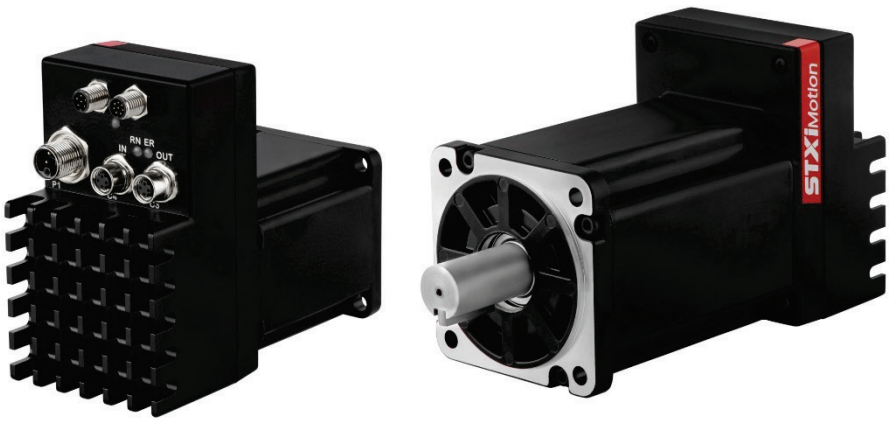
EtherCAT and CANopen

for TIM Integrated Servo Motor

Reference Manual

ORIGINAL DOCUMENT
Manual Revision 1.1



Revision History

Manual Rev.	Date	Notes
Rev.1.1	17 April 2024	Added product photo on cover Added EtherCAT vendor-ID
Rev. 1.0	22 Feb. 2024	Preliminary release

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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

4 Device Profile (CAN Standard) Objects

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 motors. 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
Name (GUI)	Object code name used in software interface
Definition	Object short name.
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
Name (GUI)	CiA3010x1001
Definition	CiA 301 0x1001 Error Register
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
Name (GUI)	CiA3010x1003S0
Definition	Predefined Error Field
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
Name (GUI)	CiA3010x1003S1
Definition	Error History Entry 1
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
Name (GUI)	CiA3010x1003S2
Definition	Error History Entry 2
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
Name (GUI)	CiA3010x1003S3
Definition	Error History Entry 3
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
Name (GUI)	CiA3010x1003S4
Definition	Error History Entry 4
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
Name (GUI)	CiA3010x1003S5
Definition	Error History Entry 5
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
Name (GUI)	CiA3010x1003S6
Definition	Error History Entry 6
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
Name (GUI)	CiA3010x1003S7
Definition	Error History Entry 7
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
Name (GUI)	CiA3010x1003S8
Definition	Error History Entry 8
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
Name (GUI)	CiA3010x1003S9
Definition	Error History Entry 9
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
Name (GUI)	CiA3010x1003S10
Definition	Error History Entry 10
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
Name (GUI)	CiA3010x1003S11
Definition	Error History Entry 11
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
Name (GUI)	CiA3010x1003S12
Definition	Error History Entry 12
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
Name (GUI)	CiA3010x1003S13
Definition	Error History Entry 13
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
Name (GUI)	CiA3010x1003S14
Definition	Error History Entry 14
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
Name (GUI)	CiA3010x1003S15
Definition	Error History Entry 15
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
Name (GUI)	CiA3010x1003S16
Definition	Error History Entry 16
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
Name (GUI)	CiA3010x1010S0
Definition	Store Parameters
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
Name (GUI)	CiA3010x1010S1
Definition	Save All Parameters
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
Name (GUI)	CiA3010x1011S0
Definition	Highest sub-index supported
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
Name (GUI)	CiA3010x1011S1
Definition	Restore Parameters
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
Name (GUI)	L3BasicParams
Definition	Control Level 3 Basic Parameters
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
Name (GUI)	L3kp
Definition	Control Level 3 Position Proportional Gain
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
Name (GUI)	L3kv
Definition	Control Level 3 Velocity Proportional Gain
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
Name (GUI)	L3ki
Definition	Control Level 3 Velocity Integral Gain
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
Name (GUI)	L3Vff
Definition	Control Level 3 Speed Feedforward
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
Name (GUI)	L3Aff
Definition	Control Level 3 Acceleration Feedforward
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
Name (GUI)	I3AFFC
Definition	Control Level 3 Current Loop Acceleration Feedforward
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
Name (GUI)	ICmd
Definition	Current Controller Command
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
Name (GUI)	VCmd
Definition	Trajectory Velocity Command
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
Name (GUI)	PCmd
Definition	Trajectory Position Command
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
Name (GUI)	ACmd
Definition	Trajectory Acceleration Command
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
Name (GUI)	VAct
Definition	Actual Velocity
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
Name (GUI)	ILim
Definition	Current Controller Limit
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

2008h – Actual Position

Object Index	2008h
Sub-index	0
Name (GUI)	Pfb
Definition	Actual Position
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
Name (GUI)	Ve
Definition	Velocity Error
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
Name (GUI)	Pe
Definition	Position Error
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

200Ch – Movement Commands Parameters

Object Index	200Ch
Sub-index	0
Name (GUI)	MoveCmds
Definition	Movement Commands Parameters
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
Name (GUI)	MoveCmdAcc
Definition	Profile Trajectory Acceleration
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
Name (GUI)	MoveCmdDec
Definition	Profile Trajectory Deceleration
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
Name (GUI)	MoveCmdSpeed
Definition	Profile Trajectory Speed
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
Name (GUI)	MoveCmdDist
Definition	Profile Trajectory Move Command
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
Name (GUI)	MoveCmdStopped
Definition	Profile Trajectory Stopped Status
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
Name (GUI)	MoveCmdDistRev
Definition	Profile Trajectory Incremental Move Command
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

200Dh – Control Level 3 Filter Parameters

Object Index	200Dh
Sub-index	0
Name (GUI)	L3Filters
Definition	Control Level 3 Filter Parameters
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
Name (GUI)	L3Filt1Type
Definition	Filter 1 Type
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
Name (GUI)	L3Filt1Pole
Definition	Filter 1 Pole
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
Name (GUI)	L3Filt1ComplexPoleF
Definition	Filter 1 Complex Pole
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
Name (GUI)	L3Filt1ComplexPoleXi
Definition	Filter 1 Complex Damping
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
Name (GUI)	L3Filt1NotchBw
Definition	Filter 1 Notch Bandwidth
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
Name (GUI)	L3Filt1NotchCenter
Definition	Filter 1 Notch Center
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
Name (GUI)	L3Filt1NotchPhase
Definition	Filter 1 Notch Phase
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
Name (GUI)	L3Filt2Type
Definition	Filter 2 Type
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
Name (GUI)	L3Filt2Pole
Definition	Filter 2 Pole
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
Name (GUI)	L3Filt2ComplexPoleF
Definition	Filter 2 Complex Pole
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
Name (GUI)	L3Filt2ComplexPoleXi
Definition	Filter 2 Complex Damping
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
Name (GUI)	L3Filt2NotchBw
Definition	Filter 2 Notch Bandwidth
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
Name (GUI)	L3Filt2NotchCenter
Definition	Filter 2 Notch Center
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
Name (GUI)	L3Filt2NotchPhase
Definition	Filter 2 Notch Phase
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
Name (GUI)	L3FiltPreType
Definition	Pre-Filter Type
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
Name (GUI)	L3FiltPrePole
Definition	Pre-Filter Pole
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
Name (GUI)	L3FiltPreComplexPoleF
Definition	Pre-Filter Complex Pole
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
Name (GUI)	L3FiltPreComplexPoleXi
Definition	Pre-Filter Complex Damping
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
Name (GUI)	L3FiltPreNotchBw
Definition	PrPre-Filter Notch Bandwidth
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
Name (GUI)	L3FiltPreNotchCenter
Definition	Pre-Filter Notch Center
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
Name (GUI)	L3FiltPreNotchPhase
Definition	Pre-Filter Notch Phase
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
Name (GUI)	L3FiltPIF
Definition	PI Filter Frequency
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
Name (GUI)	L3FiltPIGain
Definition	PI Filter Attenuation
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
Name (GUI)	L3VelFilt
Definition	Actual Velocity Filter
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
Name (GUI)	L3vg
Definition	Variable Gain
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
Name (GUI)	L3VgFilt
Definition	Variable Gain Filter
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
Name (GUI)	MotorParams
Definition	Motor Parameters
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
Name (GUI)	MotorKt
Definition	Motor Torque Constant
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
Name (GUI)	MotorJ
Definition	Motor Inertia
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
Name (GUI)	MotorSpeed
Definition	Motor Rated Speed
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
Name (GUI)	MotorInductance
Definition	Motor Inductance
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	henrey
Category	Datasheet Values
Function	Not applicable

Sub-index	5
Name (GUI)	MotorResistance
Definition	Motor Resistance
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
Name (GUI)	MotorIRated
Definition	Motor Continuous Current
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
Name (GUI)	MotorIPeak
Definition	Motor Peak Current
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
Name (GUI)	MotorPoles
Definition	Motor Poles
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
Name (GUI)	MotorPhaseOffset
Definition	Motor feedback phase offset
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 electical 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
Name (GUI)	CurrectController
Definition	Current Controller Parameters
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
Name (GUI)	CCKp
Definition	Current Controller P Gain
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
Name (GUI)	CCKi
Definition	Current Controller I Gain
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
Name (GUI)	CCKMBComp
Definition	Current Controller DQ Compensation
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
Name (GUI)	CCKBemf
Definition	Current Controller BEMF Gain
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
Name (GUI)	CCVd
Definition	D Axis Voltage
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
Name (GUI)	CCVq
Definition	Q Axis Voltage
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
Name (GUI)	CCId
Definition	D Axis Current
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
Name (GUI)	CCMode
Definition	Current Controller Mode
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
Name (GUI)	CCSenseMode
Definition	Current Sensors Mode
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
Name (GUI)	FBAlign
Definition	Feedback Alignment Process Parameters
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
Name (GUI)	FBAlignCurrent
Definition	Feedback Alignment Current
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
Name (GUI)	FBAlignMode
Definition	Feedback Alignment Mode
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
Name (GUI)	FBAlignStatus
Definition	Feedback Alignment Status
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
Name (GUI)	FBAlignPhase
Definition	Feedback Alignment Phase
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
Name (GUI)	L1BasicParams
Definition	Control Level 1 Basic Parameters
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
Name (GUI)	L1Gain
Definition	Control Level 1 Gain
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
Name (GUI)	L1Lmjr
Definition	Control Level 1 LMJR
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
Name (GUI)	L1Vff
Definition	Control Level 1 Speed Feedforward
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
Name (GUI)	L1Aff
Definition	Control Level 1 Acceleration Feedforward
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
Name (GUI)	L1Vg
Definition	Control Level 1 Variable Gain
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
Name (GUI)	L2BasicParams
Definition	Control Level 2 Basic Parameters
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
Name (GUI)	L2Gain
Definition	Control Level 2 Gain
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
Name (GUI)	L2Bw
Definition	Control Level 2 Bandwidth
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
Name (GUI)	L2Lmjr
Definition	Control Level 2 LMJR
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
Name (GUI)	L2Filter
Definition	Control Level 2 Filter
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
Name (GUI)	L2Notch
Definition	Control Level 2 Notch
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
Name (GUI)	L2Kp
Definition	Control Level 2 Postion Gain
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
Name (GUI)	L2Aff
Definition	Control Level 2 Acceleration Feedforward
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
Name (GUI)	L2VelFilt
Definition	Control Level 2 Velocity Filter
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
Name (GUI)	L2Vg
Definition	Control Level 2 Variable Gain
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
Name (GUI)	L2VgFilt
Definition	Control Level 2 Variable Gain Filter
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
Name (GUI)	OperationMode
Definition	Drive Operation Mode
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
Name (GUI)	ControlLevel
Definition	Control Level Controller Gain Set
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
Name (GUI)	Vbus
Definition	Controller Bus Voltage
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
Name (GUI)	CommutationElect
Definition	Electrical Commutation Angle
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
Name (GUI)	ForcedCommFreq
Definition	Forced Commutation Frequency
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
Name (GUI)	PrimaryFeedback
Definition	Primary Feedback Type
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
Name (GUI)	CountsPerRev
Definition	Feedback Counts Per Motor Revolution
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

2020h – Drive Current Parameters

Object Index	2020h
Sub-index	0
Name (GUI)	DriveI
Definition	Drive Current
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
Name (GUI)	DriveIRated
Definition	Drive Continuous Current
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
Name (GUI)	DriveIPeak
Definition	Drive Peak Current
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
Name (GUI)	Temperature
Definition	Temperature Parameters
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
Name (GUI)	DriveTemp
Definition	Drive Temperature
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
Name (GUI)	DriveTempThreshold
Definition	Drive Over-Temperature Threshold
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
Name (GUI)	HeatSinkTemp
Definition	Heat Sink Temperature
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
Name (GUI)	HeatsinkTempThreshold
Definition	Heat Sink Over-Temperature Threshold
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
Name (GUI)	MotorTemp
Definition	Motor Temperature
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
Name (GUI)	MotorTempThreshold
Definition	Motor Over-Temperature Threshold
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
Name (GUI)	Overload
Definition	Overload Parameters
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
Name (GUI)	OverloadMode
Definition	Overload Mode
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
Name (GUI)	OverloadMotorTime
Definition	Motor Overload Time
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
Name (GUI)	Overspeed
Definition	Over-Speed Threshold
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
Name (GUI)	UnderVoltageThreshold
Definition	Under-Voltage Threshold
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
Name (GUI)	PeMax
Definition	Position Error Limit Command
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
Name (GUI)	InPosWindow
Definition	In Position Error Limit
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
Name (GUI)	PeTargetReached
Definition	Position Target Reached Error Limit
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
Name (GUI)	QuickStopDec
Definition	Profile Trajectory Quick Stop Deceleration
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
Name (GUI)	VelocityTargetWindow
Definition	Velocity Target Reached Error Limit
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

202Bh – Save Parameters

Object Index	202Bh
Sub-index	0
Name (GUI)	SaveParams
Definition	Save Parameters
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

2030h – Incremental Encoder Parameters

Object Index	2030h
Sub-index	0
Name (GUI)	IncEncoder
Definition	Incremental Encoder Parameters
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
Name (GUI)	IncEncoderType
Definition	Incremental Encoder Type
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
Name (GUI)	IncEncoderIndexSearch
Definition	Incremental Encoder Index Search
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
Name (GUI)	IncEncoderIndexPreSet
Definition	Incremental Encoder Index Preset
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
Name (GUI)	IncEncoderIndexPreSetEn
Definition	Incremental Encoder Index Preset Enable
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
Name (GUI)	IncEncoderCountsPerRev
Definition	Incremental Encoder Counts Per Motor Revolution
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
Name (GUI)	PhaseAdvSpeed
Definition	Phase Advanced Parameters
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
Name (GUI)	PhaseAdvSpeed1
Definition	Phase Advanced Speed 1
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
Name (GUI)	PhaseAdvPhase1
Definition	Phase Advanced Phase 1
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
Name (GUI)	PhaseAdvSpeed2
Definition	Phase Advanced Speed 2
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
Name (GUI)	PhaseAdvPhase2
Definition	Phase Advanced Phase 2
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
Name (GUI)	PhaseAdvAct
Definition	Phase Advanced Actual
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

20F0h – Simulated Plant Parameters

Object Index	20F0h
Sub-index	0
Name (GUI)	PlantSim
Definition	Simulated Plant Parameters
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
Name (GUI)	PlantSimMode
Definition	Simulated Plant Mode
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
Name (GUI)	PlantSimLmjr
Definition	Simulated Plant LMJR
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
Name (GUI)	PlantSimMj
Definition	Simulated Plant Inertia
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
Name (GUI)	PlantSimMkt
Definition	Simulated Plant Mkt
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
Name (GUI)	PlantSimTs
Definition	Simulated Plant Sample Rate
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
Name (GUI)	PlantSimBCoef
Definition	Simulated Plant Friction Coefficient
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
Name (GUI)	CanNodeID
Definition	CAN Node ID
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
Name (GUI)	PLLinfoS0
Definition	PLL Information
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
Name (GUI)	PLLLockedStatusS1
Definition	PLL Locked Status
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
Name (GUI)	PLLLockedCounterS2
Definition	PLL Locked Counter
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
Name (GUI)	PLLSyncEventS3
Definition	PLL Sync Event
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
Name (GUI)	PLLMTSFieldSampleRateS4
Definition	PLL MTS Sample Rate
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
Name (GUI)	PLLSyncTimeCaptureS5
Definition	PLL Sync Event Timing Capture
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
Name (GUI)	PLLMeasuredTimeDeltaS6
Definition	PLL Measured Time Difference
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
Name (GUI)	PLLExpectedTimeCaptureS7
Definition	PLL Expected Time Difference
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
Name (GUI)	PLLLockWindowSizeS8
Definition	PLL Locked Window
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
Name (GUI)	PLLTimeDistanceFactorS9
Definition	PLL Time Difference Factor
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
Name (GUI)	PLLLockCntrThresholdS10
Definition	PLL Locked Counter Threshold
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
Name (GUI)	StartOptimizer
Definition	Start Optimizer
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
Name (GUI)	uIMode
Definition	Micro Interpolation Mode
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

27FCh – Test LEDs

Object Index	27FCh
Sub-index	0
Name (GUI)	TestLeds
Definition	Test LEDs
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
Name (GUI)	DummyRO
Definition	Dummy Read Only
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
Name (GUI)	DummyRead/Write
Definition	Dummy Read 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

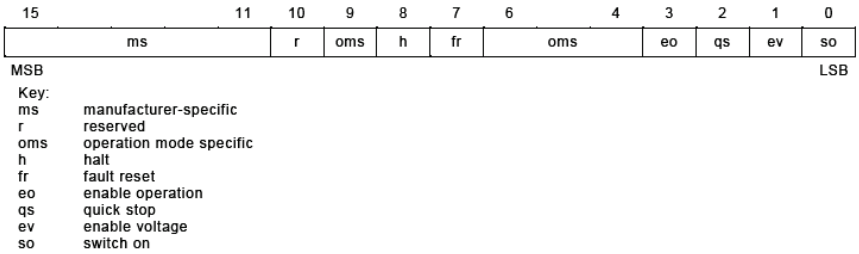
4 Device Profile (CAN Standard) Objects

603Fh – Error Code

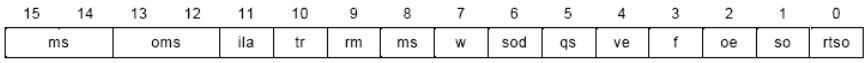
Object Index	603Fh
Sub-index	0
Name (GUI)	Fbus0x603F
Definition	Error Code
Description	The error code of the last error that occurred in the drive device. In CANopen networks , this object provides the same information as the lower 16-bit of sub-index 01h of the Predefined Error Field (1003h).
Data Type	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
Name (GUI)	Fbus0x6040
Definition	Controlword
Description	Sets the operating states and modes of the state machine.
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
Name (GUI)	Fbus0x6041
Definition	Statusword
Description	Indicates the current state of the FSA, the operation mode and manufacturer-specific entities.  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
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
Name (GUI)	Fbus0x605A
Definition	Quick Stop Option Code
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
Name (GUI)	Fbus0x605B
Definition	Shutdown Option Code
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
Name (GUI)	Fbus0x605C
Definition	Fieldbus 0x605C Object
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

605Eh – Fault Reaction Option Code

Object Index	605Eh
Sub-index	0
Name (GUI)	Fbus0x605E
Definition	Fault Reaction Option Code
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
Name (GUI)	Fbus0x6060
Definition	Modes of Operation
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
Name (GUI)	Fbus0x6061
Definition	Modes of Operation Display
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
Name (GUI)	Fbus0x6062
Definition	Position Demand Value
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
Name (GUI)	Fbus0x6064
Definition	Position Actual Value
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
Name (GUI)	Fbus0x6065
Definition	Following Error Window
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

606Bh – Velocity Demand Value

Object Index	606Bh
Sub-index	0
Name (GUI)	Fbus0x606B
Definition	Velocity Demand Value
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
Name (GUI)	Fbus0x606C
Definition	Velocity Actual Value
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
Name (GUI)	Fbus0x606D
Definition	Velocity Window
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
Name (GUI)	Fbus0x6071
Definition	Target Torque
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
Name (GUI)	Fbus0x6073
Definition	Maximum Current
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
Name (GUI)	Fbus0x6074
Definition	Torque Demand Value
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
Name (GUI)	Fbus0x6075
Definition	Motor Rated Current
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
Name (GUI)	Fbus0x6076
Definition	Motor Rated Torque
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
Name (GUI)	Fbus0x6077
Definition	Torque Actual Value
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
Name (GUI)	Fbus0x6078
Definition	Current Actual Value
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

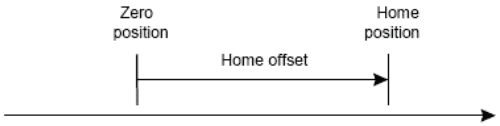
6079h – DC Link Circuit Voltage

Object Index	6079h
Sub-index	0
Name (GUI)	Fbus0x6079
Definition	DC Link Circuit Voltage
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

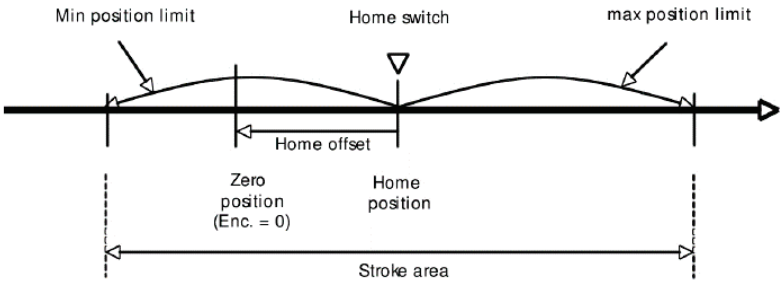
607Ah – Target Position

Object Index	607Ah
Sub-index	0
Name (GUI)	Fbus0x607A
Definition	Target Position
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
Name (GUI)	Fbus0x607C
Definition	Home Offset
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: ***zero position = home position + 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
Name (GUI)	Fbus0x607DS0
Definition	Software Position Limit
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
Name (GUI)	Fbus0x607DS1
Definition	Software Position Limit 1
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
Name (GUI)	Fbus0x607DS2
Definition	Software Position Limit 2
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

607Fh – Max Profile Velocity

Object Index	607Fh
Sub-index	0
Name (GUI)	Fbus0x607F
Definition	Max Profile Velocity
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
Name (GUI)	Fbus0x6080
Definition	Max Motor Speed
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
Name (GUI)	Fbus0x6081
Definition	Profile Velocity in Profile Position Mode
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
Name (GUI)	Fbus0x6083
Definition	Profile Acceleration
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
Name (GUI)	Fbus0x6084
Definition	Profile Deceleration
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
Name (GUI)	Fbus0x6085
Definition	Quick Stop Deceleration
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
Name (GUI)	Fbus0x6091S0
Definition	Gear Ratio
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: *Gear ratio = (motor shaft revolutions) / (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
Name (GUI)	Fbus0x6091S1
Definition	Gear Ratio – Motor Shaft Revolutions
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
Name (GUI)	Fbus0x6092S0
Definition	Feed Constant
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: *Feed constant = (feed) / (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
Name (GUI)	Fbus0x6092S1
Definition	Feed Constant – Feed
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
Name (GUI)	Fbus0x6092S2
Definition	Feed Constant – 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	Mandatory
Function	Not applicable

6098h – Homing Method

Object Index	6098h
Sub-index	0
Name (GUI)	HomeMethod
Definition	Homing Method
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
Name (GUI)	HomeSpeed
Definition	Homing Speed
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
Name (GUI)	HomeAcc
Definition	Homing Acceleration
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
Name (GUI)	Fbus0x60C2S0
Definition	Interpolation Time Period subindex 0.
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
Name (GUI)	Fbus0x60C2S1
Definition	Interpolation Time Period
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
Name (GUI)	Fbus0x60C2S2
Definition	Interpolation Time Index
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
Name (GUI)	Fbus0x60C5
Definition	Maximum Acceleration
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
Name (GUI)	Fbus0x60C6
Definition	Maximum Deceleration
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
Name (GUI)	Fbus0x60E3S0
Definition	Supported Home Methods
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
Name (GUI)	Fbus0x60E3S1
Definition	Supported Home Method 17
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
Name (GUI)	Fbus0x60E3S2
Definition	Supported Home Method 18
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
Name (GUI)	Fbus0x60E3S3
Definition	Supported Home Method 19
Description	Supported homing method: Positive referance 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
Name (GUI)	Fbus0x60E3S4
Definition	Supported Home Method 20
Description	Supported homing method: Positive referance 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
Name (GUI)	Fbus0x60E3S5
Definition	Supported Home Method 21
Description	Supported homing method: Negative referance 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
Name (GUI)	Fbus0x60E3S6
Definition	Supported Home Method 22
Description	Supported homing method: Negative referance 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
Name (GUI)	Fbus0x60E3S7
Definition	Supported Home Method 23
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
Name (GUI)	Fbus0x60E3S8
Definition	Supported Home Method 24
Description	Supported homing method: Negative referance 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 referance 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
Name (GUI)	Fbus0x60E3S10
Definition	Supported Home Method 28
Description	Supported homing method: Positive referance 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
Name (GUI)	Fbus0x60E3S11
Definition	Supported Home Method 35
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
Name (GUI)	Fbus0x60E3S12
Definition	Supported Home Method 37
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
Name (GUI)	Fbus0x60F4
Definition	Following Error Actual Value
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
Name (GUI)	Fbus0x60FC
Definition	Position Demand Internal Value
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

60FEh – Digital Outputs

Object Index	60FEh
Sub-index	0
Name (GUI)	Fbus0x60FES0
Definition	Digital Outputs
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
Name (GUI)	Fbus0x60FES1
Definition	Physical Outputs
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
Name (GUI)	Fbus0x60FES2
Definition	Bit Mask
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
Name (GUI)	Fbus0x60FF
Definition	Target Velocity
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
Name (GUI)	Fbus0x6502
Definition	Supported Drive Modes
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