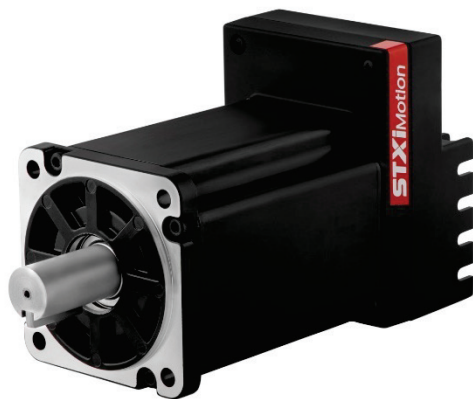


EtherCAT and CANopen

for TiM Integrated Motor
and ZED Servo Drive

User Manual

ORIGINAL DOCUMENT
Manual Revision 1.3



Revision History

Manual Rev.	Date	Notes
Rev.1.3	17 Feb. 2025	Modified headings; manual now serves as documentation for both TIM integrated motor and ZED servo drive. Moved content from Fault Word (object 2032h) and Error codes (object 603Fh) to <i>Warnings and Faults</i> in the product user manuals:
Rev.1.2	14 Jan. 2025	Updated for Object Library: 21_9502_1_5a. Added objects 2038h, 2039h, 2040h.
Rev.1.1	17 April 2024	Added product photo on cover Added EtherCAT vendor-ID
Rev. 1.0	22 Feb. 2024	Preliminary release

Copyright Notice

© 2025 STXI Motion Ltd.

All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means without prior written permission of STXI Motion Ltd.

Disclaimer

This product documentation was accurate and reliable at the time of its release. STXI Motion Ltd. reserves the right to change the specifications of the product described in this manual without notice at any time.

Trademarks

TIM is a trademark of STXI Motion Ltd.
CANopen and CiA are registered trademarks of the CAN in Automation User's Group
Windows is a registered trademark of Microsoft Corporation

Contact Information

www.stxim.com
contact@stxim.com

CANopen Vendor-ID

Vendor-ID **0513** has been registered to STXI Motion Ltd.
(specified in object 1018h sub-index 01).

EtherCAT Vendor-ID

Vendor-ID **00x00000D2B** has been registered to STXI Motion Ltd.

Contents

1	Introduction	
1.1	About This Manual	6
1.2	Manual Format – Object Dictionary	6
2	Communication Objects	
	1001h – Error Register	7
	1003h – Predefined Error Field	8
	1010h – Store Parameters	14
	1011h – Restore Default Parameters.....	15
3	Manufacturer Objects	
	2000h – Control Level 3 Basic Parameters.....	16
	2001h – Current Controller Command.....	19
	2002h – Trajectory Velocity Command	20
	2003h – Trajectory Position Command.....	20
	2004h – Trajectory Acceleration Command.....	21
	2005h – Actual Velocity	21
	2006h – Current Controller Limit	22
	2007h – Current Feed Forward (Internal)	22
	2008h – Actual Position.....	22
	2009h – Velocity Error.....	23
	200Ah – Position Error	23
	200Bh – Velocity Controller Command (Internal).....	23
	200Ch – Movement Commands Parameters	24
	200Dh – Control Level 3 Filter Parameters	27
	200Eh – Motor Parameters	37
	200Fh – Current Controller Parameters	41
	2010h – Feedback Alignment Process Parameters.....	45
	2011h – Control Level 1 Basic Parameters.....	47
	2012h – Control Level 2 Basic Parameters.....	50
	2013h – Drive Operation Mode	56
	2014h – Control Level Controller Gain Set.....	56
	2015h – Controller Bus Voltage	57
	2016h – Electrical Commutation Angle.....	57
	2017h – Forced Commutation Frequency.....	58
	2018h – Primary Feedback Type.....	58
	2019h – Feedback Counts Per Motor Revolution	59
	201Ah – Real Time Period	59
	201Bh – Phase A Current (Internal)	59
	201Ch – Phase C Current (Internal)	59
	201Dh – Phase U Current Offset (Internal).....	59
	201Eh – Phase V Current Offset (Internal)	60
	201Bh – Phase W Current Offset (Internal)	60
	2020h – Drive Current Parameters.....	60
	2021h – Temperature Parameters.....	61
	2022h – Overload Parameters	64
	2023h – Over-Speed Threshold	65
	2024h – Under-Voltage Threshold.....	66
	2025h – Position Error Limit Command.....	66
	2026h – In Position Error Limit	67
	2027h – Position Target Reached Error Limit	67

2028h – Profile Trajectory Quick Stop Deceleration	68
2029h – Velocity Target Reached Error Limit.....	68
202Ah – Over-Voltage Threshold (Internal)	68
202Bh – Save Parameters	69
202Ch – Load Parameters.....	69
202Dh – Load Defaults	70
2030h – Incremental Encoder Parameters	70
2031h – Phase Advanced Parameters.....	73
2032h – Fault Word.....	75
2033h – Serial number	78
2034h – Operation Mode Switch Speed Threshold	78
2035h – Digital Input and Output	79
2038h – Analog Input 1	84
2039h – ABSEncSign	86
2040h – Motor Brake Hold Current Factor	86
20E0h – Serial Over Fieldbus	87
20F0h – Simulated Plant Parameters	89
2100h – CAN Node ID.....	92
210Bh – PLL Information Parameters.....	92
210Ch – Start Optimizer	96
210Dh – Micro Interpolation Mode.....	97
210Eh – Product FW Version	97
210Fh – Brake Support	99
2110h – STO Filter Time	100
2700h – User012.....	100
27FCh – Test LEDs.....	103
27FEh – Dummy Read Only	104
27FFh – Dummy Read Write.....	104

4 Device Profile (CAN Standard) Objects

603Fh – Error Code.....	105
6040h – Controlword.....	106
6041h – Statusword	107
605Ah – Quick Stop Option Code.....	108
605Bh – Shutdown Option Code	109
605Ch – Disable Operation Option Code.....	110
605Dh – Halt Option Code.....	110
605Eh – Fault Reaction Option Code	111
6060h – Modes of Operation.....	112
6061h – Modes of Operation Display	113
6062h – Position Demand Value.....	113
6064h – Position Actual Value	114
6065h – Following Error Window	114
6068h – Position Window Time	115
606Bh – Velocity Demand Value.....	115
606Ch – Velocity Actual Value	116
606Dh – Velocity Window	116
6071h – Target Torque	117
6073h – Maximum Current	117
6074h – Torque Demand Value	118
6075h – Motor Rated Current.....	118
6076h – Motor Rated Torque.....	119
6077h – Torque Actual Value.....	119
6078h – Current Actual Value	120

6079h – DC Link Circuit Voltage	120
607Ah – Target Position	121
607Ch – Home Offset	122
607Dh – Software Position Limit	123
607Eh – Speed and position polarity	125
607Fh – Max Profile Velocity	125
6080h – Max Motor Speed	126
6081h – Profile Velocity in Profile Position Mode	126
6083h – Profile Acceleration	127
6084h – Profile Deceleration	127
6085h – Quick Stop Deceleration	128
6091h – Gear Ratio	128
6092h – Feed Constant	130
6098h – Homing Method	131
6099h – Homing Speed	132
609Ah – Homing Acceleration	132
60C2h – Interpolation Time Period	133
60C5h – Maximum Acceleration	134
60C6h – Maximum Deceleration	135
60E3h – Supported Home Methods	135
60F4h – Following Error Actual Value	141
60FCh – Position Demand Internal Value	141
60FDh – Digital Input Register	142
60FEh – Digital Outputs	142
60FFh – Target Velocity	144
6502h – Supported Drive Modes	145

1 Introduction

1.1 About This Manual

This manual describes the implementation of CiA 402 and CiA 301 CANopen and CANopen over EtherCAT (CoE) protocols in the TIM integrated servo motor and ZED servo drive. This manual is not meant to replace the CANopen specifications, or to reproduce them.

This manual is intended for skilled personnel who have been trained to work with the equipment described.

1.2 Manual Format – Object Dictionary

The objects are presented and described in the following formats:

Object Index	Object index
Sub-index	Object sub-index
Definition	Object short name.
Name (GUI)	Object code name used in software interface
Description	Description of the object or object sub-index
Data Type	Boolean Integer8 Integer16 Integer32 Unsigned8 Unsigned16 Unsigned32 Real32 Visible_String
Access	Read/Write Read and write access Read Read only Constant Read only access, value is constant
Default Value	The object's default value.
Lower Limit	The object's minimum value.
Upper Limit	The object's maximum value.
Unit	When the object value implies units of measure, these units are specified.
Category	Optional / Mandatory
Function	Manufacturer/developer description

2 Communication Objects

1001h – Error Register

Object Index	1001h
Sub-index	0
Definition	CiA 301 0x1001 Error Register
Name (GUI)	CiA3010x1001
Description	This object has 8 bits, each for a certain error type. When an error occurs, the corresponding bit is set. Bit Meaning 0 = Generic error 1 = Current 2 = Voltage 3 = Temperature 4 = Communication error (overrun, error state) 5 = Device profile specific 6 = Reserved 7 = Manufacturer specific
Data Type	Unsigned 8
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Mandatory
Function	Not applicable

1003h – Predefined Error Field

Object Index	1003h
Sub-index	0
Definition	Predefined Error Field
Name (GUI)	CiA3010x1003S0
Description	This object holds errors that occurred in the device and were signaled via the Emergency object. It thus provides an error history. Writing 00h to sub-index 00h deletes the entire error history. Values other than 00h are not allowed.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Mandatory
Function	Not applicable
Object Index	1003h
Sub-index	1
Definition	Error History Entry 1
Name (GUI)	CiA3010x1003S1
Description	Error history entry 1
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Mandatory
Function	Not applicable

Sub-index	2
Definition	Error History Entry 2
Name (GUI)	CiA3010x1003S2
Description	Error history entry 2
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	3
Definition	Error History Entry 3
Name (GUI)	CiA3010x1003S3
Description	Error history entry 3
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	4
Definition	Error History Entry 4
Name (GUI)	CiA3010x1003S4
Description	Error history entry 4
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	5
Definition	Error History Entry 5
Name (GUI)	CiA3010x1003S5
Description	Error history entry 5
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	6
Definition	Error History Entry 6
Name (GUI)	CiA3010x1003S6
Description	Error history entry 6
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	7
Definition	Error History Entry 7
Name (GUI)	CiA3010x1003S7
Description	Error history entry 7
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	8
Definition	Error History Entry 8
Name (GUI)	CiA3010x1003S8
Description	Error history entry 8
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	9
Definition	Error History Entry 9
Name (GUI)	CiA3010x1003S9
Description	Error history entry 9
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	10
Definition	Error History Entry 10
Name (GUI)	CiA3010x1003S10
Description	Error history entry 10
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	11
Definition	Error History Entry 11
Name (GUI)	CiA3010x1003S11
Description	Error history entry 11
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	12
Definition	Error History Entry 12
Name (GUI)	CiA3010x1003S12
Description	Error history entry 12
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	13
Definition	Error History Entry 13
Name (GUI)	CiA3010x1003S13
Description	Error history entry 13
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	14
Definition	Error History Entry 14
Name (GUI)	CiA3010x1003S14
Description	Error history entry 14
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	15
Definition	Error History Entry 15
Name (GUI)	CiA3010x1003S15
Description	Error history entry 15
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	16
Definition	Error History Entry 16
Name (GUI)	CiA3010x1003S16
Description	Error history entry 16
Data Type	Unsigned32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

1010h – Store Parameters

Object Index	1010h
Sub-index	0
Definition	Store Parameters
Name (GUI)	CiA3010x1010S0
Description	This object controls the saving of parameters in non-volatile memory. In read access the device provides information about its saving capabilities. Sub-index 01h refers to all parameters that are stored on the device.
Data Type	Unsigned 32
Access	Read
Default Value	Profile-specific or manufacturer-specific
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	1
Definition	Save All Parameters
Name (GUI)	CiA3010x1010S1
Description	Saves all parameters.
Data Type	s32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

1011h – Restore Default Parameters

Object Index	1011h
Sub-index	0
Definition	Highest sub-index supported
Name (GUI)	CiA3010x1011S0
Description	This object restores the default values of parameters according to the communication profile, device profile, and application profile. Sub-index 01h restores all parameters that may be restored.
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	1
Definition	Restore Parameters
Name (GUI)	CiA3010x1011S1
Description	Restores all default parameters.
Data Type	s32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

3 Manufacturer Objects

2000h – Control Level 3 Basic Parameters

Object Index	2000h
Sub-index	0
Definition	Control Level 3 Basic Parameters
Name (GUI)	L3BasicParams
Description	The number of entries that define the basic parameters used in Control Level 3. Control levels indicate the user's capabilities: Level 1=Simple. Level 2=Advanced. Level 3=Expert.
Data Type	s16
Access	Read
Default Value	6.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	1
Definition	Control Level 3 Position Proportional Gain
Name (GUI)	L3kp
Description	The proportional gain for the linear position controller in Control Level 3.
Data Type	f32
Access	Read/Write
Default Value	4.50000e+02
Lower Limit	1.00000e-03
Upper Limit	1.00000e+04
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	2
Definition	Control Level 3 Velocity Proportional Gain
Name (GUI)	L3kv
Description	The proportional gain for the velocity controller in Control Level 3. For best tuning, set to a low value, such as 0.1. Increase the value until acoustical noise occurs. Then decrease by 10%
Data Type	f32
Access	Read/Write
Default Value	2.50000e-01
Lower Limit	1.00000e-03
Upper Limit	1.00000e+03
Unit	ampere/rps
Category	Control
Function	Basic Controller
Sub-index	3
Definition	Control Level 3 Velocity Integral Gain
Name (GUI)	L3ki
Description	The integral gain for the velocity controller in Control Level 3. KVI compensates for the steady state error. A higher value will cause overshoot and oscillations
Data Type	f32
Access	Read/Write
Default Value	6.00000e+01
Lower Limit	0.0
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	4
Definition	Control Level 3 Speed Feedforward
Name (GUI)	L3Vff
Description	The velocity feedforward of the position control loop in Control Level 3.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	-2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller
Sub-index	5
Definition	Control Level 3 Acceleration Feedforward
Name (GUI)	L3Aff
Description	The acceleration feedforward of the position control loop in Control Level 3.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller

Sub-index	6
Definition	Control Level 3 Current Loop Acceleration Feedforward
Name (GUI)	I3AFFC
Description	The acceleration feedforward sent directly to the current controller in Control Level 3.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-1.00000e+03
Upper Limit	1.00000e+03
Unit	mA/rps/sec
Category	Control
Function	Basic Controller

2001h – Current Controller Command

Object Index	2001h
Sub-index	0
Definition	Current Controller Command
Name (GUI)	ICmd
Description	The current command. It is generated either directly (EtherCAT/CANopen, serial or analog reference command) or as output of the position or velocity controller.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-5.00000e+02
Upper Limit	5.00000e+02
Unit	ampere
Category	Control
Function	Command

2002h – Trajectory Velocity Command

Object Index	2002h
Sub-index	0
Definition	Trajectory Velocity Command
Name (GUI)	VCmd
Description	The velocity command. It is generated either directly (serial or analog), or as the output of the position controller.
Data Type	f32
Access	Read
Default Value	0.0
Lower Limit	-2.50000e+02
Upper Limit	2.50000e+02
Unit	rps
Category	Control
Function	Trajectory

2003h – Trajectory Position Command

Object Index	2003h
Sub-index	0
Definition	Trajectory Position Command
Name (GUI)	PCmd
Description	The position command value. It is generated either directly (EtherCAT/CANopen or serial.??....??
Data Type	s64
Access	Read
Default Value	0.0
Lower Limit	-9.22337e+18
Upper Limit	9.22337e+18
Unit	feedback count
Category	Control
Function	Trajectory

2004h – Trajectory Acceleration Command

Object Index	2004h
Sub-index	0
Definition	Trajectory Acceleration Command
Name (GUI)	ACmd
Description	The acceleration value of the motor.
Data Type	f32
Access	Read
Default Value	1.60000e+01
Lower Limit	0.0
Upper Limit	1.00000e+06
Unit	rps/second
Category	Control
Function	Trajectory

2005h – Actual Velocity

Object Index	2005h
Sub-index	0
Definition	Actual Velocity
Name (GUI)	VAct
Description	The velocity value measured by the motor feedback device.
Data Type	f32
Access	Read
Default Value	0.0
Lower Limit	-2.50000e+02
Upper Limit	2.50000e+02
Unit	rps
Category	Control
Function	Actual Data

2006h – Current Controller Limit

Object Index	2006h
Sub-index	0
Definition	Current Controller Limit
Name (GUI)	ILim
Description	The application current limit. Allows the user to limit the drive's peak current.
Data Type	f32
Access	Read/Write
Default Value	1.11999e+01
Lower Limit	-5.00000e+02
Upper Limit	5.00000e+02
Unit	ampere
Category	Control
Function	Controller Limits

2007h – Current Feed Forward (Internal)**2008h – Actual Position**

Object Index	2008h
Sub-index	0
Definition	Actual Position
Name (GUI)	Pfb
Description	The position value of the motor feedback device used by the drive's internal position controller. It includes any offsets and error corrections that may have been added.
Data Type	s64
Access	Read/Write
Default Value	0.0
Lower Limit	-9.22337e+18
Upper Limit	9.22337e+18
Unit	feedback count
Category	Control
Function	Actual Data

2009h – Velocity Error

Object Index	2009h
Sub-index	0
Definition	Velocity Error
Name (GUI)	Ve
Description	The velocity error of the velocity loop. It is calculated as the difference between Trajectory Velocity Command (2002h) and Actual Velocity (2005h).
Data Type	f32
Access	Read
Default Value	0.0
Lower Limit	-2.50000e+02
Upper Limit	2.50000e+02
Unit	rps
Category	Control
Function	Actual Data

200Ah – Position Error

Object Index	200Ah
Sub-index	0
Definition	Position Error
Name (GUI)	Pe
Description	The value of the position error. It is calculated as the difference between Trajectory Position Command (2003h) and Actual Position (2008h).
Data Type	s64
Access	Read
Default Value	0.0
Lower Limit	-9.22337e+18
Upper Limit	9.22337e+18
Unit	feedback count
Category	Control
Function	Actual Data

200Bh – Velocity Controller Command (Internal)

200Ch – Movement Commands Parameters

Object Index	200Ch
Sub-index	0
Definition	Movement Commands Parameters
Name (GUI)	MoveCmds
Description	Number of entries that define the parameters for movement commands. The commands are applicable in position and velocity operation modes.
Data Type	s16
Access	Read
Default Value	5.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	rps/second
Category	Control
Function	Trajectory
Sub-index	1
Definition	Profile Trajectory Acceleration
Name (GUI)	MoveCmdAcc
Description	The acceleration value for position and velocity commands.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+06
Lower Limit	0.0
Upper Limit	1.00000e+06
Unit	rps/second
Category	Control
Function	Trajectory

Sub-index	2
Definition	Profile Trajectory Deceleration
Name (GUI)	MoveCmdDec
Description	The deceleration value for position and velocity commands.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+06
Lower Limit	0.0
Upper Limit	1.00000e+06
Unit	rps/second
Category	Control
Function	Trajectory
Sub-index	3
Definition	Profile Trajectory Speed
Name (GUI)	MoveCmdSpeed
Description	The speed command value in position operation mode.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+01
Lower Limit	0.0
Upper Limit	2.50000e+02
Unit	rps
Category	Control
Function	Trajectory
Sub-index	4
Definition	Profile Trajectory Move Command
Name (GUI)	MoveCmdDist
Description	The command to execute an incremental position movement according to the acceleration settings that are in effect.
Data Type	s64
Access	Read/Write
Default Value	0.0
Lower Limit	-9.22337e+18
Upper Limit	9.22337e+18
Unit	feedback count
Category	Control
Function	Trajectory

Sub-index	5
Definition	Profile Trajectory Stopped Status
Name (GUI)	MoveCmdStopped
Description	Indicates whether the Trajectory Position Command (2003h) generator is idle.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Trajectory
Sub-index	6
Definition	Profile Trajectory Incremental Move Command
Name (GUI)	MoveCmdDistRev
Description	The command to execute an incremental position movement (scaled to revolutions) according to the acceleration settings that are in effect.
Data Type	f32
Access	Write
Default Value	0.0
Lower Limit	-1.00000e+03
Upper Limit	1.00000e+03
Unit	rev
Category	Control
Function	Trajectory

Sub-index	7
Definition	Profile Trajectory Moving Average Depth
Name (GUI)	MoveCmdMADepth
Description	This command sets the moving average depth; that is, the number of samples being averaged. When enabled, all commands that go through the PTP generator will pass through the moving average (MA) filter. PCMD , VCMD and ACMD will be skewed and delayed per the MA filter depth. For example, setting MA depth to 256 (since drive sample rate is 62.5 μs) will be skewed by $256 \times 62.5 \mu\text{s} = 16 \text{ ms}$.
Data Type	s16
Access	Read/Write
Default Value	1 (=No averaging)
Lower Limit	1
Upper Limit	256
Unit	x 62.5us
Category	Control
Function	Trajectory

200Dh – Control Level 3 Filter Parameters

Object Index	200Dh
Sub-index	0
Definition	Control Level 3 Filter Parameters
Name (GUI)	L3Filters
Description	The number of entries that define the filters parameters used in Control Level 3. Control levels indicate the user's capabilities: Level 1=Simple. Level 2=Advanced. Level 3=Expert.
Data Type	s16
Access	Read
Default Value	2.60000e+01
Lower Limit	0.0
Upper Limit	3.00000e+01
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	1
Definition	Filter 1 Type
Name (GUI)	L3Filt1Type
Description	Sets Filter 1 type. 0=None. 1=First order. 2=Complex. 3=Notch.
Data Type	s32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	3.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller
Sub-index	2
Definition	Filter 1 Pole
Name (GUI)	L3Filt1Pole
Description	Filter 1: First order frequency value (FILT1TYPE=1)
Data Type	f32
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	3
Definition	Filter 1 Complex Pole
Name (GUI)	L3Filt1ComplexPoleF
Description	Filter 1: Complex pole frequency value (FILT1TYPE=2)
Data Type	f32
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	4
Definition	Filter 1 Complex Damping
Name (GUI)	L3Filt1ComplexPoleXi
Description	Filter 1: Complex pole damping value (FILT1TYPE=2)
Data Type	f32
Access	Read/Write
Default Value	7.06999e-01
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller
Sub-index	5
Definition	Filter 1 Notch Bandwidth
Name (GUI)	L3Filt1NotchBw
Description	Filter 1: Notch filter bandwidth value (FILT1TYPE=3)
Data Type	f32
Access	Read/Write
Default Value	2.00000e+02
Lower Limit	1.00000e+01
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	6
Definition	Filter 1 Notch Center
Name (GUI)	L3Filt1NotchCenter
Description	Filter 1: Notch filter center value (FILT1TYPE=3)
Data Type	f32
Access	Read/Write
Default Value	1.50000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	7
Definition	Filter 1 Notch Phase
Name (GUI)	L3Filt1NotchPhase
Description	Filter 1: Notch filter phase value (FILT1TYPE=3)
Data Type	f32
Access	Read/Write
Default Value	5.00000e+01
Lower Limit	1.00000e+01
Upper Limit	9.00000e+01
Unit	degree
Category	Control
Function	Basic Controller
Sub-index	8
Definition	Filter 2 Type
Name (GUI)	L3Filt2Type
Description	Sets Filter 2 type. 0=None. 1=First order. 2=Complex. 3=Notch.
Data Type	s32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	3.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller
Sub-index	9
Definition	Filter 2 Pole
Name (GUI)	L3Filt2Pole
Description	Filter 2: First order frequency value (FILT2TYPE=1)
Data Type	f32
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	10
Definition	Filter 2 Complex Pole
Name (GUI)	L3Filt2ComplexPoleF
Description	Filter 2: Complex pole frequency value (FILT2TYPE=2)
Data Type	f32
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	11
Definition	Filter 2 Complex Damping
Name (GUI)	L3Filt2ComplexPoleXi
Description	Filter 2: Complex pole damping value (FILT2TYPE=2)
Data Type	f32
Access	Read/Write
Default Value	7.06999e-01
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller
Sub-index	12
Definition	Filter 2 Notch Bandwidth
Name (GUI)	L3Filt2NotchBw
Description	Filter 2: Notch filter bandwidth value (FILT2TYPE=3)
Data Type	f32
Access	Read/Write
Default Value	2.00000e+02
Lower Limit	1.00000e+01
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	13
Definition	Filter 2 Notch Center
Name (GUI)	L3Filt2NotchCenter
Description	Filter 2: Notch filter center value (FILT2TYPE=3)
Data Type	f32
Access	Read/Write
Default Value	1.50000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	14
Definition	Filter 2 Notch Phase
Name (GUI)	L3Filt2NotchPhase
Description	Filter 2: Notch filter phase value (FILT2TYPE=3)
Data Type	f32
Access	Read/Write
Default Value	5.00000e+01
Lower Limit	1.00000e+01
Upper Limit	9.00000e+01
Unit	degree
Category	Control
Function	Basic Controller
Sub-index	15
Definition	Pre-Filter Type
Name (GUI)	L3FiltPreType
Description	Sets the Pre-Filter type. 0=None. 1=First order. 2=Complex. 3=Notch.
Data Type	s32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	3.00000e+00
Unit	Not applicable
Category	Control
Function	Internal

Sub-index	16
Definition	Pre-Filter Pole
Name (GUI)	L3FiltPrePole
Description	Pre-Filter: First order frequency value (FILTPRETYPE=1)
Data Type	f32
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Internal
Sub-index	17
Definition	Pre-Filter Complex Pole
Name (GUI)	L3FiltPreComplexPoleF
Description	Pre-Filter: Complex pole frequency value (FILTPRETYPE=2)
Data Type	f32
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Internal
Sub-index	18
Definition	Pre-Filter Complex Damping
Name (GUI)	L3FiltPreComplexPoleXi
Description	Pre-Filter: Complex pole damping value (FILTPRETYPE=2)
Data Type	f32
Access	Read/Write
Default Value	7.06999e-01
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Internal

Sub-index	19
Definition	Pre-Filter Notch Bandwidth
Name (GUI)	L3FiltPreNotchBw
Description	Pre-Filter: Notch filter bandwidth value (FILTPRETYPE=3)
Data Type	f32
Access	Read/Write
Default Value	2.00000e+02
Lower Limit	1.00000e+01
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	Internal
Sub-index	20
Definition	Pre-Filter Notch Center
Name (GUI)	L3FiltPreNotchCenter
Description	Pre-Filter: Notch filter center value (FILTPRETYPE=3)
Data Type	f32
Access	Read/Write
Default Value	1.50000e+03
Lower Limit	1.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Internal
Sub-index	21
Definition	Pre-Filter Notch Phase
Name (GUI)	L3FiltPreNotchPhase
Description	Pre-Filter: Notch filter phase value (FILTPRETYPE=3)
Data Type	f32
Access	Read/Write
Default Value	5.00000e+01
Lower Limit	1.00000e+01
Upper Limit	9.00000e+01
Unit	degree
Category	Control
Function	Internal

Sub-index	22
Definition	PI Filter Frequency
Name (GUI)	L3FiltPIF
Description	Sets the frequency value for the PI filter.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+01
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	23
Definition	PI Filter Attenuation
Name (GUI)	L3FiltPIGain
Description	Sets the gain value for the PI filter.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-2.00000e+01
Upper Limit	0.0
Unit	dB
Category	Control
Function	Basic Controller
Sub-index	24
Definition	Actual Velocity Filter
Name (GUI)	L3VelFilt
Description	Sets the type of filter that is used to extract a velocity signal from the position feedback. 0=No filter. 1=First order filter
Data Type	f32
Access	Read/Write
Default Value	1.20000e+03
Lower Limit	5.00000e+01
Upper Limit	1.50000e+03
Unit	Hz
Category	Control
Function	Internal

Sub-index	25
Definition	Variable Gain
Name (GUI)	L3vg
Description	Variable Gain allows changes in gain for different speeds and frequencies mostly in position mode. The default value is received from the calibration process.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Control
Function	Internal
Sub-index	26
Definition	Variable Gain Filter
Name (GUI)	L3VgFilt
Description	Variable Gain Frequency Filter allows changes in gain for different speeds and frequencies mostly in position mode. The default value is received from the calibration process.
Data Type	f32
Access	Read/Write
Default Value	2.00000e+02
Lower Limit	5.00000e+01
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	Internal

200Eh – Motor Parameters

Object Index	200Eh
Sub-index	0
Definition	Motor Parameters
Name (GUI)	MotorParams
Description	Number of entries used to define the motor parameters. The settings are taken and/or calculated from the motor datasheet.
Data Type	s16
Access	Read
Default Value	9.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Hz
Category	Datasheet Values
Function	Not applicable
Sub-index	1
Definition	Motor Torque Constant
Name (GUI)	MotorKt
Description	The torque constant of the motor. This value is used for current loop controller design and standard pole-placement velocity controller design.
Data Type	f32
Access	Read/Write
Default Value	1.12000e-01
Lower Limit	1.00000e-03
Upper Limit	1.00000e+01
Unit	Nm/ampere
Category	Datasheet Values
Function	Not applicable

Sub-index	2
Definition	Motor Inertia
Name (GUI)	MotorJ
Description	The rotor inertia of the motor.
Data Type	f32
Access	Read/Write
Default Value	2.55000e-06
Lower Limit	1.00000e-06
Upper Limit	1.00000e+00
Unit	kg*m ²
Category	Datasheet Values
Function	Not applicable
Sub-index	3
Definition	Motor Rated Speed
Name (GUI)	MotorSpeed
Description	The motor rated/maximum speed.
Data Type	f32
Access	Read/Write
Default Value	5.00000e+01
Lower Limit	0.0
Upper Limit	2.50000e+02
Unit	rps
Category	Datasheet Values
Function	Not applicable
Sub-index	4
Definition	Motor Inductance
Name (GUI)	MotorInductance
Description	The motor's minimum line-to-line inductance. This value is used for current loop controller design and as an input to the vector control algorithms.
Data Type	f32
Access	Read/Write
Default Value	1.55000e-03
Lower Limit	1.00000e-06
Upper Limit	1.00000e+00
Unit	henry
Category	Datasheet Values
Function	Not applicable

Sub-index	5
Definition	Motor Resistance
Name (GUI)	MotorResistance
Description	The motor resistance.
Data Type	f32
Access	Read/Write
Default Value	1.20000e+00
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Ohm
Category	Datasheet Values
Function	Not applicable
Sub-index	6
Definition	Motor Continuous Current
Name (GUI)	MotorIRated
Description	The rated continuous current of the drive.
Data Type	f32
Access	Read/Write
Default Value	4.52500e+00
Lower Limit	0.0
Upper Limit	5.00000e+02
Unit	ampere
Category	Datasheet Values
Function	Not applicable
Sub-index	7
Definition	Motor Peak Current
Name (GUI)	MotorIPeak
Description	The rated peak current of the motor.
Data Type	f32
Access	Read/Write
Default Value	1.13130e+01
Lower Limit	0.0
Upper Limit	5.00000e+02
Unit	ampere
Category	Datasheet Values
Function	Not applicable

Sub-index	8
Definition	Motor Poles
Name (GUI)	MotorPoles
Description	The number of motor poles. This value is used for commutation control and represents the number of individual magnetic poles of the motor. For pole pairs the value is divided by 2.
Data Type	s16
Access	Read/Write
Default Value	8.00000e+00
Lower Limit	2.00000e+00
Upper Limit	3.00000e+01
Unit	Not applicable
Category	Datasheet Values
Function	Not applicable
Sub-index	9
Definition	Motor feedback phase offset
Name (GUI)	MotorPhaseOffset
Description	Sets the offset used in the feedback phase of the motor. This offset compensates for the difference between the initial feedback angle and the motor electrical angle.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	6.28318e+00
Unit	rad
Category	Datasheet Values
Function	Not applicable

200Fh – Current Controller Parameters

Object Index	200Fh
Sub-index	0
Definition	Current Controller Parameters
Name (GUI)	CurrentController
Description	Number of entries that define the parameters for the current controller.
Data Type	s16
Access	Read
Default Value	1.80000e+01
Lower Limit	0.0
Upper Limit	2.00000e+01
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	1
Definition	Current Controller P Gain
Name (GUI)	CCKp
Description	The current controller proportional (KP) gain.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+01
Lower Limit	1.00000e-01
Upper Limit	1.00000e+01
Unit	volt/ampere
Category	Control
Function	PI Current Controller

Sub-index	2
Definition	Current Controller I Gain
Name (GUI)	CCKi
Description	The current controller integrator (KI) gain.
Data Type	f32
Access	Read/Write
Default Value	3.00000e+02
Lower Limit	0.0
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	PI Current Controller
Sub-index	3
Definition	Current Controller DQ Compensation
Name (GUI)	CCKMBComp
Description	The current controller DQ axis compensation (DQ transformation).
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Control
Function	Current Controller
Sub-index	4
Definition	Current Controller BEMF Gain
Name (GUI)	CCKBemf
Description	The feedforward BEMF compensation ratio for the current control.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Control
Function	Current Controller

Sub-index	8
Definition	D Axis Voltage
Name (GUI)	CCVd
Description	The D output voltage of the current controller (DQ transformation).
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-1.00000e+03
Upper Limit	1.00000e+03
Unit	volt
Category	Control
Function	Current Controller
Sub-index	9
Definition	Q Axis Voltage
Name (GUI)	CCVq
Description	The Q output voltage of the current controller (DQ transformation)
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-1.00000e+03
Upper Limit	1.00000e+03
Unit	volt
Category	Control
Function	Current Controller
Sub-index	10
Definition	D Axis Current
Name (GUI)	CCId
Description	In vector control, the value perpendicular to CCIQ (DQ transformation).
Data Type	f32
Access	Read
Default Value	0.0
Lower Limit	-1.00000e+03
Upper Limit	1.00000e+03
Unit	ampere
Category	Control
Function	Current Controller

Sub-index	11
Definition	Current Controller Mode
Name (GUI)	CCMode
Description	Sets the current controller mode. 0=open loop. 1=PI. 2=MD (module based).
Data Type	s16
Access	Read/Write
Default Value	2.00000e+00
Lower Limit	0.0
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Current Controller
Sub-index	12
Definition	Current Sensors Mode
Name (GUI)	CCSenseMode
Description	Defines whether the current sensor used by the drive is simulated or real.
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Current Controller

2010h – Feedback Alignment Process Parameters

Object Index	2010h
Sub-index	0
Definition	Feedback Alignment Process Parameters
Name (GUI)	FBAAlign
Description	Number of entries that define the parameters for the feedback alignment process that is used to find/verify motor phase alignment.
Data Type	s16
Access	Read
Default Value	4.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	1
Definition	Feedback Alignment Current
Name (GUI)	FBAAlignCurrent
Description	Sets the current used in the feedback alignment process.
Data Type	f32
Access	Read/Write
Default Value	4.00000e-01
Lower Limit	0.0
Upper Limit	5.00000e+02
Unit	Not applicable
Category	Feedback
Function	Not applicable

Sub-index	2
Definition	Feedback Alignment Mode
Name (GUI)	FBAAlignMode
Description	Sets the feedback alignment mode. 1=Activated.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Feedback
Function	Not applicable
Sub-index	3
Definition	Feedback Alignment Status
Name (GUI)	FBAAlignStatus
Description	Returns the status of the feedback alignment process. 0=Idle. 1=Setup. 2=Ready. 3=Active. 4=Process canceled. 5=Phase Calculation. 6=Done.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Feedback
Function	Not applicable

Sub-index	4
Definition	Feedback Alignment Phase
Name (GUI)	FBAAlignPhase
Description	Returns the phase (in radians) that resulted from the feedback alignment process.
Data Type	f32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	rad
Category	Feedback
Function	Not applicable

2011h – Control Level 1 Basic Parameters

Object Index	2011h
Sub-index	0
Definition	Control Level 1 Basic Parameters
Name (GUI)	L1BasicParams
Description	The number of entries that define the basic parameters used in Control Level 1. Level 1 is a simplified form of the drive control loops. Control levels indicate the user's capabilities: Level 1=Simple. Level 2=Advanced. Level 3=Expert.
Data Type	s16
Access	Read
Default Value	5.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	1
Definition	Control Level 1 Gain
Name (GUI)	L1Gain
Description	Sets the gain for the Control Level 1. This value acts as a global gain for the drive. It indirectly affects both velocity and position loops.
Data Type	s16
Access	Read/Write
Default Value	1.00000e+01
Lower Limit	0.0
Upper Limit	3.60000e+01
Unit	Not applicable
Category	Control
Function	Advanced Controller
Sub-index	2
Definition	Control Level 1 LMJR
Name (GUI)	L1Lmjr
Description	Sets the LMJR value used in Control Level 1 velocity and position loops. This value can be received from the calibration process.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Control
Function	Advanced Controller

Sub-index	3
Definition	Control Level 1 Speed Feedforward
Name (GUI)	L1Vff
Description	The velocity feedforward of the position control loop in Control Level 1.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	-2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Advanced Controller
Sub-index	4
Definition	Control Level 1 Acceleration Feedforward
Name (GUI)	L1Aff
Description	The acceleration feedforward of the position control loop in Control Level 3.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Advanced Controller

Sub-index	5
Definition	Control Level 1 Variable Gain
Name (GUI)	L1Vg
Description	Variable Gain allows changes in gain for different speeds and frequencies mostly in position mode. The default value is received from the calibration process.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Control
Function	Internal

2012h – Control Level 2 Basic Parameters

Object Index	2012h
Sub-index	0
Definition	Control Level 2 Basic Parameters
Name (GUI)	L2BasicParams
Description	The number of entries that define the basic parameters used in Control Level 2. Level 2 contains a simplified form of the drive velocity control loop. It also contains the same position control loop as Control Level 3. Control levels indicate the user's capabilities: Level 1=Simple. Level 2=Advanced. Level 3=Expert.
Data Type	s16
Access	Read
Default Value	1.30000e+01
Lower Limit	0.0
Upper Limit	2.00000e+01
Unit	Hz
Category	Control
Function	Basic Controller

Sub-index	1
Definition	Control Level 2 Gain
Name (GUI)	L2Gain
Description	Sets the gain for Control Level 1.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e-01
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Control
Function	Advanced Controller
Sub-index	2
Definition	Control Level 2 Bandwidth
Name (GUI)	L2Bw
Description	Sets the bandwidth for Control Level 2
Data Type	f32
Access	Read/Write
Default Value	3.00000e+01
Lower Limit	1.00000e+00
Upper Limit	5.00000e+02
Unit	Hz
Category	Control
Function	Advanced Controller
Sub-index	3
Definition	Control Level 2 LMJR
Name (GUI)	L2Lmjr
Description	Sets the LMJR value used in Control Level 2 velocity and position loops. This value can be received from the calibration process.
Data Type	f32
Access	Read/Write
Default Value	2.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Control
Function	Advanced Controller

Sub-index	5
Definition	Control Level 2 Filter
Name (GUI)	L2Filter
Description	Sets the value of the filter (between 0–100) used in Control Level 2 velocity and position loops.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+02
Lower Limit	1.50000e+01
Upper Limit	1.00000e+02
Unit	%
Category	Control
Function	Advanced Controller
Sub-index	6
Definition	Control Level 2 Notch
Name (GUI)	L2Notch
Description	Sets the value of the Notch filter used in Control Level 2 velocity and position loops.
Data Type	f32
Access	Read/Write
Default Value	1.50000e+03
Lower Limit	1.50000e+02
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Advanced Controller

Sub-index	7
Definition	Control Level 2 Postion Gain
Name (GUI)	L2Kp
Description	Sets the proportional gain for the Control Level 2 velocity and position loops.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+01
Lower Limit	0.0
Upper Limit	1.00000e+04
Unit	Hz
Category	Control
Function	Advanced Controller
Sub-index	8
Name (GUI)	L2Vff
Definition	Control Level 2 Velocity Feedforward
Description	The velocity feedforward of the position control loop in Control Level 2.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	-2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Advanced Controller

Sub-index	9
Definition	Control Level 2 Acceleration Feedforward
Name (GUI)	L2Aff
Description	The acceleration feedforward of the position control loop in Control Level 2.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	-2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Advanced Controller
Sub-index	10
Definition	Control Level 2 Velocity Filter
Name (GUI)	L2VelFilt
Description	Sets the type of filter that is used to extract a velocity signal from the position feedback. 0=No filter. 1=First order filter. Used in Control Level 2 velocity and position loops.
Data Type	f32
Access	Read/Write
Default Value	6.00000e+02
Lower Limit	0.0
Upper Limit	1.00000e+03
Unit	Hz
Category	Control
Function	Advanced Controller

Sub-index	11
Definition	Control Level 2 Variable Gain
Name (GUI)	L2Vg
Description	Variable Gain allows changes in gain for different speeds and frequencies mostly in position mode. The default value is received from the calibration process.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Control
Function	Internal
Sub-index	12
Definition	Control Level 2 Variable Gain Filter
Name (GUI)	L2VgFilt
Description	Variable Gain Frequency Filter allows changes in gain for different speeds and frequencies mostly in position mode. The default value is received from the calibration process.
Data Type	f32
Access	Read/Write
Default Value	2.00000e+02
Lower Limit	5.00000e+01
Upper Limit	2.00000e+03
Unit	Hz
Category	Control
Function	Internal

2013h – Drive Operation Mode

Object Index	2013h
Sub-index	0
Definition	Drive Operation Mode
Name (GUI)	OperationMode
Description	The drive operation mode when using serial communication. -4=Torque mode. -2=Velocity mode. -1=Position mode. The drive operation mode when using CANopen communication. 1=Profile Position mode. 3=Profile Velocity mode. 8=Cyclic Sync Position mode.
Data Type	s16
Access	Read/Write
Default Value	-4.00000e+00
Lower Limit	-1.00000e+01
Upper Limit	8.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller

2014h – Control Level Controller Gain Set

Object Index	2014h
Sub-index	0
Definition	Control Level Controller Gain Set
Name (GUI)	ControlLevel
Description	Sets the Control Level used for position and velocity loops. The levels are defined according to the user's level of expertise: 1=Level 1/Simple. 2=Level 2/Advanced. 3=Level 3/Expert.
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	3.00000e+00
Unit	Not applicable
Category	Control
Function	Not applicable

2015h – Controller Bus Voltage

Object Index	2015h
Sub-index	0
Definition	Controller Bus Voltage
Name (GUI)	Vbus
Description	The drive bus voltage. This value is used in the current controller design.
Data Type	f32
Access	Read/Write
Default Value	4.00000e+01
Lower Limit	1.00000e+01
Upper Limit	6.00000e+02
Unit	volt
Category	Datasheet Values
Function	Not applicable

2016h – Electrical Commutation Angle

Object Index	2016h
Sub-index	0
Definition	Electrical Commutation Angle
Name (GUI)	CommutationElect
Description	The electrical commutation angle of the motor.
Data Type	f32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	6.28320e+00
Unit	rad
Category	Feedback
Function	Not applicable

2017h – Forced Commutation Frequency

Object Index	2017h
Sub-index	0
Definition	Forced Commutation Frequency
Name (GUI)	ForcedCommFreq
Description	INTERNAL
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+03
Unit	Hz
Category	Feedback
Function	Not applicable

2018h – Primary Feedback Type

Object Index	2018h
Sub-index	0
Definition	Primary Feedback Type
Name (GUI)	PrimaryFeedback
Description	Defines the type of device used as the primary feedback. 0=None. 1=Simulation. 2=Encoder. 3=Tamagawa 17-bit. 4=MT6835 21-bit. 6=Broadcom 18-bit
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	6.00000e+00
Unit	Not applicable
Category	Feedback
Function	Not applicable

2019h – Feedback Counts Per Motor Revolution

Object Index	2019h
Sub-index	0
Definition	Feedback Counts Per Motor Revolution
Name (GUI)	CountsPerRev
Description	The number of feedback counts per one revolution of the motor.
Data Type	s32
Access	Read
Default Value	2.62144e+05
Lower Limit	2.56000e+02
Upper Limit	1.00000e+07
Unit	counts/rev
Category	Feedback
Function	Not applicable

201Ah – Real Time Period

Object Index	201Ah
Sub-index	0
Definition	Real Time Period
Name (GUI)	Ts
Description	Period of the real-time cycle in seconds
Data Type	f32
Access	Read
Default Value	6.25000e-05
Lower Limit	1.00000e-06
Upper Limit	1.00000e+00
Unit	second
Category	User Interface
Function	Not applicable

201Bh – Phase A Current (Internal)**201Ch – Phase C Current (Internal)****201Dh – Phase U Current Offset (Internal)**

201Eh – Phase V Current Offset (Internal)**201Bh – Phase W Current Offset (Internal)****2020h – Drive Current Parameters**

Object Index	2020h
Sub-index	0
Definition	Drive Current
Name (GUI)	Drivel
Description	The number of entries that define the drive current parameters used in Control Level 1.
Data Type	s16
Access	Read
Default Value	2.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Hz
Category	Control
Function	Basic Controller
Sub-index	1
Definition	Drive Continuous Current
Name (GUI)	DrivelRated
Description	The rated continuous current for the drive.
Data Type	f32
Access	Read/Write
Default Value	1.00010e+03
Lower Limit	1.00000e-01
Upper Limit	1.00000e+04
Unit	ampere
Category	Datasheet Values
Function	Not applicable

Sub-index	2
Definition	Drive Peak Current
Name (GUI)	DrivePeak
Description	The rated peak current of the drive.
Data Type	f32
Access	Read/Write
Default Value	1.00010e+03
Lower Limit	1.00000e-01
Upper Limit	1.00000e+04
Unit	ampere
Category	Datasheet Values
Function	Not applicable

2021h – Temperature Parameters

Object Index	2021h
Sub-index	0
Definition	Temperature Parameters
Name (GUI)	Temperature
Description	The number of entries that define the temperature parameters.
Data Type	s16
Access	Read
Default Value	6.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	degree C
Category	Control
Function	Actual Data

Sub-index	1
Definition	Drive Temperature
Name (GUI)	DriveTemp
Description	Returns the current temperature of the drive.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.27000e+02
Unit	degree C
Category	Control
Function	Actual Data
Sub-index	2
Definition	Drive Over-Temperature Threshold
Name (GUI)	DriveTempThreshold
Description	The threshold value for drive over-temperature.
Data Type	s16
Access	Read/Write
Default Value	1.15000e+02
Lower Limit	0.0
Upper Limit	1.15000e+02
Unit	degree C
Category	Control
Function	Not applicable
Sub-index	3
Definition	Heat Sink Temperature
Name (GUI)	HeatSinkTemp
Description	Returns the current temperature of the heat sink.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.27000e+02
Unit	degree C
Category	Control
Function	Actual Data

Sub-index	4
Definition	Heat Sink Over-Temperature Threshold
Name (GUI)	HeatsinkTempThreshold
Description	The threshold value for heat sink over-temperature.
Data Type	s16
Access	Read/Write
Default Value	9.00000e+01
Lower Limit	0.0
Upper Limit	9.00000e+01
Unit	degree C
Category	Control
Function	Not applicable
Sub-index	5
Definition	Motor Temperature
Name (GUI)	MotorTemp
Description	Returns the current temperature of the motor.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.27000e+02
Unit	degree C
Category	Control
Function	Actual Data
Sub-index	6
Definition	Motor Over-Temperature Threshold
Name (GUI)	MotorTempThreshold
Description	The threshold value for motor over-temperature.
Data Type	s16
Access	Read/Write
Default Value	1.20000e+02
Lower Limit	0.0
Upper Limit	1.20000e+02
Unit	degree C
Category	Control
Function	Not applicable

2022h – Overload Parameters

Object Index	2022h
Sub-index	0
Definition	Overload Parameters
Name (GUI)	Overload
Description	The number of entries that define the Overload parameters.
Data Type	s16
Access	Read
Default Value	4.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	degree C
Category	Control
Function	Actual Data
Sub-index	1
Definition	Overload Mode
Name (GUI)	OverloadMode
Description	Overload mode
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Controller Limits

Sub-index	3
Definition	Motor Overload Time
Name (GUI)	OverloadMotorTime
Description	The maximum time allowed for the motor to have a current overload. Protects the motor from damage and overheating due to excessive current.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e-03
Upper Limit	1.00000e+02
Unit	second
Category	Control
Function	Internal

2023h – Over-Speed Threshold

Object Index	2023h
Sub-index	0
Definition	Over-Speed Threshold
Name (GUI)	Overspeed
Description	The over-speed threshold value for motor. An over-speed fault is generated when the actual motor velocity exceeds this threshold.
Data Type	f32
Access	Read/Write
Default Value	6.00000e+01
Lower Limit	1.00000e+00
Upper Limit	1.20000e+02
Unit	rps
Category	Control
Function	Controller Limits

2024h – Under-Voltage Threshold

Object Index	2024h
Sub-index	0
Definition	Under-Voltage Threshold
Name (GUI)	UnderVoltageThreshold
Description	The voltage level at which an under-voltage condition is detected.
Data Type	s16
Access	Read
Default Value	2.00000e+01
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	volt
Category	Control
Function	Not applicable

2025h – Position Error Limit Command

Object Index	2025h
Sub-index	0
Definition	Position Error Limit Command
Name (GUI)	PeMax
Description	The maximum allowed position error value.
Data Type	s64
Access	Read/Write
Default Value	1.07374e+09
Lower Limit	0.0
Upper Limit	9.22337e+18
Unit	feedback count
Category	Control
Function	Trajectory

2026h – In Position Error Limit

Object Index	2026h
Sub-index	0
Definition	In Position Error Limit
Name (GUI)	InPosWindow
Description	Defines the position error limits for the In Position state.
Data Type	s64
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	9.22337e+18
Unit	feedback count
Category	Control
Function	Controller Limits

2027h – Position Target Reached Error Limit

Object Index	2027h
Sub-index	0
Definition	Position Target Reached Error Limit
Name (GUI)	PeTargetReached
Description	Indicates the actual position and target position are within the position error limit.
Data Type	s64
Access	Read/Write
Default Value	1.19304e+07
Lower Limit	0.0
Upper Limit	9.22337e+18
Unit	feedback count
Category	Control
Function	Controller Limits

2028h – Profile Trajectory Quick Stop Deceleration

Object Index	2028h
Sub-index	0
Definition	Profile Trajectory Quick Stop Deceleration
Name (GUI)	QuickStopDec
Description	The deceleration value used in the quick stop trajectory.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+01
Lower Limit	0.0
Upper Limit	1.00000e+06
Unit	rps/second
Category	Internal
Function	Trajectory

2029h – Velocity Target Reached Error Limit

Object Index	2029h
Sub-index	0
Definition	Velocity Target Reached Error Limit
Name (GUI)	VelocityTargetWindow
Description	Indicates the actual velocity and target velocity are within the velocity window limit.
Data Type	f32
Access	Read/Write
Default Value	5.00000e-01
Lower Limit	-2.50000e+02
Upper Limit	2.50000e+02
Unit	feedback count
Category	Control
Function	Not applicable

202Ah – Over-Voltage Threshold (Internal)

202Bh – Save Parameters

Object Index	202Bh
Sub-index	0
Definition	Save Parameters
Name (GUI)	SaveParams
Description	Save parameters values to the flash memory Indicates parameters values saved to flash memory. ??
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller

202Ch – Load Parameters

Object Index	202Ch
Sub-index	0
Definition	Load Parameters
Name (GUI)	LoadParams
Description	Loads parameters values from the flash memory; need to save parameters before loading.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	-2.00000e+03
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller

202Dh – Load Defaults

Object Index	202Dh
Sub-index	0
Definition	Load Defaults
Name (GUI)	LoadDefaults
Description	Loads the defaults values to all parameters.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	-2.00000e+03
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Basic Controller

2030h – Incremental Encoder Parameters

Object Index	2030h
Sub-index	0
Definition	Incremental Encoder Parameters
Name (GUI)	IncEncoder
Description	The number of entries that define the parameters for an incremental encoder.
Data Type	s16
Access	Read
Default Value	6.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	degree C
Category	Control
Function	Actual Data

Sub-index	1
Definition	Incremental Encoder Type
Name (GUI)	IncEncoderType
Description	Sets the type of incremental encoder.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Feedback
Function	Not applicable
Sub-index	2
Definition	Incremental Encoder Index Search
Name (GUI)	IncEncoderIndexSearch
Description	Starts the search for the incremental encoder index. When found, the drive captures the location. 1=Search on. 0=Abort.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Feedback
Function	Not applicable
Sub-index	3
Definition	Incremental Encoder Index Preset
Name (GUI)	IncEncoderIndexPreSet
Description	The commutation value at the index position.
Data Type	f32
Access	Read/Write
Default Value	1.20000e+02
Lower Limit	0.0
Upper Limit	3.59000e+02
Unit	rad
Category	Feedback
Function	Not applicable

Sub-index	4
Definition	Incremental Encoder Index Preset Enable
Name (GUI)	IncEncoderIndexPreSetEn
Description	Enable/disable for the update commutation according to INCENCODERINDEXPRESET when in index is identify
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Feedback
Function	Not applicable
Sub-index	5
Definition	Incremental Encoder Counts Per Motor Revolution
Name (GUI)	IncEncoderCountsPerRev
Description	The number of incremental encoder feedback counts per one revolution of the motor.
Data Type	s32
Access	Read/Write
Default Value	2.62144e+05
Lower Limit	2.56000e+02
Upper Limit	1.00000e+07
Unit	counts/rev
Category	Feedback
Function	Not applicable

2031h – Phase Advanced Parameters

Object Index	2031h
Sub-index	0
Definition	Phase Advanced Parameters
Name (GUI)	PhaseAdvSpeed
Description	The number of entries that define the Phase Advanced parameters.
Data Type	s16
Access	Read
Default Value	6.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	degree C
Category	Control
Function	Internal
Sub-index	1
Definition	Phase Advanced Speed 1
Name (GUI)	PhaseAdvSpeed1
Description	Phase Advanced Speed 1.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.50000e+02
Unit	rps
Category	Control
Function	Internal

Sub-index	2
Definition	Phase Advanced Phase 1
Name (GUI)	PhaseAdvPhase1
Description	Phase Advanced Phase 1.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.04719e+00
Unit	rad
Category	Control
Function	Internal
Sub-index	3
Definition	Phase Advanced Speed 2
Name (GUI)	PhaseAdvSpeed2
Description	Phase Advanced Speed 2.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.50000e+02
Unit	rps
Category	Control
Function	Internal
Sub-index	4
Definition	Phase Advanced Phase 2
Name (GUI)	PhaseAdvPhase2
Description	Phase Advanced Phase 2.
Data Type	f32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.04719e+00
Unit	rad
Category	Control
Function	Internal

Sub-index	5
Definition	Phase Advanced Actual
Name (GUI)	PhaseAdvAct
Description	Phase Advanced Actual
Data Type	f32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+07
Unit	rad
Category	Control
Function	Internal

2032h – Fault Word

Object Index	2032h
Sub-index	0
Definition	Fault Word
Name (GUI)	FaultWord
Description	Bitwise fault word that show each fault in the drive by unique bit. For more information about faults, refer to the section <i>Warnings and Faults</i> in the product user manual.
Data Type	s16
Access	Read
Default Value	FaultWord
Lower Limit	4.00000e+00
Upper Limit	4.00000e+00
Unit	Not applicable
Category	User Interface
Function	Not applicable

Sub-index	1
Definition	Fault Word Sub1
Name (GUI)	FaultWordSub1
Description	Bitwise fault word that show each fault in the drive by unique bit – first 32 bits (0–31).
Data Type	s32
Access	Read
Default Value	FaultWordSub1
Lower Limit	0.0
Upper Limit	4.29496e+09
Unit	Not applicable
Category	User Interface
Function	Not applicable
Sub-index	2
Definition	Fault Word Sub2
Name (GUI)	FaultWordSub2
Description	Bitwise fault word that show each fault in the drive by unique bit – second 32 bits (32–63).
Data Type	s32
Access	Read
Default Value	FaultWordSub2
Lower Limit	0.0
Upper Limit	4.29496e+09
Unit	Not applicable
Category	User Interface
Function	Not applicable

Sub-index	3
Definition	Fault Word Sub3
Name (GUI)	FaultWordSub3
Description	Bitwise fault word that show each fault in the drive by unique bit – third 32 bits (64–95).
Data Type	s32
Access	Read
Default Value	FaultWordSub3
Lower Limit	0.0
Upper Limit	4.29496e+09
Unit	Not applicable
Category	User Interface
Function	Not applicable
Sub-index	4
Definition	Fault Word Sub4
Name (GUI)	FaultWordSub4
Description	Bitwise fault word that show each fault in the drive by unique bit – fourth 32 bits (96-127)
Data Type	s32
Access	Read
Default Value	FaultWordSub4
Lower Limit	0.0
Upper Limit	4.29496e+09
Unit	Not applicable
Category	User Interface
Function	Not applicable

2033h – Serial number

Object Index	2033h
Sub-index	0
Definition	Serial number
Name (GUI)	SerialNumber
Description	Serial number
Data Type	str
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	User Interface
Function	Not applicable

2034h – Operation Mode Switch Speed Threshold

Object Index	2034h
Sub-index	0
Definition	Operation Mode Switch Speed Threshold
Name (GUI)	OperationModeSpeed
Description	Operation mode switch while drive is active Speed Limit.
Data Type	f32
Access	Read/Write
Default Value	5.00000e-01
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	rps
Category	Control
Function	Basic Controller

2035h – Digital Input and Output

Object Index	2035h
Sub-index	0
Definition	Digital Input and Output subindex 0
Name (GUI)	DigitalInputsAndOutputs
Description	Number of entries that define the Digital Inputs and Outputs
Data Type	s16
Access	Read
Default Value	1.20000e+01
Lower Limit	0.0
Upper Limit	1.20000e+01
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	1
Definition	Digital Input 1 Functionality
Name (GUI)	DigInput1Assign
Description	Assignes the Digital input 1 functionality:1=User,2=Positive limit,3=Negative limit, 4=Home
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	5.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable

Sub-index	2
Definition	Digital Input 2 Functionality
Name (GUI)	DigInput2Assign
Description	Assigns the Digital input 2 functionality:1=User,2=Positive limit,3=Negative limit, 4=Home
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	5.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	3
Definition	Digital Input 3 Functionality
Name (GUI)	DigInput3Assign
Description	Assigns the Digital input 3 functionality:1=User,2=Positive limit,3=Negative limit, 4=Home
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	5.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable

Sub-index	4
Definition	Digital Output 1 Functionality
Name (GUI)	DigOutput1Assign
Description	Assigns the Digital output 1 functionality:0=None,1=User,2=Disable,3=Enable
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	3.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	5
Definition	Digital Input 1 Value
Name (GUI)	DigInput1
Description	Digital input 1 value
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	6
Definition	Digital Input 2 Value
Name (GUI)	DigInput2
Description	Digital input 2 value
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable

Sub-index	7
Definition	Digital Input 3 Value
Name (GUI)	DigInput3
Description	Digital input 3 value
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	8
Definition	Digital Output 1 Value
Name (GUI)	DigOutput1
Description	Digital output 1 value
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	9
Definition	Digital Input 1 Polarity
Name (GUI)	DigInput1Polarity
Description	Digital input 1 polarity
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable

Sub-index	10
Definition	Digital Input 2 Polarity
Name (GUI)	DigInput2Polarity
Description	Digital input 2 polarity
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	11
Definition	Digital Input 3 Polarity
Name (GUI)	DigInput3Polarity
Description	Digital input 3 polarity
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	12
Definition	Digital Output 1 Polarity
Name (GUI)	DigOutput1Polarity
Description	Digital output 1 polarity
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable

2038h – Analog Input 1

Object Index	2035h
Sub-index	1
Definition	Analog Input 1 Value
Name (GUI)	AnalogInput1
Description	The analog input's measured value with the addition of the offset, expressed in millivolts (mV). This value is then filtered through the deadband.
Data Type	s16
Access	Read only
Default Value	0.0
Lower Limit	-2.00000e+04
Upper Limit	2.00000e+04
Unit	mV
Category	IOs
Function	Not applicable
Sub-index	2
Definition	Analog Input 1 Offset Value
Name (GUI)	AnalogInput1Offset
Description	Analog input 1 offset value. This offset is added to the measured value.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	-1.00000e+04
Upper Limit	1.00000e+04
Unit	mV
Category	IOs
Function	Not applicable

Sub-index	3
Definition	Analog Input 1 Deadband Value
Name (GUI)	AnalogInput1Deadband
Description	Analog input 1 deadband value.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.00000e+04
Unit	mV
Category	IOs
Function	Not applicable
Sub-index	4
Definition	Analog Input 1 LPF Cutoff Frequency
Name (GUI)	AnalogInput1Lpf
Description	Analog Input 1 low pass filter cutoff frequency. This value is used to filter out higher-frequency components of the analog input signal.
Data Type	f32
Access	Read/Write
Default Value	5.00000e+03
Lower Limit	1.00000e+01
Upper Limit	5.00000e+03
Unit	Hz
Category	IOs
Function	Not applicable

2039h – ABSEncSign

Object Index	2039h
Sub-index	0
Definition	Absolute Encoder Sign Extension Mode
Name (GUI)	ABSEncSign
Description	Absolute Encoder Sign Extension Mode.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Feedback
Function	Not applicable

2040h – Motor Brake Hold Current Factor

Object Index	2040h
Sub-index	0
Definition	Motor Brake Hold Current Factor
Name (GUI)	BrakeHoldCurrentFactor
Description	The brake's hold current as factor of brake peak current. Use this factor to set the current of the brake as a percentage (up to 1) of the brake peak current. Brake holds current = Brake Peak Current * Factor.
Data Type	f32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	3.00000e-01
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Control
Function	Not applicable

20E0h – Serial Over Fieldbus

Object Index	20E0h
Sub-index	0
Definition	Serial Over Fieldbus subindex 0
Name (GUI)	SerialOverFbusS0
Description	Serial Over Fieldbus subindex 0
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Fieldbus
Function	Not applicable
Sub-index	1
Definition	Serial Over Fieldbus Data subindex 1
Name (GUI)	SerialOverFbus
Description	Serial Over Fieldbus Data subindex 1
Data Type	s32
Access	Read/Write
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

Sub-index	2
Definition	Serial Over Fieldbus En subindex 2
Name (GUI)	SerialOverFbusEn
Description	Serial Over Fieldbus En subindex 2
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Not applicable
Sub-index	3
Definition	Serial Over Fieldbus En subindex 3
Name (GUI)	SerialOverFbusStrRes
Description	Serial Over Fieldbus En subindex 3
Data Type	str
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

20F0h – Simulated Plant Parameters

Object Index	20F0h
Sub-index	0
Definition	Simulated Plant Parameters
Name (GUI)	PlantSim
Description	The number of entries that define the simulated Plant parameters.
Data Type	s16
Access	Read
Default Value	6.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Control
Function	Internal
Sub-index	1
Definition	Simulated Plant Mode
Name (GUI)	PlantSimMode
Description	Simulated Plant Mode
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Control
Function	Internal

Sub-index	2
Definition	Simulated Plant LMJR
Name (GUI)	PlantSimLmjr
Description	Simulated Plant LMJR
Data Type	f32
Access	Read/Write
Default Value	4.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Control
Function	Internal
Sub-index	3
Definition	Simulated Plant Inertia
Name (GUI)	PlantSimMj
Description	Simulated Plant Inertia
Data Type	f32
Access	Read/Write
Default Value	1.00000e-04
Lower Limit	1.00000e-06
Upper Limit	1.00000e+00
Unit	kg*m ²
Category	Control
Function	Internal
Sub-index	4
Definition	Simulated Plant Mkt
Name (GUI)	PlantSimMkt
Description	Simulated Plant Mkt
Data Type	f32
Access	Read/Write
Default Value	5.00000e-01
Lower Limit	0.0
Upper Limit	1.00000e+03
Unit	Nm/ampere
Category	Control
Function	Internal

Sub-index	5
Definition	Simulated Plant Sample Rate
Name (GUI)	PlantSimTs
Description	Simulated Plant Sample Rate
Data Type	f32
Access	Read/Write
Default Value	5.00000e-05
Lower Limit	1.00000e-06
Upper Limit	2.00000e-04
Unit	second
Category	Control
Function	Internal
Sub-index	6
Definition	Simulated Plant Friction Coefficient
Name (GUI)	PlantSimBCoef
Description	Simulated Plant Friction Coefficient
Data Type	f32
Access	Read/Write
Default Value	5.00000e-05
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Nm/rps
Category	Control
Function	Internal

2100h – CAN Node ID

Object Index	2100h
Sub-index	0
Definition	CAN Node ID
Name (GUI)	CanNodeID
Description	CAN Node ID.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

210Bh – PLL Information Parameters

Object Index	210Bh
Sub-index	0
Definition	PLL Information
Name (GUI)	PLLInfoS0
Description	Number of entries that define the configuration and status of phase locked loop (PLL) synchronization.
Data Type	s16
Access	Read
Default Value	1.00000e+01
Lower Limit	0.0
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Fieldbus
Function	Internal

Sub-index	1
Definition	PLL Locked Status
Name (GUI)	PLLLockedStatusS1
Description	Indicates PLL status: 1=Locked. 2=Not Locked.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Internal
Sub-index	2
Definition	PLL Locked Counter
Name (GUI)	PLLLockedCounterS2
Description	Returns the number of PLL cycles in which the PLL is locked.
Data Type	s16
Access	Read
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Internal
Sub-index	3
Definition	PLL Sync Event
Name (GUI)	PLLSyncEventS3
Description	Indicates which synchronization event is used by the PLL.
Data Type	s16
Access	Read
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Internal

Sub-index	4
Definition	PLL MTS Sample Rate
Name (GUI)	PLLMTSFieldSampleRateS4
Description	Indicates the number of MTS cycles within one fieldbus sync cycle.
Data Type	s16
Access	Read
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Internal
Sub-index	5
Definition	PLL Sync Event Timing Capture
Name (GUI)	PLLSyncTimeCaptureS5
Description	Returns the time of capture from the sync event.
Data Type	s32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	Not applicable
Category	Fieldbus
Function	Internal
Sub-index	6
Definition	PLL Measured Time Difference
Name (GUI)	PLLMeasuredTimeDeltaS6
Description	Returns the measured time difference between the MTS and sync events.
Data Type	s32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	Not applicable
Category	Fieldbus
Function	Internal

Sub-index	7
Definition	PLL Expected Time Difference
Name (GUI)	PLLExpectedTimeCaptureS7
Description	Returns the expected time difference between the MTS and sync events.
Data Type	s32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	Not applicable
Category	Fieldbus
Function	Internal
Sub-index	8
Definition	PLL Locked Window
Name (GUI)	PLLLockWindowSizeS8
Description	The difference that indicates whether or not the PLL is locked.
Data Type	s32
Access	Read/Write
Default Value	7.81000e+02
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	Not applicable
Category	Fieldbus
Function	Internal
Sub-index	9
Definition	PLL Time Difference Factor
Name (GUI)	PLLTimeDistanceFactorS9
Description	The expected time difference in the PLL process.
Data Type	f32
Access	Read/Write
Default Value	3.12500e-02
Lower Limit	1.00000e-04
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Internal

Sub-index	10
Definition	PLL Locked Counter Threshold
Name (GUI)	PLLLockCntrThresholdS10
Description	Time distance factor sets the expected time distance of the PLL process.
Data Type	s16
Access	Read/Write
Default Value	5.00000e+02
Lower Limit	0.0
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Fieldbus
Function	Internal

210Ch – Start Optimizer

Object Index	210Ch
Sub-index	0
Definition	Start Optimizer
Name (GUI)	StartOptimizer
Description	The optimizer moves the motor clockwise and counterclockwise while changing the motor phase offset. The process stops when the optimizer finds the phase offset that uses the least current.
Data Type	s32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	User Interface
Function	Not applicable

210Dh – Micro Interpolation Mode

Object Index	210Dh
Sub-index	0
Definition	Micro Interpolation Mode
Name (GUI)	ulMode
Description	The Micro Interpolation mode: 0=None. 1=Linear. 2=Cubic.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	3.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

210Eh – Product FW Version

Object Index	210Eh
Sub-index	0
Definition	Product FW Version
Name (GUI)	ProductFWVersion
Description	Number of entries that define the product FW version- contains 4 fields: field 1 contains the MSB,field 4 contains the LSB
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	9.99900e+03
Unit	Not applicable
Category	User Interface
Function	Not applicable

Sub-index	1
Definition	Version FW Field 1
Name (GUI)	ProductFWVersionS1
Description	Returns the product fw version field 1.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	9.99900e+03
Unit	Not applicable
Category	User Interface
Function	Not applicable
Sub-index	2
Definition	Version FW Field 2
Name (GUI)	ProductFWVersionS2
Description	Returns the product fw version field 2.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	9.99900e+03
Unit	Not applicable
Category	User Interface
Function	Not applicable
Sub-index	3
Definition	Version FW Field 3
Name (GUI)	ProductFWVersionS3
Description	Returns the product fw version field 3.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	9.99900e+03
Unit	Not applicable
Category	User Interface
Function	Not applicable

Sub-index	4
Definition	Version FW Field 4
Name (GUI)	ProductFWVersionS4
Description	Returns the product fw version field 4.
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	9.99900e+03
Unit	Not applicable
Category	User Interface
Function	Not applicable

210Fh – Brake Support

Object Index	210Fh
Sub-index	0
Definition	Brake Support
Name (GUI)	BrakeSupport
Description	Set the brake functionality supported option. set supported=1, not supported=0.
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable

2110h – STO Filter Time

Object Index	2110h
Sub-index	0
Definition	STO filter time
Name (GUI)	StoFilterTime
Description	The time in which the firmware filter filters drops on the STO signals
Data Type	f32
Access	Read/Write
Default Value	5.00000e+00
Lower Limit	5.00000e-02
Upper Limit	2.00000e+03
Unit	millisecond
Category	IOs
Function	Not applicable

2700h – User012

Object Index	2700h
Sub-index	0
Definition	User012
Name (GUI)	User012S0
Description	
Data Type	s8
Access	Read
Default Value	3.00000e+00
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

Sub-index	1
Definition	User012 Digital inputs object
Name (GUI)	User012DigInS1
Description	
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	2
Definition	User012 Status word object
Name (GUI)	User012StatusS2
Description	
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	3
Definition	User012 Control word object
Name (GUI)	User012ControlS3
Description	
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.55000e+02
Unit	Not applicable
Category	IOs
Function	Not applicable

Sub-index	4
Definition	User012 Phase U current
Name (GUI)	User012PhaseUmAS4
Description	
Data Type	s32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.55000e+02
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	5
Definition	User012 Phase V current
Name (GUI)	User012PhaseVmAS5
Description	
Data Type	s32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.55000e+02
Unit	Not applicable
Category	IOs
Function	Not applicable
Sub-index	6
Definition	User012 Phase W current
Name (GUI)	User012PhaseWmAS6
Description	
Data Type	s32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.55000e+02
Unit	Not applicable
Category	IOs
Function	Not applicable

Sub-index	7
Definition	User012 Drive Temp 0.1 DegC
Name (GUI)	User012DriveTempS7
Description	
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.55000e+02
Unit	Not applicable
Category	IOs
Function	Not applicable

27FCh – Test LEDs

Object Index	27FCh
Sub-index	0
Definition	Test LEDs
Name (GUI)	TestLeds
Description	Tests the LEDs on the drive. Briefly switches each LED on and off in sequence.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	User Interface
Function	Internal

27FEh – Dummy Read Only

Object Index	27FEh
Sub-index	0
Definition	Dummy Read Only
Name (GUI)	DummyRO
Description	INTERNAL
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

27FFh – Dummy Read Write

Object Index	27FFh
Sub-index	0
Definition	Dummy Read Write
Name (GUI)	DummyRead/Write
Description	INTERNAL
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

4 Device Profile (CAN Standard) Objects

603Fh – Error Code

Object Index	603Fh
Sub-index	0
Definition	Error Code
Name (GUI)	Fbus0x603F
Description	The error code of the last error that occurred in the drive device. For more information about faults, refer to the section <i>Warnings and Faults</i> in the product user manual.
Data Type	Unsigned 16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Optional
Function	Not applicable

6040h – Controlword

Object Index	6040h										
Sub-index	0										
Definition	Controlword										
Name (GUI)	Fbus0x6040										
Description	Sets the operating states and modes of the state machine. 15 11 10 9 8 7 6 4 3 2 1 0 <table><tr><td>ms</td><td>r</td><td>oms</td><td>h</td><td>fr</td><td>oms</td><td>eo</td><td>qs</td><td>ev</td><td>so</td></tr></table> MSBLSB Key: ms manufacturer-specific r reserved oms operation mode specific h halt fr fault reset eo enable operation qs quick stop ev enable voltage so switch on	ms	r	oms	h	fr	oms	eo	qs	ev	so
ms	r	oms	h	fr	oms	eo	qs	ev	so		
Data Type	Unsigned 16										
Access	Read/Write										
Default Value	0.0										
Lower Limit	-3.27680e+04										
Upper Limit	3.27670e+04										
Unit	Not applicable										
Category	Mandatory										
Function	Not applicable										

6041h – Statusword

Object Index	6041h																																
Sub-index	0																																
Definition	Statusword																																
Name (GUI)	Fbus0x6041																																
Description	Indicates the current state of the FSA, the operation mode and manufacturer-specific entities. <table><tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>ms</td><td>oms</td><td>ila</td><td>tr</td><td>rm</td><td>ms</td><td>w</td><td>sod</td><td>qs</td><td>ve</td><td>f</td><td>oe</td><td>so</td><td>rtso</td><td></td><td></td></tr></table> MSB Key: ms manufacturer-specific oms operation mode specific ila internal limit active tr target reached rm remote w warning sod switch on disabled qs quick stop ve voltage enabled f fault oe operation enabled so switched on rtso ready to switch on LSB	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	ms	oms	ila	tr	rm	ms	w	sod	qs	ve	f	oe	so	rtso		
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
ms	oms	ila	tr	rm	ms	w	sod	qs	ve	f	oe	so	rtso																				
Data Type	Unsigned 16																																
Access	Read																																
Default Value	0.0																																
Lower Limit	0.0																																
Upper Limit	3.27670e+04																																
Unit	Not applicable																																
Category	Mandatory																																
Function	Not applicable																																

605Ah – Quick Stop Option Code

Object Index	605Ah
Sub-index	0
Definition	Quick Stop Option Code
Name (GUI)	Fbus0x605A
Description	The action to be performed when the quick stop function is executed. 0 = Disable drive function 1 = Slow down on slow down ramp and transit into switch on disabled 2 = Slow down on quick stop ramp and transit into switch on disabled 3 = Slow down on current limit and transit into switch on disabled 4 = Slow down on voltage limit and transit into switch on disabled 5 = Slow down on slow down ramp and stay in quick stop active 6 = Slow down on quick stop ramp and stay in quick stop active 7 = Slow down on current limit and stay in quick stop active 8 = Slow down on voltage limit and stay in quick stop active 9 to 32767 = Reserved
Data Type	Integer 16
Access	Read/Write
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Optional
Function	Not applicable

605Bh – Shutdown Option Code

Object Index	605Bh
Sub-index	0
Definition	Shutdown Option Code
Name (GUI)	Fbus0x605B
Description	The action to be performed upon a transition from Operation Enabled state to the Ready To Switch On state. 0 = Disable drive function (switch-off the drive power stage) 1 = Slow down with slow down ramp; disable of the drive function -32768 to -1 = Manufacturer-specific +2 to +32767 = Reserved
Data Type	Integer 16
Access	Read/Write
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Optional
Function	Not applicable

605Ch – Disable Operation Option Code

Object Index	605Ch
Sub-index	0
Definition	Fieldbus 0x605C Object
Name (GUI)	Fbus0x605C
Description	Indicates the action to be performed upon a transition from the Operation Enabled state to the Switched On state. 0 = Disable drive function (switch-off the drive power stage) 1 = Slow down with slow down ramp; disable of the drive function -32768 to -1 = Manufacturer-specific +2 to +32767 = Reserved
Data Type	Integer 16
Access	Read/Write
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Optional
Function	Not applicable

605Dh – Halt Option Code

Object Index	605Dh
Sub-index	0
Definition	Fieldbus 0x605D Object
Name (GUI)	Fbus0x605D
Description	Indicates the action to be performed upon an Halt (bit 8 in ControlWord) command.
Data Type	s16
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

605Eh – Fault Reaction Option Code

Object Index	605Eh
Sub-index	0
Definition	Fault Reaction Option Code
Name (GUI)	Fbus0x605E
Description	The action to be performed when a fault (excluding communication faults) causes the drive to switch to 0 = Disable drive function, motor is free to rotate 1 = Slow down on slow down ramp 2 = Slow down on quick stop ramp 3 = Slow down on current limit 4 = Slow down on voltage limit -32768 to -1 = Manufacturer-specific +5 to +32767 = Reserved
Data Type	Integer 16
Access	Read/Write
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Optional
Function	Not applicable

6060h – Modes of Operation

Object Index	6060h
Sub-index	0
Definition	Modes of Operation
Name (GUI)	Fbus0x6060
Description	The requested operational mode. 0 = No mode change/no mode assigned 1 = Profile position mode 2 = Velocity mode 3 = Profile velocity mode 4 = Torque profile mode 5 = Reserved 6 = Homing mode 7 = Interpolated position mode 8 = Cyclic sync position mode 9 = Cyclic sync velocity mode 10 = Cyclic sync torque mode 11 = Cyclic sync torque mode with commutation angle 12 to 127 = Reserved -128 to -1 = Manufacturer-specific operation modes
Data Type	Integer 8
Access	Read/Write
Default Value	0.0
Lower Limit	-1.00000e+01
Upper Limit	1.00000e+01
Unit	Not applicable
Category	Mandatory if more than one mode of operation is supported
Function	Not applicable

6061h – Modes of Operation Display

Object Index	6061h
Sub-index	0
Definition	Modes of Operation Display
Name (GUI)	Fbus0x6061
Description	The actual operation mode. See object 6060h.
Data Type	Integer 8
Access	Read
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Not applicable
Category	Mandatory if more than one mode of operation is supported
Function	Not applicable

6062h – Position Demand Value

Object Index	6062h
Sub-index	0
Definition	Position Demand Value
Name (GUI)	Fbus0x6062
Description	The demanded position value.
Data Type	Integer 32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	User-defined position units
Category	Optional
Function	Not applicable

6064h – Position Actual Value

Object Index	6064h
Sub-index	0
Definition	Position Actual Value
Name (GUI)	Fbus0x6064
Description	The actual value of the position measurement device.
Data Type	Integer 32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	Internal unit
Category	Mandatory if PP, IP or CSP is supported
Function	Not applicable

6065h – Following Error Window

Object Index	6065h
Sub-index	0
Definition	Following Error Window
Name (GUI)	Fbus0x6065
Description	Maximum allowed position error without producing a fault. This object indicates 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, an unreachable profile velocity occurs, or at wrong closed-loop coefficients. If the value of the following error window is FFFF FFFFh, the following control will be switched off.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	User-defined position units
Category	Optional
Function	Not applicable

6068h – Position Window Time

Object Index	6068h
Sub-index	0
Definition	Position Window Time
Name (GUI)	Fbus0x6068
Description	Configured time during which the actual position within the position window.
Data Type	u16
Access	Read/Write
Default Value	1.00000e+03
Lower Limit	1.00000e+00
Upper Limit	6.55350e+04
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

606Bh – Velocity Demand Value

Object Index	606Bh
Sub-index	0
Definition	Velocity Demand Value
Name (GUI)	Fbus0x606B
Description	The output velocity value of the trajectory generator.
Data Type	Integer 32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	User-defined velocity units
Category	Optional
Function	Not applicable

606Ch – Velocity Actual Value

Object Index	606Ch
Sub-index	0
Definition	Velocity Actual Value
Name (GUI)	Fbus0x606C
Description	The actual velocity value derived either from the velocity sensor or the position sensor.
Data Type	Integer 32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	User-defined velocity units
Category	Mandatory if PV or CSV is supported
Function	Not applicable

606Dh – Velocity Window

Object Index	606Dh
Sub-index	0
Definition	Velocity Window
Name (GUI)	Fbus0x606D
Description	The configured velocity window.
Data Type	Unsigned 16
Access	Read/Write
Default Value	-1.00000e+00
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	User-defined velocity units
Category	Optional
Function	Not applicable

6071h – Target Torque

Object Index	6071h
Sub-index	0
Definition	Target Torque
Name (GUI)	Fbus0x6071
Description	The input value for the torque controller in profile torque mode.
Data Type	Integer 16
Access	Read/Write
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Per thousand of rated torque mNm
Category	Mandatory if TQ or CST is supported
Function	Not applicable

6073h – Maximum Current

Object Index	6073h
Sub-index	0
Definition	Maximum Current
Name (GUI)	Fbus0x6073
Description	The maximum permissible torque creating current in the motor.
Data Type	Unsigned 16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	3.27670e+04
Unit	Per thousand of rated current mA
Category	Optional
Function	Not applicable

6074h – Torque Demand Value

Object Index	6074h
Sub-index	0
Definition	Torque Demand Value
Name (GUI)	Fbus0x6074
Description	The output value of torque limit function.
Data Type	Integer 16
Access	Read
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	Per thousand of rated torque mNm
Category	Optional
Function	Not applicable

6075h – Motor Rated Current

Object Index	6075h
Sub-index	0
Definition	Motor Rated Current
Name (GUI)	Fbus0x6075
Description	The motor rated current as defined in the motor nameplate. Depending on the motor and drive technology, this current is DC, peak or r.m.s. (root-mean-square) current. All relative current data refers to this value.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	mA
Category	Optional
Function	Not applicable

6076h – Motor Rated Torque

Object Index	6076h
Sub-index	0
Definition	Motor Rated Torque
Name (GUI)	Fbus0x6076
Description	The motor rated torque as defined in the motor nameplate. All relative torque data refers to this value. For linear motors, the object name is not changed, but the motor rated force value is entered as multiples of mN (milliNewton).
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	mNm
Category	Optional
Function	Not applicable

6077h – Torque Actual Value

Object Index	6077h
Sub-index	0
Definition	Torque Actual Value
Name (GUI)	Fbus0x6077
Description	The actual value of the torque. It corresponds to the instantaneous torque in the motor. The value is given per thousand of rated torque.
Data Type	Integer 16
Access	Read
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	mNm
Category	Mandatory if CST is supported
Function	Not applicable

6078h – Current Actual Value

Object Index	6078h
Sub-index	0
Definition	Current Actual Value
Name (GUI)	Fbus0x6078
Description	The actual value of the current. It corresponds to the current in the motor. The value is given per thousand of rated current.
Data Type	Integer 16
Access	Read
Default Value	0.0
Lower Limit	-3.27680e+04
Upper Limit	3.27670e+04
Unit	mA
Category	Optional
Function	Not applicable

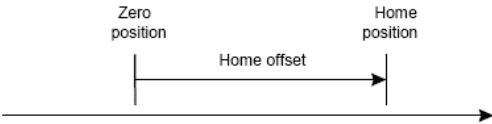
6079h – DC Link Circuit Voltage

Object Index	6079h
Sub-index	0
Definition	DC Link Circuit Voltage
Name (GUI)	Fbus0x6079
Description	The bus voltage measured by sensors on the power module of the drive device.
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	mV
Category	Optional
Function	Not applicable

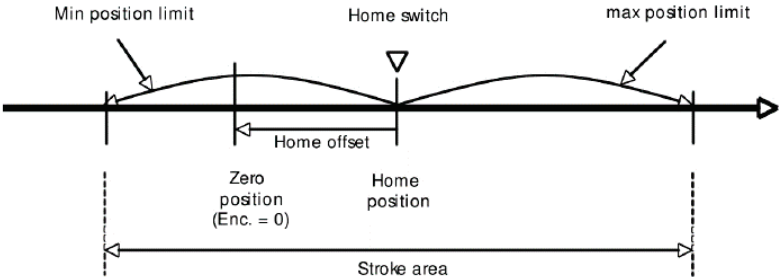
607Ah – Target Position

Object Index	607Ah
Sub-index	0
Definition	Target Position
Name (GUI)	Fbus0x607A
Description	The commanded position that the drive will move to in position profile mode using the current settings of motion control parameters such as velocity, acceleration, deceleration, motion profile type. The value of this object is interpreted as absolute or relative depending on the abs/rel flag in the controlword. The value is given in user-defined position units and is converted to position increments.
Data Type	Integer 32
Access	Read/Write
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	User-defined position units
Category	Mandatory if PP, PC or CSP is supported
Function	Not applicable

607Ch – Home Offset

Object Index	607Ch
Sub-index	0
Definition	Home Offset
Name (GUI)	Fbus0x607C
Description	The configured difference between the zero position for the application and the machine home position (found during homing). During homing, the machine home position is found and once the homing is completed, the zero position is offset from the home position by adding the home offset to the home position. The zero position is calculated by following equation: $\text{zero position} = \text{home position} + \text{home offset}$ All subsequent absolute moves are taken relative to this new zero position. If this object is not implemented, then the home offset is regarded as zero.  The value of this object is given in user-defined position units. Negative values indicate the opposite direction. The activation of a new value of the object home offset is manufacturer-specific. It is recommended to apply the new value only while the drive is in homing mode.
Data Type	Integer 32
Access	Read/Write
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	User-defined position units
Category	Optional
Function	Not applicable

607Dh – Software Position Limit

Object Index	607Dh
Sub-index	0
Definition	Software Position Limit
Name (GUI)	Fbus0x607DS0
Description	This object indicates the configured maximum and minimum software position limits. These parameters define the absolute position limits for the position demand value and the position actual value. Every new target position will be checked against these limits.  To disable the software position limits, the minimum position limit (sub-index 01h) and maximum position limit (sub-index 02h) are set to 0. The position limit is given in user-defined position units (the same as target position). Supervision of software position limits requires a defined home position.
Data Type	Integer 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	User-defined position units
Category	Optional
Function	Not applicable

Sub-index	1
Definition	Software Position Limit 1
Name (GUI)	Fbus0x607DS1
Description	The minimum software position limit.
Data Type	Integer 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	User-defined position units
Category	Optional
Function	Not applicable
Sub-index	2
Definition	Software Position Limit 2
Name (GUI)	Fbus0x607DS2
Description	The maximum software position limit.
Data Type	Integer 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	User-defined position units
Category	Optional
Function	Not applicable

607Eh – Speed and position polarity

Object Index	607Eh
Sub-index	0
Definition	Speed and position polarity
Name (GUI)	Fbus0x607E
Description	Change speed and position polarity.
Data Type	s16
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+00
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

607Fh – Max Profile Velocity

Object Index	607Fh
Sub-index	0
Definition	Max Profile Velocity
Name (GUI)	Fbus0x607F
Description	The maximum velocity allowed in either direction during a profiled motion.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	Same physical units as profile velocity (6081h)
Category	Optional
Function	Not applicable

6080h – Max Motor Speed

Object Index	6080h
Sub-index	0
Definition	Max Motor Speed
Name (GUI)	Fbus0x6080
Description	The maximum speed allowed for the motor in either direction.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	rotations per minute (rpm) or user-defined velocity units
Category	Optional
Function	Not applicable

6081h – Profile Velocity in Profile Position Mode

Object Index	6081h
Sub-index	0
Definition	Profile Velocity in Profile Position Mode
Name (GUI)	Fbus0x6081
Description	The configured velocity normally attained at the end of the acceleration ramp during a profiled motion. It is valid for both directions of motion. The velocity units can depend on the user-defined position units (position units per second). The calculation of the user-defined position units is done via the factor group.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	9.00000e+07
Unit	user-defined units
Category	Mandatory if PP is supported
Function	Not applicable

6083h – Profile Acceleration

Object Index	6083h
Sub-index	0
Definition	Profile Acceleration
Name (GUI)	Fbus0x6083
Description	The configured acceleration value.
Data Type	s32
Access	Read/Write
Default Value	3.60000e+06
Lower Limit	0.0
Upper Limit	7.20000e+09
Unit	user-defined acceleration units
Category	Mandatory if PP or PV is supported
Function	Not applicable

6084h – Profile Deceleration

Object Index	6084h
Sub-index	0
Definition	Profile Deceleration
Name (GUI)	Fbus0x6084
Description	The configured deceleration value. If not defined, Profile Acceleration value is used.
Data Type	Unsigned 32
Access	Read/Write
Default Value	3.60000e+06
Lower Limit	0.0
Upper Limit	7.20000e+09
Unit	Same physical units as profile acceleration (6083h)
Category	Optional
Function	Not applicable

6085h – Quick Stop Deceleration

Object Index	6085h
Sub-index	0
Definition	Quick Stop Deceleration
Name (GUI)	Fbus0x6085
Description	The configured deceleration used to stop the motor when the quick stop function is activated and the quick stop code object (605Ah) is set to 2 or 6. The quick stop deceleration is also used if the fault reaction code object (605Eh) is 2 and the halt option code object (605Dh) is 2.
Data Type	Unsigned 32
Access	Read/Write
Default Value	3.60000e+06
Lower Limit	0.0
Upper Limit	7.20000e+09
Unit	Same physical units as profile acceleration (6083h)
Category	Optional
Function	Not applicable

6091h – Gear Ratio

Object Index	6091h
Sub-index	0
Definition	Gear Ratio
Name (GUI)	Fbus0x6091S0
Description	Number of entries that define the gear ratio. This object indicates the configured number of motor shaft revolutions and the number of driving shaft revolutions. The gear ratio is calculated by the following formula: $\text{Gear ratio} = (\text{motor shaft revolutions}) / (\text{drive shaft revolutions})$ All values are dimensionless.
Data Type	Unsigned 32
Access	Read/Write
Default Value	2.00000e+00
Lower Limit	2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	1
Definition	Gear Ratio – Motor Shaft Revolutions
Name (GUI)	Fbus0x6091S1
Description	Motor shaft revolutions.
Data Type	Unsigned 32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	4.29496e+09
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	2
Name (GUI)	Fbus0x6091S2
Definition	Gear Ratio – Drive Shaft Revolutions
Description	Drive shaft revolutions.
Data Type	Unsigned 32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	4.29496e+09
Unit	Not applicable
Category	Optional
Function	Not applicable

6092h – Feed Constant

Object Index	6092h
Sub-index	0
Definition	Feed Constant
Name (GUI)	Fbus0x6092S0
Description	Number of entries that define the feed constant.. This object is the configured feed constant is the measurement distance per one revolution of the driving shaft of the gearbox. The feed constant is calculated by the following formula: $\text{Feed constant} = (\text{feed}) / (\text{drive shaft revolutions})$ The feed is given in user-defined position units, and the driving shaft revolutions value is dimensionless
Data Type	s16
Access	Read/Write
Default Value	2.00000e+00
Lower Limit	2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Mandatory
Function	Not applicable
Sub-index	1
Definition	Feed Constant – Feed
Name (GUI)	Fbus0x6092S1
Description	Feed.
Data Type	Unsigned 32
Access	Read/Write
Default Value	4.09600e+03
Lower Limit	1.00000e+00
Upper Limit	4.29496e+09
Unit	Not applicable
Category	Mandatory
Function	Not applicable

Sub-index	2
Definition	Feed Constant – Drive Shaft Revolutions
Name (GUI)	Fbus0x6092S2
Description	Drive shaft revolutions.
Data Type	Unsigned 32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e+00
Upper Limit	4.29496e+09
Unit	Not applicable
Category	Mandatory
Function	Not applicable

6098h – Homing Method

Object Index	6098h
Sub-index	0
Definition	Homing Method
Name (GUI)	HomeMethod
Description	Selects the Homing method to be used 0 = No homing method assigned 1 = Method 1 will be used ... 37 = Method 37 will be used 38 to 127 Reserved. Refer to the CiA-402 standard for the detailed description of each homing method.
Data Type	Integer 8
Access	Read/Write
Default Value	3.70000e+01
Lower Limit	0.0
Upper Limit	3.70000e+01
Unit	Not applicable
Category	Control (mandatory if HM is supported)
Function	SubGroupBUG

6099h – Homing Speed

Object Index	6099h
Sub-index	0
Definition	Homing Speed
Name (GUI)	HomeSpeed
Description	The velocity to be used while performing the homing process.
Data Type	Unsigned 32
Access	Read/Write
Default Value	1.00000e+00
Lower Limit	1.00000e-03
Upper Limit	2.50000e+02
Unit	rps
Category	Control (mandatory if HM is supported)
Function	SubGroupBUG

609Ah – Homing Acceleration

Object Index	609Ah
Sub-index	0
Definition	Homing Acceleration
Name (GUI)	HomeAcc
Description	The acceleration to be used while performing the homing process.
Data Type	Unsigned 32
Access	Read/Write
Default Value	1.00000e+01
Lower Limit	1.00000e-03
Upper Limit	1.00000e+06
Unit	rps/second
Category	Control (Optional)
Function	SubGroupBUG

60C2h – Interpolation Time Period

Object Index	60C2h
Sub-index	0
Definition	Interpolation Time Period subindex 0.
Name (GUI)	Fbus0x60C2S0
Description	Number of entries that define the interpolation cycle time. The interpolation time period (sub-index 01h) value is given in 10(interpolation time index) s(econd). The interpolation time index (sub-index 02h) is dimensionless.
Data Type	Integer 32
Access	Read/Write
Default Value	2.00000e+00
Lower Limit	2.00000e+00
Upper Limit	2.00000e+00
Unit	Not applicable
Category	Mandatory
Function	Not applicable
Sub-index	1
Definition	Interpolation Time Period
Name (GUI)	Fbus0x60C2S1
Description	Interpolation time period.
Data Type	Integer 32
Access	Read/Write
Default Value	2.00000e+01
Lower Limit	0.0
Upper Limit	2.55000e+02
Unit	Not applicable
Category	Mandatory
Function	Not applicable

Sub-index	2
Definition	Interpolation Time Index
Name (GUI)	Fbus0x60C2S2
Description	Interpolation time index.
Data Type	Integer 32
Access	Read/Write
Default Value	-4.00000e+00
Lower Limit	-1.28000e+02
Upper Limit	6.30000e+01
Unit	Not applicable
Category	Mandatory
Function	Not applicable

60C5h – Maximum Acceleration

Object Index	60C5h
Sub-index	0
Definition	Maximum Acceleration
Name (GUI)	Fbus0x60C5
Description	The configured maximum acceleration. It is used to limit the acceleration to an acceptable value in order to prevent the motor and the moved mechanics from being destroyed.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	User-defined acceleration physical units
Category	Optional
Function	Not applicable

60C6h – Maximum Deceleration

Object Index	60C6h
Sub-index	0
Definition	Maximum Deceleration
Name (GUI)	Fbus0x60C6
Description	The configured maximum deceleration. It is used to limit the deceleration to an acceptable value in order to prevent the motor and the moved mechanics from being destroyed.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	Same physical unit as the maximum acceleration (60C5h)
Category	Optional
Function	Not applicable

60E3h – Supported Home Methods

Object Index	60E3h
Sub-index	0
Definition	Supported Home Methods
Name (GUI)	Fbus0x60E3S0
Description	Provides the supported homing methods of the drive.
Data Type	Integer 8
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	1
Definition	Supported Home Method 17
Name (GUI)	Fbus0x60E3S1
Description	Supported homing method: Negative limit switch
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Mandatory
Function	Not applicable
Sub-index	2
Definition	Supported Home Method 18
Name (GUI)	Fbus0x60E3S2
Description	Supported homing method: Positive limit switch
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	3
Definition	Supported Home Method 19
Name (GUI)	Fbus0x60E3S3
Description	Supported homing method: Positive reference switch, negative direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	4
Definition	Supported Home Method 20
Name (GUI)	Fbus0x60E3S4
Description	Supported homing method: Positive reference switch, positive direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	5
Definition	Supported Home Method 21
Name (GUI)	Fbus0x60E3S5
Description	Supported homing method: Negative reference switch, positive direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	6
Definition	Supported Home Method 22
Name (GUI)	Fbus0x60E3S6
Description	Supported homing method: Negative reference switch, negative direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	7
Definition	Supported Home Method 23
Name (GUI)	Fbus0x60E3S7
Description	Supported homing method: Positive reference switch inactive, negative direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	8
Definition	Supported Home Method 24
Name (GUI)	Fbus0x60E3S8
Description	Supported homing method: Negative reference switch active, positive direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	9
Name (GUI)	Fbus0x60E3S9
Definition	Supported Home Method 27
Description	Supported homing method: Negative reference switch inactive, positive direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	10
Definition	Supported Home Method 28
Name (GUI)	Fbus0x60E3S10
Description	Supported homing method: Positive reference switch active, negative direction
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	11
Definition	Supported Home Method 35
Name (GUI)	Fbus0x60E3S11
Description	Supported homing method: Current position - obsolete
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable
Sub-index	12
Definition	Supported Home Method 37
Name (GUI)	Fbus0x60E3S12
Description	Supported homing method: Current position
Data Type	s16
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	1.00000e+02
Unit	Not applicable
Category	Optional
Function	Not applicable

60F4h – Following Error Actual Value

Object Index	60F4h
Sub-index	0
Definition	Following Error Actual Value
Name (GUI)	Fbus0x60F4
Description	The actual value of the following error.
Data Type	Integer 32
Access	Read
Default Value	0.0
Lower Limit	-2.14748e+09
Upper Limit	2.14748e+09
Unit	Not applicable
Category	Optional
Function	Not applicable

60FCh – Position Demand Internal Value

Object Index	60FCh
Sub-index	0
Definition	Position Demand Internal Value
Name (GUI)	Fbus0x60FC
Description	The output of the trajectory generator in profile position mode.
Data Type	Integer 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

60FDh – Digital Input Register

Object Index	60FDh
Sub-index	0
Definition	Digital Input Register
Name (GUI)	Fbus0x60FD
Description	The digital inputs register, see the ds402 for more specification
Data Type	u32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	4.29496e+09
Unit	Not applicable
Category	Fieldbus
Function	Not applicable

60FEh – Digital Outputs

Object Index	60FEh
Sub-index	0
Definition	Digital Outputs
Name (GUI)	Fbus0x60FES0
Description	Number of entries that define the state of the digital outputs.
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	0.0
Unit	Not applicable
Category	Optional
Function	Not applicable

Sub-index	1
Definition	Physical Outputs
Name (GUI)	Fbus0x60FES1
Description	Physical outputs.
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	4.29496e+09
Unit	Not applicable
Category	Mandatory
Function	Not applicable
Sub-index	2
Definition	Bit Mask
Name (GUI)	Fbus0x60FES2
Description	Bit mask
Data Type	Unsigned 32
Access	Read/Write
Default Value	0.0
Lower Limit	0.0
Upper Limit	4.29496e+09
Unit	Not applicable
Category	Optional
Function	Not applicable

60FFh – Target Velocity

Object Index	60FFh
Sub-index	0
Definition	Target Velocity
Name (GUI)	Fbus0x60FF
Description	The target velocity. This value is used as input for the trajectory generator.
Data Type	Integer 32
Access	Read/Write
Default Value	0.0
Lower Limit	-9.00000e+07
Upper Limit	9.00000e+07
Unit	Not applicable
Category	Mandatory if PC or CSV is supported
Function	Not applicable

6502h – Supported Drive Modes

Object Index	6502h
Sub-index	0
Definition	Supported Drive Modes
Name (GUI)	Fbus0x6502
Description	Supported drive modes. This object is organized bit-wise. The bits have the following bit meaning: 0 = Profile position mode 1 = Velocity mode 2 = Profile velocity mode 3 = Profile torque mode 4 = Reserved 5 = Homing mode 6 = Interpolated position mode 7 = Cyclic synchronous position mode 8 = Cyclic synchronous velocity mode 9 = Cyclic synchronous torque mode 10-15 = Reserved bit 16-31 = Manufacturer-specific The bit values have the following meaning: 0 = Mode is not supported 1 = Mode is supported
Data Type	Unsigned 32
Access	Read
Default Value	0.0
Lower Limit	0.0
Upper Limit	2.14748e+09
Unit	Not applicable
Category	Mandatory
Function	Not applicable