

ESFVISU

visualization editor, version 1.2

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1 Technical requirements

1.1 Hardware

Processor	Pentium IV or equal, running at 1200 MHz.
Main memory	256 MB
Free disk space (additional disc space requirements depend on the configured archives)	40 GB
Screen resolution	1024 x 768 Pixel
Colors	Color depth min. 16 Bit per Pixel.
Interfaces	Serial or USB interface to connect EIB with EIBA FALCON driver.

1.2 Software

WINDOWS 95	NO
WINDOWS 98, First Edition	NO
WINDOWS 98, Second Edition	YES
WINDOWS ME	YES
WINDOWS NT	NO
WINDOWS 2000, all versions	YES
WINDOWS XP, all versions	YES

1.3 Process interface

For the purpose of European Installation Bus (EIB), the FALCON driver of the EIBA (EIB Association) is used.

Optional the ESFVISU is equipped with an OPC (OLE for Process Control)- client, so that instead of EIB, or additional to EIB, OPC- servers, that are available for a multitude of automation systems, can be used for the processing connection.

Attention: Under Windows 2000 the FALCON driver has to be installed manually from the setup CD !

1.4 Import from ETS

ETS 2 version 1.3	YES, use ETS, "OPC - Export"
ETS 2 versions 1.1, 1.2 and 1.3	YES, use print report redirected to file.
Older ETS – versions	NO

1.5 Microsoft Internet Explorer, Version 6; DirectX, Version 9.0b

These applications are required; they can be installed or updated from the setup CD.

2 First steps

The visualization editor is used to create dynamic process images for logical process models.

Each visualization project relates to one logical process model, whereas each logical process model relates to one or more process interfaces. A visualization project comprises a collection of worksheets, each worksheet showing a certain aspect of the project.

The visualization editor is a companion of the visualization player, which is used to display the process images.

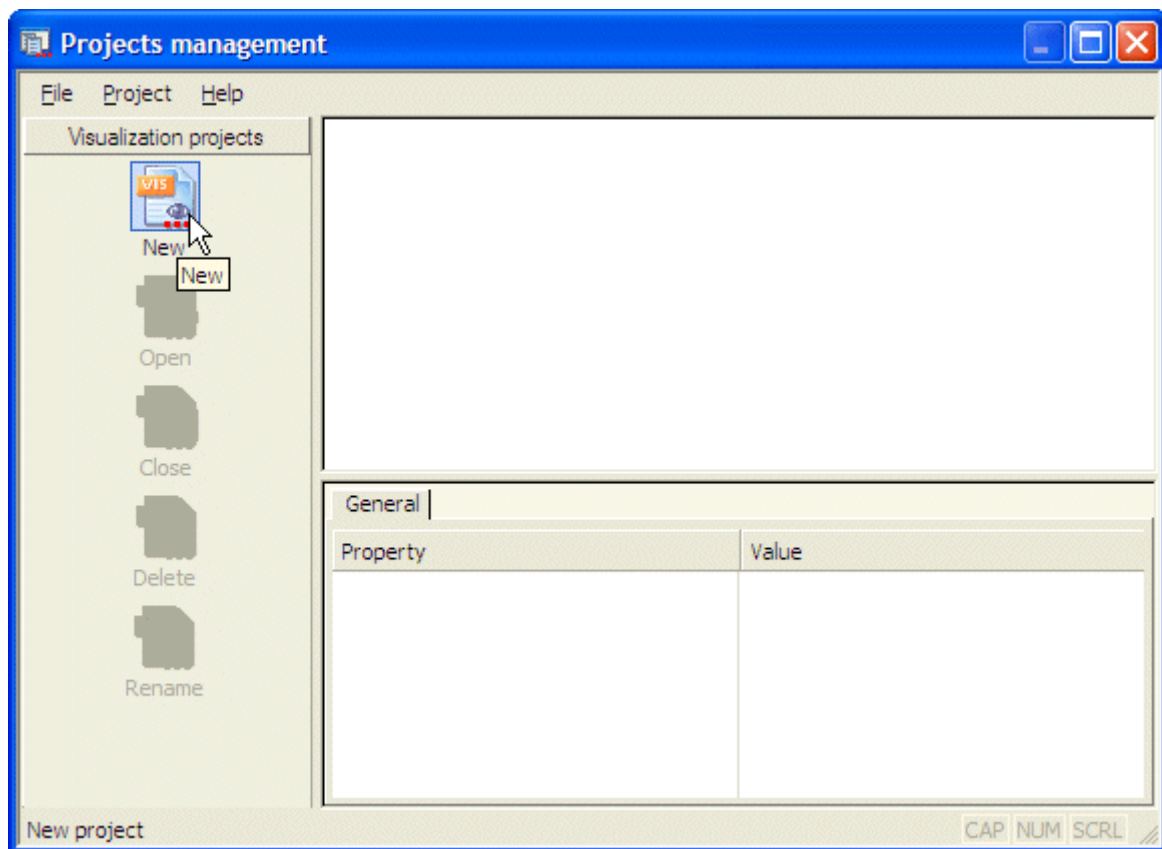
In order to clearly distinguish different applications, we use different colors for the application's icons, **yellow** for the **web editor**, **visualization editor** and **player**.



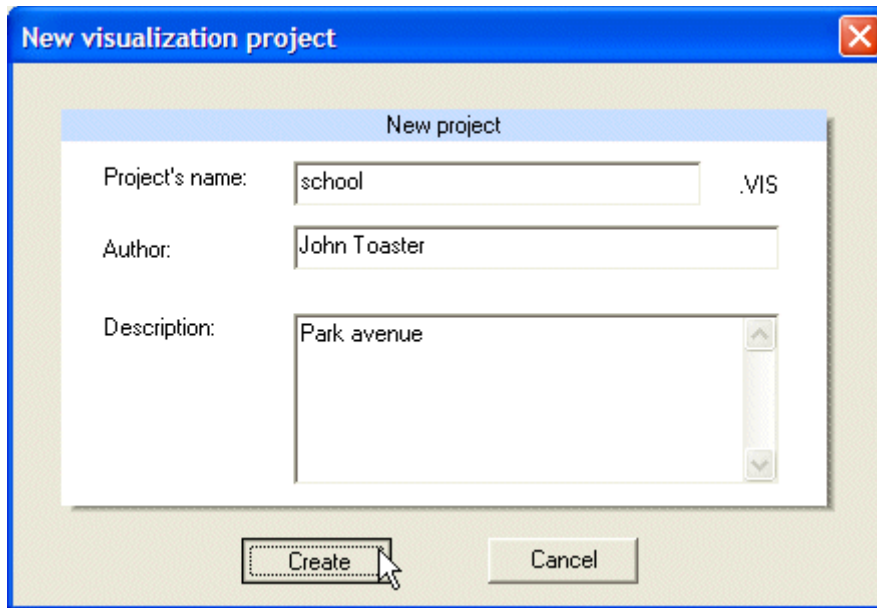
To start the visualization editor use the WINDOWS program manager or just double click on the editor's icon in the ESFVISU control panel.

2.1 Step 1: Create visualization project

Use menu **Projects** or click at symbol  **Organize..** in the tasks window to start the visualization projects manager. The projects manager is used to create new projects, open, close, rename or delete existing projects.



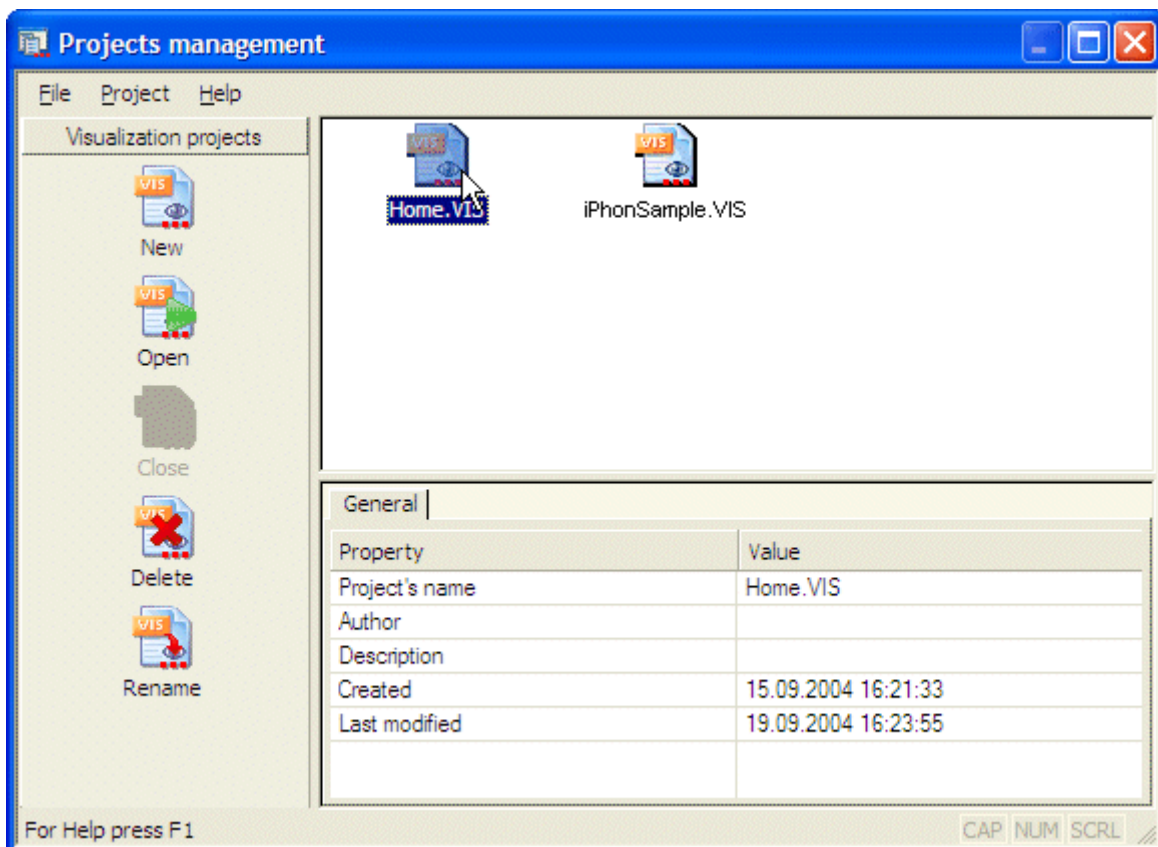
New: Click on symbol **New** opens a dialog to define a new visualization project.



Project's name: Name of the visualization project

Author and description: It is useful but not mandatory to enter the author's name or the project description. These entries can be changed later.

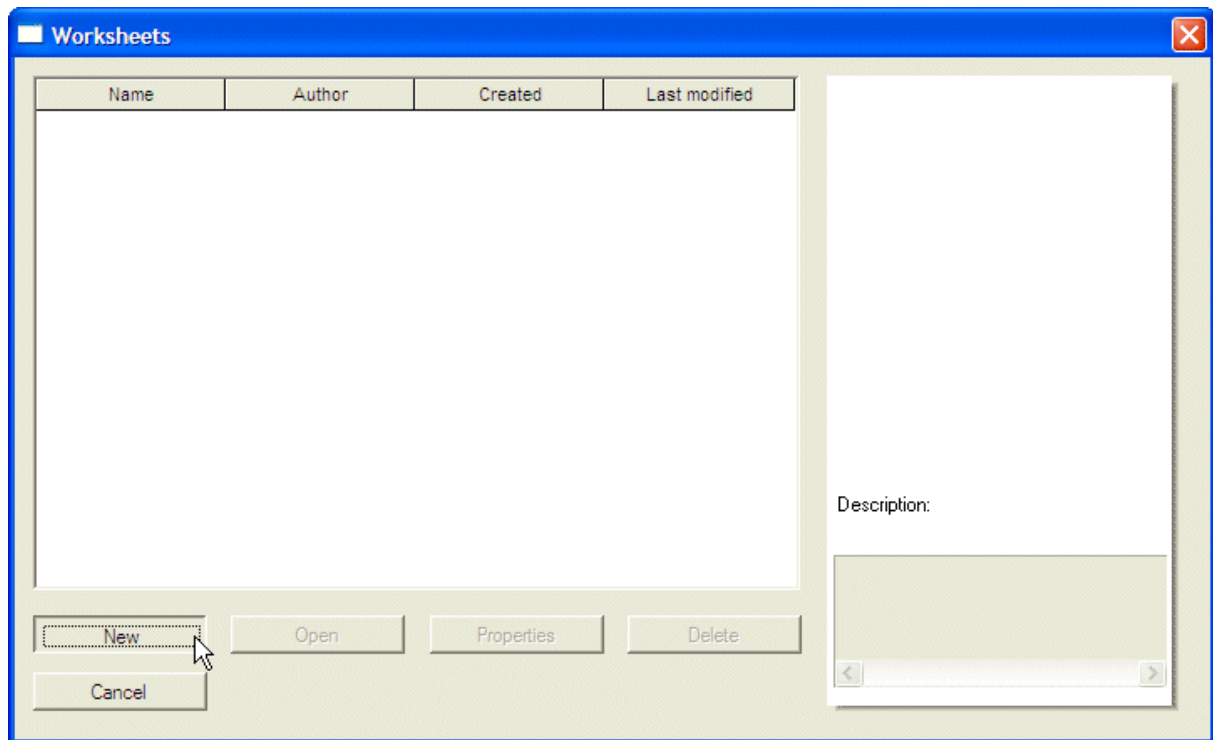
Create: After entering at least the name of the project click button **Create** to confirm the creation of the project. The project will be available in the project manager's projects list.



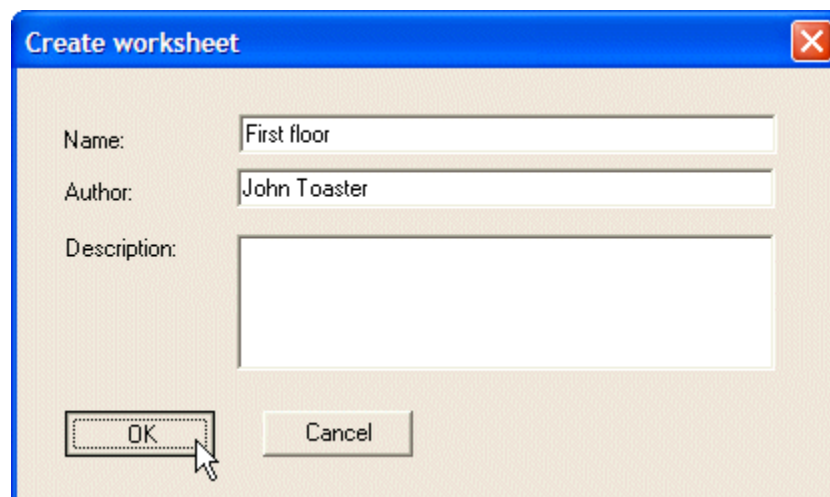
Open: Select a project with a click on the project's symbol. Click on symbol **Open** to open the selected project.

2.2 Step 2: Create worksheet

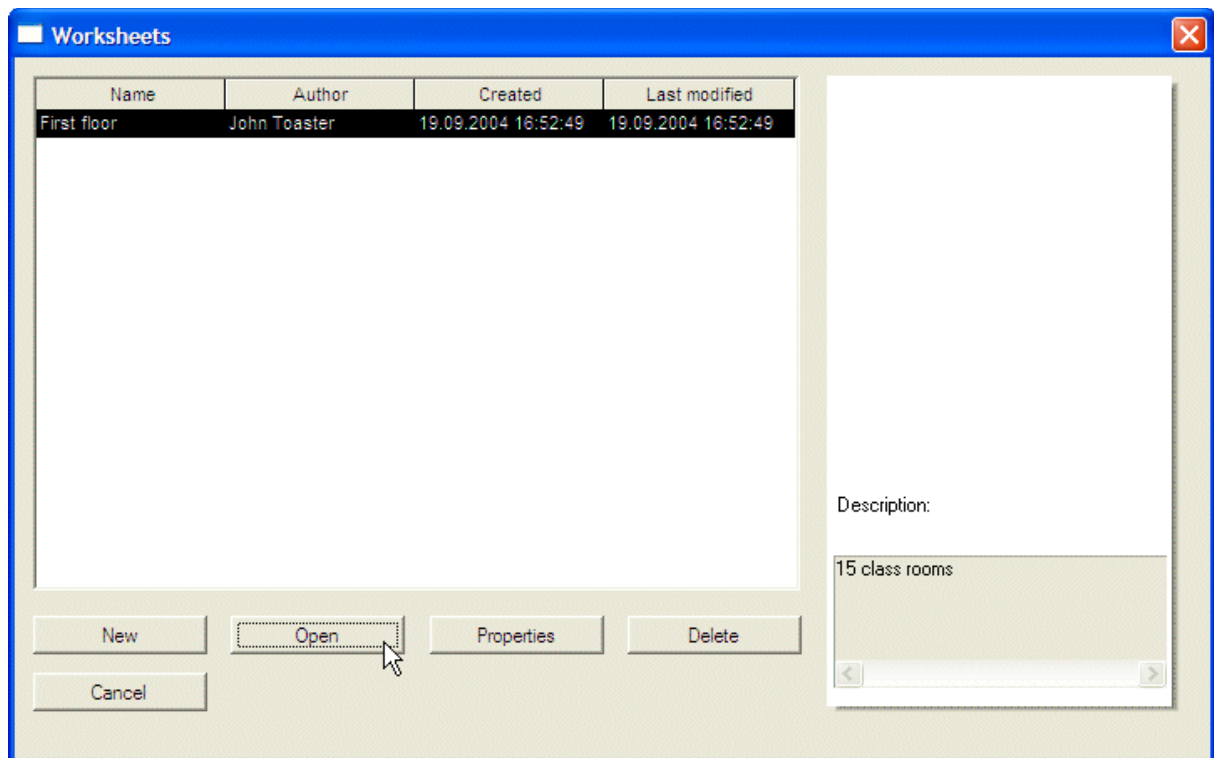
Select menu option **Worksheet – Worksheets..** or select symbol  in the tasks tool window to open the worksheets manager dialog.



New: Opens a dialog to define a new visualization worksheet. It is not mandatory but useful to enter the author's name and a short description.



The worksheet will be created when button **OK** has been pressed.

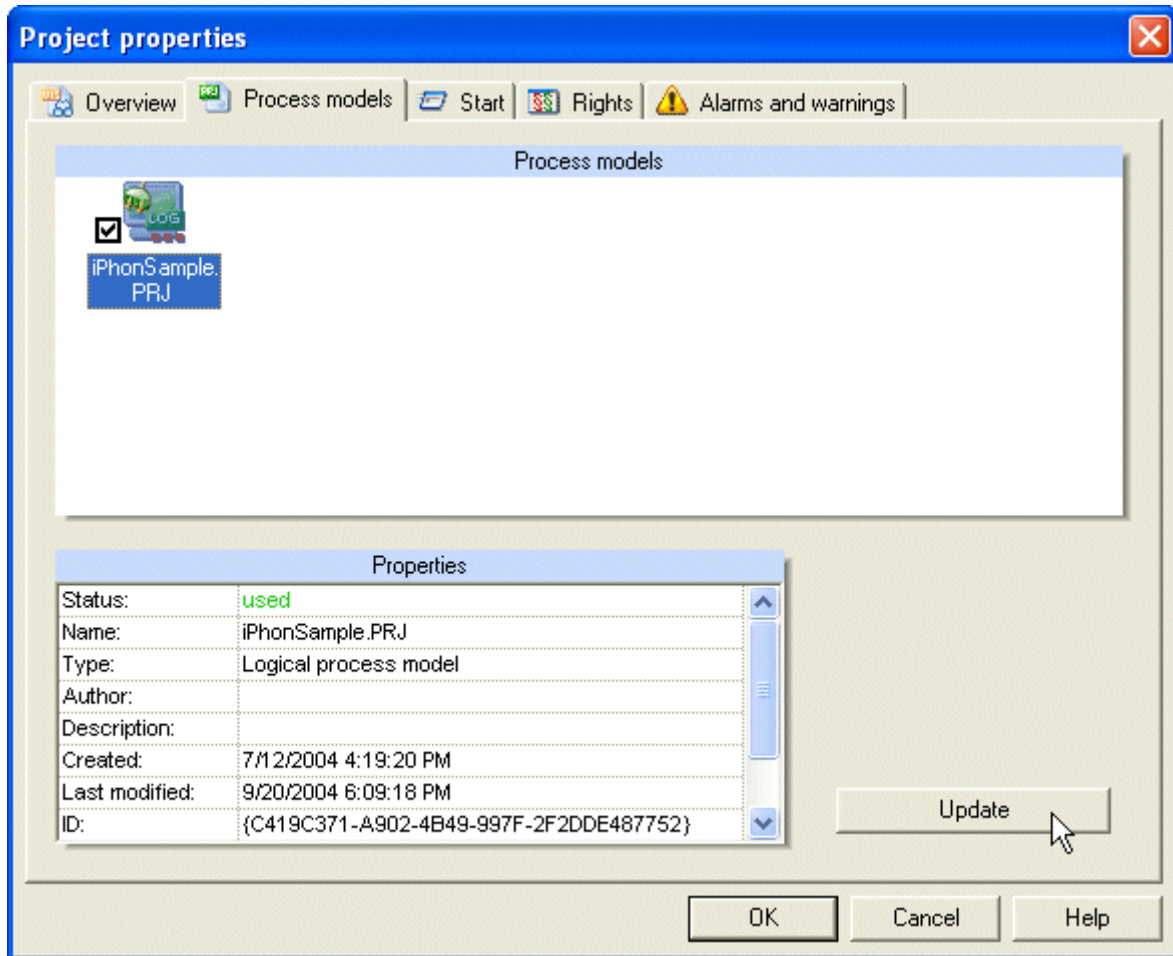


Open: Select the new worksheet and press button **Open**. The worksheet will be loaded into the editor.

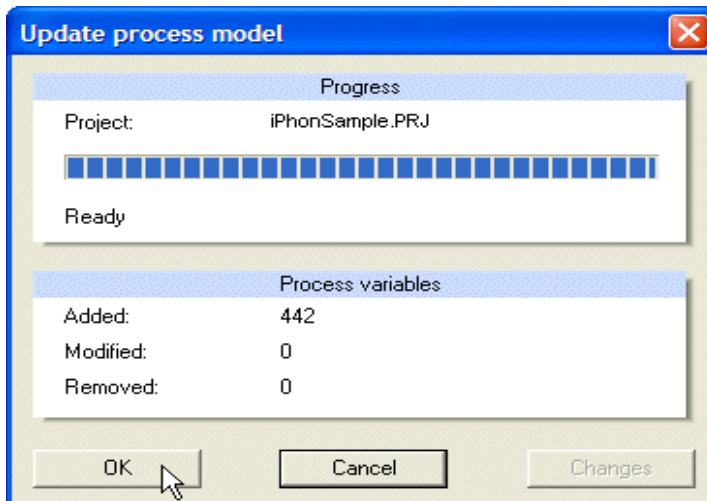
Cancel: Closes the dialog.

2.3 Step 3: Import from process model

Select menu option **File – Project properties** or select symbol  **Properties** in the tasks tool window to open the project properties dialog.



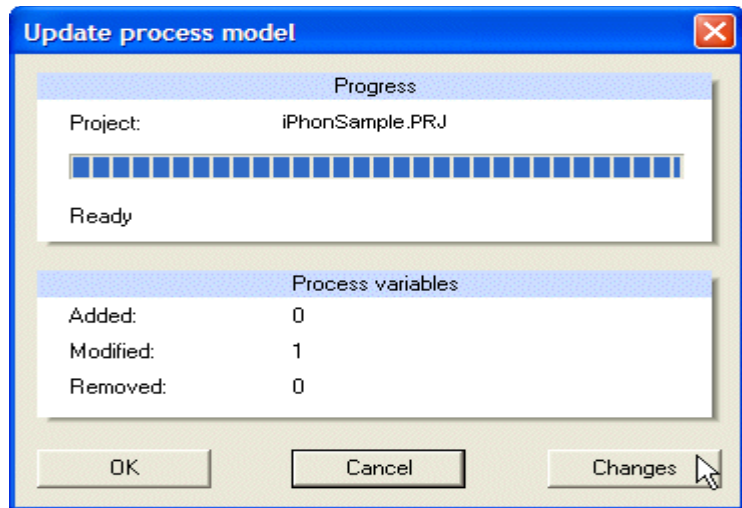
Select tab **Process models** to get a list of all available process models. Check the symbol of the process model you wish to use with the visualization project. Then press button **Update** to open a dialog to import process data into the visualization project.



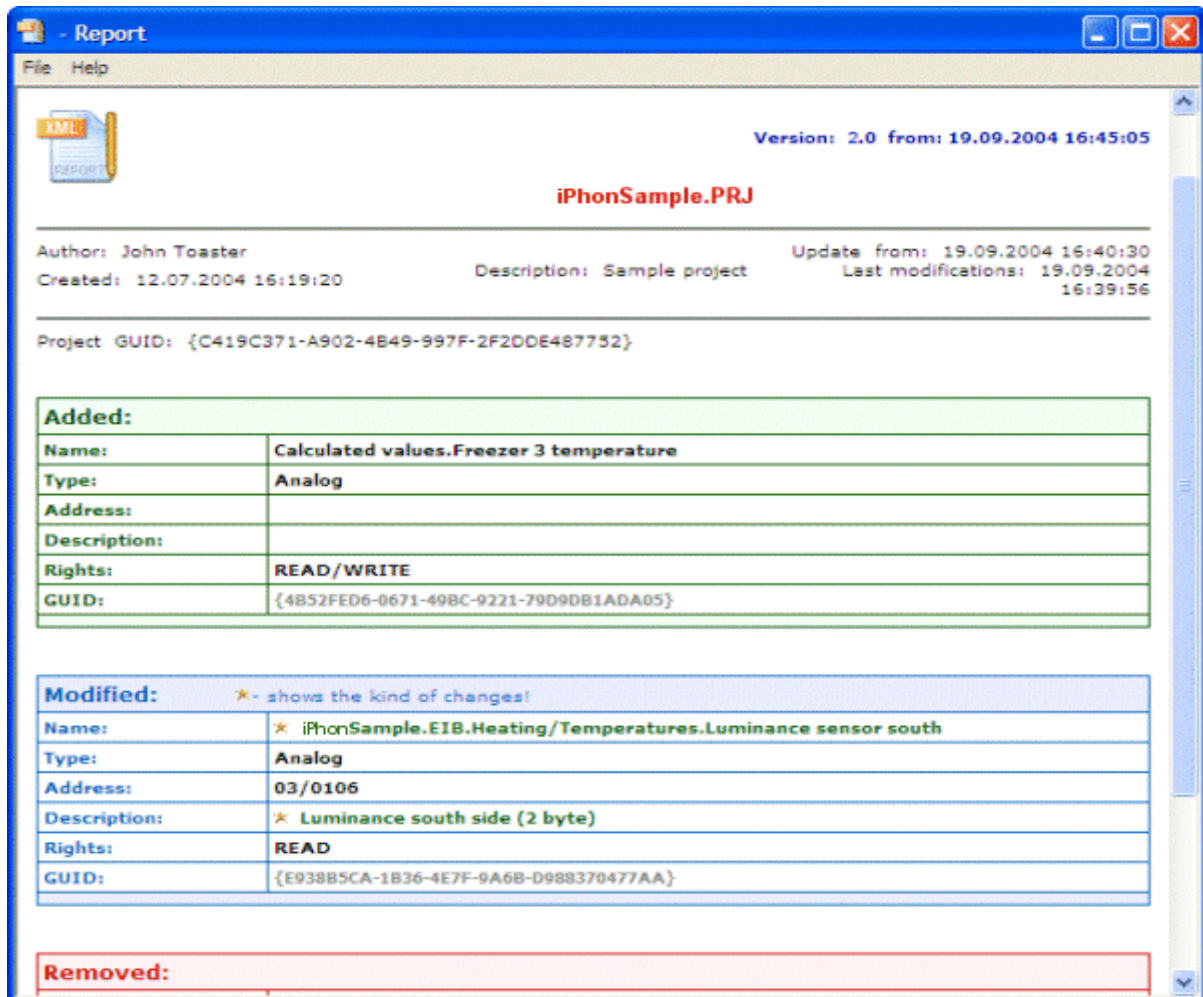
After the actualization of the project's process variables has been completed, the dialog shows how many process variables have been inserted.

Since at this step this is the first time the logical process model has been imported, the button **Changes** is grayed.

When the process model has been changed, the button **Changes** is enabled and shows a report of changes to the process variables.



(see below)




New process variables are displayed with green color.


Modified process variables are displayed with blue color. The modified properties are marked with an asterisk.

Deleted process variables are displayed with red color.

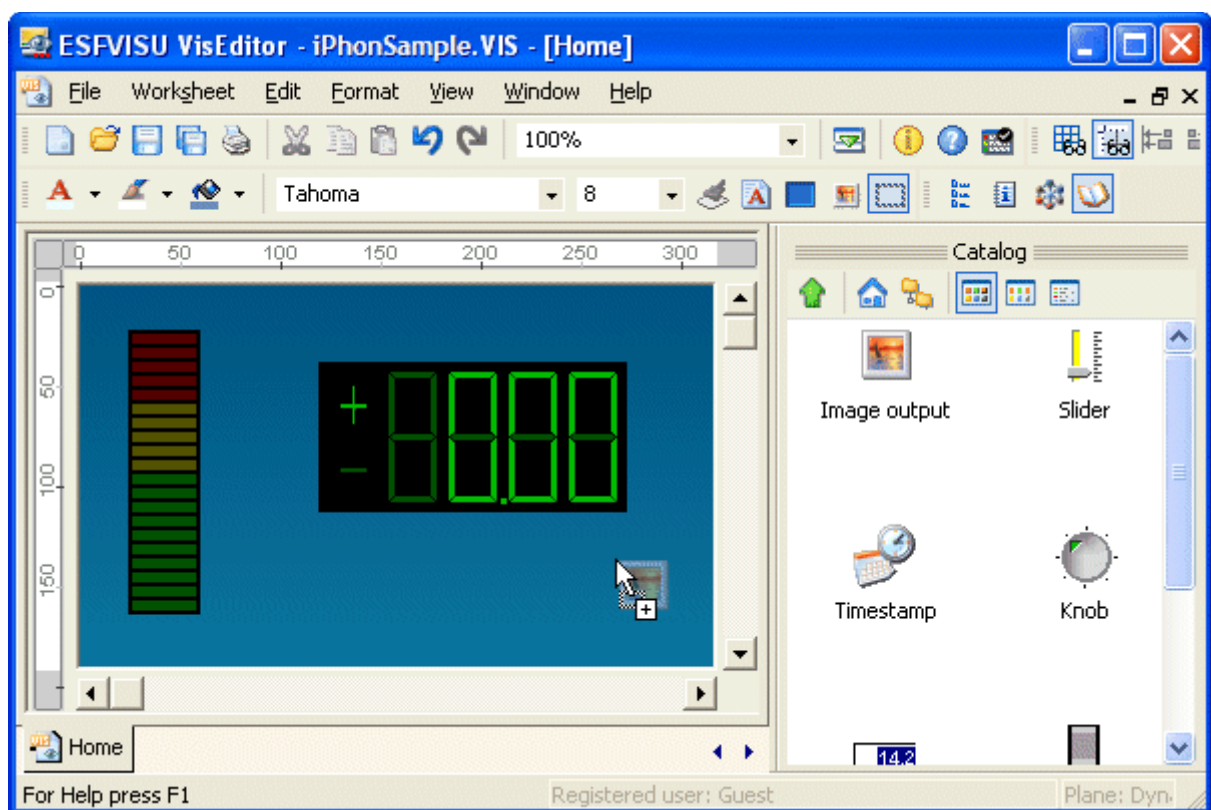
This report can be printed and is used to decide whether to accept the changes.


2.4 Step 4: Insertion of a display element

Select menu option **View – Tool windows** and entry **Catalog** to show or hide the catalog tool window. Choose to show the catalog window. An alternative to show or hide the catalog window is to click on symbol  in the toolbar.

In the catalog tool window double click on symbol  **Parameter displays** to choose among different sorts of display items, which can display values of process variables.

For example double click on category „Binary out“ will show switches and other display items, which can be used to set a binary value in the technical process. Select a switch and drag the switch into the worksheet. In order to drag an item left click on the item and move the mouse while the mouse button stays pressed. Then release the mouse button to drop the item at the current mouse position. A dialog opens to define additional properties of the display item.



The worksheet can be saved with a click on the  symbol in the toolbar.

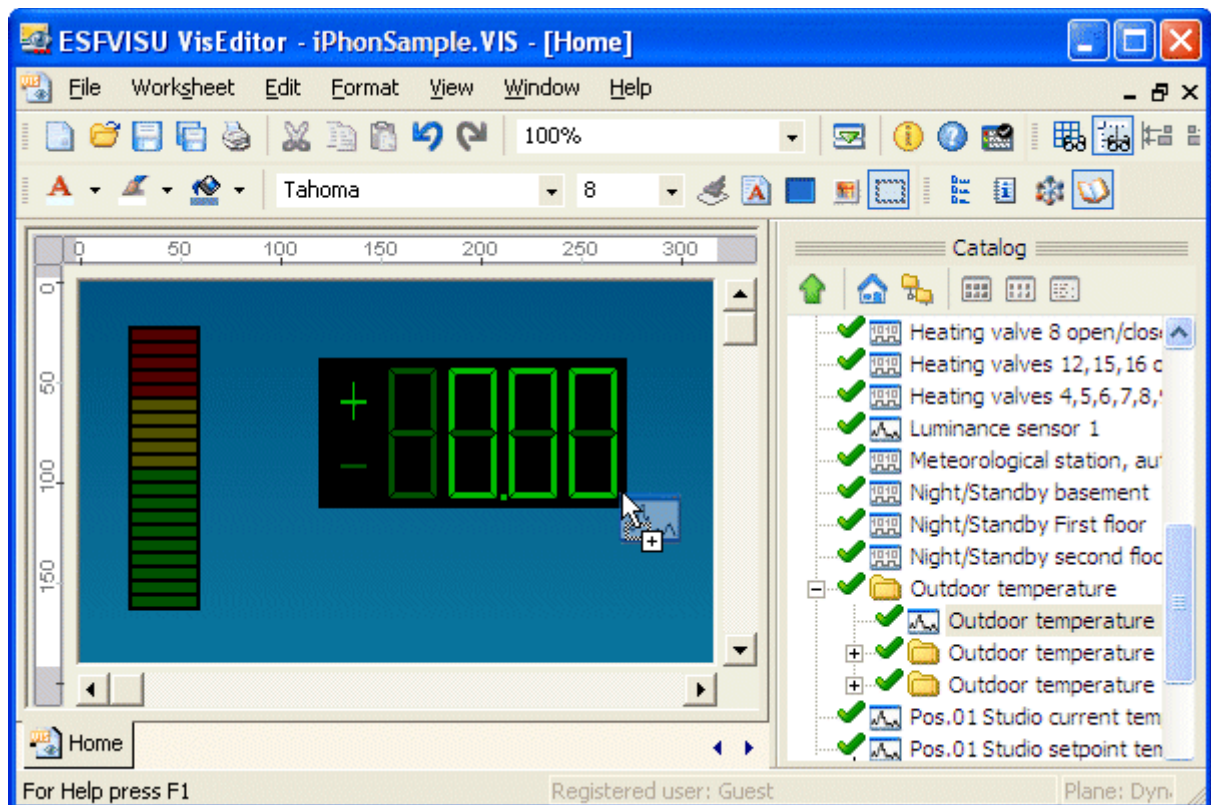
2.5 Step 5: Connect the display item with a process variable

In order to use switches and other controls for process variables, these display items must be connected to process variables. As a prerequisite, there must be a process model, which has been connected to the visualization project.

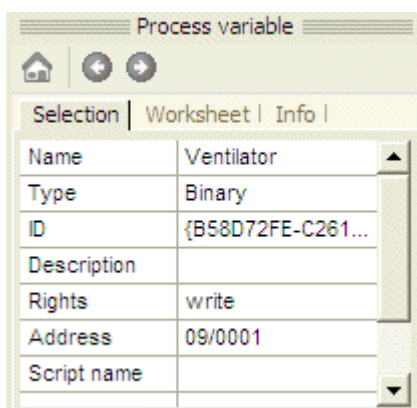
In the catalog tool window choose **Process Data** and browse in the tree of process items.

Connect process variable:

In the process item's tree select the process variable to be connected with the display item and then drag the process variable to the display item.

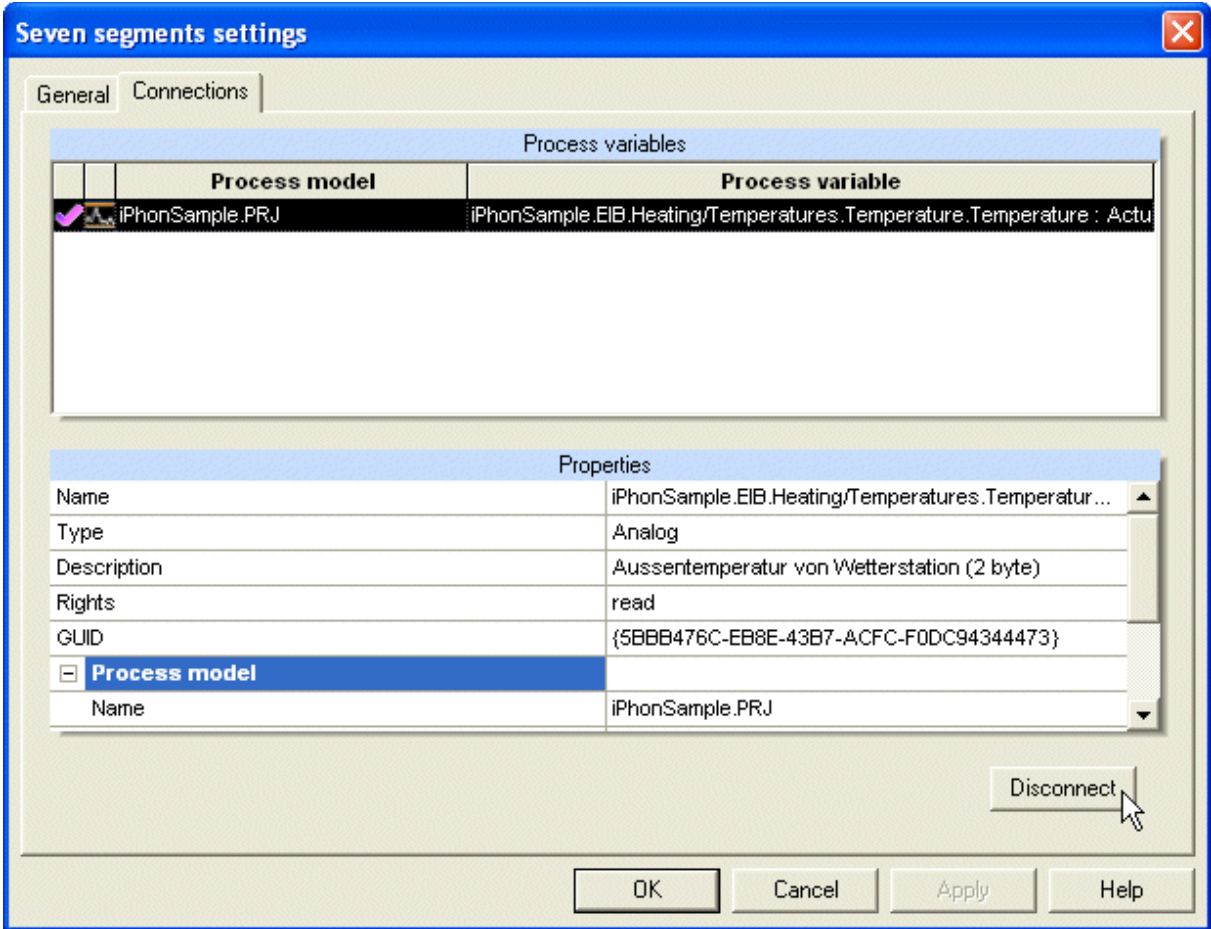


The visualization editor will allow to drop the process variable over the display item only if the process variable is of the proper type, i.e. you may connect a binary process variable but not a analogue process variable with a switch. If the process variable has been dropped successfully, then a connection of the display item and the process variable has been set up. Save worksheet.




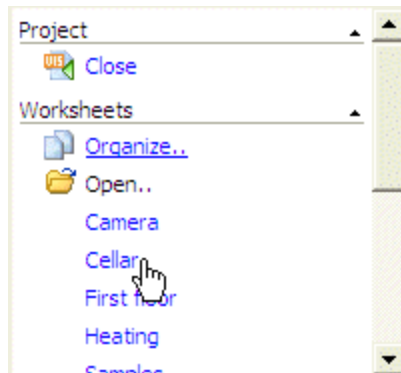
While you browse the process items, you may see properties of the selected process item in the info tool window, tab **Selection**.

A double click on the display item opens a dialog with the display item's properties. Display items for process variables show a tab with actual connections to process variables. (see below)



2.6 Step 6: Start player

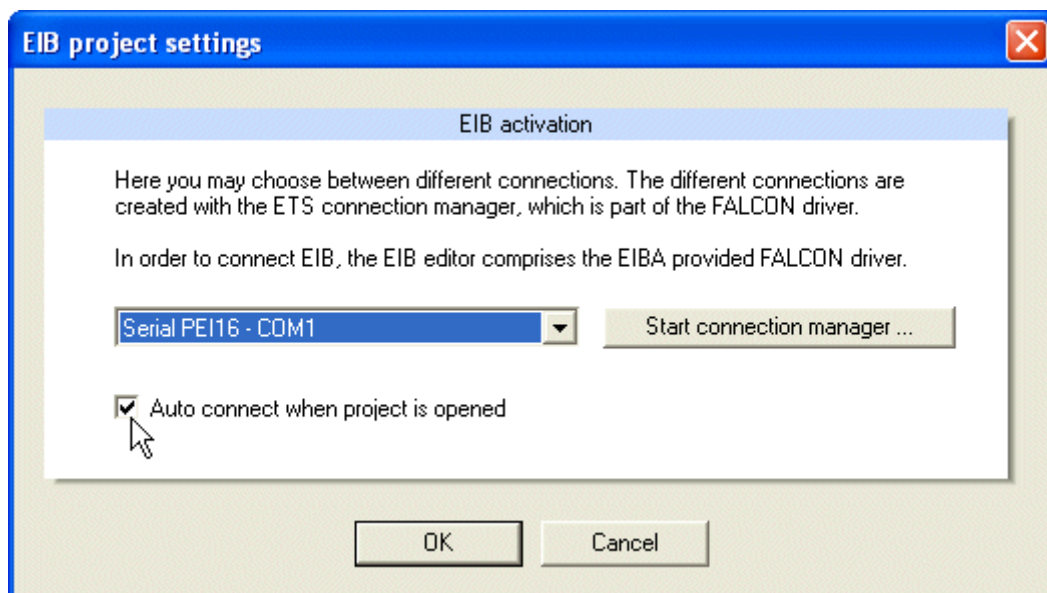
The visualization player can be started from the visualization editor to see the results of editing the worksheets. Menu option **File -  Play** will open the player with the actual visualization project.



Tasks tool window in the visualization player:

Open a worksheet with a click on the worksheet's name.

The process interface will open automatically.

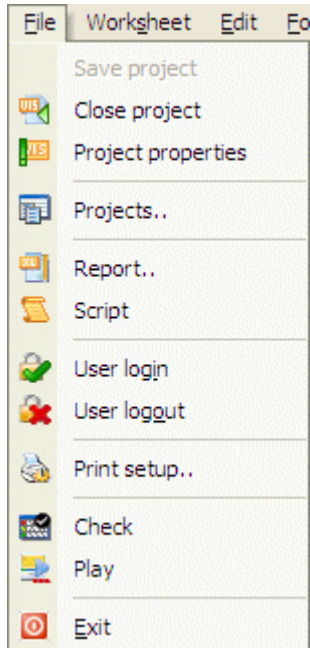


In case of an EIB process interface, the EIB editor must be configured prior to the actual EIB connection. Choose the bus connection type to use and decide whether the EIB editor should connect automatically to EIB when the editor has been started.

When the process interface has been properly configured, the visualization player is ready-to-operate.

3 User interface

3.1 Menu



Close Project: Closes the current project.

Project Properties: Opens a dialog to define or update general project properties.

Projects..: Opens the project management dialog. In this dialog projects can be created and maintained.

Report..: Create or view report of current project.

Script: Opens the Script Editor.

User login: Opens a dialog to login a user to the system.

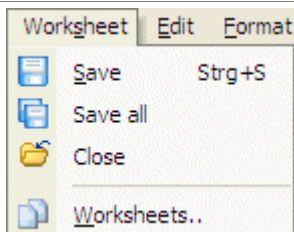
User logout: Logout current user from the system.

Print setup..: Select printer and printer properties.

Check: Open dialog to check project properties.

Play: Open current project in the player application.

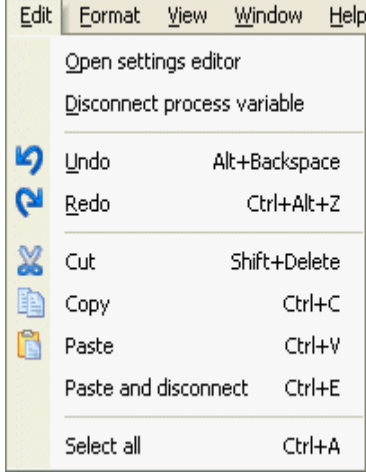
Exit: Close editor. Shortcut ALT + F4.

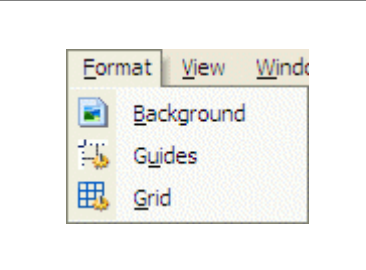


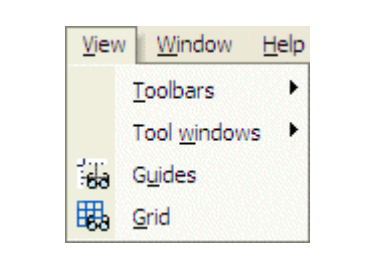
Save: Save current worksheet.

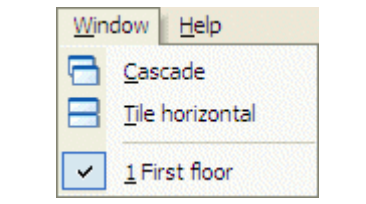
Close: Close current worksheet.

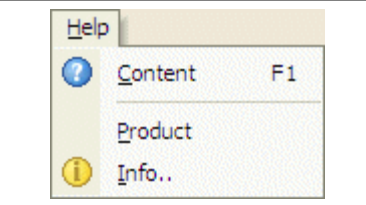
Worksheets..: Opens dialog to create and maintain worksheets.

	<p>Open settings editor: Opens the dialog to edit the settings of the selected element.</p> <p>Disconnect process variable: Disconnects the link between the selected parameter displays and the connected process variables.</p> <p>Paste: Pastes elements from the clipboard to a worksheet. The links between parameter displays and process variables remain unchanged. The names of pasted elements will be changed for copy and paste operations in the same worksheet. <i>Multiple selection possible.</i> (Shortcut: Ctrl+V)</p> <p>Paste and disconnect: Pastes elements from the clipboard to a worksheet. The links between parameter displays and process variables will be disconnected. The names of pasted elements will be changed for copy and paste operations in the same worksheet. <i>Multiple selection possible.</i> (Shortcut: Ctrl+E)</p>
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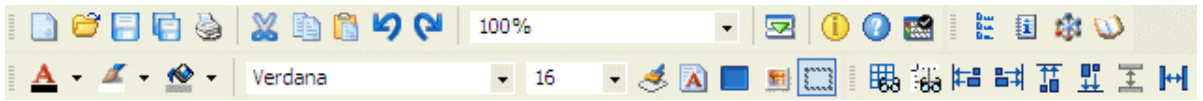
	<p>Background: Opens dialog to define the current worksheet's background properties.</p> <p>Guides: Opens dialog to edit guide lines.</p> <p>Grid: Opens dialog to define grid properties. The horizontal and vertical distances of the grid may be defined here. Optionally, the <i>snap-to-grid</i> function may be activated.</p>
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	<p>Toolbars: Used to toggle the visibility of different toolbars.</p> <p>Tool windows: Used to toggle the visibility of different tool windows.</p> <p>Guides: Used to toggle the visibility of guide lines.</p> <p>Grid: Used to toggle the visibility of the grid.</p>
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	<p>Cascade: The worksheet windows overlap.</p> <p>Tile horizontal: The worksheet windows are tiled.</p>
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	<p>Content: Opens the help file. In addition to the help file the info tool window also provides advice.</p> <p>Product: Shows product and license information.</p> <p>Info: Shows version and copyright information.</p>
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3.2 Toolbar



The image shows a screenshot of a software toolbar with various icons and a list of their functions. The toolbar includes icons for file operations (New, Open, Save, Save All), editing (Print, Cut, Copy, Paste, Undo, Redo), formatting (Text color, Line color, Fill color, Font, Font size, Copy style), and drawing (Text, Rectangle, Image, Select, Grid, Guides, Align left, Align right, Align top, Align bottom, Distribute vertically, Distribute horizontally). It also includes icons for toggling windows (Messages, Info, Content, Check, Tasks, Info, Elements, Catalog) and a Zoom icon.

-  **New:** Opens dialog to create and maintain worksheets.
-  **Open:** Opens a script file.
-  **Save:** Save the active worksheet.
-  **Save All:** Save all open worksheets.
-  **Print:** Print the active worksheet.
-  **Cut:** Delete selected items and copy them to the clipboard.
-  **Copy:** Copy selected items to the clipboard.
-  **Paste:** Insert contents of clipboard.
-  **Undo:** Undo last operation.
-  **Redo:** Redo last operation. Essentially this is the Undo of the Undo.
-  **Zoom:** Used to scale worksheets.
-  **Messages:** Toggle the visibility of the messages window.
-  **Info:** Show version and copyright information.
-  **Content:** Start help file.
-  **Check:** Perform checks on the visualization project.
-  **Text color:** Select text color.
-  **Line color:** Select line color.
-  **Fill color:** Select fill color.
-  **Font:** Select font.
-  **Font size:** Select font size.
-  **Copy style:** Copy style to items.
-  **Text:** Insert text item into worksheet.
-  **Rectangle:** Insert rectangle into worksheet.
-  **Image:** Insert image into worksheet.
-  **Select:** Enter select mouse mode.
-  **Grid:** Toggle display of the grid.
-  **Guides:** Toggle display of guide lines.
-  **Align left:** Align left margins of selected items.
-  **Align right:** Align right margins of selected items.
-  **Align top:** Align top margins of selected items.
-  **Align bottom:** Align bottom margins of selected items.
-  **Distribute vertically:** Distribute selected items vertically.
-  **Distribute horizontally:** Distribute selected items horizontally.
-  **Tasks:** Toggle visibility of the tasks tool window.
-  **Info:** Toggle visibility of the info tool window.
-  **Elements:** Toggle visibility of the elements tool window.
-  **Catalog:** Toggle visibility of the catalog tool window.

3.3 Tool windows

The editor comprises tool windows, which provide overviews, assistance and easy access to common actions. According to the current situation, the contents of the tool windows changes automatically.

Click menu option **View - Tool windows** to show or hide individual tool windows.

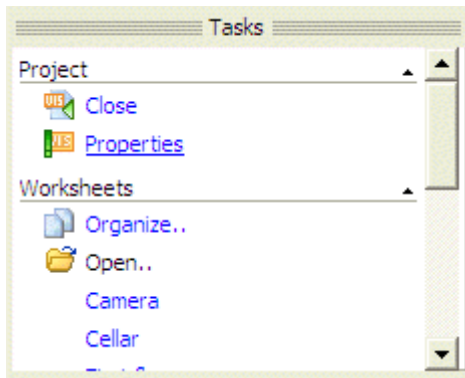
Alternatively, the visibility of individual tool windows can be changed by clicking on respective icons in a toolbar.



With menu option **View - Toolbars** this toolbar can be turned on or off.

3.3.1 Tasks tool window:

The tasks tool windows shows frequent tasks, which can be selected with a single click. Its contents depends on the current state.



In case no project has been loaded yet:

Start of the project's management; open a project out of the most recent used projects.

In case a project has been opened but no worksheet has been loaded yet:

Close project; open the project's properties dialog; open worksheet's management; open a worksheet out of the worksheet's list (see window on the left side).

In case a worksheet has been loaded and the respective window is active:

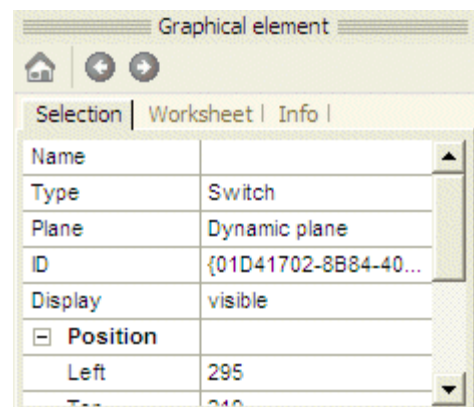
Close worksheet; open worksheet's management; open project's management.

3.3.2 Selection tool window:

The selection tool window comprises several tabs.

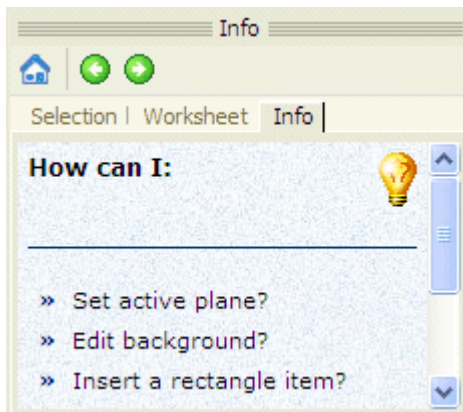
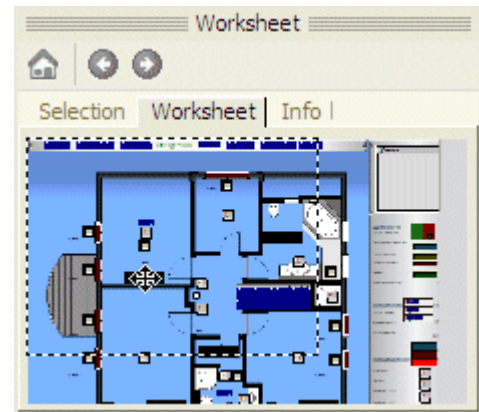
Selection:

Properties of the selected items. Item properties can be changed directly in this window.



Worksheet:

Reduced view of the complete worksheet. If according to the zoom factor only parts of the worksheet are visible in the editor's window, you may drag the visible rectangle instead of scrolling.



Info:

This window provides information similar to a FAQ (Frequently Asked Question) list.

The contents changes according to the current situation in the editor and can be navigated with the built-in Internet Explorer.


3.3.3 Elements tool window:

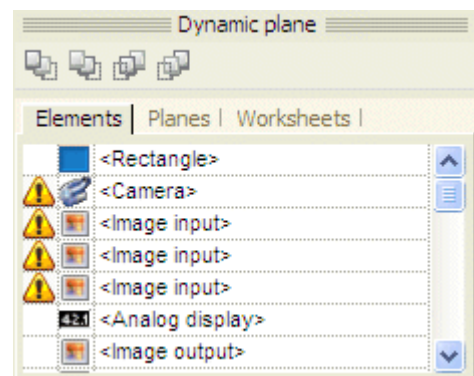
The elements tool window comprises different tabs, which always relate to the current situation in the editor.

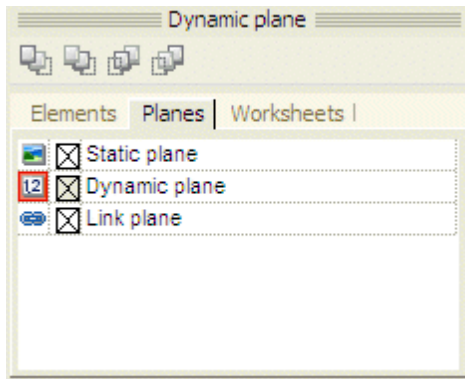
Elements:

This tabs shows all elements in the active plane. Alternatively to the selection of elements in the worksheet's window, elements can be selected in this elements list as well.

The toolbar of this window can be used to change the position of items relative to others, i.e. to bring items in the foreground or background.

The symbol  indicates a problem. The display item for a process variable's value might not be properly connected to a process variable, or the display item is out of the worksheet's bounds.





Planes:

The worksheet comprises of several planes, which may be turned visible or invisible. One plane is always active and editing commands relate to this plane.

The active plane can be selected in this window, alternatively, the active plane can be selected with a context menu of the worksheet. Open the worksheet's context menu with a right click on empty space in the worksheet.

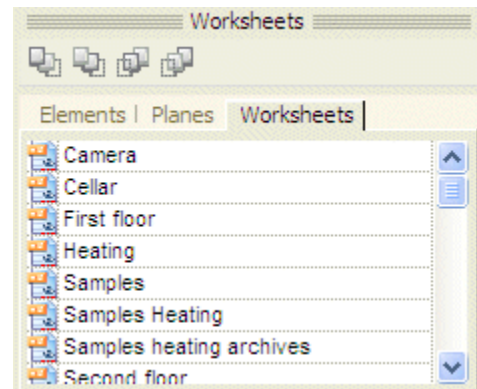
Static plane: *Used for OLE objects.*

Dynamic plane: *Used for dynamic items, which may change when applying the worksheet. For example all display items for process variables must be inserted into this plane.*

Link plane: *Links to other worksheets.*

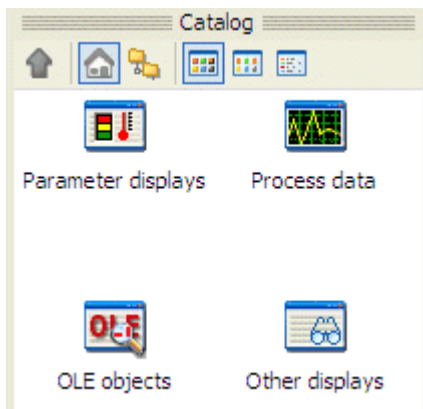
Worksheets:

This tab shows a list of all worksheets in the visualization project. A worksheet may be opened with a double click on the worksheet's name. If the link plane is active, a worksheet may be dragged out of this list into the current worksheet's window to define a link.



3.3.4 Catalog tool window:

This window shows catalogs of various items, which can be used with the visualization project.

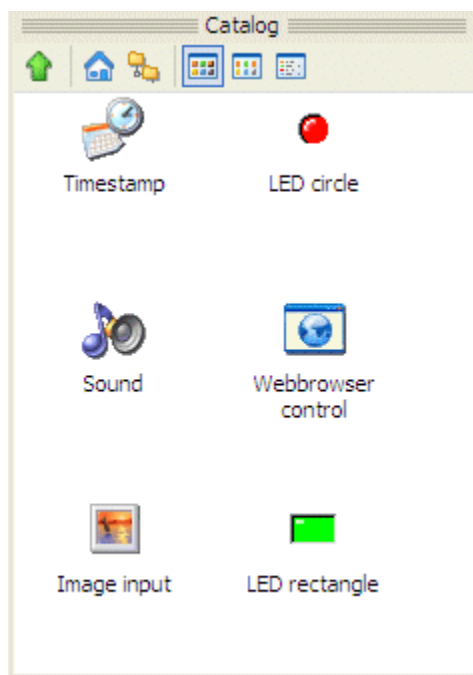
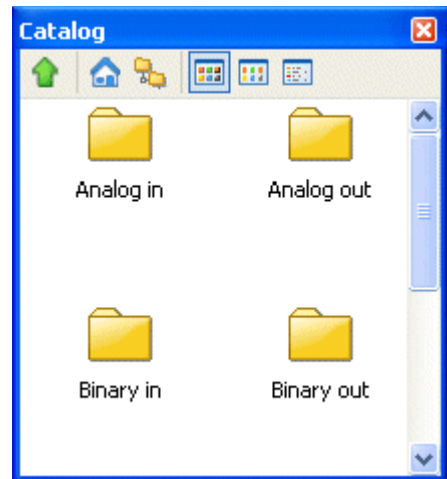


Catalog:

Catalogs of different categories. Currently these categories are display items for process variables, process variables imported from process models, OLE objects to be used for static images, other display items.

Parameter displays:

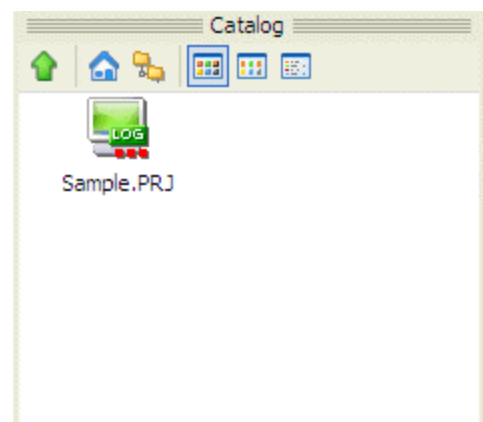
The parameter displays are structured according to their use for different kinds of process variables.

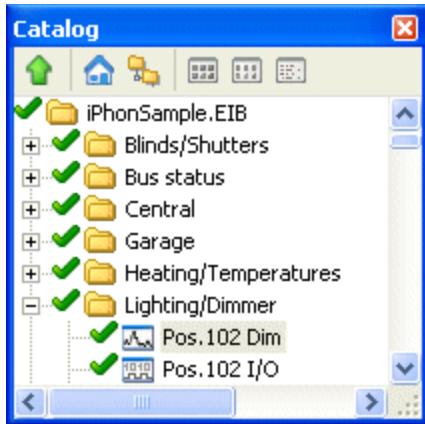


To use a parameter display, drag the parameter display into the worksheet's window. Click on the symbol with the left mouse button and move the mouse into the worksheet's window while the mouse button remains pressed. Release the mouse button to drop the item at the mouse position.

Process models:

The process model and all process variables, which have been imported into the visualization project.



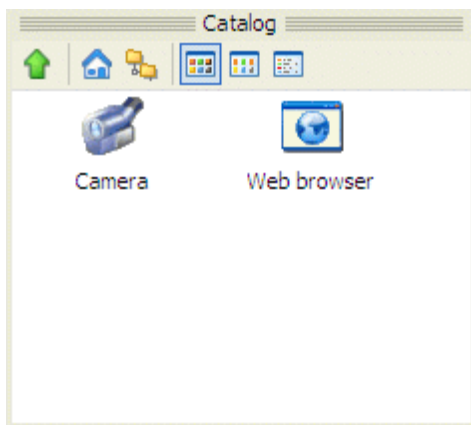


Process variables:

A process variable can be dragged to a parameter display to connect the display with the variable. The process variable can be dropped at the display, if the types of the variable and the display match. Otherwise, dropping the variable is not possible.

OLE objects:

All kinds of OLE objects, which have been found at the system and could be applicable with the worksheet. To use an OLE object drag the OLE object to the worksheet's window.




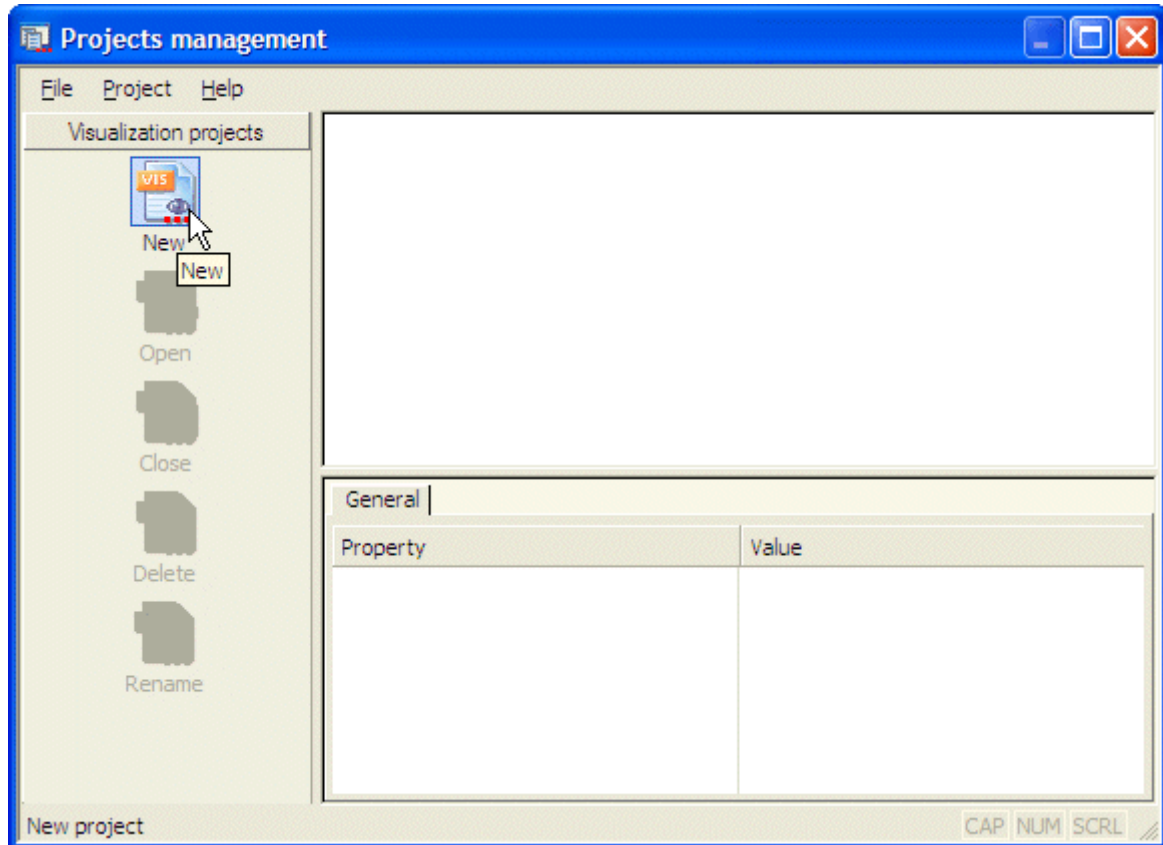
Other displays:

To use an item, drag the item to the worksheet's window.

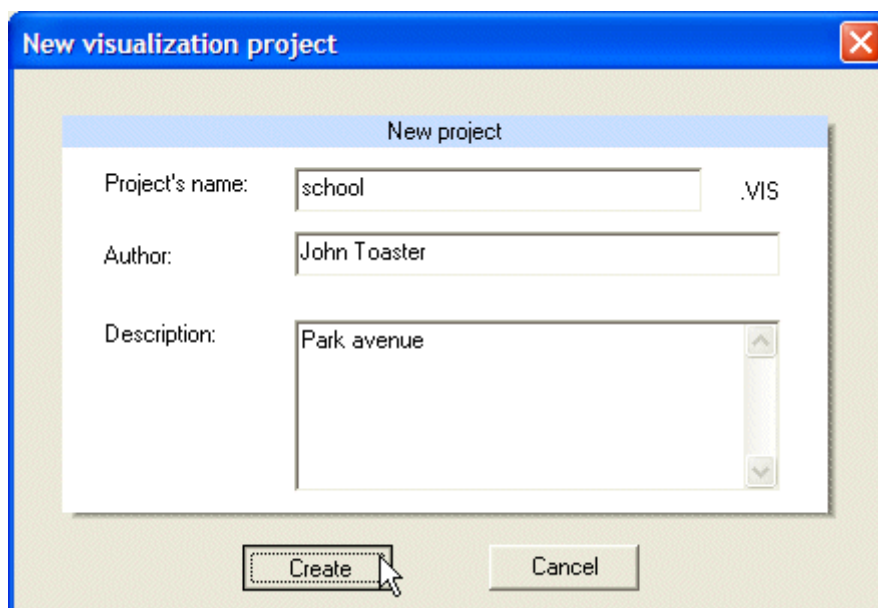
4 Functions

4.1 Project's management

Menu option **File - Projects..** opens the dialog for project's management. As an alternative, you may click on symbol  **Organize..** in the tasks tool window. The project's management dialog provides functions to create, open, delete and rename visualization projects.



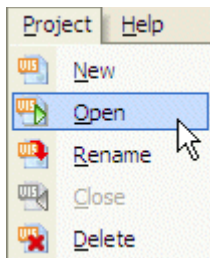
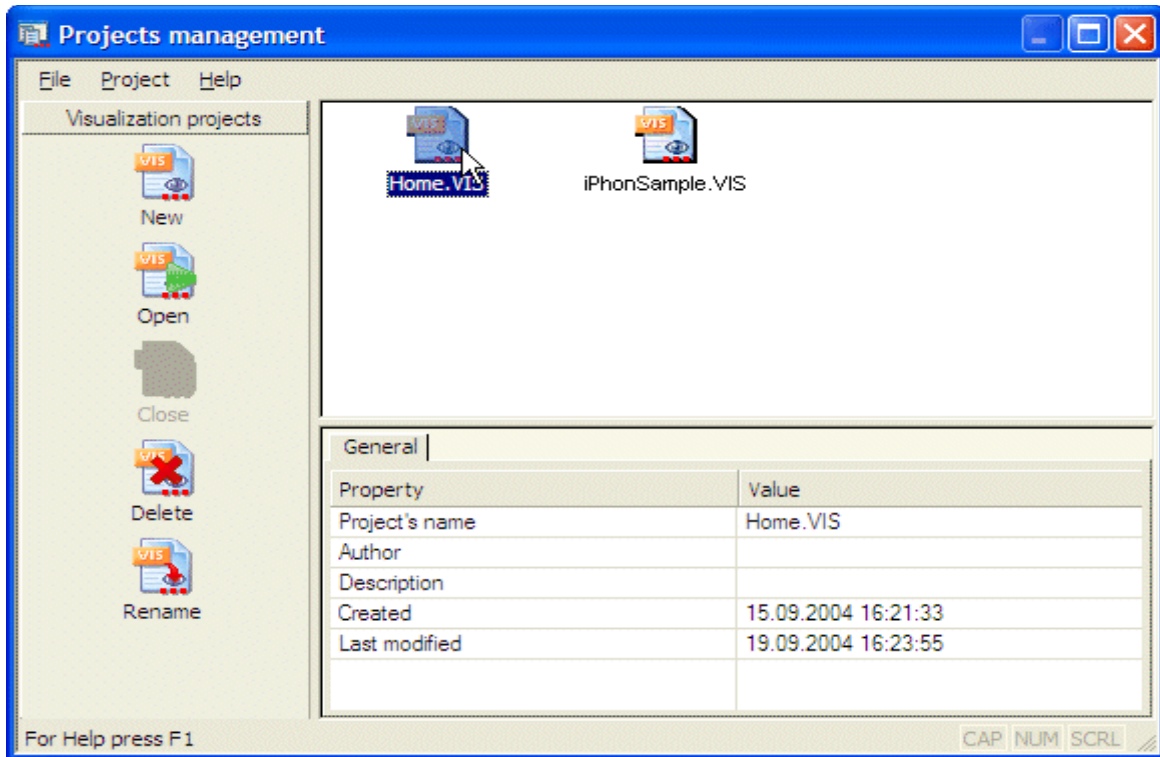
New: Click on symbol **New** opens a dialog to define a new visualization project.



Project's name: Name of the project. This name must be unique among all visualization projects.

Author and description: These entries are not mandatory and can be changed later.

Create: After entering at least a name for the project, pressing the **Create** – button will create a new visualization project. The new project appears in the project's list.



Open: Opens the selected project.

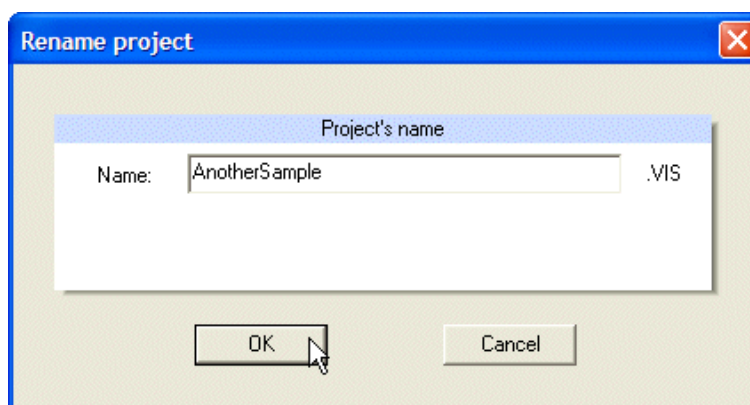
Alternatively, the selected project can be opened with menu option **Project – Open** or just a double click on the project's symbol.

Close: Closes the current project.


Delete: Deletes the selected project.

Rename: Opens a dialog to rename the selected project. After the project's name has been changed, press **OK** to submit the change and close the dialog. The extension **".vis"** will be added automatically.

Note that a project can only be renamed if it is not currently opened. If it is opened, for example in the visualization player, first close the project in the player.



4.2 Project properties

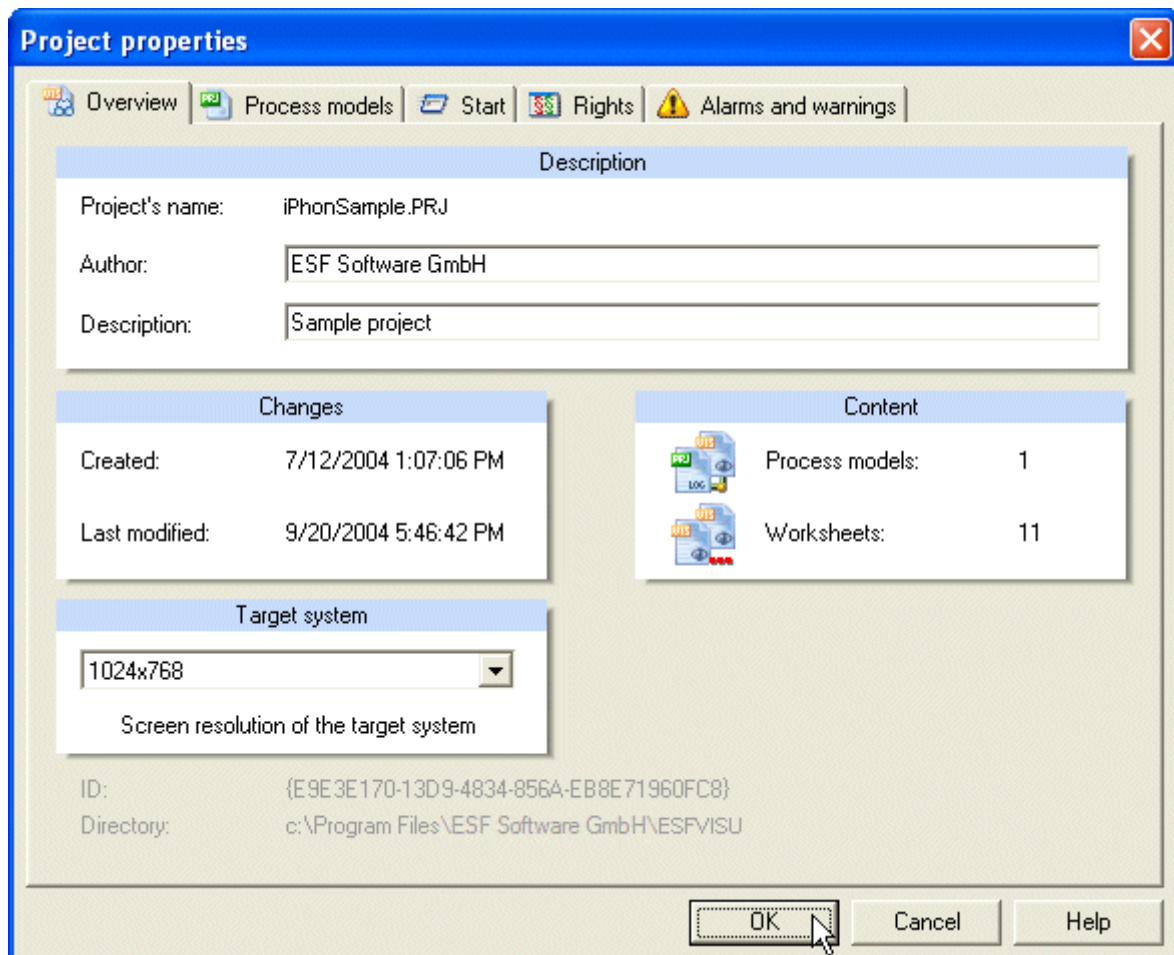
Menu option **File – Project properties** opens the window of the project's properties. Alternatively, click symbol  **Properties** in the tasks tool window.

Note that changes to the process model are committed to the visualization project only when the project properties window has been closed with pressing **OK**. If the project properties window is closed with **Cancel**, no changes are committed to the project. Hence, you may safely check the options of the properties window.

Tab overview:

Tab **Overview** shows general properties of the project loaded. Author and description of the project may be changed here. Also, the expected screen resolution can be entered here. The expected screen resolution is used to show the margin of the visible area in the worksheet's window.

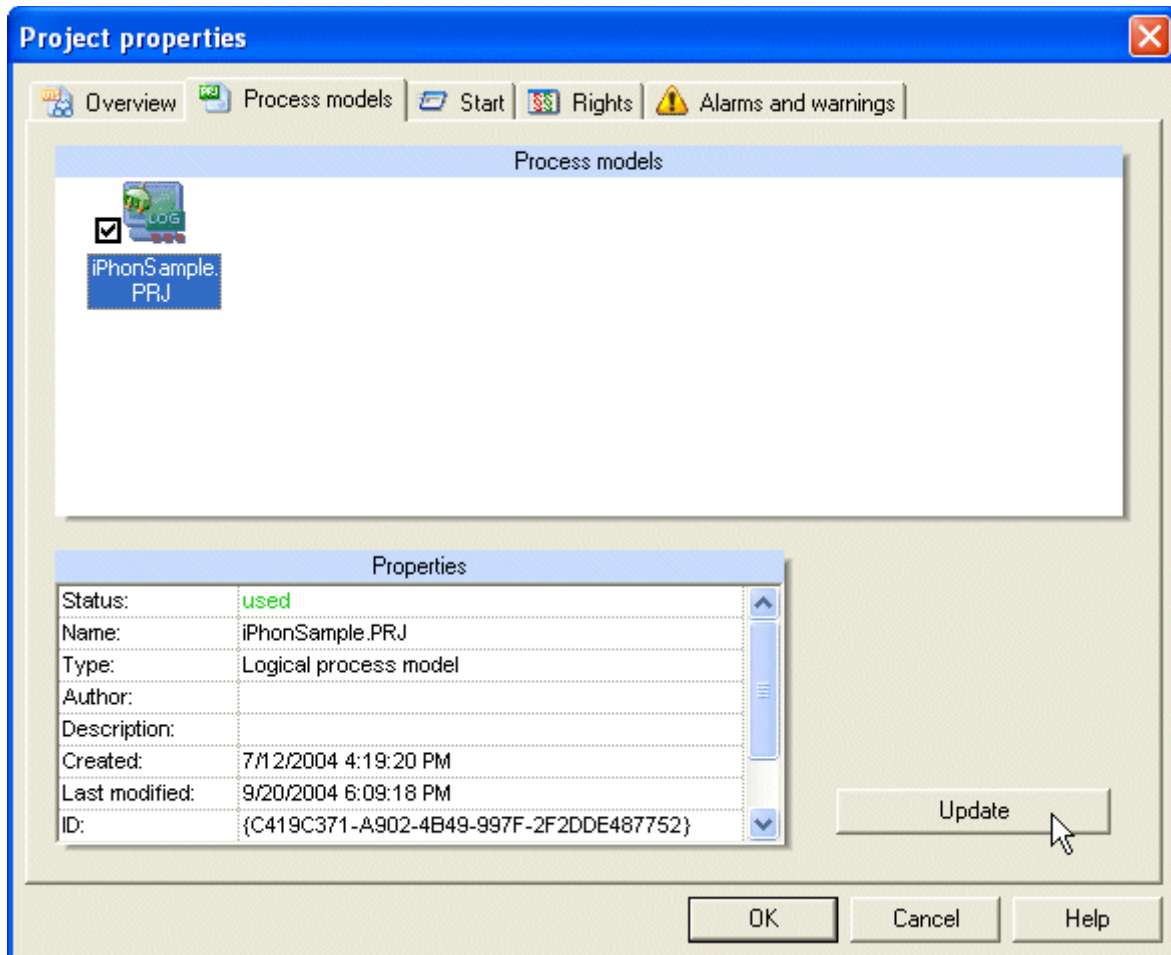
Note that the project's name can be changed in the project's management window.



Tab process models:

Tab **Process models** shows the process models, which are available in the system and can be connected to the visualization project. The currently connected project is marked with a small hook. To select the process model, click on the process model's symbol.

After the selection of the process model has been changed, a dialog opens to import the process model's process variables.



Press button **Update** to import the process variables from the process model.

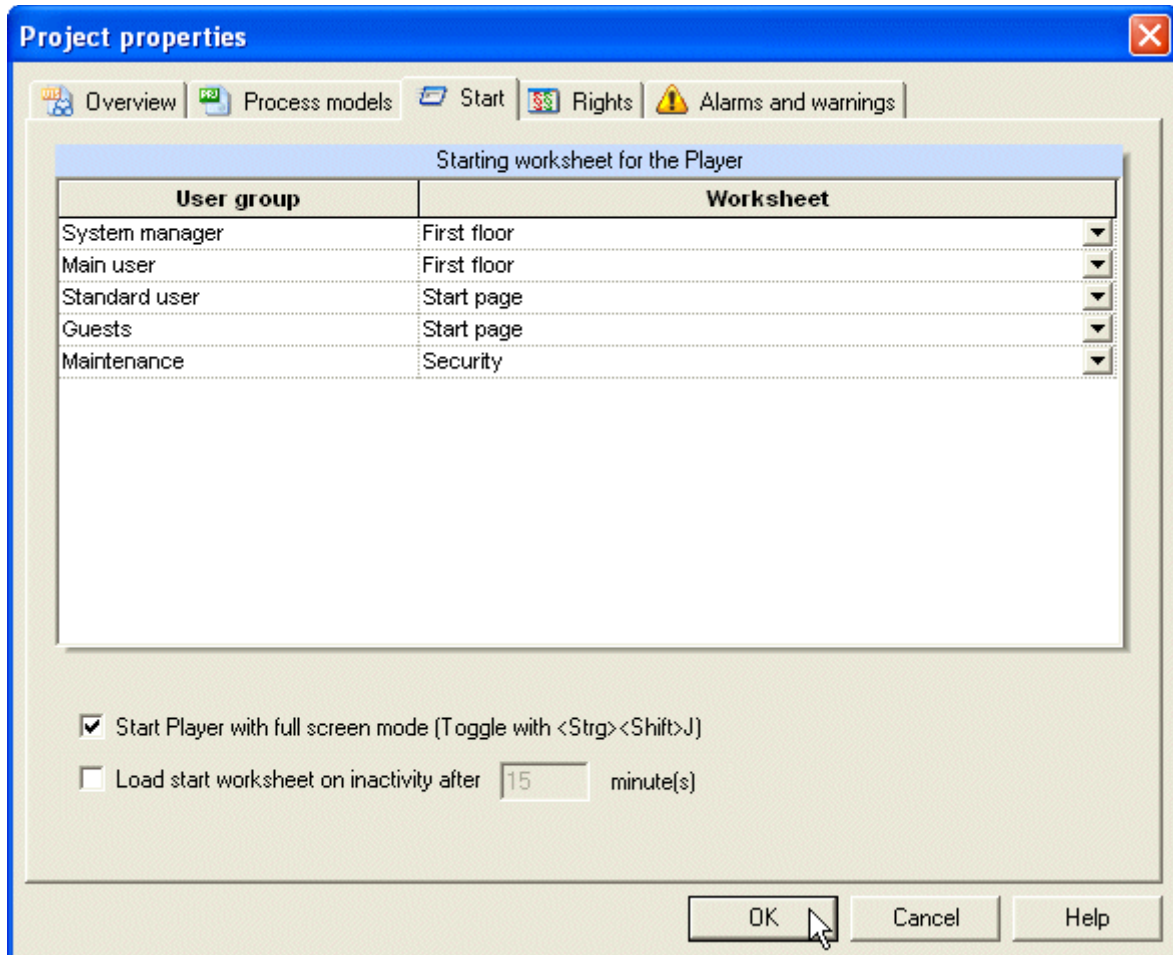
Important: After the logical process model has been changed, it is required to 're-import' the process variables. Existing connections to process variables are retained unless the process variable has been removed from the process model.

You may press button **Changes** to see a complete report regarding changes regarding the process variables.

Tab start:

Tab **Start** shows options for the starting behavior of the visualization project.

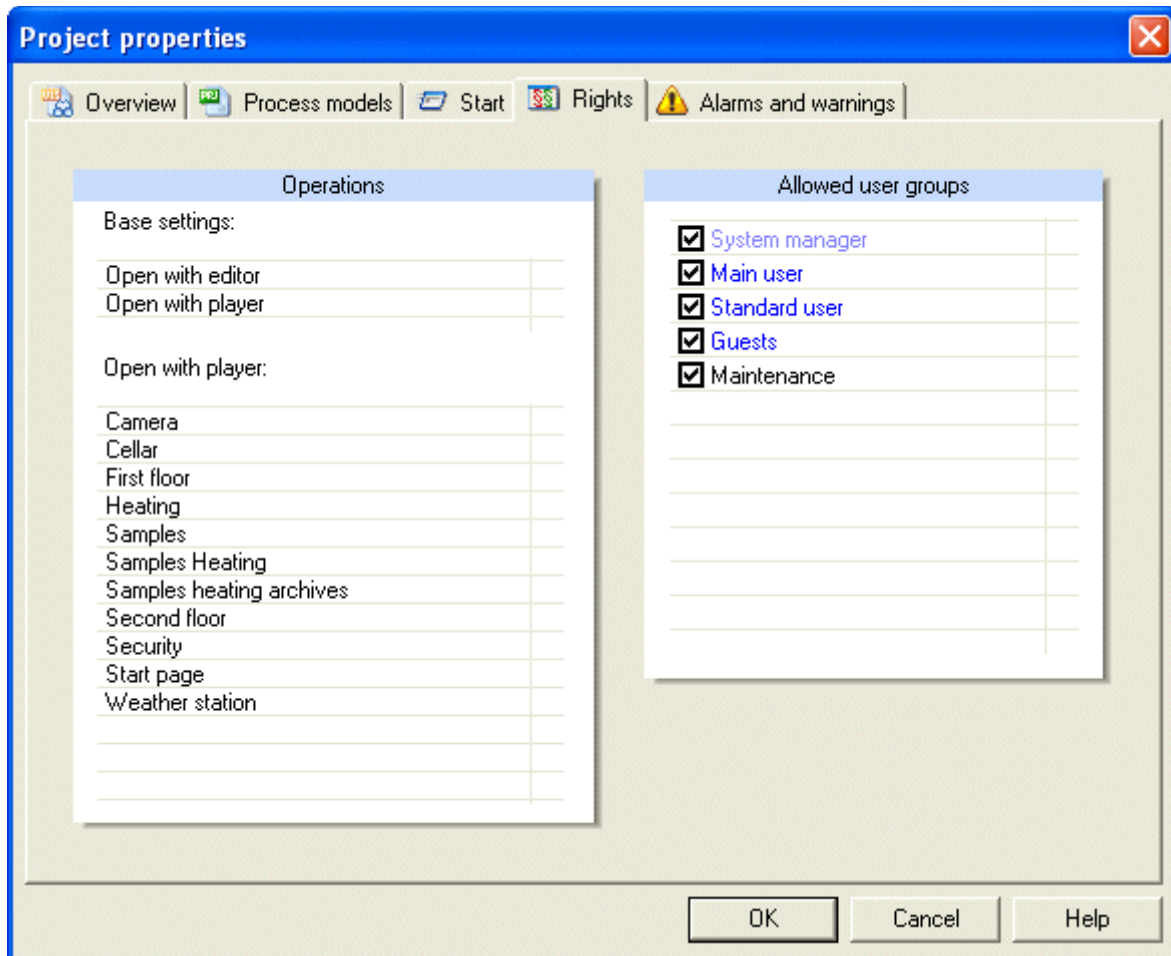
For each users group a worksheet can be defined, which will be displayed when the visualization project is started and a user of the respective user group has been logged in. Moreover the worksheet can be displayed in normal or in full screen mode.



Note: The user can use **Ctrl** + **⏏** + **J** keyboard keys to switch between normal and full screen mode.

Tab rights:

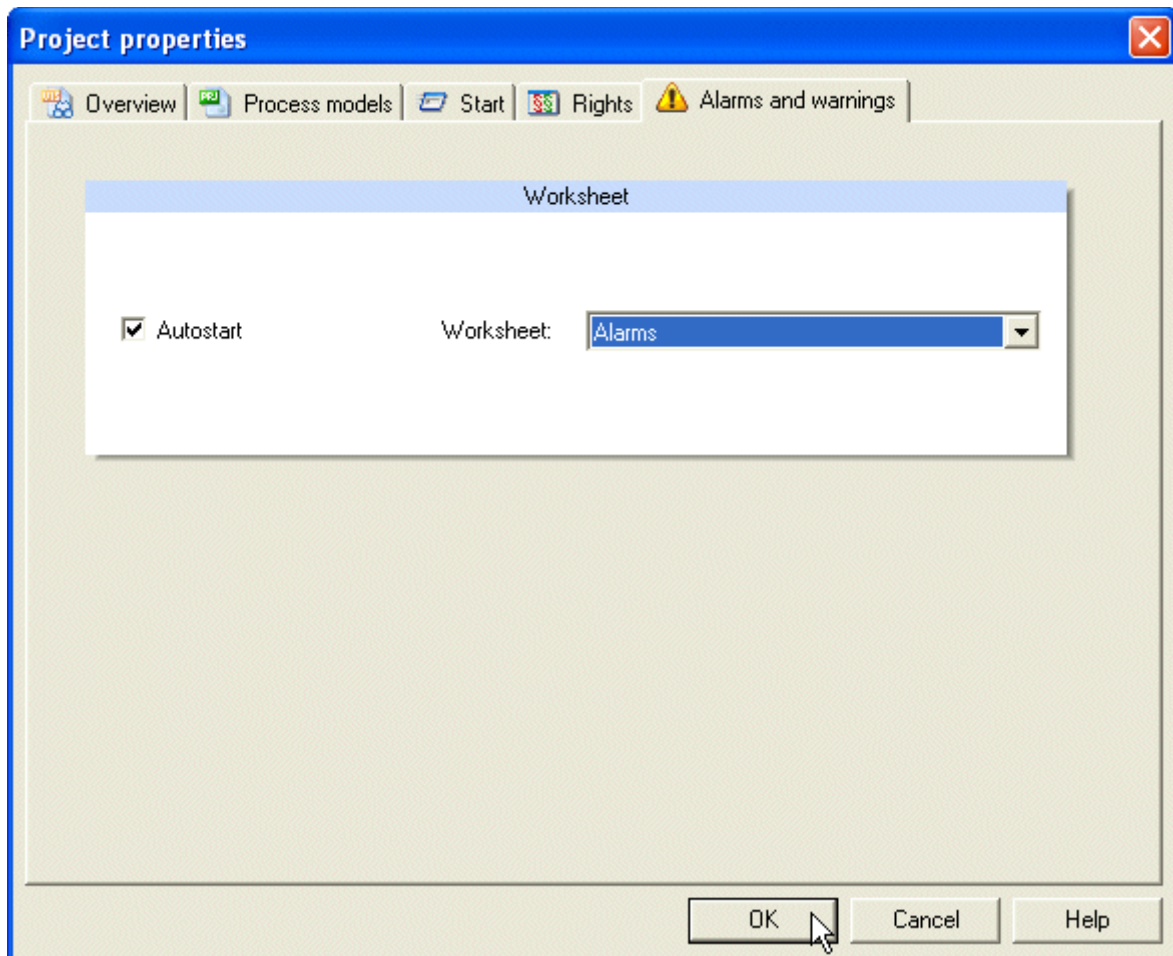
Tab **Rights** is used to assign rights to user groups.



As a basic principle, editing worksheets is only allowed to the system administrator group and the main user group. Furthermore it may be decided that certain worksheets can only be edited by the system administrator. Rights for applying worksheets in the visualization player are more differentiated.


Tab alarms and warnings:

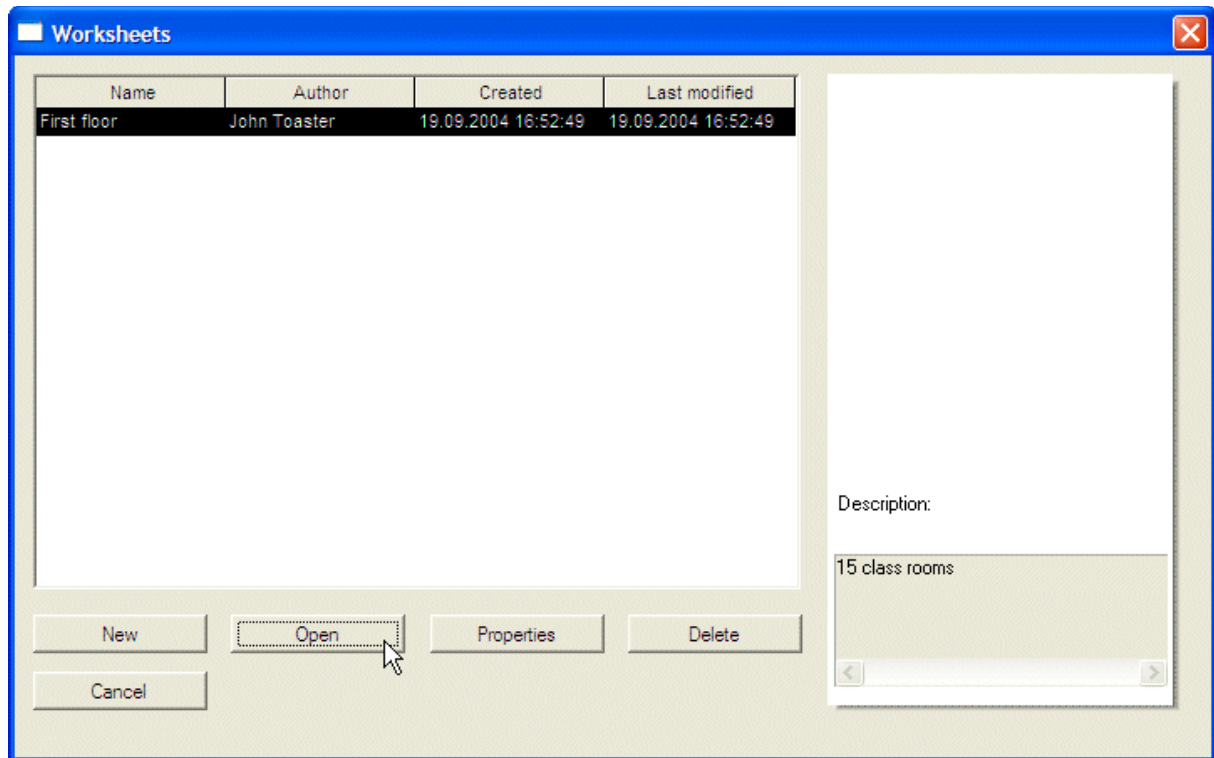
This tab allows defining a worksheet, which will automatically open when an alarm or a warning has been recognized by the visualization player.



Press button **OK** to close the dialog and submit the changes, otherwise press **Cancel**.

4.3 Worksheet's management

Menu option **Worksheet – Worksheets..** opens the dialog for the management of worksheets. Alternatively, you may select the symbol  **Organize..** in the tasks tool window.



New: Create a new worksheet.

Open: Open the selected worksheet.

Properties: See below.

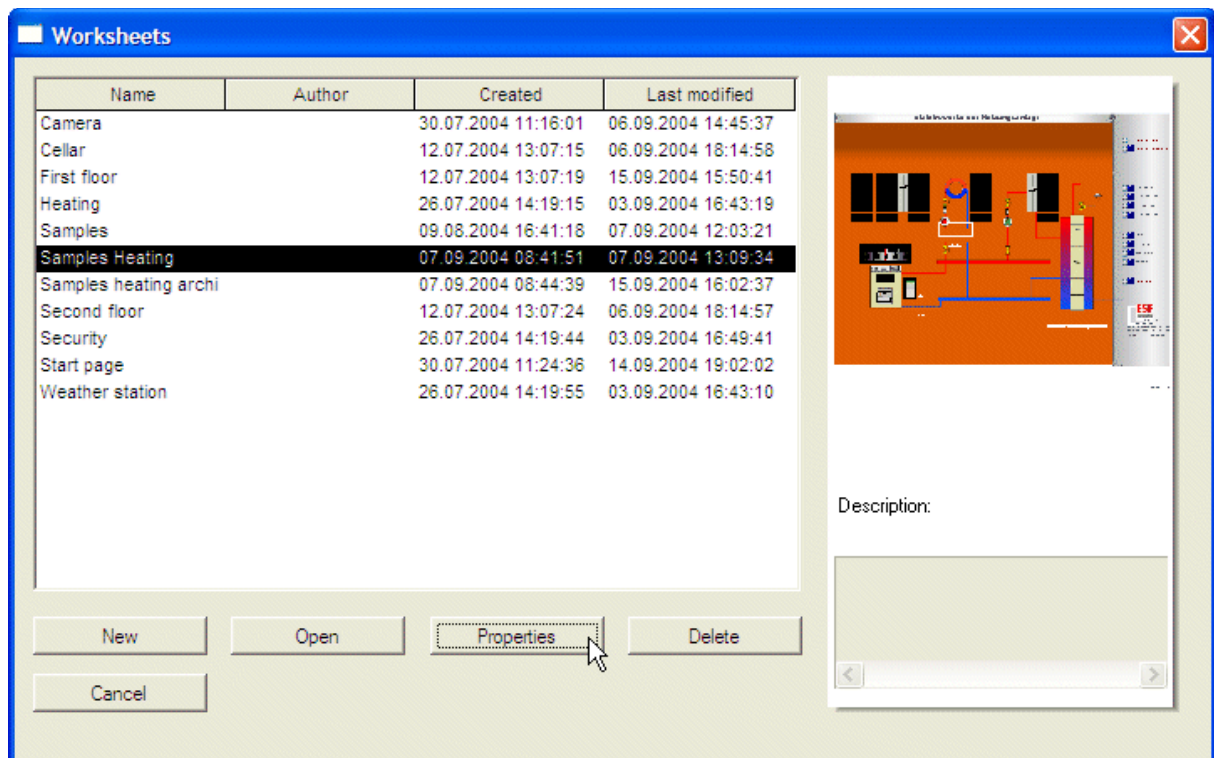
Delete: Delete the selected worksheet.

Note that the worksheet must not be open to perform this action.

Cancel: Close dialog.

4.4 Worksheet properties

The dialog to change general worksheet properties will open when you first select a worksheet in the worksheet's management dialog and then press button **Properties**.



The worksheet's properties dialog allows changing the worksheet's name, the author's name and the description.

Note: The worksheet's name can only be changed when the worksheet is closed.

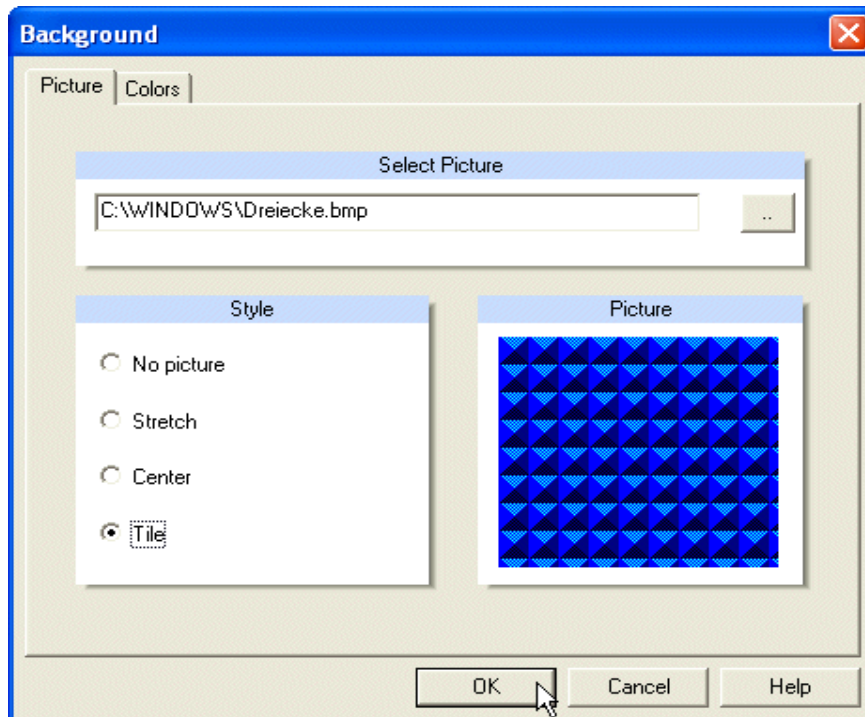
Changes will be committed with button **OK**.

Cancel: Close dialog.

4.5 Setting the worksheet's background

Menu option **Format – Background** opens the dialog for the worksheet's background. The worksheet's background will be filled with colors or an image or both.

Note: *If you want to insert an image as the background of some controls in the dynamic plane of the worksheet, i.e. a ground plan, you may also consider to insert a regular image object into the static plane in the worksheet. It may not fill the whole worksheet but can be put at a specific position.*

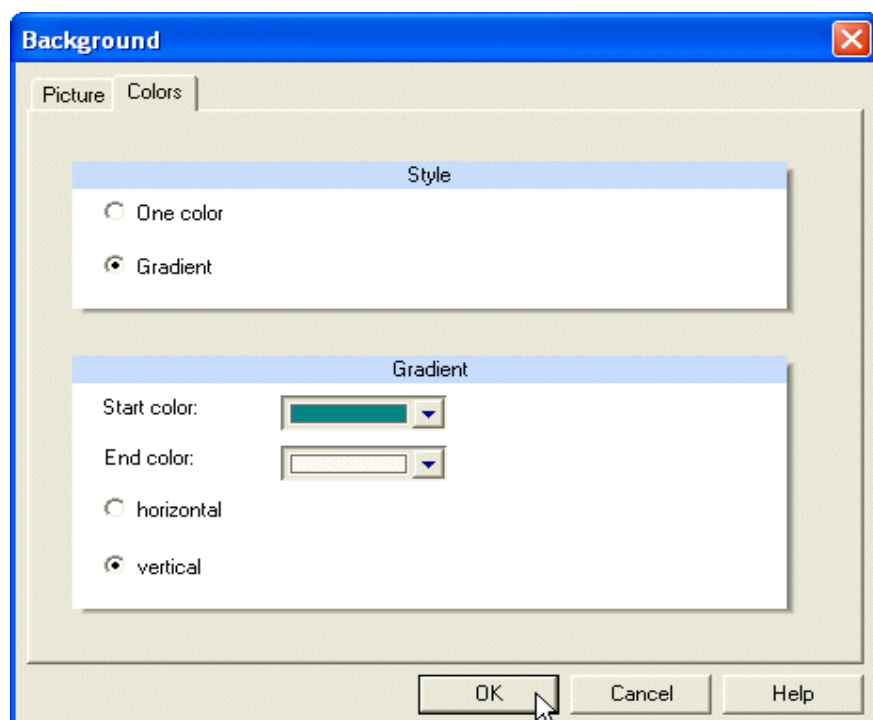


Graphic:

Select tab **Graphic** to define a background image. Supported formats are BMP, JPG, WMF and EMF. The graphic may be centered, stretched or tiled. If the graphic is to be centered, an additional background color may be defined, which fills the areas outside of the image, otherwise the image will fill the whole background area.


Colors:

The background can be filled with a single color or a color gradient of two colors, either horizontally or vertically.




4.6 Working with texts, rectangles and images

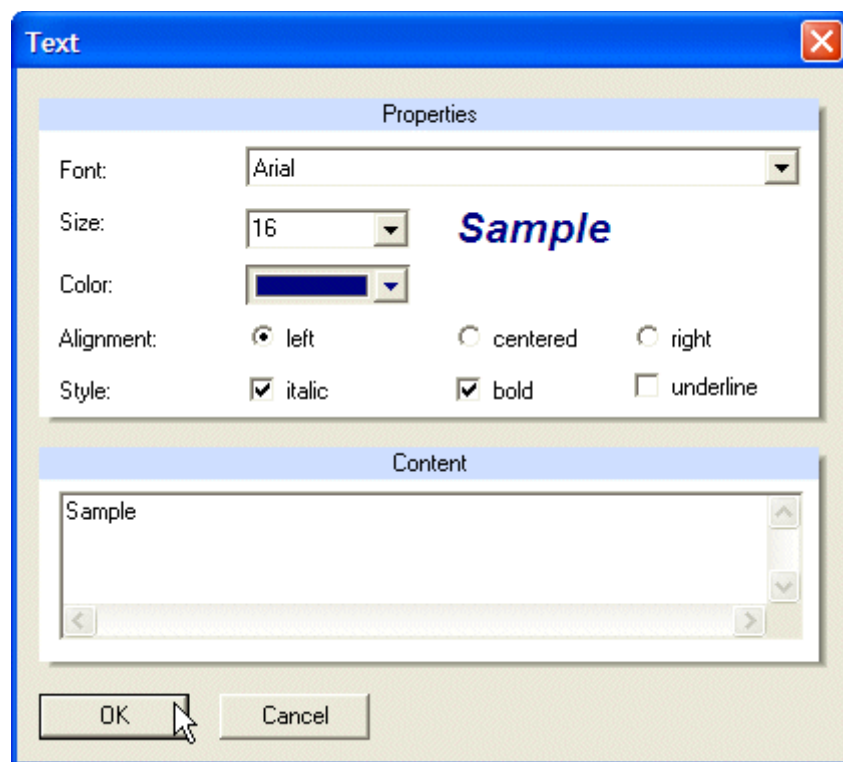
Insert text item:

First select symbol  in the toolbar. Then select a rectangular area in the worksheet's window.

To select a rectangular area move the mouse to one edge of the area and then move the mouse to the opposite edge while keeping the left mouse button pressed, finally release the mouse button.


The text dialog opens, text can be entered into the contents field and text styles can be defined.


Styles of multiple text items can be set, if you first select the text items and then define the properties in the respective toolbar fields. Click on toolbar symbol  to apply the text properties in the toolbar to all selected text items.

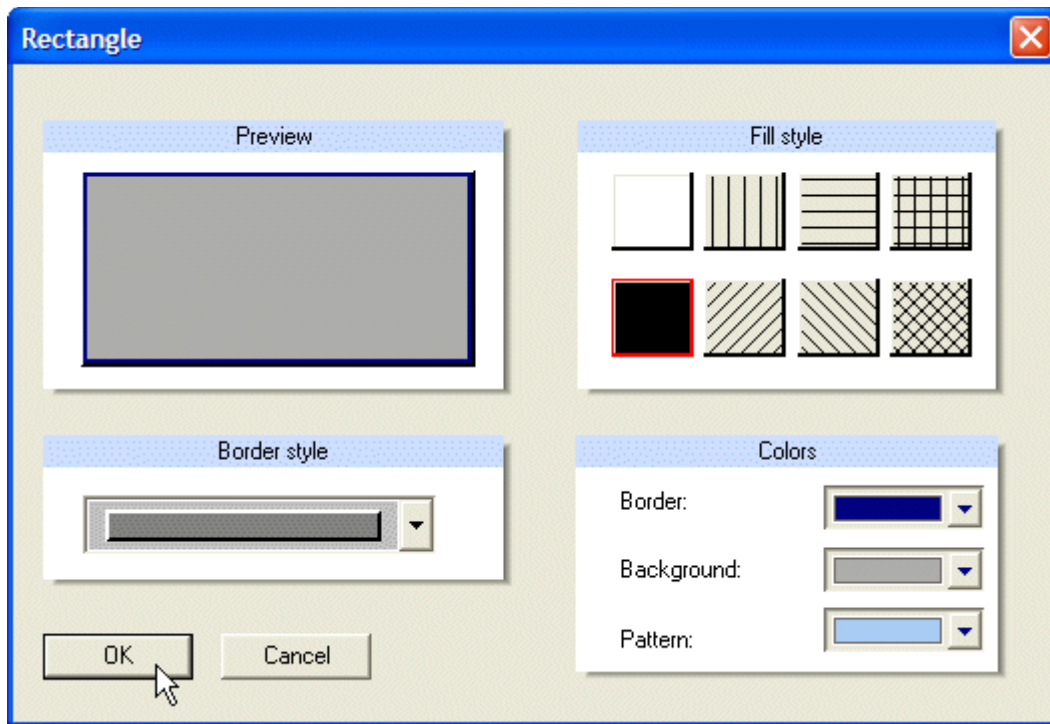


Press **OK** to commit the properties of the text item and to close the dialog.

Insert rectangle item:


First select symbol  in the toolbar. Then – similar to the insertion of a text item – select a rectangular area, which will be the display area of the rectangle. The rectangle dialog opens to define the rectangle properties.

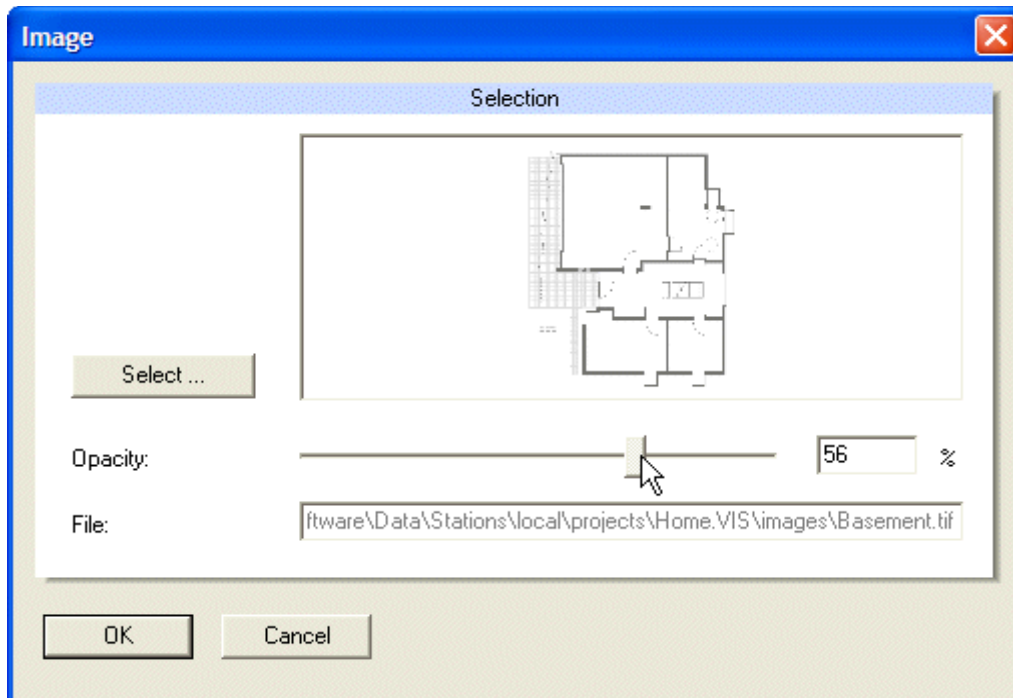
Styles of multiple rectangle items can be set, if you first select the rectangle items and then define the fill style and line style in the respective toolbar fields. Click on toolbar symbol  to apply the style properties in the toolbar to all selected rectangle items.



Press **OK** to commit the properties of the rectangle item and to close the dialog.

Insert image item:








First select symbol  in the toolbar. Then – similar to the insertion of a text item – select a rectangular area, which will be the display area of the rectangle. The image dialog opens to define the image properties.



Select: Opens a file dialog to select which image file to display.

Opacity: The slider control is used to define the opacity of the image. With less than 100% opacity, the image will appear transparent; its pixels are blended with the worksheet in the background.

Currently the following file formats are supported:

-  Windows oder OS/2 Bitmap (*.bmp)
-  CompuServe Graphics Interchange (*.gif)
-  JPEG (*.jpg)
-  Portable Network Graphics (*.png)
-  Tagged Image File Format (*.tif)
-  Windows Meta File (*.wmf)
-  Windows Enhanced Meta File (*.emf)

Tip:

GIF- and PNG – images may comprise of transparent areas (independently of the opacity controlled in this dialog), for example a light bulb with transparent pixels outside of the bulb's outline. Then this transparency will be retained in the worksheet. However, animated images will be displayed in the current version.

Press **OK** to commit the properties of the image item and to close the dialog.

4.7 Animated images

- Some parameter displays are able to use animated GIF's to visualize the state or the value of a process variable: Binary image input, binary image output, analog image input and analog image output.
- Binary parameter displays can be configured to show different pictures at different states: at unknown state, off state and on state. If animated GIF's are used to display a state, then the animation will be played as long as the state holds true. Depending on the configuration of the animated GIF, the animation is shown only during the state switch (animation will be played once) or the animation will be played constantly (as long as the state holds true).
- Analog parameter displays can also be configured to use animated GIF's for visualization purposes, to display e.g. fuel levels, blind positions, dimmer states, ... Then the number of pictures in the GIF file will be mapped into the range of the parameter display. The current value of the connected process variable determines the picture, which will be shown.

A small selection of static and animated pictures will be installed by the setup.

Inportant hint:

During the visualization setup, a directory DATA will be created to store all project data of the visualization system: process data, process models, calendar and visualization projects.

Furthermore, for each visualization project, a separate subdirectory will be created to store the data of a visualization project. You should copy all images, which are used in the worksheets of a visualization project, in the subdirectory 'images' of the visualization project directory:

`<application directory>/Data/stations/local/projects/<projectname>.VIS/images/`

This directory should contain not only the images of the parameter displays but also the background images.

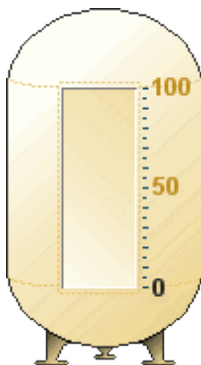
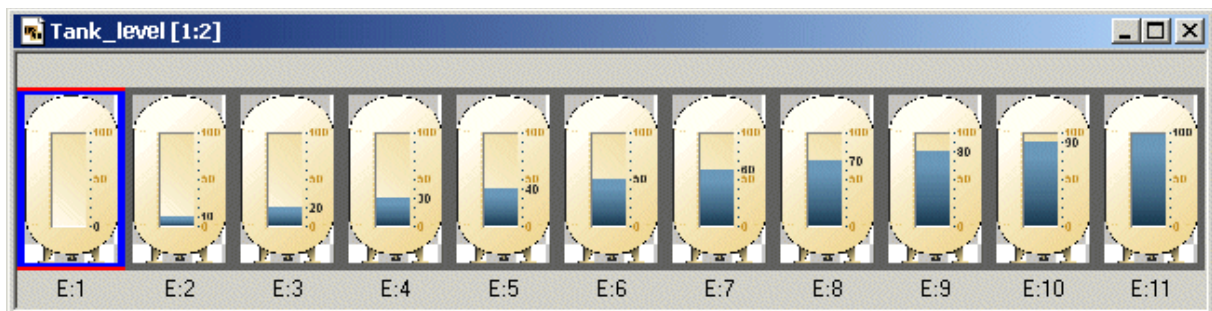
In order to include all used images of a visualization project in the project's export file, the images should be stored in the project directory!

4.7.1 Example: Analog image input

In the **catalog toolwindow - parameter displays - analog inputs**, click the parameter display 'analog input' with the left mouse button and drag it into the worksheet. A double click on the parameter display opens the property editor. In the editor dialog, it is possible to select the state images.



The adjacent figure shows a parameter display to visualize the fuel level of a rain water cistern.



The animated GIF consists of a number of different pictures, which will be mapped to the range of the analog value. The range can be specified in the configuration dialog of the parameter display.

The current value of the connected process variable determines the picture, which will be shown.

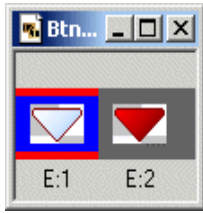
4.7.2 Example: Analog image output

Similar to the analog image input the **analog image output** is able to use animated GIF's to display switching operations.

Additional to the animated GIF, the user can assign values, which will be sent to the process by clicking with the left mouse button on the parameter display. It is possible to specify a value to send on short click, long click and mouse button pressed, long click and mouse button released.

Depending on the value settings, it is possible to create special displays like an EIB dimmer switch or an EIB blind control: one image output for on/increase and one image output for off/decrease respectively up/step up and down/step down. The EIB specific value settings can be selected in the configuration dialog. The animation will be played during the long mouse button click. This feature can be used to animate e.g. a dimmer.

The following example shows the usage of three different analog image outputs (arrow up, arrow down and crossbar) together with an analog image input (window with blind) to control and display blinds.



The figure on the left side shows the pictures, which are stored in one of the animated GIF's (arrow down).








The figure on the right side shows the three animations: arrow up, crossbar and arrow down. If a long mouse click is detected (left mouse button clicked and hold down), the animations will be played and the configured analog value will be sent to the process (0% for arrow up, and 100% for arrow down in our sample below).

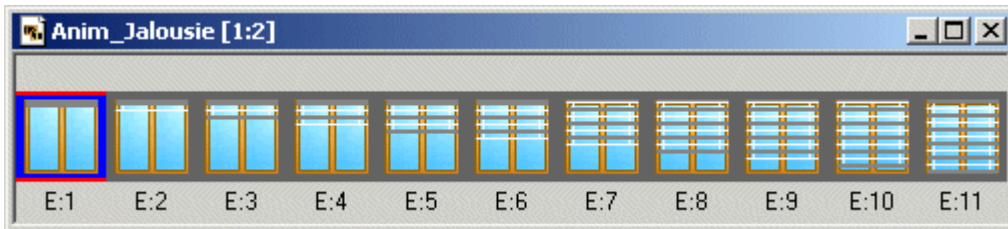


Sample:

In the **catalog toolwindow - parameter displays - analog outputs**, click the parameter display 'analog output' with the left mouse button and drag it into the worksheet. A double click on the parameter display opens the property editor. In the editor dialog, select the images and then enter the values to send to the process (the pictures are available in the 'Bitmaps' directory: BtnUpGreen.gif, BtnBlue.gif, BtnDownRed.gif).

-  Send value: 0
-  Send value: 25
-  Send value: 50
-  Send value: 75
-  Send value: 100

Additionally you can create an analog image input with the picture 'Anim_Jalousie.gif' (available in the 'Bitmaps' directory).



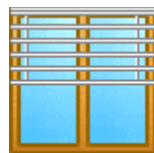
Result:



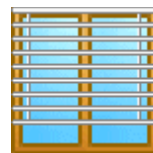
Value 0



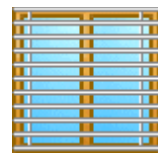
Value 25



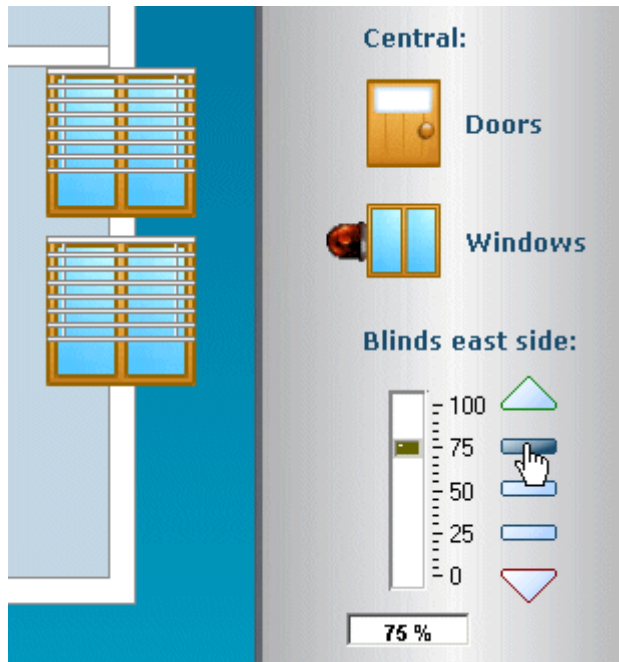
Value 50



Value 75



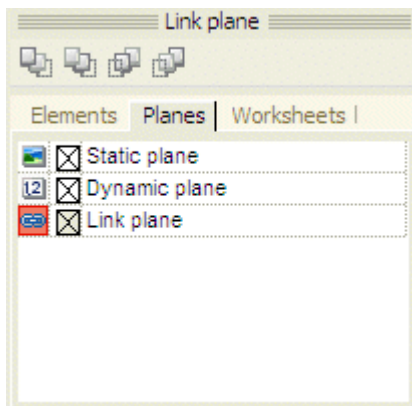
Value 100



The figure on the left shows a part of a worksheet which contains the sample above.

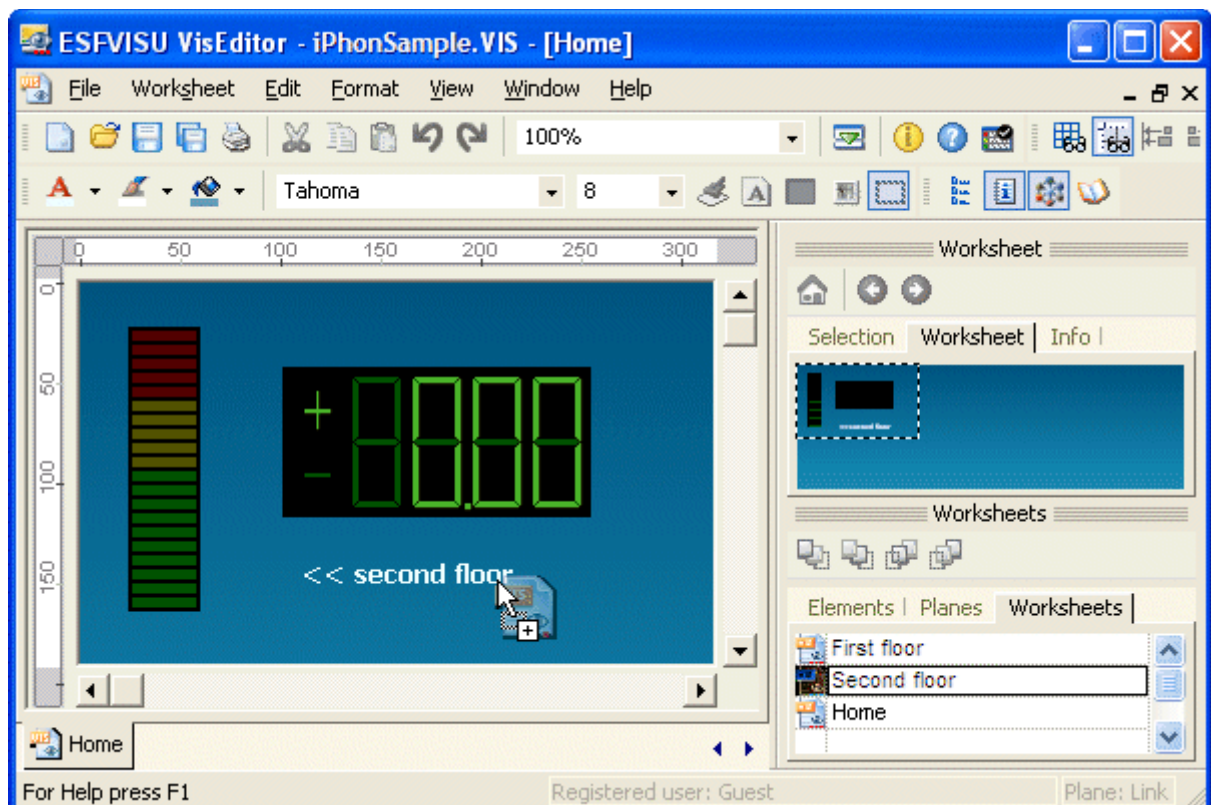
4.8 Using links

Links to other worksheets can be inserted into the link plane of the worksheet.



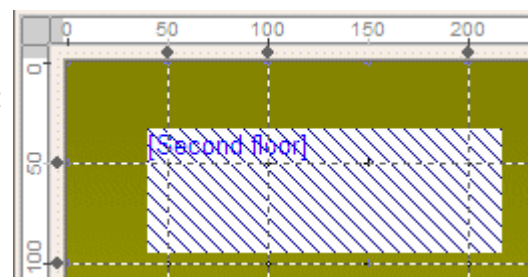
Open tab **Planes** in the elements tool window and make sure that the link plane is active.

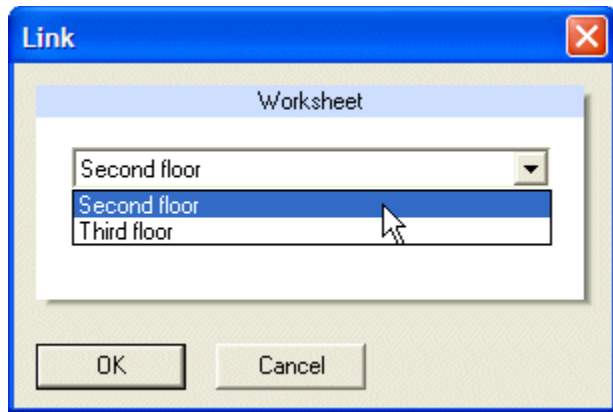
Then switch to tab **Worksheet**.



With left mouse button pressed drag the worksheet out of the worksheet's list into the worksheet's window.

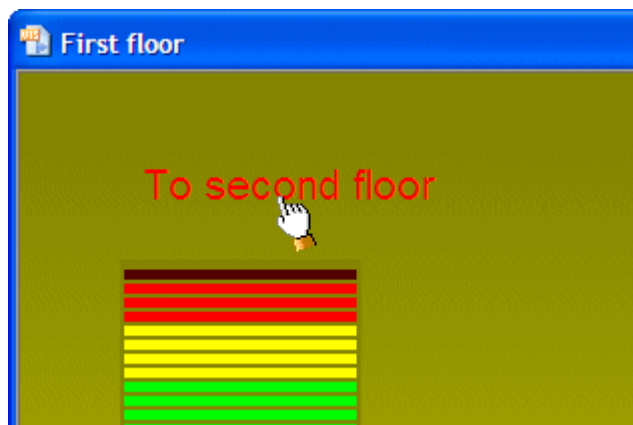
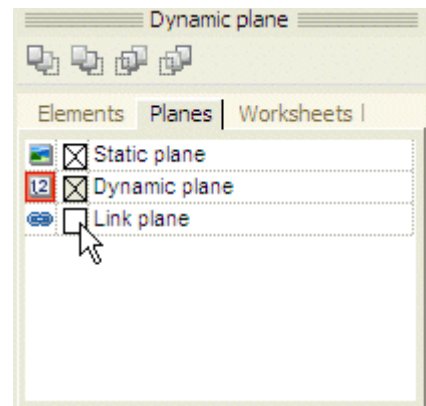
The mouse sensitive link areas in the worksheet are invisible. In this example, an additional text item is used to mark the sensitive area. Size and position of the link area have been adapted to size and position of the text item.






With a double click on the link item, the link target can be modified. In the link dialog use the combo box to select another worksheet as the target.


After the links have been defined, you may wish to turn off the display of the link items. Make sure that the link plane is no more active and deselect the link plane in tab **Planes** of the element's tool window.



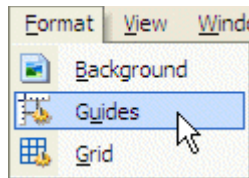
In the visualization player, with a mouse click on the invisible link item the player (mouse cursor shows a hand) will open the target worksheet. If the worksheet is already open, its window will be activated in the foreground.

4.9 Using grid and guides

Menu option **View – Guides** or alternatively toolbar button  can be used to toggle the display of guide lines.

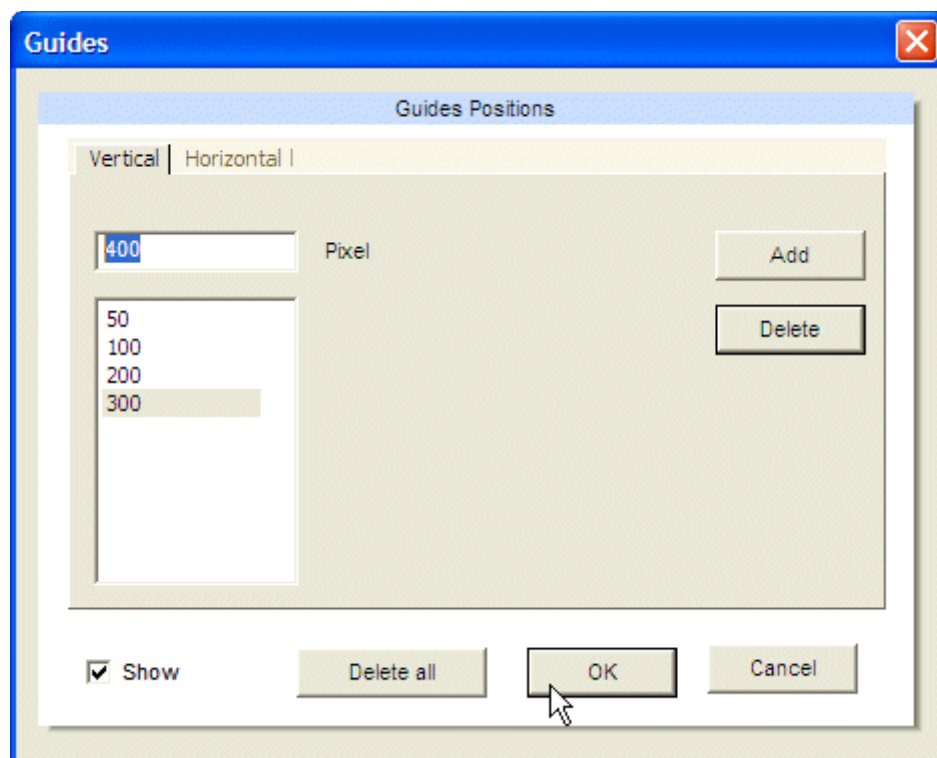
Menu option **View – Grid** or alternatively toolbar button  can be used to toggle the display of a grid.

Both tools can be used to align items to certain positions.



With menu option **Format – Guides** the horizontal and vertical positions of guides can be edited.

With menu option **Format – Grid** the horizontal and vertical distances of the grid can be configured.



Guides:

Moreover you may edit guide lines directly:

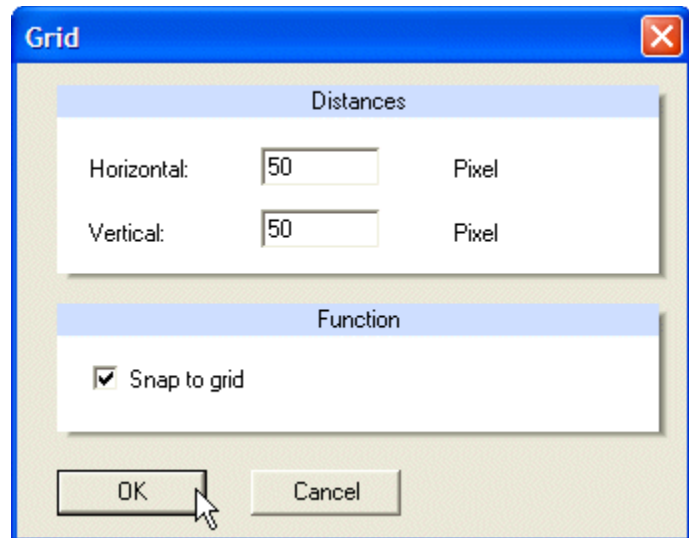
You can change a guide's position by dragging the guide in the ruler, you may remove a guide by dragging the guide to the top-left rectangle of the rulers, you may drag from the top-left rectangle of the rulers to create a guide.

Grid:

Horizontal and vertical grid distances can be defined independently.

Grid distances define the distance by which an element will be moved when pressing an arrow key together with shift.

In addition, you may decide that items top-left positions of display items should snap to grid positions automatically.



4.10 Moving elements with keyboard keys

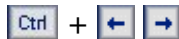
Moving elements always applies to a whole selection of items. A selection can be created with a click on an item, with selecting a display rectangle with items enclosed, by selecting items in the elements tool window. The selection can be extended or reduced by clicking on items with **Ctrl** - key pressed.



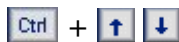
Move one pixel.



Move one grid distance.



Align left margin with to next vertical guide.



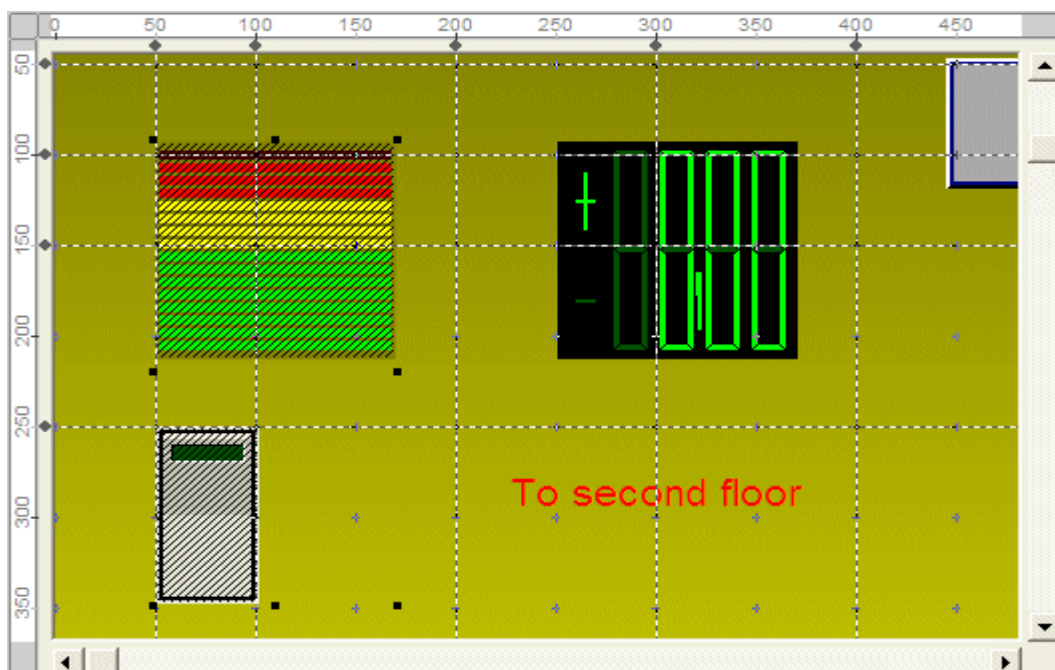
Align top margin with next horizontal guide.



Align right margin with next vertical guide.



Align bottom margin with next horizontal guide.



4.11 Check functions

The visualization editor provides several checks, which help to verify the planning in the visualization project.

4.11.1 General check options:

Check connection of visualization project and logical process model:

- ☐ Is there a logical process model connected to the visualization project?
- ☐ Is the connected logical process model still available?

Check connections of parameter displays and process variables:

- ☐ Are parameter displays properly connected to process variables?
- ☐ Have connected process variables been deleted?
- ☐ Have the process variables changed such that they don't match to parameter displays.


Check of display item's dimensions:

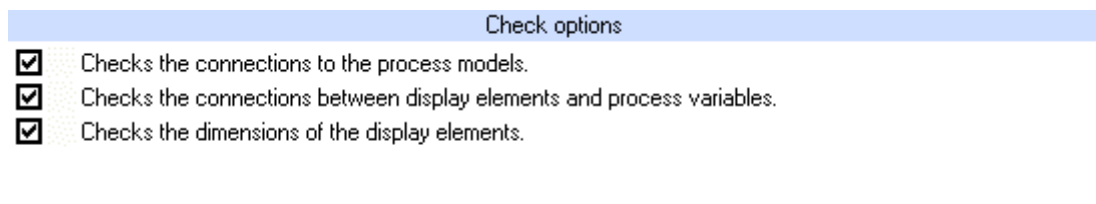
- ☐ Has a display item been placed outside of the bounds of the worksheet?
- ☐ Is a display item possibly too small, not visible?

These checks are optionally and can be selected independently. The result of the check procedure is a report with warnings and errors, which is displayed in the message area at the bottom of the worksheet editor.

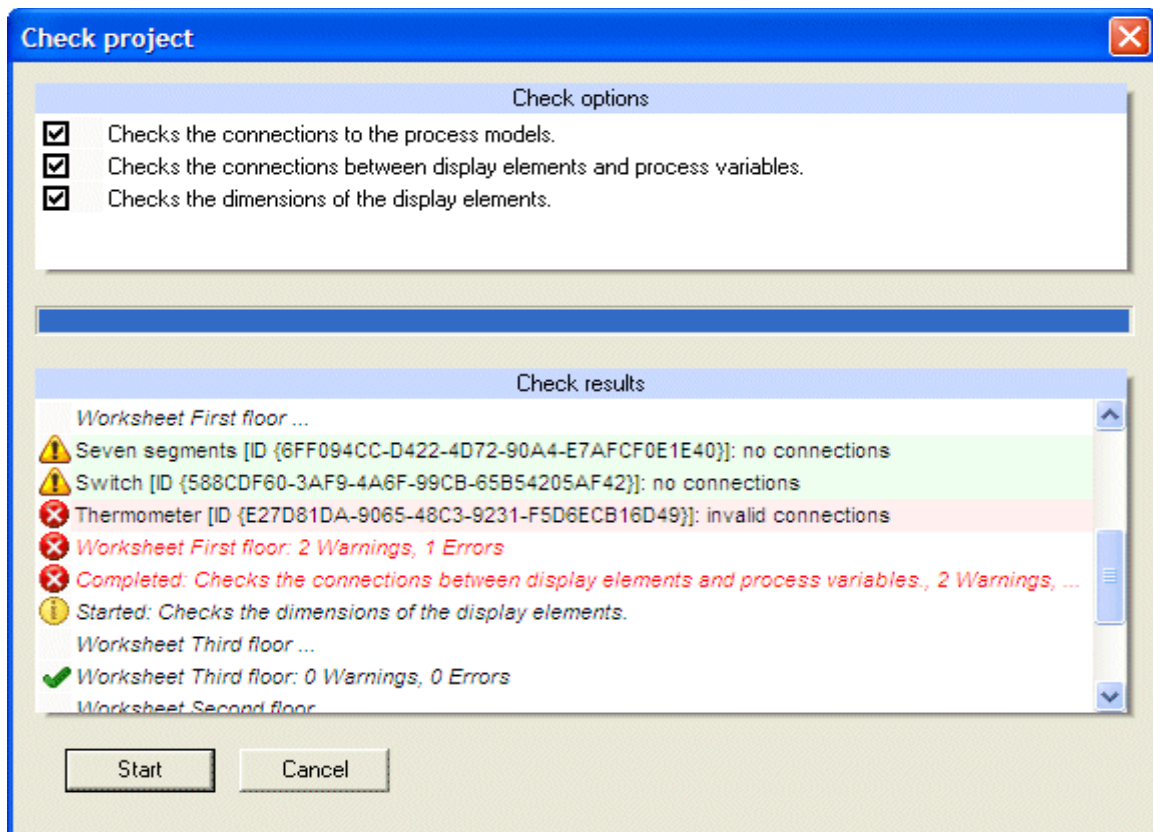
For errors of single items, a double click on the error or warning message will show and selected item. If necessary, the respective worksheet will be opened.


4.11.2 Check project

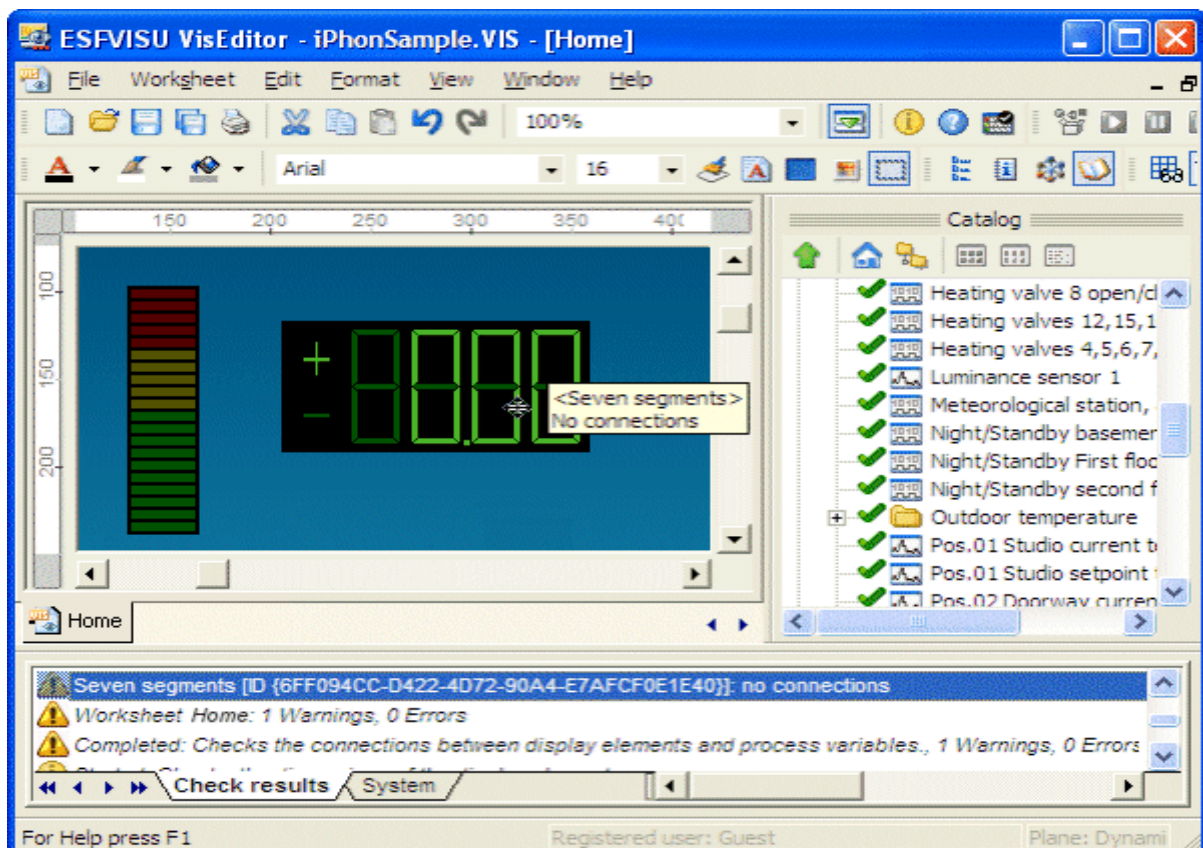
Open the visualization project and select menu option **File – Check**, alternatively click on the  - symbol in the toolbar. The dialog for the project check will open.



Activate the desired options for the project check and press button **Start**.

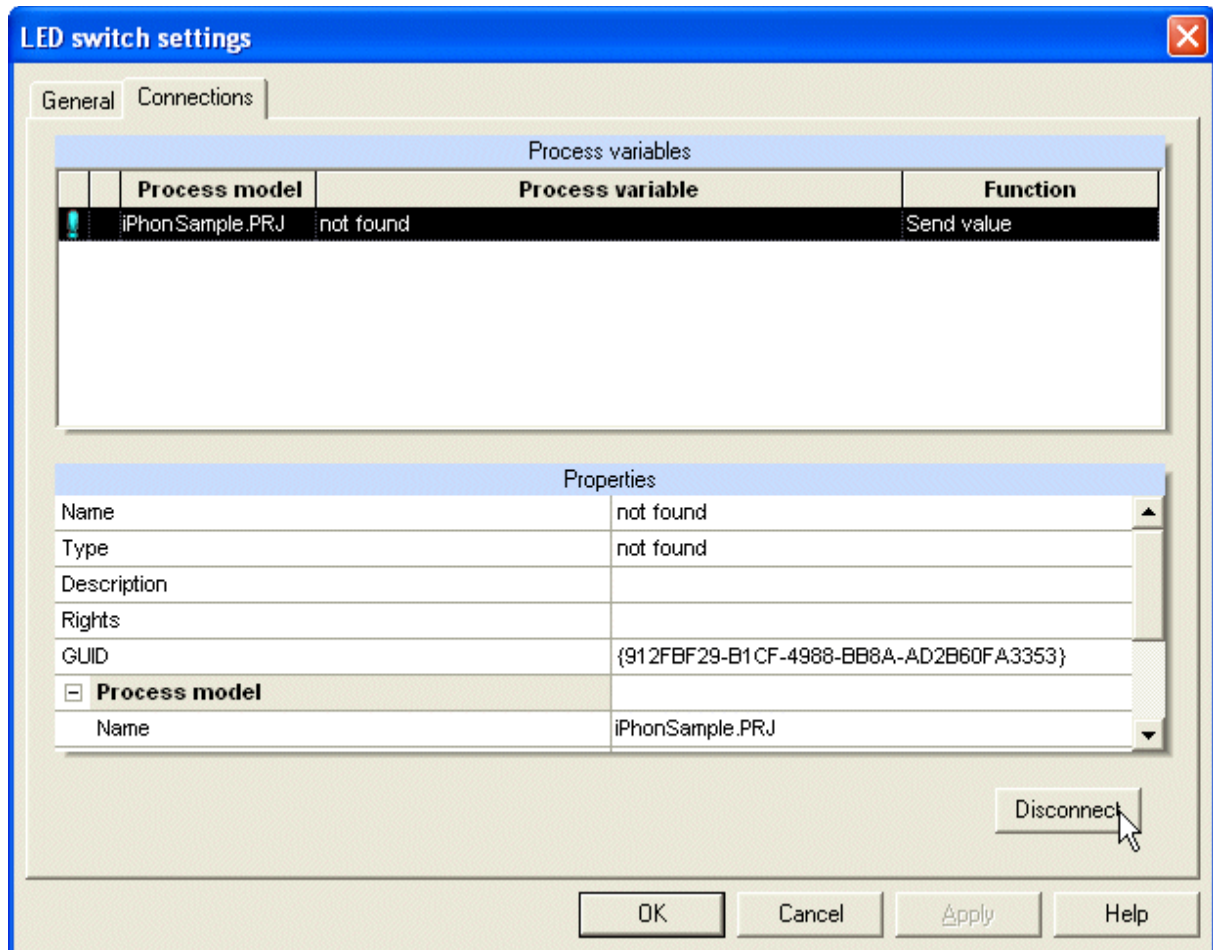


After the check has been completed, press button **Cancel** to close the dialog. To work on the individual errors and warnings, first click toolbar button  to open the message window at the bottom of the visualization editor. If the error or warning relates to an individual display item, double clicking on the message will bring up the item.


















Example:











The connection of a parameter display to a process variable is not correct. The respective worksheet has been opened and the item has been selected by a double click on the message. Now double click the display item to correct the problem.



Tab **Connections** of the parameter display's dialog box shows the connections. The process variable causing the problem is disconnected by first selecting the process variable and then pressing button **Disconnect**.

5 Parameter displays

	The analog display control is a simple text display, typically used for displaying analog (real) values with a precision specifier and units.
	The analog edit control is a simple control for entering analog (real) values with a precision specifier and units.
	The seven segment control is a seven-segment-display used for displaying analog (real) values. The total number of display digits and the number of precision digits can be specified.
	The analog LED bar control is a progress bar component with 3 different indicator styles and 4 different segment directions.
	The LED rectangle control is an LED with a none, raised, or lowered bevel style. The LED active (ON) color and the LED (OFF) inactive color can be specified. The LED inactive (OFF) color can also be automatically calculated.
	The LED circle is an round LED with a none, raised, or lowered bevel style. The LED active (ON) color and the LED (OFF) inactive color can be specified. The LED inactive (OFF) color can also be automatically calculated.
	The linear scale control is a graphical gauge with a linear representation of the data. Supports up to 5 color sections, and 4 pointer styles.
	The thermometer control is a linear gauge component with a visual representation that looks like a thermometer.
	The sliding scale control is a moving graphical gauge with a linear representation of the data. One static pointer refers to the position of the moving scale.
	The slider control is an analog (real) output control component, which supports both keyboard and mouse control.
	The knob control is a 3D knob which supports both mouse and keyboard control.
	The 3 way switch rocker is a momentary up and down switch, which supports both keyboard (up/down key) and mouse control.
	The blind control switch is a momentary up and down switch and can be used to control blinds and shutters. The control supports both keyboard (up/down key) and mouse control.
	The dimmer switch is a momentary up and down switch to control dimmers. The control supports both keyboard (up/down key) and mouse control.
	The LED switch is a binary switch with a rectangle LED indicator. The control supports both keyboard and mouse control. The control uses the space key for keyboard control.
	This control can be used for central functions (e.g. central off, panic circuit).
	Moreover this control can be used to toggle images.

	The switch lever control is a binary switch with a lever graphical representation. The control supports both keyboard and mouse control. The control uses the space key for keyboard control.
	The switch control is a binary switch with a rocker graphical representation. The control supports both keyboard and mouse control. The control uses the space key for keyboard control.
	The switch toggle control is a binary switch with a moving slider. It supports vertical or horizontal orientation, Click-To-Toggle or Drag-To-Toggle mouse control style, and 3 bevel styles for the switch surface. The control supports both keyboard and mouse control. The control uses the space key for keyboard control.
	The plot-control is used to show trends of archived values. Areas of the plot can be enlarged, the visible area can be moved, etc. Values of more than one process variable can displayed in one plot-control.
	The timestamp control is used to display date and time of the last telegram sent or received. It can be used with all types of process variables.
	The date-time-in control is used to display dates and times of date-time input process variables.
	The date-time-out control is used to set dates and times to date-time output process variables.
	The text-input control is used to show the value of a text-input process variable. String.
	The text-output control is used to set the value of a text-output process variable.
	The binary image-in control is used to display images according to the state of binary input process variables.
	The binary image-out control is used to display images according to the state of binary output process variables.
	The analog image-in control is used to display transparent and animated pictures e.g. for fuel control or to display the position of blinds.
	The analog image-out control is used to display transparent and animated pictures e.g. to display a switch.
	The sound control play WAV-files according to the state of a binary input process variable.
	The web browser control displays web pages according to the state of a binary input process variable.
	Tip: <i>In addition to web pages, the web browser control is also able to display other documents, for example documents (i.e. Microsoft WORD or Microsoft EXCEL documents). The web browser may show web pages, which comprise of images delivered form IP cameras.</i>

5.1 Tab connections

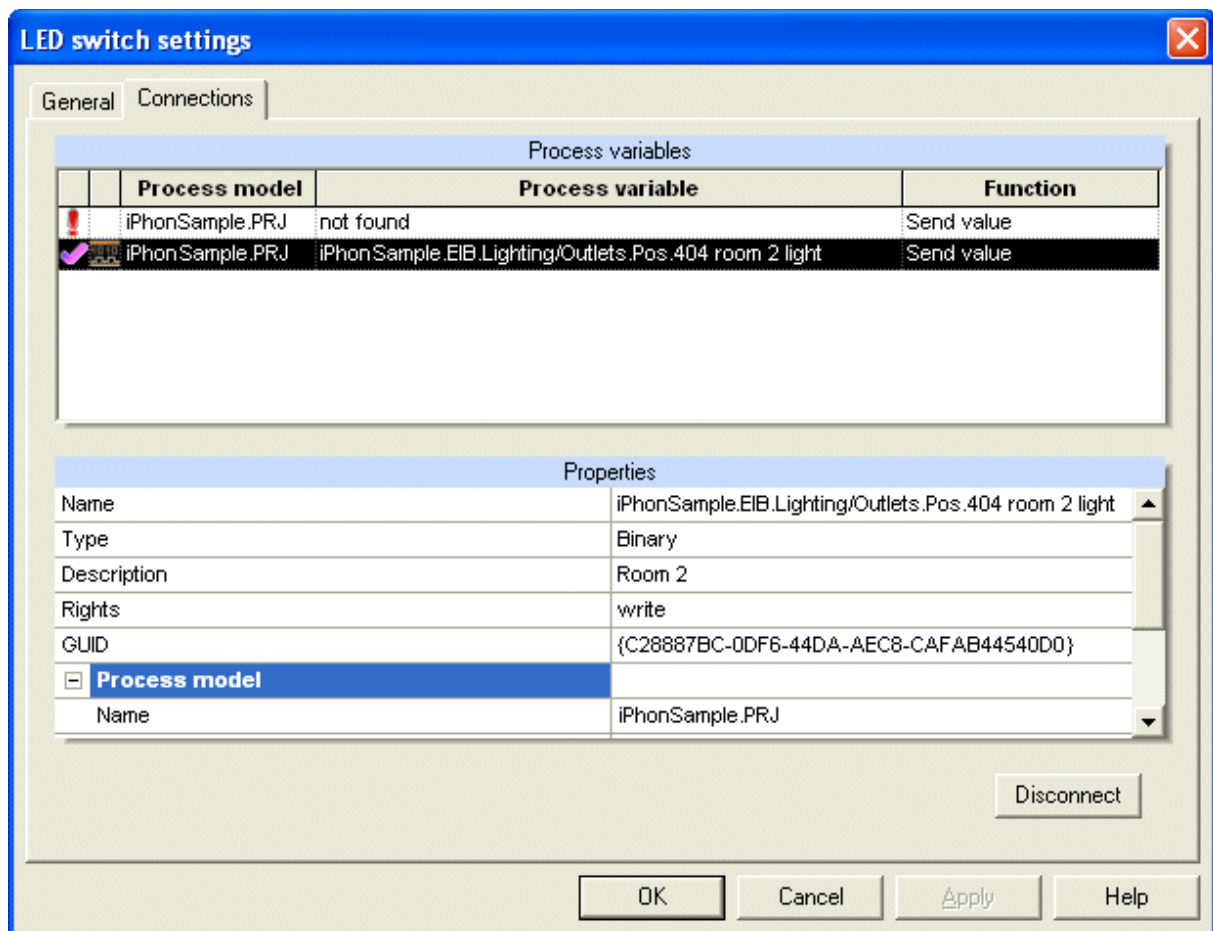
Each parameter display dialog provides a **connections** tab, which shows all process variables linked with the parameter display.

Disconnect all links:

The menu option **Edit – Disconnect process variable** disconnects all links between the selected parameter displays and the process variables. This function can be applied to one parameter display or to a selection of parameter displays.

Create links between parameter displays and process variables:

Select one or more parameter displays (by clicking the desired parameter displays while pressing the CTRL-key). Then drag a process variable from the catalog and drop them in the selection.



Shows that the process variable is properly connected.



Shows that there is a problem with the connection to the process variable.

Process model: Logical process model, to which the process variable belongs.

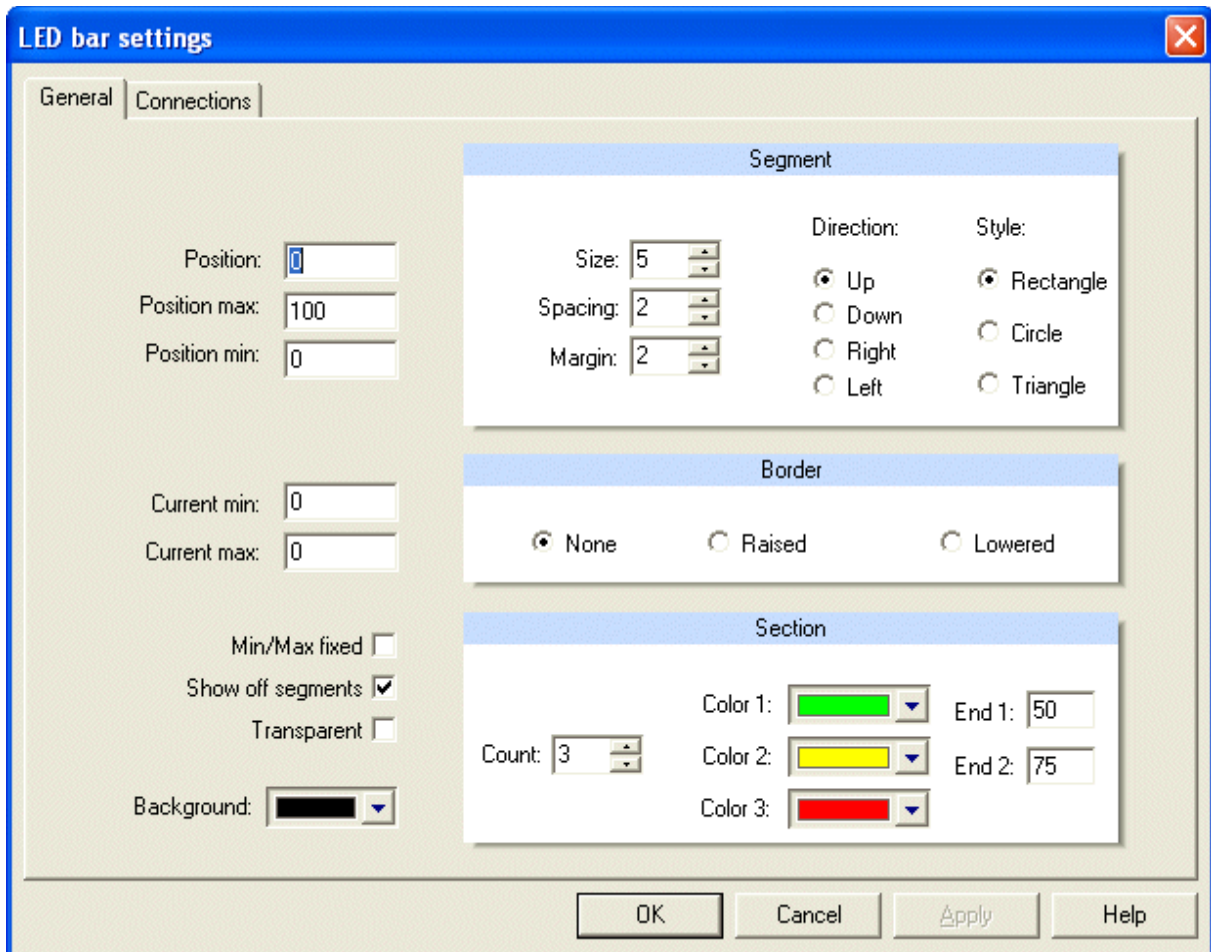
Process variable: Information about the connected process variable.

Properties: Properties window of the selected process variable.

Disconnect: Disconnect the selected process variable from the parameter display.

5.2 Analog input

5.2.1 Analog LED Bar:



- Position:** Sets the current value. Can be used to provide a value to the control for a preview. The position must be a value between 'Position min' and 'Position max'. *Default:* 0.
- Position max:** Upper limit of the range of values. *Default:* 100.
- Position min:** Lower limit of the range of values. *Default:* 0.
- Current min:** Sets the lowest position value since the last reset. *Default:* 0.
- Current max:** Sets the highest position value since the last reset. *Default:* 0.
- Min/Max fixed:** Specifies whether the 'min/max' pointers are fixed or track the range of the position. *Default:* Inactive.
- Show off segments:** Specifies whether inactive segments are shown. When 'show off segments' is FALSE, inactive segments are not shown. When 'show off segments' is TRUE, inactive segments are shown dimmed. *Default:* Active.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* inactive.
- Background:** Selection of the background color. *Default:* Black.

Segment

Size: <input type="text" value="5"/>	Direction:	Style:
Spacing: <input type="text" value="2"/>	<input checked="" type="radio"/> Up	<input checked="" type="radio"/> Rectangle
Margin: <input type="text" value="2"/>	<input type="radio"/> Down	<input type="radio"/> Circle
	<input type="radio"/> Right	<input type="radio"/> Triangle
	<input type="radio"/> Left	

Size: Specifies the size of each segment. *Default:* 5.

Spacing: Specifies the spacing between each segment. *Default:* 2.

Margin: Specifies the side margin of the segments and the margin at the beginning and end of the segment bar. The value is in pixels. *Default:* 2.

Direction: Specifies the direction segments illuminate as the value increases. *Default:* Up (from bottom to top).

Style: Specifies the style of each segment (rectangle, 3D circle, triangle). *Default:* rectangle.

Border: The border style specifies the three-dimensional beveled look. *Default:* None.

Border

None Raised Lowered

Section

Count: <input type="text" value="3"/>	Color 1: <input type="color" value="#90EE90"/>	End 1: <input type="text" value="50"/>
	Color 2: <input type="color" value="#FFFF00"/>	End 2: <input type="text" value="75"/>
	Color 3: <input type="color" value="#FF0000"/>	

Count: Specifies the number of color sections (from 1 to 3). The maximum number of sections is 3.

Color 1: Specifies the section 1 color. *Default:* Light green. The range of section 1 is between the values of 'position min' and 'end 1'.

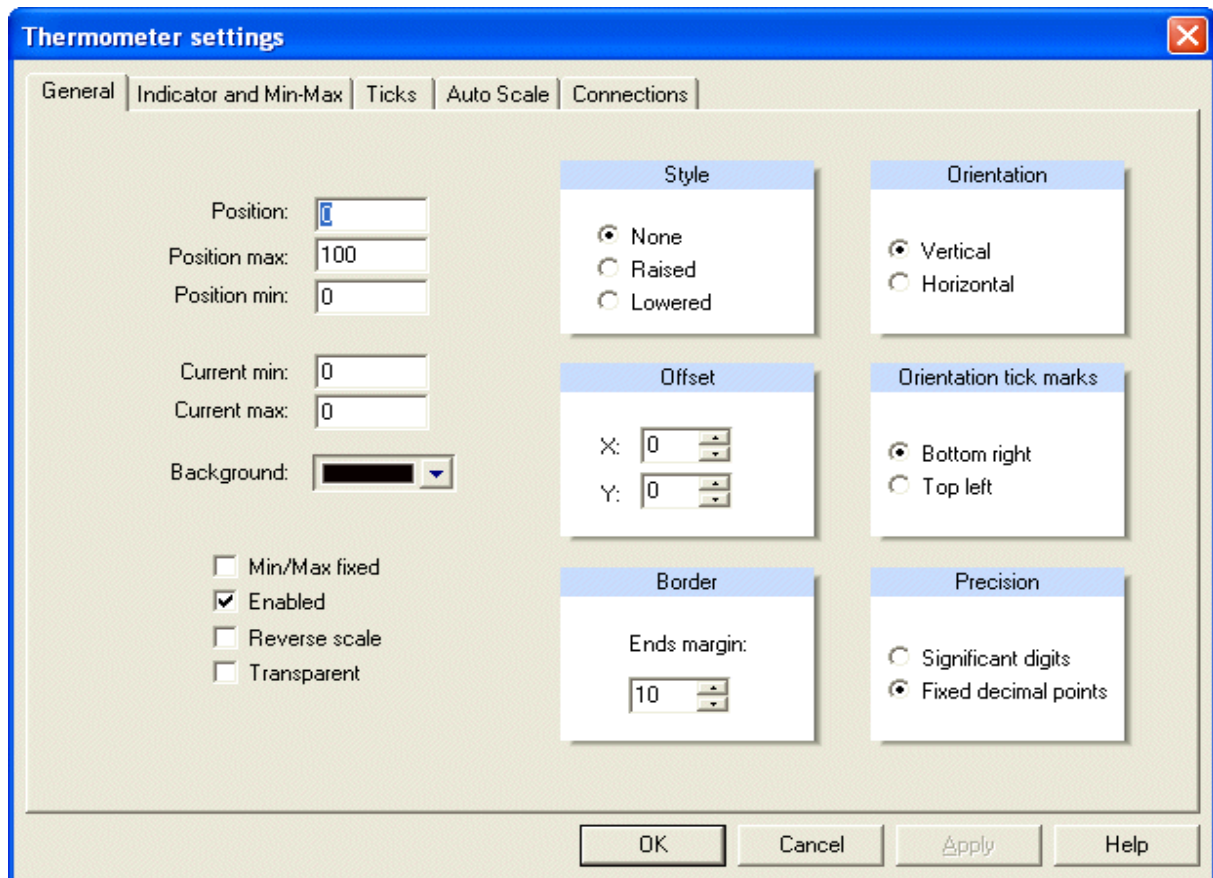
End 1: Specifies the end value for section 1. *Default:* 50.

Color 2: Specifies the section 2 color. *Default:* Yellow. The range of section 2 is between the values of 'end 1' and 'end 2'.

End 2: Specifies the end value for section 2. *Default:* 75.

Color 3: Specifies the section 3 color. *Default:* Red. The range of section 3 is between the values of 'end 2' and 'position max'.

5.2.2 Thermometer:



- Position:** Sets the current value. Can be used to provide a value to the control for a preview. The position must be a value between 'Position min' and 'Position max'. *Default:* 0.
- Position max:** Upper limit of the range of values. *Default:* 100.
- Position min:** Lower limit of the range of values. *Default:* 0.
- Current min:** Sets the lowest position value since the last reset. *Default:* 0.
- Current max:** Sets the highest position value since the last reset. *Default:* 0.
- Background:** Selects the background color. *Default:* Black.
- Min/Max fixed:** Specifies whether the 'min/max' pointers are fixed or track the range of the position. *Default:* Inactive.
- Enabled:** Activates or deactivates the control. *Default:* Active.
- Reverse scale:** Specifies whether scale is drawn reverse:
- 🟡 Reverse scale: FALSE, Orientation: Vertical: The scale is drawn from bottom to top, starting with position min.
 - 🟡 Reverse scale: FALSE, Orientation: Horizontal: The scale is drawn from left to right starting with position min.
 - 🟡 Reverse scale: TRUE, Orientation: Vertical: The scale is drawn from top to bottom, starting with position min.
 - 🟡 Reverse scale: TRUE, Orientation: Horizontal: The scale is drawn from right to left starting with position min.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* Inactive.

Style

None

Raised

Lowered

Style:

Determines the outer border style of the control and specifies the three-dimensional beveled look.

Default: None.

Offset:

Shifts the drawing within the bounds of the control. Use positive values to move right and negative values to move left.

Default: X:0 / Y:0.

Offset

X:

Y:

Border

Ends margin:

Border:

Sets the margin at the ends of the control. Depending on the tick label font size, the value of 'Outer margin' will have to be increased to prevent clipping of the text. The 'Outer margin' value is in pixels.

Default: 10.

Orientation:

Specifies whether the control is horizontal or vertical. *Default:* Vertical.

Orientation

Vertical

Horizontal

Orientation tick marks:

Orientation tick marks

Bottom right

Top left

Specifies which side of the control 'tick marks' are drawn.

Bottom right: Tick marks are on the bottom or right of the control, depending of the value of Orientation.

Top left: Tick marks are on the top or left of the control, depending of the value of Orientation. *Default:* Bottom right.

Precision:

Specifies how the precision property is interpreted when formatting major tick labels. When precision style is set to **Significant Digits**, the number of digits to the right of the decimal point is automatically calculated to ensure that the span of the values will show enough significant digits.

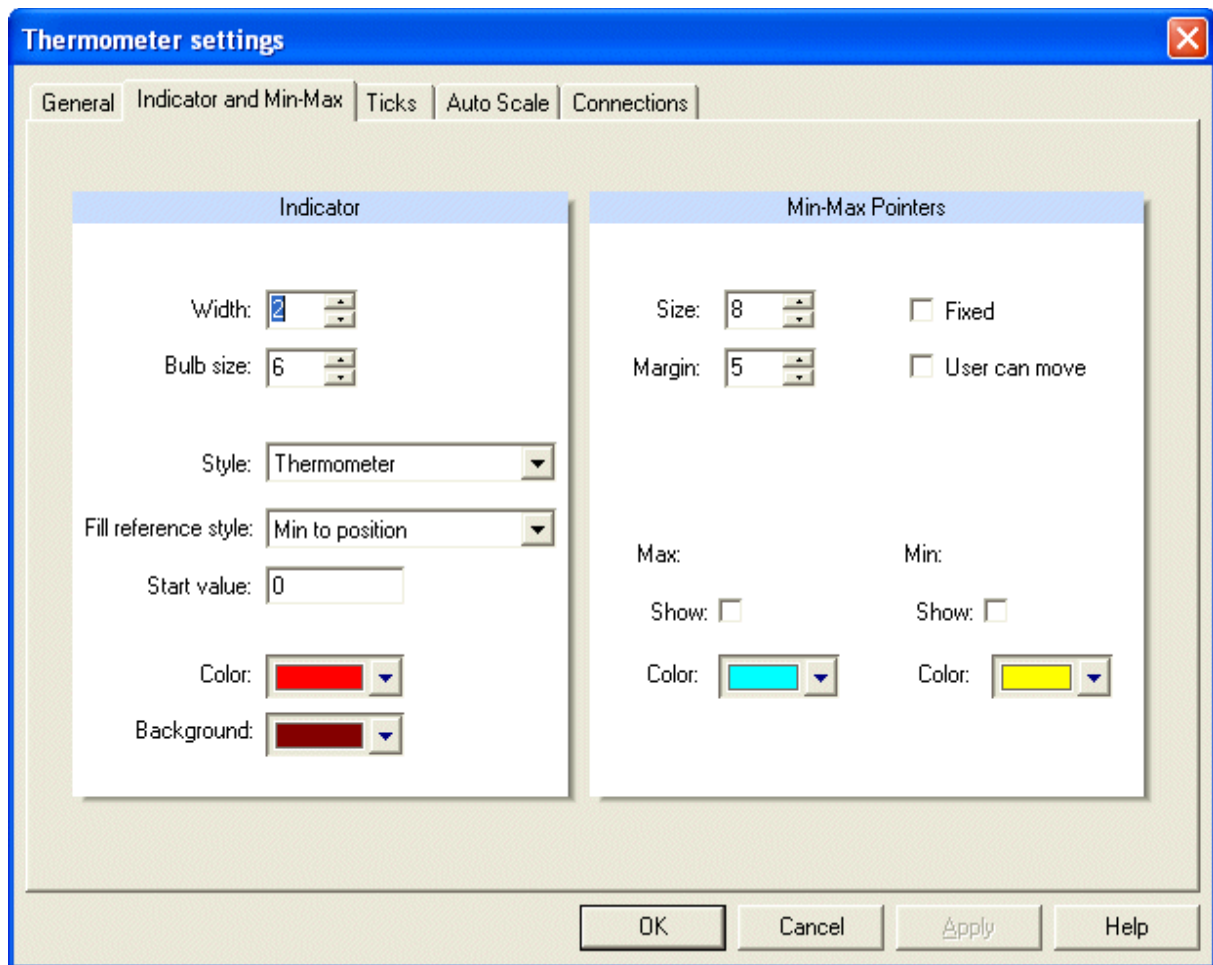
When precision style is set to **Fixed Decimal Points**, the number of digits to the right of the decimal point is fixed.

Default: Fixed Decimal Points.

Precision

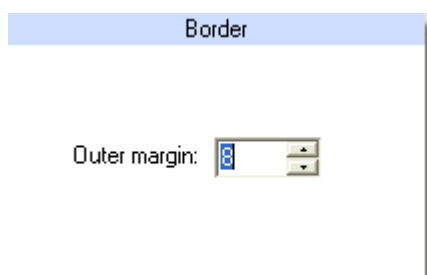
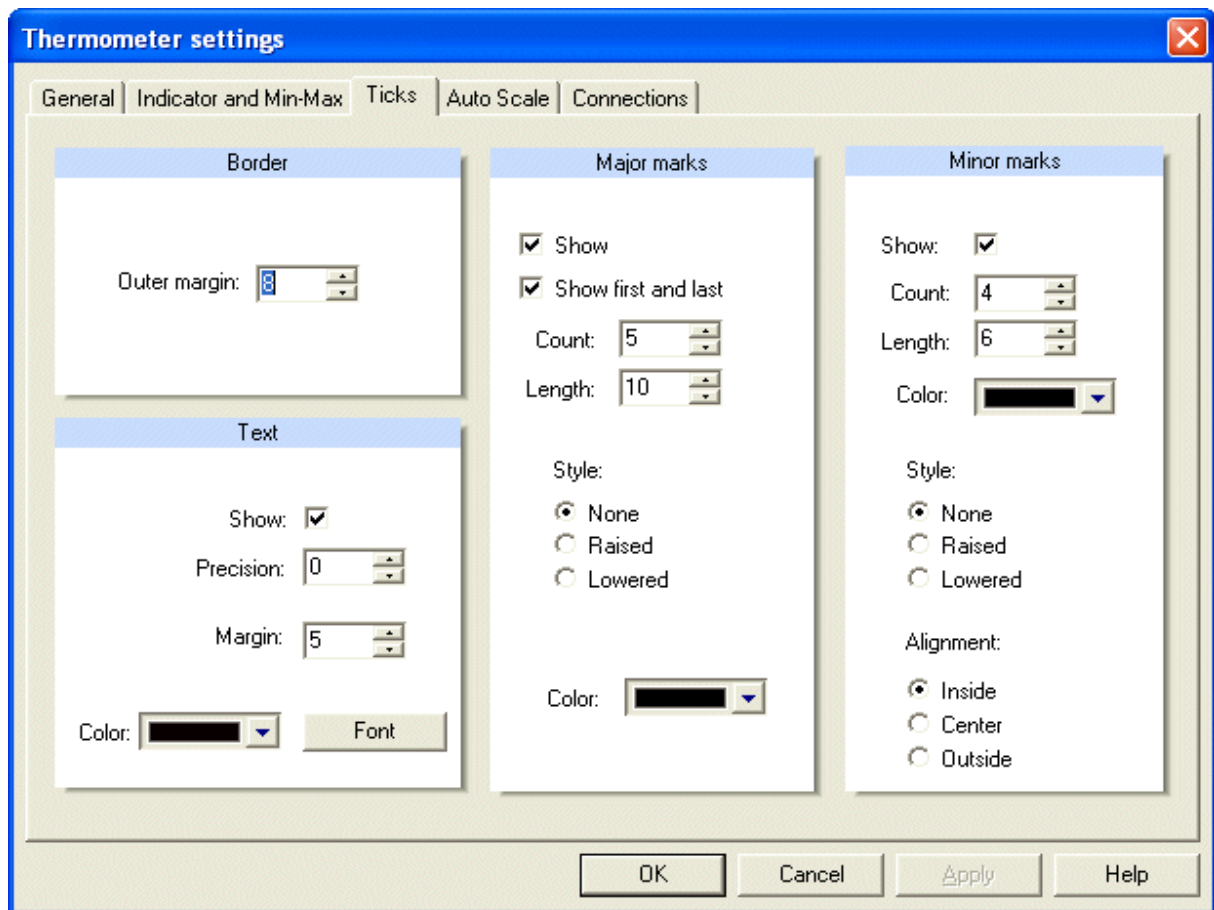
Significant digits

Fixed decimal points



- Width:** Specifies the indicator width (Tube Portion of the Thermometer).
Default: 2.
- Bulb size:** Specifies the indicator bulb size (Thermometer style only).
Default: 6.
- Style:** Specifies the indicator style (Thermometer, flat bar, flat bar with sunken border, flat bar with raised border).
Default: Thermometer.
- Fill reference style:** Specifies the style of drawing the thermometer fill line starting from either the min scale, max scale, or a specified point.
Default: min scale to current position.
- Start value:** Specifies the position on the scale where the indicator fill starts (flat bar only). *Default: 0.*
- Color:** Specifies the indicator color. *Default: Red.*
- Background:** Specifies the indicator background color. *Default: Crimson.*
- Size:** Sets the size of the min pointer and max pointer. The min/max pointer size value is in pixels and specifies half the width.
Default: 8.
- Margin:** Sets the distance of the min pointer and max pointer from the position indicator or scale. *Default: 5.*
- Fixed:** Specifies whether the min/max pointers are fixed or track the range of the Position property. *Default: Not Fixed.*
- User can move:** Determines whether the user can move the min and max pointers with the mouse. *Default: Cannot move.*

- Max:** *Max pointer*
Show: Specifies whether the max pointer is shown.
Color: Specifies the color of the max pointer indicator.
- Min:** *Min pointer*
Show: Specifies whether the min pointer is shown.
Color: Specifies the color of the min pointer indicator.

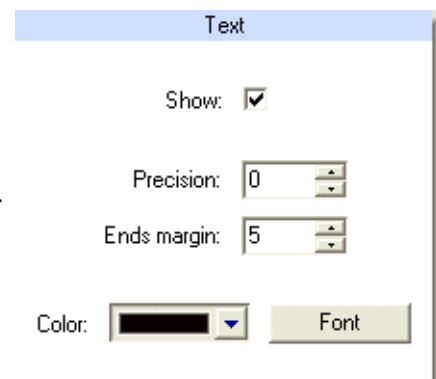


Border:

Specifies the margin between the ticks and the indicator. *Default: 8.*

Text:

Specifies whether tick labels are shown. *Default: Show*
 Specifies the precision of the tick labels. *Default: 0.*
 Specifies the margin between the tick labels and major ticks. *Default: 5.*
 Selection of tick label text color and font.



Major marks

Show

Show first and last

Count:

Length:

Style:

None

Raised

Lowered

Color:

Major Marks:

Specifies whether major ticks are shown.

Specifies whether the first and last major ticks are shown.

Specifies the number of major ticks shown.

Specifies the length of major ticks shown.

Determines the major tick bevel style (flat, raised, lowered).

Specifies the major tick color.

Minor Marks:

Specifies whether the minor ticks are shown.

Specifies the number of minor ticks shown.

Specifies the length of minor ticks shown.

Specifies the minor tick color.

Determines the minor tick bevel style
(flat, raised, lowered).

Determines the minor ticks' alignment relative to the major ticks:

Inside: Aligned to the edge of the major ticks towards the pointer.

Center: Aligned center to the major ticks.

Outside: Aligned to the edge of the major ticks away from the pointer.

Minor marks

Show:

Count:

Length:

Color:

Style:

None

Raised

Lowered

Alignment:

Inside

Center

Outside

Auto scale:

Enabled

Style

Auto min/max

Fixed min/max

Marks

Desired ticks: 5

Max. ticks: 6

Enabled: Determines whether the min position, the max position and/or the major tick count is automatically adjusted to display the scale in a more human readable form.

Style: Specifies the style for adjusting the min position and the max position when auto scale is enabled.

Auto min/max: Min position and max position are adjusted so that the scale starts and stops on a major tick.

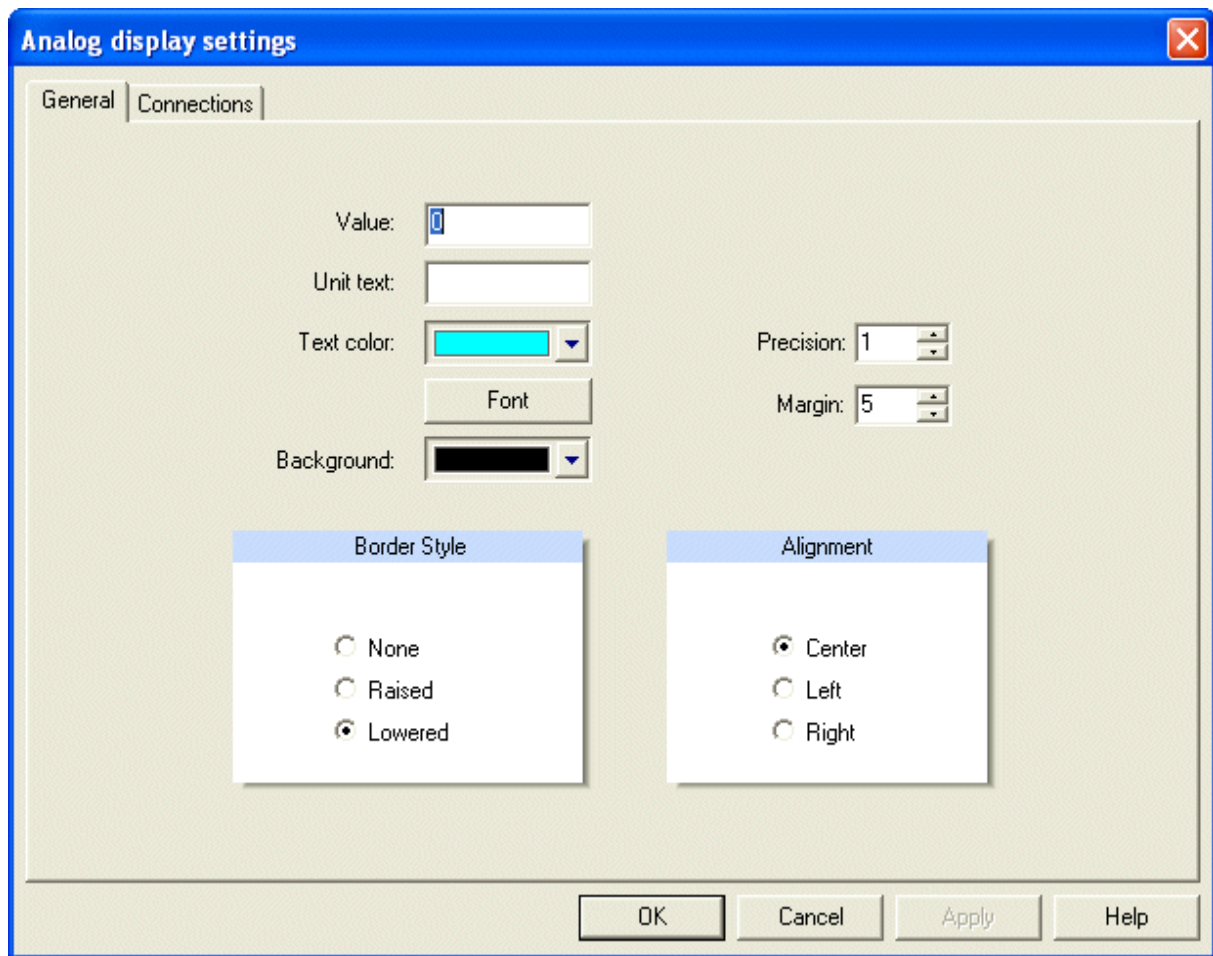
Fixed min/max: Min position and max position remain fixed and the scale may not start or stop on a major tick

Marks:

Desired: Set the desired major tick count when auto scale is enabled. The actual major tick count may be greater or less than the desired amount. The algorithm for calculating the major tick count will try to match the desired number if possible. In determining the actual major tick count, only values that result in step values that are divisible by the constants listed below are allowed (1.0, 2.0, 2.5, 5.0, 7.5).

Max: Set the maximum number of major ticks when AutoScale is enabled.

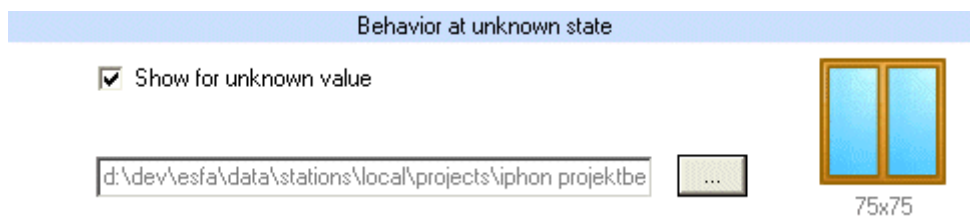
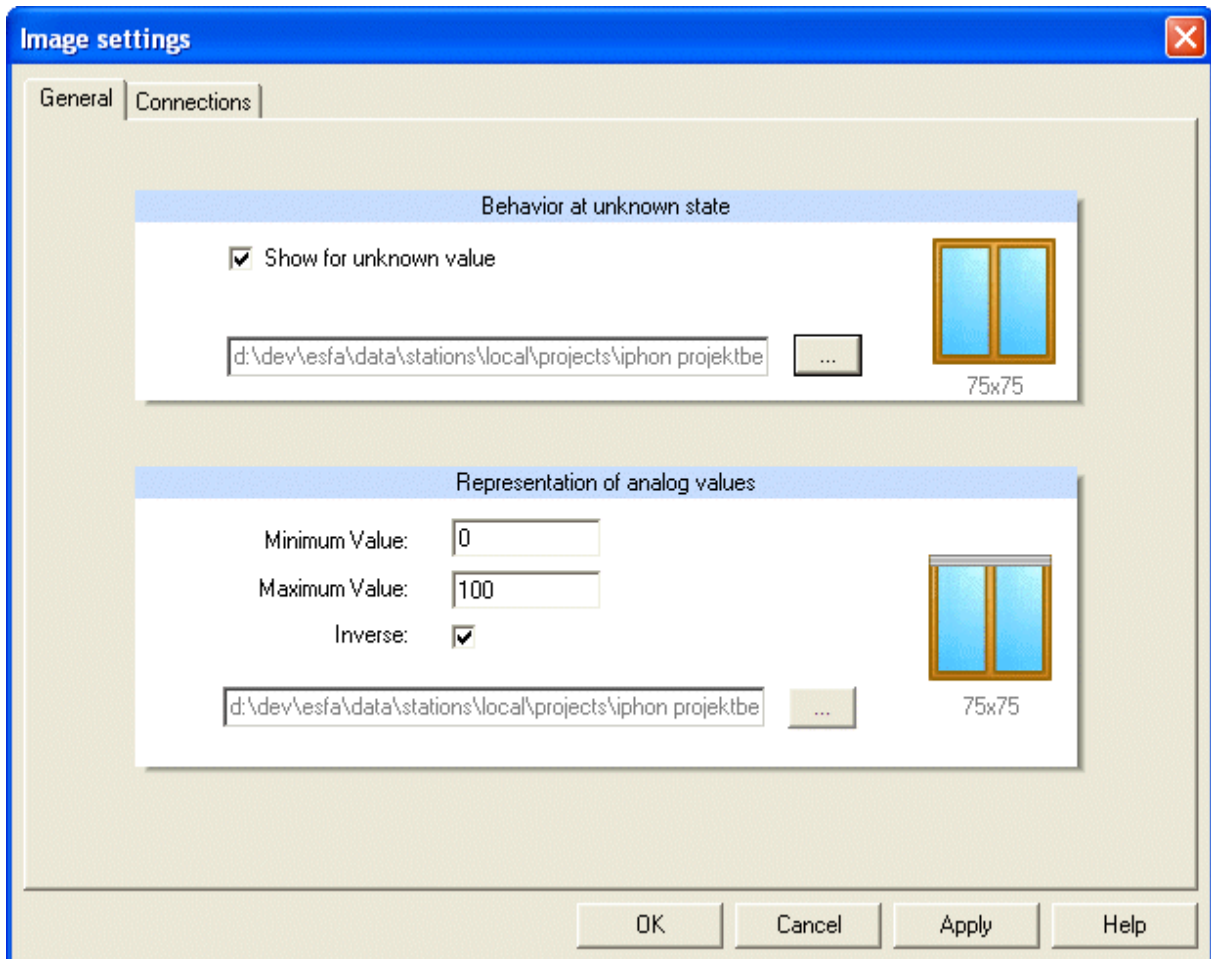
5.2.3 42.1 Analog display:



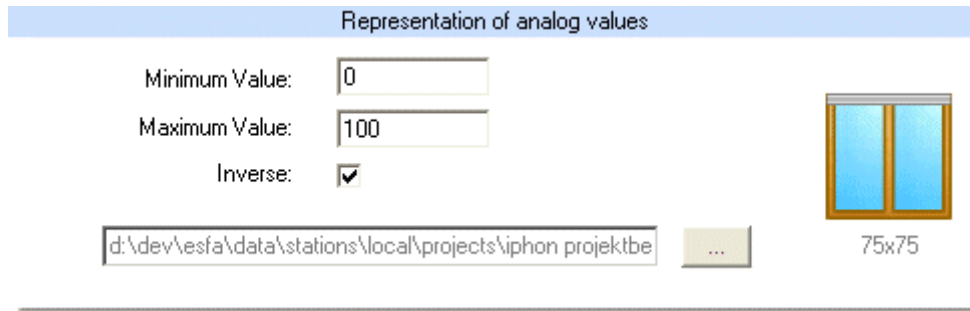
- Value:** Sets the current value. Can be used to provide a value to the control for a preview.
- Unit text:** The text string appended to the end of the formatted value. The display value is the value formatted with the precision specifier and the unit text is appended to the end. To create spacing between the formatted value and the unit text, add desired spaces to the beginning of the unit text property.
- Text color:** Text color.
- Font:** Text font.
- Background:** Background color.
- Precision:** Specifies the precision for formatting the text display.
- Margin:** Specifies the margin padding used when the edit control is left or right justified.
- Border Style:** Determines the outer border style of the control and specifies the three-dimensional beveled look. *Default:* Lowered.
- Alignment:** Controls the horizontal placement of text within the control. *Default:* Center.

5.2.4 Image Input:

The image input can be used to display analog values. Like in 4.7.2 described, animated GIF's can also be used to display the value of the connected process variable. Then the single pictures of the animation will be mapped to the configured range. The current value determines the picture which is shown.



Show for unknown value: Active: Shows the given image at unknown state.
Inactive: No image will be shown at unknown state.
Default: Inactive.



Minimum value: Range, minimum value. Default: 0.

Maximum value: Range, maximum value. Default: 100.

Inverse: Active: Uses the pictures of the animation in inverse order.
Inactive: Uses the pictures of the animation in normal order.
Default: Inactive.

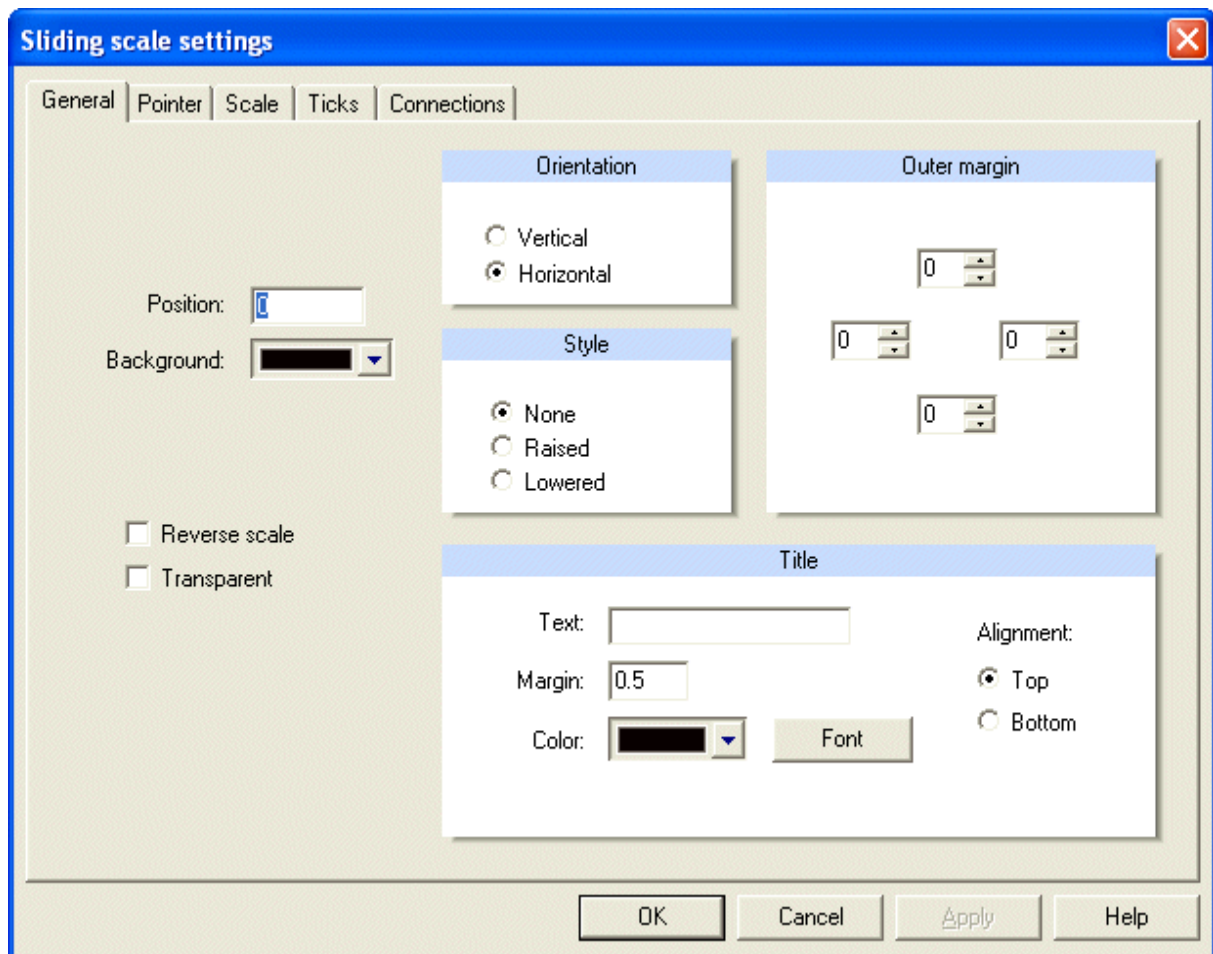
Currently the following file formats are supported:

- Windows oder OS/2 Bitmap (*.bmp)
- CompuServe Graphics Interchange (*.gif)
- JPEG (*.jpg)
- WINDOWS Meta Files (*.wmf)
- Enhanced Meta Files (*.emf)
- Portable Network Graphics (*.png)
- Tagged Image File Format (*.tif)

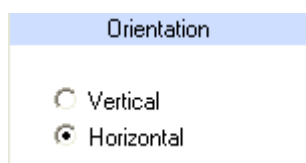
Tip:

GIF- and PNG – can comprise of transparent areas, this can be used to show non-rectangular symbols, for example a light bulb with transparent pixels outside of the bulb's outline.

5.2.5 Sliding Scale:



- Position:** Sets the current value. Can be used to provide a value to the control for a preview. The position must be a value between 'Position min' and 'Position max'. *Default:* 0.
- Background:** Selects the background color. *Default:* Black.
- Reverse scale:** Specifies whether the scale is drawn reverse. *Default:* Inactive.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* Inactive.



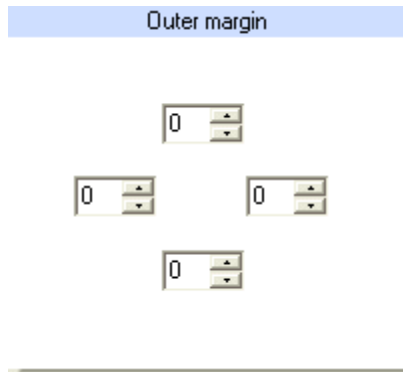
Orientation:

Specifies whether the control is horizontal or vertical.
Default: Horizontal.

Style:

Determines the outer border style of the control and specifies the three-dimensional beveled look.
Default: None.





Outer margin:

Specifies the margin between the control and the scale background area.

Default: 0.

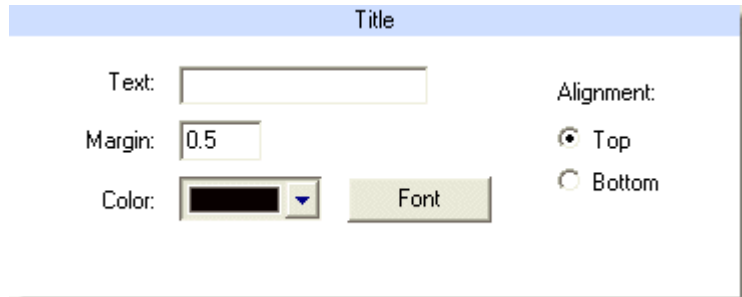
Title:

Text: Specifies the drawn text for the title. *Default: None.*

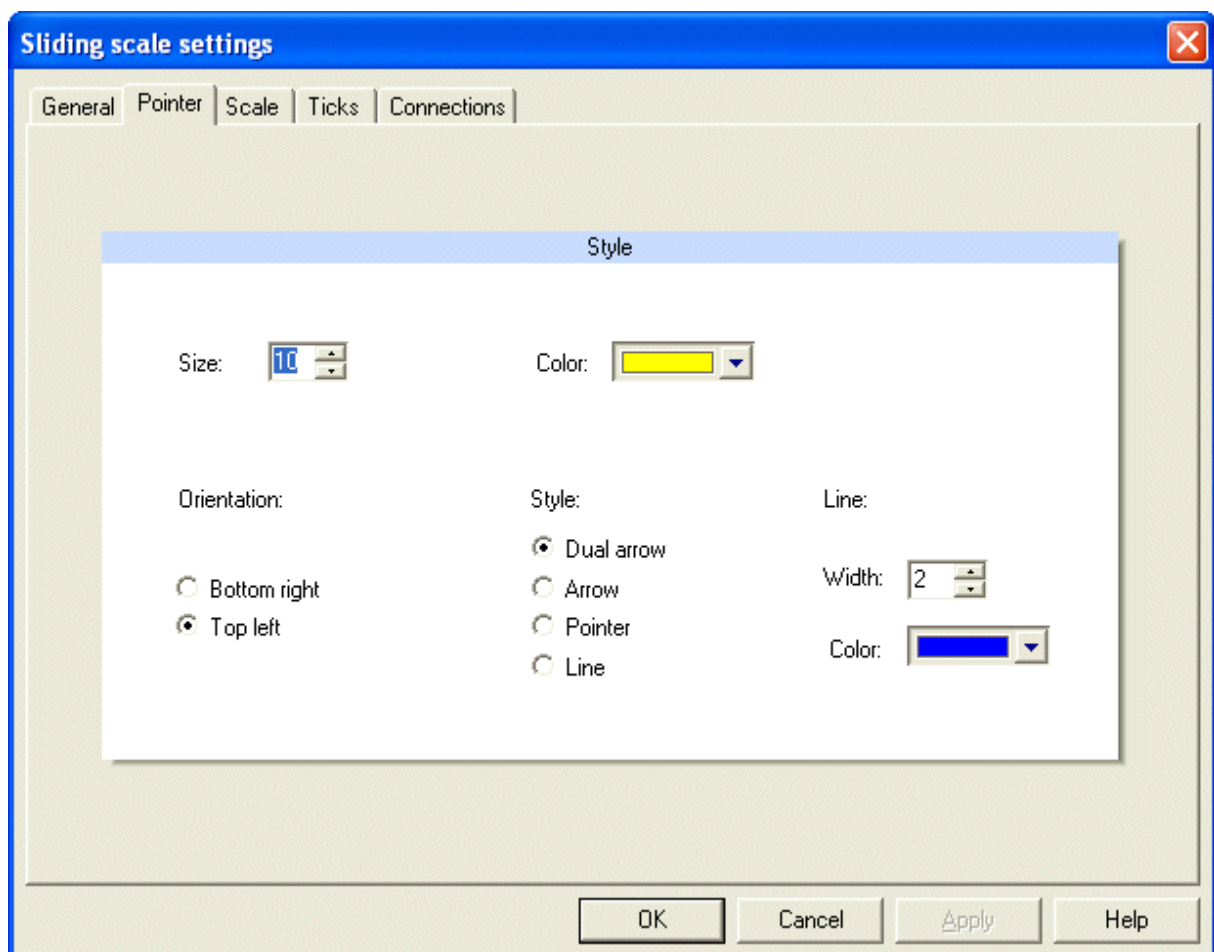
Margin: Specifies the margin between the title text (if any) and the edge of the control. *Default: 0.5.*

Color: Text color. *Default: Black.*

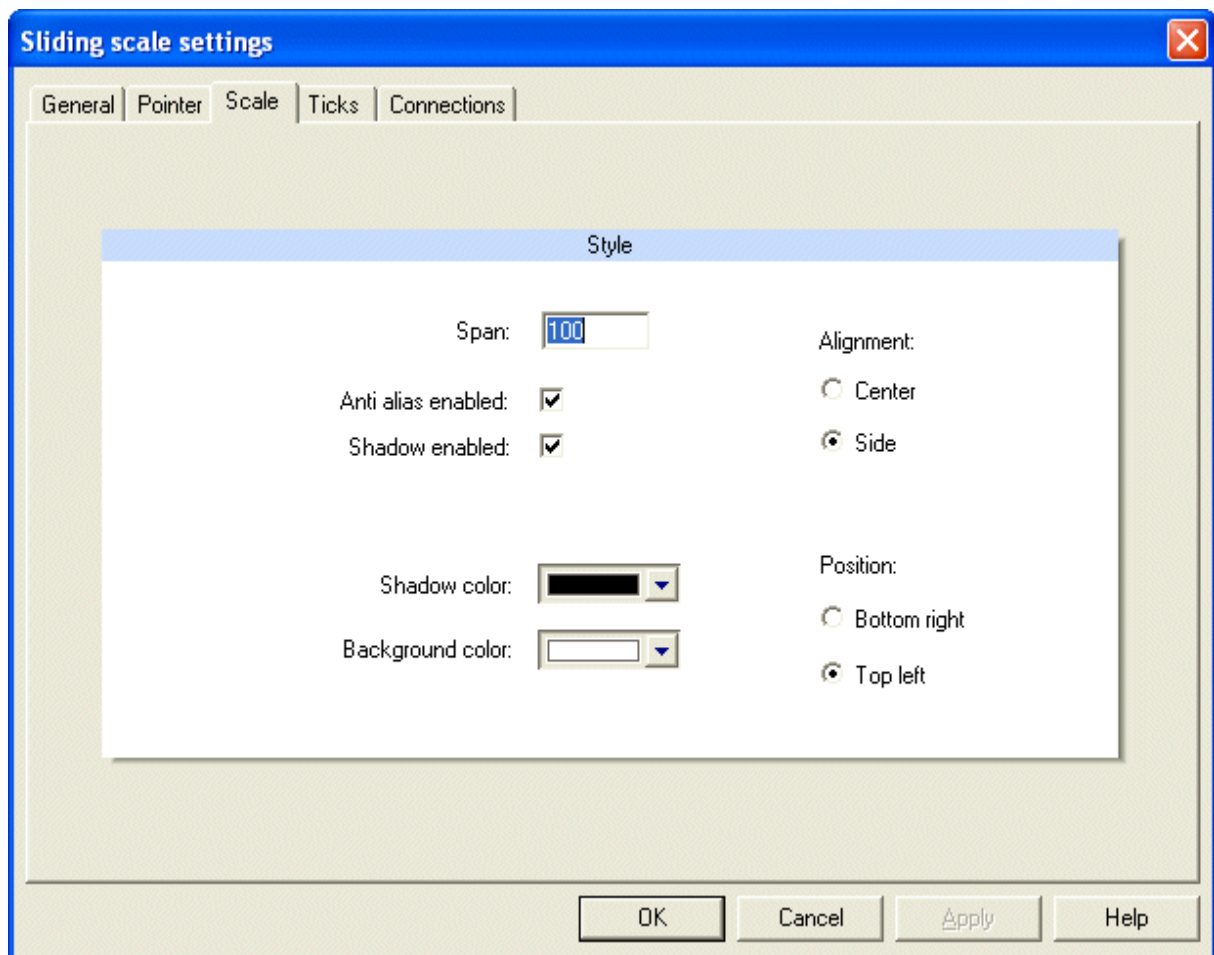
Font: Text font.



Alignment: Specifies the horizontal alignment style of the title. The title is aligned with the top or the bottom of the control. *Default: Top.*



- Size:** Sets the pointer size. The pointer size value is in pixels and refers to the pointer height. The pointer width and the height/width of the scale background area are automatically and proportionally adjusted. *Default:* 10.
- Orientation:** Specifies whether the pointer is on bottom/right or top/left of the scale, depending on the orientation property of the control. *Default:* Top left.
- Color:** Sets the indicator color. *Default:* Yellow.
- Style:** Specifies the pointer style:
Dual arrow: Dual triangles and side lengths equal to pointer size.
Arrow: Triangle only and side lengths equal to pointer size.
Pointer: Triangle with a box and side lengths equal to pointer size.
Line: Line running perpendicular through the scale background area and equal in width to the pointer line width.
Default: Dual arrow.
- Line:** Specifies the width and the color of the pointer line.



- Span:** Sets the span of displayed values in the scale. The displayed scale will be centered around the labels which corresponds to the current value, starting at the point specified by the scale orientation. *Default:* 100.
- Anti alias enabled:** Adjusts the absolute pixel position of the scale ticks and outer margins to automatically eliminate visual artifacts during scale scrolling. *Default:* Active.

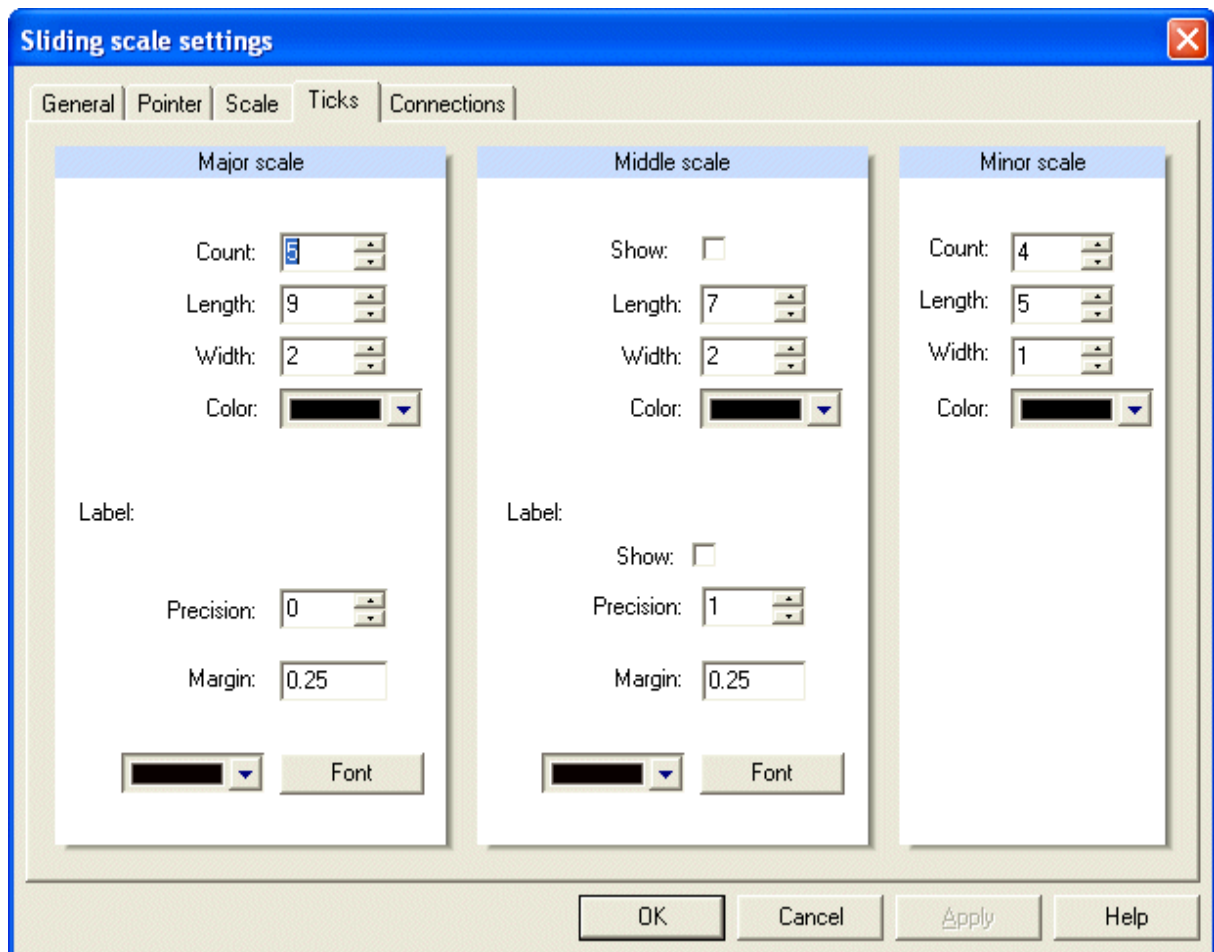
Shadow enabled: Specifies whether the shadow color is used in conjunction with the background color to produce a gradient and/or 3D effect. Setting this property to 'Inactive' allows for a solid background color by using the background color property. *Default:* Active.

Shadow color: Specifies the shadow color of the scale behind the ticks and the tick labels. *Default:* Black.

Background color: Specifies the background color behind the scale. *Default:* White.

Alignment: Specifies how the labels are aligned at the tick label positions. For labels that are roughly all the same size, 'Center' is the best alignment style to use and gives the most professional look. When the size of the labels are not close, 'Side' gives the most professional look. *Default:* Side.

Position: Specifies which side of the control tick marks are drawn. BottomRight: Tick marks are on the bottom or right of the control, depending of the value of orientation. TopLeft: Tick marks are on the top or left of the control, depending of the value of orientation. *Default:* Top left.



Major scale

Count:

Length:

Width:

Color:

Label:

Precision:

Margin:

Major scale:

Specifies the number of major ticks shown in the scale. *Default: 5.*

Specifies the major ticks' length. *Default: 9.*

Specifies the major ticks' width. *Default: 2.*

Specifies the major ticks' color. *Default: Black.*

Sets the precision of the major tick labels. To show integers only, set the precision to 0. *Default: 0.*

Specifies the margin between the major tick labels and major ticks. *Default: 0.25.*

Sets the label color. *Default: Black.*

Sets the label font. *Default: No selection.*

Middle scale

Show:

Length:

Width:

Color:

Label:

Show:

Precision:

Margin:

Middle scale:

Specifies whether the mid ticks are shown. *Default: Inactive.*

Specifies the mid ticks' length. *Default: 9.*

Specifies the mid ticks' width. *Default: 2.*

Specifies the mid ticks' color. *Default: Black.*

Specifies whether the mid tick labels are shown. *Default: Inactive.*

Specifies the precision of the mid tick labels. *Default: 1.*

Specifies the margin between the mid tick labels and mid ticks. *Default: 0.25.*

Sets the color. *Default: Black.*

Sets the font. *Default: No selection.*

Minor scale:

Sets the number of minor ticks shown. The minor tick count should be set to one more than the desired number of minor sections. For example, if you want 5 minor sections, set count to 6. *Default: 4.*

Specifies the minor ticks' **length**. *Default: 5.*

Specifies the minor ticks' **width**. *Default: 1.*

Specifies the minor ticks' **color**. *Default: Black.*

Minor scale

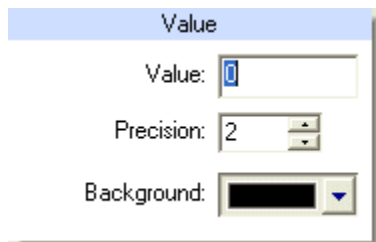
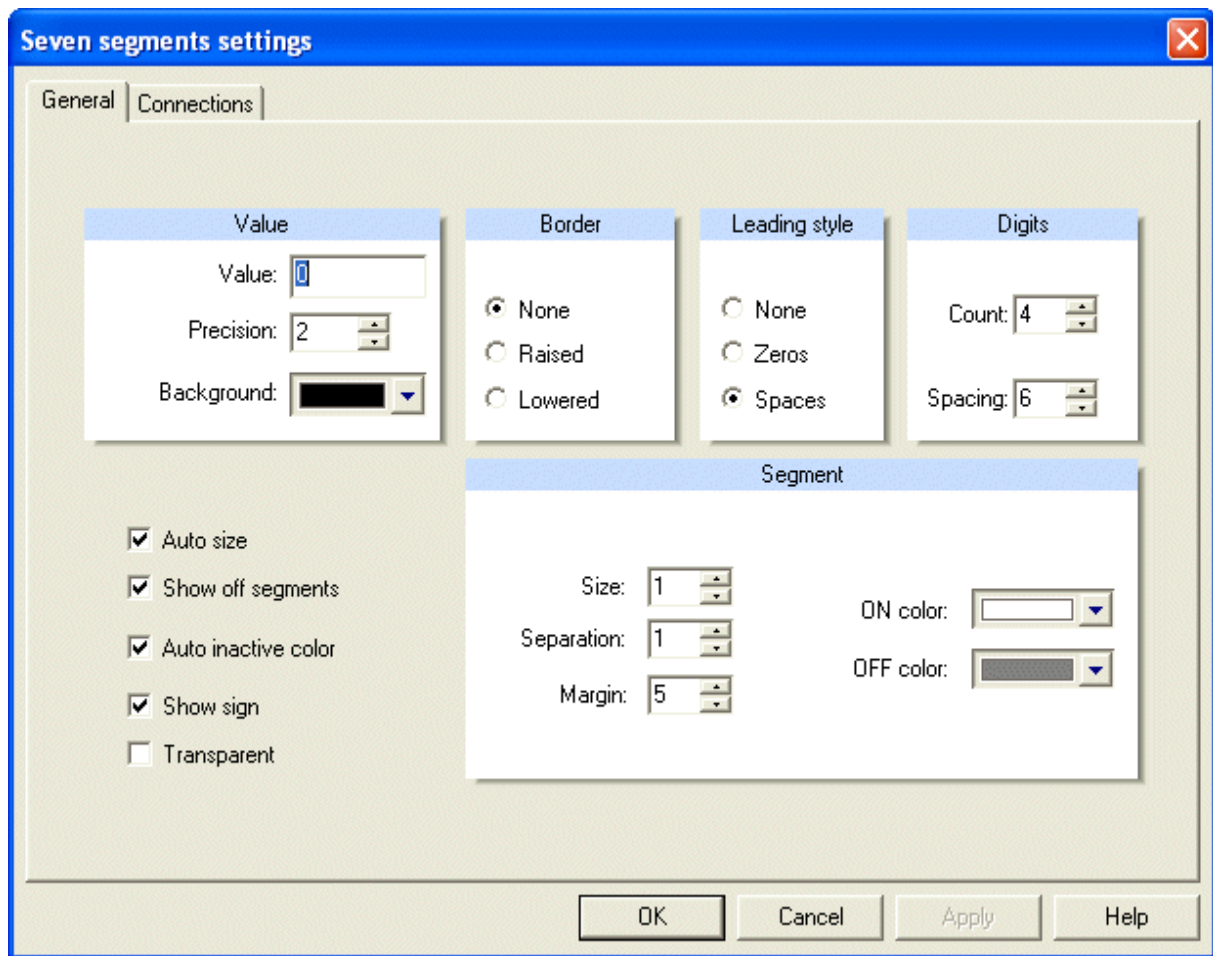
Count:

Length:

Width:

Color:

5.2.6 Seven Segment Display:



Value:

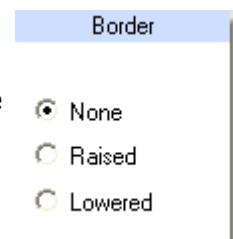
Value preview. *Default:* 0.

Sets the precision specifier for formatting the digit display. *Default:* 2.

Specifies the background color of the control. *Default:* Black.

Border:

Determines the outer border style of the control and specifies the three-dimensional beveled look. *Default:* None.

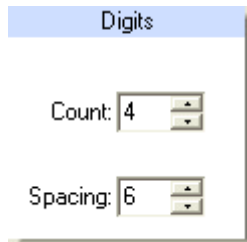


Leading style: Determines the type of fill characters to use for justification of values.

None: Value is left justified.

Zeros: Value is right justified with leading 0's.

Spaces: Value is right justified with leading spaces. *Default:* Spaces.



Digits:

Specifies the number of display digits. *Default: 4.*

Specifies spacing between display digits. *Default: 6.*

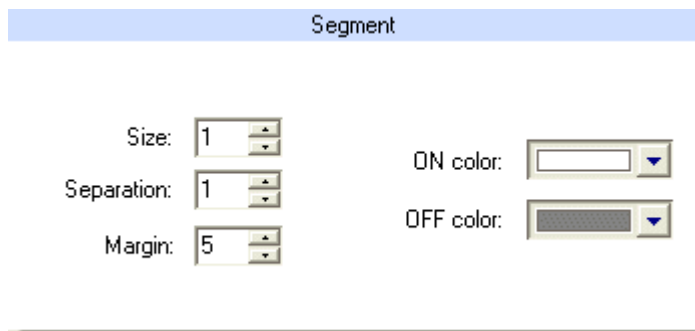
Auto size: Determines whether the size of the control automatically resizes to accommodate the size and number of digits. *Default: Active.*

Show off segments: Specifies whether inactive segments are shown. When FALSE, inactive segments are not shown. When "show off segments" is TRUE, inactive segments are shown dimmed. *Default: TRUE.*

Auto inactive color: Specifies whether the color of the off (inactive) segments are calculated automatically. When set to TRUE, the color is calculated to be 1/3 intensity of the segment color. When set to FALSE, the segment off color is used for off (inactive) segments. *Default: TRUE.*

Show sign: Specifies whether the sign digit is shown. *Default: TRUE.*

Transparent: Specifies whether the background behind the control shows through. *Default: Inactive.*



Segment:

ON color: Specifies the active color of display segments. *Default: White.*

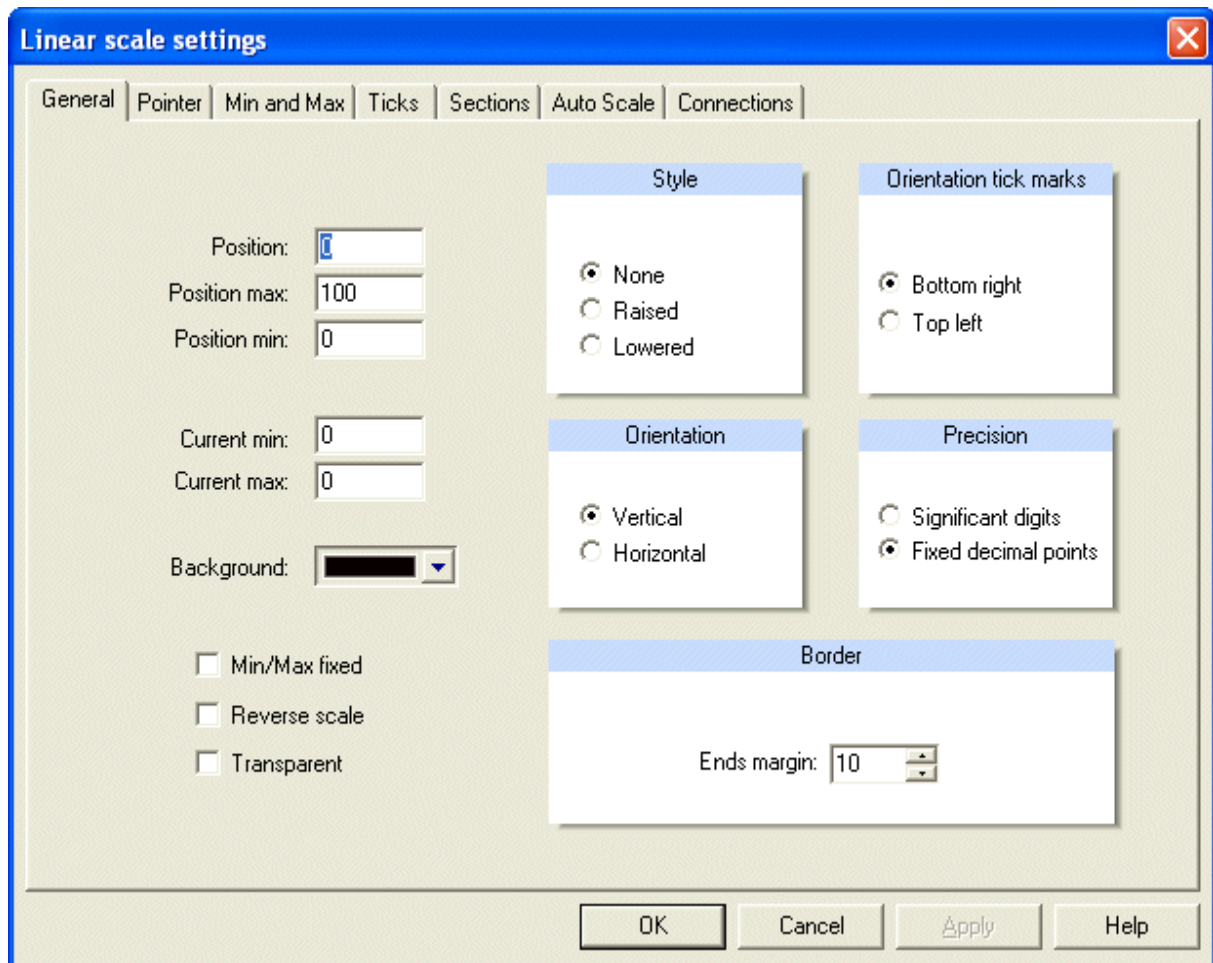
OFF color: Sets the off (inactive) segment color. This property only has an effect if the property 'Auto inactive color' is set to FALSE. *Default: Dark grey.*

Size: Sets the size of each segment. Each segment is based on a 10x18-grid to guarantee that no fractional pixels are drawn distorting the segment. The segment is drawn with the 10x18-grid multiplied by the segment size. *Default: 1.*

Separation: Sets the margin between each digit segment. *Default: 1.*

Margin: Sets the top left margin of the digits relative to the control. *Default: 5.*

5.2.7 Linear Scale:



- Position:** Sets the current value. Can be used to provide a value to the control for a preview. The position must be a value between 'Position min' and 'Position max'. *Default:* 0.
- Position max:** Upper limit of the range of values. *Default:* 100.
- Position min:** Lower limit of the range of values. *Default:* 0.
- Current min:** Sets the lowest position value since the last reset. *Default:* 0.
- Current max:** Sets the highest position value since the last reset. *Default:* 0.
- Background:** Selects the background color. *Default:* Black.
- Min/Max fixed:** Specifies whether the 'min/max' pointers are fixed or track the range of the position. *Default:* Inactive.
- Reverse scale:** Reverses the direction of the scale. By default, when this property is FALSE, if the orientation of the scale is vertical, the scale will start at the bottom of the component and move towards the top. If this property is TRUE and the scale is vertical, then the scale will start at the top of the component and move towards the bottom. *Default:* FALSE.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* Inactive.

Style

None

Raised

Lowered

Style:

Determines the outer border style of the control and specifies the three-dimensional beveled look. *Default:* None.

Orientation:

Specifies whether the control is horizontal or vertical. *Default:* Vertical.

Orientation

Vertical

Horizontal

Orientation tick marks

Bottom right

Top left

Orientation tick marks:

Specifies which side of the control "tick marks" are drawn.

Bottom right: Tick marks are on the bottom or right of the control, depending of the value of Orientation.

Top left: Tick marks are on the top or left of the control, depending of the value of Orientation.

Default: Bottom right.

Precision:

Specifies how the precision property is interpreted when formatting major tick labels. When the precision style is set to 'Significant digits', the number of digits to the right of the decimal point is automatically calculated to ensure that the span of the values will show enough significant digits. When precision style is set to 'Fixed decimal points', the number of digits to the right of the decimal point is fixed. *Default:* Hide.

Precision

Significant digits

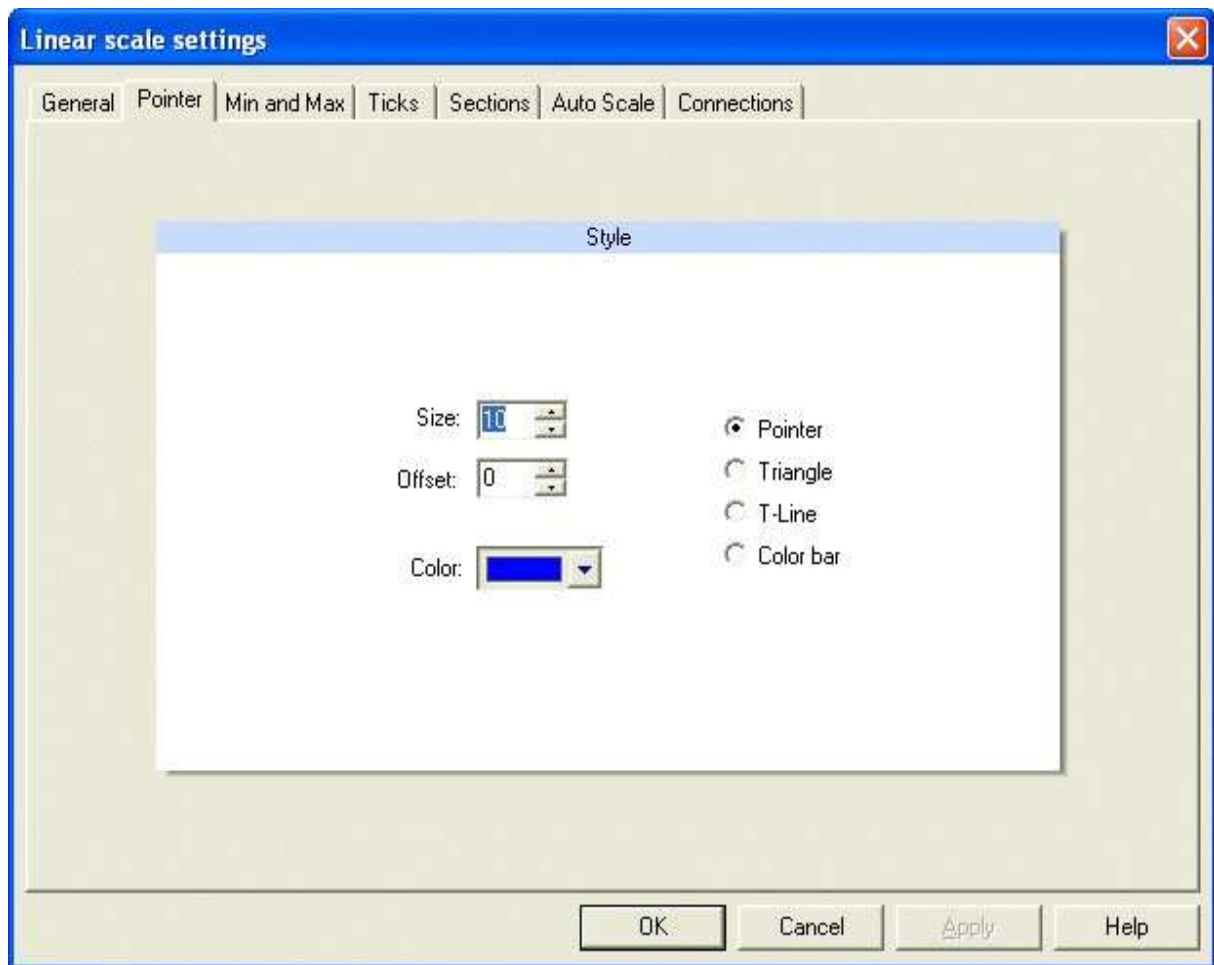
Fixed decimal points

Border:

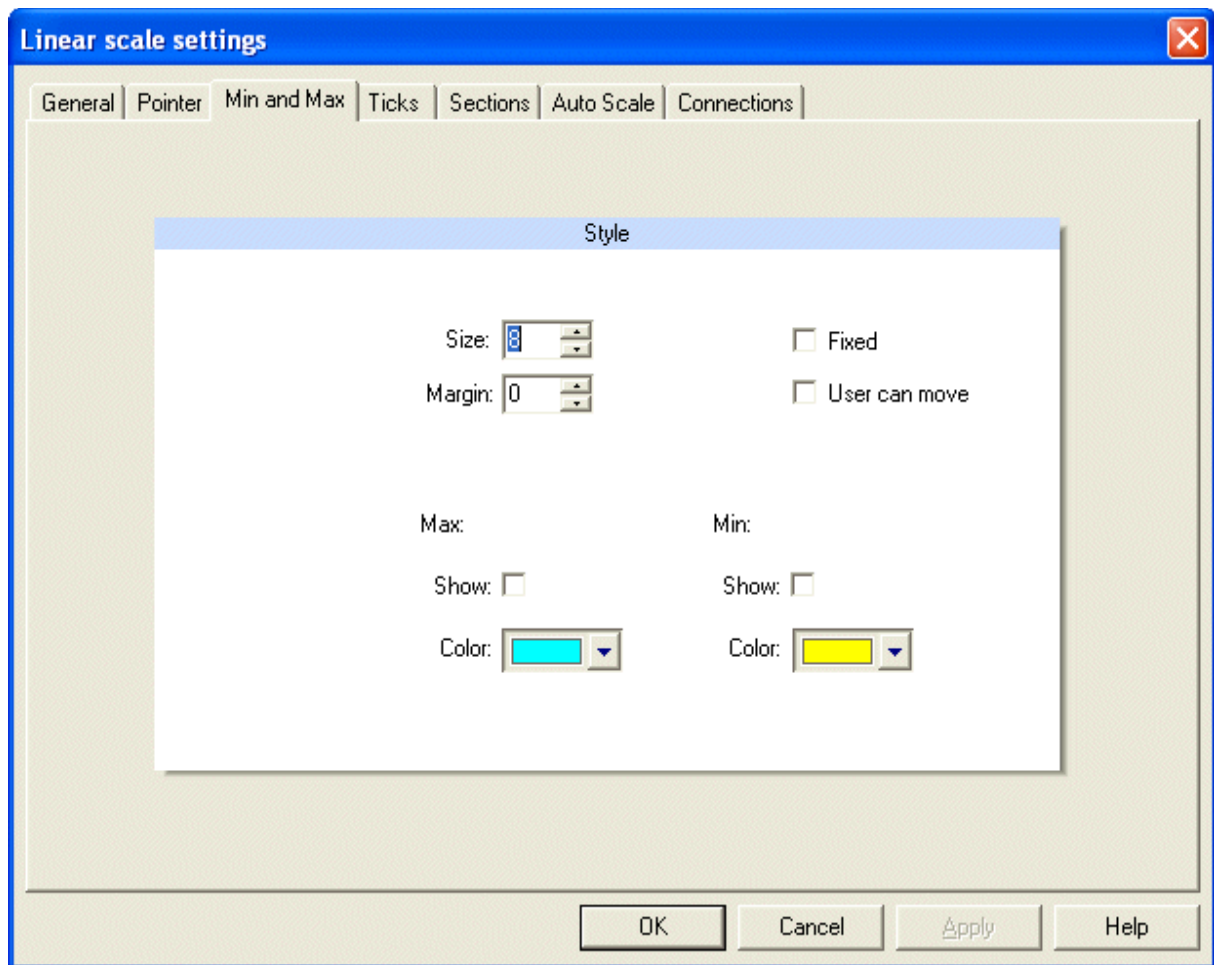
Border

Ends margin:

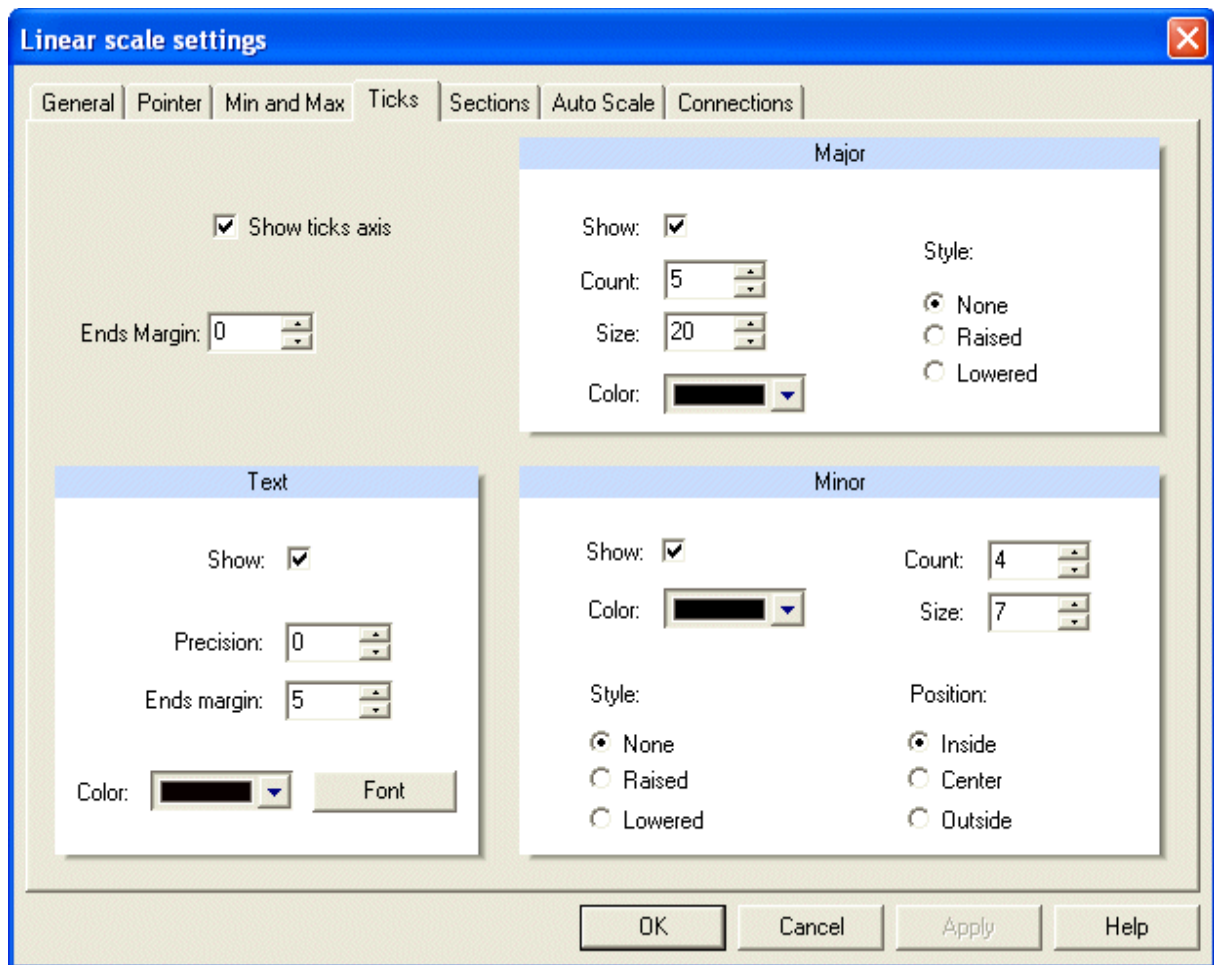
Sets the margin at the ends of the control. Depending on the tick label font size, the value of 'Outer margin' will have to be increased to prevent clipping of the text. The 'Outer margin' value is in pixels. *Default:* 10.



- Size:** Specifies the size of the pointer. *Default:* 10.
- Offset:** Specifies the offset between the pointer and the ticks axis. *Default:* 0.
- Color:** Specifies the color of the pointer. *Default:* Blue.
- Style:** Sets the pointer style. These are the possible styles:
Pointer: Triangle with a box and side lengths equal to pointer size.
Triangle: Triangle only and side lengths equal to pointer size.
T-Line: Line running from min to max with a perpendicular line of length pointer size.
Color bar: Color bar with a width equal to major tick length.
Default: Pointer.

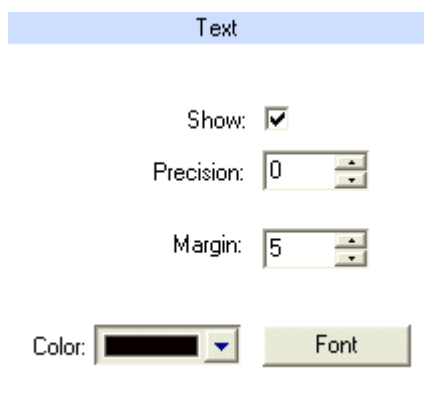


- Size:** Sets the size of the min pointer and max pointer. The min/max pointer size value is in pixels and specifies half the width. *Default:* 8.
- Margin:** Sets the distance of the min pointer and max pointer from the position indicator or scale. *Default:* 5.
- Fixed:** Specifies whether the min/max Pointers are fixed or track the range of the position value. *Default:* Not Fixed.
- User can move:** Determines whether the user can move the min and max pointers with the mouse. *Default:* Cannot move.
- Max:** Max pointer
 Show: Specifies whether the max pointer is shown.
 Color: Specifies the color of the max pointer indicator.
- Min:** Min pointer
 Show: Specifies whether the min pointer is shown.
 Color: Specifies the color of the min pointer indicator.



Show ticks axis: Specifies whether the tick axis is shown. *Default:* Show.

Ends margin: Specifies the margin between the ticks and the pointer. *Default:* 0.



Text:

Specifies whether tick labels are shown. *Default:* Show

Specifies the precision of the tick labels. *Default:* 0.

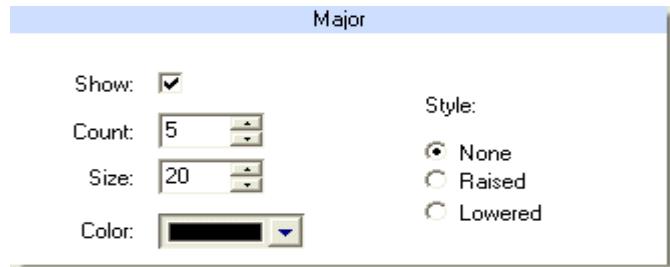
Specifies the margin between the tick labels and major ticks. *Default:* 5.

Selection of tick label text color and font.

Major: Show:

Active: Major ticks are shown.
Inactive: Major ticks and minor ticks are not shown.

Default: Active.



The 'Major' settings dialog box contains the following controls:

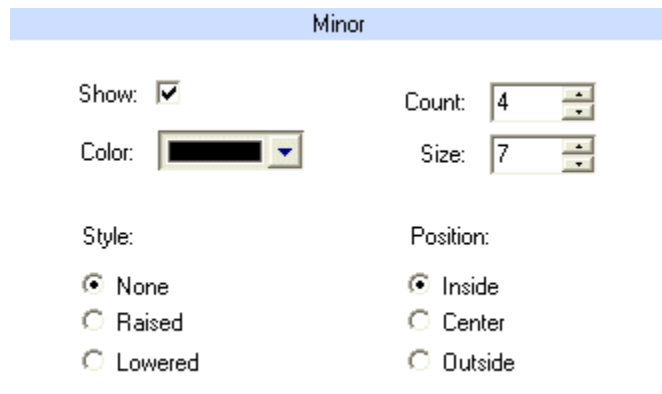
- Show:
- Count: 5
- Size: 20
- Color: [Black]
- Style: None, Raised, Lowered

Count: Set the number of major ticks shown. Major tick count should be set to one more than the desired number of major sections. For example, if you want 5 major sections, set the major tick count to 6. *Default:* 5.

Size: Specifies the length of the major ticks. *Default:* 20.

Color: Specifies the color of the major ticks. *Default:* Black.

Style: Determines the major tick bevel style (no border, raised border, lowered border). *Default:* No border.



The 'Minor' settings dialog box contains the following controls:

- Show:
- Count: 4
- Color: [Black]
- Size: 7
- Style: None, Raised, Lowered
- Position: Inside, Center, Outside

Minor: Show:

Active: Minor ticks are shown.
Inactive: Minor ticks are not shown.

Default: Active.

Count: Set the number of minor ticks shown. Minor tick count should be set to one less than the desired number of minor sections. For example, if you want 3 minor sections, set the major tick count to 2. *Default:* 5.

Size: Specifies the length of the minor ticks. *Default:* 20.

Color: Specifies the color of the minor ticks. *Default:* Black.

Style: Determines the minor tick bevel style (no border, raised border, lowered border). *Default:* No border.

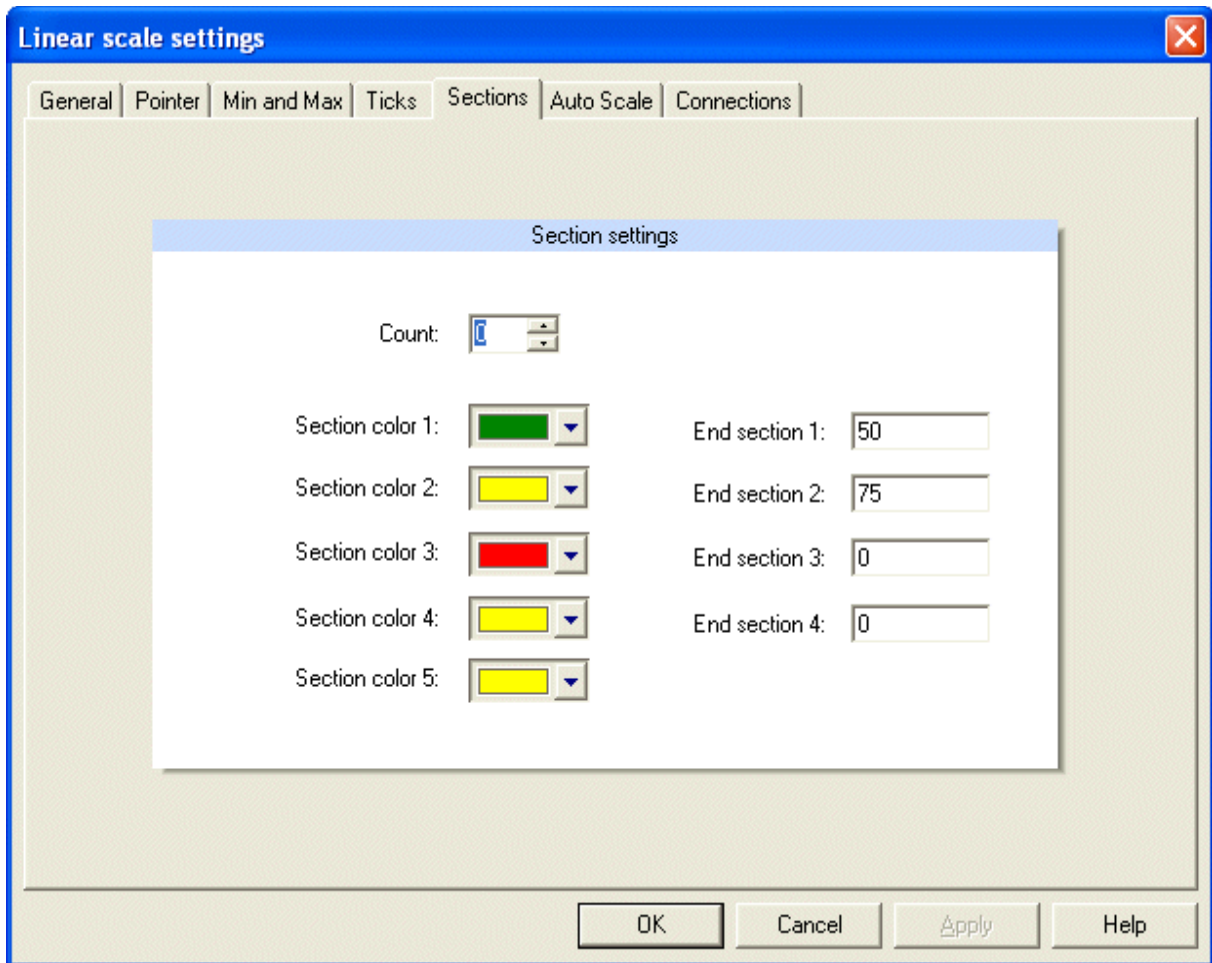
Position: Specifies the minor ticks' alignment relative to the major ticks:

Inside: Aligned to the edge of the major ticks towards the pointer.

Center: Aligned center to the major ticks.

Outside: Aligned to the edge of the major ticks away from the pointer.

Default: Inside.



- Count:** Sets the number of color sections. Set to 0 for no color sections. Maximum sections are 5. *Default:* 0.
- Section color 1:** Sets the color of section 1. If the following conditions are not meet, section 1 will not be shown:
 Section count > 0.
Default: Green.
- End section 1:** Sets the end value for section 1. End section 1 should be a value between min position and max position. *Default:* 50.
- Section color 2:** Sets the color of section 2. If the following conditions are not meet, section 2 will not be shown:
 Section count > 1
 End section 1 < max position
 End section 2 > end section 1
Default: Yellow.
- End section 2:** Sets the end value for section 2. End section 2 should be a value between min position and max position and greater than 'end section 1'. *Default:* 75.
- Section color 3:** Sets the color of section 3. If the following conditions are not meet, section 3 will not be shown:
 Section count > 2
 (End section 1, End section 2) < max position
 End section 3 > (End section 2, End section 1)
Default: Red.

End section 3: Sets the end value for section 3. End section 3 should be a value between min position and max position and greater than 'End section 2'. *Default: 0.*

Section color 4: Sets the color of section 4. If the following conditions are not meet, section 4 will not be shown:

- Section count > 3
- (End section 1, End section 2, End section 3) < max position
- End section 4 > (End section 3, End section 2, End section 1)

Default: Yellow.

End section 4: Sets the end value for section 4. End section 4 should be a value between min position and max position and greater than 'End section 3'. *Default: 0.*

Section color 5: Sets the color of section 5. If the following conditions are not meet, section 5 will not be shown:

- Section count > 4
- (End section 1, End section 2, End section 3, End section 4) < max position.

Default: Yellow.

Auto scale:



Enabled: Determines whether the min position, the max position and/or the major tick count is automatically adjusted to display the scale in a more human readable form.

Style: Specifies the style for adjusting the min position and the max position when auto scale is enabled.

Auto min/max: Min position and max position are adjusted so that the scale starts and stops on a major tick.

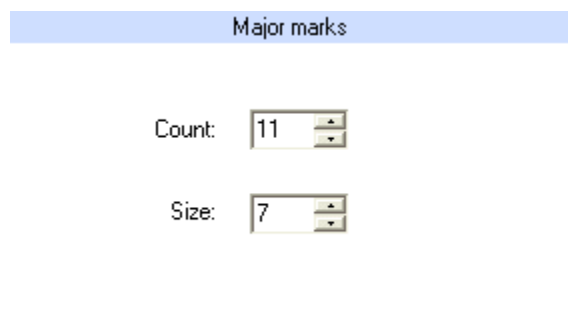
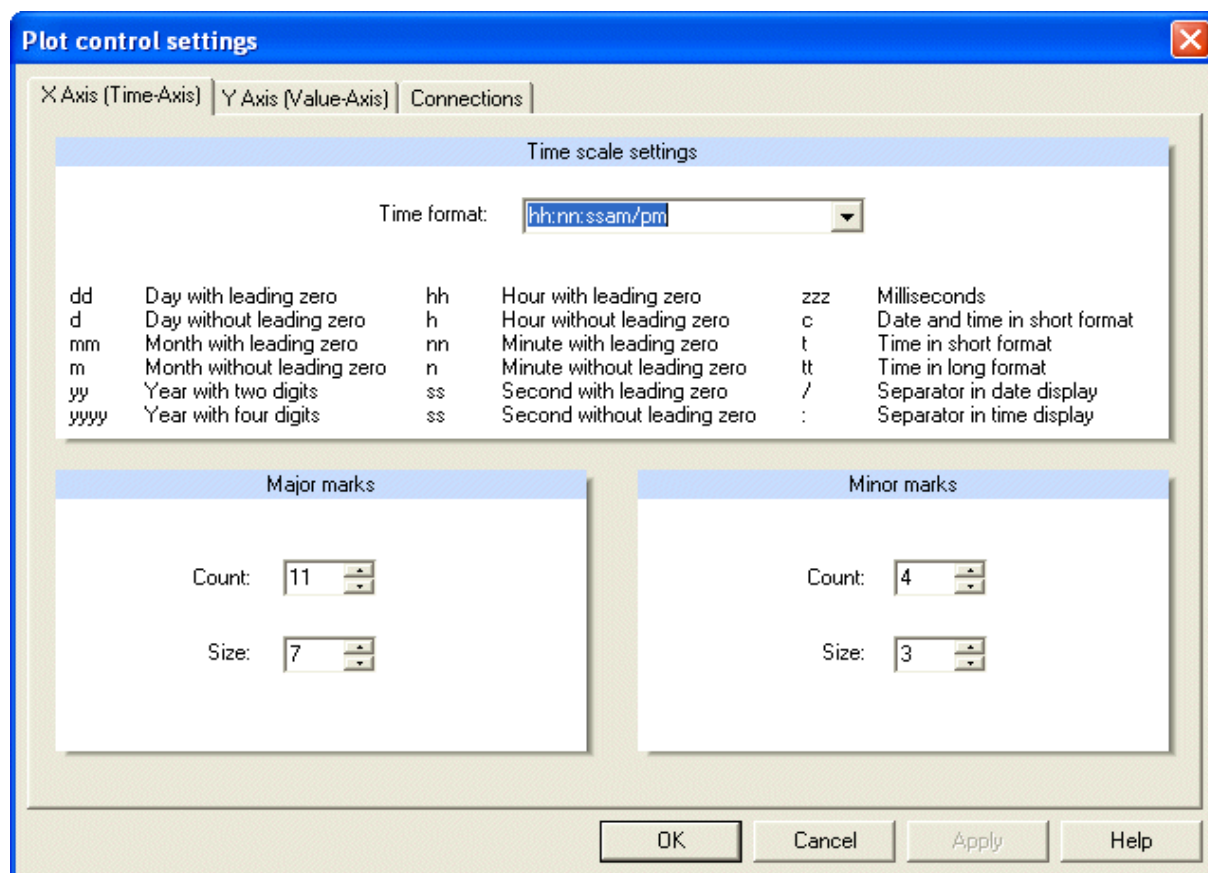
Fixed min/max: Min position and max position remain fixed and the scale may not start or stop on a major tick

Marks:

Desired: Set the desired major tick count when auto scale is enabled. The actual major tick count may be greater or less than the desired amount. The algorithm for calculating the major tick count will try to match the desired number if possible. In determining the actual major tick count, only values that result in step values that are divisible by the constants listed below are allowed (1.0, 2.0, 2.5, 5.0, 7.5).

Max: Set the maximum number of major ticks when AutoScale is enabled.

5.2.8 Plot control:



Major marks:

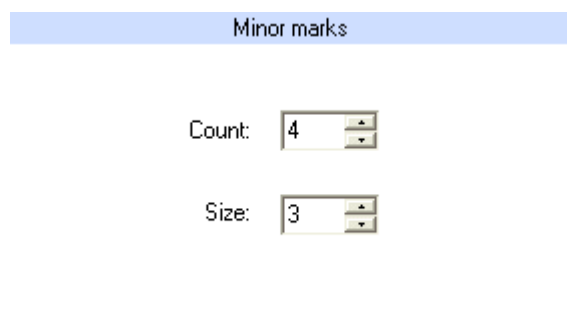
Sets the number of x-axis major ticks shown. The major tick mark count should be set to one more than the desired number of major sections. For example, if you want 5 major sections, set major tick mark count to 6.
Default: 11.

Specifies the x-axis major ticks length.
Default: 7.

Minor marks:

Sets the number of x-axis minor ticks shown. The minor tick mark count should be set to one less than the desired number of minor sections. For example, if you want 5 minor sections, set minor tick mark count to 4.
Default: 4.

Specifies the x-axis minor ticks length.
Default: 3.



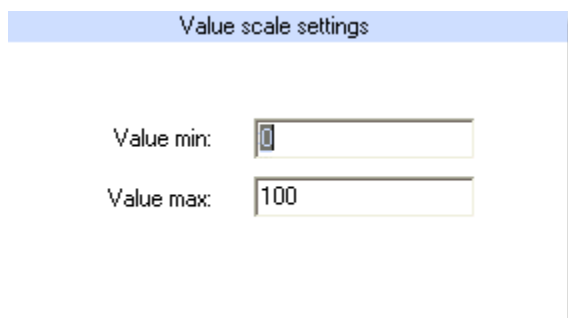
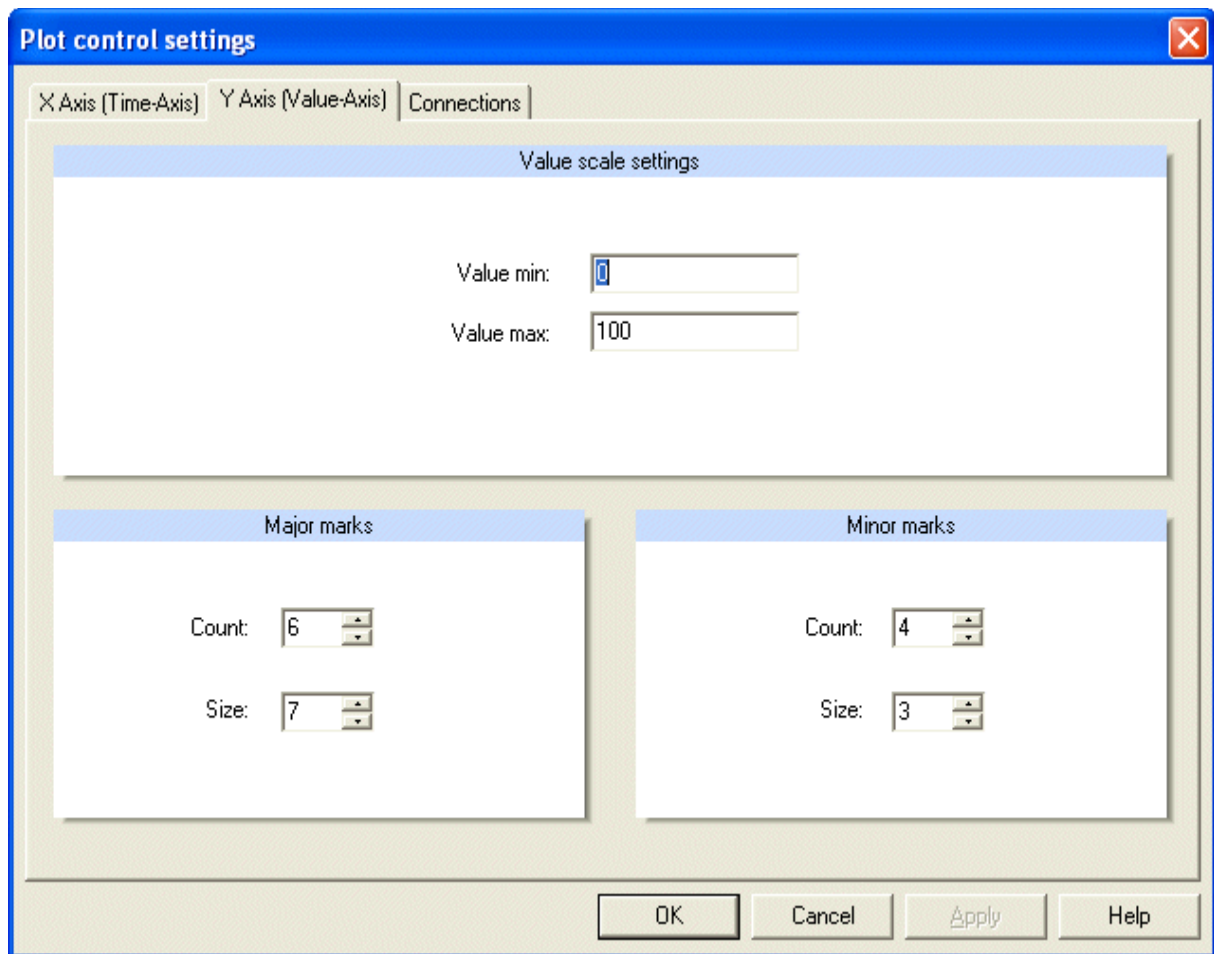
Date and time formats

Time scale settings

Time format:

dd	Day with leading zero	hh	Hour with leading zero	zzz	Milliseconds
d	Day without leading zero	h	Hour without leading zero	c	Date and time in short format
mm	Month with leading zero	nn	Minute with leading zero	t	Time in short format
m	Month without leading zero	n	Minute without leading zero	tt	Time in long format
yy	Year with two digits	ss	Second with leading zero	/	Separator in date display
yyyy	Year with four digits	ss	Second without leading zero	:	Separator in time display

Abbreviation	Description
c	Date and time in short format (0.0.00 0:0).
j	Day of year without leading zero (0 - 365).
d	Day of month without leading zero (1 - 31).
dd	Day of month with leading zero (01 - 31).
ddd	Day of week with abbreviated name (Sun - Sat).
dddd	Day of week with full name (Sunday - Saturday).
dddddd	Date in short format (0.0.00).
ddddddd	Date in long format (00.00.0000).
m	Month without leading zero (1 - 12).
mm	Month with leading zero (01 - 12).
mmm	Month with abbreviated name (Jan - Dec).
mmmm	Month with full name (January - December).
yy	Year with two digits (00 - 99).
yyyy	Year with four digits (0000 - 9999).
h	Hours without leading zero (0 - 23).
hh	Hours with leading zero (00 - 23).
n	Minutes without leading zero (0 - 59).
nn	Minutes with leading zero (00 - 59).
s	Seconds without leading zero (0 - 59).
ss	Seconds with leading zero (00 - 59).
z	Milliseconds without leading zero (0 - 999).
zzz	Milliseconds with leading zero (000 - 999).
t	Time without seconds (00:00).
tt	Time with seconds (00:00:00).
am/pm	12 hours time format with am (forenoon) / pm (afternoon).
a/p	12 hours time format with a (forenoon) / p (afternoon).
/	Separator used instead of "." in date display.
:	Separator used instead of ":" in time display.
'xx'/'"xx"	Characters in quotation marks are displayed as is.



Value scale settings:

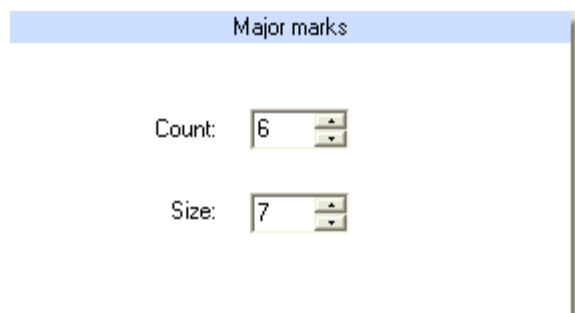
Sets the minimum display value of the Y-Axis. *Default: 0.*

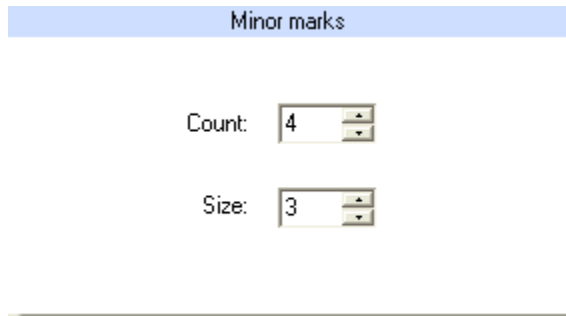
Sets the maximum display value of the Y-Axis. *Default: 100.*

Major marks:

Sets the number of y-axis major ticks shown. The major tick mark count should be set to one more than the desired number of major sections. For example, if you want 5 major sections, set major tick mark count to 6. *Default: 6.*

Specifies the y-axis major ticks length. *Default: 7.*



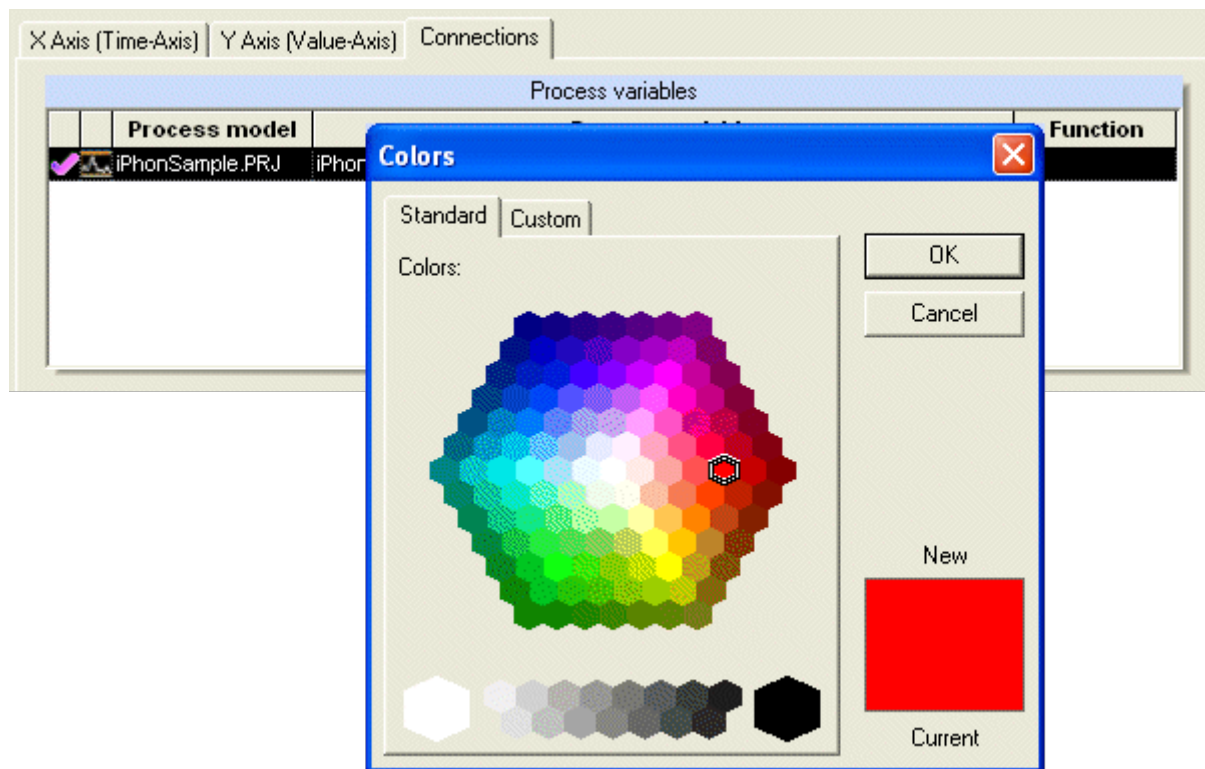


Minor marks:

Sets the number of y-axis minor ticks shown. The minor tick mark count should be set to one less than the desired number of minor sections. For example, if you want 5 minor sections, set minor tick mark count to 4. *Default: 4.*

Specifies the y-axis minor ticks length. *Default: 3.*

The **Connection** tab allows the selection of the data channel's line color: **Double click** the **Function** column with left mouse button and select the color from the color selection dialog.









Line color: Double click the column **Function**. The color selection dialog opens. Select the desired line color and click the **OK** button.

5.2.8.1 Plot control operation hints:



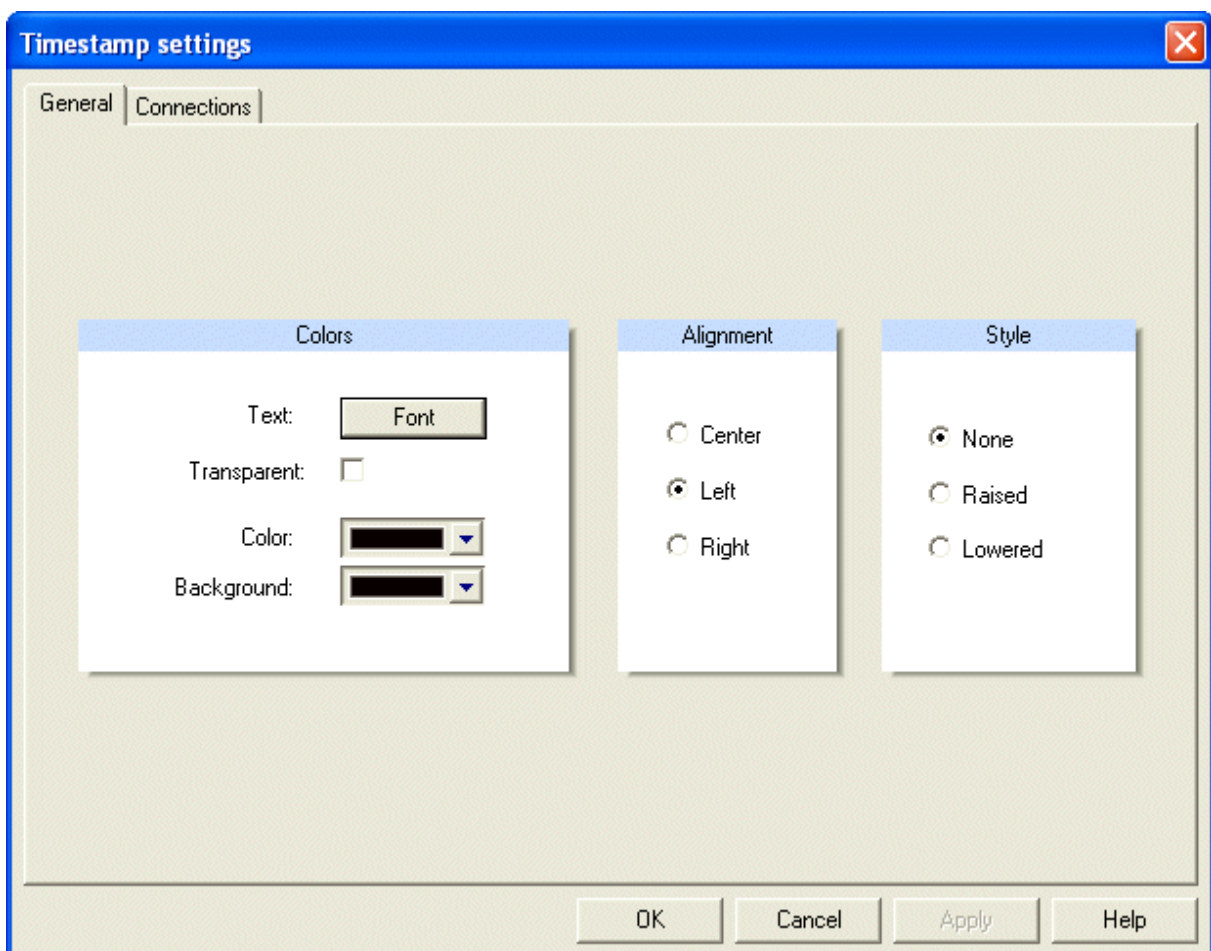
The plot control provides some features, which require more explanation.

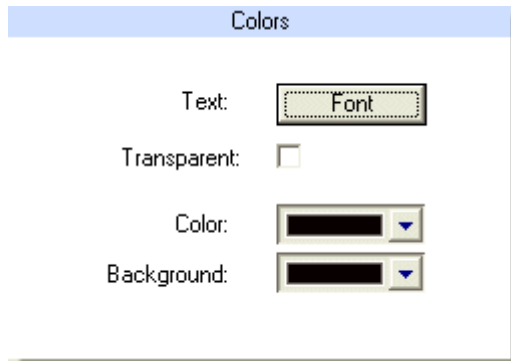
Plot	If button Plot is active, the plot will automatically scroll the time axis at the bottom, such that new values are always visible.
Scroll-X	When mode Scroll-X is active, you may click on a arbitrary point in the plot and move the mouse with mouse button still pressed: The plot's display will scroll to the left or to the right, according to the mouse movement. Alternatively, you may use keys   to achieve the same effect.
Scroll-Y	When mode Scroll-Y is active, you may click on a arbitrary point in the plot and move the mouse with mouse button still pressed: The plot's display will scroll up or down, according to the mouse movement. Alternatively, you may use keys   to achieve the same effect.
Scroll-XY	Mode Scroll-XY is a combination of modes Scroll-X and Scroll-Y .
Zoom-X	When mode Zoom-X is active, you may click on a arbitrary point in the plot and move the mouse with mouse button still pressed. The display will be scaled horizontally. Moving left will decrease the distance between individual values, showing more values. Moving right will increase the distance between individual values, showing less values.
Zoom-Y	When mode Zoom-Y is active, you may click on a arbitrary point in the plot and move the mouse with mouse button still pressed. The display will be scaled vertically. Moving up will decrease the vertical scaling, moving down will increase the vertical scaling.
Zoom-XY	Mode Zoom-XY is a combination of modes Zoom-X and Zoom-Y .

Cursor	<p>Mode Cursor In this mode a vertical bar will be displayed if you click on an arbitrary point in the plot control. Along with the vertical bar, the numeric values at the bar's position are displayed.</p> <p>Keyboard keys   can be used to move the vertical bar in the left or right direction. With keys PAGEUP and PAGEDOWN, you can jump to the leftmost or rightmost interval in the plot's visible area. Keys POS1 and END can be used to jump to the first respectively last value in the archive.</p>
Zoom-Box	<p>When mode Zoom-Box is active, you may use the mouse to define a rectangle, which will be enlarged. Click on an arbitrary point (which will be one corner of the rectangle) and release the point at the opposite corner of the rectangle. The plot will show an enlarged view of the rectangle centered in the middle of the plot control.</p>
Multiple lines	<p>The plot control may show lines for different process variables. The active line for the plot's mouse modes can be switched with the TAB key. The active line is always displayed emphasized.</p>
Line color	<p>The color of each line is defined in the visualization editor.</p>

5.2.9 Time stamp:

The time stamp gauge is used to show the time and date information for all incoming and outgoing values. The time stamp control can be used for all data types.





Colors:

Text font.

Specifies whether the background behind the control shows through. *Default:* Inactive.

Text color. *Default:* Black.

Background color. *Default:* Grey.

Alignment:

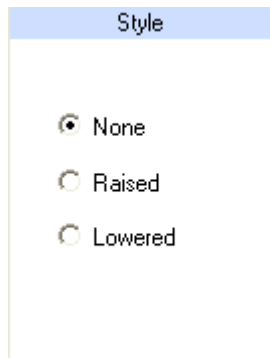
Set Alignment to specify how the text is aligned within the rectangle of the control:

Left: Text is left justified: Begins at the left edge of the control.

Center: Text is centered in the control.

Right: Text is right justified: Ends at the right edge of the control.

Default: Left.



Style:

Determines the outer border style of the control and specifies the three-dimensional beveled look.

Default: None.

5.3 Analog output

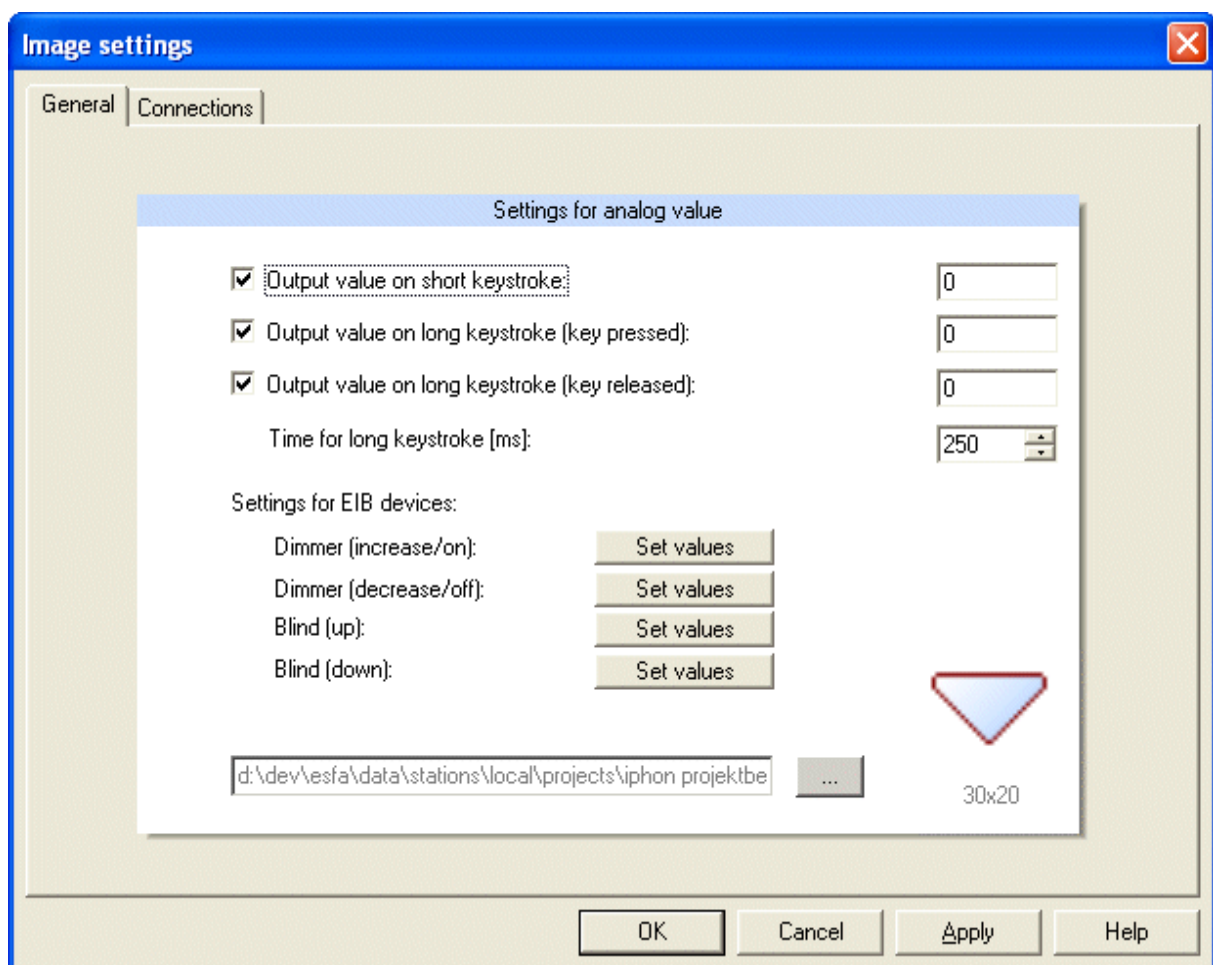
5.3.1 Image output:

The analog image output can be used to send an analog value to the process. Different analog values can be sent on clicks with the left mouse button. It is possible to specify a value to send on short click, long click and mouse button pressed, long click and mouse button released.

Depending on the value settings, it is possible to create special displays like an EIB dimmer switch or an EIB blind control: one image output for on/increase and one image output for off/decrease respectively up/step up and down/step down. The EIB specific value settings can be selected in the configuration dialog.

Animated GIF's can also be used to display the value. The animation will be played during the long mouse button click. This feature can be used to animate e.g. a dimmer.

The tab 'connections' allows for each process variable to specify a value and a corresponding user action to send the value (short click, long click and mouse button pressed, long click and mouse button released).



Send value on short click:	Value to send on short click with the left mouse button. <i>Default: 0.</i>
Send value on long click (button pressed):	Value to send on long mouse button click (button pressed). <i>Default: 0.</i>
Send value on long click (button released):	Value to send on long mouse button click (button released). <i>Default: 0.</i>
Time for long click [ms]:	Time for long mouse button click. <i>Default: 250 ms.</i>
Dimmer (increase/on):	Set values: Enters the EIB default values.
Dimmer (decrease/off):	Set values: Enters the EIB default values.
Blind (up):	Set values: Enters the EIB default values.
Blind (down):	Set values: Enters the EIB default values.

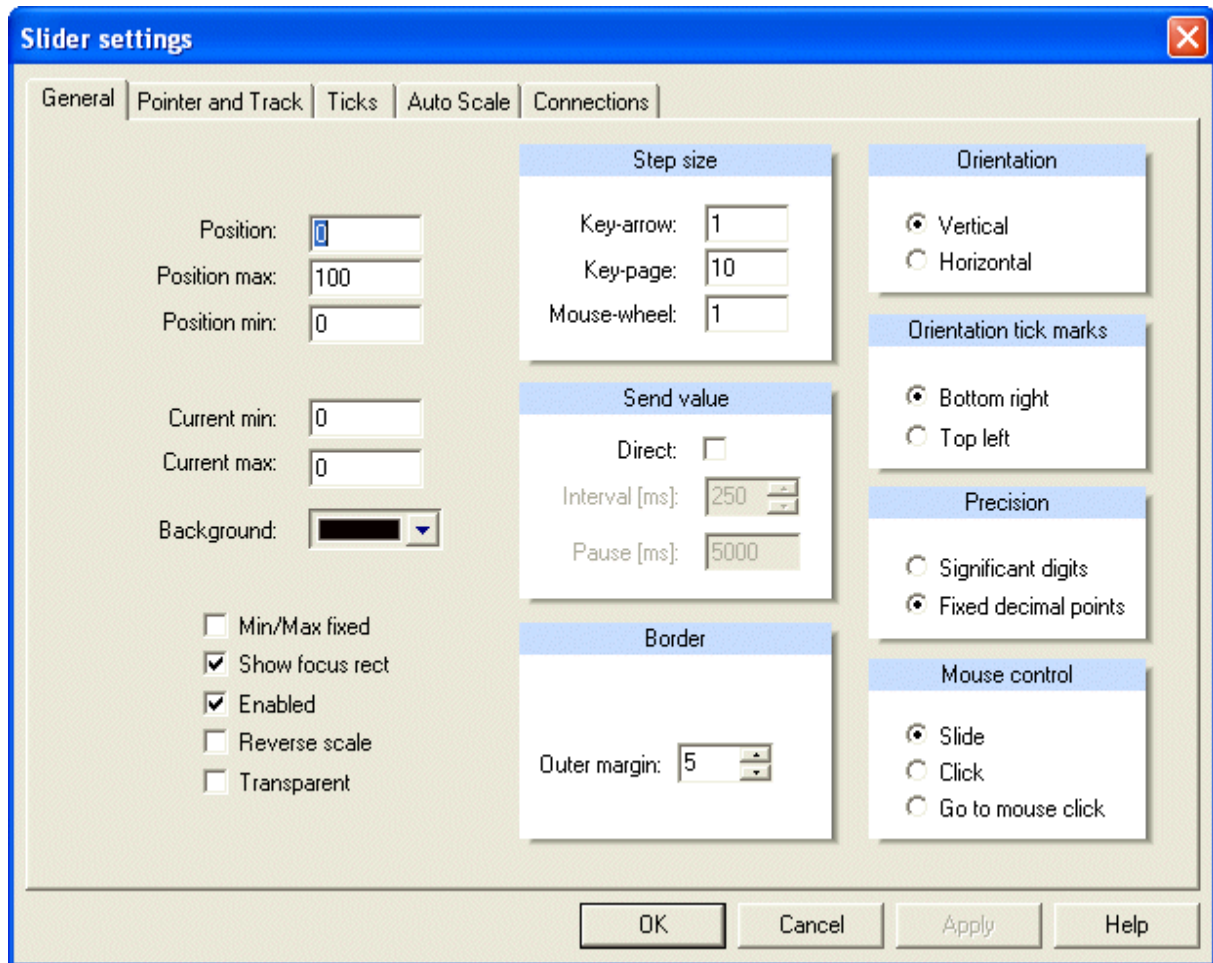
Currently the following file formats are supported:

- 🟡 Windows oder OS/2 Bitmap (*.bmp)
- 🟡 CompuServe Graphics Interchange (*.gif)
- 🟡 JPEG (*.jpg)
- 🟡 WINDOWS Meta Files (*.wmf)
- 🟡 Enhanced Meta Files (*.emf)
- 🟡 Portable Network Graphics (*.png)
- 🟡 Tagged Image File Format (*.tif)

Tip:

GIF- and PNG – images may comprise of transparent areas (independently of the opacity controlled in this dialog), for example a light bulb with transparent pixels outside of the bulb's outline. Then this transparency will be retained in the worksheet. However, animated images will be displayed in the current version.

5.3.2 Slider:



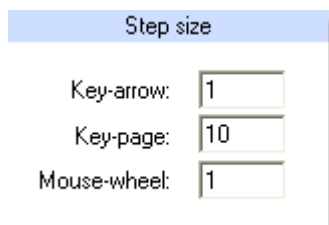
- Position:** Sets the current value. Can be used to provide a value to the control for a preview. The position must be a value between 'Position min' and 'Position max'. *Default:* 0.
- Position max:** Upper limit of the range of values. *Default:* 100.
- Position min:** Lower limit of the range of values. *Default:* 0.
- Current min:** Sets the lowest position value since the last reset. *Default:* 0.
- Current max:** Sets the highest position value since the last reset. *Default:* 0.
- Background:** Selects the background color. *Default:* Black.
- Min/Max fixed:** Specifies whether the 'min/max' pointers are fixed or track the range of the position. *Default:* Inactive.
- Show focus rect:** Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.
- Enabled:** Enables or disables the slider. *Default:* Enabled.

Reverse scale: Specifies whether scale is drawn reverse:

- Reverse scale: FALSE, Orientation: Vertical: The scale is drawn from bottom to top, starting with position min.
- Reverse scale: FALSE, Orientation: Horizontal: The scale is drawn from left to right starting with position min.
- Reverse scale: TRUE, Orientation: Vertical: The scale is drawn from top to bottom, starting with position min.
- Reverse scale: TRUE, Orientation: Horizontal: The scale is drawn from right to left starting with position min.

Transparent: Specifies whether the background behind the control shows through. *Default:* Inactive.

Step size: Specifies the amount position changes when the user presses the arrow keys.



Arrow key step size. *Default:* 1.

PageUp/PageDown key step size. *Default:* 10.

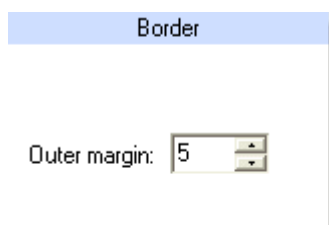
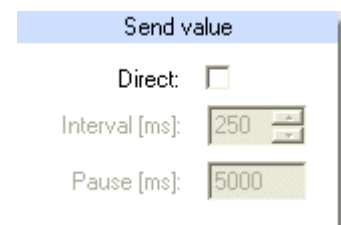
Mouse wheel step size. *Default:* 1.

Send value:

Specifies whether the position value is sent while moving the pointer (direct) or after release the pointer. *Default:* Not direct.

Interval: Specifies the send interval for direct send.

Pause: Specifies the delay after which the incoming position value acknowledges will change the pointer.



Border:

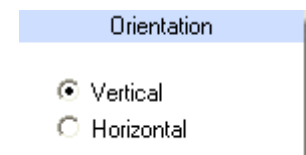
Sets the margin at the ends of the control. Depending on the tick label font size, the value of 'Outer margin' will have to be increased to prevent clipping of the text. The 'Outer margin' value is in pixels.

Default: 5.

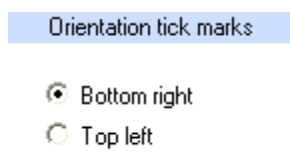
Orientation:

Specifies whether the control is horizontal or vertical.

Default: Vertical.



Orientation Tick Marks: Specifies which side of the control 'Tick Marks' are drawn.



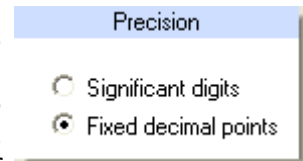
Bottom Right: Tick marks are on the bottom or right of the control, depending of the value of Orientation.

Top Left: Tick marks are on the top or left of the control, depending of the value of Orientation.

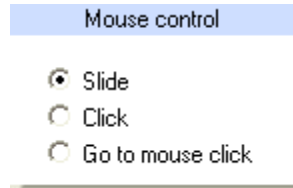
Default: Bottom Right.

Precision:

Specifies how the precision property is interpreted when formatting major tick labels. When precision style is set to 'Significant Digits', the number of digits to the right of the decimal point is automatically calculated to ensure that the span of the values will show enough significant digits. When precision style is set to 'Fixed Decimal Points', the number of digits to the right of the decimal point is fixed. *Default:* Fixed Decimal Points.



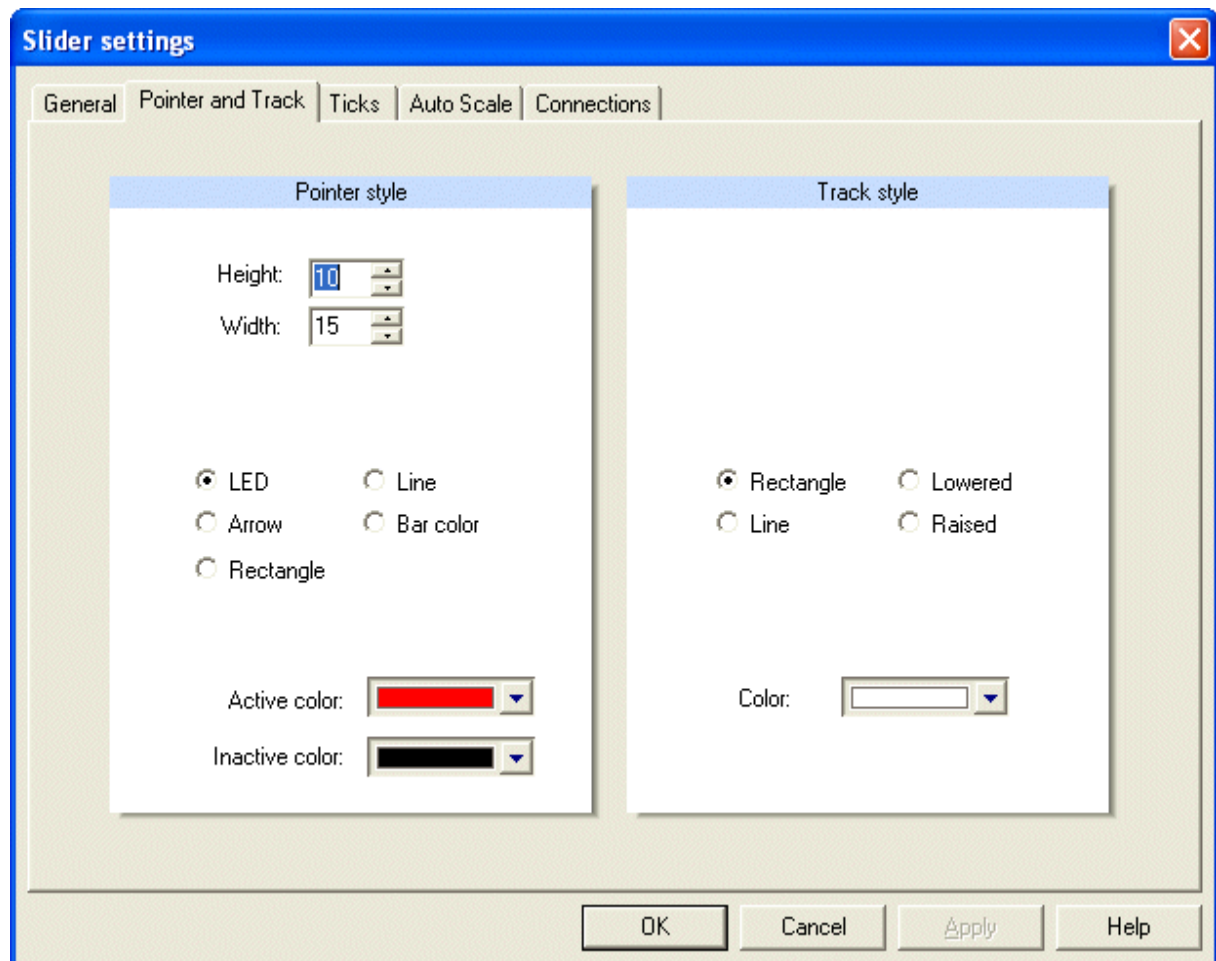
Mouse control: Sets the mouse control style:



Slide: The user must slide the mouse to move the pointer.

Click: The user must click on the pointer to move with the mouse or click above or below the pointer to move by the key page step size.

Goto: The pointer moves to the mouse position. *Default:* Slide.



Pointer style: Specifies the height of the pointer. *Default:* 10.
Specifies the width of the pointer. *Default:* 15.

Specifies the pointer style: 3D rectangular LED, 3D bar with a thin light indicator, Standard 3D pointer, Colored 3D bar, Standard 3D bar. *Default:* LED.

Specifies the indicator active color. Active is when the mouse is down. To disable the active/inactive indicator color feature, set the active color and inactive color properties to the same color. *Default:* Red.

Specifies the indicator inactive color. *Default:* Black.

Track style: Specifies the track style:

Rectangle: 3D sunken rectangle.

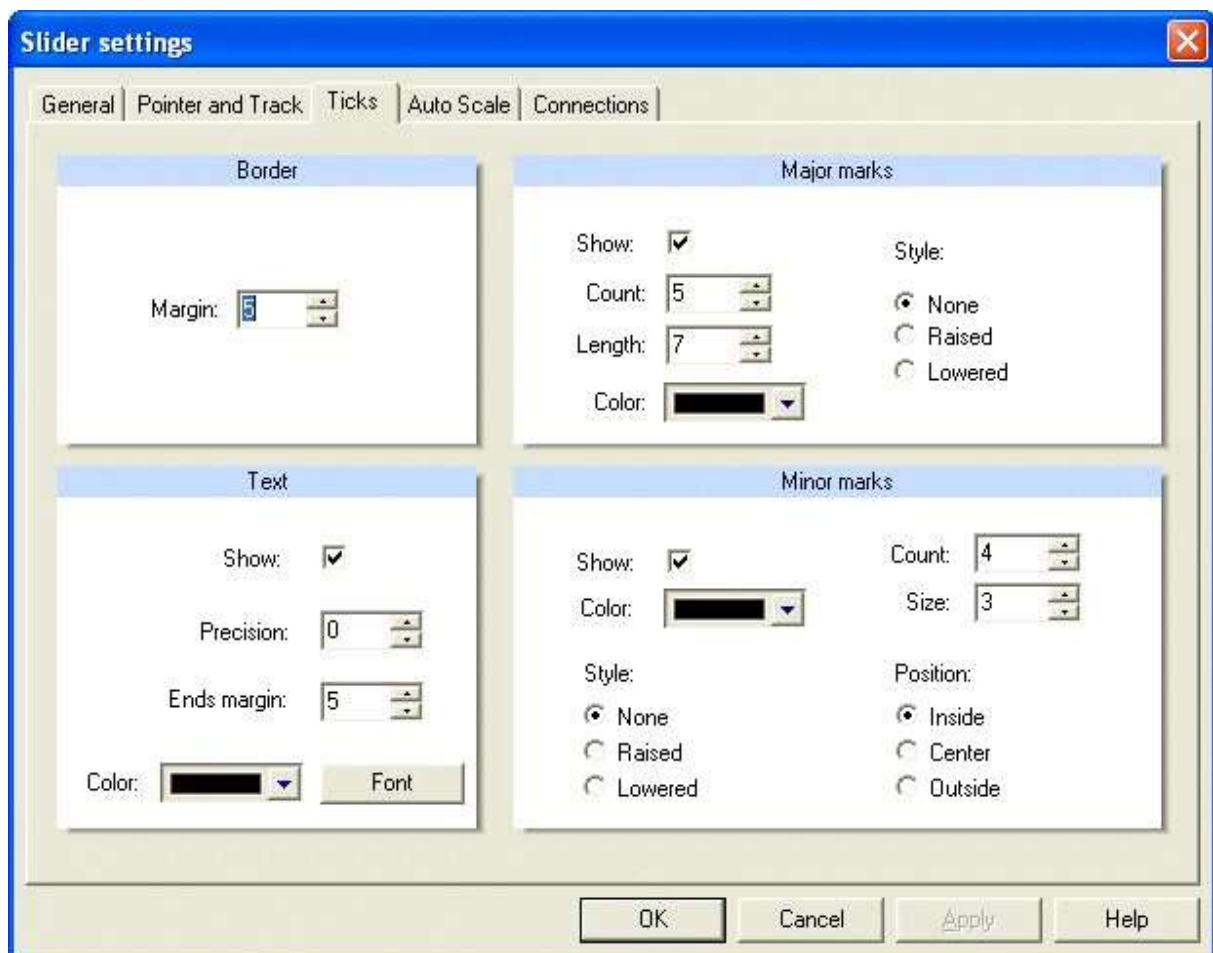
Line: 3D lowered beveled line using TrackColor.

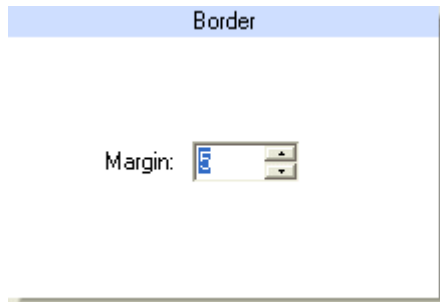
Lowered: 3D lowered beveled line using standard Windows colors.

Raised: 3D raised beveled line using standard Windows colors.

Default: Rectangle.

Specifies the color of the track. *Default:* White.





Border:

Specifies the margin between the ticks and the pointer. *Default: 5.*

Text (tick labels):

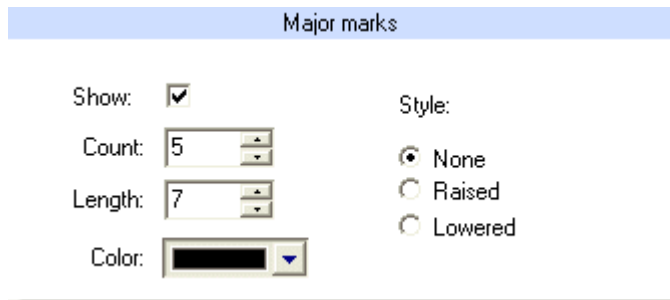
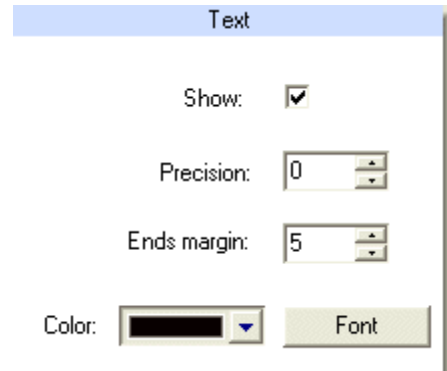
Specifies whether tick labels are shown. *Default: Active.*

Specifies the precision of the tick labels. *Default: 0.*

Specifies the margin between the tick labels and major ticks. *Default: 5.*

Specifies the tick label color. *Default: Black.*

Specifies the tick label font.



Major marks:

Specifies whether major ticks are shown.

Specifies the number of major ticks shown.

Specifies the length of major ticks shown.

Specifies the major tick color.

Determines the major tick bevel style (flat, raised border, lowered border).

Minor marks:

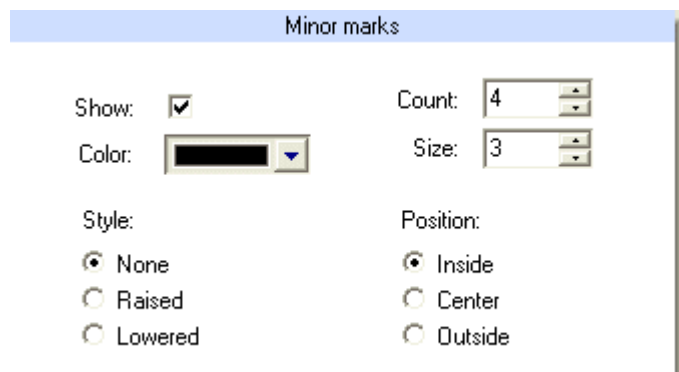
Specifies whether minor ticks are shown.

Specifies the number of minor ticks shown.

Specifies the minor tick color.

Specifies the length of minor ticks shown.

Style: Determines the minor tick bevel style (flat, raised border, lowered border).



Determines the minor ticks' alignment relative to the major ticks:

Inside: Aligned to the edge of the major ticks towards the pointer.

Center: Aligned center to the major ticks.

Outside: Aligned to the edge of the major ticks away from the pointer.

Auto scale:

Enabled

Style

Auto min/max

Fixed min/max

Marks

Desired ticks: 5

Max. ticks: 6

Enabled: Determines whether the min position, the max position and/or the major tick count is automatically adjusted to display the scale in a more human readable form.

Style: Specifies the style for adjusting the min position and the max position when auto scale is enabled.

Auto min/max: Min position and max position are adjusted so that the scale starts and stops on a major tick.

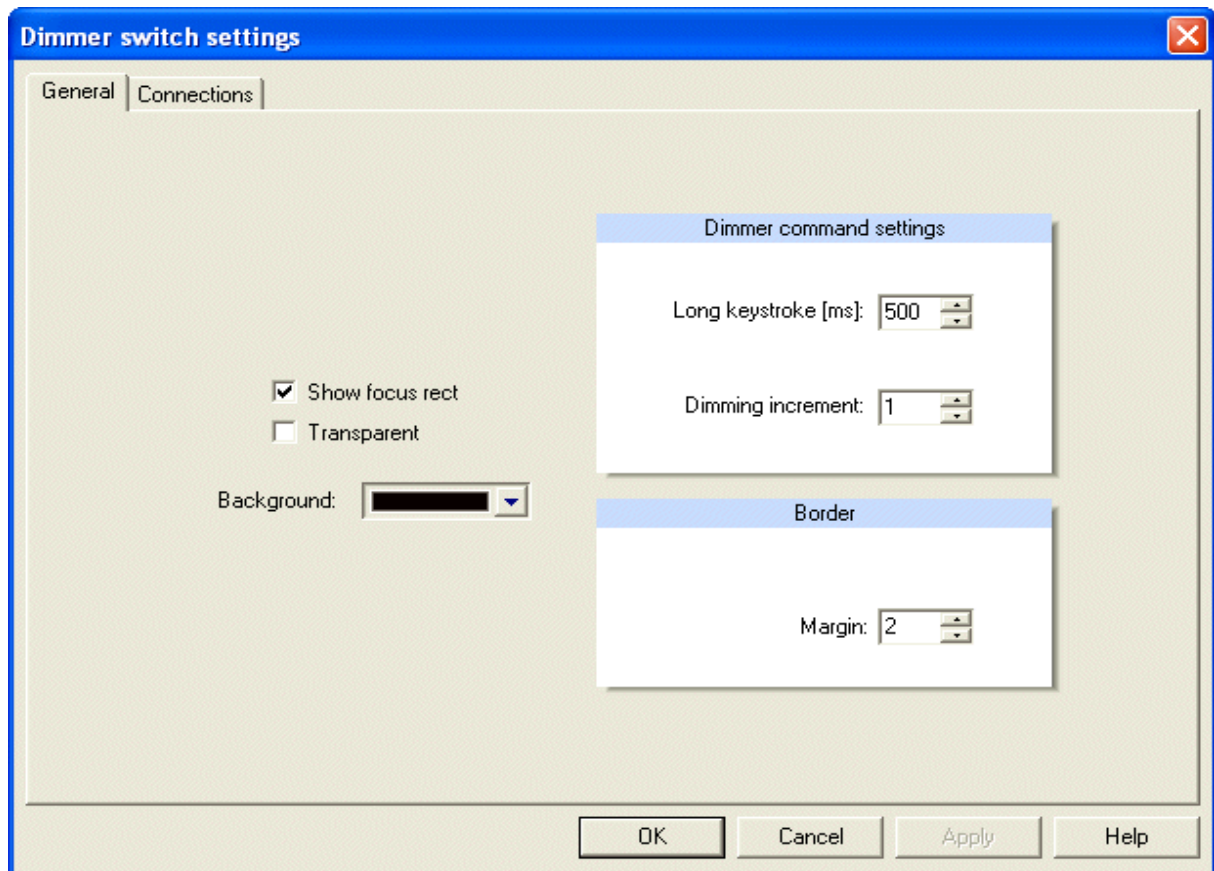
Fixed min/max: Min position and max position remain fixed and the scale may not start or stop on a major tick

Marks:

Desired ticks: Set the desired major tick count when auto scale is enabled. The actual major tick count may be greater or less than the desired amount. The algorithm for calculating the major tick count will try to match the desired number if possible. In determining the actual major tick count, only values that result in step values that are divisible by the constants listed below are allowed (1.0, 2.0, 2.5, 5.0, 7.5).

Max ticks: Set the maximum number of major ticks when AutoScale is enabled.

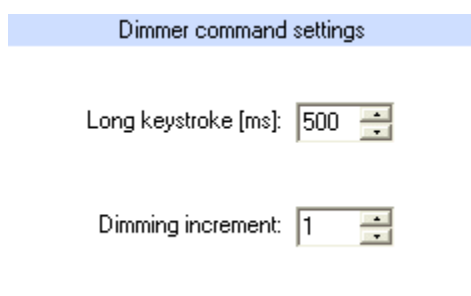
5.3.3 Dimmer switch:



Show focus rect: Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.

Transparent: Specifies whether the background behind the control shows through. *Default:* Inactive.

Background: Specifies whether the background behind the control shows through. *Default:* Inactive.



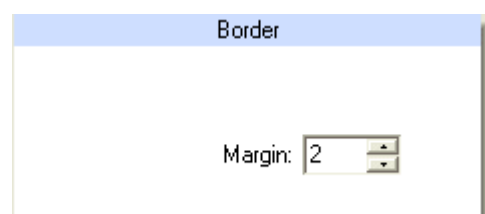
Dimmer command settings:

Long keystroke[ms], time used to distinguish between a short and long keystroke or mouse click. *Default:* 500.

Dimming increment: Specifies the dimming increment which is used to dim the device up/down while the key is pressed (in the range from 1 to 7). *Default:* 1.

Margin:

Sets the margin between the edge of the control and the edge of the switch. The space between the edge of the control and the edge of the switch will be filled with the background color. *Default:* 2.

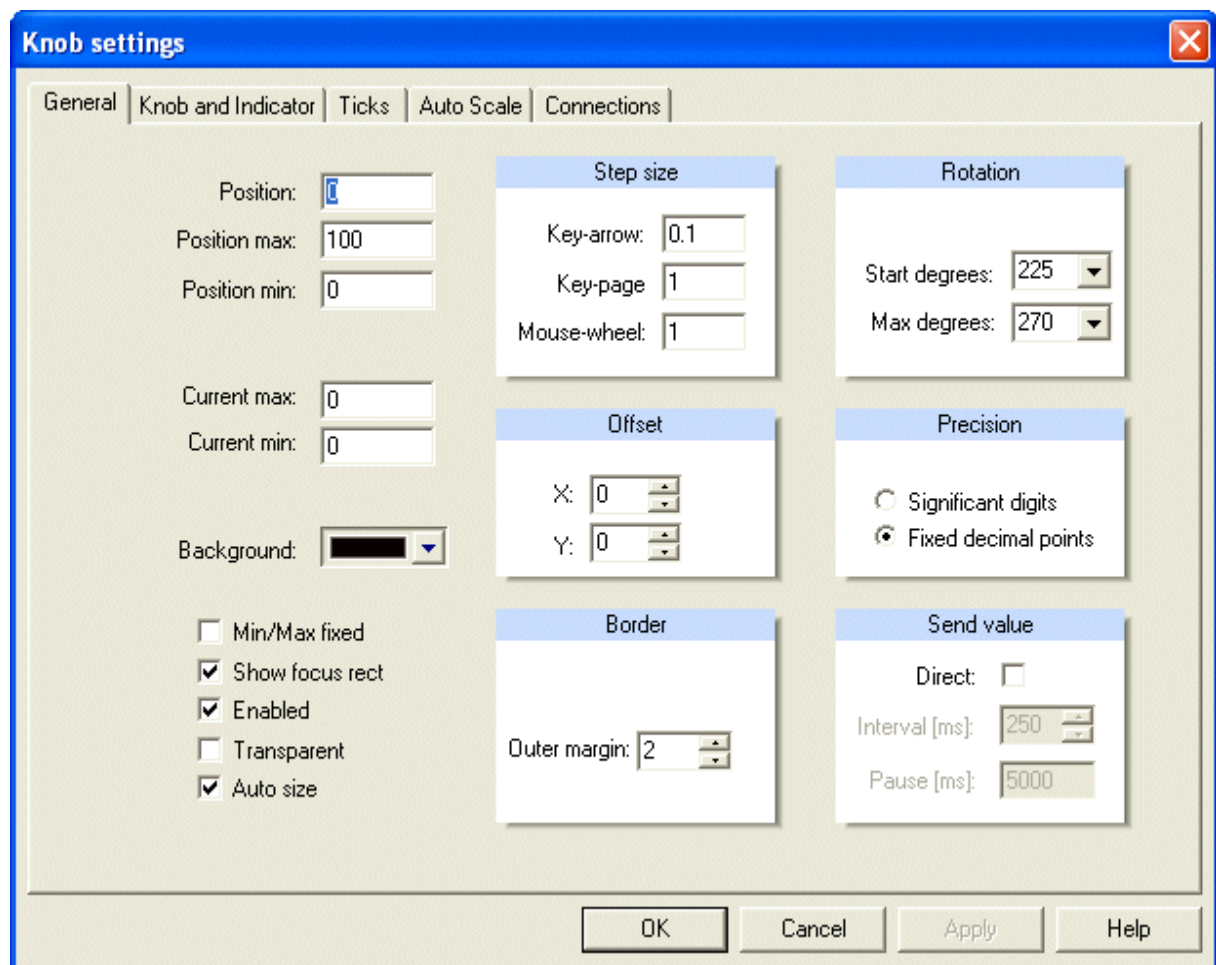


If a process variable is assigned to the control, the function of the process variable **MUST BE** specified using the **Connections** – Tab.

Function:

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; padding: 2px;">Function</th> </tr> <tr> <td style="padding: 2px;">On/Off ▾</td> </tr> <tr> <td style="padding: 2px;">On/Off</td> </tr> <tr style="background-color: #0056b3; color: white;"> <td style="padding: 2px;">Dimming</td> </tr> </table>	Function	On/Off ▾	On/Off	Dimming	<p>On/Off: Process variable which can be used to switch the dimmer on/off (on a short keystroke or mouse click).</p> <p>Dimming: Process variable which can be used to dim the lights up/down (while a long keystroke or mouse click).</p>
Function					
On/Off ▾					
On/Off					
Dimming					

5.3.4 Knob:



- Position:** Sets the current value. Can be used to provide a value to the control for a preview. The position must be a value between 'Position min' and 'Position max'. *Default: 0.*
- Position max:** Upper limit of the range of values. *Default: 100.*
- Position min:** Lower limit of the range of values. *Default: 0.*
- Current min:** Sets the lowest position value since the last reset. *Default: 0.*
- Current max:** Sets the highest position value since the last reset. *Default: 0.*
- Background:** Selects the background color. *Default: Black.*

- Min/Max fixed:** Specifies whether the 'min/max' pointers are fixed or track the range of the position. *Default:* Inactive.
- Show focus rect:** Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.
- Enabled:** Enables or disables the control. *Default:* Enable.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* Inactive.
- Auto size:** Specifies whether the radius of the knob is automatically adjusted. *Default:* Active.

Step size: Specifies the amount position changes when the user presses the arrow keys.

- Arrow key step size. *Default:* 0.1.
- PageUp/PageDown key step size. *Default:* 10.
- Mouse wheel step size. *Default:* 1.

Offset: Use the offset values to shift the drawing within the bounds of the control.

- X: Positive values to move right and negative values to move left. *Default:* 0.
- Y: Positive values to move down and negative values to move up. *Default:* 0.

- Border:** Sets the margin around the knob when auto size is enabled. When auto size is disabled, this property has no effect. *Default:* 2.

Rotation:

- Sets the starting degrees at which the knob starts it clockwise rotation. *Default:* 225.
- Sets the number of degrees the knob is allowed to rotate. For multi-turn knobs, set the max degrees value to multiples of 360 degrees. *Default:* 270.

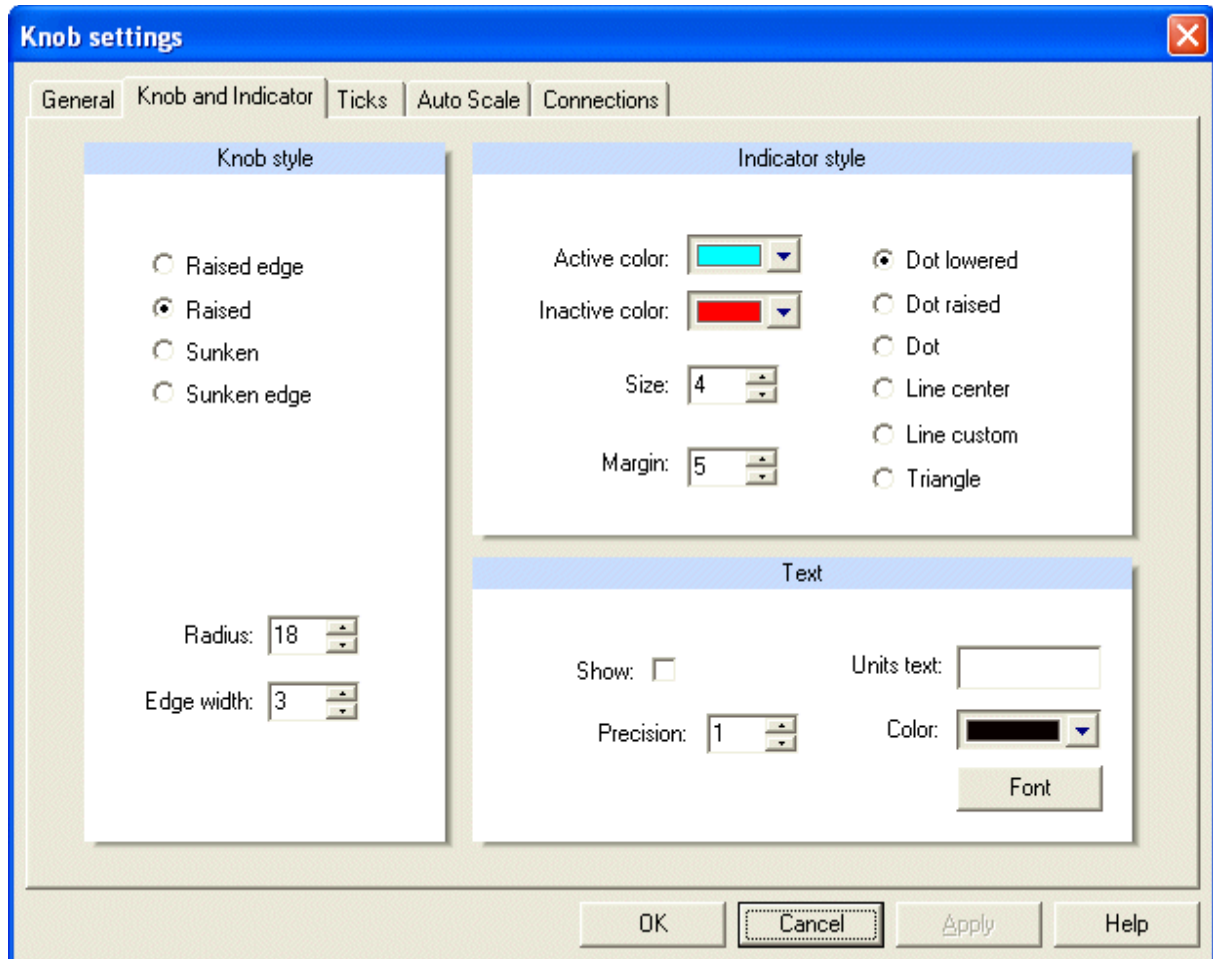
- Precision:** Specifies how the precision property is interpreted when formatting major tick labels. When precision style is set to 'Significant Digits', the number of digits to the right of the decimal point is automatically calculated to ensure that the span of the values will show enough significant digits. When precision style is set to 'Fixed Decimal Points', the number of digits to the right of the decimal point is fixed. *Default:* Fixed Decimal Points.

Send value: Specifies whether the value is sent while turning the knob (direct) or after release the knob. *Default:* Not direct.

Interval: Specifies the send interval for direct send.

Pause: Specifies the delay after which the incoming value acknowledges will change the knob position.

Send value	
Direct:	<input type="checkbox"/>
Interval [ms]:	<input type="text" value="250"/>
Pause [ms]:	<input type="text" value="5000"/>



The image shows a 'Knob settings' dialog box with a blue title bar and a close button. It has five tabs: 'General', 'Knob and Indicator', 'Ticks', 'Auto Scale', and 'Connections'. The 'Knob and Indicator' tab is selected. The dialog is divided into three main sections: 'Knob style', 'Indicator style', and 'Text'.
- **Knob style:** Contains four radio buttons: 'Raised edge', 'Raised' (selected), 'Sunken', and 'Sunken edge'. Below these are two spinners: 'Radius' set to 18 and 'Edge width' set to 3.
- **Indicator style:** Contains two color pickers: 'Active color' (cyan) and 'Inactive color' (red). Below are two spinners: 'Size' set to 4 and 'Margin' set to 5. To the right are five radio buttons: 'Dot lowered' (selected), 'Dot raised', 'Dot', 'Line center', and 'Line custom'. At the bottom right of this section is a 'Triangle' radio button.
- **Text:** Contains a 'Show' checkbox (unchecked), a 'Precision' spinner set to 1, a 'Units text' text box, and a 'Color' color picker (black). A 'Font' button is located below the color picker.
At the bottom of the dialog are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

Knob style

Raised edge
 Raised
 Sunken
 Sunken edge

Radius:

Edge width:

Knob style: Sets the knob style:

3D bevel raised style with an edge,
 3D bevel raised style,
 3D bevel sunken style,
 3D bevel sunken style with an edge.

Default: 3D bevel raised style.

Specifies the radius of the knob. *Default:* 18.

Specifies the width of the knob edge. *Default:* 3.

Indicator style:

Specifies the active color.
 Active is when the mouse is down.
Default: Light blue.

Specifies the inactive color.
Default: Red.

Specifies the size of the indicator.
Default: 4.

Specifies the margin between the indicator and the edge of the knob.
Default: 5.

Specifies the style of the Indicator.
Default: Dot lowered.

Indicator style

Active color:

Inactive color:

Size:

Margin:

Dot lowered
 Dot raised
 Dot
 Line center
 Line custom
 Triangle

Text: The position display text is the position value formatted with the precision specifier and the display units appended to the end.

Text

Show:

Precision:

Units text:

Color:

Font

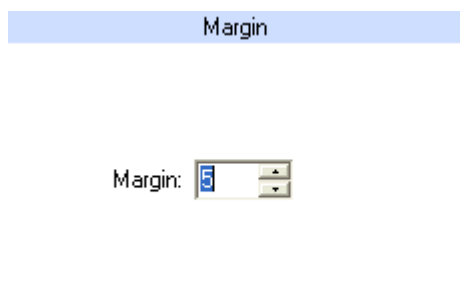
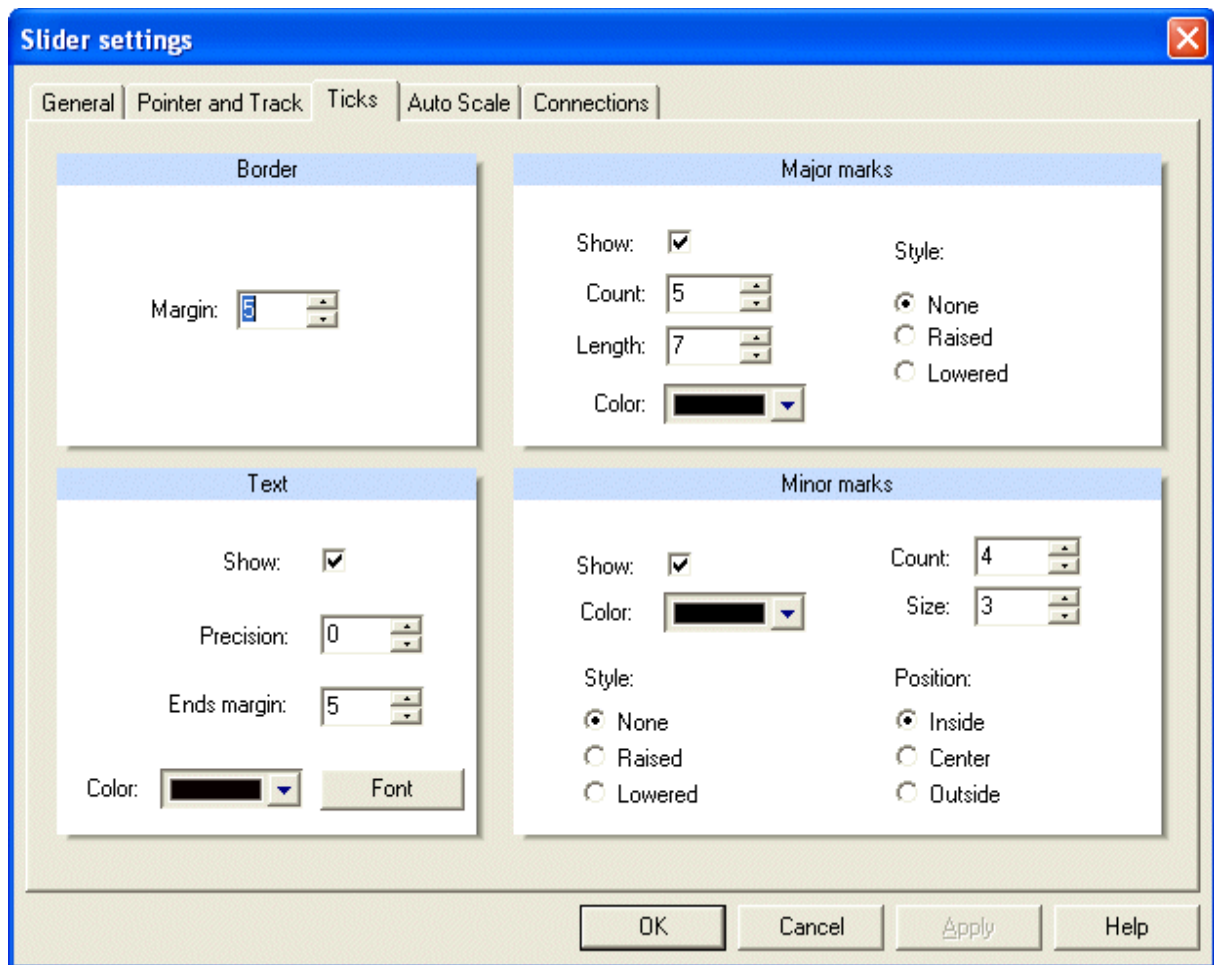
Units text: Unit which is appended to the value. To create spacing between the formatted value and the units text, add desired spaces to the beginning of the units text.

Color: Position value text color.
Default: Black.

Font: Position value text font.

Show: Specifies whether the position display text is shown in the center of the knob.
Default: Inactive.

Precision: Determines the precision specifier for formatting the value shown in the center of the knob. *Default:* 1.



Margin:

Specifies the margin between the ticks and the knob.
Default: 5.

Text (tick labels):

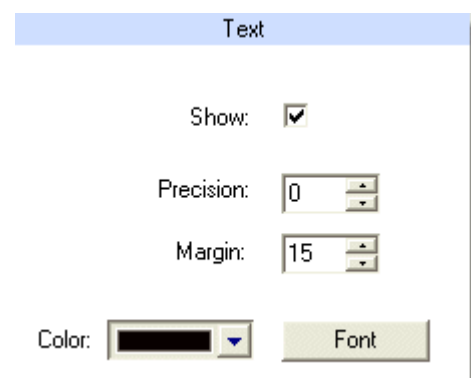
Specifies whether tick labels are shown.
Default: Active.

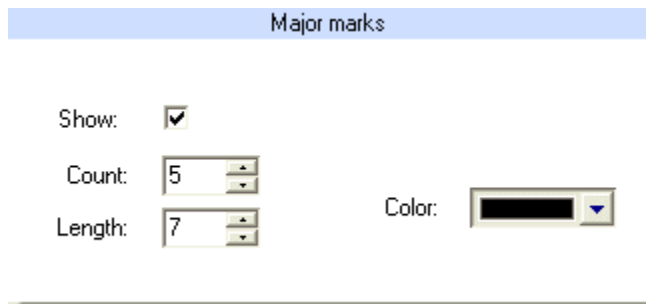
Specifies the precision of the tick labels. *Default:* 0.

Specifies the margin between the tick labels and major ticks. *Default:* 5.

Specifies the tick label color. *Default:* Black.

Specifies the tick label font.





Major Marks:

Specifies whether major ticks are shown.

Specifies the number of major ticks.

Specifies the length of major ticks.

Specifies the major tick color.

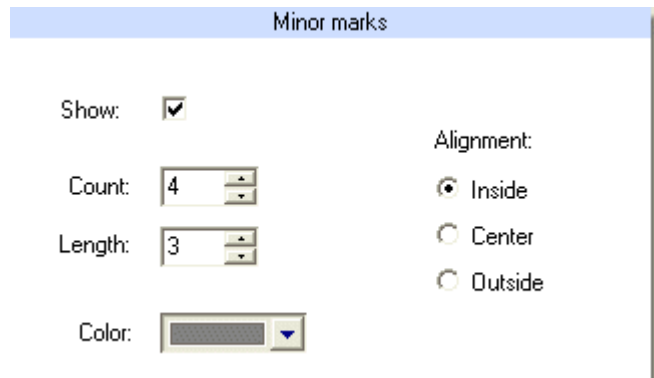
Minor marks: Specifies whether minor ticks are shown.

Specifies the number of minor ticks.

Specifies the length of minor ticks.

Specifies the minor tick color.

Alignment: Determines the minor ticks' alignment relative to the major ticks:



Inside: Aligned to the edge of the major ticks towards the pointer.

Center: Aligned center to the major ticks.

Outside: Aligned to the edge of the major ticks away from the pointer.

Auto scale:



Enabled: Determines whether the min position, the max position and/or the major tick count is automatically adjusted to display the scale in a more human readable form.

Style: Specifies the style for adjusting the min position and the max position when auto scale is enabled.

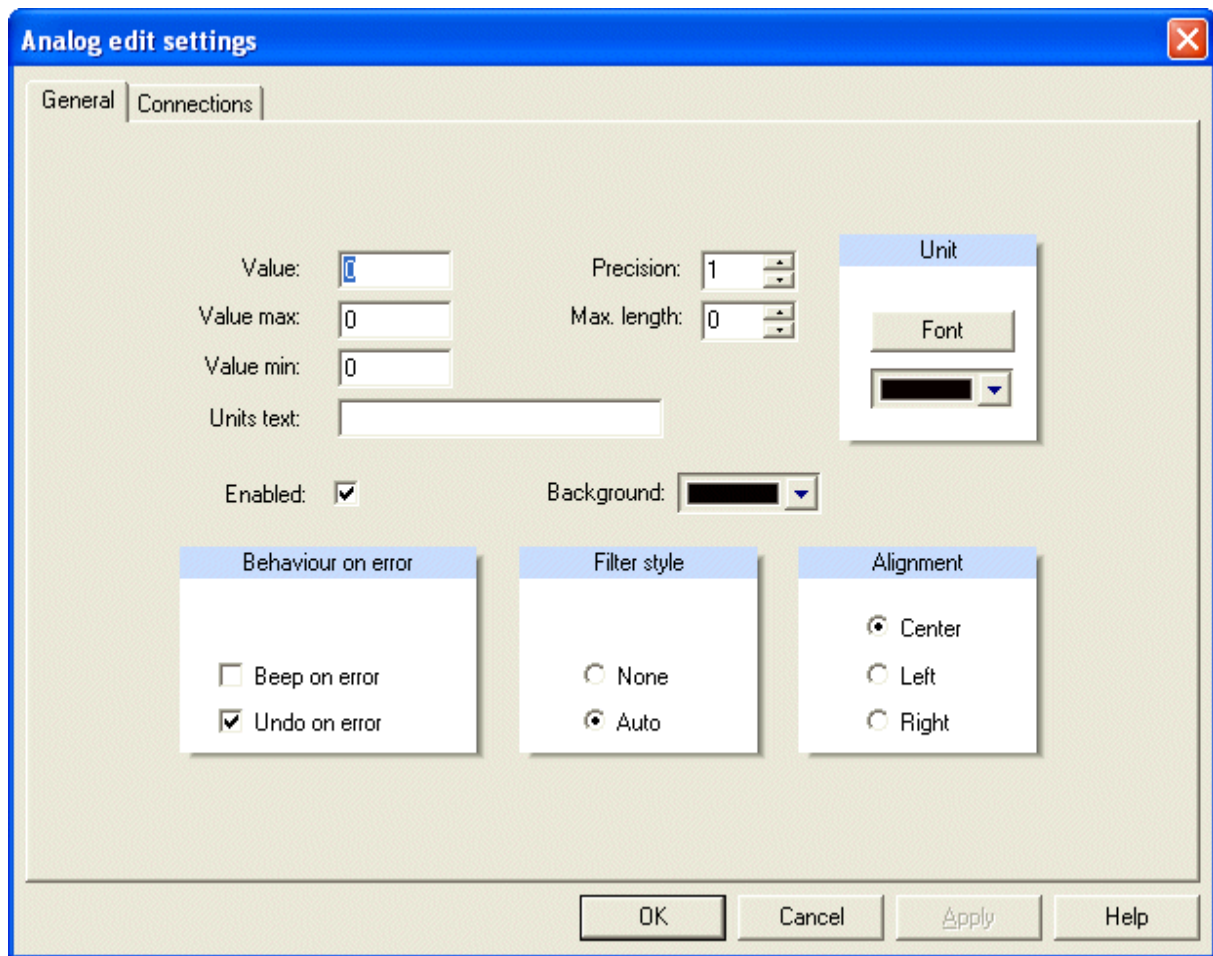
Auto min/max: Min position and max position are adjusted so that the scale starts and stops on a major tick.

Fixed min/max: Min position and max position remain fixed and the scale may not start or stop on a major tick

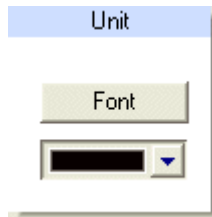
Marks: Desired ticks: Set the desired major tick count when auto scale is enabled. The actual major tick count may be greater or less than the desired amount. The algorithm for calculating the major tick count will try to match the desired number if possible. In determining the actual major tick count, only values that result in step values that are divisible by the constants listed below are allowed (1.0, 2.0, 2.5, 5.0, 7.5).

Max. ticks: Set the maximum number of major ticks when AutoScale is enabled.

5.3.5 14.2 Analog edit:



- Value:** Sets the current value. Can be used to provide a value to the control for a preview. The position must be a value between 'Position min' and 'Position max'. *Default:* 0.
- Value max:** Upper limit of the range of values. *Default:* 100.
- Value min:** Lower limit of the range of values. *Default:* 0.
- Units text:** The text string appended to the end of the formatted value. The displayed value is the value formatted with the precision specifier and the units text appended to the end. To create spacing between the formatted value and the units text, add desired spaces to the beginning of the text.
- Enabled:** Enables or disables the control. *Default:* Enable.
- Precision:** Determines the precision specifier for formatting the text display. *Default:* 1.
- Max. length:** Specifies the maximum text length that can be input into the control (including the unit text !). *Default:* 0.
- Background:** Selects the background color.



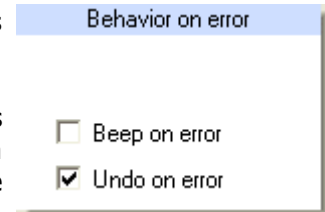
Unit:

Sets the text font.

Sets the text color.

Behavior on error: Specifies whether an audible beep occurs when there is an error. *Default:* Inactive.

Specifies whether the current value is restored to the previous value if the current value has a conversion error. If 'undo on error' is set and the text entered by the user can not be converted to a floating-point number, then the previous valid value is restored. *Default:* Active.



Filter style: Specifies the type of key press filtering:

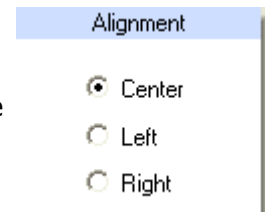
None: Allows all keys.

Auto: Allows 0-9 Keys, "-" Minus Key, Units text characters, and decimal point, if precision > 0.

Default: Auto.

Alignment:

Sets the alignment to specify how the text is aligned within the rectangle of the control. *Default:* Center.

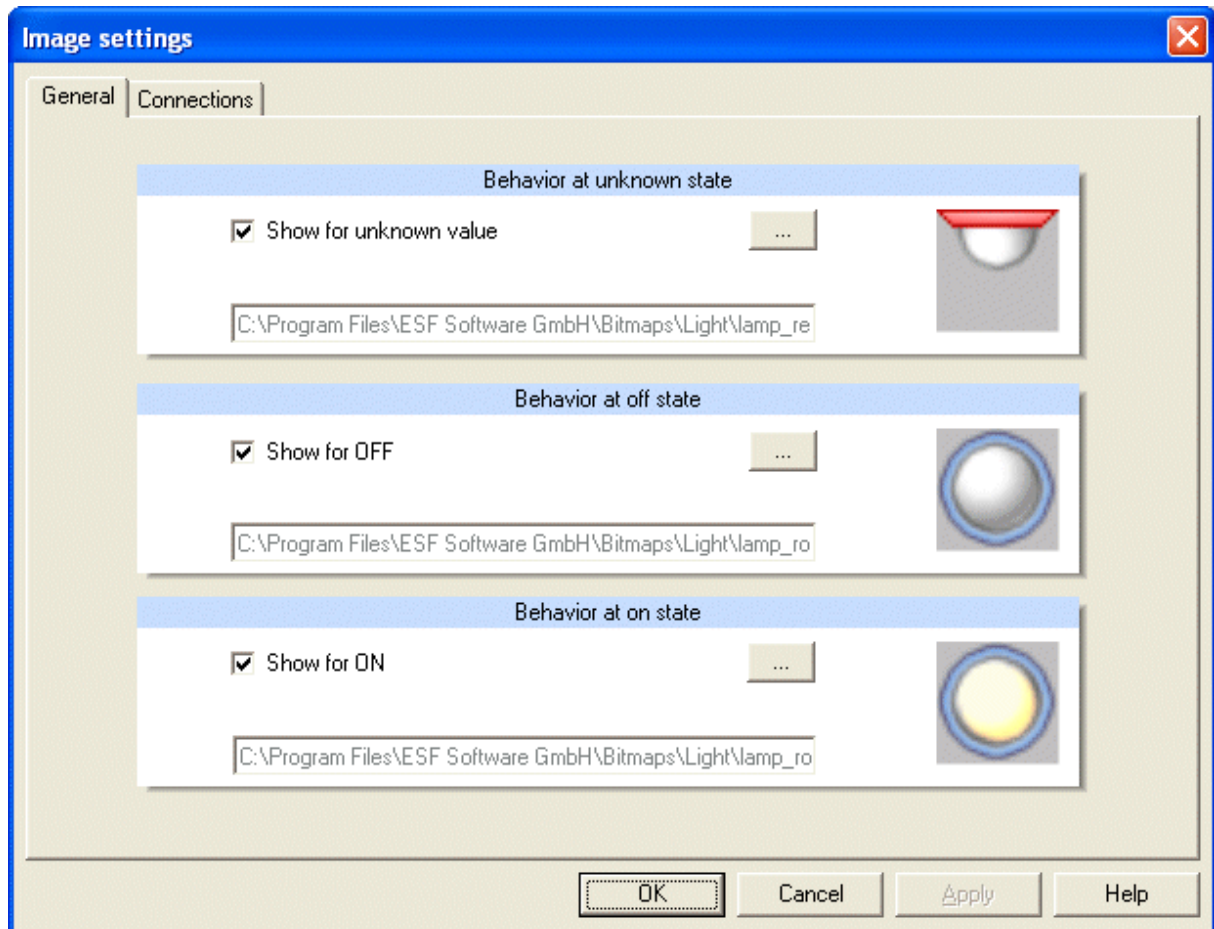


5.4 Binary input

5.4.1 Image input:

To display the states of a binary input, animated GIF's can also be used. If the state changes, the animation will be played as often as specified in the animated GIF file.

To get a permanently animated state display, the animated GIF must be configured to permanently play. To get an animated state switch, the animated GIF must be configured to play only once (e.g. to display a window, which opens in several steps) .



Display when value is unknown: Active: The selected image will be displayed.
Not active: No display.
Default: not active.

Display when value is „off“: Active: Display of selected image.
Not active: No display.
Default: not active.

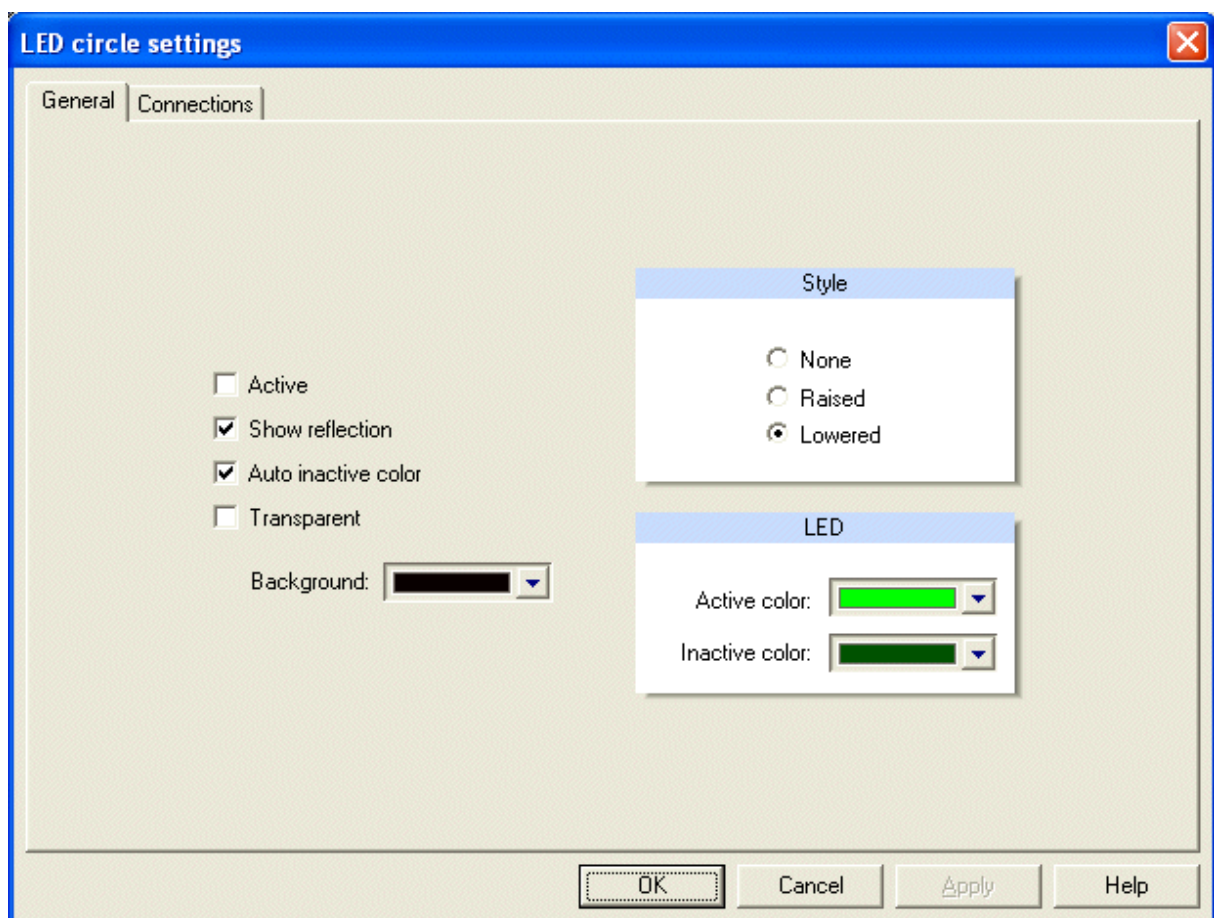
Display when value is „on“: Active: Display of selected image.
Not active: No display.
Default: not active.

Currently the following file formats are supported:

- Windows oder OS/2 Bitmap (*.bmp)
- CompuServe Graphics Interchange (*.gif)
- JPEG (*.jpg)
- WINDOWS Meta Files (*.wmf)
- Enhanced Meta Files (*.emf)
- Portable Network Graphics (*.png)
- Tagged Image File Format (*.tif)

Tip: GIF- und PNG – can comprise of transparent areas, this can be used to show non-rectangular symbols.

5.4.2  LED circle:



- Active:** Sets the current value. Can be used to provide a value (active/inactive) to the control for a preview. *Default:* Inactive.
- Show reflection:** Specifies whether the 3D reflection is shown in the upper-left corner of the indicator. *Default:* Active.
- Auto inactive color:** Determines whether the color of the LED when inactive (OFF) is calculated automatically. *Default:* Active.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* Inactive.
- Background:** Selects the background color. *Default:* Black.

Style

None

Raised

Lowered

Style: Determines the bevel style of the LED:

None: No border.

Raised: The outer border is raised.

Lowered: The outer border is lowered.

Default: Lowered.

LED:

Specifies the active color of the LED. The dimmed color is automatically calculated if auto inactive color is set, otherwise the inactive color is used. *Default:* Light green.

Specifies the inactive color of the LED.

Default: Dark green.

LED

Active color:

Inactive color:

5.4.3 LED rectangle:

LED rectangle settings

General | Connections

Active

Show reflection

Auto inactive color

LED

Active color:

Inactive color:

Style

None

Raised

Lowered

Text

ON Text:

OFF Text:

Alignment:

Center

Left

Right

Word wrap:

Ends margin:

Font

Font active color:

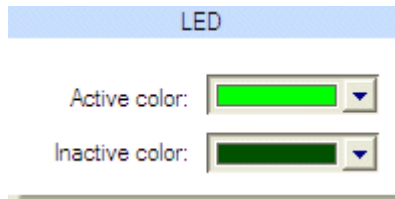
Font inactive color:

OK Cancel Apply Help

Active: Sets the current value. Can be used to provide a value (active/inactive) to the control for a preview. *Default:* Inactive.

Show reflection: Specifies whether the 3D reflection is shown in the upper-left corner of the indicator. *Default:* Active.

Auto inactive color: Determines whether the color of the LED when inactive (OFF) is calculated automatically. *Default:* Active.



LED:

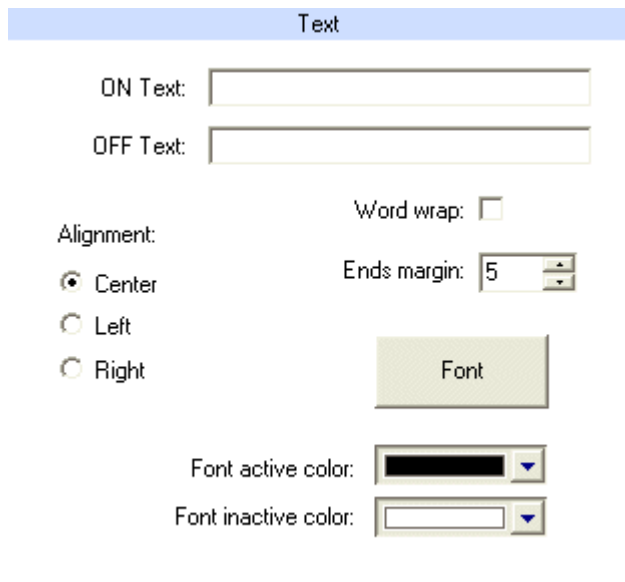
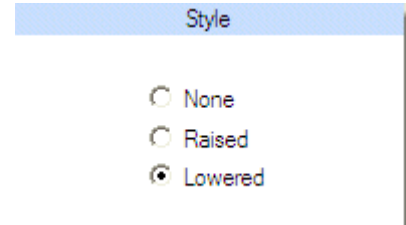
Specifies the active color of the LED. The dimmed color is automatically calculated if auto inactive color is set, otherwise the inactive color is used. *Default:* Light green.

Specifies the inactive color of the LED. *Default:* Dark green.

Style: Determines the bevel style of the LED:

- None:** No border.
- Raised:** The outer border is raised.
- Lowered:** The outer border is lowered.

Default: Lowered.



Text:

Specifies the ON/OFF state text displayed centered in the control.

Controls the horizontal placement of the center label text within the control. *Default:* Center.

Specifies whether the center label text wraps when it is too long for the width of the control. *Default:* Inactive.

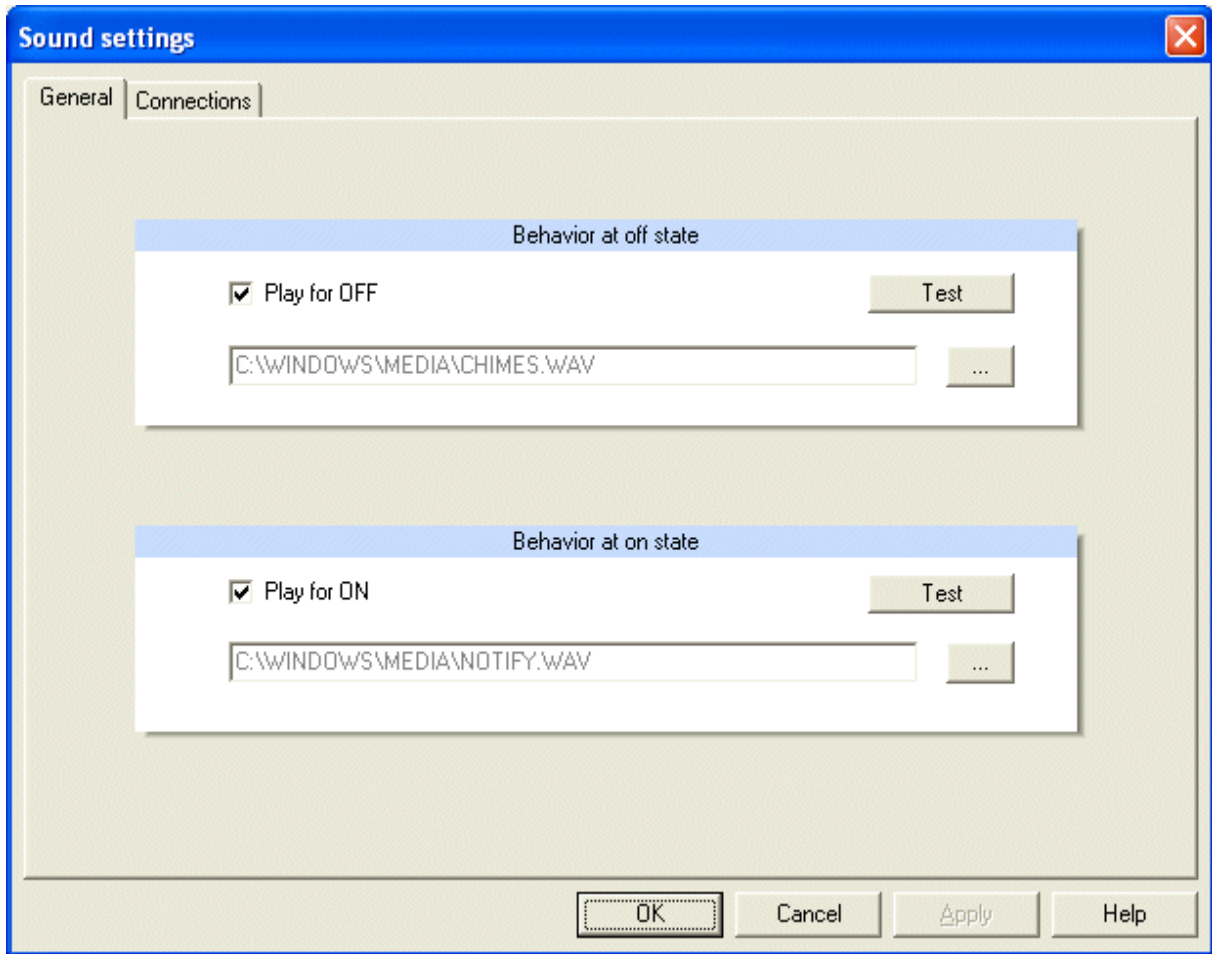
Specifies the left and right margin for the center label text when word wrap is enabled. *Default:* 5.

Specifies the center label text font.

Specifies the color of the label text centered in the control when the indicator is active. *Default:* Black.

Specifies the color of the label text centered in the control when the indicator is inactive. *Default:* White.

5.4.4 Sound control:



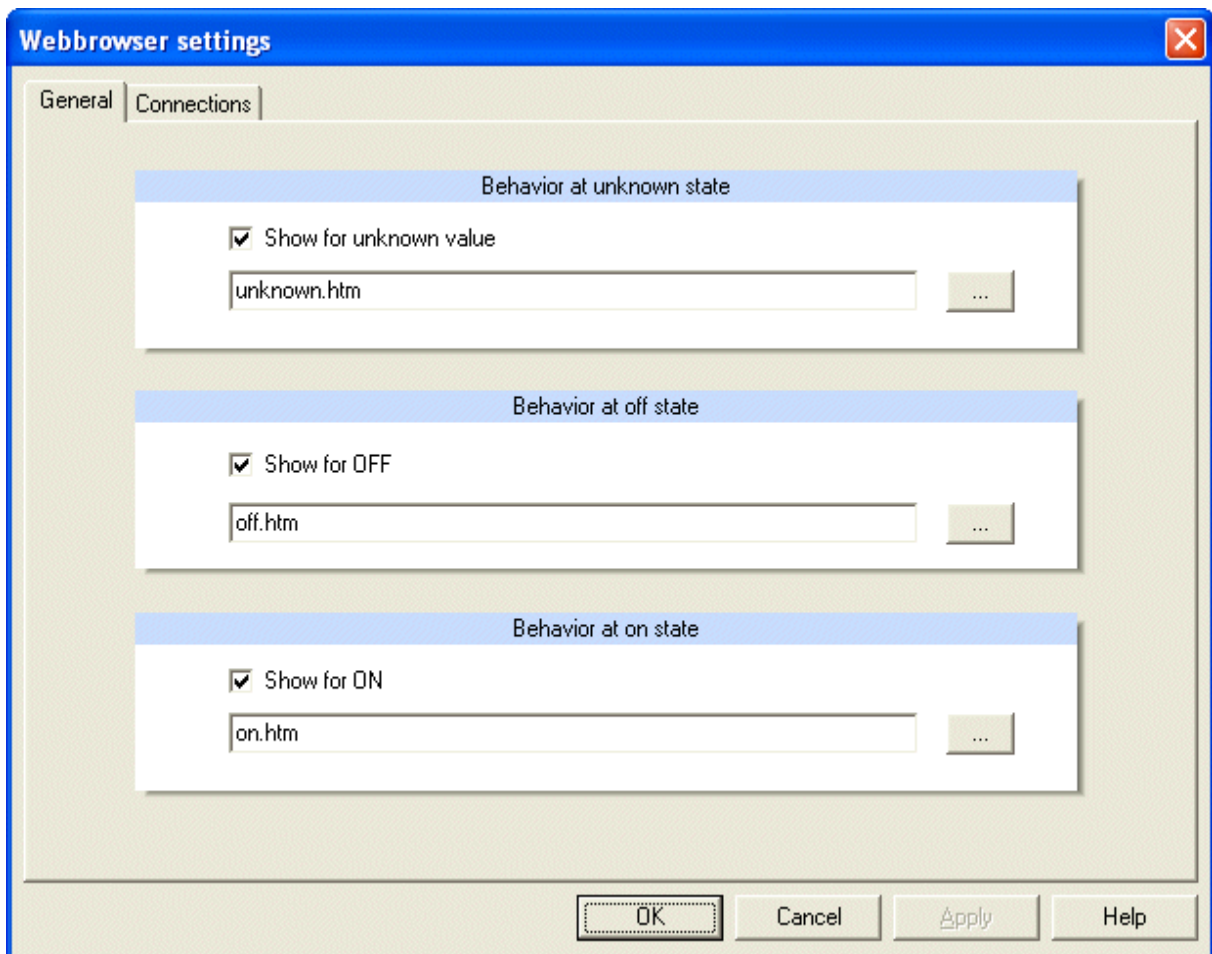
Play when value is „off“: Active: Play selected sound file.
Not active: No sound.
Default: Not active.

Play when value is „on“: Active: Play selected sound file.
Not active: No sound.
Default: Not active.

File format: Wave file (*.wav)

Hint: If a sound file is to be played by this control and in addition a sound file is to be played due to alarm settings in the control panel, both files will be played at the same time. In particular: one sound file will not abort the other.

5.4.5 Webbrowser control:

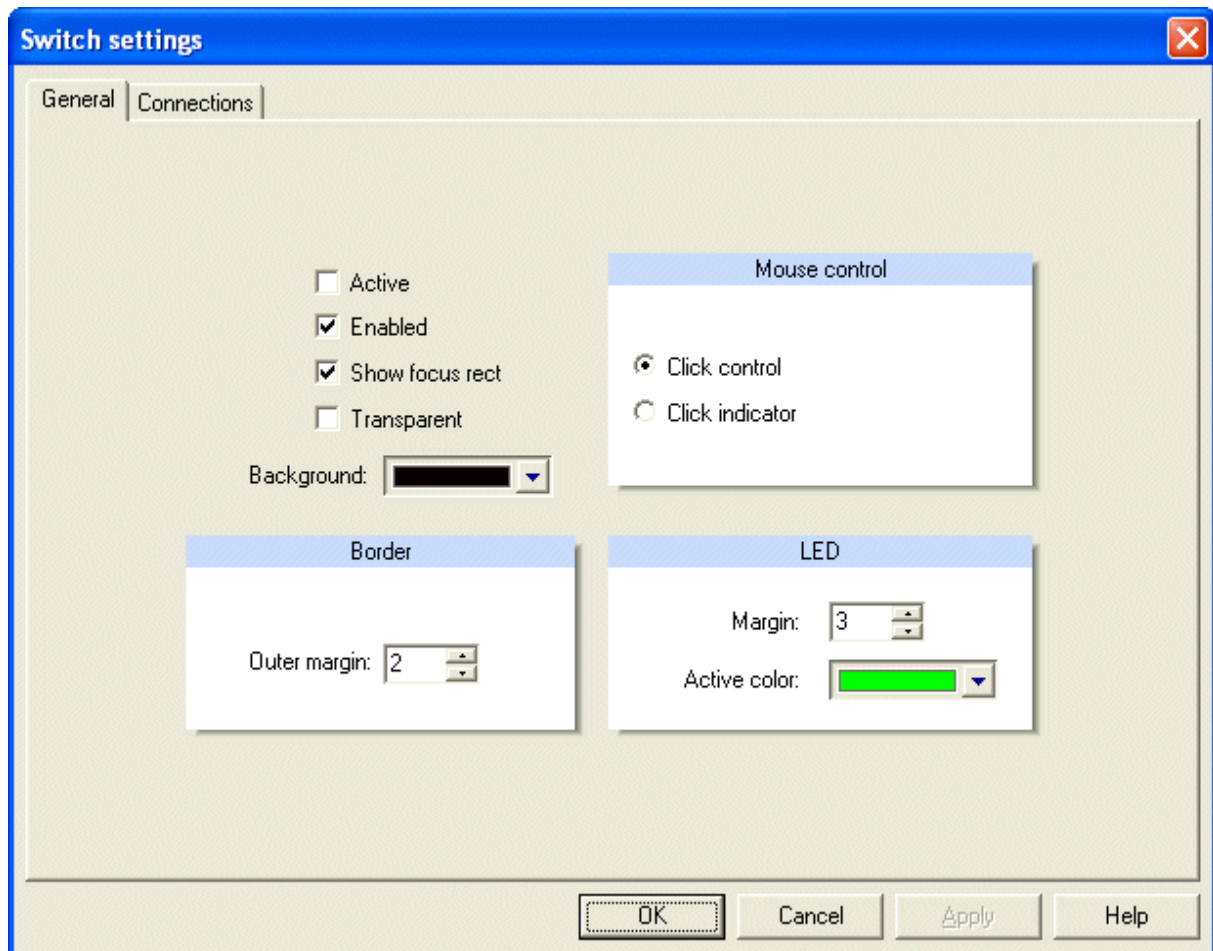


- Display when value is unknown:** Active: The selected web page be loaded.
Not active: Empty.
Default: not active.
- Display when value is „off“:** Active: The selected web page be loaded.
Not active: Empty.
Default: not active.
- Display when value is „on“:** Active: The selected web page be loaded.
Not active: Empty.
Default: Not active.

Hint: In addition to web pages, the web browser control is also able to display other documents, for example documents (i.e. Microsoft WORD or Microsoft EXCEL documents). The web browser may show web pages, which comprise of images delivered form IP cameras.

5.5 Binary output

5.5.1 Switch:



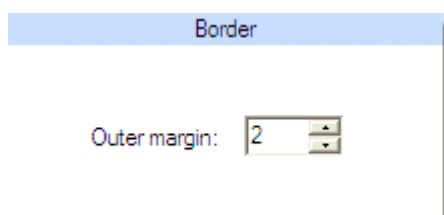
Active: Sets the current value. Can be used to provide a value (active/inactive) to the control for a preview. *Default:* Inactive.

Enabled: Enables or disables the control. *Default:* Enable.

Show focus rect: Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.

Transparent: Specifies whether the background behind the control shows through. *Default:* Inactive.

Background: Selects the background color. *Default:* Black.



Border:

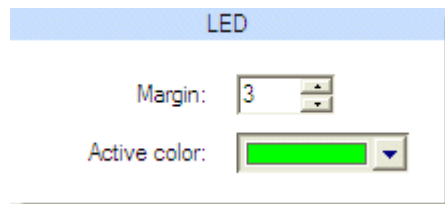
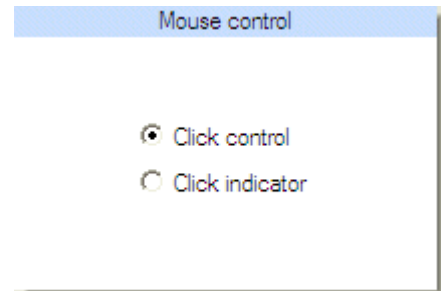
Specifies the margin between the edge of the control and the edge of the switch. *Default:* 2.

Mouse control: Sets the mouse control style:

Click control: The user can click anywhere on the switch to toggle.

Click indicator: The user must click on the position they want the switch to toggle.

Default: Click control.




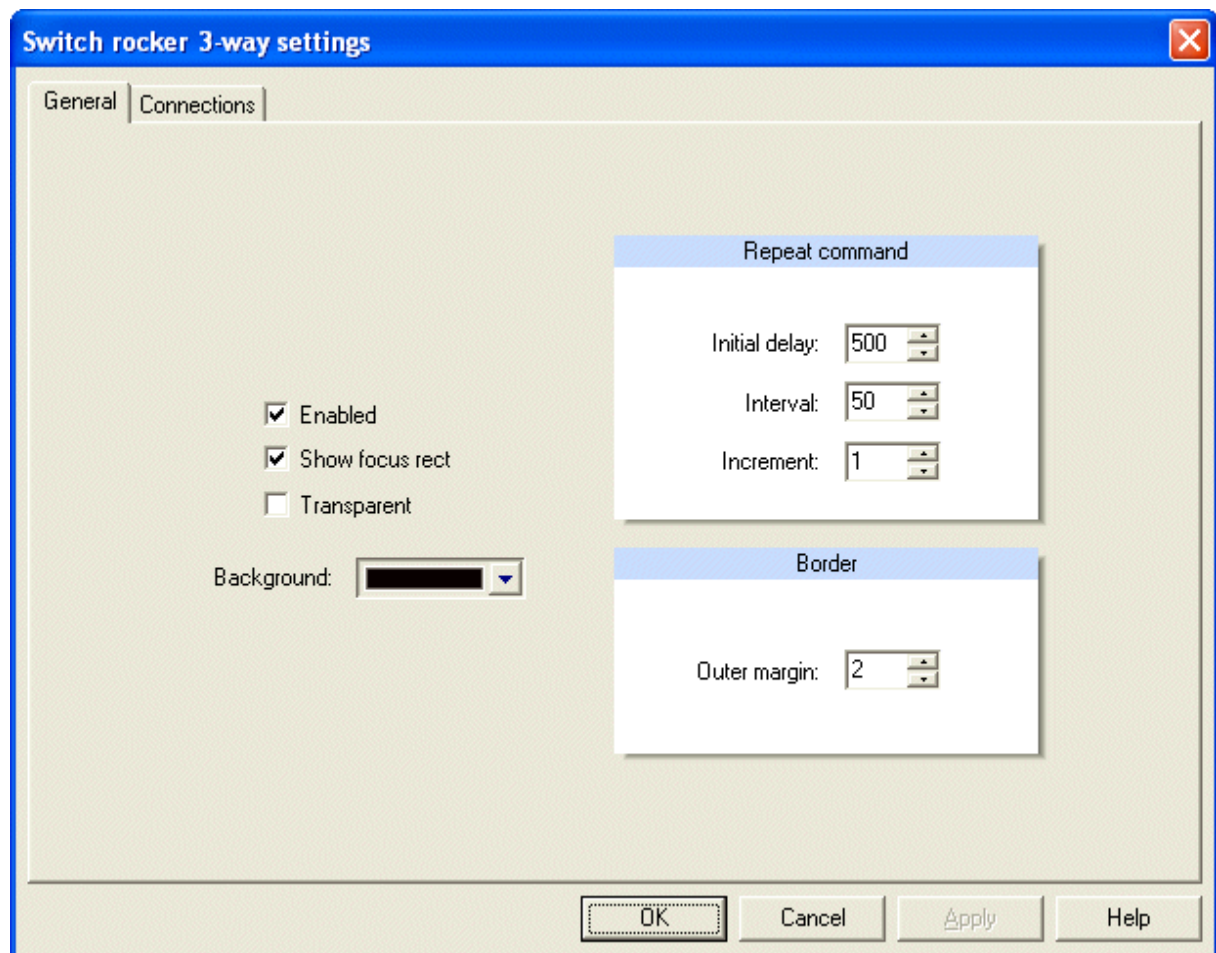
LED:

Margin: Specifies the margin between the Led indicator and the border of the switch. *Default:* 3.

Specifies the active color of the LED indicator. The inactive color is automatically calculated.

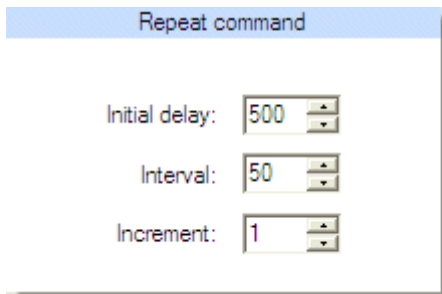
Default: Light green.

5.5.2  3- way rocker:



- Enabled:** Enables or disables the control. *Default:* Enable.
- Show focus rect:** Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* Inactive.
- Background:** Selects the background color. *Default:* Black.

Repeat command:



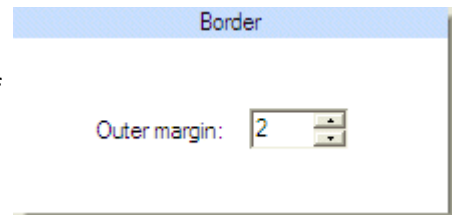
Initial delay: Sets the initial delay before auto repeating the button click if the user is holding the button down with the mouse. To disable the repeat feature, set initial delay to 0. *Default:* 500.

Interval: Sets the timing between automatic click events after the initial delay if the user is holding the button down with the mouse. To disable the repeat feature, set initial delay to 0. *Default:* 50.

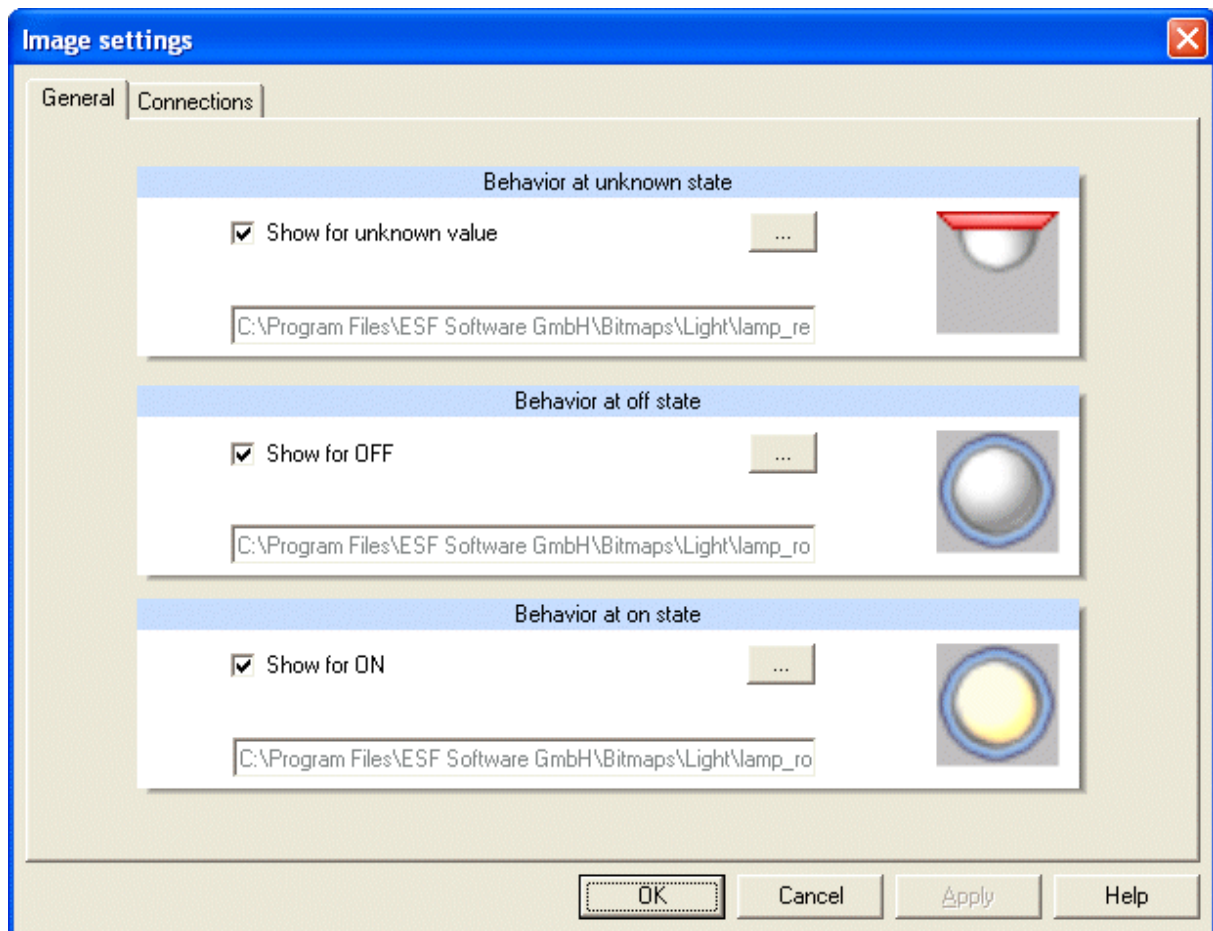
Increment: Sets the amount the value is changed when the button is pressed up or down. When the button is clicked up, increment is added to the value. When the button is clicked down, increment is subtracted from the value property. *Default:* 1.

Border:

Sets the margin between the edge of the control and the edge of the switch. The space between the edge of the control and the edge of the switch will be filled with the background color. *Default:* 2.










5.5.3 Image output:



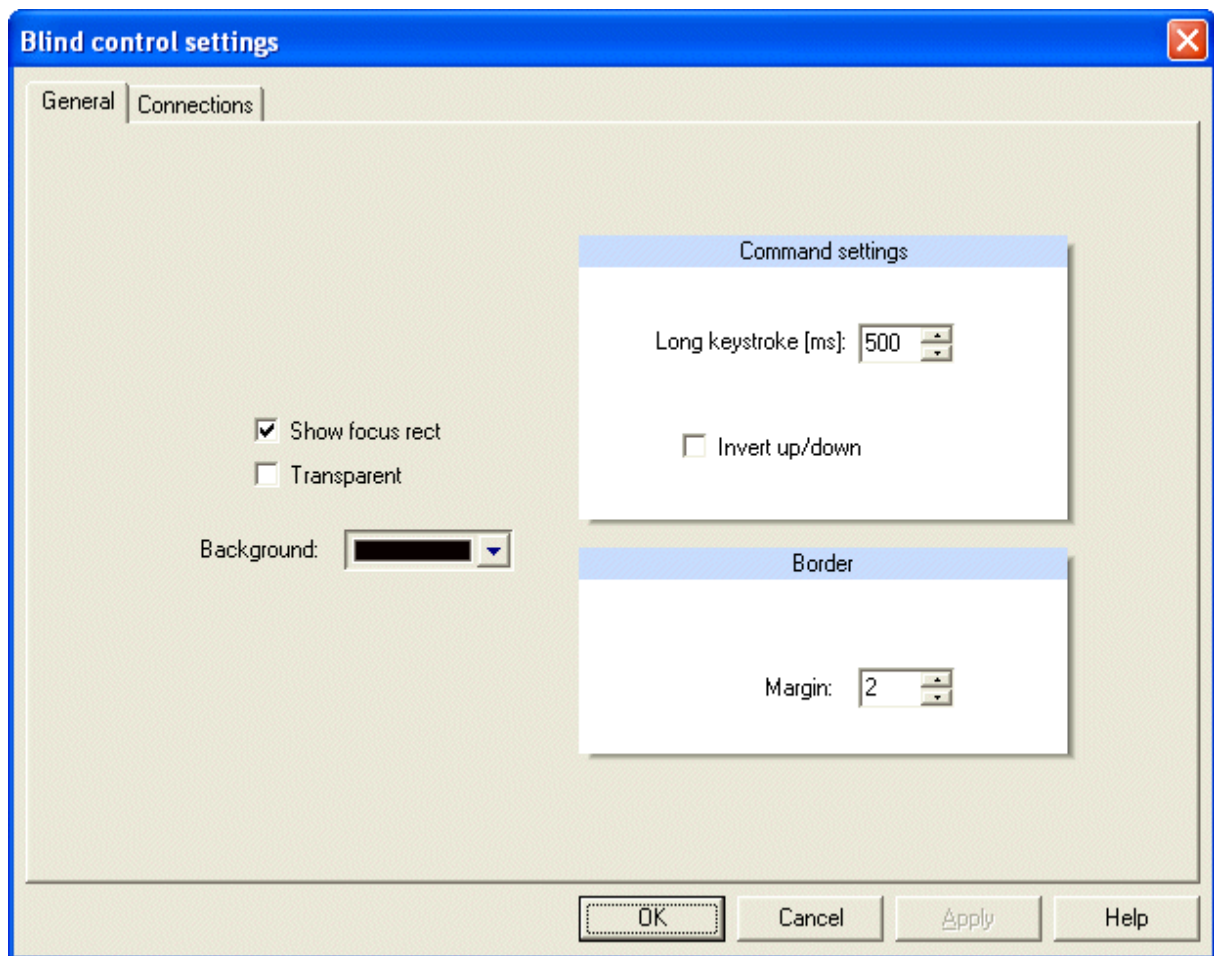
- Display when value is unknown:** Active: The selected image will be displayed.
Not active: No display.
Default: not active.
- Display when value is „off“:** Active: Display of selected image.
Not active: No display.
Default: not active.
- Display when value is „on“:** Active: Display of selected image.
Not active: No display.
Default: not active.

Currently the following file formats are supported:

-  Windows oder OS/2 Bitmap (*.bmp)
-  CompuServe Graphics Interchange (*.gif)
-  JPEG (*.jpg)
-  WINDOWS Meta Files (*.wmf)
-  Enhanced Meta Files (*.emf)
-  Portable Network Graphics (*.png)
-  Tagged Image File Format (*.tif)

Tip: GIF- und PNG – can comprise of transparent areas, this can be used to show non-rectangular symbols.

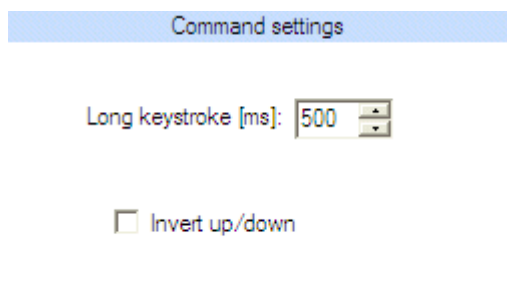
5.5.4 Blind control:



Show focus rect: Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.

Transparent: Specifies whether the background behind the control shows through. *Default:* Inactive.

Background: Selects the background color. *Default:* Black.



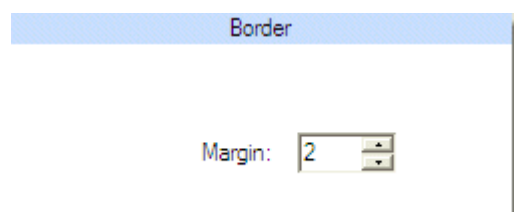
Command settings:

Long keystroke[ms]: Time value used to distinguish between a short and long keystroke or mouse click. *Default:* 500.

Invert up/down: Inverts the value, which is sent for the up/down command. *Default:* Inactive.

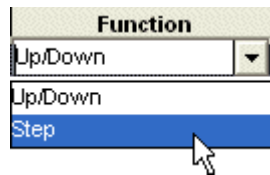
Border:

Sets the margin between the edge of the control and the edge of the switch. The space between the edge of the control and the edge of the switch will be filled with the background color. *Default:* 2.



If a process variable is assigned to the control, the function of the process variable **MUST BE specified using the Connections - Tab.**

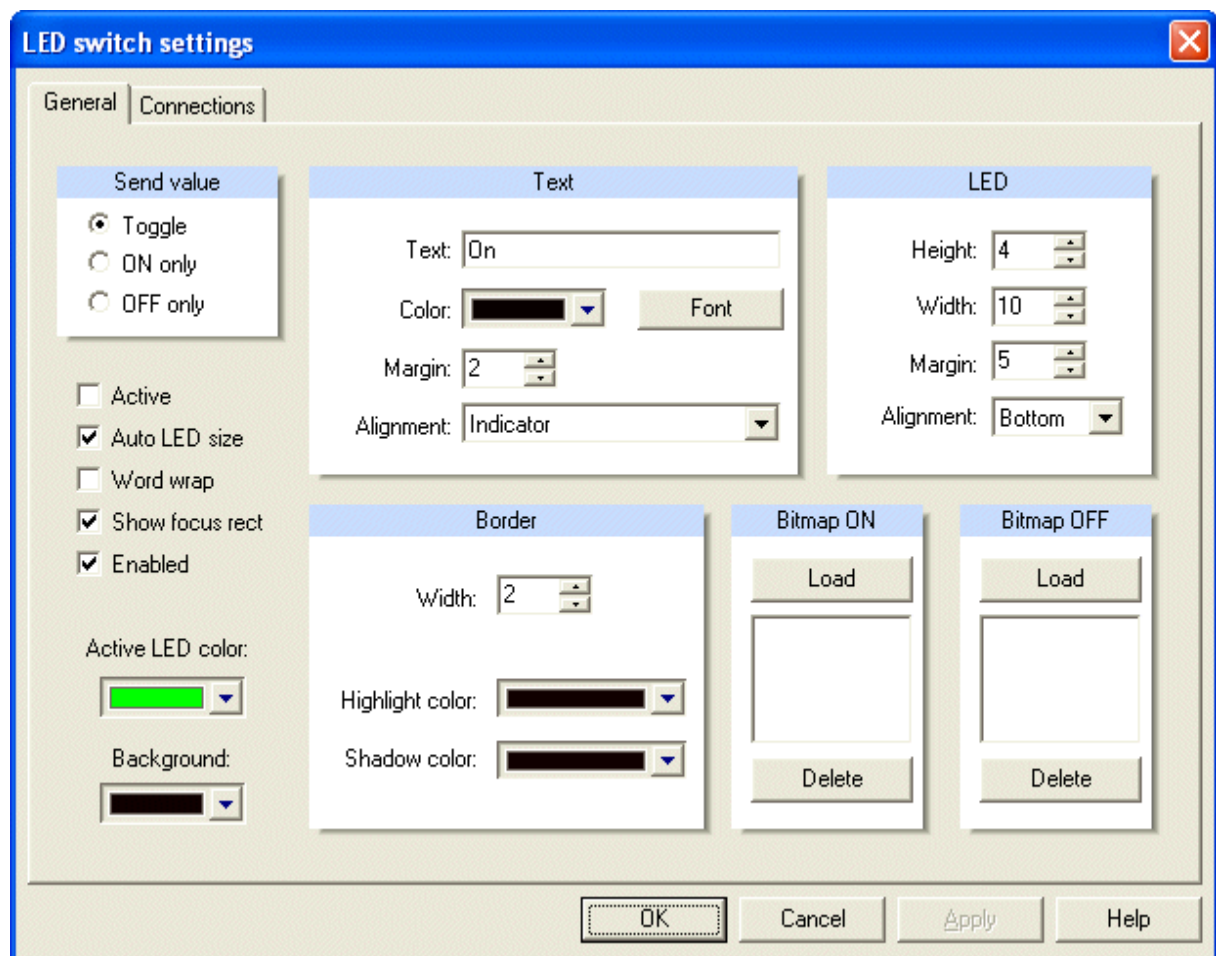
Function:



Up/down: Process variable which can be used to raise or lower the blinds (on a long keystroke or mouse click).

Step: Process variable which can be used to gradually open or close the slats (on a short keystroke or mouse click).

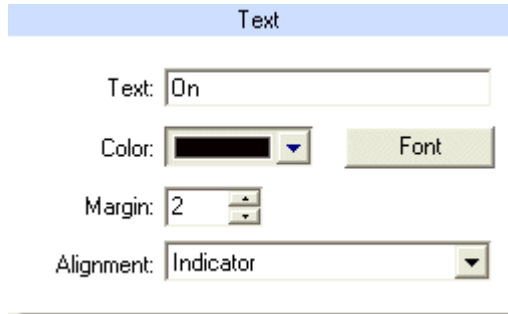
5.5.5  LED switch:



- Active:** Sets the current value. Can be used to provide a value (active/inactive) to the control for a preview. *Default:* Inactive.
- Auto LED size:** Determines whether the indicator or the width of the indicator LED is automatically calculated depending on the alignment. *Default:* Active.
- Word wrap:** Specifies whether the text specified by the text property is word wrapped when it exceeds the width of the control. *Default:* Inactive.
- Show focus rect:** Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.
- Enabled:** Enables or disables the control. *Default:* Enabled.

Active LED color: Sets the shown active color. The inactive color is automatically calculated. *Default:* Light green.

Background: Selects the background color. *Default:* Black.



Text: Specifies the display text next to the LED. *Default:* On.

Selection of display text color. *Default:* Black.

Selection of display text font.

Specifies the margin between the display text and the LED. *Default:* 2.

Sets the text alignment relative to the indicator:

Indicator: The text is aligned to the same side as the indicator.

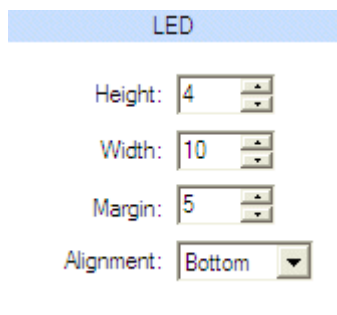
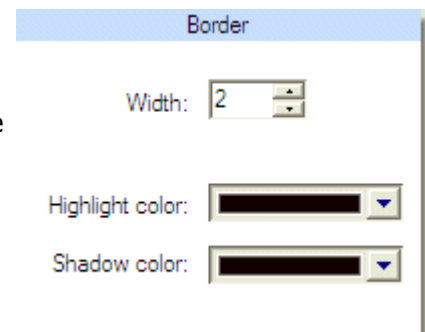
Opposite Side: The text is aligned to the side opposite the side the indicator is aligned to. *Default:* Indicator.

Border:

Sets the border around the control. This controls the "bevel-look" of the control. *Default:* 2.

Specifies the color of the border highlight.

Specifies the color of the border shadow highlight.



LED:

Specifies the height of the LED indicator. *Default:* 4.

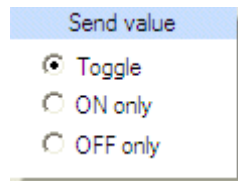
Specifies the width of the LED indicator. *Default:* 10.

Specifies the margin between the LED indicator and the border of the switch. *Default:* 5.

Specifies the alignment of the LED indicator within the switch. *Default:* Bottom.

5.5.5.1 Central functions:

The LED switch control can be used for central functions (e.g. Panic On, Central Off).



Send value:

Toggle: Toggles the current value (ON to OFF / OFF to ON).

ON only: Sends ON command only.

OFF only: Sends OFF command only.

5.5.5.2 Graphical view:

For this option the text field should be empty. The settings for the border, the margin and the LED properties should be 0.



Bitmap ON:

The LED switch control is able to show an image file as background picture for the active state instead of the LED indicator.

Supported file formats are BMP, GIF, JPG, ICO, EMF and WMF.

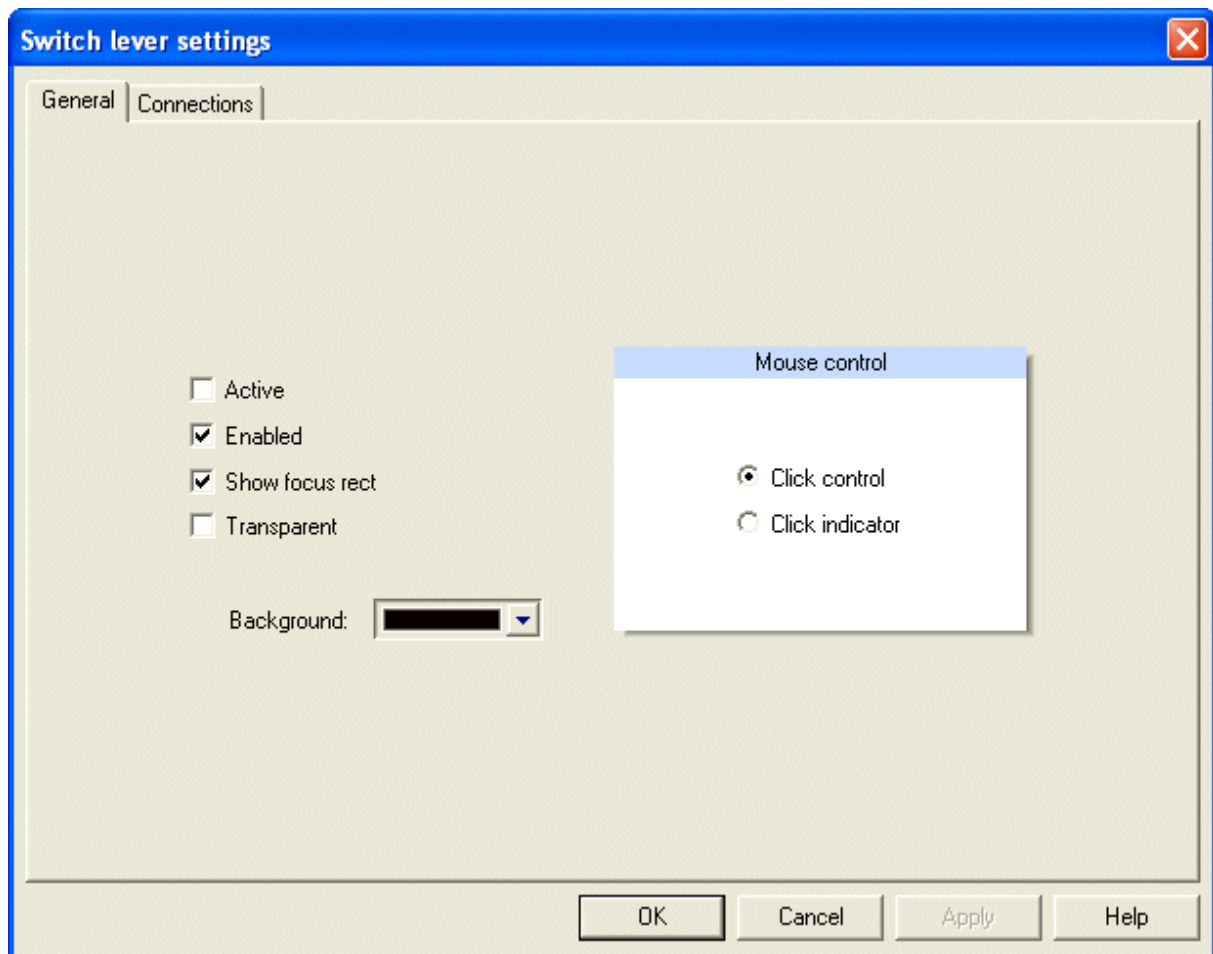


Bitmap OFF:

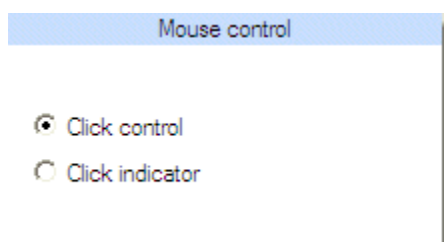
The LED switch control is able to show an image file as background picture for the inactive state instead of the LED indicator.

Supported file formats are BMP, GIF, JPG, ICO, EMF and WMF.

5.5.6 Switch lever:



- Active:** Sets the current value. Can be used to provide a value (active/inactive) to the control for a preview. *Default:* Inactive.
- Enabled:** Enables or disables the control. *Default:* Enable.
- Show focus rect:** Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.
- Transparent:** Specifies whether the background behind the control shows through. *Default:* Inactive.
- Background:** Selects the background color. *Default:* Black.

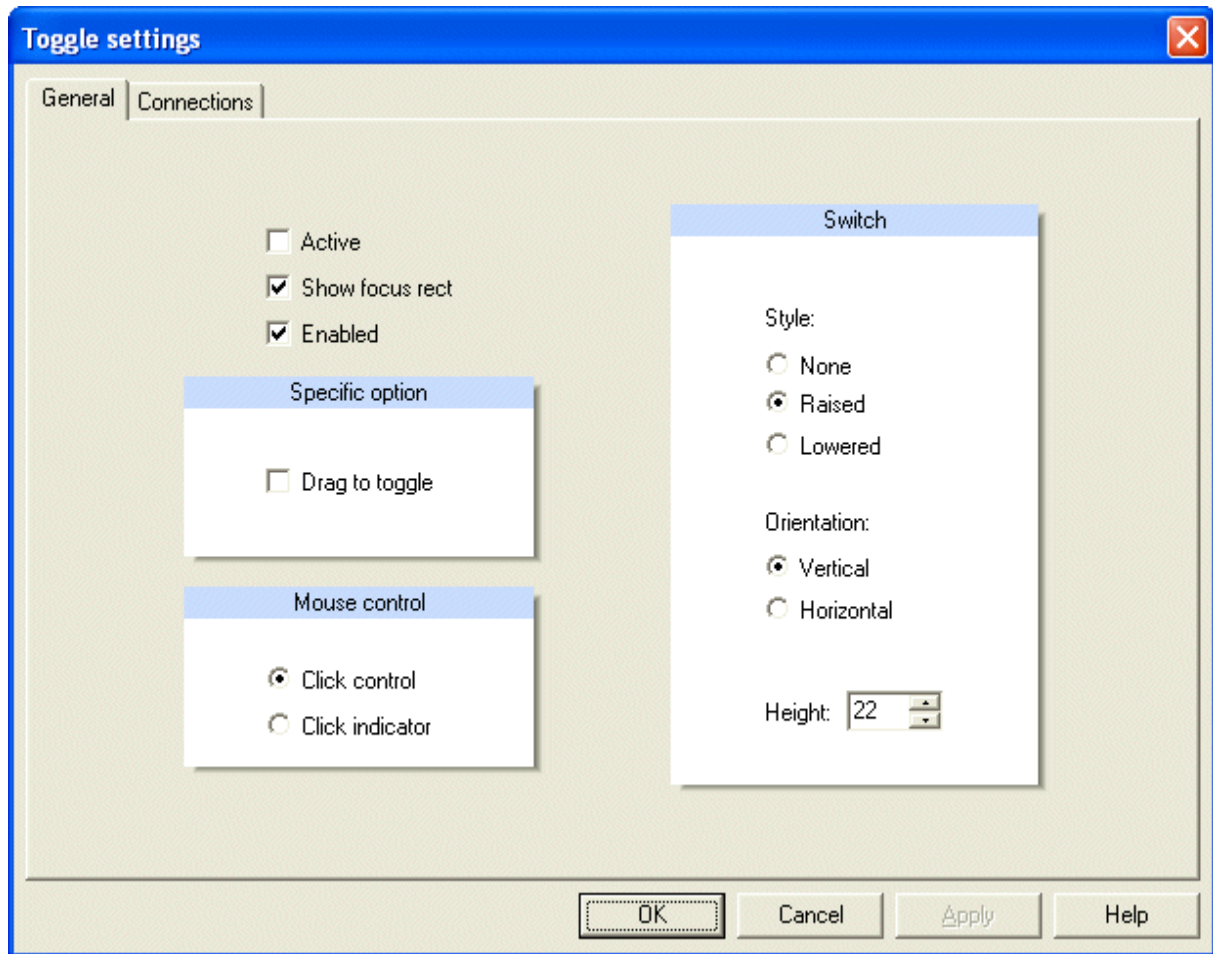


Mouse control: Sets the mouse control style:

Click control: The user can click anywhere on the switch to toggle.

Click indicator: The user must click on the position they want the switch to toggle.
Default: Click control.

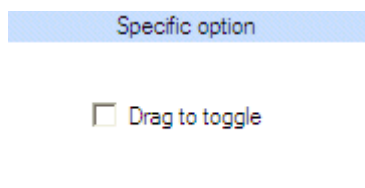
5.5.7 Toggle:



Active: Sets the current value. Can be used to provide a value (active/inactive) to the control for a preview. *Default:* Inactive.

Show focus rect: Specifies whether to show the focus rectangle when the control has keyboard focus. *Default:* Active.

Enabled: Enables or disables the control. *Default:* Enable.



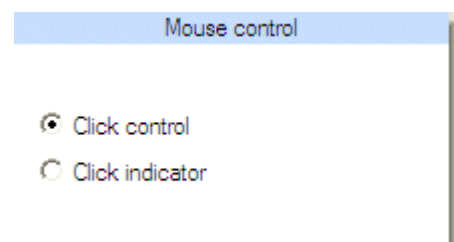
Specific option:

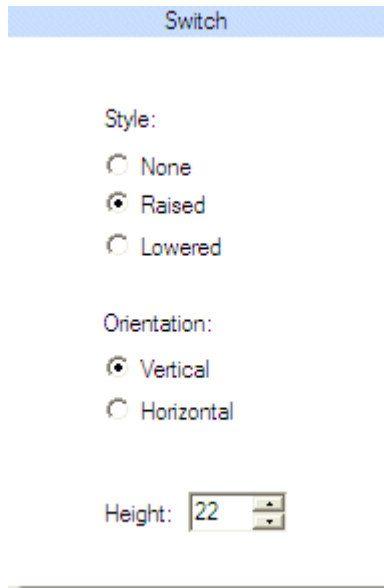
Specifies whether the user must drag the switch to toggle. *Default:* Inactive.

Mouse control: Sets the mouse control style:

Click control: The user can click anywhere on the switch to toggle.

Click indicator: The user must click on the position they want the switch to toggle. *Default:* Click control.





Switch:

Style:

Determines the outer border style of the control and specifies the three-dimensional beveled look.

Default: Raised.

Orientation:

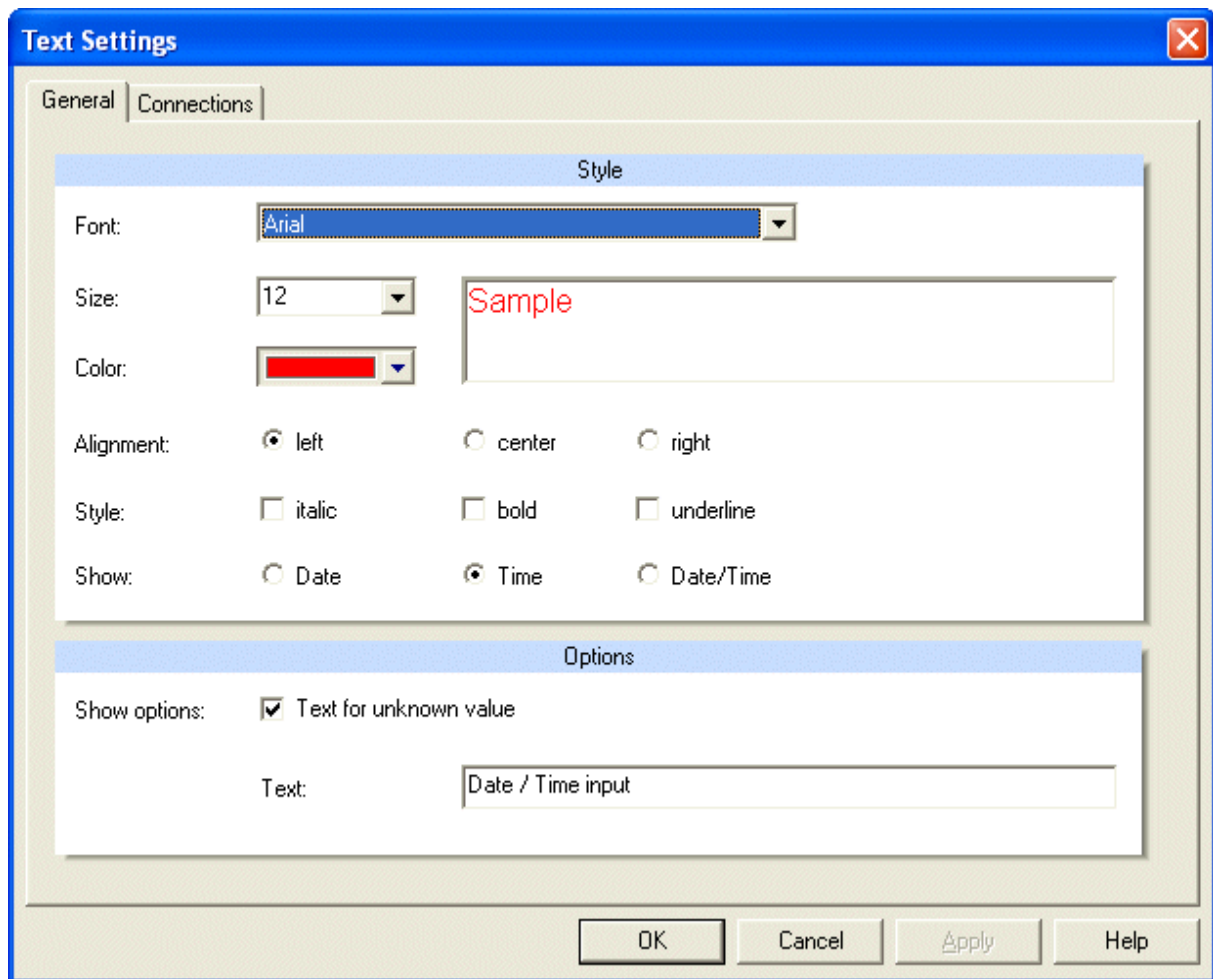
Specifies whether the control is horizontal or vertical.

Default: Vertical.

Specifies the height of the switch. *Default:* 22.

5.6 Date-Time input

5.6.1 Date-Time input:



Font: Select font. *Default:* Arial.

Font size: Select font size. *Default:* 12.

Color: Select text color. *Default:* Red.

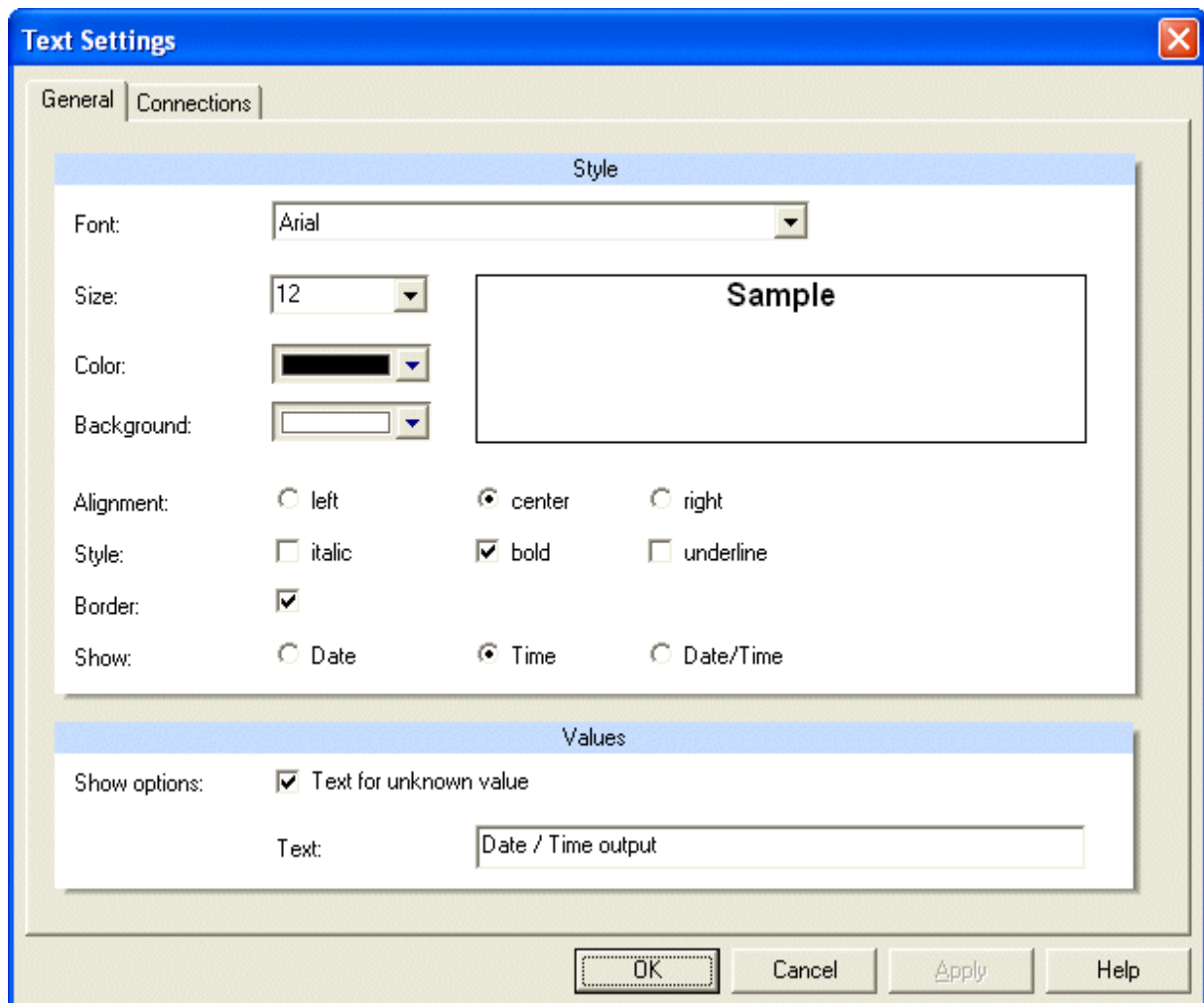
Alignment: The text can be aligned left, centered, right. *Default:* left.

Text style: The text style can be bold, italic or underlined. *Default:* no additional style.

Display when value is unknown: Optionally display a text when the actual value is unknown.

5.7 Date-Time output

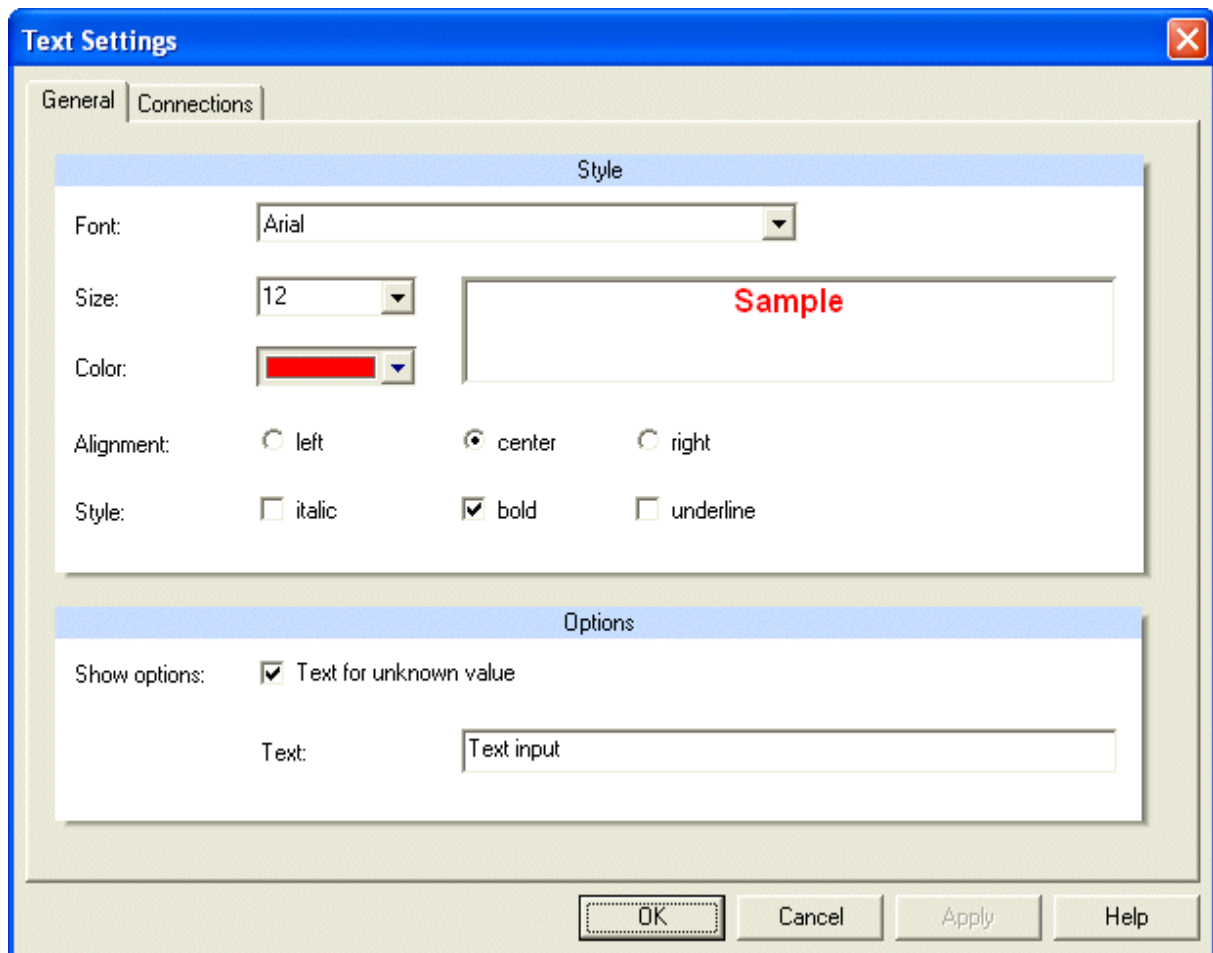
5.7.1 Date-Time output:



- Font:** Select font. *Default:* Arial.
- Font size:** Select font size. *Default:* 12.
- Color:** Select text color. *Default:* Black.
- Alignment:** The text can be aligned left, centered, right. *Default:* left.
- Text style:** The text style can be bold, italic or underlined.
Default: no additional style.
- Display when value is unknown:** Optionally display a text when the actual value is unknown.

5.8 Text input

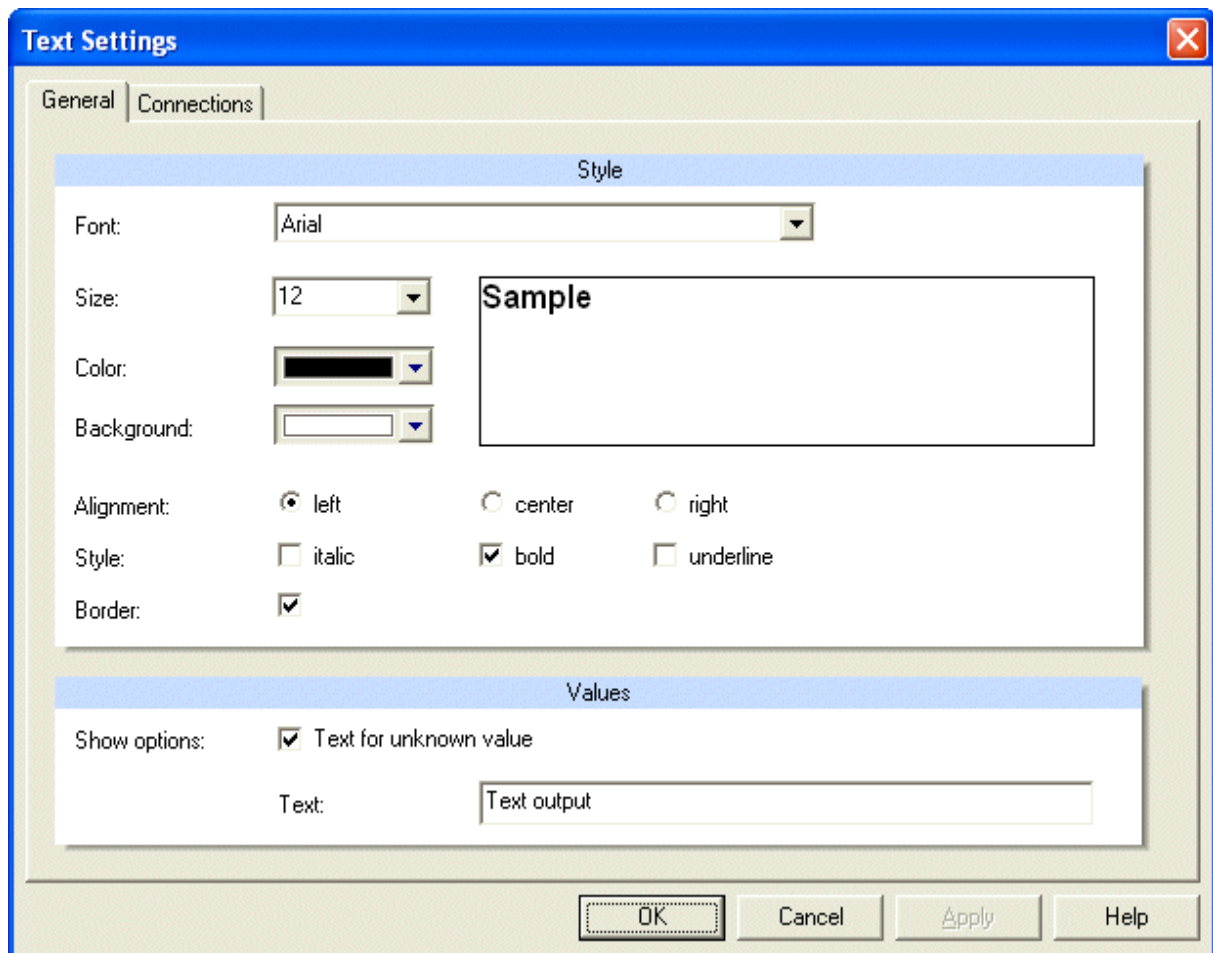
5.8.1 String Text input:



- Font:** Select font. *Default:* Arial.
- Font size:** Select font size. *Default:* 12.
- Color:** Select text color. *Default:* Black.
- Alignment:** The text can be aligned left, centered, right. *Default:* left.
- Text style:** The text style can be bold, italic or underlined.
Default: no additional style.
- Display when value is unknown:** Optionally display a text when the actual value is unknown.

5.9 Text output

5.9.1 String Text output:



- Font:** Select font. *Default:* Arial.
- Font size:** Select font size. *Default:* 12.
- Color:** Select text color. *Default:* Black.
- Alignment:** The text can be aligned left, centered, right. *Default:* left.
- Text style:** The text style can be bold, italic or underlined.
Default: no additional style.
- Display when value is unknown:** Optionally display a text when the actual value is unknown.

6 Other displays



The camera item is used to insert a live camera into the worksheet. Another way to show camera images is to use the web browser control and a IP camera, which delivers contents of a web page.



The web browser control can be used to show arbitrary web pages.

6.1.1 Camera:

The camera element is used to show a camera, which is directly connected to the computer, for instance a Web-Cam.

To insert a camera just drag the camera to the worksheet's window.

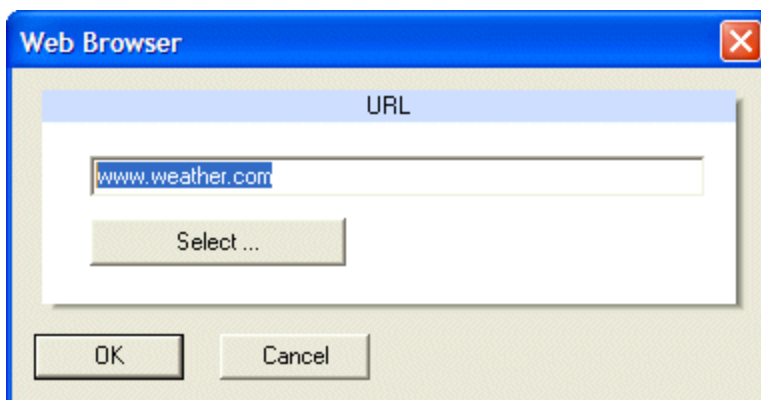
***Hint:** The visualization player automatically recognizes a camera connected to the computer, if the camera provides DirectX support. This is the case for example for most USB cameras. Different camera items can be inserted into different worksheets. However, in the player only one camera will be visible in the active worksheet.*

You might also consider to use IP cameras with the web browser control. The visualization does not impose restrictions on the number of web browser controls and IP cameras, which may be visible in web pages.

6.1.2 Web browser:

The web browser control is used to show web pages, which reside on the local computer or are loaded from the internet. For example, the web browser control may show a web page from an internet site with weather data.

In the catalog tool window drag the web browser control to the worksheet's window.



Select a web site or an other document or enter a web page address directly.

Press button **OK** to commit the changes and to close the dialog.

***Hint:** In addition to web pages, the web browser control is also able to display other documents, for example documents (i.e. Microsoft WORD or Microsoft EXCEL documents). The web browser may show web pages, which comprise of images delivered form IP cameras*

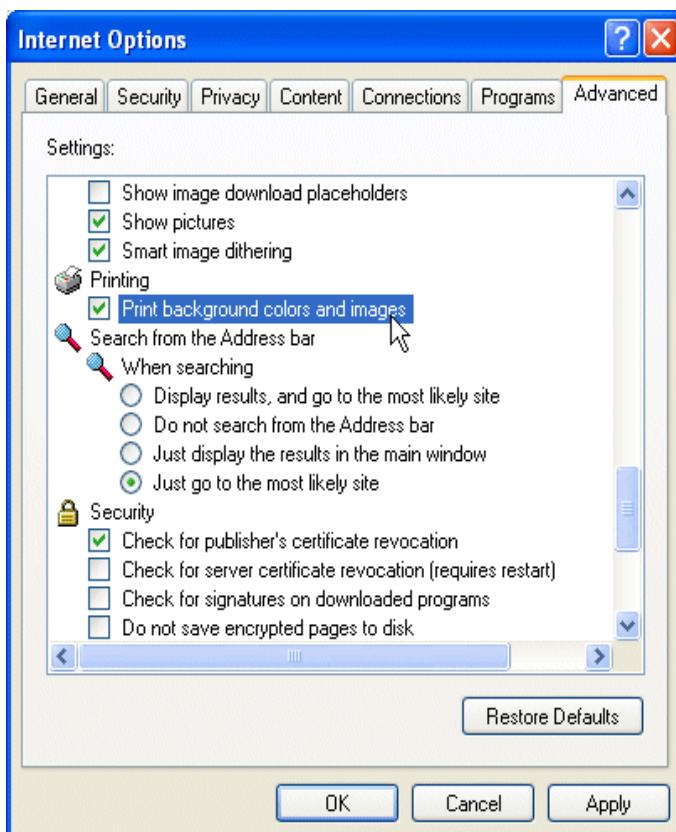
7 Reports

- The visualization editor creates a report of the visualization project, the worksheets in the project, their properties and their connections to process variables. For each worksheet an image of the whole worksheet is displayed and list of the contained display elements along with their position etc. For dynamic images, the list of connected process variables is provided.
- The most recent report is stored.
- The report can be printed along with print preview.

7.1 Create report

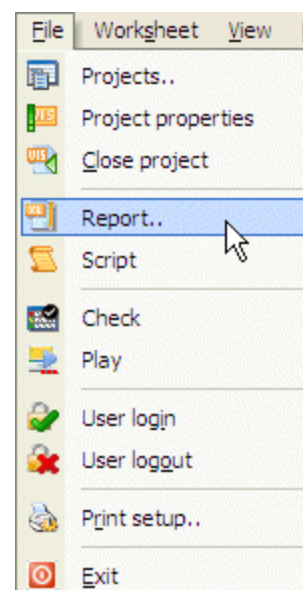
The Microsoft Internet Explorer is used to create and print reports.

Internet options:

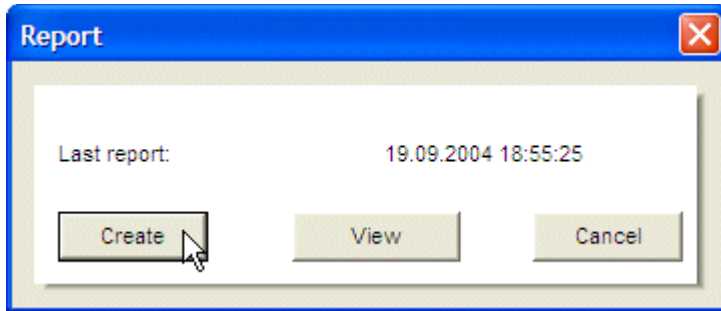


The reports background will be printed if the Internet Explorer has been configured accordingly:

- Select the menu option **Tools – Internet Options**.
- Select the tab **Advanced**.
- Under the **Settings – Printing** check option **Print background colors and images**.

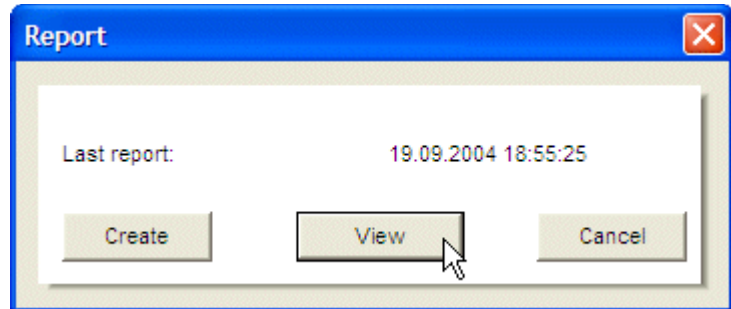


Use menu option **File – Report** to create a report.



Click on button **Create** to create the report.

Use button **View** to display the last report created.



Worksheet: Second floor
Process model: iPhonSample.PRJ
GUID: {C419C371-A902-4B49-997F-2F2DDE487752}
Count of process variables: 413

Parameter:	Calculated values
Address:	
Type:	Folder
Rights:	NONE
Script name:	
Description:	
GUID:	

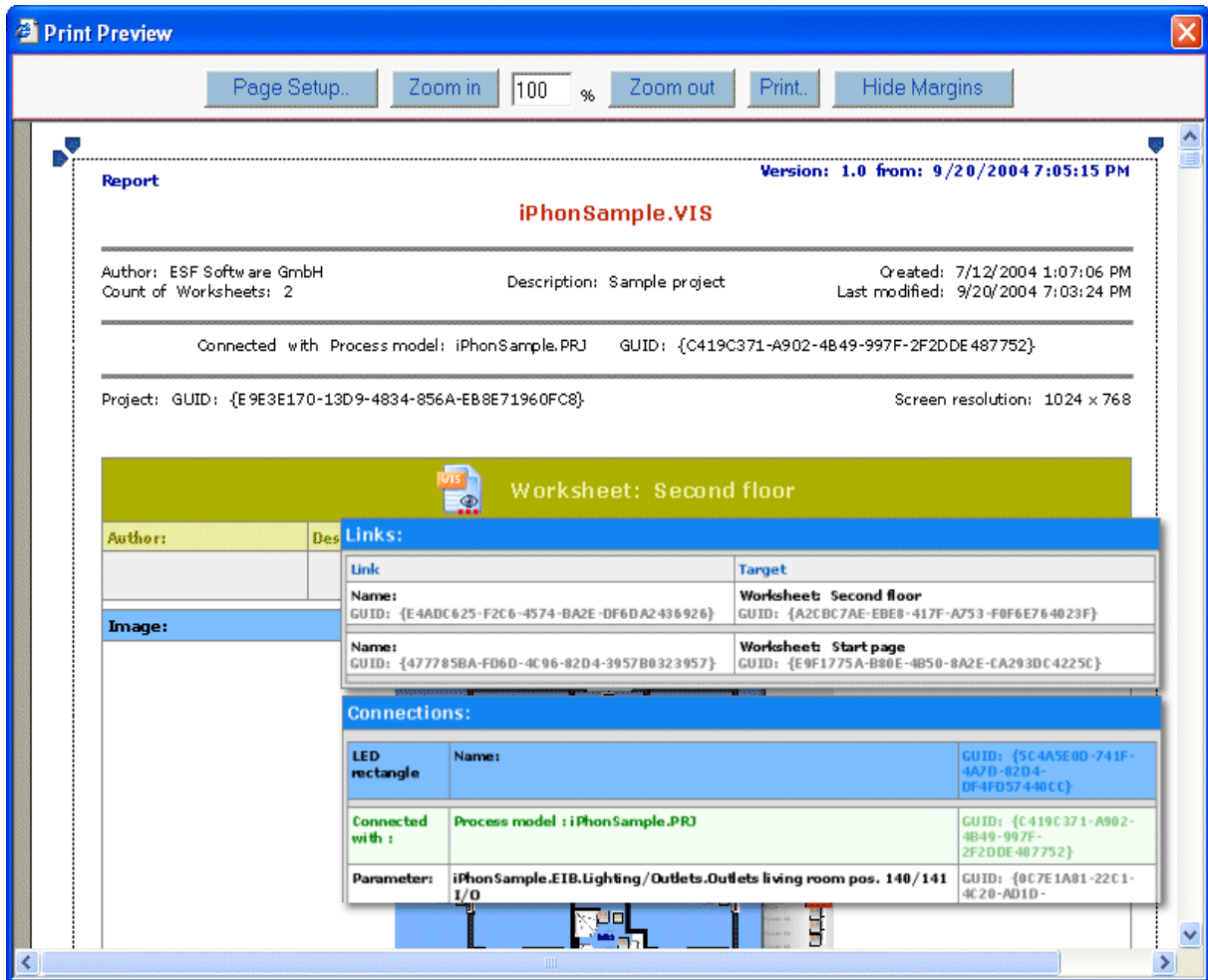
Links:

Link	Target
Name: {E4ADC625-F2C6-4574-BA2E-DF6DA2436926}	Worksheet: Second floor GUID: {A2CBC7AE-EBE8-417F-A753-F0F6E764023F}
Name: {477785BA-F06D-4C96-82D4-3957B0323957}	Worksheet: Start page GUID: {E9F1775A-B80E-4B50-8A2E-CA293DC4225C}




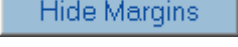

Count of Plains: 3

Static plane	LED rectangle	Name:	GUID:
Type	Connected with:	Process model : iPhonSample.PRJ	GUID: {C419C371-A902-4B49-997F-2F2DDE487752}
Image	Parameter:	iPhonSample.EIB.Lighting/Outlets.Outlets living room pos. 140/141 I/O	GUID: {0C7E1A81-22C1-4C20-AD1D-9D72AF0D4CB6}
Image			GUID: {B4DDA07A-EF33-4371-A952-

7.2 Print preview



The print preview may be scaled.

	Opens the dialog Page setup to set the printer properties, page properties and the alignment.
	Enlarges the print preview.
	Reduces the print preview.
	Button to hide the margin markers.
	Button to display the margin markers.

With these  markers the user has visual control over the margin settings.