



Drehmo DTM Collection

i-matic Device DTM



Instruction manual

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1 Introduction

1.1 General Information

The DREHMO DTM Collection is a software tool that consists of two components. The main component is the *i-matic* device DTM. Using this tool actuators of type *i-matic* can be configured and a diagnosis made. The second component is the communication-DTM. This component is needed to use the device DTM on systems without suitable communication channels and appropriate DTMs.

1.2 System requirements

For the use of this software the following system requirements have to be full filled:

Software:

- Windows 2000
- Windows NT 4.0 / SP6
- Windows XP SP2
- Internet Explorer 6.0

Hardware (recommended):

- Min. 700MHz CPU
- Min. 128MB RAM

If there is no suitable FDT container application installed on the system, it has to be installed before installing the Drehmo DTM Collection. If no container is available we recommend the Container Application from M&M which is free of charge. Its installation is described in this manual, too.

2 Installation

2.1 Introduction

Like every DTM the Drehmo DTM Collection requires as suitable FDT Frame application. If there is no suitable FDT container application installed on the system, it has to be installed before installing the Drehmo DTM Collection. If no container is available we recommend the Container Application from M&M which is free of charge. Its installation is described in this manual, too.

The container can be obtained via internet: <http://www.fdtcontainer.com/>

2.2 Installation of the Container

- 1.) Run the file *SETUP.EXE*.
- 2.) Follow the instructions of the setup. The container requires the .NET framework from Microsoft. It will be installed automatically by the setup if it is not available on the target system. Please answer the appropriate question with *Yes*.
- 3.) Depending on the system configuration it may be necessary to reboot the system after installation,
- 4.) After rebooting the system the container is ready for use. It can be started by choosing the respective icon in the start menu.



2.3 Installation of Drehmo dtmCollection

- 1.) Use the setup-CD and insert it into the CD-Rom drive. Start the installation via Windows-Explorer by double clicking on the setup-program named *imaticDTM_Setup_X_XX_XX_XXXX.exe*. The placeholder X stands for the actual version of the setup and varies. If the installation is obtained from another source please start it from the corresponding location.
- 2.) Setup starts. In the displayed window choose the language and acknowledge your choice by pressing the button *Next >*. The selected language is only used by the Setup because the language of the DTM Collection is determined by the container application.
- 3.) Acknowledge the following windows by pressing the button *Next >*. Please also read the licence agreement carefully and accept it.
- 4.) In the following window the setup requires the selection of the destination folder for the installation. It is recommended to retain the default location.
- 5.) Now the setup prompts for selection of desired setup type. Choose *Maximal*, if no appropriate communication DTM is available. In this case the simulation communication DTM will be installed. It can't be used for communication with a physical device. It only simulates a device connection. By selecting the entry *i-matic device DTM* only the device DTM will be installed. Choose this entry if a appropriate communication DTM is available. The last entry in the list enables the user to install single parts of the collection. We recommend not to choose this selection because it requires de-

tailed background knowledge.

Acknowledge your choice by pressing the button *Next >*.

- 6.) Continue setup by specifying the program group and adapt it to your needs. Acknowledge your choice by pressing the button *Next >*.
- 7.) Now setup has gathered enough information for proceeding with the installation. By pressing the button *Next >* the installation process will start.
- 8.) Depending on the system configuration it may be necessary to re-boot the system.

2.4 Installation of other DTM components

Basically many other DTM's of different manufacturers can be installed additionally. Please refer to the according instruction manuals.

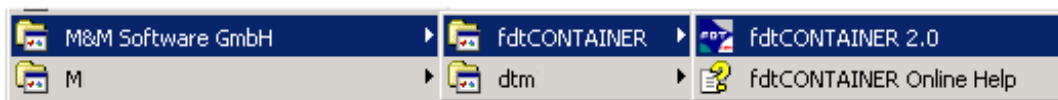
3 Use of the *i-matic* DTM's

3.1 Introduction

Like every other DTM the Drehmo DTM Collection is developed for use with different container applications. In this example the use within the FDT container from M&M is described. For the use of the DTM within other containers please refer to manuals shipped with the respective container.

3.2 Starting the container application

Start the container application by selecting its Icon in Start Menu.



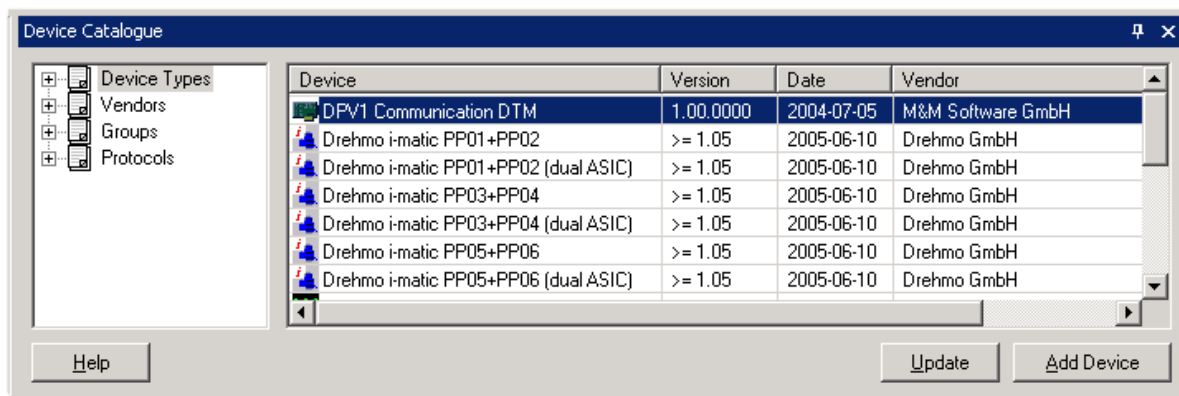
For the first execution of the container no password is needed. It is possible to specify a password by selecting Tools/Options/User accounts. .

The container uses its own device catalogue in which all installed DTM's are listed. This device catalogue is empty after installation. It has to be created on first execution of the container.



Answer the question of the container with Yes. Otherwise no use of the container is possible.

Also the device catalogue has to be updated manually after each new installation of further DTM's.

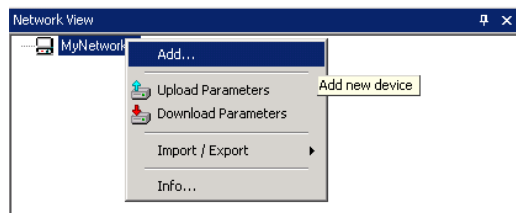


For updating the device catalogue manually select *View/Device catalogue* and click on the button *Update*.

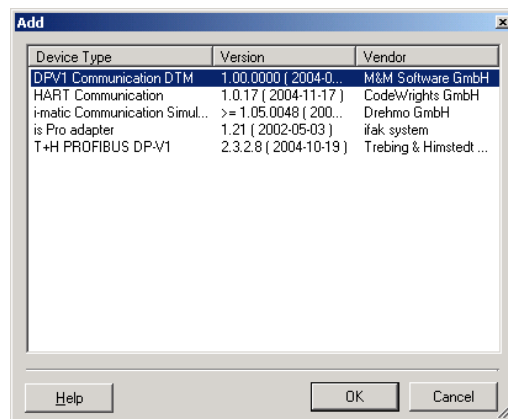
3.3 Building a network topology

3.3.1 Adding a communication DTM

To build a network topology first right click on the entry *MyNetwork* in the topology tree. A context menu will be opened. Choose the entry *Add...*



A list containing all installed DTM's which can be inserted at the current topology location will be opened.

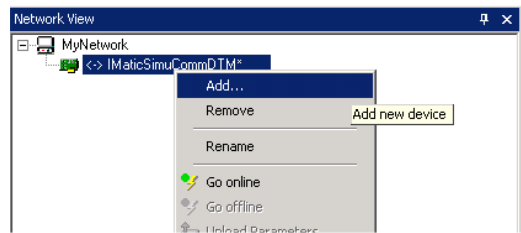


Choose the entry *i-matic Communication Simulation* and acknowledge your selection by pressing the *OK*-Button.

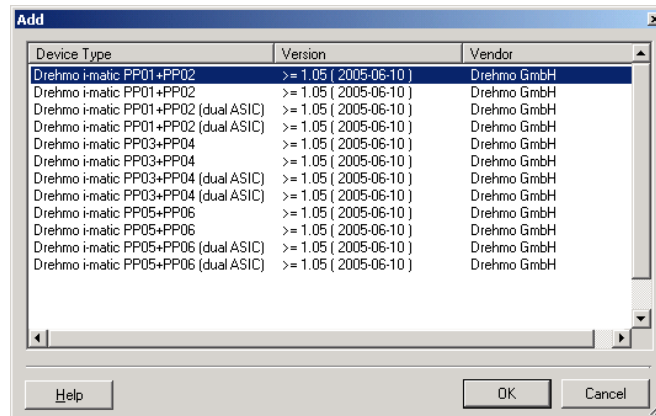
If there are other communication DTM's installed on the system please feel free to choose them to establish a real device connection to the actuator. Currently only DPV1 communication DTM's are supported by Drehmo actuators.

3.3.2 Adding the *i-matic* device DTM

To add the device DTM to the topology tree right click the communication DTM in the network topology under which it should be inserted. A context menu will be opened. Choose the entry *Add...*

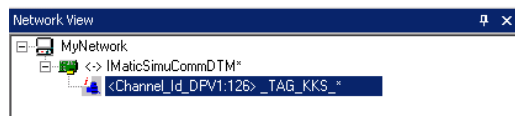


A list containing all installed DTM's which can be inserted at the current topology location will be opened.



Choose the entry *Drehmo i-matic* with the desired process image and acknowledge your selection by pressing the *OK*-Button.

The device DTM will be inserted at respective location in the topology tree.



The described steps can be repeated as often until the displayed topology tree will match the plant.

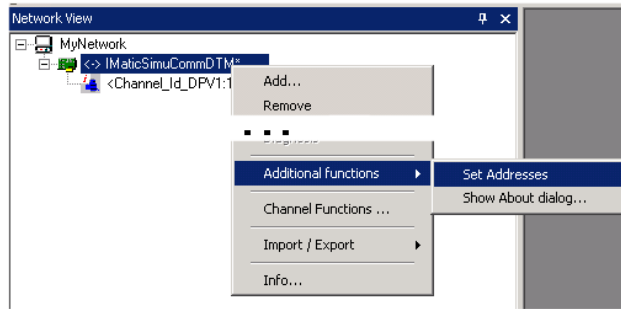
3.3.3 Selecting the Profibus address

The next step is to acknowledge the communication DTM about the address under which he can reach the respective device.

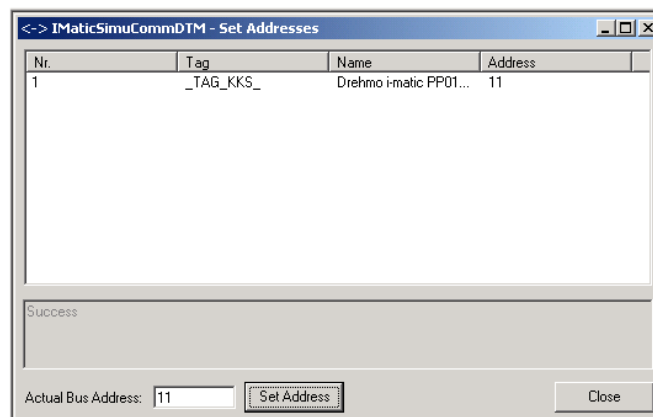
For selecting the address in other communication DTM's please refer to the manual.

For the *i-matic* communication simulation DTM this can be done as follows:

Right click the desired communication DTM and select the entry *Additional functions->Set Addresses* in the opened context menu.



Choose the entry of the device you are about to change in the opened dialog. Enter the new address in the field *Actual Bus Address* and acknowledge it by pressing the button *Set Address*.



After successful change the new address will be displayed in the list.

Remark:

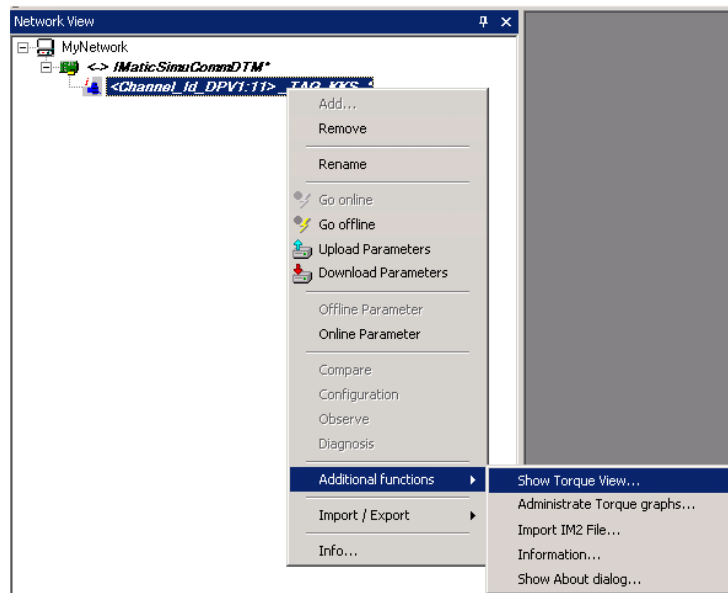
The communication simulation DTM only simulates a device with the address 50. All other addresses are not supported. The DTM behaves as no connection to the respective device can be established.

3.3.4 Saving the project


Before proceeding with the project work it should be stored by selecting the menu entry File/Save as....

3.4 Working with the DTM


All features of the DTM can be selected via the context menu which will be opened when right clicking on the device in the topology view.




3.4.1 Connection establishment

By selecting this feature a connection to the respective device will be established. This command can also be activated by selecting the menu entry *Device/Go online* or clicking on the icon  in the toolbar.


3.4.2 Connection termination

By selecting this feature an established connection to a device will be terminated. This command can also be activated by selecting the menu entry *Device/Go offline* or clicking on the icon  in the toolbar.

3.4.3 Parameter upload

By selecting this menu item the actuators actual parameter values will be uploaded into the project database. Afterwards the parameters can be viewed and edited offline. This command can also be activated by selecting the menu entry *Device/Parameter Upload* or by clicking on the icon  in the toolbar.

3.4.4 Parameter download

By selecting this menu item the parameters from the project database will be downloaded into the device. This command can also be activated by selecting the menu entry *Device/Parameter Download* or by clicking on the icon  in the toolbar.

3.4.5 Offline parameter/online parameter

By selecting the menu entries *Offline/Online Parameter* the explorer view of the *i-matic* device DTM will be opened. The available entry depends on the connection state of the DTM. In the displayed window all device parameters can be viewed and edited. In Offline mode only parameters in the project database can be viewed and edited. If the changes should affect the device parameters, a download of the parameter set is necessary.

Also it is possible to modify parameters directly in the device by selecting the menu entry *Online Parameter* which is only available if a connection to the device is established.

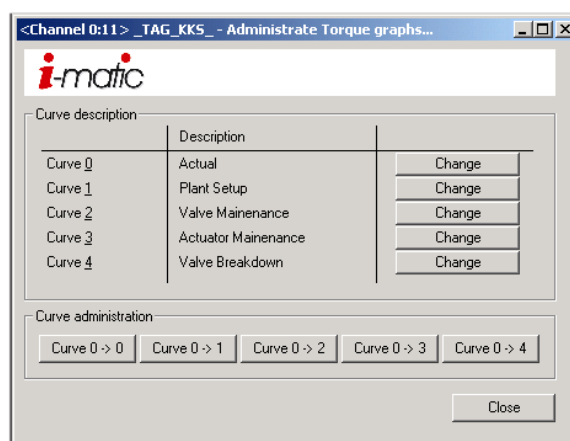
3.4.6 Additional functions > show torque view

The selection of the menu entry *Show Torque View...* results in the display of the torque graph window. It can be used to view torque graphs stored in the actuator or on the engineering station.

Torque curves are automatically stored during operation of the actuator. Additionally the time stamps (up time electronic in the actuator) of the last movement from CLOSE to OPEN, and from OPEN to CLOSE are stored. The last recorded torque curve can be stored in one of the four available memories, together with a describing text. Administration of the torque graphs can be done directly in the menu tree of the actuator or by selecting the menu entry *Administrate Torque graphs...*

3.4.7 Additional functions > administrate torque graphs

By choosing *Administration Torque graphs...* a window opens which can be used to administer the graphs of the actuator. This is the reason why this choice is only available if the DTM is online connected to an actuator.



By pressing the buttons *Change* the describing text of each storage can be changed. By pressing the buttons *Curve 0 -> Curve X* the actual torque curve of curve 0 will be transferred to the non volatile memory of curve 1 to 4. The button *Curve 0-> Curve 0* is only relevant for modulating actuators. With modulating actuators keep in mind that the last torque curve is not stored permanently in curve 0. If the last curve shall be stored as curve 0, this has to be done explicitly by using the button *Curve 0 -> Curve 0*.

3.4.8 Additional functions > Information...

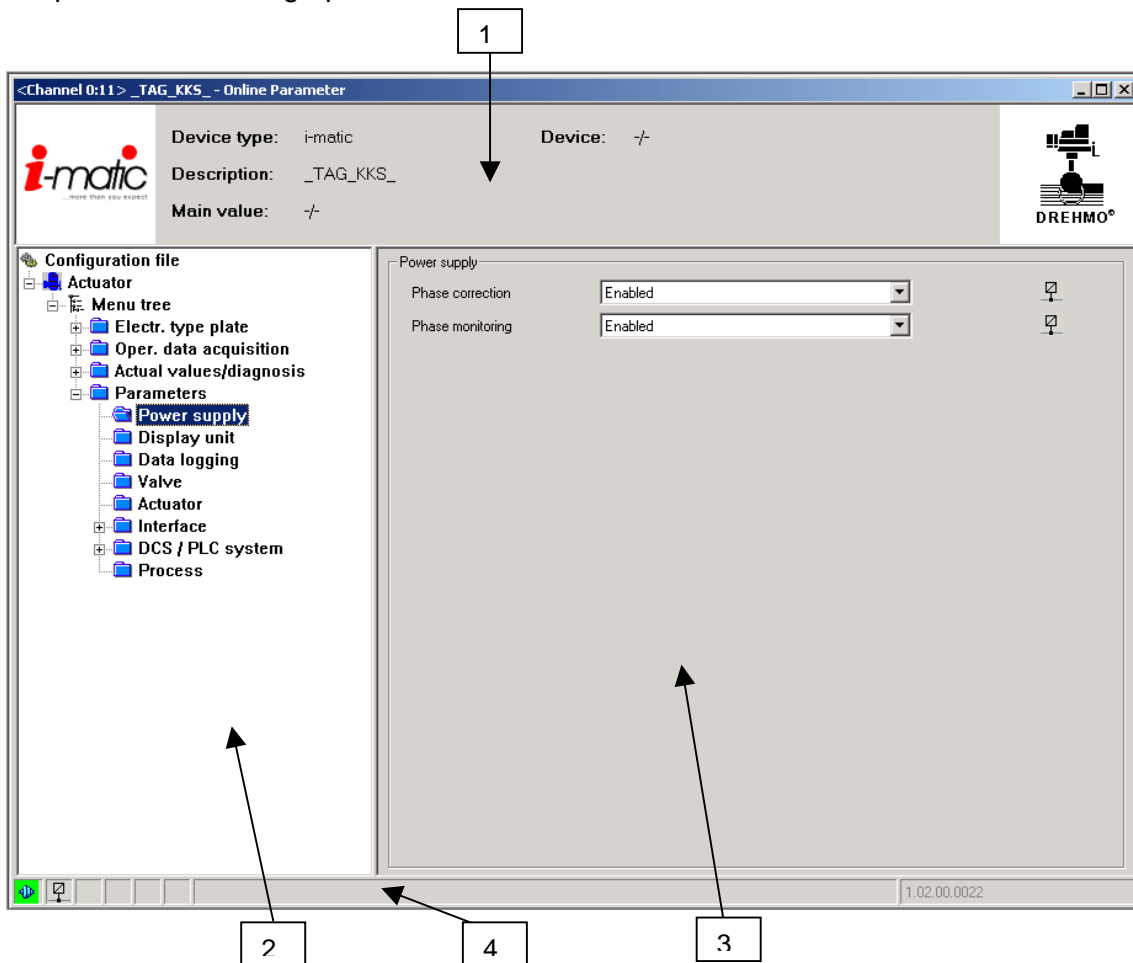
Displays a dialogue containing information of the current state of the DTM. This window is used for obtaining technical support.

3.4.9 Additional functions > Show About dialog...

Displays an about dialog with licensing and version information. This window is used for obtaining technical support.

3.5 The explorer view of the DTM






The explorer view is the graphical user interface of the DTM. It is divided in several areas.





1	<p>Identification area</p> <p>This area contains information about the device that is handled by the DTM. This information will be fetched from the instance data set. Configurable fields may contain main values that support user functions (e.g. optimization). For identifying the device the field TAG/KKS from the electronic type plate will be used.</p>
2	<p>Parameter tree</p> <p>Parameter topology tree with list of all actuator parameters. The tree can be expanded or collapsed to different levels. A selected folder is marked with an open folder icon and its text is printed with a different background colour. The parameters contained in the selected parameter folder will be displayed in the parameter area.</p>
3	<p>Parameter area</p> <p>The parameter area displays the corresponding parameters belonging to the selected parameter group in parameter tree.</p>
4	<p>Status line</p> <p>The status line contains global information about the DTM and the device connected. The status line fields contain the following information:</p> <ol style="list-style-type: none"> 1.) Connection states: DTM connected or disconnected from device 2.) Data source: Current datasource is device or project database.

3.) Parameter state: Valid modified, invalid modified or project database



Possible connection states:

Icon	Text	Meaning	DTM Status
		Connection establishment	Going online
	Connected	Connected	Online
		Disconnecting	Going offline
	Disconnected	All other states	All other states
		Connection disturbed	Online

Possible data sources:

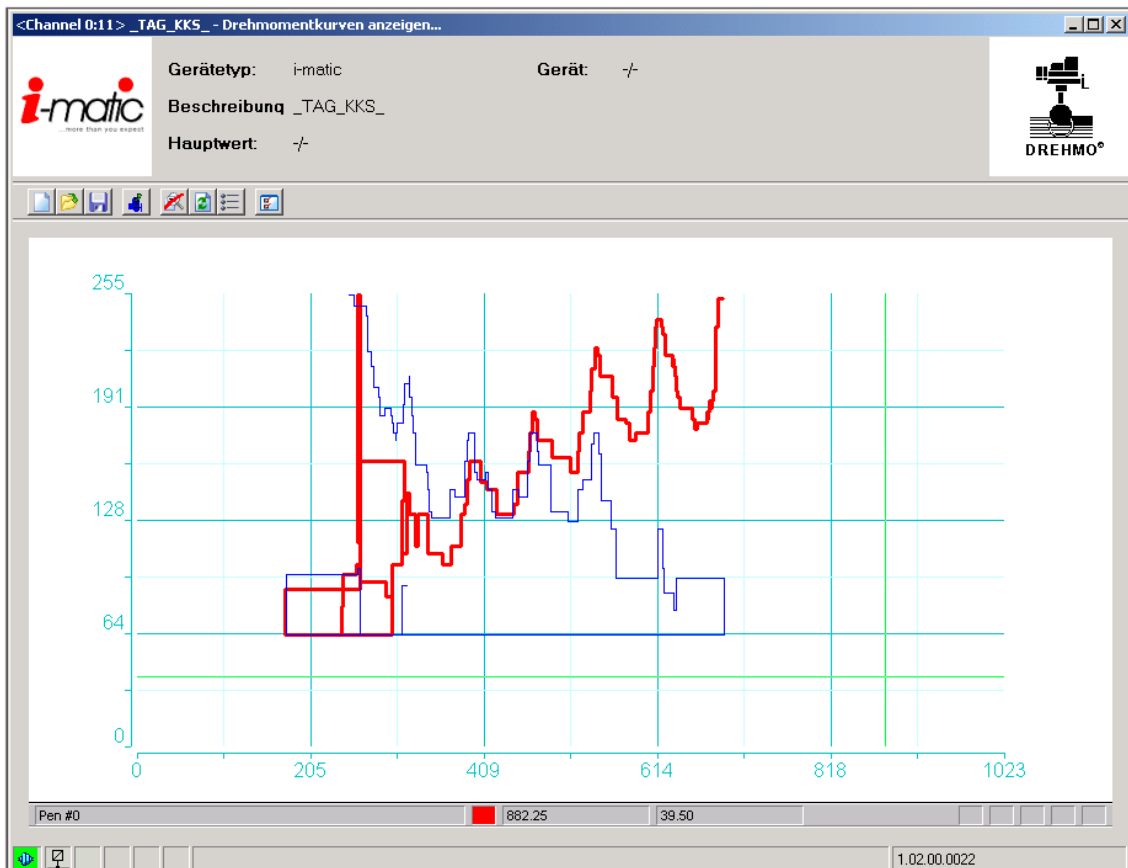
Icon	Text	Meaning	
	Database	Data source is project database	
	Device	Data source is device	

Possible parameter states:

Icon	Text	Meaning	
	changed	DTM parameter set is changed	
	invalid	DTM parameter set is contains an invalid value	
Empty	unchanged	DTM parameter set is equal to project database	

3.6 Torque view of the DTM

Selection of the menu entry *Additional Functions/Show Torque View...* opens the window for displaying torque graphs.



The torque view window offers features for displaying actual and stored torque graphs of Drehmo actuators. The X-axis will display the actuators position. On the Y-axis the corresponding torque value will be displayed.

3.6.1 Controlling by toolbar

File/New

Erases the actual displayed graph curves in the window. By using this menu item the graph client area is empty and can be filled with new graph curves by uploading them from the device or loading them from a file.

File/Open...

Displays a standard dialog within a file can be selected for loading it into the torque window. The file has to be saved before via the menu item File/Save as....

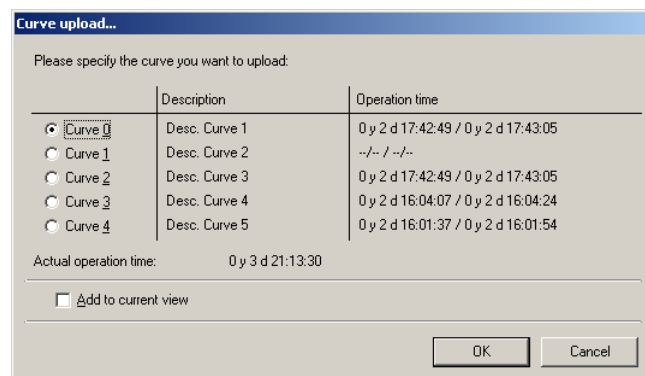
File/Save as... 

Displays a standard dialog within a file can be selected for storing the actual curve graphs to.
File/Close

Closes the active curve graph window.

Actuator/Curve upload... 

Provides the functionality for uploading the stored torque graphs from an actuator. Firstly a dialog for the selection of the storage entry for upload will be displayed. The actuator provides the functionality for storing 5 torque value pairs each comprising open and close direction. Storage entry 0 always contains the torque value pairs of the last stroke. The actual torque value pair can be stored to storage entries 1 to 4 manually by selecting the respective item in the actuator menu.



If the option *Add to current view* is selected, the uploaded graph curves will be added to eventually existing graph curves. If the option is not selected eventually contained graph curves will be replaced by the uploaded ones.

By clicking the button *OK* the upload starts.

View/Unzoom 

It performs an undo function of the eventually existing zooming state. The graph scaling is done to full scale on both axis.

View/Redraw... 

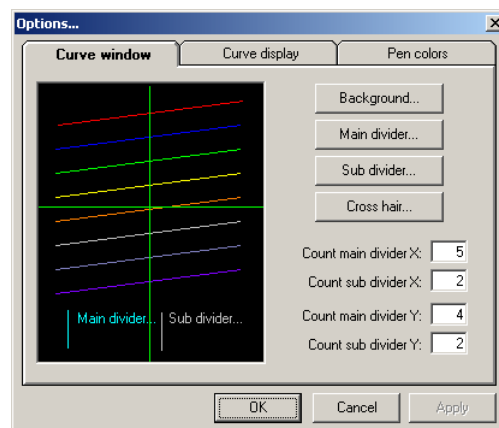
Redraws the client area of the torque graph window. This function can be used if the client area of the control shows the graphs erroneous due to former overlaid windows or something like that.

View/Roll item

„Rolling“ of the actual torque graph curve. By pressing this key the focus will be transferred to the next torque graph curve. The information according to that next „rolled“ graph will be displayed in the status bar.

Extras/Optionen...

By selecting this menu entry a torque graph specific options dialog will be displayed. This dialog is divided into 3 registers. The options of the curve window, the curve display and the pen colours can be modified. All modifications of the options can be adopted to the torque graph display by pressing the button apply.

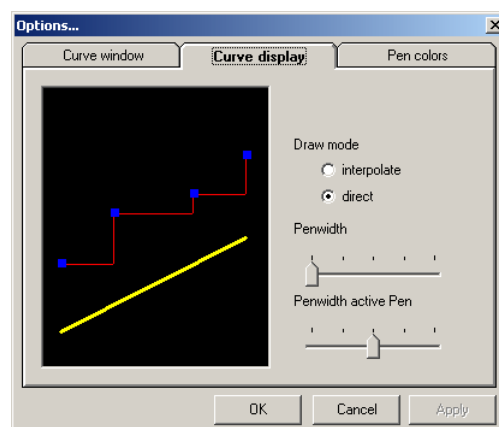


Options dialog Part 1

This register allows the modification of the background colour, the main divider colour, the sub divider colour and the colour of the crosshair cursor.

To ensure reasonable colour combinations the modified colours will be applied to the sample display immediately.

Furthermore the count of the major and minor dividers of the X- and Y-axis can be modified.

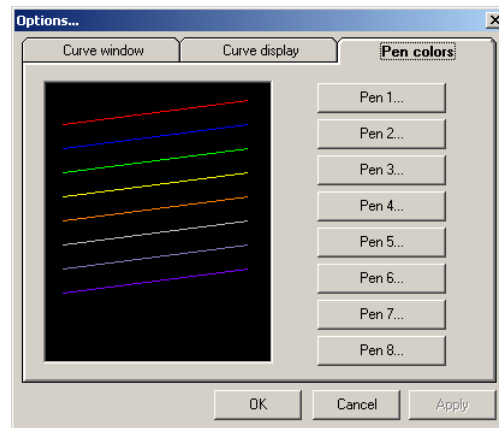


Options dialog Part 2

The register curve display allows the modification of the draw mode. The selections interpolate and are available immediately. By selecting the mode *interpolate* two points of the graph will be linked by a line (polygon). In draw mode *direct* the graph will be drawn as a line horizontally as long as the value won't change (step curve).

Also the thickness of the pens used for drawing of the graph curves can be modified.

It is recommended to set the thickness of a rolled item thicker than that of the other graphs in order to make it easier to visually distinguish between the graph curves.

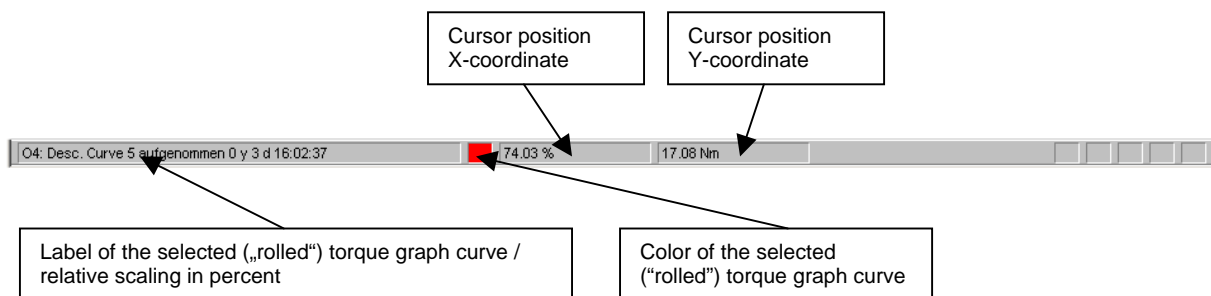


Options dialog Part 3

The register pen colours provides functionality for modifying the pen colours. To modify a pen colour simply click on the respective button. A standard dialog will be displayed for selecting the respective colour.

3.6.2 Status bar of the torque graph window

The status bar displays the name and description of the selected (“rolled”) torque graph curve, as well as the position of the crosshair cursor in absolute units of the selected torque graph curve. If no torque graph curve is selected (“rolled”) the scaling of the axis and the torque graphs is done in percent.



The meaning of a “rolled” graph curve is the actual selected active curve among the set of curves that defines the information in the status bar as well as the scaling of the X and Y axis. The actual selected (“rolled”) torque graph curve can be drawn with a higher line width value if selected by the available options (default setting).

By means of an appropriate menu item with corresponding shortcut-key (key <Space>), a selection (“rolling”) between the torque graph curves is possible.

3.6.3 Keyboard shortcuts

The torque graph window provides keyboard shortcuts to trigger several functions. However the torque graph window is only able to react on keystrokes if it owns the input focus. Most of the time it obtains the focus by left clicking with the mouse on the graph display area.

3.6.3.1.1.1 Key <R>

Redraws the client area of the torque graph window. This function can be used if the client area of the control shows the graphs erroneous due to former overloaded windows or something like that.

Key <Z>

Unzooms a former zoomed torque graph and switches back to display of the whole torque and position range. .

Key <Cursor left, right, up, down> and <Shift Cursor left, right, up, down>

Moves the crosshair cursor of the torque graph window in the respective direction. The movement has an acceleration option. The movement is accelerated the longer the key is pressed. By using the keys the movement of the crosshair cursor can be done more precisely.

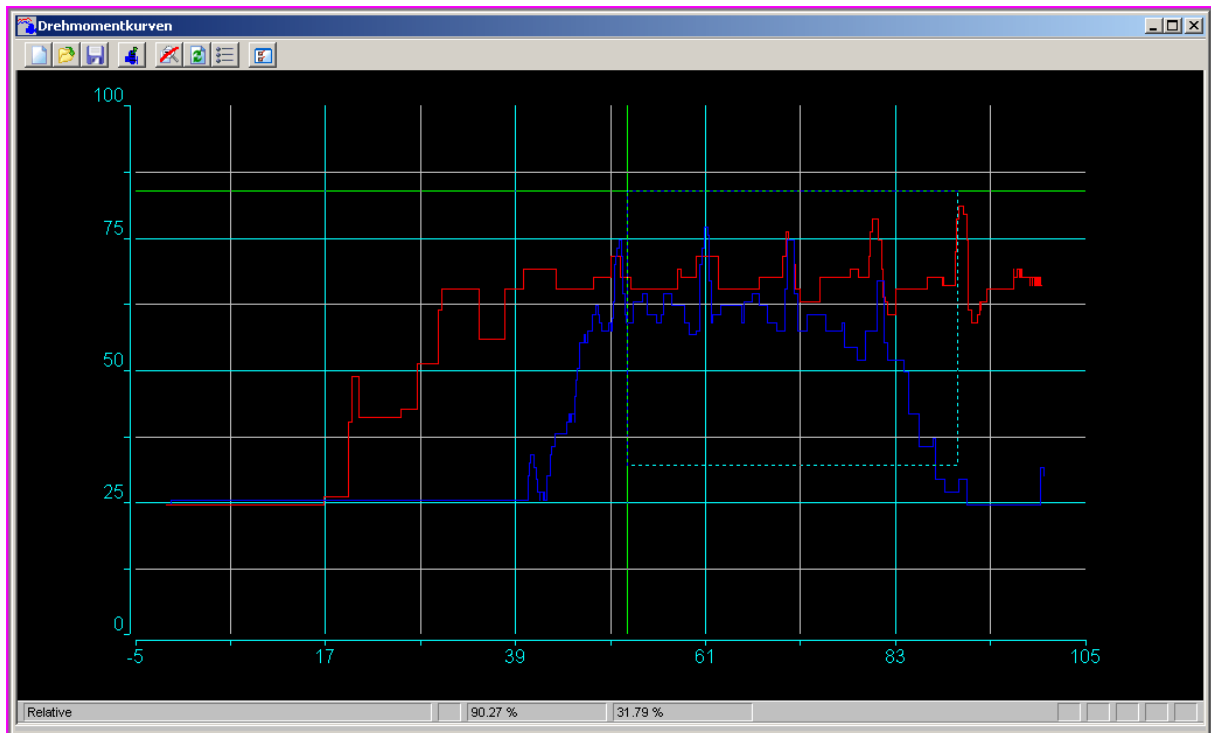
Key <Space>

„Rolling“ of the actual torque graph curve. By pressing this key the focus will be transferred to the next torque graph curve. The information according to that next „rolled“ graph will be displayed in the status bar.

3.6.4 Special functions of the torque graph display

Zooming in graph display window

The torque graph window provides the option to zoom in into specific areas of the display. This is done by left clicking with the mouse on the left upper corner of the desired zoom area and dragging the mouse pointer to the desired lower right corner, while holding the left mouse button pressed during the whole dragging activity. The dragged area will be marked during dragging by a dotted rectangle. After releasing the mouse button the selected area will be displayed enlarged.



The zoom of a torque graph display can be undone by pressing the keyboard shortcut key <Z> or selecting the respective menu entry.

Addendum

A. Glossary

Container	<p>The DTM is no independent application which can be executed by itself. Rather the DTM needs a FDT Container.</p> <p>Different Applications which are implementing the Container are available on the market. The spectrum of available tools varies from simple standalone tools to containers implemented in complex scada or engineering tools.</p>
DTM	<p>A Device Type Manager (DTM) is a software program which interfaces to the Field Device Tool (FDT) to provide engineers with 100% access to configure a field device with a rich graphic user interface(GUI). The GUI is the same regardless of configuration tool used. The DTM is provided by the device manufacturer (Setup program).</p>
FDT	<p>The Field Device Tool is a method to provide a set of standard interfaces from an engineering tool to the Device Type Manager (DTM). If your configuration tool of choice supports FDT then you can use the advanced features of the DTM to configure your field device.</p>

B. Index




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Our scope of supply:




Electrical actuators for on-off, inching and modulating duty



Actuators:

	Multi turn actuators	D30-D1000 Max. 1000 Nm
	Part turn actuators	DP30-DP1599 Max. 1600 Nm
	Linear actuators	D15-D80 Max. 80 kN

Actuators with integrated Controller i-matic:

	Multi turn actuators	Dim30-Dim1000 Max. 1000 Nm
	Part turn actuators	DPim30-DPim1599 Max. 1600 Nm
	Linear actuators	Dim15-Dim80 Max. 80 kN

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