aborted.  
 ...  
 Bit 15 = 1: Publisher with address in r2077[15], connection aborted.

**Remedy:**

- check the PROFIBUS cables.
- check the state of the Publisher that has the aborted connection.

See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

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**F01951 CU SYNC: Synchronization application clock cycle missing**

**Reaction:** OFF2 (NONE)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** Internal synchronization of the application cycles unsuccessful.  
 Fault value (r0949, interpret decimal):  
 Only for internal Siemens troubleshooting.

**Remedy:**

- carry out a POWER ON (power off/on) for all components.
- upgrade the Control Unit software.

---

**A01953 CU SYNC: Synchronization not completed**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** After the drive system was powered up, synchronization between the basic 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).

---

**A02050 Trace: Start not possible**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The trace has already been started.

**Remedy:** Stop the trace and, if necessary, start again.

---

**A02055 Trace: Recording time too short**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The trace duration is too short.  
 The minimum is twice the value of the trace clock cycle.

**Remedy:** Check the selected recording time and, if necessary, adjust.

---

**A02056 Trace: Recording cycle too short**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The selected recording clock cycle is lower than the basic clock cycle 500µs.

**Remedy:** Increase the value for the trace cycle.

---

**A02057 Trace: Time slice clock cycle invalid**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The time slice clock cycle selected does not match any of the existing time slices.

**Remedy:** Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.  
 See also: r7901 (Sampling times)

---

**A02058 Trace: Time slice clock cycle for endless trace not valid**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The selected time slice clock cycle cannot be used for the endless trace

**Remedy:** Enter the clock cycle of an existing time slice with a cycle time  $\geq 2$  ms for up to 4 recording channels or  $\geq 4$  ms from 5 recording channels per trace.  
The existing time slices can be read out via p7901.  
See also: r7901 (Sampling times)

---

**A02059 Trace: Time slice clock cycle for 2 x 8 recording channels not valid**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The selected time slice clock cycle cannot be used for more than 4 recording channels.

**Remedy:** Enter the clock cycle of an existing time slice with a cycle time  $\geq 4$  ms or reduce the number of recording channels to 4 per trace.  
The existing time slices can be read out via p7901.  
See also: r7901 (Sampling times)

---

**A02060 Trace: Signal to be traced missing**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** - a signal to be traced was not specified.  
- the specified signals are not valid.

**Remedy:** - specify the signal to be traced.  
- check whether the relevant signal can be traced.

---

**A02061 Trace: Invalid signal**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** - the specified signal does not exist.  
- the specified signal can no longer be traced (recorded).

**Remedy:** - specify the signal to be traced.  
- check whether the relevant signal can be traced.

---

**A02062 Trace: Invalid trigger signal**

**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 a trigger signal for the trace.

**Remedy:** Specify a valid trigger signal.

---

**A02063 Trace: Invalid data type**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The specified data type to select a signal using a physical address is invalid.

**Remedy:** Use a valid data type.

---

**A02070 Trace: Parameter cannot be changed**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The trace parameter settings cannot be changed when the trace is active.

**Remedy:** - stop the trace before parameterization.  
- if required, start the trace.

---

**A02075 Trace: Pretrigger time too long**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The selected pretrigger time must be shorter than the trace time.

**Remedy:** Check the pretrigger time setting and change if necessary.

<b>F02080</b>	<b>Trace: Parameterization deleted due to unit changeover</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The trace parameterization in the drive unit was deleted due to a unit changeover or a change in the reference parameters.
<b>Remedy:</b>	Restart trace.
<b>A02099</b>	<b>Trace: Insufficient Control Unit memory</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The memory space still available on the Control Unit is no longer sufficient for the trace function.
<b>Remedy:</b>	Reduce the memory required, e.g. as follows: - reduce the trace time. - increase the trace clock cycle. - reduce the number of signals to be traced.
<b>A02150</b>	<b>OA: Application cannot be loaded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The system was not able to load an OA application. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline. Note: OA: Open Architecture
<b>F02151 (A)</b>	<b>OA: Internal software error</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	An internal software error has occurred within an OA application. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline. - replace the Control Unit. Note: OA: Open Architecture
<b>F02152 (A)</b>	<b>OA: Insufficient memory</b>
<b>Reaction:</b>	OFF1
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	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.
<b>Remedy:</b>	- change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc). - use an additional Control Unit. Note: OA: Open Architecture

<b>F03000</b>	<b>NVRAM fault on action</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A fault occurred during execution of action p7770 = 1, 2 for the NVRAM data.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>yyxx hex: yy = fault cause, xx = application ID</p> <p>yy = 1:</p> <p>The action p7770 = 1 is not supported by this version if Drive Control Chart (DCC) is activated for the drive object concerned.</p> <p>yy = 2:</p> <p>The data length of the specified application is not the same in the NVRAM and the backup.</p> <p>yy = 3:</p> <p>The data checksum in p7774 is not correct.</p> <p>yy = 4:</p> <p>No data available to load.</p>
<b>Remedy:</b>	<p>Perform the remedy according to the results of the troubleshooting.</p> <p>If necessary, start the action again.</p>
<b>F03001</b>	<b>NVRAM checksum incorrect</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A checksum error occurred when evaluating the non-volatile data (NVRAM) on the Control Unit.</p> <p>The NVRAM data affected was deleted.</p>
<b>Remedy:</b>	Carry out a POWER ON (power off/on) for all components.
<b>F03505 (N, A)</b>	<b>CU: Analog input wire breakage</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The wire-break monitoring for an analog input has responded.</p> <p>The input current of the analog input has undershot the threshold value parameterized in p0761[0...3].</p> <p>p0756[0]: analog input 0 (only CU240D-2)</p> <p>p0756[1]: analog input 1 (only CU240D-2)</p> <p>Fault value (r0949, interpret decimal):</p> <p>xxxx dec</p> <p>y = analog input (0 = analog input 0 (AI 0), 1 = analog input 1 (AI 1))</p> <p>xxx = component number (p0151)</p> <p>Note:</p> <p>For the following analog input type, the wire breakage monitoring is active:</p> <p>p0756[0...1] = 1 (2 ... 10 V with monitoring)</p>
<b>Remedy:</b>	<p>Check the connection to the signal source for interruptions.</p> <p>Check the magnitude of the injected current - it is possible that the infed signal is too low.</p> <p>The input current measured by the analog input can be read in r0752[x].</p>
<b>A03510 (F, N)</b>	<b>CU: Calibration data not plausible</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>During booting, the calibration data for the analog inputs is read and checked with respect to plausibility.</p> <p>At least one calibration data point was determined to be invalid.</p>
<b>Remedy:</b>	<p>- power down/power up the power supply for the Control Unit.</p> <p>If it reoccurs, replace the module.</p> <p>In principle, operation could continue.</p> <p>The analog channel involved possibly does not achieve the specified accuracy.</p>
<b>A05000 (N)</b>	<b>Power unit: Overtemperature heat sink AC inverter</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE

**Cause:** The alarm threshold for overtemperature at the inverter heat sink has been reached. The response is set using p0290.  
If the temperature of the heat sink 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?

---

**A05001 (N) Power unit: Overtemperature depletion layer chip**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached.  
Note:

- The response is set using p0290.
- If the depletion layer temperature increases by an additional 15 K, then fault F30025 is triggered.

**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 (Power unit temperatures), p0290 (Power unit overload response)

---

**A05002 (N) Power unit: Air intake overtemperature**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** For chassis power units, the following applies:  
The alarm threshold for the air intake overtemperature has been reached. For air-cooled power units, the threshold is 42 °C (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.

---

**A05004 (N) Power unit: Rectifier overtemperature**

**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 triggered.

**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?

---

**A05006 (N) Power unit: Overtemperature thermal model**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The temperature difference between the chip and heat sink has exceeded the permissible limit value (blocksize power units only).  
Depending on p0290, an appropriate overload response is initiated.  
See also: r0037 (Power unit temperatures)

**Remedy:** Not necessary.  
The alarm disappears automatically once the limit value is undershot.  
Note:  
If the alarm does not disappear automatically and the temperature continues to rise, this can result in fault F30024.  
See also: p0290 (Power unit overload response)

<b>F06310 (A)</b>	<b>Supply voltage (p0210) incorrectly parameterized</b>
<b>Reaction:</b>	NONE (OFF1, OFF2)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The measured DC voltage lies outside the tolerance range after pre-charging has been completed. The following applies for the tolerance range: $1.16 \cdot p0210 < r0070 < 1.6 \cdot p0210$ Note: The fault can only be acknowledged when the drive is powered down. See also: p0210 (Drive unit line supply voltage)
<b>Remedy:</b>	- check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)
<b>A06921 (N)</b>	<b>Braking resistor phase unsymmetry</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The three resistors of the braking chopper are not symmetrical.
<b>Remedy:</b>	- check the feeder cables to the braking resistors. - If required, increase the value for detecting dissymmetry (p1364).
<b>F06922</b>	<b>Braking resistor phase failure</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	A phase failure for the brake resistor was detected. Fault value (r0949, interpret decimal): 11: Phase U 12: Phase V 13: Phase W See also: p3235 (Phase failure signal motor monitoring time)
<b>Remedy:</b>	Check the feeder cables to the braking resistors.
<b>F07011</b>	<b>Drive: Motor overtemperature</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	KTY: The motor temperature has exceeded the fault threshold (p0605) or the timer (p0606) after the alarm threshold was exceeded (p0604) has expired. The response parameterized in p0610 becomes active. The alarm is withdrawn if the response threshold for wire breakage or sensor not connected is exceeded ( $R > 2120 \text{ Ohm}$ ). PTC or bimetallic NC contact: The response threshold of 1650 Ohm was exceeded or the NC contact opened and the timer (p0606) has expired. The response parameterized in p0610 becomes active. Possible causes: - Motor is overloaded - motor ambient temperature too high. - Wire break or sensor not connected Fault value (r0949, interpret decimal): 200: The motor temperature model 1 (I2t) signals an overtemperature ( $p0612.0 = 1, p0611 > 0$ ). See also: p0604, p0605, p0606, p0612, p0625, p0626, p0627, p0628
<b>Remedy:</b>	- Reduce the motor load. - check the ambient temperature and the motor ventilation. - check the wiring and the connection of the PTC or bimetallic NC contact. See also: p0604, p0605, p0606, p0612, p0625, p0626, p0627, p0628
<b>A07012 (N)</b>	<b>Drive: Motor temperature model 1/3 overtemperature</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The thermal I2t motor model for synchronous motors identified that the alarm threshold was exceeded. See also: r0034 (Motor utilization), p0605 (Mot_temp_mod 1/2 threshold), p0611 (I2t motor model thermal time constant), p0612 (Mot_temp_mod activation)



**Remedy:**

- check the motor load and if required, reduce.
- check the motor ambient temperature.
- check the thermal time constant (p0611).
- check the overtemperature fault threshold (p0605), (= alarm threshold for the I2t motor model).

See also: r0034 (Motor utilization), p0605 (Mot\_temp\_mod 1/2 threshold), p0611 (I2t motor model thermal time constant), p0612 (Mot\_temp\_mod activation)

---

**A07015 Drive: Motor temperature sensor alarm**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An error was detected when evaluating the temperature sensor set in 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, 50 ms after alarm A07015.

Possible causes:

- wire breakage or sensor not connected (KTY: R > 2120 Ohm).
- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).

**Remedy:** - make sure that the sensor is connected correctly.

- check the parameterization (p0601).

See also: r0035 (Motor temperature), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)

---

**F07016 Drive: Motor temperature sensor fault**

**Reaction:** OFF1 (NONE, OFF2, OFF3, STOP2)

**Acknowledge:** IMMEDIATELY

**Cause:** An error was detected when evaluating the temperature sensor set in p0601.

Possible causes:

- wire breakage or sensor not connected (KTY: R > 2120 Ohm).
- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 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, 50 ms after alarm A07015.

See also: p0607 (Temperature sensor fault timer)

**Remedy:** - make sure that the sensor is connected correctly.

- check the parameterization (p0601).

- induction motors: De-activate temperature sensor fault (p0607 = 0).

See also: r0035 (Motor temperature), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)

---

**F07080 Drive: Incorrect control parameter**

**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, p0311, p0341, p0344, p0350, p0354, p0356, p0357, p0358, p0360, p0640, p1082, p1300

**Remedy:** Modify the parameter indicated in the fault value (r0949) (e.g. p0640 = current limit > 0).

See also: p0311, p0341, p0344, p0350, p0354, p0356, p0358, p0360, p0640, p1082

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**F07082 Macro: Execution not possible**

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The macro cannot be executed.

Fault value (r0949, interpret hexadecimal):

ccccbbaa hex:

cccc = preliminary parameter number, bb = supplementary information, aa = fault cause

Fault causes for the trigger parameter itself:

19: Called file is not valid for the trigger parameter.

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).

Fault causes 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 (or CDS-dependent) parameter.

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, p1000, p1500

**F07083**

**Macro: ACX file not found**

**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, p1000, p1500

**Remedy:**

- check whether the file is saved in the appropriate directory on the memory card.

**F07084**

**Macro: Condition for WaitUntil not fulfilled**

**Reaction:**

NONE

**Acknowledge:**

IMMEDIATELY

**Cause:**

The WaitUntil 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.

**F07086**

**Units changeover: Parameter limit violation due to reference value change**

**Reaction:**

NONE

**Acknowledge:**

IMMEDIATELY

**Cause:**

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.

The values of the parameters were set to the corresponding violated minimum limit/maximum limit or to the factory setting.

Possible causes:

- the steady-state minimum limit/maximum limit or that defined in the application was violated.

Fault value (r0949, parameter):

Diagnostics parameter to display the parameters that were not able to be re-calculated.

See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

**Remedy:**

Check the adapted parameter value and if required correct.

<b>F07088</b>	<b>Units changeover: Parameter limit violation due to units changeover</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A changeover of units was initiated. This resulted in a violation of a parameter limit</p> <p>Possible causes for the violation of a parameter limit:</p> <ul style="list-style-type: none"> <li>- When rounding off a parameter corresponding to its decimal places, the steady-state minimum limit or maximum limit was violated.</li> <li>- inaccuracies for the data type "FloatingPoint".</li> </ul> <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), p0505 (Selecting the system of units), p0595 (Technological unit selection)</p>
<b>Remedy:</b>	<p>Check the adapted parameter values and if required correct.</p> <p>See also: r9451 (Units changeover adapted parameters)</p>
<b>A07089</b>	<b>Changing over units: Function module activation is blocked because the units have been changed over</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>An attempt was made to activate a function module. This is not permissible if the units have already been changed over.</p> <p>See also: p0100 (IEC/NEMA mot stds), p0505 (Selecting the system of units)</p>
<b>Remedy:</b>	Restore units that have been changed over to the factory setting.
<b>A07200</b>	<b>Drive: Master control ON command present</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The ON/OFF1 command is present (no 0 signal).</p> <p>The command is either influenced via binector input p0840 (current CDS) or control word bit 0 via the master control.</p>
<b>Remedy:</b>	Switch the signal via binector input p0840 (current CDS) or control word bit 0 via the master control to 0.
<b>F07220 (N, A)</b>	<b>Drive: Master control by PLC missing</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The "master control by PLC" signal was missing in operation.</p> <ul style="list-style-type: none"> <li>- interconnection of the binector input for "master control by PLC" is incorrect (p0854).</li> <li>- the higher-level control has withdrawn the "master control by PLC" signal.</li> <li>- data transfer via the fieldbus (master/drive) was interrupted.</li> </ul>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the interconnection of the binector input for "master control by PLC" (p0854).</li> <li>- check the "master control by PLC" signal and, if required, switch in.</li> <li>- check the data transfer via the fieldbus (master/drive).</li> </ul> <p>Note:</p> <p>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.</p>
<b>F07320</b>	<b>Drive: Automatic restart interrupted</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- there is no active ON command.</li> <li>- the monitoring time for the power unit has expired (p0857).</li> <li>- 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.</li> </ul> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Only for internal Siemens troubleshooting.</p>

List of faults and alarms

**Remedy:**

- 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).
- Reduce the delay time for resetting the start counter (p1213[1]) so that fewer faults are registered in the time interval.

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**A07321 Drive: Automatic restart active**

**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. For p1210 = 26, the alarm after the line supply returns is also displayed if there is no fault and there is no ON command. Restarting is realized with the delayed setting of the ON command.

**Remedy:**

- 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).
- for p1210 = 26: by withdrawing the OFF2- / OFF3 control commands.

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**F07330 Flying restart: Measured search current too low**

**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.

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**F07331 Flying restart: Function not supported**

**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:  
Perm.-magnet synch. motors (PEM): operation with U/f char. and sensorless vector control.

**Remedy:** De-activate the "flying restart" function (p1200 = 0).

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**A07400 (N) Drive: DC link voltage maximum controller active**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The DC link voltage controller has been activated because the upper switch-in threshold has been exceeded (r1242, r1282).  
The ramp-down times are automatically increased in order to maintain the DC link voltage (r0070) 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: r0056 (Status word, closed-loop control), p1240 (Vdc controller configuration (vector control)), p1280 (Vdc controller configuration (U/f))

**Remedy:** If the controller is not to intervene:  

- increase the ramp-down times.
- switch-off the Vdc\_max controller (p1240 = 0 for vector control, p1280 = 0 for U/f control).

 If the ramp-down times are not to be changed:  

- use a chopper or regenerative feedback unit.

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**A07401 (N) Drive: DC link voltage maximum controller de-activated**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The Vdc\_max controller can no longer maintain the DC link voltage (r0070) below the limit value (r1242, r1282) 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.

<b>A07402 (N)</b>	<b>Drive: DC link voltage minimum controller active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The DC link voltage controller has been activated as the lower switch-in threshold has been undershot (r1246, r1286). The kinetic energy of the motor is used to buffer the DC link. The drive is therefore braked. See also: r0056 (Status word, closed-loop control), p1240 (Vdc controller configuration (vector control)), p1280 (Vdc controller configuration (U/f))
<b>Remedy:</b>	The alarm disappears when power supply returns.
<b>F07405 (N, A)</b>	<b>Drive: Kinetic buffering minimum speed not reached</b>
<b>Reaction:</b>	OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	During kinetic buffering the speed fell below minimum speed (p1257 or p1297 for vector drives with U/f control) and the line supply did not return.
<b>Remedy:</b>	Check the speed threshold for the Vdc_min controller (kinetic buffering) (p1257, p1297). See also: p1257 (Vdc_min controller speed threshold), p1297 (Vdc_min controller speed threshold (U/f))
<b>F07406 (N, A)</b>	<b>Drive: Kinetic buffering maximum time exceeded</b>
<b>Reaction:</b>	OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The maximum buffer time (p1255 and p1295 for vector drives with U/f control) has been exceeded without the line supply having returned.
<b>Remedy:</b>	Check the time threshold for Vdc-min controller (kinetic buffering) (p1255, p1295). See also: p1255 (Vdc_min controller time threshold), p1295 (Vdc_min controller time threshold (U/f))
<b>A07409</b>	<b>Drive: U/f control, current limiting controller active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The current limiting controller of the U/f control was activated because the current limit was exceeded.
<b>Remedy:</b>	The alarm automatically disappears after one of the following measures: - increase current limit (p0640). - reduce the load. - slow down the ramp up to the setpoint speed.
<b>F07410</b>	<b>Drive: Current controller output limited</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	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: - motor not connected or motor contactor open. - motor data and motor configuration (star-delta) do not match. - no DC link voltage present. - power unit defective. - the "flying restart" function is not activated.
<b>Remedy:</b>	- connect the motor or check the motor contactor. - check the motor parameterization and the connection type (star-delta). - check the DC link voltage (r0070). - check the power unit. - activate the "flying restart" function (p1200).
<b>F07411</b>	<b>Drive: Flux controller output limited</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	When quick magnetizing is configured (p1401.6 = 1) the specified flux setpoint is not reached although 90% of the maximum current is specified. - 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 (encoderless, open-loop controlled) in I<sup>2</sup>t limiting.
  - power unit is too small.
  - the magnetizing time is too short.
- Remedy:**
- correct the motor data. Perform motor data identification and rotating measurement.
  - check the motor configuration.
  - correct the current limits (p0640).
  - reduce the induction motor load.
  - if necessary, use a larger power unit.
  - check motor supply cable.
  - check power unit.
  - increase p0346.

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**A07416 Drive: Flux controller configuration**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The configuration of the flux control (p1401) is contradictory.  
Alarm value (r2124, interpret hexadecimal):  
ccbbaaaa hex  
aaaa = Parameter  
bb = Index  
cc = fault cause  
1: Quick magnetizing (p1401.6) for soft starting (p1401.0).  
3: Quick magnetizing (p1401.6) for Rs identification after restart (p0621 = 2).

**Remedy:** Re fault cause = 1:  
- Shut down soft start (p1401.0 = 0).  
- Shut down quick magnetizing (p1401.6 = 0).  
Re fault cause = 3:  
- Re-parameterize Rs identification (p0621 = 0, 1)  
- Shut down quick magnetizing (p1401.6 = 0).

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**F07426 (A) Technology controller actual value limited**

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The actual value for the technology controller, interconnected via connector input p2264, has reached a limit.  
Fault value (r0949, interpret decimal):  
1: upper limit reached.  
2: lower limit reached.

**Remedy:** - adapt the limits to the signal level (p2267, p2268).  
- Check the actual value normalization (p0595, p0596).  
- Deactivate evaluation of the limits (p2252 bit 3)  
See also: p0595 (Technological unit selection), p0596 (Technological unit reference quantity), p2264 (Technology controller actual value), p2267 (Technology controller upper limit actual value), p2268 (Technology controller lower limit actual value)

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**A07428 (N) Technology controller parameterizing error**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The technology controller has a parameterizing error.  
Alarm value (r2124, interpret decimal):  
1: The parameter value for the upper output limit of the technology controller p2291 is less than the parameter value of the lower output limit p2292.

**Remedy:** 1: Set p2291 to a higher value than p2292.  
See also: p2291 (Technology controller maximum limiting), p2292 (Technology controller minimum limiting)

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**F07435 (N) Drive: Setting the ramp-function generator for sensorless vector control**

**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). An internal setting command of the ramp-function generator output caused the set setpoint speed to be frozen.

**Remedy:**

- de-activate the holding command for the ramp-function generator (p1141).
- 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).

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**F07439 Drive: Higher current controller dynamic performance not possible**

**Reaction:** OFF2 (NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** The function "Current controller dynamics higher" (p1810.11 = 1) is selected, however is not supported by the power unit (r0192.27 = 0) or by the safety technology without encoder (p9506 = 1, 3).  
Fault value (r0949, interpret decimal):

1:

- firmware of the booksize power unit is not up-to-date.
- blocksize or S120 combi power unit was used.

2:

- Encoderless safety technology is used.

**Remedy:**

In general:

- Deselect the function "Current controller dynamics higher" (p1810.11 = 0) and if required, set the current, speed and position controller again or calculate (p0340 = 4).

For fault value = 1:

- If necessary, upgrade the firmware of the booksize power unit to a later version (version >= 4.4).

Note:

If the firmware has already been automatically upgraded, then only a POWER ON (switch-off/switch-on) is required.

- Use a booksize power unit (version >= 4.4).

For fault value = 2:

- If an encoder with Safety position actual values sensing is available (r0458[0...2].19 = 1), reparameterize the encoderless safety technology (p9506 = 1, 3) to safety technology with encoder (p9506 = 0).

See also: p1810 (Modulator configuration), p9506 (SI Motion function specification (processor 1))

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**A07530 Drive: Drive Data Set DDS not present**

**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), r0837 (Drive Data Set DDS selected)

**Remedy:**

- select the existing drive data set.
- set up additional drive data sets.

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**A07531 Drive: Command Data Set CDS not present**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The selected command data set is not available (p0836 > p0170). The command data set was not changed over.  
See also: p0810 (Command data set selection CDS bit 0), p0811 (Command data set selection CDS bit 1), r0836 (Command Data Set CDS selected)

**Remedy:**

- select the existing command data set.
- set up additional command data sets.

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**F07563 (A) Drive encoder: XIST1\_ERW configuration incorrect**

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An incorrect configuration was identified for the "Absolute position for incremental encoder" function.  
Fault value (r0949, interpret decimal):

Fault cause:

1 (= 01 hex):

The "Absolute value for incremental encoder" function is not supported (r0459.13 = 0).

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

yyxx dec: yy = fault cause, xx = encoder data set

**Remedy:**

For fault value = 1:

- upgrade the Sensor Module firmware version.
- check the mode (p4652 = 1, 3 requires the property r0459.13 = 1).

<b>F07800</b>	<b>Drive: No power unit present</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The power unit parameters cannot be read or no parameters are stored in the power unit. It is possible that the DRIVE-CLiQ cable between the Control Unit and power unit is interrupted or defective.</p> <p>Note: This fault also occurs if an incorrect topology was selected in the commissioning software and this parameterization is then downloaded to the Control Unit. See also: r0200 (Power unit code number actual)</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- check the DRIVE-CLiQ cable between the Control Unit and power unit.</li> <li>- Check the power unit and replace if necessary.</li> <li>- check the Control Unit, and if required replace it.</li> <li>- after correcting the topology, the parameters must be again downloaded using the commissioning software.</li> </ul>
<b>F07801</b>	<b>Drive: Motor overcurrent</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The permissible motor limit current was exceeded.</p> <ul style="list-style-type: none"> <li>- effective current limit set too low.</li> <li>- current controller not correctly set.</li> <li>- U/f operation: Up ramp was set too short or the load is too high.</li> <li>- U/f operation: Short-circuit in the motor cable or ground fault.</li> <li>- U/f operation: Motor current does not match current of power unit.</li> <li>- Switch to rotating motor without flying restart function (p1200).</li> </ul> <p>Note: Limit current = 2 x minimum (p0640, 4 x p0305 x p0306) &gt;= 2 x p0305 x p0306</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the current limits (p0640).</li> <li>- vector control: Check the current controller (p1715, p1717).</li> <li>- U/f control: Check the current limiting controller (p1340 ... p1346).</li> <li>- increase the up ramp (p1120) or reduce the load.</li> <li>- check the motor and motor cables for short-circuit and ground fault.</li> <li>- check the motor for the star-delta configuration and rating plate parameterization.</li> <li>- check the power unit and motor combination.</li> <li>- Choose "flying restart" function (p1200) if switched to rotating motor.</li> </ul>
<b>F07802</b>	<b>Drive: Infeed or power unit not ready</b>
<b>Reaction:</b>	OFF2 (NONE)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>After an internal power-on command, the infeed or drive does not signal ready.</p> <ul style="list-style-type: none"> <li>- monitoring time is too short.</li> <li>- DC link voltage is not present.</li> <li>- associated infeed or drive of the signaling component is defective.</li> <li>- supply voltage incorrectly set.</li> </ul>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- increase the monitoring time (p0857).</li> <li>- ensure that there is a DC link voltage. Check the DC link busbar. Enable the infeed.</li> <li>- replace the associated infeed or drive of the signaling component.</li> <li>- check the line supply voltage setting (p0210).</li> </ul> <p>See also: p0857 (Power unit monitoring time)</p>
<b>A07805 (N)</b>	<b>Drive: Power unit overload I2t</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>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)</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- reduce the continuous load.</li> <li>- adapt the load duty cycle.</li> <li>- check the assignment of the motor and power unit rated currents.</li> </ul>



<b>F07806</b>	<b>Drive: Regenerative power limit exceeded (F3E)</b>
<b>Reaction:</b>	OFF2 (IASC/DCBRAKE)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	For blocksize power units, types PM250 and PM260, the regenerative rated power r0206[2] was exceeded for more than 10 s. See also: r0206 (Rated power unit power), p1531 (Power limit regenerative)
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- increase the down ramp.</li> <li>- reduce the driving load.</li> <li>- use a power unit with a higher regenerative feedback capability.</li> <li>- for vector control, the regenerative power limit in p1531 can be reduced so that the fault is no longer triggered.</li> </ul>
<b>F07807</b>	<b>Drive: Short-circuit/ground fault detected</b>
<b>Reaction:</b>	OFF2 (NONE)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A phase-phase short-circuit or ground fault was detected at the motor-side output terminals of the converter. Fault value (r0949, interpret decimal):</p> <p>1: Short-circuit, phases U-V 2: Short-circuit, phases U-W 3: Short-circuit, phases V-W 4: Ground fault with overcurrent 1xxxx: Ground fault with current in phase U detected (xxxx = component of the current in phase V in per mille) 2xxxx: Ground fault with current in phase V detected (xxxx = component of the current in phase U in per mille)</p> <p>Note: Also when interchanging the line and motor cables is identified as a motor-side short circuit. Connecting to a motor that is either not de-energized or partially de-energized is possibly detected as ground fault.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the motor-side converter connection for a phase-phase short-circuit.</li> <li>- rule-out interchanged line and motor cables.</li> <li>- check for a ground fault.</li> </ul> <p>For a ground fault:</p> <ul style="list-style-type: none"> <li>- do not enable the pulses when connecting to a rotating motor without the "Flying restart" function activated (p1200).</li> <li>- increase the de-energization time (p0347).</li> <li>- If required, deactivate the monitoring (p1901).</li> </ul>
<b>F07808 (A)</b>	<b>HF damping module: damping not ready</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	When switching on or in the switched-on state, the HF damping module does not return a ready signal.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- Check the DRIVE-CLiQ wiring to the HF damping module.</li> <li>- check the 24 V supply voltage.</li> <li>- if required, replace the HF damping module.</li> </ul> <p>Note: HF Damping Module</p>
<b>F07810</b>	<b>Drive: Power unit EEPROM without rated data</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>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)</p>
<b>Remedy:</b>	Replace the power unit or inform Siemens Customer Service.
<b>A07850 (F)</b>	<b>External alarm 1</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The BICO signal for "external alarm 1" was triggered. The condition for this external alarm is fulfilled. See also: p2112 (External alarm 1)</p>
<b>Remedy:</b>	Eliminate the causes of this alarm.

<b>A07851 (F)</b>	<b>External alarm 2</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The BICO signal for "external alarm 2" was triggered. The condition for this external alarm is fulfilled. See also: p2116 (External alarm 2)
<b>Remedy:</b>	Eliminate the causes of this alarm.
<b>A07852 (F)</b>	<b>External alarm 3</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The BICO signal for "external alarm 3" was triggered. The condition for this external alarm is fulfilled. See also: p2117 (External alarm 3)
<b>Remedy:</b>	Eliminate the causes of this alarm.
<b>F07860 (A)</b>	<b>External fault 1</b>
<b>Reaction:</b>	OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The BICO signal "external fault 1" was triggered. See also: p2106 (External fault 1)
<b>Remedy:</b>	Eliminate the causes of this fault.
<b>F07861 (A)</b>	<b>External fault 2</b>
<b>Reaction:</b>	OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The BICO signal "external fault 2" was triggered. See also: p2107 (External fault 2)
<b>Remedy:</b>	Eliminate the causes of this fault.
<b>F07862 (A)</b>	<b>External fault 3</b>
<b>Reaction:</b>	OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	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)
<b>Remedy:</b>	Eliminate the causes of this fault.
<b>F07900 (N, A)</b>	<b>Drive: Motor blocked</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	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 triggered if the speed is oscillating and the speed controller output repeatedly goes to its limit. It may also be the case that thermal monitoring of the power unit reduces the current limit (see p0290), thereby causing the motor to decelerate. See also: p2175 (Motor blocked speed threshold), p2177 (Motor blocked delay time)
<b>Remedy:</b>	- check that the motor can freely move. - check the torque limit: For a positive direction of rotation r1538, for a negative direction of rotation r1539. - check the parameter, message "Motor blocked" and if required, correct (p2175, p2177).
<b>F07901</b>	<b>Drive: Motor overspeed</b>
<b>Reaction:</b>	OFF2 (IASC/DCBRAKE)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	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:** The following applies for a positive direction of rotation:  
 - check r1084 and if required, correct p1082, Cl:p1085 and p2162.  
 The following applies for a negative direction of rotation:  
 - check r1087 and if required, correct p1082, Cl:p1088 and p2162.  
 Activate pre-control of the speed limiting controller (p1401.7 = 1).  
 Increase the hysteresis for the overspeed signal p2162. This upper limit is dependent upon the maximum motor speed p0322 and the maximum speed p1082 of the setpoint channel.

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**F07902 (N, A) Drive: Motor stalled**

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)

**Acknowledge:** IMMEDIATELY

**Cause:** The system has identified that the motor has stalled for a time longer than is set in p2178.

Fault value (r0949, interpret decimal):

1: Reserved.

2: Stall detection using r1408.12 (p1745).

See also: p2178 (Motor stalled delay time)

**Remedy:** Steps should always be taken to ensure that both motor data identification and the rotating measurement were carried out (see p1900, r3925).  
 - check whether the drive stalls solely due to the load in controlled mode or when the speed setpoint is still zero. If yes, then increase the current setpoint using p1610.  
 - if the motor excitation time (p0346) was significantly reduced and the drive stalls when it is switched on and run immediately, p0346 should be increased again.  
 - check the current limits (p0640, r0067, r0289). If the current limits are too low, then the drive cannot be magnetized.  
 - check whether a line phase failure is affecting power unit PM230, PM250, PM260.  
 - check whether the motor cables are disconnected (see A07929).  
 If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.

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**A07903 Drive: Motor speed deviation**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The absolute value of the speed difference from the setpoint (p2151) and the speed actual value (r2169) exceeds the tolerance threshold (p2163) longer than tolerated (p2164, p2166).

The alarm is only enabled for p2149.0 = 1.

Possible causes:

- 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.

- for closed-loop torque control, the speed setpoint does not track the speed actual value.

- for active Vdc controller.

For U/f control, the overload condition is detected as the I<sub>max</sub> controller is active.

See also: p2149 (Monitoring configuration)

**Remedy:** - increase p2163 and/or p2166.  
 - increase the torque/current/power limits.  
 - for closed-loop torque control: The speed setpoint should track the speed actual value.  
 - de-activate alarm with p2149.0 = 0.

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**A07910 (N) Drive: Motor overtemperature**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** KTY or no sensor:

The measured motor temperature or the temperature of the motor temperature model 2 has exceeded the alarm threshold (p0604). The response parameterized in p0610 becomes active.

PTC or bimetallic NC contact:

The response threshold of 1650 Ohm was exceeded or the NC contact opened.

Alarm value (r2124, interpret decimal):

11: No output current reduction.

12: Output current reduction active.

See also: p0604 (Mot\_temp\_mod 1/KTY alarm threshold), p0610 (Motor overtemperature response)

**Remedy:**

- check the motor load.
- check the motor ambient temperature.
- check KTY84.
- check overtemperatures of the motor temperature model 2 (p0626 ... p0628).

See also: p0612 (Mot\_temp\_mod activation), p0625 (Motor ambient temperature), p0626 (Motor overtemperature, stator core), p0627 (Motor overtemperature, stator winding), p0628 (Motor overtemperature rotor winding)

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**A07920 Drive: Torque/speed too low**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**

For p2193 = 1:  
The torque deviates from the torque/speed envelope characteristic (too low).

For p2193 = 2:  
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (too low).

See also: p2181 (Load monitoring response)

**Remedy:**

- check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

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**A07921 Drive: Torque/speed too high**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**

For p2193 = 1:  
The torque deviates from the torque/speed envelope characteristic (too high).

For p2193 = 2:  
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (too high).

**Remedy:**

- check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

---

**A07922 Drive: Torque/speed out of tolerance**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**

For p2193 = 1:  
The torque deviates from the torque/speed envelope characteristic.

For p2193 = 2:  
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169).

**Remedy:**

- check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

---

**F07923 Drive: Torque/speed too low**

**Reaction:** OFF1 (NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:**

For p2193 = 1:  
The torque deviates from the torque/speed envelope characteristic (too low).

For p2193 = 2:  
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (too low).

**Remedy:**

- check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

---

**F07924 Drive: Torque/speed too high**

**Reaction:** OFF1 (NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:**

For p2193 = 1:  
The torque deviates from the torque/speed envelope characteristic (too high).

For p2193 = 2:  
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (too high).

**Remedy:**

- check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

<b>F07925</b>	<b>Drive: Torque/speed out of tolerance</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	For p2193 = 1: The torque deviates from the torque/speed envelope characteristic. For p2193 = 2: The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169).
<b>Remedy:</b>	- check the connection between the motor and load. - adapt the parameterization corresponding to the load.
<b>A07927</b>	<b>DC braking active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The motor is braked with DC current. DC braking is active. 1) A message with response DCBRK is active. The motor is braked with the braking current set in p1232 for the duration set in p1233. If the standstill threshold p1226 is undershot, then braking is prematurely canceled. 2) DC braking has been activated at binector input p1230 with the DC braking set (p1230 = 4). Braking current p1232 is injected until this binector input becomes inactive.
<b>Remedy:</b>	Not necessary. The alarm automatically disappears once DC braking has been executed.
<b>A07929 (F)</b>	<b>Drive: No motor detected</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The absolute current value is so small after enabling the inverter pulses that no motor is detected. Note: In the case of vector control and an induction motor, this alarm is followed by the fault F07902. See also: p2179 (Output load identification current limit)
<b>Remedy:</b>	- check the motor feeder cables. - reduce the threshold value (p2179), e.g. for synchronous motors. - check the voltage boost of the U/f control (p1310). - carry out a standstill measurement to set the stator resistance (p0350).
<b>F07935 (N)</b>	<b>Drive: Incorrect motor holding brake configuration</b>
<b>Reaction:</b>	NONE (OFF1, OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	An incorrect motor holding brake configuration was detected. Fault value (r0949, interpret decimal): 0: A motor holding brake was detected where the brake control has not been configured (p1215 = 0). The brake control configuration was set to "motor holding brake the same as sequence control" (p1215 = 1) (only when commissioning for the first time). For a chassis unit with Safe Brake Adapter (SBA), the interconnection p9621 = r9872.3 was established (only when commissioning for the first time). For a parallel connection, the power unit was set in p7015, to which the motor holding brake is connected (only when commissioning for the first time). 1: A motor holding brake was detected where the brake control has not been configured (p1215 = 0). The brake control configuration was left at "No motor holding brake available" (p1215 = 0). 11: The identification had detected more than one motor holding brake for a parallel connection. 12: For the parallel connection, in p0121 there is no valid component number for the power unit data set that is set in p7015. 13: With the "Safe brake control" (SBC) function activated, an attempt was made to change the value in p7015.

<b>Remedy:</b>	<p>14: For a parallel connection, the power units set in p7015 cannot be addressed.</p> <p>For fault value = 0: - No remedy required.</p> <p>For fault value = 1: - If required change the motor holding brake configuration (p1215 = 1, 2). - If this fault value unexpectedly occurs, then the motor connections should be checked in order to rule out that they have been interchanged.</p> <p>For fault value = 11: For a parallel connection, only connect one motor holding brake.</p> <p>For fault value = 12: Check the setting of the power unit data set for a parallel connection (p7015).</p> <p>For fault value = 13: Before changing p7015, deactivate the "Safe brake control" function (SBC) (p9602).</p> <p>For fault value = 14: Check whether the power unit supports the brake control for a parallel connection (r9771.14). Check whether there is a DRIVE-CLiQ communication error between the Control Unit and the power unit involved and, if required, carry out a diagnostics routine for the faults identified. See also: p1215 (Motor holding brake configuration)</p>
<b>F07936</b>	<b>Drive: load failure</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The load monitoring has detected a load failure.
<b>Remedy:</b>	<p>- check the sensor. - if necessary, de-activate the load monitoring (p2193). See also: p2193 (Load monitoring configuration), p3232 (Load monitoring failure detection)</p>
<b>F07950 (A)</b>	<b>Motor parameter incorrect</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The motor parameters were incorrectly entered while commissioning (e.g. p0300 = 0, no motor) Fault value (r0949, interpret decimal): Parameter number involved. See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323</p>
<b>Remedy:</b>	<p>Compare the motor data with the rating plate data and if required, correct. See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323</p>
<b>F07967</b>	<b>Drive: Pole position identification internal fault</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A fault has occurred during the pole position identification routine. Only for internal Siemens troubleshooting.</p>
<b>Remedy:</b>	Carry out a POWER ON.
<b>F07968</b>	<b>Drive: Lq-Ld measurement incorrect</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>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.</p>
<b>Remedy:</b>	<p>For fault value = 10: Check whether the motor is correctly connected. Replace the power unit involved. De-activate technique (p1909).</p>

For fault value = 12:  
Check whether motor data have been correctly entered.  
De-activate technique (p1909).  
For fault value = 16:  
De-activate technique (p1909).  
For fault value = 17:  
Repeat technique.

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**F07969 Drive: Incorrect pole position identification**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** A fault has occurred during the pole position identification routine.  
Fault value (r0949, interpret decimal):  
1: Current controller limited  
2: Motor shaft locked.  
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:** For fault value = 1:  
Check whether the motor is correctly connected.  
Check whether motor data have been correctly entered.  
Replace the power unit involved.  
For fault value = 2:  
Bring the motor into a no-load condition.  
For 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 power unit involved.  
For fault value = 11:  
Increase the value for p0329.  
Check whether the motor is correctly connected.  
Replace the power unit involved.  
For 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.  
For fault value = 13:  
Reduce the value for p0329.  
Check whether motor data have been correctly entered.  
For fault value = 14:  
Increase the value for p0329.  
For fault value = 15:  
Increase the value for p0325.  
Motor not sufficiently anisotropic, change the technique (p1980 = 1 or 10).  
For fault value = 16:  
Change the technique (p1980).  
For fault value = 17:  
Repeat technique.  
For fault value = 18:  
Increase the value for p0329.  
Saturation not sufficient, change the technique (p1980 = 10).  
For fault value = 20:  
Before carrying out a pole position identification routine ensure that the motor shaft is absolutely stationary (zero speed).

<b>A07976</b>	<b>Drive: Fine encoder calibration activated</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The alarm indicates the phases of the fine encoder calibration using an alarm value. Alarm value (interpret decimal): 1: Fine encoder calibration active. 2: Rotating measurement started (set the setpoint speed > 40 % rated motor speed) 3: Rotating measurement lies within the speed and torque range. 4: Rotating measurement successful: pulse inhibit can be initiated to accept the values. 5: Fine encoder calibration is calculated. 10: Speed too low, rotating measurement interrupted. 12: Torque too high, rotating measurement interrupted.
<b>Remedy:</b>	Re alarm value = 10: Increase the speed. Re alarm value = 12: Bring the drive into a no-load condition.
<b>A07980</b>	<b>Drive: Rotating measurement activated</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The rotating measurement (automatic speed controller optimization) is activated. The rotating measurement is carried out at the next power-on command. See also: p1960 (Rotating measurement selection)
<b>Remedy:</b>	Not necessary. The alarm disappears automatically after the speed controller optimization has been successfully completed or for the setting p1900 = 0.
<b>A07981</b>	<b>Drive: Enable signals for the rotating measurement missing</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The rotating measurement cannot be started due to missing enable signals.
<b>Remedy:</b>	- acknowledge faults that are present. - establish missing enable signals. See also: r0002 (Drive operating display), r0046 (Missing enable sig)
<b>F07983</b>	<b>Drive: Rotating measurement saturation characteristic</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	A fault has occurred while determining the saturation characteristic. Fault value (r0949, interpret decimal): 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.
<b>Remedy:</b>	For fault value = 1: - the total drive moment of inertia is far higher than that of the motor (p0341, p0342). De-select rotating measurement (p1960), enter the moment of inertia p0342, re-calculate the speed controller p0340 = 4 and repeat the measurement. Re fault value = 1 ... 2: - increase the measuring speed (p1961) and repeat the measurement.



Re fault value = 1 ... 4:

- 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 %).

For fault value = 5:

- the speed setpoint (p1961) is too high. Reduce the speed.

For fault value = 6:

- adapt the speed setpoint (p1961) or minimum limiting (p1080).

For fault value = 7:

- adapt the speed setpoint (p1961) or suppression (skip) bandwidths (p1091 ... p1094, p1101).

For fault value = 8:

- 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

**Reaction:**

OFF1 (NONE, OFF2)

**Acknowledge:**

IMMEDIATELY

**Cause:**

A fault has occurred while identifying the moment of inertia.

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: 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:**

For 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, 5:

- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).

Re fault value = 3, 6:

- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).

Re fault value = 4, 7:

- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).

For fault value = 8:

- 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 p0342, re-calculate the speed controller p0340 = 4 and repeat the measurement.

For fault value = 9:

- check the moment of inertia (p0341, p0342). After the change, re-calculate (p0340 = 3 or 4).

For fault value = 10:

- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.

Note:

The moment of inertia identification routine can be disabled using p1959.2.

See also: p1959 (Rotating measurement configuration)

<b>F07985</b>	<b>Drive: Speed controller optimization (oscillation test)</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A fault has occurred during the vibration test.</p> <p>Fault value (r0949, interpret decimal):</p> <ol style="list-style-type: none"> <li>1: The speed did not reach a steady-state condition.</li> <li>2: The speed setpoint was not able to be approached as the minimum limiting is active.</li> <li>3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.</li> <li>4: The speed setpoint was not able to be approached as the maximum limiting is active.</li> <li>5: Torque limits too low for a torque step.</li> <li>6: No suitable speed controller setting was found.</li> </ol>
<b>Remedy:</b>	<p>For fault value = 1:</p> <ul style="list-style-type: none"> <li>- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.</li> <li>- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.</li> <li>- carry out a motor data identification routine (p1910).</li> <li>- if required, reduce the dynamic factor (p1967 &lt; 25 %).</li> </ul> <p>For fault value = 2:</p> <ul style="list-style-type: none"> <li>- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).</li> </ul> <p>For fault value = 3:</p> <ul style="list-style-type: none"> <li>- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).</li> </ul> <p>For fault value = 4:</p> <ul style="list-style-type: none"> <li>- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).</li> </ul> <p>For fault value = 5:</p> <ul style="list-style-type: none"> <li>- increase the torque limits (e.g. p1520, p1521).</li> </ul> <p>For fault value = 6:</p> <ul style="list-style-type: none"> <li>- reduce the dynamic factor (p1967).</li> <li>- disable the vibration test (p1959.4 = 0) and repeat the rotating measurement.</li> </ul> <p>See also: p1959 (Rotating measurement configuration)</p>
<b>F07986</b>	<b>Drive: Rotating measurement ramp-function generator</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>During the rotating measurements, problems with the ramp-function generator occurred.</p> <p>Fault value (r0949, interpret decimal):</p> <ol style="list-style-type: none"> <li>1: The positive and negative directions are inhibited.</li> </ol>
<b>Remedy:</b>	<p>For fault value = 1:</p> <p>Enable the direction (p1110 or p1111).</p>
<b>F07988</b>	<b>Drive: Rotating measurement, no configuration selected</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	When configuring the rotating measurement (p1959), no function was selected.
<b>Remedy:</b>	<p>Select at least one function for automatic optimization of the speed controller (p1959).</p> <p>See also: p1959 (Rotating measurement configuration)</p>
<b>F07990</b>	<b>Drive: Incorrect motor data identification</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A fault has occurred during the identification routine.</p> <p>Fault value (r0949, interpret decimal):</p> <ol style="list-style-type: none"> <li>1: Current limit value reached.</li> <li>2: Identified stator resistance lies outside the expected range 0.1 ... 100% of Zn.</li> <li>3: Identified rotor resistance lies outside the expected range 0.1 ... 100% of Zn.</li> <li>4: Identified stator reactance lies outside the expected range 50 ... 500 % of Zn.</li> <li>5: Identified magnetizing reactance lies outside the expected range 50 ... 500 % of Zn.</li> <li>6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s.</li> <li>7: Identified total leakage reactance lies outside the expected range 4 ... 50 % of Zn.</li> <li>8: Identified stator leakage reactance lies outside the expected range 2 ... 50% of Zn.</li> <li>9: Identified rotor leakage reactance lies outside the expected range 2 ... 50% of Zn.</li> </ol>

- 10: Motor has been incorrectly connected.
- 11: Motor shaft rotates.
- 12: Ground fault detected.
- 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: The selected sampling time is too low for the motor identification (p0115[0]).

**Remedy:**

- Re fault value = 1 ... 40:
  - check whether motor data have been correctly entered in p0300, p0304 ... p0311.
  - is there an appropriate relationship between the motor power rating and that of the power unit? The ratio of the power unit to the rated motor current should not be less than 0.5 and not be greater than 4.
  - check connection type (star-delta).
- Re fault value = 4, 7:
  - check whether the inductance in p0233 is correctly set.
  - check whether motor has been correctly connected (star-delta).
- For fault value = 12:
  - check the power cable connections.
  - check the motor.
  - check the CT.
- For fault value = 50:
  - Perform a motor data identification with a higher sampling time, and after this, change to the required higher sampling time (p0115[0]).

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**A07991 (N) Drive: Motor data identification activated**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The motor data identification routine is activated.  
 The motor data identification routine is carried out at the next power-on command.  
 If rotating measurement is selected (see p1900, p1960), it will not be possible to save the parameter assignment.  
 Once motor data identification has been completed or de-activated, the option to save the parameter assignment will be made available again.  
 See also: p1910 (Motor data identification selection)

**Remedy:** Not necessary.  
 The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1900 = 0.

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**A07994 (F, N) Drive: motor data identification not performed**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The "vector control" mode has been selected and a motor data identification has still not been performed.  
 The alarm is initiated when changing the drive data set (see r0051) in the following cases:  
 - vector control is parameterized in the actual drive data set (p1300 >= 20).  
 and  
 - motor data identification has still not been performed in the actual drive data set (see r3925).  
**Note:**  
 For SINAMICS G120, a check is made and an alarm is output also when exiting commissioning and when the system powers up.

**Remedy:**

- Perform motor data identification (see p1900).
- If required, parameterize "U/f control" (p1300 < 20).
- switch over to a drive data set, in which the conditions do not apply.

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**F08010 (N, A) CU: Analog-to-digital converter**

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The analog-to-digital converter on the Control Unit has not supplied any converted data.

**Remedy:**

- check the power supply.
- replace Control Unit.

<b>F08501 (N, A)</b>	<b>PROFINET: Setpoint timeout</b>
<b>Reaction:</b>	OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The reception of setpoints from PROFINET has been interrupted. - bus connection interrupted. - controller switched off. - controller set into the STOP state.
<b>Remedy:</b>	- Restore the bus connection and set the controller to RUN. - check the set monitoring time if the error persists.
<b>F08502 (A)</b>	<b>PROFINET: Monitoring time sign-of-life expired</b>
<b>Reaction:</b>	OFF1 (OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The monitoring time for the sign-of-life counter has expired. The connection to the PROFINET interface was interrupted.
<b>Remedy:</b>	- carry out a POWER ON (power off/on). - contact the Hotline.
<b>A08511 (F)</b>	<b>PROFINET: Receive configuration data invalid</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The drive unit did not accept the receive configuration data. Alarm value (r2124, interpret decimal): Return value of the receive configuration data check. 2: Too many PZD data words for output or input to a drive object. Maximum of 12 words are possible. 3: Uneven number of bytes for input or output. 501: PROFIsafe parameter error (e.g. F_dest). 502: PROFIsafe telegram does not match.
<b>Remedy:</b>	Check the receive configuration data. Re alarm value = 2: - Check the number of data words for output and input to a drive object. Re alarm value = 501: - Check the set PROFIsafe address (p9610). Re alarm value = 502: Check the enable of F-DI (p9501.30).
<b>A08526 (F)</b>	<b>PROFINET: No cyclic connection</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	There is no connection to a PROFINET controller.
<b>Remedy:</b>	Establish the cyclic connection and activate the controller with cyclic operation. Check the parameters "Name of Station" and "IP of Station" (r61000, r61001).
<b>A08565</b>	<b>PROFINET: Consistency error affecting adjustable parameters</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	A consistency error was detected when activating the configuration (p8925 = 1) for the PROFINET interface. The currently set configuration has not been activated. Possible causes: - IP address, subnet mask or default gateway is not correct - IP address or station name used twice in the network - station name contains invalid characters, etc. See also: p8920 (PN Name of Station), p8921 (PN IP address of station), p8922 (PN Default Gateway of Station), p8923 (PN Subnet Mask of Station)
<b>Remedy:</b>	Check the required interface configuration (p8920 and following), correct if necessary, and activate (p8925 = 1). See also: p8925 (PN interface configuration)

<b>F08700 (A)</b>	<b>CAN: Communications error</b>
<b>Reaction:</b>	OFF3 (NONE, OFF1, OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A CAN communications error has occurred.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1: The error counter for the send telegrams has exceeded the BUS OFF value 255. The bus disables the CAN controller.</p> <ul style="list-style-type: none"> <li>- bus cable short circuit.</li> <li>- incorrect baud rate.</li> <li>- incorrect bit timing.</li> </ul> <p>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]).</p> <ul style="list-style-type: none"> <li>- bus cable interrupted.</li> <li>- bus cable not connected.</li> <li>- incorrect baud rate.</li> <li>- incorrect bit timing.</li> <li>- master fault.</li> </ul> <p>Note:</p> <p>The fault response can be set as required using p8641.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the bus cable</li> <li>- check the baud rate (p8622).</li> <li>- check the bit timing (p8623).</li> <li>- check the master.</li> </ul> <p>The CAN controller must be manually restarted with p8608 = 1 after the cause of the fault has been resolved!</p>
<b>F08701</b>	<b>CAN: NMT state change</b>
<b>Reaction:</b>	OFF3
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>A CANopen NMT state transition from "operational" to "pre-operational" or after "stopped".</p> <p>Fault value (r0949, interpret decimal):</p> <p>1: CANopen NMT state transition from "operational" to "pre-operational".</p> <p>2: CANopen NMT state transition from "operational" to "stopped".</p> <p>Note:</p> <p>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.</p>
<b>Remedy:</b>	<p>Not necessary.</p> <p>Acknowledge the fault and continue operation.</p>
<b>F08702 (A)</b>	<b>CAN: RPDO Timeout</b>
<b>Reaction:</b>	OFF3 (NONE, OFF1, OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The monitoring time of the CANopen RPDO telegram has expired because the bus connection was either interrupted or the CANopen Master was switched-off.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the bus cable</li> <li>- check the master.</li> <li>- If required, increase the monitoring time (p8699).</li> </ul>
<b>A08751</b>	<b>CAN: Telegram loss</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The CAN controller has lost a receive message (telegram).
<b>Remedy:</b>	Reduce the cycle times of the receive messages.
<b>A08752</b>	<b>CAN: Error counter for error passive exceeded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	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).

---

**A08753 CAN: Message buffer overflow**

**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.  
- SDO request from master only after SDO feedback for previous SDO request.

---

**A08754 CAN: Incorrect communications mode**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** In the "operational" mode, an attempt was made to change parameters p8700 ... p8737.

**Remedy:** Change to the "pre-operational" or "stopped" mode.

---

**A08755 CAN: Obj cannot be mapped**

**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.

---

**A08757 CAN: Set COB-ID invalid**

**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.

---

**A08759 CAN: PDO COB-ID already available**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An existing PDO COB-ID was allocated.

**Remedy:** Select another PDO COB-ID.

<b>A08800</b>	<b>PROFenergy energy-saving mode active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The PROFenergy energy-saving mode is active Alarm value (r2124, interpret decimal): Mode ID of the active PROFenergy energy-saving mode. See also: r5600 (Pe energy saving mode ID)
<b>Remedy:</b>	The alarm automatically disappears when the energy-saving mode is exited. Note: After receiving the PROFenergy command "End_Pause" via PROFINET, the energy-saving mode is exited.
<b>A08802</b>	<b>PROFenergy not possible to switch off incremental encoder supply</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The incremental encoder is used for the closed-loop position control. This means that its power supply cannot be switched off during the PROFenergy energy-saving mode, otherwise it would lose its position actual value. Alarm value (r2124, interpret decimal): Encoder number
<b>Remedy:</b>	The alarm automatically disappears when the energy-saving mode is exited. Note: After receiving the PROFenergy command "End_Pause" via PROFINET, the energy-saving mode is exited.
<b>F13009</b>	<b>Licensing OA application not licensed</b>
<b>Reaction:</b>	OFF1
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	At least one OA application which is under license does not have a license. Note: Refer to r4955 and p4955 for information about the installed OA applications.
<b>Remedy:</b>	- enter and activate the license key for OA applications under license (p9920, p9921). - if necessary, de-activate unlicensed OA applications (p4956).
<b>F13100</b>	<b>Know-how protection: Copy protection error</b>
<b>Reaction:</b>	OFF1
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The know-how protection with copy protection for the memory card is active. An error has occurred when checking the memory card. Fault value (r0949, interpret decimal): 0: A memory card is not inserted. 1: An invalid memory card is inserted (not SIEMENS). 2: An invalid memory card is inserted. 3: The memory card is being used in another Control Unit. 12: An invalid memory card is inserted (OEM input incorrect, p7769). 13: The memory card is being used in another Control Unit (OEM input incorrect, p7759). See also: p7765 (KHP memory card copy protection)
<b>Remedy:</b>	Re fault value = 0, 1: - Insert the correct memory card and carry out POWER ON. Re fault value = 2, 3, 12, 13: - contact the responsible OEM. - Deactivate copy protection (p7765) and acknowledge the fault (p3981). - Deactivate know-how protection (p7766-p7768) and acknowledge the fault (p3981). Note: In general, the copy protection can only be changed when know-how protection is deactivated. KHP: Know-How Protection See also: p3981 (Faults, acknowledge drive object), p7765 (KHP memory card copy protection)

<b>F13101</b>	<b>Know-how protection: Copy protection cannot be activated</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>An error occurred when attempting to activate the copy protection for the memory card.</p> <p>Fault value (r0949, interpret decimal):</p> <p>0: A memory card is not inserted.</p> <p>1: An invalid memory card is inserted (not SIEMENS).</p> <p>Note:</p> <p>KHP: Know-How Protection</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- Insert a valid memory card.</li> <li>- Try to activate copy protection again (p7765).</li> </ul> <p>See also: p7765 (KHP memory card copy protection)</p>
<b>F13102</b>	<b>Know-how protection: Consistency error of the protected data</b>
<b>Reaction:</b>	OFF1
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>An error was identified when checking the consistency of the protected files. As a consequence, the project on the memory card cannot be run.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>yyyyxxxx hex: yyyy = object number, xxxx = fault cause</p> <p>xxxx = 1:</p> <p>A file has a checksum error.</p> <p>xxxx = 2:</p> <p>The files are not consistent with one another.</p> <p>Note:</p> <p>KHP: Know-How Protection</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- Replace the project on the memory card.</li> <li>- Restore the factory setting and download again.</li> </ul>
<b>F30001</b>	<b>Power unit: Overcurrent</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The power unit has detected an overcurrent condition.</p> <ul style="list-style-type: none"> <li>- closed-loop control is incorrectly parameterized.</li> <li>- motor has a short-circuit or fault to ground (frame).</li> <li>- U/f operation: Up ramp set too low.</li> <li>- U/f operation: rated current of motor much greater than that of power unit.</li> <li>- High discharge and post-charging current for line supply voltage interruptions.</li> <li>- High post-charging currents for overload when motoring and DC link voltage dip.</li> <li>- Short-circuit currents at power-on due to the missing line reactor.</li> <li>- power cables are not correctly connected.</li> <li>- power cables exceed the maximum permissible length.</li> <li>- power unit defective.</li> <li>- line phase interrupted.</li> </ul> <p>Fault value (r0949, interpret bitwise binary):</p> <p>Bit 0: Phase U.</p> <p>Bit 1: Phase V.</p> <p>Bit 2: Phase W.</p> <p>Bit 3: Overcurrent in the DC link.</p> <p>Note:</p> <p>Fault value = 0 means that the phase with overcurrent is not recognized.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the motor data - if required, carry out commissioning.</li> <li>- check the motor circuit configuration (star/delta).</li> <li>- U/f operation: Increase up ramp.</li> <li>- U/f operation: Check assignment of rated currents of motor and power unit.</li> <li>- check the line supply quality.</li> <li>- Reduce motor load.</li> <li>- Correct connection of line reactor.</li> <li>- check the power cable connections.</li> <li>- check the power cables for short-circuit or ground fault.</li> </ul>



- check the length of the power cables.
- replace power unit.
- check the line supply phases.

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**F30002 Power unit: DC link voltage, overvoltage**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The power unit has detected an overvoltage condition in the DC link.

- motor regenerates too much energy.
- line supply voltage too high.
- line phase interrupted.
- DC-link voltage control switched off.
- dynamic response of DC-link voltage controller excessive or insufficient.

Fault value (r0949, interpret decimal):

DC link voltage at the time of trip [0.1 V].

**Remedy:**

- increase the ramp-down time (p1121).
  - set the rounding times (p1130, p1136). This is particularly recommended in U/f operation to relieve the DC link voltage controller with rapid ramp-down times of the ramp-function generator.
  - Activate the DC link voltage controller (p1240, p1280).
  - adapt the dynamic response of the DC-link voltage controller (p1243, p1247, p1283, p1287).
  - check the line supply voltage and setting in p0210.
  - check and correct the phase assignment at the power unit.
  - check the line supply phases.
- See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller configuration (vector control))

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**F30003 Power unit: DC link voltage, undervoltage**

**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 phase interrupted.

Note:

The monitoring threshold for the DC link undervoltage is the minimum of the following values:

- for a calculation, refer to p0210.

**Remedy:**

- check the line supply voltage
  - check the line supply phases.
- See also: p0210 (Drive unit line supply voltage)

---

**F30004 Power unit: Overtemperature heat sink AC inverter**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The temperature of the power unit heat sink 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 undershot.  
See also: p1800 (Pulse frequency setpoint)

<b>F30005</b>	<b>Power unit: Overload I2t</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The power unit was overloaded (r0036 = 100 %).</p> <ul style="list-style-type: none"> <li>- the permissible rated power unit current was exceeded for an inadmissibly long time.</li> <li>- the permissible load duty cycle was not maintained.</li> </ul> <p>Fault value (r0949, interpret decimal): I2t [100 % = 16384].</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- reduce the continuous load.</li> <li>- adapt the load duty cycle.</li> <li>- check the motor and power unit rated currents.</li> <li>- reduce the current limit (p0640).</li> <li>- during operation with U/f characteristic: reduce the integral time of the current limiting controller (p1341).</li> </ul> <p>See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)</p>
<b>F30011</b>	<b>Power unit: Line phase failure in main circuit</b>
<b>Reaction:</b>	OFF2 (OFF1)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>At the power unit, the DC link voltage ripple has exceeded the permissible limit value.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> <li>- A line phase has failed.</li> <li>- The 3 line phases are inadmissibly unsymmetrical.</li> <li>- the fuse of a phase of a main circuit has ruptured.</li> <li>- A motor phase has failed.</li> </ul> <p>Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the main circuit fuses.</li> <li>- Check whether a single-phase load is distorting the line voltages.</li> <li>- check the motor feeder cables.</li> </ul>
<b>F30012</b>	<b>Power unit: Temperature sensor heat sink wire breakage</b>
<b>Reaction:</b>	OFF1 (OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The connection to a heat sink temperature sensor in the power unit is interrupted.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Bit 0: Module slot (electronics slot)</p> <p>Bit 1: Air intake</p> <p>Bit 2: Inverter 1</p> <p>Bit 3: Inverter 2</p> <p>Bit 4: Inverter 3</p> <p>Bit 5: Inverter 4</p> <p>Bit 6: Inverter 5</p> <p>Bit 7: Inverter 6</p> <p>Bit 8: Rectifier 1</p> <p>Bit 9: Rectifier 2</p>
<b>Remedy:</b>	Contact the manufacturer.
<b>F30013</b>	<b>Power unit: Temperature sensor heat sink short-circuit</b>
<b>Reaction:</b>	OFF1 (OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The heat sink temperature sensor in the power unit is short-circuited.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>Bit 0: Module slot (electronics slot)</p> <p>Bit 1: Air intake</p> <p>Bit 2: Inverter 1</p> <p>Bit 3: Inverter 2</p> <p>Bit 4: Inverter 3</p> <p>Bit 5: Inverter 4</p> <p>Bit 6: Inverter 5</p>

	Bit 7: Inverter 6 Bit 8: Rectifier 1 Bit 9: Rectifier 2 <b>Remedy:</b> Contact the manufacturer.
<b>F30015 (N, A)</b>	<b>Power unit: Phase failure motor cable</b>
<b>Reaction:</b>	OFF2 (NONE, OFF1, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	A phase failure in the motor feeder cable was detected. The signal can also be output in the following cases: - The motor is correctly connected, but the drive has stalled in U/f control. In this case, a current of 0 A is possibly measured in one phase due to asymmetry of the currents. - the motor is correctly connected, however the closed-speed control is instable and therefore an oscillating torque is generated. Note: Chassis power units do not feature phase failure monitoring.
<b>Remedy:</b>	- check the motor feeder cables. - increase the ramp-up or ramp-down time (p1120) if the drive has stalled in U/f control. - check the speed controller settings.
<b>A30016 (N)</b>	<b>Power unit: Load supply switched out</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The DC link voltage is too low. Alarm value (r2124, interpret decimal): DC link voltage at the time of trip [0.1 V].
<b>Remedy:</b>	Under certain circumstances, the AC line supply is not switched on.
<b>F30017</b>	<b>Power unit: Hardware current limit has responded too often</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	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. - 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. Fault value (r0949, interpret binary): Bit 0: Phase U Bit 1: Phase V Bit 2: Phase W
<b>Remedy:</b>	- 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.
<b>F30021</b>	<b>Power unit: Ground fault</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	Power unit has detected a ground fault. - ground fault in the power cables. - winding fault or ground fault at the motor. - CT defective. - when the brake is applied, this causes the hardware DC current monitoring to respond. Fault value (r0949, interpret decimal): Absolute value, summation current [32767 = 271 % rated current].

- Remedy:**
- check the power cable connections.
  - check the motor.
  - check the CT.
  - check the cables and contacts of the brake connection (a wire is possibly broken).
- See also: p0287 (Ground fault monitoring thresholds)

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**F30022 Power unit: Monitoring U<sub>ce</sub>**

**Reaction:** OFF2

**Acknowledge:** POWER ON

**Cause:** In the power unit, the monitoring of the collector-emitter voltage (U<sub>ce</sub>) of the semiconductor has responded.  
Possible causes:

- fiber-optic cable interrupted.
- power supply of the IGBT gating module missing.
- short-circuit at the power unit 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: U<sub>ce</sub> 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.

---

**F30024 Power unit: Overtemperature thermal model**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The temperature difference between the heat sink 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 (Power unit temperatures)

- 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.
  - if DC braking is active: reduce braking current (p1232).

---

**F30025 Power unit: Chip overtemperature**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The chip temperature of the semiconductor 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.

Fault value (r0949, interpret decimal):

Temperature difference between the heat sink and chip [0.01 °C].

- 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.
- Notice:  
This fault can only be acknowledged after this alarm threshold for alarm A05001 has been undershot.  
See also: r0037 (Power unit temperatures)

### F30027

### Power unit: Precharging DC link time monitoring

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:**

The power unit DC link was not able to be pre-charged within the expected time.

- 1) There is no line supply voltage connected.
- 2) The line contactor/line side switch has not been closed.
- 3) The line supply voltage is too low.
- 4) Line supply voltage incorrectly set (p0210).
- 5) The pre-charging resistors are overheated as there were too many pre-charging operations per time unit.
- 6) The pre-charging resistors are overheated as the DC link capacitance is too high.
- 7) The DC link has either a ground fault or a short-circuit.
- 8) Pre-charging circuit may be defective.

Fault value (r0949, interpret binary):  
yyyyxxxx hex:  
yyyy = power unit state

- 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 bridging contactor to open -> change into the fault state.
- 5: Wait for bridging contactor to open -> change into restart inhibit.
- 6: Commissioning.
- 7: Ready for pre-charging.
- 8: Pre-charging started, DC link voltage less than the minimum switch-on voltage.
- 9: Pre-charging, DC link voltage end of pre-charging still not detected.
- 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: Reserved.

xxxx = Missing internal enable signals, power unit (inverted bit-coded, FFFF hex -> all internal enable signals available)

Bit 0: Power supply of the IGBT gating shut down.  
Bit 1: Ground fault detected.  
Bit 2: Peak current intervention.  
Bit 3: I2t exceeded.  
Bit 4: Thermal model overtemperature calculated.  
Bit 5: (heat sink, gating module, power unit) overtemperature measured.  
Bit 6: Reserved.  
Bit 7: Overvoltage detected.  
Bit 8: Power unit has completed pre-charging, ready for pulse enable.  
Bit 9: Reserved.  
Bit 10: Overcurrent detected.  
Bit 11: Reserved.  
Bit 12: Reserved.  
Bit 13: Vce fault detected, transistor de-saturated due to overcurrent/short-circuit.  
Bit 14: Undervoltage detected.

See also: p0210 (Drive unit line supply voltage)

**Remedy:**

In general:

- check the line supply voltage at the input terminals.
- check the line supply voltage setting (p0210).
- wait until the pre-charging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.

Re 5):

- carefully observe the permissible pre-charging frequency (refer to the appropriate Equipment Manual).

Re 6):

- check the capacitance of the DC link and, if necessary, reduce it in accordance with the maximum permissible DC link capacitance (see relevant Equipment Manual).

Re 7):  
 - check the DC link for a ground fault or short circuit.  
 See also: p0210 (Drive unit line supply voltage)

<b>A30031</b>	<b>Power unit: Hardware current limiting, phase U</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.</p> <ul style="list-style-type: none"> <li>- closed-loop control is incorrectly parameterized.</li> <li>- fault in the motor or in the power cables.</li> <li>- the power cables exceed the maximum permissible length.</li> <li>- motor load too high</li> <li>- power unit defective.</li> </ul> <p>Note:                      Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).</li> <li>- check the motor circuit configuration (star/delta).</li> <li>- check the motor load.</li> <li>- check the power cable connections.</li> <li>- check the power cables for short-circuit or ground fault.</li> <li>- check the length of the power cables.</li> </ul>
<b>A30032</b>	<b>Power unit: Hardware current limiting, phase V</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.</p> <ul style="list-style-type: none"> <li>- closed-loop control is incorrectly parameterized.</li> <li>- fault in the motor or in the power cables.</li> <li>- the power cables exceed the maximum permissible length.</li> <li>- motor load too high</li> <li>- power unit defective.</li> </ul> <p>Note:                      Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.</p>
<b>Remedy:</b>	<p>Check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).</p> <ul style="list-style-type: none"> <li>- check the motor circuit configuration (star/delta).</li> <li>- check the motor load.</li> <li>- check the power cable connections.</li> <li>- check the power cables for short-circuit or ground fault.</li> <li>- check the length of the power cables.</li> </ul>
<b>A30033</b>	<b>Power unit: Hardware current limiting, phase W</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period.</p> <ul style="list-style-type: none"> <li>- closed-loop control is incorrectly parameterized.</li> <li>- fault in the motor or in the power cables.</li> <li>- the power cables exceed the maximum permissible length.</li> <li>- motor load too high</li> <li>- power unit defective.</li> </ul> <p>Note:                      Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).</li> <li>- check the motor circuit configuration (star/delta).</li> <li>- check the motor load.</li> <li>- check the power cable connections.</li> <li>- check the power cables for short-circuit or ground fault.</li> <li>- check the length of the power cables.</li> </ul>

<b>A30034</b>	<b>Power unit: Internal overtemperature</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The alarm threshold for internal overtemperature has been reached.</p> <p>If the temperature inside the unit continues to increase, fault F30036 may be triggered.</p> <ul style="list-style-type: none"> <li>- ambient temperature might be too high.</li> <li>- insufficient cooling, fan failure.</li> </ul> <p>Fault value (r0949, interpret decimal):</p> <p>Only for internal Siemens troubleshooting.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the ambient temperature.</li> <li>- check the fan for the inside of the unit.</li> </ul>
<b>F30035</b>	<b>Power unit: Air intake overtemperature</b>
<b>Reaction:</b>	OFF1 (OFF2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The air intake in the power unit has exceeded the permissible temperature limit.</p> <p>For air-cooled power units, the temperature limit is at 55 °C.</p> <ul style="list-style-type: none"> <li>- ambient temperature too high.</li> <li>- insufficient cooling, fan failure.</li> </ul> <p>Fault value (r0949, interpret decimal):</p> <p>Temperature [0.01 °C].</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check whether the fan is running.</li> <li>- check the fan elements.</li> <li>- check whether the ambient temperature is in the permissible range.</li> </ul> <p>Notice:</p> <p>This fault can only be acknowledged after this alarm threshold for alarm A05002 has been undershot.</p>
<b>F30036</b>	<b>Power unit: Internal overtemperature</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The temperature inside the drive converter has exceeded the permissible temperature limit.</p> <ul style="list-style-type: none"> <li>- insufficient cooling, fan failure.</li> <li>- overload.</li> <li>- ambient temperature too high.</li> </ul> <p>Fault value (r0949, interpret decimal):</p> <p>Only for internal Siemens troubleshooting.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check whether the fan is running.</li> <li>- check the fan elements.</li> <li>- check whether the ambient temperature is in the permissible range.</li> </ul> <p>Notice:</p> <p>This fault can only be acknowledged once the permissible temperature limit minus 5 K has been fallen below.</p>
<b>F30037</b>	<b>Power unit: Rectifier overtemperature</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The temperature in the rectifier of the power unit has exceeded the permissible temperature limit.</p> <ul style="list-style-type: none"> <li>- insufficient cooling, fan failure.</li> <li>- overload.</li> <li>- ambient temperature too high.</li> <li>- line supply phase failure.</li> </ul> <p>Fault value (r0949, interpret decimal):</p> <p>Temperature [0.01 °C].</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check whether the fan is running.</li> <li>- check the fan elements.</li> <li>- check whether the ambient temperature is in the permissible range.</li> <li>- check the motor load.</li> <li>- check the line supply phases.</li> </ul> <p>Notice:</p> <p>This fault can only be acknowledged after this alarm threshold for alarm A05004 has been undershot.</p>

<b>A30042</b>	<b>Power unit: Fan operating time reached or exceeded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	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.
<b>Remedy:</b>	Replace the fan in the power unit and reset the operating hours counter to 0 (p0251 = 0).
<b>A30049</b>	<b>Power unit: Internal fan faulty</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The internal fan has failed.
<b>Remedy:</b>	Check the internal fan and replace if necessary.
<b>F30052</b>	<b>EEPROM data error</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	EEPROM data error of the power unit module. Fault value (r0949, interpret decimal): 0, 2, 3, 4: The EEPROM data read in from the power unit module is inconsistent. 1: EEPROM data is not compatible to the firmware of the Control Unit.
<b>Remedy:</b>	Replace power unit module.
<b>A30054 (F)</b>	<b>Power unit: Undervoltage when opening the brake</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	When the brake is being opened, it is detected that the power supply voltage is less than $24\text{ V} - 10\% = 21.6\text{V}$ . Alarm value (r2124, interpret decimal): Supply voltage fault [0.1 V]. Example: Alarm value = 195 --> voltage = 19.5 V
<b>Remedy:</b>	Check the 24 V voltage for stability and value.
<b>F30055</b>	<b>Power unit: Braking chopper overcurrent</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	An overcurrent condition has occurred in the braking chopper.
<b>Remedy:</b>	- check whether the braking resistor has a short circuit. - for an external braking resistor, check whether the resistor may have been dimensioned too small. Note: The braking chopper is only enabled again at pulse enable after the fault has been acknowledged.
<b>A30057</b>	<b>Power unit: Line asymmetry</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	Frequencies have been detected on the DC link voltage that would suggest line asymmetry or failure of a line phase. It is also possible that a motor phase has failed. Fault F30011 is output if the alarm is present and at the latest after 5 minutes. The precise duration depends on the power unit type and the particular frequencies. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- check the line phase connection. - check the motor feeder cable connections.



If there is no phase failure of the line or motor, then line asymmetry is involved.  
- reduce the power in order to avoid fault F30011.

<b>F30059</b>	<b>Power unit: Internal fan faulty</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The internal power unit fan has failed and is possibly defective.
<b>Remedy:</b>	Check the internal fan and replace if necessary.
<b>F30071</b>	<b>No new actual values received from the Power Module</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	More than one actual value telegram from the power unit module has failed.
<b>Remedy:</b>	Check the interface (adjustment and locking) to the power unit module.
<b>F30072</b>	<b>Setpoints can no longer be transferred to the Power Module</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	More than one setpoint telegram was not able to be transferred to the power unit module.
<b>Remedy:</b>	Check the interface (adjustment and locking) to the power unit module.
<b>F30074 (A)</b>	<b>Communication error between the Control Unit and Power Module</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	Communications between the Control Unit and Power Module via the interface no longer possible. The Control Unit may have been withdrawn or is incorrectly inserted. Fault value (r0949, interpret hexadecimal): 0 hex: The Control Unit was withdrawn from the Power Module during operation. 1 hex: The Control Unit was withdrawn from the Power Module during operation, although the encoderless safe motion monitoring functions are enabled. This is not supported. After re-inserting the Control Unit in operation, communications to the Power Module no longer possible. 20A hex: The Control Unit was inserted on a Power Module, which has another code number. 20B hex: The Control Unit was inserted on a Power Module, which although it has the same code number, has a different serial number. The Control Unit executes an automatic warm restart to accept the new calibration data.
<b>Remedy:</b>	For fault value = 0 and 20A hex: Insert the Control Unit on an appropriate Power Module and continue operation. If required, carry out a POWER ON of the Control Unit. For fault value = 1 hex: Carry out a POWER ON of the Control Unit.
<b>F30080</b>	<b>Power unit: Current increasing too quickly</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	The power unit has detected an excessive rate of rise in the overvoltage range. - closed-loop control is incorrectly parameterized. - motor has a short-circuit or fault to ground (frame). - U/f operation: Up ramp set too low. - U/f operation: rated current of motor much greater than that of power unit. - power cables are not correctly connected. - power cables exceed the maximum permissible length. - power unit defective. Fault value (r0949, interpret bitwise binary): Bit 0: Phase U. Bit 1: Phase V. Bit 2: Phase W.

- Remedy:**
- check the motor data - if required, carry out commissioning.
  - check the motor circuit configuration (star-delta)
  - U/f operation: Increase up ramp.
  - U/f operation: Check assignment of rated currents of motor and power unit.
  - 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.

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**F30081 Power unit: Switching operations too frequent**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The power unit has executed too many switching operations for current limitation.

- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: rated current of motor much greater than that of power unit.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.

Fault value (r0949, interpret bitwise binary):  
 Bit 0: Phase U.  
 Bit 1: Phase V.  
 Bit 2: Phase W.

- Remedy:**
- check the motor data - if required, carry out commissioning.
  - check the motor circuit configuration (star-delta)
  - U/f operation: Increase up ramp.
  - U/f operation: Check assignment of rated currents of motor and power unit.
  - 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.

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**F30105 PU: Actual value sensing fault**

**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.

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**A30502 Power unit: DC link overvoltage**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The power unit has detected overvoltage in the DC link on a pulse inhibit.

- device connection voltage too high.
- line reactor incorrectly dimensioned.

Alarm value (r0949, interpret decimal):  
 DC link voltage [1 bit = 100 mV].  
 See also: r0070 (Actual DC link voltage)

- Remedy:**
- check the device supply voltage (p0210).
  - check the dimensioning of the line reactor.
- See also: p0210 (Drive unit line supply voltage)

<b>F30600</b>	<b>SI P2: STOP A initiated</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The drive-integrated "Safety Integrated" function on processor 2 has detected an error and initiated a STOP A.</p> <ul style="list-style-type: none"> <li>- forced checking procedure of the safety shutdown path via processor 2 unsuccessful.</li> <li>- subsequent response to fault F30611 (defect in a monitoring channel).</li> </ul> <p>Fault value (r0949, interpret decimal):</p> <p>0: Stop request from processor 1.</p> <p>1005: Pulses suppressed although STO not selected and there is no internal STOP A present.</p> <p>1010: Pulses enabled although STO is selected or an internal STOP A is present.</p> <p>9999: Subsequent response to fault F30611.</p>
<b>Remedy:</b>	<p>Select Safe Torque Off and de-select again.</p> <p>For fault value = 9999:</p> <ul style="list-style-type: none"> <li>- carry out diagnostics for fault F30611.</li> </ul> <p>Note:</p> <p>STO: Safe Torque Off</p>
<b>F30611</b>	<b>SI P2: Defect in a monitoring channel</b>
<b>Reaction:</b>	NONE (OFF1, OFF2, OFF3)
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The drive-integrated "Safety Integrated" function on processor 2 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F.</p> <p>As a consequence of this fault, fault F30600 (SI P2: STOP A initiated) is output.</p> <p>Fault value (r0949, interpret decimal):</p> <p>0: Stop request from processor 1.</p> <p>1 ... 999:</p> <p>Number of the cross-compared data that resulted in this fault. This number is also displayed in r9795.</p> <p>2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.</p> <p>3: SI F-DI changeover tolerance time (p9650, p9850).</p> <p>8: SI PROFIsafe address (p9610, p9810).</p> <p>9: SI debounce time for STO (p9651, p9851).</p> <p>1000: Watchdog timer has expired.</p> <p>Within the time of approx. 5 x p9650, alternatively, the following was defined:</p> <ul style="list-style-type: none"> <li>- Too many switching operations have occurred at the F-DI.</li> <li>- Via PROFIsafe, STO was too frequently initiated (also as subsequent response).</li> </ul> <p>1001, 1002: Initialization error, change timer / check timer.</p> <p>2000: Status of the STO selection for both monitoring channels are different.</p> <p>2001: Feedback of the safe pulse suppression on the two monitoring channels are different.</p> <p>6000 ... 6999:</p> <p>Error in the PROFIsafe control.</p> <p>For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.</p> <p>The significance of the individual message values is described in safety message C01711.</p>
<b>Remedy:</b>	<p>Re fault values 1 ... 999 described in "Cause":</p> <ul style="list-style-type: none"> <li>- check the cross data comparison that resulted in a STOP F.</li> <li>- carry out a POWER ON (power off/on).</li> </ul> <p>For fault value = 1000:</p> <ul style="list-style-type: none"> <li>- check the wiring of the F-DI (contact problems).</li> <li>- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.</li> </ul> <p>Re fault value = 1001, 1002:</p> <ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on).</li> </ul> <p>Re fault value = 2000, 2001, 2002, 2004, 2005:</p> <ul style="list-style-type: none"> <li>- check the tolerance time F-DI changeover and if required, increase the value (p9650/p9850).</li> <li>- check the wiring of the F-DI (contact problems).</li> <li>- check the causes of the STO selection in r9772. When the SI Motion functions are active (p9501 = 1), STO can also be selected using these functions.</li> </ul> <p>Re fault value = 6000 ... 6999:</p> <p>Refer to the description of the message values in safety message C01711.</p> <p>Re fault values that are described in "Cause":</p> <ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on).</li> <li>- contact the Hotline</li> <li>- replace Control Unit.</li> </ul>

Note:  
F-DI: Failsafe Digital Input  
STO: Safe Torque Off

<b>N30620 (F, A)</b>	<b>SI P2: Safe Torque Off active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The "Safe Torque Off" (STO) function has been selected on processor 2 using the input terminal and is active. Note: This message does not result in a safety stop response.
<b>Remedy:</b>	Not necessary. Note: STO: Safe Torque Off
<b>F30625</b>	<b>SI P2: Sign-of-life error in safety data</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The drive-integrated "Safety Integrated" function on processor 2 has detected an error in the sign-of-life of the safety data and initiated a STOP A. - there is a communication error between processor 1 and processor 2 or communication has failed. - a time slice overflow of the safety software has occurred. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- select Safe Torque Off and de-select again. - carry out a POWER ON (power off/on). - check whether additional faults are present and if required, perform diagnostics. - check the electrical cabinet design and cable routing for EMC compliance
<b>F30649</b>	<b>SI P2: Internal software error</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	An internal error in the Safety Integrated software on processor 2 has occurred. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- carry out a POWER ON (power off/on). - re-commission the "Safety Integrated" function and carry out a POWER ON. - contact the Hotline. - replace Control Unit.
<b>F30650</b>	<b>SI P2: Acceptance test required</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The drive-integrated "Safety Integrated" function on processor 2 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 processor 2 not available. Note: This fault value is always output when Safety Integrated is commissioned for the first time. 1000: Reference and actual checksum on processor 2 are not identical (booting). - at least one checksum-checked piece of data is defective. - Safety parameters set offline and loaded into the Control Unit. 2000: Reference and actual checksum on processor 2 are not identical (commissioning mode). - reference checksum incorrectly entered on processor 2 (p9899 not equal to r9898). 2003: Acceptance test is required as a safety parameter has been changed. 9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

**Remedy:**

- For fault value = 130:
  - carry out safety commissioning routine.
- For fault value = 1000:
  - again carry out safety commissioning routine.
  - replace the memory card or Control Unit.
- Using STARTER, activate the safety parameters for the drive involved (change settings, copy parameters, activate settings).
- For fault value = 2000:
  - check the safety parameters on processor 2 and adapt the reference checksum (p9899).
- For fault value = 2003:
  - Carry out an acceptance test and generate an acceptance report.
- For fault value = 9999:
  - carry out diagnostics for the other safety-related fault that is present.

See also: p9799 (SI setpoint checksum SI parameters (processor 1)), p9899 (SI setpoint checksum SI parameters (processor 2))

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**F30651      SI P2: Synchronization with Control Unit unsuccessful**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive-integrated "Safety Integrated" function requires synchronization of the safety time slices on processor 1 and processor 2. This synchronization was unsuccessful.

**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).

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**F30655      SI P2: Align monitoring functions**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An error has occurred when aligning the Safety Integrated monitoring functions on processor 1 and processor 2. No common set of supported SI monitoring functions was able to be determined.

- there is a communication error between processor 1 and processor 2 or communication has failed.

**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).  
- check the electrical cabinet design and cable routing for EMC compliance

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**F30656      SI P2: Parameter processor 2 parameter error**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When accessing the Safety Integrated parameters for the processor 2 in the non-volatile memory, 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 processor 2 corrupted.  
131: Internal software error on processor 1.  
255: Internal software error on processor 2.

**Remedy:** - re-commission the safety functions.  
- replace the memory card or Control Unit.

<b>F30659</b>	<b>SI P2: Write request for parameter rejected</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The write request for one or several Safety Integrated parameters on processor 2 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. 15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported. 16: An attempt was made to enable the PROFIsafe communications although this cannot be supported. 18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported. 20: An attempt was made to simultaneously enable both the drive-integrated motion monitoring functions via integrated F-DI and STO via terminals, even though these cannot be supported at the same time. See also: r9771, r9871
<b>Remedy:</b>	Re fault value = 10, 15, 16, 18: - check whether there are faults in the safety function alignment (F01655, F30655) and if required, carry out diagnostics for the faults involved. - use a Control Unit that supports the required function. Note: STO: Safe Torque Off
<b>F30662</b>	<b>Error in internal communications</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	A module-internal communication error has occurred. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- carry out a POWER ON (power off/on). - upgrade firmware to later version. - contact the Hotline.
<b>F30664</b>	<b>Error while booting</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	An error has occurred during booting. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- carry out a POWER ON (power off/on). - upgrade firmware to later version. - contact the Hotline.
<b>F30665</b>	<b>SI P2: System is defective</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset). Fault value (r0949, interpret hexadecimal): 200000 hex, 400000 hex: - Fault in the actual booting/operation. Additional values: - defect before the last time that the system booted.
<b>Remedy:</b>	- carry out a POWER ON (power off/on). - upgrade firmware to later version. - contact the Hotline. Re fault value = 400000 hex: - ensure that the Control Unit is connected to the Power Module.

<b>A30666 (F)</b>	<b>SI Motion P2: Steady-state (static) 1 signal at the F-DI for safety-relevant acknowledgement</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	A logical 1 signal is present at the F-DI configured in p10106 for more than 10 seconds. If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal must be present. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.
<b>Remedy:</b>	Set the fail-safe digital input (F-DI) to a logical 0 signal (p10106). Note: F-DI: Failsafe Digital Input
<b>F30680</b>	<b>SI Motion P2: Checksum error safety monitoring functions</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The actual checksum calculated by processor 2 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 can 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.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the safety-relevant parameters and if required, correct.</li> <li>- set the reference checksum to the actual checksum.</li> <li>- execute the function "Copy RAM to ROM".</li> <li>- perform a POWER ON if safety parameters requiring a POWER ON have been modified.</li> <li>- carry out an acceptance test.</li> </ul>
<b>F30681</b>	<b>SI Motion P2: Incorrect parameter value</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The parameter cannot be parameterized with this value. Note: This message does not result in a safety stop response. Fault value (r0949, interpret decimal): yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter yyyy = 0: no additional information available. xxxx = 9301: It is not permissible to enable the function "n<nx hysteresis and filtering" (p9301.16) in conjunction with the function "extended functions without selection" (p9801.5). xxxx = 9385: For Safety encoderless and synchronous motor, p9385 must be set to 4.
<b>Remedy:</b>	Correct the parameter value.
<b>F30682</b>	<b>SI Motion P2: Monitoring function not supported</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	The monitoring function enabled in p9301, p9501, p9601 or p9801 is not supported in this firmware version. Note: This message does not result in a safety stop response. Fault value (r0949, interpret decimal): 1: Monitoring function SLP not supported (p9301.1). 2: Monitoring function SCA not supported (p9301.7 and p9301.8 ... 15). 3: Monitoring function SLS override not supported (p9301.5). 4: Monitoring function external ESR activation not supported (p9301.4). 5: Monitoring function F-DI in PROFIsafe not supported (p9301.30).

	<p>6: Enable actual value synchronization not supported (p9301.3).            9: Monitoring function not supported by the firmware or enable bit not used.            24: Monitoring function SDI not supported.</p> <p><b>Remedy:</b> Deselect the monitoring function involved.            Note:            SCA: Safe Cam            SLP: Safely-Limited Position            SLS: Safely-Limited Speed            SDI: Safe Direction (safe motion direction)            See also: p9301, p9501, p9601, p9801, r9871</p>
<b>F30683</b>	<b>SI Motion P2: SLS enable missing</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The safety-relevant function "SLS" is not enabled in p9301 although other safety-relevant monitoring functions are enabled.</p> <p>Note:            This message does not result in a safety stop response.</p>
<b>Remedy:</b>	<p>Enable the function "SLS" (p9301.0) and carry out a POWER ON.</p> <p>Note:            Save the changes before POWER ON (copy from RAM to ROM).            SLS: Safely-Limited Speed            See also: p9301 (SI Motion enable safety functions (processor 2))</p>
<b>F30692</b>	<b>SI Motion P2: Incorrect parameter value encoderless</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>For encoderless motion monitoring functions, the parameter cannot be parameterized with this value.</p> <p>Note:            This message does not result in a safety stop response.            Fault value (r0949, interpret decimal):            Parameter number with the incorrect value.            See also: p9301 (SI Motion enable safety functions (processor 2))</p>
<b>Remedy:</b>	<p>Correct the parameter value or de-select encoderless motion monitoring functions.            See also: p9301 (SI Motion enable safety functions (processor 2)), p9501 (SI Motion enable safety functions (processor 1))</p>
<b>A30693 (F)</b>	<b>SI P2: Safety parameter settings changed, POWER ON required</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>Safety parameters have been changed; these will only take effect following a POWER ON.</p> <p>Notice:            All changed parameters of the safety motion monitoring functions will only take effect following a POWER ON.            Alarm value (r2124, interpret decimal):            Parameter number of the safety parameter which has changed, necessitating a POWER ON.</p>
<b>Remedy:</b>	<p>- execute the function "Copy RAM to ROM".            - carry out a POWER ON (power off/on).</p>
<b>C30700</b>	<b>SI Motion P2: STOP A initiated</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The drive is stopped via a STOP A (pulses are suppressed via the safety shutdown path of processor 1).            Possible causes:</p> <ul style="list-style-type: none"> <li>- stop request from processor 1.</li> <li>- Pulses not suppressed after test stop selection.</li> <li>- subsequent response to the message C30706 "SI Motion P2: SAM/SBR limit exceeded".</li> <li>- subsequent response to the message C30714 "SI Motion P2: Safely-Limited Speed exceeded".</li> <li>- subsequent response to the message C30701 "SI Motion P2: STOP B initiated".</li> </ul>



- Remedy:**
- remove the cause of the fault on the monitoring channel of processor 1.
  - check the shutdown path of processor 2.
  - 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 Power Module.
  - replace Control Unit.

This message can be acknowledged via F-DI or PROFIsafe.

F-DI: Failsafe Digital Input

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SBR: Safe Brake Ramp (safe brake ramp monitoring)

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### **C30701 SI Motion P2: STOP B initiated**

**Reaction:** NONE (OFF3)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP B (braking along the OFF3 deceleration ramp).  
As a result of this fault, after the speed threshold parameterized in p9360 is fallen below, message C30700 "STOP A initiated" is output.

Possible causes:

- stop request from processor 1.
- subsequent response to the message C30714 "SI Motion P2: Safely-Limited Speed exceeded".
- subsequent response to the message C30711 "SI Motion P2: Defect in a monitoring channel".
- subsequent response to the message C30707 "SI Motion P2: tolerance for safe operating stop exceeded".

- Remedy:**
- remove the cause of the fault on the monitoring channel of processor 1.
  - carry out a diagnostics routine for message C30714.
  - carry out a diagnostics routine for message C30711.
  - carry out a diagnostics routine for message C30707.

This message can be acknowledged via F-DI or PROFIsafe.

Note:

F-DI: Failsafe Digital Input

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### **C30706 SI Motion P2: SAM/SBR limit exceeded**

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** Motion monitoring functions with set acceleration monitoring (p9306 = 3):  
SAM - safe acceleration monitoring. After initiating STOP B (SS1) the velocity has exceeded the selected tolerance.  
Motion monitoring functions with set brake ramp monitoring (p9306 = 1):  
SBR - Safe brake ramp monitoring. After initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance.

The drive is shut down by the message C30700 "SI Motion P2: STOP A initiated".

**Remedy:** Check the braking behavior and, if necessary, adapt the tolerance for the parameter settings of the "SAM" or the "SBR" function.

This message can be acknowledged without a POWER ON as follows:

- motion monitoring functions integrated in the drive: via F-DI or PROFIsafe.

Note:

F-DI: Failsafe Digital Input

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SBR: Safe Brake Ramp (safe brake ramp monitoring)

See also: p9348 (SI Motion SAM actual velocity tolerance (processor 2)), p9381 (SI Motion brake ramp reference value (processor 2)), p9382 (SI Motion brake ramp delay time (processor 2)), p9383 (SI Motion brake ramp monitoring time (processor 2)), p9548 (SI Motion SAM actual velocity tolerance (processor 1))

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### **C30711 SI Motion P2: Defect in a monitoring channel**

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When cross-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 message C30701 "SI Motion: STOP B initiated" is output.

The following message values may also occur in the following cases if the cause that is explicitly mentioned does not apply:

- synchronization error between processor 1 and processor 2.  
 Message value (r2124, interpret decimal):  
 Note:  
 The significance of the individual message values is described in safety message C01711.  
 0 ... 999:  
 Number of the cross-compared data that resulted in this message.  
 The significance of the individual message values is described in safety message C01711.  
 1000: Watchdog timer has expired. Too many signal changes have occurred at the F-DI.  
 1001: Initialization error of watchdog timer.  
 1011: Acceptance test status between the monitoring channels differ.  
 1020: Cyc. communication failure between the monit. cycles.  
 1040: Pulses suppressed with active encoderless monitoring functions.  
 1041: Current absolute value too low (encoderless)  
 1042: Current/voltage plausibility error  
 1043: Too many acceleration phases  
 1044: Actual current values plausibility error.  
 6000 ... 6166:  
 PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINet).  
 For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.  
 See also: r9725 (SI Motion, diagnostics STOP F)

**Remedy:**  
 Re message value = 1040:  
 - de-select encoderless monitoring functions, select and de-select STO.  
 - if monitoring function is active, issue "SLS" pulse enable within 5 s of de-selecting STO.  
 Re other message values:  
 - the significance of the individual message values is described in safety message C01711.  
 Note:  
 This message can be acknowledged via F-DI or PROFIsafe.

### C30712 SI Motion P2: Defect in F-IO processing

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:**  
 When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.  
 The safety message C30711 with message value 0 is also displayed due to initiation of STOP F.  
 If at least one monitoring function is active, then safety message C30701 "SI Motion: STOP B initiated" is output.  
 Message value (r2124, interpret decimal):  
 Number of the cross-compared data that resulted in this message.  
 See safety message C01712 for a description of the message values.

**Remedy:**  
 - check parameterization in the parameters involved and correct if required.  
 - ensure equality by copying the SI data to processor 2 and then carry out an acceptance test.  
 Note:  
 This message can be acknowledged via F-DI or PROFIsafe.

### C30714 SI Motion P2: Safely-Limited Speed exceeded

**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 (r2124, interpret decimal):  
 100: SLS1 exceeded.  
 200: SLS2 exceeded.  
 300: SLS3 exceeded.  
 400: SLS4 exceeded.

**Remedy:**  
 - check the traversing/motion program in the control.  
 - check the limits for "SLS" function and if required, adapt (p9331).  
 Note:  
 This message can be acknowledged via F-DI or PROFIsafe.  
 SLS: Safely-Limited Speed  
 See also: p9331 (SI Motion SLS limit values (processor 2)), p9363 (SI Motion SLS stop response (processor 2))

<b>C30716</b>	<b>SI Motion P2: Tolerance for safe motion direction exceeded</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response (p9366).</p> <p>Message value (r9749, interpret decimal):</p> <p>0: Tolerance for the "safe motion direction positive" function exceeded.</p> <p>1: Tolerance for the "safe motion direction negative" function exceeded.</p>
<b>Remedy:</b>	<p>- check the traversing/motion program in the control.</p> <p>- check the tolerance for "SDI" function and if required, adapt (p9364).</p> <p>This message can be acknowledged as follows:</p> <p>- Deselect the "SDI" function and select again.</p> <p>- Perform a safe acknowledgment via F-DI or PROFIsafe.</p> <p>Note:</p> <p>SDI: Safe Direction (safe motion direction)</p> <p>SI: Safety Integrated</p> <p>See also: p9364 (SI Motion SDI tolerance (processor 2)), p9365 (SI Motion SDI delay time (processor 2)), p9366 (SI Motion SDI stop response (processor 2))</p>
<b>C30770</b>	<b>SI Motion P2: Discrepancy error affecting the failsafe inputs</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY (POWER ON)
<b>Cause:</b>	<p>The fail-safe digital inputs (F-DI) show a different state longer than that parameterized in p10002 / p10102.</p> <p>Fault value (r0949, interpret binary):</p> <p>Bit 0: Discrepancy error for F-DI 0</p> <p>Bit 1: Discrepancy error for F-DI 1</p> <p>...</p> <p>Note:</p> <p>If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs.</p>
<b>Remedy:</b>	<p>- check the wiring of the F-DI (contact problems).</p> <p>Note:</p> <p>This message can be acknowledged via F-DI or PROFIsafe.</p> <p>Discrepancy errors of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10006 or acknowledgment via PROFIsafe). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state internally.</p> <p>For cyclic switching operations at the F-DI, it may be necessary to adapt the discrepancy time to the switching frequency.</p> <p>If the period of a cyclic switching pulse has the order of magnitude of double the value of p10002, then the following formulas must be checked.</p> <p><math>p10002 &lt; (tp / 2) - td</math> (discrepancy time must be less than half the period minus the actual discrepancy time)</p> <p><math>p10002 \geq p9500</math> (discrepancy time must be no less than P9500)</p> <p><math>p10002 &gt; td</math> (discrepancy time must be greater than the switch discrepancy time which may actually apply)</p> <p>td = possible actual discrepancy time (in ms) that can occur with a switching operation. This must correspond to at least 1 SI sampling cycle (see p9500).</p> <p>tp = period for a switching operation in ms.</p> <p>When debounce p10017 is active, the discrepancy time is directly specified by the debounce time.</p> <p>If the period of a cyclic switching pulse has the order of magnitude of twice the debounce time, then the following formulas should be checked.</p> <p><math>p10002 &lt; p10017 + 1 \text{ ms} - td</math></p> <p><math>p10002 &gt; td</math></p> <p><math>p10002 \geq p9500</math></p> <p>Example:</p> <p>For a 12 ms SI sampling cycle and a switching frequency of 110 ms (p10017 = 0), the maximum discrepancy time which can be set is as follows:</p> <p><math>p10002 \leq (110/2 \text{ ms}) - 12 \text{ ms} = 43 \text{ ms}</math></p> <p>Rounded-off, p10002 ≤ 36 ms is obtained (since the discrepancy time can only be accepted as a whole SI sampling cycle, the value will need to be rounded up or down to a whole SI sampling time value if the result is not an exact multiple of an SI sampling cycle).</p> <p>Note:</p> <p>F-DI: Failsafe Digital Input</p>

<b>C30798</b>	<b>SI Motion P2: Test stop running</b>
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The test stop is active.
Remedy:	Not necessary. The message is withdrawn when the test stop is finished.
<b>C30799</b>	<b>SI Motion P2: Acceptance test mode active</b>
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The acceptance test mode is active.
Remedy:	Not necessary. The message is withdrawn when exiting the acceptance test mode.
<b>N30800 (F)</b>	<b>Power unit: Group signal</b>
Reaction:	OFF2
Acknowledge:	NONE
Cause:	The power unit has detected at least one fault.
Remedy:	Evaluate the other messages that are presently available.
<b>F30802</b>	<b>Power unit: Time slice overflow</b>
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A time slice overflow has occurred.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.
<b>F30804 (N, A)</b>	<b>Power unit: CRC</b>
Reaction:	OFF2 (OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A CRC error has occurred for the power unit.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.
<b>F30805</b>	<b>Power unit: EPROM checksum error</b>
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.
<b>F30809</b>	<b>Power unit: Switching information not valid</b>
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	For 3P gating unit, the following applies: 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 firmware to later version. - contact the Hotline.

<b>A30810 (F)</b>	<b>Power unit: Watchdog timer</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on) for all components.</li> <li>- upgrade firmware to later version.</li> <li>- contact the Hotline.</li> </ul>
<b>F30850</b>	<b>Power unit: Internal software error</b>
<b>Reaction:</b>	OFF1 (NONE, OFF2, OFF3)
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	<p>An internal software error has occurred in the power unit.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Only for internal Siemens troubleshooting.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- replace power unit.</li> <li>- if required, upgrade the firmware in the power unit.</li> <li>- contact the Hotline.</li> </ul>
<b>F30875</b>	<b>Power unit DRIVE-CLiQ (CU): Supply voltage failed</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.</p> <p>Fault cause:</p> <p>9 (= 09 hex):</p> <p>The power supply voltage for the components has failed.</p> <p>Note regarding the message value:</p> <p>The individual information is coded as follows in the message value (r0949/r2124):</p> <p>0000yyxx hex: yy = component number, xx = error cause</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- carry out a POWER ON (power off/on).</li> <li>- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).</li> <li>- check the dimensioning of the power supply for the DRIVE-CLiQ component.</li> </ul>
<b>F30903</b>	<b>Power unit: I2C bus error occurred</b>
<b>Reaction:</b>	OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>Communications error with an EEPROM or A/D converter.</p> <p>Fault value (r0949, interpret hexadecimal):</p> <p>80000000 hex:</p> <ul style="list-style-type: none"> <li>- internal software error.</li> </ul> <p>00000001 hex ... 0000FFFF hex:</p> <ul style="list-style-type: none"> <li>- module fault.</li> </ul>
<b>Remedy:</b>	<p>Re fault value = 80000000 hex:</p> <ul style="list-style-type: none"> <li>- upgrade firmware to later version.</li> </ul> <p>Re fault value = 00000001 hex ... 0000FFFF hex:</p> <ul style="list-style-type: none"> <li>- replace the module.</li> </ul>
<b>A30920 (F)</b>	<b>Temperature sensor fault</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>When evaluating the temperature sensor, an error occurred.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>1: Wire breakage or sensor not connected (KTY: R &gt; 2120 Ohm).</p> <p>2: Measured resistance too low (PTC: R &lt; 20 Ohm, KTY: R &lt; 50 Ohm).</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- make sure that the sensor is connected correctly.</li> <li>- replace the sensor.</li> </ul>

<b>F30950</b>	<b>Power unit: Internal software error</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	POWER ON
<b>Cause:</b>	An internal software error has occurred. Fault value (r0949, interpret decimal): Information about the fault source. Only for internal Siemens troubleshooting.
<b>Remedy:</b>	- If necessary, upgrade the firmware in the power unit to a later version. - contact the Hotline.
<b>A30999 (F, N)</b>	<b>Power unit: Unknown alarm</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
<b>Remedy:</b>	- replace the firmware on the power unit by an older firmware version (r0128). - upgrade the firmware on the Control Unit (r0018).
<b>F31152 (N, A)</b>	<b>Encoder 1: Maximum input frequency exceeded</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	The maximum input frequency of the encoder evaluation has been exceeded. Fault value (r0949, interpret decimal): Actual input frequency in Hz.
<b>Remedy:</b>	- Reduce the speed. - Use an encoder with a lower pulse number (p0408).
<b>F31160 (N, A)</b>	<b>Encoder 1: Analog sensor channel A failed</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4673). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
<b>Remedy:</b>	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4673). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
<b>F31161 (N, A)</b>	<b>Encoder 1: Analog sensor channel B failed</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4675). 3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:**

- For fault value = 1:
  - check the output voltage of the analog sensor.
- For fault value = 2:
  - check the voltage setting for each encoder period (p4675).
- For fault value = 3:
  - check the range limit setting and increase it if necessary (p4676).

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**F31163 (N, A) Encoder 1: Analog sensor position value exceeds limit value**

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** The position value has exceeded the permissible range of -0.5 ... +0.5.  
 Fault value (r0949, interpret decimal):  
 1: Position value from the LVDT sensor.  
 2: Position value from the encoder characteristic.

**Remedy:**

- For fault value = 1:
  - Check the LVDT ratio (p4678).
  - check the reference signal connection at track B.
- For fault value = 2:
  - check the coefficients of the characteristic (p4663 ... p4666).

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**A31442 (F, N) Encoder 1: Battery voltage pre-alarm**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.

**Remedy:** Replace battery.

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**A31460 (N) Encoder 1: Analog sensor channel A failed**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The input voltage of the analog sensor is outside the permissible limits.  
 Alarm value (r2124, interpret decimal):  
 1: Input voltage outside detectable measuring range.  
 2: Input voltage outside measuring range set in p4673.  
 3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:**

- Re alarm value = 1:
  - check the output voltage of the analog sensor.
- Re alarm value = 2:
  - check the voltage setting for each encoder period (p4673).
- Re alarm value = 3:
  - check the range limit setting and increase it if necessary (p4676).

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**A31461 (N) Encoder 1: Analog sensor channel B failed**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The input voltage of the analog sensor is outside the permissible limits.  
 Alarm value (r2124, interpret decimal):  
 1: Input voltage outside detectable measuring range.  
 2: Input voltage outside the measuring range set in (p4675).  
 3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:**

- Re alarm value = 1:
  - check the output voltage of the analog sensor.
- Re alarm value = 2:
  - check the voltage setting for each encoder period (p4675).
- Re alarm value = 3:
  - check the range limit setting and increase it if necessary (p4676).

<b>A31462 (N)</b>	<b>Encoder 1: Analog sensor, no channel active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	Channel A and B are not activated for the analog sensor.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- activate channel A and/or channel B (p4670).</li> <li>- check the encoder configuration (p0404.17).</li> </ul>
<b>A31463 (N)</b>	<b>Encoder 1: Analog sensor position value exceeds limit value</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The position value has exceeded the permissible range of -0.5 ... +0.5.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>1: Position value from the LVDT sensor.</p> <p>2: Position value from the encoder characteristic.</p>
<b>Remedy:</b>	<p>Re alarm value = 1:</p> <ul style="list-style-type: none"> <li>- Check the LVDT ratio (p4678).</li> <li>- check the reference signal connection at track B.</li> </ul> <p>Re alarm value = 2:</p> <ul style="list-style-type: none"> <li>- check the coefficients of the characteristic (p4663 ... p4666).</li> </ul>
<b>A31470 (F, N)</b>	<b>Encoder 1: Soiling detected</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the plug connections</li> <li>- replace the encoder or encoder cable</li> </ul>
<b>F31912</b>	<b>Encoder 1: Device combination is not permissible</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	<p>The selected device combination is not supported.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1003: The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n.</p> <p>1005: The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.</p> <p>1006: The maximum duration (31.25 µs) of the EnDat transfer was exceeded.</p> <p>2001: The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.</p> <p>2002: The resolution of the linear measuring unit does not match the pole pair width of the linear motor</p>
<b>Remedy:</b>	<p>Re fault value = 1003, 1005, 1006:</p> <ul style="list-style-type: none"> <li>- Use a measuring unit that is permissible.</li> </ul> <p>For fault value = 2001:</p> <ul style="list-style-type: none"> <li>- Set a permissible cycle combination (if required, use standard settings).</li> </ul> <p>For fault value = 2002:</p> <ul style="list-style-type: none"> <li>- Use a measuring unit with a lower resolution (p0422).</li> </ul>



<b>A31915 (F, N)</b>	<b>Encoder 1: Configuration error</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The configuration for encoder 1 is incorrect.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>1:</p> <p>Re-parameterization between fault/alarm is not permissible.</p> <p>419:</p> <p>When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.</p>
<b>Remedy:</b>	<p>Re alarm value = 1:</p> <p>No re-parameterization between fault/alarm.</p> <p>Re alarm value = 419:</p> <p>Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.</p>
<b>A31930 (N)</b>	<b>Encoder 1: Data logger has saved data</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card.</p> <p>The diagnostics data is saved in the following folder:</p> <p>/USER/SINAMICS/DATA/SMTRC00.BIN</p> <p>...</p> <p>/USER/SINAMICS/DATA/SMTRC07.BIN</p> <p>/USER/SINAMICS/DATA/SMTRCIDX.TXT</p> <p>The following information is contained in the TXT file:</p> <ul style="list-style-type: none"> <li>- Display of the last written BIN file.</li> <li>- Number of write operations that are still possible (from 10000 downwards).</li> </ul> <p>Note:</p> <p>Only Siemens can evaluate the BIN files.</p>
<b>Remedy:</b>	<p>Not necessary.</p> <p>The alarm disappears automatically.</p> <p>The data logger is ready to record the next fault case.</p>
<b>A31940 (F, N)</b>	<b>Encoder 1: Spindle sensor S1 voltage incorrect</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The voltage of analog sensor S1 is outside the permissible range.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Signal level from sensor S1.</p> <p>Note:</p> <p>A signal level of 500 mV corresponds to the numerical value 500 dec.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- Check the clamped tool.</li> <li>- Check the tolerance and if required, adapt (p5040).</li> <li>- Check the thresholds and if required, adapt (p5041).</li> <li>- Check analog sensor S1 and connections.</li> </ul>
<b>F32152 (N, A)</b>	<b>Encoder 2: Maximum input frequency exceeded</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	<p>The maximum input frequency of the encoder evaluation has been exceeded.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Actual input frequency in Hz.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- Reduce the speed.</li> <li>- Use an encoder with a lower pulse number (p0408).</li> </ul>

<b>F32160 (N, A)</b>	<b>Encoder 2: Analog sensor channel A failed</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4673). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
<b>Remedy:</b>	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4673). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
<b>F32161 (N, A)</b>	<b>Encoder 2: Analog sensor channel B failed</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4675). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
<b>Remedy:</b>	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4675). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
<b>F32163 (N, A)</b>	<b>Encoder 2: Analog sensor position value exceeds limit value</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	The position value has exceeded the permissible range of -0.5 ... +0.5. Fault value (r0949, interpret decimal): 1: Position value from the LVDT sensor. 2: Position value from the encoder characteristic.
<b>Remedy:</b>	For fault value = 1: - Check the LVDT ratio (p4678). - check the reference signal connection at track B. For fault value = 2: - check the coefficients of the characteristic (p4663 ... p4666).
<b>A32442 (F, N)</b>	<b>Encoder 2: Battery voltage pre-alarm</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	When switched-off, the encoder uses a battery to back up the multturn information. The battery voltage is no longer sufficient to check the multturn information.
<b>Remedy:</b>	Replace battery.
<b>A32460 (N)</b>	<b>Encoder 2: Analog sensor channel A failed</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The input voltage of the analog sensor is outside the permissible limits. Alarm value (r2124, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside measuring range set in p4673. 3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:**

Re alarm value = 1:  
- check the output voltage of the analog sensor.

Re alarm value = 2:  
- check the voltage setting for each encoder period (p4673).

Re alarm value = 3:  
- check the range limit setting and increase it if necessary (p4676).

---

**A32461 (N) Encoder 2: Analog sensor channel B failed**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The input voltage of the analog sensor is outside the permissible limits.  
Alarm value (r2124, interpret decimal):  
1: Input voltage outside detectable measuring range.  
2: Input voltage outside the measuring range set in (p4675).  
3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:**

Re alarm value = 1:  
- check the output voltage of the analog sensor.

Re alarm value = 2:  
- check the voltage setting for each encoder period (p4675).

Re alarm value = 3:  
- check the range limit setting and increase it if necessary (p4676).

---

**A32462 (N) Encoder 2: Analog sensor, no channel active**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Channel A and B are not activated for the analog sensor.

**Remedy:**

- activate channel A and/or channel B (p4670).  
- check the encoder configuration (p0404.17).

---

**A32463 (N) Encoder 2: Analog sensor position value exceeds limit value**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The position value has exceeded the permissible range of -0.5 ... +0.5.  
Alarm value (r2124, interpret decimal):  
1: Position value from the LVDT sensor.  
2: Position value from the encoder characteristic.

**Remedy:**

Re alarm value = 1:  
- Check the LVDT ratio (p4678).  
- check the reference signal connection at track B.

Re alarm value = 2:  
- check the coefficients of the characteristic (p4663 ... p4666).

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**A32470 (F, N) Encoder 2: Soiling detected**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.

**Remedy:**

- check the plug connections  
- replace the encoder or encoder cable

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**F32912 Encoder 2: Device combination is not permissible**

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** The selected device combination is not supported.  
Fault value (r0949, interpret decimal):  
1003:  
The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2<sup>n</sup>.

	<p>1005: The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.</p> <p>1006: The maximum duration (31.25 µs) of the EnDat transfer was exceeded.</p> <p>2001: The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.</p> <p>2002: The resolution of the linear measuring unit does not match the pole pair width of the linear motor</p> <p><b>Remedy:</b> Re fault value = 1003, 1005, 1006: - Use a measuring unit that is permissible. For fault value = 2001: - Set a permissible cycle combination (if required, use standard settings). For fault value = 2002: - Use a measuring unit with a lower resolution (p0422).</p>
<b>A32915 (F, N)</b>	<b>Encoder 2: Configuration error</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The configuration for encoder 2 is incorrect.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>1: Re-parameterization between fault/alarm is not permissible.</p> <p>419: When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.</p>
<b>Remedy:</b>	<p>Re alarm value = 1: No re-parameterization between fault/alarm.</p> <p>Re alarm value = 419: Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.</p>
<b>A32930 (N)</b>	<b>Encoder 2: Data logger has saved data</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card.</p> <p>The diagnostics data is saved in the following folder: /USER/SINAMICS/DATA/SMTRC00.BIN ... /USER/SINAMICS/DATA/SMTRC07.BIN /USER/SINAMICS/DATA/SMTRCIDX.TXT</p> <p>The following information is contained in the TXT file: - Display of the last written BIN file. - Number of write operations that are still possible (from 10000 downwards).</p> <p>Note: Only Siemens can evaluate the BIN files.</p>
<b>Remedy:</b>	<p>Not necessary. The alarm disappears automatically. The data logger is ready to record the next fault case.</p>
<b>A32940 (F, N)</b>	<b>Encoder 2: Spindle sensor S1 voltage incorrect</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The voltage of analog sensor S1 is outside the permissible range.</p> <p>Fault value (r0949, interpret decimal): Signal level from sensor S1.</p> <p>Note: A signal level of 500 mV corresponds to the numerical value 500 dec.</p>

- Remedy:**
- Check the clamped tool.
  - Check the tolerance and if required, adapt (p5040).
  - Check the thresholds and if required, adapt (p5041).
  - Check analog sensor S1 and connections.

---

**F33152 (N, A) Encoder 3: Maximum input frequency exceeded**

- Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
- Acknowledge:** PULSE INHIBIT
- Cause:** The maximum input frequency of the encoder evaluation has been exceeded.  
 Fault value (r0949, interpret decimal):  
 Actual input frequency in Hz.
- Remedy:**
- Reduce the speed.
  - Use an encoder with a lower pulse number (p0408).

---

**F33160 (N, A) Encoder 3: Analog sensor channel A failed**

- Reaction:** ENCODER (IASC/DCBRAKE, NONE)
- Acknowledge:** PULSE INHIBIT
- Cause:** The input voltage of the analog sensor is outside the permissible limits.  
 Fault value (r0949, interpret decimal):  
 1: Input voltage outside detectable measuring range.  
 2: Input voltage outside the measuring range set in (p4673).  
 3: The absolute value of the input voltage has exceeded the range limit (p4676).
- Remedy:**
- For fault value = 1:
- check the output voltage of the analog sensor.
- For fault value = 2:
- check the voltage setting for each encoder period (p4673).
- For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

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**F33161 (N, A) Encoder 3: Analog sensor channel B failed**

- Reaction:** ENCODER (IASC/DCBRAKE, NONE)
- Acknowledge:** PULSE INHIBIT
- Cause:** The input voltage of the analog sensor is outside the permissible limits.  
 Fault value (r0949, interpret decimal):  
 1: Input voltage outside detectable measuring range.  
 2: Input voltage outside the measuring range set in (p4675).  
 3: The absolute value of the input voltage has exceeded the range limit (p4676).
- Remedy:**
- For fault value = 1:
- check the output voltage of the analog sensor.
- For fault value = 2:
- check the voltage setting for each encoder period (p4675).
- For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

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**F33163 (N, A) Encoder 3: Analog sensor position value exceeds limit value**

- Reaction:** ENCODER (IASC/DCBRAKE, NONE)
- Acknowledge:** PULSE INHIBIT
- Cause:** The position value has exceeded the permissible range of -0.5 ... +0.5.  
 Fault value (r0949, interpret decimal):  
 1: Position value from the LVDT sensor.  
 2: Position value from the encoder characteristic.
- Remedy:**
- For fault value = 1:
- Check the LVDT ratio (p4678).
  - check the reference signal connection at track B.
- For fault value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

<b>A33442 (F, N)</b>	<b>Encoder 3: Battery voltage pre-alarm</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
<b>Remedy:</b>	Replace battery.
<b>A33460 (N)</b>	<b>Encoder 3: Analog sensor channel A failed</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The input voltage of the analog sensor is outside the permissible limits. Alarm value (r2124, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside measuring range set in p4673. 3: The absolute value of the input voltage has exceeded the range limit (p4676).
<b>Remedy:</b>	Re alarm value = 1: - check the output voltage of the analog sensor. Re alarm value = 2: - check the voltage setting for each encoder period (p4673). Re alarm value = 3: - check the range limit setting and increase it if necessary (p4676).
<b>A33461 (N)</b>	<b>Encoder 3: Analog sensor channel B failed</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The input voltage of the analog sensor is outside the permissible limits. Alarm value (r2124, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4675). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
<b>Remedy:</b>	Re alarm value = 1: - check the output voltage of the analog sensor. Re alarm value = 2: - check the voltage setting for each encoder period (p4675). Re alarm value = 3: - check the range limit setting and increase it if necessary (p4676).
<b>A33462 (N)</b>	<b>Encoder 3: Analog sensor, no channel active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	Channel A and B are not activated for the analog sensor.
<b>Remedy:</b>	- activate channel A and/or channel B (p4670). - check the encoder configuration (p0404.17).
<b>A33463 (N)</b>	<b>Encoder 3: Analog sensor position value exceeds limit value</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The position value has exceeded the permissible range of -0.5 ... +0.5. Alarm value (r2124, interpret decimal): 1: Position value from the LVDT sensor. 2: Position value from the encoder characteristic.
<b>Remedy:</b>	Re alarm value = 1: - Check the LVDT ratio (p4678). - check the reference signal connection at track B. Re alarm value = 2: - check the coefficients of the characteristic (p4663 ... p4666).

<b>A33470 (F, N)</b>	<b>Encoder 3: Soiling detected</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- check the plug connections</li> <li>- replace the encoder or encoder cable</li> </ul>
<b>F33912</b>	<b>Encoder 3: Device combination is not permissible</b>
<b>Reaction:</b>	ENCODER (IASC/DCBRAKE, NONE)
<b>Acknowledge:</b>	PULSE INHIBIT
<b>Cause:</b>	<p>The selected device combination is not supported.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1003: The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2<sup>n</sup>.</p> <p>1005: The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.</p> <p>1006: The maximum duration (31.25 µs) of the EnDat transfer was exceeded.</p> <p>2001: The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.</p> <p>2002: The resolution of the linear measuring unit does not match the pole pair width of the linear motor</p>
<b>Remedy:</b>	<p>Re fault value = 1003, 1005, 1006: - Use a measuring unit that is permissible.</p> <p>For fault value = 2001: - Set a permissible cycle combination (if required, use standard settings).</p> <p>For fault value = 2002: - Use a measuring unit with a lower resolution (p0422).</p>
<b>A33915 (F, N)</b>	<b>Encoder 3: Configuration error</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>The configuration for encoder 3 is incorrect.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>1: Re-parameterization between fault/alarm is not permissible.</p> <p>419: When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.</p>
<b>Remedy:</b>	<p>Re alarm value = 1: No re-parameterization between fault/alarm.</p> <p>Re alarm value = 419: Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.</p>
<b>A33930 (N)</b>	<b>Encoder 3: Data logger has saved data</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	<p>For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card.</p> <p>The diagnostics data is saved in the following folder:</p> <p>/USER/SINAMICS/DATA/SMTRC00.BIN</p> <p>...</p> <p>/USER/SINAMICS/DATA/SMTRC07.BIN</p> <p>/USER/SINAMICS/DATA/SMTRCIDX.TXT</p>

The following information is contained in the TXT file:

- Display of the last written BIN file.
- Number of write operations that are still possible (from 10000 downwards).

Note:

Only Siemens can evaluate the BIN files.

**Remedy:**

Not necessary.

The alarm disappears automatically.

The data logger is ready to record the next fault case.

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**A33940 (F, N) Encoder 3: Spindle sensor S1 voltage incorrect**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The voltage of analog sensor S1 is outside the permissible range.  
Fault value (r0949, interpret decimal):  
Signal level from sensor S1.

Note:

A signal level of 500 mV corresponds to the numerical value 500 dec.

**Remedy:**

- Check the clamped tool.
- Check the tolerance and if required, adapt (p5040).
- Check the thresholds and if required, adapt (p5041).
- Check analog sensor S1 and connections.

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**F34950 VSM: Internal software error**

**Reaction:** OFF2

**Acknowledge:** POWER ON

**Cause:** An internal software error in the Voltage Sensing Module (VSM) has occurred.  
Fault value (r0949, interpret decimal):  
Information about the fault source.  
Only for internal Siemens troubleshooting.

**Remedy:**

- If necessary, upgrade the firmware in the Voltage Sensing Module to a later version.
- contact the Hotline.

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**F35950 TM: Internal software error**

**Reaction:** OFF2 (NONE)

**Acknowledge:** POWER ON

**Cause:** An internal software error has occurred.  
Fault value (r0949, interpret decimal):  
Information about the fault source.  
Only for internal Siemens troubleshooting.

**Remedy:**

- If necessary, upgrade the firmware in the Terminal Module to a later version.
- contact the Hotline.

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**F36950 Hub: Internal software error**

**Reaction:** OFF2 (NONE)

**Acknowledge:** POWER ON

**Cause:** An internal software error has occurred.  
Fault value (r0949, interpret decimal):  
Information about the fault source.  
Only for internal Siemens troubleshooting.

**Remedy:**

- if required, upgrade the firmware in the DRIVE-CLiQ hub module to a more recent version.
- contact the Hotline.



<b>A50001 (F)</b>	<b>PROFINET configuration error</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	A PROFINET controller attempts to establish a connection using an incorrect configuring telegram. The "Shared Device" function has been activated (p8929 = 2). Alarm value (r2124, interpret decimal): 10: A/F-CPU configures mixed PZD/PROFIsafe telegram. 13: F-CPU and PROFIsafe is not activated (p9601.3). 15: PROFIsafe telegram of the F-CPU does not match the setting in p9501.30. See also: p9601 (SI enable, functions integrated in the drive (processor 1))
<b>Remedy:</b>	Check the configuration of the PROFINET controllers as well as the p8929 setting.
<b>A50010 (F)</b>	<b>PROFINET Name of Station invalid</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	PROFINET Name of Station is invalid.
<b>Remedy:</b>	Correct the name of the station (p8920) and activate (p8925 = 2). See also: p8920 (PN Name of Station)
<b>A50020 (F)</b>	<b>PROFINET: Second controller missing</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	The PROFINET function "Shared Device" has been activated (p8929 = 2). However, only the connection to a PROFINET controller is present.
<b>Remedy:</b>	Check the configuration of the PROFINET controllers as well as the p8929 setting.
<b>F50510</b>	<b>FBLOCKS: Logon of the run-time group rejected</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	When the run-time groups of the free function blocks attempted to log on with the sampling time management, the logon of at least one run-time group was rejected. Too many different hardware sampling times may have been assigned to the free function blocks.
<b>Remedy:</b>	- Check number of available hardware sampling times (T_sample < 8 ms) (r7903).
<b>F50511</b>	<b>FBLOCKS: Memory no longer available for free function blocks</b>
<b>Reaction:</b>	OFF2
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	When the free function blocks were activated, more memory was requested than was available on the Control Unit.
<b>Remedy:</b>	Not necessary.
<b>A50513 (F)</b>	<b>FBLOCKS: Run sequence value already assigned</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	An attempt was made to assign a run sequence value already assigned to a function block on this drive object to another additional function block on the same drive object. A run sequence value can only be precisely assigned to one function block on one drive object.
<b>Remedy:</b>	Set another value that is still available on this drive object for the run sequence.
<b>A50517</b>	<b>FBLOCKS: Int. meas. active</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	NONE
<b>Cause:</b>	A Siemens internal measurement has been activated.
<b>Remedy:</b>	Carry out a POWER ON (power off/on) for the Control Unit involved.

<b>F50518</b>	<b>FBLOCKS: Sampling time of free run-time group differs at download</b>
<b>Reaction:</b>	NONE
<b>Acknowledge:</b>	IMMEDIATELY
<b>Cause:</b>	<p>In the STARTER/SCOUT project that was downloaded, the hardware sampling time of a free run-time group (<math>1 \leq p20000[i] \leq 256</math>) was set to a value that was either too low or too high.</p> <p>The sampling time must be between 1 ms and the value r20003 - r20002.</p> <p>If the sampling time of the selected free run-time group is &lt; 1 ms, the equivalent value of 1 ms is used.</p> <p>If the value <math>\geq r20003</math>, then the sampling time is set to the next higher or the same software sampling time <math>\geq r21003</math>.</p> <p>Fault value (r0949, decimal interpretation):</p> <p>Number of the p20000 index of the run-time group where the sampling time is incorrectly set.</p> <p>Number of the run-time group = fault value + 1</p> <p>Note:</p> <p>For SIMOTION D410, r20003 (unlike all the other Control Units) is automatically set the same as the PROFIBUS sampling time.</p>
<b>Remedy:</b>	<ul style="list-style-type: none"> <li>- correctly set the sampling time of the run-time group.</li> <li>- if required, take all of the blocks from the run-time group.</li> </ul> <p>Note:</p> <p>Fault F50518 only detects an incorrectly parameterized run-time group. If, after correcting p20000[i] in the project, this error occurs again at download, then the run-time group involved should be identified using the fault value (r0949) and the sampling time correctly set.</p>

# Appendix

# A

## Contents

A.1	ASCII table (excerpt)	A-764
A.2	Motor code list	A-764

## A.1 ASCII table (excerpt)

The following table includes the decimal and hexadecimal notation of selected ASCII characters.

Table A-1 ASCII table (excerpt)

Character	Decimal	Hexadecimal	Character	Decimal	Hexadecimal
Blank	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 Motor code list

Table A-2 Motor code for synchronous motors

Order number	Motor type (p0300)	Motor code (p0301)
1LE400x-1ABxx-xxxx	204	20401
1LE400x-1BBxx-xxxx	204	20402

# List of abbreviations

Abbreviations used with the SINAMICS G120:

Abbreviation	Meaning
<b>A</b>	
AC	Alternating Current
A/D	Analog-Digital Converter
ADR	Address
AFM	Additional Frequency Modulation
AG	Programmable controller
AI	Analog Input
AK	Request identifier
AO	Analog Output
AOP	Advanced Operator Panel
ASIC	Application-Specific Integrated Circuit
ASP	Analog Setpoint
ASVM	Asymmetric Space Vector Modulation
<b>B</b>	
BCC	Block Check Character
BCD	Binary-Coded Decimal
BI	Binector Input
BIA	BG-Institute for Occupational Safety and Health
BICO	Binector Connector Technology
BO	Binector Output
BOP	Basic Operator Panel
<b>C</b>	
C	Commissioning
CB	Communication Board
CCW	Counter-Clockwise
CDS	Command Data Set
CI	Connector Input
CM	Configuration Management
CMD	Command
CO	Connector Output
CO/BO	Connector Output / Binector Output
COM	Common contact on a changeover contact (terminal is connected to NO or NC)

Abbreviation	Meaning
CU	Control Unit
CW	Clockwise
<b>D</b>	
D/A	Digital-Analog Converter
DC	Direct Current
DDS	Drive Data Set
DI	Digital Input
DIP	DIP switch
DO	Digital Output
DP	Distributed I/Os
DS	Drive State
<b>E</b>	
EEC	European Economic Community
EEPROM	Electrically Erasable Programmable Read-Only Memory
ELCB	Earth Leakage Circuit Breaker
EMC	Electromagnetic Compatibility
EMF	Electromagnetic Force
ES	Engineering System
ESB	Equivalent circuit diagram
<b>F</b>	
FAQ	Frequently Asked Questions
FB	Function Block
FCC	Field Current Control
FCL	Fast Current Limitation
FF	Fixed Frequency
FFB	Free Function Block
FLB	Flat-top modulation
FOC	Field-Oriented Control
FP	Function diagram
FREQ	Frequency
FSA	Frame Size A
FSB	Frame Size B
FSC	Frame Size C
FSD	Frame Size D
FSE	Frame Size E
FSF	Frame Size F
<b>G</b>	
GSD	Generic Station Description
GSG	Getting Started Guide
GUI ID	Global Unique Identifier
<b>H</b>	

<b>Abbreviation</b>	<b>Meaning</b>
HIW	Main actual value
HMI	Human Machine Interface
HO	High Overload (constant torque)
HSW	Main setpoint
HTL	High-Level Transistor Logic
<b>I</b>	
IASC	Internal Armature Short-Circuit
IBN	Commissioning
IGBT	Insulated Gate Bipolar Transistor
I/O	Input/Output
IOP	Intelligent Operator Panel
<b>J</b>	
JOG	Jogging
<b>K</b>	
KDV	Crosswise data comparison
KIB	Kinetic Buffering
<b>L</b>	
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LGE	Length
LO	Light Overload (variable torque)
LSTO	Latched Safe Torque Off
LWL	Fiber-optic cable
<b>M</b>	
MHB	Motor Holding Brake
MLP	Multi-Language Package
MOP	Motorized Potentiometer
<b>N</b>	
NC	Normally Closed Contact
NEMA	National Electrical Manufacturers Association
NO	Normally Open Contact
<b>O</b>	
OLM	Optical Link Module
OLP	Optical Link Plug
OP	Operator Panel
OPI	Operating Instructions
<b>P</b>	
P1	Processor 1
P2	Processor 2
Pe	PROFenergy

<b>Abbreviation</b>	<b>Meaning</b>
PID	Proportional Integral Differential
PKE	Parameter identifier
PKW	Parameter identifier value
PLC	Programmable Logic Controller
PM	Power Module
PM-IF	Power Module Interface
PPO	Parameter Process Data Object
PTC	Positive Temperature Coefficient
PWE	Parameter value
PWM	Pulse-Width Modulation
pxxxx	Writable parameters
PZD	Process data
<b>Q</b>	
QC	Quick Commissioning
<b>R</b>	
RAM	Random Access Memory
RCCB	Residual Current Circuit Breaker
RCD	Residual Current Device
RFG	Ramp-Function Generator
RFI	Radio Frequency Interference
ROM	Read-Only Memory
RPM	Revolutions Per Minute
rxxxx	Read-only parameters of analog signals
RZM	Space vector modulation
<b>S</b>	
SBC	Safe Brake Control
SLS	Safely-Limited Speed
SLVC	Sensorless Vector Control
SOL	Serial Option Link
SS1	Safe Stop 1
STO	Safe Torque Off
STW	Control word
STX	Start of Text
SVM	Space Vector Modulation
<b>T</b>	
TTL	Transistor-Transistor Logic
<b>U</b>	
V/f	Voltage/Frequency
USS	Universal Serial Interface



<b>Abbreviation</b>	<b>Meaning</b>
<b>V</b>	
VC	Vector Control
VT	Variable Torque
<b>W</b>	
WEA	Automatic restart
<b>Z</b>	
ZSW	Status word
ZUSW	Additional setpoint



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