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Creating User-defined Block Icons with SIMATIC PCS 7

SIMATIC PCS 7 V8.0 / V8.1

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Validity

This document is valid for SIMATIC PCS 7 V8.0/ V8.1 and WinCC V7.2/ V7.3

1 Creating Graphic Icons

In this document we take the example of a motor block to describe how to configure your own block icons in your PCS 7 project. For this you create your own icon for pump in the Graphics Designer and export it in a file format which you can use later for editing.

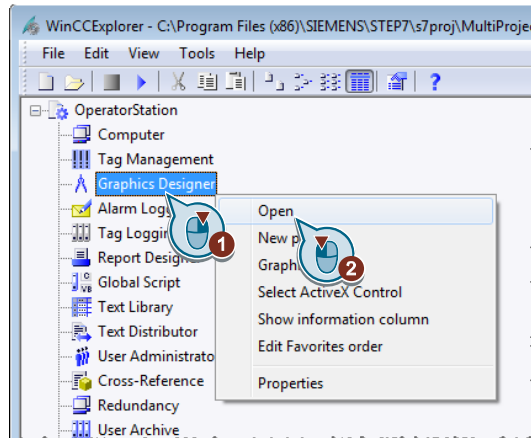
1.1 Creating a Pump Icon

Requirements

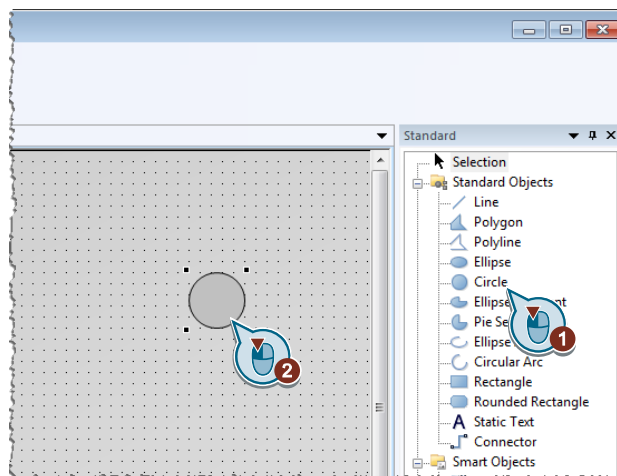
The WinCC Explorer and the WinCC project are open.

Procedure

1. Open the Graphics Designer in the WinCC Explorer.
In the Graphics Designer a new picture is created by default if no other picture has yet been opened. If not, create a new picture via "File > New".



2. In the "Standard" toolbar you select the circle from the "Standard Objects" folder and create a circle.



3. If the object properties are not displayed when you mark the circle, select the menu command "View > Toolbars > Object Properties".

Enter the following parameters for the circle:

Property	Attribute	Parameter – 'Static' column
Geometry	Position X	50
	Position Y	50
	Width	110
Styles	Draw Border Inside	No
Effects	Global Color Scheme	No

4. From the standard objects you select the rectangle and create a rectangle. Enter the following parameters:

Property	Attribute	Parameter – 'Static' column
Geometry	Position X	105
	Position Y	50
	Width	75
	Height	40
Styles	Draw Border Inside	No
Effects	Global Color Scheme	No

5. Create a circle with the following parameters:

Property	Attribute	Parameter – 'Static' column
Geometry	Position X	52
	Position Y	50
	Width	107
Styles	Line Weight	0
Effects	Global Color Scheme	No

6. Create a circle with the following parameters:

Property	Attribute	Parameter – 'Static' column
Geometry	Position X	62
	Position Y	62
	Width	86

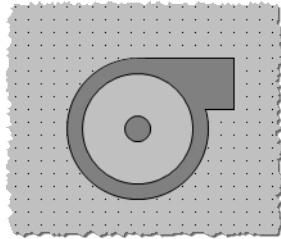
7. Create a circle with the following parameters:

Property	Attribute	Parameter – 'Static' column
Geometry	Position X	95
	Position Y	95

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Property	Attribute	Parameter – 'Static' column
	Width	20
Effects	Global Color Scheme	No

8. The icon for the pump should now look like this:



1.2 Creating Status Displays

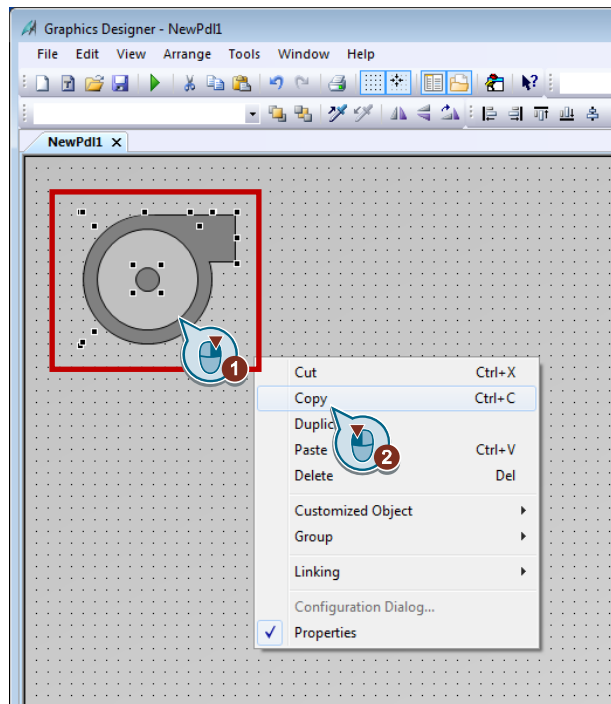
The icon created stands for a switched-off pump (gray).
In this step we create the icons for the statuses of a switched-on pump (green) and a defective pump (red).

Requirements

The icon for the switched-off pump has already been created.

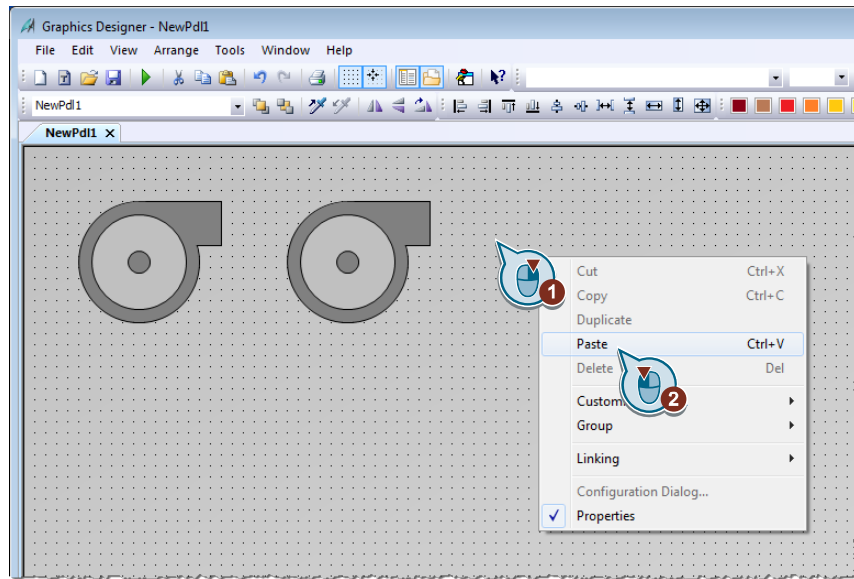
Procedure

1. Mark all the objects of the created pump icon, right-click and then select "Copy".

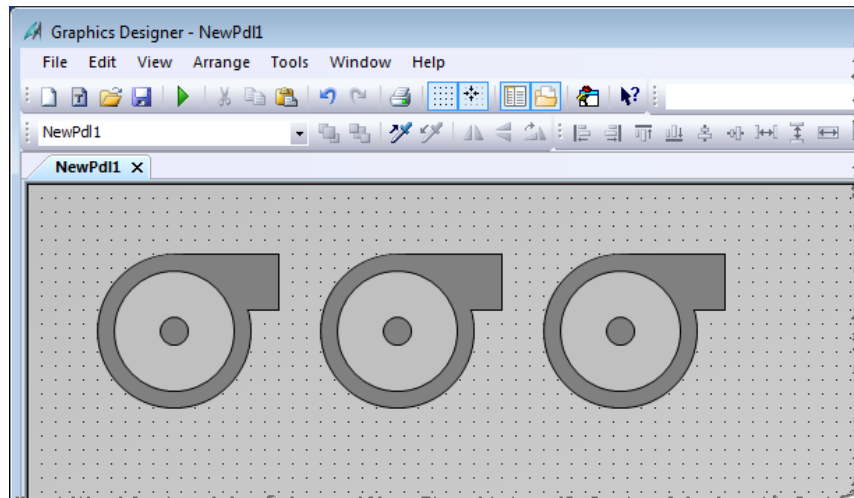


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2. Click in the drawing area, right-click and select "Paste".

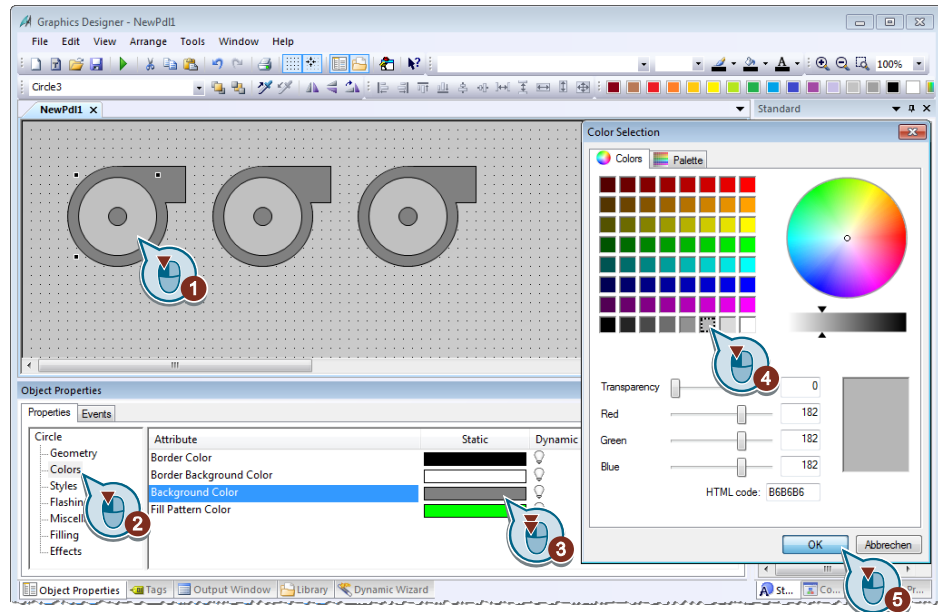


3. Position the inserted pump icon and repeat the last step so that you now have three identical pump icons.

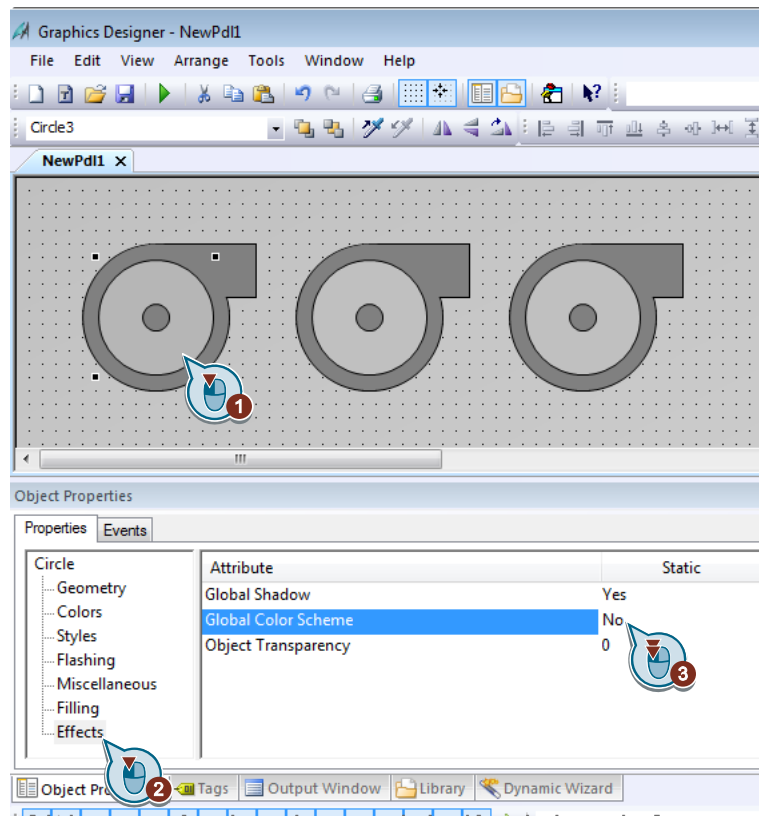


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4. Mark the light circle of the left pump icon and assign the color gray under "Properties > Colors > Background Color". Confirm the change with the "OK" button.



5. Change the parameter of the circle under "Properties > Effects > Global Color Scheme" by double-clicking "No". The circle is now displayed gray (darker).

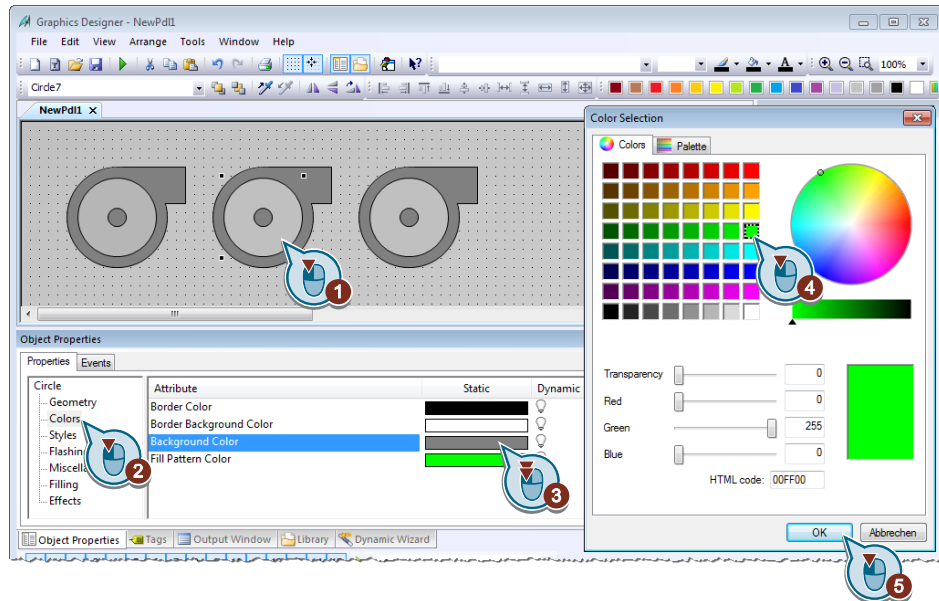


1 Creating Graphic Icons

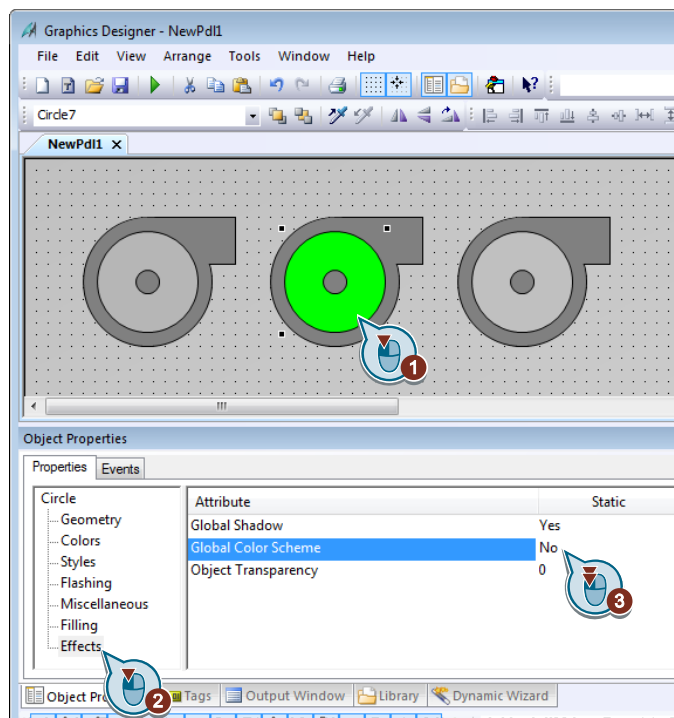
6. Mark the light circle of the middle pump icon and assign the color green under "Properties > Colors > Background Color". Confirm the change with the "OK" button.

Note

The color of the circle will not yet change after this action. This happens in the next step.



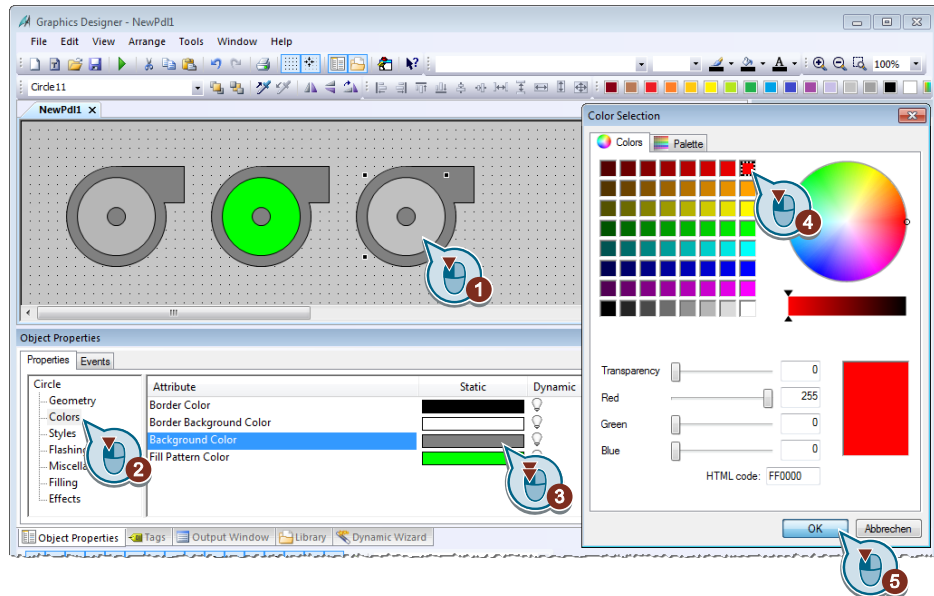
7. Change the parameter of the circle under "Properties > Effects > Global Color Scheme" by double-clicking "No". The circle is now displayed green.



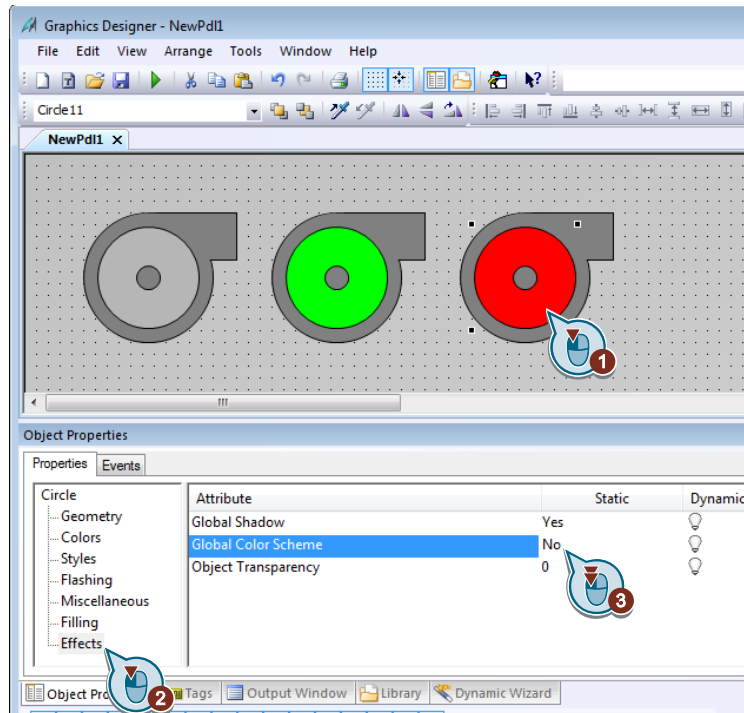
8. Mark the light circle of the right pump icon and assign the color red under "Properties > Colors > Background Color". Confirm the change with the "OK" button.

Note

The color of the circle will not yet change after this action. This happens in the next step.



9. Change the parameter of the circle under "Properties > Effects > Global Color Scheme" by double-clicking "No". The circle is now displayed red.



1.3 Exporting the Status Displays

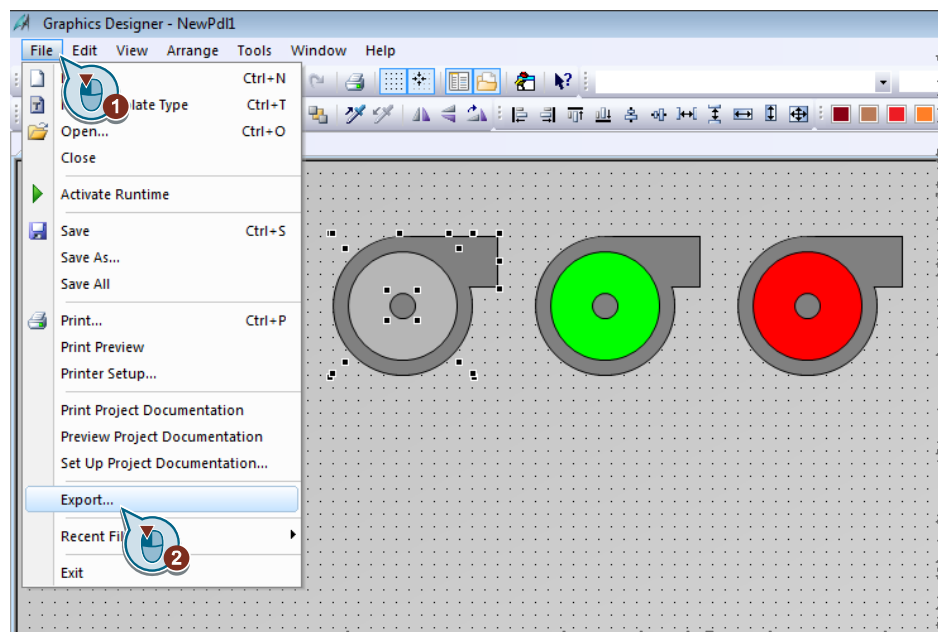
In this step the created status displays are exported in a usable file format so that they can be utilized as block icons.

Requirements

The status displays of the pump have been created.

Procedure

1. Mark all the objects of the icon of the switched-off pump (gray) and click "File > Export...".



2. Enter "pump_off" in the input field and click the "Save" button.

Note Make sure that "Enhanced Metafiles (*.emf)" is selected as file type.

3. Repeat Steps 1 to 2 with the middle pump (green) and enter the name "pump_on".
4. Repeat Steps 1 to 2 with the right pump (red) and enter the name "pump_error".
5. Save the picture file under "File > Save" and close the Graphics Designer.

2 Creating Your Own Block Icons

2.1 Creating a Template File

Standard block icons

The standard block icons are stored in the file "@PCS7TypicalsAPLV8.PDL" which is installed automatically with the installation of PCS 7.

Block icons already include many functions.

Starting from a block icon you can, in Process mode, for example, open the associated faceplates which give you extensive information about the measuring point. Some block icons already have an integrated group display or a status display, for example.

The essential feature of standard block icons is that they are assigned to specific blocks in the CFC charts so that they are generated automatically.

Naming convention for template files

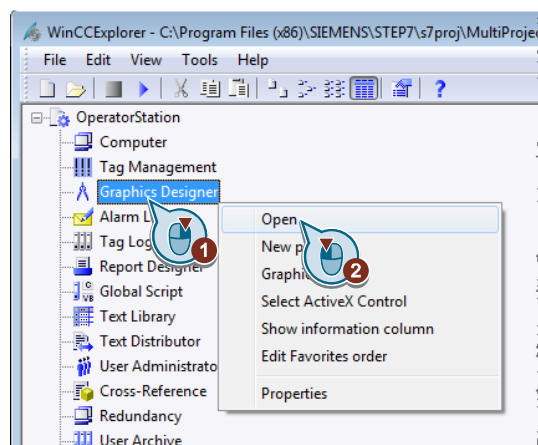
You should not change the name of the file "@PCS7TypicalsAPLV8.PDL". With this name PCS 7 knows automatically from which file the block icons are to be taken when executing the function "Create/Update Block Icons...".

If you want to use modified block icons in your project, you can store them in the corresponding template files. You can use up to 10 different template files.

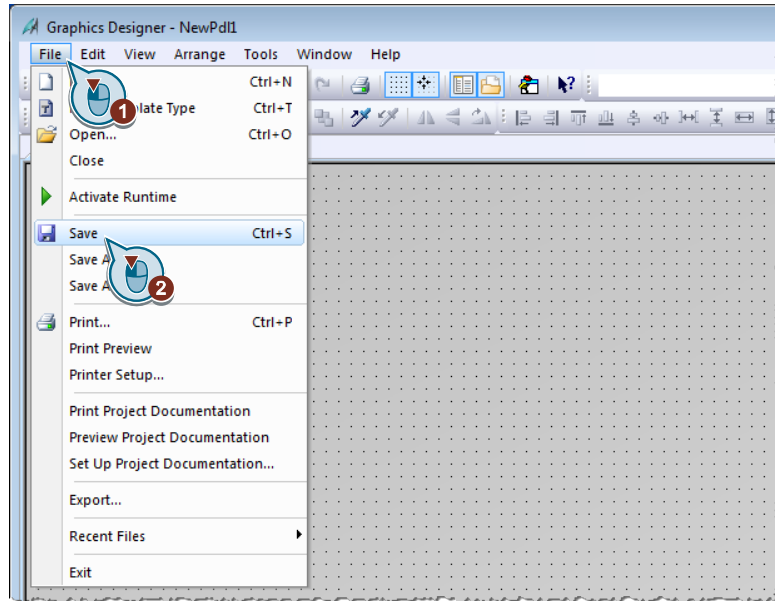
When naming a file you must make sure that the file name consists of the fixed name component "@PCS7Typicals" plus additional variable name components. The fixed name component is always at the beginning of the file name and it is necessary for PCS 7 to recognize in which files other block icons are stored. You can assign the variable name component as you wish to suit your requirements.

Procedure

1. Open the Graphics Designer in the WinCC Explorer.
In the Graphics Designer a new picture is created by default if no other picture has yet been opened. If not, create a new picture via "File > New".



2. Click "File > Save".



3. Enter a name in compliance with the naming convention given above ("`@PCS7Typicals_my_icon_blocks.PDL`") and click the "Save" button.

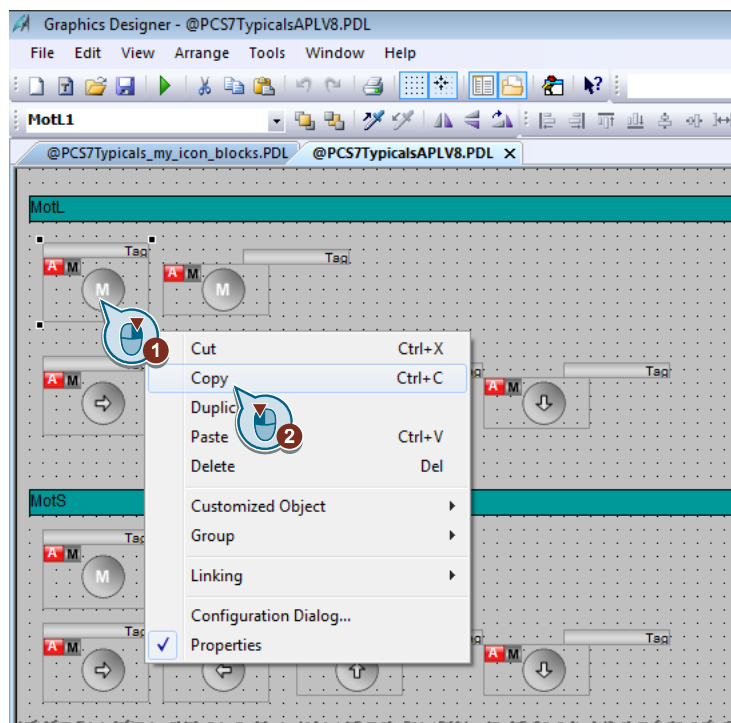
2.2 Copying a Standard Block Icon

Requirements

The WinCC project and the WinCC Explorer are open.

Procedure

1. Open the template file you created in the previous step (here "@PCS7Typicals_my_symbols.PDL").
2. Open the file "@PCS7TypicalsAPLV8.PDL" in the Graphics Designer.
This is the file in which the standard block icons are stored.
3. In the file "@PCS7TypicalsAPLV8.PDL", in the "MotL" line you mark the block icon with the object name "MotL1", right-click and select "Copy".



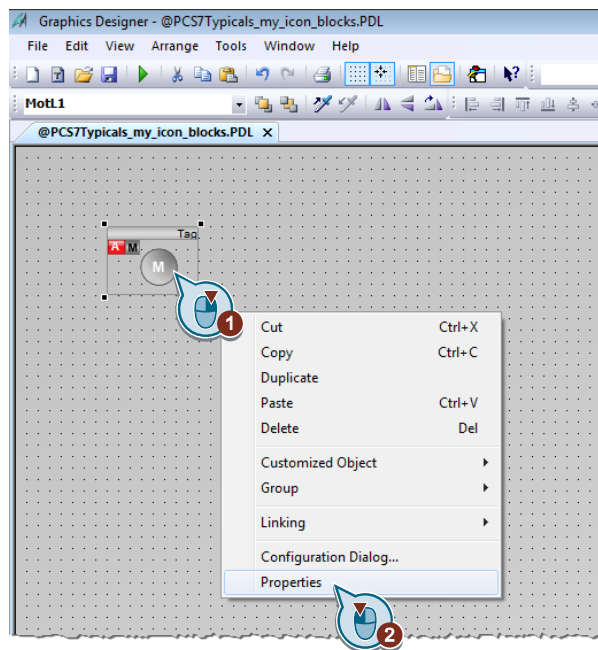
2.3 Changing Block Properties

Requirements

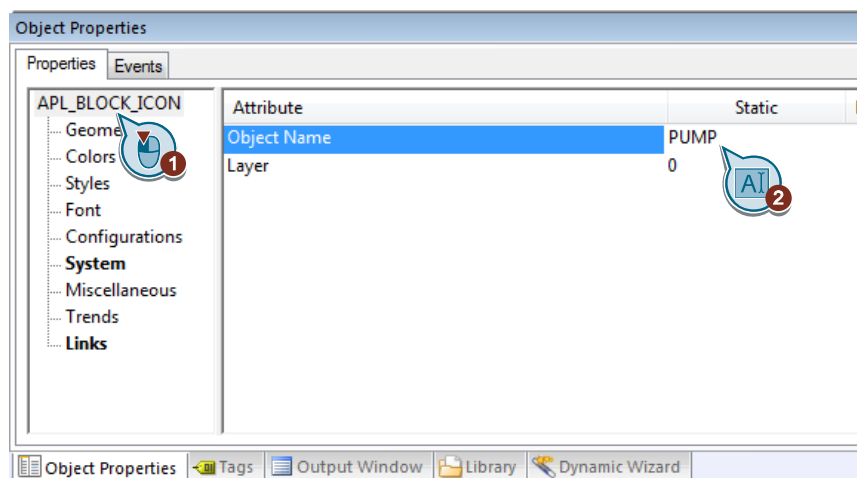
The template file you created is open (here "PCS7Typicals_my_symbols.PDL").

Procedure

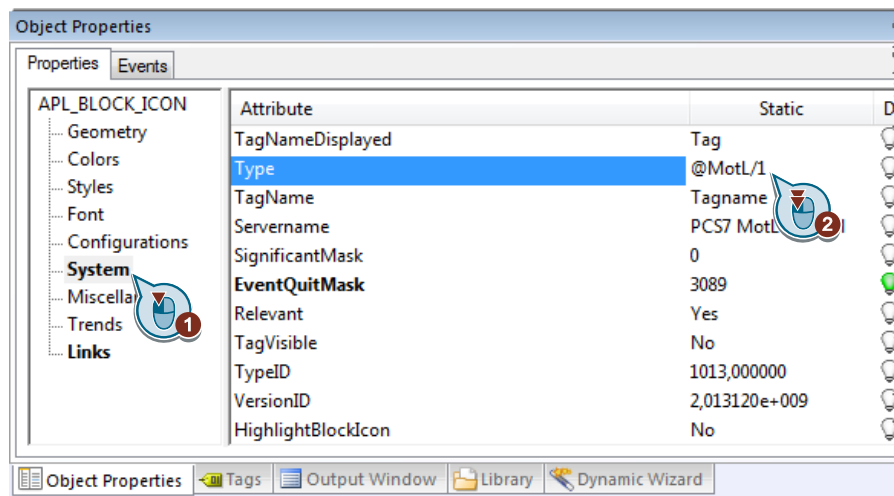
1. Mark the motor icon, right-click and select "Properties".



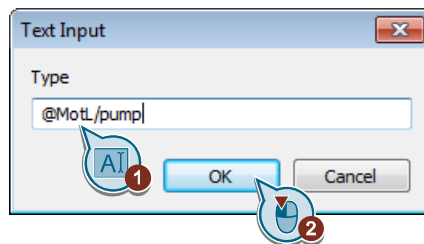
2. Mark the property "APL_BLOCK_ICON" and enter the value "PUMP" for the "Object Name" under "Attribute".



3. Mark the property "System" and double-click the attribute "Type".



4. Enter "@MotL/pump" and click the "OK" button.



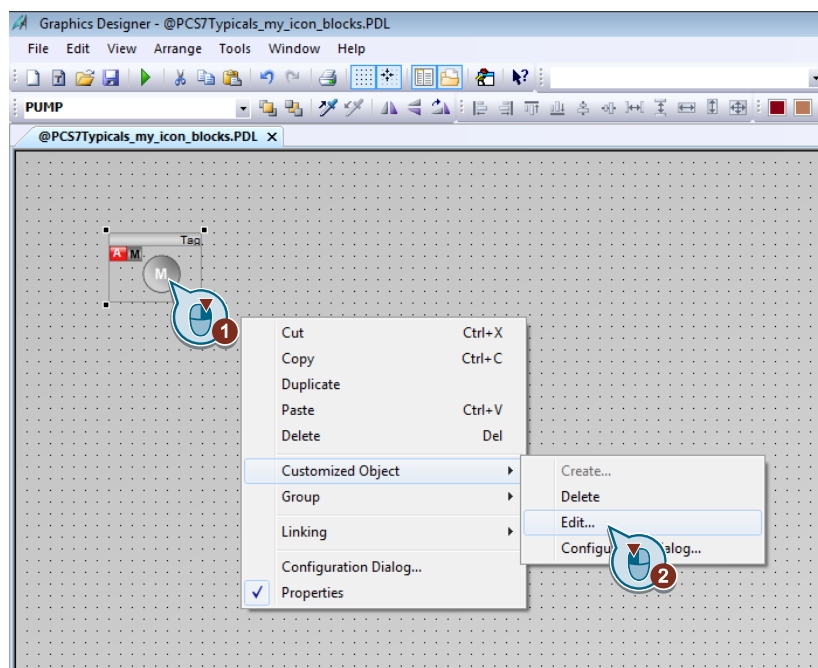
2.4 Changing the Block Display

Requirements

The file "@PCS7Typicals_my_symbols.PDL" is open.

Procedure

1. Mark the motor block icon and in the pop-up menu you select "Customized Object > Edit...".

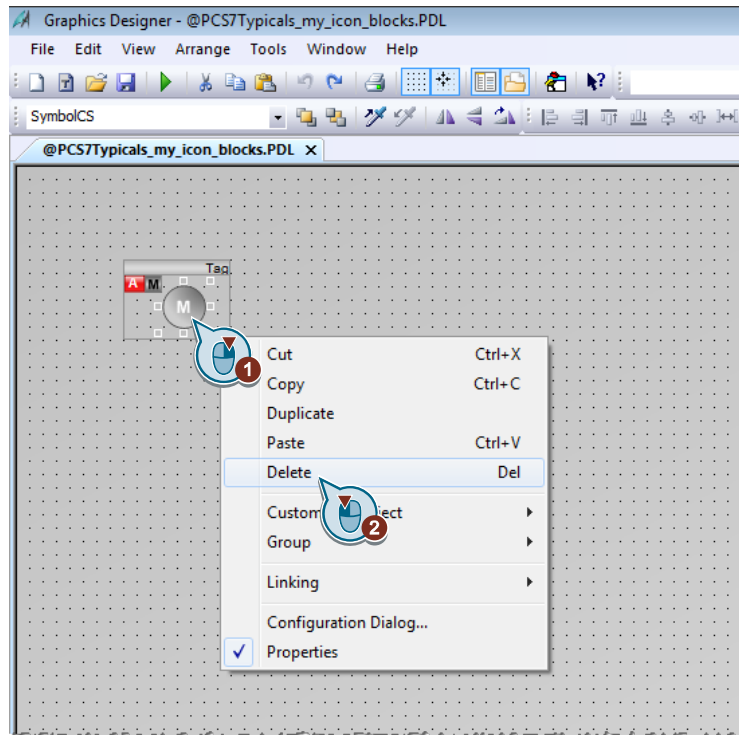


In this way you split the block icon created as so-called user object into single elements. You can edit these separately.

Note

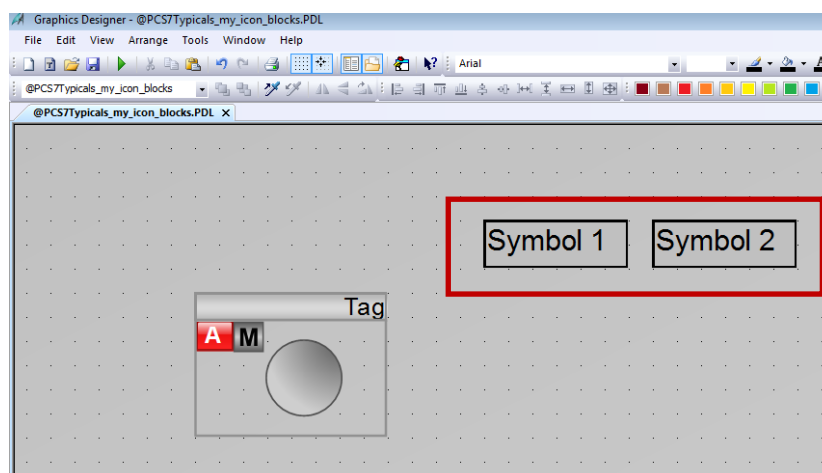
Never select the menu command "Resolve". This resolves the user object and deletes the complete configuration of the block icon.

2. Mark the circle and select "Delete" in the pop-up menu.

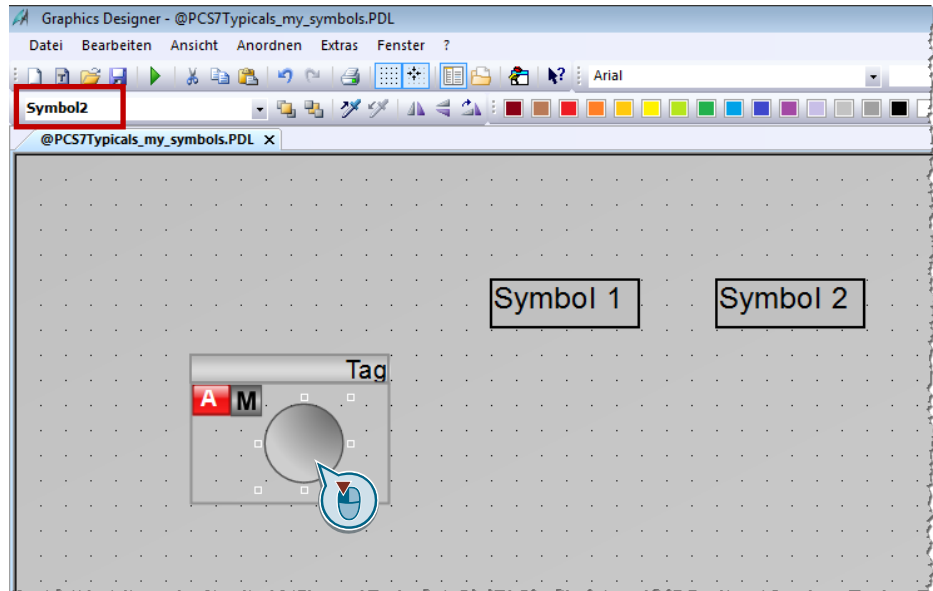


Note Several objects are on top of each other in the block icon. In this step we remove the topmost object.

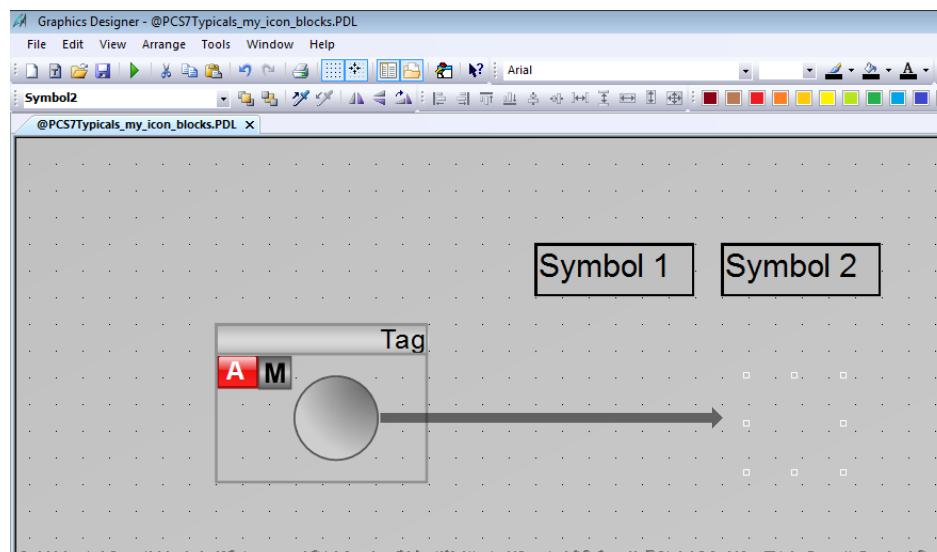
3. From the palette of standard objects you insert two static texts labeled "Symbol 1" and "Symbol 2" next to the block icon.



4. Mark the circle.
In the drop-down list box of the toolbar you see which object is currently selected ("Symbol 2").

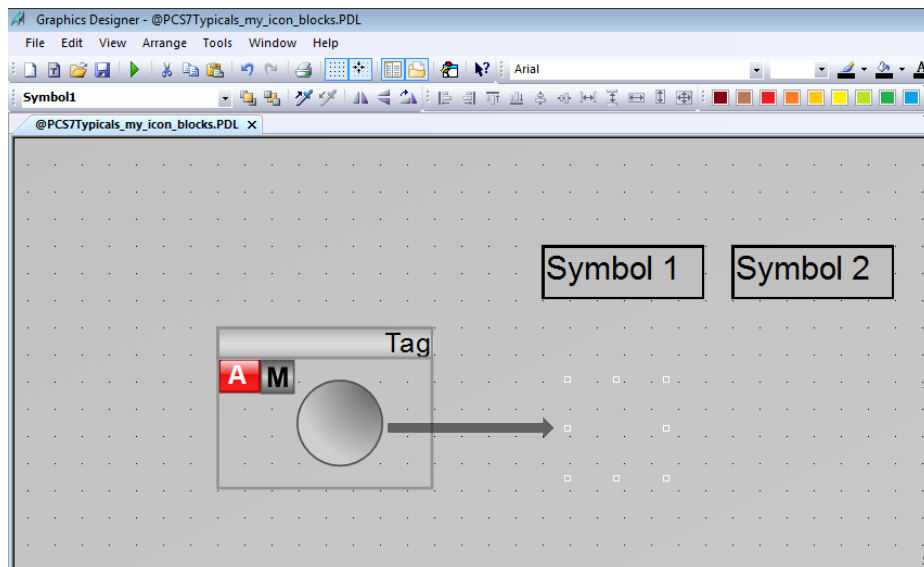


5. Move this object under the static text "Symbol 2".

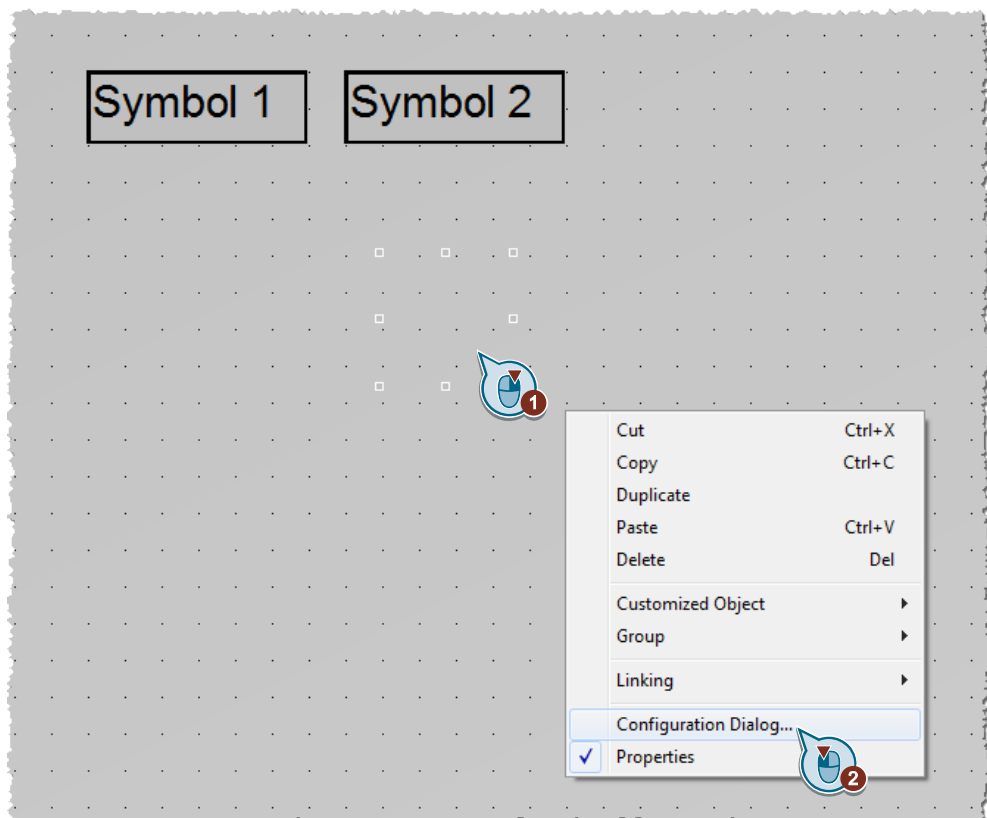


6. Mark the circle again.
In the drop-down list box of the toolbar you see that "Symbol 1" is selected.

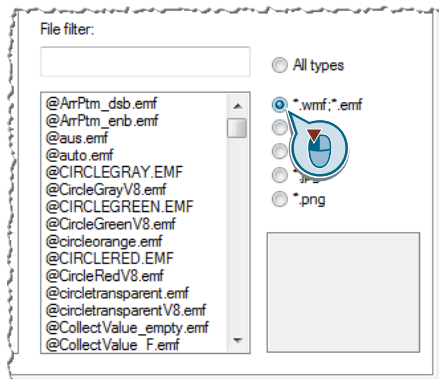
7. Move this object under the static text "Symbol 1".



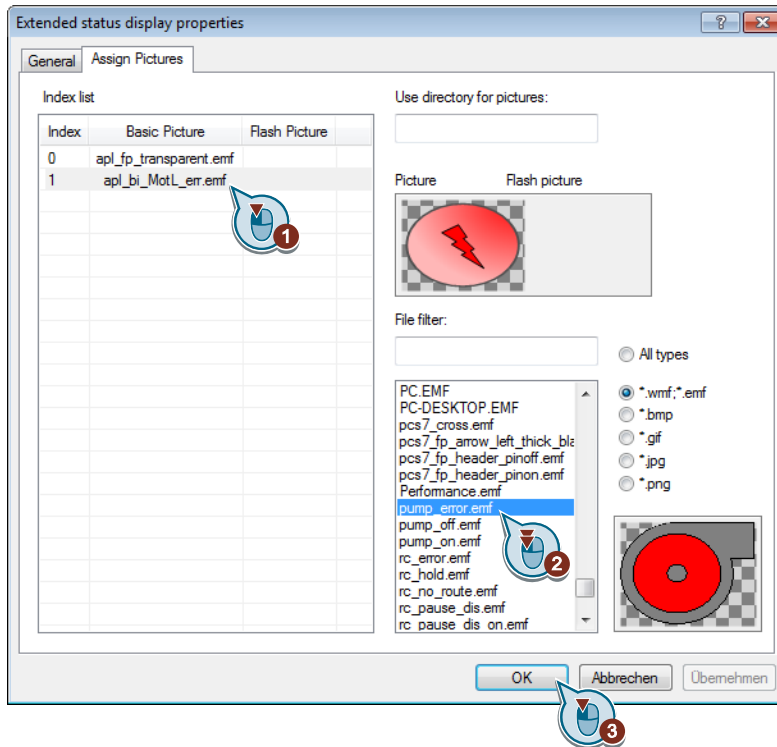
8. Mark the "Symbol 2" object, right-click and select "Configuration Dialog...".



- Switch to the "Assign Pictures" tab and make sure that the option ".wmf;*.emf" is enabled.

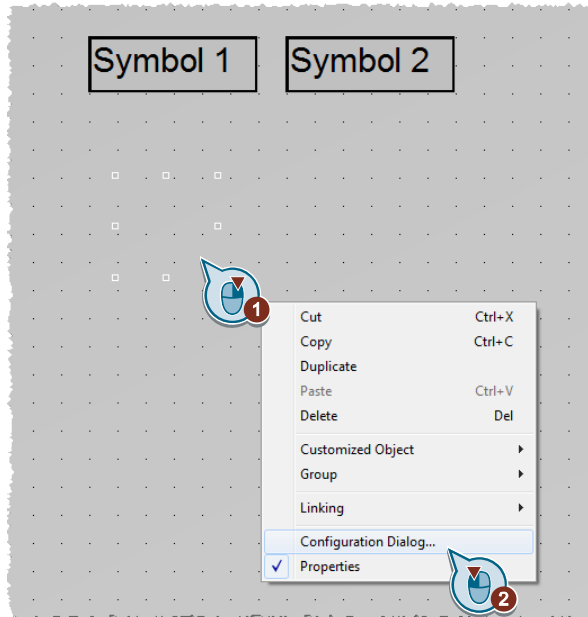


- Mark the second line "Index 1" and in the list with the pictures you double-click the file "pump_error.emf". Then click the "OK" button.



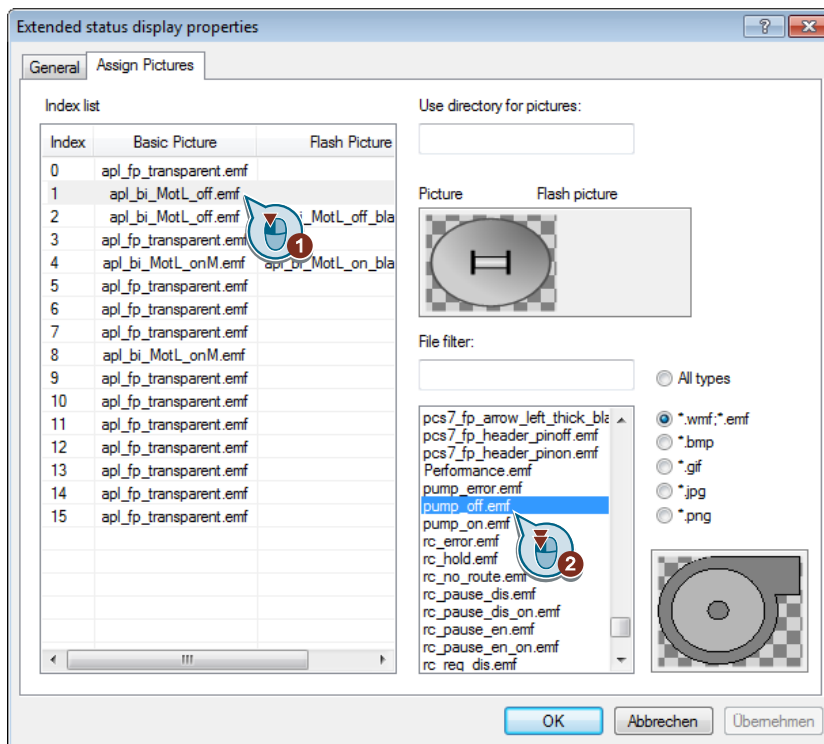
In the preview and in the list you see that the original motor display in the basic picture has been replaced by the pump display.

11. Mark the "Symbol 1" object, right-click and select "Configuration Dialog...".



12. Switch to the "Assign Pictures" tab and mark the second line "Index 1".

13. In the list with the pictures you double-click the file "pump_off.emf" while the second line "Index 1" is marked.

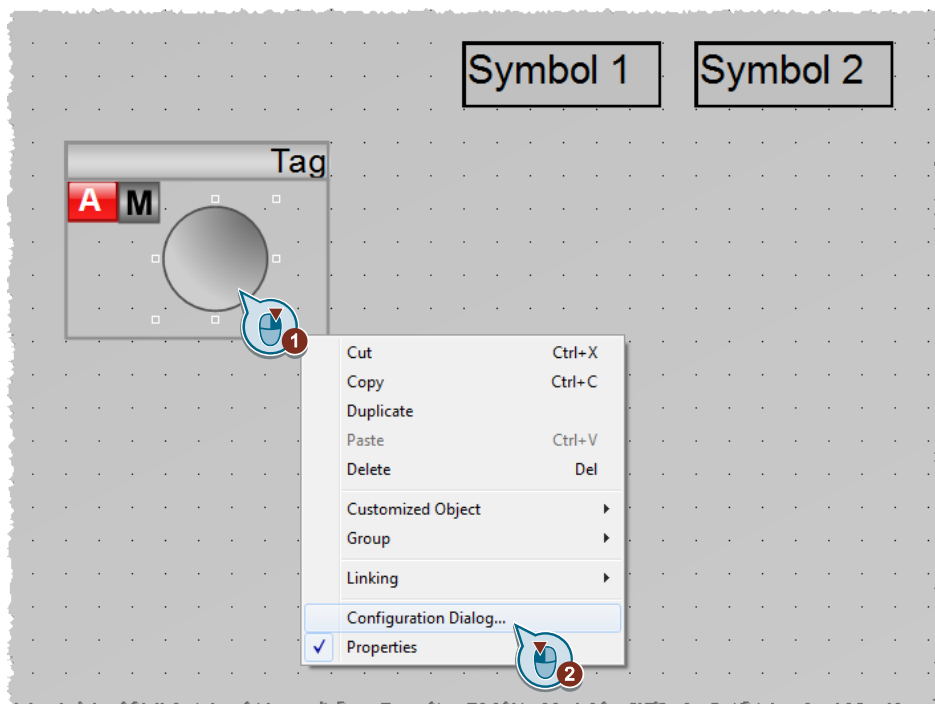


14. Repeat this procedure for the following lines.

Index	Old basic picture	New basic picture
2	apl_bi_MotL_off.emf	pump_off.emf
4	apl_bi_MotL_onM.emf	pump_on.emf
8	apl_bi_MotL_onM.emf	pump_on.emf

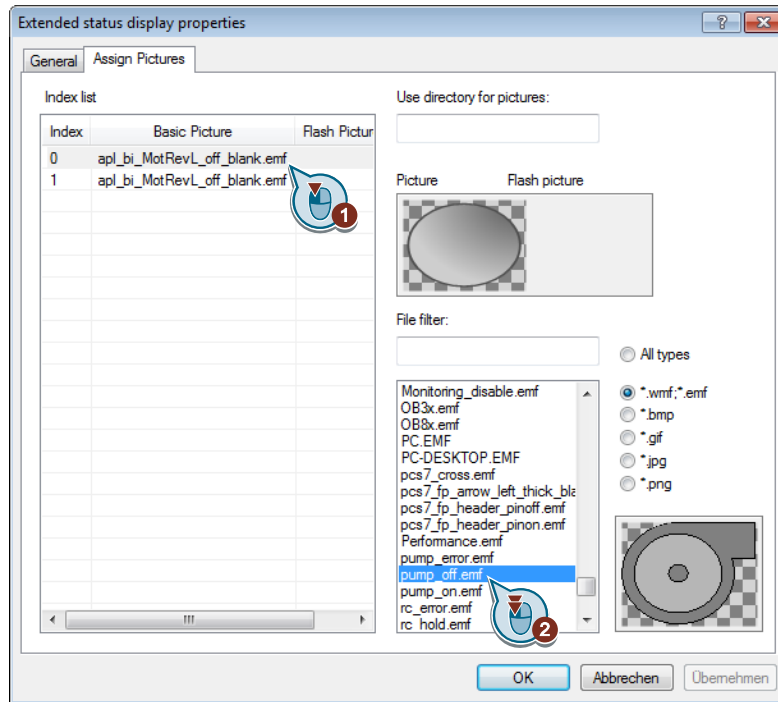
Then click the "OK" button.

15. Mark the circle (object "SymbolOos"), right-click and select "Configuration Dialog...".



16. Select the "Assign Pictures" tab.

17. Mark the first line "Index 0" and in the list with the pictures you double-click the file "pump_off.emf" while the first line "Index 0" is marked.



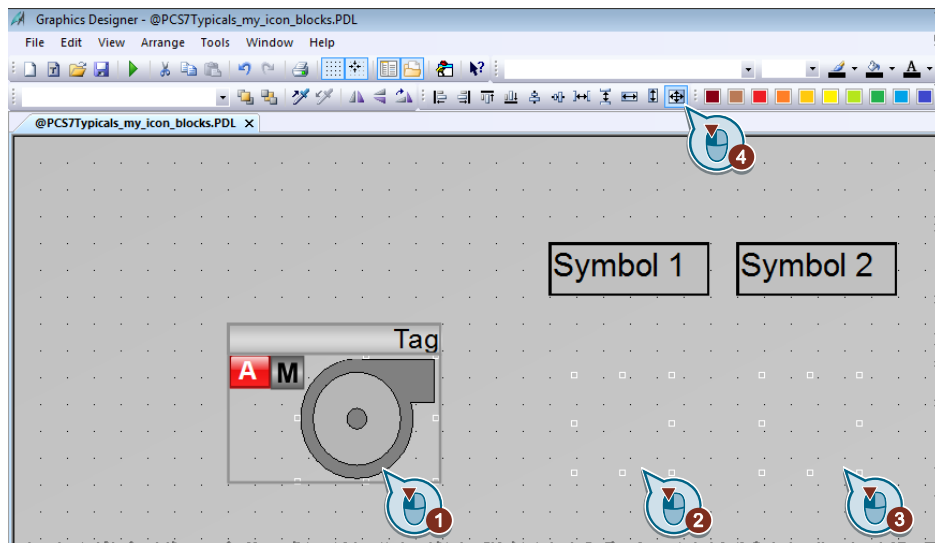
18. Mark the second line "Index 1", double-click the file "pump_off.emf" and then click the "OK" button.

19. In the Graphics Designer you now see the pump icon (gray). Change the size of the icon to fit the frame.



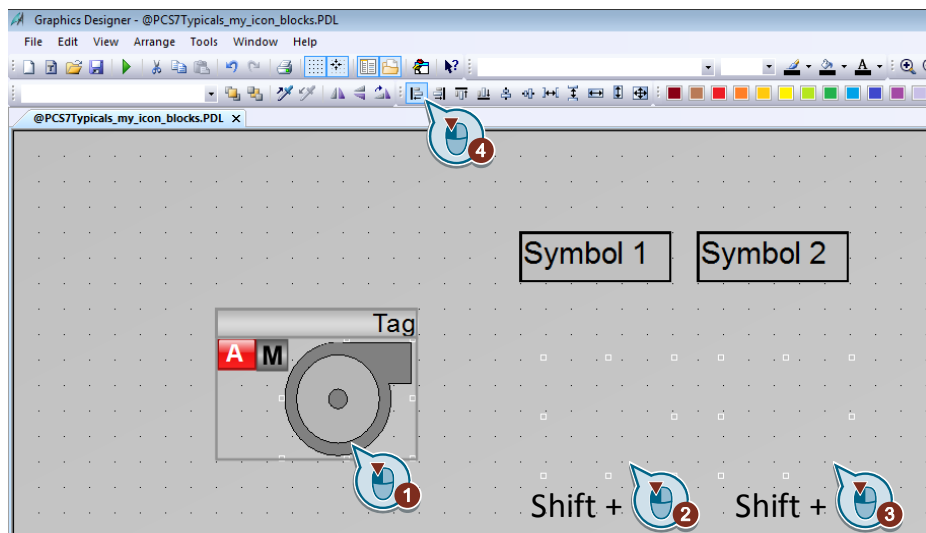
2 Creating Your Own Block Icons

20. Mark the three objects "SymbolOos", "Symbol1" and "Symbol2" with "**Shift + left-click**" and select the command "**Same Width and Height**" from the toolbar.



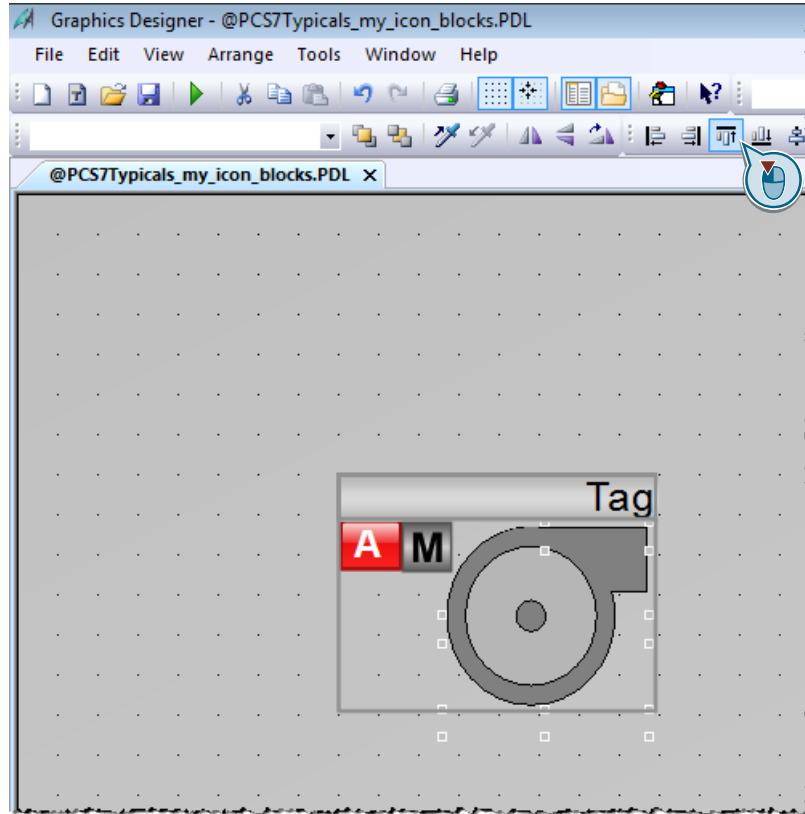
The objects are now all the same size.

21. Mark the three objects "SymbolOos", "Symbol1" and "Symbol2" with "**Shift + left-click**" and select the command "**Align Left**" from the toolbar.



22. You execute this step according to the situation.

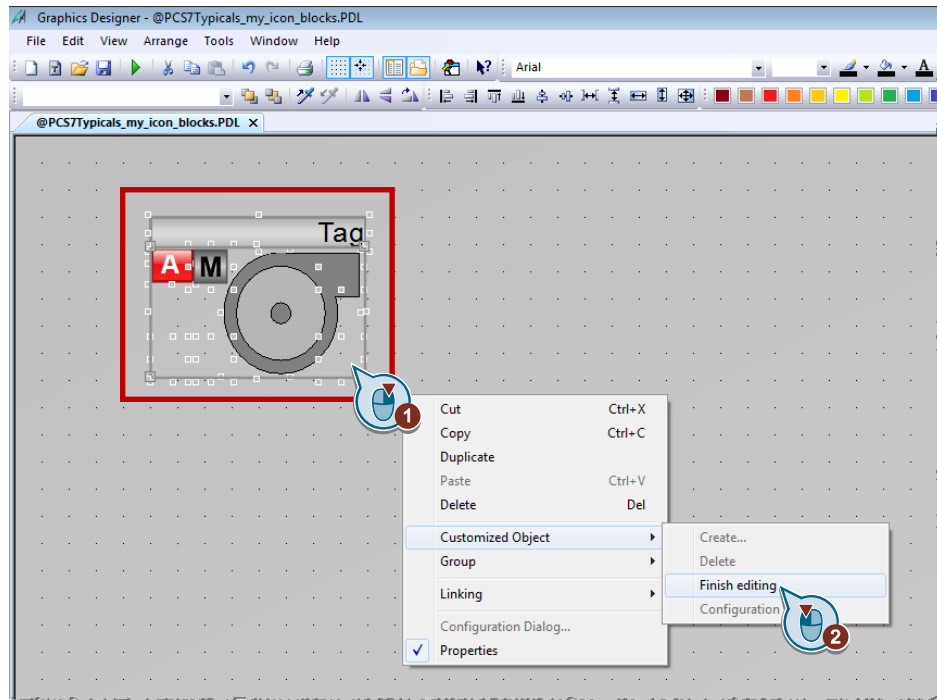
If the objects "Symbol2" and "Symbol1" are graphically **under** the object "SymbolOos", then you mark the three objects and select the command "**Align Top**".



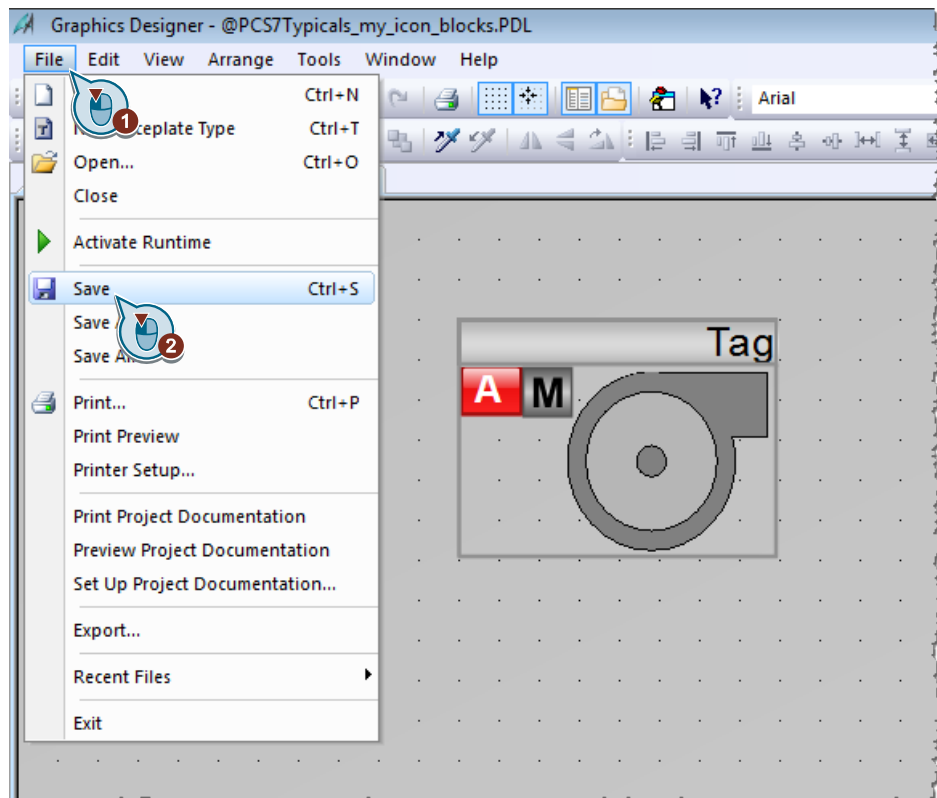
If the objects "Symbol2" and "Symbol1" are graphically **over** the object "SymbolOos", then you mark the three objects and select the command "**Align Bottom**".

2 Creating Your Own Block Icons

23. Mark **all** the objects of the pump block icon, right-click and select "Customized object > Finish editing".



24. Click "File > Save" and close the Graphics Designer.



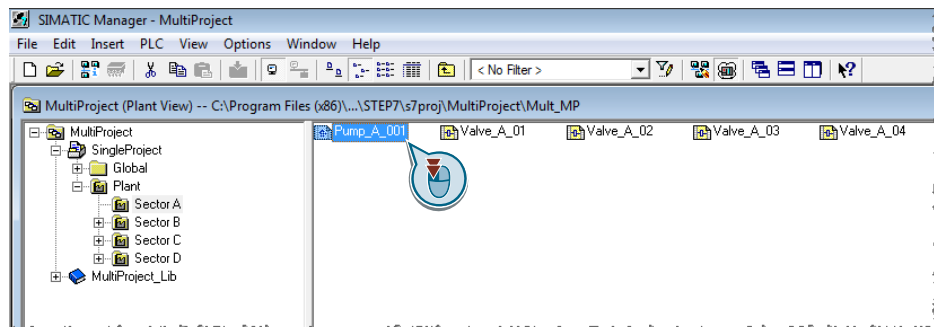
3 Creating/Updating Block Icons

3.1 Assigning Block Icons in the CFC Chart

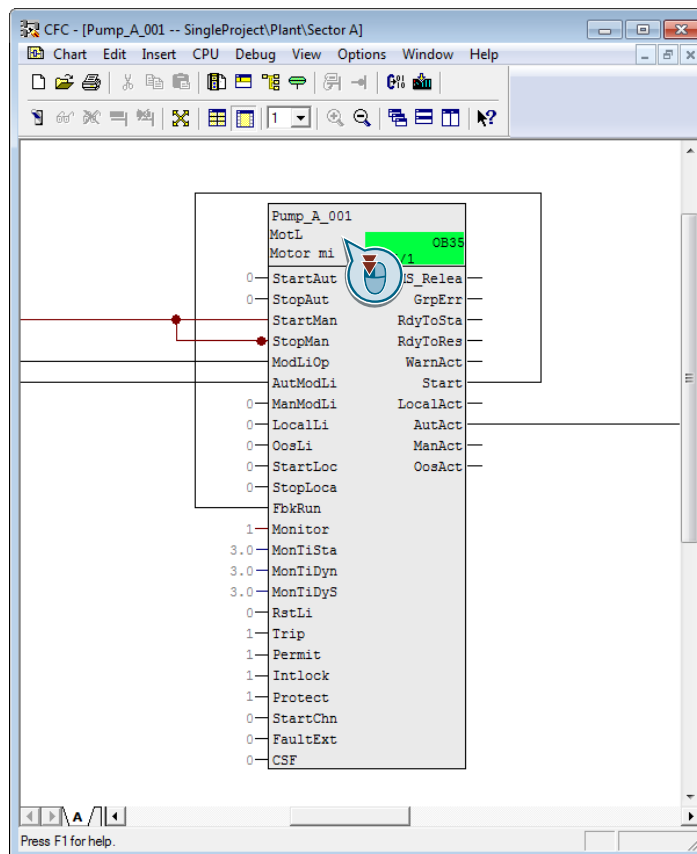
Once you have created the pump block icon, you have to assign it to the properties of the desired block in the CFC chart.

Procedure

1. Open the CFC chart in which the motor block is located.

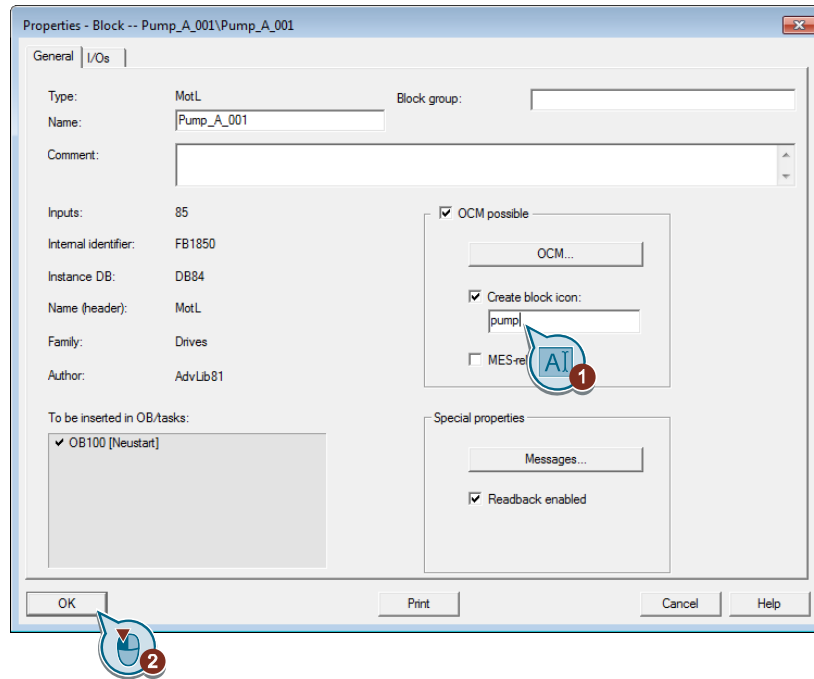


2. Open the Properties of the motor block by double-clicking the block or by right-clicking the block and selecting "Object Properties...".

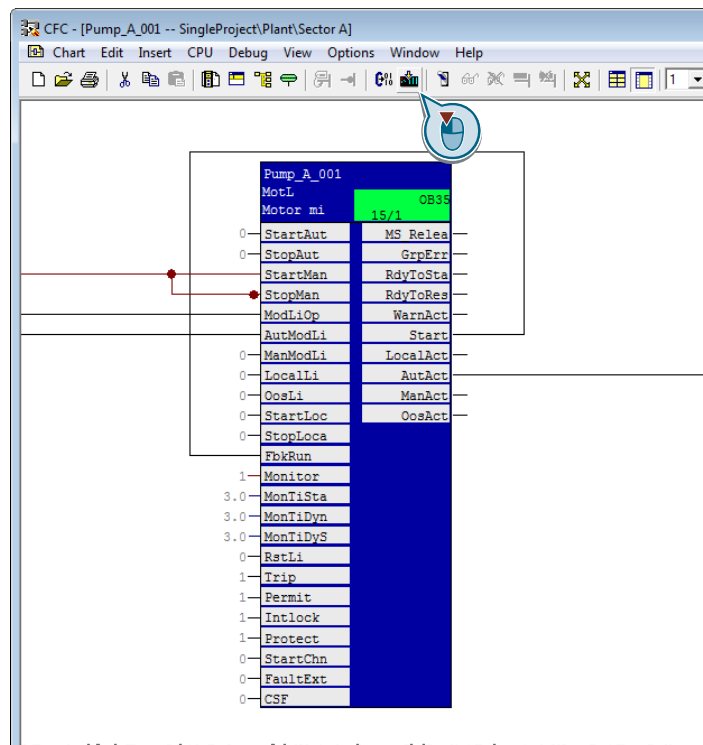


3 Creating/Updating Block Icons

3. In the "Create block icon" input field you enter the "Type" of the pump block icon which you defined in section 2.3 – Step 4 and click the "OK" button. Here only the part with the prefix "@MotL/" is relevant.



4. Do a changes-only download and then close the CFC chart.



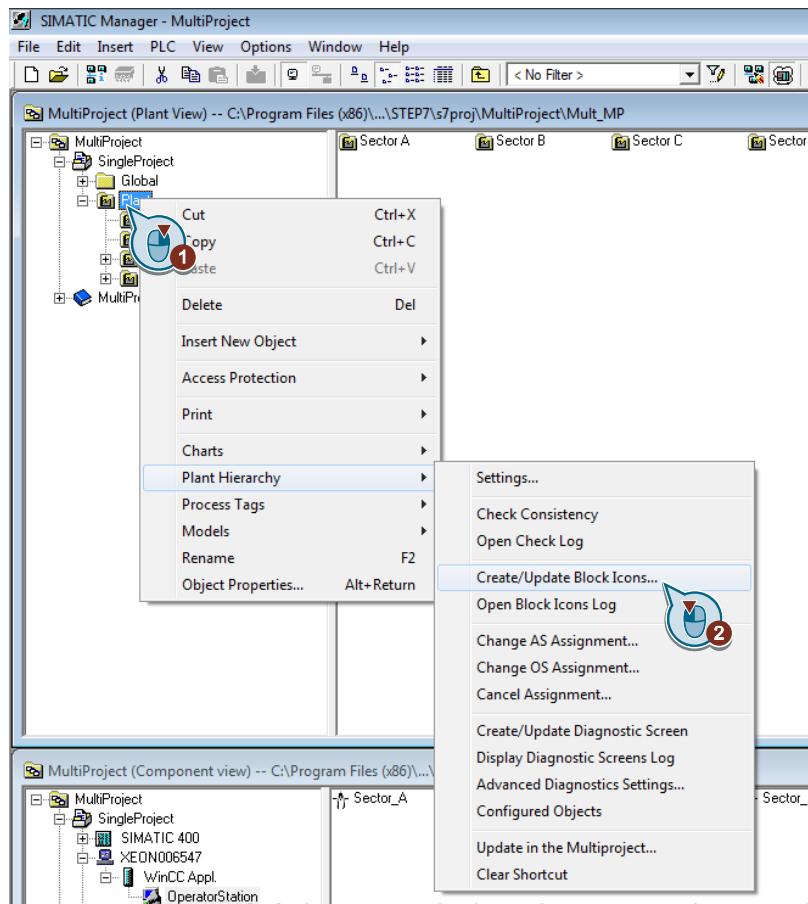
3.2 Creating/Updating Block Icons

Requirements

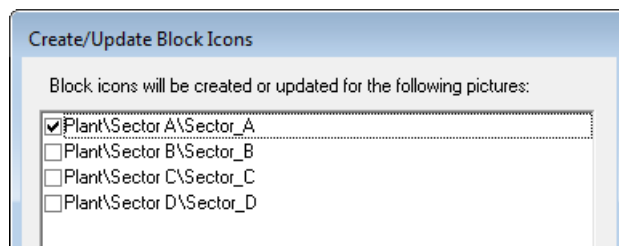
The Plant View of the project is open.

Procedure

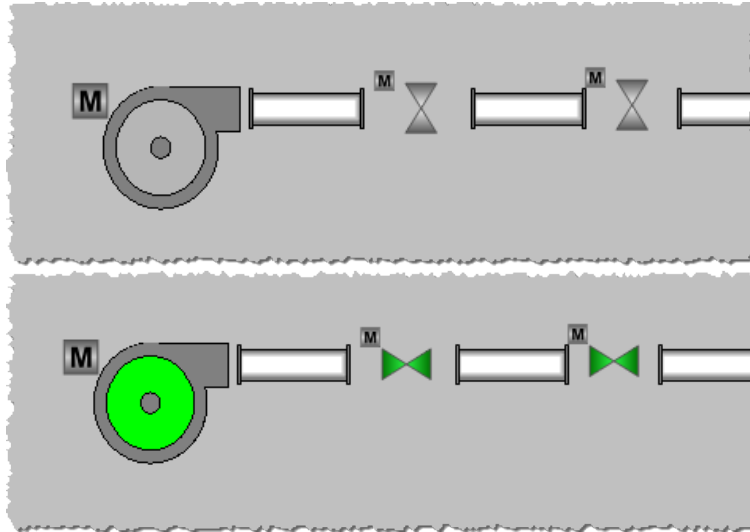
1. Mark the Plant folder, right-click and select "Plant Hierarchy" and then "Create/Update Block Icons...".



2. Select the process pictures affected by the block icon changes (if in doubt select them all).



3. After completing automatic generation of the block icons, the objects are incorporated in the configured WinCC picture and connected with the measuring point.



4 History

Version	Date	Change
V1.0	01/2015	First edition