



Operating Instruction Manual
Generic Slave DTM for DeviceNet Slave Devices
Configuration of DeviceNet Slave Devices

Hilscher Gesellschaft für Systemautomation mbH

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DOC041201OI08EN | Revision 8 | English | 2013-09 | Released | Public

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1 Introduction

1.1 About this Manual

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

Dialog Panes

The table below gives an overview for the individual dialog panes descriptions:

Section	Subsection	Manual Page
<i>Configuration</i>	<i>General Settings</i>	17
	<i>Connection Configuration</i>	18
	<i>Poll Connection</i>	19
	<i>Change of State Connection</i>	21
	<i>Cyclic Connection</i>	23
	<i>Bit-Strobe Connection</i>	24
	<i>Parameter</i>	26
<i>Device Description</i>	<i>Device</i>	28
	<i>EDS</i>	29

Table 1: Descriptions Dialog Panes

1.1.1 Online Help

The generic DeviceNet Slave DTM contains an integrated online help facility.

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

1.1.2 List of Revisions

Index	Date	Version	Component	Chapter	Revisions
7	13-04-12	1.104.x.x 1.104.x.x	DevNetGenSlaveDTM.dll DeviceNetGenericSlaveDtm Gui.ocx	All, 1.3.1	Revised, section <i>Requirements</i> updated: Windows 8 added.
8	13-09-13	1.104.x.x 1.104.x.x	DevNetGenSlaveDTM.dll DeviceNetGenericSlaveDtm Gui.ocx	All, 1.3.1	Revised, section <i>Requirements</i> updated

1.1.3 Conventions in this Manual

Notes, operation instructions and results of operation steps are marked as follows:

Notes



Important: <important note>



Note: <note>



<note, where to find further information>

Operation Instructions

1. <instruction>

2. <instruction>

or

➤ <instruction>

Results

↻ <result>

1.2 Legal Notes

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1.3 About Generic DeviceNet Slave DTM

You can use the DeviceNet generic Slave DTM to configure the DeviceNet Slave devices described with EDS files within a FDT Framework.

The information necessary for the configuration of the DeviceNet Slave devices is stored within the DeviceNet Master device when using the DeviceNet generic Slave DTM and thus the Master device is configured.

1.3.1 Requirements

System Requirements

- PC with 1 GHz processor or higher
- Windows® XP SP3, Windows® Vista (32 bit) SP2, Windows® 7 (32 bit) SP1, Windows® 7 (64 bit) SP1, Windows® 8 (32 bit) or Windows® 8 (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 pixel
- Keyboard and Mouse



Note: If the project file is saved and opened again or if it is used on another PC, the system requirements must match. Particularly the DTM must be installed on the used PC.

Restriction

Touch screen is not supported.

Requirements DeviceNet Generic Slave DTM

Requirements for working with the DeviceNet generic Slave DTM are:

- Installed FDT/DTM V 1.2 compliant frame application
- Installed DeviceNet Master DTM
- EDS file of the devices to be configured
- The user needs to reload the Device Catalog

Loading EDS files

To add devices to the **netDevice** device catalog, you must import the EDS file of the used device via **netDevice** menu **Network > Import Device Descriptions** into the EDS folder of the DTM. Then the Device Cataloge must be reloaded. The folder EDS inclusively Windows® XP is located in the application data directory (All Users) of the configuration software (or from with Windows® 7 on in the *C:\ProgramData\ SYCONnet* directory).



For further information refer to section *Configuration Steps* on page 14 , under step 1 and 2.

1.4 Dialog Structure of the Generic DeviceNet Slave DTM

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.

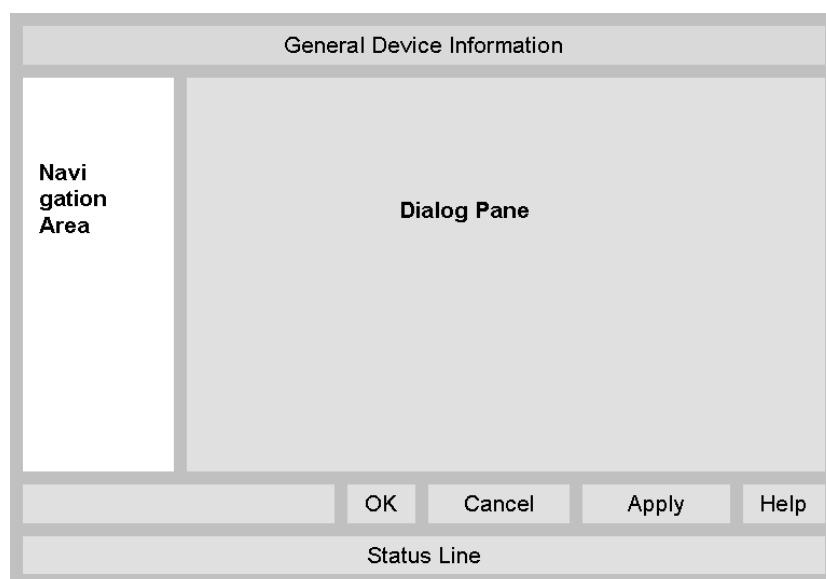


Figure 1: Dialog Structure of the Generic DeviceNet Slave DTM

1.4.1 General Device Information

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

Table 2: General Device Information

1.4.2 Navigation Area

The **Navigation Area** contains folders and subfolders to open the dialog panes of the DTM.

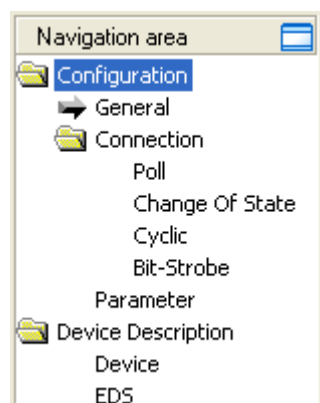




Figure 2: Navigation Area

- Select the required folder and subfolder.
- The corresponding Dialog pane is displayed.

Hide / display Navigation

	Hiding the navigation area (above right side).
 Show navigation area	Opening the navigation area (below left side).

1.4.3 Dialog Panes

At the dialog pane the **Settings** or **Device Description** panes are opened via the corresponding folder in the navigation area.

Configuration	
General	On the page General Settings the MAC-ID can be read and the parameters 'UCMM', 'Fragmentation Timeout' or 'Verify Device ID' can be preset. Further information to this you find in section <i>General Settings</i> on page 17.
...Connection Configuration	On the page Connection Configuration a connection type can be selected and configured. Further information to this you find in section <i>Connection Configuration</i> on page 18.
Parameters	In the Parameter dialog the parameter data of the device can be edited. A detailed description you find in section <i>Parameter</i> on page 26.
Device Description	
Device	The Device Info pane contains the manufacturer information about the device. For further information see section <i>Device</i> on page 28.
EDS	By use of the EDS Viewer an EDS file can be viewed and searched through. For further information see section <i>EDS</i> on page 29.

Table 3: Overview Dialog Panes

1.4.4 OK, Cancel, Apply and Help

OK, Cancel, Apply and Help you can use as described hereafter.

	Meaning
OK	To confirm your latest settings, click OK . All changed values will be applied on the frame application database. <i>The dialog then closes.</i>
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 . Yes: The changes are saved or the changed values are applied on the frame application database. <i>The dialog then closes.</i> No: The changes are <u>not</u> saved or the changed values are not applied on the frame application database. <i>The dialog then closes.</i> Cancel: <i>Back to the DTM.</i>
Apply	To confirm your latest settings, click Apply . All changed values will be applied on the frame application database. <i>The dialog remains opened.</i>
Help	To open the DTM online help, click Help .

Table 4: OK, Cancel, Apply and Help

1.4.5 Table Lines

In the DTM dialog pane table lines can be selected, inserted or deleted.







	Meaning
	To select the first line of a table use First Line .
	To select the previous line of a table use Previous Line .
	To select the next line of a table use Next Line .
	To select the last line of a table use Last Line .
	Create a new Line inserts new lines into the table.
	Delete selected Line deletes the selected line from the table.

Table 5: Selecting, inserting, deleting Table Line

1.4.6 Status Bar

The **Status Bar** displays information about the current state of the DTM. The current activity, e.g. the DTM connection state, is signaled graphically via icons in the status bar.

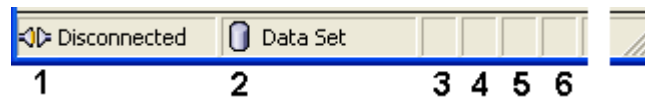


Figure 3: Status Bar – Status Fields 1 to 6






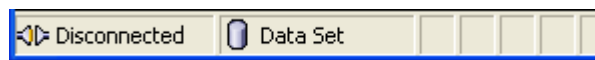
Status Field	Icon / Meaning	
1	DTM Connection States	
		Connected: Icon closed = Device is online
		Disconnected: Icon opened = Device is offline
2	Data Source States	
		Data set: The displayed data are read out from the instance data set (database).
		Device: The displayed data are read out from the device.
3	States of the instance Date Set	
		Valid Modified: Parameter is changed (not equal to data source).

Table 6: Status Bar Icons [1]

Offline State



Online State

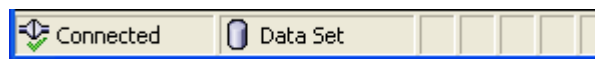


Figure 4: Status Bar Display Example

2 Getting started

2.1 Configuration Steps

The following table describes the steps to configure a DeviceNet Slave device with the DeviceNet generic Slave DTM as it is typical for many cases. At this time it is presupposed that the DeviceNet Master DTM installation was already done.

#	Step	Short Description	For detailed information see section	Page
1	Add DeviceNet Slave in the Device Catalog	Add the Device in the Device Catalog by importing the device description file to the Device Catalog. Depending of the FDT Container. For netDevice: - Network > Import Device Descriptions.	(See Operating Instruction Manual netDevice and netProject)	-
2	Load device catalog	Depending of the FDT Container: For netDevice: - select Network > Device Catalog , - select button Reload Catalog.	(See Operating Instruction Manual netDevice and netProject)	-
3	Create new project / Open existing project	Depending of the frame application. For the configuration software: - select File > New or File > Open.	(See Operating Instruction Manual of the Frame Application)	-
4	Insert Controller or Device into configuration	Depending of the FDT Container: For netDevice: - in the Device Catalog click to the Controller, - and insert the device via drag and drop to the line in the network view, - in the Device Catalog click to the Device, - and insert the device via drag and drop to the Controller bus line in the network view.	(See Operating Instruction Manual of the Frame Application)	-
5	Configure Device	Configure the Device. - Double click to the device icon of the Device. - The Generic Device DTM configuration dialog is displayed. In the Generic Device DTM configuration dialog: - select Configuration >General , - set UCMM and Fragmentation Timeout, - select Configuration > Connection , - configure the device connection, - select Configuration >Parameter , - set the parameter data of the device, - close the Generic Device DTM configuration dialog via the button OK.	Configuring Device Parameters General Settings Connection Configuration Parameter	16 17 18 26
6	Configuration Steps Controller device	Configure the Controller device via DeviceNet Master DTM.	(See Operating Instruction Manual DTM for DeviceNet Master devices)	-
7	Save project	Depending of the frame application. For the configuration software: - select File > Save.	(See Operating Instruction Manual of the Frame Application)	-

Table 7: Getting started - Configuration Steps



For information to further steps as **Download Configuration** or **Diagnosis**, refer to the **User Manual DTM for DeviceNet Master devices**.

3 Configuration

3.1 Overview Configuration

Dialog Panes “Configuration”

The table below gives an overview about the available **Configuration** dialog panes descriptions:

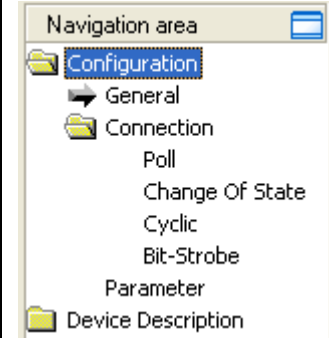
Generic DeviceNet Slave DTM	Folder Name / Section	Page
	<i>General Settings</i>	17
	<i>Connection Configuration</i>	18
	<i>Poll Connection</i>	19
	<i>Change of State Connection</i>	21
	<i>Cyclic Connection</i>	23
	<i>Bit-Strobe Connection</i>	24
	<i>Parameter</i>	26

Table 8: Descriptions of the Dialog Panes Configuration



Notice the descriptions in the section *Configuration Steps* on page 14.



Note: Access to the configuration panes is enabled without requirement of user rights. However for editing certain user rights are required. Further information can be found in section and *User Rights* on page 30.

3.2 Configuring Device Parameters

The following steps are needed to configure the device parameters using the Generic DeviceNet Slave DTM:

General

1. Set UCMM and Fragmentation Timeout.
 - Select **Configuration > General** in the navigation area.

Connection

2. Configure the device connection.
 - Select **Configuration > Connection** in the navigation area.

Parameter

3. Set the parameter data of the device.
 - Select **Configuration > Parameter** in the navigation area.

Close Generic Slave DTM Configuration Dialog

4. Click **OK** in order to close the Generic Slave configuration dialog and to store your configuration.

Further Information



For more information refer to section *General Settings* on page 17, *Connection Configuration* on page 18 and *Parameter* on page 26.

3.3 General Settings

The Dialog **General Settings** contains the following configuration possibilities:

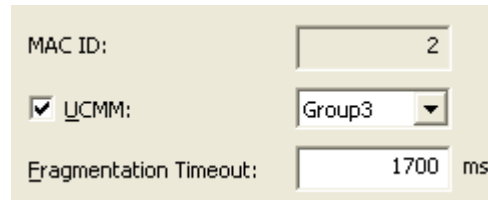


Figure 5: General Settings - Attributes of the device identification

Parameter	Meaning	Range of Value
MAC ID	The MAC ID is assigned by the Master and can not be edited here. Changing the MAC ID has to be made with the DeviceNet Master DTM. With each device inserted into the configuration the MAC ID is increased automatically by one.	0 ... 63
UCMM	If the field UCMM is selected, the device is used as UCMM-compatible device. The option UCMM is used for devices which need the UCMM message format. Group 1, 2 and 3 are supported. The documentation of the used device gives information whether this option is to be used or not.	Group1, Group2, Group3
Fragmentation Timeout	Fragmentation Timeout (Expl. Message Timeout): If an IO data transmission or an Explicit Message is larger than 8 byte, this must be transferred fragmented in the DeviceNet (in several telegrams). The Fragmentation Timeout specifies, how long the Master waits, until a Slave answers a fragmented telegram. Note: Small values can lead to communication disturbances.	0 ... 1700 ... 65535

Table 9: General Settings - Attributes of the device identification

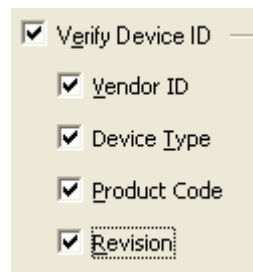


Figure 6: General Settings - Verify Device ID

The function **Verify Device ID** compares the device description in the EDS file of the device with the existing hardware, if the device characteristics of the EDS file agree with those of the hardware.

The check is made for the selected attributes in each case.

3.4 Connection Configuration

DeviceNet allows establishing several kinds of **Connections** between devices. In DeviceNet a device (Slave) is mapped as a collection of objects. These objects communicate via different connection types, which you can adjust under **Connection**.

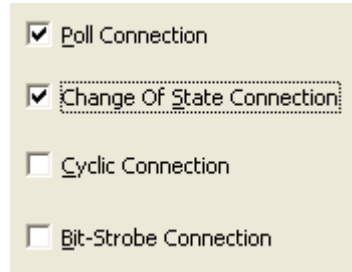


Figure 7: Configuration Dialog Connection

In the **Connection** dialog a connection type or a combination of types can be selected. Please note that a device has not to support all types of IO connections. Connection types which are not supported by the device are automatically disabled.

In the lower section of this dialog the possible combinations of the connection types are displayed:

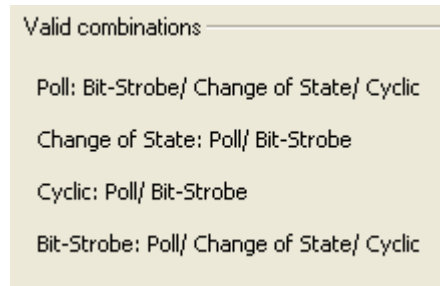


Figure 8: Indication of possible combinations of connection types

If an invalid combination is set, the following warning appears:

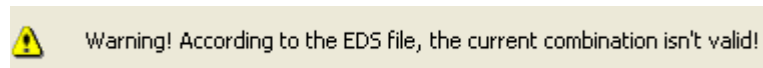


Figure 9: Warning invalid connection type combination

3.4.1 Connection Types

The following connection types are available:

Connection Type	Page
<i>Poll Connection</i>	19
<i>Change of State Connection</i>	21
<i>Cyclic Connection</i>	23
<i>Bit-Strobe Connection</i>	24

Table 10: Possible connection types

3.4.1.1 Poll Connection

If the **Poll Connection** type was activated, the elements of this connection type are editable. Otherwise this dialog is disabled.

The screenshot shows a configuration dialog for a Poll Connection. It has two main sections: Consumption and Production, each with a checked checkbox. The Consumption section has a Size of 7 Bytes, a Connection Path of 'Consuming POLL/COS Data' (selected from a dropdown), and a Path description of 'Valve Command (bits [3..1], bit[0] is ignored)'. The Production section has a Size of 2 Bytes, a Connection Path of 'Producing COS Data' (selected from a dropdown), and a Path description of 'Change of State (Error_Byte, PLC_Image)'. Both sections also show a hexadecimal address field: '20 04 24 03 30 03' for Consumption and '20 04 24 02 30 03' for Production.

Figure 10: Poll Connection - Consumption and Production

One poll command from the Master sends a number of output data in the poll command to the device. The device receives (consumes) the output data. If it has input data configured for this poll connection it reacts by sending (producing) back the number of input data to the Master. Before a polled I/O connection is initiated by the Master, it reads the consumed and produced connection size of the data from the device (Slave) first and compares this values with the values configured in Master. If different values are detected, the connection cannot be established. A poll command can be sent from the Master to a device. The device has to respond if it has received the poll command of the Master, even if it has no input data. Else the Master will report a timeout error. Polling data to many devices has the disadvantage that the network traffic rate is very high and most data which is transferred has not changed since the last transmission. Furthermore the higher the bus load more communication errors can occur if the bus is disturbed by external influences.

The screenshot shows the Timing configuration section of the Poll Connection dialog. It contains three settings: 'Production Inhibit Time' set to 200 ms, 'Expected Packet Rate' set to 200 ms, and 'Watchdog Timeout Action' set to 'Timeout' (selected from a dropdown menu).

Figure 11: Poll Connection – Timing

The **Production Inhibit Time**, one for each connection, configures the minimum delay time between new data production in multiples of a millisecond. The timer is reloaded each time new data production through the established connection occurs. While the timer is running the device suppresses new data production until the timer has expired. This method prevents that the device is overloaded with too fast incoming requests.

The value 0 defines no **Production Inhibit Time** and data production can and will be done as fast as possible. If in polled mode for example a Production Inhibit Time of 1000 ms is configured, then the poll request message to the device will be sent every second.

The **Expected Packet Rate**, one for each connection, is always transferred to the device before starting and doing the I/O transfer. The fourfold value is used by the device later to reload its 'Watchdog Timer'. If no data production of the remote station takes place within this time, so the connection changes into a watchdog timeout error. Incoming data productions of the remote station load the Watchdog Time again to the fourfold value of the **Expected Packet Rate**.



Note: the **Production Inhibit Time** is verified against the **Expected Packet Rate**. If the **Expected Packet Rate** value is unequal to zero, but less than the **Production Inhibit Time** value, then an error message is displayed by the application.

The **Watchdog Timeout Action** defines the device behavior when the watchdog timer in the device (Slave) expires. The following actions are adjustable:

- **Timeout:** The connection transitions to the timeout state and remains in this state until it is Reset or Deleted.
- **Auto reset:** The connection remains in the established state and immediately restarts the Inactivity/Watchdog timer.
- **Auto delete:** The connection class automatically deletes the connection if it experiences an Inactivity/Watchdog timeout.

To reset the default values from the EDS file, click .

3.4.1.2 Change of State Connection

If the **Change of State Connection** type was activated, the elements of this connection type are editable. Otherwise this dialog is disabled.

The screenshot shows a configuration dialog for 'Change of State Connection'. It has two main sections: 'Consumption' and 'Production', each with a checked checkbox. The 'Consumption' section includes a 'Size' field set to 7 Bytes, a 'Connection Path' dropdown set to 'Consuming POLL/COS Data' with a hex value of 20 04 24 03 30 03, and a 'Path description' field with the text 'Valve Command (bits [3..1], bit[0] is ignored)'. The 'Production' section includes a 'Size' field set to 2 Bytes, a 'Connection Path' dropdown set to 'Producing COS Data' with a hex value of 20 04 24 02 30 03, and a 'Path description' field with the text 'Change of State (Error_Byte, PLC_Image)'.

Figure 12: Change of State Connection - Consumption and Production

With this type of connection both Master and Slave send the configured amount of data (max. 255 Byte) to the respective remote station. This data production is started at change in value (trigger). If the data production does not take place during a defined time interval, the devices trigger the data production automatically to load the Watchdog Timer of the connection again. Depending on how the device behavior is configured, they can send back a confirmation message which contains any quantity of data and/or status information. Before a **Change of State** connection is initialized by the Master, it reads out the consumed and produced connection size of the data from the device (Slave) and compares this values with the values configured in the Master during configuration. If different values are determined, the connection can not build up. Data production only over 'Change of State' keeps the bus load as low as possible, while data than can be transmitted as fast as possible by each device because bus conflicts are less possible. So you can get high performance data transmission with in comparison low baud rates.

The screenshot shows the 'Timing' section of the configuration dialog. It contains three fields: 'Production Inhibit Time' set to 200 ms, 'Expected Packet Rate' set to 200 ms, and 'Watchdog Timeout Action' set to 'Timeout' via a dropdown menu.

Figure 13: Change of State Connection – Timing

The **Production Inhibit Time**, one for each connection, configures the minimum delay time between new data production in multiples of a millisecond. The timer is reloaded each time new data production through the established connection occurs. While the timer is running the device suppresses new data production until the timer has expired. This method prevents that the device is overloaded with too fast incoming requests.

The value 0 defines no **Production Inhibit Time** and data production can and will be done as fast as possible.

The **Expected Packet Rate**, one for each connection, is always transferred to the device before starting and doing the I/O transfer. The value is used by the device to reload its 'Transmission Trigger' and 'Watchdog Timer'. In **Change of State** connections the fourfold value of the **Expected Packet Rate** is used to build the 'Watchdog Timer'. If no data production of the remote station takes place within this time, so the connection changes into a watchdog timeout error. Incoming data productions of the remote station load the Watchdog Time again to the fourfold value of the **Expected Packet Rate**.

If a data production did not take place since starting the 'Transmission Trigger Timer' as single values of the **Expected Packet Rate**, so the device triggers a data production at the latest then automatically.



Note: the **Production Inhibit Time** is verified against the **Expected Packet Rate**. If the **Expected Packet Rate** value is unequal to zero, but less than the **Production Inhibit Time** value, then an error message is displayed by the application.

The **Watchdog Timeout Action** defines the device behavior when the watchdog timer in the device (Slave) expires. The following actions are adjustable:

- **Timeout:** The connection transitions to the timeout state and remains in this state until it is Reset or Deleted.
- **Auto reset:** The connection remains in the established state and immediately restarts the Inactivity/Watchdog timer.
- **Auto delete:** The connection class automatically deletes the connection if it experiences an Inactivity/Watchdog timeout.

3.4.1.3 Cyclic Connection

If the **Cyclic Connection** type was activated, the elements of this connection type are editable. Otherwise this dialog is disabled.

The screenshot shows a configuration dialog for a Cyclic Connection. It has two main sections: Consumption and Production. Each section has a checked checkbox, a 'Size' field set to 0 Bytes, a 'Connection Path' dropdown menu set to 'User defined', and a 'Path description' text field set to 'User defined'.

Figure 14: Cyclic Connection - Consumption and Production

At this transmission type a data production takes place automatically, if the 'Transmission Trigger Timer' has expired as single value of the **Expected Packet Rate**.

The screenshot shows the 'Timing' section of the configuration dialog. It contains an 'Expected Packet Rate' field set to 200 ms and a 'Watchdog Timeout Action' dropdown menu set to 'Timeout'.

Figure 15: Cyclic Connection - Timing

The **Expected Packet Rate**, one for each connection, is always transferred to the device before starting and doing the I/O transfer. The value is used by the device to reload its 'Transmission Trigger' and 'Watchdog Timer'. In **Cyclic** connections the fourfold value of the **Expected Packet Rate** is used to reload the 'Transmission Trigger Timer' and the 'Watchdog Timer'. If no data production of the remote station takes place within this time, so the connection changes into a watchdog timeout error. Incoming data productions of the remote station load the Watchdog Time again to the fourfold value of the **Expected Packet Rate**.

The **Watchdog Timeout Action** defines the device behavior when the watchdog timer in the device (Slave) expires. The following actions are adjustable:

- **Timeout:** The connection transitions to the timeout state and remains in this state until it is Reset or Deleted.
- **Auto reset:** The connection remains in the established state and immediately restarts the Inactivity/Watchdog timer.
- **Auto delete:** The connection class automatically deletes the connection if it experiences an Inactivity/Watchdog timeout.

3.4.1.4 Bit-Strobe Connection

If the **Bit-Strobe Connection** type was activated, the elements of this connection type are editable. Otherwise this dialog is disabled.

The screenshot shows a configuration dialog for a Bit-Strobe Connection. It is divided into two sections: 'Consumption' and 'Production'. In the 'Consumption' section, the 'Size' is set to '8 Bytes (Broadcast)'. In the 'Production' section, the 'Size' is set to '0 Bytes'. The 'Connection Path' is set to 'User defined' with a dropdown arrow. The 'Path description' is also set to 'User defined'.

Figure 16: Bit-Strobe Connection - Consumption and Production

Bit strobe command and response messages rapidly move small amounts of output data between the Master device and one/some/all Slave devices. The bit strobe message contains a bit string of 64 bits of output data, one output bit per possible device. Each bit in there is assigned to one device address (MAC-ID) in the network. Herewith this service has broadcast functionality that means more than one Slave device can be addressed by one command. Because all addressed Slave devices get this command at the same time, this command is normally used to synchronize data transfer to several Slave devices. A Slave device can take its corresponding output bit as a real output information to give it to the peripheral connections (e.g. an LED) and/or use the bit as a trigger to send back its input data with a poll response message. The data that can be sent back from each Slave after a bit strobe command was received is limited to 8 bytes in length. Bit strobe usage causes therefore a reduced bus loading than poll connections.

The screenshot shows the 'Timing' section of the configuration dialog. The 'Expected Packet Rate' is set to '200 ms'. The 'Watchdog Timeout Action' is set to 'Timeout' with a dropdown arrow.

Figure 17: Bit-Strobe Connection - Timing

The **Expected Packet Rate**, one for each connection, is always transferred to the device before starting and doing the I/O transfer. The fourfold value is used by the device later to reload its 'Watchdog Timer'. If no data production of the remote station takes place within this time, so the connection changes into a watchdog timeout error. Incoming data productions of the remote station load the Watchdog Time again to the fourfold value of the **Expected Packet Rate**.

The **Watchdog Timeout Action** defines the device behavior when the watchdog timer in the device (Slave) expires. The following actions are adjustable:

- **Timeout:** The connection transitions to the timeout state and remains in this state until it is Reset or Deleted.
- **Auto reset:** The connection remains in the established state and immediately restarts the Inactivity/Watchdog timer.
- **Auto delete:** The connection class automatically deletes the connection if it experiences an Inactivity/Watchdog timeout.

To reset the default values from the EDS file, click

A rectangular button with a light beige background and a thin black border. The text "EDS Default Values" is centered in a black, sans-serif font.

3.5 Parameter

In the **Parameter** dialog the parameter data of the device can be edited.

If default parameters are configured in the EDS file for this device, these are inserted automatically. Some of devices need further parameterization data, to change for example a measurement limitation or a value range. These data are device specific and their functionality can not be explained at this point. The explanation can be found in the corresponding device manual.

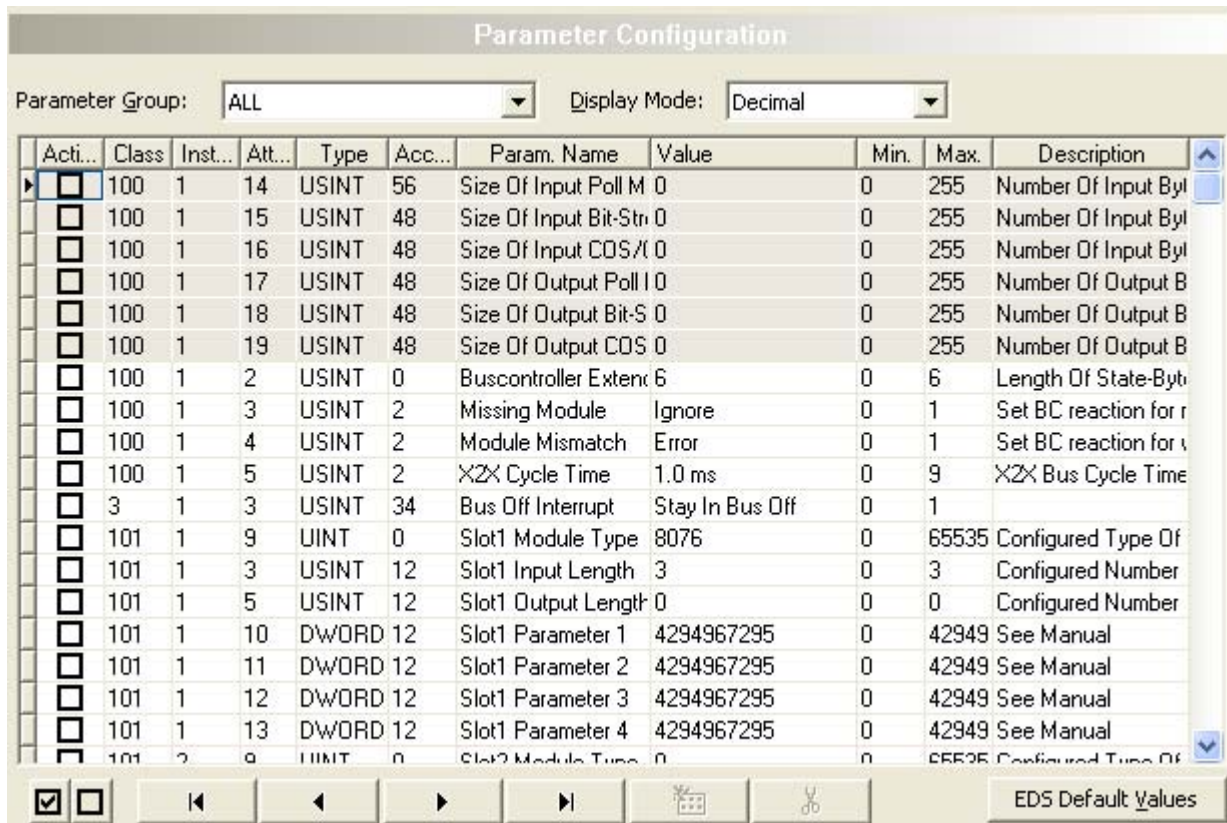


Figure 18: Parameter Configuration

Parameter	Value	Description
Parameter Group	ALL USER DEFINED xxx	All parameter groups defined in the EDS file are merged in one table. A parameter group defined by the user is displayed. In the EDS file of the device further parameter groups can be defined, which are also displayed in the pull-down menu Parameter Group. The name of this parameter group itself is also defined in the EDS file.
Display Mode	Decimal Hexadecimal	The values Min and Max in the table are indicated in decimal notation by default. By selecting the Display Mode Hexadecimal the values are shown in hexadecimal notation.

Table 11: Change Parameter Data

By using a data set the respective parameter value for the Master configuration are approved and transferred to the Slave by the Master during the initialization phase.

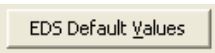
To enable or disable all of the data sets at the same time click ☒ ☐.

A description of the individual parameters, indicated by **Class**, **Instance** and **Attribute**, can be referred in the device description of the manufacturer.

If “**User Defined**” is selected in **Parameter Group**, the entries in the columns **Param. Name** and **Value** are editable. Otherwise the entries are fixed and can not be changed.

A description on how table lines can be selected, inserted or deleted can be found in section *Table Lines* on pag 12 .

To reset the defalut values from the EDS file, click

A rectangular button with a light beige background and a thin black border. The text "EDS Default Values" is centered on the button in a black, sans-serif font.

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4 Device Description

4.1 Overview Device Description

Descriptions of “Device Description”

The table below gives an overview for the **Device Description** dialog panes descriptions:

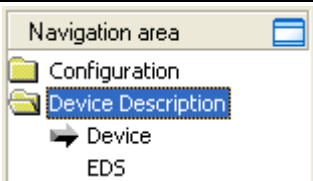
DeviceNet generic Slave DTM	Folder Name / Section	Page
 Navigation Area - Description	Device	28
	EDS	29

Table 12: Descriptions of the Dialog Panes Device Description

4.2 Device

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

Parameter	Meaning
Vendor name	Vendor name of the device
Vendor ID	Identification number of the manufacturer
Product Type	Communication Adapter
Product Type String	Product Name as string
Product Code	Product code of the device
Product Name	Name of the device The variable Product Name is a text string that should represent a short description of the product/product family.
Major Revision	Major Revision
Minor Revision	Minor Revision
Catalog	Used catalog name
Icon filei	Udes icon file name

Table 13: General Device Information

4.3 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 simple overview, the further entries show the EDS file in text format.

Parameter	Meaning
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 14: Device Description – EDS Viewer

5 Appendix

5.1 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 **Configuration** and **Device Description** panes of the Generic DeviceNet Slave DTM you do not need special user rights.



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

The **Device Description** panes do not contain any editable elements. The indicated values in are only for information purposes.

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

5.1.1 Configuration

	Observer	Operator	Mainten- ance	Planning Engineer	Adminis- trator
<i>General Settings</i>	D (X)	D (X)	X	X	X
<i>Connection Configuration</i>	D (X)	D (X)	X	X	X
<i>Poll Connection</i>	D (X)	D (X)	X	X	X
<i>Change of State Connection</i>	D (X)	D (X)	X	X	X
<i>Cyclic Connection</i>	D (X)	D (X)	X	X	X
<i>Bit-Strobe Connection</i>	D (X)	D (X)	X	X	X
<i>Parameter</i>	D (X)	D (X)	X	X	X

Table 15: Configuration (D = Displaying, X = Editing, Configuring, D (X) = Displaying all, limited Editing or Configuring)

5.2 References

- [1] Device Type Manager (DTM) Style Guide, Version 1.0 ; FDT-JIG - Order No. <0001-0008-000>
- [2] DeviceNet Master Protocol API Manual, Revision 9, Hilscher GmbH 2013
- [3] DeviceNet Slave Protocol API Manual, Revision 12, Hilscher GmbH 2013

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5.5 Glossary

DTM

Device Type Manager

The Device Type Manager (DTM) is a software module with graphical user interface for the configuration and/or for diagnosis of devices.

EDS

An Electronic Data Sheet (EDS) provides information necessary to access and alter the configurable parameters of a device. An Electronic Data Sheet (EDS) is an external file that contains information about configurable attributes for the device, including object addresses of each parameter. The application objects in a device represent the destination addresses for 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.

MAC ID

MAC = Media Access Control

The network address of a device serves to distinguish itself on a DeviceNet fieldbus system from any other device or Slave on this network. This should be a unique number for each device.

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