



Operating instruction manual
Generic DTM for CANopen Slave devices
Configuration of CANopen Slave devices
V1.1100

Hilscher Gesellschaft für Systemautomation mbH
www.hilscher.com

DOC060203OI010EN | Revision 10 | English | 2023-03 | Released | Public

Table of contents

1	Introduction	4
1.1	About this manual	4
1.1.1	Online help	4
1.1.2	List of revisions	4
1.2	Overview use cases	4
1.3	System requirements	5
1.4	About the generic CANopen Slave DTM	5
1.5	Requirements generic CANopen Slave DTM	6
1.6	DTM dialog structure	6
1.6.1	General device information	7
1.6.2	Navigation area	7
1.6.3	Dialog pane	7
1.6.4	OK, Cancel, Apply, Help,	8
1.6.5	Table lines	8
1.6.6	Status bar	9
2	Safety	10
2.1	General note	10
2.2	Intended use	10
2.3	Personnel qualification	10
3	Device start up	11
3.1	Configuration steps	11
3.2	Create project configuration	12
4	Configuration	13
4.1	Overview configure device parameters	13
4.2	General settings	14
4.2.1	Node-ID, device, vendor	14
4.3	Special function objects	15
4.3.1	Synchronization message	16
4.3.2	Time stamp message	17
4.3.3	Emergency message	17
4.4	Object dictionary	18
4.5	Process data objects	22
4.5.1	PDO properties	22
4.5.2	PDO mapping	26
5	Device description	29
5.1	Overview device description	29
5.2	Device	29
5.3	EDS	29
6	Appendix	30
6.1	COB-ID (predefined connection set)	30
6.2	References	31
6.3	User rights	32

6.3.1	Configuration.....	32
6.4	Conventions in this manual.....	33
6.5	Legal notes.....	34
6.6	Registered trademarks.....	38
	Glossary.....	41
	Contacts.....	42

1 Introduction

1.1 About this manual

This manual provides information on how to set up CANopen Slave devices described with EDS files. These devices can be configured by use of the generic CANopen Slave DTM within an FDT Framework.

1.1.1 Online help

The generic CANopen Slave DTM contains an integrated online help.

- To open the online help, click on **Help** or press **F1**.

1.1.2 List of revisions

Index	Date	Version	Component	Changes
10	2023-03-08	1.1100	CANopenGenSlaveDTM.dll	Document revised.
		1.1100	COGenericSlaveDtmGui.ocx	

Table 1: List of revisions

1.2 Overview use cases

In the table below you find an overview of the applicable use cases.

Use case	Description	Chapter, section
Device start up	<ul style="list-style-type: none"> • Creating project configuration 	<i>Create project configuration</i> [▶ page 12]
Configuring device parameters	<ul style="list-style-type: none"> • General settings • Object dictionary: Define object filter • Configure objects with special functions • Configure process data objects • Configure PDO assignment 	<i>General settings</i> [▶ page 14] <i>Special function objects</i> [▶ page 15] <i>Object dictionary</i> [▶ page 18] <i>PDO properties</i> [▶ page 22] <i>PDO mapping</i> [▶ page 26]
Device description	<ul style="list-style-type: none"> • Device • EDS 	<i>Device</i> [▶ page 29] <i>EDS</i> [▶ page 29]
Connecting/disconnecting device	Establishing online connection	Connecting/disconnecting device
User rights	Definition of access rights	<i>User rights</i> [▶ page 32]

Table 2: Overview use cases

1.3 System requirements

- PC with 1 GHz processor or higher
- Windows® XP SP3,
Windows® Vista (32-bit) SP2,
Windows® 7 (32-bit and 64-bit) SP1,
Windows® 8 (32-bit and 64-bit),
Windows® 8.1 (32-bit and 64-bit),
Windows® 10 (32-bit and 64-bit)
- Administrator privilege required for installation
- Internet Explorer 5.5 or higher
- RAM: min. 512 Mbyte, recommended 1024 Mbyte
- Graphic resolution: min. 1024 x 768 pixels
- Keyboard and mouse
- Restriction: Touch screen is not supported.

**Note:**

If the project file is used on a further PC,
- this PC must also comply with the above system requirements,
- the device description files of the devices used in the project must be imported into the configuration software SYCON.net on the new PC,
- and the DTMs of the devices used in the project must also be installed on that further PC.

1.4 About the generic CANopen Slave DTM

Using the generic CANopen Slave DTM you can:

- configure slave device within an FDT frame application whose settings are defined via EDS files;
- store the information required for configuring the slave device in the master and thus configure the master device.

1.5 Requirements generic CANopen Slave DTM

The following requirements apply when working with a generic CANopen Slave DTM:

- Installed FDT/DTM frame application (V1.2 compliant)
- Installed CANopen Master DTM
- EDS files of the devices to be configured
- The DTM must be loaded into the device catalog.
- Loading EDS files

To add devices to the netDevice device catalog, the EDS files of the used devices must be imported via **Network > Import device descriptions** into the folder `C:\ProgramData\SYCONnet\[protocol name]\EDS` and the device catalog must be reloaded.

1.6 DTM dialog structure

The graphical user interface of the DTM is composed of different areas and elements listed hereafter:

1. A header area containing the **General device information**,
2. the **Navigation area** (area on the left side),
3. The **Dialog pane** (main area on the right side),
4. **OK, Cancel, Apply, Help**,
5. The **Status line** containing information e. g. the online-state of the DTM.

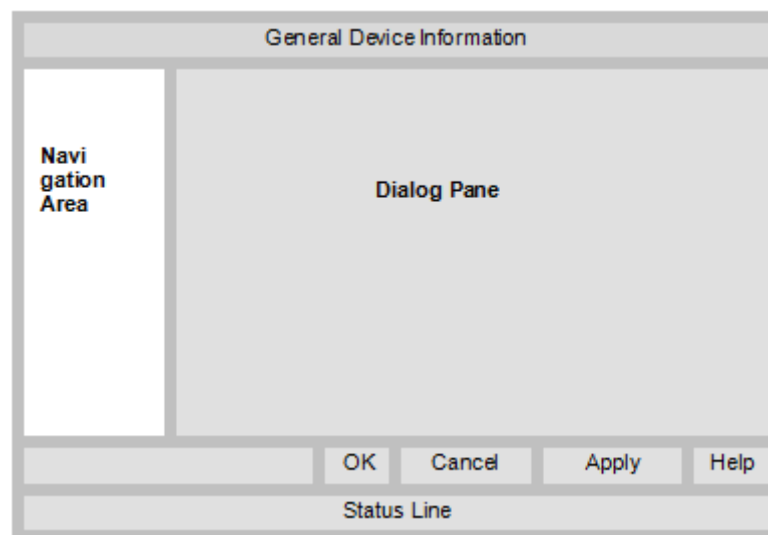


Figure 1: Dialog structure of the Device Type Manager

1.6.1 General device information

Parameter	Description
IO device	Device name
Vendor	Vendor name of the device
Device ID	Identification number of the device
Vendor ID	Identification number of the vendor

Table 3: General device information

1.6.2 Navigation area

In the navigation area, you can select the individual dialog panes via the folder structure of the DTM.

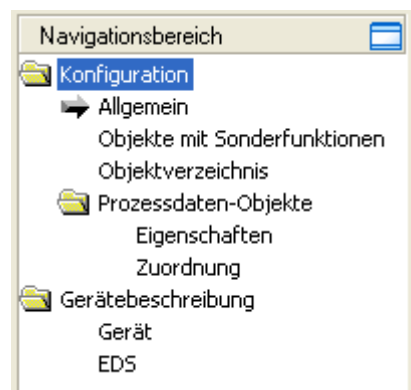



Figure 2: Navigation area

- Select the required folder and subfolder.
- ⇒ The corresponding dialog pane appears.
- Click , to hide or to open the navigation area.

1.6.3 Dialog pane

In the dialog pane area, the different windows of the DTM appear only with displayed information or for required setting steps. You call up the respective windows via the associated folder in the navigation area.

1.6.4 OK, Cancel, Apply, Help,

In the configuration software SYCON.net the following is valid:

	Description
OK	To confirm your latest settings, click OK . All changed values will be applied on the frame application database. The dialog then closes.
Cancel	To cancel your latest changes, click Cancel . Answer to the safety query "Configuration data has been changed. Do you want to save the data?" by Yes , No or Cancel . <ul style="list-style-type: none"> • Yes: The changes are saved or the changed values are applied on the frame application database. The dialog then closes. • No: The changes are <i>not</i> saved or the changed values are <i>not</i> applied on the frame application database. The dialog then closes. • Cancel: Back to the DTM.
Apply	To confirm your latest settings, click Apply . All changed values will be applied on the frame application database. The dialog remains opened.
Help	To open the DTM online help, click Help .

Table 4: OK, Cancel, Apply, Help

1.6.5 Table lines

In the DTM dialog pane, you can select table lines.





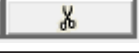
Element	Description
	Click First line to select the first row of a table.
	Click Previous line to select the previous row of a table.
	Click Next line to select the next row in a table.
	Click Last line to select the last row of a table.
	Delete selected line , deletes the selected line from a table.

Table 5: Select table line

1.6.6 Status bar

In the status bar, graphical icons display the current DTM state (e. g., connection status, or other activities).

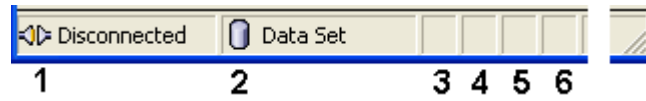


Figure 3: Status bar – status fields 1 to 6

Status field	Icon / description
1	DTM connection states
	Connected: Icon closed = Device is online
	Disconnected: Icon opened = Device is offline
2	Data source states
	Data set: The displayed data is read out from the instance data set (database).
	Device: The displayed data is read out from the device.
3	States of the instance date set
	Valid Modified: Parameter is changed (not equal to data source).

Table 6: Status bar icons [1]

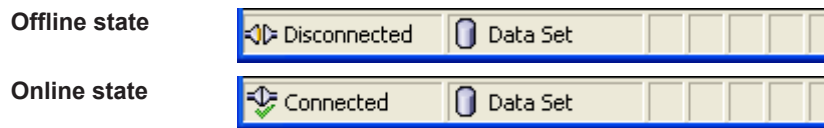


Table 7: Status bar, display examples

2 Safety

2.1 General note

The documentation in the form of a user manual, an operating instruction manual or other manual types, as well as the accompanying texts, have been created for the use of the products by qualified personnel. When using the products, all Safety Messages, Integrated Safety Messages, Property Damage Messages and all valid legal regulations must be obeyed. Technical knowledge is presumed. The user has to assure that all legal regulations are obeyed.

2.2 Intended use

The generic CANopen Slave DTM serves for configuration of CANopen Slave devices.

2.3 Personnel qualification

Personnel responsible for the application of the network system shall be aware of the system behavior and shall be trained in using the system.

3 Device start up

3.1 Configuration steps

The following overview provides to you the step sequence on how to configure a CANopen Slave device with a generic CANopen Slave DTM as it is typical for many cases. It is assumed at this point that the installation of the CANopen Master DTM has been completed.

Step	Brief description	Further information
Add CANopen Slave in the device catalog	<ul style="list-style-type: none"> - Open configuration software SYCON.net. - Network > Import device descriptions. - Import the device description. 	Section <i>Create project configuration</i> [▶ page 12], or operating instruction manual "SYCON.net" and operating instruction manual "netDevice and netProject"
Load device catalog	<ul style="list-style-type: none"> - Select Network > Device catalog, - Reload catalog. 	
Create / open project	<ul style="list-style-type: none"> - Select File > New or File > Open. 	
Insert the master device and the slave device and into configuration	<ul style="list-style-type: none"> - In the Device catalog, select the master device and insert the device via drag & drop to the line in the network view. - In the Device catalog, select the slave device, and insert it via drag and drop to the master bus line in the network view. 	
Configure slave	<ul style="list-style-type: none"> - Select Configuration > Objects with special functions. - Configure options for synchronization, time stamp or emergency messages. - Select Object dictionary. - Perform individual settings for the object configuration. - Select Process data objects > PDO properties. - Configure the PDOs for communication. - Or select PDO mapping. - Configure the lists of mappable or mapped objects. - Close the dialog via OK. 	<i>Special function objects</i> [▶ page 15] <i>Object dictionary</i> [▶ page 18] <i>PDO properties</i> [▶ page 22] <i>PDO mapping</i> [▶ page 26]
Configure master device	Configure the master device via the CANopen Master DTM netX.	Operating instruction manual of the DTM
Save project	<ul style="list-style-type: none"> - Select File > Save. 	Operating instruction manual "SYCON.net"

Table 8: Getting started – Configuration steps

3.2 Create project configuration

1. Complete the slave device in the device catalog.
 - Select **Network > Import device descriptions**.
 - Import the device description file.
2. Load device catalog
 - Select **Network > Device catalog**.
 - Select **Reload catalog**.
3. Create or open a project.
 - Create new project / open existing project:
 - Select **File > New** or **File > Open**.
4. Insert slave device to the configuration.
 - In the device catalog, select the master device, and insert it via drag and drop **to the line** in the network view.
 - In the device catalog, under **Slave**, select the slave device.
 - Insert the slave device via drag and drop **to the master bus line**.

Notes



Note:

In order to select the desired device in the device catalog, note the details about the DTM and the device at the bottom of the device catalog window. When sorting by fieldbus, several devices with the same name from different vendors can be displayed.



For further information, see operating instruction manual "SYCON.net" or "netDevice and netProject".

4 Configuration

4.1 Overview configure device parameters

Under "Configuration", you can configure your CANopen Slave device or read data for your device.

- The **General** dialog shows the node ID for the slave device set in the master DTM as well as data from the EDS file.
- In the **Special functions objects** dialog you configure the options for the synchronization, timestamp or emergency messages.
- In the **Object dictionary** dialog, you make individual settings for the object configuration.
- In the **Process data objects** dialog
 - under **Properties** you configure the PDOs for the communication,
 - and under **Mapping** you configure the lists of the mappable respectively the mapped objects.

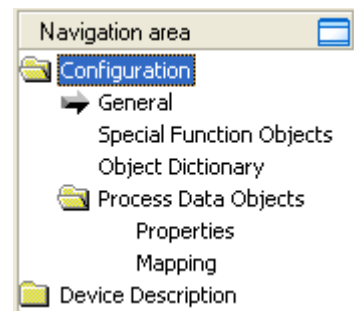


Figure 4: Navigation area – configuration



Note:

To edit the dialog panes under **Configuration**, you need the user rights for "Maintenance".

For further information about configuration, see the sections:

- *General settings* [▶ page 14],
- *Special function objects* [▶ page 15],
- *Object dictionary* [▶ page 18],
- *PDO properties* [▶ page 22]
- and *PDO mapping* [▶ page 26].

Information on configuration download or diagnosis you find in the DTM for CANopen Master devices operating instruction manual.

4.2 General settings

The **General settings** dialog displays EDS file data:

Figure 5: General settings

4.2.1 Node-ID, device, vendor

Parameter	Description	Range of Values / Value
Node ID	The Node ID (address) is required to address the device at the bus and must be unique within the CANopen network. Therefore, it is not allowed to use this number twice in the same network and must match with the set Node address of the device. Otherwise, it is not possible for the Master to build up a communication to this device.	1 ... 127
Device profile and Device type	Because of the information of the Device profile and the Device type during start of communication, the master can read out the object 1000H from the node and compare it with these data. Each CANopen node has a mandatory object 1000H, which must be present in the object directory. This object is named "Device type". The Device type also includes the information about the Device profile. The master reads out the object 1000H from the node when starting up the CANopen bus and compares the entries, which are made in the two available fields Device profile and Device type. If the Device profile and the Device type do not match, the master reports a parameterization error and does not establish a process data transfer to the node. The verification can also be deactivated.	Value read out from the EDS file
Device name, hard and software version	Displayed manufacturer data read out from the EDS file.	Value read out from the EDS file

Table 9: General settings > Node ID, device, vendor

4.3 Special function objects

The **Special function objects** dialog displays parameter data of the

- Synchronization message,
- Time stamp message
- and the Emergency message.

The displayed data partly originate from the CANopen specification and cannot be edited here. The **SYNC COB-ID** generally can be changed via the CANopen Master DTM. Select here whether:

- the CANopen Slave device shall generate the synchronization message,
- the CANopen Slave device shall consume/produce the time stamp message,
- the CANopen Master device shall be able to receive the emergency message
- and, whether for each of these messages the 29-bit CAN-ID of the CAN-ID extended frame shall be valid.

Special Function Objects		
Synchronization Message		
SYNC COB ID [1005]:	<input type="text" value="128"/>	<input type="checkbox"/> Device generates SYNC message
Communication Cycle Period [1006]:	<input type="text" value="0"/>	<input type="checkbox"/> 29-bit
Synchronous Window Length [1007]:	<input type="text"/>	
TimeStamp Message		
TIME COB ID [1012]:	<input type="text" value="256"/>	<input type="checkbox"/> Device consumes TIME message
		<input type="checkbox"/> Device produces TIME message
		<input type="checkbox"/> 29-bit
Emergency Message		
EMCY COB ID [1014]:	<input type="text" value="130"/>	<input checked="" type="checkbox"/> EMCY exists
		<input type="checkbox"/> 29-bit

Figure 6: Special function objects

4.3.1 Synchronization message

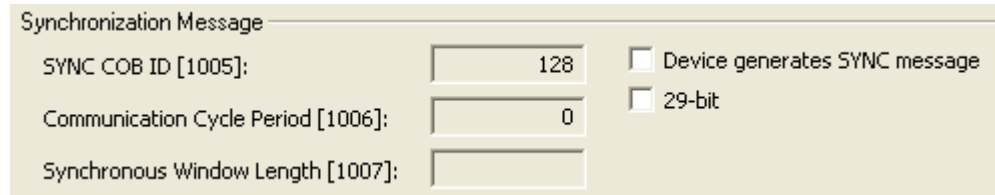


Figure 7: Special function objects - Synchronization message

Parameters	Description	Range of values / value
Synchronization message	A PDO in CANopen can be configured in “Event driven mode” or cyclic transmission. Both kinds of transmission types can be synchronized to a special synchronization message , which is sent by the master in defined time intervals.	
SYNC COB-ID [1005]	The SYNC COB-ID is assigned by the master and cannot be edited here. It can be changed only by the CANopen Master DTM. The SYNC COB-ID specifies the Identifier of the synchronization message. If the Communication cycle period is not equal to zero, the transmission of the SYNC message is activated.	Default: 128
	Device generates SYNC message	Default: Values from EDS file
	29-bit	If checked, for this PDO the 29-bit CAN-ID of the CAN-ID extended frame is valid. If not checked, for this PDO the 11-bit CAN-ID is valid.
Communication cycle period [1006]	The Communication cycle period is assigned by the Master and cannot be edited here. It can be changed only by the CANopen Master DTM. The Communication cycle period specifies the time for the interval for the transmission the SYNC message.	
Synchronous window length [1007]	The Synchronous window length is assigned by the master and cannot be edited here. It can be changed only by the CANopen Master DTM. The Synchronous window length specifies the length of the time window for synchronous PDO (process data objects).	

Table 10: Special function objects - Synchronization message

4.3.2 Time stamp message

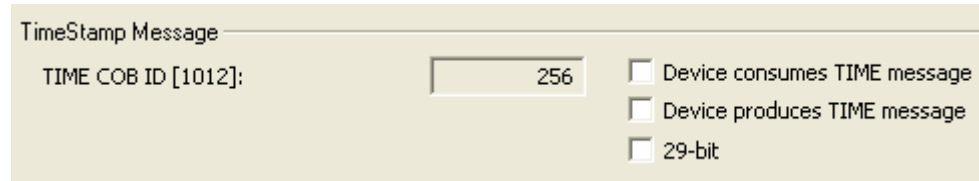


Figure 8: Special function objects – Time stamp message

Parameters	Description	Range of values / value
Time Stamp Message	For transmission of time data.	
TIME COB-ID [1012]	The TIME COB-ID is assigned by the Master and cannot be edited here. It can be changed only by the CANopen Master DTM. The TIME COB-ID specifies the COB-ID of the time stamp object.	Default: 256
	Device consumes TIME message	If checked, the CANopen Slave device consumes the time stamp message.
	Device produces TIME message	If checked, the CANopen Slave device produces the time stamp message.
	29-Bit	If checked, for this PDO the 29-bit CAN-ID of the CAN-ID extended frame is valid. If not checked, for this PDO the 11-bit CAN-ID is valid.
		Default: Values from EDS file

Table 11: Special function objects - Time stamp message

4.3.3 Emergency message

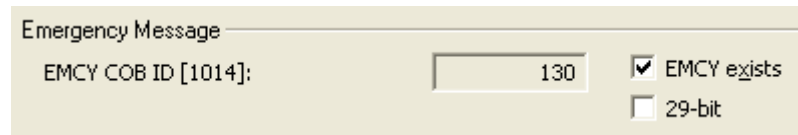


Figure 9: Special function objects - Emergency message

Parameters	Description	Range of values / value
Emergency-Message	Emergency messages are sent by the Node when a node internal event occurs. The CANopen Master can buffer maximally 5 Emergency messages.	
EMCY COB-ID [1014]	The EMCY COB-ID is assigned by the Master and cannot be edited here. It can be changed only by the CANopen Master DTM. The EMCY COB-ID specifies the COB-ID of the Emergency message.	129 ... 255, Default (depends from Node ID): 129 (for Node ID =1), 130 (for Node ID =2), ...
	EMCY exists	If checked, the CANopen Master can receive EMCY (Emergency) messages.
	29-Bit	If checked, for this PDO the 29-bit CAN-ID of the CAN-ID extended frame is valid. If not checked, for this PDO the 11-bit CAN-ID is valid.
		Default: Values from EDS file

Table 12: Special function objects - Emergency message

4.4 Object dictionary

The dialog **Object dictionary** represents the object dictionary of the device. The display shows data read out from the EDS file. You can display the object configuration here and make individual settings for the object configuration.

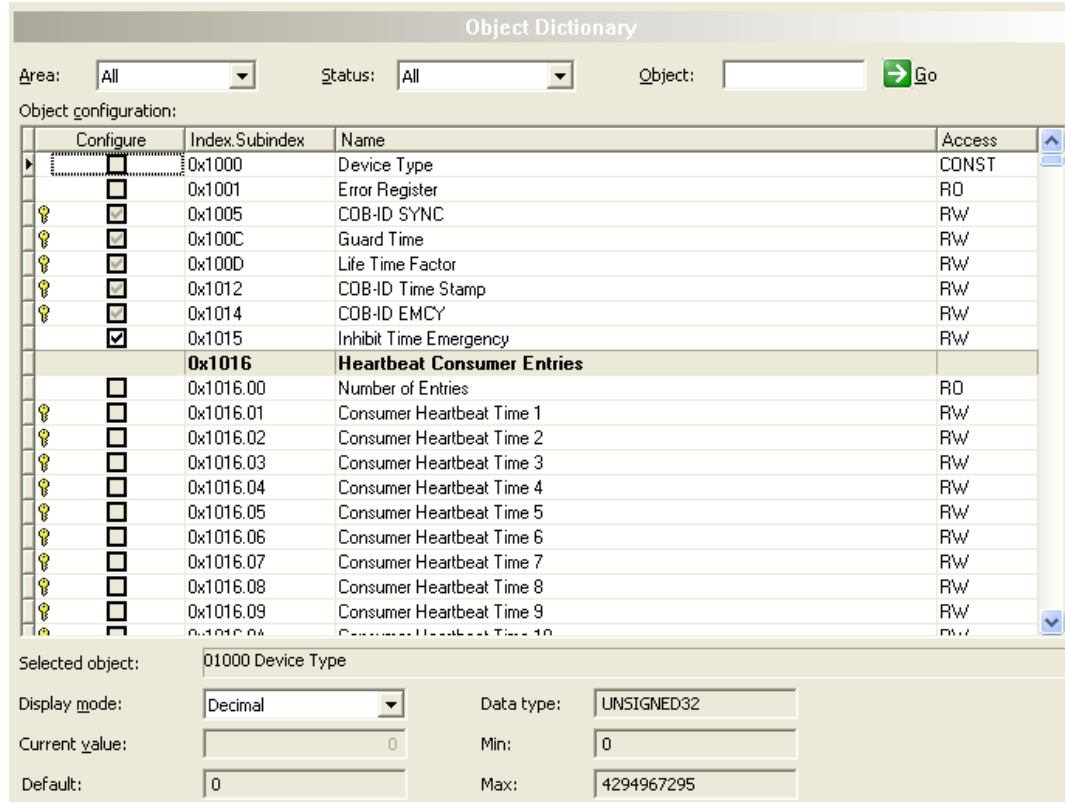


Figure 10: Object dictionary

Filter object configuration

By means of filters in the table Object configuration, lists with configured and/or not configured objects can be displayed. A search function allows searching for a special object within the lists.

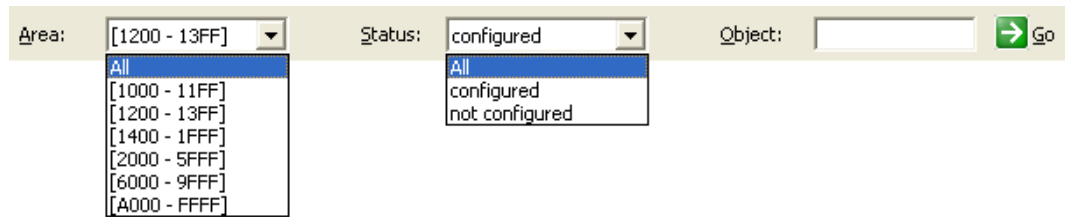


Figure 11: Object dictionary - Filter object configuration

Parameters	Description	Range of values / value
Area	Via Area a filtered object dictionary area can be selected, which is displayed in the table Object configuration. If All is selected, in the table Object configuration all objects are displayed, which are defined in the EDS file.	All, 0x1000 ... 0x11FF, 0x1200 ... 0x 13FF, 0x1400 ... 0x1FFF, 0x2000 ... 0x5FFF, 0x6000 ... 0x9FFF, 0xA000 ... 0xFFFF, Default: All
Status	Via Status it is possible to specify whether in the table Object configuration all objects, only the configured objects or only the not configured objects of the selected range are to be displayed. Only the objects configured are relevant for data exchange.	All, configured, not configured, Default: All
Object	In the Object search, the object index and/or the object index and subindex of a certain object can be entered. If the arrow button -> Go is clicked, the searched object (if available) is displayed in the upper line of the table Object configuration. To enter an object index with subindex a dot is used. Example: 1400.01	Min: 0000 Max: FFFF

Table 13: Object dictionary - Filter object configuration

Object configuration table

The objects read out from the EDS file are displayed in the table Object configuration. For better readability for objects with subindex a heading (object index without subindex) is displayed.

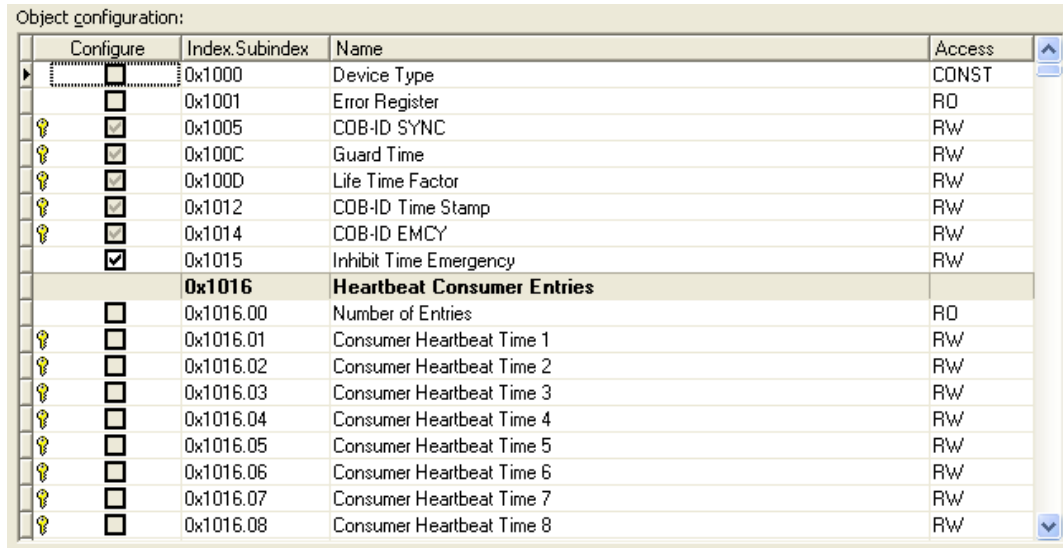


Figure 12: Object dictionary - Object configuration

The table Object configuration the following parameter data are provided.

Parameters	Description	Range of values / value	
Configure	The objects activated in the configuration are checked. The not configured objects are unchecked.	configured (checked), not configured (unchecked)	
	Symbol / Checkbox	Description	
		The objects marked with a key symbol cannot be enabled or disabled for the configuration in the Object directory dialog, but they can be added or removed from the configuration elsewhere in the user interface.	
	<input checked="" type="checkbox"/>	Objects activated in the configuration	configured (checkbox locked)
	<input type="checkbox"/>	Objects not activated in the configuration	not configured (checkbox locked)
	<input checked="" type="checkbox"/>	Objects activated in the configuration	configured
<input type="checkbox"/>	Objects not activated in the configuration	not configured	
Index.Sub-index	All objects are addressed in the object index and the corresponding subindex, which are both defined by the EDS file.	Object index 0x1000 ... 0xFFFF; Sub index 0x00 ... 0xFF	
Name	Symbolic name of the object defined by the EDS file.	From EDS file	
Access	Gives the access right of the object defined by the EDS file.	RO = read only (read) RW = read, write (read, write) WO = write only (write) CONST = constant	

Table 14: Object dictionary - Object configuration

Data selected object

If you click a line in the Object configuration table, the selected object, the current value, the default value, the data type, the minimum and maximum value appear in the display fields below the table. By means of Display mode, it is possible to switch between decimal display and hexadecimal display.

Selected object:	01000 Device Type		
Display mode:	Decimal	Data type:	UNSIGNED32
Current value:	0	Min:	0
Default:	0	Max:	4294967295

Figure 13: Object Dictionary - Data selected object

Parameters	Description	Range of values / value
Selected object	In the display field Selected object the object index, the subindex and the name of the selected object are indicated. These data are defined by the EDS file.	
Display mode	By selecting the Display mode , the current value, the default value or the minimum and maximum value appear in decimal or hexadecimal display.	Hexadecimal, Decimal, Default: Hexadecimal
Current value	In the Current value input field, a value can be assigned to the selected object. This applies only to objects that are not marked with a key symbol in the Object configuration table.	
Default, Data type, Min/Max	In the display fields Default, Data type and/or Min/Max the default value defined in the EDS file, the data type and/or the minimum and maximum value for the object is indicated. The values Min. and Max. are displayed in decimal mode by default.	

Table 15: Object dictionary - Data selected object

4.5 Process data objects

4.5.1 PDO properties

In the **PDO properties** dialog the transmit and the receive PDOs are displayed.

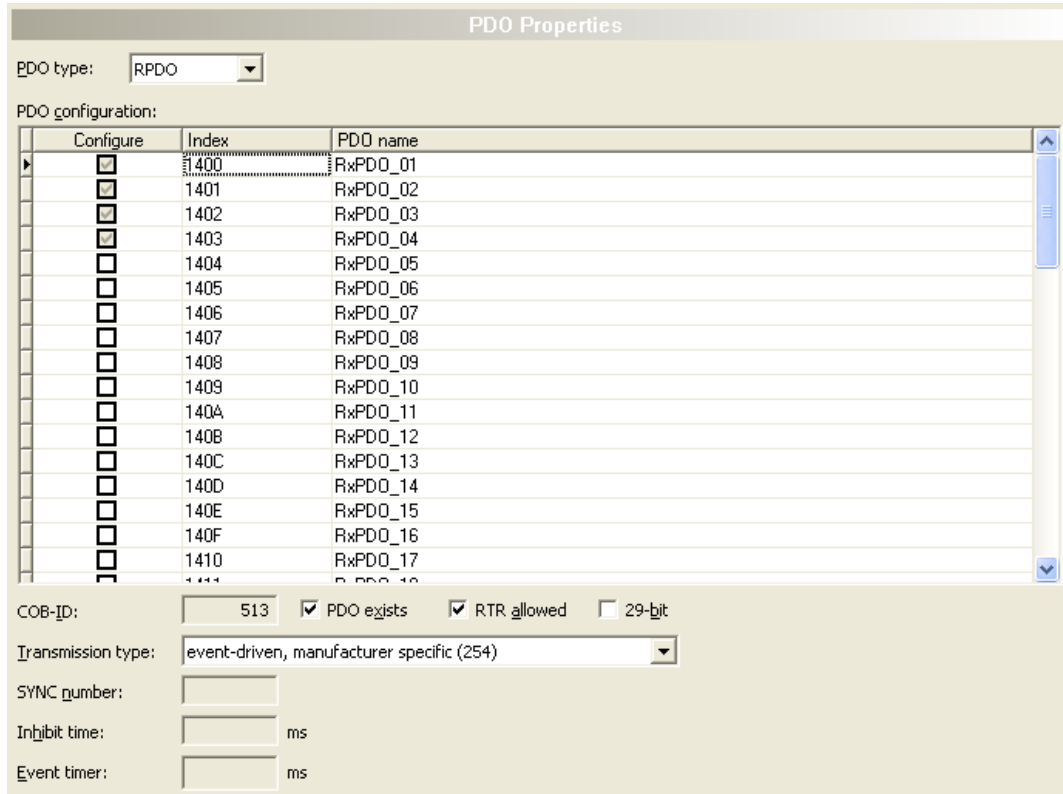


Figure 14: PDO properties

PDO type

In the **PDO configuration** table via **PDO type** you can switch to display the transmit PDOs (TPDO) or the receive PDOs (RPDO).

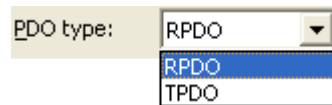


Figure 15: Process data objects > PDO properties - PDO type

Parameters	Description	Range of values / value
PDO Type	Filter function for the table PDO configuration as - Transmit PDOs - TPDO = Transmit PDO or as - Receive PDOs - RPDO = Receive PDO. Transmit PDOs are sent by the node and are input data of the master. Receive PDOs are output data of the master and are received from the node.	TPDO RPDO

Table 16: Process data objects > PDO properties - PDO type

PDO configuration table

The PDOs supported by the node are read out of the EDS file and displayed in the table PDO configuration. The PDOs to be used for the communication can be specified i.e. configured in this window.

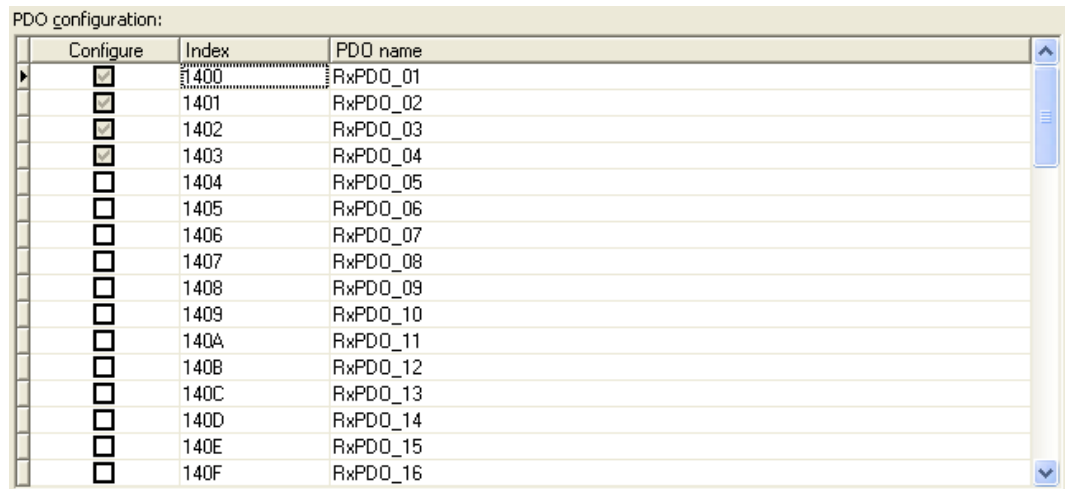


Figure 16: Process data objects > PDO properties - PDO configuration

Parameters	Description	Range of values / value	
Configure	By activating/configuring of a PDO the PDO is used for the communication. The corresponding parameter values are part of the master configuration. During initialization, the master transfers these parameters automatically into the node (default behavior). Note: The transmission of the parameters during the initialization phase can also be deactivated and/or become deactivated. I.e., the node uses parameters, which can be different from the parameters set here.	configured (checked), not configured (unchecked)	
	Checkbox		
	<input checked="" type="checkbox"/>	PDOs activated in the configuration The PDO is used for the communication.	configured (checked) (checkbox locked)
	<input type="checkbox"/>	PDOs, which are not activated in the configuration The PDO is not used for the communication.	not configured (unchecked)
Index	Object Index of the Process data object (PDO)	0x1400 ... 0x15FF 0x1800 ... 0x19FF	
PDO Name	Here RxPDO name and/or TxPDO name is indicated. These are defined in the EDS file.		

Table 17: Process data objects > PDO properties - PDO configuration

Data selected object

Each process data object (PDO) has characteristics. These are displayed below the table.

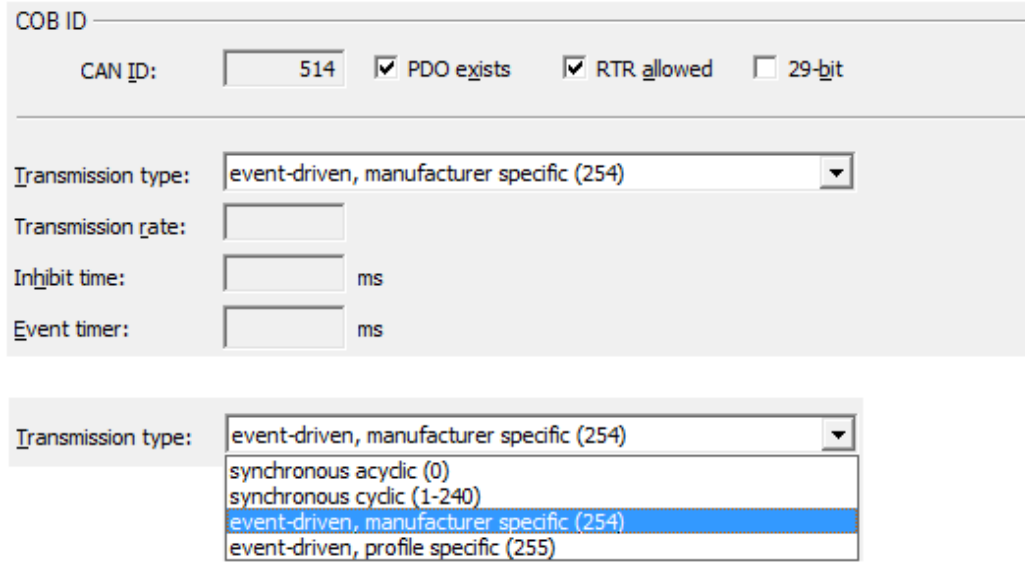


Figure 17: Process data objects > PDO properties - Data selected object (example)

Parameters	Description	Range of values / value								
COB-ID	<p>The COB-ID contains the CAN identifier and additional parameters for the related communication object. According to the CANopen specification ([2] page 131, Table 73) these are the „exists/not exists bit“, the „remote frame support bit“ (RTR allowed) and the „frame format 11 /29 bit“.</p> <p>COB-ID = Communication Object Identifier.</p> <p>The CAN identifier is the main part of the arbitration field of a CAN data frame or CAN remote frame. It comprises 11 bit (base frame format) or 29 bit (extended frame format). The CAN identifier value determines implicitly the priority for the bus arbitration.</p>	0 ... 2047								
	<table border="1"> <thead> <tr> <th>Checkbox</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>PDO exists</td> <td>If checked, the PDO is selected for the configuration.</td> </tr> <tr> <td>RTR allowed</td> <td> <p>If checked, for this PDO the message-triggering mode “Remotely requested” is allowed, which means that the transmission of an event-driven PDO is initiated on receipt of a RTR initiated by a PDO consumer.</p> <p>If not checked, for this PDO the message-triggering mode “Remotely requested” is not allowed.</p> <p>Note: A RTR is not allowed to inquire for an emergency transmission. [2]</p> <p>RTR = Remote transmission request</p> </td> </tr> <tr> <td>29-bit</td> <td> <p>If checked, for this PDO the 29-bit CAN-ID of the CAN-ID extended frame is valid.</p> <p>If not checked, for this PDO the 11-bit CAN-ID is valid.</p> </td> </tr> </tbody> </table>	Checkbox	Description	PDO exists	If checked, the PDO is selected for the configuration.	RTR allowed	<p>If checked, for this PDO the message-triggering mode “Remotely requested” is allowed, which means that the transmission of an event-driven PDO is initiated on receipt of a RTR initiated by a PDO consumer.</p> <p>If not checked, for this PDO the message-triggering mode “Remotely requested” is not allowed.</p> <p>Note: A RTR is not allowed to inquire for an emergency transmission. [2]</p> <p>RTR = Remote transmission request</p>	29-bit	<p>If checked, for this PDO the 29-bit CAN-ID of the CAN-ID extended frame is valid.</p> <p>If not checked, for this PDO the 11-bit CAN-ID is valid.</p>	Default: Values from EDS file
Checkbox	Description									
PDO exists	If checked, the PDO is selected for the configuration.									
RTR allowed	<p>If checked, for this PDO the message-triggering mode “Remotely requested” is allowed, which means that the transmission of an event-driven PDO is initiated on receipt of a RTR initiated by a PDO consumer.</p> <p>If not checked, for this PDO the message-triggering mode “Remotely requested” is not allowed.</p> <p>Note: A RTR is not allowed to inquire for an emergency transmission. [2]</p> <p>RTR = Remote transmission request</p>									
29-bit	<p>If checked, for this PDO the 29-bit CAN-ID of the CAN-ID extended frame is valid.</p> <p>If not checked, for this PDO the 11-bit CAN-ID is valid.</p>									

Parameters	Description	Range of values / value
Transmission type	<p>For the transmit and/or receive PDOs different transmission types are possible. For a PDO in CANopen event driven, synchronous or asynchronous transmission can be configured. Transmission types can be synchronized to the synchronization message SYNC for example, which is sent by the master in defined time intervals.</p> <p>Synchronous means that the transmission of the PDO is related to the SYNC message.</p> <p>Asynchronous means that the transmission of the PDO is not related to the SYNC message and can be done at any time.</p> <p>Note: The support of the different transmission types is manufacturer and device dependent. For CANopen the support of individual and/or all transmission types is not required. Whether a device supports the desired transmission type, must be reread and/or examined in the technical manual of the used device, if necessary.</p>	<p>0 ... 255</p> <p>synchronous acyclic (0) synchronous cyclic (1-240) synchronous RTR (252) asynchronous RTR (253) Event driven, profile specific (254) Event driven, manufacturer specific (255)</p>
Transmission rate	<p>For synchronous TPDOs for the transmission type synchronous cyclic (1-240) another rate is to be set, to which SYNC message the data transmission refers.</p> <p>A Transmission rate of 1 means that the message will be transferred with each SYNC message. A Transmission rate of n means that the message will be transferred with each n-th SYNC message.</p> <p>Asynchronous TPDOs are not transferred in a temporal correlation with a SYNC.</p>	
Inhibit time	<p>The Inhibit time (if supported) describes the time interval, which at least must be waited between the transmissions of two equal messages. Thus, a too frequent transmission of the same message is suppressed.</p>	
Event timer	<p>The Event timer (if supported) is possible only for TPDO transmission types 254 and 255.</p> <p>The expiration of the timer is used in the node as event, in order to send the TPDO. Manufacturer and/or device-specifically also an application event can activate the sending of the TPDOs and reset the Event timer.</p>	TPDO 254, 255

Table 18: Process data objects > PDO properties - Data selected object (example)

4.5.2 PDO mapping

The **PDO mapping** dialog permits to map the contents of a PDO.

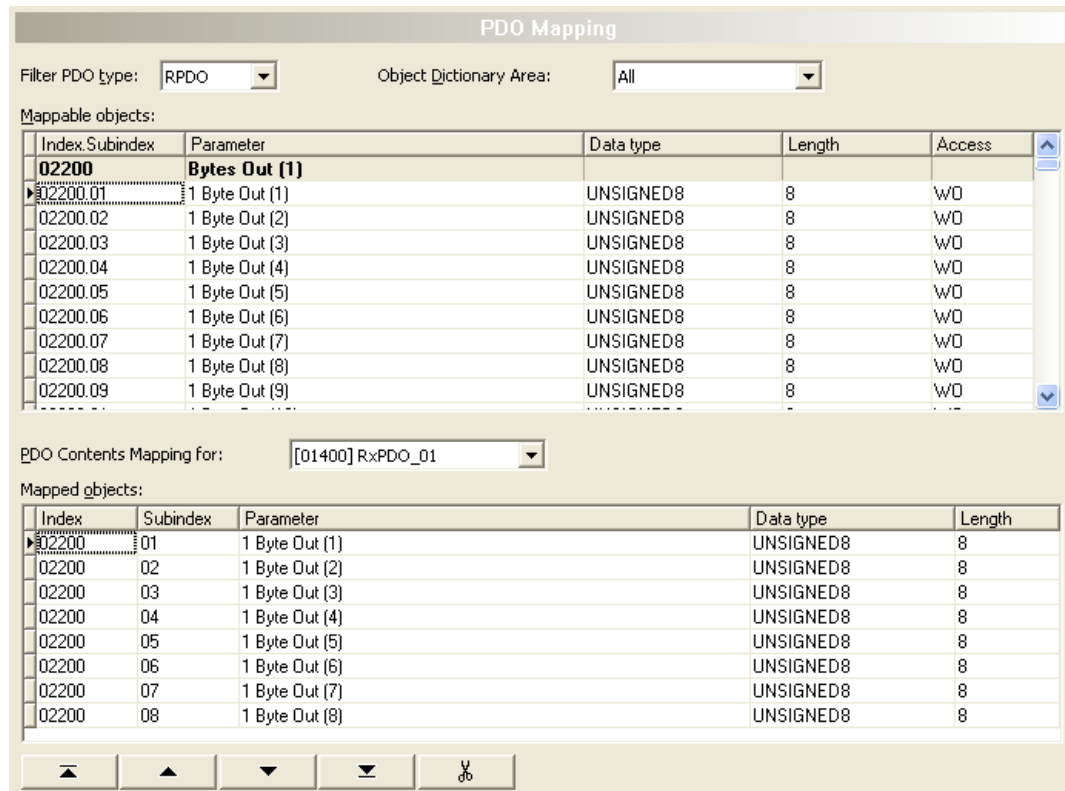


Figure 18: PDO mapping

Filter PDO type

Via **Filter PDO type** in the Mappable objects table the receive PDOs (RPDO) or alternatively the transmit PDOs (TPDO) can be displayed.

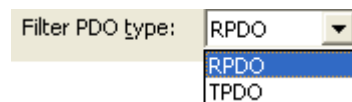


Figure 19: Process data objects > PDO mapping - Filter PDO type

Parameters	Description	Range of values / value
Filter PDO type	Filter function for the Mappable objects table as - Transmit PDOs - TPDO = Transmit PDO or as - Receive PDOs - RPDO = Receive PDO. Transmit PDOs are sent by the node and are input data of the master. Receive PDOs are output data of the master and are received from the node. The mapping is proceeded separately for the RPDOs and/or the TPDOs.	RPDO TPDO

Table 19: Process data objects > PDO mapping - Filter PDO type

Object dictionary area

Via **Object dictionary area**, an object dictionary area can be preselected.

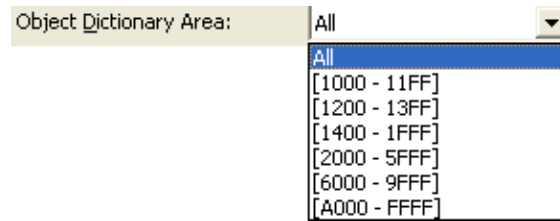


Figure 20: Process data objects > PDO mapping - Object dictionary area

Parameters	Description	Range of Value / Range
Object dictionary area	Object dictionary filter range.	All, 0x1000 ... 0x11FF, 0x1200 ... 0x 13FF, 0x1400 ... 0x1FFF, 0x2000 ... 0x5FFF, 0x6000 ... 0x9FFF, 0xA000 ... 0xFFFF, Default: All

Table 20: Process data objects > PDO mapping - Object dictionary area

Mappable objects table

The mappable objects appropriate to the preselection are listed in the Mappable objects table.

Index.Subindex	Parameter	Data type	Length	Access
02200	Bytes Out (1)			
02200.01	1 Byte Out (1)	UNSIGNED8	8	WO
02200.02	1 Byte Out (2)	UNSIGNED8	8	WO
02200.03	1 Byte Out (3)	UNSIGNED8	8	WO
02200.04	1 Byte Out (4)	UNSIGNED8	8	WO
02200.05	1 Byte Out (5)	UNSIGNED8	8	WO
02200.06	1 Byte Out (6)	UNSIGNED8	8	WO
02200.07	1 Byte Out (7)	UNSIGNED8	8	WO
02200.08	1 Byte Out (8)	UNSIGNED8	8	WO

Figure 21: Process data objects > PDO mapping - Mappable objects

Parameters	Description	Range of Value / Range
Mappable objects	List of the mappable objects.	from EDS file
Index. subindex	All objects are addressed in the object index and if necessary in the corresponding subindexes, which are defined by the EDS file.	0x1000 ... 0xFFFF as well as 0 ... 0xFF
Parameter	Name of the object from the EDS file.	from EDS file
Data type	Data type of the object from the EDS file respectively according to the data types (Object dictionary data types) listed in the CANopen specification ([2] page 90, Table 44).	from EDS file
Length	The length of the PDOs in bytes.	
Access	Gives the access rights of the process data objects, which are defined by the EDS file.	rw = read, write

Table 21: Process data objects > PDO mapping - Mappable objects

Mapped objects filter

Under **PDO contents mapping** for the PDO is selected, for which the PDO contents are displayed.

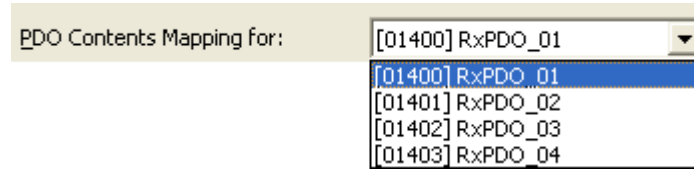


Figure 22: Process data objects > PDO mapping - Mapped objects filter

Parameters	Description	Range of Value / Range
PDO contents mapping for	The PDO list field PDO Contents Mapping for contains all configured PDOs of the window PDO Properties. The objects responsible for data exchange (max. 8 byte/PDO) are assigned to the PDOs.	[01400]RxPDO_01, [01401]RxPDO_02, [01402]RxPDO_03, [01403]RxPDO_04

Table 22: Process data objects > PDO mapping – Mapped objects filter

Mapped objects table

The mapped objects appropriate to the preselection are listed in the Mapped objects table.

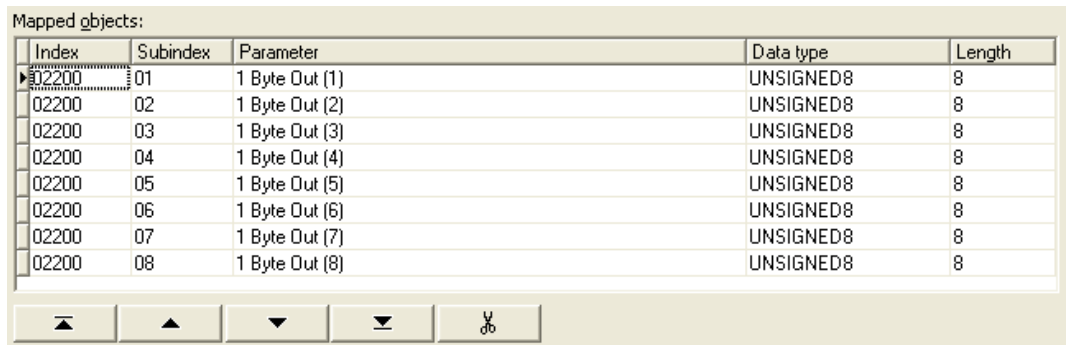


Figure 23: Process data objects > PDO mapping - Mapped objects

The Mapped objects table contains only configured objects and always corresponds to the selection under “PDO contents mapping for”.

Parameters	Description	Range of Value / Range
Index. Subindex	All objects are addressed in the object index and if necessary in the corresponding subindexes, which are defined by the EDS file.	0x1000 ... 0xFFFF as well as 0 ... 0xFF
Parameter	Name of the parameter from the EDS file.	from EDS file
Data type	Data type of the object from the EDS file respectively according to the data types (Object dictionary data types) listed in the CANopen specification ([2] page 90, Table 44).	from EDS file
Length	The Length specifies the length of the PDOs.	

Table 23: Process data objects > PDO mapping - Mapped objects

To change the object sequence in the table Mapped objects more easily, shifting buttons are available: move completely above, above, down and completely down.

5 Device description

5.1 Overview device description

- The **Device** dialog contains manufacturer information about the device, which is defined in the EDS file.
- The **EDS viewer** displays the contents of the EDS file of the device in text format.

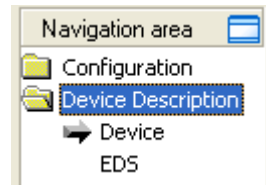


Figure 24: Navigation area - Descriptions

5.2 Device

The **Device** dialog contains manufacturer information about the device, which is defined in the EDS file. The following information is indicated:

Parameter	Description
Vendor Name	Name of the device manufacturer
Vendor ID	Identification number of the manufacturer
Product name	Name of the device as specified by the manufacturer
Product number	Number of the Device as specified by the manufacturer
Revision number	Hardware reference of the device as specified by the manufacturer
Order Code	Order Code of the device as specified by the manufacturer

Table 24: Device Description > Device

5.3 EDS

The **EDS viewer** shows the content of the EDS file in a text view.

Under **Filename** the file directory path and the file name of the displayed EDS file is displayed. **Find what** offers a search feature to search for text contents within the text of the EDS file.

In the EDS Viewer window on the left side, the line number is displayed for overview. The further entries show the EDS file in text format.

Parameter	Description
Filename	File directory path and the file name of the displayed EDS file.
Find what	Search feature to search for text contents within the text of the EDS file.
Match case	Search option
Match whole word	Search option

Table 25: Device description – EDS viewer

6 Appendix

6.1 COB-ID (predefined connection set)

COB-ID stands for communication object identifier. This is the 11 bit covering message identifier of a CAN message. Thereby the upper 4 bits (bit 11 to 8) are the function identifier and the lower 7 bits (bit 7 to bits 0) the bus address of the node.

Broadcast objects:

Object	Function code	COB-ID hex	COB-ID dez	Index in the Object Dictionary
NMT	0000	00H	0	-
SYNC	0001	80H	128	1005H, 1006H, 1007H
TIME STAMP	0010	100H	256	1012H, 1013H

Table 26: COB-ID – Broadcast objects

Peer-to-Peer objects:

Object	Function code	COB-ID hex	COB-ID dez	Index in the Object Dictionary
Emergency	0001	81H-FFH	129-255	1014H, 1015H
PDO 1 (tx)	0011	181H-1FFH	385-511	1800H (1A00H)
PDO 1 (rx)	0100	201H-27FH	513-639	1400H (1600H)
PDO 2 (tx)	0101	281H-2FFH	641-767	1801H (1A01H)
PDO 2 (rx)	0110	301H-37FH	769-895	1401H (1601H)
PDO 3 (tx)	0111	381H-3FFH	897-1023	1802H (1A02H)
PDO 3 (rx)	1000	401H-47FH	1025-1151	1402H (1602H)
PDO 4 (tx)	1001	481H-4FFH	1153-1279	1803H (1A03H)
PDO 4 (rx)	1010	501H-57FH	1281-1407	1403H (1603H)
SDO (tx)	1011	581H-5FFH	1409-1535	1200H
SDO (rx)	1100	601H-67FH	1537-1663	1200H
NMT Error Control	1110	701H-77FH	1793-1919	1016H, 1017H

Table 27: COB-ID - Peer-to-Peer objects

6.2 References

- [1] FDT Joint Interest Group (www.fdt-jig.org, FDT-JIG Working Group): Device Type Manager (DTM) Style Guide, Version 1.0; FDT-JIG - Order No. <0001-0008-000>, English, 2005.
- [2] CAN in Automation e.V., Erlangen: CANopen Application Layer and Communication Profile, CiA Draft Standard 301, Version 4.2.0, English, 2011-02.
- [3] Hilscher Gesellschaft für Systemautomation mbH: Protocol API, CANopen Master, V2.14.0, Revision 16, DOC070501API16EN, English, 2016-05.
- [4] Hilscher Gesellschaft für Systemautomation mbH: Protocol API, CANopen Slave, V3.8.0, Revision 7, DOC111001API07EN, English, 2020-11.
- [5] CAN in Automation international users' and manufacturer's group e. V: CANdictionary, 6th edition, English, 2011-06.
- [6] Hilscher Gesellschaft für Systemautomation mbH: operating instruction manual, netDevice and netProject, FDT Container, Revision 15, DOC040401OI15EN, English, 2018-03.
- [7] Hilscher Gesellschaft für Systemautomation mbH: operating instruction manual, SYCON.net, Frame application, Revision 14, DOC040402OI14EN, English, 2018-03.
- [8] Hilscher Gesellschaft für Systemautomation mbH: API, Hilscher status and error codes, Firmware and driver, Revision 5, DOC100802API05EN, English, 2019-11.

6.3 User rights

User-rights are set within the FDT-container. Depending on the level, the configuration is accessible by the user or read-only.

To access the **Settings**, **Configuration** and **Diagnosis** panes of the generic CANopen Slave DTM you do not need special user rights. Also all users can select the decimal or hexadecimal Display mode or sort table entries.



Note:

To edit, set or configure the parameters of the **Settings** and **Configuration** panes, you need user rights for "Maintenance", for "Planning Engineer" or for "Administrator".

The following tables give an overview of the user right groups and which user rights you need to configure the single parameters.

6.3.1 Configuration

	Observer	Operator	Maintenance	Planning engineer	Administrator
<i>General settings</i> [▶ page 14]	D	D	X	X	X
<i>Special function objects</i> [▶ page 15]	D	D	X	X	X
<i>Object dictionary</i> [▶ page 18]	D	D	X	X	X
<i>Process data objects</i> [▶ page 22]	D	D	X	X	X

Table 28: User rights configuration (D = displaying, X = editing, configuring)

6.4 Conventions in this manual

Instructions

1. Operation purpose
2. Operation purpose
 - Instruction

Results

- ↻ Intermediate result
- ⇒ Final result

Signs




Sign	Note
	General note
	Important note that must be followed to prevent malfunctions.
	Reference to further information

Table 29: Signs

6.5 Legal notes

Copyright

© Hilscher Gesellschaft für Systemautomation mbH

All rights reserved.

The images, photographs and texts in the accompanying materials (in the form of a user's manual, operator's manual, Statement of Work document and all other document types, support texts, documentation, etc.) are protected by German and international copyright and by international trade and protective provisions. Without the prior written consent, you do not have permission to duplicate them either in full or in part using technical or mechanical methods (print, photocopy or any other method), to edit them using electronic systems or to transfer them. You are not permitted to make changes to copyright notices, markings, trademarks or ownership declarations. Illustrations are provided without taking the patent situation into account. Any company names and product designations provided in this document may be brands or trademarks by the corresponding owner and may be protected under trademark, brand or patent law. Any form of further use shall require the express consent from the relevant owner of the rights.

Important notes

Utmost care was/is given in the preparation of the documentation at hand consisting of a user's manual, operating manual and any other document type and accompanying texts. However, errors cannot be ruled out. Therefore, we cannot assume any guarantee or legal responsibility for erroneous information or liability of any kind. You are hereby made aware that descriptions found in the user's manual, the accompanying texts and the documentation neither represent a guarantee nor any indication on proper use as stipulated in the agreement or a promised attribute. It cannot be ruled out that the user's manual, the accompanying texts and the documentation do not completely match the described attributes, standards or any other data for the delivered product. A warranty or guarantee with respect to the correctness or accuracy of the information is not assumed.

We reserve the right to modify our products and the specifications for such as well as the corresponding documentation in the form of a user's manual, operating manual and/or any other document types and accompanying texts at any time and without notice without being required to notify of said modification. Changes shall be taken into account in future manuals and do not represent an obligation of any kind, in particular there shall be no right to have delivered documents revised. The manual delivered with the product shall apply.

Under no circumstances shall Hilscher Gesellschaft für Systemautomation mbH be liable for direct, indirect, ancillary or subsequent damage, or for any loss of income, which may arise after use of the information contained herein.

Liability disclaimer

The hardware and/or software was created and tested by Hilscher Gesellschaft für Systemautomation mbH with utmost care and is made available as is. No warranty can be assumed for the performance or flawlessness of the hardware and/or software under all application conditions and scenarios and the work results achieved by the user when using the hardware and/or software. Liability for any damage that may have occurred as a result of using the hardware and/or software or the corresponding documents shall be limited to an event involving willful intent or a grossly negligent violation of a fundamental contractual obligation. However, the right to assert damages due to a violation of a fundamental contractual obligation shall be limited to contract-typical foreseeable damage.

It is hereby expressly agreed upon in particular that any use or utilization of the hardware and/or software in connection with

- Flight control systems in aviation and aerospace;
- Nuclear fission processes in nuclear power plants;
- Medical devices used for life support and
- Vehicle control systems used in passenger transport

shall be excluded. Use of the hardware and/or software in any of the following areas is strictly prohibited:

- For military purposes or in weaponry;
- For designing, engineering, maintaining or operating nuclear systems;
- In flight safety systems, aviation and flight telecommunications systems;
- In life-support systems;
- In systems in which any malfunction in the hardware and/or software may result in physical injuries or fatalities.

You are hereby made aware that the hardware and/or software was not created for use in hazardous environments, which require fail-safe control mechanisms. Use of the hardware and/or software in this kind of environment shall be at your own risk; any liability for damage or loss due to impermissible use shall be excluded.

Warranty

Hilscher Gesellschaft für Systemautomation mbH hereby guarantees that the software shall run without errors in accordance with the requirements listed in the specifications and that there were no defects on the date of acceptance. The warranty period shall be 12 months commencing as of the date of acceptance or purchase (with express declaration or implied, by customer's conclusive behavior, e.g. putting into operation permanently).

The warranty obligation for equipment (hardware) we produce is 36 months, calculated as of the date of delivery ex works. The aforementioned provisions shall not apply if longer warranty periods are mandatory by law pursuant to Section 438 (1.2) BGB, Section 479 (1) BGB and Section 634a (1) BGB [Bürgerliches Gesetzbuch; German Civil Code] If, despite of all due care taken, the delivered product should have a defect, which already existed at the time of the transfer of risk, it shall be at our discretion to either repair the product or to deliver a replacement product, subject to timely notification of defect.

The warranty obligation shall not apply if the notification of defect is not asserted promptly, if the purchaser or third party has tampered with the products, if the defect is the result of natural wear, was caused by unfavorable operating conditions or is due to violations against our operating regulations or against rules of good electrical engineering practice, or if our request to return the defective object is not promptly complied with.

Costs of support, maintenance, customization and product care

Please be advised that any subsequent improvement shall only be free of charge if a defect is found. Any form of technical support, maintenance and customization is not a warranty service, but instead shall be charged extra.

Additional guarantees

Although the hardware and software was developed and tested in-depth with greatest care, Hilscher Gesellschaft für Systemautomation mbH shall not assume any guarantee for the suitability thereof for any purpose that was not confirmed in writing. No guarantee can be granted whereby the hardware and software satisfies your requirements, or the use of the hardware and/or software is uninterrupted or the hardware and/or software is fault-free.

It cannot be guaranteed that patents and/or ownership privileges have not been infringed upon or violated or that the products are free from third-party influence. No additional guarantees or promises shall be made as to whether the product is market current, free from deficiency in title, or can be integrated or is usable for specific purposes, unless such guarantees or promises are required under existing law and cannot be restricted.

Confidentiality

The customer hereby expressly acknowledges that this document contains trade secrets, information protected by copyright and other patent and ownership privileges as well as any related rights of Hilscher Gesellschaft für Systemautomation mbH. The customer agrees to treat as confidential all of the information made available to customer by Hilscher Gesellschaft für Systemautomation mbH and rights, which were disclosed by Hilscher Gesellschaft für Systemautomation mbH and that were made accessible as well as the terms and conditions of this agreement itself.

The parties hereby agree to one another that the information that each party receives from the other party respectively is and shall remain the intellectual property of said other party, unless provided for otherwise in a contractual agreement.

The customer must not allow any third party to become knowledgeable of this expertise and shall only provide knowledge thereof to authorized users as appropriate and necessary. Companies associated with the customer shall not be deemed third parties. The customer must obligate authorized users to confidentiality. The customer should only use the confidential information in connection with the performances specified in this agreement.

The customer must not use this confidential information to his own advantage or for his own purposes or rather to the advantage or for the purpose of a third party, nor must it be used for commercial purposes and this confidential information must only be used to the extent provided for in this agreement or otherwise to the extent as expressly authorized by the disclosing party in written form. The customer has the right, subject to the obligation to confidentiality, to disclose the terms and conditions of this agreement directly to his legal and financial consultants as would be required for the customer's normal business operation.

Export provisions

The delivered product (including technical data) is subject to the legal export and/or import laws as well as any associated regulations of various countries, especially such laws applicable in Germany and in the United States. The products / hardware / software must not be exported into such countries for which export is prohibited under US American export control laws and its supplementary provisions. You hereby agree to strictly follow the regulations and to yourself be responsible for observing them. You are hereby made aware that you may be required to obtain governmental approval to export, reexport or import the product.

6.6 Registered trademarks

Windows® XP, Windows® Vista, Windows® 7, Windows® 8, Windows® 8.1 and Windows® 10 are registered trademarks of the Microsoft Corporation.

CANopen® is a registered trademark of CAN in AUTOMATION - International Users and Manufacturers Group e.V (CiA), Nürnberg.

All other brands mentioned are property of their respective owner of the rights. Any company names and product designations provided in this document may be brands (company names or trademarks) of the corresponding owner and may be protected under trademark or patent law.

List of figures

Figure 1:	Dialog structure of the Device Type Manager	6
Figure 2:	Navigation area	7
Figure 3:	Status bar – status fields 1 to 6	9
Figure 4:	Navigation area – configuration	13
Figure 5:	General settings	14
Figure 6:	Special function objects	15
Figure 7:	Special function objects - Synchronization message	16
Figure 8:	Special function objects – Time stamp message	17
Figure 9:	Special function objects - Emergency message	17
Figure 10:	Object dictionary	18
Figure 11:	Object dictionary - Filter object configuration	19
Figure 12:	Object dictionary - Object configuration	20
Figure 13:	Object Dictionary - Data selected object	21
Figure 14:	PDO properties	22
Figure 15:	Process data objects > PDO properties - PDO type	22
Figure 16:	Process data objects > PDO properties - PDO configuration	23
Figure 17:	Process data objects > PDO properties - Data selected object (example)	24
Figure 18:	PDO mapping	26
Figure 19:	Process data objects > PDO mapping - Filter PDO type	26
Figure 20:	Process data objects > PDO mapping - Object dictionary area	27
Figure 21:	Process data objects > PDO mapping - Mappable objects	27
Figure 22:	Process data objects > PDO mapping - Mapped objects filter	28
Figure 23:	Process data objects > PDO mapping - Mapped objects	28
Figure 24:	Navigation area - Descriptions	29

List of tables

Table 1:	List of revisions	4
Table 2:	Overview use cases.....	4
Table 3:	General device information.....	7
Table 4:	OK, Cancel, Apply, Help	8
Table 5:	Select table line	8
Table 6:	Status bar icons [1]	9
Table 7:	Status bar, display examples.....	9
Table 8:	Getting started – Configuration steps	11
Table 9:	General settings > Node ID, device, vendor.....	14
Table 10:	Special function objects - Synchronization message.....	16
Table 11:	Special function objects - Time stamp message	17
Table 12:	Special function objects - Emergency message	17
Table 13:	Object dictionary - Filter object configuration.....	19
Table 14:	Object dictionary - Object configuration.....	20
Table 15:	Object dictionary - Data selected object	21
Table 16:	Process data objects > PDO properties - PDO type.....	22
Table 17:	Process data objects > PDO properties - PDO configuration	23
Table 18:	Process data objects > PDO properties - Data selected object (example).....	24
Table 19:	Process data objects > PDO mapping - Filter PDO type	26
Table 20:	Process data objects > PDO mapping - Object dictionary area.....	27
Table 21:	Process data objects > PDO mapping - Mappable objects	27
Table 22:	Process data objects > PDO mapping – Mapped objects filter.....	28
Table 23:	Process data objects > PDO mapping - Mapped objects	28
Table 24:	Device Description > Device.....	29
Table 25:	Device description – EDS viewer.....	29
Table 26:	COB-ID – Broadcast objects.....	30
Table 27:	COB-ID - Peer-to-Peer objects	30
Table 28:	User rights configuration (D = displaying, X = editing, configuring).....	32
Table 29:	Signs.....	33

Glossary

CAN ID	CAN identifier: The most important part of the arbitration field of a CAN data frame or a CAN remote frame. It consists of 11 bits (base frame format) or 29 bits (extended frame format). Its value implicitly determines the priority for bus arbitration.
CANopen	Open standard based on CAN. The standard describes (specifies) the meaning of the message identifier and of the 0 to 8 bytes of user data. The different meanings are: (1.) A standard application layer defined by the CIA (CAN in automation) specifications DS 301. (2.) A network concept and defines which data is to be transmitted with which services and what the data mean on the respective device classes. (3.) Provides functions for the network initialization, the network guarding and the network configuration. (4.) Offers a large flexibility.
CANopen Slave	Device, which is configured by the Master and which then performs the communication
COB ID	Communication Object Identifier: Consists of the CAN identifier and additional parameters for the associated communication object. According to the CANopen specification, these are the "exists/exists-not-bit", the "remote frame support bit" (RTR allowed) and the "frame format 11/29-bit".
DTM	Device Type Manager: Software module with graphical user interface for the configuration and/or for diagnosis of devices
EDS	Electronic Data Sheet: external ASCII text file that provides information necessary to access and alter the configurable parameters of a device. The file contains information about the configurable attributes of the device, including object addresses of each parameter. The application objects in a device represent the destination addresses for the configuration data. These addresses are encoded in the EDS.
FDT	Field Device Tool: FDT specifies an interface, in order to be able to use DTM (Device Type Manager) in different applications of different manufacturers
netDevice	FDT container of the Hilscher configuration software SYCON.net
Node ID	Network address of the device, which serves to distinguish itself from other devices on the network. Therefore an unique address must be assigned to each device.
RTR	Remote Transmission Request
Slave	Type of device that is configured by the master and which then performs the communication

Contacts

HEADQUARTER

Germany

Hilscher Gesellschaft für
Systemautomation mbH
Rheinstraße 15
65795 Hattersheim
Phone: +49 (0) 6190 9907-0
Fax: +49 (0) 6190 9907-50
E-mail: info@hilscher.com

Support

Phone: +49 (0) 6190 9907-990
E-mail: hotline@hilscher.com

SUBSIDIARIES

China

Hilscher Systemautomation (Shanghai) Co. Ltd.
200010 Shanghai
Phone: +86 (0) 21-6355-5161
E-mail: info@hilscher.cn

Support

Phone: +86 (0) 21-6355-5161
E-mail: cn.support@hilscher.com

France

Hilscher France S.a.r.l.
69800 Saint Priest
Phone: +33 (0) 4 72 37 98 40
E-mail: info@hilscher.fr

Support

Phone: +33 (0) 4 72 37 98 40
E-mail: fr.support@hilscher.com

India

Hilscher India Pvt. Ltd.
Pune, Delhi, Mumbai, Bangalore
Phone: +91 8888 750 777
E-mail: info@hilscher.in

Support

Phone: +91 8108884011
E-mail: info@hilscher.in

Italy

Hilscher Italia S.r.l.
20090 Vimodrone (MI)
Phone: +39 02 25007068
E-mail: info@hilscher.it

Support

Phone: +39 02 25007068
E-mail: it.support@hilscher.com

Japan

Hilscher Japan KK
Tokyo, 160-0022
Phone: +81 (0) 3-5362-0521
E-mail: info@hilscher.jp

Support

Phone: +81 (0) 3-5362-0521
E-mail: jp.support@hilscher.com

Republic of Korea

Hilscher Korea Inc.
13494, Seongnam, Gyeonggi
Phone: +82 (0) 31-739-8361
E-mail: info@hilscher.kr

Support

Phone: +82 (0) 31-739-8363
E-mail: kr.support@hilscher.com

Austria

Hilscher Austria GmbH
4020 Linz
Phone: +43 732 931 675-0
E-mail: sales.at@hilscher.com

Support

Phone: +43 732 931 675-0
E-mail: at.support@hilscher.com

Switzerland

Hilscher Swiss GmbH
4500 Solothurn
Phone: +41 (0) 32 623 6633
E-mail: info@hilscher.ch

Support

Phone: +41 (0) 32 623 6633
E-mail: support.swiss@hilscher.com

USA

Hilscher North America, Inc.
Lisle, IL 60532
Phone: +1 630-505-5301
E-mail: info@hilscher.us

Support

Phone: +1 630-505-5301
E-mail: us.support@hilscher.com