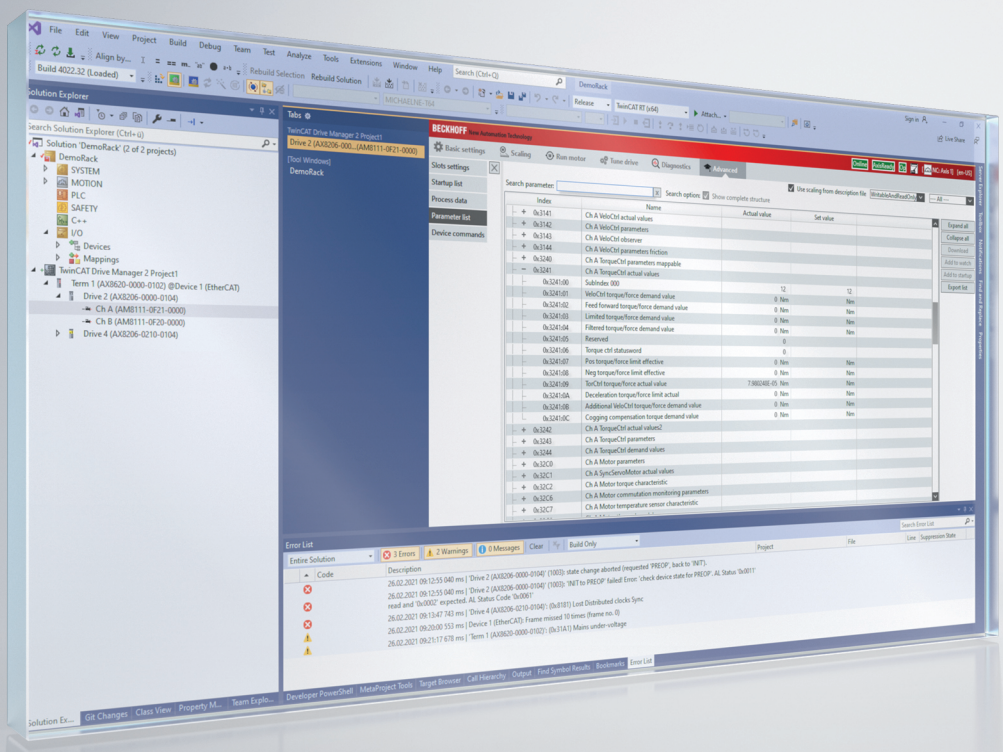
BECKHOFF New Automation Technology

Object Dictionary – Objects of module safety are not included | EN

AX1106-1101-0000

Object description for Economy servo drive, single-phase, single-axis module, 6.9 A, STO/SS1 (FSoE)



2026-11-10 | Version: FW1.03b0003

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1 Documentation notes

Version Info

This reference manual contains the CoE objects and Diag Messages of the following device.

Description	Value
Device	AX1106-1101
ESI Revision	103 (AX1106-1101-0103)
Firmware Version	FW1.03b0003

Explanation of substitutes and symbols

ESI Modules

ESI modules are used to encapsulate and selectively activate specific functions or properties of a device. They have a separate set of objects and PDOs that are independent of the device's basic object dictionary. When an ESI module is activated, the device object dictionary is extended by the objects and PDOs of the specific module. The device's ESI file contains information about which modules can be used for that device.

Slots and Supported Modules

A slot is a placeholder for an ESI module. A device can support multiple slots. Only one module can be plugged into a slot. The number of slots supported by a device limits the maximum number of ESI modules that can be plugged into the device simultaneously. Each slot has a predefined subset of modules that can be used. Modules can only be plugged into slots that accept the respective module.

Multiple Use of a Module

An ESI module can be activated on multiple slots in order to use the functionality it contains multiple times. Each time a module is instantiated, the relevant object indices are incremented depending on the slot group and slot position. This ensures that object indices remain unique even if the module is used multiple times. The increment step is defined in the EtherCAT device and depends on the module and the slot.

Readability

For orientation purposes independent of the object index, identifiers are used in the names of module objects to make the assignment to a slot and slot group readable. In the configuration tool, these identifiers are replaced by a designation derived from the respective slot and slot group.

Description of the Identifiers

The following identifiers apply exclusively to objects of ESI modules and not to device objects. When instantiated, objects of an ESI module replace the following identifiers in their object names according to the system described below:

Substitute	Name	Replaced in the object name by
[SL]	Slot name	The specific slot name
[SG]	Slot group	The specific slot group name
%S	Slot number	The specific slot number, starting at 1
%G	Slot group number	The specific slot group number, starting at 1
%C	Slot number within the slot group	The specific slot number within the slot group, starting at 1

Nomenclature

Name	Description
Module	ESI module; a named, separate set of objects and PDOs.
Slot	Depending on the context, this refers either to the slot as a whole or to the slot position.
Slot group	Depending on the context, this refers either to the slot group number or to the slot group name.

Slotconfiguration

Slot (global)	Slotgroup	Name	Modules
1 (1)	0	DeviceMainSlot	DeviceMain
2 (2)	0	PowerManagementSlot	PowerManagementAC1
3 (3)	0	*-- empty --*	
4 (4)	0	*-- empty --*	
5 (5)	0	*-- empty --*	
6 (6)	0	*-- empty --*	
7 (7)	0	*-- empty --*	
8 (8)	0	*-- empty --*	
9 (9)	0	*-- empty --*	
10 (10)	0	*-- empty --*	
11 (11)	0	SafetySlot	Safety
12 (12)	0	*-- empty --*	
13 (13)	0	*-- empty --*	
14 (14)	0	*-- empty --*	
15 (15)	0	*-- empty --*	
16 (16)	0	*-- empty --*	
17 (17)	0	*-- empty --*	
18 (18)	0	*-- empty --*	
19 (19)	0	*-- empty --*	
20 (20)	0	*-- empty --*	
21 (21)	0	*-- empty --*	
22 (22)	0	*-- empty --*	
23 (23)	0	*-- empty --*	
24 (24)	0	*-- empty --*	
25 (25)	0	*-- empty --*	
26 (26)	0	*-- empty --*	
27 (27)	0	*-- empty --*	
28 (28)	0	*-- empty --*	
29 (29)	0	*-- empty --*	
30 (30)	0	*-- empty --*	
31 (31)	0	*-- empty --*	
32 (32)	0	DeviceDebugSlot *(optional)*	DeviceDebug
1 (33)	1	AxisMainSlot	AxisMainAX1
2 (34)	1	*-- empty --*	
3 (35)	1	*-- empty --*	
4 (36)	1	InterpolatorSlot	Interpolator
5 (37)	1	*-- empty --*	
6 (38)	1	*-- empty --*	
7 (39)	1	PositionControlSlot	PositionControl
8 (40)	1	*-- empty --*	
9 (41)	1	*-- empty --*	
10 (42)	1	*-- empty --*	
11 (43)	1	VelocityControlSlot	VelocityControl
12 (44)	1	BiquadFilterSlot *(optional)*	BiquadFilter
13 (45)	1	*-- empty --*	

Slot (global)	Slotgroup	Name	Modules
14 (46)	1	*-- empty --*	
15 (47)	1	*-- empty --*	
16 (48)	1	*-- empty --*	
17 (49)	1	*-- empty --*	
18 (50)	1	*-- empty --*	
19 (51)	1	TorqueControlSlot	TorqueControl
20 (52)	1	*-- empty --*	
21 (53)	1	*-- empty --*	
22 (54)	1	*-- empty --*	
23 (55)	1	MotorSlot	AsynchronousMotor SynchronousMotor
24 (56)	1	PrimaryFeedbackSlot *(optional)*	HpfDslRotary SimulationRotary
25 (57)	1	*-- empty --*	
26 (58)	1	*-- empty --*	
27 (59)	1	*-- empty --*	
28 (60)	1	*-- empty --*	
29 (61)	1	*-- empty --*	
30 (62)	1	*-- empty --*	
31 (63)	1	*-- empty --*	
32 (64)	1	AxisDebugSlot *(optional)*	AxisDebug

UnitTable

A List of the active Units of this Project.

Index	Name	Symbol
0x400	none	
0x401	metre	m
0x402	kilogram	kg
0x403	second	s
0x404	ampere	A
0x405	kelvin	K
0x406	mole	mol
0x407	candela	cd
0x410	Radian	rad
0x411	Steradin	sr
0x420	Hertz	Hz
0x421	Newton	N
0x422	Pascal	Pa
0x423	Joule	J
0x424	Watt	W
0x425	Coulomb	C
0x426	Volt	V
0x427	Farad	F
0x428	Ohm	Ohm
0x429	Siemens	S
0x42A	Weber	Wb
0x42B	Tesla	T

Index	Name	Symbol
0x42C	Henry	H
0x42D	Degree Celsius	°C
0x42E	Lumen	lm
0x42F	Lux	lx
0x430	bequerel	Bq
0x431	Gray	Gy
0x432	Sievert	Sv
0x433	Katal	kat
0x440	Grade	g*
0x441	Angle Degree	°
0x442	Angle Minute	'
0x443	Angle Second	"
0x444	Litre	l
0x445	Are	a
0x446	Hectare	ha
0x447	Minute	min
0x448	Hour	h
0x449	Day	D
0x44A	Year	a
0x44B	Gram	g
0x44C	Ton	t
0x44E	Bar	bar
0x44F	Poise	P
0x450	Stokes	St
0x451	Electron Volt	eV
0x452	Atomic Mass Unit	u
0x453	Astronomic Unit	AU
0x454	Parsec	pc
0x455	Meter per square second	m/s^2
0x456	Newtonmetre	Nm
0x457	Square second	s^2
0x458	Square metre	m^2
0x459	Cubic metre	m^3
0x45A	Pascal second	Pa s
0x45B	Joule per kilogram Kelvin	J/(kg K)
0x45C	Watt per meter Kelvin	W/(m K)
0x45D	Joule per mole Kelvin	J/(m K)
0x45E	Watt per square metre steradian	W((m^2 sr)
0x45F	Katal per cubic metre	kat/m^3
0x4B0	Increments	inc
0x4B1	Revolution	rev
0x4B2	Revolution speed	rad/s
0x4B3	Moment of inertia	g cm^2
0x4B4	Moment of inertia SI	kg m^2
0x4B5	Revolutions/Minute	rpm
0x4B6	Meter/Second	m/s
0x4B7	Percent	%
0x4B8	cubic Second	s^3

Index	Name	Symbol
0x4B9	Digits	dig
0x4BA	Degree/Second	°/s
0x4BB	Revolution acceleration	rad/s^2
0x4BC	Steps	step

ScalingTable

A List of the active ScalingTypes of this Project.

Index	Function	Target Datatype
0x0	x * 1	LREAL
0x208	x * (1/256)nm	LREAL
0x1210	x * (360/65536)°	LREAL
0x1211	x * (360/131072)°	LREAL
0x1212	x * (360/262144)°	LREAL
0x1213	x * (360/524288)°	LREAL
0x1214	x * (360/1048576)°	LREAL
0x1215	x * (360/2097152)°	LREAL
0x1216	x * (360/4194304)°	LREAL
0x1217	x * (360/8388608)°	LREAL
0x1218	x * (360/16777216)°	LREAL
0x1219	x * (360/33554432)°	LREAL
0x121A	x * (360/67108864)°	LREAL
0x121B	x * (360/134217728)°	LREAL
0x121C	x * (360/268435456)°	LREAL
0x121D	x * (360/536870912)°	LREAL
0x121E	x * (360/1073741824)°	LREAL
0x121F	x * (360/2147483648)°	LREAL
0x1220	x * (360/4294967296)°	LREAL
0x1A00	x * 1E-06 m	LREAL
0x1A01	x * 1E-07 m	LREAL
0x1A02	x * 1E-08 m	LREAL
0x1A03	x * 1E-09 m	LREAL
0x1A04	x * 1E-10 m	LREAL
0x1A05	x * 1E-11 m	LREAL
0x1A06	x * 1E-12 m	LREAL
0x2000	x * 0.0001 rpm	REAL
0x2100	x * 1E-07 m/s	REAL
0x3000	x * 1 °/s^2	REAL
0x3100	x * 0.001 m/s^2	REAL
0x4000	x * 100 °/s^3	REAL
0x4100	x * 0.1 m/s^3	REAL
0x5000	x * 1 Nm	REAL
0x5100	x * 1 N	REAL
0x6210	x * (360/65536)°/s	LREAL
0x6211	x * (360/131072)°/s	LREAL
0x6212	x * (360/262144)°/s	LREAL
0x6213	x * (360/524288)°/s	LREAL
0x6214	x * (360/1048576)°/s	LREAL
0x6215	x * (360/2097152)°/s	LREAL

Index	Function	Target Datatype
0x6216	x * (360/4194304)°/s	LREAL
0x6217	x * (360/8388608)°/s	LREAL
0x6218	x * (360/16777216)°/s	LREAL
0x6219	x * (360/33554432)°/s	LREAL
0x621A	x * (360/67108864)°/s	LREAL
0x621B	x * (360/134217728)°/s	LREAL
0x621C	x * (360/268435456)°/s	LREAL
0x621D	x * (360/536870912)°/s	LREAL
0x621E	x * (360/1073741824)°/s	LREAL
0x621F	x * (360/2147483648)°/s	LREAL
0x6220	x * (360/4294967296)°/s	LREAL
0x6A00	x * 1E-06 m/s	LREAL
0x6A01	x * 1E-07 m/s	LREAL
0x6A02	x * 1E-08 m/s	LREAL
0x6A03	x * 1E-09 m/s	LREAL
0x6A04	x * 1E-10 m/s	LREAL
0x6A05	x * 1E-11 m/s	LREAL
0x6A06	x * 1E-12 m/s	LREAL
0x7000	x * 0.0001 rpm/s	REAL
0x7100	x * 1E-07 m/s^2	REAL
0x8000	x * 1 rpm	REAL
0x8100	x * 1 m/s	REAL
0x9000	x * 1 Nm/rad/s	REAL
0x9100	x * 1 N/m/s	REAL
0xA000	x * 1 Nm/rad	REAL
0xA100	x * 1 N/m	REAL
0xB000	x * 1 kg m^2	REAL
0xB100	x * 1 kg	REAL

2 Object description and parameterization

Object directory

All EtherCAT slaves supporting the CoE interface have an object directory containing all parameter, diagnostic, process or other data that can be read or written via EtherCAT.

The object directory can be read via the SDO information service. It is included in the device description file. All EtherCAT slaves should support the SDO information service at least to such an extent that the compact object description of each object can be read (from index 0x1000). This object description contains the data type, the length, the access rights and information as to whether the object can be mapped in a PDO (and therefore can be used as process data).

Uncomplete list

The following list of objects is not a complete list of all objects. The objects of the module slot "Objects of module Safety" are not included.

This document includes the following indexes from the "Objects of module Safety" group as basic information on handling safety applications:

0xF980 | Safe Address [▶ 145]

0xF9C0 | Safety Device Info [▶ 145]

0xFABB | SETSAFEADDRESS Diag Data [▶ 145]

0xFEA0 | CTRL Diag Data [▶ 146]

2.1 Device Objects

Overview of Objects

0x1000 | Device type [▶ 12]
0x1001 | Error register [▶ 12]
0x1008 | Device name [▶ 12]
0x1009 | Hardware version [▶ 12]
0x100A | Software version [▶ 12]
0x100B | Bootloader version [▶ 12]
0x1018 | Identity [▶ 12]
0x10E2 | Manufacturer-specific Identification Code [▶ 12]
0x10F3 | Diagnosis History [▶ 13]
0x10F8 | Timestamp Object [▶ 17]
0x1C00 | Sync manager type [▶ 17]
0x1C12 | RxPDO assign [▶ 17]
0x1C13 | TxPDO assign [▶ 17]
0x1C14 | RxPDO assign [▶ 18]
0x1C15 | TxPDO assign [▶ 18]
0x1C16 | Safety RxPDO assign [▶ 18]
0x1C17 | Safety TxPDO assign [▶ 18]
0x1C32 | SM output parameter [▶ 19]
0x1C33 | SM input parameter [▶ 19]
0xF008 | Code word [▶ 20]
0xF030 | Configured Module Ident List [▶ 20]
0xF050 | Detected Module Ident List [▶ 22]

0x1000 | Device type

Index	Name	Meaning	Data type	Flags	Default
0x1000:0	Device type	see ETG.1000.6 EtherCAT specification - CoE	uint32_t	RO	0x00000192 (402_{dez})

0x1001 | Error register

Index	Name	Meaning	Data type	Flags	Default
0x1001:0	Error register	see ETG.1000.6 EtherCAT specification - CoE	uint8_t	RO	0x00 (0_{dez})

0x1008 | Device name

Index	Name	Meaning	Data type	Flags	Default
0x1008:0	Device name	see ETG.1000.6 EtherCAT specification - CoE	STRING	RO	"AX1106-1101"

0x1009 | Hardware version

Index	Name	Meaning	Data type	Flags	Default
0x1009:0	Hardware version	see ETG.1000.6 EtherCAT specification - CoE	STRING	RO	""

0x100A | Software version

Index	Name	Meaning	Data type	Flags	Default
0x100A:0	Software version	see ETG.1000.6 EtherCAT specification - CoE	STRING	RO	"00.00 _"

0x100B | Bootloader version

Index	Name	Meaning	Data type	Flags	Default
0x100B:0	Bootloader version	see ETG.1020 Protocol Enhancements	STRING	RO	"N/A"

0x1018 | Identity

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1018:0	Identity		uint8_t	RO	0x04 (4_{dez})
0x1018:01	Vendor ID		uint32_t	RO	0x00000002 (2_{dez})
0x1018:02	Product code		uint32_t	RO	0x04526012 (72507410_{dez})
0x1018:03	Revision		uint32_t	RO	0x00000000 (0_{dez})
0x1018:04	Serial number		uint32_t	RO	0x00000000 (0_{dez})

0x10E2 | Manufacturer-specific Identification Code

see ETG.1020 Protocol Enhancements

Index	Name	Meaning	Data type	Flags	Default
0x10E2:0	Manufacturer-specific Identification Code		uint8_t	RO	0x01 (1_{dez})
0x10E2:01	SubIndex 001		STRING	RO	""

0x10F3 | Diagnosis History

see ETG.1020 Protocol Enhancements

Index	Name	Meaning	Data type	Flags	Default
0x10F3:0	Diagnosis History		uint8_t	RO	0x69 (105_{dez})
0x10F3:01	Maximum Messages		uint8_t	RO	0x00 (0_{dez})
0x10F3:02	Newest Message		uint8_t	RO	0x00 (0_{dez})
0x10F3:03	Newest Acknowledged Message		uint8_t	RW	0x00 (0_{dez})
0x10F3:04	New Messages Available		BOOLEAN	RO	0x00 (0_{dez})
0x10F3:05	Flags		uint16_t	RW	0x0000 (0_{dez})
0x10F3:06	Diagnosis Message 001		OCTET-STRING[64]	RO	{0}
0x10F3:07	Diagnosis Message 002		OCTET-STRING[64]	RO	{0}
0x10F3:08	Diagnosis Message 003		OCTET-STRING[64]	RO	{0}
0x10F3:09	Diagnosis Message 004		OCTET-STRING[64]	RO	{0}
0x10F3:0A	Diagnosis Message 005		OCTET-STRING[64]	RO	{0}
0x10F3:0B	Diagnosis Message 006		OCTET-STRING[64]	RO	{0}
0x10F3:0C	Diagnosis Message 007		OCTET-STRING[64]	RO	{0}
0x10F3:0D	Diagnosis Message 008		OCTET-STRING[64]	RO	{0}
0x10F3:0E	Diagnosis Message 009		OCTET-STRING[64]	RO	{0}
0x10F3:0F	Diagnosis Message 010		OCTET-STRING[64]	RO	{0}
0x10F3:10	Diagnosis Message 011		OCTET-STRING[64]	RO	{0}
0x10F3:11	Diagnosis Message 012		OCTET-STRING[64]	RO	{0}
0x10F3:12	Diagnosis Message 013		OCTET-STRING[64]	RO	{0}
0x10F3:13	Diagnosis Message 014		OCTET-STRING[64]	RO	{0}
0x10F3:14	Diagnosis Message 015		OCTET-STRING[64]	RO	{0}
0x10F3:15	Diagnosis Message 016		OCTET-STRING[64]	RO	{0}
0x10F3:16	Diagnosis Message 017		OCTET-STRING[64]	RO	{0}

Index	Name	Meaning	Data type	Flags	Default
0x10F3:17	Diagnosis Message 018		OCTET-STRING[64]	RO	{0}
0x10F3:18	Diagnosis Message 019		OCTET-STRING[64]	RO	{0}
0x10F3:19	Diagnosis Message 020		OCTET-STRING[64]	RO	{0}
0x10F3:1A	Diagnosis Message 021		OCTET-STRING[64]	RO	{0}
0x10F3:1B	Diagnosis Message 022		OCTET-STRING[64]	RO	{0}
0x10F3:1C	Diagnosis Message 023		OCTET-STRING[64]	RO	{0}
0x10F3:1D	Diagnosis Message 024		OCTET-STRING[64]	RO	{0}
0x10F3:1E	Diagnosis Message 025		OCTET-STRING[64]	RO	{0}
0x10F3:1F	Diagnosis Message 026		OCTET-STRING[64]	RO	{0}
0x10F3:20	Diagnosis Message 027		OCTET-STRING[64]	RO	{0}
0x10F3:21	Diagnosis Message 028		OCTET-STRING[64]	RO	{0}
0x10F3:22	Diagnosis Message 029		OCTET-STRING[64]	RO	{0}
0x10F3:23	Diagnosis Message 030		OCTET-STRING[64]	RO	{0}
0x10F3:24	Diagnosis Message 031		OCTET-STRING[64]	RO	{0}
0x10F3:25	Diagnosis Message 032		OCTET-STRING[64]	RO	{0}
0x10F3:26	Diagnosis Message 033		OCTET-STRING[64]	RO	{0}
0x10F3:27	Diagnosis Message 034		OCTET-STRING[64]	RO	{0}
0x10F3:28	Diagnosis Message 035		OCTET-STRING[64]	RO	{0}
0x10F3:29	Diagnosis Message 036		OCTET-STRING[64]	RO	{0}
0x10F3:2A	Diagnosis Message 037		OCTET-STRING[64]	RO	{0}
0x10F3:2B	Diagnosis Message 038		OCTET-STRING[64]	RO	{0}
0x10F3:2C	Diagnosis Message 039		OCTET-STRING[64]	RO	{0}
0x10F3:2D	Diagnosis Message 040		OCTET-STRING[64]	RO	{0}
0x10F3:2E	Diagnosis Message 041		OCTET-STRING[64]	RO	{0}
0x10F3:2F	Diagnosis Message 042		OCTET-STRING[64]	RO	{0}
0x10F3:30	Diagnosis Message 043		OCTET-STRING[64]	RO	{0}
0x10F3:31	Diagnosis Message 044		OCTET-STRING[64]	RO	{0}

Index	Name	Meaning	Data type	Flags	Default
0x10F3:32	Diagnosis Message 045		OCTET-STRING[64]	RO	{0}
0x10F3:33	Diagnosis Message 046		OCTET-STRING[64]	RO	{0}
0x10F3:34	Diagnosis Message 047		OCTET-STRING[64]	RO	{0}
0x10F3:35	Diagnosis Message 048		OCTET-STRING[64]	RO	{0}
0x10F3:36	Diagnosis Message 049		OCTET-STRING[64]	RO	{0}
0x10F3:37	Diagnosis Message 050		OCTET-STRING[64]	RO	{0}
0x10F3:38	Diagnosis Message 051		OCTET-STRING[64]	RO	{0}
0x10F3:39	Diagnosis Message 052		OCTET-STRING[64]	RO	{0}
0x10F3:3A	Diagnosis Message 053		OCTET-STRING[64]	RO	{0}
0x10F3:3B	Diagnosis Message 054		OCTET-STRING[64]	RO	{0}
0x10F3:3C	Diagnosis Message 055		OCTET-STRING[64]	RO	{0}
0x10F3:3D	Diagnosis Message 056		OCTET-STRING[64]	RO	{0}
0x10F3:3E	Diagnosis Message 057		OCTET-STRING[64]	RO	{0}
0x10F3:3F	Diagnosis Message 058		OCTET-STRING[64]	RO	{0}
0x10F3:40	Diagnosis Message 059		OCTET-STRING[64]	RO	{0}
0x10F3:41	Diagnosis Message 060		OCTET-STRING[64]	RO	{0}
0x10F3:42	Diagnosis Message 061		OCTET-STRING[64]	RO	{0}
0x10F3:43	Diagnosis Message 062		OCTET-STRING[64]	RO	{0}
0x10F3:44	Diagnosis Message 063		OCTET-STRING[64]	RO	{0}
0x10F3:45	Diagnosis Message 064		OCTET-STRING[64]	RO	{0}
0x10F3:46	Diagnosis Message 065		OCTET-STRING[64]	RO	{0}
0x10F3:47	Diagnosis Message 066		OCTET-STRING[64]	RO	{0}
0x10F3:48	Diagnosis Message 067		OCTET-STRING[64]	RO	{0}
0x10F3:49	Diagnosis Message 068		OCTET-STRING[64]	RO	{0}
0x10F3:4A	Diagnosis Message 069		OCTET-STRING[64]	RO	{0}
0x10F3:4B	Diagnosis Message 070		OCTET-STRING[64]	RO	{0}
0x10F3:4C	Diagnosis Message 071		OCTET-STRING[64]	RO	{0}

Index	Name	Meaning	Data type	Flags	Default
0x10F3:4D	Diagnosis Message 072		OCTET-STRING[64]	RO	{0}
0x10F3:4E	Diagnosis Message 073		OCTET-STRING[64]	RO	{0}
0x10F3:4F	Diagnosis Message 074		OCTET-STRING[64]	RO	{0}
0x10F3:50	Diagnosis Message 075		OCTET-STRING[64]	RO	{0}
0x10F3:51	Diagnosis Message 076		OCTET-STRING[64]	RO	{0}
0x10F3:52	Diagnosis Message 077		OCTET-STRING[64]	RO	{0}
0x10F3:53	Diagnosis Message 078		OCTET-STRING[64]	RO	{0}
0x10F3:54	Diagnosis Message 079		OCTET-STRING[64]	RO	{0}
0x10F3:55	Diagnosis Message 080		OCTET-STRING[64]	RO	{0}
0x10F3:56	Diagnosis Message 081		OCTET-STRING[64]	RO	{0}
0x10F3:57	Diagnosis Message 082		OCTET-STRING[64]	RO	{0}
0x10F3:58	Diagnosis Message 083		OCTET-STRING[64]	RO	{0}
0x10F3:59	Diagnosis Message 084		OCTET-STRING[64]	RO	{0}
0x10F3:5A	Diagnosis Message 085		OCTET-STRING[64]	RO	{0}
0x10F3:5B	Diagnosis Message 086		OCTET-STRING[64]	RO	{0}
0x10F3:5C	Diagnosis Message 087		OCTET-STRING[64]	RO	{0}
0x10F3:5D	Diagnosis Message 088		OCTET-STRING[64]	RO	{0}
0x10F3:5E	Diagnosis Message 089		OCTET-STRING[64]	RO	{0}
0x10F3:5F	Diagnosis Message 090		OCTET-STRING[64]	RO	{0}
0x10F3:60	Diagnosis Message 091		OCTET-STRING[64]	RO	{0}
0x10F3:61	Diagnosis Message 092		OCTET-STRING[64]	RO	{0}
0x10F3:62	Diagnosis Message 093		OCTET-STRING[64]	RO	{0}
0x10F3:63	Diagnosis Message 094		OCTET-STRING[64]	RO	{0}
0x10F3:64	Diagnosis Message 095		OCTET-STRING[64]	RO	{0}
0x10F3:65	Diagnosis Message 096		OCTET-STRING[64]	RO	{0}
0x10F3:66	Diagnosis Message 097		OCTET-STRING[64]	RO	{0}
0x10F3:67	Diagnosis Message 098		OCTET-STRING[64]	RO	{0}

Index	Name	Meaning	Data type	Flags	Default
0x10F3:68	Diagnosis Message 099		OCTET-STRING[64]	RO	{0}
0x10F3:69	Diagnosis Message 100		OCTET-STRING[64]	RO	{0}

0x10F8 | Timestamp Object

Index	Name	Meaning	Data type	Flags	Default
0x10F8:0	Timestamp Object	see ETG.1020 Protocol Enhancements Unit: ns	uint64_t	RO	0x00000000 00000000 (0_{dez})

0x1C00 | Sync manager type

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1C00:0	Sync manager type		uint8_t	RO	0x08 (8_{dez})
0x1C00:01	SubIndex 001		uint8_t	RO	0x01 (1_{dez})
0x1C00:02	SubIndex 002		uint8_t	RO	0x02 (2_{dez})
0x1C00:03	SubIndex 003		uint8_t	RO	0x03 (3_{dez})
0x1C00:04	SubIndex 004		uint8_t	RO	0x04 (4_{dez})
0x1C00:05	SubIndex 005		uint8_t	RO	0x03 (3_{dez})
0x1C00:06	SubIndex 006		uint8_t	RO	0x04 (4_{dez})
0x1C00:07	SubIndex 007		uint8_t	RO	0x03 (3_{dez})
0x1C00:08	SubIndex 008		uint8_t	RO	0x04 (4_{dez})

0x1C12 | RxPDO assign

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1C12:0	RxPDO assign		uint8_t	RW	0x00 (0_{dez})
0x1C12:01	Subindex 001		uint16_t	RW	0x1620 (5664_{dez})
0x1C12:02	Subindex 002		uint16_t	RW	0x1623 (5667_{dez})
0x1C12:03	Subindex 003		uint16_t	RW	0x0000 (0_{dez})
0x1C12:04	Subindex 004		uint16_t	RW	0x0000 (0_{dez})
0x1C12:05	Subindex 005		uint16_t	RW	0x0000 (0_{dez})
0x1C12:06	Subindex 006		uint16_t	RW	0x0000 (0_{dez})
0x1C12:07	Subindex 007		uint16_t	RW	0x0000 (0_{dez})

0x1C13 | TxPDO assign

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1C13:0	TxPDO assign		uint8_t	RW	0x00 (0_{dez})
0x1C13:01	Subindex 001		uint16_t	RW	0x1A20 (6688_{dez})
0x1C13:02	Subindex 002		uint16_t	RW	0x1A26 (6694_{dez})
0x1C13:03	Subindex 003		uint16_t	RW	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x1C13:04	Subindex 004		uint16_t	RW	0x0000 (0_{dez})
0x1C13:05	Subindex 005		uint16_t	RW	0x0000 (0_{dez})
0x1C13:06	Subindex 006		uint16_t	RW	0x0000 (0_{dez})
0x1C13:07	Subindex 007		uint16_t	RW	0x0000 (0_{dez})
0x1C13:08	Subindex 008		uint16_t	RW	0x0000 (0_{dez})
0x1C13:09	Subindex 009		uint16_t	RW	0x0000 (0_{dez})
0x1C13:0A	Subindex 010		uint16_t	RW	0x0000 (0_{dez})
0x1C13:0B	Subindex 011		uint16_t	RW	0x0000 (0_{dez})

0x1C14 | RxPDO assign

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1C14:0	RxPDO assign		uint8_t	RW	0x00 (0_{dez})

0x1C15 | TxPDO assign

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1C15:0	TxPDO assign		uint8_t	RW	0x00 (0_{dez})

0x1C16 | Safety RxPDO assign

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1C16:0	Safety RxPDO assign		uint8_t	RW	0x00 (0_{dez})
0x1C16:01	Subindex 001		uint16_t	RW	0x17C0 (6080_{dez})
0x1C16:02	Subindex 002		uint16_t	RW	0x17F0 (6128_{dez})
0x1C16:03	Subindex 003		uint16_t	RW	0x17FF (6143_{dez})
0x1C16:04	Subindex 004		uint16_t	RW	0x0000 (0_{dez})
0x1C16:05	Subindex 005		uint16_t	RW	0x0000 (0_{dez})
0x1C16:06	Subindex 006		uint16_t	RW	0x0000 (0_{dez})
0x1C16:07	Subindex 007		uint16_t	RW	0x0000 (0_{dez})
0x1C16:08	Subindex 008		uint16_t	RW	0x0000 (0_{dez})
0x1C16:09	Subindex 009		uint16_t	RW	0x0000 (0_{dez})
0x1C16:0A	Subindex 010		uint16_t	RW	0x0000 (0_{dez})

0x1C17 | Safety TxPDO assign

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1C17:0	Safety TxPDO assign		uint8_t	RW	0x00 (0_{dez})
0x1C17:01	Subindex 001		uint16_t	RW	0x1BC0 (7104_{dez})
0x1C17:02	Subindex 002		uint16_t	RW	0x1BF0 (7152_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x1C17:03	Subindex 003		uint16_t	RW	0x1BFF (7167_{dez})
0x1C17:04	Subindex 004		uint16_t	RW	0x0000 (0_{dez})
0x1C17:05	Subindex 005		uint16_t	RW	0x0000 (0_{dez})
0x1C17:06	Subindex 006		uint16_t	RW	0x0000 (0_{dez})
0x1C17:07	Subindex 007		uint16_t	RW	0x0000 (0_{dez})
0x1C17:08	Subindex 008		uint16_t	RW	0x0000 (0_{dez})
0x1C17:09	Subindex 009		uint16_t	RW	0x0000 (0_{dez})
0x1C17:0A	Subindex 010		uint16_t	RW	0x0000 (0_{dez})
0x1C17:0B	Subindex 011		uint16_t	RW	0x0000 (0_{dez})
0x1C17:0C	Subindex 012		uint16_t	RW	0x0000 (0_{dez})
0x1C17:0D	Subindex 013		uint16_t	RW	0x0000 (0_{dez})
0x1C17:0E	Subindex 014		uint16_t	RW	0x0000 (0_{dez})

0x1C32 | SM output parameter

see ETG.1020 Protocol Enhancements

Index	Name	Meaning	Data type	Flags	Default
0x1C32:0	SM output parameter		uint8_t	RO	0x20 (32_{dez})
0x1C32:01	Sync mode		uint16_t	RW	0x0000 (0_{dez})
0x1C32:02	Cycle time		uint32_t	RW	0x00000000 (0_{dez})
0x1C32:03	Shift time		uint32_t	RO	0x00000000 (0_{dez})
0x1C32:04	Sync modes supported		uint16_t	RO	0x0000 (0_{dez})
0x1C32:05	Minimum cycle time		uint32_t	RO	0x00000000 (0_{dez})
0x1C32:06	Calc and copy time		uint32_t	RO	0x00000000 (0_{dez})
0x1C32:09	Maximum delay time		uint32_t	RO	0x00000000 (0_{dez})
0x1C32:0B	SM event missed counter		uint16_t	RO	0x0000 (0_{dez})
0x1C32:0C	Cycle exceeded counter		uint16_t	RO	0x0000 (0_{dez})
0x1C32:0D	Shift too short counter		uint16_t	RO	0x0000 (0_{dez})
0x1C32:20	Sync error		BOOLEAN	RO	0x00 (0_{dez})

0x1C33 | SM input parameter

see ETG.1020 Protocol Enhancements

Index	Name	Meaning	Data type	Flags	Default
0x1C33:0	SM input parameter		uint8_t	RO	0x20 (32_{dez})
0x1C33:01	Sync mode		uint16_t	RW	0x0000 (0_{dez})
0x1C33:02	Cycle time		uint32_t	RW	0x00000000 (0_{dez})
0x1C33:03	Shift time		uint32_t	RO	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x1C33:04	Sync modes supported		uint16_t	RO	0x0000 (0_{dez})
0x1C33:05	Minimum cycle time		uint32_t	RO	0x00000000 (0_{dez})
0x1C33:06	Calc and copy time		uint32_t	RO	0x00000000 (0_{dez})
0x1C33:07	Minimum delay time		uint32_t	RO	0x00000000 (0_{dez})
0x1C33:09	Maximum delay time		uint32_t	RO	0x00000000 (0_{dez})
0x1C33:0B	SM event missed counter		uint16_t	RO	0x0000 (0_{dez})
0x1C33:0C	Cycle exceeded counter		uint16_t	RO	0x0000 (0_{dez})
0x1C33:0D	Shift too short counter		uint16_t	RO	0x0000 (0_{dez})
0x1C33:20	Sync error		BOOLEAN	RO	0x00 (0_{dez})

0xF008 | Code word

Index	Name	Meaning	Data type	Flags	Default
0xF008:0	Code word		uint32_t	RW	0x00000000 (0_{dez})

0xF030 | Configured Module Ident List

see ETG.5001.1 MDP GeneralSpec

Index	Name	Meaning	Data type	Flags	Default
0xF030:0	Configured Module Ident List	Min: 0x00 (0_{dez}) Max: 0x40 (64_{dez})	uint8_t	RW	0x40 (64_{dez})
0xF030:01	SubIndex 001		uint32_t	RW	0x00670064 (6750308_{dez})
0xF030:02	SubIndex 002		uint32_t	RW	0x00670084 (6750340_{dez})
0xF030:03	SubIndex 003		uint32_t	RW	0x00000000 (0_{dez})
0xF030:04	SubIndex 004		uint32_t	RW	0x00000000 (0_{dez})
0xF030:05	SubIndex 005		uint32_t	RW	0x00000000 (0_{dez})
0xF030:06	SubIndex 006		uint32_t	RW	0x00000000 (0_{dez})
0xF030:07	SubIndex 007		uint32_t	RW	0x00000000 (0_{dez})
0xF030:08	SubIndex 008		uint32_t	RW	0x00000000 (0_{dez})
0xF030:09	SubIndex 009		uint32_t	RW	0x00000000 (0_{dez})
0xF030:0A	SubIndex 010		uint32_t	RW	0x00000000 (0_{dez})
0xF030:0B	SubIndex 011		uint32_t	RW	0x0067E5F0 (6809072_{dez})
0xF030:0C	SubIndex 012		uint32_t	RW	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0xF030:0D	SubIndex 013		uint32_t	RW	0x00000000 (0_{dez})
0xF030:0E	SubIndex 014		uint32_t	RW	0x00000000 (0_{dez})
0xF030:0F	SubIndex 015		uint32_t	RW	0x00000000 (0_{dez})
0xF030:10	SubIndex 016		uint32_t	RW	0x00000000 (0_{dez})
0xF030:11	SubIndex 017		uint32_t	RW	0x00000000 (0_{dez})
0xF030:12	SubIndex 018		uint32_t	RW	0x00000000 (0_{dez})
0xF030:13	SubIndex 019		uint32_t	RW	0x00000000 (0_{dez})
0xF030:14	SubIndex 020		uint32_t	RW	0x00000000 (0_{dez})
0xF030:15	SubIndex 021		uint32_t	RW	0x00000000 (0_{dez})
0xF030:16	SubIndex 022		uint32_t	RW	0x00000000 (0_{dez})
0xF030:17	SubIndex 023		uint32_t	RW	0x00000000 (0_{dez})
0xF030:18	SubIndex 024		uint32_t	RW	0x00000000 (0_{dez})
0xF030:19	SubIndex 025		uint32_t	RW	0x00000000 (0_{dez})
0xF030:1A	SubIndex 026		uint32_t	RW	0x00000000 (0_{dez})
0xF030:1B	SubIndex 027		uint32_t	RW	0x00000000 (0_{dez})
0xF030:1C	SubIndex 028		uint32_t	RW	0x00000000 (0_{dez})
0xF030:1D	SubIndex 029		uint32_t	RW	0x00000000 (0_{dez})
0xF030:1E	SubIndex 030		uint32_t	RW	0x00000000 (0_{dez})
0xF030:1F	SubIndex 031		uint32_t	RW	0x00000000 (0_{dez})
0xF030:20	SubIndex 032		uint32_t	RW	0x00000000 (0_{dez})
0xF030:21	SubIndex 033		uint32_t	RW	0x006703E8 (6751208_{dez})
0xF030:22	SubIndex 034		uint32_t	RW	0x00000000 (0_{dez})
0xF030:23	SubIndex 035		uint32_t	RW	0x00000000 (0_{dez})
0xF030:24	SubIndex 036		uint32_t	RW	0x00670BB8 (6753208_{dez})
0xF030:25	SubIndex 037		uint32_t	RW	0x00000000 (0_{dez})
0xF030:26	SubIndex 038		uint32_t	RW	0x00000000 (0_{dez})
0xF030:27	SubIndex 039		uint32_t	RW	0x00671770 (6756208_{dez})

Index	Name	Meaning	Data type	Flags	Default
0xF030:28	SubIndex 040		uint32_t	RW	0x00000000 (0_{dez})
0xF030:29	SubIndex 041		uint32_t	RW	0x00000000 (0_{dez})
0xF030:2A	SubIndex 042		uint32_t	RW	0x00000000 (0_{dez})
0xF030:2B	SubIndex 043		uint32_t	RW	0x00672710 (6760208_{dez})
0xF030:2C	SubIndex 044		uint32_t	RW	0x00000000 (0_{dez})
0xF030:2D	SubIndex 045		uint32_t	RW	0x00000000 (0_{dez})
0xF030:2E	SubIndex 046		uint32_t	RW	0x00000000 (0_{dez})
0xF030:2F	SubIndex 047		uint32_t	RW	0x00000000 (0_{dez})
0xF030:30	SubIndex 048		uint32_t	RW	0x00000000 (0_{dez})
0xF030:31	SubIndex 049		uint32_t	RW	0x00000000 (0_{dez})
0xF030:32	SubIndex 050		uint32_t	RW	0x00000000 (0_{dez})
0xF030:33	SubIndex 051		uint32_t	RW	0x00674650 (6768208_{dez})
0xF030:34	SubIndex 052		uint32_t	RW	0x00000000 (0_{dez})
0xF030:35	SubIndex 053		uint32_t	RW	0x00000000 (0_{dez})
0xF030:36	SubIndex 054		uint32_t	RW	0x00000000 (0_{dez})
0xF030:37	SubIndex 055		uint32_t	RW	0x006755F0 (6772208_{dez})
0xF030:38	SubIndex 056		uint32_t	RW	0x00000000 (0_{dez})
0xF030:39	SubIndex 057		uint32_t	RW	0x00000000 (0_{dez})
0xF030:3A	SubIndex 058		uint32_t	RW	0x00000000 (0_{dez})
0xF030:3B	SubIndex 059		uint32_t	RW	0x00000000 (0_{dez})
0xF030:3C	SubIndex 060		uint32_t	RW	0x00000000 (0_{dez})
0xF030:3D	SubIndex 061		uint32_t	RW	0x00000000 (0_{dez})
0xF030:3E	SubIndex 062		uint32_t	RW	0x00000000 (0_{dez})
0xF030:3F	SubIndex 063		uint32_t	RW	0x00000000 (0_{dez})
0xF030:40	SubIndex 064		uint32_t	RW	0x00000000 (0_{dez})

0xF050 | Detected Module Ident List

see ETG.5001.1 MDP GeneralSpec

Index	Name	Meaning	Data type	Flags	Default
0xF050:0	Detected Module Ident List		uint8_t	RO	0x40 (64_{dez})
0xF050:01	SubIndex 001		uint32_t	RO	0x00670064 (6750308_{dez})
0xF050:02	SubIndex 002		uint32_t	RO	0x00670084 (6750340_{dez})
0xF050:03	SubIndex 003		uint32_t	RO	0x00000000 (0_{dez})
0xF050:04	SubIndex 004		uint32_t	RO	0x00000000 (0_{dez})
0xF050:05	SubIndex 005		uint32_t	RO	0x00000000 (0_{dez})
0xF050:06	SubIndex 006		uint32_t	RO	0x00000000 (0_{dez})
0xF050:07	SubIndex 007		uint32_t	RO	0x00000000 (0_{dez})
0xF050:08	SubIndex 008		uint32_t	RO	0x00000000 (0_{dez})
0xF050:09	SubIndex 009		uint32_t	RO	0x00000000 (0_{dez})
0xF050:0A	SubIndex 010		uint32_t	RO	0x00000000 (0_{dez})
0xF050:0B	SubIndex 011		uint32_t	RO	0x0067E5F0 (6809072_{dez})
0xF050:0C	SubIndex 012		uint32_t	RO	0x00000000 (0_{dez})
0xF050:0D	SubIndex 013		uint32_t	RO	0x00000000 (0_{dez})
0xF050:0E	SubIndex 014		uint32_t	RO	0x00000000 (0_{dez})
0xF050:0F	SubIndex 015		uint32_t	RO	0x00000000 (0_{dez})
0xF050:10	SubIndex 016		uint32_t	RO	0x00000000 (0_{dez})
0xF050:11	SubIndex 017		uint32_t	RO	0x00000000 (0_{dez})
0xF050:12	SubIndex 018		uint32_t	RO	0x00000000 (0_{dez})
0xF050:13	SubIndex 019		uint32_t	RO	0x00000000 (0_{dez})
0xF050:14	SubIndex 020		uint32_t	RO	0x00000000 (0_{dez})
0xF050:15	SubIndex 021		uint32_t	RO	0x00000000 (0_{dez})
0xF050:16	SubIndex 022		uint32_t	RO	0x00000000 (0_{dez})
0xF050:17	SubIndex 023		uint32_t	RO	0x00000000 (0_{dez})
0xF050:18	SubIndex 024		uint32_t	RO	0x00000000 (0_{dez})
0xF050:19	SubIndex 025		uint32_t	RO	0x00000000 (0_{dez})
0xF050:1A	SubIndex 026		uint32_t	RO	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0xF050:1B	SubIndex 027		uint32_t	RO	0x00000000 (0_{dez})
0xF050:1C	SubIndex 028		uint32_t	RO	0x00000000 (0_{dez})
0xF050:1D	SubIndex 029		uint32_t	RO	0x00000000 (0_{dez})
0xF050:1E	SubIndex 030		uint32_t	RO	0x00000000 (0_{dez})
0xF050:1F	SubIndex 031		uint32_t	RO	0x00000000 (0_{dez})
0xF050:20	SubIndex 032		uint32_t	RO	0x00000000 (0_{dez})
0xF050:21	SubIndex 033		uint32_t	RO	0x006703E8 (6751208_{dez})
0xF050:22	SubIndex 034		uint32_t	RO	0x00000000 (0_{dez})
0xF050:23	SubIndex 035		uint32_t	RO	0x00000000 (0_{dez})
0xF050:24	SubIndex 036		uint32_t	RO	0x00670BB8 (6753208_{dez})
0xF050:25	SubIndex 037		uint32_t	RO	0x00000000 (0_{dez})
0xF050:26	SubIndex 038		uint32_t	RO	0x00000000 (0_{dez})
0xF050:27	SubIndex 039		uint32_t	RO	0x00671770 (6756208_{dez})
0xF050:28	SubIndex 040		uint32_t	RO	0x00000000 (0_{dez})
0xF050:29	SubIndex 041		uint32_t	RO	0x00000000 (0_{dez})
0xF050:2A	SubIndex 042		uint32_t	RO	0x00000000 (0_{dez})
0xF050:2B	SubIndex 043		uint32_t	RO	0x00672710 (6760208_{dez})
0xF050:2C	SubIndex 044		uint32_t	RO	0x00000000 (0_{dez})
0xF050:2D	SubIndex 045		uint32_t	RO	0x00000000 (0_{dez})
0xF050:2E	SubIndex 046		uint32_t	RO	0x00000000 (0_{dez})
0xF050:2F	SubIndex 047		uint32_t	RO	0x00000000 (0_{dez})
0xF050:30	SubIndex 048		uint32_t	RO	0x00000000 (0_{dez})
0xF050:31	SubIndex 049		uint32_t	RO	0x00000000 (0_{dez})
0xF050:32	SubIndex 050		uint32_t	RO	0x00000000 (0_{dez})
0xF050:33	SubIndex 051		uint32_t	RO	0x00674650 (6768208_{dez})
0xF050:34	SubIndex 052		uint32_t	RO	0x00000000 (0_{dez})
0xF050:35	SubIndex 053		uint32_t	RO	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0xF050:36	SubIndex 054		uint32_t	RO	0x00000000 (0_{dez})
0xF050:37	SubIndex 055		uint32_t	RO	0x006755F0 (6772208_{dez})
0xF050:38	SubIndex 056		uint32_t	RO	0x00000000 (0_{dez})
0xF050:39	SubIndex 057		uint32_t	RO	0x00000000 (0_{dez})
0xF050:3A	SubIndex 058		uint32_t	RO	0x00000000 (0_{dez})
0xF050:3B	SubIndex 059		uint32_t	RO	0x00000000 (0_{dez})
0xF050:3C	SubIndex 060		uint32_t	RO	0x00000000 (0_{dez})
0xF050:3D	SubIndex 061		uint32_t	RO	0x00000000 (0_{dez})
0xF050:3E	SubIndex 062		uint32_t	RO	0x00000000 (0_{dez})
0xF050:3F	SubIndex 063		uint32_t	RO	0x00000000 (0_{dez})
0xF050:40	SubIndex 064		uint32_t	RO	0x00000000 (0_{dez})

2.2 Objects of module DeviceMain

Overview of Objects

0x2C0E | DeviceMain device data cmd
0x2C0F | DeviceMain production settings [▶ 25]
0x2C1E | DeviceMain error counter [▶ 27]
0x2C1F | DeviceMain info [▶ 28]

0x2C0F | DeviceMain production settings

Index	Name	Meaning	Data type	Flags	Default
0x2C0F:0	DeviceMain production settings		uint8_t	RO	0x80 (128_{dez})
0x2C0F:01	DC link voltage scaling gain	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:02	DC link voltage offset	Unit: 0,1 V Min: 0xFE0C (-500_{dez}) Max: 0x01F4 (500_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:03	Mains voltage scaling gain 1	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:04	Mains voltage offset 1	Unit: 0,1 V Min: 0xFE0C (-500_{dez}) Max: 0x01F4 (500_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:05	Mains voltage scaling gain 2	Unit: m Min: 0x0320 (800_{dez})	int16_t	RW	0x03E8 (1000_{dez})

Index	Name	Meaning	Data type	Flags	Default
		Max: 0x04B0 (1200_{dez})			
0x2C0F:06	Mains voltage offset 2	Unit: 0,1 V Min: 0xFE0C (-500_{dez}) Max: 0x01F4 (500_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:07	Mains voltage scaling gain 3	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:08	Mains voltage offset 3	Unit: 0,1 V Min: 0xFE0C (-500_{dez}) Max: 0x01F4 (500_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:09	Phase current scaling gain 1	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:0A	Phase current offset 1	Unit: mA Min: 0xEC78 (-5000_{dez}) Max: 0x1388 (5000_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:0B	Phase current scaling gain 2	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:0C	Phase current offset 2	Unit: mA Min: 0xEC78 (-5000_{dez}) Max: 0x1388 (5000_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:0D	Phase current scaling gain 3	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:0E	Phase current offset 3	Unit: mA Min: 0xEC78 (-5000_{dez}) Max: 0x1388 (5000_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:0F	Phase current scaling gain 4	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:10	Phase current offset 4	Unit: mA Min: 0xEC78 (-5000_{dez}) Max: 0x1388 (5000_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:11	Phase current scaling gain 5	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:12	Phase current offset 5	Unit: mA Min: 0xEC78 (-5000_{dez}) Max: 0x1388 (5000_{dez})	int16_t	RW	0x0000 (0_{dez})
0x2C0F:13	Phase current scaling gain 6	Unit: m Min: 0x0320 (800_{dez}) Max: 0x04B0 (1200_{dez})	int16_t	RW	0x03E8 (1000_{dez})
0x2C0F:14	Phase current offset 6	Unit: mA Min: 0xEC78 (-5000_{dez}) Max: 0x1388 (5000_{dez})	int16_t	RW	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C0F:15	reserved		OCTET-STRING[22]	RO	{0}
0x2C0F:80	Checksum		uint16_t	RO	0x0000 (0_{dez})

0x2C1E | DeviceMain error counter

This object contains internal diagnosis informations.

Index	Name	Meaning	Data type	Flags	Default
0x2C1E:0	DeviceMain error counter		uint8_t	RO	0x16 (22_{dez})
0x2C1E:01	Motor overload shut down	This object is a counter, which increments each diagnosis message of type 'Motor overload shut down'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:02	Motor overtemperature shut down	This object is a counter, which increments each diagnosis message of type 'Motor overtemperature shut down'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:03	Drive overtemperature shut down	This object is a counter, which increments each diagnosis message of type 'Drive overtemperature shut down'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:04	Control voltage error	This object is a counter, which increments each diagnosis message of type 'Control voltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:05	Feedback error	This object is a counter, which increments each diagnosis message of type 'Feedback error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:06	Commutation error	This object is a counter, which increments each diagnosis message of type 'Commutation error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:07	Overcurrent error	This object is a counter, which increments each diagnosis message of type 'Overcurrent error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:08	Overvoltage error	This object is a counter, which increments each diagnosis message of type 'Overvoltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:09	Undervoltage error	This object is a counter, which increments each diagnosis message of type 'Undervoltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0A	Power supply phase error	This object is a counter, which increments each diagnosis message of type 'Power supply phase error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0B	Communication error	This object is a counter, which increments each diagnosis message of type 'Communication error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0C	TorqueOff with emergency brake	This object is a counter, which increments each diagnosis message of type 'TorqueOff with emergency brake'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0D	Motor connection error	This object is a counter, which increments each diagnosis message of type 'Motor connection error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0E	Safety STO error	This object is a counter, which increments each diagnosis message of type 'Safety STO error'.	uint16_t	RO	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C1E:0F	Overspeed error	This object is a counter, which increments each diagnosis message of type 'Overspeed error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:10	Motor Brake connection error	This object is a counter, which increments each diagnosis message of type 'Motor Brake connection error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:11	DC link connection overcurrent error	This object is a counter, which increments each diagnosis message of type 'DC link connection overcurrent error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:12	Overvoltage with reaction torque off error	This object is a counter, which increments each diagnosis message of type 'Overvoltage with reaction torque off error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:13	Mains overvoltage error	This object is a counter, which increments each diagnosis message of type 'Mains overvoltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:14	Mains voltage over chopper threshold error	This object is a counter, which increments each diagnosis message of type 'Mains voltage over chopper threshold error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:15	Brake resistor not found error	This object is a counter, which increments each diagnosis message of type 'Brake resistor not found error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:16	Brake resistor overloaded error	This object is a counter, which increments each diagnosis message of type 'Brake resistor overloaded error'.	uint16_t	RO	0x0000 (0_{dez})

0x2C1F | DeviceMain info

Index	Name	Meaning	Data type	Flags	Default
0x2C1F:0	DeviceMain info		uint8_t	RO	0x01 (1_{dez})
0x2C1F:01	Operating time drive control		uint32_t	RO	0x00000000 (0_{dez})

2.3 Objects of module PowerManagementAC1

Overview of Objects

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0x1A00 | PowerManagementAC1 TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	PowerManagementAC1 TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | PowerManagementAC1 statusword

This object cointains the status of the module

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	PowerManagementAC1 statusword		uint8_t	RO	0x01 (1_{dez})
0x2C00:01	Statusword	Status bits: - Bit 0: Ready to operate dc output 1 - Bit 1: Error active - Bit 2: Warning active - Bit 3: Reserved - Bit 4: Brake chopper active - Bit 5: Fan active - Bit 6: Charging active - Bit 7: Dc out 1 active - Bit 8 - 9: Reserved - Bit 10: Dc out 2 active - Bit 11: Ready to operate dc output 2 - Bit 12: Energy recovery active - Bit 13 - 15: Reserved	uint16_t	RO	0x0000 (0_{dez})

0x2C02 | PowerManagementAC1 actual voltages

This object contains the actual voltages

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	PowerManagementAC1 actual voltages		uint8_t	RO	0x02 (2_{dez})
0x2C02:01	Actual mains voltage	Actual RMS-value of mains voltage Unit: V	float	RO	0.0
0x2C02:02	Actual mains L1-N voltage	Actual value of mains voltage L1 to N. Unit: V	float	RO	0.0

0x2C04 | PowerManagementAC1 actual data

This object contains the actual data

Index	Name	Meaning	Data type	Flags	Default
0x2C04:0	PowerManagementAC1 actual data		uint8_t	RO	0x80 (128_{dez})
0x2C04:01	Actual mains supply frequency (sum of connected phases)	Unit: Hz	uint8_t	RO	0x00 (0_{dez})
0x2C04:02	Actual mains supply type	allowed values: • 0: AC 3 phases • 1: AC 1 phase	uint8_t	RO	0x00 (0_{dez})
0x2C04:80	Actual brake resistor load utilization	Load utilization at brake resistor. Unit: %	uint16_t	RO	0x0000 (0_{dez})

0x2C05 | PowerManagementAC1 actual diagnostics

This object contains the diagnostic values

Index	Name	Meaning	Data type	Flags	Default
0x2C05:0	PowerManagementAC1 actual diagnostics		uint8_t	RO	0x02 (2_{dez})
0x2C05:01	DC link state machine	Actual value of Dc link state machine allowed values: • 0: WaitingForCharging • 1: ChargingReady • 2: CheckDcLinkConnection • 3: DcLinkOk • 4: RtO_Run • 5: RtO_ShortPowerLoss • 6: RtO_PowerLoss • 7: RtO_ChargeInOperation • 8: Error_WaitingForDisablingAxis • 9: Error_TorqueOff • 10: Discharge_DcLink • 11: Charging • 50: ForcingModeEntry • 51: ForcingMode • 52: ForcingModeEnd	uint8_t	RO	0x00 (0_{dez})
0x2C05:02	Umains state machine	Actual value of Umains state allowed values: • 0: UmainsOff • 1: UmainsOk • 2: UmainsLoss • 3: UmainsToLow • 4: UmainsToHigh • 5: PowerSupplyTypeDetection	uint8_t	RO	0x00 (0_{dez})

0x2C07 | PowerManagementAC1 standard parameters

This object shows the standard parameter of this module

Index	Name	Meaning	Data type	Flags	Default
0x2C07:0	PowerManagementAC1 standard parameters		uint8_t	RO	0x60 (96_{dez})
0x2C07:01	Mains type	This parameter configures the mains type. allowed values: • 1: AC 1 phase • 2: DC	uint8_t	RW	0x01 (1_{dez})
0x2C07:03	Mains voltage	Connected mains RMS-voltage. Unit: 0,1 V Min: 0x00B4 (180_{dez}) Max: 0x0960 (2400_{dez})	uint16_t	RW	0x08FC (2300_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C07:04	Mains voltage max tolerance	Positive tolerance of parametrized mains voltage. Unit: % Min: 0x0000 (0_{dez}) Max: 0x0032 (50_{dez})	uint16_t	RW	0x000A (10_{dez})
0x2C07:05	Mains voltage min tolerance	Negative tolerance of parametrized mains voltage. Unit: % Min: 0x0000 (0_{dez}) Max: 0x0032 (50_{dez})	uint16_t	RW	0x0019 (25_{dez})
0x2C07:20	DC link max voltage	Threshold for dc link overvoltage error. Unit: 0,1 V Min: 0x0000 (0_{dez}) Max: 0x1068 (4200_{dez})	uint16_t	RW	0x1068 (4200_{dez})
0x2C07:21	DC link min voltage	Threshold for dc link undervoltage error. Unit: 0,1 V Min: 0x0000 (0_{dez}) Max: 0x1068 (4200_{dez})	uint16_t	RW	0x0000 (0_{dez})
0x2C07:30	Brake resistor select mode	This parameter configures the brake resistor. allowed values: • 0: No brake resistor • 1: Internal brake resistor • 2: External brake resistor • 5: Use internal brake resistor if available	uint8_t	RW	0x05 (5_{dez})
0x2C07:32	Brake resistor power warning threshold	Percentage value of the maximum brake resistor power. Unit: % Min: 0x0000 (0_{dez}) Max: 0x0064 (100_{dez})	uint16_t	RW	0x005A (90_{dez})
0x2C07:33	External brake resistor value	Resistance value of external brake resistor. Unit: 0,1 Ω Min: 0x014A (330_{dez}) Max: 0x07D0 (2000_{dez})	uint16_t	RW	0x014A (330_{dez})
0x2C07:34	External brake resistor continuous power	Threshold of brake resistor continuous power, above an error is generated. Unit: W Min: 0x0000 (0_{dez}) Max: 0x0640 (1600_{dez})	uint16_t	RW	0x0000 (0_{dez})
0x2C07:35	External brake resistor time constant 1	Unit: s Min: -3.40282E+38 Max: 3.40282E+38	float	RW	0.0
0x2C07:36	External brake resistor time constant 2	Unit: s Min: -3.40282E+38 Max: 3.40282E+38	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C07:37	External brake resistor partial fraction factor	Unit: % Min: -3.40282E+38 Max: 3.40282E+38	float	RW	0.0
0x2C07:60	Controlword	Controlword for internal purpose. allowed values: • 0: For multiple selection, set integer value • 2: Disable brake resistor check	uint16_t	RW	0x0000 (0_{dez})

0x2C09 | PowerManagementAC1 calculated parameters

This object is an extension of the standard parameter

Index	Name	Meaning	Data type	Flags	Default
0x2C09:0	PowerManagementAC1 calculated parameters		uint8_t	RO	0x31 (49_{dez})
0x2C09:01	Mains voltage max threshold	Maximal RMS-value of mains voltage. Unit: 0,1 V	uint16_t	RO	0x0000 (0_{dez})
0x2C09:02	Mains voltage min threshold	Minimal RMS-value of mains voltage. Unit: 0,1 V	uint16_t	RO	0x0000 (0_{dez})
0x2C09:20	DC link min voltage	Minimal DC link voltage for device to be ready to operate. Unit: 0,1 V	uint16_t	RO	0x0000 (0_{dez})
0x2C09:30	Brake chopper switchOn voltage threshold	Voltage threshold, above which the brake chopper is switched on. Unit: 0,1 V	uint16_t	RO	0x0000 (0_{dez})
0x2C09:31	Brake chopper switchOff voltage threshold	Voltage threshold, below which the brake chopper is switched off. Unit: 0,1 V	uint16_t	RO	0x0000 (0_{dez})

0x2C0A | PowerManagementAC1 device info

Information about operation of the module

Index	Name	Meaning	Data type	Flags	Default
0x2C0A:0	PowerManagementAC1 device info		uint8_t	RO	0x35 (53_{dez})
0x2C0A:22	DC link max voltage	Maximal DC link voltage threshold supported by the device. Unit: 0,1 V	uint16_t	RO	0x1068 (4200_{dez})
0x2C0A:30	Internal brake resistor value	Resistance value of the internal brake resistor. Unit: 0,1 Ω	uint16_t	RO	0x014A (330_{dez})
0x2C0A:31	Internal brake resistor max power	Maximal continuous power of the internal brake resistor. Unit: W	uint16_t	RO	0x0050 (80_{dez})
0x2C0A:33	Internal brake resistor time constant 1	Unit: s Min: 0.0 Max: 3.40282E+38	float	RO	0.315

Index	Name	Meaning	Data type	Flags	Default
0x2C0A:34	Internal brake resistor time constant 2	Unit: s Min: 0.0 Max: 3.40282E+38	float	RO	61.9
0x2C0A:35	Internal brake resistor partial fraction factor	Unit: % Min: 0.0 Max: 3.40282E+38	float	RO	3.12

0x6079 | DC link circuit voltage

Index	Name	Meaning	Data type	Flags	Default
0x6079:0	DC link circuit voltage	This object provides the actual value of the DC link voltage of the drive device. Unit: mV	uint32_t	RO	0x00000000 (0_{dez})

2.4 Objects of module AxisMainAX1

Overview of Objects

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0x1600 | [SG] AxisMainAX1 RxPDO-Map Outputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1600:0	[SG] AxisMainAX1 RxPDO-Map Outputs		uint8_t	RW	0x00 (0_{dez})

0x1A00 | [SG] AxisMainAX1 TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] AxisMainAX1 TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] AxisMain parameters

This object contains parameters to manage the automatic motor brake control.

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] AxisMain parameters		uint8_t	RO	0x14 (20_{dez})
0x2C00:01	Motor brake type	Activates drive internal automatic brake control. allowed values: • 0: No_motor_brake • 1: Currentless_locked_motor_brake	int16_t	RW	0x0000 (0_{dez})
0x2C00:02	Motor brake usage	Configures the error reaction behavior of the motor brake. allowed values: • 0: Standard_holding_brake • 1: Holding_brake_Emergency_brake	int16_t	RW	0x0000 (0_{dez})
0x2C00:03	Drive on delay time	With the transition of the PDS state machine to "operation enabled" "drive on delay time" is started. The drive follows the command values after the "drive on delay time" has elapsed. The motor brake management uses this time to unlock the motor brake before motion is enabled. Unit: ms Min: 0x00000000 (0_{dez}) Max: 0x00001388 (5000_{dez})	uint32_t	RW	0x00000064 (100_{dez})
0x2C00:04	Drive off delay time	After "operation enabled" of the PDS state machine is removed and the axis is in the standstill window, the locking of the brake is initiated and the drive off delay time is started. The torque/force remains activated in the drive until the configured drive off delay time is elapsed. The motor brake management uses this time to lock the motor brake before the torque/force is switched off.. Unit: ms	uint32_t	RW	0x00000096 (150_{dez})

Index	Name	Meaning	Data type	Flags	Default
		Min: 0x00000000 (0_{dez}) Max: 0x00001388 (5000_{dez})			
0x2C00:07	Motor brake force	Force drive internal brake. allowed values: • 0: Release_force • 1: Force_lock • 2: Force_unlock	int16_t	RW	0x0000 (0_{dez})
0x2C00:14	Statusword Bit 8 Assignment	This object defines the value signaled on bit 8 of the drive status word. allowed values: • 0: NotAssigned • 1: SignalsNotReadyToEnable	int8_t	RW	0x00 (0_{dez})

0x2C01 | [SG] AxisMain actual values

This object contains manufacturer specific actual values from the module AxisMain.

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] AxisMain actual values		uint8_t	RO	0x09 (9_{dez})
0x2C01:02	IGBT temperature	This object provides the actual power stage temperature of this channel. Unit: °C	int16_t	RO	0x0000 (0_{dez})
0x2C01:04	Output stage safety state	This object provides a diagnosis info about the actual state of the output stage. allowed values: • 0: safe_state • 1: ready_state	uint8_t	RO	0x00 (0_{dez})
0x2C01:07	Actual motor brake state	The actual motor brake state. allowed values: • 0: Motor_brake_locked • 1: Motor_brake_unlocked	uint8_t	RO	0x00 (0_{dez})
0x2C01:08	Current error reaction	The actual processed error reaction. allowed values: • 0: Reaction_None • 1: Reaction_NC_Handling • 2: Reaction_Closed_loop_ramp • 3: Reaction_Open_loop_ramp • 4: Reaction_ShortedCoils_or_DC • 5: Reaction_Torque_Off	uint32_t	RO	0x00000000 (0_{dez})
0x2C01:09	Actual motor brake state with delay time	The actual motor brake state including the drive on/off delay time. allowed values: • 0: Motor_brake_locked • 1: Motor_brake_unlocked	uint8_t	RO	0x00 (0_{dez})

0x2C02 | [SG] AxisMain parameters positive limit switch

This object contains parameters to configure a positive limit switch.

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] AxisMain parameters positive limit switch		uint8_t	RO	0x03 (3_{dez})
0x2C02:01	Configuration	This object configures the type of the limit switch. allowed values: • 0: No_limit_switch • 1: Normally_closed • 2: Normally_open	uint8_t	RW	0x00 (0_{dez})
0x2C02:02	Input number	This object configures the digital input number of the limit switch. allowed values: • 0: Digital_input_1 • 1: Digital_input_2 • 2: Digital_input_3 • 3: Digital_input_4 • 4: Digital_input_5 • 5: Digital_input_6 • 6: Digital_input_7 • 7: Digital_input_8	uint8_t	RW	0x02 (2_{dez})
0x2C02:03	Reaction	This object configures the drive reaction, if it detects a limit switch. allowed values: • 0: EStop_with_error • 2: Axis_halt_with_warning	uint8_t	RW	0x00 (0_{dez})

0x2C03 | [SG] AxisMain parameters negative limit switch

This object contains parameters to configure a negative limit switch.

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] AxisMain parameters negative limit switch		uint8_t	RO	0x03 (3_{dez})
0x2C03:01	Configuration	This object configures the type of the limit switch. allowed values: • 0: No_limit_switch • 1: Normally_closed • 2: Normally_open	uint8_t	RW	0x00 (0_{dez})
0x2C03:02	Input number	This object configures the digital input number of the limit switch. allowed values: • 0: Digital_input_1 • 1: Digital_input_2 • 2: Digital_input_3 • 3: Digital_input_4 • 4: Digital_input_5	uint8_t	RW	0x03 (3_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 5: Digital_input_6 • 6: Digital_input_7 • 7: Digital_input_8			
0x2C03:03	Reaction	This object configures the drive reaction, if it detects a limit switch. allowed values: • 0: EStop_with_error • 2: Axis_halt_with_warning	uint8_t	RW	0x00 (0_{dez})

0x2C04 | [SG] AxisMain parameters error manager

This object contains parameters to configure the error manager.

Index	Name	Meaning	Data type	Flags	Default
0x2C04:0	[SG] AxisMain parameters error manager		uint8_t	RO	0x12 (18_{dez})
0x2C04:01	Error reaction delay time	This object shall indicate the delay time if an error reaction is performed in the PDS. Unit: s Min: 0.0 Max: 3000.0	float	RW	0.0
0x2C04:02	Choose force reaction	This object shall indicate the forced error reaction. allowed values: • -2: ShortedCoils_or_DC • -1: NC_Handling • 0: Torque_Off • 2: Closed_loop_ramp	int16_t	RW	0x0000 (0_{dez})
0x2C04:03	Force reaction	This object is to perform the forced error reaction. Min: 0x00 (0_{dez}) Max: 0x01 (1_{dez})	BOOLEAN	RW	0x00 (0_{dez})
0x2C04:12	Maximum torque off delay time	After "torque off" error is thrown, the maximum torque off delay time is started. After the maximum torque off delay time is elapsed, the locking of the brake is initiated and the torque/force is disabled independend of the actual motor speed. Unit: s Min: 0.0 Max: 100.0	float	RW	10.0

0x2C05 | [SG] AxisMain scaling index

This object contains scaling informations for objects with not fixed scaling.

Index	Name	Meaning	Data type	Flags	Default
0x2C05:0	[SG] AxisMain scaling index		uint8_t	RO	0x0B (11_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C05:01	Scaling index position NC	Scaling of DS402/integer position values. allowed values: • 4624: Scale_360Degree_as_2Pow16 • 4625: Scale_360Degree_as_2Pow17 • 4626: Scale_360Degree_as_2Pow18 • 4627: Scale_360Degree_as_2Pow19 • 4628: Scale_360Degree_as_2Pow20 • 4629: Scale_360Degree_as_2Pow21 • 4630: Scale_360Degree_as_2Pow22 • 4631: Scale_360Degree_as_2Pow23 • 4632: Scale_360Degree_as_2Pow24 • 4633: Scale_360Degree_as_2Pow25 • 4634: Scale_360Degree_as_2Pow26 • 4635: Scale_360Degree_as_2Pow27 • 4636: Scale_360Degree_as_2Pow28 • 4637: Scale_360Degree_as_2Pow29 • 4638: Scale_360Degree_as_2Pow30 • 4639: Scale_360Degree_as_2Pow31 • 4640: Scale_360Degree_as_2Pow32 • 6656: Scale_1_Micrometer • 6657: Scale_100_Nanometer • 6658: Scale_10_Nanometer • 6659: Scale_1_Nanometer • 6660: Scale_100_Picometer • 6661: Scale_10_Picometer • 6662: Scale_1_Picometer	uint32_t	RW	0x00001214 (4628_{dez})
0x2C05:02	Scaling index velocity NC	Scaling of DS402/integer velocity values. allowed values: • 8192: Scale_0dot0001_rpm • 8448: Scale_0dot1_um_per_Second	uint32_t	RW	0x00002000 (8192_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C05:03	Scaling index acceleration	Scaling of acceleration values. allowed values: • 12288: Scale_1_Degree_per_Second_squared • 12544: Scale_1_mm_per_Second_squared	uint32_t	RW	0x00003000 (12288_{dez})
0x2C05:04	Scaling index jerk	Scaling of jerk values. allowed values: • 16384: Scale_100_Degree_per_Second_cubed • 16640: Scale_100_mm_per_Second_cubed	uint32_t	RW	0x00004000 (16384_{dez})
0x2C05:05	Scaling index torque or force	Scaling of torque or force values. allowed values: • 20480: Scale_1_Nm • 20736: Scale_1_N	uint32_t	RW	0x00005000 (20480_{dez})
0x2C05:06	Scaling index position NC per second	Scaling of derivative DS402/integer position values. allowed values: • 25104: Scale_360Degree_as_2Pow16_per_Second • 25105: Scale_360Degree_as_2Pow17_per_Second • 25106: Scale_360Degree_as_2Pow18_per_Second • 25107: Scale_360Degree_as_2Pow19_per_Second • 25108: Scale_360Degree_as_2Pow20_per_Second • 25109: Scale_360Degree_as_2Pow21_per_Second • 25110: Scale_360Degree_as_2Pow22_per_Second • 25111: Scale_360Degree_as_2Pow23_per_Second • 25112: Scale_360Degree_as_2Pow24_per_Second • 25113: Scale_360Degree_as_2Pow25_per_Second	uint32_t	RW	0x00006214 (25108_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 25114: Scale_360Degree_as_2Pow26_per_Second • 25115: Scale_360Degree_as_2Pow27_per_Second • 25116: Scale_360Degree_as_2Pow28_per_Second • 25117: Scale_360Degree_as_2Pow29_per_Second • 25118: Scale_360Degree_as_2Pow30_per_Second • 25119: Scale_360Degree_as_2Pow31_per_Second • 25120: Scale_360Degree_as_2Pow32_per_Second • 27136: Scale_1_Micrometer_per_Second • 27137: Scale_100_Nanometer_per_Second • 27138: Scale_10_Nanometer_per_Second • 27139: Scale_1_Nanometer_per_Second • 27140: Scale_100_Picometer_per_Second • 27141: Scale_10_Picometer_per_Second • 27142: Scale_1_Picometer_per_Second			
0x2C05:07	Scaling index velocity NC per second	Scaling of derivative DS402/integer velocity values. allowed values: • 28672: Scale_0dot0001_rpm_per_Second • 28928: Scale_0dot1_um_per_Second_squared	uint32_t	RW	0x00007000 (28672_{dez})
0x2C05:08	Scaling index velocity native	Scaling of floating point velocity values. allowed values: • 32768: Scale_rpm • 33024: Scale_m_per_Second	uint32_t	RW	0x00008000 (32768_{dez})
0x2C05:09	Scaling index velocity proportional gain	Scaling of velocity proportional gain. allowed values: • 36864: Scale_Nm_per_rad_per_Second	uint32_t	RW	0x00009000 (36864_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 37120: Scale_N_per_rad_per_Second			
0x2C05:0A	Scaling index spring rate	Scaling of a spring rate. allowed values: • 40960: Scale_Nm_per_rad • 41216: Scale_N_per_m	uint32_t	RW	0x0000A000 (40960_{dez})
0x2C05:0B	Scaling index inertia	Scaling of (moment of) inertia. allowed values: • 45056: Scale_kg_m2 • 45312: Scale_kg	uint32_t	RW	0x0000B000 (45056_{dez})

0x2C06 | [SG] AxisMain command

Execute Commands on AxisMain

Index	Name	Meaning	Data type	Flags	Default
0x2C06:0	[SG] AxisMain command		uint8_t	RO	0x03 (3_{dez})

0x2C07 | [SG] AxisMain parameters position offset

This object contains parameters to manage the position offset configuration.

Index	Name	Meaning	Data type	Flags	Default
0x2C07:0	[SG] AxisMain parameters position offset		uint8_t	RO	0x05 (5_{dez})
0x2C07:01	Offset position actual value	This object provides the offset which will be added on the position actual value. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RO	0x00000000 (0_{dez})
0x2C07:02	Offset position actual value source	This object configures the memory source of the "Offset position actual value". allowed values: • 0: offset_disabled • 1: encoder_memory • 2: drive_memory	uint16_t	RW	0x0000 (0_{dez})
0x2C07:05	Offset position actual value active source	This object displays the active source of the "Offset position actual value". allowed values: • 0: OffsetDisabled • 1: EncoderMemory • 2: DriveMemory • 3: ManufacturerCalibration	uint16_t	RO	0x0000 (0_{dez})

0x2C08 | [SG] AxisMain parameters encoder direction

This object contains parameters to adjust the polarity of the connected encoders.

Index	Name	Meaning	Data type	Flags	Default
0x2C08:0	[SG] AxisMain parameters encoder direction		uint8_t	RO	0x02 (2_{dez})
0x2C08:01	Secondary encoder direction	This object contains parameters to adjust the polarity of the connected encoders. allowed values: • 0: not_inverted • 1: inverted	uint8_t	RW	0x00 (0_{dez})
0x2C08:02	Primary encoder direction	allowed values: • 0: not_inverted • 1: inverted	uint8_t	RW	0x00 (0_{dez})

0x2C09 | [SG] AxisMain parameters hardware enable

This object configures a digital input as hardware enable.

Index	Name	Meaning	Data type	Flags	Default
0x2C09:0	[SG] AxisMain parameters hardware enable		uint8_t	RO	0x03 (3_{dez})
0x2C09:01	Configuration	This object configures the type of the hardware enable. allowed values: • 0: No_hardware_enable • 1: High_active	uint8_t	RW	0x00 (0_{dez})
0x2C09:02	Input number	This object configures the digital input number of the hardware enable. allowed values: • 0: Digital_input_1 • 1: Digital_input_2 • 2: Digital_input_3 • 3: Digital_input_4 • 4: Digital_input_5 • 5: Digital_input_6 • 6: Digital_input_7 • 7: Digital_input_8	uint8_t	RW	0x02 (2_{dez})
0x2C09:03	Disable reaction	This object configures the reaction on a disable command through the hardware enable. allowed values: • 0: Disable_reaction_torque_off • 1: Disable_reaction_closed_loop_ramp	uint8_t	RW	0x01 (1_{dez})

0x2C1E | [SG] AxisMain error counter

This object contains internal diagnosis informations.

Index	Name	Meaning	Data type	Flags	Default
0x2C1E:0	[SG] AxisMain error counter		uint8_t	RO	0x16 (22_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C1E:01	Motor overload shut down	This object is a counter, which increments each diagnosis message of type 'Motor overload shut down'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:02	Motor overtemperature shut down	This object is a counter, which increments each diagnosis message of type 'Motor overtemperature shut down'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:03	Drive overtemperature shut down	This object is a counter, which increments each diagnosis message of type 'Drive overtemperature shut down'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:04	Control voltage error	This object is a counter, which increments each diagnosis message of type 'Control voltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:05	Feedback error	This object is a counter, which increments each diagnosis message of type 'Feedback error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:06	Commutation error	This object is a counter, which increments each diagnosis message of type 'Commutation error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:07	Overcurrent error	This object is a counter, which increments each diagnosis message of type 'Overcurrent error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:08	Overvoltage error	This object is a counter, which increments each diagnosis message of type 'Overvoltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:09	Undervoltage error	This object is a counter, which increments each diagnosis message of type 'Undervoltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0A	Power supply phase error	This object is a counter, which increments each diagnosis message of type 'Power supply phase error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0B	Communication error	This object is a counter, which increments each diagnosis message of type 'Communication error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0C	TorqueOff with emergency brake	This object is a counter, which increments each diagnosis message of type 'TorqueOff with emergency brake'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0D	Motor connection error	This object is a counter, which increments each diagnosis message of type 'Motor connection error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0E	Safety STO error	This object is a counter, which increments each diagnosis message of type 'Safety STO error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:0F	Overspeed error	This object is a counter, which increments each diagnosis message of type 'Overspeed error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:10	Motor Brake connection error	This object is a counter, which increments each diagnosis message of type 'Motor Brake connection error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:11	DC link connection overcurrent error	This object is a counter, which increments each diagnosis message of type 'DC link connection overcurrent error'.	uint16_t	RO	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C1E:12	Overvoltage with reaction torque off error	This object is a counter, which increments each diagnosis message of type 'Overvoltage with reaction torque off error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:13	Mains overvoltage error	This object is a counter, which increments each diagnosis message of type 'Mains overvoltage error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:14	Mains voltage over chopper threshold error	This object is a counter, which increments each diagnosis message of type 'Mains voltage over chopper threshold error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:15	Brake resistor not found error	This object is a counter, which increments each diagnosis message of type 'Brake resistor not found error'.	uint16_t	RO	0x0000 (0_{dez})
0x2C1E:16	Brake resistor overloaded error	This object is a counter, which increments each diagnosis message of type 'Brake resistor overloaded error'.	uint16_t	RO	0x0000 (0_{dez})

0x2C1F | [SG] AxisMain info

This object contains internal diagnosis informations.

Index	Name	Meaning	Data type	Flags	Default
0x2C1F:0	[SG] AxisMain info		uint8_t	RO	0x01 (1_{dez})
0x2C1F:01	Operating time power stage	This object contains the operating time of the power stage (power stage enabled time). Unit: s	uint32_t	RO	0x00000000 (0_{dez})

0x583E | [SG] TxPDO Data invalid

This object shall indicate if the encoder measured values are in invalid state.

Index	Name	Meaning	Data type	Flags	Default
0x583E:0	[SG] TxPDO Data invalid		uint8_t	RO	0x04 (4_{dez})
0x583E:01	Velocity sensor actual value invalid	This object shall indicate if the velocity encoder measured value is in invalid State.	BOOLEAN	RO	0x00 (0_{dez})
0x583E:02	Position actual value invalid	This object shall indicate if the position encoder measured value is in invalid state.	BOOLEAN	RO	0x00 (0_{dez})
0x583E:03	1st Additional position actual value invalid	This object shall indicate if the first position encoder measured value is in invalid state.	BOOLEAN	RO	0x00 (0_{dez})
0x583E:04	2nd Additional position actual value invalid	This object shall indicate if the second position encoder measured value is in invalid state.	BOOLEAN	RO	0x00 (0_{dez})

0x583F | [SG] Error code

Index	Name	Meaning	Data type	Flags	Default
0x583F:0	[SG] Error code	This object shall provide the text id of the last DiagMessage of type error, which occurred in this axis.	uint16_t	RO	0x0000 (0_{dez})

0x5840 | [SG] Controlword

Index	Name	Meaning	Data type	Flags	Default
0x5840:0	[SG] Controlword	This object shall indicate the received command controlling the PDS FSA. - Bit 0: Switch on - Bit 1: Enable voltage - Bit 2: Quick stop - Bit 3: Enable operation - Bit 4: reserved - Bit 5-6: Output cycle counter (see also Object 0x60D9 and 0x60DA) - Bit 7: Fault reset - Bit 8: Halt - Bit 9-15: reserved	uint16_t	RO	0x0000 (0_{dez})

0x5841 | [SG] Statusword

Index	Name	Meaning	Data type	Flags	Default
0x5841:0	[SG] Statusword	This object shall provide the status of the PDS FSA. - Bit 0: Ready to switch on - Bit 1: Switched on - Bit 2: Operation enabled - Bit 3: Fault - Bit 4: Voltage enabled - Bit 5: Quick stop - Bit 6: Switch on disabled - Bit 7: Warning - Bit 8: reserved - Bit 9: Remote - Bit 10: Status toggle (see also Object 0x60D9 and 0x60DA) - Bit 11: Internal limit active - Bit 12: Drive follows the command value (cyclic modes of operation) - Bit 13: Input cycle counter (see also Object 0x60D9 and 0x60DA) - Bit 14: reserved - Bit 15: reserved	uint16_t	RO	0x0000 (0_{dez})

0x585A | [SG] Quick stop option code

Index	Name	Meaning	Data type	Flags	Default
0x585A:0	[SG] Quick stop option code	This object shall indicate what action is performed when the quick stop function is executed. allowed values: • -1: Disable_quick_stop • 2: Slow_down_on_quick_stop_ramp_and_transit_into_switch_on_disabled • 6: Slow_down_on_quick_stop_ramp_and_stay_in_quick_stop_active	int16_t	RW	0x0002 (2_{dez})

0x585E | [SG] Fault reaction option code

Index	Name	Meaning	Data type	Flags	Default
0x585E:0	[SG] Fault reaction option code	This object shall indicate which action is performed when fault is detected in the PDS. allowed values: • -2: ShortedCoils_or_DC • -1: NC_Handling • 0: Torque_Off • 2: Closed_loop_ramp	int16_t	RW	0x0002 (2_{dez})

0x5860 | [SG] Modes of operation

Index	Name	Meaning	Data type	Flags	Default
0x5860:0	[SG] Modes of operation	This object shall indicate the requested operation mode. allowed values: • 0: No_mode_change • 8: Cyclic_synchronous_position_mode_CSP • 9: Cyclic_synchronous_velocity_mode_CSV • 10: Cyclic_synchronous_torque_mode_CST • 11: Cyclic_synchronous_torque_mode_with_commutation_angle_CSTCA	int8_t	RW	0x00 (0_{dez})

0x5861 | [SG] Modes of operation display

Index	Name	Meaning	Data type	Flags	Default
0x5861:0	[SG] Modes of operation display	This object shall provide the actual operation mode. allowed values: • 0: No_mode_change • 8: Cyclic_synchronous_position_mode_CSP • 9: Cyclic_synchronous_velocity_mode_CSV • 10: Cyclic_synchronous_torque_mode_CST • 11: Cyclic_synchronous_torque_mode_with_commutation_angle_CSTCA	int8_t	RO	0x00 (0_{dez})

0x5864 | [SG] Position actual value

Index	Name	Meaning	Data type	Flags	Default
0x5864:0	[SG] Position actual value	This object shall provide the actual value of the position measurement device. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RO	0x00000000 (0_{dez})

0x586C | [SG] Velocity actual value

Index	Name	Meaning	Data type	Flags	Default
0x586C:0	[SG] Velocity actual value	This object shall provide the actual value of the velocity measurement device. Unit: depends on value of Object (default = x * 0.0001 rpm) 0x3005/02 (Ch A)	int32_t	RO	0x00000000 (0_{dez})

0x587B | [SG] Position range limit

This object shall indicate the configured maximal and minimal position range limits. It shall limit the numerical range of the input value.

Index	Name	Meaning	Data type	Flags	Default
0x587B:0	[SG] Position range limit		uint8_t	RO	0x02 (2_{dez})
0x587B:01	Min position range limit	The minimum position range limit. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RW	0x80000000 (-2147483648$_{dez}$)
0x587B:02	Max position range limit	The maximum position range limit. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RW	0x7FFFFFFF (2147483647$_{dez}$)

0x588F | [SG] Position encoder resolution

This object shall indicate the configured encoder increments and number of motor revolutions.

Index	Name	Meaning	Data type	Flags	Default
0x588F:0	[SG] Position encoder resolution		uint8_t	RO	0x02 (2_{dez})
0x588F:01	Encoder increments	Position encoder resolution numerator.	uint32_t	RW	0x00040000 (262144_{dez})
0x588F:02	Motor revolutions	Position encoder resolution denominator.	uint32_t	RW	0x00000001 (1_{dez})

0x5891 | [SG] Gear ratio

This object shall indicate the configured number of motor shaft revolutions and number of driving shaft revolutions.

Index	Name	Meaning	Data type	Flags	Default
0x5891:0	[SG] Gear ratio		uint8_t	RO	0x02 (2_{dez})
0x5891:01	Motor shaft revolutions	Gear ratio numerator.	uint32_t	RW	0x00000001 (1_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x5891:02	Driving shaft revolutions	Gear ratio denominator.	uint32_t	RW	0x00000001 (1_{dez})

0x5892 | [SG] Feed constant

This object shall indicate the configured feed constant, this is the measurement distance per one revolution of the driving shaft of the gearbox.

Index	Name	Meaning	Data type	Flags	Default
0x5892:0	[SG] Feed constant		uint8_t	RO	0x02 (2_{dez})
0x5892:01	Feed	Feed constant numerator. allowed values: • 1: eFeedConstant_10Pow0 • 10: eFeedConstant_10Pow1 • 100: eFeedConstant_10Pow2 • 1000: eFeedConstant_10Pow3 • 10000: eFeedConstant_10Pow4 • 100000: eFeedConstant_10Pow5 • 1000000: eFeedConstant_10Pow6 • 65536: eFeedConstant_2Pow16 • 131072: eFeedConstant_2Pow17 • 262144: eFeedConstant_2Pow18 • 524288: eFeedConstant_2Pow19 • 1048576: eFeedConstant_2Pow20 • 2097152: eFeedConstant_2Pow21 • 4194304: eFeedConstant_2Pow22 • 8388608: eFeedConstant_2Pow23 • 16777216: eFeedConstant_2Pow24 • 33554432: eFeedConstant_2Pow25 • 67108864: eFeedConstant_2Pow26 • 134217728: eFeedConstant_2Pow27 • 268435456: eFeedConstant_2Pow28 • 536870912: eFeedConstant_2Pow29 • 1073741824: eFeedConstant_2Pow30 • 2147483648: eFeedConstant_2Pow31 • 0: eFeedConstant_2Pow32	uint32_t	RW	0x00100000 (1048576_{dez})
0x5892:02	Shaft revolutions	Feed constant denominator.	uint32_t	RW	0x00000001 (1_{dez})

0x5896 | [SG] Velocity factor

The velocity factor can be used to match the velocity units to the user defined velocity units.

Index	Name	Meaning	Data type	Flags	Default
0x5896:0	[SG] Velocity factor		uint8_t	RO	0x02 (2_{dez})
0x5896:01	Numerator	Velocity factor numerator.	uint32_t	RW	0x000927C0 (600000_{dez})
0x5896:02	Divisor	Velocity factor denominator.	uint32_t	RW	0x00100000 (1048576_{dez})

0x5897 | [SG] Acceleration factor

The acceleration factor can be used to match the acceleration units to the user defined acceleration units.

Index	Name	Meaning	Data type	Flags	Default
0x5897:0	[SG] Acceleration factor		uint8_t	RO	0x02 (2_{dez})
0x5897:01	Numerator	Acceleration factor numerator.	uint32_t	RW	0x00000168 (360_{dez})
0x5897:02	Divisor	Acceleration factor denominator.	uint32_t	RW	0x000927C0 (600000_{dez})

0x58A2 | [SG] Jerk factor

The jerk factor can be used to match the jerk units to the user defined jerk units.

Index	Name	Meaning	Data type	Flags	Default
0x58A2:0	[SG] Jerk factor		uint8_t	RO	0x02 (2_{dez})
0x58A2:01	Numerator	Jerk factor numerator.	uint32_t	RW	0x00000001 (1_{dez})
0x58A2:02	Divisor	Jerk factor denominator.	uint32_t	RW	0x00000064 (100_{dez})

0x58FD | [SG] Digital inputs

Index	Name	Meaning	Data type	Flags	Default
0x58FD:0	[SG] Digital inputs	This object shall provide digital inputs. This object represents the physical input levels. - Bit 0: negative limit switch - Bit 1: positive limit switch - Bit 16: digital input 1 - Bit 17: digital input 2 - Bit 18: digital input 3 - Bit 19: digital input 4 - Bit 31: STO active	uint32_t	RO	0x00000000 (0_{dez})

0x5D02 | [SG] Supported drive modes

Index	Name	Meaning	Data type	Flags	Default
0x5D02:0	[SG] Supported drive modes	This object shall provide information on the supported drive modes.	uint32_t	RO	0x00000780 (1920_{dez})

2.5 Objects of module Interpolator

Overview of Objects

0x1600 | [SG] Interpolator RxPDO-Map Outputs [▶ 50]
0x1A00 | [SG] Interpolator TxPDO-Map Inputs [▶ 50]
0x2C01 | [SG] Interpolator actual values [▶ 50]

0x2C02 | [SG] Interpolator parameters feed forward [▶ 50]
0x587A | [SG] Target position [▶ 51]
0x58B0 | [SG] Position offset [▶ 51]
0x58B1 | [SG] Velocity offset [▶ 51]
0x58C0 | [SG] Interpolation sub mode select [▶ 51]
0x58FF | [SG] Target velocity [▶ 52]

0x1600 | [SG] Interpolator RxPDO-Map Outputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1600:0	[SG] Interpolator RxPDO-Map Outputs		uint8_t	RW	0x00 (0_{dez})

0x1A00 | [SG] Interpolator TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] Interpolator TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C01 | [SG] Interpolator actual values

This object contains manufacturer specific actual values from the module Interpolator.

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] Interpolator actual values		uint8_t	RO	0x05 (5_{dez})
0x2C01:01	Interpolated position demand value	This object contains the position demand value of the interpolator. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RO	0x00000000 (0_{dez})
0x2C01:02	Interpolated velocity demand value	This object contains the velocity demand value of the interpolator. Unit: depends on value of Object (default = x * 1 rpm) 0x3005/08 (Ch A)	float	RO	0.0
0x2C01:03	Interpolated acceleration demand value	This object indicates the torque/force controller demand value from the interpolator. Unit: depends on value of Object (default = x * 1 °/s^2) 0x3005/03 (Ch A)	float	RO	0.0
0x2C01:05	Demandvalue extrapolation cycle counter	This object counts the number of cycles with an extrapolated position demand value.	uint32_t	RO	0x00000000 (0_{dez})

0x2C02 | [SG] Interpolator parameters feed forward

This object contains parameters to configure the feed forward control

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] Interpolator parameters feed forward		uint8_t	RO	0x03 (3_{dez})
0x2C02:01	Velocity feed forward gain	This object contains the gain of the velocity feed forward signal. Min: 0.0 Max: 1.2	float	RW	1.0
0x2C02:03	Acceleration feed forward gain	This object contains the gain of the acceleration feed forward signal. Min: 0.0 Max: 2.0	float	RW	0.0

0x587A | [SG] Target position

Index	Name	Meaning	Data type	Flags	Default
0x587A:0	[SG] Target position	This object shall indicate the commanded position that the drive should move to in position profile mode using the current settings of motion control parameters such as velocity, acceleration, deceleration, motion profile type etc. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RO	0x00000000 (0_{dez})

0x58B0 | [SG] Position offset

Index	Name	Meaning	Data type	Flags	Default
0x58B0:0	[SG] Position offset	This object shall provide the offset of the target position. The offset shall be given in userdefined position units. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RO	0x00000000 (0_{dez})

0x58B1 | [SG] Velocity offset

Index	Name	Meaning	Data type	Flags	Default
0x58B1:0	[SG] Velocity offset	This object shall provide the offset for the velocity value. The offset shall be given in userdefined velocity units. Unit: depends on value of Object (default = x * 0.0001 rpm) 0x3005/02 (Ch A)	int32_t	RO	0x00000000 (0_{dez})

0x58C0 | [SG] Interpolation sub mode select

Index	Name	Meaning	Data type	Flags	Default
0x58C0:0	[SG] Interpolation sub mode select	This object shall indicate the actually chosen interpolation mode for the cyclic synchronous position mode (CSP). allowed values: • -2: Cubic	int16_t	RW	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 0: Linear			

0x58FF | [SG] Target velocity

Index	Name	Meaning	Data type	Flags	Default
0x58FF:0	[SG] Target velocity	This object shall indicate the configured target velocity and shall be used as input for the trajectory generator. The value shall be given in user-defined velocity units. Unit: depends on value of Object (default = x * 0.0001 rpm) 0x3005/02 (Ch A)	int32_t	RO	0x00000000 (0_{dez})

2.6 Objects of module PositionControl

Overview of Objects

0x1600 | [SG] PositionControl RxPDO-Map Outputs [▶ 52]
0x1A00 | [SG] PositionControl TxPDO-Map Inputs [▶ 52]
0x2C00 | [SG] PositionControl parameters mappable [▶ 52]
0x5865 | [SG] Following error window [▶ 53]
0x5866 | [SG] Following error time out [▶ 53]
0x58F4 | [SG] Following error actual value [▶ 53]

0x1600 | [SG] PositionControl RxPDO-Map Outputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1600:0	[SG] PositionControl RxPDO-Map Outputs		uint8_t	RW	0x00 (0_{dez})

0x1A00 | [SG] PositionControl TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] PositionControl TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] PositionControl parameters mappable

This record contains all mappable parameters of this module.

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] PositionControl parameters mappable		uint8_t	RO	0x01 (1_{dez})
0x2C00:01	Position control proportional gain	This object contains the proportional gain of the position controller. Unit: 1/s	float	RW	1.0

Index	Name	Meaning	Data type	Flags	Default
		Min: 0.0 Max: 3.40282E+38			

0x5865 | [SG] Following error window

Index	Name	Meaning	Data type	Flags	Default
0x5865:0	[SG] Following error window	This object shall indicate the configured range of tolerated position values symmetrically to the position demand value. If the position actual value is out of the following error window, a following error occurs. A following error may occur when a drive is blocked, unreachable profile velocity occurs, or at wrong closed-loop coefficients. The value shall be given in userdefined position units. If the value of the following error window is FFFF FFFFh or 0000 0000h, the following control shall be switched off. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A) Min: 0x00000000 (0_{dez}) Max: 0xFFFFFFFF (4294967295_{dez})	uint32_t	RW	0x00100000 (1048576_{dez})

0x5866 | [SG] Following error time out

Index	Name	Meaning	Data type	Flags	Default
0x5866:0	[SG] Following error time out	This object shall indicate the configured time for a following error condition. Unit: ms Min: 0x0000 (0_{dez}) Max: 0xFFFF (65535_{dez})	uint16_t	RW	0x0000 (0_{dez})

0x58F4 | [SG] Following error actual value

Index	Name	Meaning	Data type	Flags	Default
0x58F4:0	[SG] Following error actual value	This object shall provide the actual value of the following error. The value shall be given in user-defined position units. Unit: depends on value of Object (default = x * (360/1048576)°) 0x3005/01 (Ch A)	int32_t	RO	0x00000000 (0_{dez})

2.7 Objects of module VelocityControl

Overview of Objects

0x1600 | [SG] VelocityControl RxPDO-Map Outputs [▶ 54]
0x1A00 | [SG] VelocityControl TxPDO-Map Inputs [▶ 54]
0x2C00 | [SG] VelocityControl parameters mappable [▶ 54]
0x2C01 | [SG] VelocityControl actual values [▶ 55]
0x2C02 | [SG] VelocityControl parameters [▶ 56]

0x2C03 | [SG] VelocityControl observer [▶ 57]
0x5885 | [SG] Quick stop deceleration [▶ 57]
0x58C5 | [SG] Max acceleration [▶ 58]
0x58C6 | [SG] Max deceleration [▶ 58]

0x1600 | [SG] VelocityControl RxPDO-Map Outputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1600:0	[SG] VelocityControl RxPDO-Map Outputs		uint8_t	RW	0x00 (0_{dez})

0x1A00 | [SG] VelocityControl TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] VelocityControl TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] VelocityControl parameters mappable

This record contains all mappable parameters of this module.

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] VelocityControl parameters mappable		uint8_t	RO	0x07 (7_{dez})
0x2C00:01	Velocity control proportional gain	This object contains the proportional gain of the velocity controller. Unit: depends on value of Object (default = x * 1 Nm/rad/s) 0x3005/09 (Ch A) Min: 0.0 Max: 3.40282E+38	float	RW	0.01
0x2C00:02	Velocity control integral action time	This object contains the integral action time of the velocity controller. Unit: s Min: 0.0 Max: 5.0	float	RW	0.01
0x2C00:03	Bipolar velocity limit value	In this object you can configure the maximum velocity of this axis. Unit: depends on value of Object (default = x * 1 rpm) 0x3005/08 (Ch A) Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:04	Reserved	This object is reserved for further development Min: -3.40282E+38	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Max: 3.40282E+38			
0x2C00:05	Weight counterbalance	In object you can configure the stationary torque/force of a vertical axis. Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A) Min: -3.40282E+38 Max: 3.40282E+38	float	RW	0.0
0x2C00:06	Reserved 2	This object is reserved for further development Min: -3.40282E+38 Max: 3.40282E+38	float	RW	0.0
0x2C00:07	Load inertia/mass	This object is to configure the inertia of the application or load Unit: depends on value of Object (default = x * 1 kg m^2) 0x3005/0B (Ch A) Min: 0.0 Max: 3.40282E+38	float	RW	0.0

0x2C01 | [SG] VelocityControl actual values

This object contains manufacturer specific actual values from the module VelocityControl.

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] VelocityControl actual values		uint8_t	RO	0x07 (7_{dez})
0x2C01:01	PosCtrl velocity demand value	This object contains the velocity demand value of the position controller. Unit: depends on value of Object (default = x * 1 rpm) 0x3005/08 (Ch A)	float	RO	0.0
0x2C01:02	Limited velocity demand value	This object contains the velocity demand value inside the actual velocity limit range. Unit: depends on value of Object (default = x * 1 rpm) 0x3005/08 (Ch A)	float	RO	0.0
0x2C01:03	Velocity actual value velocity observer	This object contains the velocity actual value of the configured velocity observer. Unit: depends on value of Object (default = x * 1 rpm) 0x3005/08 (Ch A)	float	RO	0.0
0x2C01:04	Velocity error	This object contains the velocity error of the velocity controller. Unit: depends on value of Object (default = x * 1 rpm) 0x3005/08 (Ch A)	float	RO	0.0
0x2C01:05	Velocity resulting from differentiation	This object contains the velocity actual value resulting from the position differentiation.	int32_t	RO	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		Unit: depends on value of Object (default = x * 0.0001 rpm) 0x3005/02 (Ch A)			
0x2C01:06	Total inertia/force	This object contains the total inertia. Its summarized inertia application and j/m of motor, brake and encoder. Unit: kg m^2	float	RO	0.0
0x2C01:07	VeloCtrl statusword	This object contains the velocity control statusword. - Bit 5, VeloLimitActive: The velocity demand value is limited internally. - Bit 12, StandStill: Axis movement is inside the standstill window (Parameters Velocity threshold and Velocity threshold time) - Bit 14, TorqueLimitActive: The velocity controller output (torque demand) is limited internally.	uint32_t	RO	0x00000000 (0_{dez})

0x2C02 | [SG] VelocityControl parameters

This object contains not mappable parameters of the velocity control module.

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] VelocityControl parameters		uint8_t	RO	0x05 (5_{dez})
0x2C02:01	Velocity error tolerance	This parameter is to relax/raise the level of the overspeed error. The default level is value of the object "Max motor speed". The value of this parameter will be added to the default level. The value shall be given per thousand of the object "Max motor speed". Unit: 0,1 % Min: 0x00000000 (0_{dez}) Max: 0x00001388 (5000_{dez})	uint32_t	RW	0x00000000 (0_{dez})
0x2C02:02	Quick stop jerk	This object shall indicate the configured jerk used to stop the motor with fault reaction slow down ramp. If the value is zero, the jerk is infinite. Unit: depends on value of Object (default = x * 100 °/s^3) 0x3005/04 (Ch A) Min: 0x00000000 (0_{dez}) Max: 0x24AB572C (615208748_{dez})	uint32_t	RW	0x00000000 (0_{dez})
0x2C02:04	Velocity threshold	This object shall indicate the configured velocity threshold. The value shall be given in user defined velocity units. Unit: depends on value of Object (default = x * 0.0001 rpm) 0x3005/02 (Ch A) Min: 0x00000000 (0_{dez}) Max: 0xFFFFFFFF (4294967295_{dez})	uint32_t	RW	0x0000C350 (50000_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C02:05	Velocity threshold time	This object shall indicate the configured velocity threshold time. Unit: ms Min: 0x0000 (0_{dez}) Max: 0xFFFF (65535_{dez})	uint16_t	RW	0x0000 (0_{dez})

0x2C03 | [SG] VelocityControl observer

This object contains parameters to configure the velocity observer.

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] VelocityControl observer		uint8_t	RO	0x04 (4_{dez})
0x2C03:01	Damping	This object configures the damping coefficient of the observer. Min: 0.2 Max: 1.0	float	RW	0.707
0x2C03:02	Bandwidth	This object configures the bandwidth of the observer. Unit: Hz Min: 25.0 Max: 2000.0	float	RW	500.0
0x2C03:03	Correction factor torque to acceleration	This object configures the torque/force actual to acceleration factor. It is to feed forward the observer with the actual torque/force to estimate the acceleration. Min: 0.0 Max: 8.0	float	RW	1.0
0x2C03:04	Observer type	This object indicates the observer type. Choose Off for differential calculation of Velocity actual value, choose Basic to enable third order observing. allowed values: • 0: Off • 1: Basic_for_known_inertia • 4: Basic_for_unknown_inertia	int16_t	RW	0x0000 (0_{dez})

0x5885 | [SG] Quick stop deceleration

Index	Name	Meaning	Data type	Flags	Default
0x5885:0	[SG] Quick stop deceleration	This object shall indicate the configured deceleration used to stop the motor with fault reaction slow down ramp. Unit: depends on value of Object (default = x * 1 °/s^2) 0x3005/03 (Ch A) Min: 0x0000001E (30_{dez}) Max: 0xFFFFFFFF (4294967295_{dez})	uint32_t	RW	0x00057E40 (360000_{dez})

0x58C5 | [SG] Max acceleration

Index	Name	Meaning	Data type	Flags	Default
0x58C5:0	[SG] Max acceleration	This object shall indicate the configured maximum acceleration. Unit: depends on value of Object (default = x * 1 °/s^2) 0x3005/03 (Ch A) Min: 0x00000000 (0_{dez}) Max: 0xFFFFFFFF (4294967295_{dez})	uint32_t	RW	0xFFFFFFFF (4294967295_{dez})

0x58C6 | [SG] Max deceleration

Index	Name	Meaning	Data type	Flags	Default
0x58C6:0	[SG] Max deceleration	This object shall indicate the configured maximum deceleration. Unit: depends on value of Object (default = x * 1 °/s^2) 0x3005/03 (Ch A) Min: 0x00000000 (0_{dez}) Max: 0xFFFFFFFF (4294967295_{dez})	uint32_t	RW	0xFFFFFFFF (4294967295_{dez})

2.8 Objects of module BiquadFilter

Overview of Objects

0x1A00 | [SG] BiquadFilter TxPDO-Map Inputs [▶ 58]
0x2C00 | [SG] BiquadFilter parameters filter 1 [▶ 58]
0x2C01 | [SG] BiquadFilter parameters filter 2 [▶ 59]
0x2C02 | [SG] BiquadFilter parameters filter 3 [▶ 60]
0x2C03 | [SG] BiquadFilter parameters filter 4 [▶ 61]
0x2C04 | [SG] BiquadFilter parameters filter 5 [▶ 61]
0x2C05 | [SG] BiquadFilter parameters filter 6 [▶ 62]
0x2C06 | [SG] BiquadFilter parameters filter 7 [▶ 63]
0x2C07 | [SG] BiquadFilter parameters filter 8 [▶ 63]
0x2C10 | [SG] BiquadFilter actual values [▶ 64]

0x1A00 | [SG] BiquadFilter TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] BiquadFilter TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] BiquadFilter parameters filter 1

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] BiquadFilter parameters filter 1		uint8_t	RO	0x05 (5_{dez})
0x2C00:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Min: 0.0 Max: 4000.0			
0x2C00:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C00:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C00:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C00:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order • 5: Notch_filter	int16_t	RW	0x0000 (0_{dez})

0x2C01 | [SG] BiquadFilter parameters filter 2

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] BiquadFilter parameters filter 2		uint8_t	RO	0x05 (5_{dez})
0x2C01:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C01:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C01:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C01:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C01:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order • 5: Notch_filter	int16_t	RW	0x0000 (0_{dez})

0x2C02 | [SG] BiquadFilter parameters filter 3

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] BiquadFilter parameters filter 3		uint8_t	RO	0x05 (5_{dez})
0x2C02:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C02:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C02:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C02:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C02:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order	int16_t	RW	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 5: Notch_filter			

0x2C03 | [SG] BiquadFilter parameters filter 4

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] BiquadFilter parameters filter 4		uint8_t	RO	0x05 (5_{dez})
0x2C03:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C03:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C03:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C03:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C03:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order • 5: Notch_filter	int16_t	RW	0x0000 (0_{dez})

0x2C04 | [SG] BiquadFilter parameters filter 5

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C04:0	[SG] BiquadFilter parameters filter 5		uint8_t	RO	0x05 (5_{dez})
0x2C04:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C04:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C04:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C04:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C04:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order • 5: Notch_filter	int16_t	RW	0x0000 (0_{dez})

0x2C05 | [SG] BiquadFilter parameters filter 6

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C05:0	[SG] BiquadFilter parameters filter 6		uint8_t	RO	0x05 (5_{dez})
0x2C05:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C05:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C05:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C05:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Max: 1.0			
0x2C05:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order • 5: Notch_filter	int16_t	RW	0x0000 (0_{dez})

0x2C06 | [SG] BiquadFilter parameters filter 7

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C06:0	[SG] BiquadFilter parameters filter 7		uint8_t	RO	0x05 (5_{dez})
0x2C06:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C06:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C06:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C06:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C06:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order • 5: Notch_filter	int16_t	RW	0x0000 (0_{dez})

0x2C07 | [SG] BiquadFilter parameters filter 8

This object contains parameters to configure a filter

Index	Name	Meaning	Data type	Flags	Default
0x2C07:0	[SG] BiquadFilter parameters filter 8		uint8_t	RO	0x05 (5_{dez})
0x2C07:01	Low pass frequency	This object is to configure the low pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C07:02	Low pass damping	This object is to configure the low pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C07:03	High pass frequency	This object is to configure the high pass frequency of the configured filter type. Unit: Hz Min: 0.0 Max: 4000.0	float	RW	0.0
0x2C07:04	High pass damping	This object is to configure the high pass damping of the configured filter type. Min: 0.0 Max: 1.0	float	RW	0.0
0x2C07:05	Filter type	This object is to configure the required filter type. allowed values: • 0: No_Filter • 1: Low_pass_filter_1_order • 2: Phase_correction_filter_1_order • 3: Low_pass_filter_2_order • 4: Phase_correction_filter_2_order • 5: Notch_filter	int16_t	RW	0x0000 (0_{dez})

0x2C10 | [SG] BiquadFilter actual values

This object contains the filter input signal.

Index	Name	Meaning	Data type	Flags	Default
0x2C10:0	[SG] BiquadFilter actual values		float	RO	2.80260E-45
0x2C10:01	Input value	Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)	float	RO	0.0
0x2C10:02	Output value	Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)	float	RO	0.0

2.9 Objects of module TorqueControl

Overview of Objects

0x1600 | [SG] TorqueControl RxPDO-Map Outputs [▶ 65]
0x1A00 | [SG] TorqueControl TxPDO-Map Inputs [▶ 65]
0x2C00 | [SG] TorqueControl parameters mappable [▶ 65]
0x2C01 | [SG] TorqueControl actual values [▶ 66]
0x2C02 | [SG] TorqueControl actual values2 [▶ 67]
0x2C03 | [SG] TorqueControl parameters [▶ 68]
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0x5877 | [SG] Torque/force actual value [▶ 70]
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0x58E0 | [SG] Positive torque/force limit value [▶ 71]
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0x58EA | [SG] Commutation angle [▶ 71]

0x1600 | [SG] TorqueControl RxPDO-Map Outputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1600:0	[SG] TorqueControl RxPDO-Map Outputs		uint8_t	RW	0x00 (0_{dez})

0x1A00 | [SG] TorqueControl TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] TorqueControl TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] TorqueControl parameters mappable

This record contains all mappable parameters of this module.

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] TorqueControl parameters mappable		uint8_t	RO	0x04 (4_{dez})
0x2C00:01	Torque control proportional gain q	This object contains the proportional gain of the torque/force controller. Unit: V/A Min: 0.0 Max: 3.40282E+38	float	RW	100.0
0x2C00:02	Torque control integral action time q	This object contains the integral action time of the torque/force controller. Unit: s Min: 0.0001	float	RW	0.001

Index	Name	Meaning	Data type	Flags	Default
		Max: 0.01			
0x2C00:03	Torque control proportional gain d	This object contains the second proportional gain of the torque/force controller. Unit: V/A Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:04	Torque control integral action time d	This object contains the second integral action time of the torque/force controller. Unit: s Min: 0.0001 Max: 0.01	float	RW	0.001

0x2C01 | [SG] TorqueControl actual values

This object contains manufacturer specific actual values from the module torque/force control.

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] TorqueControl actual values		uint8_t	RO	0x0E (14_{dez})
0x2C01:01	VeloCtrl torque/ force demand value	This object indicates the torque/force controller demand value from the velocity controller. Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)	float	RO	0.0
0x2C01:02	Feed forward torque/force demand value	This object indicates the torque/force controller feed forward value from the Interpolator. Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)	float	RO	0.0
0x2C01:03	Limited torque/ force demand value	This object indicates the effective torque/force demand value. Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)	float	RO	0.0
0x2C01:05	Reserved	This object is reserved for further development	float	RO	0.0
0x2C01:07	Pos torque/force limit effective	This object indicates the effective positive torque/force limit. Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)	float	RO	0.0
0x2C01:08	Neg torque/force limit effective	This object indicates the effective negative torque/force limit. Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)	float	RO	0.0
0x2C01:0E	Average effective torque demand value	This object indicates the average effective torque/force demand value.	float	RO	0.0

Index	Name	Meaning	Data type	Flags	Default
		Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A)			

0x2C02 | [SG] TorqueControl actual values2

This object contains parameters to configure the torque/force controller.

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] TorqueControl actual values2		uint8_t	RO	0x19 (25_{dez})
0x2C02:01	Iq demand	internal current value Unit: A	float	RO	0.0
0x2C02:02	Id demand	internal current value Unit: A	float	RO	0.0
0x2C02:03	Reserved	internal current value Unit: A	float	RO	0.0
0x2C02:04	Iq actual	internal current value Unit: A	float	RO	0.0
0x2C02:05	Id actual	internal current value Unit: A	float	RO	0.0
0x2C02:06	Iu actual	internal current value Unit: A	float	RO	0.0
0x2C02:07	Iv actual	internal current value Unit: A	float	RO	0.0
0x2C02:08	Iw actual	internal current value Unit: A	float	RO	0.0
0x2C02:09	Ialpha actual	internal current value Unit: A	float	RO	0.0
0x2C02:0A	Ibeta actual	internal current value Unit: A	float	RO	0.0
0x2C02:0B	Irms actual	internal current value Unit: A	float	RO	0.0
0x2C02:0C	Thermal channel nominal utilization	This object contains the actual nominal utilization. Unit: %	float	RO	0.0
0x2C02:0D	Thermal channel overload utilization	This object contains the actual overload utilization. Unit: %	float	RO	0.0
0x2C02:0F	Uq actual	internal voltage value Unit: V	float	RO	0.0
0x2C02:10	Ud actual	internal voltage value Unit: V	float	RO	0.0
0x2C02:11	Urms actual	internal voltage value Unit: V	float	RO	0.0
0x2C02:12	Electrical power	Internal active power value Unit: W	float	RO	0.0
0x2C02:13	Mechanical power	Internal mechanical power value Unit: W	float	RO	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C02:15	Commutation angle actual	This object indicates the actual electrical commutation angle for the space vector modulation. Unit: x * (360/65536)°	uint16_t	RO	0x0000 (0_{dez})
0x2C02:16	Ualpha actual	internal current value Unit: V	float	RO	0.0
0x2C02:17	Ubeta actual	internal current value Unit: V	float	RO	0.0
0x2C02:19	Frequency actual value		float	RO	0.0

0x2C03 | [SG] TorqueControl parameters

This object contains not mappable parameters of the TorqueControl module.

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] TorqueControl parameters		uint8_t	RO	0x14 (20_{dez})
0x2C03:01	Configured channel rated current	This object configures the channel rated current. The range of this object depends on 'Channel rated current' (0x3243:03) and the on the configuration of the optional other channel. The summation is limited. Unit: A Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C03:02	Configured channel peak current	This object configures the channel peak current. The range of this object depends on 'Channel peak current' (0x3243:04) and the on the configuration of the optional other channel. The summation is limited. Unit: A Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C03:03	Channel rated current	This read only object indicates the maximal channel rated current. This value dependents on the mains voltage and the PWM frequency. Unit: A Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0
0x2C03:04	Channel peak current	This read only object indicates the maximal channel peak current. This value dependents on the mains voltage and the PWM frequency. Unit: A Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C03:05	Configured channel peak torque/force	This read only object provides the configured channel peak torque/force. The value of this object depends on the motor and the configured peak current. Unit: depends on value of Object (default = x * 1 Nm) 0x3005/05 (Ch A) Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0
0x2C03:06	Max channel accepted velocity	This object contains maximum accepted velocity demand value to prevent high back EMF. Unit: depends on value of Object (default = x * 1 rpm) 0x3005/08 (Ch A) Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0
0x2C03:0A	PWM mode	This object selects the PWM mode. allowed values: • 0: PWM_8kHz_adaptive • 2: PWM_4kHz_permanent	uint32_t	RW	0x00000000 (0_{dez})
0x2C03:0B	Configured channel thermal rated current	This object configures the channel thermal rated current. The value of this object depends on the 'Configured channel rated current' (0x3243:01) and the on the configuration of the optional other channel. Unit: A Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0
0x2C03:0D	Voltage error compensation factor	This object might be used to scale the voltage error compensation magnitude. Unit: % Min: 0.0 Max: 200.0	float	RW	0.0
0x2C03:10	Overload duration mode	This object might be used to select the channel overload configuration. allowed values: • 0: Overload 3s • 1: Overload 1s • 2: Overload 60s	uint32_t	RW	0x00000000 (0_{dez})
0x2C03:11	Voltage error compensation lower fade out velocity	This object might be used to adapt the voltage error compensation lower fade out velocity value. Reference quantity is the asynchronous motor nominal stator frequency. Unit: % Min: 0.0 Max: 100.0	float	RW	5.0

Index	Name	Meaning	Data type	Flags	Default
0x2C03:12	Voltage error compensation upper fade out velocity	This object might be used to adapt the voltage error compensation upper fade out velocity value. Reference quantity is the asynchronous motor nominal stator frequency. Unit: % Min: 0.0 Max: 100.0	float	RW	90.0
0x2C03:14	Current predictor mode	allowed values: • 0: Current_predictor_disabled • 1: Current_predictor_enabled	uint32_t	RW	0x00000000 (0_{dez})

0x5871 | [SG] Target torque/force

Index	Name	Meaning	Data type	Flags	Default
0x5871:0	[SG] Target torque/force	This object shall indicate the configured input value for the torque/force controller. The value shall be given per thousand of motor standstill torque/ force (0x6076). Unit: 0,1 %	int16_t	RO	0x0000 (0_{dez})

0x5872 | [SG] Bipolar torque/force limit value

Index	Name	Meaning	Data type	Flags	Default
0x5872:0	[SG] Bipolar torque/force limit value	This object indicates the configured maximum bipolar permissible torque/ force in the motor. The value shall be given per thousand of standstill motor torque/force (0x6076). Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0xFFFF (65535_{dez})	uint16_t	RW	0x1388 (5000_{dez})

0x5877 | [SG] Torque/force actual value

Index	Name	Meaning	Data type	Flags	Default
0x5877:0	[SG] Torque/force actual value	This object shall indicate the configured input value for the torque/force controller. The value shall be given per thousand of motor standstill torque/ force (0x6076) M_0. Unit: 0,1 %	int16_t	RO	0x0000 (0_{dez})

0x5887 | [SG] Torque/force slope

Index	Name	Meaning	Data type	Flags	Default
0x5887:0	[SG] Torque/force slope	This object shall indicate the configured rate of change of torque/force. The value shall be given in units of per thousand of standstill torque/force per second. Value Zero will turn this function off. Unit: 0,1 %/s	uint32_t	RW	0x00000000 (0_{dez})

0x58B2 | [SG] Torque/force offset

Index	Name	Meaning	Data type	Flags	Default
0x58B2:0	[SG] Torque/force offset	This object shall provide the offset for the torque/force value. The offset shall be given in per thousand of motor standstill torque/force. In cyclic synchronous position mode and cyclic synchronous velocity mode, this object contains the input value for an external calculated torque/force feed forward. In cyclic synchronous torque mode it contains the commanded additive torque/force of the drive, which is added to the target torque/force value. Unit: 0,1 %	int16_t	RO	0x0000 (0_{dez})

0x58E0 | [SG] Positive torque/force limit value

Index	Name	Meaning	Data type	Flags	Default
0x58E0:0	[SG] Positive torque/force limit value	This object indicates the configured maximum positive torque/force in the motor. The value shall be given per thousand of standstill torque/force (0x6076). Positive torque/force takes effect in the case of motive operation is positive velocity or regenerative operation is negative velocity. Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0xFFFF (65535_{dez})	uint16_t	RW	0x1388 (5000_{dez})

0x58E1 | [SG] Negative torque/force limit value

Index	Name	Meaning	Data type	Flags	Default
0x58E1:0	[SG] Negative torque/force limit value	This object indicates the configured maximum negative torque/force in the motor. The value shall be given per thousand of standstill torque/force (0x6076). Negative torque/force takes effect in the case of motive operation is negative velocity or regenerative operation is positive velocity. Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0xFFFF (65535_{dez})	uint16_t	RW	0x1388 (5000_{dez})

0x58EA | [SG] Commutation angle

Index	Name	Meaning	Data type	Flags	Default
0x58EA:0	[SG] Commutation angle	This object indicates the electrical commutation angle for the space vector modulation. Unit: x * (360/65536)° Min: 0x0000 (0_{dez}) Max: 0xFFFF (65535_{dez})	uint16_t	RW	0x0000 (0_{dez})

2.10 Objects of module SynchronousMotor

Overview of Objects

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0x1A00 | [SG] SynchronousMotor TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] SynchronousMotor TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] SynchronousMotor parameters

This object contains parameters to configure the connected motor.

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] SynchronousMotor parameters		uint8_t	RO	0x17 (23_{dez})
0x2C00:01	Configured motor type	This object indicates the configured motor type.	STRING	RW	"not set"
0x2C00:02	Pole pairs	This object indicates the motor pole pairs. Min: 0x0000 (0_{dez}) Max: 0x00FF (255_{dez})	uint16_t	RW	0x0000 (0_{dez})
0x2C00:03	Motor peak current	This object configures the motor peak current. If the electronic datasheet of the motor is available take "Peak current". Unit: A Min: 0.0 Max: 3.40282E+38	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C00:04	Motor nominal voltage	This object configures the motor nominal voltage. If the electronic datasheet is available take "Nominal voltage" according to the selected mains voltage. Unit: V Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:05	Motor max voltage	This object configures the motor max voltage. If the electronic datasheet is available take "Max voltage". Unit: V Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:06	Winding resistance R	This object configures the winding resistance R (phase to phase at 20°C). If the electronic datasheet is available take "Winding resistance Ph-Ph 20°C". Unit: Ω Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:07	Winding inductance Ld	This object configures the direct axis winding inductance Ld (phase to phase). If the electronic datasheet is available take "Ld Ph-Ph". Unit: H Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:08	Winding inductance Lq	This object configures the direct winding inductance Lq. If the electronic datasheet is available take "Lq Ph-Ph". Unit: H Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:09	Motor warning temperature	This object configures the motor temperature warning threshold. If the electronic datasheet is available take "T motor warn limit". Unit: °C Min: 0.0 Max: 150.0	float	RW	80.0
0x2C00:0A	Motor shut down temperature	This object configures the motor temperature error threshold. If the electronic datasheet is available take "T motor err limit". Unit: °C Min: 0.0 Max: 150.0	float	RW	100.0
0x2C00:0B	Motor moment of inertia	This object configures the inertia of rotor including brake and encoder. If the electronic datasheet is available take "J motor with brake".	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Unit: kg m^2 Min: 0.0 Max: 3.40282E+38			
0x2C00:0C	Motor rated speed	This object indicates the motor calculated speed. Its calculated from the motor parameters. Unit: rpm Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:0D	Motor rated torque	This object configures the motor rated torque at rated speed. If the electronic datasheet is available take "Rated torque" according to the selected mains voltage. Unit: Nm Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:0E	Commutation offset	This object configures the motor commutation offset. Beckhoff motors use the default value (0°). Unit: x * (360/65536)°	uint16_t	RW	0x0000 (0_{dez})
0x2C00:0F	Motor temperature sensor connection	This object configures the motor temperature sensor type. allowed values: • 0: No_motor_temperature_switch_or_sensor • 1: Via_feedback_process_data_and_characteristic • 2: Via_motor_cable_and_charactereistic_table • 3: Via_feedback_process_data_scaled_in_0_1K • 4: Via_feedback_process_data_scaled_in_0_1degC	int16_t	RW	0x0000 (0_{dez})
0x2C00:10	Motor max voltage slope	This object configures the motor maximum winding voltage slope. If the electronic datasheet is available take "Max winding du/dt" according to the selected mains voltage. Unit: V/s Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:16	Commutation offset source	This object configures the memory source of the "Offset position actual value". allowed values: • 0: feedback_module	uint16_t	RW	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 1: motor_parameter_commutation_offset			
0x2C00:17	Motor peak torque	This object configures the motor peak torque. If the electronic datasheet of the motor is available take "Max Torque". Unit: Nm Min: 0.0 Max: 3.40282E+38	float	RW	0.0

0x2C01 | [SG] SynchronousMotor actual values

This object contains actual values from this module.

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] SynchronousMotor actual values		uint8_t	RO	0x0F (15_{dez})
0x2C01:01	Actual motor I2T current limit	This object is to monitor the thermal motor I^2T model current limitation. If the estimated I^2T value exceeds the threshold value the current will be limited to motor I_0 (0x6075). Unit: A	float	RO	0.0
0x2C01:02	Thermal motor utilization	This object is to indicate the actual motor utilization. Unit: %	float	RO	0.0
0x2C01:03	Estimated motor copper losses	Internal value for estimated motor copper losses. Unit: W	float	RO	0.0
0x2C01:04	Estimated motor iron losses	Internal value for estimated motor iron losses. Unit: W	float	RO	0.0
0x2C01:05	Motor I2T limitation active	This internal state indicates a current reduction due to the thermal motor model. allowed values: • 0: limit_off • 1: limit_active	uint8_t	RO	0x00 (0_{dez})
0x2C01:06	Actual motor temperature	This object provides the measured motor winding temperature. It is usually acquired via the motor internal temperature sensor. Unit: °C	float	RO	0.0
0x2C01:0B	Actual commutation offset	This object displays the actual motor commutation offset. Beckhoff motors use the default value (0°). Unit: x * (360/65536)°	uint16_t	RO	0x0000 (0_{dez})
0x2C01:0C	Is commutation offset valid	This object displays if the actual motor commutation offset is valid. allowed values: • 0: False	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 1: True			
0x2C01:0D	Voltage controller demand value	Voltage controller demand voltage value. Unit: V	float	RO	0.0
0x2C01:0E	Voltage controller actual value	Voltage controller actual voltage value. Unit: V	float	RO	0.0
0x2C01:0F	Sensorless control commutation angle error	Sensorless control estimated commutation error angle. Unit: rad	float	RO	0.0

0x2C02 | [SG] SynchronousMotor torque characteristic

This object describes the motor torque characteristic of a cold (40°C) motor. The torque as a function of current curve is approximated by a third order polynomial. Three pairs of values are required. Standstill current and torque, peak current and torque and a pair of values between standstill and peak. The values can be read from the motor electronic datasheet (XEDS file).

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] SynchronousMotor torque characteristic		uint8_t	RO	0x14 (20_{dez})
0x2C02:01	Current 0	Current sampling point 1 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:02	Current 1	Current sampling point 2 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:03	Current 2	Current sampling point 3 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:04	Current 3	Current sampling point 4 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:05	Current 4	Current sampling point 5 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:06	Current 5	Current sampling point 6 of the M(i) curve of the motor. Unit: A Min: 0.0	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Max: 10000.0			
0x2C02:07	Current 6	Current sampling point 7 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:08	Current 7	Current sampling point 8 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:09	Current 8	Current sampling point 9 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:0A	Current 9	Current sampling point 10 of the M(i) curve of the motor. Unit: A Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:0B	Torque 0	Torque sampling point 1 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:0C	Torque 1	Torque sampling point 2 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:0D	Torque 2	Torque sampling point 3 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:0E	Torque 3	Torque sampling point 4 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:0F	Torque 4	Torque sampling point 5 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:10	Torque 5	Torque sampling point 6 of the M(i) curve of the motor.	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Unit: Nm Min: 0.0 Max: 10000.0			
0x2C02:11	Torque 6	Torque sampling point 7 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:12	Torque 7	Torque sampling point 8 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:13	Torque 8	Torque sampling point 9 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0
0x2C02:14	Torque 9	Torque sampling point 10 of the M(i) curve of the motor. Unit: Nm Min: 0.0 Max: 10000.0	float	RW	0.0

0x2C06 | [SG] SynchronousMotor commutation monitoring parameters

This object contains parameters to configure the Motor commutation monitoring

Index	Name	Meaning	Data type	Flags	Default
0x2C06:0	[SG] SynchronousMotor commutation monitoring parameters		uint8_t	RO	0x02 (2_{dez})
0x2C06:01	Speed threshold	The minimum speed for detecting a commutation error is 'Max motor speed' (0x6080) multiplied by 'Speed threshold' Min: 0.0 Max: 1.0	float	RW	0.1
0x2C06:02	Voltage threshold	The BEMF level for detecting a commutation error is 'Motor nominal voltage' (0x32C0:04) multiplied by 'Voltage threshold' Min: 0.0 Max: 2.0	float	RW	0.1

0x2C07 | [SG] SynchronousMotor temperature sensor characteristic

This object describes the R(T) curve of the motor winding temperature sensor.

Index	Name	Meaning	Data type	Flags	Default
0x2C07:0	[SG] SynchronousMotor temperature sensor characteristic		uint8_t	RO	0x15 (21_{dez})
0x2C07:01	Temperature 0	Temperature sampling point 1 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:02	Temperature 1	Temperature sampling point 2 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:03	Temperature 2	Temperature sampling point 3 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:04	Temperature 3	Temperature sampling point 4 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:05	Temperature 4	Temperature sampling point 5 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:06	Temperature 5	Temperature sampling point 6 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:07	Temperature 6	Temperature sampling point 7 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:08	Temperature 7	Temperature sampling point 8 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:09	Temperature 8	Temperature sampling point 9 of the R(T) curve of the motor. Unit: °C Min: -250.0	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Max: 250.0			
0x2C07:0A	Temperature 9	Temperature sampling point 10 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:0B	Resistance 0	Resistance sampling point 1 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:0C	Resistance 1	Resistance sampling point 2 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:0D	Resistance 2	Resistance sampling point 3 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:0E	Resistance 3	Resistance sampling point 4 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:0F	Resistance 4	Resistance sampling point 5 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:10	Resistance 5	Resistance sampling point 6 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:11	Resistance 6	Resistance sampling point 7 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:12	Resistance 7	Resistance sampling point 8 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:13	Resistance 8	Resistance sampling point 9 of the R(T) curve of the motor.	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Unit: Ω Min: 0.0 Max: 1.00000E+06			
0x2C07:14	Resistance 9	Resistance sampling point 10 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:15	Temperature Sensor Id	Id of the temperature sensor. allowed values: • 0: TemperatureSensorId_NotDefined • 1: TemperatureSensorId_KTY_84_130 • 2: TemperatureSensorId_PT1000 • 3: TemperatureSensorId_PT100 • 4: TemperatureSensorId_KTY_83_110	int32_t	RO	0x00000000 (0_{dez})

0x2C08 | [SG] SynchronousMotor thermal model

These objects configure the motor thermal model.

Index	Name	Meaning	Data type	Flags	Default
0x2C08:0	[SG] SynchronousMotor thermal model		uint8_t	RO	0x06 (6_{dez})
0x2C08:01	Motor thermal time constant	This object configures the time constant for the whole motor. If an electronic datasheet is available take "Motor thermal constant" and scale it to seconds. Unit: s Min: 0.0 Max: 200000.0	float	RW	540.0
0x2C08:02	Winding thermal time constant	This object configures the time constant of the copper winding only. If an electronic datasheet is available take "Time constant i^2T". Unit: s Min: 0.0 Max: 3600.0	float	RW	20.0
0x2C08:03	Warning limit	This object shall configure the thermal motor utilization warning limit. Unit: % Min: 0.0 Max: 100.0	float	RW	80.0
0x2C08:04	Error limit	This object shall configure the thermal motor utilization error limit. Unit: % Min: 0.0	float	RW	100.0

Index	Name	Meaning	Data type	Flags	Default
		Max: 100.0			
0x2C08:05	Reaction	This object configures the reaction in case reaching the thermal motor utilization error limit. allowed values: • 0: No_Reaction • 1: Shut_down_on_error_level • 2: Reduction	int16_t	RW	0x0000 (0_{dez})
0x2C08:06	Partial fraction factor	This object describes the thermal resistor fraction factor of the motor. Unit: % Min: 0.0 Max: 100.0	float	RW	25.0

0x2C0C | [SG] SynchronousMotor inductance characteristic

10 ordered pairs of numbers are describing the saturation of the differential inductance as a function of the torque/force producing current.

Index	Name	Meaning	Data type	Flags	Default
0x2C0C:0	[SG] SynchronousMotor inductance characteristic		uint8_t	RO	0x14 (20_{dez})
0x2C0C:01	Current 0	Current sampling point 1 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:02	Current 1	Current sampling point 2 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:03	Current 2	Current sampling point 3 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:04	Current 3	Current sampling point 4 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:05	Current 4	Current sampling point 5 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:06	Current 5	Current sampling point 6 of the Lq(i) curve of the motor.	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Unit: A Min: 0.0 Max: 8000.0			
0x2C0C:07	Current 6	Current sampling point 7 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:08	Current 7	Current sampling point 8 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:09	Current 8	Current sampling point 9 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:0A	Current 9	Current sampling point 10 of the Lq(i) curve of the motor. Unit: A Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:0B	Inductance 0	Inductance sampling point 1 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:0C	Inductance 1	Inductance sampling point 2 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:0D	Inductance 2	Inductance sampling point 3 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:0E	Inductance 3	Inductance sampling point 4 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:0F	Inductance 4	Inductance sampling point 5 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C0C:10	Inductance 5	Inductance sampling point 6 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:11	Inductance 6	Inductance sampling point 7 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:12	Inductance 7	Inductance sampling point 8 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:13	Inductance 8	Inductance sampling point 9 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0
0x2C0C:14	Inductance 9	Inductance sampling point 10 of the Lq(i) curve of the motor. Unit: H Min: 0.0 Max: 8000.0	float	RW	0.0

0x2C0D | [SG] SynchronousMotor commutation offset command

With this command object the commutation offset can be measured and feedback checks can be performed.

Index	Name	Meaning	Data type	Flags	Default
0x2C0D:0	[SG] SynchronousMotor commutation offset command		uint8_t	RO	0x03 (3_{dez})
0x2C0D:01	Command	With this command object the commutation offset can be measured and feedback checks can be performed.	OCTET-STRING[4]	RW	{0}
0x2C0D:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent • 115: eCoeCmdStatus_15_Percent • 116: eCoeCmdStatus_16_Percent • 117: eCoeCmdStatus_17_Percent • 118: eCoeCmdStatus_18_Percent • 119: eCoeCmdStatus_19_Percent • 120: eCoeCmdStatus_20_Percent • 121: eCoeCmdStatus_21_Percent • 122: eCoeCmdStatus_22_Percent • 123: eCoeCmdStatus_23_Percent • 124: eCoeCmdStatus_24_Percent • 125: eCoeCmdStatus_25_Percent • 126: eCoeCmdStatus_26_Percent • 127: eCoeCmdStatus_27_Percent • 128: eCoeCmdStatus_28_Percent • 129: eCoeCmdStatus_29_Percent • 130: eCoeCmdStatus_30_Percent • 131: eCoeCmdStatus_31_Percent • 132: eCoeCmdStatus_32_Percent • 133: eCoeCmdStatus_33_Percent • 134: eCoeCmdStatus_34_Percent • 135: eCoeCmdStatus_35_Percent • 136: eCoeCmdStatus_36_Percent • 137: eCoeCmdStatus_37_Percent • 138: eCoeCmdStatus_38_Percent • 139: eCoeCmdStatus_39_Percent • 140: eCoeCmdStatus_40_Percent • 141: eCoeCmdStatus_41_Percent • 142: eCoeCmdStatus_42_Percent • 143: eCoeCmdStatus_43_Percent • 144: eCoeCmdStatus_44_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 145: eCoeCmdStatus_45_Percent • 146: eCoeCmdStatus_46_Percent • 147: eCoeCmdStatus_47_Percent • 148: eCoeCmdStatus_48_Percent • 149: eCoeCmdStatus_49_Percent • 150: eCoeCmdStatus_50_Percent • 151: eCoeCmdStatus_51_Percent • 152: eCoeCmdStatus_52_Percent • 153: eCoeCmdStatus_53_Percent • 154: eCoeCmdStatus_54_Percent • 155: eCoeCmdStatus_55_Percent • 156: eCoeCmdStatus_56_Percent • 157: eCoeCmdStatus_57_Percent • 158: eCoeCmdStatus_58_Percent • 159: eCoeCmdStatus_59_Percent • 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent • 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C0D:03	Response		OCTET-STRING[8]	RO	{0}

0x2C0E | [SG] SynchronousMotor commutation offset command parameters

This object contains parameters for commuation offset command.

Index	Name	Meaning	Data type	Flags	Default
0x2C0E:0	[SG] SynchronousMotor commutation offset command parameters		uint8_t	RO	0x19 (25_{dez})
0x2C0E:01	Static current vector: Method	This object configures the static current vector method. allowed values: • 0: Measure_offset_with_free_movement_check_and_feedback_direction_check • 1: Check_feedback_direction_and_relative_offset • 2: Measure_offset_simple • 3: Calibrate_offset_with_free_movement_check_and_feedback_direction_check • 4: Calibrate_offset_simple	int16_t	RW	0x0000 (0_{dez})
0x2C0E:02	Static current vector: Current level	This object configures the static current vector current level per thousand of motor standstill current (0x6075). Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0x1388 (5000_{dez})	uint16_t	RW	0x03E8 (1000_{dez})
0x2C0E:03	Static current vector: Current slope	This object configures the static current vector current slope in percent per ms based on the motor standstill current (0x6075).	uint32_t	RW	0x00002710 (10000_{dez})

Index	Name	Meaning	Data type	Flags	Default
		Unit: %/s Min: 0x0000000A (10_{dez}) Max: 0x000186A0 (100000_{dez})			
0x2C0E:04	Static current vector: Duration	This object configures the time the constant current vector is applied before the commutation offset is calculated. Unit: s Min: 0.0 Max: 60.0	float	RW	3.0
0x2C0E:05	Static current vector: Initial moving distance per pole pair	This object configures the static current vector moving distance per pole pair before commutation offset calibration. Unit: ° Min: 0xFFFF7360 (-36000_{dez}) Max: 0x00008CA0 (36000_{dez})	int32_t	RW	0x0000005A (90_{dez})
0x2C0E:06	Static current vector: Test sequence moving distance per pole pair	This object configures the static current vector moving distance per pole pair for the test movement. Unit: ° Min: 0x0000 (0_{dez}) Max: 0x0168 (360_{dez})	uint16_t	RW	0x005A (90_{dez})
0x2C0E:07	Static current vector: Velocity per pole pair	This object configures the static current vector velocity per pole pair for the test movement. Unit: °/s Min: 0x0006 (6_{dez}) Max: 0x0E10 (3600_{dez})	uint16_t	RW	0x001E (30_{dez})
0x2C0E:10	Wake and Shake: First phase current level	This object configures the wake and shake first phase current level in percent based on the motor standstill current (0x6075). Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0x1388 (5000_{dez})	uint16_t	RW	0x03E8 (1000_{dez})
0x2C0E:11	Wake and Shake: Second phase current level	This object configures the wake and shake second phase current level in percent based on the motor standstill current (0x6075). Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0x1388 (5000_{dez})	uint16_t	RW	0x03E8 (1000_{dez})
0x2C0E:12	Wake and Shake: First phase current slope	This object configures the wake and shake first phase current level in percent per ms based on the motor standstill current (0x6075). Unit: %/s Min: 0x00000064 (100_{dez}) Max: 0x00002710 (10000_{dez})	uint32_t	RW	0x000003E8 (1000_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C0E:13	Wake and Shake: Second phase current slope	This object configures the wake and shake second phase current level in percent per ms based on the motor standstill current (0x6075). Unit: %/s Min: 0x00000064 (100_{dez}) Max: 0x00002710 (10000_{dez})	uint32_t	RW	0x000000C8 (200_{dez})
0x2C0E:14	Wake and Shake: First phase settling time	This object configures the wake and shake settling time between the current pulses during the first phase. Unit: s Min: 0.01 Max: 60.0	float	RW	0.15
0x2C0E:15	Wake and Shake: Second phase duration	This object configures the time the second phase current is applied before the commutation offset is calculated. Unit: s Min: 0.01 Max: 60.0	float	RW	3.0
0x2C0E:17	Wake and Shake: First phase position monitoring limit	This object configures the wake and shake first phase position monitoring limit. Unit: 0,1 ° Min: 0x0000 (0_{dez}) Max: 0x0708 (1800_{dez})	uint16_t	RW	0x0005 (5_{dez})
0x2C0E:18	Wake and Shake: First phase step width	This object configures the wake and shake first phase step width. Unit: 0,1 ° Min: 0x0000 (0_{dez}) Max: 0x0384 (900_{dez})	uint16_t	RW	0x00E1 (225_{dez})
0x2C0E:19	Wake and Shake: Error monitoring range of motion	This object configures the wake error monitoring range of motion. Unit: ° Min: 0x0000 (0_{dez}) Max: 0x0168 (360_{dez})	uint16_t	RW	0x005A (90_{dez})

0x2C0F | [SG] SynchronousMotor save cogging compensation data

With this command object the cogging compensation data can be saved.

Index	Name	Meaning	Data type	Flags	Default
0x2C0F:0	[SG] SynchronousMotor save cogging compensation data		uint8_t	RO	0x03 (3_{dez})
0x2C0F:01	Command	With this command object the cogging compensation data can be saved.	OCTET-STRING[16]	RW	{0}
0x2C0F:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent • 115: eCoeCmdStatus_15_Percent • 116: eCoeCmdStatus_16_Percent • 117: eCoeCmdStatus_17_Percent • 118: eCoeCmdStatus_18_Percent • 119: eCoeCmdStatus_19_Percent • 120: eCoeCmdStatus_20_Percent • 121: eCoeCmdStatus_21_Percent • 122: eCoeCmdStatus_22_Percent • 123: eCoeCmdStatus_23_Percent • 124: eCoeCmdStatus_24_Percent • 125: eCoeCmdStatus_25_Percent • 126: eCoeCmdStatus_26_Percent • 127: eCoeCmdStatus_27_Percent • 128: eCoeCmdStatus_28_Percent • 129: eCoeCmdStatus_29_Percent • 130: eCoeCmdStatus_30_Percent • 131: eCoeCmdStatus_31_Percent • 132: eCoeCmdStatus_32_Percent • 133: eCoeCmdStatus_33_Percent • 134: eCoeCmdStatus_34_Percent • 135: eCoeCmdStatus_35_Percent • 136: eCoeCmdStatus_36_Percent • 137: eCoeCmdStatus_37_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 138: eCoeCmdStatus_38_Percent • 139: eCoeCmdStatus_39_Percent • 140: eCoeCmdStatus_40_Percent • 141: eCoeCmdStatus_41_Percent • 142: eCoeCmdStatus_42_Percent • 143: eCoeCmdStatus_43_Percent • 144: eCoeCmdStatus_44_Percent • 145: eCoeCmdStatus_45_Percent • 146: eCoeCmdStatus_46_Percent • 147: eCoeCmdStatus_47_Percent • 148: eCoeCmdStatus_48_Percent • 149: eCoeCmdStatus_49_Percent • 150: eCoeCmdStatus_50_Percent • 151: eCoeCmdStatus_51_Percent • 152: eCoeCmdStatus_52_Percent • 153: eCoeCmdStatus_53_Percent • 154: eCoeCmdStatus_54_Percent • 155: eCoeCmdStatus_55_Percent • 156: eCoeCmdStatus_56_Percent • 157: eCoeCmdStatus_57_Percent • 158: eCoeCmdStatus_58_Percent • 159: eCoeCmdStatus_59_Percent • 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent • 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C0F:03	Response		OCTET-STRING[8]	RO	{0}

0x2C10 | [SG] SynchronousMotor sensorless control parameters

This object contains parameters for sensorless control operation.

Index	Name	Meaning	Data type	Flags	Default
0x2C10:0	[SG] SynchronousMotor sensorless control parameters		uint8_t	RO	0x10 (16_{dez})
0x2C10:01	Emf observer: Internal torque command standstil	This object configures the internal torque command during standstill in percent based on the motor standstill current (0x6075). Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0x1388 (5000_{dez})	uint16_t	RW	0x00C8 (200_{dez})
0x2C10:02	Emf observer: Internal torque command acceleration	This object configures the internal torque command during acceleration and decleration in percent based on the motor standstill current (0x6075). Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0x1388 (5000_{dez})	uint16_t	RW	0x0258 (600_{dez})
0x2C10:03	Emf observer: Flux generating current slope 1	This object configures the flux generating current slope 1 in percent per ms based on the motor standstill current (0x6075). Unit: %/s	uint32_t	RW	0x000000C8 (200_{dez})

Index	Name	Meaning	Data type	Flags	Default
		Min: 0x00000001 (1_{dez}) Max: 0x000186A0 (100000_{dez})			
0x2C10:04	Emf observer: Flux generating current slope 2	This object configures the flux generating current slope 2 in percent per ms based on the motor standstill current (0x6075). Unit: %/s Min: 0x00000001 (1_{dez}) Max: 0x000186A0 (100000_{dez})	uint32_t	RW	0x00002710 (10000_{dez})
0x2C10:05	Emf observer: Flux generating current slope 3	This object configures the flux generating current slope 3 in percent per ms based on the motor standstill current (0x6075). Unit: %/s Min: 0x00000001 (1_{dez}) Max: 0x000186A0 (100000_{dez})	uint32_t	RW	0x000000C8 (200_{dez})
0x2C10:06	Emf observer: Current control loop proportional gain	This object contains the proportional gain of the flux generating current control loop during startup. Unit: V/A Min: 0.0 Max: 3.40282E+38	float	RW	30.0
0x2C10:07	Emf observer: Threshold speed enable FOC	This object configures the speed threshold at which the field oriented control is enabled. Unit: rpm	uint32_t	RW	0x00000AF0 (2800_{dez})
0x2C10:08	Emf observer: Threshold speed disable FOC	This object configures the speed threshold at which the field oriented control is disabled. Unit: rpm	uint32_t	RW	0x000007D0 (2000_{dez})
0x2C10:09	Emf observer: Timeout	This object configures the commutation angle adjustment attempt timeout. Unit: s Min: 0.001 Max: 60.0	float	RW	10.0
0x2C10:0A	Emf observer: Commutation angle adjustment	This object configures the commutation angle adjustment. Unit: rad/s Min: 0.0 Max: 200.0	float	RW	5.0
0x2C10:0B	Emf observer: Commutation angle error limit	This object configures the commutation angle error limit. Unit: rad Min: 0.0 Max: 0.5	float	RW	0.5
0x2C10:0C	Emf observer: Low pass frequency	This object configures the low pass frequency. Unit: Hz Min: 0x0000 (0_{dez}) Max: 0x0BB8 (3000_{dez})	uint16_t	RW	0x012C (300_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C10:0D	Emf observer: Bandwidth	This object configures the sensorless control observer bandwidth. Unit: Hz Min: 0x0019 (25_{dez}) Max: 0x03E8 (1000_{dez})	uint16_t	RW	0x0032 (50_{dez})
0x2C10:0E	Emf observer: Damping	This object configures the sensorless control observer damping factor. Min: 0.2 Max: 1.0	float	RW	0.7

0x2C11 | [SG] SynchronousMotor field weakening parameters

This object contains parameters for field weakening operation.

Index	Name	Meaning	Data type	Flags	Default
0x2C11:0	[SG] SynchronousMotor field weakening parameters		uint8_t	RO	0x05 (5_{dez})
0x2C11:01	Mode	This object enables field weakening and configures the field weakening mode. allowed values: • 0: Field_weakening_disabled • 1: Basic_field_weakening	uint16_t	RW	0x0000 (0_{dez})
0x2C11:02	Current ratio	This object configures the maximal field weakening current based on the smaller value of motor and inverter rated current. Unit: 0,01 % Min: 0x0000 (0_{dez}) Max: 0x2710 (10000_{dez})	uint16_t	RW	0x1770 (6000_{dez})
0x2C11:03	Voltage utilization	This object configures the voltage utilization set value in field weakening operation. Unit: 0,01 % Min: 0x0000 (0_{dez}) Max: 0x2710 (10000_{dez})	uint16_t	RW	0x251C (9500_{dez})
0x2C11:04	Integral action time	This object configures the voltage controller integral action time. Unit: s Min: 0.0005 Max: 1.0	float	RW	0.005
0x2C11:05	Max field weakening current	This object shows the maximal field weakening current. Unit: 0,01 A	uint16_t	RO	0x0000 (0_{dez})

0x2C1F | [SG] SynchronousMotor control mode

Index	Name	Meaning	Data type	Flags	Default
0x2C1F:0	[SG] SynchronousMotor control mode	This object configures the control mode. allowed values: • 0: Sm_field_oriented_control_with_feedback • 1: Sm_field_oriented_control_with_emf_observer	uint16_t	RW	0x0000 (0_{dez})

0x5875 | [SG] Motor standstill current

Index	Name	Meaning	Data type	Flags	Default
0x5875:0	[SG] Motor standstill current	This object indicates the motor standstill current (I_0). If an electronic datasheet is available "Standstill current" will be read and scaled to mA. Unit: mA	uint32_t	RW	0x00000000 (0_{dez})

0x5876 | [SG] Motor standstill torque

Index	Name	Meaning	Data type	Flags	Default
0x5876:0	[SG] Motor standstill torque	This object indicates the motor standstill torque (M_0)/force (F_c). If an electronic datasheet of the motor is available "Standstill current" (I_0) will be multiplied by the torque constant (K_t)/(K_f). The value is scaled to mNm/mN. Unit: mNm	uint32_t	RW	0x00000000 (0_{dez})

0x5880 | [SG] Max motor speed

Index	Name	Meaning	Data type	Flags	Default
0x5880:0	[SG] Max motor speed	This object shall indicate the configured maximal allowed speed for the motor in either direction. It is used to protect the motor and is taken from the motor data sheet. Unit: rpm	uint32_t	RW	0x00000BB8 (3000_{dez})

2.11 Objects of module AsynchronousMotor

Overview of Objects

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0x1A00 | [SG] AsynchronousMotor TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] AsynchronousMotor TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] AsynchronousMotor parameters

This object contains parameters to configure the connected motor.

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] AsynchronousMotor parameters		uint8_t	RO	0x1E (30_{dez})
0x2C00:01	Configured motor type	This object indicates the configured motor type.	STRING	RW	"not set"
0x2C00:02	Pole pairs	This object indicates the motor pole pairs. Min: 0x0000 (0_{dez}) Max: 0x00FF (255_{dez})	uint16_t	RW	0x0000 (0_{dez})
0x2C00:03	Motor peak current	This object configures the motor peak current. If the electronic datasheet of the motor is available take "Peak current". Unit: A Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:04	Motor nominal voltage	This object configures the motor nominal voltage. If the electronic datasheet is available take "Nominal voltage" according to the selected mains voltage. Unit: V Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:05	Motor max voltage	This object configures the motor max voltage. If the electronic datasheet is available take "Max voltage". Unit: V Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:09	Motor warning temperature	This object configures the motor temperature warning threshold. If the electronic datasheet is available take "T motor warn limit". Unit: °C	float	RW	80.0

Index	Name	Meaning	Data type	Flags	Default
		Min: 0.0 Max: 150.0			
0x2C00:0A	Motor shut down temperature	This object configures the motor temperature error threshold. If the electronic datasheet is available take "T motor err limit". Unit: °C Min: 0.0 Max: 150.0	float	RW	100.0
0x2C00:0B	Motor moment of inertia	This object configures the inertia of rotor including brake and encoder. If the electronic datasheet is available take "J motor with brake". Unit: kg m^2 Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:0C	Motor rated speed	This object indicates the motor calculated speed. Its calculated from the motor parameters. Unit: rpm Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:0D	Motor rated torque	This object configures the motor rated torque at rated speed. If the electronic datasheet is available take "Rated torque" according to the selected mains voltage. Unit: Nm Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C00:0F	Motor temperature sensor connection	This object configures the motor temperature sensor type. allowed values: • 0: No_motor_temperature_switch_or_sensor • 1: Via_feedback_process_data_and_characteristic_table • 2: Via_motor_cable_and_characteristic_table • 3: Via_feedback_process_data_scaled_in_0_1K • 4: Via_feedback_process_data_scaled_in_0_1degC	int16_t	RW	0x0000 (0_{dez})
0x2C00:11	Max motor speed with max torque	see Documentation of AX5000 Unit: rpm Min: 0.0 Max: 3.40282E+38	float	RW	3200.0

Index	Name	Meaning	Data type	Flags	Default
0x2C00:12	Motor nominal frequency	This object configures the rated frequency of an induction motor. Unit: Hz Min: 15.0 Max: 3.40282E+38	float	RW	50.0
0x2C00:13	Motor rotor time constant	This object configures the motor maximum winding voltage slope. If the electronic datasheet is available take "Max winding du/dt" according to the selected mains voltage. Unit: s Min: 0.0 Max: 1.0	float	RW	0.0
0x2C00:14	Motor power factor	This object This configures the power factor at rated power of an induction motor. Min: 0.0 Max: 0.95	float	RW	0.8
0x2C00:18	Uf control mode	This object configures the used voltage characteristic of the Uf open loop control mode. allowed values: • 0: Uf_MotorParameters_and_Boost • 1: Uf_characteristic_curve	uint16_t	RW	0x0000 (0_{dez})
0x2C00:1C	Connection type	This object configures the stator winding connection type. allowed values: • 0: Star_connection • 1: Delta_connection	uint16_t	RW	0x0000 (0_{dez})
0x2C00:1D	Premagnetization wait time	This is the waiting time between the acitvation of the axis and starting the start of the control process. During this time, the motor magnetization builds up. Unit: s Min: 0.0 Max: 20.0	float	RW	1.0
0x2C00:1E	Motor holding brake minimum frequency	Use this value to ensure the motor can hold a load before the brake mechanically engages. Unit: Hz Min: 0.0 Max: 10.0	float	RW	0.0

0x2C01 | [SG] AsynchronousMotor actual values

This object contains actual values from this module.

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] AsynchronousMotor actual values		uint8_t	RO	0x0F (15_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C01:01	Actual motor I2T current limit	This object is to monitor the thermal motor I^2T model current limitation. If the estimated I^2T value exceeds the threshold value the current will be limited to motor I_0 (0x6075). Unit: A	float	RO	0.0
0x2C01:02	Thermal motor utilization	This object is to indicate the actual motor utilization. Unit: %	float	RO	0.0
0x2C01:05	Motor I2T limitation active	This internal state indicates a current reduction due to the thermal motor model. allowed values: • 0: limit_off • 1: limit_active	uint8_t	RO	0x00 (0_{dez})
0x2C01:06	Actual motor temperature	This object provides the measured motor winding temperature. It is usually acquired via the motor internal temperature sensor. Unit: °C	float	RO	0.0
0x2C01:08	Stall protection controller output: Velocity reduction	This object provides the output value of the stall protection controller. Unit: rpm	float	RO	0.0
0x2C01:09	Acceleration controller output: Acceleration/ Deceleration reduction limit	This object provides the output value of the acceleration protection controller. Unit: x * 1 °/s^2	float	RO	0.0
0x2C01:0A	Slip actual value	This object provides the calculated slip at the actual velocity demand value. Unit: rpm	float	RO	0.0
0x2C01:0C	reserved_2	This object displays if the actual motor commutation offset is valid. allowed values: • 0: False • 1: True	uint8_t	RO	0x00 (0_{dez})
0x2C01:0F	reserved_3	Voltage controller actual voltage value.	float	RO	0.0

0x2C03 | [SG] AsynchronousMotor parameters mappable

This object contains demand values to this module.

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] AsynchronousMotor parameters mappable		uint8_t	RO	0x04 (4_{dez})
0x2C03:01	Boost voltage	This object is used to configure the boost voltage at low speed operation of an induction motor. Unit: V Min: 0.0 Max: 100.0	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C03:02	Additional voltage scaling factor	This object might be used to reduce the frequency dependent voltage gain. Min: 0.01 Max: 1.0	float	RW	1.0
0x2C03:03	Voltage offset and gain adjustment	This object might be used to adjust the gain and the offset at standstill of the u/f-curve at the same time. Unit: V Min: 0.0 Max: 100.0	float	RW	10.0
0x2C03:04	Uf curve shift	This object might be used to shift the Uf-curve. Unit: V Min: -100.0 Max: 100.0	float	RW	0.0

0x2C04 | [SG] AsynchronousMotor acceleration control parameters

Index	Name	Meaning	Data type	Flags	Default
0x2C04:0	[SG] AsynchronousMotor acceleration control parameters		uint8_t	RO	0x05 (5_{dez})
0x2C04:01	Enable	This object enabled or disables the acceleration protection controller. allowed values: • 0: feature_disabled • 1: feature_enabled	uint8_t	RW	0x00 (0_{dez})
0x2C04:02	Current limit value	This object configures the current limit value to control acceleration of an induction motor. Unit: A Min: 0.0	float	RW	0.0
0x2C04:03	Proportional gain	This object configures the proportional gain of the induction motor acceleration control loop. Unit: rad/s^2/A	float	RW	0.0
0x2C04:04	Integration time	This object configures the integral action time of the induction motor acceleration control loop. Unit: s	float	RW	0.0
0x2C04:05	Limitation threshold: Lowest acceleration/ deceleration reduction limit	This object provides lower limit for the output value of the acceleration protection controller. Unit: x * 1 °/s^2 Min: 0.0	float	RW	360.0

0x2C05 | [SG] AsynchronousMotor stall protection control parameters

Index	Name	Meaning	Data type	Flags	Default
0x2C05:0	[SG] AsynchronousMotor stall protection control parameters		uint8_t	RO	0x04 (4_{dez})
0x2C05:01	Enable	This object enabled or disables the stall protection controller. allowed values: • 0: feature_disabled • 1: feature_enabled	uint8_t	RW	0x00 (0_{dez})
0x2C05:02	Current limit value	This object configures the current limit value for the induction motor stall protection control loop. Unit: A Min: 0.0	float	RW	0.0
0x2C05:03	Proportional gain	This object configures the proportional gain of the induction motor stall protection control loop. Unit: rad/s/A	float	RW	0.0
0x2C05:04	Integration time	This object configures the integral action time of the induction motor stall protection control loop. Unit: s	float	RW	0.0

0x2C07 | [SG] AsynchronousMotor temperature sensor characteristic

This object describes the R(T) curve of the motor winding temperature sensor.

Index	Name	Meaning	Data type	Flags	Default
0x2C07:0	[SG] AsynchronousMotor temperature sensor characteristic		uint8_t	RO	0x15 (21_{dez})
0x2C07:01	Temperature 0	Temperature sampling point 1 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:02	Temperature 1	Temperature sampling point 2 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:03	Temperature 2	Temperature sampling point 3 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:04	Temperature 3	Temperature sampling point 4 of the R(T) curve of the motor. Unit: °C	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
		Min: -250.0 Max: 250.0			
0x2C07:05	Temperature 4	Temperature sampling point 5 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:06	Temperature 5	Temperature sampling point 6 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:07	Temperature 6	Temperature sampling point 7 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:08	Temperature 7	Temperature sampling point 8 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:09	Temperature 8	Temperature sampling point 9 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:0A	Temperature 9	Temperature sampling point 10 of the R(T) curve of the motor. Unit: °C Min: -250.0 Max: 250.0	float	RW	0.0
0x2C07:0B	Resistance 0	Resistance sampling point 1 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:0C	Resistance 1	Resistance sampling point 2 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:0D	Resistance 2	Resistance sampling point 3 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C07:0E	Resistance 3	Resistance sampling point 4 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:0F	Resistance 4	Resistance sampling point 5 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:10	Resistance 5	Resistance sampling point 6 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:11	Resistance 6	Resistance sampling point 7 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:12	Resistance 7	Resistance sampling point 8 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:13	Resistance 8	Resistance sampling point 9 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:14	Resistance 9	Resistance sampling point 10 of the R(T) curve of the motor. Unit: Ω Min: 0.0 Max: 1.00000E+06	float	RW	0.0
0x2C07:15	Temperature Sensor Id	Id of the temperature sensor. allowed values: • 0: TemperatureSensorId_NotDefined • 1: TemperatureSensorId_KTY_84_130 • 2: TemperatureSensorId_PT1000 • 3: TemperatureSensorId_PT100 • 4: TemperatureSensorId_KTY_83_110	int32_t	RO	0x00000000 (0_{dez})

0x2C08 | [SG] AsynchronousMotor thermal model

These objects configure the motor thermal model.

Index	Name	Meaning	Data type	Flags	Default
0x2C08:0	[SG] AsynchronousMotor thermal model		uint8_t	RO	0x05 (5_{dez})
0x2C08:01	Motor thermal time constant	This object configures the time constant for the whole motor. If an electronic datasheet is available take "Motor thermal constant" and scale it to seconds. Unit: s Min: 0.0 Max: 200000.0	float	RW	540.0
0x2C08:03	Warning limit	This object shall configure the thermal motor utilization warning limit. Unit: % Min: 0.0 Max: 100.0	float	RW	80.0
0x2C08:04	Error limit	This object shall configure the thermal motor utilization error limit. Unit: % Min: 0.0 Max: 100.0	float	RW	100.0
0x2C08:05	Reaction	This object configures the reaction in case reaching the thermal motor utilization error limit. allowed values: • 0: No_Reaction • 1: Shut_down_on_error_level • 2: Reduction	int16_t	RW	0x0000 (0_{dez})

0x2C09 | [SG] AsynchronousMotor rotor slowdown procedure parameter

This object the parameters for the rotor slowdown procedure.

Index	Name	Meaning	Data type	Flags	Default
0x2C09:0	[SG] AsynchronousMotor rotor slowdown procedure parameter		uint8_t	RO	0x0B (11_{dez})
0x2C09:01	Available for	This object configures the drive states in which this procedure shall be active. allowed values: • 0: Activate_for_error_reaction • 1: Activate_for_error_reaction_and_Uf_control_during_standstill_with_time_limitation • 2: Activate_for_error_reaction_and_Uf_control_during_standstill_without_time_limitation	uint16_t	RW	0x0000 (0_{dez})
0x2C09:02	Command mode	This object selects the active current level.	uint16_t	RW	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		allowed values: • 0: DC_Brake_with_configured_channel_current • 1: DC_Brake_with_torque_command • 2: DC_Brake_with_current_level_from_this_record			
0x2C09:03	Current level	This object configures the current level for the rotor slowdown procedure. Unit: 0,1 % Min: 0x0000 (0_{dez}) Max: 0x1388 (5000_{dez})	uint16_t	RW	0x01F4 (500_{dez})
0x2C09:04	Current slope	This object configures the current slope for the rotor slowdown procedure. Unit: A/s Min: 0.0	float	RW	200.0
0x2C09:05	Wait time before braking	This object configures the initial wait time for the rotor slowdown procedure. Unit: s Min: 0.0 Max: 60.0	float	RW	0.0
0x2C09:06	First phase activation time with f=f1	This object configures the first phase activation time for the rotor slowdown procedure. Unit: s Min: 0.0 Max: 60.0	float	RW	0.1
0x2C09:07	Rotary field frequency f1	This object configures the rotary field for the first phase of the rotor slowdown procedure. Unit: Hz Min: 0.0 Max: 10.0	float	RW	5.0
0x2C09:08	Rotor slowdown mode	This object configures the rotor slowdown mode. allowed values: • 0: Slowdown_without_changing_the_direction_of_the_rotary_field • 1: Slowdown_with_changing_the_direction_of_the_rotary_field	uint16_t	RW	0x0000 (0_{dez})
0x2C09:09	Second phase activation time with f=0Hz	This object configures the second phase activation time for the rotor slowdown procedure. Unit: s Min: 0.0 Max: 60.0	float	RW	1.0

Index	Name	Meaning	Data type	Flags	Default
0x2C09:0A	Wait time after braking	This object configures the final wait time for the rotor slowdown procedure. Unit: s Min: 0.0 Max: 60.0	float	RW	0.0
0x2C09:0B	Standstill window time limitation	This object configures the final wait time for the rotor slowdown procedure. Unit: s Min: 0.0 Max: 60.0	float	RW	1.0

0x2C17 | [SG] AsynchronousMotor extended parameters

This object configures the parameters for the slip compensation.

Index	Name	Meaning	Data type	Flags	Default
0x2C17:0	[SG] AsynchronousMotor extended parameters		uint8_t	RO	0x06 (6_{dez})
0x2C17:01	Slip compensation: Enable	This object enables the slip compensation. allowed values: • 0: feature_disabled • 1: feature_enabled	uint8_t	RW	0x00 (0_{dez})
0x2C17:02	Slip compensation: Low pass filter time constant - Magnetizing current	This object configures the low pass filter time constant for the magnetizing current. Unit: s Min: 0.0 Max: 1.0	float	RW	0.05
0x2C17:03	Slip compensation: Low pass filter time constant - Torque generating current	This object configures the low pass filter time constant for the torque generating current. Unit: s Min: 0.0 Max: 1.0	float	RW	0.05
0x2C17:04	Slip compensation: Compensation factor	This object configures the slip compensation factor related to the rated slip. Unit: % Min: 0x0000 (0_{dez}) Max: 0x03E8 (1000_{dez})	uint16_t	RW	0x0064 (100_{dez})
0x2C17:05	Slip compensation: Limitation factor	This object configures the slip limitation factor related to the rated slip. Unit: % Min: 0x0064 (100_{dez}) Max: 0x03E8 (1000_{dez})	uint16_t	RW	0x01F4 (500_{dez})
0x2C17:06	Slip compensation: Fadeout velocity	This object configures the fadeout velocity for the slip compensation relative to the idle speed.	uint16_t	RW	0x000A (10_{dez})

Index	Name	Meaning	Data type	Flags	Default
		Unit: % Min: 0x0000 (0_{dez}) Max: 0x0064 (100_{dez})			

0x2C1F | [SG] AsynchronousMotor control mode

Index	Name	Meaning	Data type	Flags	Default
0x2C1F:0	[SG] AsynchronousMotor control mode	This object configures the control mode. allowed values: • 0: Asm_uf_control • 1: Asm_field_oriented_control_with_feedback	uint16_t	RW	0x0000 (0_{dez})

0x5875 | [SG] Motor standstill current

Index	Name	Meaning	Data type	Flags	Default
0x5875:0	[SG] Motor standstill current	This object indicates the motor standstill current (I_0). If an electronic datasheet is available "Standstill current" will be read and scaled to mA. Unit: mA Min: 0x00000000 (0_{dez}) Max: 0xFFFFFFFF (4294967295_{dez})	uint32_t	RW	0x00000000 (0_{dez})

0x5876 | [SG] Motor standstill torque

Index	Name	Meaning	Data type	Flags	Default
0x5876:0	[SG] Motor standstill torque	This object indicates the motor standstill torque (M_0)/force (F_c). If an electronic datasheet of the motor is available "Standstill current" (I_0) will be multiplied by the torque constant (K_t)/(K_f). The value is scaled to mNm/mN. Unit: mNm Min: 0x00000000 (0_{dez}) Max: 0xFFFFFFFF (4294967295_{dez})	uint32_t	RW	0x00000000 (0_{dez})

0x5880 | [SG] Max motor speed

Index	Name	Meaning	Data type	Flags	Default
0x5880:0	[SG] Max motor speed	This object shall indicate the configured maximal allowed speed for the motor in either direction. It is used to protect the motor and is taken from the motor data sheet. Unit: rpm	uint32_t	RW	0x00000BB8 (3000_{dez})

2.12 Objects of module HpfDslRotary

Overview of Objects

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0x1A00 | [SG] HpfDslRotary TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] HpfDslRotary TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] [SL] HpfDslRotary actual values

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] [SL] HpfDslRotary actual values		uint8_t	RO	0x07 (7_{dez})
0x2C00:01	Position	The actual position value of the motor feedback system with considered overflows and polarity settings. Unit: inc	int64_t	RO	0x0000000000000000 (0_{dez})
0x2C00:02	Raw position	This object contains the raw position value from the encoder. Unit: inc	int64_t	RO	0x0000000000000000 (0_{dez})
0x2C00:03	Actual position estimator deviation	The actual possible absolute position deviation calculated while the estimator is active. Unit: x * (360/4294967296)°	uint32_t	RO	0x00000000 (0_{dez})
0x2C00:04	Status	Status register of the HpfDsl master IP core wrapper (troubleshooting only).	uint16_t	RO	0x0000 (0_{dez})
0x2C00:05	rsvd1		uint8_t	RO	0x00 (0_{dez})
0x2C00:06	Valid	Valid flag for the position and the raw position value.	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C00:07	rsvd2	Unit: x * (360/4294967296)°	int64_t	RO	0x00000000 00000000 (0_{dez})

0x2C01 | [SG] [SL] HpfDslRotary encoder info

This object contains a collection of information from the encoder system.

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	[SG] [SL] HpfDslRotary encoder info		uint8_t	RO	0x2D (45_{dez})
0x2C01:01	Interface	Version and feature info of the HpfDsl master IP core wrapper.	uint64_t	RO	0x00000000 00000000 (0_{dez})
0x2C01:02	IpCore version	The version of the HpfDsl master IP core. [7..6]: Coding, [5..4]: Major release, [3..0]: Minor release	uint8_t	RO	0x00 (0_{dez})
0x2C01:03	Encoder identification part 0	Byte 0 of the designation code of the motor feedback as defined in the HpfDSL protocol specification.	uint8_t	RO	0x00 (0_{dez})
0x2C01:04	Encoder identification part 1	Byte 1 of the designation code of the motor feedback as defined in the HpfDSL protocol specification.	uint8_t	RO	0x00 (0_{dez})
0x2C01:05	Encoder identification part 2	Byte 2 of the designation code of the motor feedback as defined in the HpfDSL protocol specification.	uint8_t	RO	0x00 (0_{dez})
0x2C01:06	Encoder base type	The type of encoder describes the basic functionality of the motor feedback system. allowed values: • 0: Rotary_Encoder_bipolar_counting • 1: Linear_Encoder_bipolar_counting • 2: Rotary_Encoder_unipolar_counting • 3: Linear_Encoder_unipolar_counting • 4: HF2DSL_Rotary_Encoder_bipolar_counting • 5: HF2DSL_Linear_Encoder_bipolar_counting • 6: HF2DSL_Rotary_Encoder_unipolar_counting • 7: HF2DSL_Linear_Encoder_unipolar_counting • 8: HF2DSL_No_Encoder_connected	int16_t	RO	0x0000 (0_{dez})
0x2C01:07	Encoder hardware version	The DSL slave interface hardware version.	uint8_t	RO	0x00 (0_{dez})
0x2C01:08	rsvd0		uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C01:09	Resolution	The resolution value defines the number of steps per rotation of the encoder.	uint32_t	RO	0x00000000 (0_{dez})
0x2C01:0A	Range	The measurement range defines the number of coded rotations of the encoder.	uint32_t	RO	0x00000000 (0_{dez})
0x2C01:0B	Base type code name	The type name of the encoder stored in ASCII.	STRING	RO	"0"
0x2C01:0C	Serial number	The serial number of the encoder stored in ACSII.	STRING	RO	"0"
0x2C01:0D	Firmware revision number	The firmware and hardware version of the encoder stored in ASCII.	STRING	RO	"0"
0x2C01:0E	Firmware date	The firmware date of the encoder stored in ASCII.	STRING	RO	"0"
0x2C01:0F	Eeprom size	The total size in byte of non-volatile memory in the encoder available for storage of user data.	uint16_t	RO	0x0000 (0_{dez})
0x2C01:10	Min permitted encoder temperature	The minimum permitted value for the temperature of the DSL motor feedback system. Unit: 0,1 °C	int16_t	RO	0x0000 (0_{dez})
0x2C01:11	Max permitted encoder temperature	The maximum permitted value for the temperature of the DSL motor feedback system. Unit: 0,1 °C	int16_t	RO	0x0000 (0_{dez})
0x2C01:12	Max permitted encoder speed	The permitted maximum shaft rotation speed for rotary DSL motor feedback system. Unit: rpm	uint16_t	RO	0x0000 (0_{dez})
0x2C01:13	Encoder internal position offset	The current position offset of the DSL motor feedback system stored by the manufacturer. The motor manufacturer usually uses this offset to adjust to commutation position. Unit: inc	uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C01:14	Estimator acceleration	The acceleration value used for position estimation in case of invalid fast positions. Unit: rad/s^2 Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0
0x2C01:15	Accepted estimator deviation	The maximum accepted position deviation of the estimator. Unit: ° Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0
0x2C01:16	rsvd1	Value of the 'Max sync jitter' register of the HpfDsl master IP core.	uint16_t	RO	0x0000 (0_{dez})
0x2C01:17	Encoder status 0 (addr 0x40) mask	Byte 0 (addr 0x40) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})
0x2C01:18	Encoder status 1 (addr 0x41) mask	Byte 1 (addr 0x41) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C01:19	Encoder status 2 (addr 0x42) mask	Byte 2 (addr 0x42) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})
0x2C01:1A	Encoder status 3 (addr 0x43) mask	Byte 3 (addr 0x43) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})
0x2C01:1B	Encoder status 4 (addr 0x44) mask	Byte 4 (addr 0x44) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})
0x2C01:1C	Encoder status 5 (addr 0x45) mask	Byte 5 (addr 0x45) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})
0x2C01:1D	Encoder status 6 (addr 0x46) mask	Byte 6 (addr 0x46) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})
0x2C01:1E	Encoder status 7 (addr 0x47) mask	Byte 7 (addr 0x47) of the encoder status is cyclically monitored to zero after applying this mask value.	uint8_t	RO	0x00 (0_{dez})
0x2C01:1F	Encoder status 0 (addr 0x40) after power up	Byte 0 (addr 0x40) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:20	Encoder status 1 (addr 0x41) after power up	Byte 1 (addr 0x41) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:21	Encoder status 2 (addr 0x42) after power up	Byte 2 (addr 0x40) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:22	Encoder status 3 (addr 0x43) after power up	Byte 3 (addr 0x43) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:23	Encoder status 4 (addr 0x44) after power up	Byte 4 (addr 0x44) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:24	Encoder status 5 (addr 0x45) after power up	Byte 5 (addr 0x45) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:25	Encoder status 6 (addr 0x46) after power up	Byte 6 (addr 0x46) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:26	Encoder status 7 (addr 0x47) after power up	Byte 7 (addr 0x47) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C01:27	Encoder index		uint16_t	RO	0x0000 (0_{dez})
0x2C01:28	Encoder index status		uint16_t	RO	0x0000 (0_{dez})
0x2C01:29	Error log filter		uint16_t	RO	0x0000 (0_{dez})
0x2C01:2A	Safe channel 2 resolution	The resolution value of the safe channel 2.	uint32_t	RO	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C01:2B	rsvd2		uint32_t	RO	0x00000000 (0_{dez})
0x2C01:2C	System periods and resolution	RID SPERIOS	uint64_t	RO	0x00000000 00000000 (0_{dez})
0x2C01:2D	Code disk position range	RID AXPOSRNG	uint16_t	RO	0x0000 (0_{dez})

0x2C02 | [SG] [SL] HpfDslRotary encoder status

This object contains a collection of status values from the encoder system.

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] [SL] HpfDslRotary encoder status		uint8_t	RO	0x22 (34_{dez})
0x2C02:01	Delay register	The run time delay of the system cable and the signal strength. [7..4] RSSI, Received signal strength, [3..0] Cable delay in 100ns	uint8_t	RO	0x00 (0_{dez})
0x2C02:02	Master quality monitor	The quality monitoring value for the data connection. [7] Link, [3..0] Quality monitoring value.	uint8_t	RO	0x00 (0_{dez})
0x2C02:03	Slave received signal strength	Slave Received Signal Strength Indicator. [2..0] Indication of the strength of the signal arriving at the slave.	uint8_t	RO	0x00 (0_{dez})
0x2C02:04	Edges register	The edge register contains the time control for the DSL cable bit sampling and can be used to monitor the connection quality.	uint8_t	RO	0x00 (0_{dez})
0x2C02:05	Summary register	The summary register contains the summarized DSL Slave status information.	uint8_t	RO	0x00 (0_{dez})
0x2C02:06	rsvd0		uint8_t	RO	0x00 (0_{dez})
0x2C02:07	Encoder temperature	The current temperature of the DSL motor feedback system. Unit: 0,1 °C	int16_t	RO	0x0000 (0_{dez})
0x2C02:08	Sensor monitor eg LED current	The current value of the product-specific sensor monitoring. In case of optical encoders the LED current is displayed. Unit: 0,1 mA	uint16_t	RO	0x0000 (0_{dez})
0x2C02:09	Supply voltage	The measured supply voltage of the DSL motor feedback system. Unit: mV	uint16_t	RO	0x0000 (0_{dez})
0x2C02:0A	Encoder status 0 (addr 0x40)	Byte 0 (addr 0x40) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C02:0B	Encoder status 1 (addr 0x41)	Byte 1 (addr 0x41) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0C	Encoder status 2 (addr 0x42)	Byte 2 (addr 0x42) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C02:0D	Encoder status 3 (addr 0x43)	Byte 3 (addr 0x43) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C02:0E	Encoder status 4 (addr 0x44)	Byte 4 (addr 0x44) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C02:0F	Encoder status 5 (addr 0x45)	Byte 5 (addr 0x45) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C02:10	Encoder status 6 (addr 0x46)	Byte 6 (addr 0x46) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C02:11	Encoder status 7 (addr 0x47)	Byte 7 (addr 0x47) of the encoder status registers containing all slave system errors, events and warnings from the DSL encoder.	uint8_t	RO	0x00 (0_{dez})
0x2C02:12	Operation time	The operating time of the DSL motor feedback system. Unit: min	uint32_t	RO	0x00000000 (0_{dez})
0x2C02:13	Total shaft turns	The observed number of shaft rotations of the DSL motor feedback system.	uint32_t	RO	0x00000000 (0_{dez})
0x2C02:14	Max occurred position deviation	The maximum possible absolute position deviation calculated while the estimator is active. Unit: ° Min: -3.40282E+38 Max: 3.40282E+38	float	RO	0.0
0x2C02:15	Position deviation limit exceeded	Signals if the absolute position deviation threshold is exceeded.	uint8_t	RO	0x00 (0_{dez})
0x2C02:16	rsvd1		uint8_t	RO	0x00 (0_{dez})
0x2C02:17	Total VPOS errors	VPOS error counter.	uint16_t	RO	0x0000 (0_{dez})
0x2C02:18	Total ACC errors	ACC error counter.	uint16_t	RO	0x0000 (0_{dez})
0x2C02:19	Total VRT errors	VRT error counter.	uint16_t	RO	0x0000 (0_{dez})
0x2C02:1A	Total POS errors	POS error counter.	uint16_t	RO	0x0000 (0_{dez})
0x2C02:1B	Total LINK errors	LINK error counter.	uint16_t	RO	0x0000 (0_{dez})
0x2C02:1C	Total encoding errors	8b/10b encoding error counter.	uint16_t	RO	0x0000 (0_{dez})
0x2C02:1D	rsvd2		uint16_t	RO	0x0000 (0_{dez})
0x2C02:1E	Resistance measurement value	Resistance of the temperature sensor connected to the DSL motor feedback system. Unit: Ω	uint32_t	RO	0x00000000 (0_{dez})
0x2C02:1F	Parameter channel access counter	Count of the parameter channel read/ write requests.	int16_t	RO	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C02:20	Parameter channel access error counter	Count of the failed parameter channel read/write requests.	uint16_t	RO	0x0000 (0_{dez})
0x2C02:21	Remaining life time	The remaining task lifetime of the DSL motor feedback system. Unit: min	uint32_t	RO	0x00000000 (0_{dez})
0x2C02:22	Code disk position	The current value of the code disc position of bearing-less or kit encoders.	int16_t	RO	0x0000 (0_{dez})

0x2C03 | [SG] [SL] HpfDslRotary temperature sensors

This object contains the temperature sensor values.

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] [SL] HpfDslRotary temperature sensors		uint8_t	RO	0x04 (4_{dez})
0x2C03:01	HpfDSL encoder connected sensor data state	This object contains the data state of the encoder connected temperature sensor value, allowed values: • 0: eDataState_Idle • 1: eDataState_Valid • 2: eDataState_Error	int16_t	RO	0x0000 (0_{dez})
0x2C03:02	HpfDSL encoder connected sensor resistance	This object contains the resistance of the encoder connected temperature sensor value, Unit: Ω	uint32_t	RO	0x00000000 (0_{dez})
0x2C03:03	Drive connected sensor data state	This object contains the data state of the drive connected temperature sensor value, allowed values: • 0: eDataState_Idle • 1: eDataState_Valid • 2: eDataState_Error	int16_t	RO	0x0000 (0_{dez})
0x2C03:04	Drive connected sensor resistance	This object contains the resistance of the simulated temperature sensor value, Unit: Ω	uint32_t	RO	0x00000000 (0_{dez})

0x2C04 | [SG] [SL] HpfDslRotary electronic data sheet

This object contains the content and the state of the electronic data sheet file stored in the encoder.

Index	Name	Meaning	Data type	Flags	Default
0x2C04:0	[SG] [SL] HpfDslRotary electronic data sheet		uint8_t	RO	0x02 (2_{dez})
0x2C04:01	Data state	Data state of the displayed 'Electronic Data Sheet' data. allowed values: • 0: eFileDataState_Invalid	int16_t	RO	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 1: eFileDataState_Valid • 2: eFileDataState_Modified			
0x2C04:02	Electronic data sheet	The binary data of the electronic data sheet.	OCTET-STRING[4096]	RW	{0}

0x2C05 | [SG] [SL] HpfDslRotary position offset data

This object contains the position offset and the state of the position offset file stored in the encoder.

Index	Name	Meaning	Data type	Flags	Default
0x2C05:0	[SG] [SL] HpfDslRotary position offset data		uint8_t	RO	0x02 (2_{dez})
0x2C05:01	Data state	Data state of the displayed 'Position Offset'. allowed values: • 0: eFileDataState_Invalid • 1: eFileDataState_Valid • 2: eFileDataState_Modified	int16_t	RO	0x0000 (0_{dez})
0x2C05:02	Position offset	The position offset stored in the encoder file system. Unit: inc	int64_t	RO	0x0000000000000000 (0_{dez})

0x2C06 | [SG] [SL] HpfDslRotary user data

This object contains the data string and the state of the user data file stored in the encoder.

Index	Name	Meaning	Data type	Flags	Default
0x2C06:0	[SG] [SL] HpfDslRotary user data		uint8_t	RO	0x02 (2_{dez})
0x2C06:01	Data state	Data state of the displayed 'User Data'. allowed values: • 0: eFileDataState_Invalid • 1: eFileDataState_Valid • 2: eFileDataState_Modified	int16_t	RO	0x0000 (0_{dez})
0x2C06:02	User data	The user data string stored in the encoder file system.	STRING	RO	""

0x2C07 | [SG] [SL] HpfDslRotary commutation offset data

This object contains the commutation offset and the state of the commutation offset file stored in the encoder.

Index	Name	Meaning	Data type	Flags	Default
0x2C07:0	[SG] [SL] HpfDslRotary commutation offset data		uint8_t	RO	0x02 (2_{dez})
0x2C07:01	Data state	Data state of the displayed 'Commutation Offset'. allowed values: • 0: eFileDataState_Invalid	int16_t	RO	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 1: eFileDataState_Valid • 2: eFileDataState_Modified			
0x2C07:02	Commutation offset	Unit: 0,01 °	uint32_t	RO	0x00000000 (0_{dez})

0x2C08 | [SG] [SL] HpfDslRotary direct encoder access

This object provides access to the OCT (Hiperface DSL) protocol layer.

Index	Name	Meaning	Data type	Flags	Default
0x2C08:0	[SG] [SL] HpfDslRotary direct encoder access		uint8_t	RO	0x03 (3_{dez})
0x2C08:01	Command	This object provides access to the OCT (Hiperface DSL) protocol layer.	OCTET-STRING[20]	RW	{0}
0x2C08:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent • 115: eCoeCmdStatus_15_Percent • 116: eCoeCmdStatus_16_Percent • 117: eCoeCmdStatus_17_Percent • 118: eCoeCmdStatus_18_Percent • 119: eCoeCmdStatus_19_Percent • 120: eCoeCmdStatus_20_Percent	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 121: eCoeCmdStatus_21_Percent • 122: eCoeCmdStatus_22_Percent • 123: eCoeCmdStatus_23_Percent • 124: eCoeCmdStatus_24_Percent • 125: eCoeCmdStatus_25_Percent • 126: eCoeCmdStatus_26_Percent • 127: eCoeCmdStatus_27_Percent • 128: eCoeCmdStatus_28_Percent • 129: eCoeCmdStatus_29_Percent • 130: eCoeCmdStatus_30_Percent • 131: eCoeCmdStatus_31_Percent • 132: eCoeCmdStatus_32_Percent • 133: eCoeCmdStatus_33_Percent • 134: eCoeCmdStatus_34_Percent • 135: eCoeCmdStatus_35_Percent • 136: eCoeCmdStatus_36_Percent • 137: eCoeCmdStatus_37_Percent • 138: eCoeCmdStatus_38_Percent • 139: eCoeCmdStatus_39_Percent • 140: eCoeCmdStatus_40_Percent • 141: eCoeCmdStatus_41_Percent • 142: eCoeCmdStatus_42_Percent • 143: eCoeCmdStatus_43_Percent • 144: eCoeCmdStatus_44_Percent • 145: eCoeCmdStatus_45_Percent • 146: eCoeCmdStatus_46_Percent • 147: eCoeCmdStatus_47_Percent • 148: eCoeCmdStatus_48_Percent • 149: eCoeCmdStatus_49_Percent • 150: eCoeCmdStatus_50_Percent • 151: eCoeCmdStatus_51_Percent • 152: eCoeCmdStatus_52_Percent • 153: eCoeCmdStatus_53_Percent • 154: eCoeCmdStatus_54_Percent • 155: eCoeCmdStatus_55_Percent • 156: eCoeCmdStatus_56_Percent • 157: eCoeCmdStatus_57_Percent • 158: eCoeCmdStatus_58_Percent • 159: eCoeCmdStatus_59_Percent • 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C08:03	Response		OCTET-STRING[12]	RO	{0}

0x2C0A | [SG] [SL] HpfDslRotary save user data

With this command object the user data string can be saved in the encoder file system.

Index	Name	Meaning	Data type	Flags	Default
0x2C0A:0	[SG] [SL] HpfDslRotary save user data		uint8_t	RO	0x03 (3_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C0A:01	Command	With this command object the user data string can be saved in the encoder file system.	OCTET-STRING[72]	RW	{0}
0x2C0A:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent • 115: eCoeCmdStatus_15_Percent • 116: eCoeCmdStatus_16_Percent • 117: eCoeCmdStatus_17_Percent • 118: eCoeCmdStatus_18_Percent • 119: eCoeCmdStatus_19_Percent • 120: eCoeCmdStatus_20_Percent • 121: eCoeCmdStatus_21_Percent • 122: eCoeCmdStatus_22_Percent • 123: eCoeCmdStatus_23_Percent • 124: eCoeCmdStatus_24_Percent • 125: eCoeCmdStatus_25_Percent • 126: eCoeCmdStatus_26_Percent • 127: eCoeCmdStatus_27_Percent • 128: eCoeCmdStatus_28_Percent • 129: eCoeCmdStatus_29_Percent • 130: eCoeCmdStatus_30_Percent • 131: eCoeCmdStatus_31_Percent	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 132: eCoeCmdStatus_32_Percent			
		• 133: eCoeCmdStatus_33_Percent			
		• 134: eCoeCmdStatus_34_Percent			
		• 135: eCoeCmdStatus_35_Percent			
		• 136: eCoeCmdStatus_36_Percent			
		• 137: eCoeCmdStatus_37_Percent			
		• 138: eCoeCmdStatus_38_Percent			
		• 139: eCoeCmdStatus_39_Percent			
		• 140: eCoeCmdStatus_40_Percent			
		• 141: eCoeCmdStatus_41_Percent			
		• 142: eCoeCmdStatus_42_Percent			
		• 143: eCoeCmdStatus_43_Percent			
		• 144: eCoeCmdStatus_44_Percent			
		• 145: eCoeCmdStatus_45_Percent			
		• 146: eCoeCmdStatus_46_Percent			
		• 147: eCoeCmdStatus_47_Percent			
		• 148: eCoeCmdStatus_48_Percent			
		• 149: eCoeCmdStatus_49_Percent			
		• 150: eCoeCmdStatus_50_Percent			
		• 151: eCoeCmdStatus_51_Percent			
		• 152: eCoeCmdStatus_52_Percent			
		• 153: eCoeCmdStatus_53_Percent			
		• 154: eCoeCmdStatus_54_Percent			
		• 155: eCoeCmdStatus_55_Percent			
		• 156: eCoeCmdStatus_56_Percent			
		• 157: eCoeCmdStatus_57_Percent			
		• 158: eCoeCmdStatus_58_Percent			
		• 159: eCoeCmdStatus_59_Percent			
		• 160: eCoeCmdStatus_60_Percent			
		• 161: eCoeCmdStatus_61_Percent			
		• 162: eCoeCmdStatus_62_Percent			
		• 163: eCoeCmdStatus_63_Percent			
		• 164: eCoeCmdStatus_64_Percent			
		• 165: eCoeCmdStatus_65_Percent			
		• 166: eCoeCmdStatus_66_Percent			
		• 167: eCoeCmdStatus_67_Percent			
		• 168: eCoeCmdStatus_68_Percent			
		• 169: eCoeCmdStatus_69_Percent			
		• 170: eCoeCmdStatus_70_Percent			
		• 171: eCoeCmdStatus_71_Percent			
		• 172: eCoeCmdStatus_72_Percent			
		• 173: eCoeCmdStatus_73_Percent			
		• 174: eCoeCmdStatus_74_Percent			
		• 175: eCoeCmdStatus_75_Percent			
		• 176: eCoeCmdStatus_76_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C0A:03	Response		OCTET-STRING[72]	RO	{0}

0x2C0B | [SG] [SL] HpfDslRotary save commutation offset

With this command object the commutation offset can be saved in the encoder file system.

Index	Name	Meaning	Data type	Flags	Default
0x2C0B:0	[SG] [SL] HpfDslRotary save commutation offset		uint8_t	RO	0x03 (3_{dez})
0x2C0B:01	Command	With this command object the commutation offset can be saved in the encoder file system.	OCTET-STRING[12]	RW	{0}
0x2C0B:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent • 115: eCoeCmdStatus_15_Percent • 116: eCoeCmdStatus_16_Percent • 117: eCoeCmdStatus_17_Percent • 118: eCoeCmdStatus_18_Percent • 119: eCoeCmdStatus_19_Percent • 120: eCoeCmdStatus_20_Percent • 121: eCoeCmdStatus_21_Percent • 122: eCoeCmdStatus_22_Percent • 123: eCoeCmdStatus_23_Percent • 124: eCoeCmdStatus_24_Percent • 125: eCoeCmdStatus_25_Percent • 126: eCoeCmdStatus_26_Percent • 127: eCoeCmdStatus_27_Percent • 128: eCoeCmdStatus_28_Percent • 129: eCoeCmdStatus_29_Percent • 130: eCoeCmdStatus_30_Percent • 131: eCoeCmdStatus_31_Percent • 132: eCoeCmdStatus_32_Percent • 133: eCoeCmdStatus_33_Percent • 134: eCoeCmdStatus_34_Percent • 135: eCoeCmdStatus_35_Percent • 136: eCoeCmdStatus_36_Percent • 137: eCoeCmdStatus_37_Percent • 138: eCoeCmdStatus_38_Percent • 139: eCoeCmdStatus_39_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 140: eCoeCmdStatus_40_Percent • 141: eCoeCmdStatus_41_Percent • 142: eCoeCmdStatus_42_Percent • 143: eCoeCmdStatus_43_Percent • 144: eCoeCmdStatus_44_Percent • 145: eCoeCmdStatus_45_Percent • 146: eCoeCmdStatus_46_Percent • 147: eCoeCmdStatus_47_Percent • 148: eCoeCmdStatus_48_Percent • 149: eCoeCmdStatus_49_Percent • 150: eCoeCmdStatus_50_Percent • 151: eCoeCmdStatus_51_Percent • 152: eCoeCmdStatus_52_Percent • 153: eCoeCmdStatus_53_Percent • 154: eCoeCmdStatus_54_Percent • 155: eCoeCmdStatus_55_Percent • 156: eCoeCmdStatus_56_Percent • 157: eCoeCmdStatus_57_Percent • 158: eCoeCmdStatus_58_Percent • 159: eCoeCmdStatus_59_Percent • 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent • 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C0B:03	Response		OCTET-STRING[12]	RO	{0}

0x2C0C | [SG] [SL] HpfDslRotary scan connected encoder

With this command object the type of the connected encoder can be scanned.

Index	Name	Meaning	Data type	Flags	Default
0x2C0C:0	[SG] [SL] HpfDslRotary scan connected encoder		uint8_t	RO	0x03 (3_{dez})
0x2C0C:01	Command	With this command object the type of the connected encoder can be scanned.	OCTET-STRING[8]	RW	{0}
0x2C0C:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent • 115: eCoeCmdStatus_15_Percent • 116: eCoeCmdStatus_16_Percent • 117: eCoeCmdStatus_17_Percent • 118: eCoeCmdStatus_18_Percent • 119: eCoeCmdStatus_19_Percent • 120: eCoeCmdStatus_20_Percent • 121: eCoeCmdStatus_21_Percent • 122: eCoeCmdStatus_22_Percent • 123: eCoeCmdStatus_23_Percent • 124: eCoeCmdStatus_24_Percent • 125: eCoeCmdStatus_25_Percent • 126: eCoeCmdStatus_26_Percent • 127: eCoeCmdStatus_27_Percent • 128: eCoeCmdStatus_28_Percent • 129: eCoeCmdStatus_29_Percent • 130: eCoeCmdStatus_30_Percent • 131: eCoeCmdStatus_31_Percent • 132: eCoeCmdStatus_32_Percent • 133: eCoeCmdStatus_33_Percent • 134: eCoeCmdStatus_34_Percent • 135: eCoeCmdStatus_35_Percent • 136: eCoeCmdStatus_36_Percent • 137: eCoeCmdStatus_37_Percent • 138: eCoeCmdStatus_38_Percent • 139: eCoeCmdStatus_39_Percent • 140: eCoeCmdStatus_40_Percent • 141: eCoeCmdStatus_41_Percent • 142: eCoeCmdStatus_42_Percent • 143: eCoeCmdStatus_43_Percent • 144: eCoeCmdStatus_44_Percent • 145: eCoeCmdStatus_45_Percent • 146: eCoeCmdStatus_46_Percent • 147: eCoeCmdStatus_47_Percent • 148: eCoeCmdStatus_48_Percent • 149: eCoeCmdStatus_49_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 150: eCoeCmdStatus_50_Percent • 151: eCoeCmdStatus_51_Percent • 152: eCoeCmdStatus_52_Percent • 153: eCoeCmdStatus_53_Percent • 154: eCoeCmdStatus_54_Percent • 155: eCoeCmdStatus_55_Percent • 156: eCoeCmdStatus_56_Percent • 157: eCoeCmdStatus_57_Percent • 158: eCoeCmdStatus_58_Percent • 159: eCoeCmdStatus_59_Percent • 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent • 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C0C:03	Response		OCTET-STRING[16]	RO	{0}

0x2C0D | [SG] [SL] HpfDslRotary save electronic data sheet

With this command object the electronic data sheet can be saved in the encoder memory.

Index	Name	Meaning	Data type	Flags	Default
0x2C0D:0	[SG] [SL] HpfDslRotary save electronic data sheet		uint8_t	RO	0x03 (3_{dez})
0x2C0D:01	Command	With this command object the electronic data sheet can be saved in the encoder memory.	OCTET-STRING[16]	RW	{0}
0x2C0D:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 115: eCoeCmdStatus_15_Percent			
		• 116: eCoeCmdStatus_16_Percent			
		• 117: eCoeCmdStatus_17_Percent			
		• 118: eCoeCmdStatus_18_Percent			
		• 119: eCoeCmdStatus_19_Percent			
		• 120: eCoeCmdStatus_20_Percent			
		• 121: eCoeCmdStatus_21_Percent			
		• 122: eCoeCmdStatus_22_Percent			
		• 123: eCoeCmdStatus_23_Percent			
		• 124: eCoeCmdStatus_24_Percent			
		• 125: eCoeCmdStatus_25_Percent			
		• 126: eCoeCmdStatus_26_Percent			
		• 127: eCoeCmdStatus_27_Percent			
		• 128: eCoeCmdStatus_28_Percent			
		• 129: eCoeCmdStatus_29_Percent			
		• 130: eCoeCmdStatus_30_Percent			
		• 131: eCoeCmdStatus_31_Percent			
		• 132: eCoeCmdStatus_32_Percent			
		• 133: eCoeCmdStatus_33_Percent			
		• 134: eCoeCmdStatus_34_Percent			
		• 135: eCoeCmdStatus_35_Percent			
		• 136: eCoeCmdStatus_36_Percent			
		• 137: eCoeCmdStatus_37_Percent			
		• 138: eCoeCmdStatus_38_Percent			
		• 139: eCoeCmdStatus_39_Percent			
		• 140: eCoeCmdStatus_40_Percent			
		• 141: eCoeCmdStatus_41_Percent			
		• 142: eCoeCmdStatus_42_Percent			
		• 143: eCoeCmdStatus_43_Percent			
		• 144: eCoeCmdStatus_44_Percent			
		• 145: eCoeCmdStatus_45_Percent			
		• 146: eCoeCmdStatus_46_Percent			
		• 147: eCoeCmdStatus_47_Percent			
		• 148: eCoeCmdStatus_48_Percent			
		• 149: eCoeCmdStatus_49_Percent			
		• 150: eCoeCmdStatus_50_Percent			
		• 151: eCoeCmdStatus_51_Percent			
		• 152: eCoeCmdStatus_52_Percent			
		• 153: eCoeCmdStatus_53_Percent			
		• 154: eCoeCmdStatus_54_Percent			
		• 155: eCoeCmdStatus_55_Percent			
		• 156: eCoeCmdStatus_56_Percent			
		• 157: eCoeCmdStatus_57_Percent			
		• 158: eCoeCmdStatus_58_Percent			
		• 159: eCoeCmdStatus_59_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent • 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C0D:03	Response		OCTET-STRING[8]	RO	{0}

0x2C0F | [SG] [SL] HpfDslRotary encoder parameters

This object contains not mappable parameters of the OCT rotary (Hiperface DSL) module.

Index	Name	Meaning	Data type	Flags	Default
0x2C0F:0	[SG] [SL] HpfDslRotary encoder parameters		uint8_t	RO	0x0D (13_{dez})
0x2C0F:01	Connector	This object contains not mappable parameters of the OCT rotary (Hiperface DSL) module. allowed values: • 0: ConnectorHpfDSL_CorrespondingToDriveChannel	uint32_t	RW	0x00000000 (0_{dez})
0x2C0F:02	Resolution policy	allowed values: • 0: ParameterPolicy_UseEncoderValue • 1: ParameterPolicy_ParameterIsMinRequirement • 2: ParameterPolicy_ParameterMustMatch	uint32_t	RW	0x00000000 (0_{dez})
0x2C0F:03	Resolution		uint64_t	RW	0x0000000000000000 (0_{dez})
0x2C0F:04	Range policy	allowed values: • 0: ParameterPolicy_UseEncoderValue • 1: ParameterPolicy_ParameterIsMinRequirement • 2: ParameterPolicy_ParameterMustMatch	uint32_t	RW	0x00000000 (0_{dez})
0x2C0F:05	Range		uint64_t	RW	0x0000000000000000 (0_{dez})
0x2C0F:06	Trace level	allowed values: • 0: FbTraceLevel_Off • 1: FbTraceLevel_Error • 2: FbTraceLevel_Warning • 3: FbTraceLevel_Info • 4: FbTraceLevel_Verbose • 10: FbTraceLevel_LineMonitoringEmcyMsg • 11: FbTraceLevel_ErrorWithLineMonitoringEmcyMsg • 12: FbTraceLevel_WarningWithLineMonitoringEmcyMsg	uint32_t	RW	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 13: FbTraceLevel_InfoWithLineMonitoringEmcyMsg • 14: FbTraceLevel_VerboseWithLineMonitoringEmcyMsg			
0x2C0F:07	Settings		uint32_t	RW	0x00000000 (0_{dez})
0x2C0F:08	Status monitoring mask		uint64_t	RW	0x0000000000000000 (0_{dez})
0x2C0F:09	Customized estimator acceleration	The acceleration value used for position estimation in case of invalid fast positions. If this value is set to 0.0 the internal default value is used. See 'Encoder info'. Unit: rad/s^2 Min: 0.0 Max: 3.40282E+38	float	RW	0.0
0x2C0F:0A	Use customized accepted estimator deviation	Set to 1 if the 'Customized accepted estimator deviation' value should be used. Otherwise the internal default value is used. See 'Encoder info'. allowed values: • 0: No_UseDefault • 1: Yes_UseParameterValue	uint8_t	RW	0x00 (0_{dez})
0x2C0F:0B	Customized accepted estimator deviation	The maximum accepted position deviation of the estimator. The value may be limited due to internal conditions. See 'Encoder info' for the active value. Unit: ° Min: 0.0 Max: 10.0	float	RW	0.0
0x2C0F:0C	Virtual multiturn extension mode	Enables the virutal multiturn extension. Unit: 1/° allowed values: • 0: Off • 1: Continue encoder processing dring ECat restart	uint16_t	RW	0x0000 (0_{dez})
0x2C0F:0D	Virtual multiturn extension action	Prepares the virutal multiturn extension. allowed values: • 0: Idle • 1: Arm for next ECat restart	uint16_t	RW	0x0000 (0_{dez})

0x2C10 | [SG] [SL] HpfDslRotary cogging compensation data

This object contains the content and the state of the cogging compensation data file stored in the encoder.

Index	Name	Meaning	Data type	Flags	Default
0x2C10:0	[SG] [SL] HpfDslRotary cogging compensation data		uint8_t	RO	0x02 (2_{dez})
0x2C10:01	Data state	Data state of the displayed compensation data. allowed values: • 0: eFileDataState_Invalid • 1: eFileDataState_Valid • 2: eFileDataState_Modified	int16_t	RO	0x0000 (0_{dez})
0x2C10:02	Compensation data	The binary data of the electronic data sheet.	OCTET-STRING[4096]	RO	{0}

0x2C1D | [SG] [SL] HpfDslRotary sHub info and status

This object contains a collection of information from the sHub.

Index	Name	Meaning	Data type	Flags	Default
0x2C1D:0	[SG] [SL] HpfDslRotary sHub info and status		uint8_t	RO	0x1D (29_{dez})
0x2C1D:01	ExtSHub: Identify IO, Amount of IOs	Version and feature info of the HpfDsl master IP core wrapper.	uint16_t	RO	0x0000 (0_{dez})
0x2C1D:02	ExtSHub: Identify IO, Input 1 specification	Version and feature info of the HpfDsl master IP core wrapper.	uint32_t	RO	0x00000000 (0_{dez})
0x2C1D:03	ExtSHub: Identify IO, Input 2 specification	Version and feature info of the HpfDsl master IP core wrapper.	uint32_t	RO	0x00000000 (0_{dez})
0x2C1D:04	ExtSHub: Device Type	Version and feature info of the HpfDsl master IP core wrapper.	uint16_t	RO	0x0000 (0_{dez})
0x2C1D:05	ExtSHub: Base type code name	The type name of the encoder stored in ASCII.	STRING	RO	""
0x2C1D:06	ExtSHub: Serial number	The serial number of the encoder stored in ACSII.	STRING	RO	""
0x2C1D:07	ExtSHub: Firmware revision number	The firmware and hardware version of the encoder stored in ASCII.	STRING	RO	""
0x2C1D:08	ExtSHub: Firmware date	The firmware date of the encoder stored in ASCII.	STRING	RO	""
0x2C1D:09	ExtSHub: Min permitted temperature	The minimum permitted value for the temperature of the DSL motor feedback system. Unit: 0,1 °C	int16_t	RO	0x0000 (0_{dez})
0x2C1D:0A	ExtSHub: Max permitted temperature	The maximum permitted value for the temperature of the DSL motor feedback system. Unit: 0,1 °C	int16_t	RO	0x0000 (0_{dez})
0x2C1D:0B	ExtSHub: Operation time	The operating time of the DSL motor feedback system. Unit: min	uint32_t	RO	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C1D:0C	IntSHub: Identify IO, Dictionary 1st page		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:0D	IntSHub: Identify IO, Dictionary 2nd page		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:0E	IntSHub: Identify IO, Sensor 0, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:0F	IntSHub: Identify IO, Sensor 0, Details		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:10	IntSHub: Identify IO, Sensor 1, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:11	IntSHub: Identify IO, Sensor 1, Details		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:12	IntSHub: Identify IO, Sensor 2, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:13	IntSHub: Identify IO, Sensor 2, Details		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:14	IntSHub: Identify IO, Sensor 3, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:15	IntSHub: Identify IO, Sensor 3, Details		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:16	IntSHub: Identify IO, Sensor 4, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:17	IntSHub: Identify IO, Sensor 4, Details		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:18	IntSHub: Identify IO, Sensor 5, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:19	IntSHub: Identify IO, Sensor 5, Details		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:1A	IntSHub: Identify IO, Sensor 6, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:1B	IntSHub: Identify IO, Sensor 6, Details		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:1C	IntSHub: Identify IO, Sensor 7, Overview		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1D:1D	IntSHub: Identify IO, Sensor 7, Details		uint64_t	RO	0x0000000000000000 (0_{dez})

0x2C1E | [SG] [SL] HpfDslRotary sHub actual values

This object contains the actual sHub data.

Index	Name	Meaning	Data type	Flags	Default
0x2C1E:0	[SG] [SL] HpfDslRotary sHub actual values		uint8_t	RO	0x0A (10_{dez})
0x2C1E:01	sHubData	This object contains the actual sHub data.	uint32_t	RO	0x00000000 (0_{dez})
0x2C1E:02	IntSHub: Update counter	Sensor data update counter: Bit 0..7 update counter for Sensor 0, Bit 8..16 for Sensor1 ...	uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:03	IntSHub: Data Sensor 0		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:04	IntSHub: Data Sensor 1		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:05	IntSHub: Data Sensor 2		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:06	IntSHub: Data Sensor 3		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:07	IntSHub: Data Sensor 4		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:08	IntSHub: Data Sensor 5		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:09	IntSHub: Data Sensor 6		uint64_t	RO	0x0000000000000000 (0_{dez})
0x2C1E:0A	IntSHub: Data Sensor 7		uint64_t	RO	0x0000000000000000 (0_{dez})

2.13 Objects of module SimulationRotary

Overview of Objects

0x1A00 | [SG] SimulationRotary TxPDO-Map Inputs [▶ 134]
0x2C00 | [SG] [SL] SimulationRotary actual values [▶ 135]
0x2C03 | [SG] [SL] SimulationRotary temperature sensors [▶ 135]

0x1A00 | [SG] SimulationRotary TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] SimulationRotary TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C00 | [SG] [SL] SimulationRotary actual values

This object contains the actual encoder values which are updated every Encoder cycle.

Index	Name	Meaning	Data type	Flags	Default
0x2C00:0	[SG] [SL] SimulationRotary actual values		uint8_t	RO	0x08 (8_{dez})
0x2C00:01	Position	The actual right-aligned position value of the simulated motor feedback system. Unit: inc	int64_t	RO	0x0000000000000000 (0_{dez})
0x2C00:02	Raw position	The raw position value of the DSL motor feedback system [63..32] Multi turns, [31..0] Single turn. Unit: x * (360/4294967296)°	int64_t	RO	0x0000000000000000 (0_{dez})
0x2C00:06	Valid	Valid flag for the position and the raw position value.	uint8_t	RO	0x00 (0_{dez})
0x2C00:08	Simulation mode	This object indicates the position calculation mode depending on motor and control mode settings. allowed values: • 0: Calc_position_from_velocity_command_value • 1: Calc_position_from_estimated_commutation_angle	uint16_t	RO	0x0000 (0_{dez})

0x2C03 | [SG] [SL] SimulationRotary temperature sensors

This object contains the temperature sensor values.

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] [SL] SimulationRotary temperature sensors		uint8_t	RO	0x04 (4_{dez})
0x2C03:01	Simulation encoder connected sensor data state	This object contains the data state of the simulated temperature sensor value, allowed values: • 0: eDataState_Idle • 1: eDataState_Valid • 2: eDataState_Error	int16_t	RO	0x0000 (0_{dez})
0x2C03:02	Simulation encoder connected sensor resistance	This object contains the resistance of the simulated temperature sensor value, Unit: Ω	uint32_t	RO	0x00000000 (0_{dez})
0x2C03:03	Drive connected sensor data state	This object contains the data state of the drive connected temperature sensor value, allowed values: • 0: eDataState_Idle • 1: eDataState_Valid • 2: eDataState_Error	int16_t	RO	0x0000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0x2C03:04	Drive connected sensor resistance	This object contains the resistance of the simulated temperature sensor value, Unit: Ω	uint32_t	RO	0x00000000 (0_{dez})

2.14 Objects of module DeviceDebug

Overview of Objects

0x1600 | DeviceDebug RxPDO-Map Outputs [▶ 136]
0x1A00 | DeviceDebug TxPDO-Map Inputs [▶ 136]
0x2C01 | DeviceDebug parameters [▶ 136]
0x2C02 | DeviceDebug inputs [▶ 136]
0x2C03 | DeviceDebug outputs [▶ 137]
0x2C1E | DeviceDebug command [▶ 137]

0x1600 | DeviceDebug RxPDO-Map Outputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1600:0	DeviceDebug RxPDO-Map Outputs		uint8_t	RW	0x00 (0_{dez})

0x1A00 | DeviceDebug TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	DeviceDebug TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C01 | DeviceDebug parameters

Index	Name	Meaning	Data type	Flags	Default
0x2C01:0	DeviceDebug parameters		uint8_t	RO	0x04 (4_{dez})
0x2C01:01	Debug index		uint32_t	RW	0x00000000 (0_{dez})
0x2C01:02	Debug value uint32		uint32_t	RW	0x00000000 (0_{dez})
0x2C01:03	Debug value float	Min: -3.40282E+38 Max: 3.40282E+38	float	RW	0.0
0x2C01:04	Debug value string		STRING	RW	""

0x2C02 | DeviceDebug inputs

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	DeviceDebug inputs		uint8_t	RO	0x0A (10_{dez})
0x2C02:01	Input1		float	RO	0.0
0x2C02:02	Input2		float	RO	0.0
0x2C02:03	Input3		float	RO	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C02:04	Input4		float	RO	0.0
0x2C02:05	Input5		float	RO	0.0
0x2C02:06	Input6		float	RO	0.0
0x2C02:07	Input7		float	RO	0.0
0x2C02:08	Input8		float	RO	0.0
0x2C02:09	Input9		int32_t	RO	0x00000000 (0_{dez})
0x2C02:0A	Input10		int32_t	RO	0x00000000 (0_{dez})

0x2C03 | DeviceDebug outputs

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	DeviceDebug outputs		uint8_t	RO	0x0A (10_{dez})
0x2C03:01	Output1		float	RO	0.0
0x2C03:02	Output2		float	RO	0.0
0x2C03:03	Output3		float	RO	0.0
0x2C03:04	Output4		float	RO	0.0
0x2C03:05	Output5		float	RO	0.0
0x2C03:06	Output6		float	RO	0.0
0x2C03:07	Output7		float	RO	0.0
0x2C03:08	Output8		float	RO	0.0
0x2C03:09	Output9		int32_t	RO	0x00000000 (0_{dez})
0x2C03:0A	Output10		int32_t	RO	0x00000000 (0_{dez})

0x2C1E | DeviceDebug command

Index	Name	Meaning	Data type	Flags	Default
0x2C1E:0	DeviceDebug command		uint8_t	RO	0x03 (3_{dez})
0x2C1E:01	Command		OCTET-STRING[8]	RW	{0}
0x2C1E:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent • 109: eCoeCmdStatus_9_Percent • 110: eCoeCmdStatus_10_Percent • 111: eCoeCmdStatus_11_Percent • 112: eCoeCmdStatus_12_Percent • 113: eCoeCmdStatus_13_Percent • 114: eCoeCmdStatus_14_Percent • 115: eCoeCmdStatus_15_Percent • 116: eCoeCmdStatus_16_Percent • 117: eCoeCmdStatus_17_Percent • 118: eCoeCmdStatus_18_Percent • 119: eCoeCmdStatus_19_Percent • 120: eCoeCmdStatus_20_Percent • 121: eCoeCmdStatus_21_Percent • 122: eCoeCmdStatus_22_Percent • 123: eCoeCmdStatus_23_Percent • 124: eCoeCmdStatus_24_Percent • 125: eCoeCmdStatus_25_Percent • 126: eCoeCmdStatus_26_Percent • 127: eCoeCmdStatus_27_Percent • 128: eCoeCmdStatus_28_Percent • 129: eCoeCmdStatus_29_Percent • 130: eCoeCmdStatus_30_Percent • 131: eCoeCmdStatus_31_Percent • 132: eCoeCmdStatus_32_Percent • 133: eCoeCmdStatus_33_Percent • 134: eCoeCmdStatus_34_Percent • 135: eCoeCmdStatus_35_Percent • 136: eCoeCmdStatus_36_Percent • 137: eCoeCmdStatus_37_Percent • 138: eCoeCmdStatus_38_Percent • 139: eCoeCmdStatus_39_Percent • 140: eCoeCmdStatus_40_Percent • 141: eCoeCmdStatus_41_Percent • 142: eCoeCmdStatus_42_Percent • 143: eCoeCmdStatus_43_Percent • 144: eCoeCmdStatus_44_Percent • 145: eCoeCmdStatus_45_Percent • 146: eCoeCmdStatus_46_Percent • 147: eCoeCmdStatus_47_Percent • 148: eCoeCmdStatus_48_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 149: eCoeCmdStatus_49_Percent • 150: eCoeCmdStatus_50_Percent • 151: eCoeCmdStatus_51_Percent • 152: eCoeCmdStatus_52_Percent • 153: eCoeCmdStatus_53_Percent • 154: eCoeCmdStatus_54_Percent • 155: eCoeCmdStatus_55_Percent • 156: eCoeCmdStatus_56_Percent • 157: eCoeCmdStatus_57_Percent • 158: eCoeCmdStatus_58_Percent • 159: eCoeCmdStatus_59_Percent • 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent • 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent • 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C1E:03	Response		OCTET-STRING[12]	RO	{0}

2.15 Objects of module AxisDebug

Overview of Objects

0x1600 | [SG] AxisDebug RxPDO-Map Outputs [▶ 140]
0x1A00 | [SG] AxisDebug TxPDO-Map Inputs [▶ 140]
0x2C02 | [SG] AxisDebug inputs [▶ 140]
0x2C03 | [SG] AxisDebug outputs [▶ 141]
0x2C04 | [SG] AxisDebug Command [▶ 141]

0x1600 | [SG] AxisDebug RxPDO-Map Outputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1600:0	[SG] AxisDebug RxPDO-Map Outputs		uint8_t	RW	0x00 (0_{dez})

0x1A00 | [SG] AxisDebug TxPDO-Map Inputs

see ETG.1000.6 EtherCAT specification - CoE

Index	Name	Meaning	Data type	Flags	Default
0x1A00:0	[SG] AxisDebug TxPDO-Map Inputs		uint8_t	RW	0x00 (0_{dez})

0x2C02 | [SG] AxisDebug inputs

Index	Name	Meaning	Data type	Flags	Default
0x2C02:0	[SG] AxisDebug inputs		uint8_t	RO	0x0A (10_{dez})
0x2C02:01	Input1		float	RO	0.0
0x2C02:02	Input2		float	RO	0.0
0x2C02:03	Input3		float	RO	0.0
0x2C02:04	Input4		float	RO	0.0
0x2C02:05	Input5		float	RO	0.0
0x2C02:06	Input6		float	RO	0.0
0x2C02:07	Input7		float	RO	0.0
0x2C02:08	Input8		float	RO	0.0

Index	Name	Meaning	Data type	Flags	Default
0x2C02:09	Input9		int32_t	RO	0x00000000 (0_{dez})
0x2C02:0A	Input10		int32_t	RO	0x00000000 (0_{dez})

0x2C03 | [SG] AxisDebug outputs

Index	Name	Meaning	Data type	Flags	Default
0x2C03:0	[SG] AxisDebug outputs		uint8_t	RO	0x0A (10_{dez})
0x2C03:01	Output1		float	RO	0.0
0x2C03:02	Output2		float	RO	0.0
0x2C03:03	Output3		float	RO	0.0
0x2C03:04	Output4		float	RO	0.0
0x2C03:05	Output5		float	RO	0.0
0x2C03:06	Output6		float	RO	0.0
0x2C03:07	Output7		float	RO	0.0
0x2C03:08	Output8		float	RO	0.0
0x2C03:09	Output9		int32_t	RO	0x00000000 (0_{dez})
0x2C03:0A	Output10		int32_t	RO	0x00000000 (0_{dez})

0x2C04 | [SG] AxisDebug Command

Index	Name	Meaning	Data type	Flags	Default
0x2C04:0	[SG] AxisDebug Command		uint8_t	RO	0x04 (4_{dez})
0x2C04:01	Command		OCTET-STRING[8]	RW	{0}
0x2C04:02	Status	allowed values: • 0: eCoeCmdStatus_CmdCompletedNoErrorNoRespData • 1: eCoeCmdStatus_CmdCompletedNoErrorRespDataAvailable • 2: eCoeCmdStatus_CmdCompletedErrorNoRespData • 3: eCoeCmdStatus_CmdCompletedErrorRespDataAvailable • 100: eCoeCmdStatus_0_Percent • 101: eCoeCmdStatus_1_Percent • 102: eCoeCmdStatus_2_Percent • 103: eCoeCmdStatus_3_Percent • 104: eCoeCmdStatus_4_Percent • 105: eCoeCmdStatus_5_Percent • 106: eCoeCmdStatus_6_Percent • 107: eCoeCmdStatus_7_Percent • 108: eCoeCmdStatus_8_Percent	uint8_t	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
		• 109: eCoeCmdStatus_9_Percent			
		• 110: eCoeCmdStatus_10_Percent			
		• 111: eCoeCmdStatus_11_Percent			
		• 112: eCoeCmdStatus_12_Percent			
		• 113: eCoeCmdStatus_13_Percent			
		• 114: eCoeCmdStatus_14_Percent			
		• 115: eCoeCmdStatus_15_Percent			
		• 116: eCoeCmdStatus_16_Percent			
		• 117: eCoeCmdStatus_17_Percent			
		• 118: eCoeCmdStatus_18_Percent			
		• 119: eCoeCmdStatus_19_Percent			
		• 120: eCoeCmdStatus_20_Percent			
		• 121: eCoeCmdStatus_21_Percent			
		• 122: eCoeCmdStatus_22_Percent			
		• 123: eCoeCmdStatus_23_Percent			
		• 124: eCoeCmdStatus_24_Percent			
		• 125: eCoeCmdStatus_25_Percent			
		• 126: eCoeCmdStatus_26_Percent			
		• 127: eCoeCmdStatus_27_Percent			
		• 128: eCoeCmdStatus_28_Percent			
		• 129: eCoeCmdStatus_29_Percent			
		• 130: eCoeCmdStatus_30_Percent			
		• 131: eCoeCmdStatus_31_Percent			
		• 132: eCoeCmdStatus_32_Percent			
		• 133: eCoeCmdStatus_33_Percent			
		• 134: eCoeCmdStatus_34_Percent			
		• 135: eCoeCmdStatus_35_Percent			
		• 136: eCoeCmdStatus_36_Percent			
		• 137: eCoeCmdStatus_37_Percent			
		• 138: eCoeCmdStatus_38_Percent			
		• 139: eCoeCmdStatus_39_Percent			
		• 140: eCoeCmdStatus_40_Percent			
		• 141: eCoeCmdStatus_41_Percent			
		• 142: eCoeCmdStatus_42_Percent			
		• 143: eCoeCmdStatus_43_Percent			
		• 144: eCoeCmdStatus_44_Percent			
		• 145: eCoeCmdStatus_45_Percent			
		• 146: eCoeCmdStatus_46_Percent			
		• 147: eCoeCmdStatus_47_Percent			
		• 148: eCoeCmdStatus_48_Percent			
		• 149: eCoeCmdStatus_49_Percent			
		• 150: eCoeCmdStatus_50_Percent			
		• 151: eCoeCmdStatus_51_Percent			
		• 152: eCoeCmdStatus_52_Percent			
		• 153: eCoeCmdStatus_53_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 154: eCoeCmdStatus_54_Percent • 155: eCoeCmdStatus_55_Percent • 156: eCoeCmdStatus_56_Percent • 157: eCoeCmdStatus_57_Percent • 158: eCoeCmdStatus_58_Percent • 159: eCoeCmdStatus_59_Percent • 160: eCoeCmdStatus_60_Percent • 161: eCoeCmdStatus_61_Percent • 162: eCoeCmdStatus_62_Percent • 163: eCoeCmdStatus_63_Percent • 164: eCoeCmdStatus_64_Percent • 165: eCoeCmdStatus_65_Percent • 166: eCoeCmdStatus_66_Percent • 167: eCoeCmdStatus_67_Percent • 168: eCoeCmdStatus_68_Percent • 169: eCoeCmdStatus_69_Percent • 170: eCoeCmdStatus_70_Percent • 171: eCoeCmdStatus_71_Percent • 172: eCoeCmdStatus_72_Percent • 173: eCoeCmdStatus_73_Percent • 174: eCoeCmdStatus_74_Percent • 175: eCoeCmdStatus_75_Percent • 176: eCoeCmdStatus_76_Percent • 177: eCoeCmdStatus_77_Percent • 178: eCoeCmdStatus_78_Percent • 179: eCoeCmdStatus_79_Percent • 180: eCoeCmdStatus_80_Percent • 181: eCoeCmdStatus_81_Percent • 182: eCoeCmdStatus_82_Percent • 183: eCoeCmdStatus_83_Percent • 184: eCoeCmdStatus_84_Percent • 185: eCoeCmdStatus_85_Percent • 186: eCoeCmdStatus_86_Percent • 187: eCoeCmdStatus_87_Percent • 188: eCoeCmdStatus_88_Percent • 189: eCoeCmdStatus_89_Percent • 190: eCoeCmdStatus_90_Percent • 191: eCoeCmdStatus_91_Percent • 192: eCoeCmdStatus_92_Percent • 193: eCoeCmdStatus_93_Percent • 194: eCoeCmdStatus_94_Percent • 195: eCoeCmdStatus_95_Percent • 196: eCoeCmdStatus_96_Percent • 197: eCoeCmdStatus_97_Percent • 198: eCoeCmdStatus_98_Percent			

Index	Name	Meaning	Data type	Flags	Default
		• 199: eCoeCmdStatus_99_Percent • 200: eCoeCmdStatus_100_Percent • 255: eCoeCmdStatus_CmdIsExecuting			
0x2C04:04	Response		OCTET-STRING[12]	RO	{0}

3 Basic information Safety applications

This document includes the following indexes from the "Objects of module Safety" group as basic information on handling safety applications:

0xF980 | Safe Address [▶ 145]

0xF9C0 | Safety Device Info [▶ 145]

0xFABB | SETSAFEADDRESS Diag Data [▶ 145]

0xFEA0 | CTRL Diag Data [▶ 146]

3.1 0xF980 | Safe Address

0xF980 | Safe Address

Index	Name	Meaning	Data type	Flags	Default
0xF980:0	Safe Address		uint8_t	RO	0x04 (4_{dez})
0xF980:01	FSoE Address		uint16_t	RO	0x0000 (0_{dez})
0xF980:02	Serial Number		uint32_t	RO	0x00000000 (0_{dez})
0xF980:03	Project CRC		uint16_t	RO	0x0000 (0_{dez})
0xF980:04	Default Project CRC		uint16_t	RO	0x0000 (0_{dez})

3.2 0xF9C0 | Safety Device Info

0xF9C0 | Safety Device Info

Index	Name	Meaning	Data type	Flags	Default
0xF9C0:0	Safety Device Info		uint8_t	RO	0x08 (8_{dez})
0xF9C0:01	Device name		STRING	RO	""
0xF9C0:02	Software version		STRING	RO	""
0xF9C0:03	Bootloader version		STRING	RO	""
0xF9C0:04	Software checksum		uint32_t	RO	0x00000000 (0_{dez})
0xF9C0:05	Bootmanager checksum		uint32_t	RO	0x00000000 (0_{dez})
0xF9C0:06	Bootloader checksum		uint32_t	RO	0x00000000 (0_{dez})
0xF9C0:07	TwinSAFE Logic Version		uint32_t	RO	0x00000000 (0_{dez})
0xF9C0:08	Feature Flags		uint32_t	RO	0x00000000 (0_{dez})

3.3 0xFABB | SETSAFEADDRESS Diag Data

0xFABB | SETSAFEADDRESS Diag Data

Index	Name	Meaning	Data type	Flags	Default
0xFABB:0	SETSAFEADDRESS Diag Data		uint8_t	RO	0x11 (17_{dez})
0xFABB:01	Button is One		BOOLEAN	RO	0x00 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0xFABB:02	Button is Zero		BOOLEAN	RO	0x00 (0_{dez})
0xFABB:04	FSoE-Address mismatch		BOOLEAN	RO	0x00 (0_{dez})
0xFABB:05	Pairing Mode enabled		BOOLEAN	RO	0x00 (0_{dez})
0xFABB:09	State		uint8_t	RO	0x00 (0_{dez})
0xFABB:11	Error Code		uint8_t	RO	0x00 (0_{dez})

3.4 0xFEA0 | CTRL Diag Data

0xFEA0 | CTRL Diag Data

Index	Name	Meaning	Data type	Flags	Default
0xFEA0:0	CTRL Diag Data		uint8_t	RO	0x1D (29_{dez})
0xFEA0:01	CTRLC1 Module State		uint8_t	RO	0x00 (0_{dez})
0xFEA0:02	CTRLC2 Module State		uint8_t	RO	0x00 (0_{dez})
0xFEA0:03	CTRLC1 Global Fault Code		uint16_t	RO	0x0000 (0_{dez})
0xFEA0:04	CTRLC1 Global Fault Additional Code		uint16_t	RO	0x0000 (0_{dez})
0xFEA0:05	CTRLC2 Global Fault Code		uint16_t	RO	0x0000 (0_{dez})
0xFEA0:06	CTRLC2 Global Fault Additional Code		uint16_t	RO	0x0000 (0_{dez})
0xFEA0:07	Main Loop Task Exceeded Counter In Run		uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:08	Main Loop Task Exceeded Counter In Stop		uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:09	Actual Safety Control Task Execution Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:0A	Min Safety Control Task Execution Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:0B	Max Safety Control Task Execution Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:0C	Actual Safety Control Task Distance Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:0D	Min Safety Control Task Distance Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})

Index	Name	Meaning	Data type	Flags	Default
0xFEA0:0E	Max Safety Control Task Distance Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:0F	Actual Main Loop Task Execution Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:10	Min Main Loop Task Execution Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:11	Max Main Loop Task Execution Time In Run	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:12	Actual Monitoring Task Execution Time	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:13	Min Monitoring Task Execution Time	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:14	Max Monitoring Task Execution Time	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:15	Actual Safety Control Task Execution Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:16	Min Safety Control Task Execution Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:17	Max Safety Control Task Execution Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:18	Actual Safety Control Task Distance Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:19	Min Safety Control Task Distance Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:1A	Max Safety Control Task Distance Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:1B	Actual Main Loop Task Execution Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:1C	Min Main Loop Task Execution Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})
0xFEA0:1D	Max Main Loop Task Execution Time In Stop	Unit: ns	uint32_t	RO	0x00000000 (0_{dez})

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