

TouchMaker® is a comfortable software tool to create projects for PASStec TouchLBM panels.

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TouchMaker Help Search

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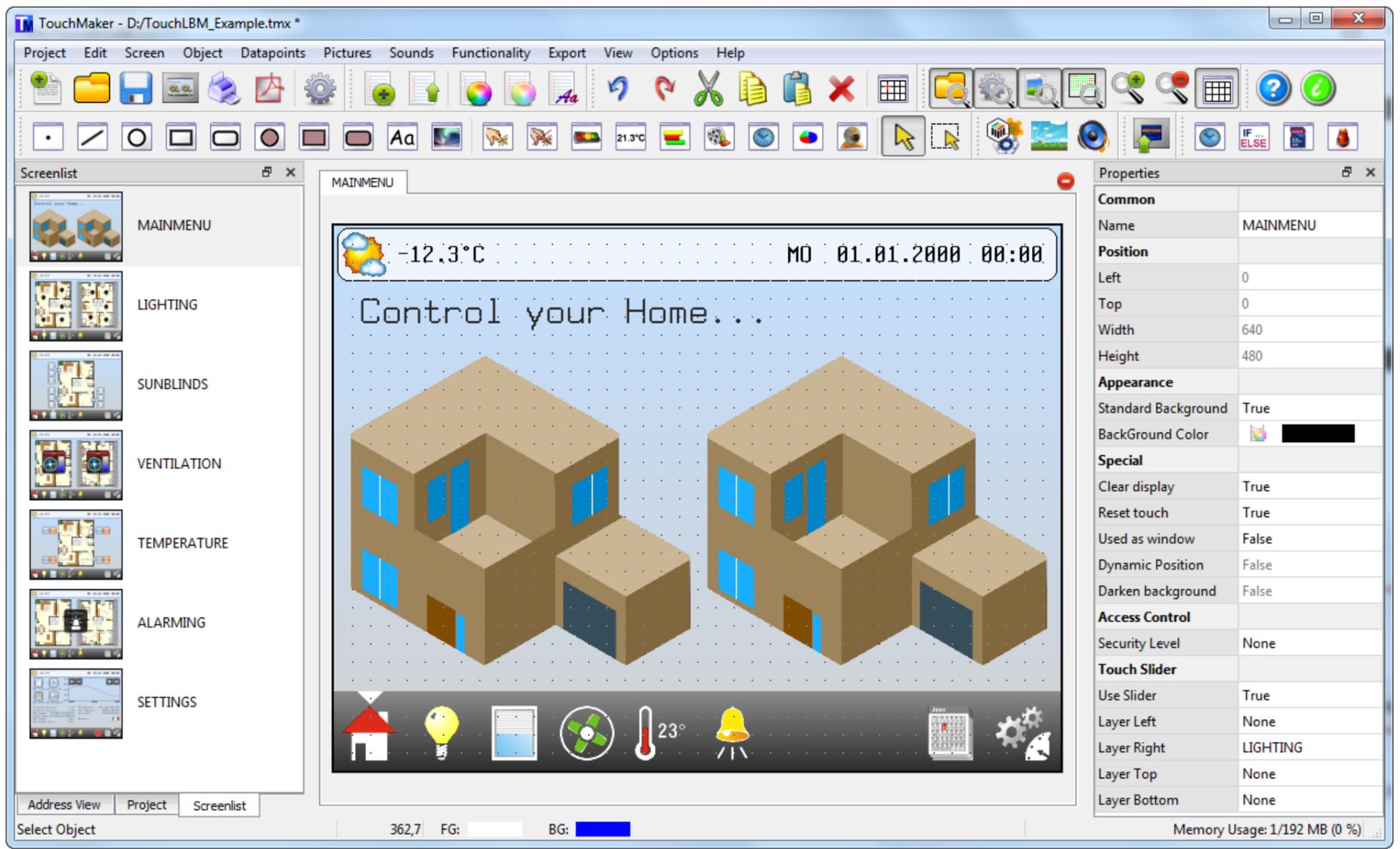
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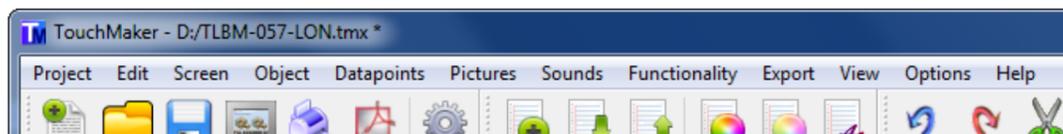
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TouchMaker® Main Window

The TouchMaker Main Window:



The Menu Structure:



Project Toolbar:



Screen Toolbar:



Edit Toolbar:



View Toolbar:



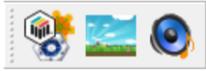
Drawing Toolbar:



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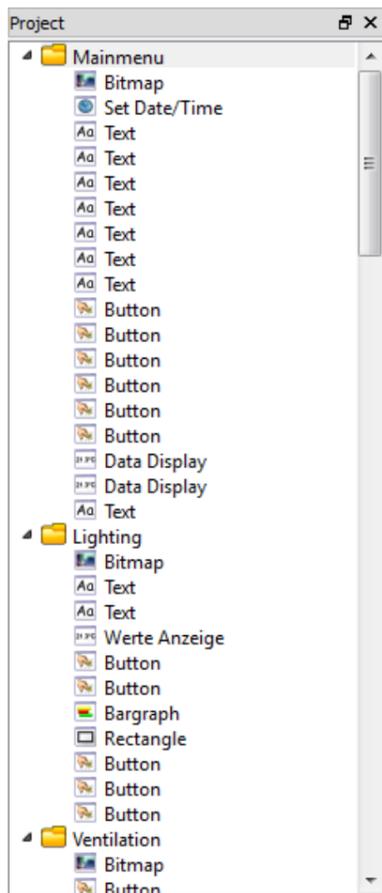
[Drawing Window:](#)



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Menu Structure

[Project](#) [Edit](#) [Screen](#) [Object](#) [Datapoints](#) [Pictures](#) [Sounds](#) [Functionality](#) [Export](#) [View](#) [Options](#) [Help](#)

Menu Project:

	New Project	Ctrl+N
	Open Project	Ctrl+O
	Import Project	
	Save Project	Ctrl+S
	Save Project As	
	Close Project	Ctrl+W
	Simulate Project	
	Print Documentation	Ctrl+P
	Export Documentation	
	Project Settings	
	Recent Files	▶
	Exit	Alt+X

- ▶ **New Project** Closes all open projects and creates a new TouchMaker project.
- ▶ **Open Project** Opens an existing TouchMaker project.
- ▶ **Open Project** Imports an existing TouchMaker project into the actual project.
- ▶ **Save Project** Saves the project under the selected name.
- ▶ **Save Project As** Saves the project under a new name.
- ▶ **Close Project** Closes the active TouchMaker project.
- ▶ **Simulate Project** Opens the TouchMaker Project Simulator.
- ▶ **Print** Prints selectable project parts.
- ▶ **Export to PDF** Prints selectable project parts into a PDF document.
- ▶ **Project Settings** Opens a dialog to view/change project settings.
- ▶ **Recent Files** Displays a list of latest used projects.
- ▶ **Exit** Closes the TouchMaker software.

Menu Edit:

	Undo	Ctrl+Z
	Redo	Ctrl+Y
	Cut	Ctrl+X
	Copy	Ctrl+C
	Paste	Ctrl+V
	Delete	Del
	Move Forward	Ctrl+Down
	Move Backward	Ctrl+Up
	To Front	Ctrl+PgDown
	To Background	Ctrl+PgUp
	Snap to Grid	Ctrl+G
	Snap Settings	▶

- ▶ **Undo** Undoes the last change in the project.
- ▶ **Redo** Redoes the last change in the project.
- ▶ **Cut** Cuts the selected objects/screen into the clipboard.
- ▶ **Copy** Copies the selected objects/screen into the clipboard.
- ▶ **Paste** Copies objects/screen from clipboard into the screen.
- ▶ **Delete** Deletes the selected objects/screen.
- ▶ **Move Forward** Moves the selected object/screen 1 step into the foreground.
- ▶ **Move Backward** Moves the selected object/screen 1 step into the background.
- ▶ **To Front** Moves the selected object/screen into the foreground.
- ▶ **To Background** Moves the selected object/screen into the background.
- ▶ **Snap To Grid** Option to move and draw objects along the grid.
- ▶ **Snap Settings** Displays a list of settings to snap the object corners along the grid.

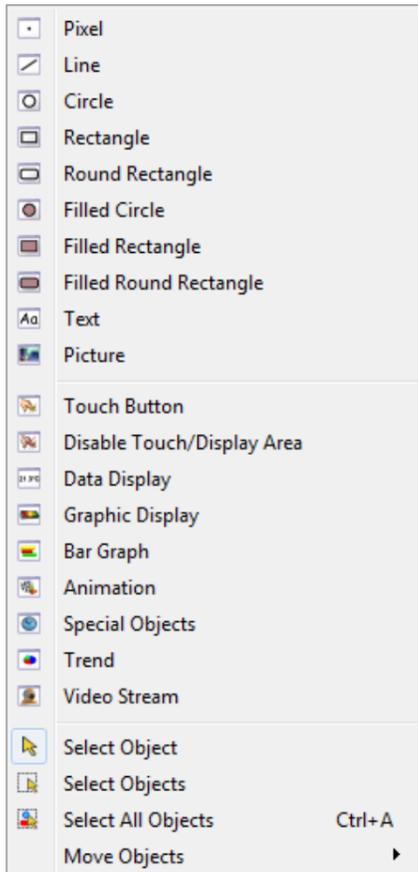
Menu Screen:

	Add Screen
	Import Screen
	Export Screen
	Save Screenshot
	Foreground Color
	Background Color
	Font

- ▶ **Insert Screen** Creates a new screen in the TouchMaker project.

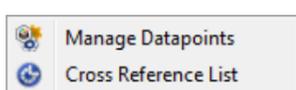
- ▶ **Import Screen** Imports a screen template from a file into the project. After importing please check project for double pictures or datapoints!
- ▶ **Export Screen** Exports the selected screen into a screen template file. This screen can be imported into another project.
- ▶ **Save Screenshot** Saves the selected screen into a .jpg or .png picture file.
- ▶ **Foreground Color** Opens a dialog to select the global object foreground color for new created objects.
- ▶ **Background Color** Opens a dialog to select the global object background color for new created objects.
- ▶ **Font** Opens a dialog to select the global object font for new created objects.

Menu Object:



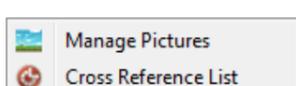
- ▶ **Pixel** Selects a simple pixel as drawing tool.
Click on the [Drawing Window](#) to create a Pixel
- ▶ **Line** Selects a line as drawing tool.
Click on the [Drawing Window](#) to set the first point and drag the mouse to the second point.
- ▶ **Circle** Selects a circle as drawing tool.
Click on the [Drawing Window](#) to set the center and drag the mouse to the second point.
- ▶ **Rectangle** Selects a rectangle as drawing tool.
Click on the [Drawing Window](#) to set the first corner and drag the mouse to the second corner.
- ▶ **Round Rectangle** Selects a round rectangle as drawing tool.
Click on the [Drawing Window](#) to set the first corner and drag the mouse to the second corner.
- ▶ **Filled Circle** Selects a filled circle as drawing tool.
Click on the [Drawing Window](#) to set the center and drag the mouse to the second point.
- ▶ **Filled Rectangle** Selects a filled rectangle as drawing tool.
Click on the [Drawing Window](#) to set the first corner and drag the mouse to the second corner.
- ▶ **Filled Round Rectangle** Selects a filled round rectangle as drawing tool.
Click on the [Drawing Window](#) to set the first corner and drag the mouse to the second corner.
- ▶ **Text** Selects the text object as drawing tool.
- ▶ **Bitmap** Selects the image object as drawing tool.
- ▶ **Touch Button** Selects the button object as drawing tool.
- ▶ **Disable Touch/Display Area** Selects the disable touch/display area object as drawing tool.
- ▶ **Data Display** Selects the data display object as drawing tool.
- ▶ **Graphic Display** Selects the graphic display object as drawing tool.
- ▶ **Bar Graph** Selects the bar graph object as drawing tool.
- ▶ **Animation** Selects the animation object as drawing tool.
- ▶ **Special Object** Selects one of the special objects as drawing tool.
- ▶ **Trend** Selects the trend graph object as drawing tool.
- ▶ **Trend** Selects the video stream object as drawing tool.
- ▶ **Select Object** Selects the selecting tool.
Click on an object to select it.
- ▶ **Select Area** Selects the selecting area tool.
Drag an rectangle to select one or more object inside the rectangle. Dragging from top left to lower right selects all objects inside the area. Dragging from lower right to top left selects only objects that are completely inside the area.
- ▶ **Select All Object** Selects all object on the selected screen.

Menu Datapoints:



- ▶ **Manage Datapoints** Opens a dialog to manage project's datapoints.
- ▶ **Cross Reference** Opens a dialog to display the usage of project's datapoints.

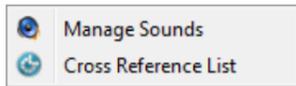
Menu Pictures:



- ▶ [Manage Pictures](#)
- ▶ [Cross Reference](#)

Opens a dialog to manage project's pictures.
 Opens a dialog to display the usage of project's pictures.

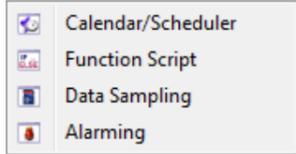
Menu Sounds:



- ▶ [Manage Sounds](#)
- ▶ [Cross Reference](#)

Opens a dialog to manage project's sounds.
 Opens a dialog to display the usage of project's sounds.

Menu Functionality:



- ▶ [Schedule](#)
- ▶ [Function Scripts](#)
- ▶ [Data Sampling](#)
- ▶ [Alarming](#)

Opens a dialog to manage project's schedules/calendars.
 Opens a dialog to manage project's function scripts.
 Opens a dialog to manage project's data samplings.
 Opens a dialog to manage project's alarmings.

Menu Export:



- ▶ [Write Project To Device](#)
- ▶ [Read Project From Device](#)
- ▶ [Export XIF](#)
- ▶ [Export Settings](#)
- ▶ [Firmware Update](#)

Opens a dialog to write a project to a TouchLBM device.
 Opens a dialog to read the project back from a TouchLBM device (must be saved as copy before).
 Opens a dialog to write the actual XIF (LON Interface). This file can be used in your LON tool e.g. Echelon LonMaker.
 Opens a dialog to set the communication ports to the TouchLBM device.
 Opens a dialog to update the TouchLBM firmware to a newer version.

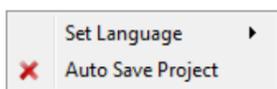
Menu View:



- ▶ [Show View](#)
- ▶ [Toolbars](#)
- ▶ [Zoom In](#)
- ▶ [Zoom Out](#)
- ▶ [Grid](#)

Displays a menu to select which view is visible and which not.
 Displays a menu to select which [Toolbar](#) is visible and which not.
 Zooms into the [Drawing Window](#).
 Zooms out of the [Drawing Window](#).
 Selects if the grid is visible in the [Drawing Window](#) or not.

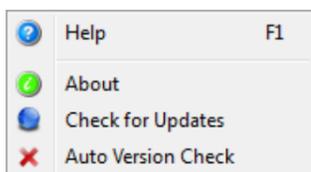
Menu Options:



- ▶ [Set Language](#)
- ▶ [Auto Save Project](#)

Displays a menu to change the TouchMaker language.
 If enabled the project will be saved about every 15 minutes.

Menu Help:



- ▶ [Help](#)
- ▶ [About](#)
- ▶ [Check For Updates](#)
- ▶ [Auto Version Check](#)

Shows this TouchMaker help files.
 Shows some information on TouchMaker.
 Starts a dialog to download a new version of TouchMaker available on the PASStec webpage.
 Enables or disables the automatic version check for newer TouchMaker versions on the PASStec webpage. The TouchMaker is **not sending or receiving any information** other than the TouchMaker version number through the internet.

TouchMaker Toolbar

[Project](#) [Screen](#) [Edit](#) [View](#) [Drawing Objects](#) [Function Objects](#)

[Datapoints/Pictures/Sounds](#) [Functionality](#) [Export](#) [Help](#)

Toolbar Project:

	New Project	Closes all open projects and creates a new TouchMaker project.
	Open Project	Opens an existing TouchMaker project from filesystem.
	Save Project	Saves the project under the selected name.
	Simulate Project	Opens the TouchMaker Project Simulator.
	Print	Prints selectable project parts.
	Export to PDF	Prints selectable project parts into a PDF document.
	Project Settings	Opens a dialog to view/change project settings.

Toolbar Screen:

	Insert Screen	Creates a new screen in the TouchMaker project.
	Import Screen	Imports a screen template from a file into the project. After importing please check project for double pictures or datapoints!
	Export Screen	Exports the selected screen into a screen template file. This screen can be imported into another project.!
	Foreground Color	Opens a dialog to select the global object foreground color for new created objects.
	Background Color	Opens a dialog to select the global object background color for new created objects.
	Font	Opens a dialog to select the global object font for new created objects.

Toolbar Edit:

	Undo	Reverses the last changes in the project.
	Redo	Repeats the last changes in the project.
	Cut	Cuts the selected objects/screen into the clipboard.
	Copy	Copies the selected objects/screen into the clipboard.
	Paste	Copies objects/screen from clipboard into the screen.
	Delete	Deletes the selected objects/screen.
	Snap To Grid	Option to move and draw objects along the grid.

Toolbar View:

	Show Project View	Enables/disables the Project View .
	Show Property View	Enables/disables the Property View .
	Show Screen View	Enables/disables the Screen View .
	Show Address View	Enables/disables the Address View .
	Zoom In	Zooms into the Drawing Window .
	Zoom Out	Zooms out of the Drawing Window .
	Grid	Selects if the grid is visible in the Drawing Window or not.

Toolbar Drawing Objects:

	Pixel	Selects a simple pixel as drawing tool. Click on the Drawing Window to create a Pixel
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	Line	Selects a line as drawing tool. Click on the Drawing Window to set the first point and drag the mouse to the second point.
	Circle	Selects a circle as drawing tool. Click on the Drawing Window to set the center and drag the mouse to the second point.
	Rectangle	Selects a rectangle as drawing tool. Click on the Drawing Window to set the first corner and drag the mouse to the second corner.
	Round Rectangle	Selects a round rectangle as drawing tool. Click on the Drawing Window to set the first corner and drag the mouse to the second corner.
	Filled Circle	Selects a filled circle as drawing tool. Click on the Drawing Window to set the center and drag the mouse to the second point.
	Filled Rectangle	Selects a filled rectangle as drawing tool. Click on the Drawing Window to set the first corner and drag the mouse to the second corner.
	Filled Round Rectangle	Selects a filled round rectangle as drawing tool. Click on the Drawing Window to set the first corner and drag the mouse to the second corner.
	Text	Selects the text object as drawing tool.
	Picture	Selects the picture object as drawing tool.

Toolbar Function Objects:

	Touch Button	Selects the button object as drawing tool.
	Disable Touch/Display Area	Selects the disable touch/display area object as drawing tool.
	Data Display	Selects the data display object as drawing tool.
	Graphic Display	Selects the graphic display object as drawing tool.
	Bar Graph	Selects the bar graph object as drawing tool.
	Animation	Selects the animation object as drawing tool.
	Special Object	Selects one of the special objects as drawing tool.
	Trend	Selects the trend graph object as drawing tool.
	Trend	Selects the video stream object as drawing tool.
	Select Object	Selects the selecting tool. Click on an object to select it. If the Ctrl-key is pressed while selecting the objects are added or deleted from selection.
	Select Area	Selects the selecting area tool. Drag an rectangle to select one or more object inside the rectangle. Dragging from left to right selects all objects that are at least part of the selection. Dragging from right to left selects all objects that are completely inside the selection. If the Ctrl-key is pressed while selecting the objects are added or deleted from selection.

Toolbar Datapoints/Pictures/Sounds:

	Manage Datapoints	Opens a dialog to manage project's datapoints.
	Manage Pictures	Opens a dialog to manage project's pictures.
	Manage Sounds	Opens a dialog to manage project's sounds.

Toolbar Functionality:

	Schedule	Opens a dialog to edit scheduling functionality.
	Function Scripts	Opens a dialog to manage project's function scripts.
	Data Samplings	Opens a dialog to manage project's data samplings.
	Alarmings	Opens a dialog to manage project's alarmings.

Toolbar Export:

	Write Project To Device	Opens a dialog to write a project to a TouchLBM device.
	Export Settings	Opens a dialog to set the communication ports to the TouchLBM device.

Toolbar Help:

	Help	Shows this TouchMaker help files.
	About	Shows some information on TouchMaker.

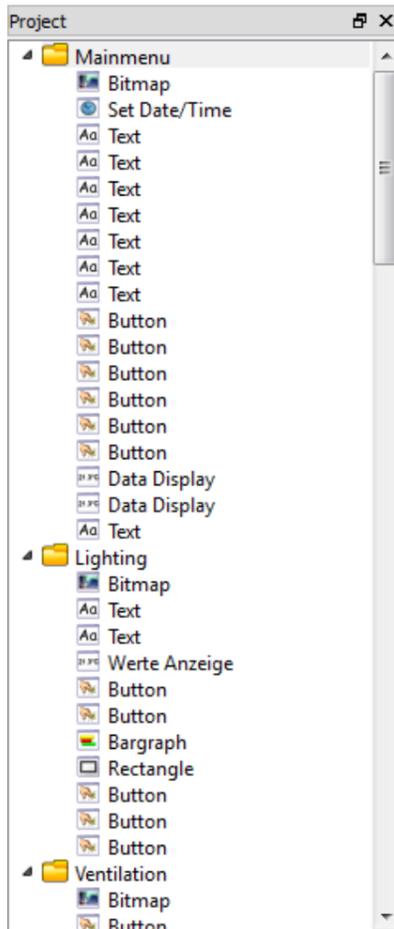
Drawing Window



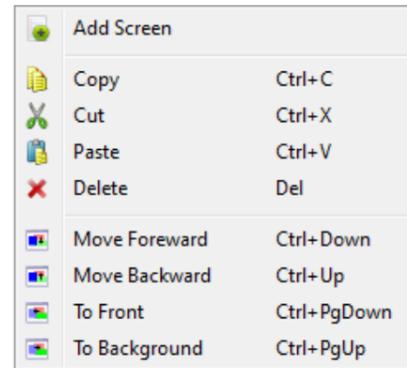
This tab shows the main drawing area. Here the selected screen can be created/edited by using the [Drawing Tools](#) or the [Function Tools](#). A new screen can be created in the [Toolbar](#) or in the [TouchMaker Menu](#). Existing screens can be opened by double clicking the preview in the [Screen Overview](#).

Objects can be placed on the drawing window by clicking the position you want to create the object or by dragging the object from one to the other corner. Objects can be edited by double clicking on an object or by changing the properties in the [Properties View](#).

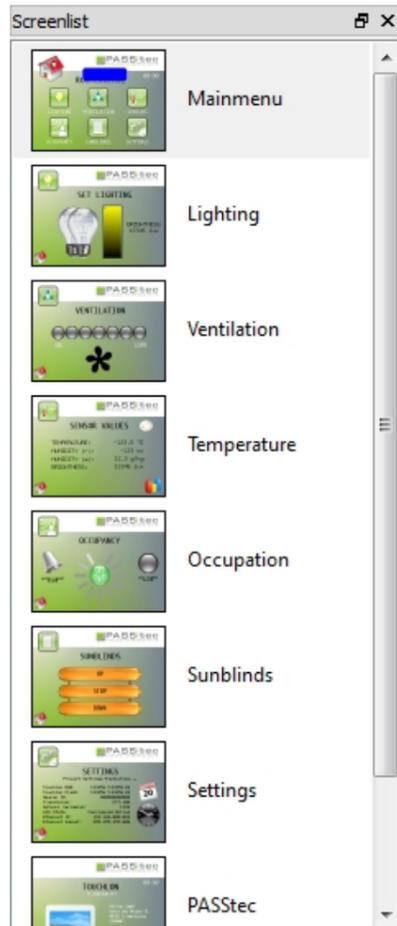
Project View



This window shows a tree with all screens and all objects in the project. Objects and screens can be selected by mouse click. On right mouse click a popup menu with some simple editing functions will open.



Screen View



This window shows all defined screens in the TouchMaker project. By double clicking on a screen it will be opened in the [Drawing Window](#). On right mouse click a popup menu with some simple editing functions will open. Screens can be moved with drag & drop.

Add Screen	
	Copy Ctrl+C
	Cut Ctrl+X
	Paste Ctrl+V
	Delete Del
	Move Forward Ctrl+Down
	Move Backward Ctrl+Up
	To Front Ctrl+PgDown
	To Background Ctrl+PgUp

Property View

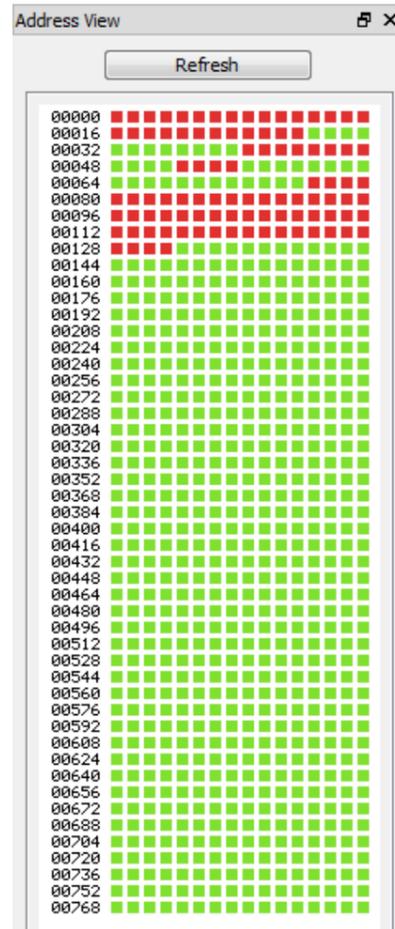
Properties	
Common	
Name	Mainmenu
Position	
Left	0
Top	0
Width	320
Height	240
Appearance	
Standard Background	True
BackGround Color	 
Special	
Clear display	True
Reset touch	True
Used as window	False
Dynamic Position	False
Darken background	False
Access Control	
Security Level	None
Touch Slider	
Use Slider	False
Layer Left	None
Layer Right	None
Layer Top	None
Layer Bottom	None

Properties	
Common	
Name	Round Rectangle
Type	Round Rectangle
Position	
X1	120
Y1	40
X2	229
Y2	73
Move/Resize	Move
Width	110
Height	34
Appearance	
Radius	8
Fill Object	True
Show Frame	True
Object Color	
Fill Color	 
Line Style	Full

This window shows the properties of the selected object or screen. These properties can also be changed in this window.

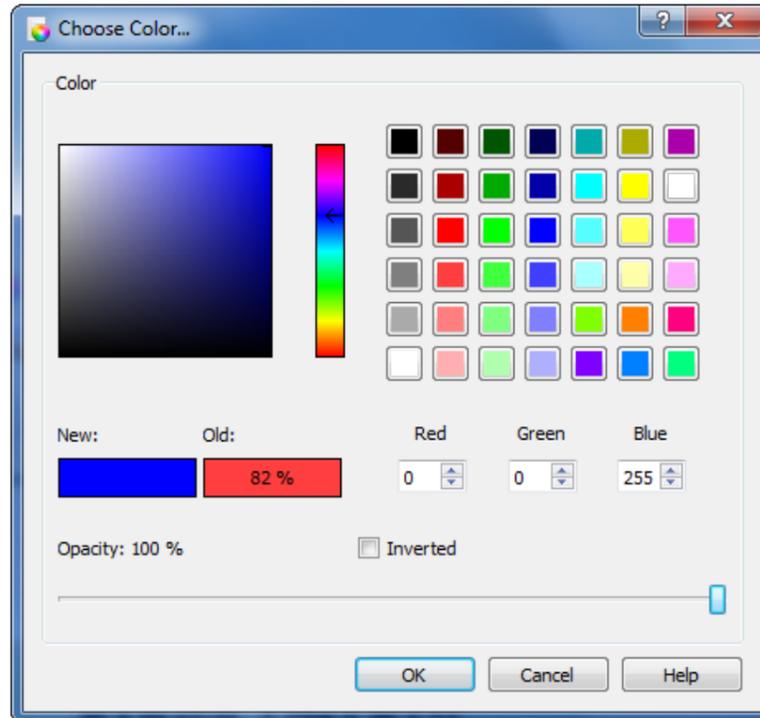
- ▶ **Name** Holds the name for the object or the screen. This property is very useful to distinguish objects that are similar otherwise.
- ▶ **Type** Shows the type of the object. This property cannot be changed.
- ▶ **X1 Y1 X2 Y2** Holds the position of the object corners on the screen. Some simple objects only need a single point as position.
- ▶ **Radius** Holds the radius of the object corners (only available on view objects).
- ▶ **Move/Resize** Holds the property if changing the position will move or resize the object.
- ▶ **Fill/Show Frame** Holds the property if the object is outlined or filled and if a frame will be displayed (only available on view objects).
- ▶ **Colors** Shows the foreground and/or background [Colors](#) of the object if available. By double clicking on this property a dialog will pop up.
- ▶ **Edit...** On some objects with more complex properties (like touch buttons...) there is a special field to open the associated dialog window to change special settings.
- ▶ **Security Level** In the screen properties there can be selected a security level. The passwords can be set in the [Project Settings](#). If the user opens a protected screen he has to enter the password.
- ▶ **Standard Background** Selects if the screen uses the standard background image or a simple color.
- ▶ **Slider** If the slider is activated it's possible to change the TouchLBM screens by swiping the display.

Address View



This window shows all used addresses in the TouchMaker project. Addresses (1 byte) will be displayed in different colors (green = unused, red = used, blue = system area, violett = used system area). By clicking on used addresses (red/violett) you will get more information about the usage of this address inside the project.

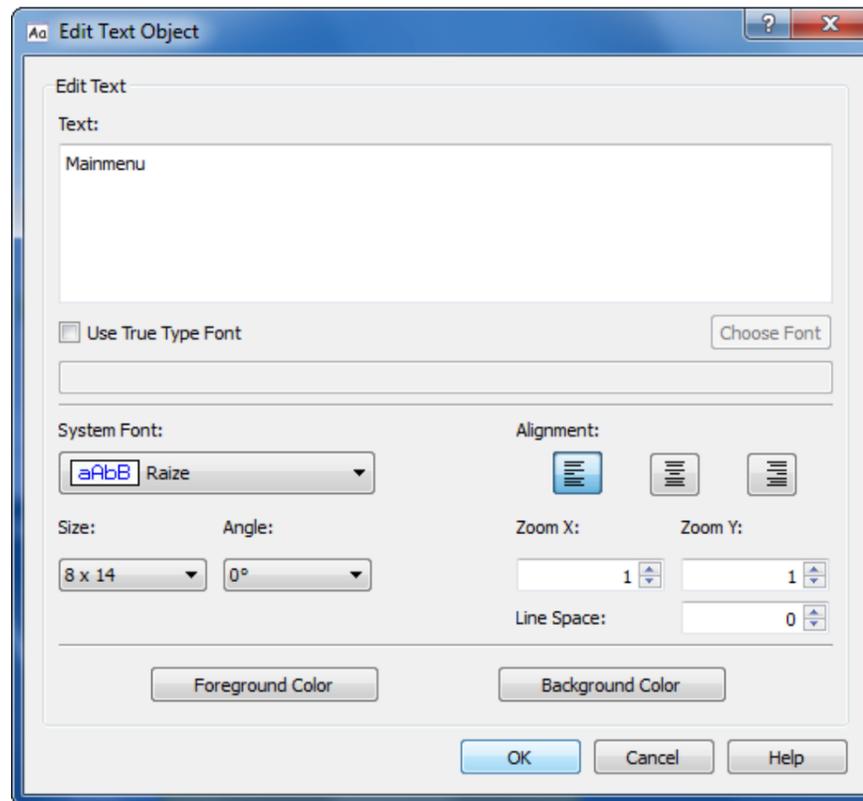
Color Selection



In this dialog the user can choose a foreground or background color for screens and objects. It's possible to choose colors directly or to use a color attribute.

-
- | | |
|-------------------------|---|
| ▶ New | Shows the chosen color or attribute. |
| ▶ Old | Shows the actual object/screen color. |
| ▶ Red/green/Blue | Sets the RGB values for the new color. |
| ▶ Opacity | Sets the opacity of the color. 0% means the color is transparent, 100% means the color is full visible. |
| ▶ Inverted | The color below the object will be inverted. |
| ▶ OK | Closes the dialog and saves all changes. |
| ▶ Cancel | Closes the dialog and discards all changes. |
| ▶ Help | Shows this help window. |

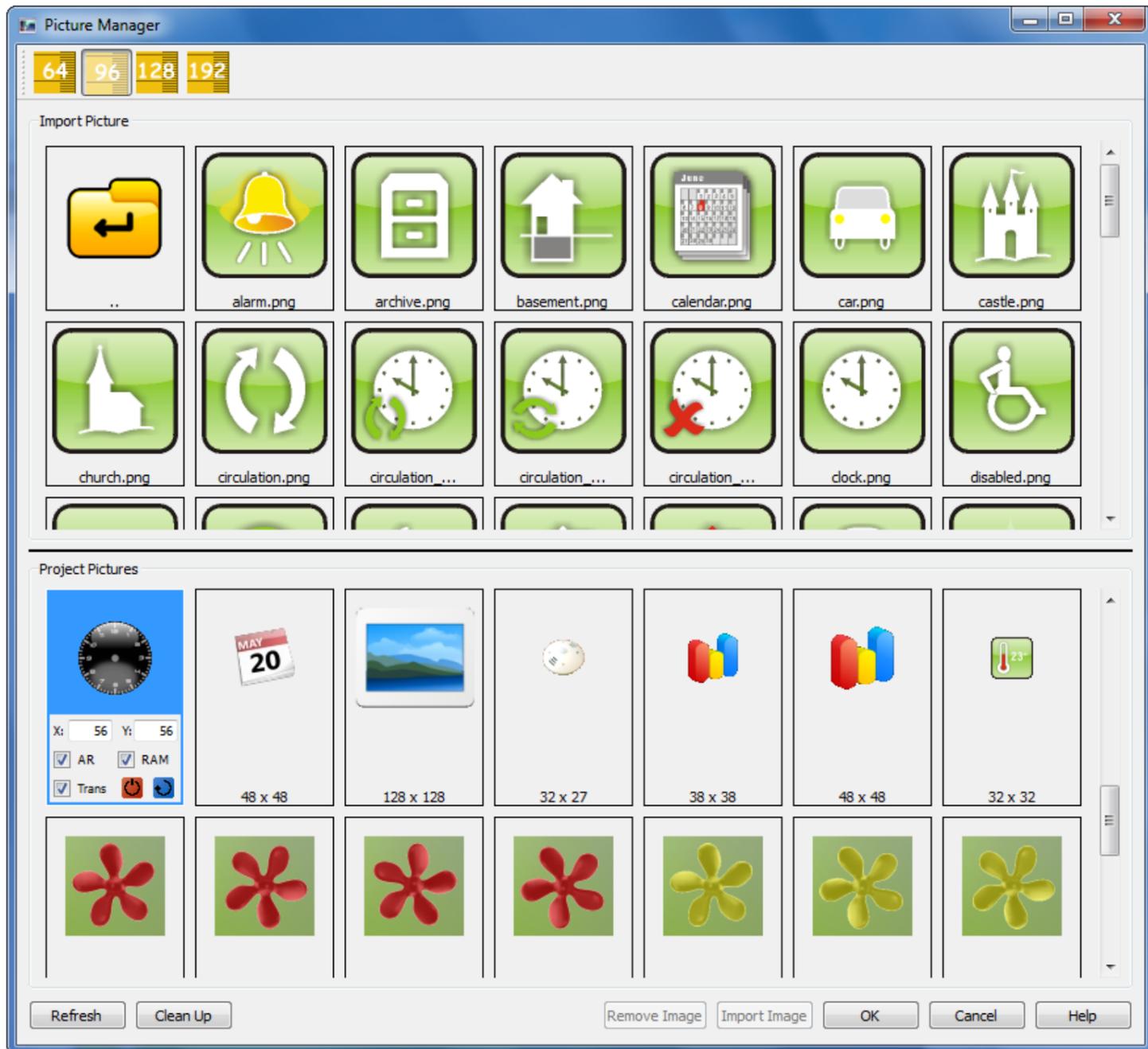
Text/Font Object



In this dialog the user can input the text for an object and choose the appearance of text objects. This dialog can also be used to preset a global font.

- | | |
|----------------------------|--|
| ▶ Text | Input the text to be displayed. |
| ▶ Use TrueType | Every static text can be drawn with a Windows TrueType font. |
| ▶ Font | Choose the font the text should be displayed in. |
| ▶ Size | Choose the font size the text should be displayed in. |
| ▶ Angle | Choose the angle text should be displayed in. |
| ▶ Left/Center/Right | Set the alignment for the text object. |
| ▶ Zoom X | The text will be scaled horizontally by this parameter. |
| ▶ Zoom Y | The text will be scaled vertically by this parameter. |
| ▶ Line space | This parameter sets the line space between two text lines. |
| ▶ Foreground Color | Opens a dialog to set the text color. |
| ▶ Background Color | Opens a dialog to set the text background color. |
| ▶ OK | Closes the dialog and saves all changes. |
| ▶ Cancel | Closes the dialog and discards all changes. |
| ▶ Help | Shows this help window. |

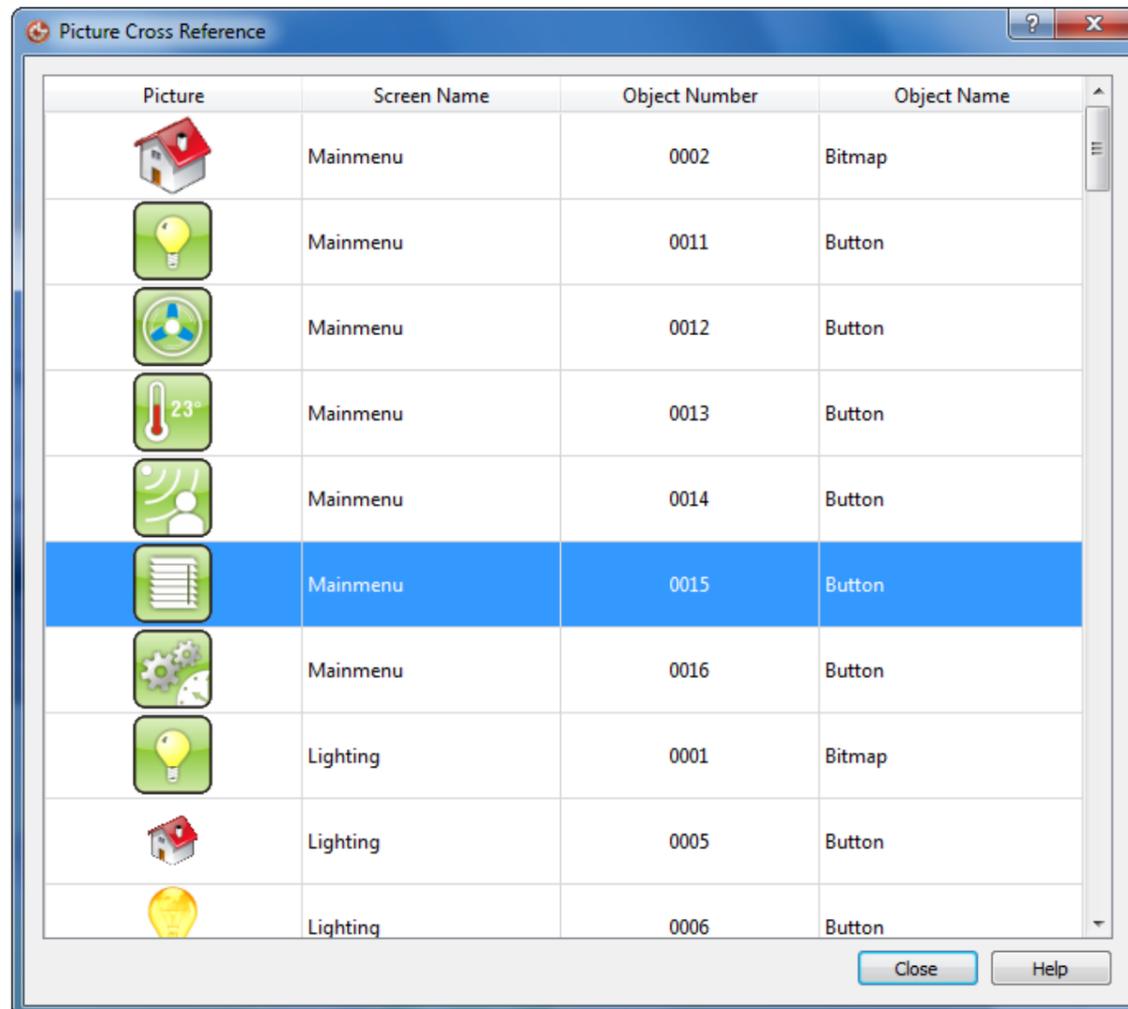
Image Manager



In this dialog the user can load images from file system into the TouchMaker project. TouchMaker supports *.JPG *.BMP *.GIF *.PNG *.ICO image formats. The images can be imported to the project by pressing the "Import Image" button or by dragging the image into the project images view or by dragging the image directly into the [Drawing Window](#). In TouchMaker install directory/pictures there are some example images to use in your project.

- ▶ **64/96/128/192** Sets the maximum size of the previews in the filesystem view.
- ▶ **Import Image** Imports the selected image from filesystem into the project.
- ▶ **Remove Image** Removes the selected image from the project (only if the image is not used in any object).
- ▶ **Add Image** Adds the selected image into the [Drawing Window](#) or into an object.
- ▶ **Clean Up** Removes all unused images from project.
- ▶ **Refresh** Reloads the actual directory to show changes on image files.
- ▶ **X** Sets the width of the selected image.
- ▶ **Y** Sets the height of the selected image.
- ▶ **RAM** Selects if the image will be loaded into the RAM when TouchLBM is booting (for small images with fast access e.g. on buttons) or if the image will be loaded from FLASH each time it is needed (a bit slower but memory saving).
- ▶ **AR** Selects if the image aspect ratio will be observed when changing the image size.
- ▶ **Transparency** Selects if the image background will be displayed with transparent color. This parameter will be set automatically on images that support transparency (.PNG,.GIF). On all other images the color from the upper left pixel will be the transparent color.
- ▶ **Rotate** Rotates the image in steps of 90 degrees.
- ▶ **Reset** Resets all changes to the image and restores the import state.
- ▶ **OK** Closes the image manager and uses the selected picture.
- ▶ **Cancel** Closes the image manager without using the selected image. All changes on image parameters (size,transparency...) will **not** be discarded.
- ▶ **Help** Shows this help window.

Picture Cross Reference



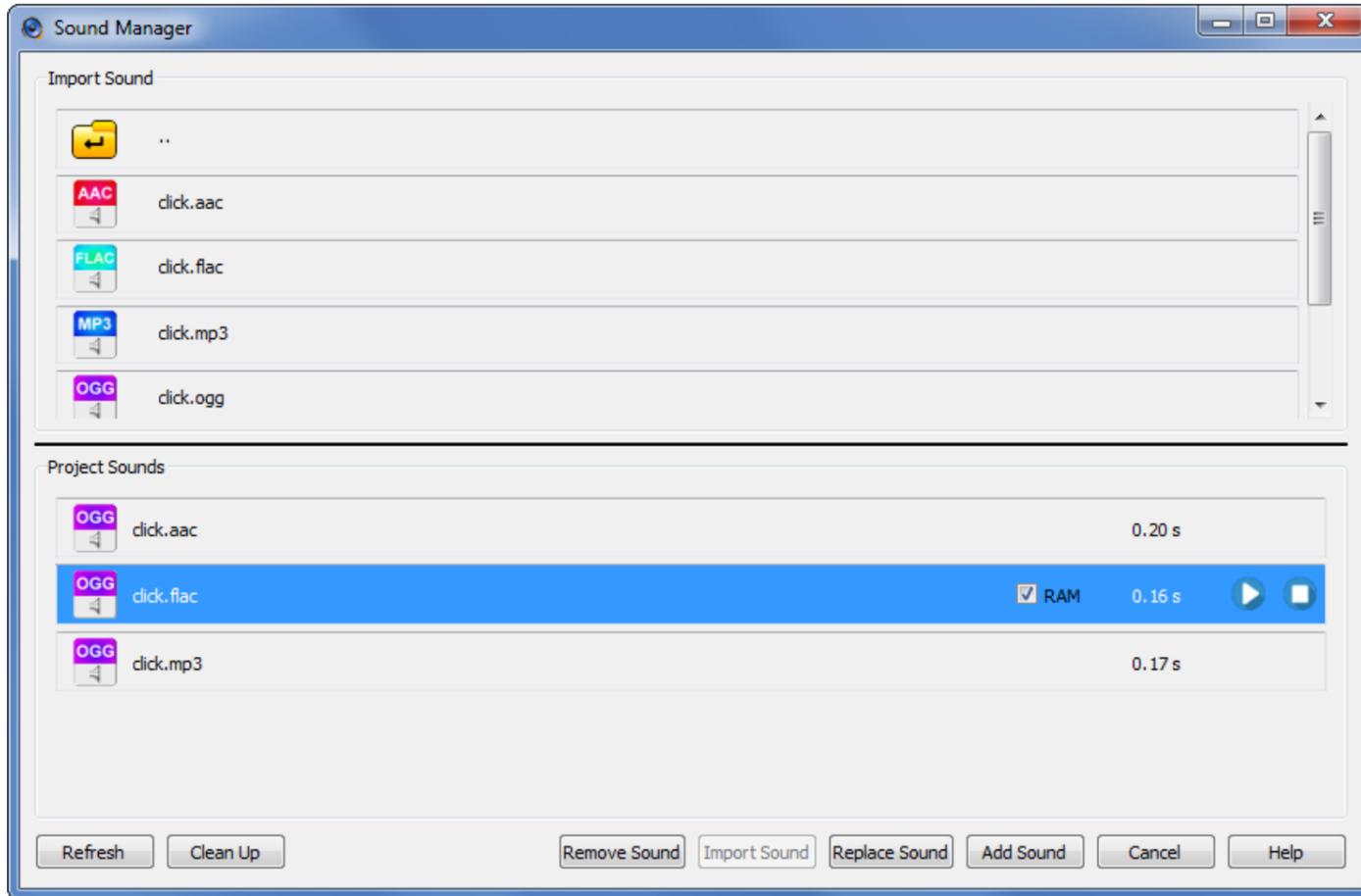
Picture	Screen Name	Object Number	Object Name
	Mainmenu	0002	Bitmap
	Mainmenu	0011	Button
	Mainmenu	0012	Button
	Mainmenu	0013	Button
	Mainmenu	0014	Button
	Mainmenu	0015	Button
	Mainmenu	0016	Button
	Lighting	0001	Bitmap
	Lighting	0005	Button
	Lighting	0006	Button

In this window all [Pictures](#) inside the project are listed. Here you can reproduce where the pictures are used inside the objects. The sorting can be changed by clicking on the table headers.

- ▶ **Exit**
- ▶ **Help**

Closes the dialog.
Shows this help window.

Sound Manager



In this dialog the user can load sounds from file system into the TouchMaker project. TouchMaker supports *.AAC *.FLAC *.MP3 *.OGG *.WAV *.WMA sound formats. In TouchMaker install directory/sounds there are some example sounds to use in your project.

- | | |
|-----------------------|--|
| ▶ Import Sound | Imports the selected sound from filesystem into the project. |
| ▶ Remove Sound | Removes the selected sound from the project (only if the sound is not used in any object). |
| ▶ Add Sound | Adds the selected sound into an object. |
| ▶ Clean Up | Removes all unused sounds from project. |
| ▶ Refresh | Reloads the actual directory to show changes on sound files. |
| ▶ Play/Stop | Plays/stops the sound file preview. |
| ▶ RAM | Selects if the sound will be loaded into the RAM when TouchLBM is booting (for small sounds with fast access e.g. on buttons) or if the sound will be loaded from FLASH each time it is needed (a bit slower but memory saving). |
| ▶ OK | Closes the sound manager and uses the selected sound. |
| ▶ Cancel | Closes the sound manager without using the selected sound. |
| ▶ Help | Shows this help window. |

Datapoint Selection

Index	SIndex	System	Name	Type	Direction	Group	Addr	Bit	Size	Array
00078	00106	SYS	sys_MODRTUErrCount	Unsigned 32 bit	●	SYSTEM	64856		4	1
00079	00107	SYS	sys_MODRTUStateText	Text	●	SYSTEM	64860		16	1
00080	00108	SYS	sys_SDTotallMB	Unsigned 32 bit	●	SYSTEM	65000		4	1
00081	00109	SYS	sys_SDUsedMB	Unsigned 32 bit	●	SYSTEM	65004		4	1
00082	00110	SYS	sys_SDFreeMB	Unsigned 32 bit	●	SYSTEM	65008		4	1
00083	00111	SYS	sys_SDStatus	Unsigned 32 bit	●	SYSTEM	65012		4	1
00084	00112	SYS	sys_USBTotallMB	Unsigned 32 bit	●	SYSTEM	65020		4	1
00085	00113	SYS	sys_USBUsedMB	Unsigned 32 bit	●	SYSTEM	65024		4	1
00086	00114	SYS	sys_USBFreeMB	Unsigned 32 bit	●	SYSTEM	65028		4	1
00087	00115	SYS	sys_USBStatus	Unsigned 32 bit	●	SYSTEM	65032		4	1
00088	00116	SYS	sys_MailState	Hex 32 Bit	●	SYSTEM	65040		4	1
00089	00117	SYS	sys_MailError	Hex 32 Bit	●	SYSTEM	65044		4	1
00090	00118	SYS	sys_SampleTimes	Unsigned 32 bit	●	SYSTEM	65100		64	16
00091	00134	SYS	sys_TLBMState	Unsigned 32 bit	●	SYSTEM	65200		4	1
00092	00135	SYS	sys_TLBMStateText	Text	●	SYSTEM	65204		64	1
00093	00136	SYS	sys_PASSLinkState	Unsigned 32 bit	●	SYSTEM	65300		4	1
00094	00137	SYS	sys_PASSLinkStateText	Text	●	SYSTEM	65304		64	1
00095	00000	BACNET	ANALOG_INPUT_01	Analog Input	←	Keine	00000		4	1
00096	00001	BACNET	ANALOG_INPUT_02	Analog Input	←	Keine	00004		4	1
00097	00002	BACNET	BINARY_INPUT_01	Binary Input	←	Keine	00008		4	1
00098	00003	BACNET	BINARY_INPUT_02	Binary Input	←	Keine	00012		4	1
00099	00004	BACNET	BINARY_INPUT_03	Binary Input	←	Keine	00024		4	1
00100	00005	BACNET	BINARY_OUTPUT_01	Binary Output	→	Keine	00016		4	1
00101	00006	BACNET	BINARY_OUTPUT_02	Binary Output	→	Keine	00020		4	1

SYSTEM
 RAW
 LON
 BACnet
 Modbus TCP
 Modbus RTU

Index Index Edit Groups Import/Export Tools

OK Cancel Help

The datapoint manager provides an overview on all defined datapoints.

- ▶ **Index** Index of datapoint within project.
- ▶ **SIndex** Index of datapoint within bussystem. On LON equal to NVIndex. On Modbus equal to index of register or coil.
- ▶ **System** Shows the datapoint's system.
- ▶ **Name** Shows the datapoint's name. This property is changable directly in this table
- ▶ **Type** Shows the datapoint's datatype.
- ▶ **Direction** Shows the datapoint's direction (output) (input).
- ▶ **Group** Shows the group where the datapoint is located in. This property is changable directly in this table
- ▶ **Address/Bit** Shows the Address where the datapoint starts in TouchLBM memory. This property is changable directly in this table
- ▶ **Size** Shows the size the datapoint uses in TouchLBM memory (not the original size of the datatype).
- ▶ **Array** Size of the field if datapoint is used as array. This property is changable directly in this table.
- ▶ **Add** Opens a dialog to create a new datapoint. There can be created RAW Datapoints (simple variables), LON Datapoints, Modbus Datapoints as well as BACnet Objects.
 - RAW Datapoint
 - LON Network Variable
 - Modbus TCP Datapoint
 - Modbus RTU Datapoint
 - BACnet Object
 - BACnet Server Object
- ▶ **Copy** Copies the selected Datapoint. The name extension e.g. nvoSwitch002 will be increased to nvoSwitch003.
- ▶ **Remove** Removes the selected datapoint from the TouchMaker project.
- ▶ **Index -** Decreases the index of the datapoint in project as well as in bussystem.
- ▶ **Index +** Increases the index of the datapoint in project as well as in bussystem.
- ▶ **Edit** Opens a dialog to edit the selected datapoint.
- ▶ **Groups** Opens a menu to manage datapoint groups. There are RAW Groups, LON Functional Blocks, Modbus Groups and BACnet Groups.
 - RAW Group
 - LON Functional Block
 - Modbus Group
 - BACnet Group
- ▶ **Import** Tools for importing/exporting datapoints
 - [Importing datapoints from .XIF](#)
 - [Importing LON User Types from Resource Catalogue](#)
 - [Importing BACnet objects from EDE files](#)
 - Import Variables from XIF
 - Import User Types (UNVT)
 - Export to CSV
 - Import from CSV
 - Import BACnet EDE
- ▶ **Tools** Tools for editing datapoint
 - Recalculating addresses
 - [BACnet Explorer](#)
 - Recalculate Addresses
 - BACnet Explorer

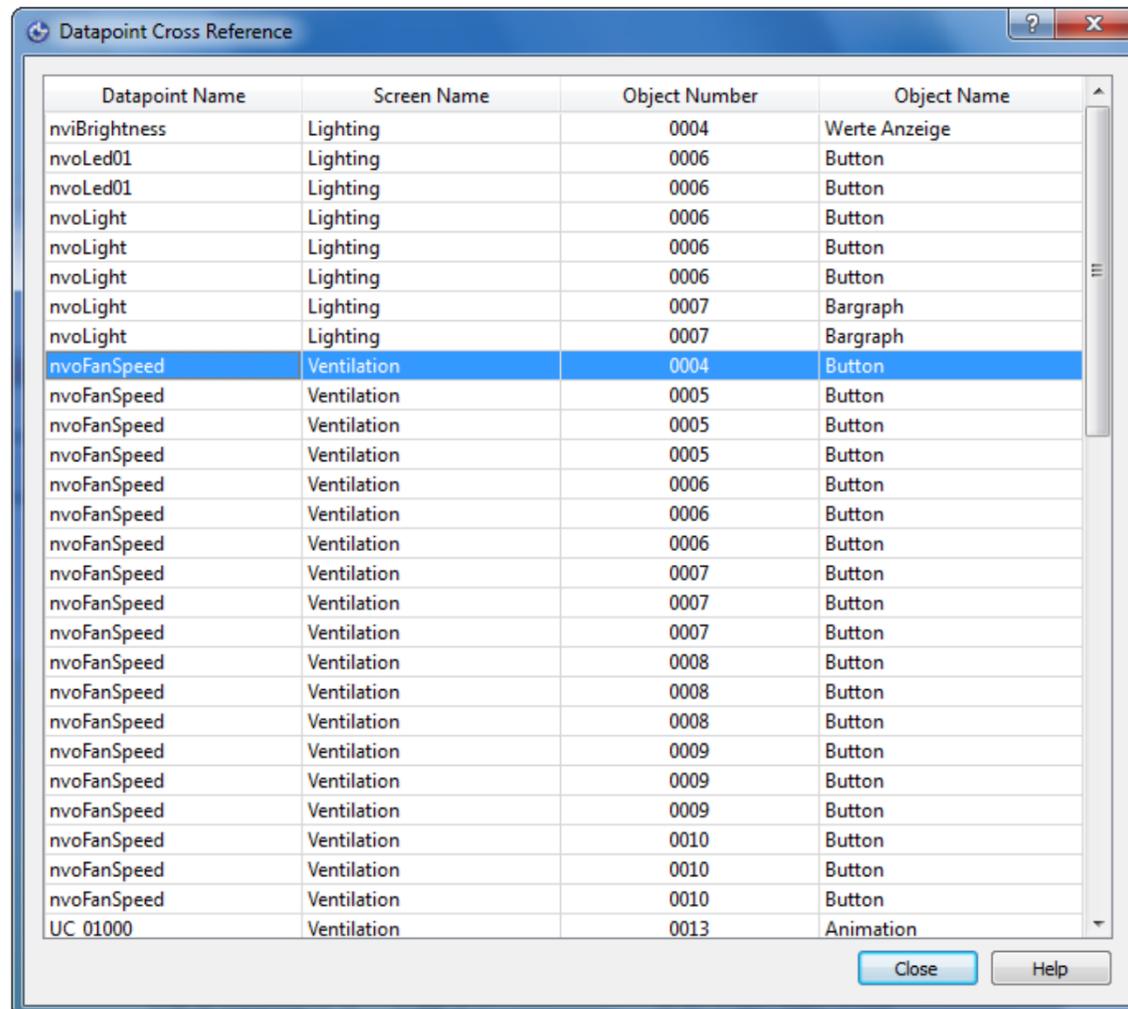
- ▶ **OK**
- ▶ **Cancel**
- ▶ **Help**

Closes the dialog and uses the selected datapoint.

Closes the dialog and uses the previous selected datapoint.

Shows this help window.

Datapoint Cross Reference



Datapoint Name	Screen Name	Object Number	Object Name
nviBrightness	Lighting	0004	Werte Anzeige
nvoLed01	Lighting	0006	Button
nvoLed01	Lighting	0006	Button
nvoLight	Lighting	0006	Button
nvoLight	Lighting	0006	Button
nvoLight	Lighting	0006	Button
nvoLight	Lighting	0007	Bargraph
nvoLight	Lighting	0007	Bargraph
nvoFanSpeed	Ventilation	0004	Button
nvoFanSpeed	Ventilation	0005	Button
nvoFanSpeed	Ventilation	0005	Button
nvoFanSpeed	Ventilation	0005	Button
nvoFanSpeed	Ventilation	0006	Button
nvoFanSpeed	Ventilation	0006	Button
nvoFanSpeed	Ventilation	0006	Button
nvoFanSpeed	Ventilation	0007	Button
nvoFanSpeed	Ventilation	0007	Button
nvoFanSpeed	Ventilation	0007	Button
nvoFanSpeed	Ventilation	0008	Button
nvoFanSpeed	Ventilation	0008	Button
nvoFanSpeed	Ventilation	0008	Button
nvoFanSpeed	Ventilation	0009	Button
nvoFanSpeed	Ventilation	0009	Button
nvoFanSpeed	Ventilation	0009	Button
nvoFanSpeed	Ventilation	0010	Button
nvoFanSpeed	Ventilation	0010	Button
nvoFanSpeed	Ventilation	0010	Button
UC 01000	Ventilation	0013	Animation

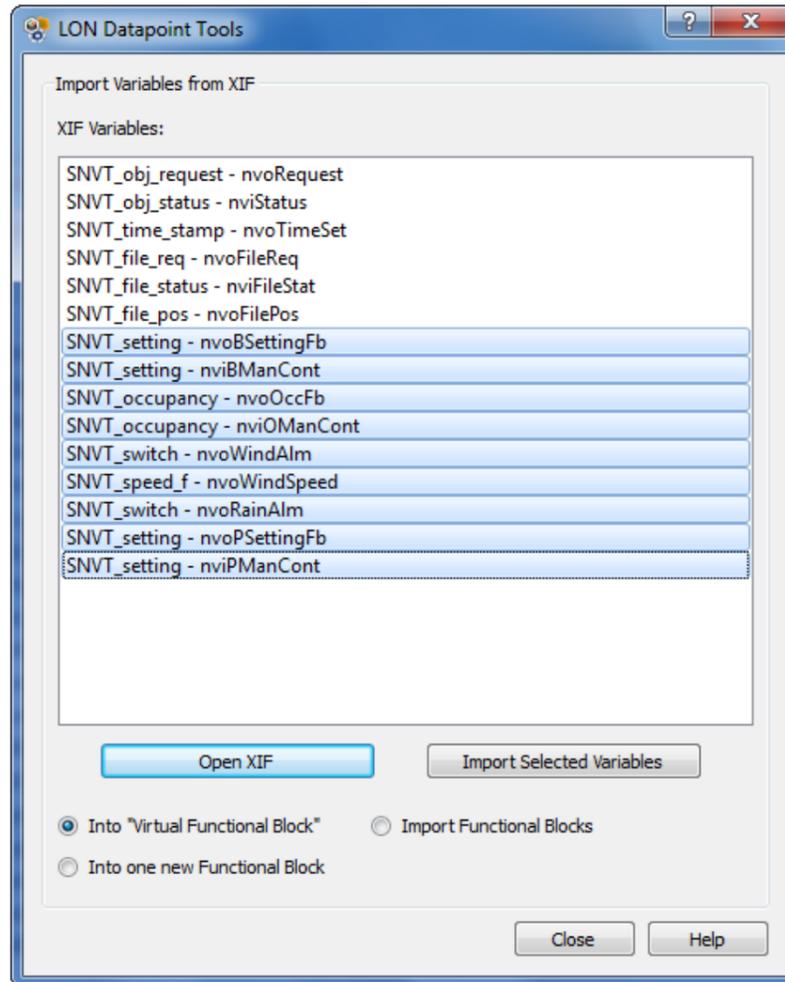
In this window all [Datapoints](#) inside the project are listed. Here you can reproduce where the datapoints are used inside the objects. The sorting can be changed by clicking on the table headers.

- ▶ **Close**
- ▶ **Help**

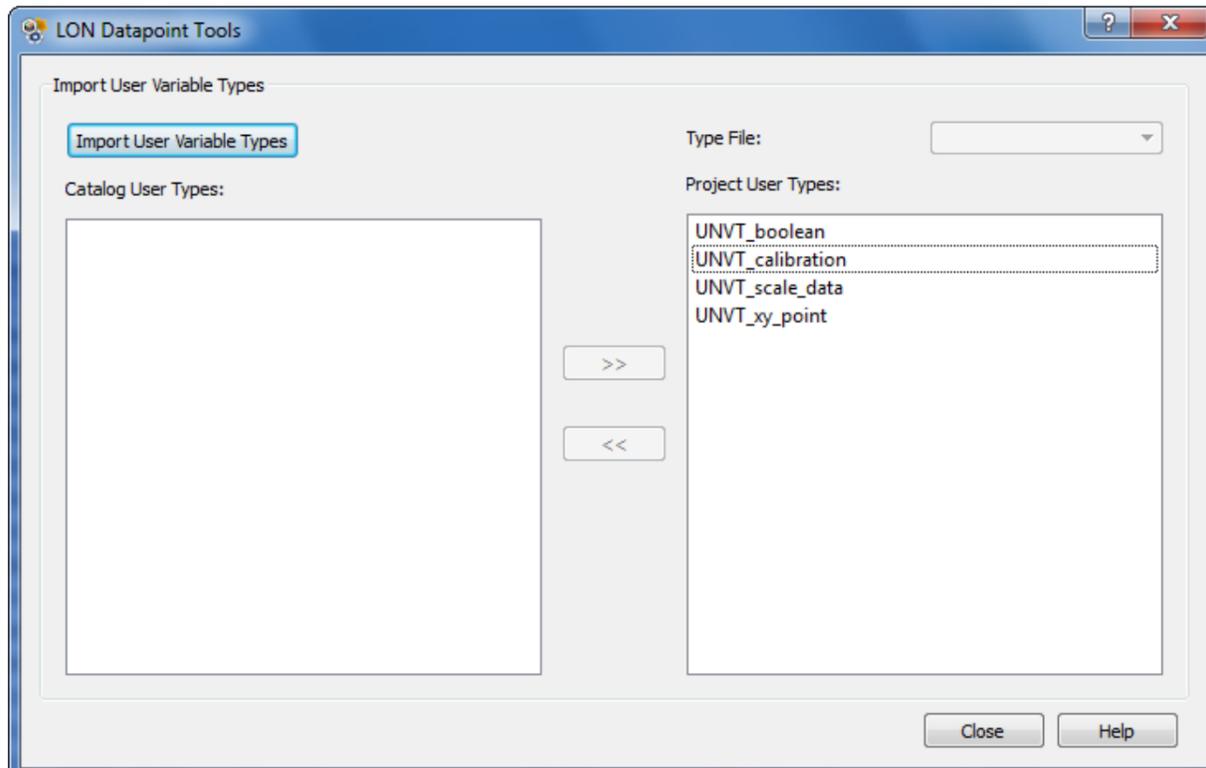
Closes the dialog.
Shows this help window.

LON Datapoint Tools

The datapoint tools are providing possibilities to import **User Network Variable Types** from the Echelon Resource Catalog as well as possibilities to import variables from existing .XIF files.

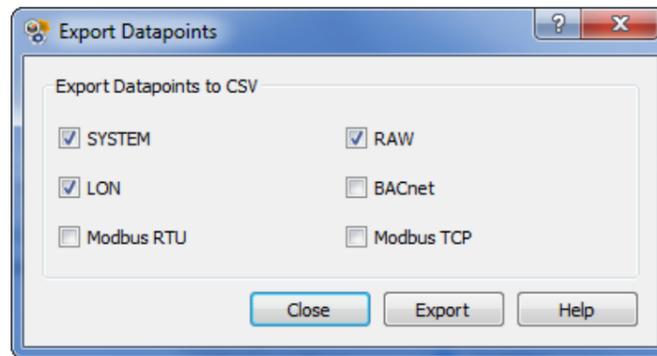


- ▶ **Open XIF** Opens a .XIF from another device and displays all network variables (no user types and no configuration properties).
- ▶ **Import Selected Variables** Imports the selected variables from the .XIF into the project. The direction (input/output) will be reversed. If the variable name begins with nvi or nvo the names will also be reversed. Possible double variable names inside the project will be resolved with an appendix. The dialog will be closed imidety after importing.
- ▶ **Into Virtual Functional Block** Imports the selected variables into the "Virtual Functional Block" of the TouchMaker project.
- ▶ **Import Functional Blocks** Imports the selected variables together with their Functional Blocks into the TouchMaker project.
- ▶ **Into one new Functional Block** Imports the selected variables into a new created Functional Block.
- ▶ **Close** Closes the dialog.
- ▶ **Help** Shows this help window.



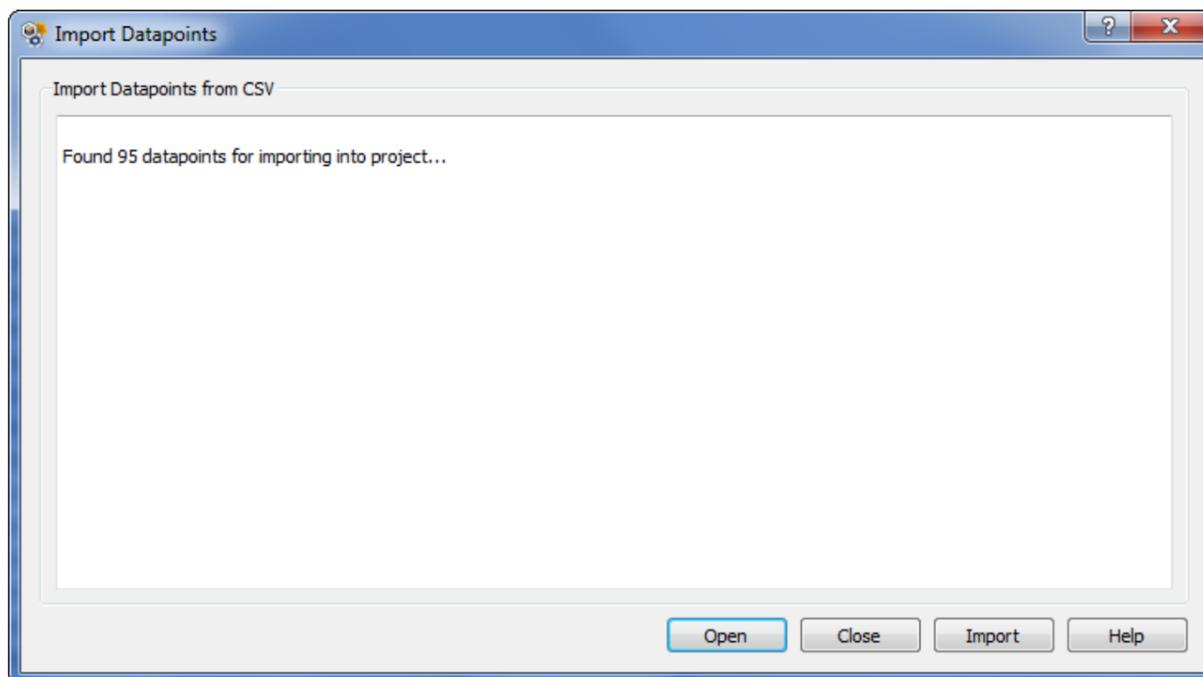
- ▶ **Import User Variable Types** Opens a dialog to load the Echelon Resource Catalog (ldrf.cat). This file is located in the LonWorks/Types directory.
- ▶ **Type File** Selects one of the type files from the catalog. Only type files with network variable definitions will be displayed.
- ▶ **>>** Imports the selected user types from the catalog into the TouchMaker project. These types will be saved inside the TouchMaker project. You have to import the needed types to every new project.
- ▶ **<<** Removes the selected types from the project. It's only possible if the types are not used.
- ▶ **Close** Closes the dialog.
- ▶ **Help** Shows this help window.

Importing/Exporting Datapoints



This dialog provides possibilities to export datapoints into a CSV file.

▶ System	Here you can choose what types of datapoints should be exported.
▶ Close	Closes the dialog.
▶ Export	Exports the datapoints into a CSV file.
▶ Help	Shows this help window.

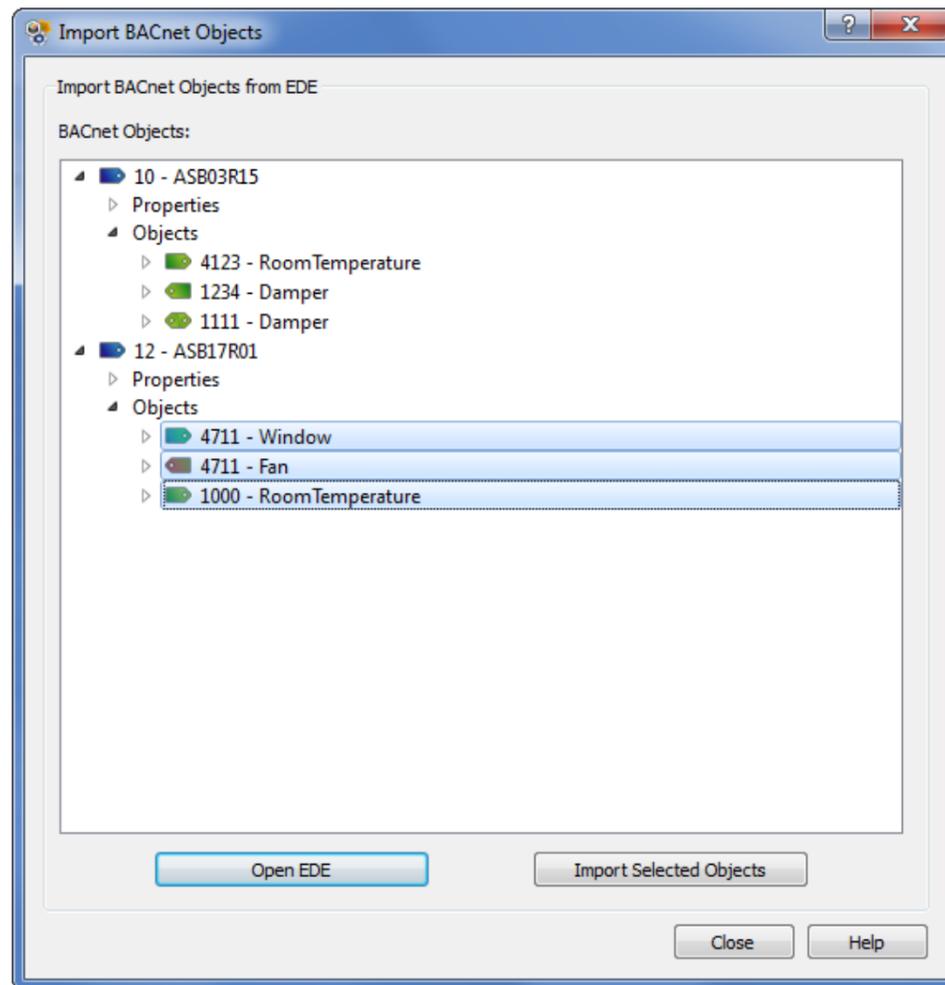


This dialog provides possibilities to import datapoints from a CSV file.

▶ Open	Opens an edited or exported CSV file with datapoint definitions.
▶ Close	Closes the dialog.
▶ Import	Imports the datapoints from CSV into the TouchMaker project.
▶ Help	Shows this help window.

BACnet Datapoint Tools

The datapoint tools are providing possibilities to import BACnet objects from EDE (.csv) files.

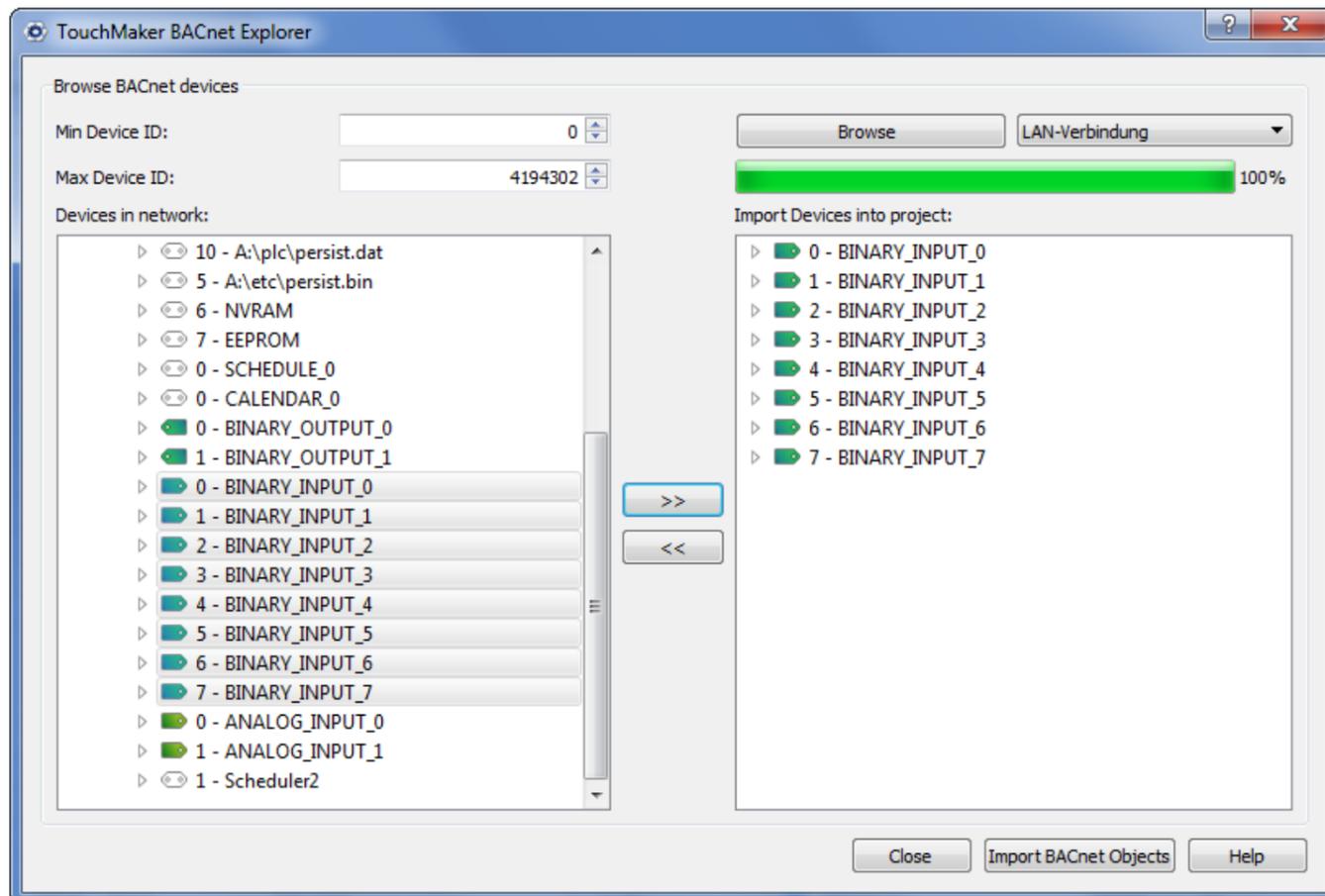


- ▶ **Open EDE**
- ▶ **Import Selected Objects**
- ▶ **Close**
- ▶ **Help**

Opens a EDE (.csv) from a BACnet project and displays all BACnet devices/objects.
Imports the selected objects into the project. The dialog will be closed imidely after importing.
Closes the dialog.
Shows this help window.

BACnet Datapoint Tools

The datapoint tools are providing possibilities to import BACnet objects from an existing network that is connected to the TouchMaker PC.



- ▶ **Min Device ID** Selects the min. device ID to start scanning the network.
- ▶ **Max Device ID** Selects the max. device ID to stop scanning the network.
- ▶ **Browse Network** Scans the network for existing BACnet devices or BACnet objects. The found BACnet objects will be displayed under Devices in network.
- ▶ **<< >>** Enables/disables objects for importing into the project. Only supported object types can be imported.
- ▶ **Import BACnet Objects** Imports the selected BACnet Objects into the project. The dialog will be closed imidetly after importing.
- ▶ **Close** Closes the dialog.
- ▶ **Help** Shows this help window.

TouchLBM Internal Addresses

To handle all the objects and datapoints, the TouchLBM provides 65536 bytes of memory to save values. All addresses from 0 to 63999 are free to use. Addresses **64000-65535** are used for internal information. **Do not overwrite these values except you know what you're doing** ! Some of the addresses will be created as SYS variables in your project. Here's a summary of the internal addresses:

▶ 64000 - 64024	Year / Month / Day / Hour / Minute / Second / Weekday
▶ 64028	Number of shown screen
▶ 64032	Number of background image
▶ 64036	Recent display brightness
▶ 64040	Standard display brightness
▶ 64044	Standby display brightness
▶ 64048	Device runtime in hours
▶ 64052	CPU usage in 0.1%
▶ 64056	CPU temperature in °C
▶ 64092	Bit 0: Battery Low - Bit 1: Sound On - Bit 16: Write RTC
▶ 64066	Volume (0..255)
▶ 64200 - 64208	RAM in KB total / used / free
▶ 64212 - 64220	RAM in MB total / used / free
▶ 64224 - 64232	FLASH in KB total / used / free
▶ 64236 - 64248	FLASH in MB total / used / free
▶ 64400	Number LON Variables
▶ 64404	LON State (2-Unconfigured / 4-Configured Online / 6-Hard Offline / 12-Soft Offline)
▶ 64408 - 62424	LON Error: Transmission Error / Transaction Timeout / Transmission Buffer Full / Lost Messages / Missed Messages
▶ 64428	LON NeuronID (Hex Array)
▶ 64436	LON ProgramID (Hex Array)
▶ 64444	LON Transceiver type text (max. 16 chars)
▶ 64460	LON State text (max. 16 chars)
▶ 64700	Number BACnet Objects
▶ 64704	BACnet State
▶ 64708	BACnet error count
▶ 64712	BACnet DeviceID
▶ 64716	BACnet State text (max. 16 chars)
▶ 64732	BACnet DeviceID causing last error
▶ 64736	BACnet ObjectID causing last error
▶ 64800	Number Modbus TCP Registers
▶ 64804	Number Modbus TCP Coils
▶ 64808	Modbus TCP State (0x01-Init / 0x02-Online / 0x0A-Writing / 0x0B-Reading / 0x800000xx-Error)
▶ 64812	Modbus TCP SlaveID
▶ 64816	Modbus TCP error count
▶ 64832	Modbus TCP State text (max. 16 chars)
▶ 64840 ff	Modbus RTU (see Modbus TCP)
▶ 65000 - 65012	SD-Card State in MB total / used / free / state (0x00-Not connected / 0x01-OK / 0x02-Full / 0x04-Ejected / 0x8000000x-Error)
▶ 65020 - 65032	USB-Stick State in MB total / used / free / state (0x00-Not connected / 0x01-OK / 0x02-Full / 0x04-Ejected / 0x8000000x-Error)
▶ 65040	E-Mail State
▶ 65044	E-Mail Error
▶ 65048	Wi-Fi State (0x00-Disabled / 0x01-Scanning / 0x02-Connected / 0x80000001-Wrong Password / 0x80000080-Driver Error)
▶ 65052	Wi-Fi Signal quality in %
▶ 65200	TouchLBM State
▶ 65204	TouchLBM State text (max. 64 chars)
▶ 65300	PASSLink State
▶ 65304	PASSLink State text (max. 64 chars)

Creating RAW Datapoints

Edit RAW Datapoint

Datapoint Name: raw_DateMonth

Datatype: Unsigned 32 bit

Description: Month of the year

Group: None

Value on reset (initializer): 0

FunctionCode:

Array: 1

Direction: Input Output

Address: 65044

Bit: 0

Length: 4

Poll Time: NEVER

Send Time: NEVER

non volatile

Source Slave ID: 0

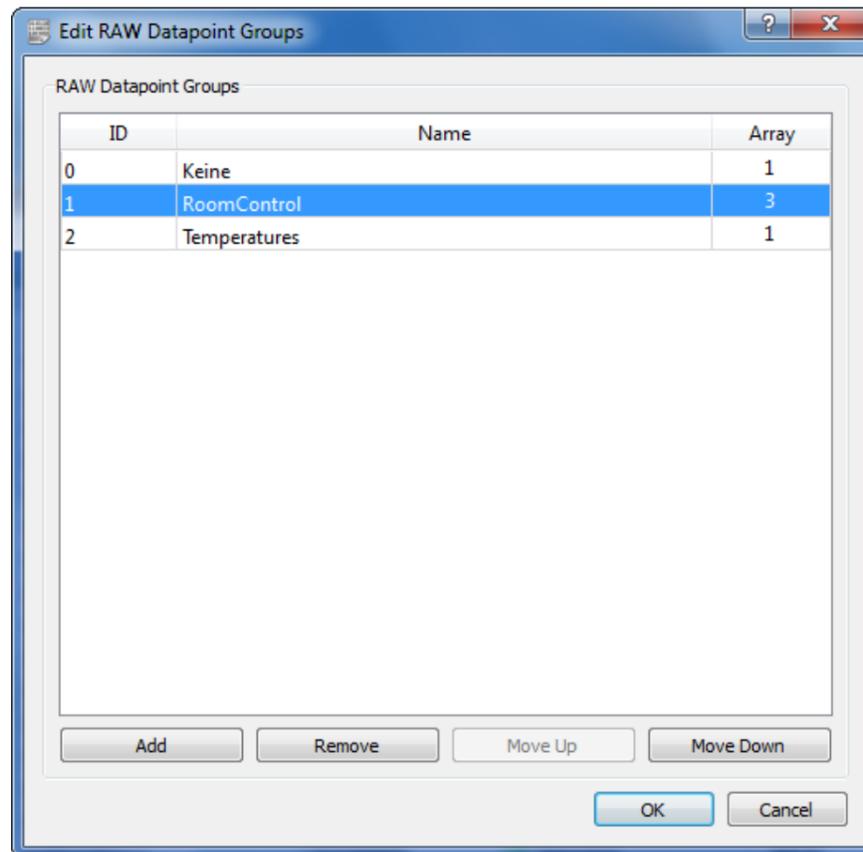
Register/Coil: 0

OK Cancel Help

This dialog provides possibilities to create and edit RAW datapoints. A RAW datapoint is a simple variable.

- ▶ **Datapoint Name** Sets the name of the RAW datapoint.
- ▶ **Datatype** Sets the type of the RAW datapoint.
- ▶ **Address** Sets the [Address](#) where the datapoint is located in TouchLBM memory. This memory is DWORD (4 byte) aligned. Normally this address will be provided automatically.
- ▶ **Size** Shows the size of the datapoint in TouchLBM memory.
- ▶ **Array** Selects if the datapoint will be used as array and how many fields will be created.
- ▶ **Description** A short description for documentation.
- ▶ **Values On Reset** Sets the value of the datapoint after TouchLBM reset. The input mask depends on the datatype.
- ▶ **non volatile** The "non volatile" option enables the backup service for the datapoint. That means that the values (if changed) will be saved in the FLASH memory every 8 minutes (the interval was chosen to save flash write cycles). So the datapoints can be saved against blackout. If the TouchLBM is restarted with the normal restart functions (special button or pressing the upper left corner for 5 seconds) the values will be saved before the reset.
- ▶ **Group** Sorts the datapoint into a [Group](#).
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

RAW Groups



This dialog provides possibilities to create and edit groups for RAW Datapoints. These groups can be used to sort the RAW Datapoints.

- ▶ **ID** Group number (set automatically).
- ▶ **Name** Sets the name of the group.
- ▶ **Array** Selects if the group is used as array and how many fields will be created.
- ▶ **Up** Moves the group upwards in the table.
- ▶ **Down** Moves the group downwards in the table.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

Creating LON Datapoints

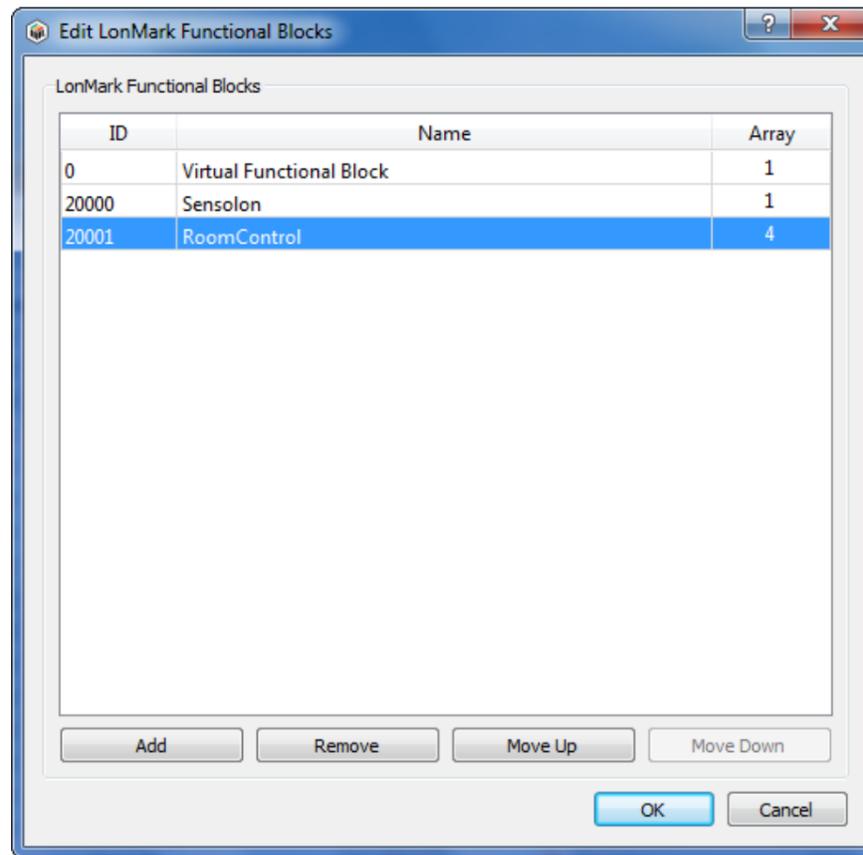
This dialog provides possibilities to create and edit LON datapoints. A LON datapoint is the same as a LON Network Variable.

- ▶ **NV Name** Sets the name of the LON datapoint.
- ▶ **NV Type** Sets the type of the LON datapoint. All types from SNVT master list version 13 are available.
- ▶ **Address** Sets the [Address](#) where the datapoint is located in TouchLBM memory. This memory is DWORD (4 byte) aligned. Normally this address will be provided automatically.
- ▶ **Size** Shows the size of the datapoint in TouchLBM memory. This is not the original size of the datatype.
- ▶ **Direction** Sets the datapoint direction to input or output.
- ▶ **SD String** Sets the self documentation string to the datapoint.
- ▶ **Values On Reset** Sets the value of the datapoint after TouchLBM reset. The input mask depends on the SNVT. Some complex structures are not supported yet. Please contact PASStec if there is a need for an unsupported structure.
- ▶ **Binding Information** Sets the LON Binding Information. For more information see the LON manuals.
- ▶ **Modifier/Location**

The Non Volatile option enables the backup service for the datapoint. That means that the values (if changed) will be saved in the FLASH memory every 8 minutes (the interval was chosen to save flash write cycles). So the datapoints can be saved against blackout. If the TouchLBM is restarted with the normal restart functions (special button or pressing the upper left corner for 5 seconds) the values will be saved before the reset.

The config flag creates a configuration property (will be improved in next versions). For more information on these flags see the LON manuals.
- ▶ **Functional Blocks** Sets a [Functional Block](#) (group) where the datapoint is located.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

LON Functional Blocks



This dialog provides possibilities to create and edit LonMark Functional Blocks. These blocks can be used to sort the LON Datapoints.

- ▶ **ID** Sets the ID of the Functional Block. User defined Blocks can be created with numbers from 20000. Blocks with numbers to 20000 should be used as defined in LonMark.
- ▶ **Name** Sets the name of the block. The name for block 0 cannot be changed and is set to "Virtual Functional Block".
- ▶ **Array** Selects if the block is used as array and how many fields will be created.
- ▶ **Up** Moves the block upwards in the table.
- ▶ **Down** Moves the block downwards in the table.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

Creating BACnet Objects

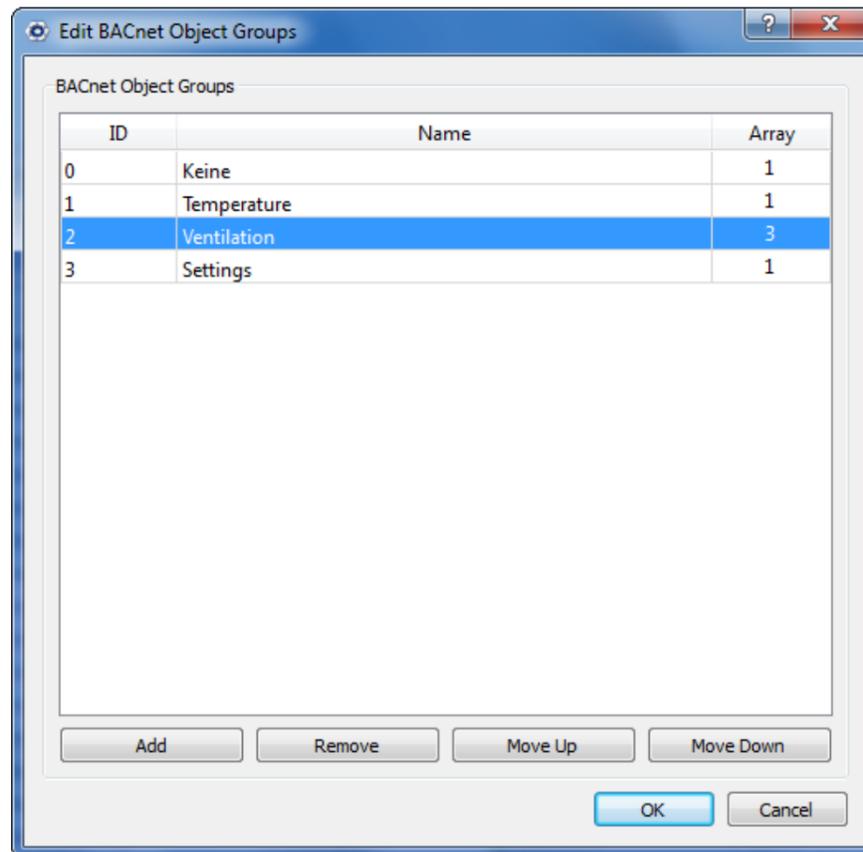
This dialog provides possibilities to create and edit BACnet Objects. The BACnet communication is explained [here](#).

▶ Object Name	Sets the name of the BACnet Object.
▶ Objecttype	Sets the datatype of the BACnet object. For now there is only a limited number of object types available
▶ Address	Sets the Address where the object is located in TouchLBM memory. This memory is DWORD (4 byte) aligned. Normally this address will be provided automatically.
▶ Size	Shows the size of the object in TouchLBM memory.
▶ Description	Short description of object in BACnet.
▶ Direction	Sets the object direction to input and/or output.
▶ Property	Sets the property of the object. For now there is only PRESENT_VALUE available.
▶ Tag	Sets the tag (data type) of the object property.
▶ Subscribe COV	Subscribes to Change Of Values to get data for input objects.
▶ COV Time	Time to renew the subscription.
▶ Polled	Reads the data of input objects out of another device.
▶ Poll Time	Time to start a new read command.
▶ Send Time	Maximum time to send output object data to another device. This can be set to 0 normally because changes will be sent on events (e.g. button pressed) automatically.
▶ Priority	Data priority for output objects.
▶ Values On Reset	Sets the value of the object after TouchLBM reset. The input mask depends on the object type.
▶ non volatile	The "non volatile" option enables the backup service for the object. That means that the values (if changed) will be saved in the FLASH memory every 8 minutes (the interval was chosen to save flash write cycles). So the datapoints can be saved against blackout. If the TouchLBM is restarted with the normal restart functions (special button or pressing the upper left corner for 5 seconds) the values will be saved before the reset.
▶ BACnet ID	BACnet ID of the requested device.
▶ Object ID	ID of the object in the requested device.
▶ Object Name	Name of the object in the requested device.
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

- ▶ **Object Name** Sets the name of the BACnet Object.
- ▶ **Objecttype** Sets the datatype of the BACnet object. For now there is only [a limited number](#) of object types available
- ▶ **Address** Sets the [Address](#) where the object is located in TouchLBM memory. This memory is DWORD (4 byte) aligned. Normally this address will be provided automatically.
- ▶ **Size** Shows the size of the object in TouchLBM memory.
- ▶ **Read only** Sets the object properties to read only.
- ▶ **Description** Short description of object in BACnet.
- ▶ **Value** Present Value after device reset.
- ▶ **Min** Min Present Value (for future functions).
- ▶ **Max** Max Present Value (for future functions).
- ▶ **COV** Min change of Present Value to send COV notification.
- ▶ **non volatile** The "non volatile" option enables the backup service for the object. That means that the values (if changed) will be saved in the FLASH memory every 8 minutes (the interval was chosen to save flash write cycles). So the datapoints can be saved against blackout. If the TouchLBM is restarted with the normal restart functions (special button or pressing the upper left corner for 5 seconds) the values will be saved before the reset.

- ▶ **Object ID** ID of the object inside TouchLBM.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

BACnet Groups



This dialog provides possibilities to create and edit groups for BACnet Objects. These groups can be used to sort the BACnet Objects.

- ▶ **ID** Group number (set automatically).
- ▶ **Name** Sets the name of the group.
- ▶ **Array** Selects if the group is used as array and how many fields will be created.
- ▶ **Up** Moves the group upwards in the table.
- ▶ **Down** Moves the group downwards in the table.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

General information about BACnet communication with TouchLBM

- Input BACnet Objects will be read with SubscribeCOV or ReadProperty service
- Output BACnet Objects will be written with WriteProperty service
- The TouchLBM provides no own BACnet objects (except BACnet Device Object)

Actually supported object types (upgrading follows)

Analog Input (00)

- Property: Present Value (85)
- Tag: Real (04)

Analog Output (01)

- Property: Present Value (85)
- Tag: Real (04)

Analog Value (02)

- Property: Present Value (85)
- Tag: Real (04)

Binary Input (03)

- Property: Present Value (85)
- Tag: Enumerated (09)

Binary Output (04)

- Property: Present Value (85)
- Tag: Enumerated (09)

Binary Value (05)

- Property: Present Value (85)
- Tag: Enumerated (09)

Multistate Input (13)

- Property: Present Value (85)
- Tag: Unsigned Int (02)

Multistate Output (14)

- Property: Present Value (85)
- Tag: Unsigned Int (02)

Multistate Value (19)

- Property: Present Value (85)
- Tag: Unsigned Int (02)

Schedule (17)

- The Schedule Object will be created as server object when internal Schedulers will be provided in BACnet.
- The Schedule Object can be edited by a BACnet Schedule Object Editor on the device.

Creating Modbus Datapoints

The screenshot shows a Windows-style dialog box titled "Edit Modbus RTU Master Datapoint". It contains several input fields and controls:

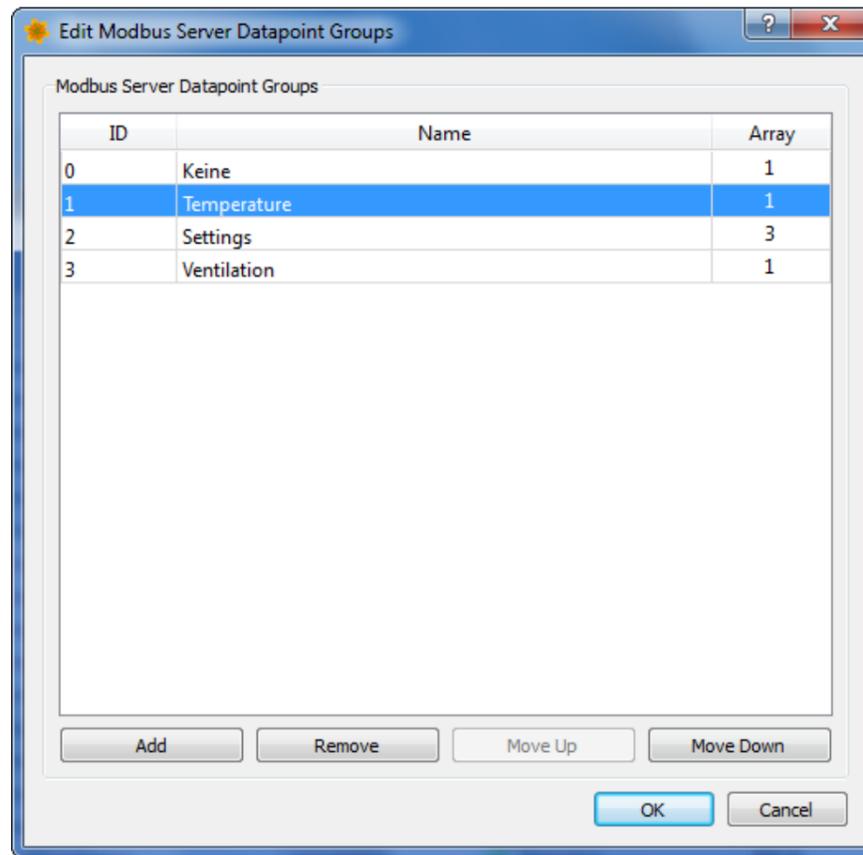
- Datapoint Name:** RegisterC
- Datatype:** Unsigned 16 bit
- Address:** 1016
- Bit:** 0
- Length:** 2
- Direction:** Output (selected)
- Description:** Analog Temperature
- Group:** None
- Value on reset (initializer):** 0
- Poll Time:** NEVER
- Send Time:** NEVER
- non volatile:** unchecked checkbox
- FunctionCode:** 06 Write Single Register
- Source Slave ID:** 100
- Register/Coil:** 4

Buttons at the bottom: OK, Cancel, Help.

This dialog provides possibilities to create and edit Modbus datapoints. The Modbus communication is explained [here](#).

- | | |
|--------------------------|---|
| ▶ Datapoint Name | Sets the name of the Modbus datapoint. |
| ▶ Datatype | Sets the type of the Modbus datapoint. |
| ▶ Address | Sets the Address where the datapoint is located in TouchLBM memory. This memory is DWORD (4 byte) aligned. Normally this address will be provided automatically. |
| ▶ Size | Shows the size of the datapoint in TouchLBM memory. |
| ▶ Array | Selects if the datapoint will be used as array and how many fields will be created. |
| ▶ Direction | Sets the datapoint direction to input or output. |
| ▶ Description | A short description for documentation. |
| ▶ Values On Reset | Sets the value of the datapoint after TouchLBM reset. The input mask depends on the datatype. |
| ▶ Group | Sorts the datapoint into a Group . |
| ▶ Poll Time | Sets the polling time for Modbus Master input datapoints. |
| ▶ Send Time | Sets the periodical sending time for Modbus Master output datapoints. |
| ▶ non volatile | The "non volatile" option enables the backup service for the datapoint. That means that the values (if changed) will be saved in the FLASH memory every 8 minutes (the interval was chosen to save flash write cycles). So the datapoints can be saved against blackout. If the TouchLBM is restarted with the normal restart functions (special button or pressing the upper left corner for 5 seconds) the values will be saved before the reset. |
| ▶ Source Slave ID | Sets the slave ID of the Modbus device where the Modbus Master datapoint can be found. |
| ▶ Register/Coil | Sets the register/coil number where the Modbus Master datapoint can be found. |
| ▶ Function Code | Sets the Modbus Function Code for reading/writing Modbus Master datapoints. |
| ▶ OK | Closes the dialog and saves all changes. |
| ▶ Cancel | Closes the dialog and discards all changes. |
| ▶ Help | Shows this help window. |

Modbus Groups



This dialog provides possibilities to create and edit groups for Modbus Datapoints. These groups can be used to sort the Modbus Datapoints.

- ▶ **ID** Group number (set automatically).
- ▶ **Name** Sets the name of the group.
- ▶ **Array** Selects if the group is used as array and how many fields will be created.
- ▶ **Up** Moves the group upwards in the table.
- ▶ **Down** Moves the group downwards in the table.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

Modbus Communication RTU Master/Slave - TCP Client/Server

General Information about Modbus Communication

- Modbus Server can be connected via Ethernet on the TouchLBM IP
- Maximum number of client accesses at the same time: 12
- Port for Ethernet communication: 502 (Modbus standard)
- Security settings to protect data with [Access Control](#)
- The data is accessible with its datapoint index (SIindex in TouchMaker) - RTU Slave and TCP Server
- For every datapoint there can be set a function code and a register/coil number - RTU Master and TCP Client
- All supported Function Codes are listed below

Format of a Modbus serial frame:

ID FC Data CRC

ID Slave ID
FC Function Code of request/answer
Data (e.g. start address, register count, data)
CRC checksum

Format of a Modbus Ethernet frame:

T0 T1 0x00 0x00 S0 S1 ID FC Data

T0..T1 Transaction ID
S0..S1 Frame size (Number of data bytes +2)
ID Server Slave ID
FC Function Code of request/answer
Data (e.g. start address, register count, data)

ExceptionCodes

Exceptioncodes are returned by TouchLBM if the request could not be processed. There can be one of the following codes:

- 0x81 Function Code not supported
- 0x82 Requested address not available
- 0x83 Requested data count invalid
- 0x84 Requested data not available

01 Read Coils

Read Bit Variables out of TouchLBM

Request:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 00000-0xFFFF)
- Datapoint count (2 bytes 1-2000)

Answer:

- Function Code (1 byte)
- Byte count (1 byte)
- Bit data (N bits)

Exception:

- Function Code (1 byte)
- Exception Code (1 byte 0x81,0x82,0x83,0x84)

02 Read Discrete Inputs

Read Bit Variables out of TouchLBM

Request:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 00000-0xFFFF)
- Datapoint count (2 bytes 1-2000)

Answer:

- Function Code (1 byte)
- Byte count (1 byte)
- Bit data (N bits)

Exception:

- Function Code (1 byte)
- Exception Code (1 byte 0x81,0x82,0x83,0x84)

03 Read Holding Registers

Reads datapoints out of TouchLBM. The data will be provided unformatted. Datapoints bigger than 16 bits will need more than one register.

Request:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 0x0000-0xFFFF)
- Datapoint count (2 bytes 1-125)

Answer:

- Function Code (1 byte)
- Byte count (1 byte)
- Datapoints (N register)

Exception:

- Function Code (1 byte)
 - Exception Code (1 byte 0x81,0x82,0x83,0x84)
-

04 Read Input Registers

Reads datapoints out of TouchLBM. The data will be provided unformatted. Datapoints bigger than 16 bits will need more than one register.

Request:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 0x0000-0xFFFF)
- Datapoint count (2 bytes 1-125)

Answer:

- Function Code (1 byte)
- Byte count (1 byte)
- Datapoints (N register)

Exception:

- Function Code (1 byte)
 - Exception Code (1 byte 0x81,0x82,0x83,0x84)
-

05 Write Single Coil

Writes Bit Variable into TouchLBM

Request:

- Function Code (1 byte)
- Number of datapoint (2 bytes 00000-0xFFFF)
- State (2 bytes 0x0000 or 0xFF00)

Answer:

- Function Code (1 byte)
- Number of datapoint (2 bytes 0x0000-0xFFFF)
- State (2 bytes 0x0000 or 0xFF00)

Exception:

- Function Code (1 byte)
 - Exception Code (1 byte 0x81,0x82,0x83,0x84)
-

06 Write Single Registers

Writes a single datapoint into TouchLBM. Data must be provided unformatted. Datapoints bigger than 16 bits will need more than one register.

Request:

- Function Code (1 byte)
- Number of datapoint (2 bytes 0x0000-0xFFFF)
- Data (2 bytes 0x0000-0xFFFF)

Answer:

- Function Code (1 byte)
- Number of datapoint (2 bytes 0x0000-0xFFFF)
- Data (2 bytes 0x0000-0xFFFF)

Exception:

- Function Code (1 byte)
 - Exception Code (1 byte 0x81,0x82,0x83,0x84)
-

15 Write Multiple Coils

Writes multiple Bit Variables into TouchLBM

Request:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 00000-0xFFFF)
- Datapoint count (2 bytes 1-2000)
- Byte count (1 bytes)
- Data (N bytes)

Answer:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 00000-0xFFFF)
- Datapoint count (2 bytes 1-2000)

Exception:

- Function Code (1 byte)
 - Exception Code (1 byte 0x81,0x82,0x83,0x84)
-

16 Write Multiple Registers

Writes multiple datapoints into TouchLBM. Data must be provided unformatted. Datapoints bigger than 16 bits will need more than one register.

Request:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 0x0000-0xFFFF)
- Number of datapoints (2 bytes 1-125)
- Number of bytes (1 byte)
- Data (N bytes)

Answer:

- Function Code (1 byte)

- Number of first datapoint (2 bytes 0x0000-0xFFFF)
- Datapoint count (2 bytes 1-125)

Exception:

- Function Code (1 byte)
 - Exception Code (1 byte 0x81,0x82,0x83,0x84)
-

23 Read/Write Multiple Registers

Reads and writes multiple datapoints into TouchLBM. Data must be provided unformatted. Datapoints bigger than 16 bits will need more than one register.

Request:

- Function Code (1 byte)
- Number of first datapoint to read (2 bytes 0x0000-0xFFFF)
- Number of datapoints to read (2 bytes 1-125)
- Number of first datapoint to write (2 bytes 0x0000-0xFFFF)
- Number of datapoints to write (2 bytes 1-125)
- Number of bytes to write (1 byte)
- Data (N bytes)

Answer:

- Function Code (1 byte)
- Number of first datapoint (2 bytes 0x0000-0xFFFF)
- Datapoint count (2 bytes 1-125)

Exception:

- Function Code (1 byte)
 - Exception Code (1 byte 0x81,0x82,0x83,0x84)
-

43 Read Device Identification

Reads several product information out of TouchLBM.

Request:

- Function Code (1 byte)
- Sub Code (1 byte 0x0E)
- Device ID (1 byte 0x01)
- Information ID - object (1 byte 0x00-Producer Name 0x01-Product Name 0x02-Product Version)

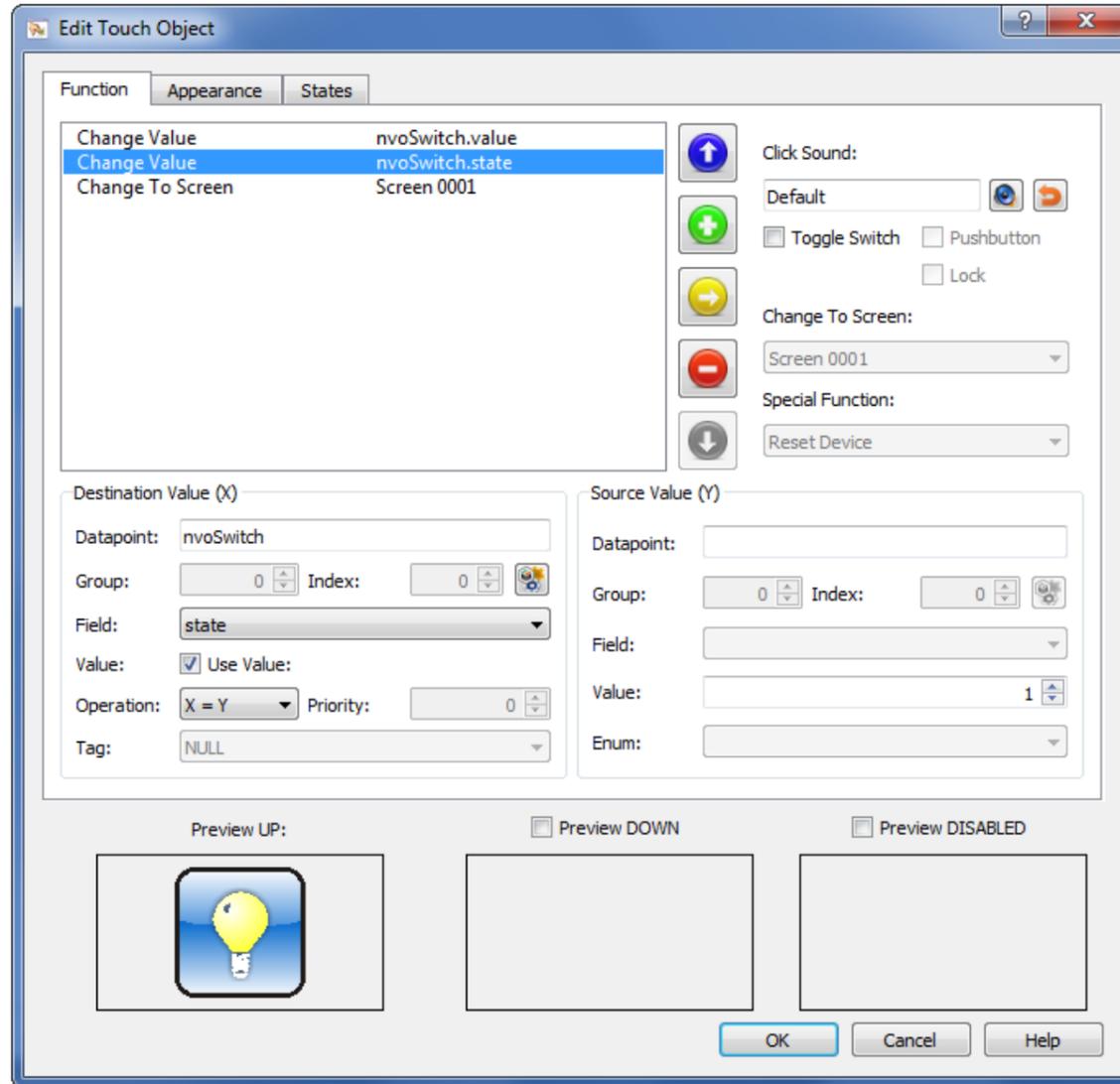
Answer:

- Function Code (1 byte)
- Sub Code (1 byte 0x0E)
- Device ID (1 byte 0x01)
- Conformity Level (1 byte 0x01)
- Following objects (1 byte 0x00)
- Following ID (1 byte 0x00)
- Object count (1 byte)
- Object number (1 byte)
- Object size (1 byte)
- Object data (N bytes string of requested data)

Exception:

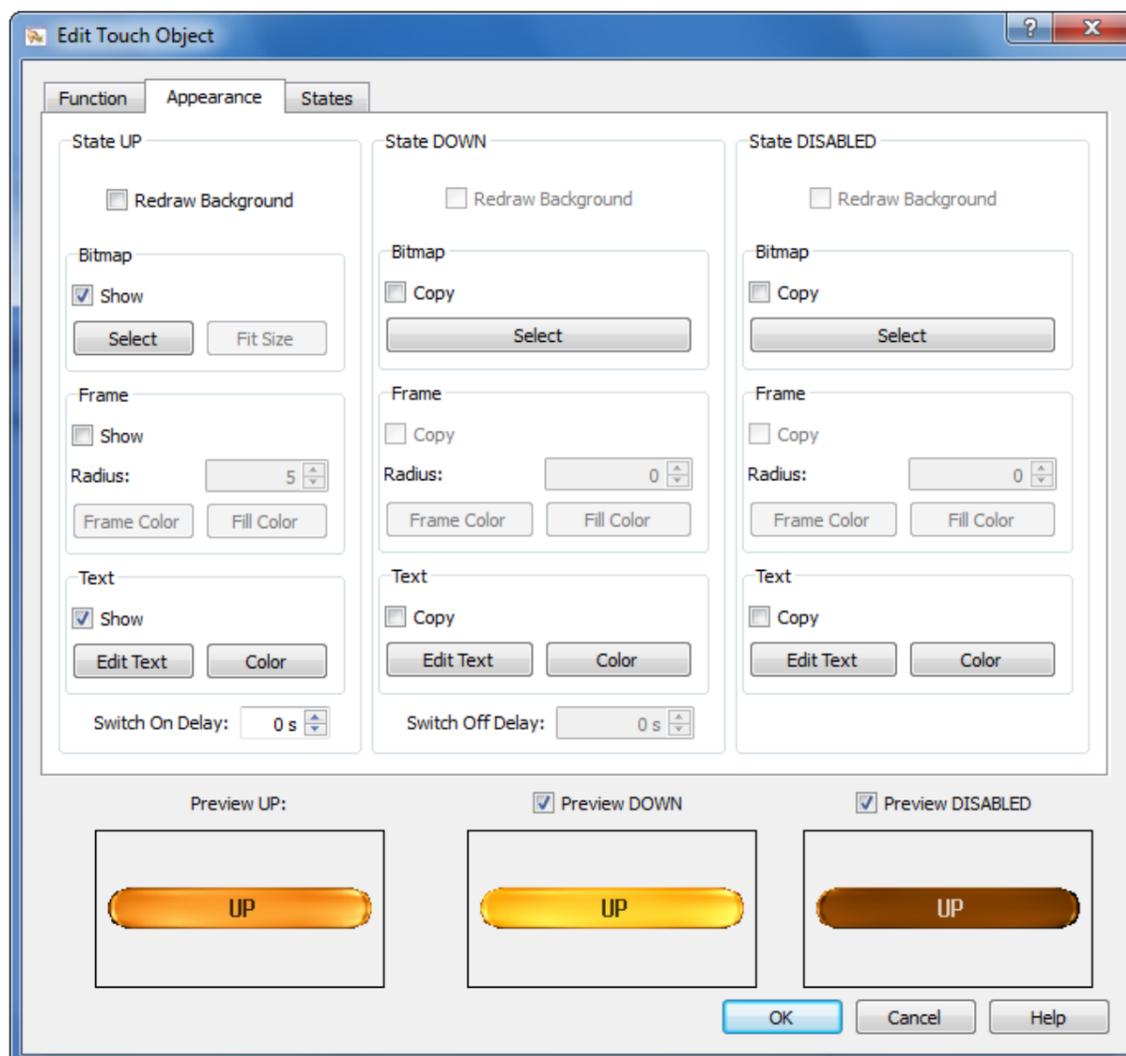
- Function Code (1 byte)
- Exception Code (1 byte 0x81,0x82,0x83,0x84)

Button Object

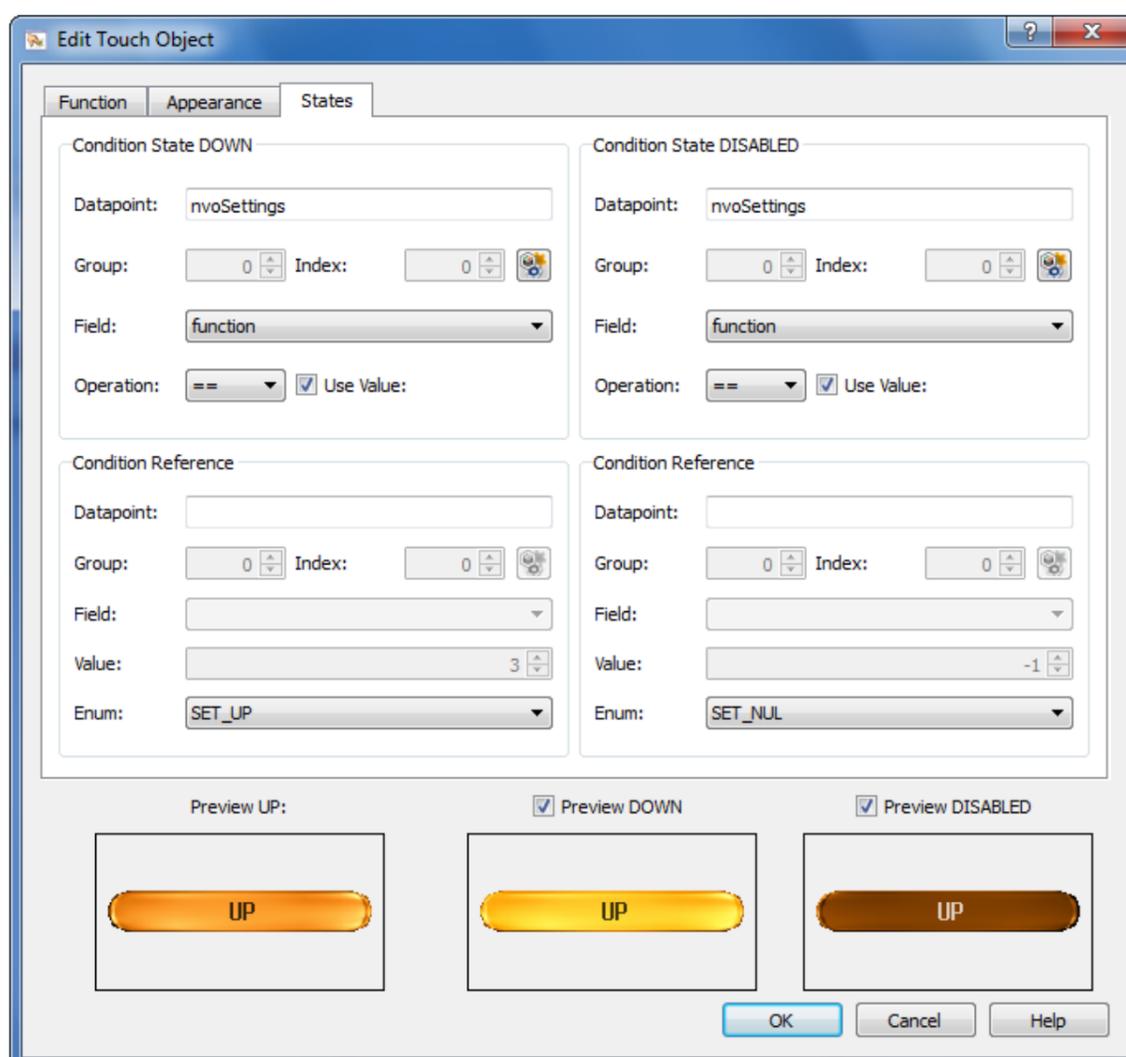


The touch button object provides possibilities to define touch sensitive areas on the display. It can be used to let the operator change values, switch to other screens or to do some special functions. In a button object there can be defined the appearance on the screen in 3 states. The states are UP (normal state), (DOWN) pressed state and DISABLED state.

- | | |
|---|--|
| <ul style="list-style-type: none"> ▶ Function List ▶ Up ▶ Add Function ▶ Remove Function ▶ Down ▶ Change To Screen ▶ Special Function ▶ Destination Datapoint X ▶ Group/Index ▶ Field ▶ Operation ▶ Set Value ▶ Source Datapoint Y ▶ Group/Index ▶ Field ▶ Value ▶ Click Sound ▶ Toggle Switch ▶ Pushbutton ▶ Lock ▶ DOWN ▶ DISABLED ▶ OK ▶ Cancel ▶ Help | <p>Overview on all defined events when the button will be pressed. They will be executed in the displayed order.</p> <p>Moves the selected function upwards in the execution order. Mind that screen change functions cannot be moved.</p> <p>Adds a function to the list. You can choose to change the screen, to change a value or to do a special function.</p> <p>Removes the selected function from the list.</p> <p>Moves the selected function downwards in the execution order. Mind that screen change functions cannot be moved.</p> <p>Selects screen that will be displayed after the button was pressed.</p> <p>Selects a special function that will be executed after the button was pressed.</p> <p>Opens a dialog to choose a Datapoint as result of the operation.</p> <p>Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.</p> <p>Selects the member of data structures (available on some datapoints).</p> <p>Selects the operation to do some simple mathematics to change the value.</p> <p>Selects if the destination datapoint/variable should be set to a fixed value or to another datapoint/variable.</p> <p>Opens a dialog to choose a Datapoint as source for the operation.</p> <p>Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.</p> <p>Selects the member of data structures (available on some datapoints).</p> <p>Holds the value that will be used to change the value. This can be a number or a define enum depending on the datatype.</p> <p>Selects if the TouchLBM plays a sound if the touch button was pressed. Mind that global sounds must be enabled.</p> <p>Selects if the touch button is a toggle switch. That means after pressing the button it will toggle the state. It will stay pressed until it will be pressed again. The function list will be executed when toggled. To use this function state DOWN must be enabled.</p> <p>Selects if the touch button is a pushbutton. That means after pressing the button it will toggle the state as long as you hold the button. If the button is released the state changes to UP again and the functions are executed once more. To use this function state DOWN must be enabled. This function cannot be used if a screen change function is defined.</p> <p>When using the button as a Pushbutton this option can be used to lock the button after it was pressed at least "Switch On Delay" seconds. If that happens the button is working as a toggle switch until pressed again.</p> <p>Enables the touch button to display another state if it is pressed down. The condition to display the DOWN state can be defined in the STATES tab. If the button is no toggle switch the condition will be defined internally.</p> <p>Enables the touch button to display another state if it is disabled. The condition to display the DISABLED state can be defined in the STATES tab.</p> <p>Closes the dialog and saves all changes.</p> <p>Closes the dialog and discards all changes.</p> <p>Shows this help window.</p> |
|---|--|



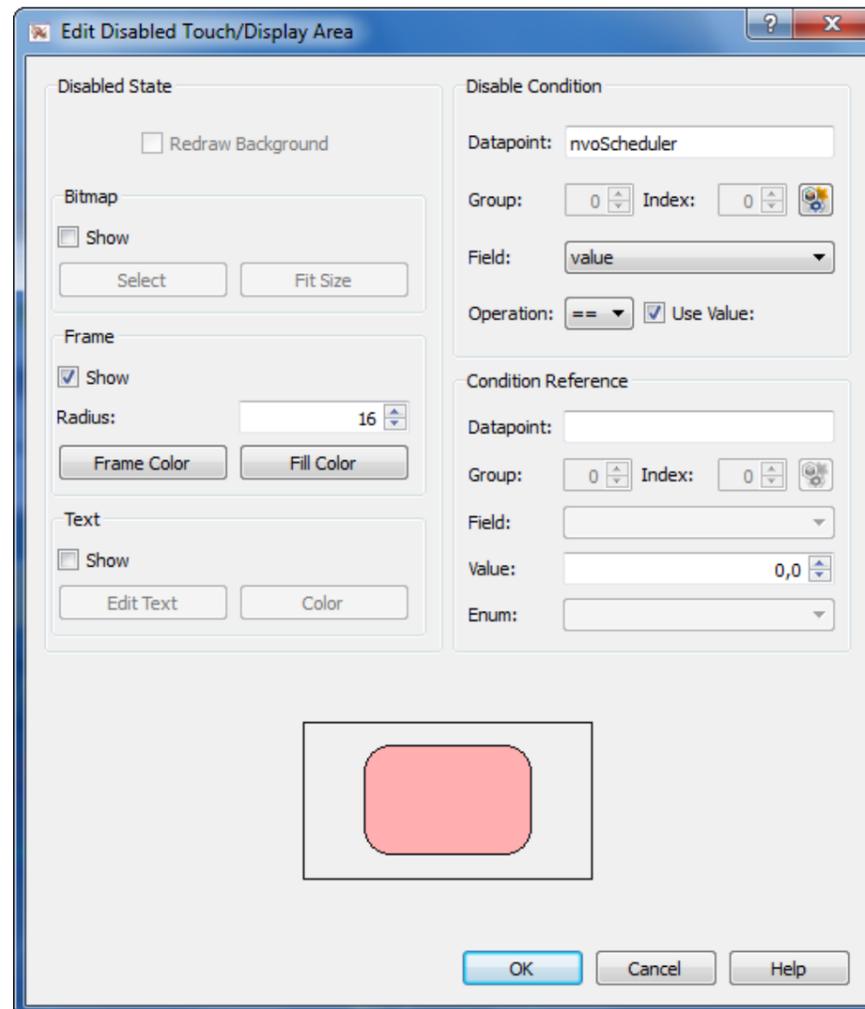
- ▶ **Show Bitmap** Selects if the button will display a bitmap.
- ▶ **Redraw Background** Redraw the background before drawing the new state to use transparent pictures.
- ▶ **Select** Opens the a dialog to select the [Image](#) for the actual button state.
- ▶ **Fit Size** Adjusts the size of the button to the size of the selected image.
- ▶ **Show Frame** Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
- ▶ **Radius** Sets the radius of the displayed frame.
- ▶ **Frame Color** Opens a dialog to select the [Frame Color](#).
- ▶ **Fill Color** Opens a dialog to select the [Fill Color](#).
- ▶ **Show Text** Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
- ▶ **Edit Text** Opens a dialog to select the [Text](#) to be displayed on the button.
- ▶ **Color** Opens a dialog to select the [Text Color](#).
- ▶ **Copy State UP** Copies the display properties from display state UP to the selected display state.
- ▶ **Switch On Delay** Sets the delay in seconds (ca.) the button must be held until the functions are executed.
- ▶ **Switch Off Delay** Sets the delay in seconds (ca.) the button must be released until the functions are executed (only on pushbuttons).



- ▶ **Datapoint X** Opens a dialog to choose a [Datapoint](#) as source for the button state.
- ▶ **Group/Index** Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.

- ▶ **Field** Selects the member of data structures (available on some datapoints).
- ▶ **Relation** Selects relation/condition to compare datapoint A to datapoint B or a fixed value. The fixed value can be set directly.
- ▶ **Value** Selects if datapoint A should be compared to datapoint B or to a fixed value.
- ▶ **Datapoint X** Opens a dialog to choose a [Datapoint](#) as source as relation for the button state.
- ▶ **Group/Index** Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
- ▶ **Field** Selects the member of data structures (available on some datapoints).

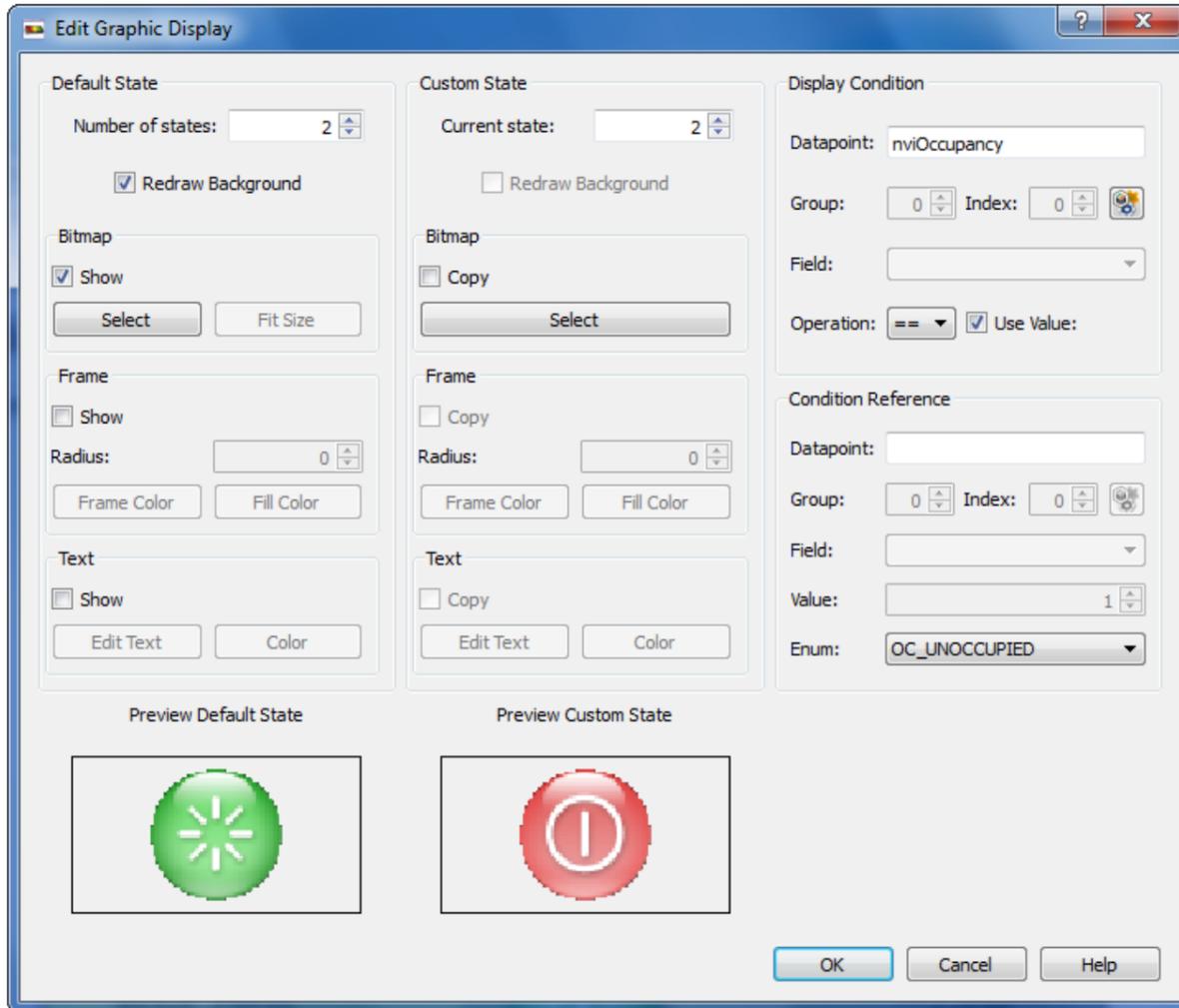
Disable Touch/Display Area Object



In this dialog the user can define an object that disables a whole touch and display area. If the condition is true the area under the object is not touchable. The displayed object can be used for e.g. greying out the area.

▶ Show Bitmap	Selects if the button will display a bitmap.
▶ Select	Opens a dialog to select the Image for the button.
▶ Fit Size	Adjusts the size of the button to the size of the selected image.
▶ Show Frame	Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
▶ Radius	Sets the radius of the displayed frame.
▶ Frame Color	Opens a dialog to select the Frame Color .
▶ Fill Color	Opens a dialog to select the Fill Color .
▶ Show Text	Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
▶ Edit Text	Opens a dialog to select the Text to be displayed on the button.
▶ Color	Opens a dialog to select the Text Color .
▶ Datapoint X	Opens a dialog to choose a Datapoint as source for the disable state.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ Relation	Selects relation/condition to compare datapoint A to datapoint B or a fixed value. The fixed value can be set directly.
▶ Value	Selects if datapoint A should be compared to datapoint B or to a fixed value.
▶ Datapoint X	Opens a dialog to choose a Datapoint as source as relation for the area state.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

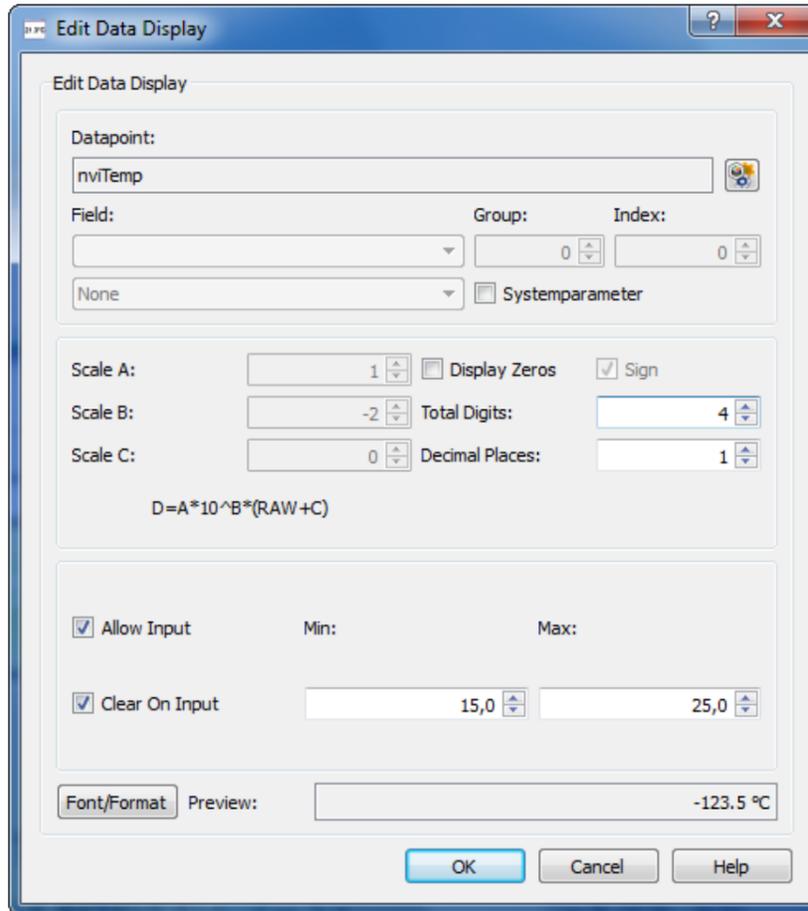
Graphic Display Object



The graphic display object provides possibilities to define [Datapoint](#) dependent graphic objects with up to 16 states. These objects can be images, frames and text.

- ▶ **Number of states** Sets the number of different states between 2 and 16.
- ▶ **Redraw Background** Redraw the background before drawing the new state to use transparent pictures.
- ▶ **Use Bitmaps** Selects if the object uses a bitmap to display.
- ▶ **Select** Opens the a dialog to select the [Picture](#) for the actual button state.
- ▶ **Use Frames** Selects if the object will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
- ▶ **Radius** Sets the radius of the displayed frame.
- ▶ **Frame Color** Opens a dialog to select the [Frame Color](#).
- ▶ **Fill Color** Opens a dialog to select the [Fill Color](#).
- ▶ **Use Text** Selects if the object will display a text. The text will overlap the image and frame. The text will always be displayed centred.
- ▶ **Edit Text** Opens a dialog to select the [Text](#) to be displayed on the button.
- ▶ **Text Color** Opens a dialog to select the [Text Color](#).
- ▶ **Background** Opens a dialog to select the [Text Background Color](#).
- ▶ **Copy State** Copies the display properties from state 1 to the current display state.
- ▶ **Datapoint** Opens a dialog to choose a [Datapoint](#) as source.
- ▶ **Group/Index** Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
- ▶ **Field** Selects the member of data structures (available on some datapoints).
- ▶ **Relation** Selects relation/condition to compare datapoint A to datapoint B or a fixed value. The fixed value can be set directly.
- ▶ **Value** Selects if datapoint A should be compared to datapoint B or to a fixed value.
- ▶ **Datapoint** Opens a dialog to choose a [Datapoint](#) as relation.
- ▶ **Group/Index** Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
- ▶ **Field** Selects the member of data structures (available on some datapoints).
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

Data Display/Data Input Object



The data display/input object provides possibilities to display [Datapoints](#) as numeric or text values on the display as well as input values.

- ▶ **Datapoint** Opens a dialog to choose a [Datapoint](#).
- ▶ **Group/Index** Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
- ▶ **Field** Selects the member of data structures (available on some datapoints).
- ▶ **System Parameter** If the displayed value is a systemparameter it will be selected here.
- ▶ **Scale A** This parameter is used to scale the value before displaying. The value will be multiplied with ScaleA
- ▶ **Scale B** This parameter is used to scale the value before displaying. The value will be multiplied with 10^ScaleB
- ▶ **Scale C** This parameter is used to scale the value before displaying. The ScaleC will be added to the value (first operation).
- ▶ **Display Zeros** This parameter holds the property if the value will be displayed with leading zeros or else with spaces.
- ▶ **Sign** This parameter holds the property if the value is signed or unsigned.
- ▶ **Total Digits** This parameter holds the total number of digits to display the value without sign and decimal point.
- ▶ **Decimal Places** This parameter holds the number of digits to display the value after the decimal point.
- ▶ **Allow Input** Selects if the data display is used as display only or can be used to input values with a popup keypad.

Example keypad for integer input:

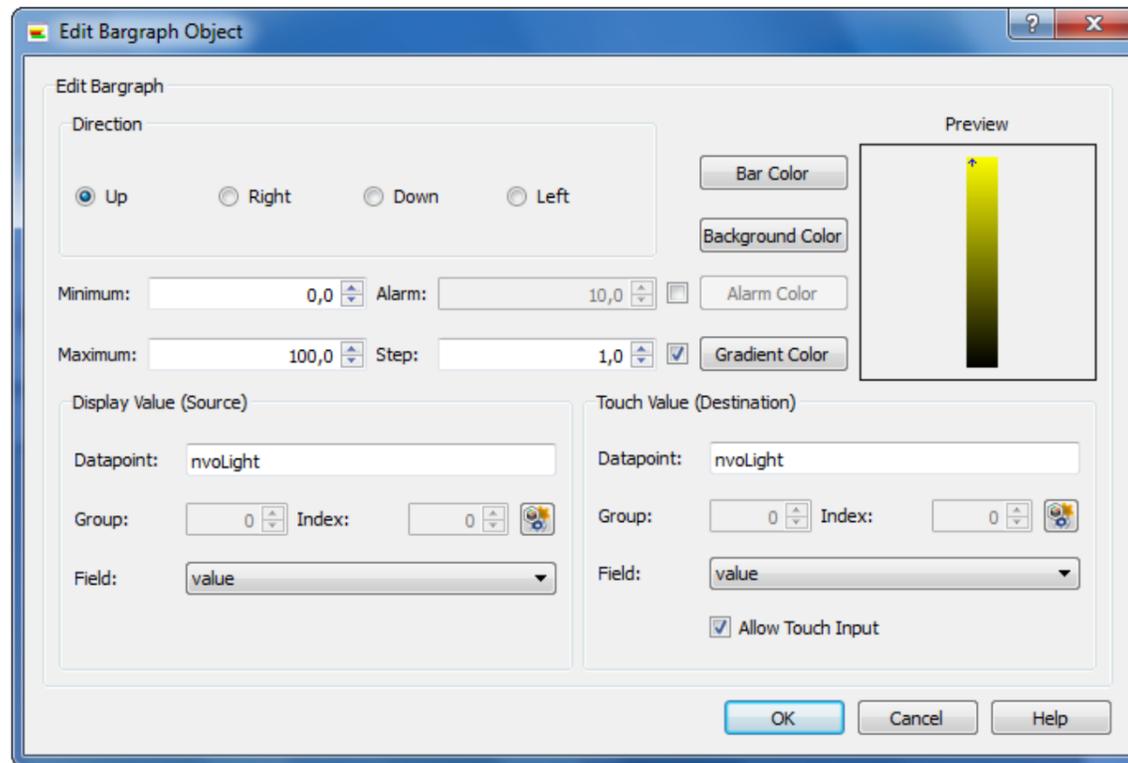
-1234567900			
7	8	9	ESC
4	5	6	<-
1	2	3	CL
0	.	±	OK

Example keypad for text input:

ABCDEFGHIJKLMNOPQRSTUVWXYZ012345													
ESC	1	2	3	4	5	6	7	8	9	0	=	?	
Q	W	E	R	T	Z	U	I	O	P	ü	*	+	
A	S	D	F	G	H	J	K	L	ö	ä	#		
>	Y	X	C	V	B	N	M	,	.	-	°	!	
SHIFT	CL								<-	OK			

- ▶ **Clear On Input** Selects if the value in the keypad will be cleared if the user enters the first number.
- ▶ **Min** Sets the minimum number that can be input in the popup keypad.
- ▶ **Max** Sets the maximum number that can be input in the popup keypad.
- ▶ **Font/Format** Opens the [Text Dialog](#) to set text, font and color or the datadisplay.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

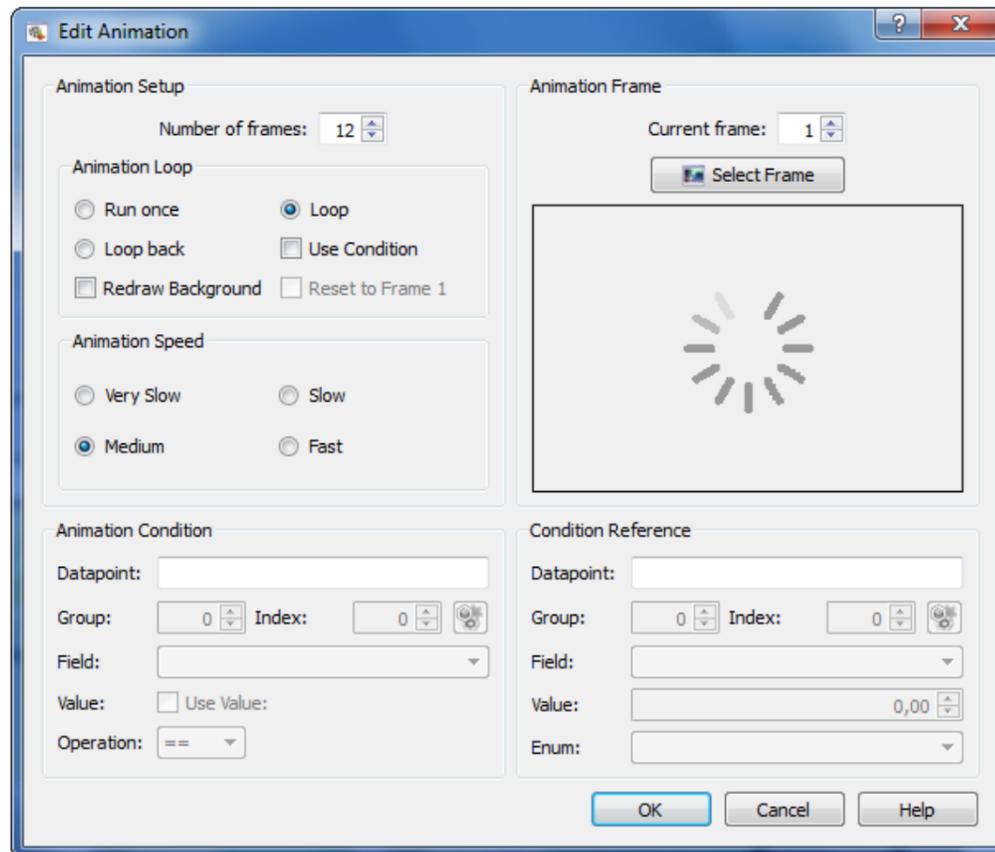
Bargraph Object



This object provides possibilities to display values or variables as a bar graph. As an extended option this bar also can be used as a touch sensitive input object.

▶ Direction	Sets the direction the bar slides to (eg. from up to down).
▶ Alarm Color	Creates a bar with a defined part that will be displayed in another color.
▶ Color Gradient	Creates a bar that changes the color softly from minimal to maximal value.
▶ Bar Color	Opens a dialog to choose the main color of the bargraph. It's not meaningful to use color attributes on bargraphs.
▶ Background Color	Opens a dialog to choose the background color of the bargraph. This means the color that will be used to delete the bar before redrawing.
▶ Alarm Color	Opens a dialog to choose the alarm color of the bargraph. This means the color that will be used if the bargraph exceeds the alarm value.
▶ Gradient Color	Opens a dialog to choose the gradient color of the bargraph. This means the bar has a soft gradient from bar color to gradient color.
▶ Datapoint	Opens a dialog to choose a Datapoint as source.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ Minimum	Sets the minimum value to display the bargraph.
▶ Maximum	Sets the maximum value to display the bargraph.
▶ Step	Sets the step size to the bargraph.
▶ Alarm Value	Sets the alarm value to the bargraph.
▶ Allow Touch Input	Selects if the bargraph is a display only or can be used to input values through the touch.
▶ Touch Value	Set the destination Datapoint as the destination datapoint.
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

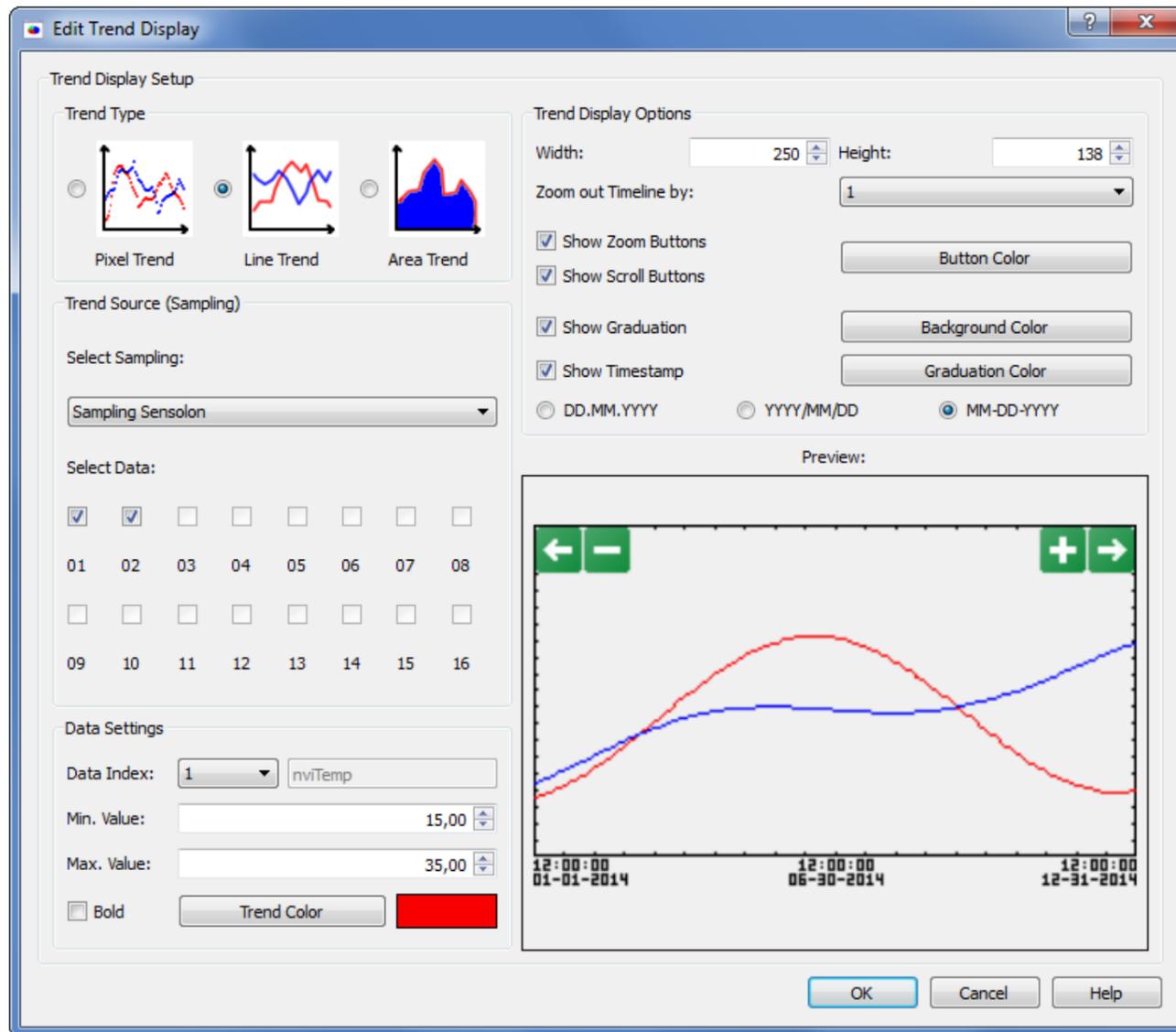
Animation Object



The animation object provides possibilities to display simple animations on the display.

▶ Number Of Frames	Sets the number of frames to display (max. 16).
▶ Run Once	The animation runs once after the screen was displayed.
▶ Loop	The animation runs continuously from frame 1..x,1..x,1..x.
▶ Loop Back	The animation runs continuously from frame 1..x,x..1,1..x.
▶ Use Condition	Selects if the animation is displayed with or without a condition.
▶ Redraw Background	Redraw the animation background before drawing the frame to use transparent pictures.
▶ Reset to Frame 1	If the animation is used with a condition this flag ensures that the animation shows the first frame if the condition is not valid.
▶ Speed	Sets the animation speed from very slow to fast.
▶ Current Frame	Selects the current frame in the animation.
▶ Select Frame	Opens the image manager to choose an image as current frame. Notice that animations with transparent images will not restore the background. The images should all be in the same size.
▶ Datapoint	Opens a dialog to choose a Datapoint as source for the condition.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ Operation	Selects relation/condition to compare datapoint X to datapoint Y or a fixed value. The fixed value can be set directly.
▶ Value	Selects if datapoint X should be compared to datapoint Y or to a fixed value.
▶ Datapoint	Opens a dialog to choose a Datapoint as relation.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ OK	Closes the dialog and saves the changes.
▶ Cancel	Closes the dialog and discard the changes.
▶ Help	Shows this help window.

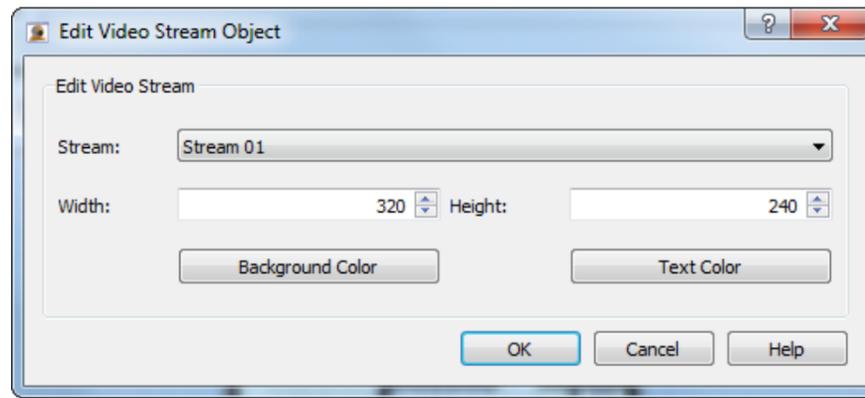
Trend Display



The Trend Display object provides possibilities to display [Data Samplings](#) on the TouchLBM.

- | | |
|---|--|
| <ul style="list-style-type: none"> ▶ Trend Type ▶ Trend Source ▶ Data Index ▶ Min/Max. Value ▶ Bold ▶ Trend Color ▶ Width/Height ▶ Zoom out Timeline ▶ Show Zoom Buttons ▶ Show Scroll Buttons ▶ Button Color ▶ Show Graduation ▶ Graduation Color ▶ Show Timestamp ▶ Date Format ▶ Background Color ▶ OK ▶ Cancel ▶ Help | <p>Selects the type of the Trend Display. Pixel Trend - Values will be displayed as single pixel. Line Trend - Values will be connected through lines. Area Trend - The area below the values will be filled.</p> <p>Selects the Data Sampling to be displayed. There can be show one or more data sets from one Data Sampling.</p> <p>Changes between the datasets of the selected sampling.</p> <p>Sets the limits for the displayed data value.</p> <p>Selects if the trend is displayed bold or normal.</p> <p>Opens a dialog to select the Color of the trend.</p> <p>Sets the dimensions of the trend display in pixels.</p> <p>Sets the standard zoom multiplier to zoom in/out the timeline.</p> <p>Selects if the trend contains buttons to zoom in/out the timeline.</p> <p>Selects if the trend contains buttons to scroll along the timeline.</p> <p>Opens a dialog to select the Color of the buttons.</p> <p>Selects if the trend shows a frame with graduation.</p> <p>Opens a dialog to select the Color of the graduation.</p> <p>Selects if the timestamp is shown below the trend display.</p> <p>Selects the date format for displaying timestamps.</p> <p>Opens a dialog to select the Color of the trend background.</p> <p>Closes the dialog and saves all changes.</p> <p>Closes the dialog and discards all changes.</p> <p>Shows this help window.</p> |
|---|--|

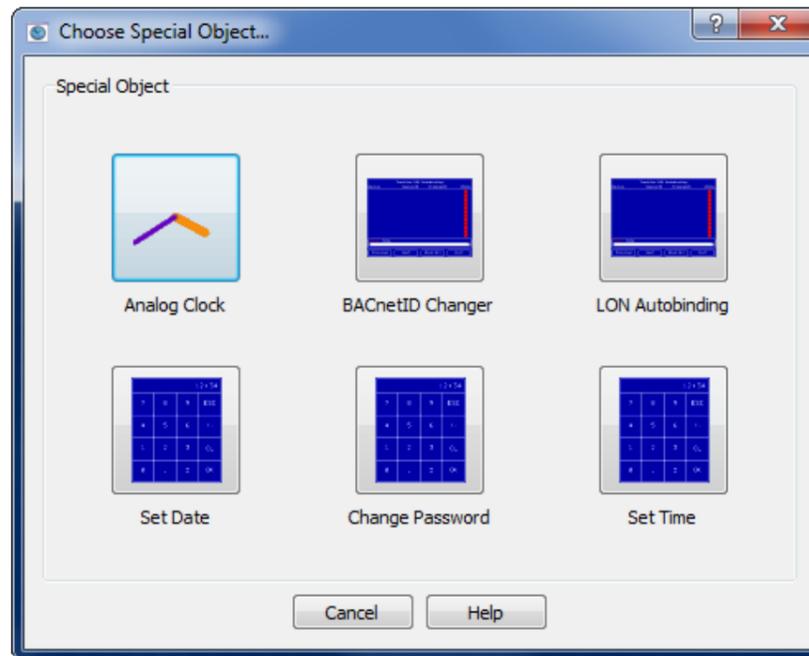
Video Stream Object



In this dialog the user can define an object is showing a RTSP video stream.
The video stream is only available when having TouchLBM boot version 1.30 or later. Please contact PASStec to ask for updating.

▶ Stream	Selects the number of the video stream defined in the project settings .
▶ Width	Adjusts the size of the video window (min 128 pixel).
▶ Height	Adjusts the size of the video window (min 128 pixel).
▶ Background Color	Opens a dialog to select the Background Color if no video is available.
▶ Text Color	Opens a dialog to select the Text Color if messages are displayed.
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

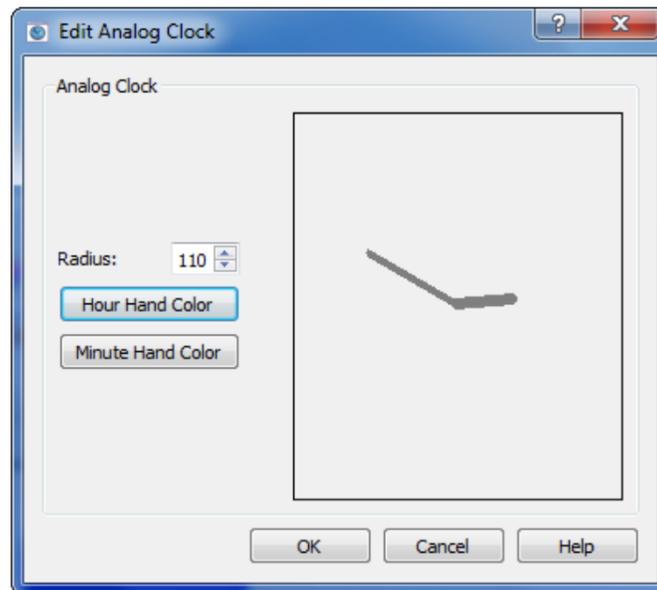
Special Objects



In this dialog the user can choose some special objects into the TouchMaker project. The objects can be created by dragging a rectangle in the [Drawing Window](#).

- ▶ [Analog Clock](#) Object that shows the actual time in a analogic clock.
- ▶ [BACnetID Changer](#) Object that opens a keypad to manage BACnet ObjectID and DeviceID.
- ▶ [LON Autobind](#) Object that opens a keypad to manage automatic LON bindings.
- ▶ [Set Date](#) Object that opens a keypad to enter the actual date.
- ▶ [Change Password](#) Object that opens a keypad to change the password of a security level.
- ▶ [Set Time](#) Object that opens a keypad to enter the actual time.

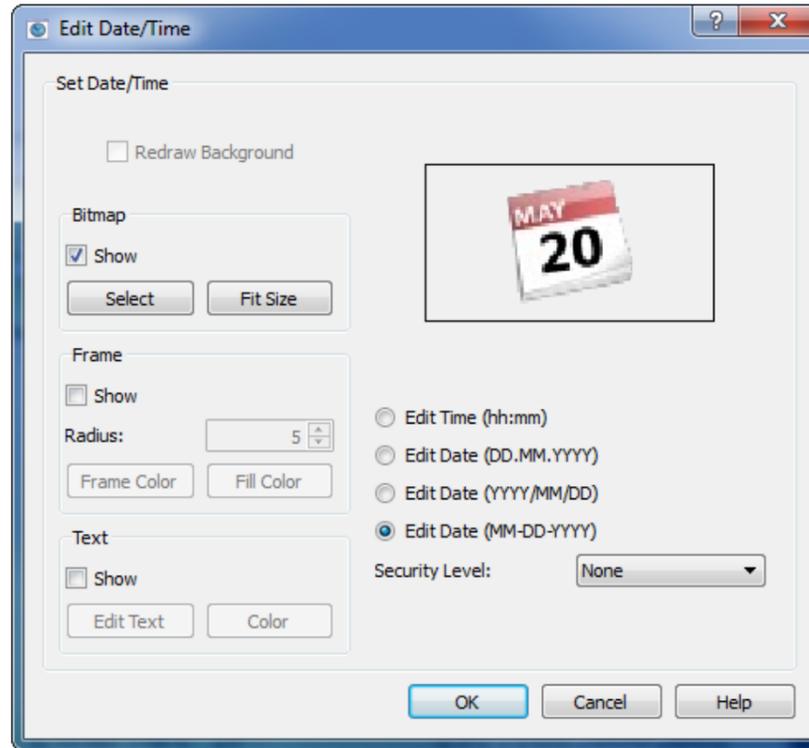
Analog Clock



This object shows the actual time in an analogic clock.

▶ Radius	Sets the radius of the Minute hand.
▶ Minute Hand Color	Sets the color for the Minute Hand.
▶ Hour Hand Color	Sets the color for the Hour Hand.
▶ OK	Closes the dialog and saves the changes.
▶ Cancel	Closes the dialog and discards the changes.
▶ Help	Shows this help window.

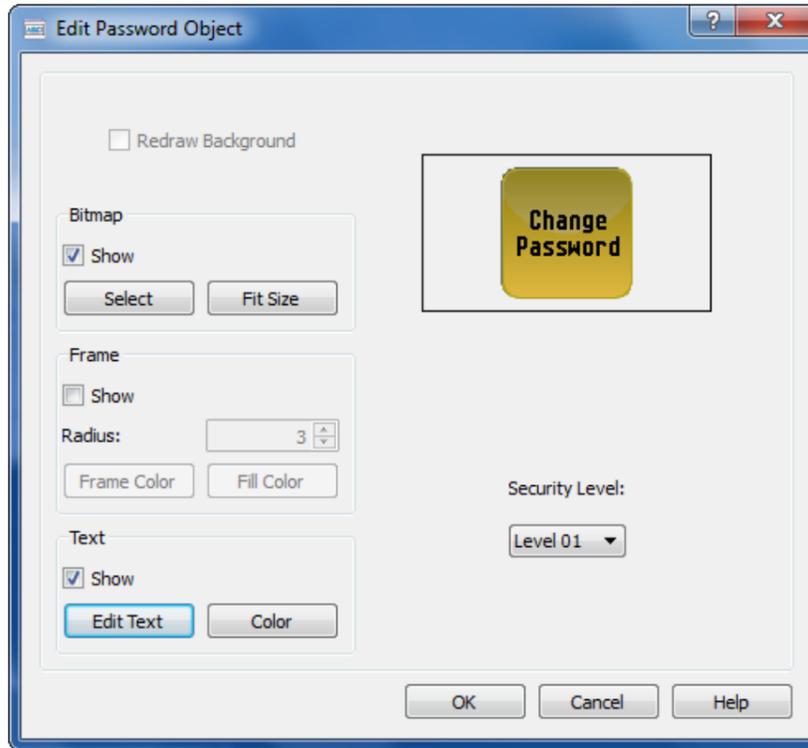
Date/Time Setting Object



In this dialog the user can define an object that pops up a keypad to enter the actual time or date to the internal RTC.

▶ Show Bitmap	Selects if the button will display a bitmap.
▶ Select	Opens a dialog to select the Image for the button.
▶ Fit Size	Adjusts the size of the button to the size of the selected image.
▶ Show Frame	Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
▶ Radius	Sets the radius of the displayed frame.
▶ Frame Color	Opens a dialog to select the Frame Color .
▶ Fill Color	Opens a dialog to select the Fill Color .
▶ Show Text	Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
▶ Edit Text	Opens a dialog to select the Text to be displayed on the button.
▶ Color	Opens a dialog to select the Text Color .
▶ Edit Time (hh:mm)	Selects if the user can input the time.
▶ Edit Date (format)	Selects if the user can input the date in the given format.
▶ Security Level	Sets the security level for access control.
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

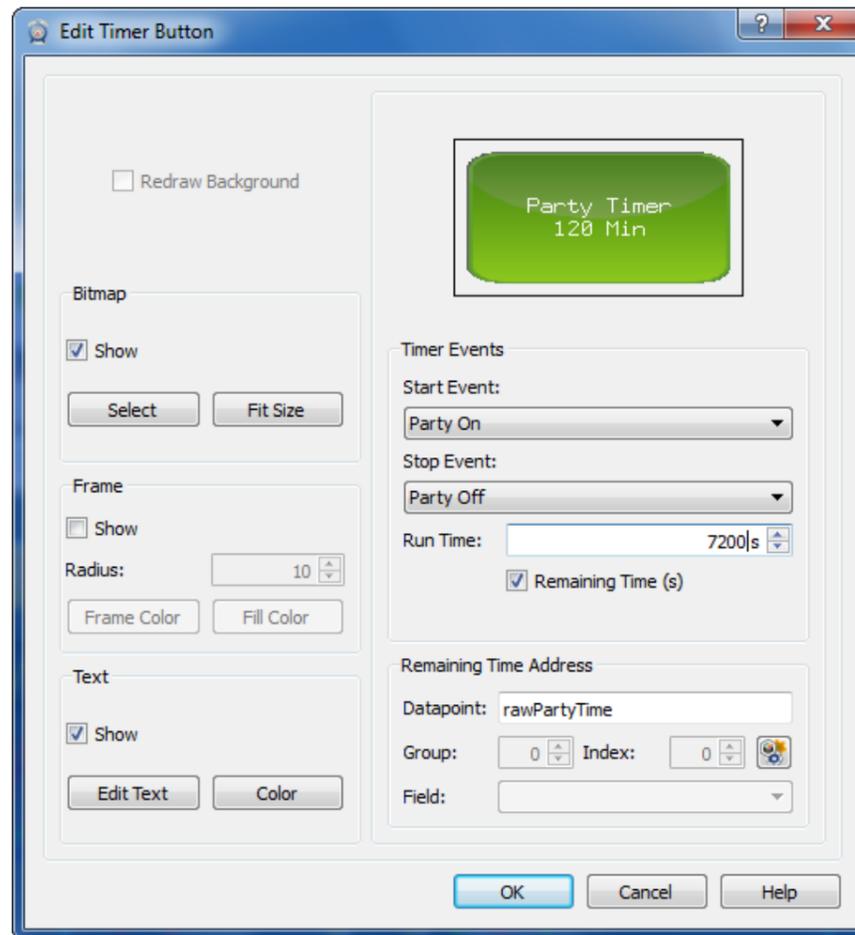
Password Setting Object



In this dialog the user can define an object that pops up a keypad to enter the password for a security level.

▶ Show Bitmap	Selects if the button will display a bitmap.
▶ Select	Opens the a dialog to select the Image for the button.
▶ Fit Size	Adjusts the size of the button to the size of the selected image.
▶ Show Frame	Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
▶ Radius	Sets the radius of the displayed frame.
▶ Frame Color	Opens a dialog to select the Frame Color .
▶ Fill Color	Opens a dialog to select the Fill Color .
▶ Show Text	Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
▶ Edit Text	Opens a dialog to select the Text to be displayed on the button.
▶ Color	Opens a dialog to select the Text Color .
▶ Security Level	Sets the security level for access control and password to be changed.
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

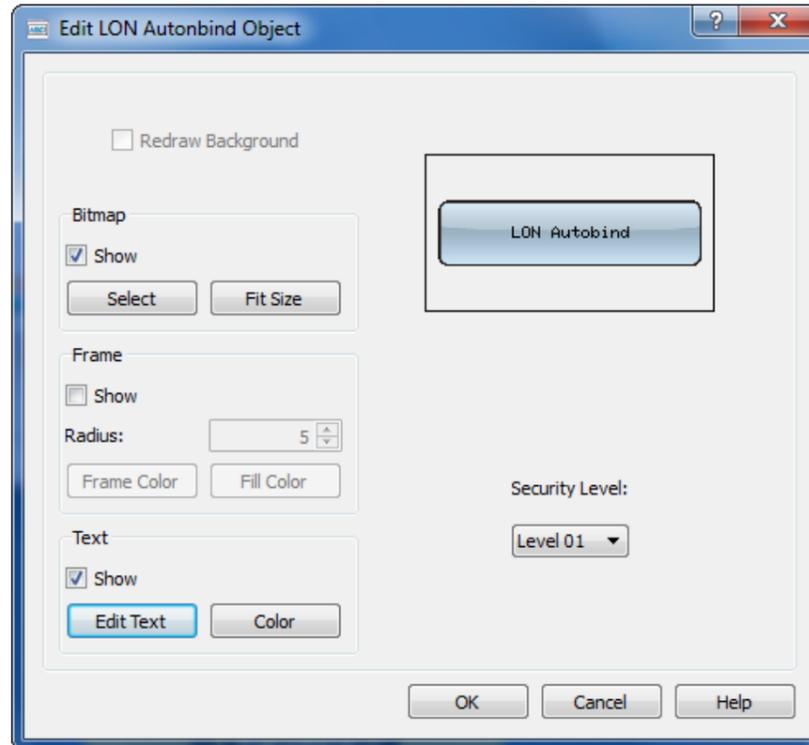
Timer Button Object



In this dialog the user can define an object that starts and stops [Scheduler Events](#) directly and after a defined runtime. This can be used for example to create a typical party function. When the button is pressed the system turns on and back to off after some time.

- | | |
|-------------------------|---|
| ▶ Show Bitmap | Selects if the button will display a bitmap. |
| ▶ Select | Opens the a dialog to select the Image for the button. |
| ▶ Fit Size | Adjusts the size of the button to the size of the selected image. |
| ▶ Show Frame | Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background. |
| ▶ Radius | Sets the radius of the displayed frame. |
| ▶ Frame Color | Opens a dialog to select the Frame Color . |
| ▶ Fill Color | Opens a dialog to select the Fill Color . |
| ▶ Show Text | Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred. |
| ▶ Edit Text | Opens a dialog to select the Text to be displayed on the button. |
| ▶ Color | Opens a dialog to select the Text Color . |
| ▶ Start Event | Event that will be executed when the button is pressed. |
| ▶ Stop Event | Event that will be executed when the timer expired. |
| ▶ Runtime | Time in seconds until the timer expires. |
| ▶ Remaining Time | Option to copy the remaining time into user memory (e.g. for displaying). |
| ▶ Runtime | Time in seconds until the timer expires. |
| ▶ Datapoint | Opens a dialog to choose a Datapoint to save the remaining time. |
| ▶ Group/Index | Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array. |
| ▶ Field | Selects the member of data structures (available on some datapoints). |
| ▶ OK | Closes the dialog and saves all changes. |
| ▶ Cancel | Closes the dialog and discards all changes. |
| ▶ Help | Shows this help window. |

LON Autobind Object



In this dialog the user can define an object that pops up a keypad to manage the automatic LON bindings. For defining these bindings a software called LinkMaker (www.passtec.de) is necessary. With these autobinding functions it's very easy to bind small LON networks without any LON tool (hardware or software).

▶ Show Bitmap	Selects if the button will display a bitmap.
▶ Select	Opens the a dialog to select the Image for the button.
▶ Fit Size	Adjusts the size of the button to the size of the selected image.
▶ Show Frame	Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
▶ Radius	Sets the radius of the displayed frame.
▶ Frame Color	Opens a dialog to select the Frame Color .
▶ Fill Color	Opens a dialog to select the Fill Color .
▶ Show Text	Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
▶ Edit Text	Opens a dialog to select the Text to be displayed on the button.
▶ Color	Opens a dialog to select the Text Color .
▶ Security Level	Sets the security level for access control.
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

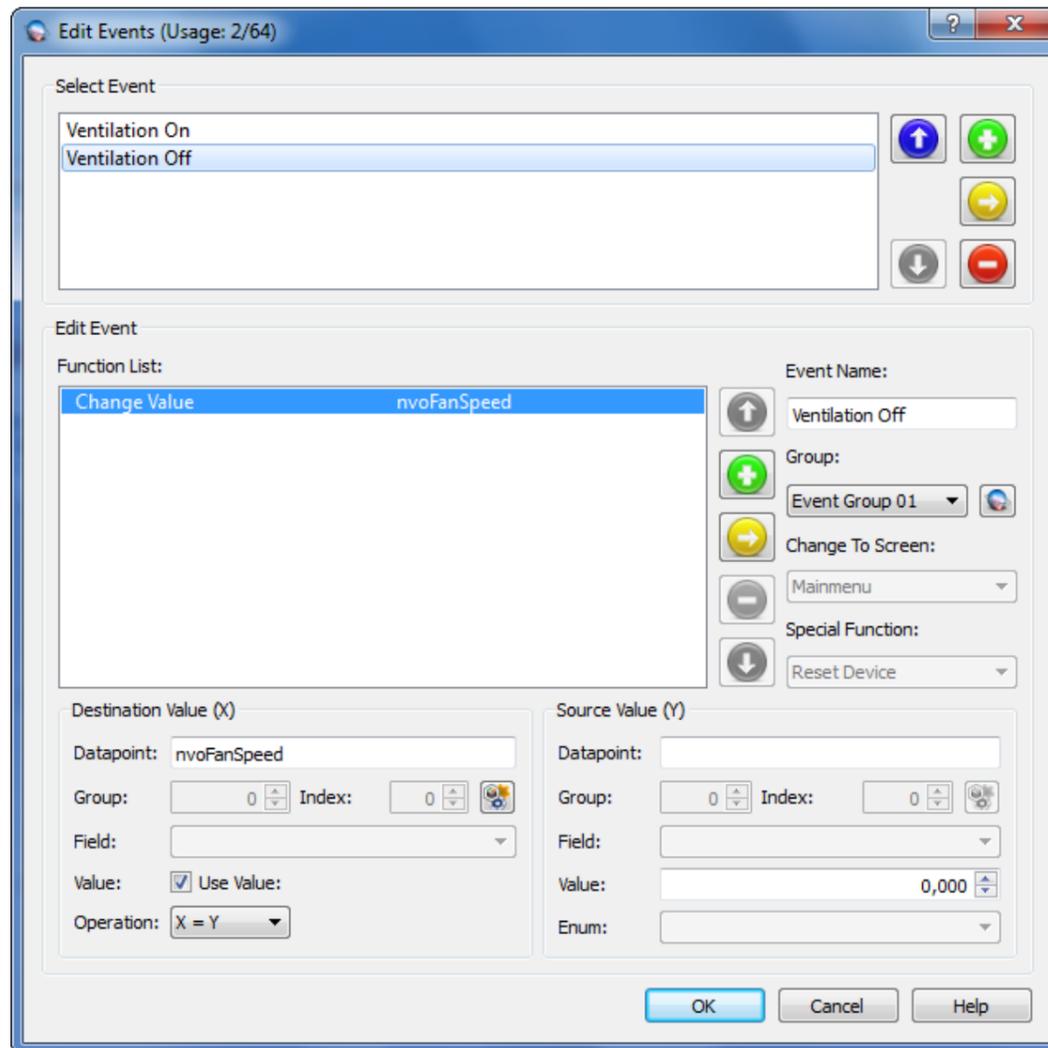
LON Autobinding

Overview on LON Autobinding screens:

Gerät	NeuronID	ProgramID	State
Touchlon	80000008100E	90000008150A0423	●
Sensor Innen	00042A5CE000	9000000A000A040E	●
Sensor Aussen	000422367000	9000000A000A040E	●
			●
			●
			●
			●
			●
Fehler: Keiner			
<input type="button" value="Vorherige"/> <input type="button" value="Nächste"/> <input type="button" value="Binde Alle"/> <input type="button" value="Beenden"/> <input type="button" value="?"/>			

Hilfe für Autobinding
Projekt aus LinkMaker: Bürogebäude Fa. PASStec U 3.1
Gerätestatus (änderbar durch Touch):
● Gerät nicht gefunden oder keine NeuronID
● Gerät noch nicht gebunden
● Warte auf Service Nachricht vom Gerät
● Gerät fehlerfrei gebunden
NeuronID änderbar durch Touch > 2 Sekunden:
● Löschen der eingetragenen NeuronID
● Löschen der eingetragenen NeuronID
● Eintragen der NeuronID des Touchlon
● Eintragen der NeuronID über Tastatur
<input type="button" value="←"/>

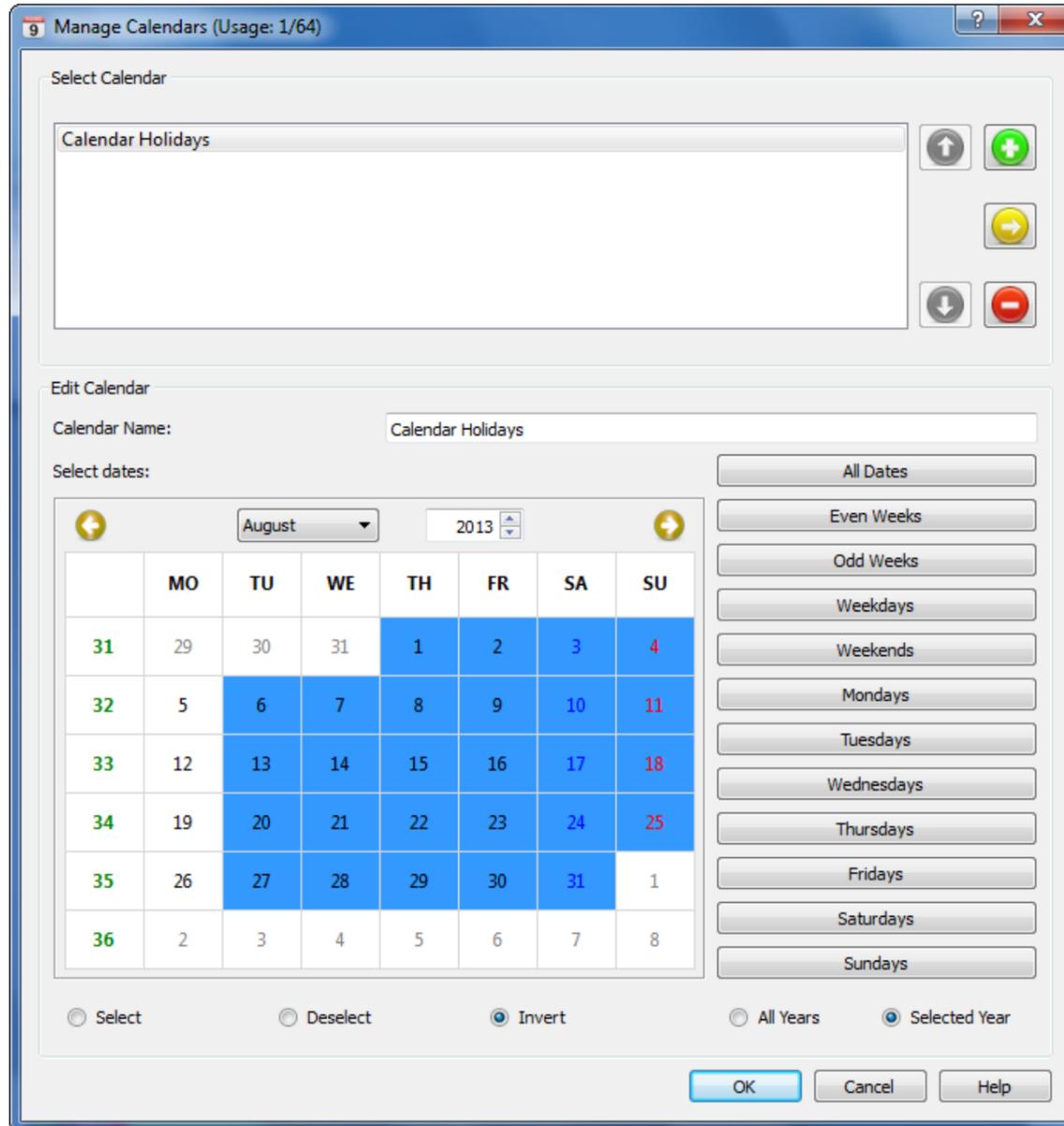
Schedule Events



Events are lists of functions that will be executed on timestamps in a [Schedule](#). This list is similar to the functions that will be executed when a button is pressed. There is the possibility to jump to screens, execute special functions or to change datapoints/variables (e.g. changeable setpoints).

▶ Select Event	Selects an event to edit.
▶ Add	Adds a new event to the project.
▶ Remove	Removes the selected event from project.
▶ Copy	Copies the selected event.
▶ Up	Moves the selected event 1 position up.
▶ Down	Moves the selected event 1 position down.
▶ Event Name	Holds the name of the event to display on the screen.
▶ Event Group	Holds the group where the event is located. Schedules can only use events from the same group.
▶ ...	Opens a small dialog to enter the group names.
▶ Function List	Overview on all defined functions in the event. They will be executed in the displayed order.
▶ Up	Moves the selected function upwards in the execution order.
▶ Add Function	Adds a function to the list. You can choose to change the screen, to change a value or to do a special function.
▶ Remove Function	Removes the selected function from the list.
▶ Down	Moves the selected function downwards in the execution order.
▶ Change To Screen	Selects screen that will be displayed when the event is executed.
▶ Special Function	Selects a special function that will be executed with the event.
▶ Destination Datapoint X	Opens a dialog to choose a Datapoint as result of the operation.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ Operation	Selects the operation to do some simple mathematics to change the value.
▶ Set Value	Selects if the destination datapoint/variable should be set to a fixed value or to another datapoint/variable.
▶ Source Datapoint Y	Opens a dialog to choose a Datapoint as source for the operation.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ Value	Holds the value that will be used to change the value. This can be a number or a define enum depending on the datatype.
▶ OK	Closes the dialog and saves all changes.
▶ Cancel	Closes the dialog and discards all changes.
▶ Help	Shows this help window.

Calendar



The Calendar provides possibilities to select special dates when a [Schedule](#) should be available or not. For a calendar the complete period from 1980 to 2099 can be used.

- | | |
|--|---|
| <ul style="list-style-type: none"> ▶ Select Calendar ▶ Add ▶ Remove ▶ Copy ▶ Up ▶ Down ▶ Calendar Name ▶ Select Dates ▶ Select ▶ Deselect ▶ Invert ▶ All Years ▶ Selected Year ▶ All Days ▶ Even Weeks ▶ Odd Weeks ▶ Weekdays ▶ Weekend ▶ Mondays... | <p>Chooses the calendar to be edited.</p> <p>Adds a calendar to the project.</p> <p>Removes a calendar from the project.</p> <p>Copies a calendar.</p> <p>Moves the selected calendar 1 position up.</p> <p>Moves the selected calendar 1 position down.</p> <p>Sets the name for the calendar object.</p> <p>Here the availability for each single day from 1980/01/01 to 2099/12/31 can be set. Dates can be selected directly by clicking, by clicking a whole week or by clicking a weekday. This selection is for all days within the selected month.</p> <p>Selects if the chosen dates are selected (previous states are ignored).</p> <p>Selects if the chosen dates are deselected (previous states are ignored).</p> <p>Selects if the chosen dates are inverted (previous states are reversed).</p> <p>Selects if the group selection applies to all years from 1980 to 2099.</p> <p>Selects if the group selection applies only to the selected year.</p> <p>Group selection for all days without exception.</p> <p>Group selection for all days in even weeks.</p> <p>Group selection for all days in odd weeks.</p> <p>Group selection for all days from Monday to Friday.</p> <p>Group selection for all days Saturday to Sunday.</p> <p>Group selection for all days.</p> |
|--|---|

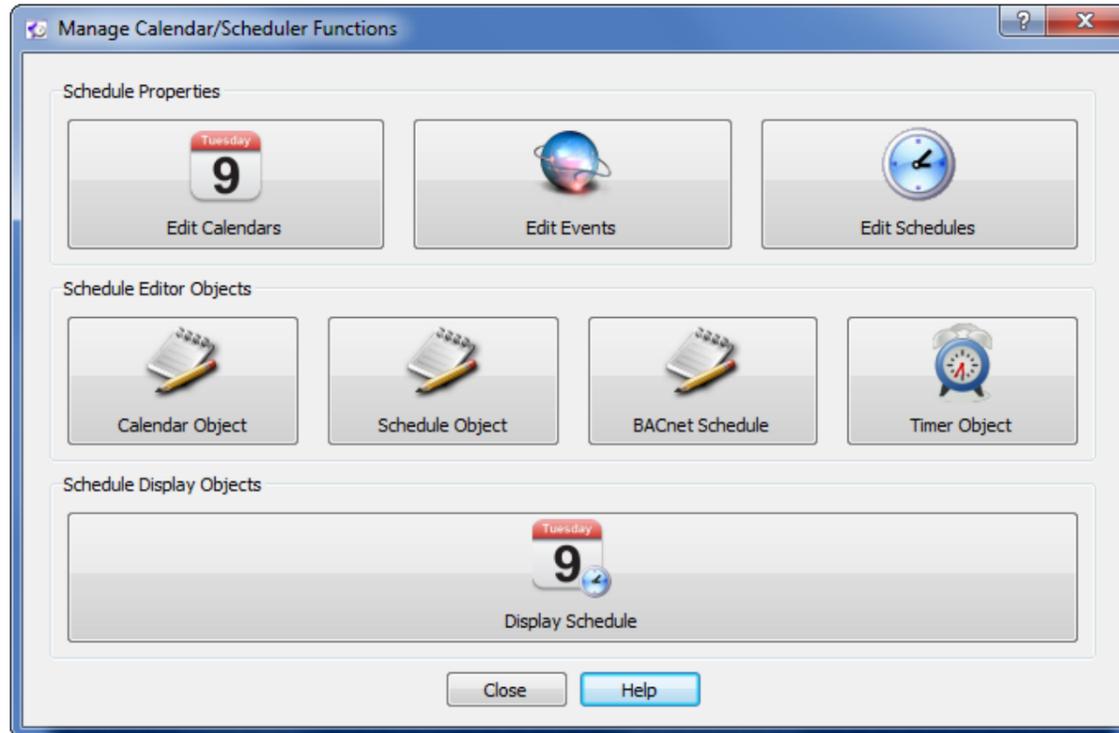
Keypad for editing calendar dates on the TouchLBM:

<<	<	JAN 2010						>	>>	All Dates	All Years
	MO	TU	WE	TH	FR	SA	SU		Even Weeks	Selected Year	
03	28	29	30	31	01	02	03		Odd Weeks		
01	04	05	06	07	08	09	10		Weekdays		
02	11	12	13	14	15	16	17		Weekends		
03	18	19	20	21	22	23	24		Mondays		
04	25	26	27	28	29	30	31		Tuesdays		
05	30	30	30	30	30	30	30		Wednesdays		
Select	Deselect	Invert							Thursdays	Cancel	
									Fridays	Ok	
									Saturdays		
									Sundays		

- ▶ OK
- ▶ Cancel
- ▶ Help

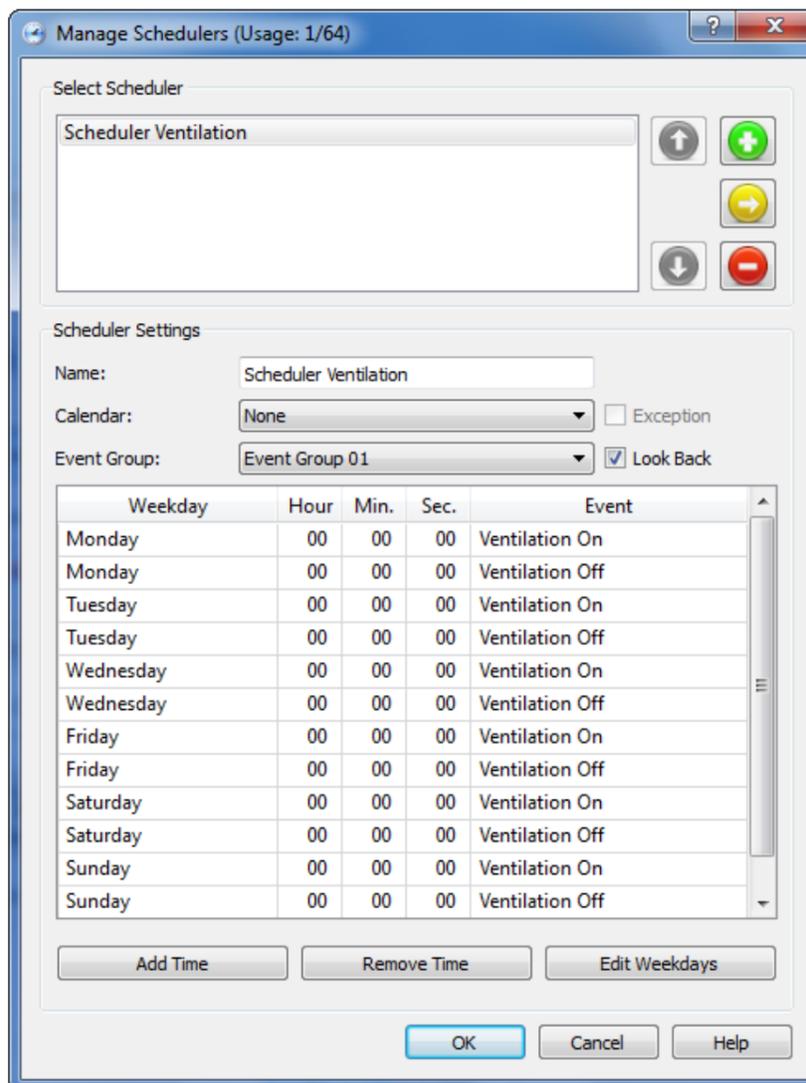
Closes the dialog and saves all changes.
Closes the dialog and discards all changes.
Shows this help window.

Calendar/Schedule



Calendars and Schedules providing possibilities to manage and run fixed events. There are also provided objects to display calendars/schedules comfortable and objects to set the parameters. Schedules are valid in every case or only within a selected calendar. A schedule contains a list of timestamps. If one of these timestamps expires a special event will be executed.

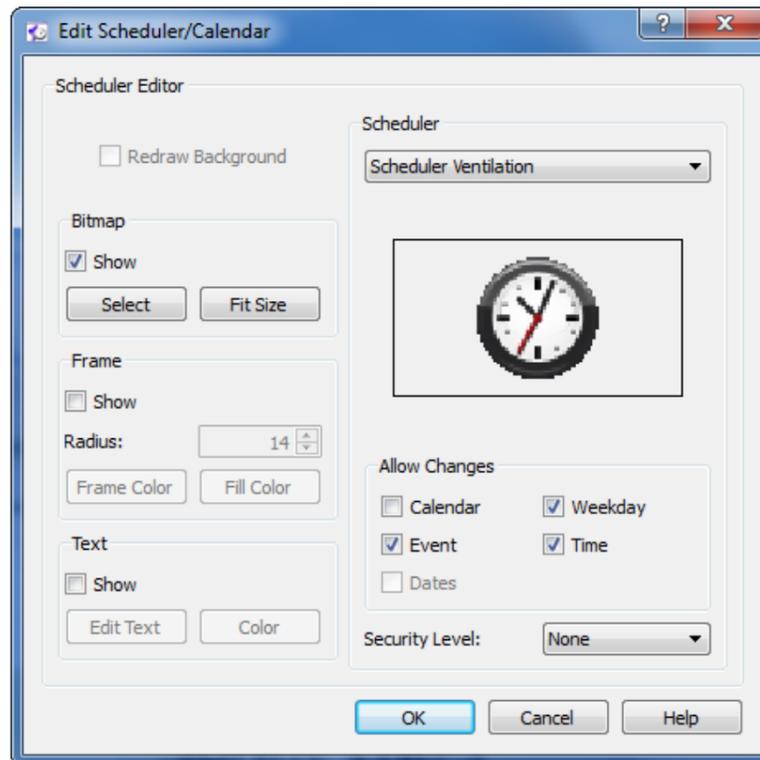
- ▶ **Edit Calendars** Opens a dialog to edit one of the [Calendars](#).
- ▶ **Edit Events** Opens a dialog to edit the [Events](#).
- ▶ **Edit Schedules** Opens a dialog to edit the [Schedules](#).
- ▶ **Calendar Object** Provides an object to edit a [Calendar](#) on the TouchLBM screen.
- ▶ **Schedule Object** Provides an object to edit a selected [Schedule](#) on the TouchLBM screen.
- ▶ **BACnet Schedule** Provides an object to edit a selected [BACnet Schedule](#) on the TouchLBM screen.
- ▶ **Timer Object** Provides an object to start/stop a defined [Timer](#) on the TouchLBM screen.
- ▶ **Schedule Display** Provides objects to display [Schedule Elements](#) on the TouchLBM screen.
- ▶ **Close** Closes the dialog.
- ▶ **Help** Shows this help window.



Schedules are collections of timestamps containing weekday, hour, minute and second when a selected event will be executed. A Schedule is valid in every case or only within a selected calendar.

- ▶ **Select Schedule** Selects an existing schedule for editing.
- ▶ **Add** Creates a new schedule in the project.
- ▶ **Remove** Removes the selected schedule from the project.
- ▶ **Copy** Copies the selected schedule.
- ▶ **Up** Moves the selected schedule 1 position up.
- ▶ **Down** Moves the selected schedule 1 position down.
- ▶ **Name** Short description or name that can be displayed on the screen.
- ▶ **Calendar** Selects a calendar for the schedule. If a calendar is selected the schedule will be executed only if the calendar is valid.

- ▶ **Event Group** Selects the event group of the schedule. A schedule can only execute events from this group.
- ▶ **Look Back** Selects if the schedule should execute the latest valid event after rebooting TouchLBM or when the internal time was changed more than 30 minutes. The schedule looks back to 00:00 on the same day.
- ▶ **Timestamp** Here the timestamp can be defined. Weekday, hour and minute are defining the timestamp. ** means every hour or every minute. The selected event will be executed. While closing the dialog all timestamps will be sorted chronological.
- ▶ **Add Time** Adds a new timestamp to the schedule.
- ▶ **Remove Time** Removes the selected timestamp from the schedule.
- ▶ **Weekdays** Opens a dialog to edit the weekday names that will be displayed on the screen.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.



The Schedule Editor Object provides possibilities to let the user edit schedules/calendars on the TouchLBM screen. This object will be used as a Touch Button. This Button can be displayed with bitmaps, frames or text. If the user presses the button a popup dialog will be displayed.

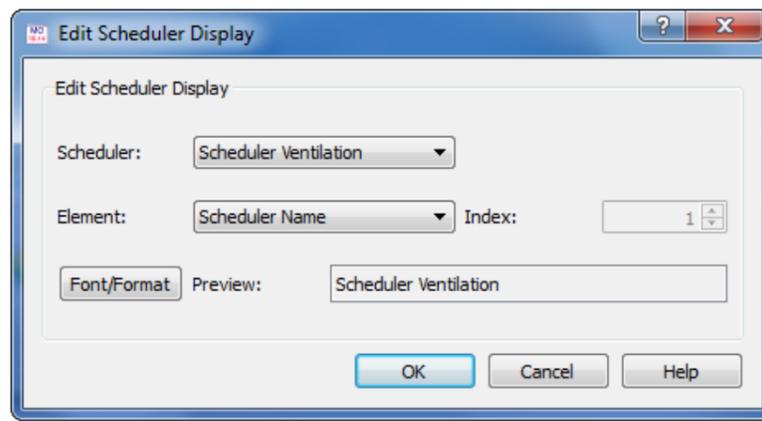
- ▶ **Show Bitmap** Selects if the button will display a bitmap.
- ▶ **Select** Opens the a dialog to select the [Image](#) for the button.
- ▶ **Fit Size** Adjusts the size of the button to the size of the selected image.
- ▶ **Show Frame** Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
- ▶ **Radius** Sets the radius of the displayed frame.
- ▶ **Frame Color** Opens a dialog to select the [Frame Color](#).
- ▶ **Fill Color** Opens a dialog to select the [Fill Color](#).
- ▶ **Show Text** Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
- ▶ **Edit Text** Opens a dialog to select the [Text](#) to be displayed on the button.
- ▶ **Color** Opens a dialog to select the [Text Color](#).
- ▶ **Schedule** Selects the schedule/calendar to edit.
- ▶ **Allow Changes** Selects witch elements can be changed on the screen by the user.
- ▶ **Security Level** Sets the security level for access control.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.



Example dialog to edit schedules on the TouchLBM screen. Pressing the different elements will change weekday, timestamp or event (if allowed).

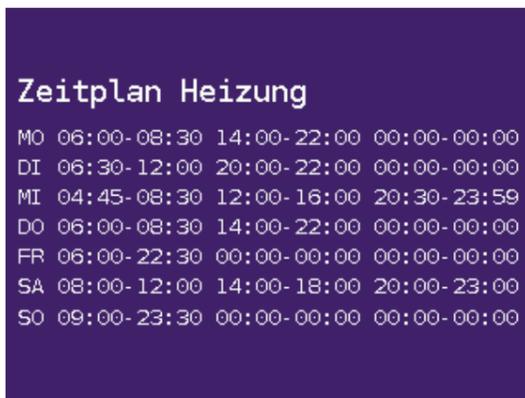


Example dialog to edit calendars on the TouchLBM screen. Pressing the different elements will change the selected dates (if allowed).



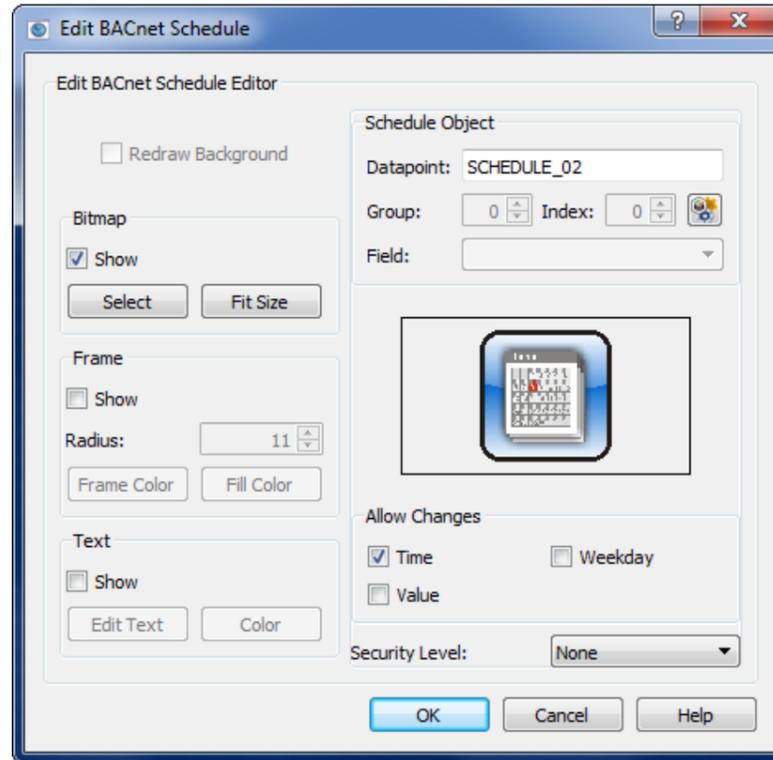
Objects to display schedule elements on the screen. Every element can be displayed on individual positions with individual formatings.

- ▶ **Schedule** Selects the schedule to display on the screen.
- ▶ **Element** Sets the element to display (weekday/time/event...).
- ▶ **Index** Sets the index of the element to display.
- ▶ **Font/Format** Opens a dialog to format the Text.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.



Example of an overview on some formatted schedule elements on the TouchLBM screen.

BACnet Schedule



The BACnet Schedule Object Editor provides possibilities to let the user edit a BACnet Schedule on the TouchLBM screen. This object will be used as a Touch Button. This Button can be displayed with bitmaps, frames or text. If the user presses the button a popup dialog will be displayed.

- ▶ **Show Bitmap** Selects if the button will display a bitmap.
- ▶ **Select** Opens the a dialog to select the [Image](#) for the button.
- ▶ **Fit Size** Adjusts the size of the button to the size of the selected image.
- ▶ **Show Frame** Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
- ▶ **Radius** Sets the radius of the displayed frame.
- ▶ **Frame Color** Opens a dialog to select the [Frame Color](#).
- ▶ **Fill Color** Opens a dialog to select the [Fill Color](#).
- ▶ **Show Text** Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
- ▶ **Edit Text** Opens a dialog to select the [Text](#) to be displayed on the button.
- ▶ **Color** Opens a dialog to select the [Text Color](#).
- ▶ **BACnet Schedule** Selects the BACnet Schedule Object to edit.
- ▶ **Allow Changes** Selects witch elements can be changed on the screen by the user.
- ▶ **Security Level** Sets the security level for access control.
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.



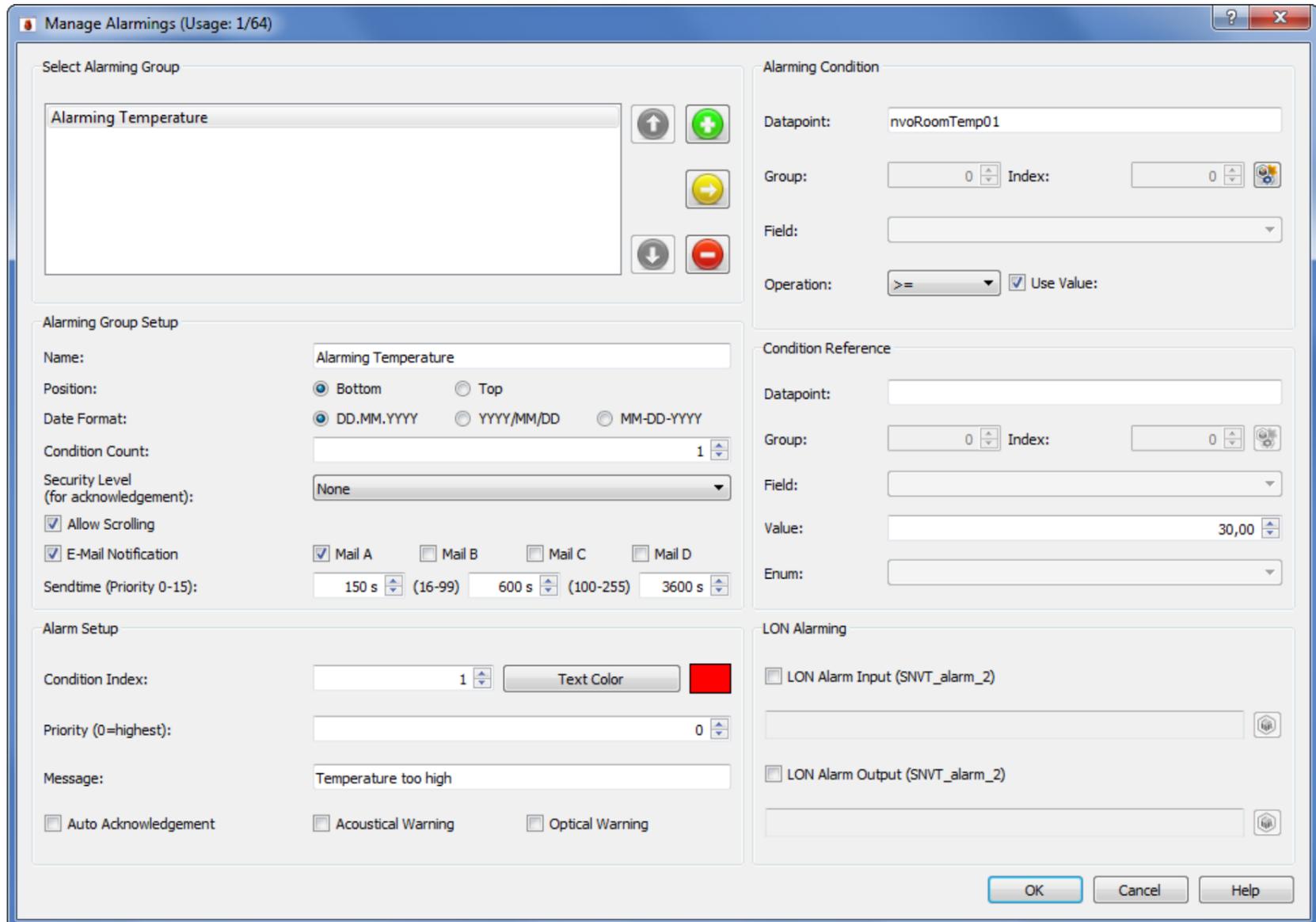
Example dialog to edit schedules on the TouchLBM screen. Pressing the different elements will change weekday or timestamp (if allowed).

Alarming



The Alarming Functions providing possibilities to warn the user on the screen and/or via LON if an alarming condition becomes true.

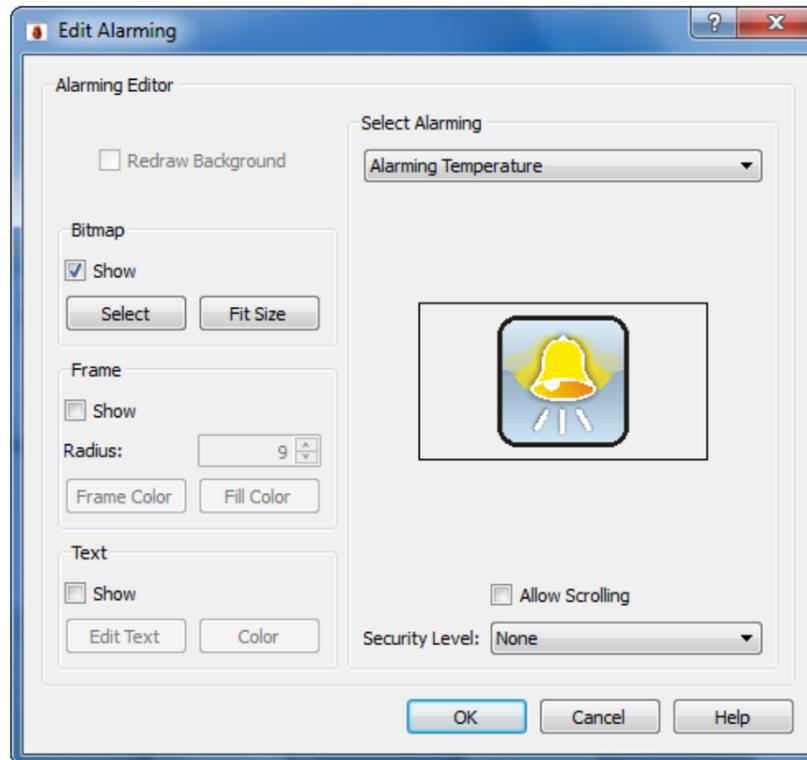
- ▶ **Edit Alarmings** Opens a dialog to edit one of the [Alarmings](#).
- ▶ **Alarming Object** Provides an object to edit a selected [Alarming](#) on the TouchLBM screen.
- ▶ **Close** Closes the dialog.
- ▶ **Help** Shows this help window.



Alarmings are collections of conditions that activate messages on the TouchLBM screen to show the user if there is something important. If a condition expires the associated message will be displayed on the screen. The message will be shown as long as the alarm condition was reset or the alarm was acknowledged. Every alarm will be logged into memory and can be examined on a special alarm screen.

- ▶ **Select Alarming** Selects an existing alarming for editing.
- ▶ **Add** Creates a new alarming in the project.
- ▶ **Remove** Removes the selected alarming from the project.
- ▶ **Copy** Copies the selected alarming.
- ▶ **Up** Moves the selected alarming 1 position up.
- ▶ **Down** Moves the selected alarming 1 position down.
- ▶ **Name** Short description or name that can be displayed on the screen.
- ▶ **Position** Selects the position where the messages should be displayed on the TouchLBM.
- ▶ **Date Format** Selects the date format for displaying timestamps.
- ▶ **Condition Count** Number of different conditions in the alarming.
- ▶ **Security Level** Selects the security level that is needed to acknowledge alarmings when displayed directly.
- ▶ **Allow Scrolling** Allows scrolling between different alarmings on the TouchLBM alarming screens.
- ▶ **E-Mail Notification** Enables e-mail notification when the alarming state was changed. You have to define [E-Mail Settings](#) when using this feature.
- ▶ **MaxSendTime** Sets a delay time for sending e-mails to reduce traffic. All notifications will be collected and sent with the next a-mail. This time can be set for different alarm priorities.
- ▶ **Condition Index** Selects the actual alarming condition for editing.
- ▶ **Priority Level** Sets the priority for each alarming condition (0=highest, 255=lowest).
- ▶ **Message** Sets message that should be displayed when the alarming condition becomes true.
- ▶ **Text Color** Opens a dialog to select the [Text Color](#) for the message.
- ▶ **Auto Acknowledgement** Selects if the condition will be acknowledged automatically when the condition becomes false or must be acknowledged by the user.
- ▶ **Acoustical Warning** Selects there should be an acoustical warning as long as the condition is true (beep every 5 seconds).
- ▶ **Optical Warning** Selects there should be an optical warning as long as the condition is true (red screen every 5 seconds).
- ▶ **Condition Datapoint** Opens a dialog to choose a [Datapoint](#) as source for the condition.
- ▶ **Group/Index** Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
- ▶ **Field** Selects the member of data structures (available on some datapoints).

- ▶ **Relation** Selects the operation how to compare the condition values.
- ▶ **Use Value** Selects if the destination datapoint/variable should be set to a fixed value or to another datapoint/variable.
- ▶ **Datapoint** Opens a dialog to choose a [Datapoint](#) as relation for the condition.
- ▶ **Group/Index** Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
- ▶ **Field** Selects the member of data structures (available on some datapoints).
- ▶ **Value/Enum** Sets the relation value for the condition, when using a constant value.
- ▶ **Preview** Shows a preview how the alarming condition looks on the screen.
- ▶ **LON Alarm Input** Selects a SNVT_alarm_2 network variable that will be used as condition. The message as well as the time stamp will be taken from the network variable.
- ▶ **LON Alarm Output** Selects a SNVT_alarm_2 network variable that will be used to output the alarming condition via LON.
- ▶ **OK** Closes the dialog and saves the changes.
- ▶ **Cancel** Closes the dialog and discards the changes.
- ▶ **Help** Shows this help window.



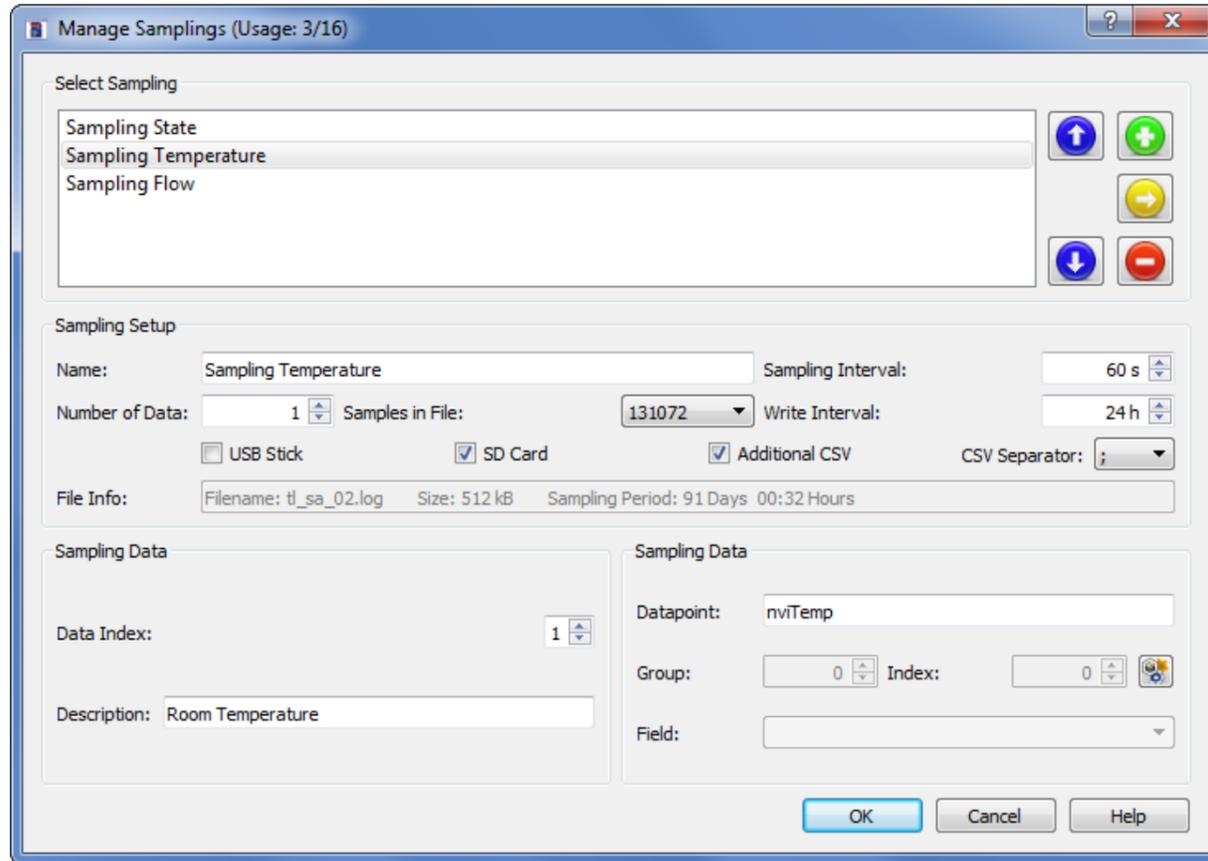
The Alarming Editor Object provides possibilities to let the user view and acknowledge alarmings on the TouchLBM screen. To do this this object can be used as a Touch Button. This Button can be displayed with bitmaps, frames or text. If the user presses the button a popup dialog will be displayed.

- ▶ **Show Bitmap** Selects if the button will display a bitmap.
- ▶ **Select** Opens the a dialog to select the [Image](#) for the button.
- ▶ **Fit Size** Adjusts the size of the button to the size of the selected image.
- ▶ **Show Frame** Selects if the button will display a frame. The frame will overlap the image. It can be used as additional frame with transparent background.
- ▶ **Radius** Sets the radius of the displayed frame.
- ▶ **Frame Color** Opens a dialog to select the [Frame Color](#).
- ▶ **Foreground** Opens a dialog to select the [Foreground Color](#) to fill the frame.
- ▶ **Background** Opens a dialog to select the [Background Color](#) to fill the frame with pattern.
- ▶ **Pattern** Opens a dialog to select the [Pattern](#) to fill the frame.
- ▶ **Show Text** Selects if the button will display a text. The text will overlap the image and frame. The text will always be displayed centred.
- ▶ **Edit Text** Opens a dialog to select the [Text](#) to be displayed on the button.
- ▶ **Color** Opens a dialog to select the [Text Color](#).
- ▶ **Alarming** Selects the alarming to edit.
- ▶ **Allow Changes** Selects witch elements can be changed on the screen by the user.
- ▶ **Security Level** Sets the security level for access control.
- ▶ **OK** Closes the dialog and saves the changes.
- ▶ **Cancel** Closes the dialog and discards the changes.
- ▶ **Help** Shows this help window.



Example dialog to edit alarmings on the TouchLBM screen. The entries have following meanings: Line 1 - full date and time when the alarm first occurred - alarm message. Line 2 - priority - date and time when the alarm has been acknowledged - date and time when the alarm condition has been reset - value of the condition when the alarm first occurred (RAW value). The buttons can be used to change between alarming groups, to select single alarmings or to acknowledge alarmings if allowed.

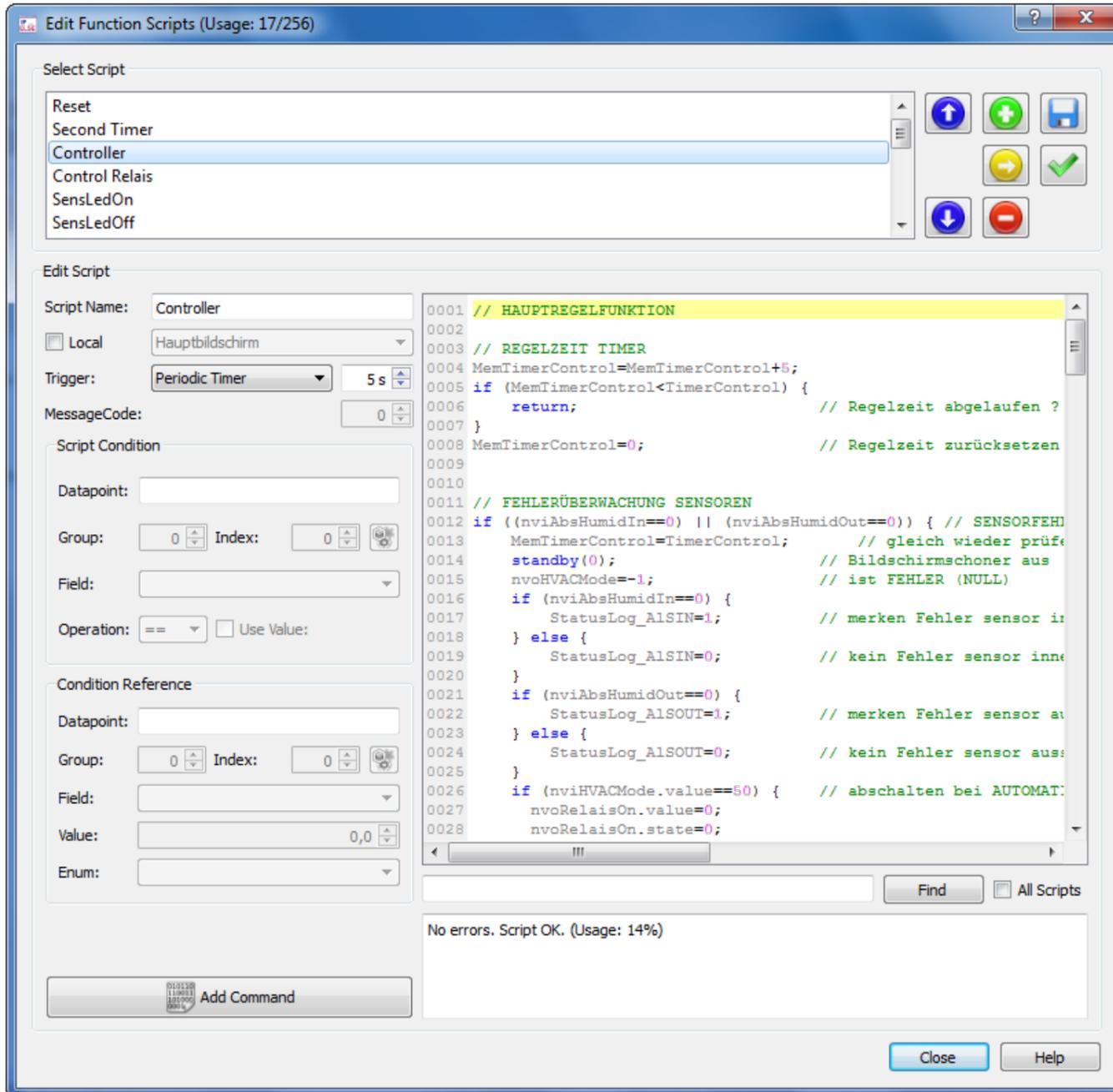
Data Samplings



The Data Sampling object provides possibilities to store [Datapoints](#) inside the TouchLBM memory with a timestamp. The sampling can be bound to a condition. The sampling data is stored inside the TouchLBM RAM or on SD-card/USB-stick.

▶ Select Sampling	Selects a sampling for editing.
▶ Add	Adds a new sampling to the project.
▶ Remove	Removes the selected sampling from the project.
▶ Copy	Copies the selected sampling.
▶ Up	Moves the selected sampling 1 position up.
▶ Down	Moves the selected sampling 1 position down.
▶ Name	Sets a name for the sampling.
▶ Sampling Interval	Sets the interval in seconds of adding new values to the sampling.
▶ Number of Data	Selects how many different datapoints will be sampled.
▶ Samples in File	Selects how many values of a dataset will be recorded into the sampling file.
▶ Write Interval	Selects the interval in hours when data should be written to Flash or SD-Card. Mind the max. number of Flash write cycles!
▶ USB-Stick	Selects if the sampling is written to RAM or USB-Stick.
▶ SD-Card	Selects if the sampling is written to RAM or SD-Card.
▶ Save CSV	Saves an additional CSV file to the SD-Card.
▶ CSV Separator	Selects the separator when saving CSV files.
▶ File Info	Provides some information about the sampling.
▶ Data Index	Selects the different datapoints to write into the sampling.
▶ Description	A simple description that will be used in the CSV header.
▶ Datapoint	Opens a dialog to choose a Datapoint as source for the sampling.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ OK	Closes the dialog and saves the new settings.
▶ Cancel	Closes the dialog and discards the settings.
▶ Help	Shows this help window.

Function Scripts



This tool provides possibilities to create special applications in a simple script language. It can be used to execute trigger based logical functions.

▶ Script	Here the actual script can be selected.
▶ Add	Adds a new script to the project.
▶ Remove	Removes the selected script from project.
▶ Copy	Copies the selected script.
▶ Up	Moves the selected script 1 position up.
▶ Down	Moves the selected script 1 position down.
▶ Save	Saves all changes into the project.
▶ Check	Checks the syntax of the source code and displays errors/warnings inside the state window.
▶ Script Name	Sets the name of the script (short description).
▶ Local	Defines if the script is running on one special screen or on all screens.
▶ Trigger	Defines the trigger that starts the script. Scripts can be executed periodically, on value changes, if a conditions becomes true, once directly after booting (reset) or after an explicit message received.
▶ MessageCode	MessageCode to trigger for explicit messages.
▶ Trigger Datapoint X	Opens a dialog to choose a Datapoint as source for the trigger condition.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ Operation	Selects the operation how to compare the trigger values.
▶ Use Value	Selects if the destination datapoint/variable should be set to a fixed value or to another datapoint/variable.
▶ Trigger Datapoint Y	Opens a dialog to choose a Datapoint as relation for the trigger condition.
▶ Group/Index	Sets the indexes for the group as well as the datapoint itself, if group or datapoint are defined as array.
▶ Field	Selects the member of data structures (available on some datapoints).
▶ Value/Enum	Sets the relation value for the trigger, when using a constant value.
▶ Add Command	Inserts a command into the script as source code. All command are listed and explained subsequent.
▶ Exit	Closes the dialog.
▶ Help	Shows this help screen.

SCRIPT COMMANDS

The provided script language is akin to Ansi-C. However there is a limited scope of commands.

Operators	=	Simple allocation - 0 (priority)
	+	Addition - 1
	-	Subtraction - 1
	*	Multiplication - 2
	/	Division - 2
	%	Modulo of Division - 2
	&	Logical bitwise AND - 3
		Logical bitwise OR - 3

	^	Logical bitwise XOR - 3
	~	Logical bitwise NOT - 3
	>>	Bitshift to right - 4
	<<	Bitshift to left - 4
Comparisons	==	Equal
	<	Lower
	>	Greater
	<=	Lower or Equal
	>=	Greater or Equal
	!=	Not Equal
	&&	AND-combination of compare results
		OR-combination of compare results
Commands	memset	memset(destination,value,count); Sets an area (destination address) with count members to value.
	memcpy	memcpy(destination,source,count); Copies count members from area (source address) to area (destination address). The areas must not overlap.
	loop	loop(count) {...} Executes the block in brackets count times. The counter will be decreased automatically at the end of the loop.
	if ... else	if (expression) {...} else {...} Checks the expression/expressions if true or false and runs the block in brackets if needed. In all other cases the optional ELSE block will be executed.
	dispScreen	dispScreen("screen name"); Calls the screen with the given name. The script will be stopped after this command and the screen will be redrawn!
	sound	sound(frequency,length); Emits a sound with frequency (Hz) and length (ms). While sound is running there are no other functions running on the TouchLBM (blocking)! Exception is the eternal sound (length=-1). This is running in background and can be stopped with sound command length=0.
	setBrightness	setBrightness(type,brightness); Sets the brightness of the TouchLBM LED backlight to the given value (0-255). The brightness type can be the actual(0), standard(1) or standby(2) brightness.
	setBackground	setBackground(number of background image); Sets the default background image for TouchLBM screens (1-number of images). The script will be stopped after this command and the screen will be redrawn!
	standby	standby(state); Sets the TouchLBM into the desired state. 0 - Standby is off (normal state). 1 - Standby backlight on. 2 - Standby screen displayed. 3 - Screensaver running.
	ioOut	ioOut(digital output,value); Sets one of the optional digital outputs of the TouchLBM to 0 or 1.
	sendNV	sendNV(network variable name); Sends the given network variable to binded device. Hint: Scripts do not send network variables automatically on changes - only by calling the sendNV command!
	pollNV	pollNV(network variable name); Polls the given network variable from binded devices.
	sendExpMsg	sendExpMsg(MessageCode,dest address,data address,data count); Sends an explicit message to a selected address in the LON. The data must be mapped on the data address. (Please mind that the byte order between TouchLBM and LON may be different!) There will be sent data count bytes (without MessageCode). The destination address must be filled in like LON structure "msg_out_addr".
	getExpMsg	getExpMsg(source address,data address,data count address); Copies the last explicit message triggered with MessageCode into the TouchLBM memory. The source address is mapped like LON structure "msg_in_addr". The data will be mapped to data address. (Please mind that the byte order between TouchLBM and LON may be different!) There were data count bytes (without MessageCode) received.
	serviceMsg	serviceMsg(); Sends a LON Service Message.
	setDMX	setDMX(channel,value); Sends the given value to the given DMX channel. To use this functionality a special optional hardware is needed.
	setMDMX	setMDMX(startchannel,address,count); Sends count values from address to the given DMX channels. To use this functionality a special optional hardware is needed.
	readBACObj	readBACObj(BACnetObject); Reads the selected BACnet Object out of the defined device.
	writeBACObj	writeBACObj(BACnetObject); Writes the selected BACnet Object into the defined device.
	delay	delay(time in ms); Stops executing all scripts for xx milliseconds.
	fiToInt	fiToInt(int,float); Converts a float variable into a 32 bit variable.
	intToFI	intToFI(float,int); Converts a 32 bit variable into a float variable.
	return	return; Breaks the script immediately.
Addressing	Network Variables	Network Variables can be accessed directly by their name. Attention: You have to work with RAW values for network variables in scripts (no scaling)! nvoLamp.value=200; nvoTemp=nviTemp+500;

Memory

The [User-Memory](#) of TouchLBM can also be accessed in scripts. To use this you have to enter datatype and address [TYPE:Address]. Short Addresses have to be divisible by 2, Long/Float Addresses have to be divisible by 4 (also when using pointers)!

[UC:xxxx] - unsigned char
[SC:xxxx] - signed char
[US:xxxx] - unsigned short
[SS:xxxx] - signed short
[*UL:xxxx] - unsigned long
[SL:xxxx] - signed long
[FL:xxxx] - float
[BT:xxxx.xx] - bit
[*UC:xxxx] - unsigned char pointer
[*SC:xxxx] - signed char pointer
[*US:xxxx] - unsigned short pointer
[*SS:xxxx] - signed short pointer
[*UL:xxxx] - unsigned long pointer
[*SL:xxxx] - signed long pointer
[*FL:xxxx] - float pointer.
[US:00100]=nviTemp+17;
[FL:00044]=12.345*10.0;
[BT:00200.07]=0;

Comments

//

Comments can also be added to scripts. A comment starts with // and is valid to the end of the line.

Project Settings

The screenshot shows the 'Project Settings' dialog box with the 'General TouchLBM Project Settings' tab selected. The settings are as follows:

- TouchLBM Type:** TouchLBM-057 (5.7" 640x480) Portrait
- Start Screen:** MAINMENU
- Description:** Touchlon Project - Author
- Upload Password:** [Empty field with a red warning icon]
- Changed:** 08.06.2020 14:40 Auto reboot on fatal error
- Log Settings:** Do not log warnings/errors
- Screen Access Control:**
 - Auto Delete: 300 s
 - Offline: OFF
 - Level 01: OFF
 - Level 02: OFF
 - Level 03: OFF
 - Level 04: OFF
 - Level 05: OFF
 - Level 06: OFF
 - Level 07: OFF
 - Level 08: OFF

Buttons: OK, Cancel, Help

This dialog show the TouchMaker project settings.

- ▶ **TouchLBM Type** Choose the used device type.
- ▶ **Portrait** Selects if the device is rotated 90°
- ▶ **Start Screen** Select the screen that will be displayed after TouchLBM reset.
- ▶ **Description** User description about the project.
- ▶ **Upload Password** Sets a password to protect the TouchLBM device against unauthorized updates. Please mind that a lost password cannot be recovered without resetting the device to factory defaults.
- ▶ **Auto Reboot** Selects if the TouchLBM does an automatic reboot when there is a fatal error.
- ▶ **Access Control** Access Control provides possibilities to protect screens with up to 8 security levels.
- ▶ **Auto Delete** Holds the time after that the passwords will be reset if the user has left a protected screen (0 means the password will never reset).
- ▶ **Offline** Selects the password to access the Offline Menu (0 means no password).
- ▶ **Level 01-08** Selects the passwords to access the security levels (0 means no password). A higher level always includes access to all lower levels. These passwords can be changed in use with the [Password Setting Object](#).
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

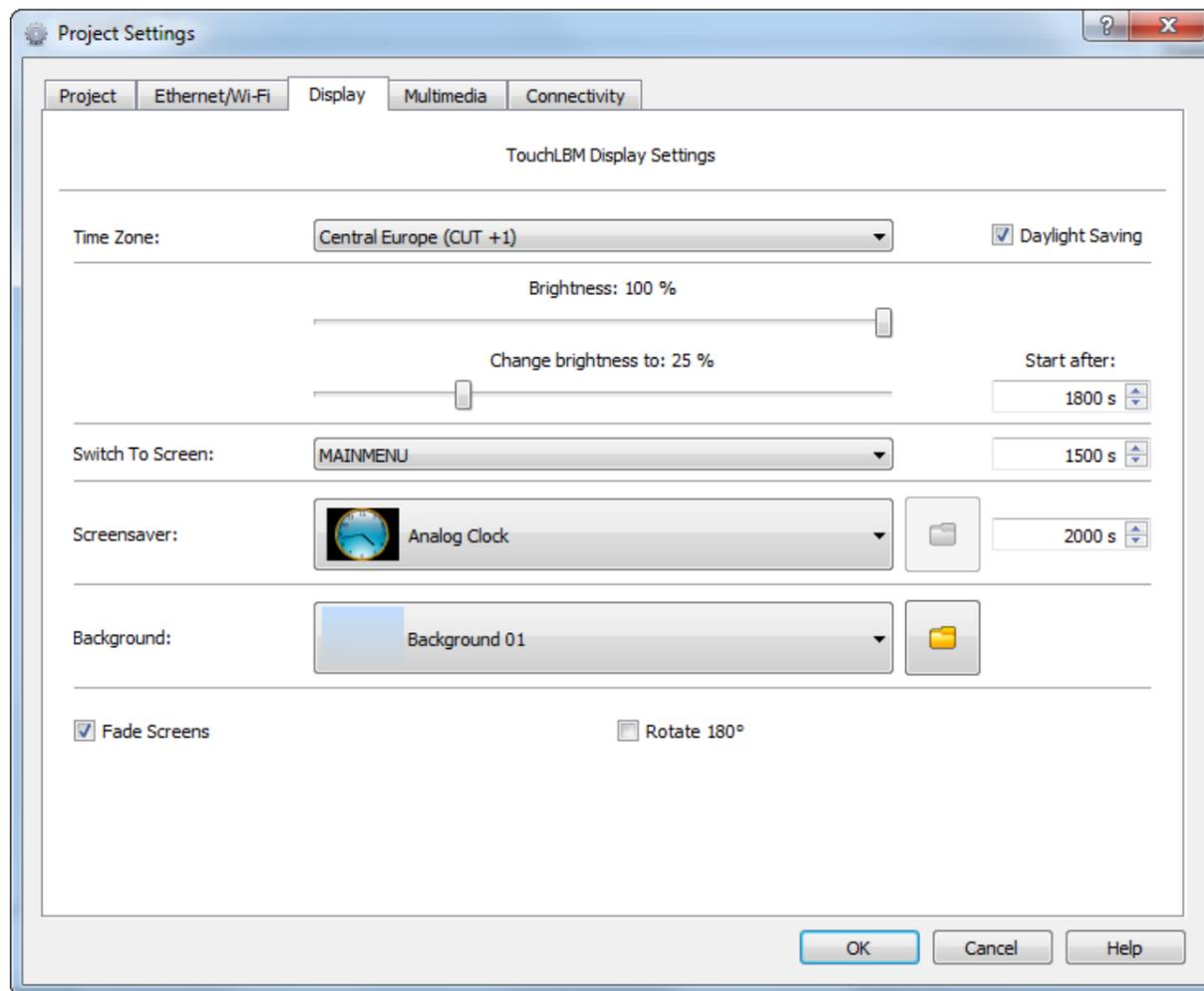
The screenshot shows the 'Project Settings' dialog box with the 'TouchLBM Ethernet/Network Settings' tab selected. The settings are as follows:

- Ethernet Settings:**
 - TouchLBM IP/Subnet/Gateway: 192.168.000.082 | 255.255.255.000 | 192.168.000.001
 - DNS Server IP: 192.168.000.001
- TouchLBM Wi-Fi/Network Settings (hardware option needed)**
 - TouchLBM IP/Subnet/Gateway: 192.168.001.082 | 255.255.255.000 | 192.168.001.001
 - DNS Server IP: 192.168.001.001
 - SSID: TOUCHLBM
 - Security/Phrase: WPA/WPA2 Personal | [Redacted] [Red warning icon]
- NTP Server Name:** pool.ntp.org

Buttons: OK, Cancel, Help

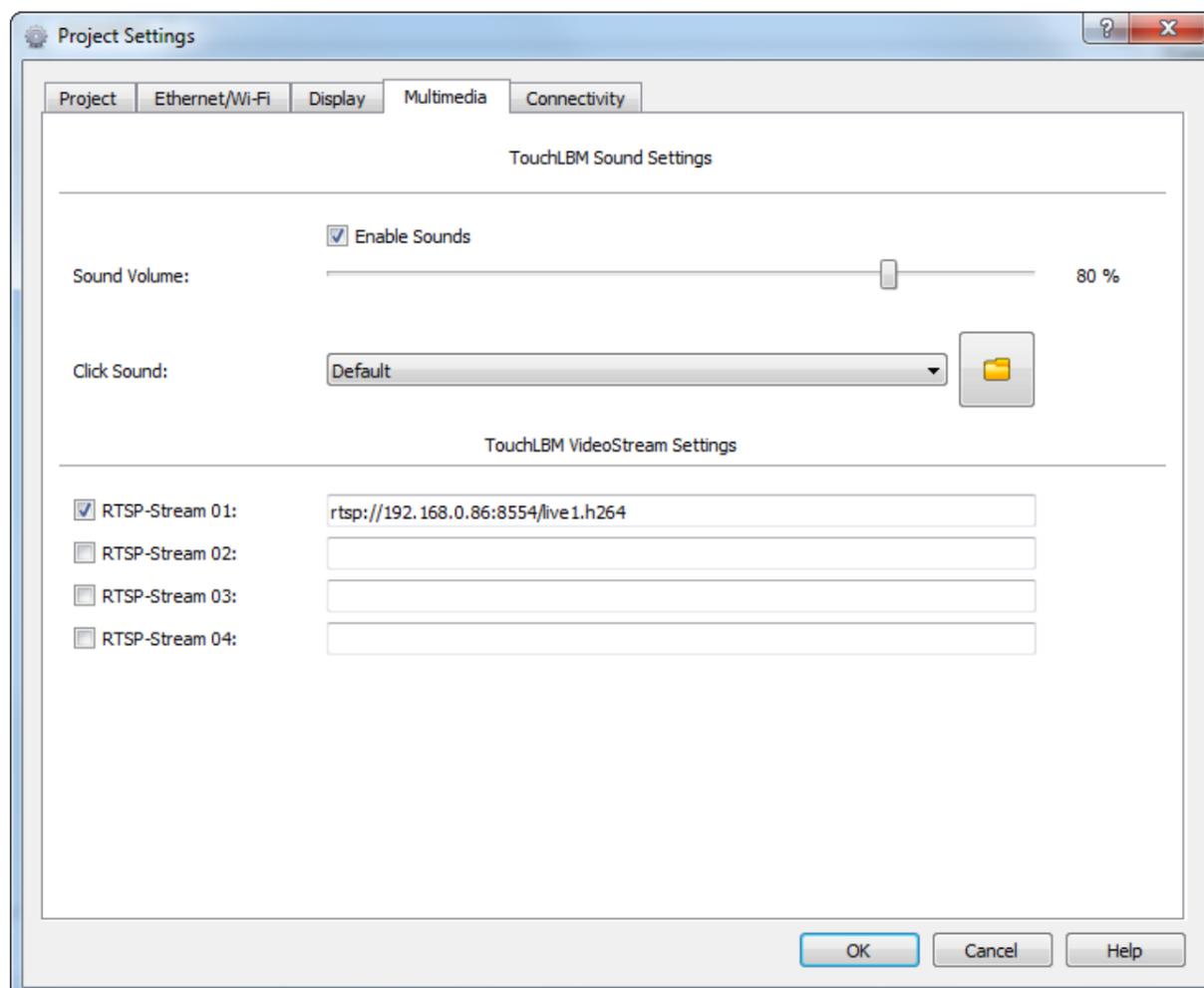
This dialog shows the network settings.

- ▶ **IP/Subnet/Gateway/DNS** Sets the ethernet interface of the TouchLBM hardware.
- ▶ **Wi-Fi Network Settings** Enables/disables the Wireless network option. You will need additional hardware for using Wi-Fi.
- ▶ **IP/Subnet/Gateway/DNS** Sets the Wi-Fi interface of the TouchLBM hardware.
- ▶ **SSID** Sets the Wi-Fi SSID name to connect to.
- ▶ **Security/Phrase** Sets the security option and password phrase to connect to the Wi-Fi.
- ▶ **NTP Server Name** Sets a server to get a Network Time (via NTP). There are some free NTP servers you can find in the internet (e.g. <http://www.uni-giessen.de/hrz/datennetz/Netzdienste/ntp.html>). To use this you will need an internet connection on TouchLBM!



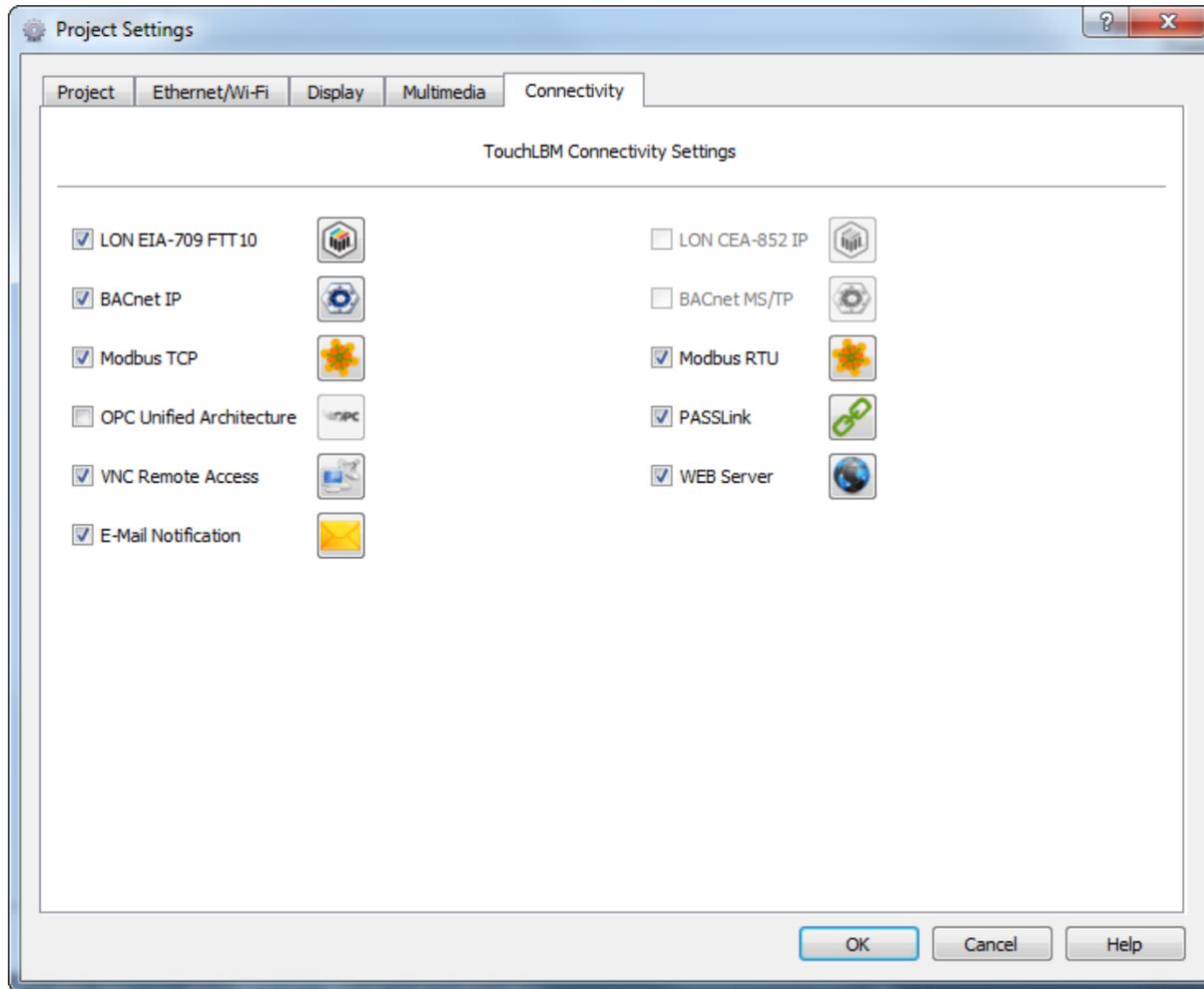
This dialog shows the display settings.

- ▶ **Time Zone** NTP servers providing the UTC. That means you have to set your time zone.
- ▶ **Daylight Saving** Sets if TouchLBM should use daylight saving.
- ▶ **Brightness** Sets the brightness of the display backlight in normal operation mode (LED backlight).
- ▶ **Change Brightness** Sets the brightness of the display backlight in standby operation mode (LED backlight).
- ▶ **After xx Seconds** Sets the time to change to backlight standby after the last time the touch was pressed.
- ▶ **Switch To Screen** Sets a screen the display shows in standby mode.
- ▶ **After xx Seconds** Sets the time to change to screen standby after the last time the touch was pressed.
- ▶ **Screensaver** Sets a Screensaver the display shows in standby mode.
- ▶ **After xx Seconds** Sets the time to change to screensaver after the last time the touch was pressed.
- ▶ **Background** Here one or more background images can be loaded and selected as default background for all screens (if background is enabled).
- ▶ **Rotate 180°** Selects if the screen contents should be rotated by 180°. This can be used to upgrade the viewing angle depending on the installation position.
- ▶ **Fade Screens** Selects if the change from one to another screen should be smooth with a fading effect. This feature is only meaningful when using a display with LED backlight!



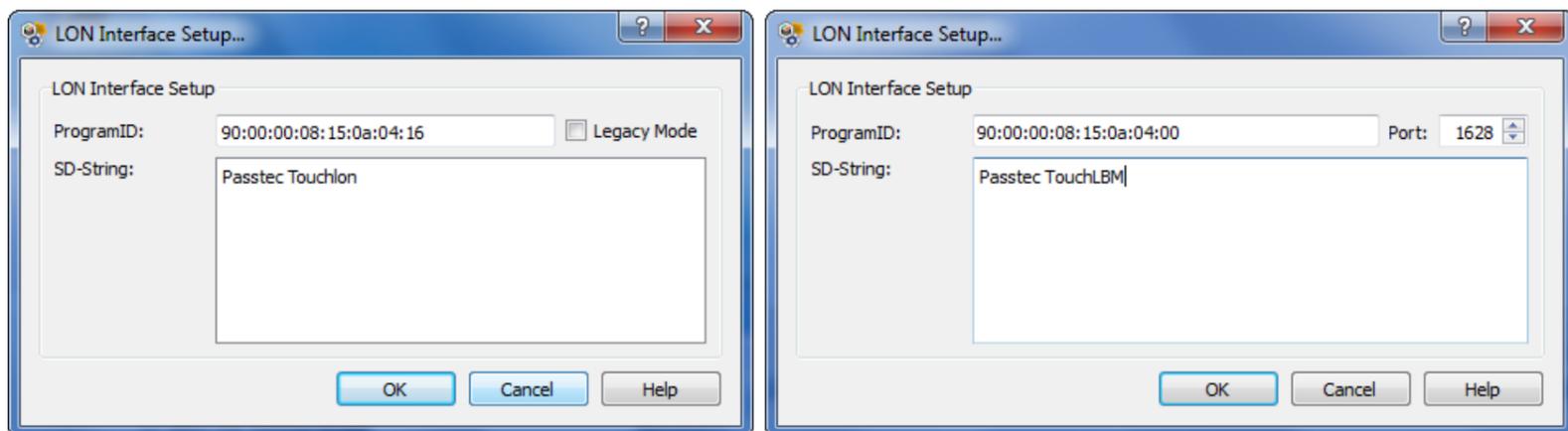
This dialog shows the multimedia settings.

- ▶ **Enable Sounds** Sets the global parameter if sounds should be used in on TouchLBM. If not the TouchLBM will be quiet, else the TouchLBM uses the local sound settings (e.g. on touch buttons).
- ▶ **Sound Volume** Set the sound volume.
- ▶ **Click Sound** Selects a sound file to be played as click when a button is pressed.
- ▶ **RTSP Stream** Selects up to 4 RTSP video stream URLs.
The video stream is only available when having TouchLBM boot version 1.30 or later. Please contact PASStec to ask for updating.



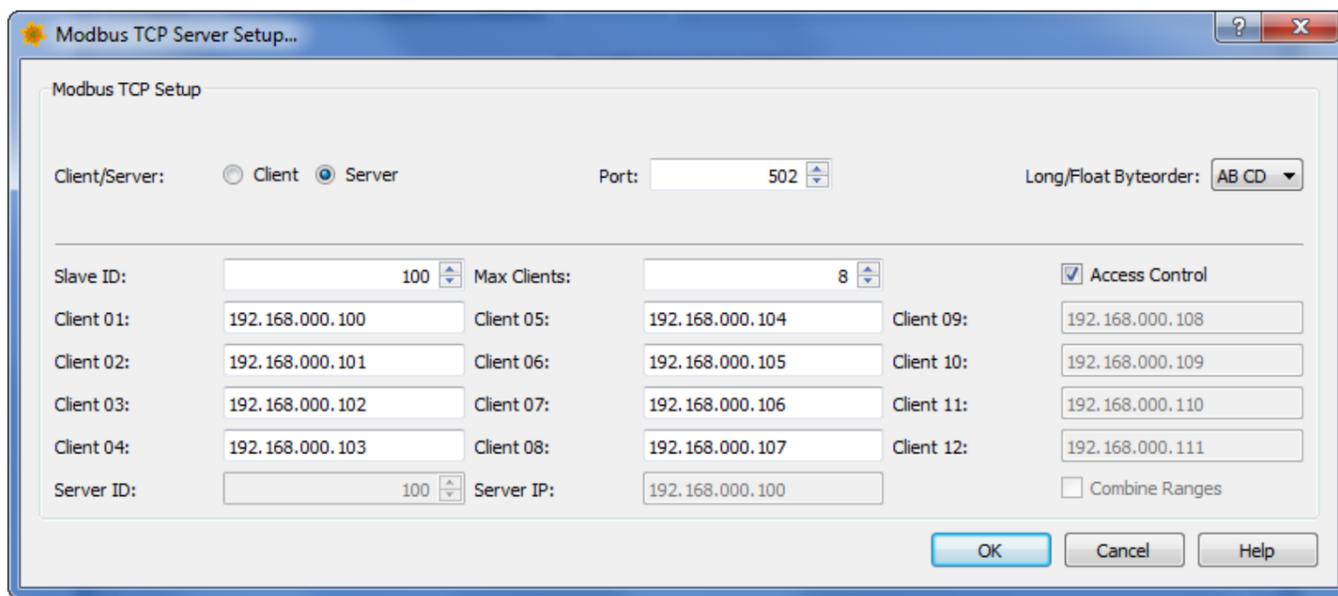
This dialog shows the connection settings.

- ▶ **LON-FT EIA-709** Enable [LON-FT EIA-709](#) connectivity (additional hardware needed).
- ▶ **LON-IP CEA-852** Enable [LON-IP CEA-852](#) connectivity.
- ▶ **BACnet IP** Enable [BACnet IP](#) connectivity.
- ▶ **BACnet MS/TP** Enable [BACnet MS/TP](#) connectivity.
- ▶ **Modbus TCP** Enable [Modbus TCP Server/Client](#) connectivity.
- ▶ **Modbus RTU** Enable [Modbus RTU Master/Slave](#) connectivity (additional hardware needed).
- ▶ **OPC-UA** Enable OPC Unified Architecture connectivity (reserved for later firmware versions).
- ▶ **VNC Remote Access** Enables the [VNC](#) server to remote control the TouchLBM on the given IP address. **To have full VNC access to the TouchLBM a licence key will be needed. Please contact [PASStec](#)**
- ▶ **WEB Server** Enables the [WEB](#) server to interact TouchLBM with a web browser.
- ▶ **E-Mail Notification** Enables [E-Mail Notification](#) for alarmings.
- ▶ **PASSLink** Enables [PASSLink](#) for connecting multiple TouchLBM devices.



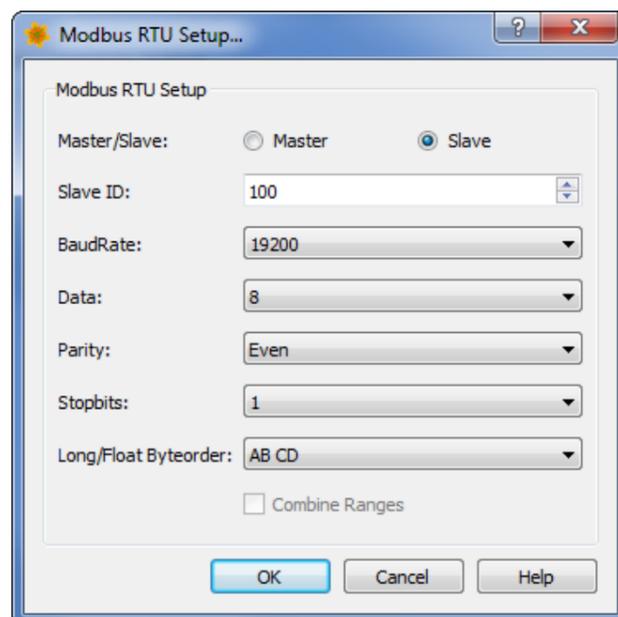
This dialog shows the TouchMaker LON settings.

- ▶ **Legacy Mode** Run LON in compatibility mode for older LON service tools (without ECS). In Legacy Mode there are only 15 address table entries available!
- ▶ **ProgramID** Sets the ProgramID for the LON interface.
- ▶ **SD String** Sets the self documentation for the LON interface.



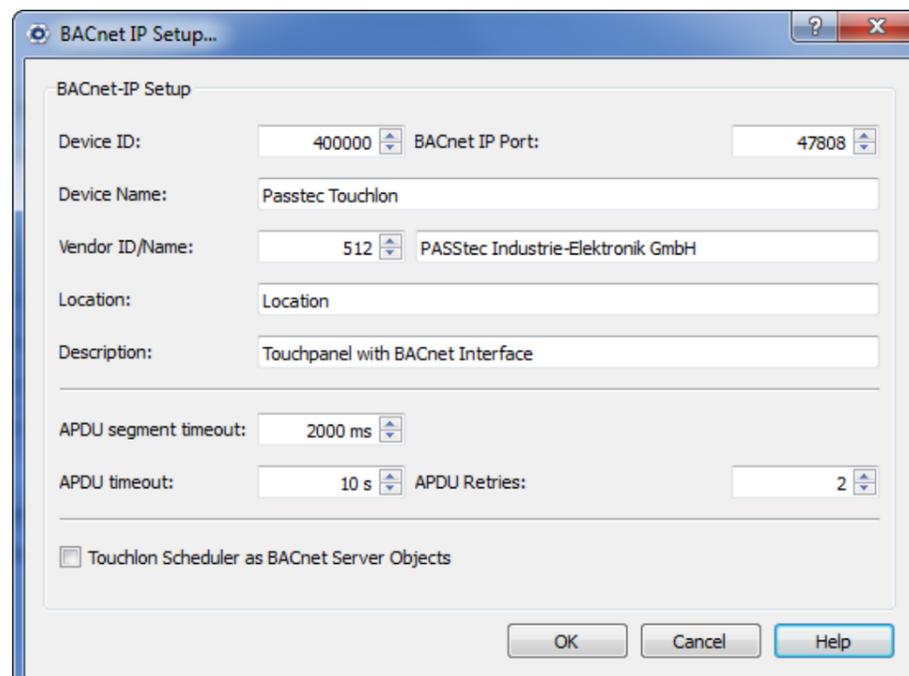
This window shows TouchMaker Modbus TCP Server/Client settings.

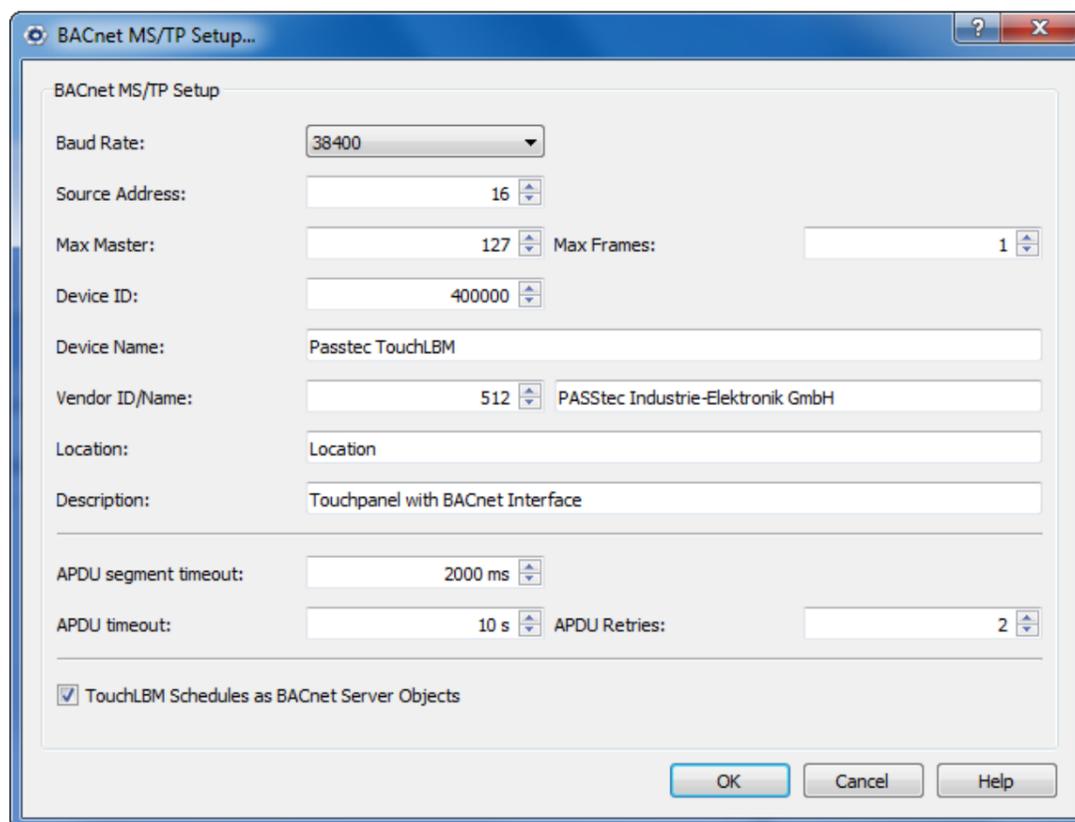
- ▶ **Client/Server** Use Modbus TCP as Server or Client.
- ▶ **Port** Ethernet Port for [Modbus Communication](#) (standard 502).
- ▶ **Byte Order** Order to interpret the bytes for Long and Float data types.
- ▶ **Slave ID** Slave ID in Modbus.
- ▶ **Max. Clients** Maximum number of clients that can be connected to the server at the same time.
- ▶ **Access Control** Limits the access to clients with the given IP address.
- ▶ **Client 01..12** IP for the clients when access control is enabled.
- ▶ **ServerID** ServerID to connect to.
- ▶ **Server IP** Server IP address to connect to.



This window shows TouchMaker Modbus RTU settings.

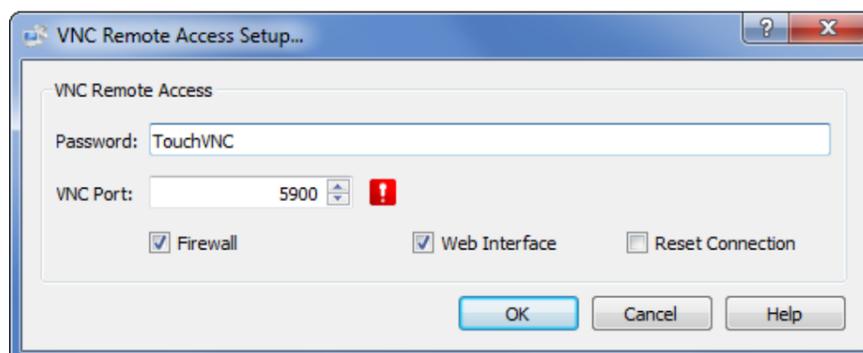
- ▶ **Master/Slave** Use Modbus RTU as Master or Slave.
- ▶ **Slave ID** Slave ID in Modbus.
- ▶ **BaudRate** Serial speed.
- ▶ **Data** Number of data bits (fixed to 8).
- ▶ **Parity** Use parity bit for serial communication (default: Even).
- ▶ **StopBits** Number of stop bits (limited to parity selection).
- ▶ **Byte Order** Order to interpret the bytes for Long and Float data types.





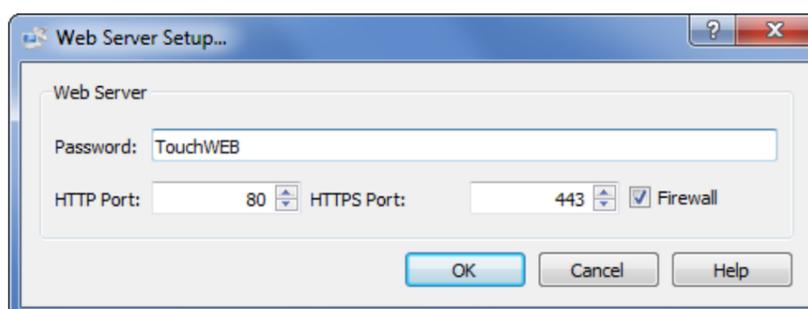
This dialog shows the TouchMaker BACnet settings.

- ▶ **Device ID** ID of TouchLBM in BACnet.
- ▶ **BACnet IP Port** Ethernet Port for [BACnet Communication](#) (standard 47808).
- ▶ **Device Name** Name of TouchLBM in BACnet.
- ▶ **Vendor Name** Producer name of the BACnet device.
- ▶ **Vendor ID** Producer ID of the BACnet device.
- ▶ **Location** Location where the device is built in.
- ▶ **Description** Short device description in BACnet.
- ▶ **UTC-Offset** Offset to UTC time. (When using time BACnet functions.)
- ▶ **Daylight Saving** Device will handle summer/winter time.
- ▶ **ADPU Segment Timeout** Timeout for sending/receiving segmented BACnet packets.
- ▶ **ADPU Timeout** Timeout for sending/receiving BACnet packets.
- ▶ **ADPU Retries** Number of retries on faulty BACnet packets.
- ▶ **TouchLBM Scheduler as BACnet Server Objects** Provides the internal TouchLBM schedulers as BACnet Server Objects. So it's possible to change/edit the internal schedulers over BACnet.



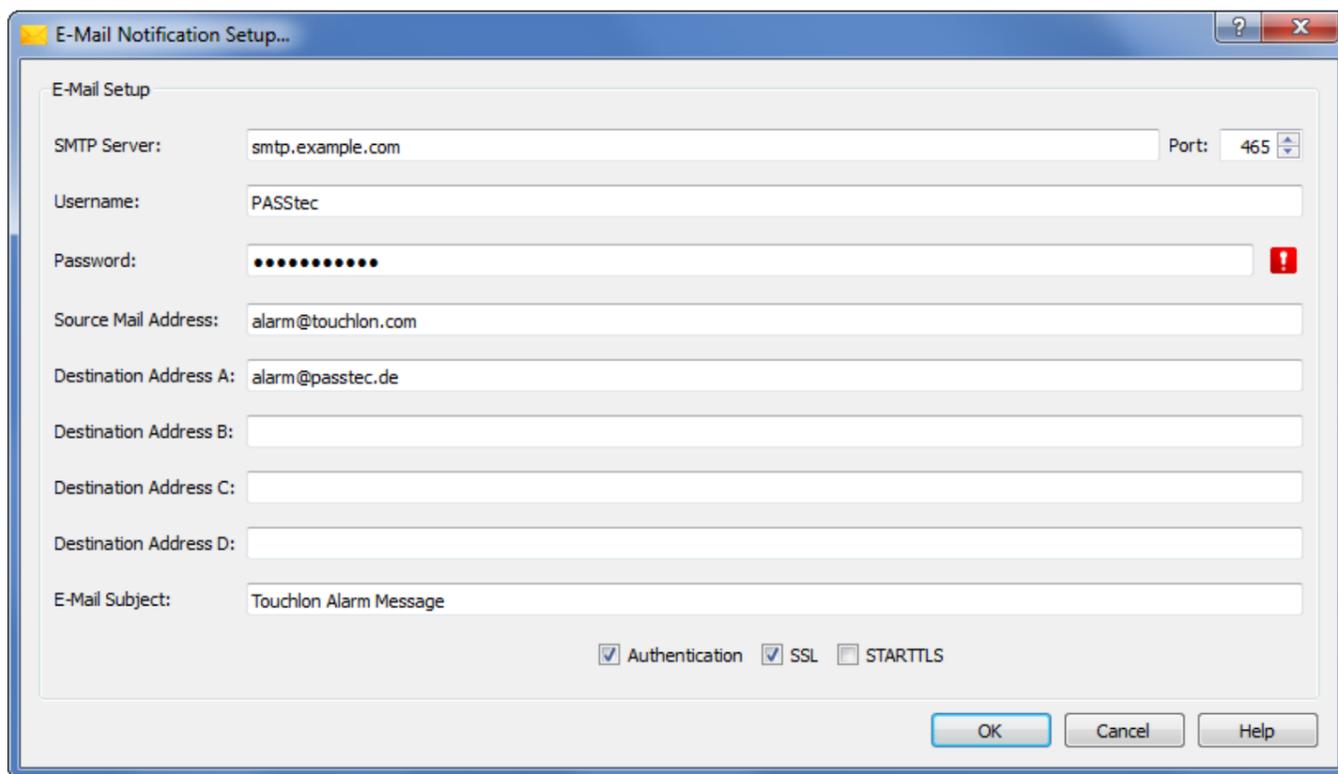
This dialog shows the VNC server settings.

- ▶ **Password** Sets the password to protect VNC access.
- ▶ **VNC Port** Sets the VNC port (default: 5900).
- ▶ **Firewall** Selects if a firewall should be used to block attacking clients on VNC port.
- ▶ **Web Interface** Selects if the Web interface can be used (additional the Web server must be enabled).
- ▶ **Reset Connection** Selects if the connection should be reset by TouchLBM after some time without interaction.



This dialog shows the WEB server settings.

- ▶ **Password** Sets the password to protect WEB access.
- ▶ **HTTP Port** Sets the port for HTTP access (default: 80).
- ▶ **HTTPS Port** Sets the port for encrypted HTTP access (default: 443).
- ▶ **Firewall** Selects if a firewall should be used to block attacking clients on WEB port.



This dialog shows the TouchMaker E-Mail settings.

- ▶ **SMTP Server** Name of the SMTP server (address).
- ▶ **Port** Port to access SMTP server (standard 25 or 465 with SSL).
- ▶ **Username** Username to identify when using authentication.
- ▶ **Password** Password to identify when using authentication. **Hint: The e-mail login information will be saved inside the TouchMaker project and the TouchLBM file system (both encrypted). This might be a security risk e.g. when you're spreading the project file!**
- ▶ **Source Mail Address** E-Mail address of the sender (e-mail account).
- ▶ **Destination Mail Address** E-Mail address of the receiver.
- ▶ **E-Mail Subject** General Subject line for outgoing e-mails.
- ▶ **Authentication** Enables authentication to login a SMTP account.
- ▶ **SSL** Enables SSL encrypted connection to SMTP server.
- ▶ **STARTTLS** Enables encrypted connection to SMTP server with STARTTLS.

The state as well as possible error messages while sending e-mails can be read out the [internal addresses](#).

Values for the e-mail state:

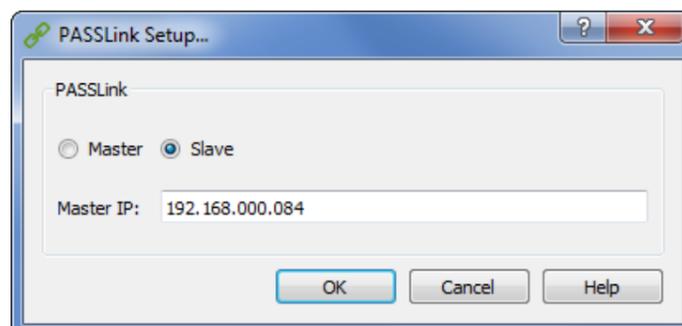
- 0 No e-mail in progress
- 1 Connecting to server
- 2 SSL connection
- 3 SSL handshake
- 4 Logging in
- 5 Server identification OK
- 6 Connection closed

The e-mail error value is a combination in 32 bit hexadecimal data (0xFFFFRRRR):

FFFF - Executed function, RRRR - Returnvalue of this function (matches SMTP return values)

Values for the functions:

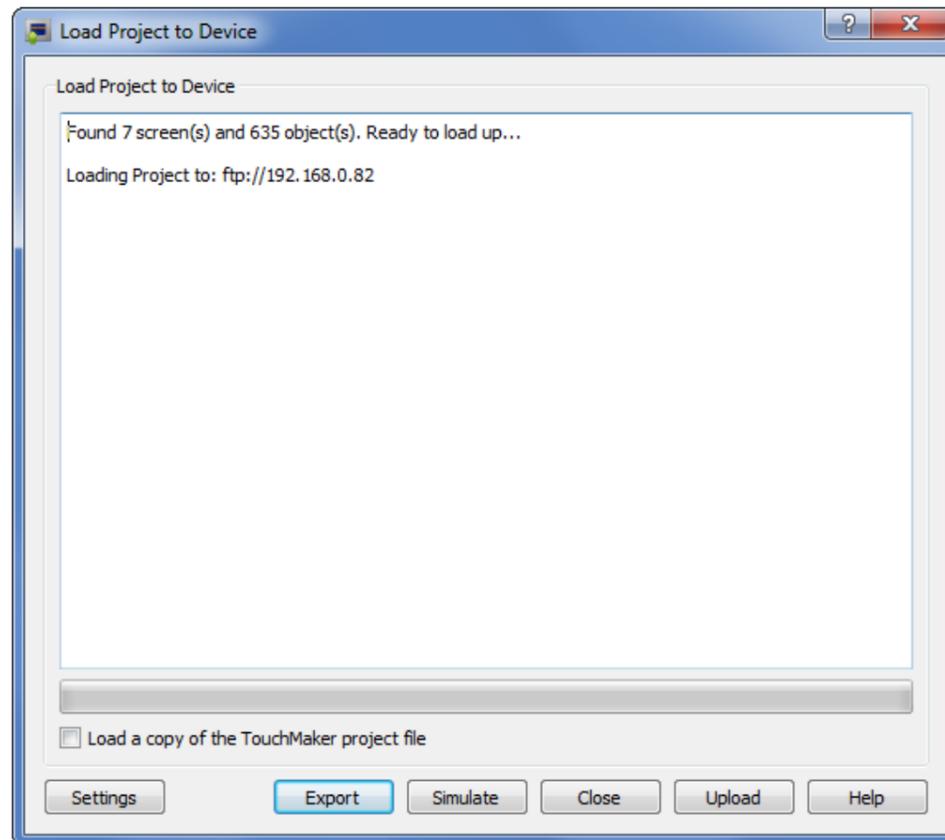
- 0x4000 Socket allocated
- 0x4001 Hostname resolved (DNS-Server needed)
- 0x4002 Connecting
- 0x4003 Enter server
- 0x4004 Trying TLS
- 0x4005 SSL handshake
- 0x4006 Subscribe (EHLO)
- 0x4007 Subscribe (AUTH)
- 0x4008 Subscribe (USER)
- 0x4009 Subscribe (PWD)
- 0x400A Setting (MAIL FROM)
- 0x400B Setting (MAIL TO)
- 0x400C Send (DATA)
- 0x400D Send (BODY)
- 0x400E Disconnecting (QUIT)
- 0x4020 SSL Init



This dialog shows the PASSLink settings. PASSLink can be used to use multiple TouchLBM devices with one network interface. So for example it is possible to use two TouchLBM devices in a conference room for the same tasks. Only the master is communicating with LON/BACnet/Modbus. Master and slaves are exchanging their internal user memory automatically. The connection is running on Ethernet port 1024. On the slaves devices alarming/scheduling is not working - data samplings will be saved in RAM only.

- ▶ **Master/Slave** One device is master and can handle up to 4 slaves.
- ▶ **Master IP** IP address of the TouchLBM PASSlink master.

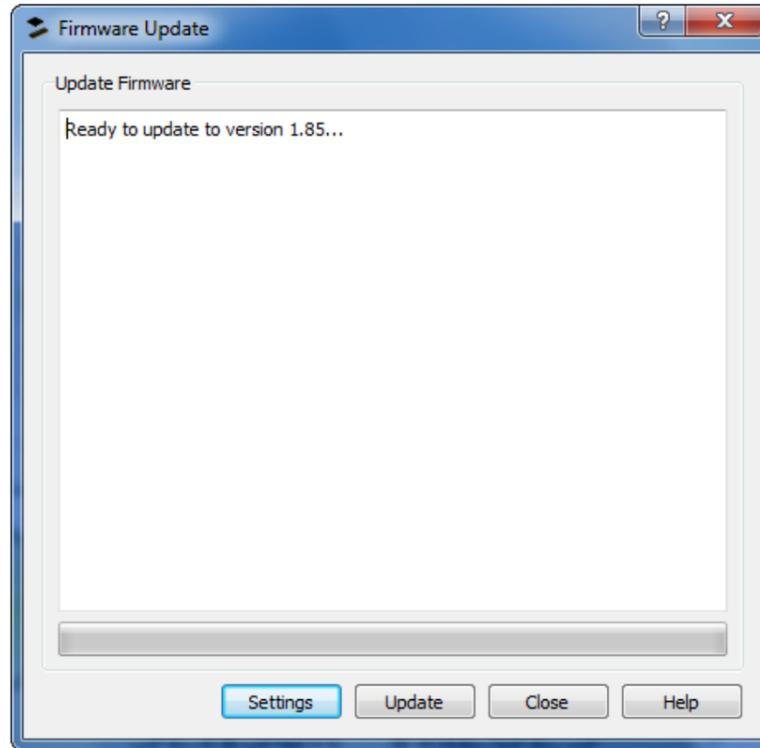
Upload Project



This dialog provides functions to copy the TouchMaker project to the TouchLBM hardware. The project can be transferred via ethernet or saved as a file. The file can be uploaded via LON.

-
- | | |
|------------------------------------|---|
| ▶ Load copy of project file | Load a copy of the TouchMaker project file to the device to be restored later. |
| ▶ Settings | Opens a small dialog with Communication Settings between TouchMaker and TouchLBM. |
| ▶ Export | Exports the project into a file that can be used for SD/USB updater or for LON File Transfer. |
| ▶ Simulate | Exports the project into the TouchMaker Project Simulator and starts the simulator software. |
| ▶ Upload | Connects to the TouchLBM hardware and loads the TouchMaker project up. |
| ▶ Close | Closes the dialog. |
| ▶ Help | Shows this help window. |

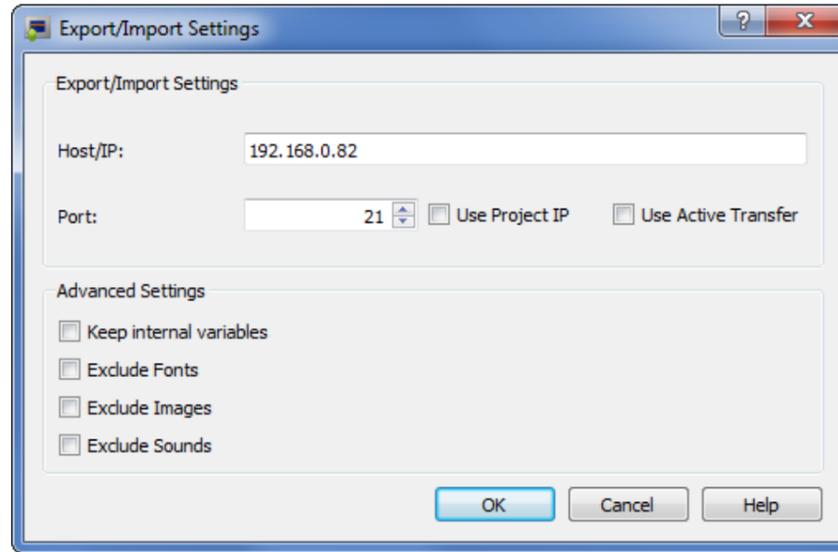
Firmware Update



This dialog provides functions to update the TouchLBM firmware.

-
- | | |
|-------------------|---|
| ▶ Settings | Opens a small dialog with Communication Settings between TouchMaker and TouchLBM. |
| ▶ Upload | Connects to the TouchLBM hardware and loads the new firmware version. |
| ▶ Close | Closes the dialog. |
| ▶ Help | Shows this help window. |

Communication Settings



Some communication settings to connect TouchMaker software and TouchLBM hardware.

- ▶ **Host/IP** The host name or IP address of the TouchLBM device where the project should be sent to.
- ▶ **Port** The port of the TouchLBM FTP server where the project should be sent to (default 21).
- ▶ **Use Project IP** Load the project to the IP address set in the project settings.
- ▶ **Active Transfer** Opens the FTP connection with active transfer.
- ▶ **Keep Internal Variables** The internal non volatile memory for variables (RAW/LON/BACnet/Modbus) will not be updated. So it's possible to keep some user settings in the project. HINT: If there were changes on the existing project variables this option may cause unpredictable behaviour!
- ▶ **Exclude Fonts** This option excludes font files from uploading to save time. HINT: This may cause unpredictable behaviour if new fonts are used in a project!
- ▶ **Exclude Images** This option excludes image files from uploading to save time. HINT: This may cause unpredictable behaviour if project images were changed!
- ▶ **Exclude Sounds** This option excludes sound files from uploading to save time. HINT: This may cause unpredictable behaviour if project sounds were changed!
- ▶ **OK** Closes the dialog and saves all changes.
- ▶ **Cancel** Closes the dialog and discards all changes.
- ▶ **Help** Shows this help window.

How to keep your LonMaker Bindings

What you should mind to keep your LonMaker Bindings

The TouchLBM device is using static network variables to communicate through the LON. That means every project or version of project with different network variables in type, sequence or count is handled as a new device inside the LON-Tool. That also means changes on the project can cause your LON-Tool to delete all available binding to or from the TouchLBM device. Try to define your network variable types, sequence and count before binding the TouchLBM to LON. If the network interface has to be changed later (as we know in most cases), the following hints will help you to change your project without destroying available bindings.

- Never delete unused variables.
- Never change the type of a variable (create a new instead).
- Never change the sequence of the variables.
- Never change the functional block of a variable.
- Add new variables at the end of the list.
- Increase the ProgramID (Settings) when adding variables.
- 1. Load the new project to the TouchLBM.
- 2. Decommission the device in you LON-Tool.
- 3. Replace the device with the new interface (.XIF).
- 4. Commission the device in your LON-Tool.

Troubleshooting

- ▶ **Force TouchLBM Reset**
Press the upper left corner of the display for about 5 seconds and the TouchLBM will restart the firmware.
- ▶ **TouchLBM does not boot**
Check power supply 24V AC/DC. Needed power is shown in the datasheet.
Check if a valid project was loaded.
Check if the backlight is switched on in project.
- ▶ **TouchLBM shows "Please wait while booting..."**
Restore firmware with recovery sd-card.
- ▶ **TouchLBM can't be loaded**
Check the ethernet settings in Offline Menu.
Check the ethernet cable connection (crossed cable).
- ▶ **Touch is not working**
Recalibrate the touch (see Offline Menu).
- ▶ **Project is not working correctly**
Check if the version of the loaded TouchMaker project fits to the TouchLBM firmware. The correct firmware version can be found in the [About](#) dialog. Further please check if there are [Function Scripts](#) running in the project that can explain unusual behaviour.
- ▶ **Device does not match interface.**
This error appears in the LON Tool if the network interface on the TouchLBM is different to the interface in the LON tool. This may happen, if variables were changed in the TouchLBM project without changing the ProgramID in the [Project Settings](#). The device must be "[Replaced](#)" in the LON tool after changing the ProgramID. The bindings will remain, if the existing variables in the TouchMaker project did not change and new variables were appended.

Offline Menu

The Offline Menu can be activated by pressing the touch during boot sequence until you hear a short beep sound. In this menu some basic settings can be done. As long as TouchLBM is running the Offline Menu it can be connected through ethernet IP:192.168.0.82 SUB:255.255.255.0 GW: 192.168.0.1. If the touch must be recalibrated completely, run the Offline Menu again and hold the touch until the TouchLBM displays the calibration screen directly.

This is an overview on the Offline Menu screens:

The image shows two screenshots of the TouchLBM Offline Menu. The top screenshot displays the main menu with a navigation bar at the top containing: MAIN, DATE/TIME, ETHERNET, CONNECT, TOUCH, DISPLAY, and EXIT. The main content area shows the title 'TouchLBM Offline Menu' and a 'Project Description: Touchlon Project - Author'. Below this, system information is listed in two columns:

Firmware Version:	4.02	Screens Loaded:	19
Hardware Revision:	1.10	Fonts Loaded:	1
Date:	Tu 2018/06/12	Pictures Loaded:	0
Time:	16:18:38	Texts Loaded:	378
RAM Usage:	170/1007 MB		
FLASH Usage:	17/ 100 MB		
CPU Usage:	1%		
CPU Temperature:	61°C		

At the bottom right of this screen, it says '(C) 2004-2018 PASStec GmbH'. The bottom screenshot shows the 'Set Date and Time' configuration screen, also with the same navigation bar. It features several input fields:

- Time: 16:19
- Date: 12.06.2018
- Time Zone Correction (UTC): 1h
- NTP-Server: pool.ntp.org
- Daylight Saving: YES
- Backup Battery: OK

MAIN	DATE/TIME	ETHERNET	CONNECT	TOUCH	DISPLAY	EXIT
------	-----------	----------	---------	-------	---------	------

TouchLBM Ethernet Settings

Project IP:

Subnet Mask:

Gateway IP:

DNS Server:

MAC-Address: 0005510D1434

Offline IP: 192.168.000.082
Subnet Mask: 255.255.255.000 - Gateway IP: 192.168.000.001

MAIN	DATE/TIME	ETHERNET	CONNECT	TOUCH	DISPLAY	EXIT
------	-----------	----------	---------	-------	---------	------

TouchLBM Connectivity

LON EIA-709 FTT10 NeuronID: 80000003A501

LON CEA-852 IP NeuronID: 000000000000

BACnet IP DeviceID:

BACnet MS/TP DeviceID:

Modbus TCP Server Modbus TCP Client

Modbus RTU Slave Modbus RTU Master

MAIN	DATE/TIME	ETHERNET	CONNECT	TOUCH	DISPLAY	EXIT
------	-----------	----------	---------	-------	---------	------

TouchLBM VNC / WEB Settings

 VNC Port:

VNC AccessKey:

VNC Password:

 HTTP Port: HTTPS Port:

WEB Password:

MAIN	DATE/TIME	ETHERNET	CONNECT	TOUCH	DISPLAY	EXIT
------	-----------	----------	---------	-------	---------	------

TouchLBM E-Mail Settings

E-Mail Disabled

Destination Address A:

Destination Address B:

Destination Address C:

MAIN	DATE/TIME	ETHERNET	CONNECT	TOUCH	DISPLAY	EXIT
------	-----------	----------	---------	-------	---------	------

Display Settings

Brightness:

Standby Brightness:

Standby Screen:

Screen Saver:

Sound Output:

Sound Volume:

Rotate 180°:

Fade Screens:

MAIN	DATE/TIME	ETHERNET	CONNECT	TOUCH	DISPLAY	EXIT
------	-----------	----------	---------	-------	---------	------

Exit Offline Menu

Save Settings ?

System Requirements



CPU: Intel Pentium 1.0 GHz+ or compatible
RAM: min. 1024 MB
HARDDISK: 500 MB free space
OS: Windows 7/8/10 (others on request)
GRAPHIC: Resolution min. 1024x768

TouchLBM Hardware

TouchLBM TFT Color Touch Panel

- Display Size: 3.5" / 5.7" / 7.0" / 15.0"
- Pixel: 480x320 to 1024x768
- Color: up to 16.7 Mio
- Backlight: LED
- Memory: 256 MB Flash, 1 GB RAM
- CPU: ARM Cortex A9 max. 1.2 Ghz
- Interfaces: Ethernet / RS485 (option) / LON-FT (option)
- Power Supply: 24V AC/DC
- Protection Level: IP52 front, IP20 back
- Additional technical data can be found in the datasheets.

TouchLBM Perspective View



TouchLBM View With Connectors





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