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Application Description • 12/2014

Faceplates and Function Blocks for the Visualization of a SITOP UPS1600

WinCC flexible, WinCC (TIA Portal), WinCC

http://support.automation.siemens.com/WW/view/en/78817848

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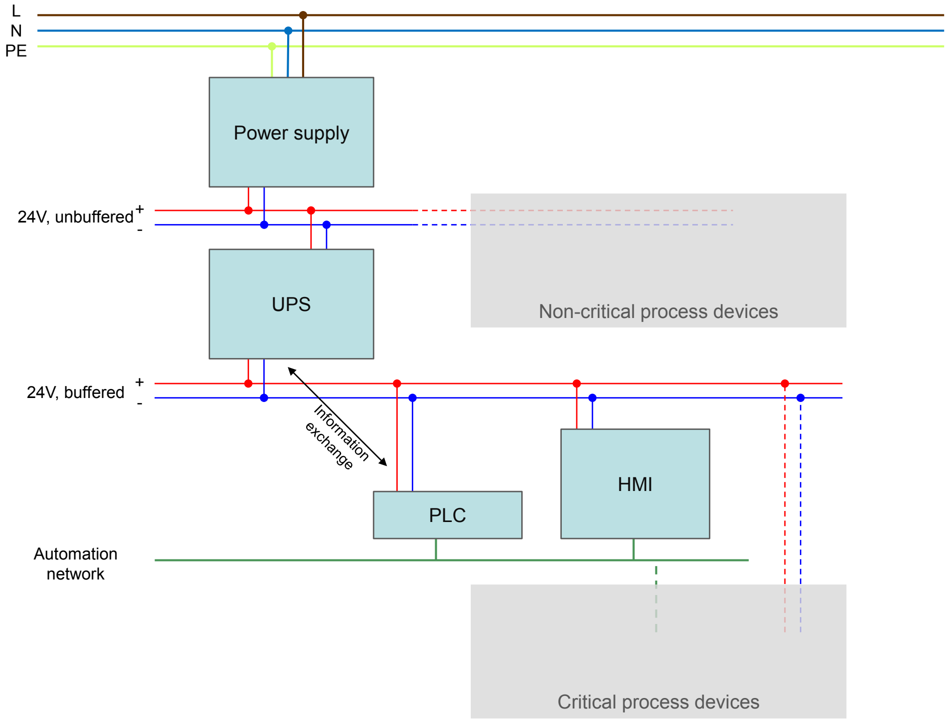
Table of Contents

1 Task

Overview of the automation task

The figure below provides an overview of the automation task.

Figure 1-1



Description of the automation task

Your task is to equip your automation plant with uninterruptible power supply. In the event of a power failure, critical process participants are to be protected.

In the event of a power failure of the automation plant, process values are to be maintained and plant components be safeguarded against mechanical damage by means of a defined stop.

Uninterruptible power supply is to be communication-capable and integrated into the automation network via PROFINET.

The status and diagnostic information of the uninterruptible power supply is to be displayed in the individual HMI stations.

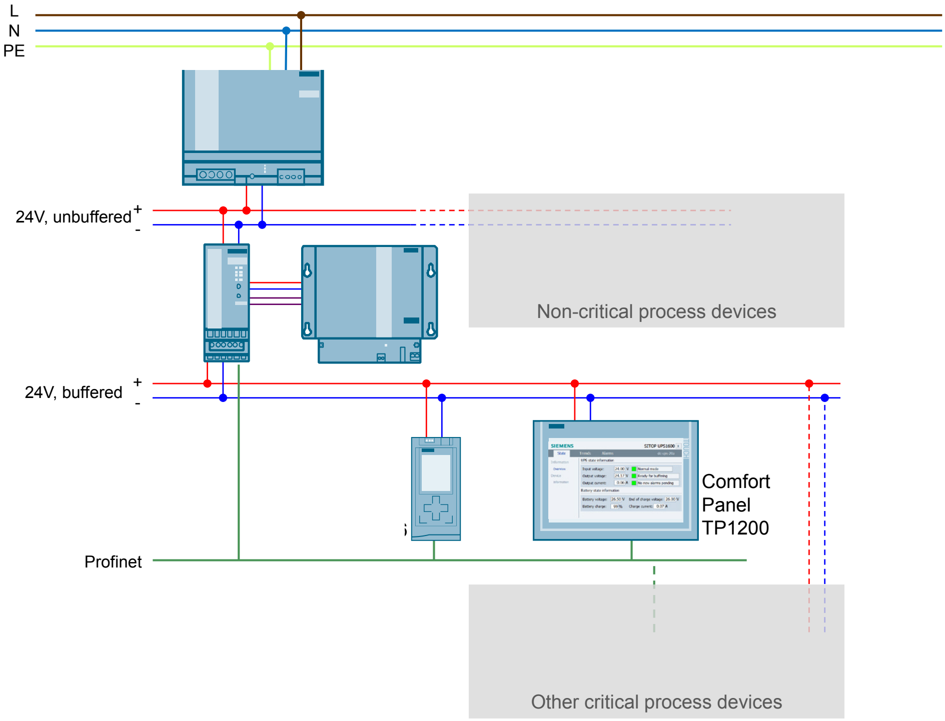
2 Structure

2.1 Solution overview

Structure

The figure below shows a schematic overview of the most important components of the solution:

Figure 2-1



Scope of this application example

This application example provides function blocks (FB160) for communication between the controller and SITOP UPS 1600.

Moreover, it provides faceplates and screen windows for monitoring and operation.

Structure/function of the hardware components

Table 2-1

Name	Function
SITOP Power Supply	Central 24V power supply for all process devices
Non-critical process devices	Symbol for other uncritical process devices (which can, for example, be switched off such as a compressor if there is sufficient pressure)
SITOP UPS 1600 and SITOP UPS 1100	Uninterruptible power supply with buffer (e.g., battery module)
S7-1516	Automation controller
Comfort Panel TP1200	Control panel for process visualization

Name	Function
Other critical process devices	Symbol for other critical process devices
PROFINET	Central process bus of all automation devices

Advantages

This application offers the following advantages:

- Time and cost saving by means of provided function blocks (FB160) and HMI faceplates and screen windows.
- Easy and comprehensive introduction to the topic of integrating a SITOP UPS1600 within a PROFINET network.

Scope

This application does not include a description of

- the creation of program blocks in STEP7 V5 / STEP7 V12,
- the creation of screens and objects in WinCC flexible / WinCC TIA Portal / WinCC,
- the configuration of communication between the described terminal devices,
- the handling of all described SIMATIC terminal devices.

Assumed knowledge

The following knowledge is assumed:

- Knowledge of using STEP7 V5, STEP7 V12, WinCC flexible, WinCC, and WinCC TIA Portal.
- Knowledge of operating, handling, and configuring SIMATIC S7 controllers (S7-300/400; S7-1200/1500).
- Knowledge of operating, handling, and configuring HMI control panels (Multi Panels, Comfort Panels) and Runtime systems (WinCC flexible Runtime, WinCC Runtime Advanced, WinCC Runtime, WinCC Runtime Professional).
- Knowledge of handling and operating SITOP UPS1600.

2.2 Description of the core functionality

Sequence of the core functionality

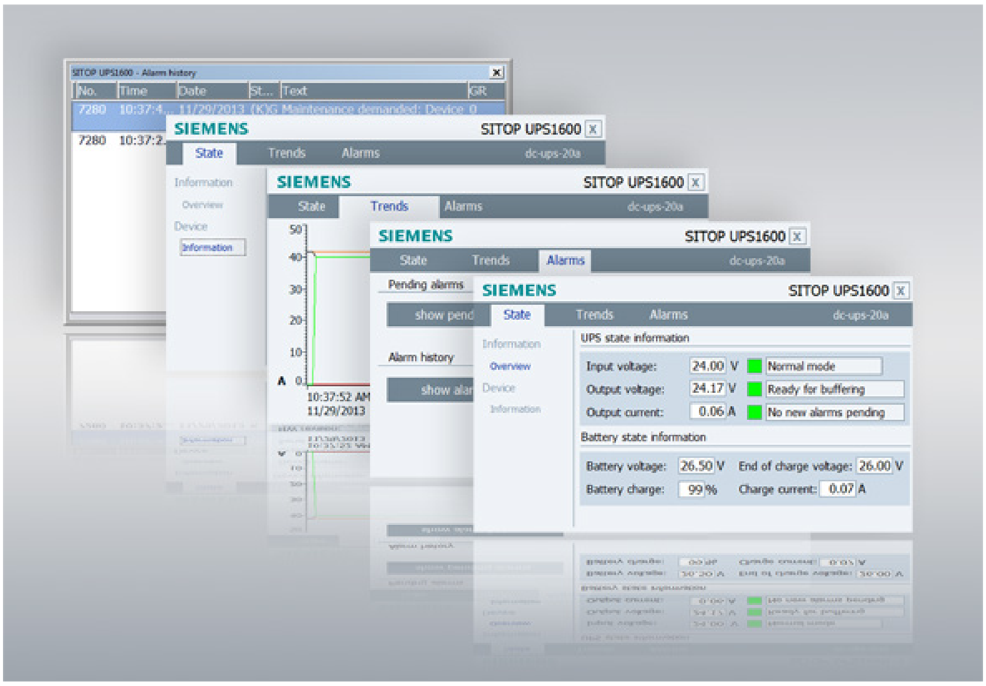
Communication between the UPS1600 and controller runs via PROFINET. The UPS1600 is connected with the controller as PROFINET IO node. Thus, the entire SITOP UPS1600 information (voltage, power, possible buffer time, battery state) is available in the controller.

In this application example, two scenarios are thus realized.

- Upon occurrence of a power failure, this is recognized by the PLC. Via the supplied program block FB160, this information is available in the control program and can be evaluated.
  This allows your process to respond and switch off your process devices in a defined manner.
- Via the supplied faceplates and screen windows, the relevant information and important parameters can be displayed on the HMI control panel.

Overview and description of the user interface

Figure 2-2



7280 10:37:4... 11/29/2013 (K)G Maintenance demanded: Device 0

7280 10:37:2...

10:37:52 AM 11/29/2013

Input voltage: 24.00 V 🟩 Normal mode

Output voltage: 24.17 V 🟩 Ready for buffering

Output current: 0.06 A 🟩 No new alarms pending

Battery voltage: 26.50 V End of charge voltage: 26.00 V

Battery charge: 99 % Charge current: 0.07 A

The application example provides the following views in the faceplate:

- UPS state
  - General overview
  - Device information
- Voltage and power trend curves
- SITOP alarms
  - Currently pending alarms / alarm history

2.3 Hardware and software components used

The application was created with the following components:

Hardware components

Table 2-2

Component	No.	Article number	Note
SITOP UPS1600 24V/10A (Ethernet/PROFINET)	1	6EP4134-3AB00-2AY0	
SITOP UPS1600 24V/20A (Ethernet/PROFINET)	or	6EP4136-3AB00-2AY0	
SITOP UPS1600 24V/40A (Ethernet/PROFINET)	or	6EP4137-3AB00-2AY0	
MP277 8" Touch	1	6AV6643-0CB01-1AX5	See Requirements
Comfort Panel TP1200	1	6AV2124-0MC01-0AX0	See Requirements
CPU 1516-3 PN/DP	1	6ES7516-3AN00-0AB0	Or other S7-1500 CPU
CPU 317-2 PN/DP	1	6ES7317-2EK14-0AB0	Or other S7-300 CPU

Standard software components

Table 2-3

Component	No.	Article number	Note
WinCC flexible 2008 SP3 Advanced	1	6AV6613-0AA51-3CA5	Alternatively WinCC flexible 2008 SP3 Standard
WinCC Advanced V12	1	6AV2102-0AA02-0AA5	Alternatively WinCC Comfort V12
STEP7 Professional V5.5	1	6ES7810-4CC10-0YA5	-
STEP7 Professional V12	1	6ES7822-1AA02-0YA5	-
WinCC Professional V12	1	6AV2102-0AH02-0AA5	-
WinCC V7.2	1	6AV6381-2BS07-2AX0	-

Sample files and projects

The following list includes all files and projects that are used in this example.

Table 2-4

Component	Note
78817848_UPS1600_lib_TIAP_V12_SP1.zip	This zip file contains the library for TIA Portal V12 and the master copies for STEP 7 V12 and WinCC V12.

2.3 Hardware and software components used

Component	Note
78817848_UPS1600_STEP7_V5_5.zip	This zip file contains the library of the function blocks for STEP 7 V5.5.
78817848_UPS1600_lib_WinCC_flexible_2008.zip	This zip file contains the library of the faceplates for WinCC flexible 2008 SP3.
78817848_UPS1600_lib_WinCC _V7_2.zip	This zip file contains the library of the screen windows for WinCC V7.2.
78817848_Faceplates_SITOP_DC_USV_de.pdf	This document.

3 Function Blocks for the UPS1600

This chapter informs about the options and functions provided by the supplied function block FB160. Moreover, this chapter describes the application and requirements of the function block FB160 and its integration into a STEP 7 project.

3.1 Function and task of the function block

3.1.1 Task description and application

In the event of a plant power failure it is essential to safeguard certain machine components against damage and to back up process-relevant data in order to prevent data loss.

The application of the function block FB160 provides you with the option to bring your plant into a safe state and switch it off in a program-controlled manner while a SITOP UPS1600 buffers the voltage.

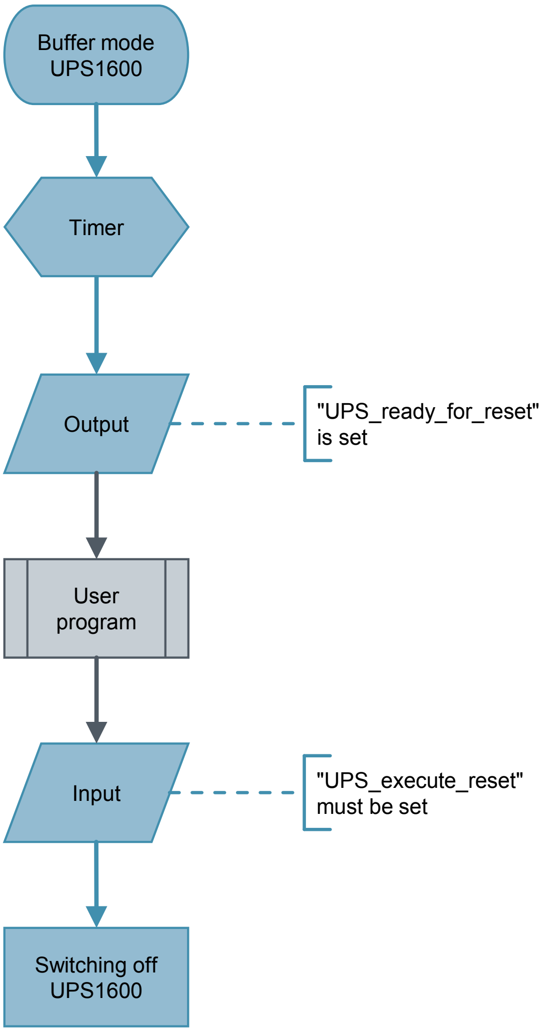
3.1.2 Function description

The function block FB160 cyclically monitors the operating mode of the SITOP UPS1600. If the SITOP UPS1600 is in buffer mode, a 10s timer within the function block starts to run. This timer prevents a plant from being brought into a safe state in the event of just a short voltage dip/drop.

If after expiry of the timer the UPS is still in buffer mode, the parameter "UPS_ready_for_reset" is set from "FALSE" to "TRUE".
In the further course of the program, this parameter can be used to bring plant components into a safe state (maintenance mode).

When the plant has been brought into a safe state, the parameter "UPS_execute_reset" must be set from "FALSE" to "TRUE". The function block then sends a command to the UPS1600, which then switches off autonomously.

The following figure displays the program sequence of the function block.



Notes regarding the function

- If the SITOP UPS1600 returns to normal mode while the timer is running, the parameter "UPS_ready_for_reset" is not set.
  The timer is then reset.
- After the parameter "UPS_execute_reset" has been set, the further program sequence must absolutely be executed until the UPS1600 is switched off via the function block.
- The buffer time of the SITOP UPS1600 must be set such that there is sufficient time to bring the plant into a safe state and switch off the UPS via the function block.

3.2 Operating conditions

The function block is approved for the following constellations:

- STEP 7 V5.5 and application of a CPU 300/400
- STEP 7 V12 and application of a CPU 300/400 or CPU 1200/1500

4 Application of the Function Block under STEP 7 V5.5

4.1 Preconditions

The following requirements must be met in order to use the function block in combination with a SITOP UPS1600 and STEP 7 V5.5.

- The GSD file of the SITOP UPS1600 is installed in the hardware configuration of STEP 7 V5.5 and the UPS is configured as PROFINET node in the HW configuration of the SIMATIC S7 controller.
- Already existing S7 communication between the SITOP UPS1600 and SIMATIC S7 controller.
- The library "UPS1600 STEP 7 V5_5" is available on the computer.

Note regarding the installation of the GSD file

The required information about the installation of the GSD file of the SITOP UPS1600 in STEP 7 V5.5 is available in the SITOP UPS1600 User Manual in Chapter 3.4.1.

Note regarding the S7 communication

The required information about establishing communication between a SITOP UPS1600 and a SIMATIC S7 controller is available in the SITOP UPS1600 User Manual in Chapter 3.4.

4.2 Content of the library for STEP 7 V5.5

The library "UPS1600 STEP 7 V5_5" comprises the following:

- Blocks (FB160, DB160, DB161)
- Symbol table "Symbols _UPS1600"
- SCL source file of the code block FB160

The following table shows the blocks contained in the library.

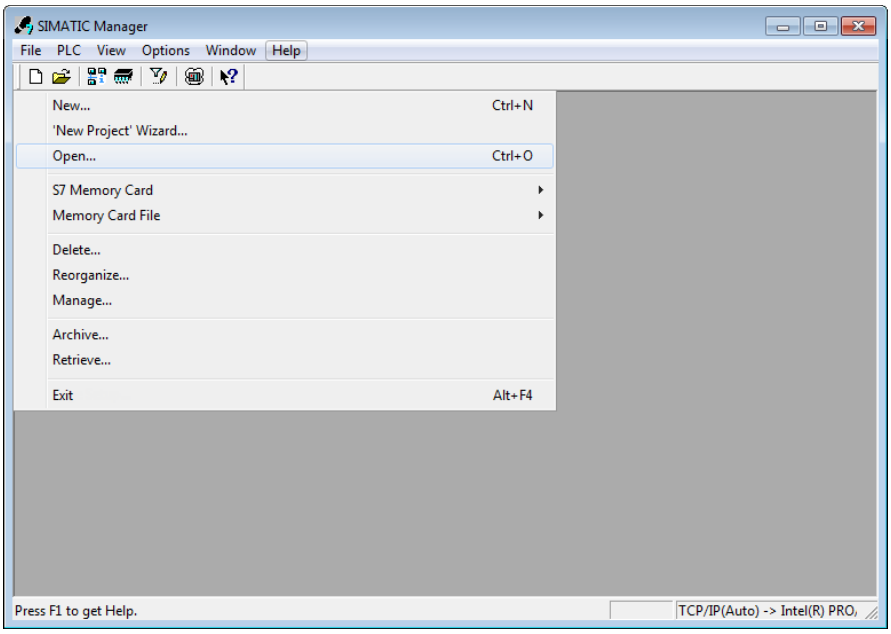
Table 4-1

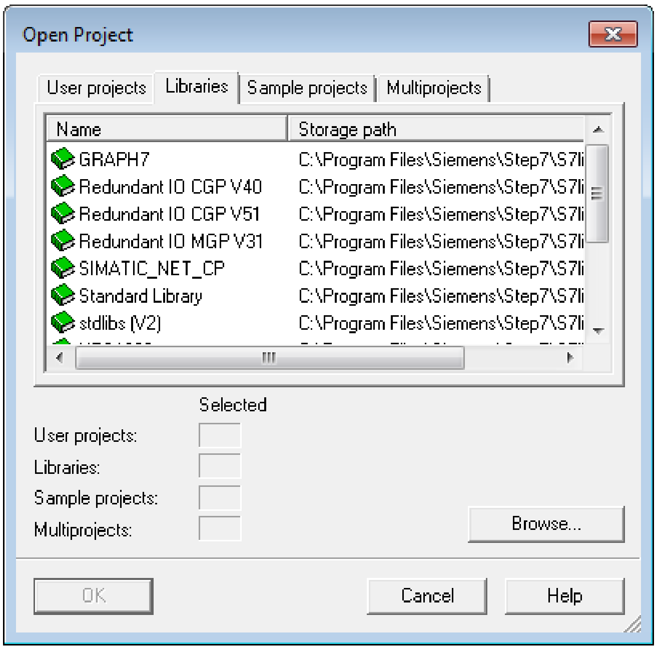
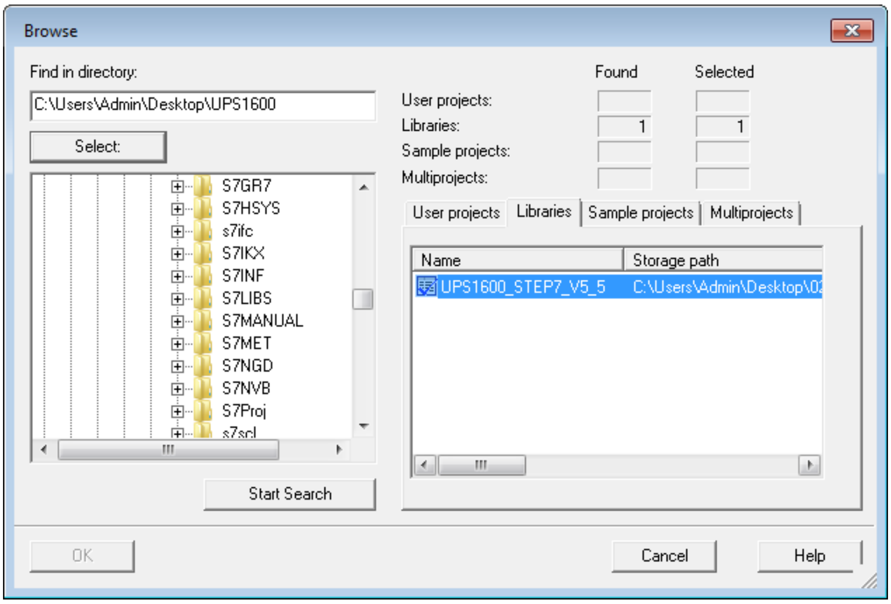
Block	Name	Description
FB160	UPS1600	Function block for program-controlled switch-off of the UPS1600
DB160	UPS1600_iDB	Instance data block of the FB160
DB161	UPS1600_Infos	The data block contains all parameters of the SITOP UPS1600 displayed within the HMI faceplate.

Opening the library in STEP 7 V5.5

Follow the instructions in the table below to open the library in a STEP 7 V5.5 project.

Table 4-2

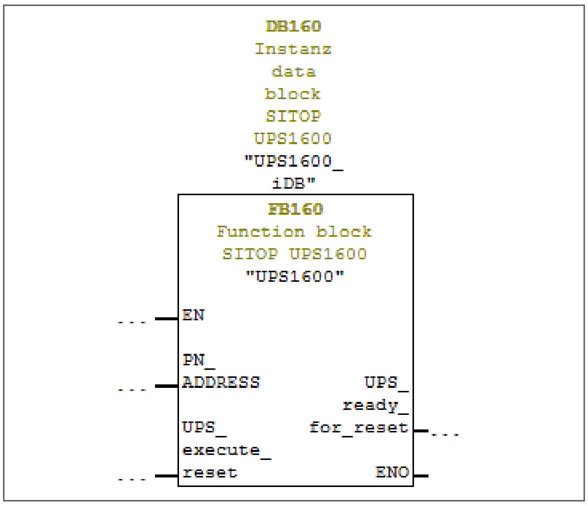
No.	Procedure
1.	Start the SIMATIC Manager.
2.	In the menu bar of the SIMATIC Manager, click on "File > Open".  SIMATIC Manager File PLC View Options Window Help New... Ctrl+N 'New Project' Wizard... Open... Ctrl+O S7 Memory Card Memory Card File Delete... Reorganize... Manage... Archive... Retrieve... Exit Alt+F4 Press F1 to get Help. TCP/IP(Auto) -> Intel(R) PRO/ The "Open Project" dialog box opens.

No.	Procedure
3.	Click on the "Libraries" tab.  Open Project User projects, Libraries, Sample projects, Multiprojects Name: Storage path GRAPH7: C:\Program Files\Siemens\Step7\S7li Redundant IO CGP V40: C:\Program Files\Siemens\Step7\S7li Redundant IO CGP V51: C:\Program Files\Siemens\Step7\S7li Redundant IO MGP V31: C:\Program Files\Siemens\Step7\S7li SIMATIC_NET_CP: C:\Program Files\Siemens\Step7\S7li Standard Library: C:\Program Files\Siemens\Step7\S7li stdlibs (V2): C:\Program Files\Siemens\Step7\S7li Selected User projects: Libraries: Sample projects: Multiprojects: Browse... OK, Cancel, Help
4.	Click the "Browse..." button. The "Browse" dialog box opens.
5.	Select the storage location of the library from the list in the dialog box and then click the "OK" button.  Browse Find in directory: C:\Users\Admin\Desktop\UPS1600 Select S7GR7 S7HSYS s7ifc S7IKX S7INF S7LIBS S7MANUAL S7MET S7NGD S7NVB S7Proj s7scl Start Search Found / Selected User projects: Libraries: 1 / 1 Sample projects: Multiprojects: User projects, Libraries, Sample projects, Multiprojects Name: Storage path UPS1600_STEP7_V5_5: C:\Users\Admin\Desktop\0 OK, Cancel, Help The library is opened and can be used.

4.3 Interfaces of the function block

Block diagram

The following figure shows the block diagram of the function block FB160 within a network.



Interface description

Table 4-3

Parameter	Declaration	Data type	Description
PN_ADDRESS	Input	DWORD	PROFINET diagnostic address of the SITOP UPS1600 within the project. The diagnostic address must be specified in hexadecimal format.
UPS_execute_reset	Input	BOOL	Switch-off signal to the SITOP UPS1600
UPS_ready_for_reset	Output	BOOL	Signal for plant shut-down

4.4 Data block DB161

The data block contains all parameters of the SITOP UPS1600 displayed within the HMI faceplate.

The following table lists all parameters of the SITOP UPS1600 contained in DB161.

Table 4-4

Parameter	Data type	Offset	Remarks
Battery_capacity	Int	0.0	[0.1Ah]
End_of_charge_voltage	Int	2.0	[0.01V]
Charge_current	Int	4.0	[mA]
HW_revision	Int	6.0	-
SW_revision	Int	8.0	-
Max_output_current	Byte	10.0	[A]
Padding	Byte	11.0	-
Order_number	Array [0 .. 29] Of Char	12.0	[30 characters]
Serial_number	Array [0 .. 29] Of Char	42.0	[30 characters]
Device_name	Array [0 .. 29] Of Char	72.0	[30 characters]
Version_number	Array [0 .. 49] Of Char	102.0	[50 characters]
Input_voltage	Int	152.0	[0.01V]
Input_current	Int	154.0	[5mA]
Output_voltage	Int	156.0	[0.01V]
Load_current	Int	158.0	[5mA]
Measured_charge_current	Int	160.0	[mA]
Battery_voltage	Int	162.0	[0.01V]
Output_current	Int	164.0	[5mA]
Charge_voltage	Int	166.0	[0.01V]
Buffer_mode	Byte	168.0	(active=255 / inactive=0); undefined = 127
Ready_for_buffering	Byte	169.0	(yes or no – 255/0)
New_alarms_pending	Byte	170.0	(yes or no – 255/0)
Battery_charge_level	Byte	171.0	(0...100%); 255 – unknown battery)
Total_calculated_battery_capacity	Int	172.0	[0.1Ah]
Total_calculated_battery_health	Byte	174.0	[%]
Buffer_time	Int	176.0	[s]
Buffer_threshold	Int	178.0	[s]
Buffering_allowed	Byte	180.0	[0/255]
CommandID	Int	182.0	Remote reset=8195
Parameter	Byte	184.0	[s]
Padding_command	Byte	185.0	[s]

Parameter	Data type	Offset	Remarks
Order_number_string	String [254]	186.0	char to string > Order_number
Serial_number_string	String [254]	442.0	char to string > Serial_number
Device_name_string	String [254]	698.0	char to string > Device_name
Version_number_string	String [254]	954.0	char to string > Version_number

Note Further information about the system parameters is available in the UPS1600 User Manual.

4.5 Integrating the function block

The following sections describe all steps required to integrate the function block FB160 into a STEP 7 V5.5 project.

Hardware used in this description:

- CPU 317-2 PN/DP
- SITOP UPS1600 24V/10A

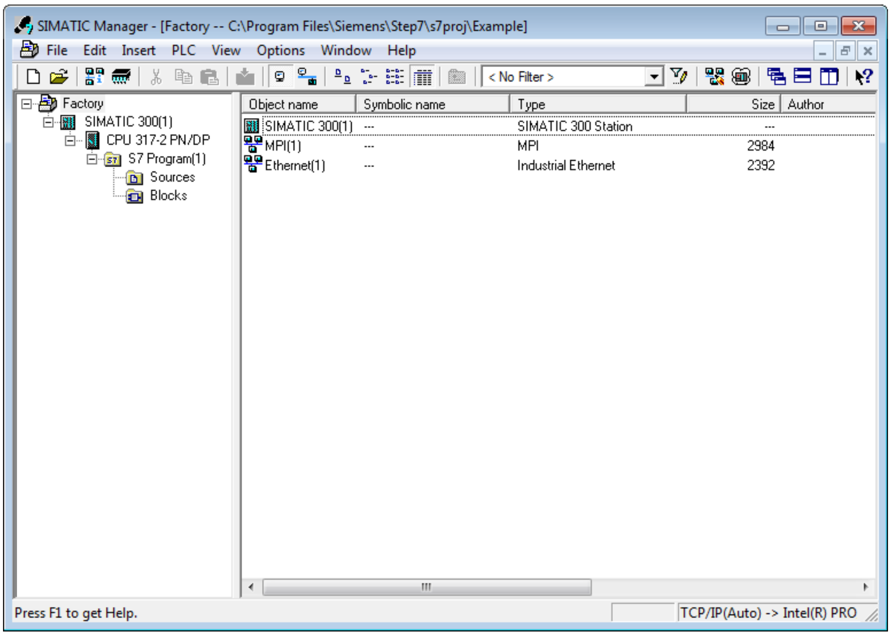
The procedure for other SIMATIC S7 controllers is identical.

Note Please make sure that all requirements for the integration of the function block are met. The requirements are described in Chapter 4.1.

Inserting blocks from the library into the program

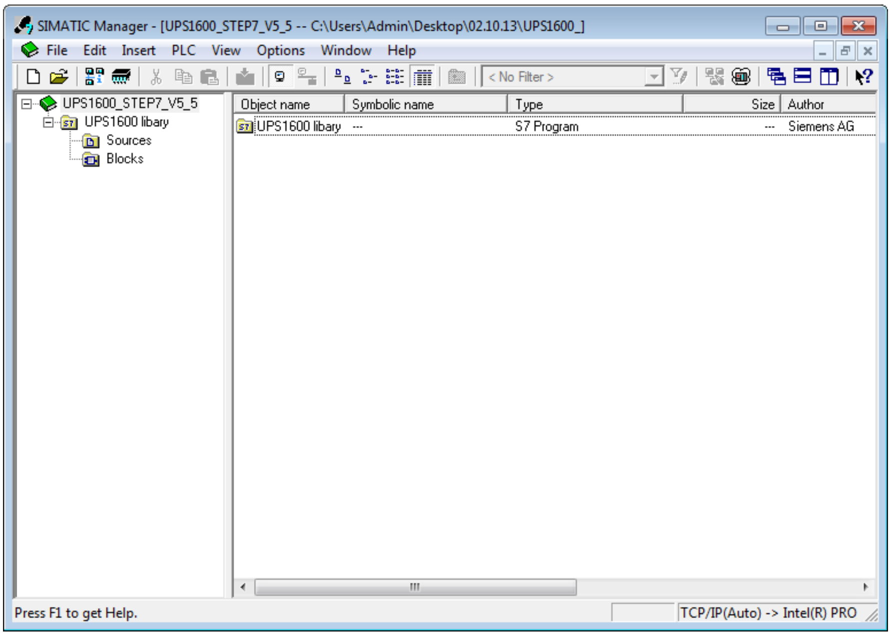
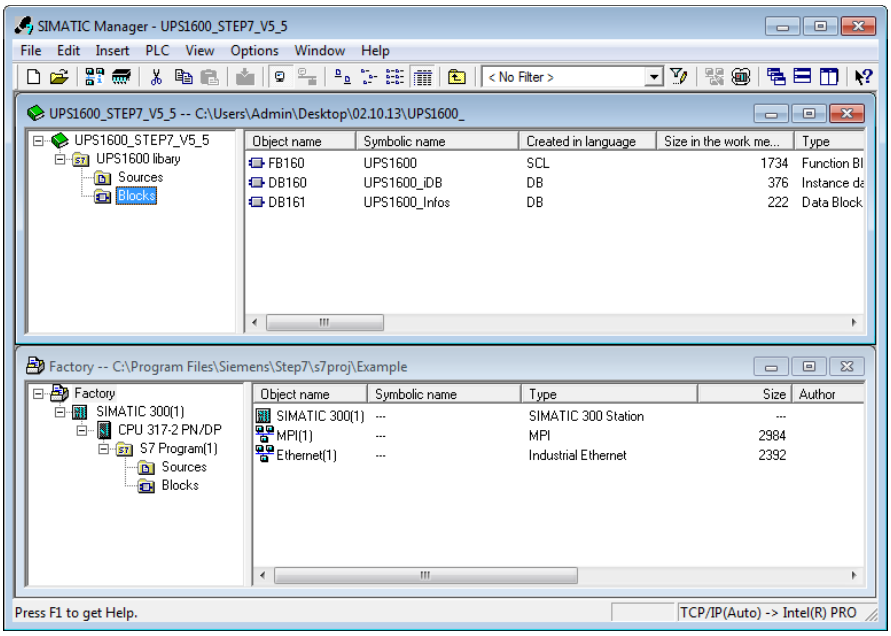
The following table describes all steps for integrating the function block FB160 and the associated data blocks into a STEP 7 V5.5 project.

Table 4-5

No.	Procedure
1.	Open the project into which you want to insert the function block. 

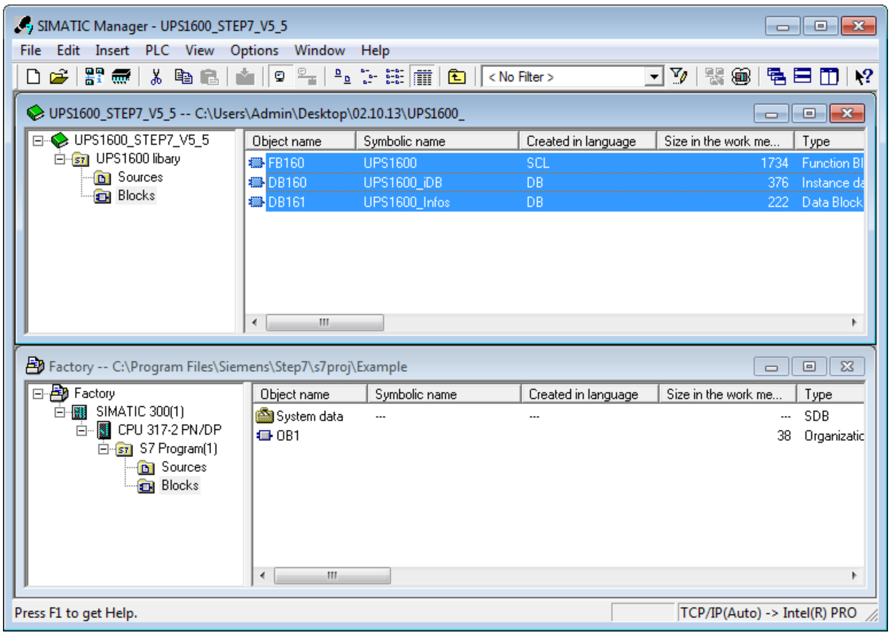
SIMATIC Manager - [Factory -- C:\Program Files\Siemens\Step7\s7proj\Example]
File Edit Insert PLC View Options Window Help
< No Filter >
Factory
SIMATIC 300(1)
CPU 317-2 PN/DP
S7 Program(1)
Sources
Blocks
Press F1 to get Help.
TCP/IP(Auto) -> Intel(R) PRO

Object name	Symbolic name	Type	Size	Author
SIMATIC 300(1)	---	SIMATIC 300 Station	---	
MPI(1)	---	MPI	2984	
Ethernet(1)	---	Industrial Ethernet	2392	

No.	Procedure
2.	Open the global library "UPS1600 STEP 7 V5_5".  SIMATIC Manager - [UPS1600_STEP7_V5_5 -- C:\Users\Admin\Desktop\02.10.13\UPS1600_] UPS1600_STEP7_V5_5 > UPS1600 libary > Sources, Blocks Object name: UPS1600 libary; Symbolic name: ---; Type: S7 Program; Size: ---; Author: Siemens AG Press F1 to get Help. TCP/IP(Auto) -> Intel(R) PRO **Note** The procedure for opening a global library is described in Chapter 4.2.
3.	Open the folder "UPS1600 STEP 7 V5_5 > UPS1600 library> Blocks" in the library.  SIMATIC Manager - UPS1600_STEP7_V5_5 UPS1600_STEP7_V5_5 -- C:\Users\Admin\Desktop\02.10.13\UPS1600_ UPS1600_STEP7_V5_5 > UPS1600 libary > Sources, Blocks Object name / Symbolic name / Created in language / Size in the work me... / Type FB160 / UPS1600 / SCL / 1734 / Function Bl DB160 / UPS1600_iDB / DB / 376 / Instance da DB161 / UPS1600_Infos / DB / 222 / Data Block Factory -- C:\Program Files\Siemens\Step7\s7proj\Example Factory > SIMATIC 300(1) > CPU 317-2 PN/DP > S7 Program(1) > Sources, Blocks Object name / Symbolic name / Type / Size / Author SIMATIC 300(1) / --- / SIMATIC 300 Station / --- / MPI(1) / --- / MPI / 2984 / Ethernet(1) / --- / Industrial Ethernet / 2392 / Press F1 to get Help. TCP/IP(Auto) -> Intel(R) PRO
4.	Select all blocks in the "Blocks" folder.

4.5 Integrating the function block

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>5.</td><td>
Drag and drop all blocks into the "Blocks" folder in your target project folder.

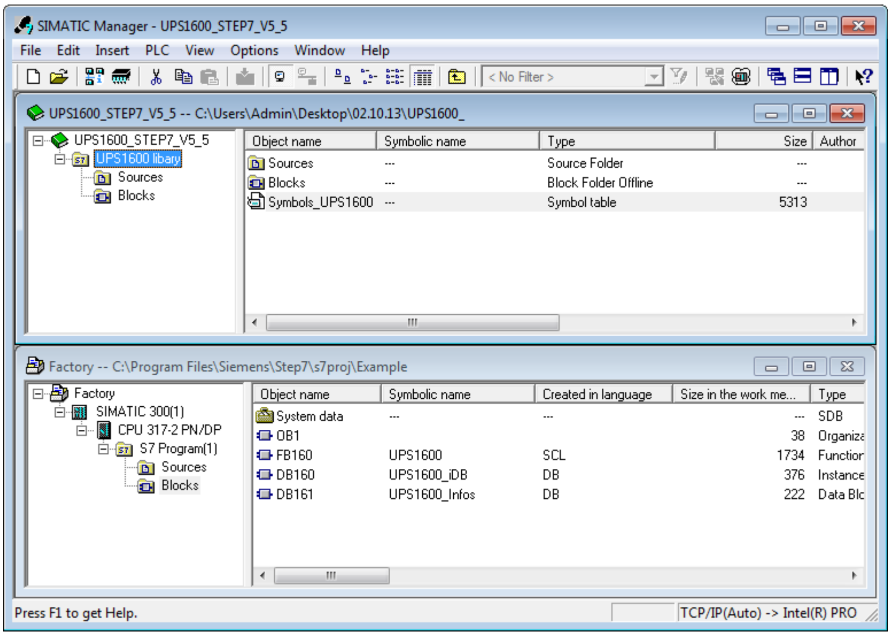

SIMATIC Manager - UPS1600_STEP7_V5_5
File Edit Insert PLC View Options Window Help
< No Filter >
UPS1600_STEP7_V5_5 -- C:\Users\Admin\Desktop\02.10.13\UPS1600_
UPS1600_STEP7_V5_5
UPS1600 libary
Sources
Blocks

<table>
<tr><th>Object name</th><th>Symbolic name</th><th>Created in language</th><th>Size in the work me...</th><th>Type</th></tr>
<tr><td>FB160</td><td>UPS1600</td><td>SCL</td><td>1734</td><td>Function Bl</td></tr>
<tr><td>DB160</td><td>UPS1600_iDB</td><td>DB</td><td>376</td><td>Instance da</td></tr>
<tr><td>DB161</td><td>UPS1600_Infos</td><td>DB</td><td>222</td><td>Data Block</td></tr>
</table>

Factory -- C:\Program Files\Siemens\Step7\s7proj\Example
Factory
SIMATIC 300(1)
CPU 317-2 PN/DP
S7 Program(1)
Sources
Blocks

<table>
<tr><th>Object name</th><th>Symbolic name</th><th>Created in language</th><th>Size in the work me...</th><th>Type</th></tr>
<tr><td>System data</td><td>---</td><td>---</td><td>---</td><td>SDB</td></tr>
<tr><td>OB1</td><td></td><td></td><td>38</td><td>Organizatic</td></tr>
</table>

Press F1 to get Help.
TCP/IP(Auto) -> Intel(R) PRO
</td></tr>
<tr><td>6.</td><td>
Select the folder "UPS1600 STEP 7 V5_5 > UPS1600 library" in the library.


SIMATIC Manager - UPS1600_STEP7_V5_5
File Edit Insert PLC View Options Window Help
< No Filter >
UPS1600_STEP7_V5_5 -- C:\Users\Admin\Desktop\02.10.13\UPS1600_
UPS1600_STEP7_V5_5
UPS1600 libary
Sources
Blocks

<table>
<tr><th>Object name</th><th>Symbolic name</th><th>Type</th><th>Size</th><th>Author</th></tr>
<tr><td>Sources</td><td>---</td><td>Source Folder</td><td>---</td><td></td></tr>
<tr><td>Blocks</td><td>---</td><td>Block Folder Offline</td><td>---</td><td></td></tr>
<tr><td>Symbols_UPS1600</td><td>---</td><td>Symbol table</td><td>5313</td><td></td></tr>
</table>

Factory -- C:\Program Files\Siemens\Step7\s7proj\Example
Factory
SIMATIC 300(1)
CPU 317-2 PN/DP
S7 Program(1)
Sources
Blocks

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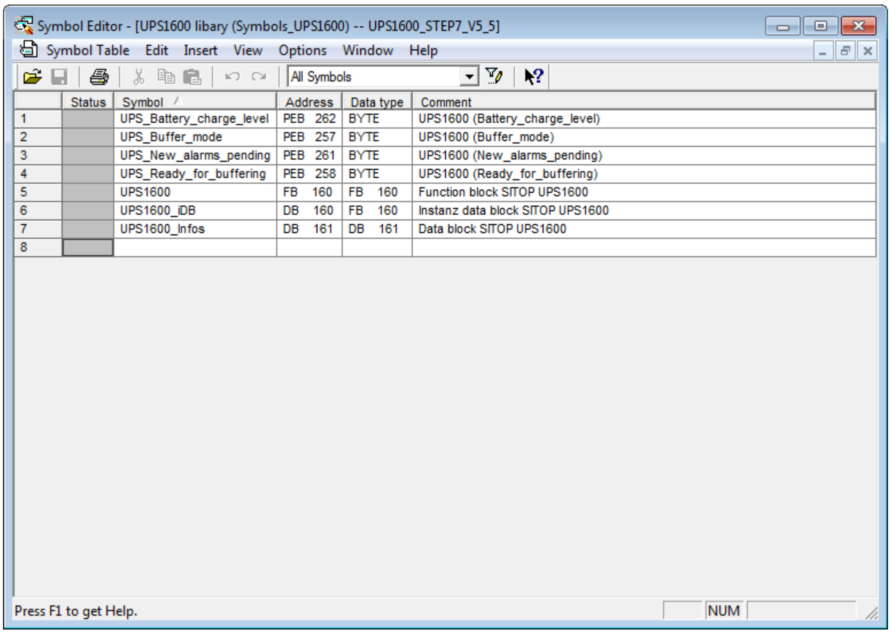
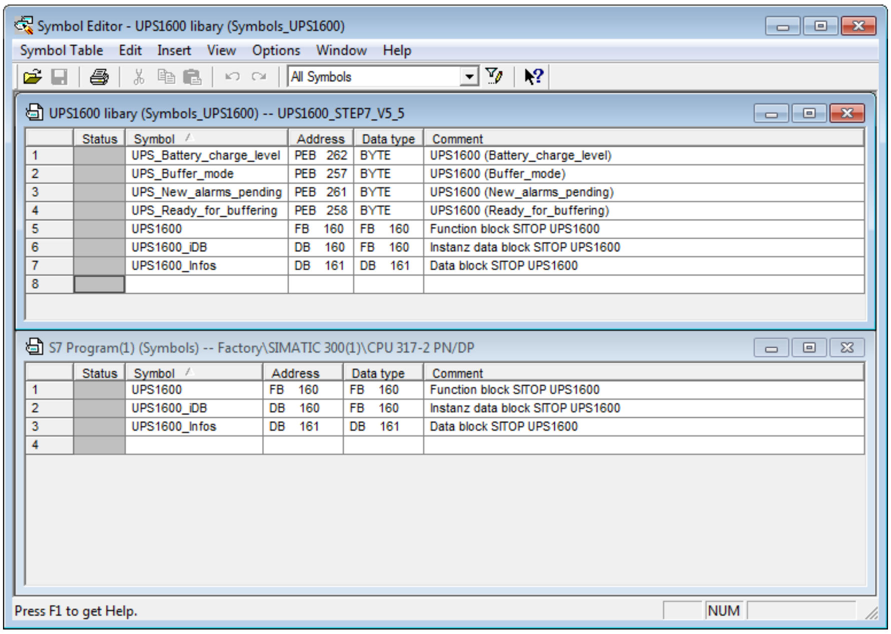
<tr><td>System data</td><td>---</td><td>---</td><td>---</td><td>SDB</td></tr>
<tr><td>OB1</td><td></td><td></td><td>38</td><td>Organiza</td></tr>
<tr><td>FB160</td><td>UPS1600</td><td>SCL</td><td>1734</td><td>Function</td></tr>
<tr><td>DB160</td><td>UPS1600_iDB</td><td>DB</td><td>376</td><td>Instance</td></tr>
<tr><td>DB161</td><td>UPS1600_Infos</td><td>DB</td><td>222</td><td>Data Blc</td></tr>
</table>

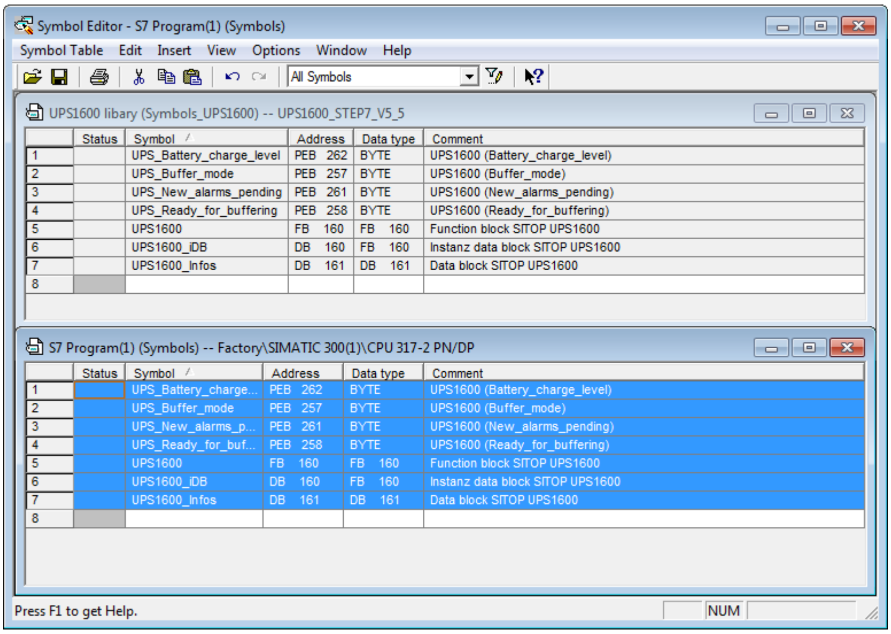
Press F1 to get Help.
TCP/IP(Auto) -> Intel(R) PRO
</td></tr>
</table>

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>7.</td><td>Open the symbol table "Symbols _UPS1600".

Symbol Editor - [UPS1600 libary (Symbols_UPS1600) -- UPS1600_STEP7_V5_5]
Symbol Table
Edit
Insert
View
Options
Window
Help
All Symbols
<table>
<tr><th></th><th>Status</th><th>Symbol</th><th>Address</th><th>Data type</th><th>Comment</th></tr>
<tr><td>1</td><td></td><td>UPS_Battery_charge_level</td><td>PEB 262</td><td>BYTE</td><td>UPS1600 (Battery_charge_level)</td></tr>
<tr><td>2</td><td></td><td>UPS_Buffer_mode</td><td>PEB 257</td><td>BYTE</td><td>UPS1600 (Buffer_mode)</td></tr>
<tr><td>3</td><td></td><td>UPS_New_alarms_pending</td><td>PEB 261</td><td>BYTE</td><td>UPS1600 (New_alarms_pending)</td></tr>
<tr><td>4</td><td></td><td>UPS_Ready_for_buffering</td><td>PEB 258</td><td>BYTE</td><td>UPS1600 (Ready_for_buffering)</td></tr>
<tr><td>5</td><td></td><td>UPS1600</td><td>FB 160</td><td>FB 160</td><td>Function block SITOP UPS1600</td></tr>
<tr><td>6</td><td></td><td>UPS1600_iDB</td><td>DB 160</td><td>FB 160</td><td>Instanz data block SITOP UPS1600</td></tr>
<tr><td>7</td><td></td><td>UPS1600_Infos</td><td>DB 161</td><td>DB 161</td><td>Data block SITOP UPS1600</td></tr>
<tr><td>8</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
Press F1 to get Help.

</td></tr>
<tr><td>8.</td><td>Open the symbol table of your target project.


UPS1600 libary (Symbols_UPS1600) -- UPS1600_STEP7_V5_5
<table>
<tr><th></th><th>Status</th><th>Symbol</th><th>Address</th><th>Data type</th><th>Comment</th></tr>
<tr><td>1</td><td></td><td>UPS_Battery_charge_level</td><td>PEB 262</td><td>BYTE</td><td>UPS1600 (Battery_charge_level)</td></tr>
<tr><td>2</td><td></td><td>UPS_Buffer_mode</td><td>PEB 257</td><td>BYTE</td><td>UPS1600 (Buffer_mode)</td></tr>
<tr><td>3</td><td></td><td>UPS_New_alarms_pending</td><td>PEB 261</td><td>BYTE</td><td>UPS1600 (New_alarms_pending)</td></tr>
<tr><td>4</td><td></td><td>UPS_Ready_for_buffering</td><td>PEB 258</td><td>BYTE</td><td>UPS1600 (Ready_for_buffering)</td></tr>
<tr><td>5</td><td></td><td>UPS1600</td><td>FB 160</td><td>FB 160</td><td>Function block SITOP UPS1600</td></tr>
<tr><td>6</td><td></td><td>UPS1600_iDB</td><td>DB 160</td><td>FB 160</td><td>Instanz data block SITOP UPS1600</td></tr>
<tr><td>7</td><td></td><td>UPS1600_Infos</td><td>DB 161</td><td>DB 161</td><td>Data block SITOP UPS1600</td></tr>
<tr><td>8</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
S7 Program(1) (Symbols) -- Factory\SIMATIC 300(1)\CPU 317-2 PN/DP
<table>
<tr><th></th><th>Status</th><th>Symbol</th><th>Address</th><th>Data type</th><th>Comment</th></tr>
<tr><td>1</td><td></td><td>UPS1600</td><td>FB 160</td><td>FB 160</td><td>Function block SITOP UPS1600</td></tr>
<tr><td>2</td><td></td><td>UPS1600_iDB</td><td>DB 160</td><td>FB 160</td><td>Instanz data block SITOP UPS1600</td></tr>
<tr><td>3</td><td></td><td>UPS1600_Infos</td><td>DB 161</td><td>DB 161</td><td>Data block SITOP UPS1600</td></tr>
<tr><td>4</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
Press F1 to get Help.

</td></tr>
</table>

No.	Procedure
9.	Copy all entries of the symbol table "Symbols _UPS1600" to the symbol table of your target project. 

Symbol Editor - S7 Program(1) (Symbols)

UPS1600 libary (Symbols_UPS1600) -- UPS1600_STEP7_V5_5

	Status	Symbol	Address	Data type	Comment
1		UPS_Battery_charge_level	PEB 262	BYTE	UPS1600 (Battery_charge_level)
2		UPS_Buffer_mode	PEB 257	BYTE	UPS1600 (Buffer_mode)
3		UPS_New_alarms_pending	PEB 261	BYTE	UPS1600 (New_alarms_pending)
4		UPS_Ready_for_buffering	PEB 258	BYTE	UPS1600 (Ready_for_buffering)
5		UPS1600	FB 160	FB 160	Function block SITOP UPS1600
6		UPS1600_iDB	DB 160	FB 160	Instanz data block SITOP UPS1600
7		UPS1600_Infos	DB 161	DB 161	Data block SITOP UPS1600
8					

S7 Program(1) (Symbols) -- Factory\SIMATIC 300(1)\CPU 317-2 PN/DP

	Status	Symbol	Address	Data type	Comment
1		UPS_Battery_charge...	PEB 262	BYTE	UPS1600 (Battery_charge_level)
2		UPS_Buffer_mode	PEB 257	BYTE	UPS1600 (Buffer_mode)
3		UPS_New_alarms_p...	PEB 261	BYTE	UPS1600 (New_alarms_pending)
4		UPS_Ready_for_buf...	PEB 258	BYTE	UPS1600 (Ready_for_buffering)
5		UPS1600	FB 160	FB 160	Function block SITOP UPS1600
6		UPS1600_iDB	DB 160	FB 160	Instanz data block SITOP UPS1600
7		UPS1600_Infos	DB 161	DB 161	Data block SITOP UPS1600
8					

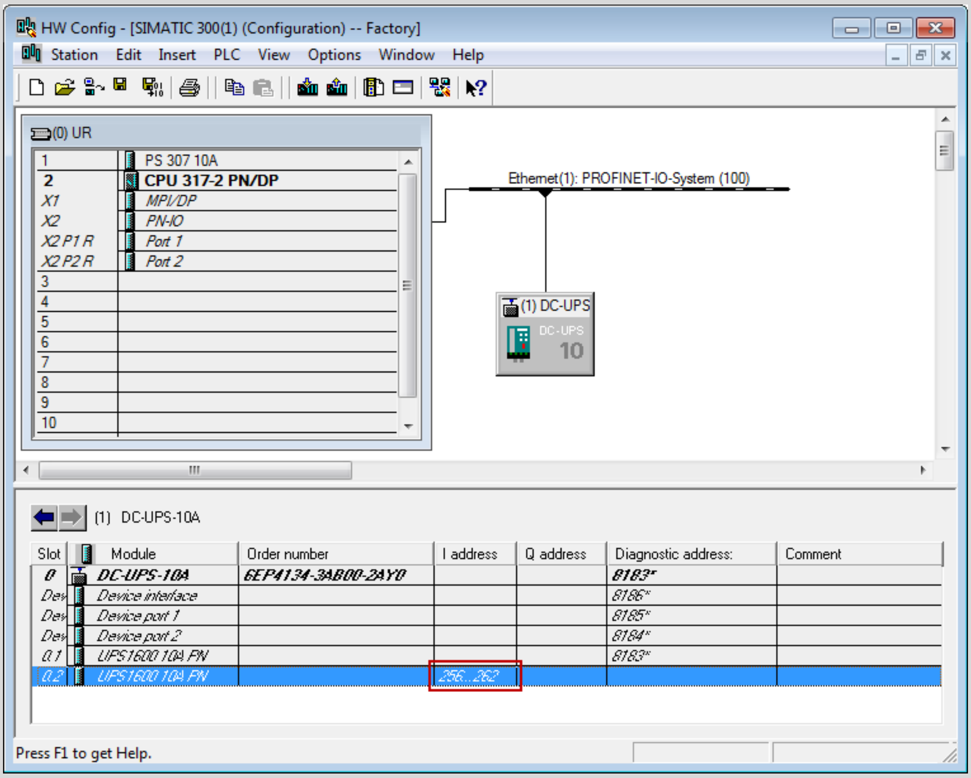
Press F1 to get Help.

Adapting the address ranges in the symbol table

Within the program sequence of the function block FB160, the cyclic data of the address range of the SITOP UPS1600 are accessed. In this case, the required address ranges are transferred to the function block via four tags. It is therefore necessary to adapt the addresses of these tags in the symbol table dependent on the selected I/O address range of the SITOP UPS1600.

The following table shows the I/O address range (length: 7 bytes) of the SITOP UPS1600. The function block evaluates the parameters "buffer mode", "ready for buffering", "new alarms pending", and "battery charge level".

Note The settings of the I/O address range of the SITOP UPS1600 are described in the HW configuration.



1	PS 307 10A
2	**CPU 317-2 PN/DP**
X1	*MPI/DP*
X2	*PN-IO*
X2 P1 R	*Port 1*
X2 P2 R	*Port 2*
3	
4	
5	
6	
7	
8	
9	
10	

Slot	Module	Order number	I address	Q address	Diagnostic address:	Comment
0	***DC-UPS-10A***	***6EP4134-3AB00-2AY0***			***8183****	
Dev	*Device interface*				*8186**	
Dev	*Device port 1*				*8185**	
Dev	*Device port 2*				*8184**	
0.1	*UPS1600 10A PN*				*8183**	
0.2	*UPS1600 10A PN*		*256...262*			

Table 4-6

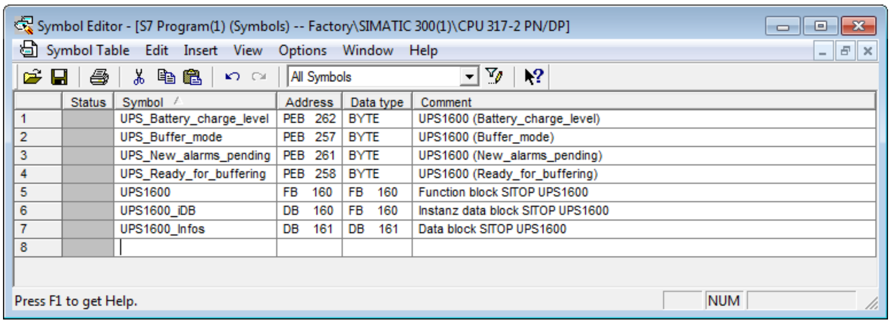
Tag in the symbol table	Parameter of the UPS1600	Information	Address range in this example
-	Input voltage	-	PEB 256
UPS_Buffer_mode	buffer mode	Buffer mode / Normal mode	PEB 257
UPS_Ready_for_buffering	ready for buffering	Ready / Not ready for buffering	PEB 258

Tag in the symbol table	Parameter of the UPS1600	Information	Address range in this example
-	charge sufficient	-	PEB 259
-	battery change recommended	-	PEB 260
UPS_New_alarms_pending	new alarms pending	New / No new alarms pending	PEB 261
UPS_Battery_charge_level	battery charge level	Charge state of the battery	PEB 262

The following table describes the procedure for changing the address ranges of the symbol table contained in the library.

Table 4-7

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>1.</td><td>Open the symbol table in the program folder of your application program.



Symbol Editor - [S7 Program(1) (Symbols) -- Factory\SIMATIC 300(1)\CPU 317-2 PN/DP]
Symbol Table Edit Insert View Options Window Help
All Symbols

<table>
<tr><th></th><th>Status</th><th>Symbol</th><th>Address</th><th>Data type</th><th>Comment</th></tr>
<tr><td>1</td><td></td><td>UPS_Battery_charge_level</td><td>PEB 262</td><td>BYTE</td><td>UPS1600 (Battery_charge_level)</td></tr>
<tr><td>2</td><td></td><td>UPS_Buffer_mode</td><td>PEB 257</td><td>BYTE</td><td>UPS1600 (Buffer_mode)</td></tr>
<tr><td>3</td><td></td><td>UPS_New_alarms_pending</td><td>PEB 261</td><td>BYTE</td><td>UPS1600 (New_alarms_pending)</td></tr>
<tr><td>4</td><td></td><td>UPS_Ready_for_buffering</td><td>PEB 258</td><td>BYTE</td><td>UPS1600 (Ready_for_buffering)</td></tr>
<tr><td>5</td><td></td><td>UPS1600</td><td>FB 160</td><td>FB 160</td><td>Function block SITOP UPS1600</td></tr>
<tr><td>6</td><td></td><td>UPS1600_iDB</td><td>DB 160</td><td>FB 160</td><td>Instanz data block SITOP UPS1600</td></tr>
<tr><td>7</td><td></td><td>UPS1600_Infos</td><td>DB 161</td><td>DB 161</td><td>Data block SITOP UPS1600</td></tr>
<tr><td>8</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

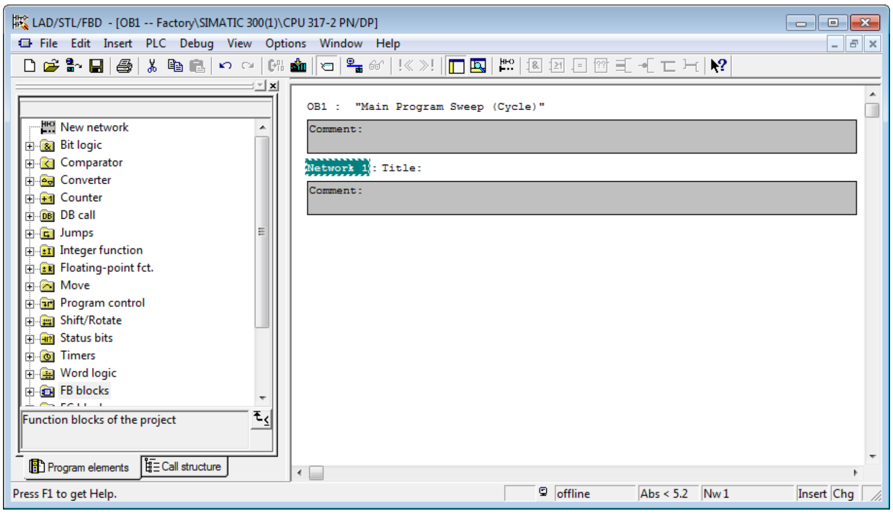
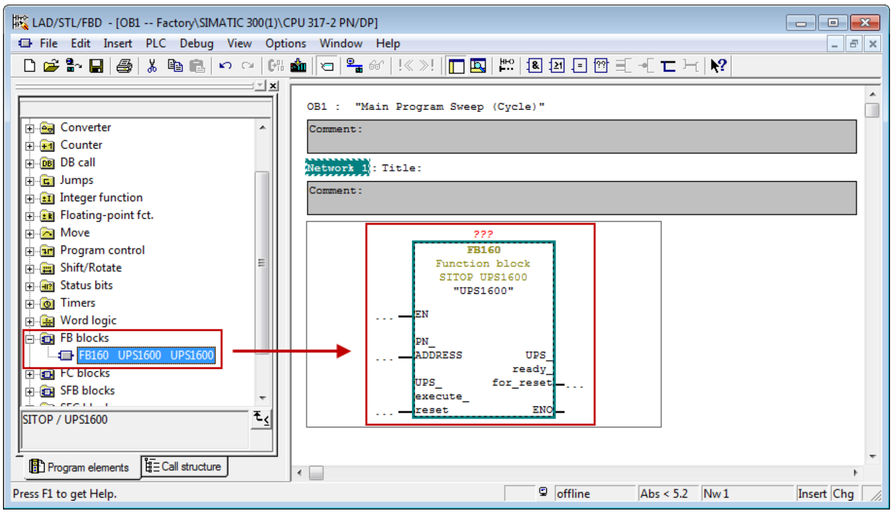
Press F1 to get Help.

</td></tr>
<tr><td>2.</td><td>Change the address of the symbol "UPS_Battery_charge_level" dependent on the selected I/O address range for the parameter "ready for buffering" of the UPS1600.</td></tr>
<tr><td>3.</td><td>Change the address of the symbol "UPS_Buffer_mode" dependent on the selected I/O address range for the parameter "buffer mode" of the UPS1600.</td></tr>
<tr><td>4.</td><td>Change the address of the symbol "UPS_New_alarms_pending" dependent on the selected I/O address range for the parameter "New alarms pending" of the UPS1600.</td></tr>
<tr><td>5.</td><td>Change the address of the symbol "UPS_Battery_charge_level" dependent on the selected I/O address range for the parameter "battery charge level" of the UPS1600.</td></tr>
</table>

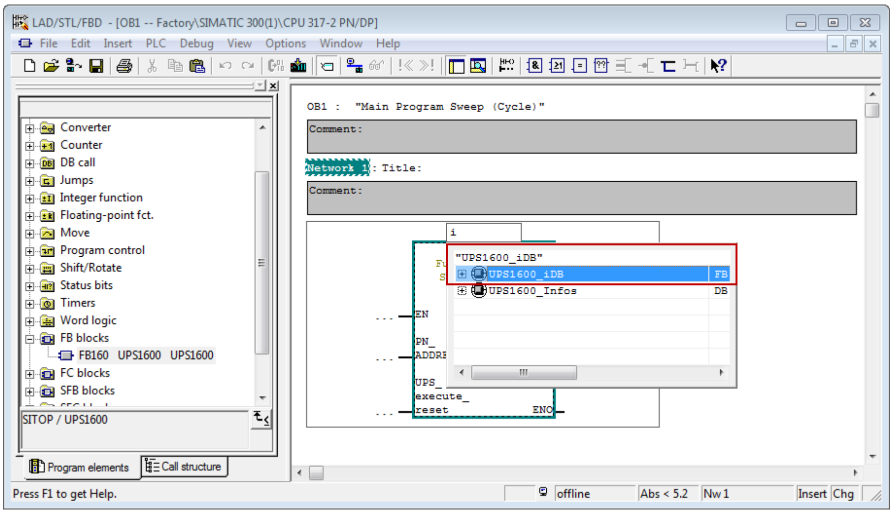
Calling the function block

This section describes the procedure for calling the function block within an organization block. In this description, the function block "FB160" is called within "OB1".

Table 4-8

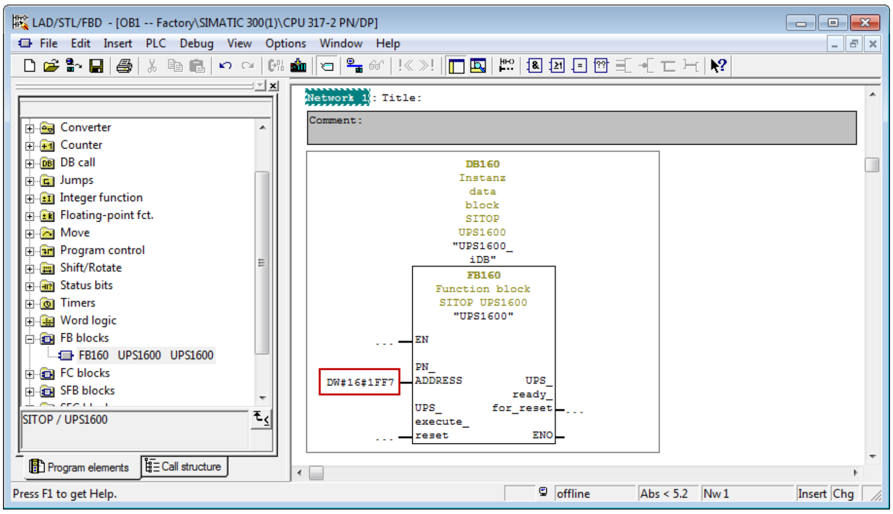
No.	Procedure
1.	In the "Blocks" folder of your application program, open the block "Main [OB1]" in the FBD view.  LAD/STL/FBD - [OB1 -- Factory\SIMATIC 300(1)\CPU 317-2 PN/DP] File Edit Insert PLC Debug View Options Window Help New network Bit logic Comparator Converter Counter DB call Jumps Integer function Floating-point fct. Move Program control Shift/Rotate Status bits Timers Word logic FB blocks Function blocks of the project Program elements Call structure OB1 : "Main Program Sweep (Cycle)" Comment: Network 1: Title: Comment: Press F1 to get Help. offline Abs < 5.2 Nw 1 Insert Chg
2.	On the "Program elements" tab, open the "FB blocks" folder.
3.	Drag and drop the block "FB160 (UPS1600)" from the "FB blocks" folder to an empty network of the "Main [OB1]".  LAD/STL/FBD - [OB1 -- Factory\SIMATIC 300(1)\CPU 317-2 PN/DP] File Edit Insert PLC Debug View Options Window Help Converter Counter DB call Jumps Integer function Floating-point fct. Move Program control Shift/Rotate Status bits Timers Word logic FB blocks FB160 UPS1600 UPS1600 FC blocks SFB blocks SITOP / UPS1600 Program elements Call structure OB1 : "Main Program Sweep (Cycle)" Comment: Network 1: Title: Comment: ??? FB160 Function block SITOP UPS1600 "UPS1600" EN PN_ADDRESS UPS_execute_reset UPS_ready_for_reset ENO Press F1 to get Help. offline Abs < 5.2 Nw 1 Insert Chg

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>4.</td><td>
Interconnect the FB160 with the instance data block "DB160 (UPS1600_iDB)".

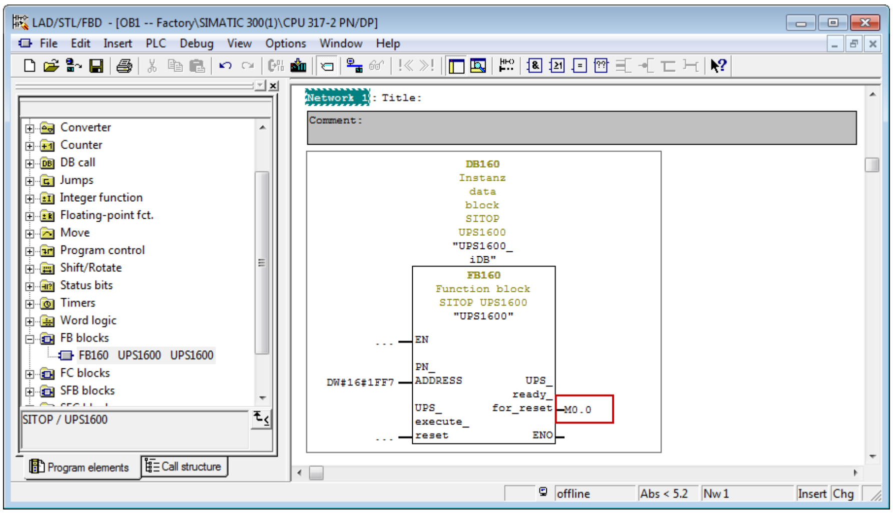
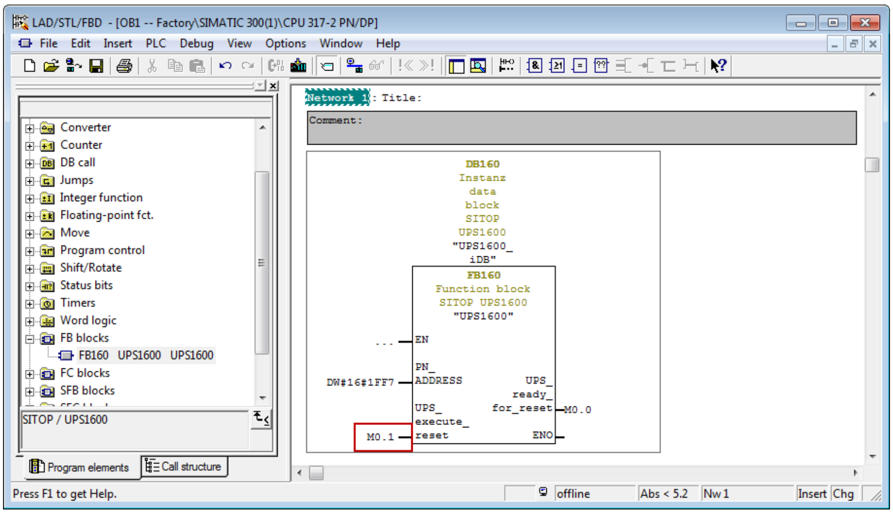


</td></tr>
<tr><td>5.</td><td>
At the block parameter "PN_ADDRESS" of the FB160, enter the PROFINET diagnostic address of the SITOP UPS1600 within your STEP 7 project.

The PROFINET diagnostic address must be specified in hexadecimal format.
In this example, the SITOP UPS1600 has the diagnostic address "DW#16#1FF7".



Note
Further information about the PROFINET diagnostic address is available in the STEP 7 V5.5 Online Help.
</td></tr>
</table>

No.	Procedure
6.	Connect the block parameter "UPS_ready_for_reset" with the tag via which you bring your plant into a safe state. In this example, flag 0.0 is used.  LAD/STL/FBD - [OB1 -- Factory\SIMATIC 300(1)\CPU 317-2 PN/DP] File Edit Insert PLC Debug View Options Window Help Converter Counter DB call Jumps Integer function Floating-point fct. Move Program control Shift/Rotate Status bits Timers Word logic FB blocks FB160 UPS1600 UPS1600 FC blocks SFB blocks SITOP / UPS1600 Program elements Call structure Network 1: Title: Comment: DB160 Instanz data block SITOP UPS1600 "UPS1600_iDB" FB160 Function block SITOP UPS1600 "UPS1600" EN DW#16#1FF7 PN_ADDRESS UPS_ready_for_reset M0.0 UPS_execute_reset ENO offline Abs < 5.2 Nw 1 Insert Chg **Note** Further information about the block parameters is available in Chapter 3.2.3.
7.	Connect the block parameter "UPS_execute_reset" with a tag via which you switch off the UPS when your plant is in a condition in which it can be shut down. In this example, flag 0.1 is used.  LAD/STL/FBD - [OB1 -- Factory\SIMATIC 300(1)\CPU 317-2 PN/DP] File Edit Insert PLC Debug View Options Window Help Converter Counter DB call Jumps Integer function Floating-point fct. Move Program control Shift/Rotate Status bits Timers Word logic FB blocks FB160 UPS1600 UPS1600 FC blocks SFB blocks SITOP / UPS1600 Program elements Call structure Network 1: Title: Comment: DB160 Instanz data block SITOP UPS1600 "UPS1600_iDB" FB160 Function block SITOP UPS1600 "UPS1600" EN DW#16#1FF7 PN_ADDRESS UPS_ready_for_reset M0.0 M0.1 UPS_execute_reset ENO Press F1 to get Help. offline Abs < 5.2 Nw 1 Insert Chg **Note** Further information about the block parameters is available in Chapter 4.3.
8.	Save the changes in the Main [OB1].

The integration of the function block is thus completed.

5 Application of the Function Block under STEP 7 V12

5.1 Preconditions

The following requirements must be met in order to use the function block in combination with a SITOP UPS1600 and STEP 7 V12:

- The Hardware Support Package for the SITOP UPS1600 is installed in STEP 7 V12.
- Already existing S7 communication between the SITOP UPS1600 and SIMATIC S7 controller.
- The library with the function blocks is available.

Note regarding the installation of the Hardware Support Package

The required information about the installation of the Hardware Support Package of the SITOP UPS1600 in STEP 7 V12 is available in the SITOP UPS1600 User Manual in Chapter 3.3.1.

Notes regarding the S7 communication

The required information about establishing communication between a SITOP UPS1600 and a SIMATIC S7 controller is available in the SITOP UPS1600 User Manual in Chapter 3.3.

5.2 Content of the library for STEP 7 V12

The library "UPS1600 Function blocks (STEP7 V12)" contains the following library elements:

- STEP 7 Function blocks (S7-300/400)
- STEP 7 Function blocks (S7-1200/1500)
- STEP 7 Tag table
- PLC data types

The following sections describe in detail the library elements and how to open a library in STEP 7 V12.

Library element "STEP 7 Function blocks (S7-300/400)"

The following code blocks are contained in this library element:

Table 5-1

Code block	Name	Description
FB160	UPS1600	Function block for program-controlled switch-off of the SITOP UPS1600
DB160	UPS1600_iDB	Instance data block of the FB160
DB161	UPS1600_Data	The data block contains all parameters of the SITOP UPS1600 displayed within the HMI faceplate.

Library element "STEP 7 Function blocks (S7-1200/1500)"

The following code blocks are contained in this library element:

Table 5-2

Code block	Name	Description
FB160	UPS1600	Function block for program-controlled switch-off of the UPS1600
DB160	UPS1600_iDB	Instance data block of the FB160
DB161	UPS1600_Data	The data block contains all parameters of the SITOP UPS1600 displayed within the HMI faceplate.

Library element "STEP 7 Tag table"

This library element contains the tag folder "UPS1600 Tag table".

The tags within this folder are required for the transfer of the values of the I/O address range of the SITOP UPS1600 to the function block FB160.

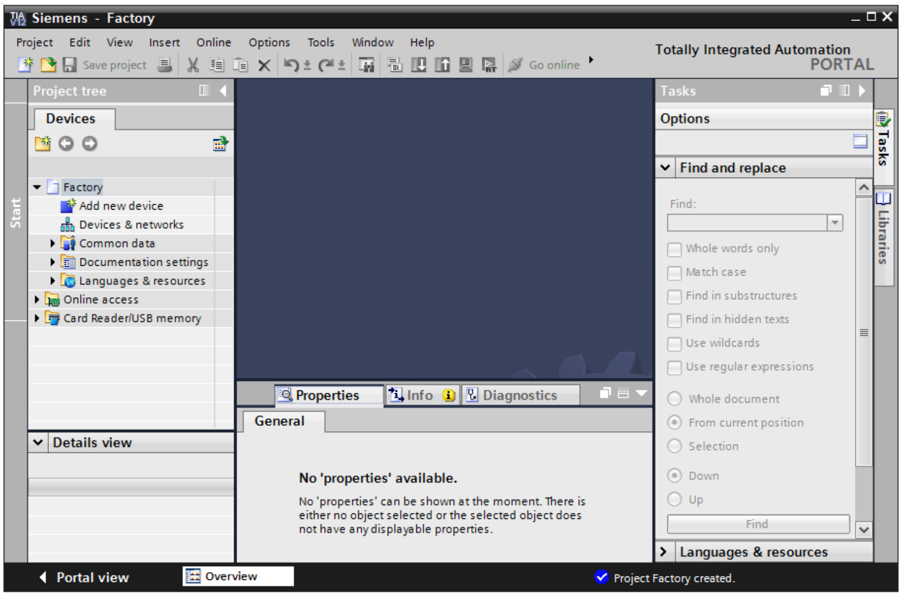
Library element „PLC data types“

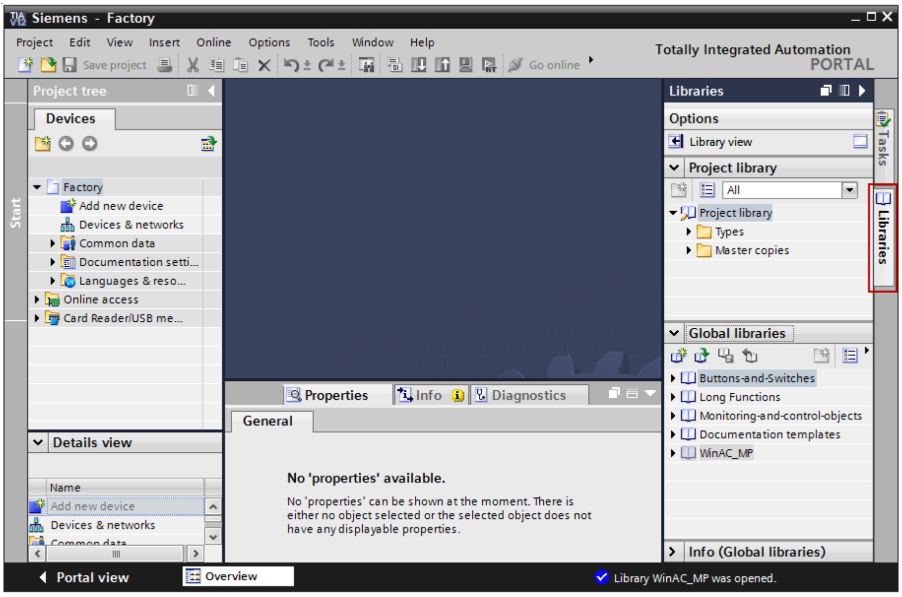
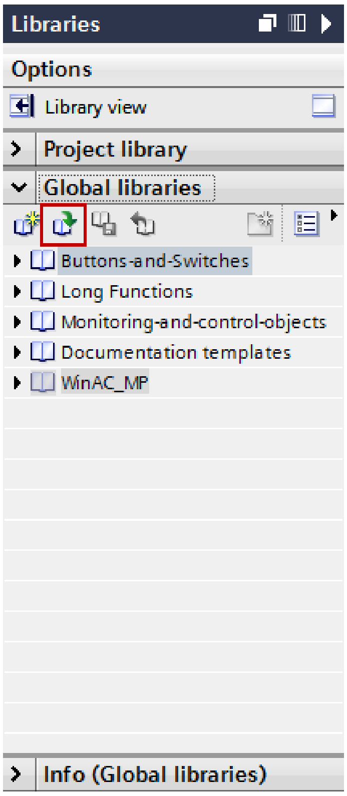
This library element contains the data types „tUPS1600 mixed“ und „tUPS1600 strings“.
Both data types are building the data block DB161. This DB is used for data exchange to the HMI faceplates.

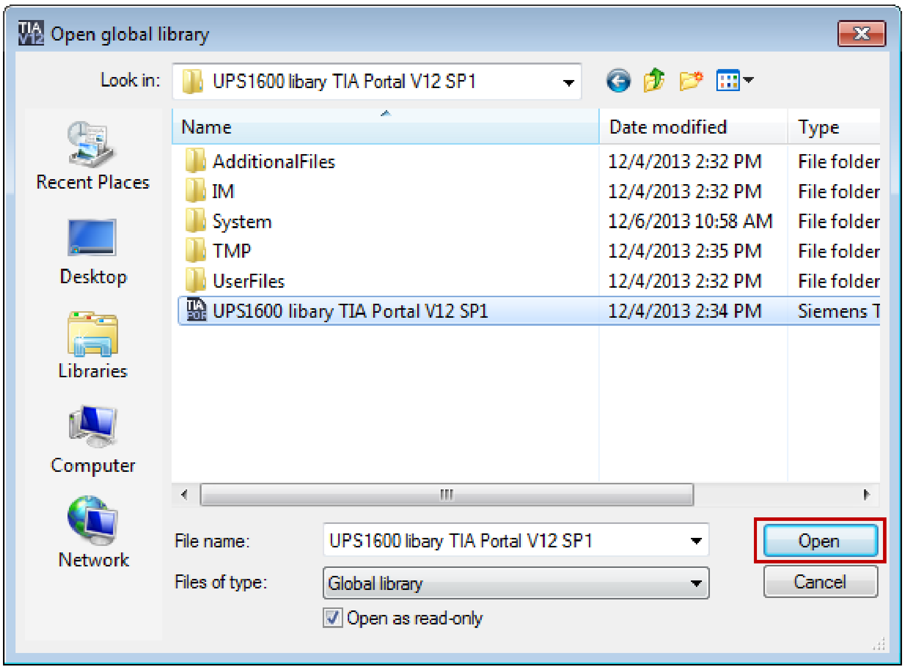
Opening the library in STEP 7 V12

Follow the instructions in the table below to open the library in a STEP 7 V12 project.

Table 5-3

No.	Procedure
1.	Open STEP 7 V12 in the Project view.  No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. Project Factory created.

No.	Procedure
2.	Open the "Libraries" task card.  Siemens - Factory Project Edit View Insert Online Options Tools Window Help Totally Integrated Automation PORTAL Project tree Devices Factory Add new device Devices & networks Common data Documentation setti... Languages & reso... Online access Card Reader/USB me... Details view Name Properties Info Diagnostics General Libraries Options Library view Project library All Types Master copies Global libraries Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP Info (Global libraries) Tasks Libraries Portal view Overview No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. Library WinAC_MP was opened.
3.	Under the "Global libraries" palette, click on the second icon from the left to open a global library.  Libraries Options Library view Project library Global libraries Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP Info (Global libraries) The "Open global library" dialog box opens.

No.	Procedure
4.	In the "Look in:" drop-down list, select the storage location of the library on your computer.
5.	Click the "Open" button.  The library is opened and displayed in the "Global libraries" palette.

Open global library

Look in: UPS1600 libary TIA Portal V12 SP1

Name	Date modified	Type
AdditionalFiles	12/4/2013 2:32 PM	File folder
IM	12/4/2013 2:32 PM	File folder
System	12/6/2013 10:58 AM	File folder
TMP	12/4/2013 2:35 PM	File folder
UserFiles	12/4/2013 2:32 PM	File folder
UPS1600 libary TIA Portal V12 SP1	12/4/2013 2:34 PM	Siemens T

File name: UPS1600 libary TIA Portal V12 SP1

Files of type: Global library

☑ Open as read-only

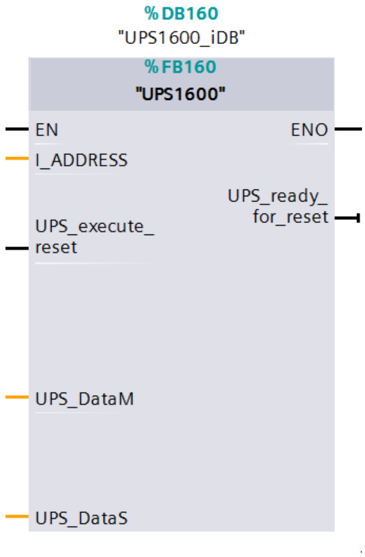
5.3 Interfaces of the function block FB160

Function block FB160 for S7-300/400

Block diagram

The following figure shows the block diagram of the function block FB160 within a network.

Figure 5-1



Interface description

Table 5-4

Parameter	Declaration	Data type	Description
I_ADDRESS	Input	DWORD	PROFINET diagnostic address of the SITOP UPS1600 within the project The diagnostic address must be specified in hexadecimal format.
UPS_execute_reset	Input	BOOL	Switch-off signal to the SITOP UPS1600
UPS_ready_for_reset	Output	BOOL	Signal for plant shut-down
UPS_DataM	Input	tUPS1600 mixed	Data area of DB161 for data exchange to the HMI faceplate.
UPS_DataS	Input	tUPS1600 strings	Data area of DB161 for data exchange to the HMI faceplate.

Function block FB160 for S7-1200/1500

Block diagram

The following figure shows the block diagram of the function block FB160 within a network.

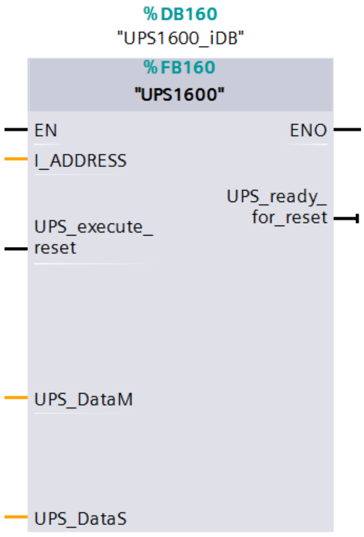


Figure 5-2

Interface description

Table 5-5

Parameter	Declaration	Data type	Description
HW_IO	Input	HW_IO	Hardware ID of the SITOP UPS1600 within the project
UPS_execute_reset	Input	BOOL	Switch-off signal to the SITOP UPS1600
UPS_ready_for_reset	Output	BOOL	Signal for plant shut-down
UPS_DataM	Input	tUPS1600 mixed	Data area of DB161 for data exchange to the HMI faceplate.
UPS_DataS	Input	tUPS1600 strings	Data area of DB161 for data exchange to the HMI faceplate.

Note to the use of more as one UPS1600 devices

Are more than one UPS1600 device used in one STEP 7 (TIA Portal) project, you have to use an individual instance data block and an separate data block for data exchange for each UPS1600 device.

So the function blocks are able to use in multible instances. You can create data blocks with the PLC data types of the library.

5.4 Data block DB161

The data block contains all parameters of the SITOP UPS1600 displayed within the HMI faceplate.

The following table lists all parameters of the SITOP UPS1600 contained in DB161.

Table 5-6

Parameter	Data type	Offset	Remarks
UPS_DataS	tUPS1600 strings	0.0	-
Order_number_string	String [20]	0.0	Order number (String)
Serial_number_string	String [20]	22.0	Serial number (String)
Device_name_string	String [20]	44.0	Device name (String)
Version_number_string	String [30]	66.0	Version number (String)
UPS_DataM	tUPS1600 mixed	98.0	-
Battery_capacity	Int	0.0	[0.1Ah]
End_of_charge_voltage	Int	2.0	[0.01V]
Charge_current	Int	4.0	[mA]
HW_revision	Int	6.0	-
SW_revision	Int	8.0	-
Max_output_current	Byte	10.0	[A]
Padding	Byte	11.0	-
Order_number	Array [0 .. 29] Of Char	12.0	[30 characters]
Serial_number	Array [0 .. 29] Of Char	42.0	[30 characters]
Device_name	Array [0 .. 29] Of Char	72.0	[30 characters]
Version_number	Array [0 .. 49] Of Char	102.0	[50 characters]
Input_voltage	Int	152.0	[0.01V]
Input_current	Int	154.0	[5mA]
Output_voltage	Int	156.0	[0.01V]
Load_current	Int	158.0	[5mA]
Measured_charge_current	Int	160.0	[mA]
Battery_voltage	Int	162.0	[0.01V]
Output_current	Int	164.0	[5mA]
Charge_voltage	Int	166.0	[0.01V]
Buffer_mode	Byte	168.0	(active=255 / inactive=0); undefined = 127
Ready_for_buffering	Byte	169.0	(yes or no – 255/0)
New_alarms_pending	Byte	170.0	(yes or no – 255/0)
Battery_charge_level	Byte	171.0	(0...100%); 255 – unknown battery)
Total_calculated_battery_capacity	Int	172.0	[0.1Ah]

Parameter	Data type	Offset	Remarks
Total_calculated_battery_health	Byte	174.0	[%]
Buffer_time	Int	176.0	[s]
Buffer_threshold	Int	178.0	[s]
Buffering_allowed	Byte	180.0	[0/255]
CommandID	Int	182.0	Remote reset=8195
Parameter	Byte	184.0	[s]
Padding_command	Byte	185.0	[s]
Order_number_string	String [20]	0.0	Order number (String)
Serial_number_string	String [20]	22.0	Serial number (String)
Device_name_string	String [20]	44.0	Device name (String)
Version_number_string	String [30]	66.0	Version number (String)

Note to the use of more as one UPS1600 devices

Are more than one UPS1600 device used in one STEP 7 (TIA Portal) project, you have to use an individual instance data block and an separate data block for data exchange for each UPS1600 device.

The structure of the data blocks must be the same of the data block DB161.

The library contains the PLC data types „tUPS mixed“ and „tUPS strings“. With this you are able to build you own structures.

Note Further information about the system parameters is available in the UPS1600 User Manual.

5.5 Integrating the function block

The following sections describe all steps required to integrate the function block FB160 into a STEP 7 V12 project.

5.5.1 Procedure when using an S7-300/400

Hardware used in this description:

- CPU 317-2 PN/DP
- SITOP UPS1600 24V/10A

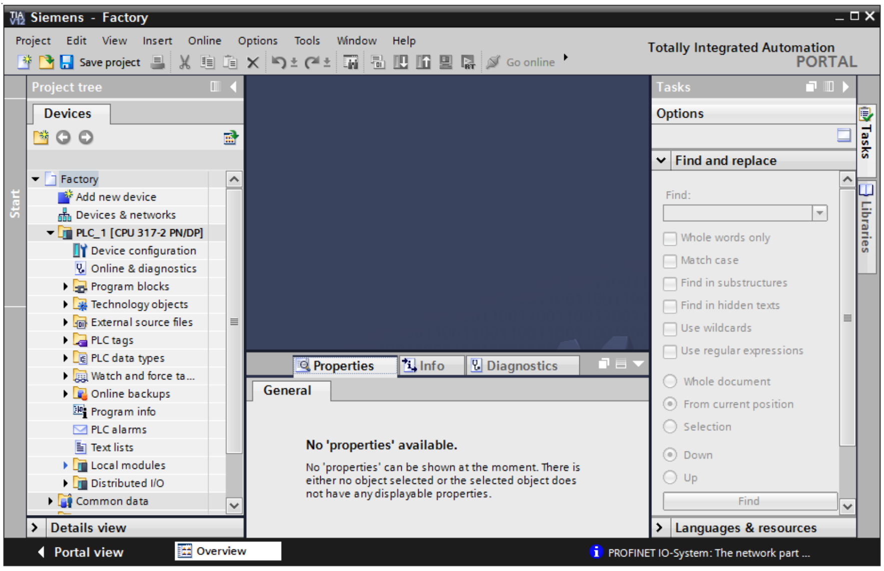
The procedure for other SIMATIC S7-300/400 controllers is identical.

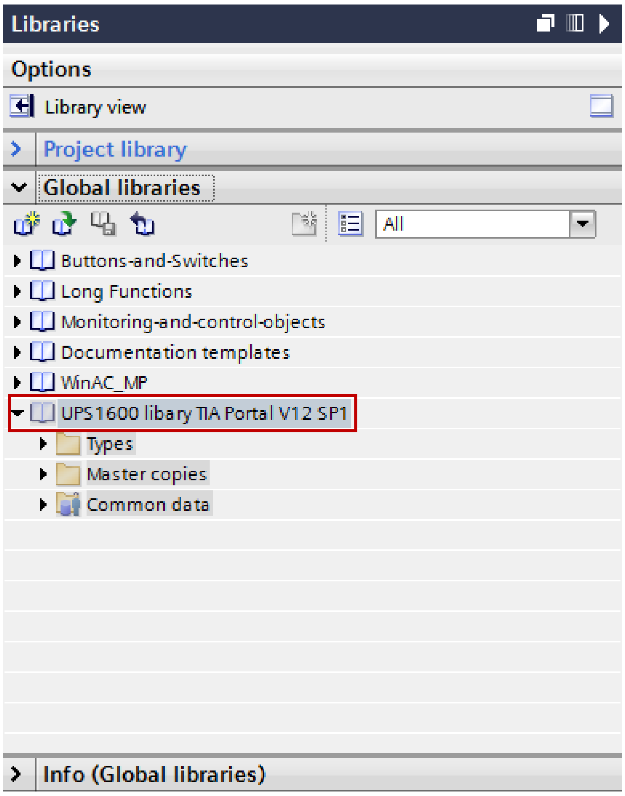
Note Please make sure that all requirements for the integration of the function block are met. The requirements are described in Chapter 5.1.

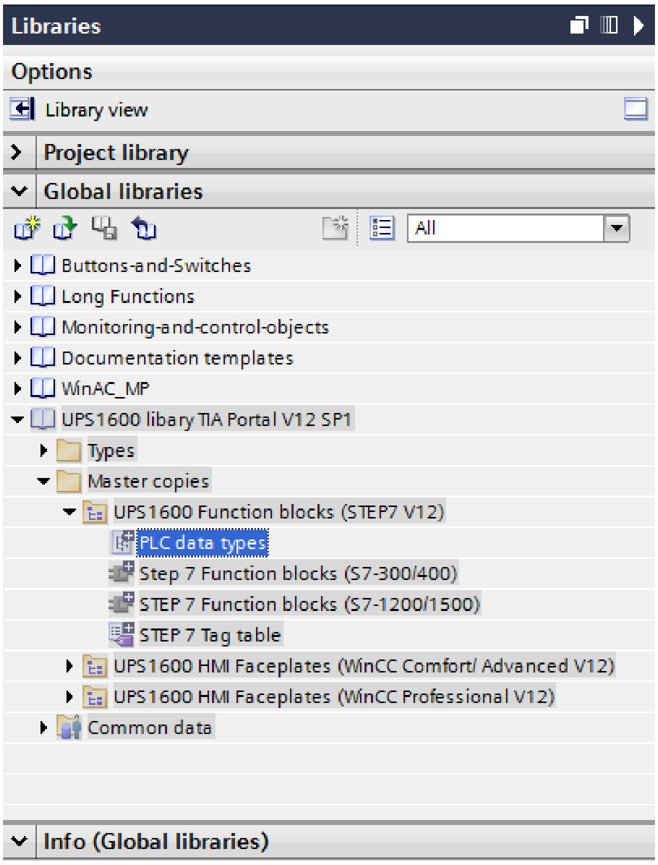
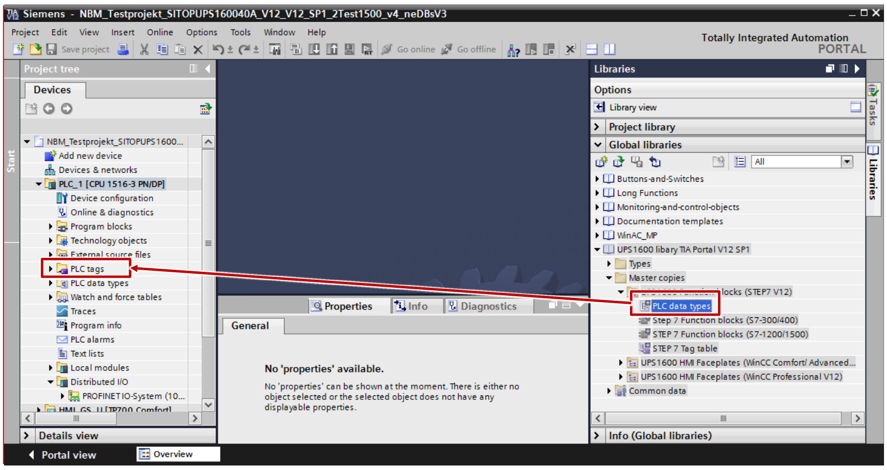
Inserting blocks from the library into the program

The following table describes all steps for integrating the function block and the associated data blocks into a STEP 7 V12 project.

Table 5-7

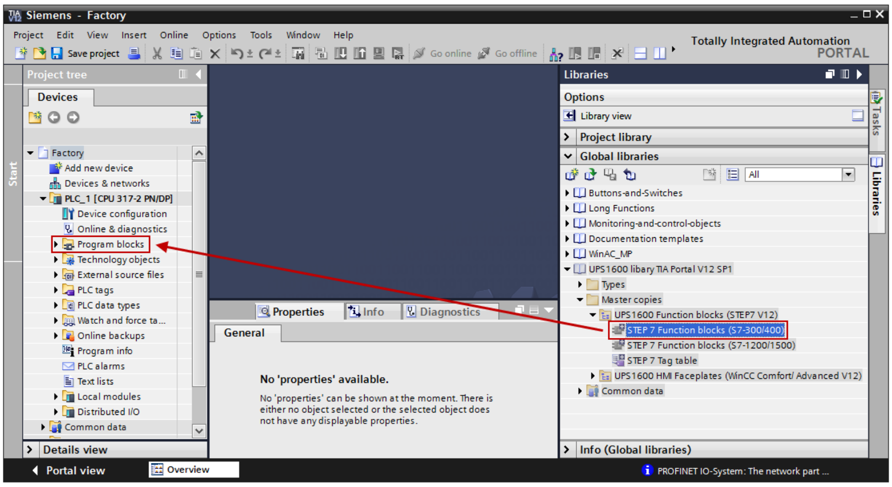
No.	Procedure
1.	Open the project into which you want to insert the function block in the Project view.  No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. PROFINET IO-System: The network part ...

No.	Procedure
2.	Open the global library "UPS1600 library TIA Portal V12".  Libraries Options Library view Project library Global libraries All Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP UPS1600 libary TIA Portal V12 SP1 Types Master copies Common data Info (Global libraries) **Note** The procedure for opening a global library is described in Chapter 5.2.
3.	Open the folder "Master copies > UPS1600 Function blocks (TIA V12)" in the library.

No.	Procedure
4.	Select the folder "PLC data types" in the library.  Libraries Options Library view Project library Global libraries All Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP UPS1600 libary TIA Portal V12 SP1 Types Master copies UPS1600 Function blocks (STEP7 V12) PLC data types Step 7 Function blocks (S7-300/400) STEP 7 Function blocks (S7-1200/1500) STEP 7 Tag table UPS1600 HMI Faceplates (WinCC Comfort/ Advanced V12) UPS1600 HMI Faceplates (WinCC Professional V12) Common data Info (Global libraries)
5.	Drag and drop the "PLC data types" folder to the "PLC data types" folder in the project folder of your existing controller.  Siemens - NBM_Testprojekt_SITOPUPS160040A_V12_V12_SP1_2Test1500_v4_neDBsV3 Project Edit View Insert Online Options Tools Window Help Totally Integrated Automation PORTAL Project tree Devices NBM_Testprojekt_SITOPUPS1600... Add new device Devices & networks PLC_1 [CPU 1516-3 PN/DP] Device configuration Online & diagnostics Program blocks Technology objects External source files PLC tags PLC data types Watch and force tables Traces Program info PLC alarms Text lists Local modules Distributed I/O PROFINET IO-System (10... Details view Portal view Overview Properties Info Diagnostics General Libraries Options Library view Project library Global libraries Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP UPS1600 libary TIA Portal V12 SP1 Types Master copies PLC data types Step 7 Function blocks (S7-300/400) STEP 7 Function blocks (S7-1200/1500) STEP 7 Tag table UPS1600 HMI Faceplates (WinCC Comfort/ Advanced... UPS1600 HMI Faceplates (WinCC Professional V12) Common data Info (Global libraries) No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.
6.	Select the folder "STEP7 Function blocks (S7-300/400)".

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>7.</td><td>

Drag and drop the folder "STEP7 Function blocks (S7-300/400)" to the "Program blocks" folder in the project folder of your existing controller.

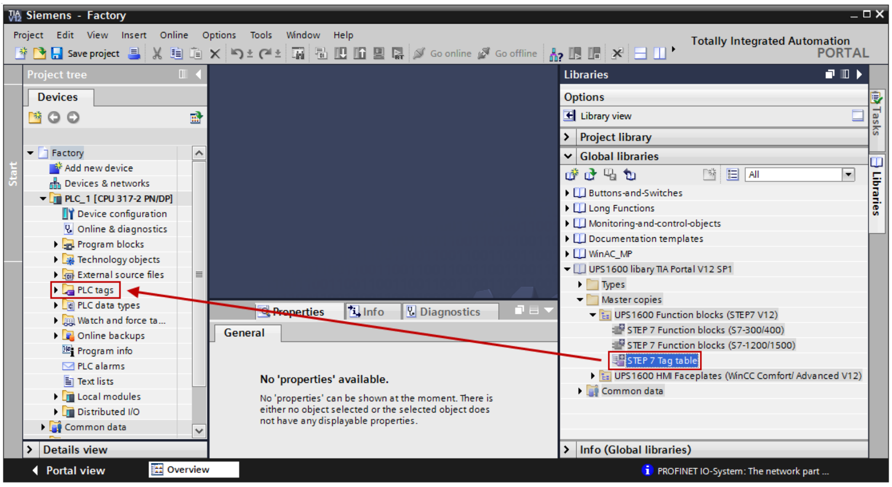


No 'properties' available.

No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.

</td></tr>
<tr><td>8.</td><td>Select the "STEP7 Tag table" folder.</td></tr>
<tr><td>9.</td><td>

Drag and drop the "STEP7 Tag table" folder to the "PLC tags" folder in the project folder of your existing controller.



No 'properties' available.

No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.

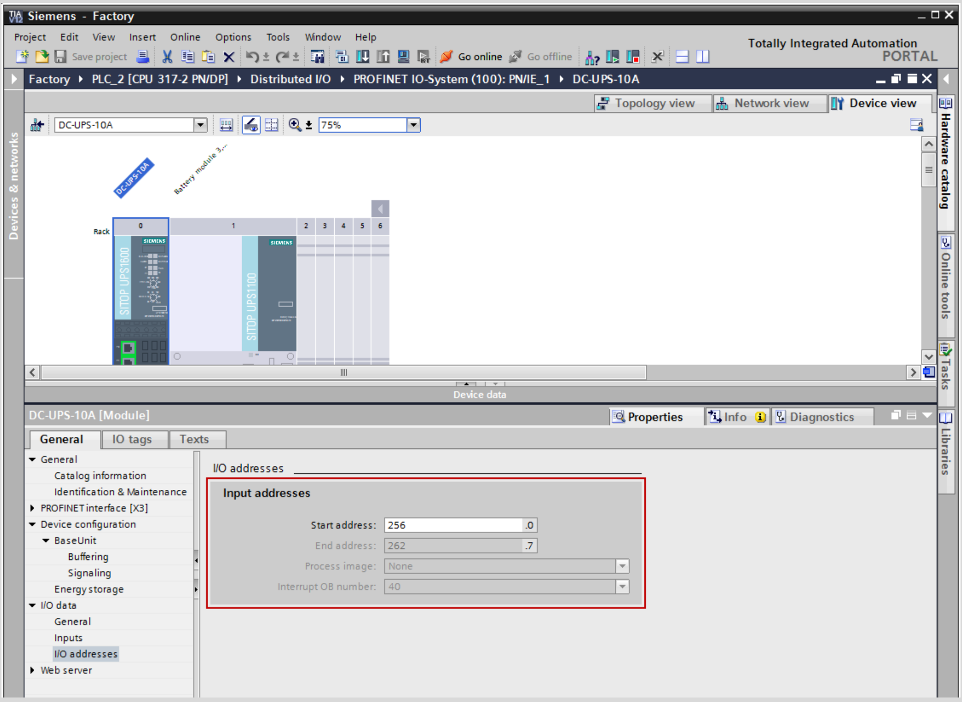
</td></tr>
</table>

Adapting address ranges

Within the program sequence of the function block FB160, the cyclic data of the address range of the SITOP UPS1600 are accessed. In this case, the required address ranges are transferred to the function block FB160 via four tags. It is therefore necessary to adapt the addresses of these tags in the symbol table dependent on the selected I/O address range of the SITOP UPS1600.

The following table shows the I/O address range (length: 7 bytes) of the SITOP UPS1600. The function block evaluates the parameters "buffer mode", "ready for buffering", "new alarms pending", and "battery charge level".

Note The setting of the I/O address range for the SITOP UPS1600 is specified in the device configuration of the SITOP UPS1600 you created in STEP 7 V12.



DC-UPS-10A [Module]

I/O addresses

Input addresses

Start address: 256 .0
End address: 262 .7
Process image: None
Interrupt OB number: 40

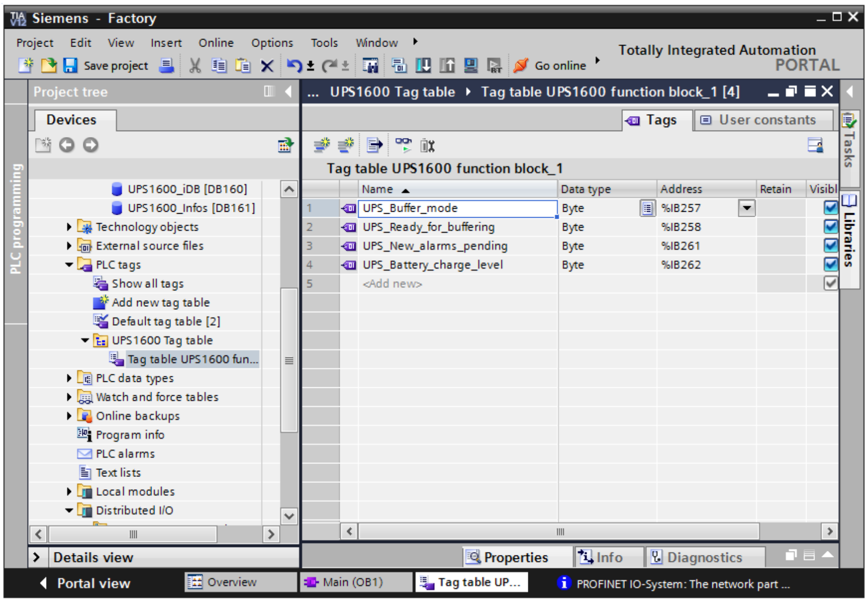
Table 5-8

Tag in the symbol table	Parameter of the UPS1600	Information	Address range in this example
-	Input voltage	-	%IB 256
UPS_Buffer_mode	buffer mode	Buffer mode / Normal mode	%IB 257
UPS_Ready_for_buffering	ready for buffering	Ready / Not ready for buffering	%IB 258
-	charge sufficient	-	%IB 259

Tag in the symbol table	Parameter of the UPS1600	Information	Address range in this example
-	battery change recommended	-	%IB 260
UPS_New_alarms_pending	new alarms pending	New / No new alarms pending	%IB 261

The following table describes the procedure for changing the address ranges of the symbol table contained in the library.

Table 5-9

No.	Procedure
1.	Open the tag table "Tag table UPS1600" in the program folder "PLC tags > UPS1600 Tag table" of your application program. 
2.	Change the address of the symbol "UPS_Buffer_mode" dependent on the selected I/O address range for the parameter "buffer mode" of the UPS1600.
3.	Change the address of the symbol "UPS_Ready_for_buffering" dependent on the selected I/O address range for the parameter "ready for buffering" of the UPS1600.
4.	Change the address of the symbol "UPS_New_alarms_pending" dependent on the selected I/O address range for the parameter "new alarms pending" of the UPS1600.
5.	Change the address of the symbol "UPS_Battery_charge_level" dependent on the selected I/O address range for the parameter "battery charge level" of the UPS1600.

Siemens - Factory

... UPS1600 Tag table ▸ Tag table UPS1600 function block_1 [4]

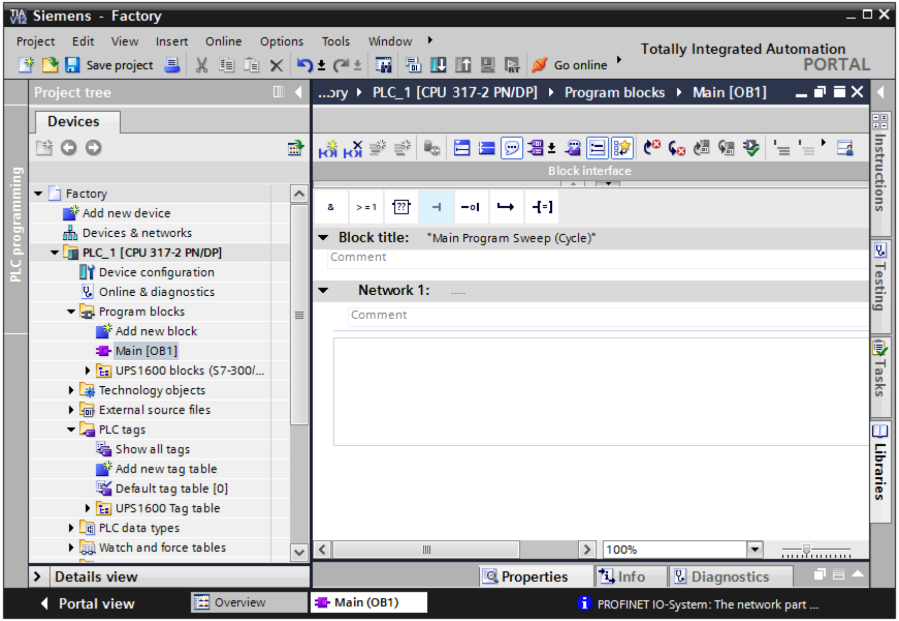
Tag table UPS1600 function block_1

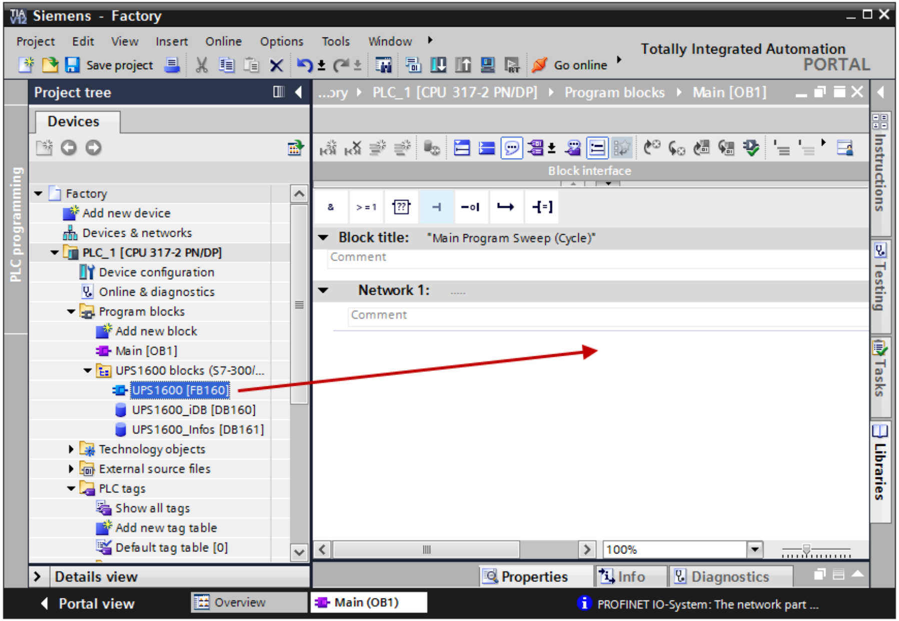
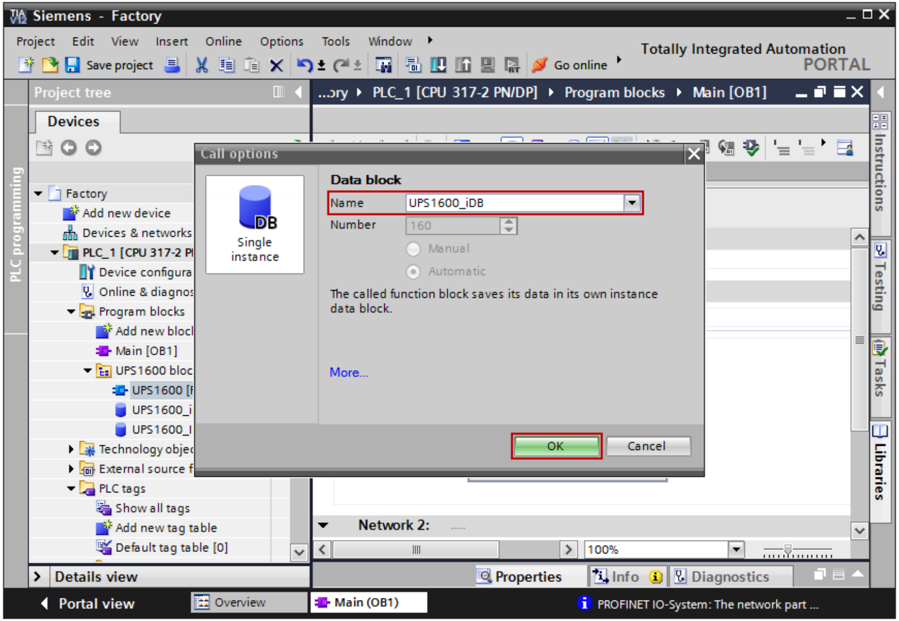
	Name	Data type	Address	Retain	Visibl
1	UPS_Buffer_mode	Byte	%IB257		☑
2	UPS_Ready_for_buffering	Byte	%IB258		☑
3	UPS_New_alarms_pending	Byte	%IB261		☑
4	UPS_Battery_charge_level	Byte	%IB262		☑
5	<Add new>				✓

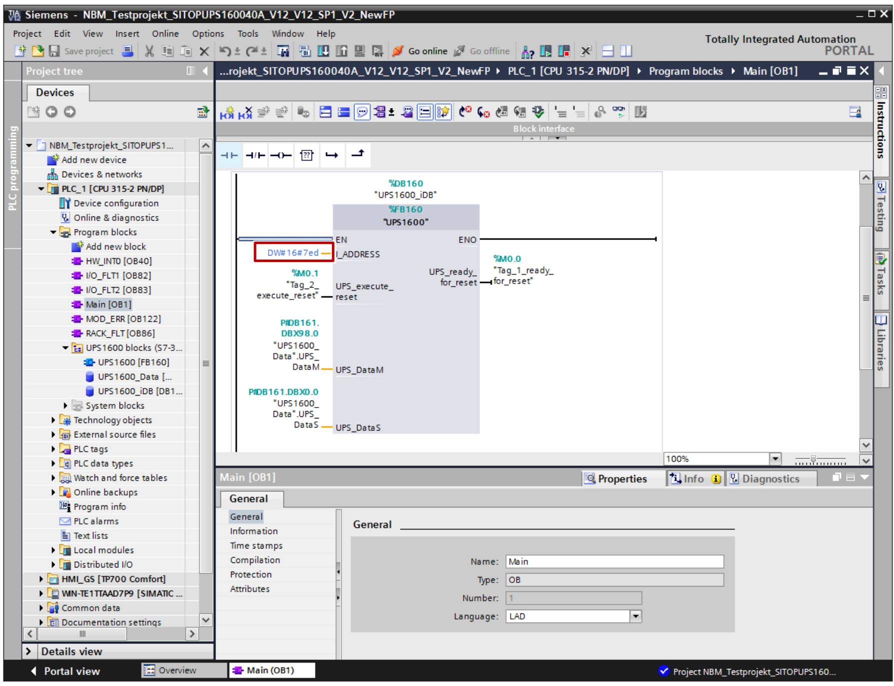
Calling the function block

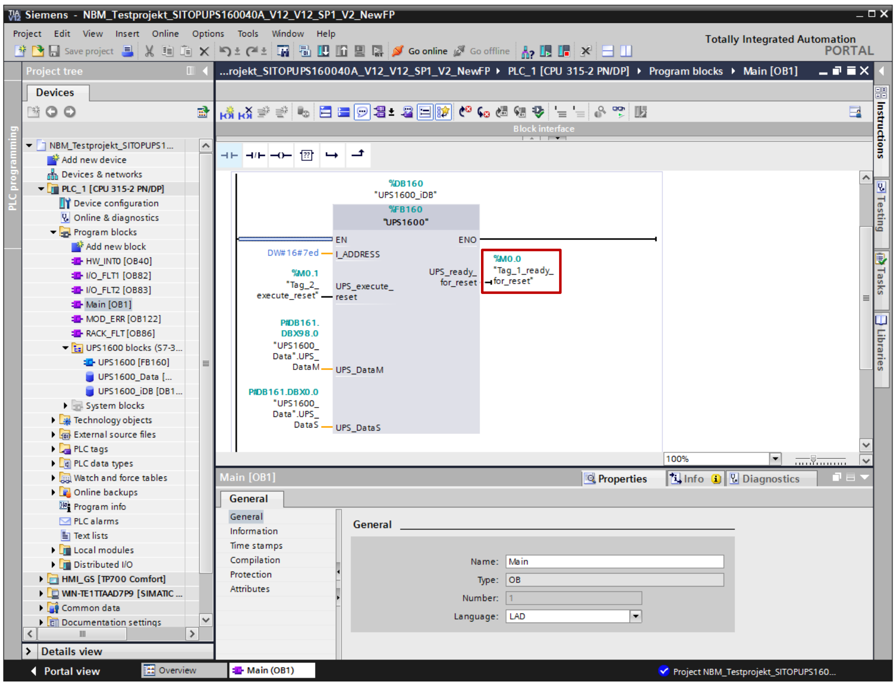
This section describes the procedure for calling the function block within an organization block. In this description, the function block "FB160" is called within "OB1".

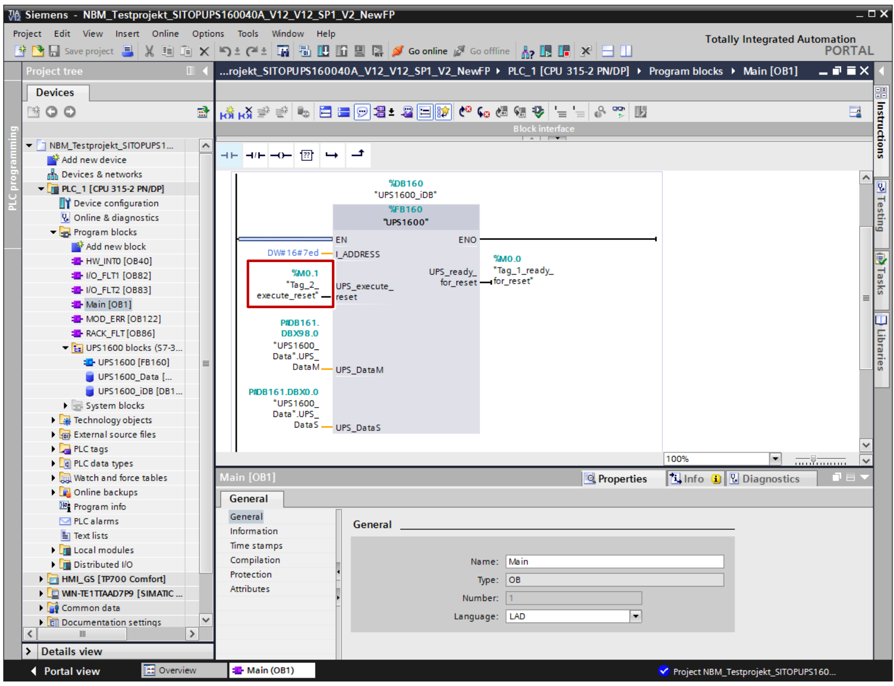
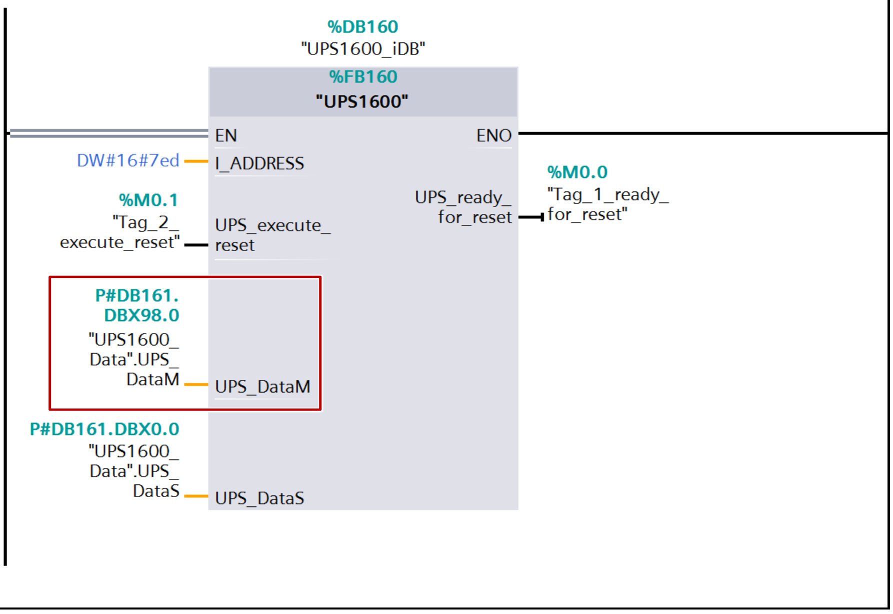
Table 5-10

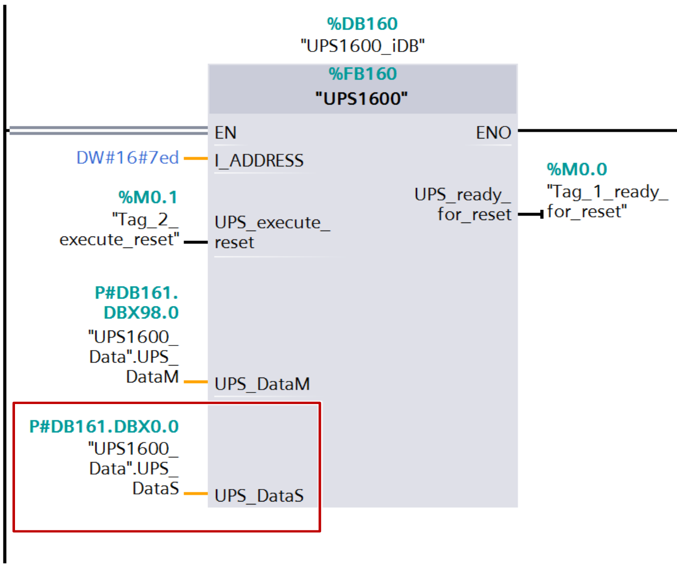
No.	Procedure
1.	In the "Program blocks" folder, open the block "Main [OB1]". 

No.	Procedure
2.	Drag and drop the block "UPS1600 [FB160]" from the folder "Program blocks > UPS1600 blocks (S7-300/400)" to an empty network.  This opens the call options of the function block.
3.	Open the "Name" drop-down list, select the entry "UPS1600_iDB" and then click the "OK" button.  Call options Data block Name: UPS1600_iDB Number: 160 ○ Manual ● Automatic The called function block saves its data in its own instance data block. **Note to the instance data block** It is not necessaryto use the DB160 „UPS1600_iDB“ as an instance DB. Instead you can create and use a new one.

No.	Procedure
4.	At the block parameter "I_ADDRESS", enter the PROFINET diagnostic address of the UPS1600 within your STEP 7 project in hexadecimal format. In this example, the UPS1600 has the PROFINET diagnostic address "2029", which corresponds to a hexadecimal value of "7ed".  Siemens - NBM_Testprojekt_SITOPUPS160040A_V12_V12_SP1_V2_NewFP Project Edit View Insert Online Options Tools Window Help Totally Integrated Automation PORTAL Project tree Devices ...rojekt_SITOPUPS160040A_V12_V12_SP1_V2_NewFP ▸ PLC_1 [CPU 315-2 PN/DP] ▸ Program blocks ▸ Main [OB1] %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO DW#16#7ed I_ADDRESS %M0.1 "Tag_2_execute_reset" UPS_execute_reset UPS_ready_for_reset %M0.0 "Tag_1_ready_for_reset" P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS Main [OB1] Properties Info Diagnostics General Information Time stamps Compilation Protection Attributes Portal view Overview Main (OB1) General Name: Main Type: OB Number: 1 Language: LAD **Note** Further information about the PROFINET diagnostic address is available in the STEP 7 V12 Online Help.

No.	Procedure
5.	Connect the block parameter "UPS_ready_for_reset" with a tag of your project that you use to bring your plant into a condition in which it can be shut down. In this example, the tag "Tag_1_ready_for_reset (M0.0)" is used.  %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO DW#16#7ed I_ADDRESS %M0.1 "Tag_2_execute_reset" UPS_execute_reset UPS_ready_for_reset %M0.0 "Tag_1_ready_for_reset" P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS Main [OB1] Properties Info Diagnostics Name: Main Type: OB Number: 1 Language: LAD **Note** Further information about the block parameters is available in Chapter 5.3.

No.	Procedure
6.	Connect the block parameter "UPS_execute_reset" with a tag of your project that you use to switch off the UPS when your plant is in a condition in which it can be shut down. In this example, the tag "Tag_2_execute_reset (M0.1)" is used.  Siemens - NBM_Testprojekt_SITOPUPS160040A_V12_V12_SP1_V2_NewFP ...rojekt_SITOPUPS160040A_V12_V12_SP1_V2_NewFP ▸ PLC_1 [CPU 315-2 PN/DP] ▸ Program blocks ▸ Main [OB1] General Name: Main Type: OB Number: 1 Language: LAD Project Edit View Insert Online Options Tools Window Help Save project Go online Go offline Totally Integrated Automation PORTAL Project tree Devices PLC programming NBM_Testprojekt_SITOPUPS1... Add new device Devices & networks PLC_1 [CPU 315-2 PN/DP] Device configuration Online & diagnostics Program blocks Add new block HW_INT0 [OB40] I/O_FLT1 [OB82] I/O_FLT2 [OB83] Main [OB1] MOD_ERR [OB122] RACK_FLT [OB86] UPS1600 blocks (S7-3... UPS1600 [FB160] UPS1600_Data [... UPS1600_iDB [DB1... System blocks Technology objects External source files PLC tags PLC data types Watch and force tables Online backups Program info PLC alarms Text lists Local modules Distributed I/O HMI_GS [TP700 Comfort] WIN-TE1TTAAD7P9 [SIMATIC ... Common data Documentation settings Details view Block interface %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO DW#16#7ed I_ADDRESS %M0.1 "Tag_2_execute_reset" UPS_execute_reset UPS_ready_for_reset %M0.0 "Tag_1_ready_for_reset" P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS 100% Main [OB1] Properties Info Diagnostics General Information Time stamps Compilation Protection Attributes Instructions Testing Tasks Libraries Portal view Overview Main (OB1) Project NBM_Testprojekt_SITOPUPS160...
7.	Connect the block parameter "UPS_DataM" with the "UPS_DataM" tag from DB161 "UPS1600_Data".  %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO DW#16#7ed I_ADDRESS %M0.1 "Tag_2_execute_reset" UPS_execute_reset UPS_ready_for_reset %M0.0 "Tag_1_ready_for_reset" P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS

No.	Procedure
8.	Connect the block parameter "UPS_DataS" with the "UPS_DataS" tag from DB161 "UPS1600_Data".  %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO DW#16#7ed I_ADDRESS %M0.0 "Tag_1_ready_for_reset" UPS_ready_for_reset %M0.1 "Tag_2_execute_reset" UPS_execute_reset P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS

5.5.2 Procedure when using an S7-1200/1500

Hardware used in this description:

- CPU 1516-3 PN/DP
- SITOP UPS1600 24V/10A

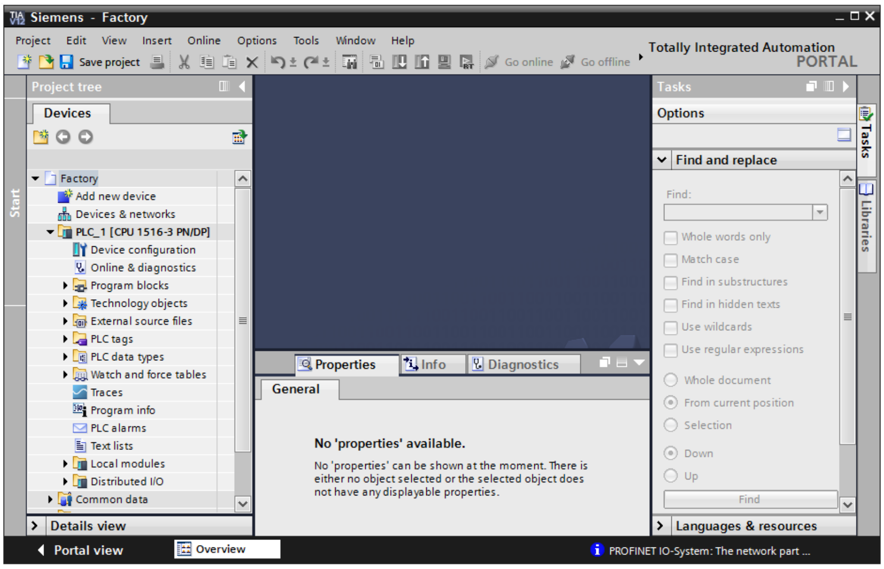
The procedure for other SIMATIC S7-1200/1500 controllers is identical.

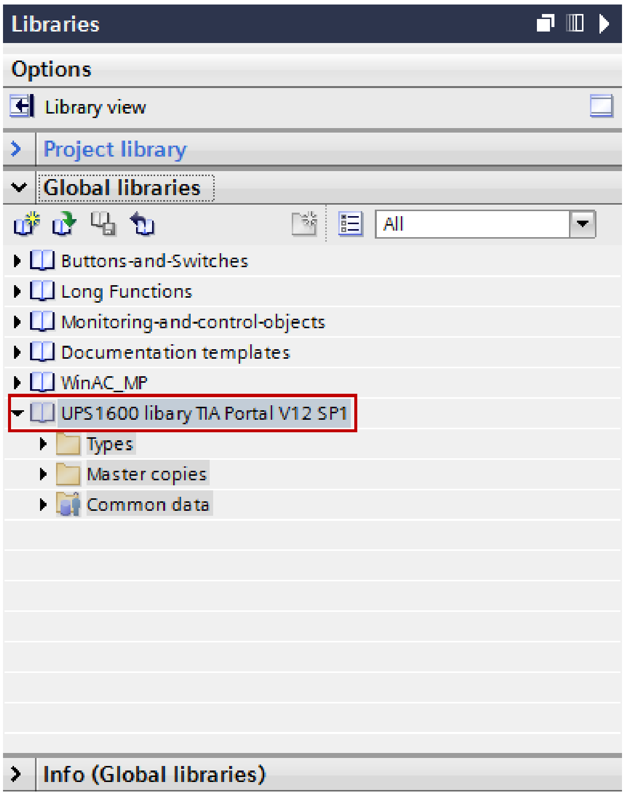
Note Please make sure that all requirements for the integration of the function block are met. The requirements are described in Chapter 5.1.

Inserting blocks from the library into the program

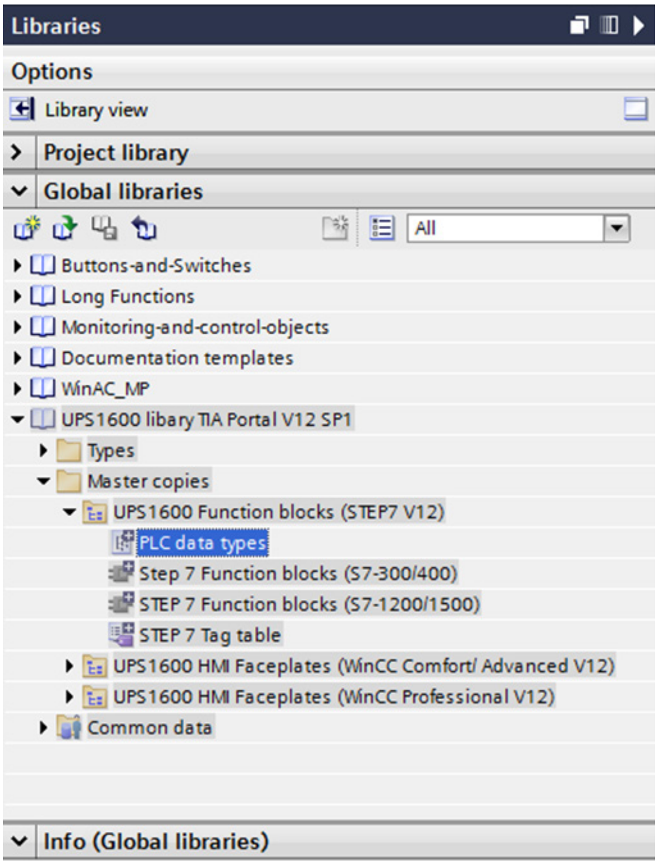
The following table describes all steps for integrating the function block and the associated data blocks into a STEP 7 V12 project.

Table 5-11

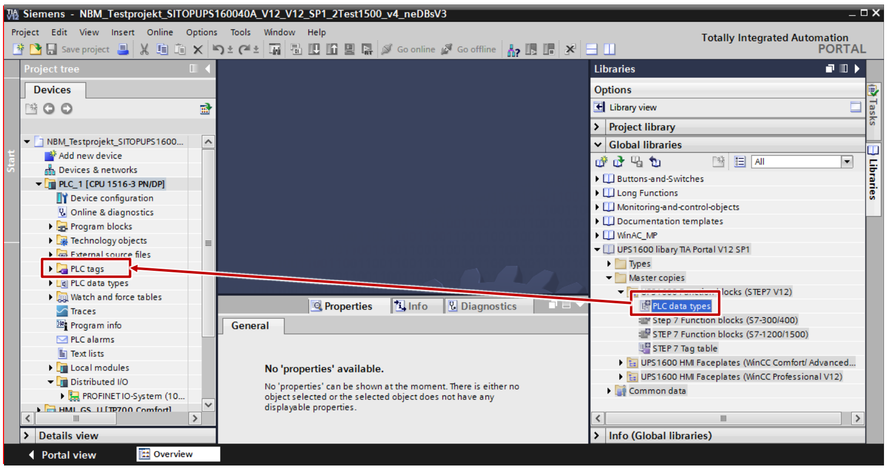
No.	Procedure
1.	Open the project into which you want to insert the function block in the Project view.  Siemens - Factory Project Edit View Insert Online Options Tools Window Help Save project Go online Go offline Totally Integrated Automation PORTAL Project tree Devices Factory Add new device Devices & networks PLC_1 [CPU 1516-3 PN/DP] Device configuration Online & diagnostics Program blocks Technology objects External source files PLC tags PLC data types Watch and force tables Traces Program info PLC alarms Text lists Local modules Distributed I/O Common data Details view Start Properties Info Diagnostics General Tasks Options Find and replace Find: Whole words only Match case Find in substructures Find in hidden texts Use wildcards Use regular expressions Whole document From current position Selection Down Up Find Languages & resources Tasks Libraries Portal view Overview **No 'properties' available.** No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. PROFINET IO-System: The network part ...

No.	Procedure
2.	Open the global library "UPS1600 library TIA Portal V12".  Libraries Options Library view Project library Global libraries All Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP UPS1600 libary TIA Portal V12 SP1 Types Master copies Common data Info (Global libraries) **Note** The procedure for opening a global library is described in Chapter 5.2.
3.	Open the folder "Master copies > UPS1600 Function blocks (TIA V12)" in the library.

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>4.</td><td>Select the folder "PLC data types" in the library.

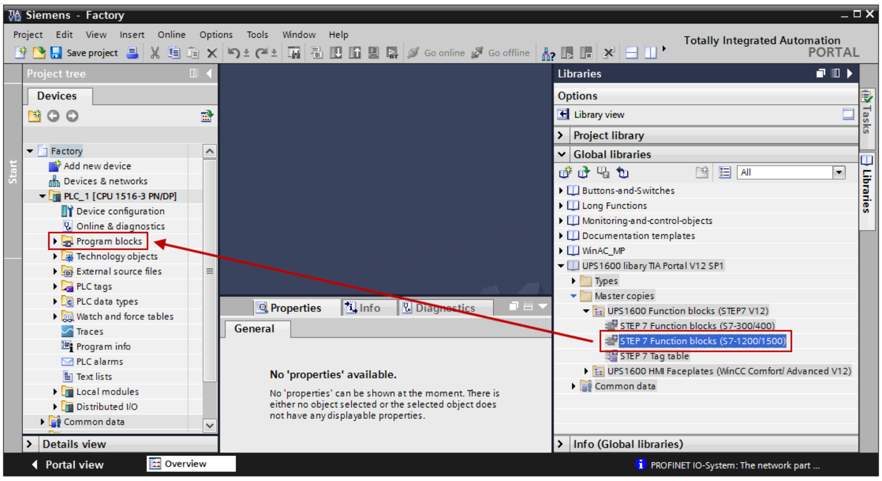
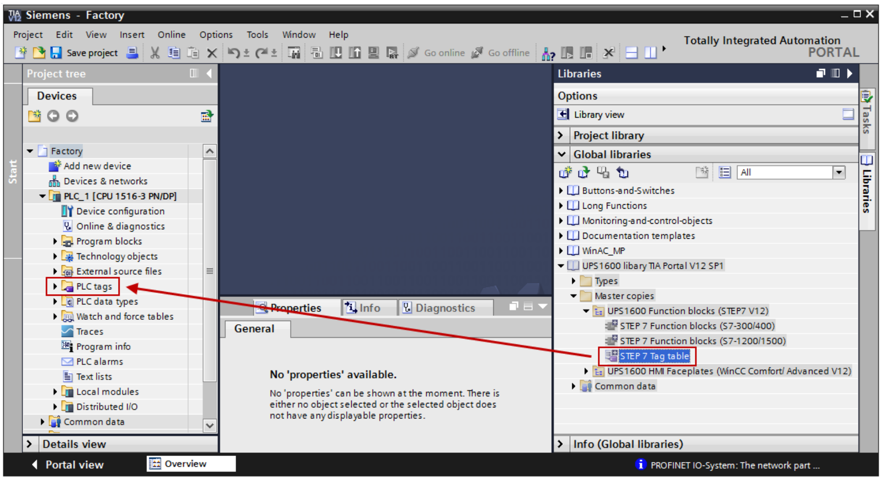

Libraries
Options
Library view
Project library
Global libraries
All
Buttons-and-Switches
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
UPS1600 libary TIA Portal V12 SP1
Types
Master copies
UPS1600 Function blocks (STEP7 V12)
PLC data types
Step 7 Function blocks (S7-300/400)
STEP 7 Function blocks (S7-1200/1500)
STEP 7 Tag table
UPS1600 HMI Faceplates (WinCC Comfort/ Advanced V12)
UPS1600 HMI Faceplates (WinCC Professional V12)
Common data
Info (Global libraries)

</td></tr>
<tr><td>5.</td><td>Drag and drop the "PLC data types" folder to the "PLC data types" folder in the project folder of your existing controller.



No 'properties' available.

No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.</td></tr>
<tr><td>6.</td><td>Select the folder "STEP7 Function blocks (S7-1200/1500)".</td></tr>
</table>

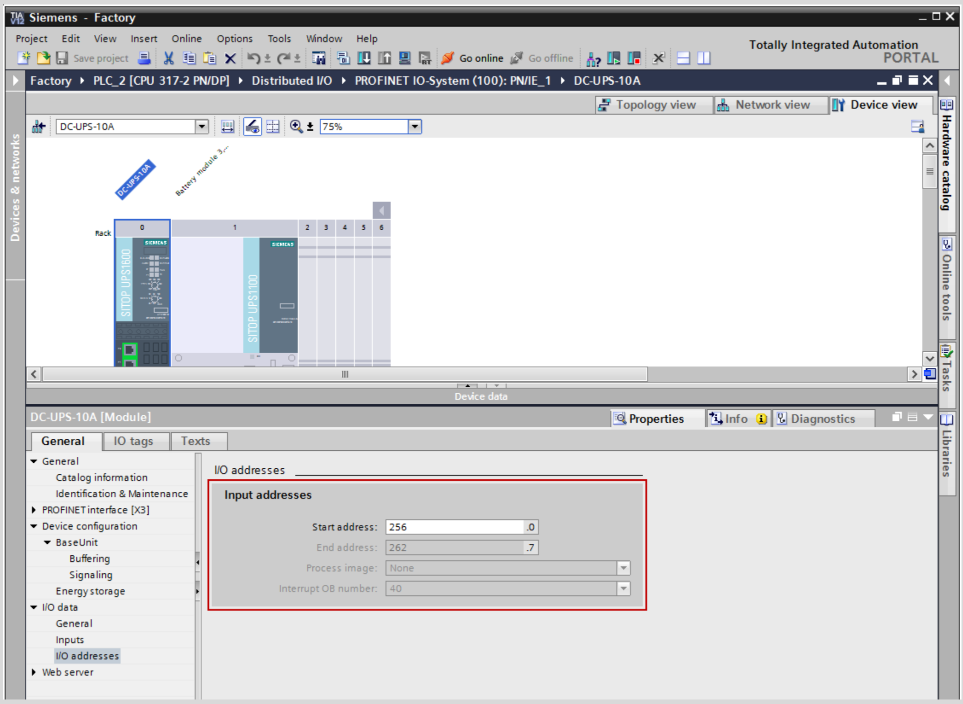
No.	Procedure
7.	Drag and drop the folder "STEP7 Function blocks (S7-1200/1500)" to the "Program blocks" folder in the project folder of your existing controller.  Siemens - Factory Project tree Devices Factory PLC_1 [CPU 1516-3 PN/DP] Program blocks PLC tags Libraries Global libraries UPS1600 libary TIA Portal V12 SP1 Master copies UPS1600 Function blocks (STEP7 V12) STEP 7 Function blocks (S7-300/400) STEP 7 Function blocks (S7-1200/1500) STEP 7 Tag table Portal view Overview No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. PROFINET IO-System: The network part ...
8.	Select the "STEP7 Tag table" folder in the library.
9.	Drag and drop the "STEP7 Tag table" folder to the "PLC tags" folder in the project folder of your existing controller.  Siemens - Factory Project tree Devices Factory PLC_1 [CPU 1516-3 PN/DP] Program blocks PLC tags Libraries Global libraries UPS1600 libary TIA Portal V12 SP1 Master copies UPS1600 Function blocks (STEP7 V12) STEP 7 Function blocks (S7-300/400) STEP 7 Function blocks (S7-1200/1500) STEP 7 Tag table Portal view Overview No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. PROFINET IO-System: The network part ...

Adapting address ranges

Within the program sequence of the function block FB160, the cyclic data of the address range of the SITOP UPS1600 are accessed. In this case, the required address ranges are transferred to the function block FB160 via four tags. It is therefore necessary to adapt the addresses of these tags in the symbol table dependent on the selected I/O address range of the SITOP UPS1600.

The following table shows the I/O address range (length: 7 bytes) of the SITOP UPS1600. The function block evaluates the parameters "buffer mode", "ready for buffering", "new alarms pending", and "battery charge level".

Note The setting of the I/O address range for the SITOP UPS1600 is specified in the device configuration of the SITOP UPS1600 you created in STEP 7 V12.


Siemens - Factory
Project Edit View Insert Online Options Tools Window Help
Totally Integrated Automation PORTAL
Factory ▸ PLC_2 [CPU 317-2 PN/DP] ▸ Distributed I/O ▸ PROFINET IO-System (100): PN/IE_1 ▸ DC-UPS-10A
Topology view
Network view
Device view
DC-UPS-10A
75%
Rack
SITOP UPS1600
Device data
Properties
Info
Diagnostics
Hardware catalog
Online tools
Tasks
Libraries
Devices & networks

DC-UPS-10A [Module]

General | IO tags | Texts

- General
  - Catalog information
  - Identification & Maintenance
- PROFINET interface [X3]
- Device configuration
  - BaseUnit
    - Buffering
    - Signaling
  - Energy storage
- I/O data
  - General
  - Inputs
  - I/O addresses
- Web server

I/O addresses

Input addresses

Start address: 256 .0
End address: 262 .7
Process image: None
Interrupt OB number: 40

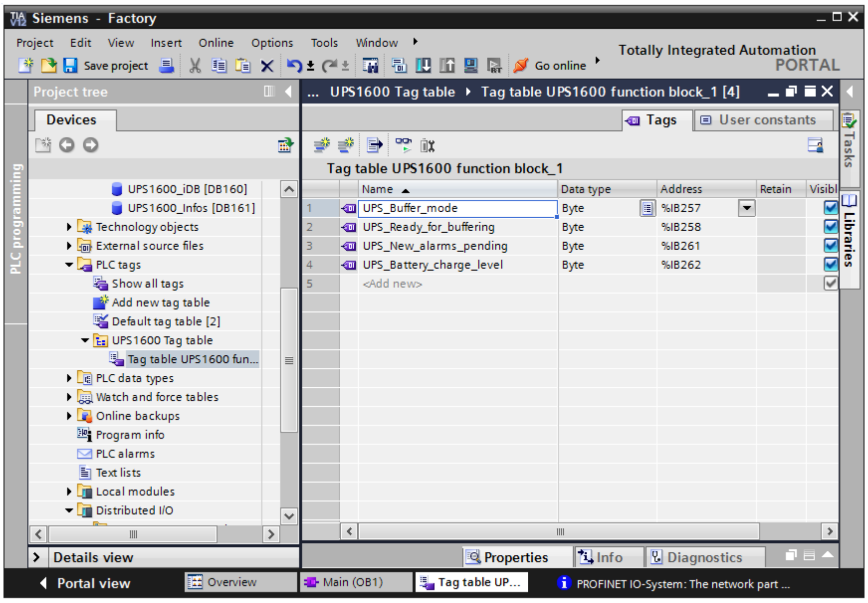
Table 5-12

Tag in the symbol table	Parameter of the UPS1600	Information	Address range in this example
-	Input voltage	-	%IB 256
UPS_Buffer_mode	buffer mode	Buffer mode / Normal mode	%IB 257
UPS_Ready_for_buffering	ready for buffering	Ready / Not ready for buffering	%IB 258
-	charge sufficient	-	%IB 259

Tag in the symbol table	Parameter of the UPS1600	Information	Address range in this example
-	battery change recommended	-	%IB 260
UPS_New_alarms_pending	new alarms pending	New / No new alarms pending	%IB 261

The following table describes the procedure for changing the address ranges of the symbol table contained in the library.

Table 5-13

No.	Procedure
1.	Open the tag table "Tag table UPS1600" in the program folder "PLC tags > UPS1600 Tag table" of your application program. 
2.	Change the address of the symbol "UPS_Buffer_mode" dependent on the selected I/O address range for the parameter "buffer mode" of the UPS1600.
3.	Change the address of the symbol "UPS_Ready_for_buffering" dependent on the selected I/O address range for the parameter "ready for buffering" of the UPS1600.
4.	Change the address of the symbol "UPS_New_alarms_pending" dependent on the selected I/O address range for the parameter "new alarms pending" of the UPS1600.
5.	Change the address of the symbol "UPS_Battery_charge_level" dependent on the selected I/O address range for the parameter "battery charge level" of the UPS1600.

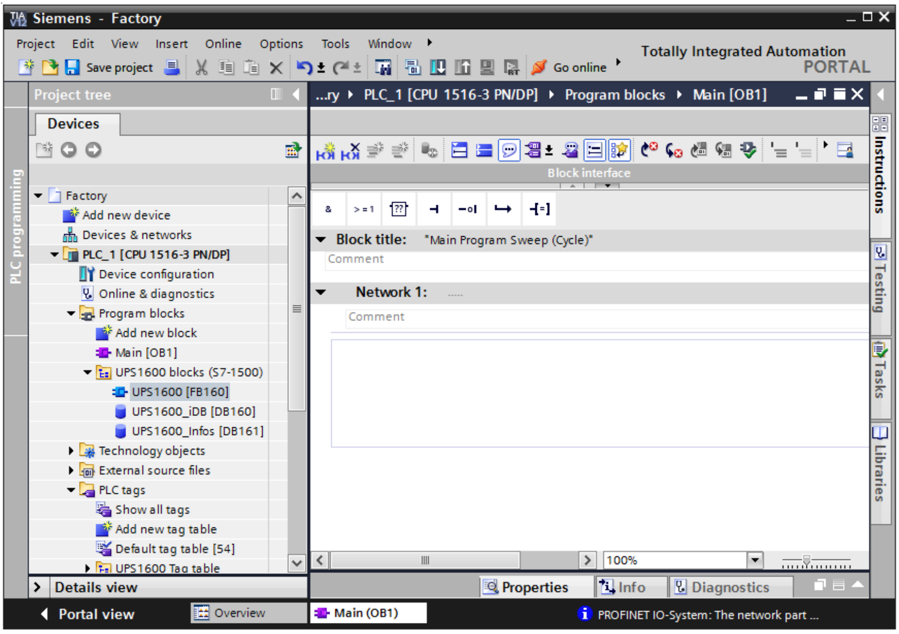
Tag table UPS1600 function block_1

	Name	Data type	Address	Retain	Visibl
1	UPS_Buffer_mode	Byte	%IB257		☑
2	UPS_Ready_for_buffering	Byte	%IB258		☑
3	UPS_New_alarms_pending	Byte	%IB261		☑
4	UPS_Battery_charge_level	Byte	%IB262		☑
5	<Add new>				✓

Calling the function block

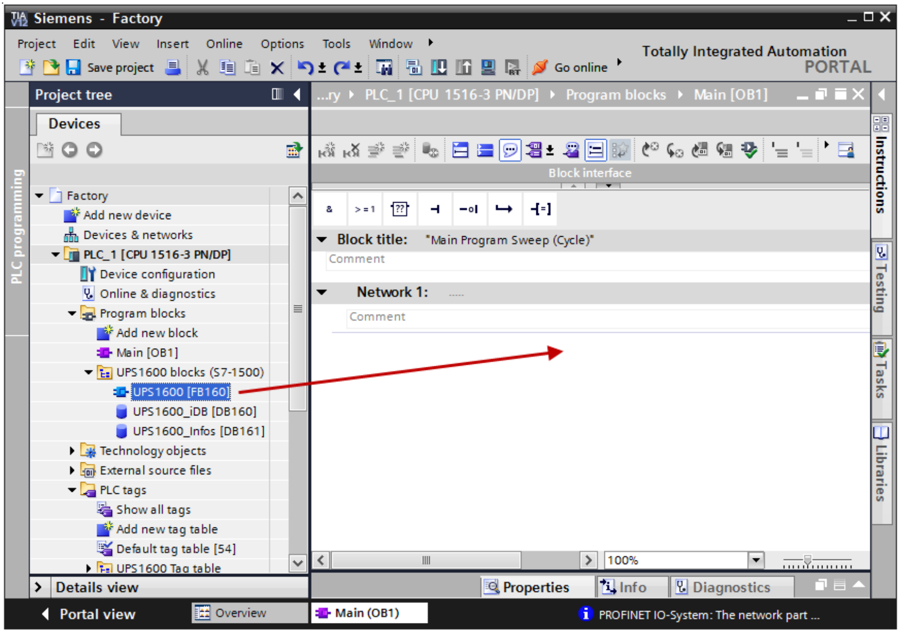
This section describes the procedure for calling the function block within an organization block. In this description, the function block "FB160" is called within "OB1".

Table 5-14

No.	Procedure
1.	In the "Program blocks" folder, open the block "Main [OB1]". 

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>2.</td><td>

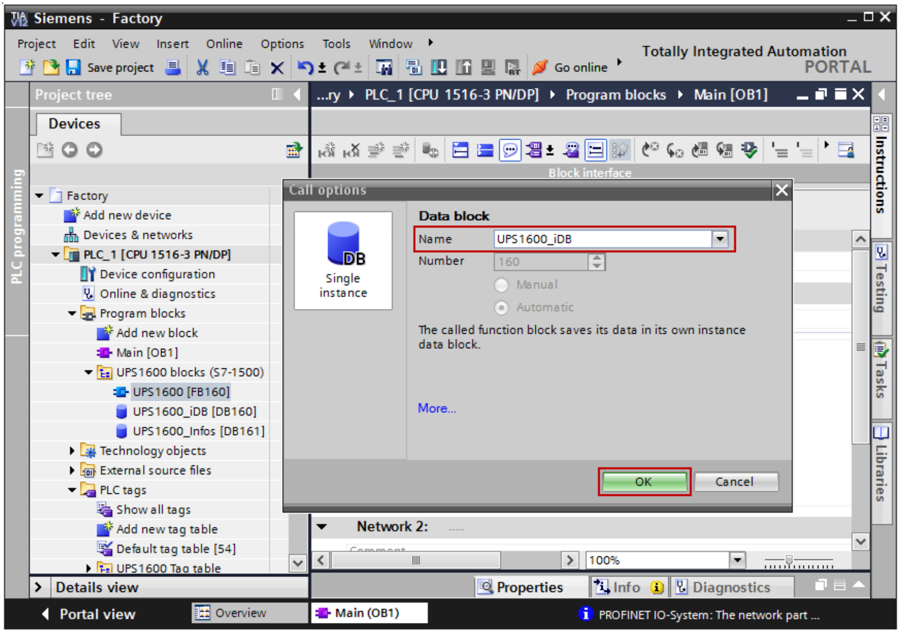
Drag and drop the block "UPS1600 [FB160]" from the folder "Program blocks > UPS1600 blocks (S7-1200/1500)" to an empty network.



This opens the call options of the function block.

</td></tr>
<tr><td>3.</td><td>

Open the "Name" drop-down list, select the entry "UPS1600_iDB" and then click the "OK" button.



Call options

Data block

Name: UPS1600_iDB

Number: 160

○ Manual

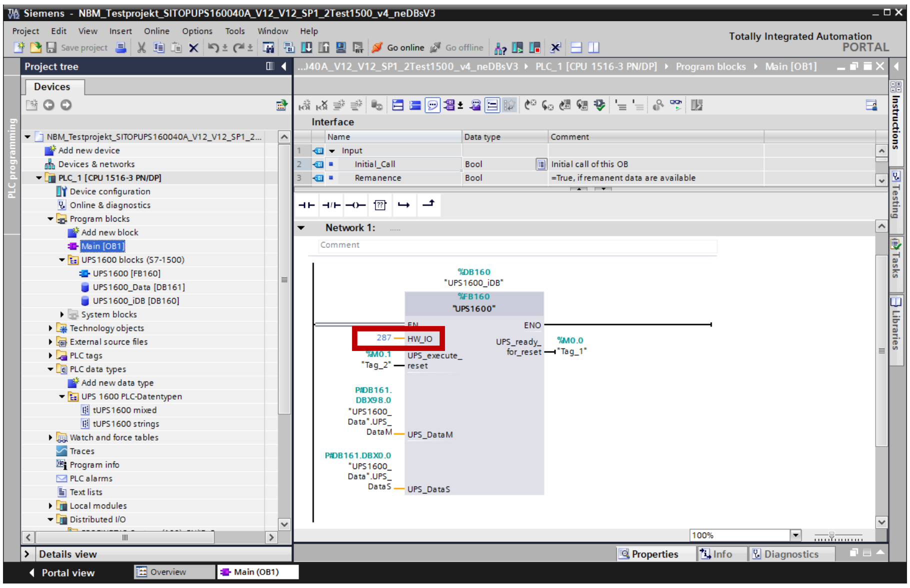
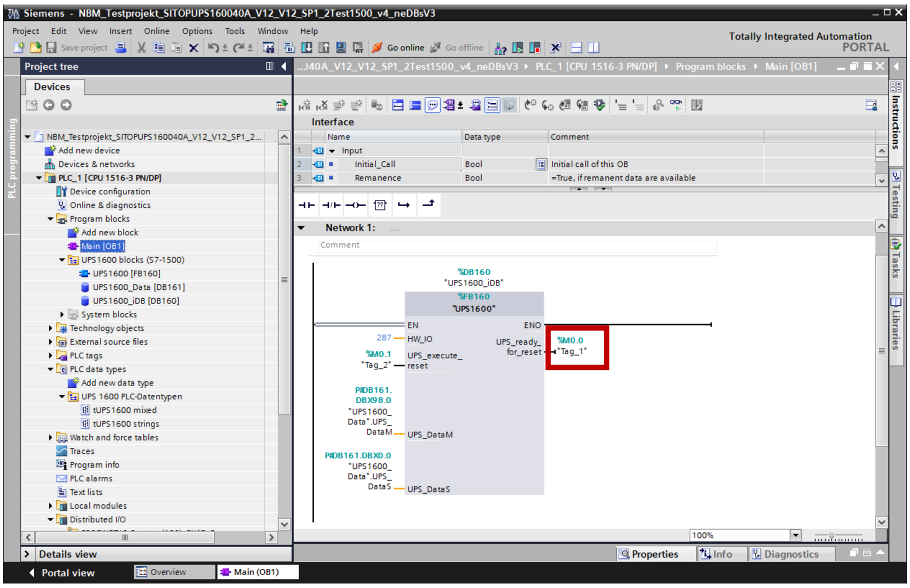
● Automatic

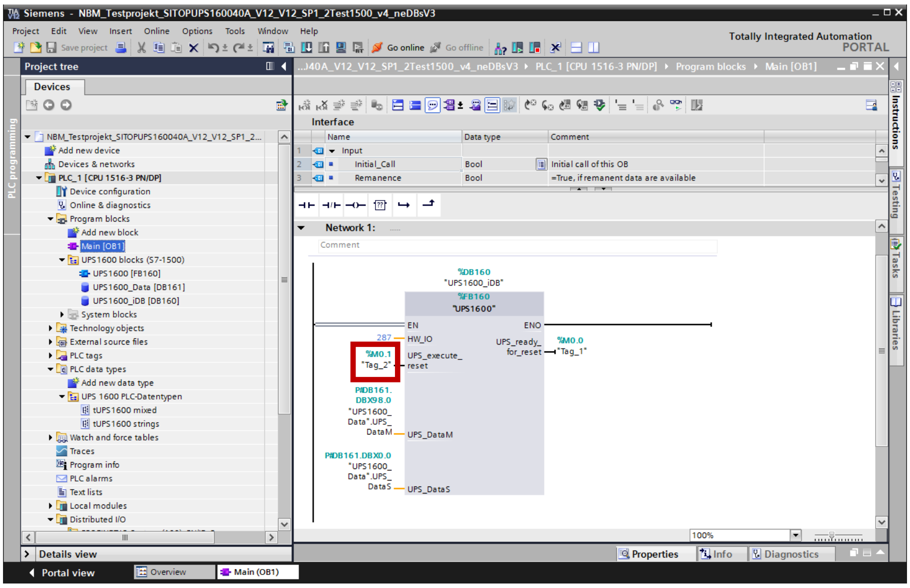
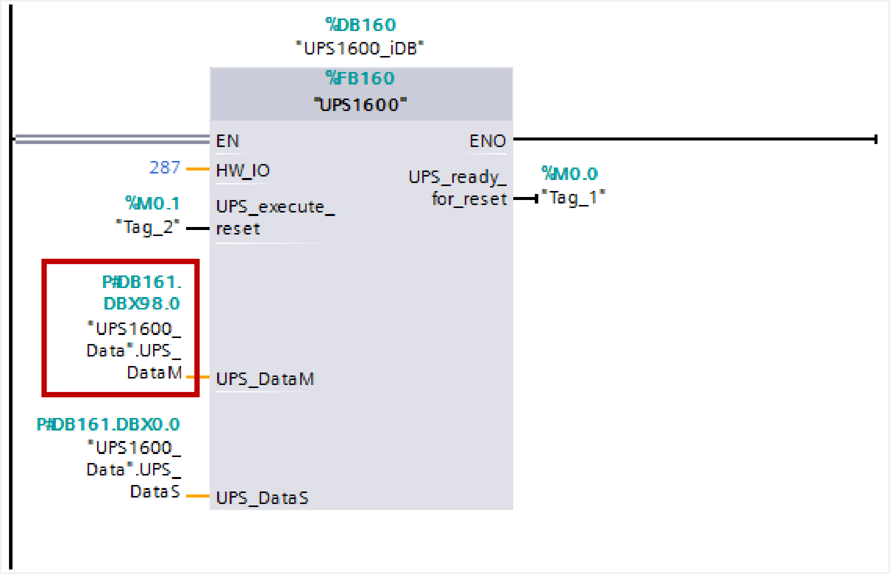
The called function block saves its data in its own instance data block.

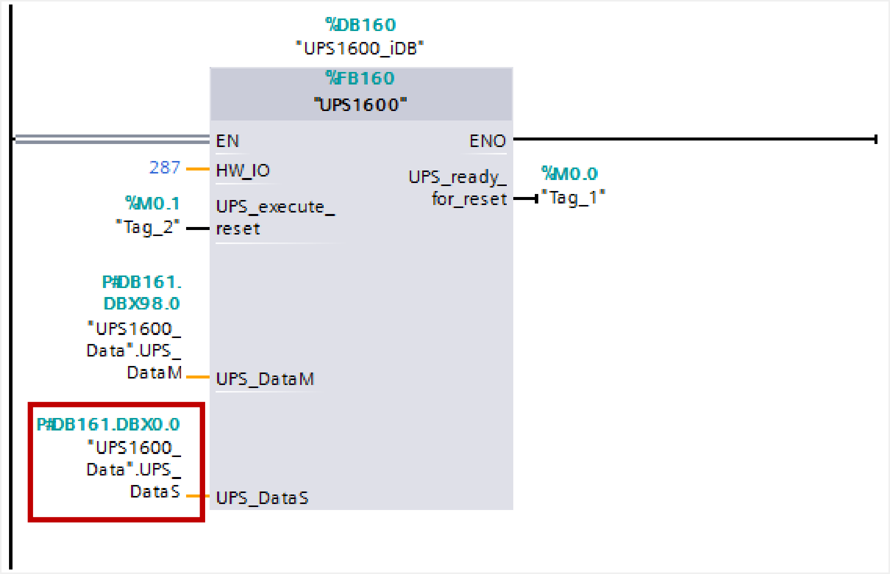
Note to the instance data block

It is not necessary to use the DB160 „UPS1600_iDB“ as an instance DB. Instead you can create and use a new one.

</td></tr>
</table>

No.	Procedure
4.	At the block parameter "HW_IO", enter the hardware ID of the UPS1600 within your STEP 7 project. In this example, the UPS1600 has the hardware ID "287".  %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO 287 HW_IO %M0.1 "Tag_2" UPS_execute_reset UPS_ready_for_reset %M0.0 "Tag_1" P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS **Note** Further information about the hardware ID is available in the STEP 7 V12 Online Help.
5.	Connect the block parameter "UPS_ready_for_reset" with a tag of your project that you use to bring your plant into a condition in which it can be shut down. In this example, the tag "Tag_1 (M0.0)" is used.  %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO 287 HW_IO %M0.1 "Tag_2" UPS_execute_reset UPS_ready_for_reset %M0.0 "Tag_1" P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS **Note** Further information about the block parameters is available in Chapter 5.3.

No.	Procedure
6.	Connect the block parameter "UPS_execute_reset" with a tag of your project that you use to switch off the UPS when your plant is in a condition in which it can be shut down. In this example, the tag "Tag_2 (M0.1)" is used.  Siemens - NBM_Testprojekt_SITOPUPS160040A_V12_V12_SP1_2Test1500_v4_neDBsV3 Project Edit View Insert Online Options Tools Window Help Totally Integrated Automation PORTAL Go online Go offline Project tree Devices ...J40A_V12_V12_SP1_2Test1500_v4_neDBsV3 ▸ PLC_1 [CPU 1516-3 PN/DP] ▸ Program blocks ▸ Main [OB1] Interface Name Data type Comment Input Initial_Call Bool Initial call of this OB Remanence Bool =True, if remanent data are available Network 1: Comment NBM_Testprojekt_SITOPUPS160040A_V12_V12_SP1_2... Add new device Devices & networks PLC_1 [CPU 1516-3 PN/DP] Device configuration Online & diagnostics Program blocks Add new block Main [OB1] UPS1600 blocks (S7-1500) UPS1600 [FB160] UPS1600_Data [DB161] UPS1600_iDB [DB160] System blocks Technology objects External source files PLC tags PLC data types Add new data type UPS 1600 PLC-Datentypen tUPS1600 mixed tUPS1600 strings Watch and force tables Traces Program info PLC alarms Text lists Local modules Distributed I/O %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO 287 HW_IO %M0.1 "Tag_2" UPS_execute_reset UPS_ready_for_reset %M0.0 "Tag_1" P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS 100% Details view Properties Info Diagnostics Portal view Overview Main (OB1) Instructions Testing Tasks Libraries PLC programming
7.	Connect the block parameter "UPS_DataM" with the "UPS_DataM" tag from DB161 "UPS1600_Data".  %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO 287 HW_IO UPS_ready_for_reset %M0.0 "Tag_1" %M0.1 "Tag_2" UPS_execute_reset P#DB161.DBX98.0 "UPS1600_Data".UPS_DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_Data".UPS_DataS UPS_DataS

No.	Procedure
8.	Connect the block parameter "UPS_DataS" with the "UPS_DataS" tag from DB161 "UPS1600_Data".  %DB160 "UPS1600_iDB" %FB160 "UPS1600" EN ENO 287 HW_IO UPS_ready_ for_reset %M0.0 "Tag_1" %M0.1 "Tag_2" UPS_execute_ reset P#DB161. DBX98.0 "UPS1600_ Data".UPS_ DataM UPS_DataM P#DB161.DBX0.0 "UPS1600_ Data".UPS_ DataS UPS_DataS

6 Faceplates for the UPS1600

The HMI faceplates' task is to display various actual values and states of the SITOP UPS1600 on an HMI control panel / runtime system.

6.1 Faceplate "Faceplate_UPS1600_State"

Description of the faceplate

The faceplate "Faceplate_UPS1600_State" provides the following functions:

- Activation of the visibility of the faceplate "Faceplate_UPS1600"
- Status indication of the SITOP UPS1600

The functions are described in detail in the following sections.

Activation of the visibility of the faceplate "Faceplate_UPS1600"

A click on the faceplate "Faceplate_UPS1600_State" activates the visibility of the faceplate "Faceplate_UPS1600".

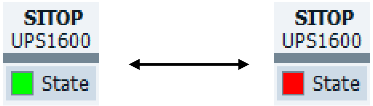
Note The visibility of the faceplate "Faceplate_UPS1600" can just be activated via the faceplate "Faceplate_UPS1600_State". Deactivation of the visibility is only possible in the faceplate "Faceplate_UPS1600".

Status indication of the SITOP UPS1600

The faceplate "Faceplate_UPS1600_State" evaluates the following parameters of the SITOP UPS1600:

- New_alarms_pending
  (No new alarms pending / New alarms pending)
- Buffer_mode
  (Normal mode / Buffer mode)
- Ready_for_buffering
  (Ready for buffering / Not ready for buffering)

The status indication is evaluated via a script.



The following table shows all parameter states with the corresponding color dynamization of the rectangle.

Table 6-1

Color of rectangle	Buffer_mode		New_alarms_pending		Ready_for_buffering	
	Normal mode	Buffer mode	No new alarms	New alarms	Ready for buffering	Not ready for buffering
Green	x		x		x	
Red	x		x			x
Red	x			x	x	

Color of rectangle	Buffer_mode		New_alarms_pending		Ready_for_buffering	
	Normal mode	Buffer mode	No new alarms	New alarms	Ready for buffering	Not ready for buffering
Red	x			x		x
Red		x	x		x	
Red		x	x			x
Red		x		x	x	
Red		x		x		x

Interface description

The following chapter describes the design of the dynamic interface of the faceplate.

Note If you do not use the faceplates as master copy from the project library, the dynamic interface must be connected separately with the respective WinCC flexible tags.

The "Visibility" section of the dynamic interface contains all tags used to control the visibility of the faceplate.

Table 6-2

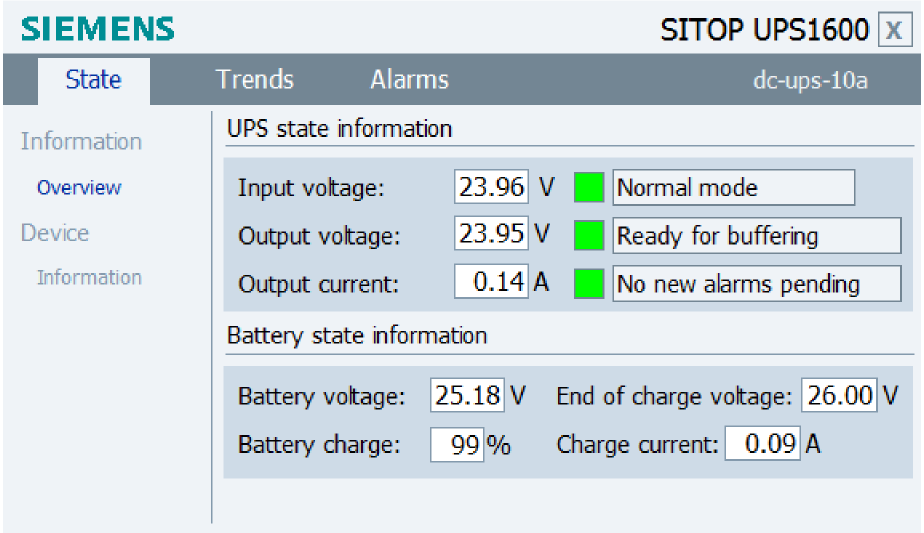
Dynamic interface faceplate	WinCC flexible tag
Faceplate_intern_button_alarms	Faceplate_intern_visibility_alarms
Connection	Internal tag
Data type	Integer
Faceplate_intern_button_headline	Faceplate_intern_visibility_headline
Connection	Internal tag
Data type	Integer
Faceplate_intern_button_state	Faceplate_intern_visibility_state
Connection	Internal tag
Data type	Integer
Faceplate_intern_button_trends	Faceplate_intern_visibility_trends
Connection	Internal tag
Data type	Integer
Faceplate_intern_visibility_main	Faceplate_intern_visibility_main
Connection	Internal tag
Data type	Integer
Faceplate_intern_visibility_min	Faceplate_intern_visibility_min
Connection	Internal tag
Data type	Integer

6.2 Faceplate "Faceplate_UPS1600"

Description of the faceplate

The faceplate "Faceplate_UPS1600" visualizes parameters of the SITOP UPS1600 on an HMI control panel.

Figure 6-1



UPS state information

Input voltage:	23.96	V	🟩	Normal mode
Output voltage:	23.95	V	🟩	Ready for buffering
Output current:	0.14	A	🟩	No new alarms pending

Battery state information

Battery voltage:	25.18	V	End of charge voltage:	26.00	V
Battery charge:	99	%	Charge current:	0.09	A

The parameters of the SITOP UPS1600 are distributed over three tabs, which can be opened in the faceplate by clicking on the relevant tab:

- Status
- Trends
- Alarms

The contents of the tabs and the parameters displayed there are described in detail in the following sections.

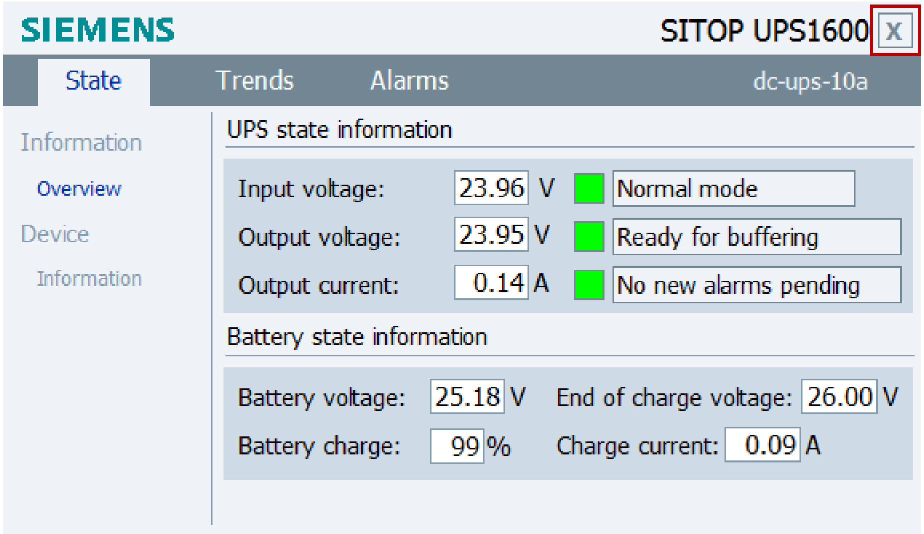
Visibility of the faceplate "Faceplate_UPS1600"

The visibility of the faceplate "Faceplate_UPS1600" is activated via the faceplate "Faceplate_UPS1600_State".

Note Further information on the faceplate "Faceplate_UPS1600_State" is available in Chapter 6.1.

For deactivation of the visibility of the "Faceplate_UPS1600", an "X" button is provided in the top right corner of the faceplate. By pressing this button the visibility is deactivated.

Figure 6-2



UPS state information

Input voltage:	23.96 V	🟩	Normal mode
Output voltage:	23.95 V	🟩	Ready for buffering
Output current:	0.14 A	🟩	No new alarms pending

Battery state information

Battery voltage:	25.18 V	End of charge voltage:	26.00 V
Battery charge:	99 %	Charge current:	0.09 A

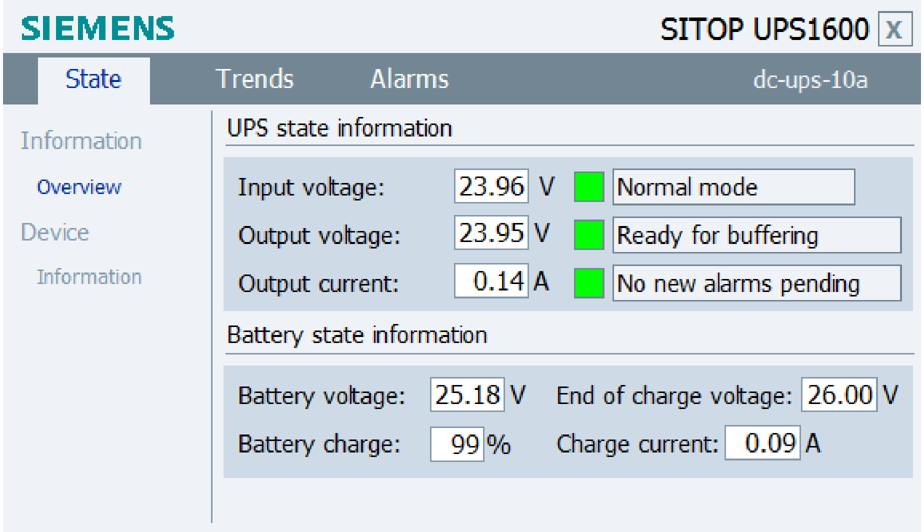
6.2.1 "State" tab

The "State" tab provides the menu items "Information > Overview" and "Device > Information".

Information > Overview

Under this menu item, information about the operating state and battery state of the SITOP UPS1600 is displayed.

Figure 6-3



UPS state information

Input voltage:	23.96 V	🟩	Normal mode
Output voltage:	23.95 V	🟩	Ready for buffering
Output current:	0.14 A	🟩	No new alarms pending

Battery state information

Battery voltage:	25.18 V	End of charge voltage:	26.00 V
Battery charge:	99 %	Charge current:	0.09 A

The following parameters are displayed under this menu:

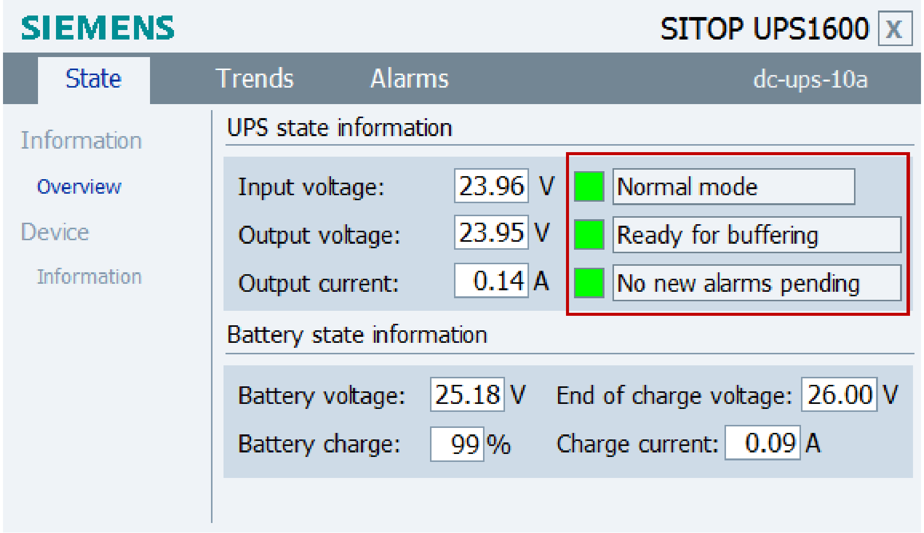
Table 6-3

Display name	Parameter of the UPS
Input voltage	Input_voltage
Output voltage	Output_voltage
Output current	Output_current

Display name	Parameter of the UPS
Battery voltage	Battery_voltage
Battery charge	Battery_charge_level
End-of-charge voltage	End_of_charge_voltage
Charge current	Measured_charge_current
Normal mode / Buffer mode	Buffer_mode
Ready for buffering/ Not ready for buffering	Ready_for_buffering
No new alarms pending/ New alarms pending	New_alarms_pending

The values of the parameters "Buffer_mode", "Ready_for_buffering", and "New_alarms_pending" are output via symbolic I/O fields.
In addition to this output, a rectangle is displayed in front of each symbolic I/O field, which is subject to color dynamization dependent on the parameter value.

Figure 6-4



UPS state information

Input voltage: 23.96 V

Output voltage: 23.95 V

Output current: 0.14 A

🟩 Normal mode

🟩 Ready for buffering

🟩 No new alarms pending

Battery state information

Battery voltage: 25.18 V

End of charge voltage: 26.00 V

Battery charge: 99 %

Charge current: 0.09 A

The following table shows the possible parameter states with the corresponding color dynamization of the rectangle.

Table 6-4

Parameter	State / display name	Color of rectangle
Normal mode	Normal mode	Green
	Buffer mode	Yellow
Ready for buffering	Ready for buffering	Green
	Not ready for buffering	Red
No new alarms pending	No new alarms pending	Green
	New pending alarms	Yellow

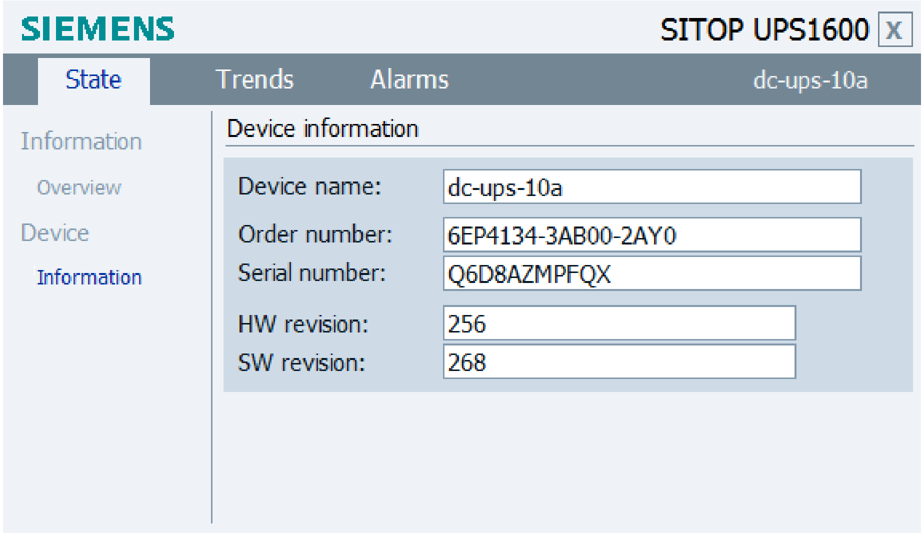
Note

> All I/O fields within the faceplate just output values. It is not possible to input values.

Device > Information

Under this menu, general information about the SITOP UPS1600 is displayed.

Figure 6-5



Device information

Device name: dc-ups-10a

Order number: 6EP4134-3AB00-2AY0

Serial number: Q6D8AZMPFQX

HW revision: 256

SW revision: 268

The following table shows all parameters displayed under this menu:

Table 6-5

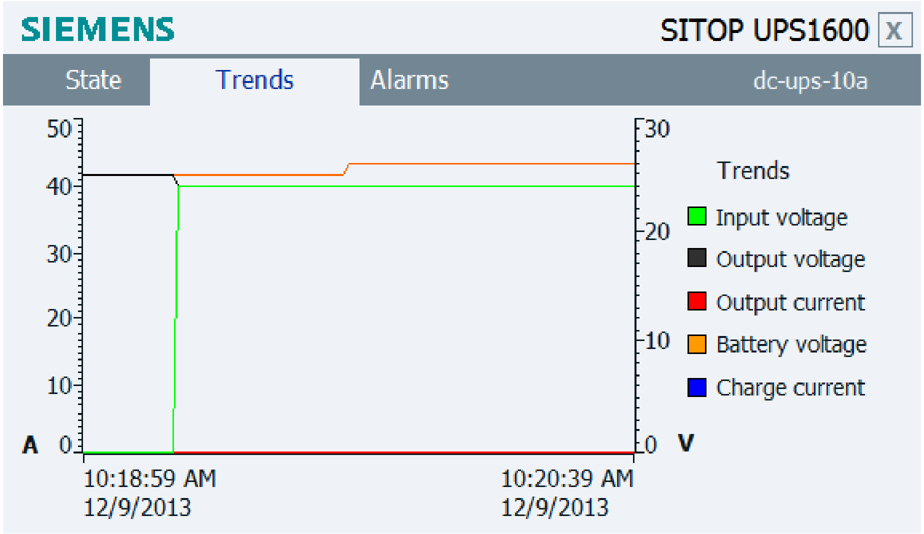
Display name	Parameter of the UPS
Device name	Device_name
Order number	Order_number
Serial number	Serial_number
HW revision	HW_revision
SW revision	SW_revision

6.2.2 "Trends" tab

On the "Trends" tab, the following parameters of the SITOP UPS1600 are displayed in a trend curve.

- Input voltage
- Output voltage
- Output current
- Battery voltage
- Charge current

Figure 6-6



The time range of the X axis of the trend curve is 200 seconds. The trend variables used have an acquisition cycle of 1 second and are refreshed cyclically.

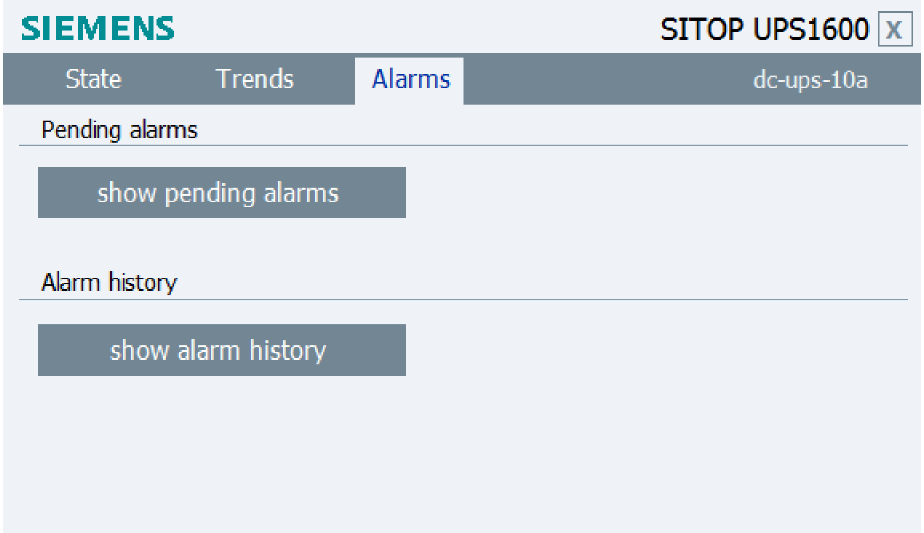
Table 6-6

Display name	Parameter of the UPS	Color	Unit
Input voltage	Input_voltage	Green	Volt
Output voltage	Output_voltage	Black	Volt
Output current	Output_current	Red	Ampere
Battery voltage	Battery_voltage	Orange	Volt
Charge current	Measured_charge_current	Blue	Ampere

6.2.3 "Alarms" tab

On the "Alarms" tab, it is possible to display the PROFINET diagnostic messages of the SITOP UPS1600.

Figure 6-7



When clicking the "show pending alarms" and "show alarm history" buttons, two separate message windows are opened.

The message window for the "Pending alarms" allows for displaying all currently pending PROFINET diagnostic messages of the SITOP UPS1600. The message window for the "Alarm history" allows for displaying all PROFINET diagnostic messages of the SITOP UPS1600 stored in the internal message buffer of the used HMI control panel.

Prerequisites for displaying the PROFINET diagnostic messages

In order to display the PROFINET diagnostic messages of the SITOP UPS1600 within the faceplate, the respective WinCC flexible / WinCC TIA Portal project must already be configured for the display of PROFINET diagnostic messages.

A list of the PROFINET diagnostic messages of the SITOP UPS1600 is available in the SITOP UPS1600 User Manual in Chapter 3.2.1.

7 Application of the Faceplates in WinCC flexible

7.1 Preconditions

The following requirements must be met to use the faceplates in WinCC flexible 2008 SP3.

- The GSD file of the SITOP UPS1600 is installed in STEP 7 V5.5 and the UPS is configured as PROFINET node in the HW configuration of the CPU.
- Already configured S7 communication between the SITOP UPS1600 and CPU.
- All program blocks from the library "UPS1600 STEP 7 V5_5" are integrated into the STEP 7 application program and executable.
- The library "UPS1600 library WinCC flexible 2008" for WinCC flexible 2008 SP3 is available.

Supported control panels

The use of the faceplates is approved for the following control panels:

- TP270 10"
- OP270 10"
- MP270 10" Touch
- MP277 8" Touch / Key
- MP277 10" Touch / Key
- MP377 Touch / Key
- WinCC flexible Runtime 2008 SP3

Supported languages

The faceplates support the following languages:

- English (USA)
- German (Germany)
- Chinese (PR China)

Note regarding the application

The faceplates "Faceplate_UPS1600" and "Faceplate_UPS1600_State" can only be used in combination. Using just one of the faceplates separately is not possible.

7.2 Library for WinCC flexible

The library "UPS1600 library WinCC flexible 2008" for WinCC flexible 2008 SP3 comprises the following objects:

Table 7-1

Name	Type	Description
HMI Faceplates (WinCC flexible 2008)	Faceplates	Comprises the two faceplates "Faceplate_UPS1600" and "Faceplate_UPS1600_State".
HMI VB-Script	VB script	-
HMI Tag table	Tag folder	Separate tag folder with all required tags
HMI Alarm views	Message window	Comprises two message windows for displaying the diagnostic messages of the UPS1600.

The contents of the objects are described in detail in the following sections.

HMI Faceplates (WinCC flexible 2008)

This object comprises the two faceplates "Faceplate_UPS1600" and "Faceplate_UPS1600_State". The two faceplates are combined to one master copy in the library. Therefore, subsequent connection of the symbolic interfaces of the faceplates is not necessary.

HMI VB-Script

This object comprises the VB script "UPS1600_Faceplate_state_min".

This script controls the status indication of the SITOP UPS1600 in the faceplate "Faceplate_UPS1600_State".

HMI Tag table

This object in the library contains the tag folder "HMI Tag table".
This folder comprises all tags required for the use of the faceplates.

The control tags in this folder are already equipped with a connection to the data block DB161. The default connection name is "Connection_1".
After having integrated the tags from the library it might be necessary to adapt this connection name in your project.

HMI Alarm views

This object comprises two message windows which can be used to display the PROFINET diagnostic messages of the SITOP UPS1600.

7.3 Integrating the faceplates

The following sections describe all steps required to integrate the faceplates into a WinCC flexible 2008 SP3 project.

Hardware used in this description:

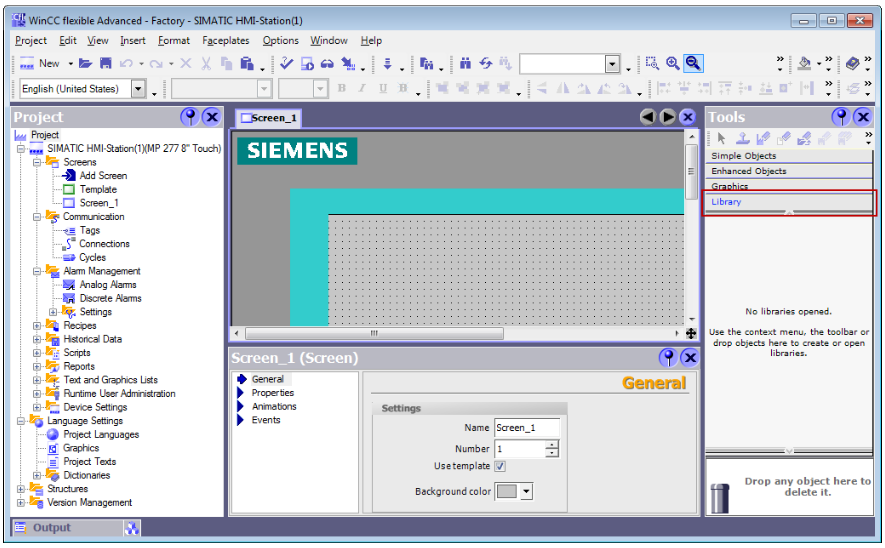
- MP277 8" Touch

An overview of the supported HMI control panels is available in Chapter 7.1.

Opening the library

The following steps describe how to open a library in WinCC flexible 2008 SP3.

Table 7-2

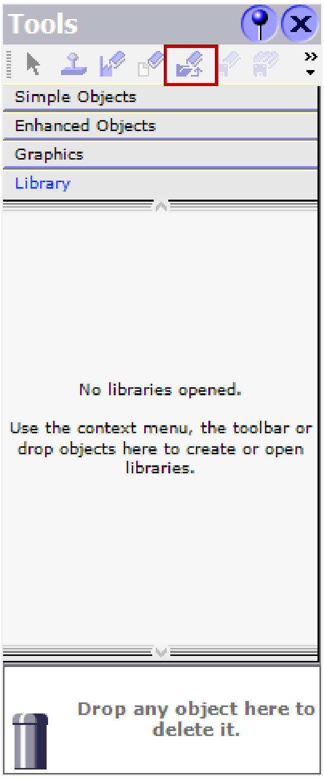
No.	Procedure
1.	Open the WinCC flexible project into which you want to insert the faceplates.
2.	Open the "Library" menu in the Tools window. 

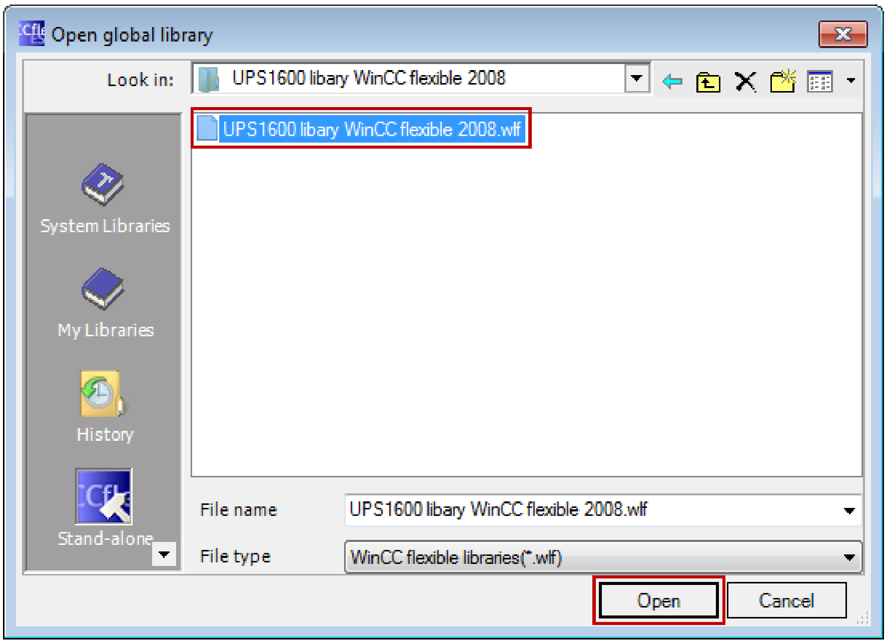
Name Screen_1
Number 1
Use template ☑
Background color

No libraries opened.

Use the context menu, the toolbar or drop objects here to create or open libraries.

Drop any object here to delete it.

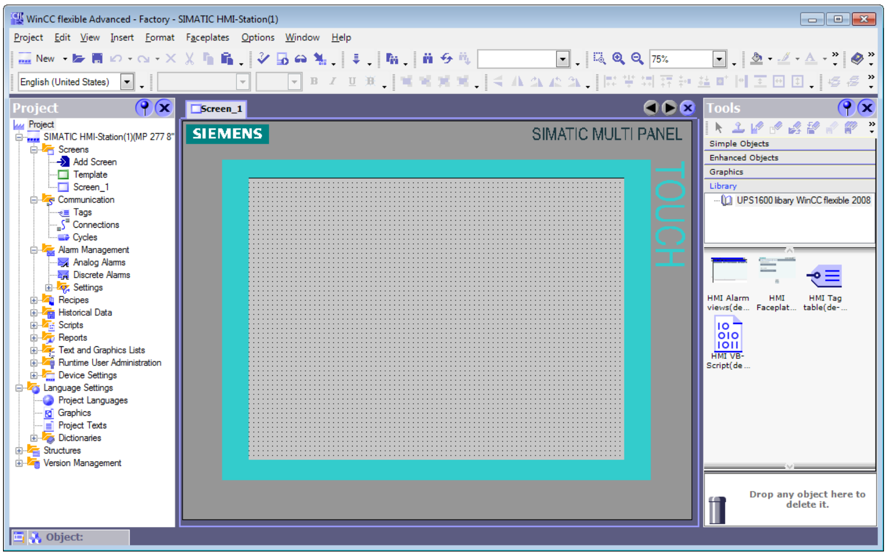
No.	Procedure
3.	In the toolbar of the Tools window, click the button for opening a library.  Tools Simple Objects Enhanced Objects Graphics Library No libraries opened. Use the context menu, the toolbar or drop objects here to create or open libraries. Drop any object here to delete it. The "Open global library" dialog box opens.
4.	Open the "Look in:" drop-down list and navigate to the storage location of the library "UPS1600 library WinCC flexible 2008" on your computer.

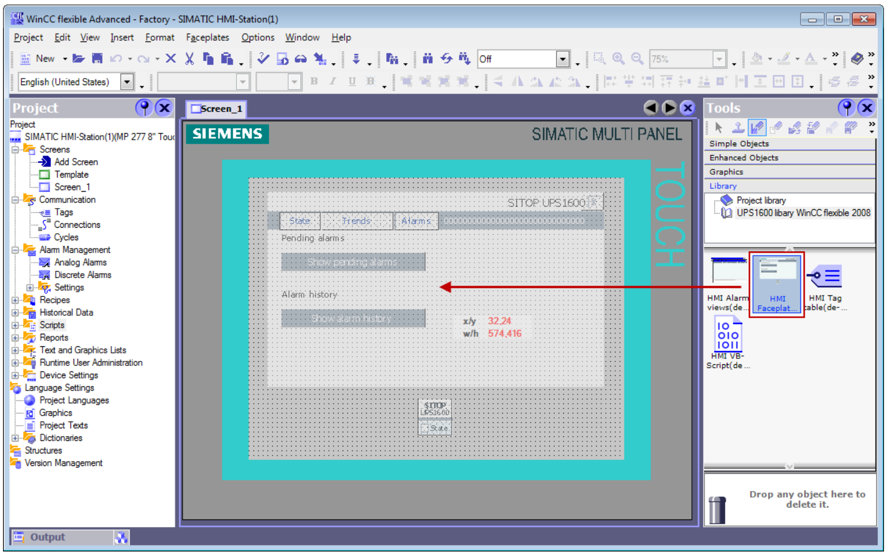
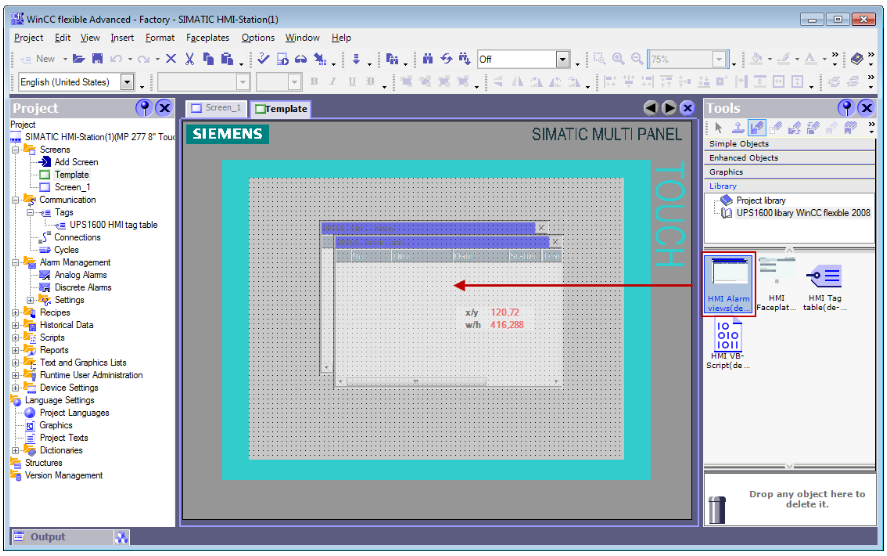
No.	Procedure
5.	Select the data "UPS1600 library WinCC flexible 2008.wlf" and then click the "Open" button.  Open global library Look in: UPS1600 libary WinCC flexible 2008 UPS1600 libary WinCC flexible 2008.wlf File name: UPS1600 libary WinCC flexible 2008.wlf File type: WinCC flexible libraries(*.wlf) System Libraries My Libraries History Stand-alone Open Cancel The library is now opened and can be used.

Inserting faceplates into a project

The following table describes the procedure for integrating the faceplates from the library "UPS1600 library WinCC flexible 2008" into an existing WinCC flexible project.

Table 7-3

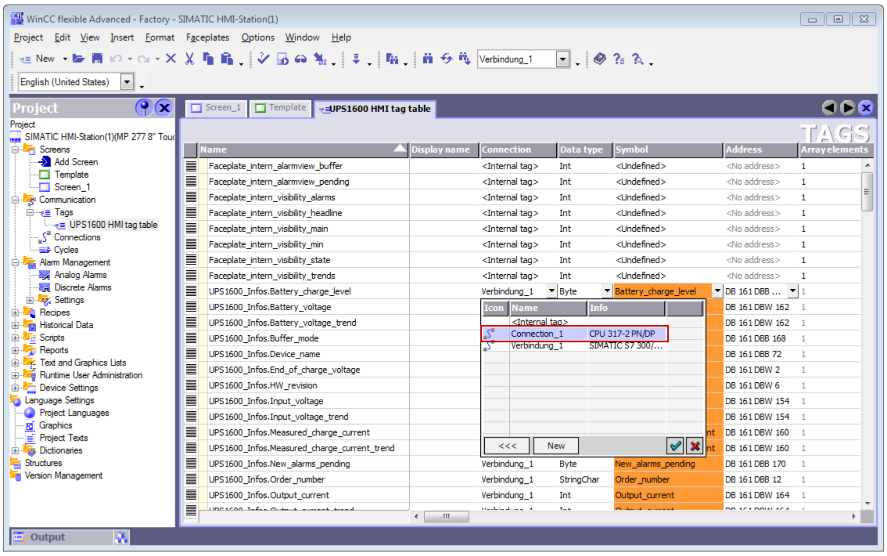
No.	Procedure
1.	Open the WinCC flexible project into which you want to insert the faceplates.
2.	Open the library "UPS1600 library WinCC flexible 2008" in your project.
3.	In your project, open the screen into which you want to insert the faceplates.  WinCC flexible Advanced - Factory - SIMATIC HMI-Station(1) Project Edit View Insert Format Faceplates Options Window Help Project Screen_1 Tools SIEMENS SIMATIC MULTI PANEL TOUCH Simple Objects Enhanced Objects Graphics Library UPS1600 libary WinCC flexible 2008 HMI Alarm views(de... HMI Faceplat... HMI Tag table(de-... HMI VB-Script(de... Drop any object here to delete it. Object:
4.	Select the folder "HMI Faceplates (WinCC flexible 2008)" of the library.

No.	Procedure
5.	Drag and drop the folder "HMI Faceplates (WinCC flexible 2008)" to the open screen.  WinCC flexible Advanced - Factory - SIMATIC HMI-Station(1) Project Edit View Insert Format Faceplates Options Window Help Project Screen_1 SIEMENS SIMATIC MULTI PANEL TOUCH SITOP UPS1600 State Trends Alarms Pending alarms Show pending alarms Alarm history Show alarm history Tools Simple Objects Enhanced Objects Graphics Library Project library UPS1600 library WinCC flexible 2008 HMI Alarm views(de... HMI Faceplat... HMI Tag table(de-... HMI VB-Script(de... Drop any object here to delete it. Output The faceplates are then inserted into the screen. **Note** The tag folder "HMI Tag table" and the VB script "HMI VB-Script" are automatically integrated into the project, too.
6.	In the Project window, open the screen template "Screens > Template".
7.	Select the folder "HMI Alarm views" of the library.
8.	Drag and drop the folder "HMI Alarm views" to the template.  WinCC flexible Advanced - Factory - SIMATIC HMI-Station(1) Project Screen_1 Template UPS1600 HMI tag table SIEMENS SIMATIC MULTI PANEL TOUCH Tools Library Project library UPS1600 library WinCC flexible 2008 HMI Alarm views(de... HMI Faceplat... HMI Tag table(de-... HMI VB-Script(de... Drop any object here to delete it. Output Two message windows are then inserted into the template.
9.	In the Project window, open the folder "Communication > Tags > Faceplates_UPS1600_Tags".

No. | **Procedure**

10. Check the connection name entered for the control tags.

The connection name must be identical with the name of the connection you created for the configured connection to your controller.



Name	Display name	Connection	Data type	Symbol	Address	Array elements
Faceplate_intern_alarmview_buffer		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_alarmview_pending		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_alarms		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_headline		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_main		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_min		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_state		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_trends		<Internal tag>	Int	<Undefined>	<No address>	1
UPS1600_Infos.Battery_charge_level		Verbindung_1	Byte	Battery_charge_level	DB 161 DBB ...	1
UPS1600_Infos.Battery_voltage					DB 161 DBW 162	1
UPS1600_Infos.Battery_voltage_trend					DB 161 DBW 162	1
UPS1600_Infos.Buffer_mode					DB 161 DBB 168	1
UPS1600_Infos.Device_name					DB 161 DBB 72	1
UPS1600_Infos.End_of_charge_voltage					DB 161 DBW 2	1
UPS1600_Infos.HW_revision					DB 161 DBW 6	1
UPS1600_Infos.Input_voltage					DB 161 DBW 154	1
UPS1600_Infos.Input_voltage_trend					DB 161 DBW 154	1
UPS1600_Infos.Measured_charge_current				nt	DB 161 DBW 160	1
UPS1600_Infos.Measured_charge_current_trend				nt	DB 161 DBW 160	1
UPS1600_Infos.New_alarms_pending		Verbindung_1	Byte	New_alarms_pending	DB 161 DBB 170	1
UPS1600_Infos.Order_number		Verbindung_1	StringChar	Order_number	DB 161 DBB 12	1
UPS1600_Infos.Output_current		Verbindung_1	Int	Output_current	DB 161 DBW 164	1

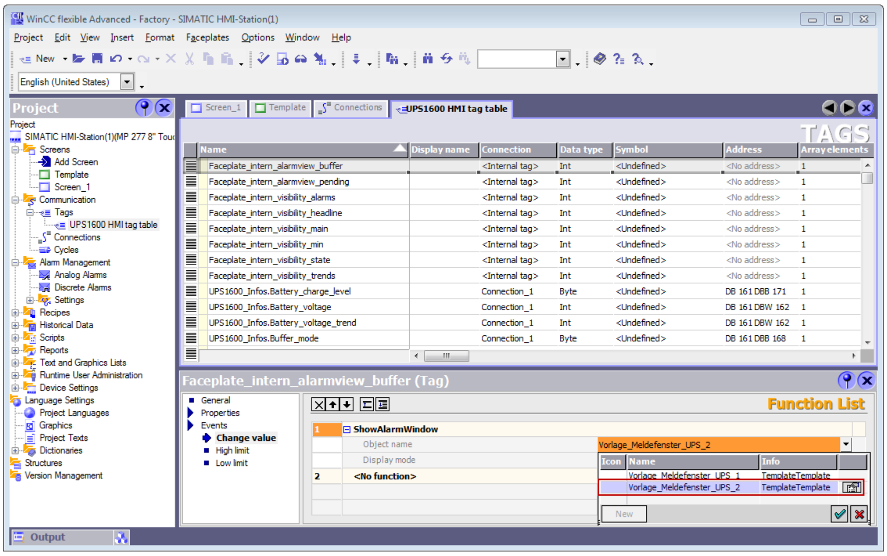
Icon	Name	Info
	<Internal tag>	
	Connection_1	CPU 317-2 PN/DP
	Verbindung_1	SIMATIC S7 300/...

Note

Further information on this connection name is available in Chapter 7.2 under "HMI Tag table".

11. Select the tag "Faceplate_intern_alarmview_buffer" and open the folder "Events > Change value" in the properties window.

12. Under the function "ShowAlarmWindow", open the drop-down list and select the entry "Vorlage_Meldefenster_UPS_2".



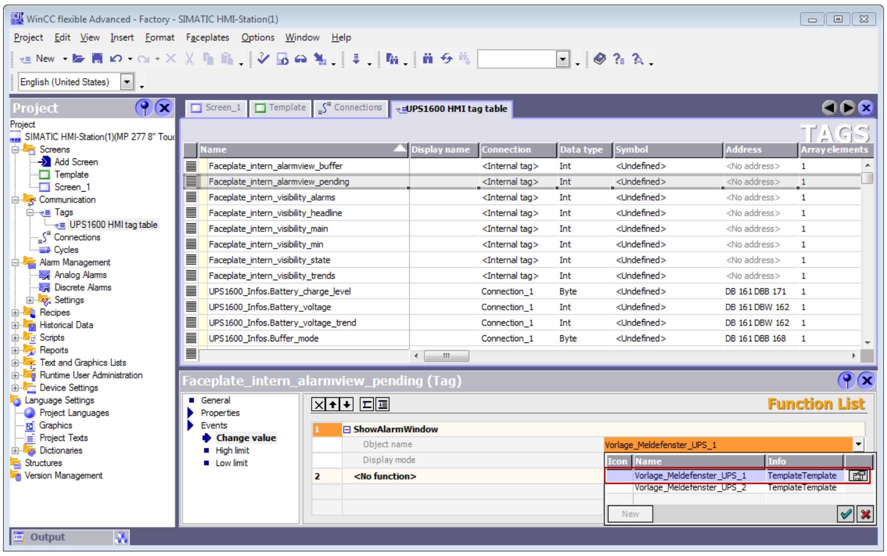
Name	Display name	Connection	Data type	Symbol	Address	Array elements
Faceplate_intern_alarmview_buffer		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_alarmview_pending		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_alarms		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_headline		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_main		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_min		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_state		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_trends		<Internal tag>	Int	<Undefined>	<No address>	1
UPS1600_Infos.Battery_charge_level		Connection_1	Byte	<Undefined>	DB 161 DBB 171	1
UPS1600_Infos.Battery_voltage		Connection_1	Int	<Undefined>	DB 161 DBW 162	1
UPS1600_Infos.Battery_voltage_trend		Connection_1	Int	<Undefined>	DB 161 DBW 162	1
UPS1600_Infos.Buffer_mode		Connection_1	Byte	<Undefined>	DB 161 DBB 168	1

Faceplate_intern_alarmview_buffer (Tag)

1 ShowAlarmWindow
Object name: Vorlage_Meldefenster_UPS_2
Display mode
2 <No function>

Icon	Name	Info
	Vorlage_Meldefenster_UPS_1	TemplateTemplate
	Vorlage_Meldefenster_UPS_2	TemplateTemplate

13. Select the tag "Faceplate_intern_alarmview_pending" and open the folder "Events > Change value" in the properties window.

No.	Procedure
14.	Under the function "ShowAlarmWindow", open the drop-down list and select the entry "Vorlage_Meldefenster_UPS_1". 

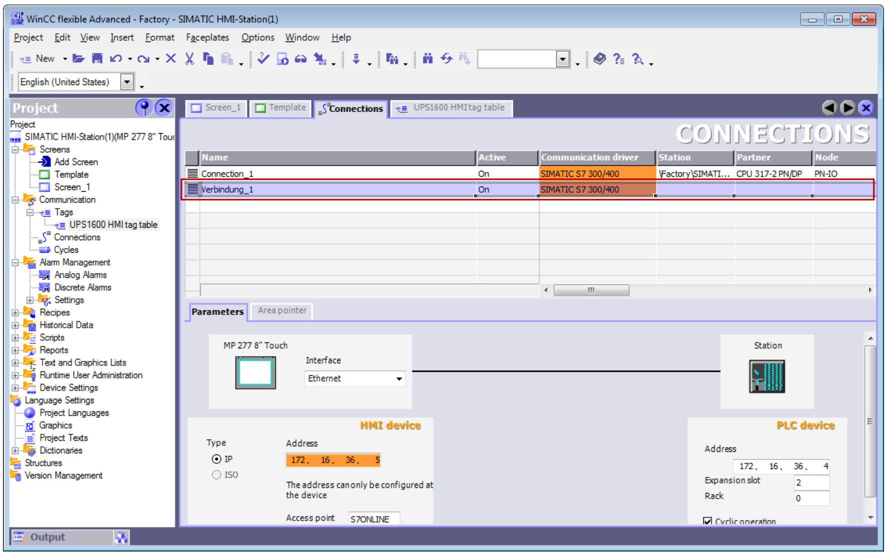
WinCC flexible Advanced - Factory - SIMATIC HMI-Station(1)
Project Edit View Insert Format Faceplates Options Window Help
English (United States)
Project
Screen_1
Template
Connections
UPS1600 HMI tag table
TAGS
Output

Name	Display name	Connection	Data type	Symbol	Address	Array elements
Faceplate_intern_alarmview_buffer		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_alarmview_pending		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_alarms		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_headline		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_main		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_min		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_state		<Internal tag>	Int	<Undefined>	<No address>	1
Faceplate_intern_visibility_trends		<Internal tag>	Int	<Undefined>	<No address>	1
UPS1600_Infos.Battery_charge_level		Connection_1	Byte	<Undefined>	DB 161 DBB 171	1
UPS1600_Infos.Battery_voltage		Connection_1	Int	<Undefined>	DB 161 DBW 162	1
UPS1600_Infos.Battery_voltage_trend		Connection_1	Int	<Undefined>	DB 161 DBW 162	1
UPS1600_Infos.Buffer_mode		Connection_1	Byte	<Undefined>	DB 161 DBB 168	1

Faceplate_intern_alarmview_pending (Tag)

1 ShowAlarmWindow
Object name: Vorlage_Meldefenster_UPS_1
Display mode
2 <No function>

Icon	Name	Info
	Vorlage_Meldefenster_UPS_1	TemplateTemplate
	Vorlage_Meldefenster_UPS_2	TemplateTemplate

No.	Procedure
15.	In the Project window, open the folder "Communication > Connections".
16.	Delete the created connection "Connection_1" if you are using a different connection. 

WinCC flexible Advanced - Factory - SIMATIC HMI-Station(1)
Project Edit View Insert Format Faceplates Options Window Help
English (United States)
Project
Screen_1
Template
Connections
UPS1600 HMItag table
CONNECTIONS
Output

Name	Active	Communication driver	Station	Partner	Node
Connection_1	On	SIMATIC S7 300/400	\Factory\SIMATI...	CPU 317-2 PN/DP	PN-IO
Verbindung_1	On	SIMATIC S7 300/400			

Interface: Ethernet

Type: ● IP ○ ISO

Address: 172. 16. 36. 5

The address can only be configured at the device

Access point: S7ONLINE

Address: 172. 16. 36. 4
Expansion slot: 2
Rack: 0
☑ Cyclic operation

Note
This connection "Connection_1" is created automatically when inserting the tags into the tag folder "Faceplates_UPS1600_Tags". If you have already created a different connection, the "Connection_1" must be deleted.

The integration of the faceplates is thus completed.

Displaying the PROFINET diagnostic messages

In order to display the PROFINET diagnostic messages of the SITOP UPS1600 within the faceplate, the respective WinCC flexible project must already be configured for the display of PROFINET diagnostic messages.

Information on the display and configuration of diagnostic messages in WinCC flexible is available under the entry ID: 22533916.

Further notes regarding the PROFINET diagnostic messages of the SITOP UPS1600 are available in the SITOP UPS1600 User Manual in Chapter 3.2.1.

7.4 Interface description

The following chapter describes the design of the dynamic interface of the faceplate. The interface is subdivided into the sections "Visibility" and "Values UPS1600".

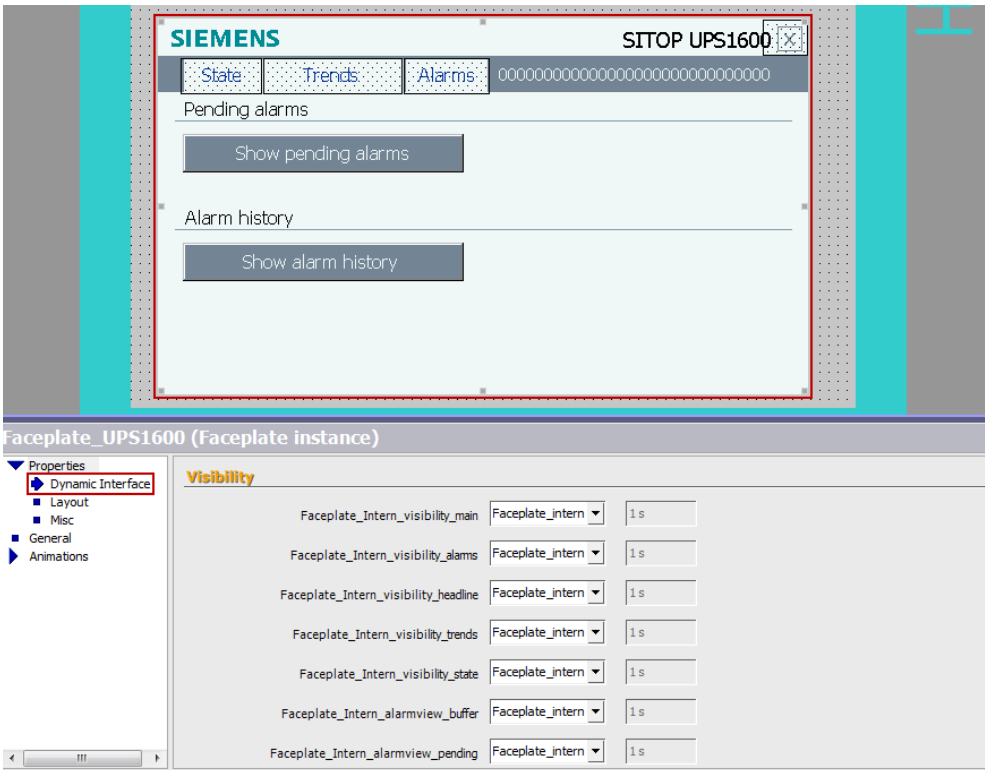
Note

> If you do not use the faceplates as master copy from the project library, the dynamic interface must be connected separately with the respective WinCC flexible tags.

Visibility

This section of the dynamic interface comprises all tags used to control the visibility of the faceplate.

Figure 7-1



Faceplate_Intern_visibility_main	Faceplate_intern	1 s
Faceplate_Intern_visibility_alarms	Faceplate_intern	1 s
Faceplate_Intern_visibility_headline	Faceplate_intern	1 s
Faceplate_Intern_visibility_trends	Faceplate_intern	1 s
Faceplate_Intern_visibility_state	Faceplate_intern	1 s
Faceplate_Intern_alarmview_buffer	Faceplate_intern	1 s
Faceplate_Intern_alarmview_pending	Faceplate_intern	1 s

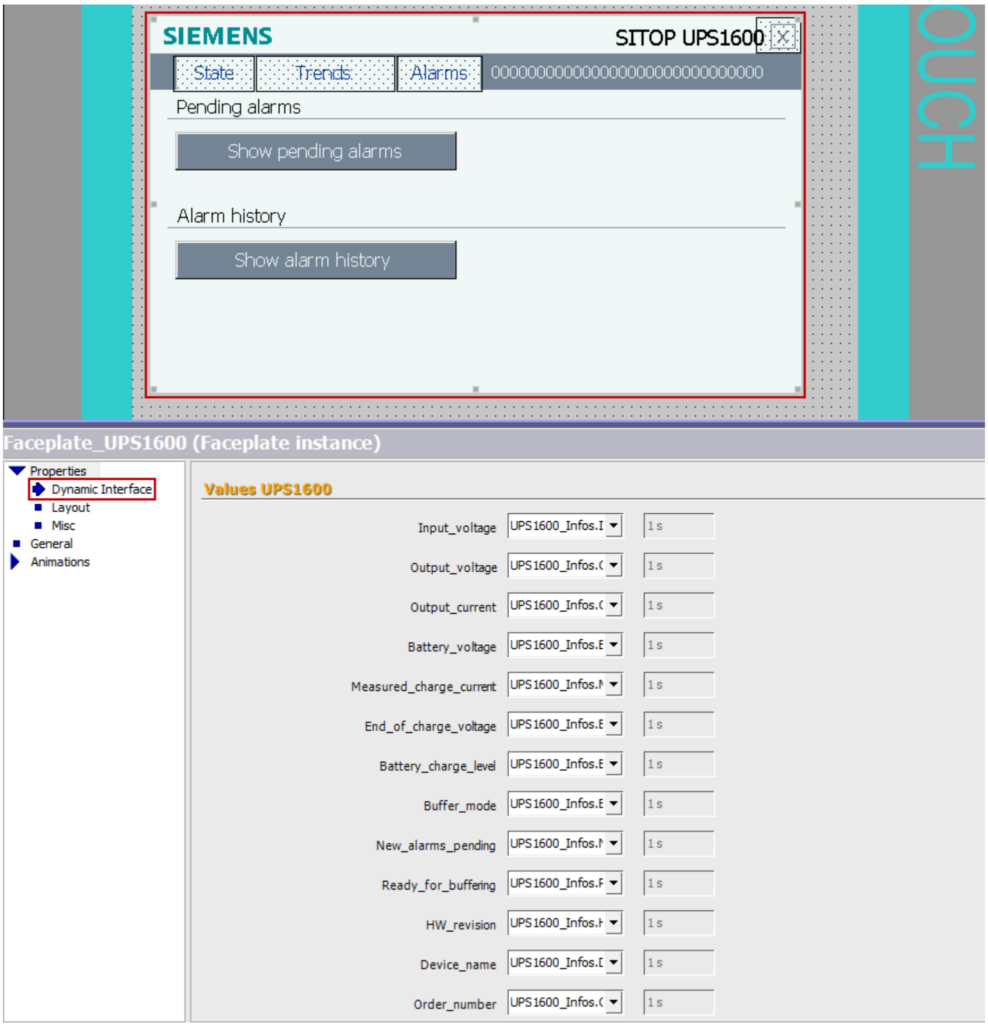
Table 7-4

Dynamic interface faceplate	WinCC flexible tag
Faceplate_intern_visibility_alarm	Faceplate_intern_visibility_alarm
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_headline	Faceplate_intern_visibility_headline
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_main	Faceplate_intern_visibility_main
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_state	Faceplate_intern_visibility_state
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_trends	Faceplate_intern_visibility_trends
Connection	Internal tag
Data type	Int
Faceplate_intern_alarmview_buffer	Faceplate_intern_alarmview_buffer
Connection	Internal tag
Data type	Int
Faceplate_intern_alarmview_pending	Faceplate_intern_alarmview_pending
Connection	Internal tag
Data type	Int

Values UPS1600

This section of the dynamic interface comprises all tags used to display the parameters of the SITOP UPS1600 within the faceplate.

Figure 7-2



Values UPS1600

Input_voltage UPS1600_Infos.I 1 s

Output_voltage UPS1600_Infos.(1 s

Output_current UPS1600_Infos.(1 s

Battery_voltage UPS1600_Infos.E 1 s

Measured_charge_current UPS1600_Infos.N 1 s

End_of_charge_voltage UPS1600_Infos.E 1 s

Battery_charge_level UPS1600_Infos.E 1 s

Buffer_mode UPS1600_Infos.E 1 s

New_alarms_pending UPS1600_Infos.N 1 s

Ready_for_buffering UPS1600_Infos.F 1 s

HW_revision UPS1600_Infos.H 1 s

Device_name UPS1600_Infos.D 1 s

Order_number UPS1600_Infos.(1 s

Table 7-5

Dynamic interface faceplate	WinCC flexible tag
Battery_charge_level	UPS1600_Infos.Battery_charge_level
Data type	Byte
Address	DB 161 DBB 171
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use

Dynamic interface faceplate	WinCC flexible tag
Battery_voltage	UPS1600_Infos.Battery_voltage
Data type	Int
Address	DB 161 DBW 162
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Buffer_mode	UPS1600_Infos.Buffer_mode
Data type	Byte
Address	DB 161 DBB 168
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Device_name	UPS1600_Infos.Device_name
Data type	StringChar
Address	DB 161 DBB 72
Length	30
Acquisition cycle	1s
Acquisition mode	Cyclic on use
End_of_charge_voltage	UPS1600_Infos.End_of_charge_voltage
Data type	Int
Address	DB 161 DBW 2
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
HW_revision	UPS1600_Infos.HW_revision
Data type	Int
Address	DB 161 DBW 2
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Input_voltage	UPS1600_Infos.Input_voltage
Data type	Int
Address	DB 161 DBW 154
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Measured_charge_current	UPS1600_Infos.Measured_charge_current
Data type	Int
Address	DB 161 DBW 160
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Linear scaling	10 : 1

Dynamic interface faceplate	WinCC flexible tag
New_alarms_pending	UPS1600_Infos.New_alarms_pending
Data type	Byte
Address	DB 161 DBB 170
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Order_number	UPS1600_Infos.Order_number
Data type	StringChar
Address	DB 161 DBB 12
Length	30
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Output_current	UPS1600_Infos.Output_current
Data type	Int
Address	DB 161 DBW 164
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Linear scaling	10 : 5
Output_voltage	UPS1600_Infos.Output_voltage
Data type	Int
Address	DB 161 DBW 156
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Ready_for_buffering	UPS1600_Infos.Ready_for_buffering
Data type	Byte
Address	DB 161 DBB 169
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Serial_number	UPS1600_Infos.Serial_number
Data type	StringChar
Address	DB 161 DBB 42
Length	30
Acquisition cycle	1s
Acquisition mode	Cyclic on use
SW_revision	UPS1600_Infos.SW_revision
Data type	Int
Address	DB 161 DBW 8
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use

8 Application of the Faceplates in WinCC Comfort/Advanced V12

8.1 Preconditions

The following requirements must be met to use the faceplates in WinCC Comfort/ Advanced V12 SP1.

- The Hardware Support Package for the SITOP UPS1600 is installed in STEP 7 V12.
- Already existing S7 communication between the SITOP UPS1600 and SIMATIC S7 controller.
- All program blocks for STEP 7 V12 from the library "UPS1600 library TIA Portal V12 SP1" are integrated into the application program and executable.
- The library "UPS1600 library TIA Portal V12 SP1" is available.

Supported control panels

The use of the faceplates is approved for the following control panels:

- TP700 Comfort / KP700 Comfort
- TP900 Comfort / KP900 Comfort
- TP1200 Comfort / KP1200 Comfort
- TP1500 Comfort / KP1500 Comfort
- TP1900 Comfort
- TP2200 Comfort
- MP277 8" Touch / MP277 8" Key
- MP277 10" Touch / MP277 10" Key
- MP377 Touch / Key
- WinCC RT Advanced V12

Supported languages

The faceplates support the following languages:

- English (USA)
- German (Germany)
- Chinese (PR China)

Note regarding the application

The faceplates can only be used in combination. Using just one of the faceplates separately is not possible.

8.2 Library for WinCC Comfort/Advanced

The following objects are part of the master copy "UPS1600 HMI Faceplates (WinCC Comfort/Advanced V12)" in the library "UPS1600 library TIA Portal V12".

Table 8-1

Name	Type	Description
HMI Faceplates (WinCC Comfort/Advanced V12)	Faceplates	Comprises the two faceplates "Faceplate_UPS1600" and "Faceplate_UPS1600_State".
HMI VB-Script	VB script	-
HMI Tag table	Tag folder	Separate tag folder with all required tags
HMI Alarm views	Message window	Comprises two message windows for displaying the diagnostic messages of the UPS1600.

The contents of the objects are described in detail in the following sections.

HMI Faceplates (WinCC Comfort/Advanced V12)

This object comprises the two faceplates "Faceplate_UPS1600" and "Faceplate_UPS1600_State". The two faceplates are combined to one master copy in the library. Therefore, subsequent connection of the symbolic interfaces of the faceplates is not necessary.

HMI VB-Script

This object comprises the VB script "UPS1600_Faceplate_state_min".
This script controls the status indication of the SITOP UPS1600 in the faceplate "Faceplate_UPS1600_State".

HMI Tag table

This object in the library contains the tag folder "HMI Tag table".
This folder comprises all tags required for the use of the faceplates.

The control tags in this folder are already equipped with a connection to the data block DB161 and a controller connection. The default connection name is "Connection_1".
After having integrated the tags from the library it might be necessary to adapt this connection name in your project.

HMI Alarm views

This object comprises two message windows which can be used to display the PROFINET diagnostic messages of the SITOP UPS1600.

8.3 Integrating the faceplates

The following sections describe all steps required to integrate the faceplates into a WinCC Comfort/Advanced V12 project.

Hardware used in this description:

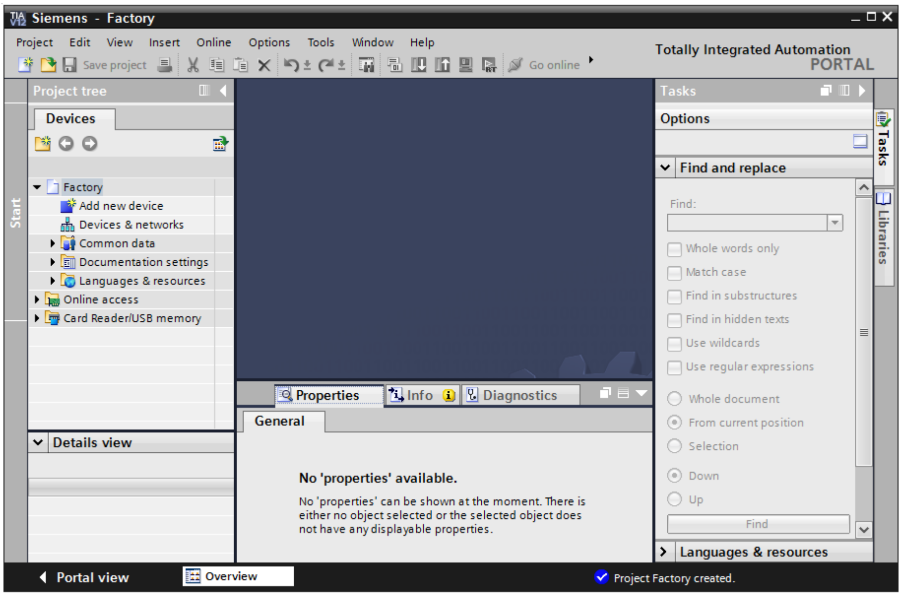
- TP1200 Comfort

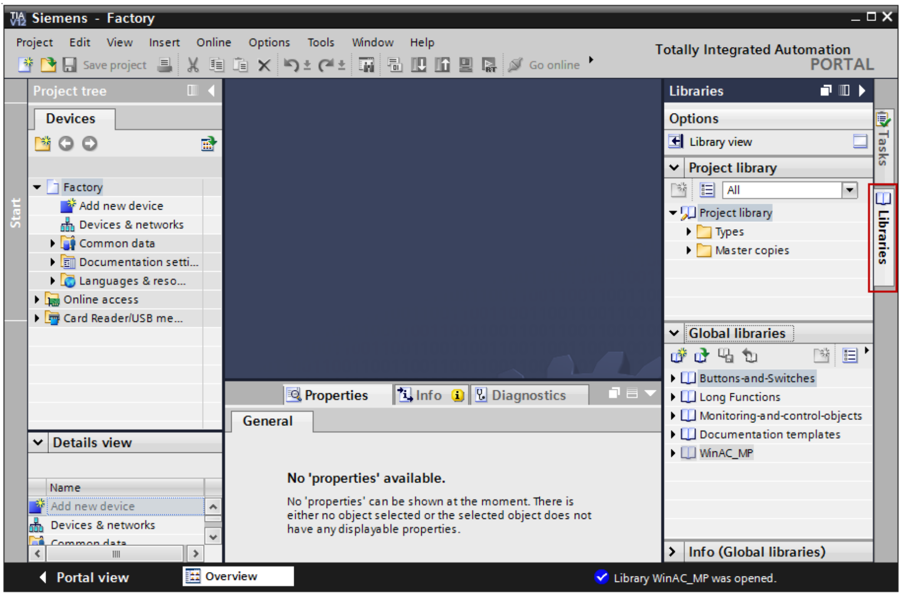
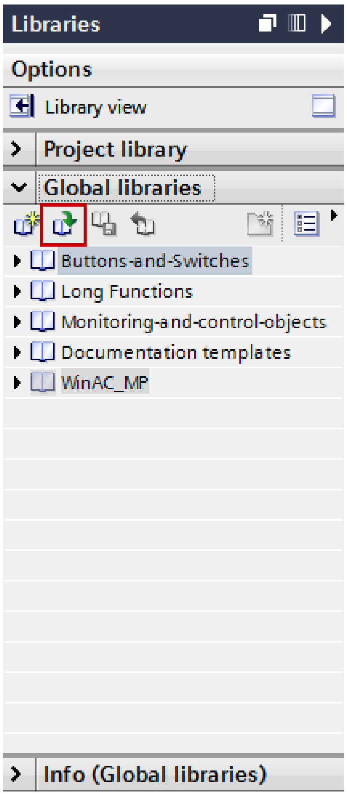
An overview of the supported HMI control panels is available in Chapter 8.1.

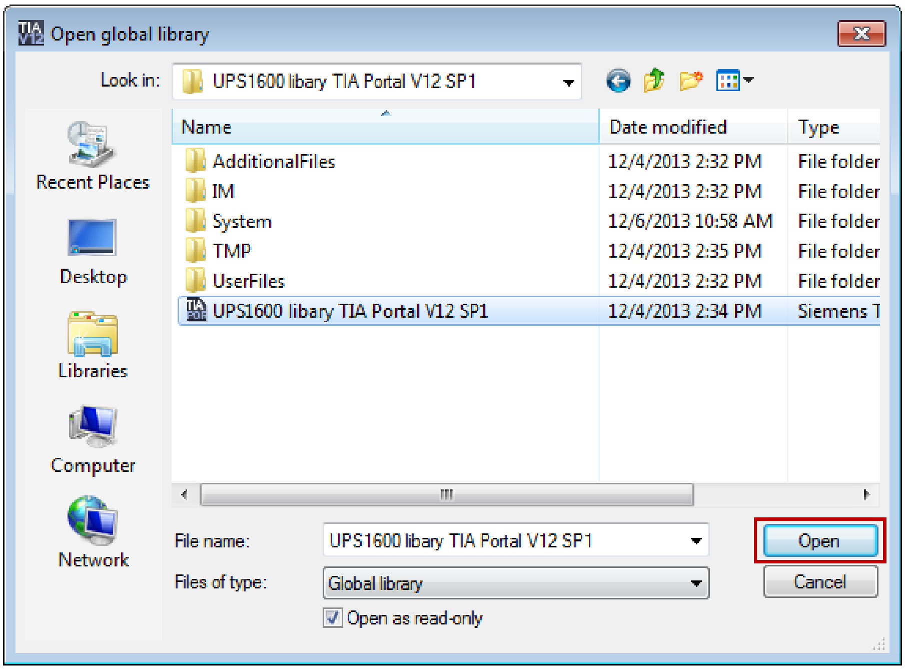
Opening the library in WinCC V12

The following steps describe how to open a library in WinCC Professional V12.

Table 8-2

No.	Procedure
1.	Open WinCC V12 in the Project view.  Siemens - Factory Project Edit View Insert Online Options Tools Window Help Save project Go online Totally Integrated Automation PORTAL Project tree Devices Factory Add new device Devices & networks Common data Documentation settings Languages & resources Online access Card Reader/USB memory Start Details view Properties Info Diagnostics General Tasks Options Find and replace Find: Whole words only Match case Find in substructures Find in hidden texts Use wildcards Use regular expressions Whole document From current position Selection Down Up Find Languages & resources Tasks Libraries Portal view Overview No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. Project Factory created.

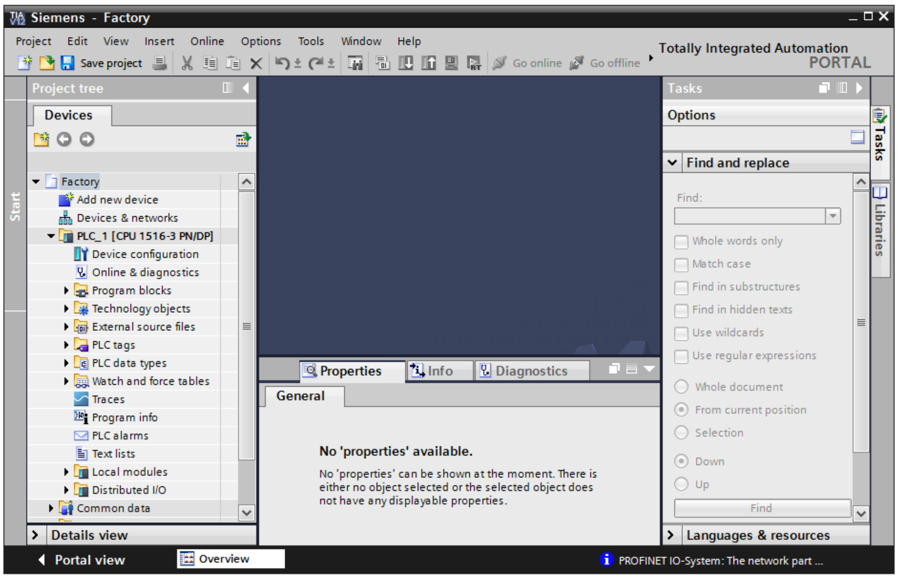
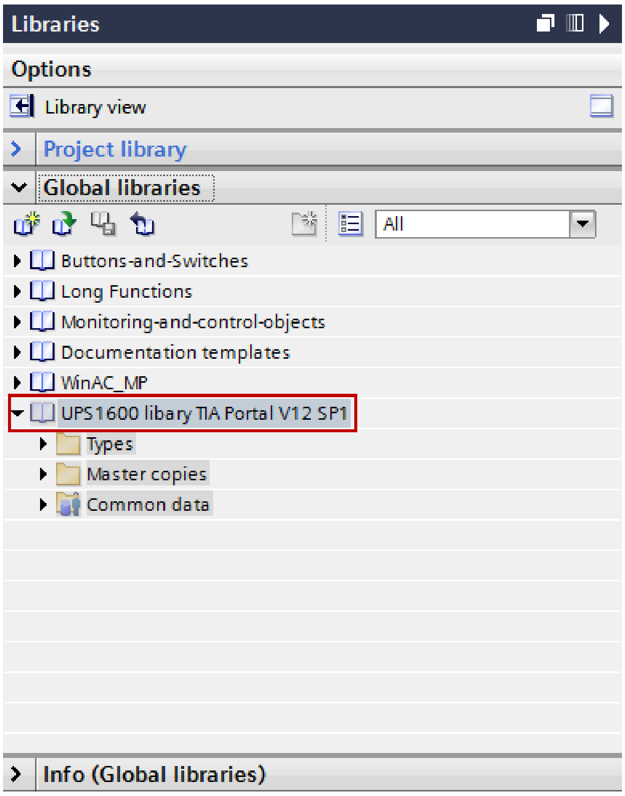
No.	Procedure
2.	Open the "Libraries" task card.  Siemens - Factory Project Edit View Insert Online Options Tools Window Help Totally Integrated Automation PORTAL Project tree Devices Factory Add new device Devices & networks Common data Documentation setti... Languages & reso... Online access Card Reader/USB me... Details view Name Properties Info Diagnostics General Libraries Options Library view Project library All Types Master copies Global libraries Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP Info (Global libraries) Tasks Portal view Overview No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. Library WinAC_MP was opened.
3.	Under the "Global libraries" palette, click on the second icon from the left to open a global library.  Libraries Options Library view Project library Global libraries Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP Info (Global libraries) The "Open global library" dialog box opens.

No.	Procedure
4.	In the "Look in:" drop-down list, select the storage location of the library on your computer.
5.	Click the "Open" button.  Open global library Look in: UPS1600 libary TIA Portal V12 SP1 Name / Date modified / Type AdditionalFiles / 12/4/2013 2:32 PM / File folder IM / 12/4/2013 2:32 PM / File folder System / 12/6/2013 10:58 AM / File folder TMP / 12/4/2013 2:35 PM / File folder UserFiles / 12/4/2013 2:32 PM / File folder UPS1600 libary TIA Portal V12 SP1 / 12/4/2013 2:34 PM / Siemens T File name: UPS1600 libary TIA Portal V12 SP1 Files of type: Global library ☑ Open as read-only Recent Places Desktop Libraries Computer Network Open Cancel The library is opened and displayed in the "Global libraries" palette.

Inserting faceplates into a project

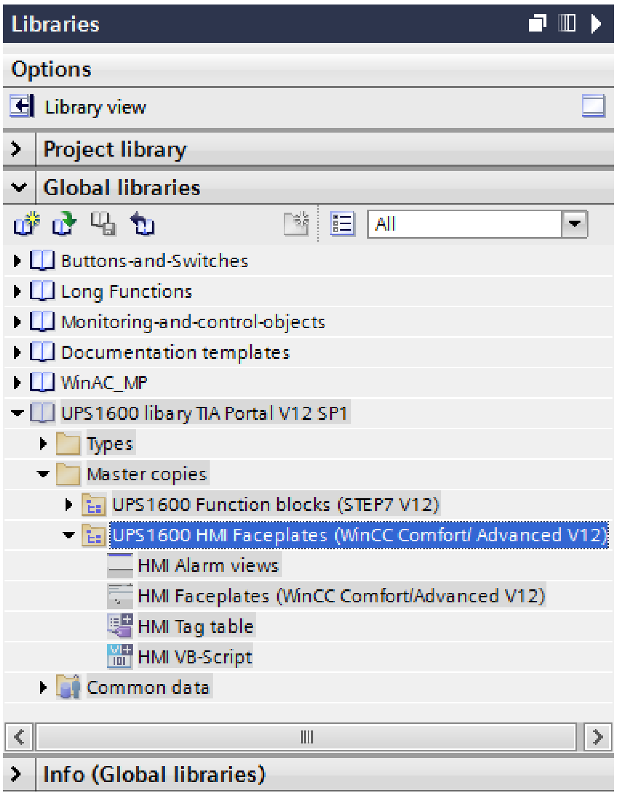
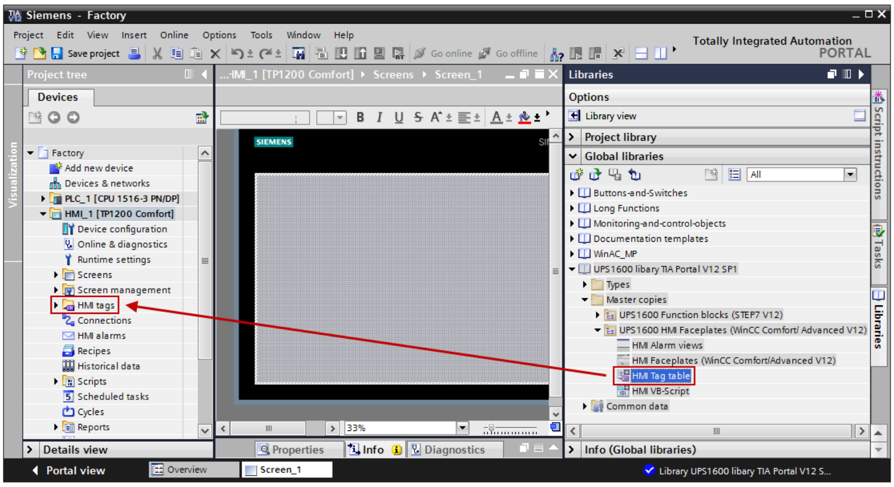
The following table describes the procedure for integrating the faceplates from the master copy "UPS1600 HMI Faceplates (WinCC Comfort/Advanced V12)" of the library "UPS1600 library TIA Portal V12" into an existing WinCC V12 project.

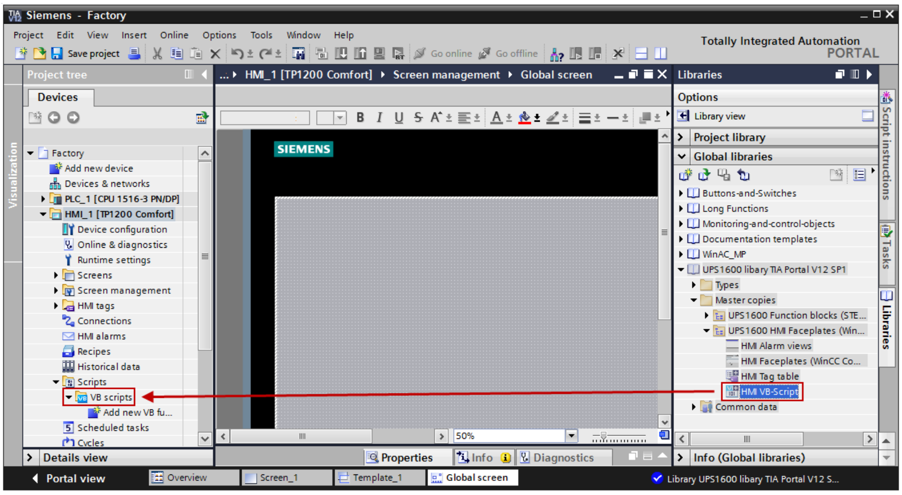
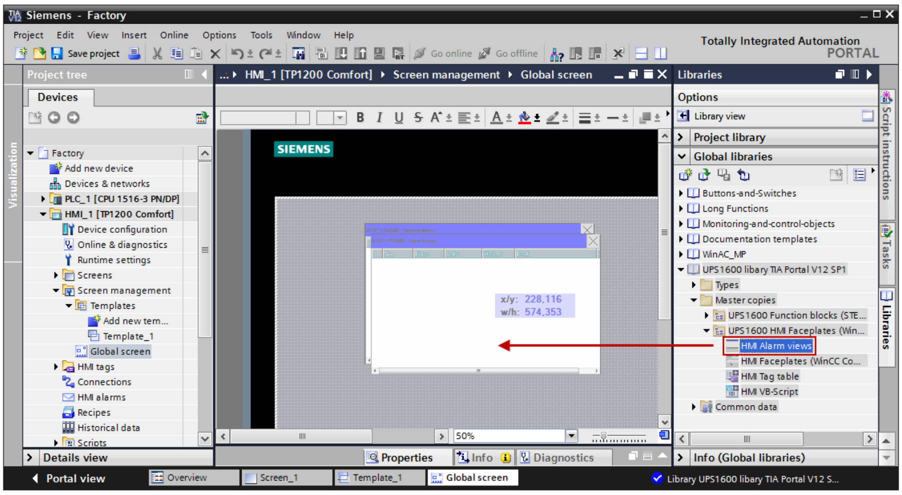
Table 8-3

No.	Procedure
1.	In the Project view, open the project into which you want to insert the faceplate. 
2.	Open the global library "UPS1600 library TIA Portal V12". 

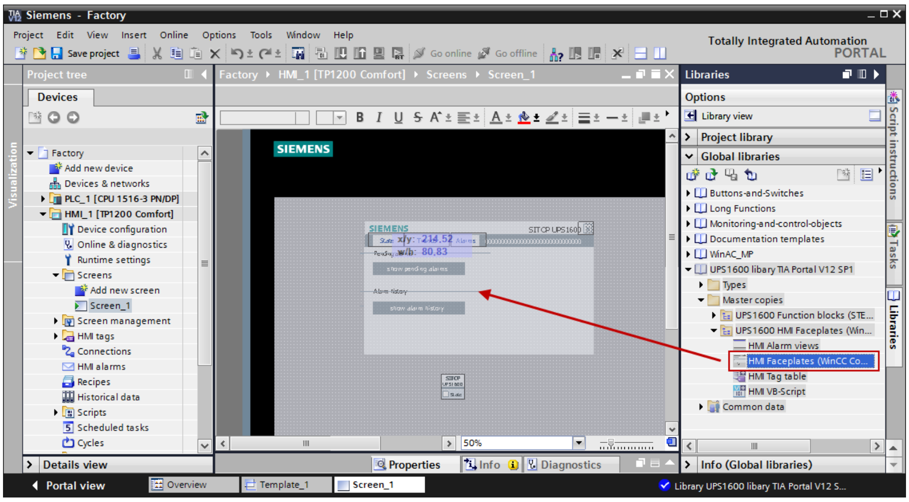
No 'properties' available.

No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.

No.	Procedure
3.	Open the folder "Master copies > UPS1600 HMI Faceplates (WinCC Comfort/ Advanced V12)" in the library.  Libraries Options Library view Project library Global libraries All Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP UPS1600 libary TIA Portal V12 SP1 Types Master copies UPS1600 Function blocks (STEP7 V12) UPS1600 HMI Faceplates (WinCC Comfort/ Advanced V12) HMI Alarm views HMI Faceplates (WinCC Comfort/Advanced V12) HMI Tag table HMI VB-Script Common data Info (Global libraries)
4.	Select the folder "HMI Tag table" in the library.
5.	Drag and drop the folder "HMI Tag table" to the "HMI tags" folder in the project folder of your control panel.  Siemens - Factory Project Edit View Insert Online Options Tools Window Help Save project Go online Go offline Totally Integrated Automation PORTAL Project tree Devices Factory Add new device Devices & networks PLC_1 [CPU 1516-3 PN/DP] HMI_1 [TP1200 Comfort] Device configuration Online & diagnostics Runtime settings Screens Screen management HMI tags Connections HMI alarms Recipes Historical data Scripts Scheduled tasks Cycles Reports Details view ...HMI_1 [TP1200 Comfort] ▸ Screens ▸ Screen_1 SIEMENS 33% Properties Info Diagnostics Libraries Options Library view Project library Global libraries All Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP UPS1600 libary TIA Portal V12 SP1 Types Master copies UPS1600 Function blocks (STEP7 V12) UPS1600 HMI Faceplates (WinCC Comfort/ Advanced V12) HMI Alarm views HMI Faceplates (WinCC Comfort/Advanced V12) HMI Tag table HMI VB-Script Common data Info (Global libraries) Script instructions Tasks Libraries Visualization Portal view Overview Screen_1 Library UPS1600 libary TIA Portal V12 S...
6.	Select the folder "HMI VB-Script" in the library.

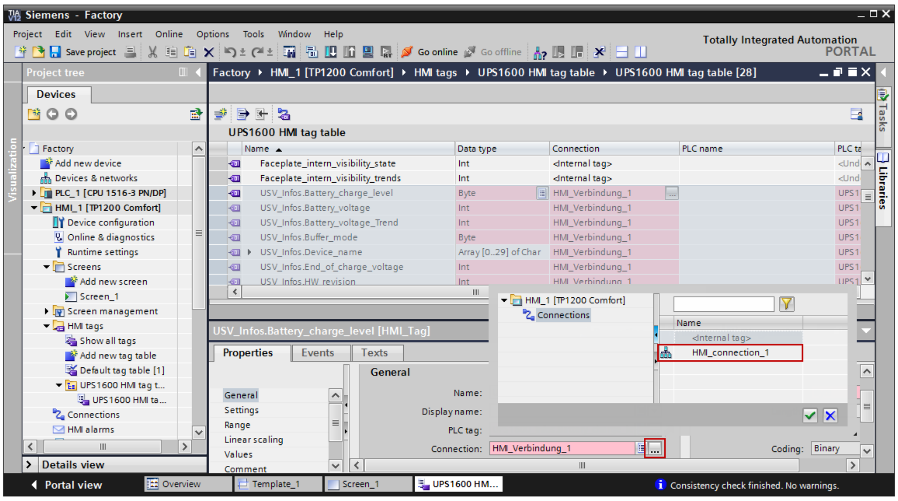
No.	Procedure
7.	Drag and drop the folder "HMI VB-Script" to the folder "Scripts > VB scripts" in the project folder of your control panel.  Siemens - Factory Project tree Devices Factory HMI_1 [TP1200 Comfort] Scripts VB scripts Libraries Global libraries UPS1600 libary TIA Portal V12 SP1 Master copies UPS1600 HMI Faceplates (Win... HMI Alarm views HMI Faceplates (WinCC Co... HMI Tag table HMI VB-Script Common data
8.	In the project folder, open the "Global screen" under "Screen management".
9.	Select the folder "HMI Alarm views" in the library.
10.	Drag and drop the folder "HMI Alarm views" to the Global screen.  Siemens - Factory Project tree Screen management Templates Global screen x/y: 228,116 w/h: 574,353 Libraries Global libraries UPS1600 HMI Faceplates (Win... HMI Alarm views HMI Faceplates (WinCC Co... HMI Tag table HMI VB-Script
11.	In your project, open the screen into which you want to insert the faceplates.
12.	Select the folder "HMI Faceplates (WinCC Comfort/Advanced V12)" in the library.

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>13.</td><td>Drag and drop the folder "HMI Faceplates (WinCC Comfort/Advanced V12)" to the screen.


Siemens - Factory
Project tree
Factory ▸ HMI_1 [TP1200 Comfort] ▸ Screens ▸ Screen_1
Libraries
Global libraries
UPS1600 libary TIA Portal V12 SP1
Types
Master copies
UPS1600 Function blocks (STE...
UPS1600 HMI Faceplates (Win...
HMI Alarm views
HMI Faceplates (WinCC Co...
HMI Tag table
HMI VB-Script
Common data
Screen_1
Portal view

</td></tr>
<tr><td>14.</td><td>In the project folder, under "HMI tags > UPS1600 HMI tag table", open the tag table "UPS1600 HMI tag table".</td></tr>
<tr><td>15.</td><td>Check the connection name entered for the control tags.

The connection name must be identical with the name of the connection you created in your project for the configured connection to your controller.


Factory ▸ HMI_1 [TP1200 Comfort] ▸ HMI tags ▸ UPS1600 HMI tag table ▸ UPS1600 HMI tag table [28]

UPS1600 HMI tag table

<table>
<tr><th>Name</th><th>Data type</th><th>Connection</th><th>PLC name</th><th>PLC ta</th></tr>
<tr><td>Faceplate_intern_visibility_state</td><td>Int</td><td>&lt;Internal tag&gt;</td><td></td><td>&lt;Und</td></tr>
<tr><td>Faceplate_intern_visibility_trends</td><td>Int</td><td>&lt;Internal tag&gt;</td><td></td><td>&lt;Und</td></tr>
<tr><td>USV_Infos.Battery_charge_level</td><td>Byte</td><td>HMI_Verbindung_1</td><td></td><td>UPS1</td></tr>
<tr><td>USV_Infos.Battery_voltage</td><td>Int</td><td>HMI_Verbindung_1</td><td></td><td>UPS1</td></tr>
<tr><td>USV_Infos.Battery_voltage_Trend</td><td>Int</td><td>HMI_Verbindung_1</td><td></td><td>UPS1</td></tr>
<tr><td>USV_Infos.Buffer_mode</td><td>Byte</td><td>HMI_Verbindung_1</td><td></td><td>UPS1</td></tr>
<tr><td>USV_Infos.Device_name</td><td>Array [0..29] of Char</td><td>HMI_Verbindung_1</td><td></td><td>UPS1</td></tr>
<tr><td>USV_Infos.End_of_charge_voltage</td><td>Int</td><td>HMI_Verbindung_1</td><td></td><td>UPS1</td></tr>
<tr><td>USV_Infos.HW_revision</td><td>Int</td><td>HMI_Verbindung_1</td><td></td><td>UPS1</td></tr>
</table>

USV_Infos.Battery_charge_level [HMI_Tag]

Properties | Events | Texts

General

Name:

Display name:

PLC tag:

Connection: HMI_Verbindung_1

Coding: Binary

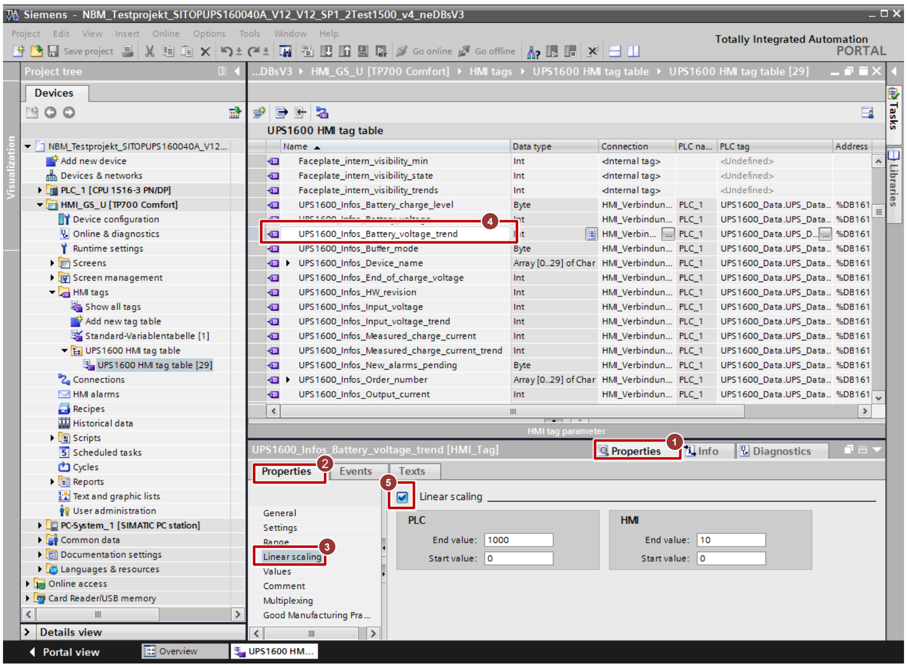
HMI_1 [TP1200 Comfort] ▸ Connections

Name: <Internal tag>, HMI_connection_1

Consistency check finished. No warnings.

Note

Further information on this connection name is available in Chapter 8.2 under "HMI Tag table".</td></tr>
</table>

No.	Procedure
16.	The scaling of tags has been stored in the library. Enable the following tags for scaling: - UPS1600_Infos_Battery_voltage_trend - UPS1600_Infos_Input_voltage_trend - UPS1600_Infos_Measured_charge_current - UPS1600_Infos_Measured_charge_current_trend - UPS1600_Infos_Output_current - UPS1600_Infos_Output_current_trend - UPS1600_Infos_Output_voltage_trend • Click the "Properties" tab and then "Linear scaling". • Select the respective tag in the tag table. • Enable the checkbox left from the heading "Linear scaling". • Repeat the process until linear scaling is enabled for all tags mentioned above. 

Siemens - NBM_Testprojekt_SITOPUPS160040A_V12_V12_SP1_2Test1500_v4_neDBsV3

...DBsV3 ▸ HMI_GS_U [TP700 Comfort] ▸ HMI tags ▸ UPS1600 HMI tag table ▸ UPS1600 HMI tag table [29]

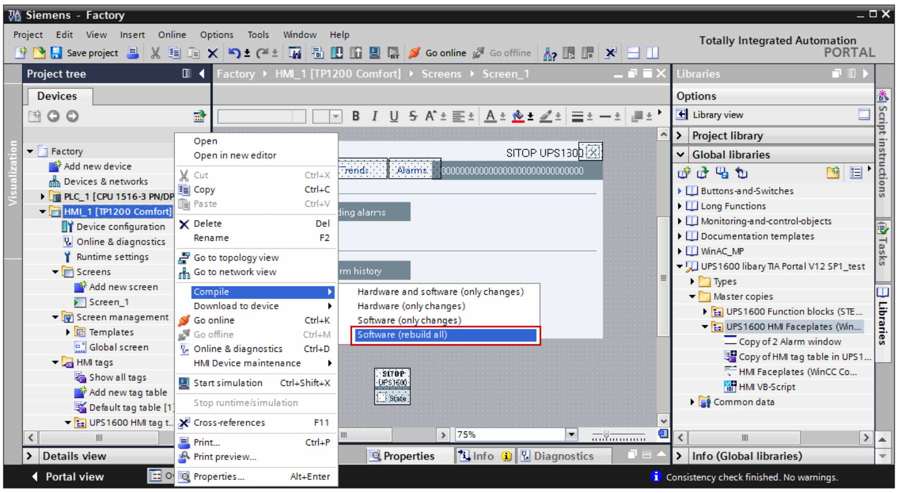
UPS1600 HMI tag table

Name	Data type	Connection	PLC na...	PLC tag	Address
Faceplate_intern_visibility_min	Int	<Internal tag>		<Undefined>	
Faceplate_intern_visibility_state	Int	<Internal tag>		<Undefined>	
Faceplate_intern_visibility_trends	Int	<Internal tag>		<Undefined>	
UPS1600_Infos_Battery_charge_level	Byte	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Battery_voltage	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Battery_voltage_trend	Int	HMI_Verbin...	PLC_1	UPS1600_Data.UPS_D...	%DB161
UPS1600_Infos_Buffer_mode	Byte	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Device_name	Array [0..29] of Char	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_End_of_charge_voltage	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_HW_revision	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Input_voltage	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Input_voltage_trend	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Measured_charge_current	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Measured_charge_current_trend	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_New_alarms_pending	Byte	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Order_number	Array [0..29] of Char	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161
UPS1600_Infos_Output_current	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_Data..	%DB161

UPS1600_Infos_Battery_voltage_trend [HMI_Tag]

☑ Linear scaling

PLC		HMI	
End value:	1000	End value:	10
Start value:	0	Start value:	0

No.	Procedure
17.	Right-click on the project folder and select the context menu item "Compile > Software (rebuild all)". 

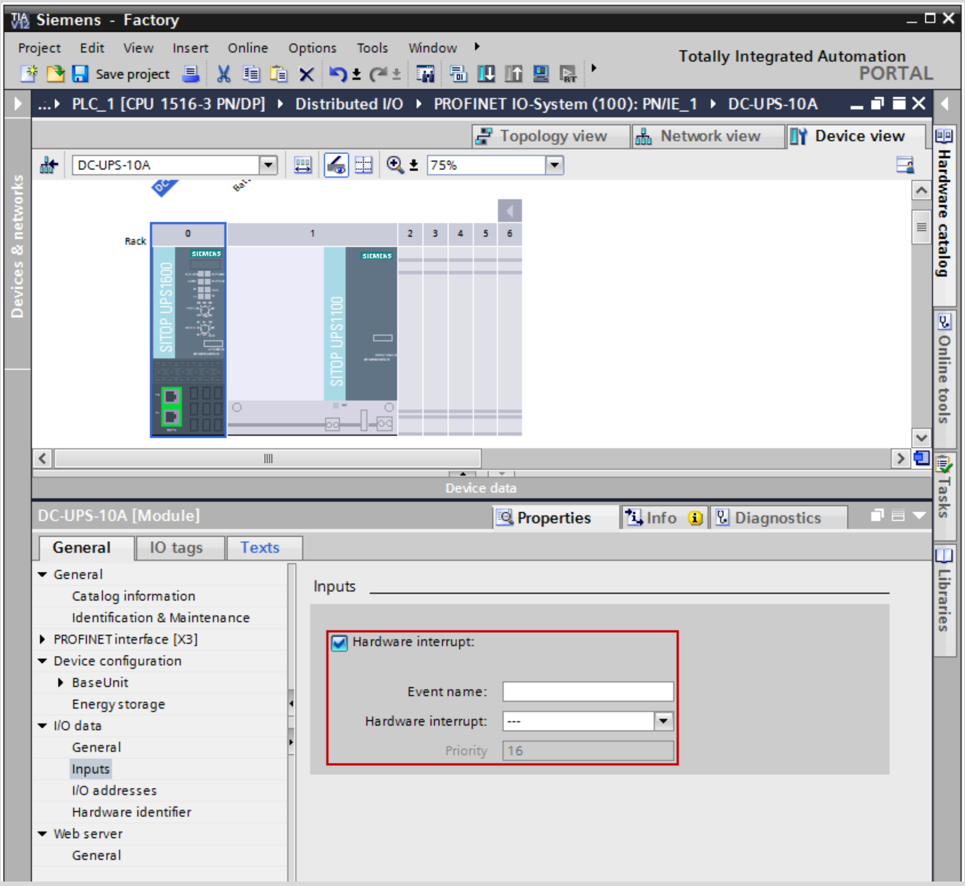
The integration of the faceplates is thus completed.

Displaying the PROFINET diagnostic messages

In order to display the PROFINET diagnostic messages of the SITOP UPS1600 within the faceplate, the respective WinCC TIA Portal project must already be configured for the display of PROFINET diagnostic messages.

Information on the display and configuration of diagnostic messages in WinCC TIA Portal is available under the entry ID: 62121503.

Note The activation of the PROFINET diagnostic messages of the SITOP UPS1600 can be found in the Device view of the UPS1600.



Inputs

☑ Hardware interrupt:

Event name:

Hardware interrupt: ---

Priority 16

Further notes regarding the PROFINET diagnostic messages of the SITOP UPS1600 are available in the SITOP UPS1600 User Manual in Chapter 3.2.1.

8.4 Interface description

The following chapter describes the design of the dynamic interface of the faceplates.

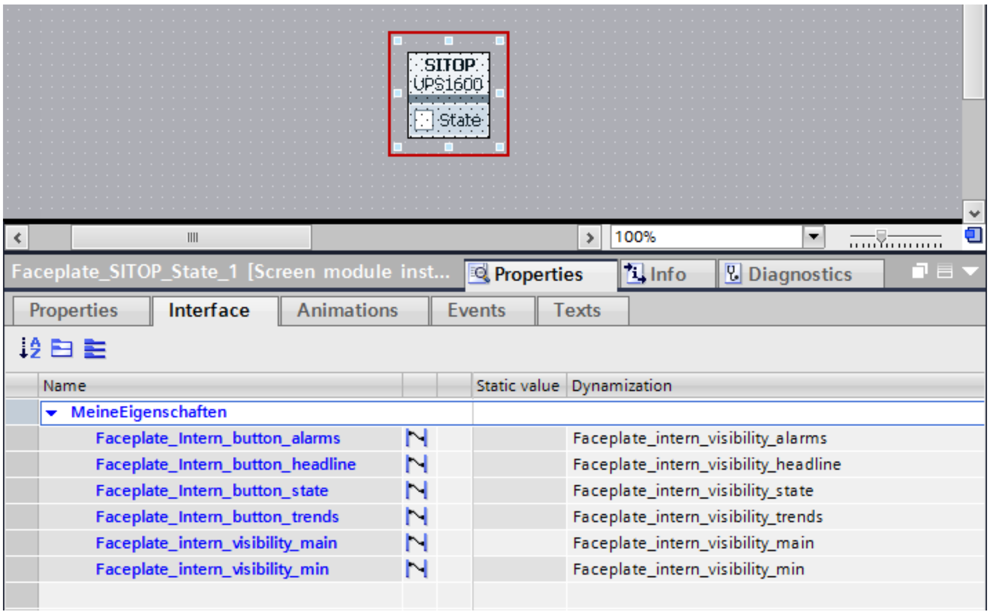
Note

If you do not use the faceplates as master copy from the project library, the dynamic interface must be connected separately with the respective WinCC (TIA Portal) tags.

Faceplate "Faceplate_UPS1600"

This section of the dynamic interface comprises all tags used to display the parameters of the SITOP UPS1600 within the faceplate.

Figure 8-1



Name	Static value	Dynamization
MeineEigenschaften		
Faceplate_Intern_button_alarms		Faceplate_intern_visibility_alarms
Faceplate_Intern_button_headline		Faceplate_intern_visibility_headline
Faceplate_Intern_button_state		Faceplate_intern_visibility_state
Faceplate_Intern_button_trends		Faceplate_intern_visibility_trends
Faceplate_intern_visibility_main		Faceplate_intern_visibility_main
Faceplate_intern_visibility_min		Faceplate_intern_visibility_min

Table 8-4

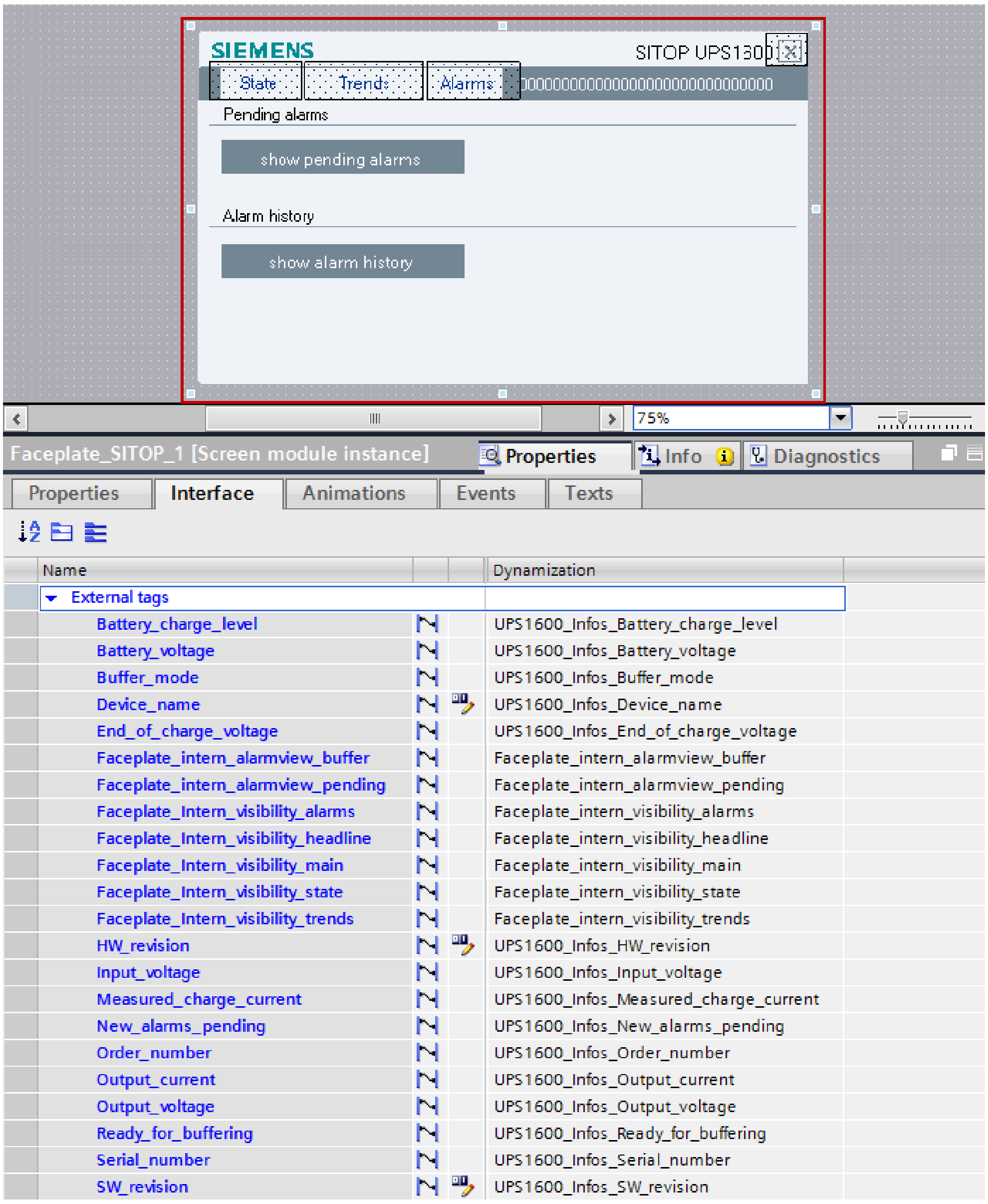
Dynamic interface faceplate	WinCC TIA Portal tag
Faceplate_intern_visibility_alarm	Faceplate_intern_visibility_alarm
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_headline	Faceplate_intern_visibility_headline
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_main	Faceplate_intern_visibility_main
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_state	Faceplate_intern_visibility_state
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_trends	Faceplate_intern_visibility_trends

Dynamic interface faceplate	WinCC TIA Portal tag
Connection	Internal tag
Data type	Int

Faceplate "Faceplate_UPS1600"

This section of the dynamic interface comprises all tags used to display the parameters of the SITOP UPS1600 within the faceplate.

Figure 8-2



Name	Dynamization
External tags	
Battery_charge_level	UPS1600_Infos_Battery_charge_level
Battery_voltage	UPS1600_Infos_Battery_voltage
Buffer_mode	UPS1600_Infos_Buffer_mode
Device_name	UPS1600_Infos_Device_name
End_of_charge_voltage	UPS1600_Infos_End_of_charge_voltage
Faceplate_intern_alarmview_buffer	Faceplate_intern_alarmview_buffer
Faceplate_intern_alarmview_pending	Faceplate_intern_alarmview_pending
Faceplate_Intern_visibility_alarms	Faceplate_intern_visibility_alarms
Faceplate_Intern_visibility_headline	Faceplate_intern_visibility_headline
Faceplate_Intern_visibility_main	Faceplate_intern_visibility_main
Faceplate_Intern_visibility_state	Faceplate_intern_visibility_state
Faceplate_Intern_visibility_trends	Faceplate_intern_visibility_trends
HW_revision	UPS1600_Infos_HW_revision
Input_voltage	UPS1600_Infos_Input_voltage
Measured_charge_current	UPS1600_Infos_Measured_charge_current
New_alarms_pending	UPS1600_Infos_New_alarms_pending
Order_number	UPS1600_Infos_Order_number
Output_current	UPS1600_Infos_Output_current
Output_voltage	UPS1600_Infos_Output_voltage
Ready_for_buffering	UPS1600_Infos_Ready_for_buffering
Serial_number	UPS1600_Infos_Serial_number
SW_revision	UPS1600_Infos_SW_revision

Table 8-5

Dynamic interface faceplate	WinCC TIA Portal tag
Battery_charge_level	UPS1600_Infos.Battery_charge_level
Data type	Byte
Address	DB 161 DBB 269
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Battery_voltage	UPS1600_Infos.Battery_voltage
Data type	Int
Address	DB 161 DBW 260
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Buffer_mode	UPS1600_Infos.Buffer_mode
Data type	Byte
Address	DB 161 DBB 266
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Device_name	UPS1600_Infos.Device_name
Data type	StringChar
Address	DB 161 DBB 170.0
Length	30
Acquisition cycle	1s
Acquisition mode	Cyclic on use
End_of_charge_voltage	UPS1600_Infos.End_of_charge_voltage
Data type	Int
Address	DB 161 DBW 100
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
HW_revision	UPS1600_Infos.HW_revision
Data type	Int
Address	DB 161 DBW 104
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use

Dynamic interface faceplate	WinCC TIA Portal tag
Input_voltage	UPS1600_Infos.Input_voltage
Data type	Int
Address	DB 161 DBW 250
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Measured_charge_current	UPS1600_Infos.Measured_charge_current
Data type	Int
Address	DB 161 DBW 258
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Linear scaling	10 : 1
New_alarms_pending	UPS1600_Infos.New_alarms_pending
Data type	Byte
Address	DB 161 DBB 268
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Order_number	UPS1600_Infos.Order_number
Data type	StringChar
Address	DB 161 DBB 110.0
Length	30
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Output_current	UPS1600_Infos.Output_current
Data type	Int
Address	DB 161 DBW 262
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Linear scaling	10 : 5
Output_voltage	UPS1600_Infos.Output_voltage
Data type	Int
Address	DB 161 DBW 254
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use

Dynamic interface faceplate	WinCC TIA Portal tag
Ready_for_buffering	UPS1600_Infos.Ready_for_buffering
Data type	Byte
Address	DB 161 DBB 267
Length	1
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Serial_number	UPS1600_Infos.Serial_number
Data type	StringChar
Address	DB 161 DBB 140.0
Length	30
Acquisition cycle	1s
Acquisition mode	Cyclic on use
SW_revision	UPS1600_Infos.SW_revision
Data type	Int
Address	DB 161 DBW 106
Length	2
Acquisition cycle	1s
Acquisition mode	Cyclic on use
Faceplate_intern_visibility_alarm	Faceplate_intern_visibility_alarm
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_headline	Faceplate_intern_visibility_headline
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_main	Faceplate_intern_visibility_main
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_state	Faceplate_intern_visibility_state
Connection	Internal tag
Data type	Int
Faceplate_intern_visibility_trends	Faceplate_intern_visibility_trends
Connection	Internal tag
Data type	Int
Faceplate_intern_alarmview_buffer	Faceplate_intern_alarmview_buffer
Connection	Internal tag
Data type	Int
Faceplate_intern_alarmview_pending	Faceplate_intern_alarmview_pending
Connection	Internal tag
Data type	Int

9 Application of the Screen Windows in WinCC V7.2

9.1 Preconditions

The following requirements must be met to use the screen windows in WinCC V7.2.

- The GSD file of the SITOP UPS1600 is installed in STEP 7 V5.5 and the UPS is configured as PROFINET node in the HW configuration of the CPU.
- Already configured S7 communication between the SITOP UPS1600 and CPU.
- All program blocks from the library "UPS1600 STEP 7 V5_5" are integrated into the STEP 7 application program and executable.
- The library "UPS1600 library WinCC V7" for WinCC V7.2 is available.
- Existing WinCC OS (PC station) with already configured and active communication connection.

Supported control panels

The use of the screen windows is approved for the following control panels:

- WinCC V7.2 Runtime

Supported languages

The screen windows support the following languages:

- English (USA)
- German (Germany)
- Chinese (PR China)

9.2 Library for WinCC V7.2

The library "UPS1600 library WinCC V7" for WinCC V7.2 comprises the following file folders:

Table 9-1

Name	Type	Description
HMI Windows (WinCC V7.2)	Library (project library)	Comprises the screen windows "UPS1600" and "UPS1600_State".
HMI Tag table (WinCC V7.2)	Tags	Files for tag import
HMI Screens (WinCC V7.2)	Screens	Comprises the screens "UPS1600.pdl" and "UPS1600_State.pdl".

HMI Windows (WinCC V7.2)

This folder contains the WinCC V7.2 library "library.pxl".
This library comprises the screen windows "UPS1600" and "UPS1600_State".

These screen windows display the screens "UPS1600.pdl" and "UPS1600_State.pdl" in WinCC V7.2.

HMI Tag table (WinCC V7.2)

This folder contains the files "UPS1600_Tags_cex.csv", "UPS1600_Tags_dex.csv", and "UPS1600_Tags_vex.csv".

These files comprise all tags required for the functioning of the screen windows. They are imported into a WinCC V7.2 project using the smart tool "Tag Export Import".

HMI Screens (WinCC V7.2)

This folder contains the screens "UPS1600.pdl" and "UPS1600_State.pdl". These screens are displayed in the screen windows "UPS1600" and "UPS1600_State".

9.3 Integrating the screen windows

The following sections describe all steps required to integrate the screen windows into a WinCC V7.2 project.

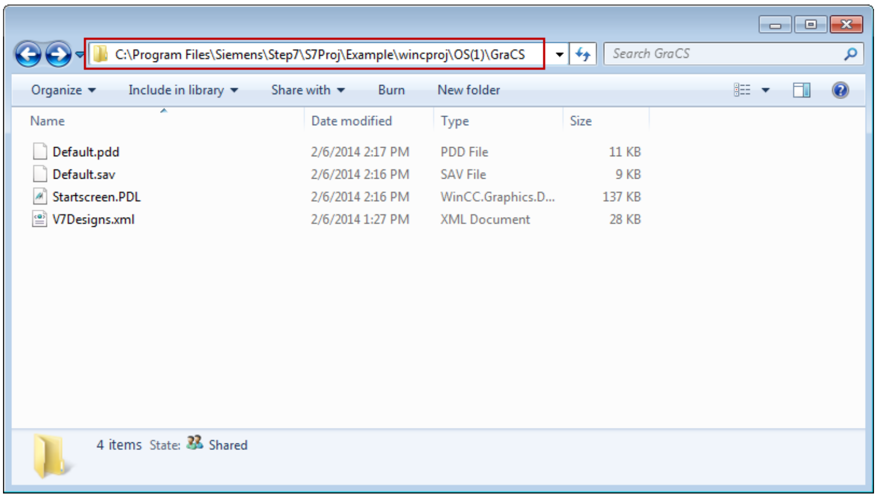
Target system used in this description:

- WinCC V7.2 Runtime

Inserting the project screens

The following steps describe how to copy the screens "UPS1600.pdl" and "UPS1600_State.pdl" from the library folder "HMI Screens (WinCC V7.2)" to the project directory GraCS of your WinCC project.

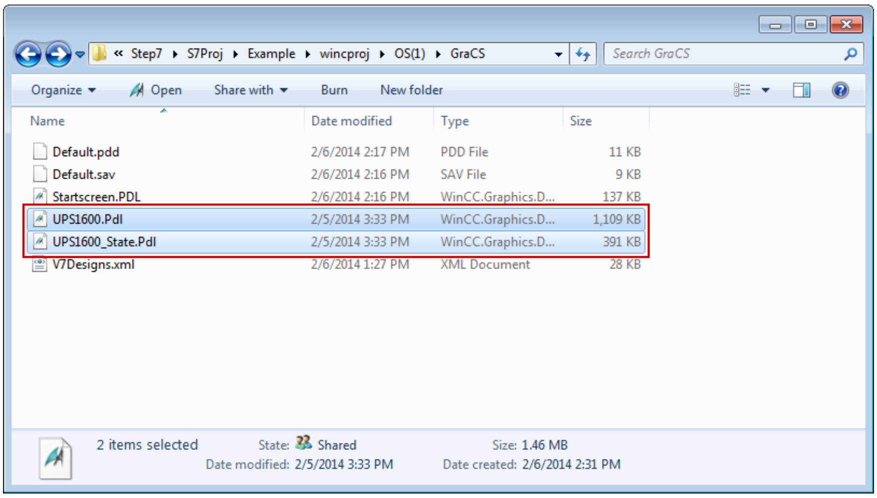
Table 9-2

No.	Procedure
1.	Open the project folder "GraCS" in your project directory. In this description, the path to the project folder "GraCS" is: C:\Program Files\Siemens\Step7\S7Proj\Example\wincproj\OS(1)\GraCS 

C:\Program Files\Siemens\Step7\S7Proj\Example\wincproj\OS(1)\GraCS

Name	Date modified	Type	Size
Default.pdd	2/6/2014 2:17 PM	PDD File	11 KB
Default.sav	2/6/2014 2:16 PM	SAV File	9 KB
Startscreen.PDL	2/6/2014 2:16 PM	WinCC.Graphics.D...	137 KB
V7Designs.xml	2/6/2014 1:27 PM	XML Document	28 KB

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>2.</td><td>Insert the screens "UPS1600.pdl" and "UPS1600_State.pdl" from the library folder "HMI Screens (WinCC V7.2)" into the project folder "GraCS".



<table>
<tr><th>Name</th><th>Date modified</th><th>Type</th><th>Size</th></tr>
<tr><td>Default.pdd</td><td>2/6/2014 2:17 PM</td><td>PDD File</td><td>11 KB</td></tr>
<tr><td>Default.sav</td><td>2/6/2014 2:16 PM</td><td>SAV File</td><td>9 KB</td></tr>
<tr><td>Startscreen.PDL</td><td>2/6/2014 2:16 PM</td><td>WinCC.Graphics.D...</td><td>137 KB</td></tr>
<tr><td>UPS1600.Pdl</td><td>2/5/2014 3:33 PM</td><td>WinCC.Graphics.D...</td><td>1,109 KB</td></tr>
<tr><td>UPS1600_State.Pdl</td><td>2/5/2014 3:33 PM</td><td>WinCC.Graphics.D...</td><td>391 KB</td></tr>
<tr><td>V7Designs.xml</td><td>2/6/2014 1:27 PM</td><td>XML Document</td><td>28 KB</td></tr>
</table>

2 items selected State: Shared Size: 1.46 MB
Date modified: 2/5/2014 3:33 PM Date created: 2/6/2014 2:31 PM

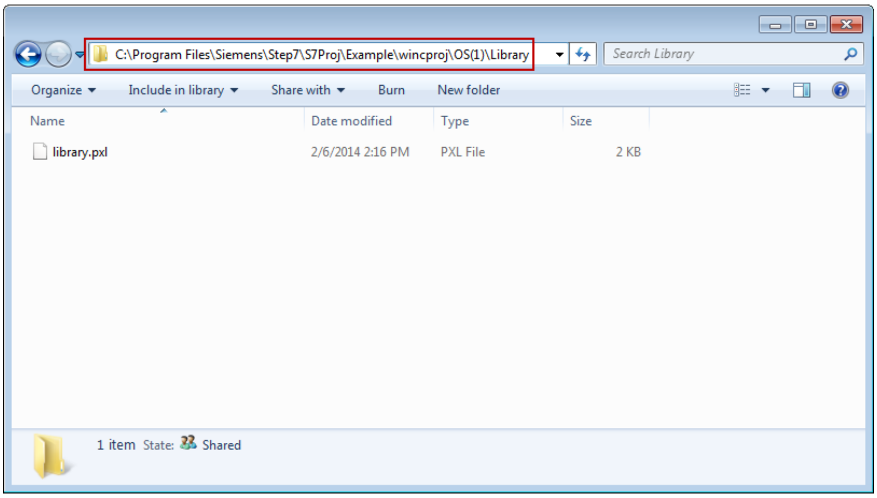
The screens are now included in the WinCC V7.2 project.</td></tr>
</table>

Configuring screen windows

The following steps describe how to copy the library "library.pxl" from the library folder "HMI Windows (WinCC V7.2)" to the project directory "Library" of your WinCC project.

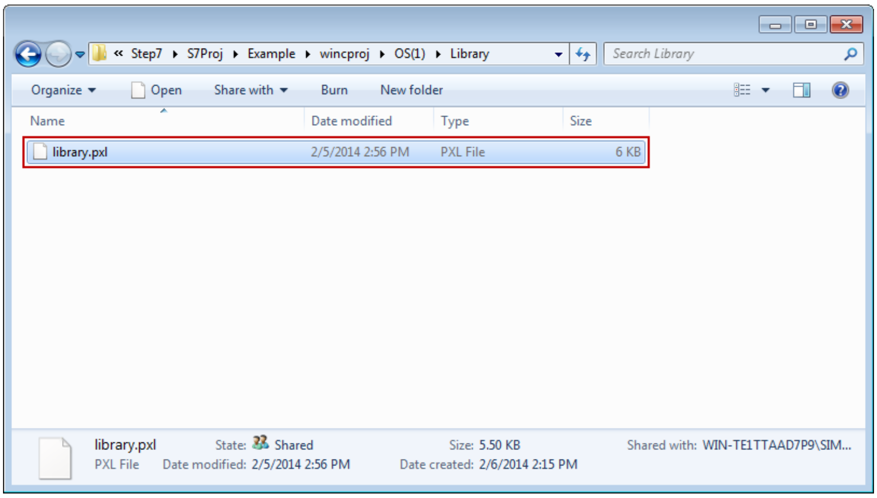
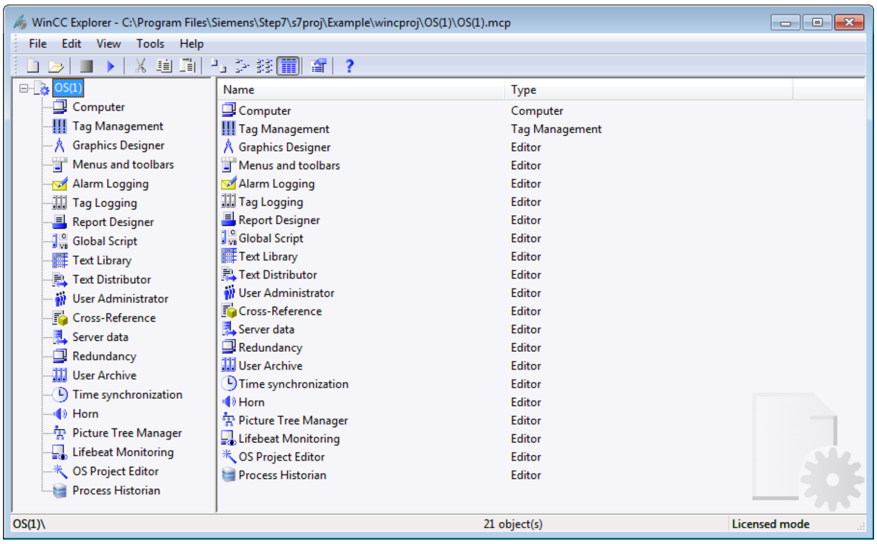
Table 9-3

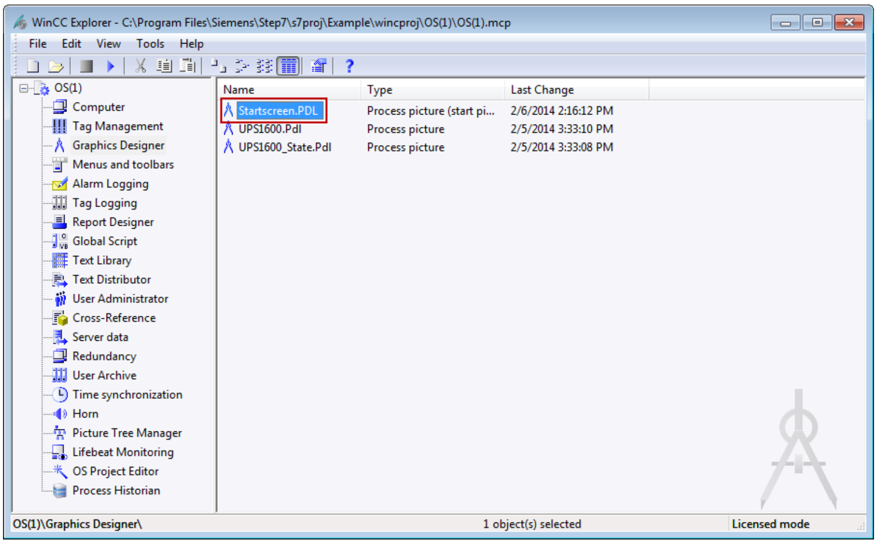
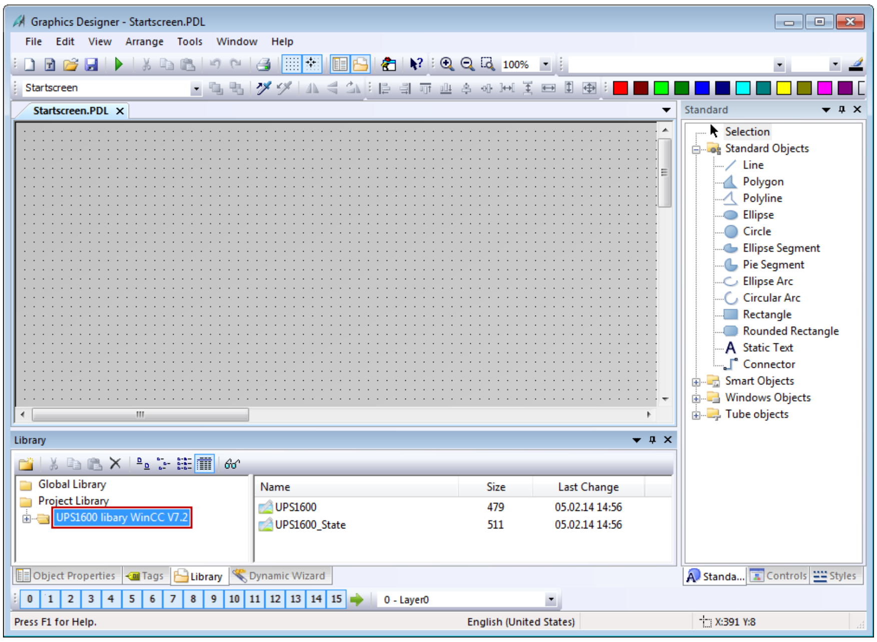
<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>1.</td><td>Open the project folder "Library" in your project directory.
In this description, the path to the project folder "Library" is:
C:\Program Files\Siemens\Step7\S7Proj\Example\wincproj\OS(1)\Library



<table>
<tr><th>Name</th><th>Date modified</th><th>Type</th><th>Size</th></tr>
<tr><td>library.pxl</td><td>2/6/2014 2:16 PM</td><td>PXL File</td><td>2 KB</td></tr>
</table>

1 item State: Shared</td></tr>
</table>

No.	Procedure
2.	Insert the library "library.pxl" from the library folder "HMI Windows (WinCC V7.2)" into the project folder "Library" and overwrite the existing "library.pxl" file.  « Step7 ▸ S7Proj ▸ Example ▸ wincproj ▸ OS(1) ▸ Library Search Library Organize ▾ Open Share with ▾ Burn New folder Name · Date modified · Type · Size library.pxl · 2/5/2014 2:56 PM · PXL File · 6 KB library.pxl · PXL File · State: Shared · Date modified: 2/5/2014 2:56 PM · Size: 5.50 KB · Date created: 2/6/2014 2:15 PM · Shared with: WIN-TE1TTAAD7P9\SIM... The screen windows are now included in your WinCC project in the project library.
3.	Open the WinCC project.  WinCC Explorer - C:\Program Files\Siemens\Step7\s7proj\Example\wincproj\OS(1)\OS(1).mcp File Edit View Tools Help OS(1) Computer Tag Management Graphics Designer Menus and toolbars Alarm Logging Tag Logging Report Designer Global Script Text Library Text Distributor User Administrator Cross-Reference Server data Redundancy User Archive Time synchronization Horn Picture Tree Manager Lifebeat Monitoring OS Project Editor Process Historian Name · Type Computer · Computer Tag Management · Tag Management Graphics Designer · Editor Menus and toolbars · Editor Alarm Logging · Editor Tag Logging · Editor Report Designer · Editor Global Script · Editor Text Library · Editor Text Distributor · Editor User Administrator · Editor Cross-Reference · Editor Server data · Editor Redundancy · Editor User Archive · Editor Time synchronization · Editor Horn · Editor Picture Tree Manager · Editor Lifebeat Monitoring · Editor OS Project Editor · Editor Process Historian · Editor OS(1)\ · 21 object(s) · Licensed mode

No.	Procedure
4.	Open the screen in which you want to configure the screen windows. In this example, the screen name is "Startscreen.pdl". 
5.	In the "Library" detail window, open the project library "UPS1600 library WinCC V7.2". 

WinCC Explorer - C:\Program Files\Siemens\Step7\s7proj\Example\wincproj\OS(1)\OS(1).mcp

Name	Type	Last Change
Startscreen.PDL	Process picture (start pi...	2/6/2014 2:16:12 PM
UPS1600.Pdl	Process picture	2/5/2014 3:33:10 PM
UPS1600_State.Pdl	Process picture	2/5/2014 3:33:08 PM

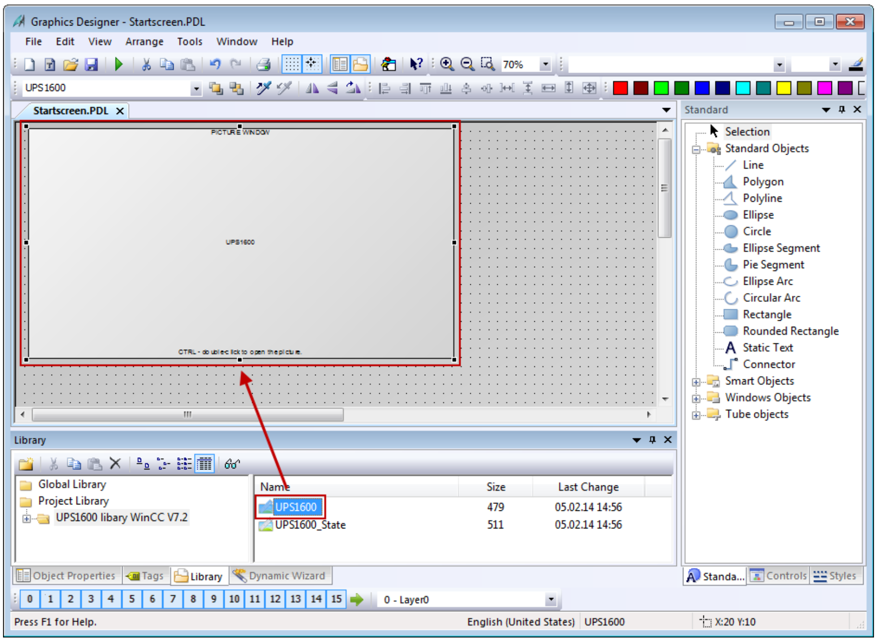
OS(1)\Graphics Designer\ 1 object(s) selected Licensed mode

Graphics Designer - Startscreen.PDL

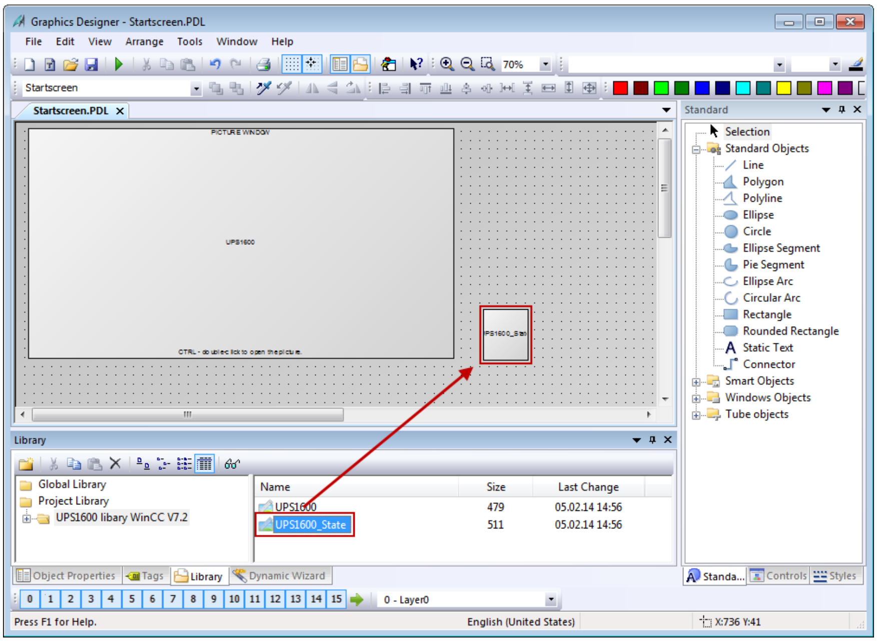
Name	Size	Last Change
UPS1600	479	05.02.14 14:56
UPS1600_State	511	05.02.14 14:56

Press F1 for Help. English (United States) X:391 Y:8

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>6.</td><td>
Select the entry "UPS1600" and drag and drop it to the screen.



</td></tr>
<tr><td>7.</td><td>
Select the entry "UPS1600_State" and drag and drop it to the screen.

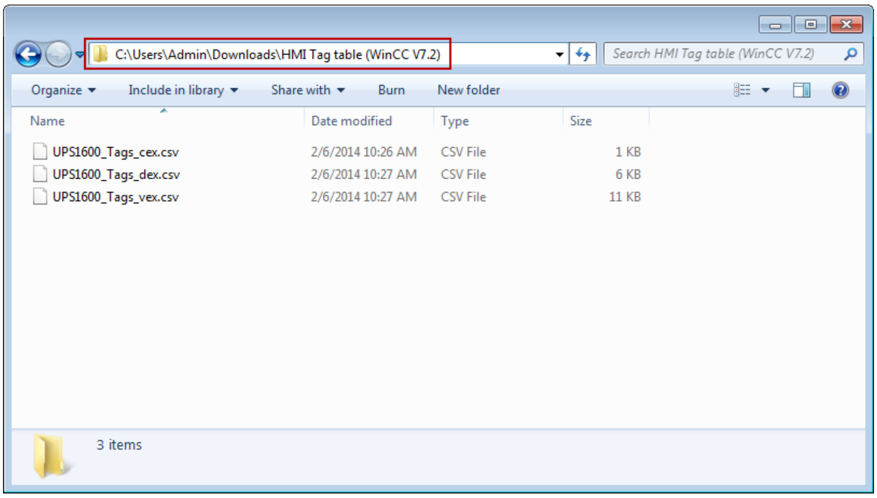
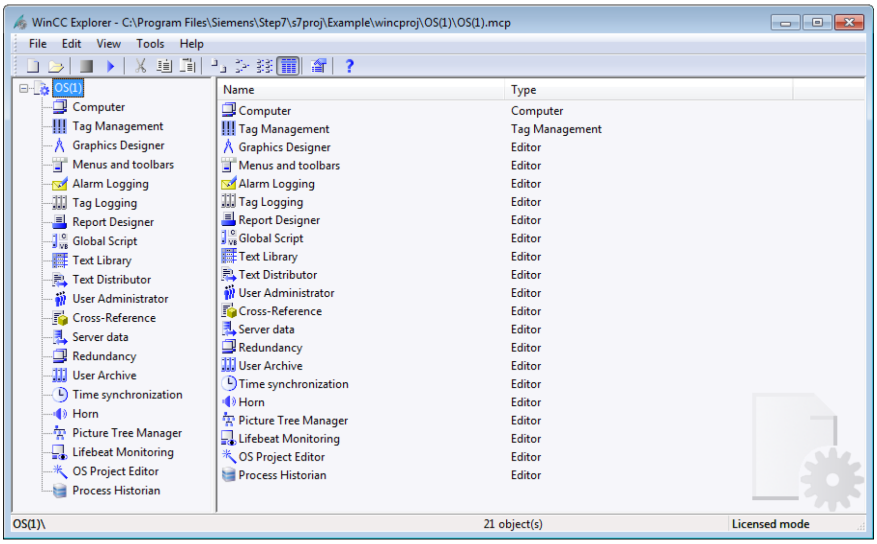


The screen windows "UPS1600" and "UPS1600_State" are now included in your project and display the screens "UPS1600.pdl" and "UPS1600_State.pdl".
</td></tr>
</table>

Importing tags

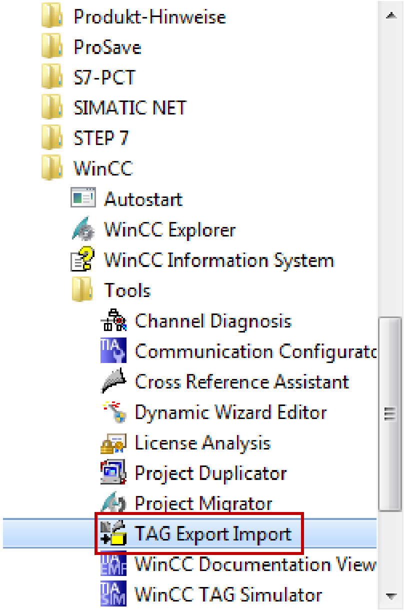
The following steps describe how to import the files from the library folder "HMI Tag table (WinCC V7.2)" into the WinCC project.

Table 9-4

No.	Procedure
1.	Save the folder "HMI Tag table (WinCC V7.2)" from the library on your hard disk. In this description, the path to the folder "HMI Tag table (WinCC V7.2)" is: C:\Users\Admin\Downloads\HMI Tag table (WinCC V7.2)  C:\Users\Admin\Downloads\HMI Tag table (WinCC V7.2) Name · Date modified · Type · Size UPS1600_Tags_cex.csv · 2/6/2014 10:26 AM · CSV File · 1 KB UPS1600_Tags_dex.csv · 2/6/2014 10:27 AM · CSV File · 6 KB UPS1600_Tags_vex.csv · 2/6/2014 10:27 AM · CSV File · 11 KB 3 items
2.	Open the WinCC project.  WinCC Explorer - C:\Program Files\Siemens\Step7\s7proj\Example\wincproj\OS(1)\OS(1).mcp Name · Type Computer · Computer Tag Management · Tag Management Graphics Designer · Editor Menus and toolbars · Editor Alarm Logging · Editor Tag Logging · Editor Report Designer · Editor Global Script · Editor Text Library · Editor Text Distributor · Editor User Administrator · Editor Cross-Reference · Editor Server data · Editor Redundancy · Editor User Archive · Editor Time synchronization · Editor Horn · Editor Picture Tree Manager · Editor Lifebeat Monitoring · Editor OS Project Editor · Editor Process Historian · Editor OS(1)\ · 21 object(s) · Licensed mode

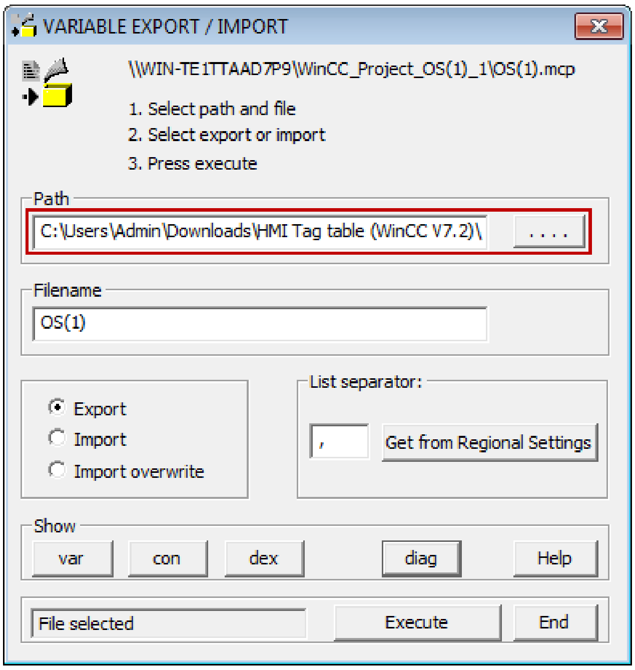
<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>3.</td><td>

Open the smart tool "TAG Export Import" under "Windows Start > Siemens Automation > SIMATIC > WinCC > Tools".



</td></tr>
<tr><td>4.</td><td>

Under "Path", just select the folder "HMI Tag Table (WinCC V7.2)" on your hard disk.



VARIABLE EXPORT / IMPORT

\\WIN-TE1TTAAD7P9\WinCC_Project_OS(1)_1\OS(1).mcp

1. Select path and file
2. Select export or import
3. Press execute

Path: C:\Users\Admin\Downloads\HMI Tag table (WinCC V7.2)\

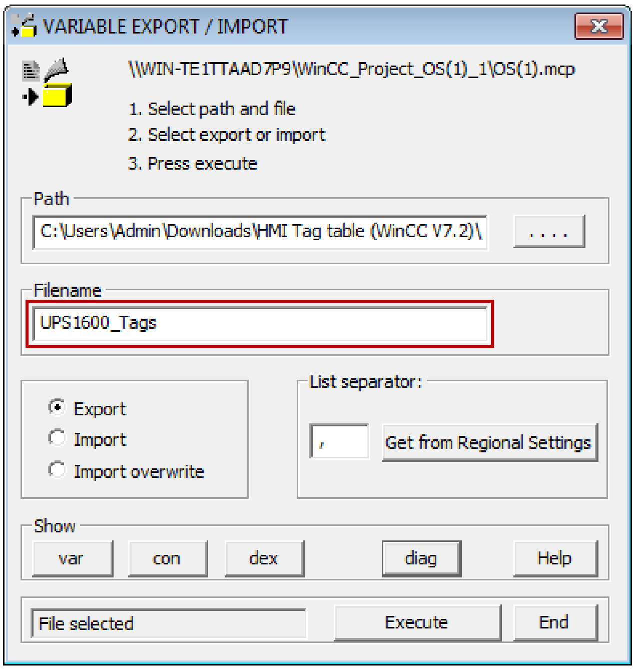
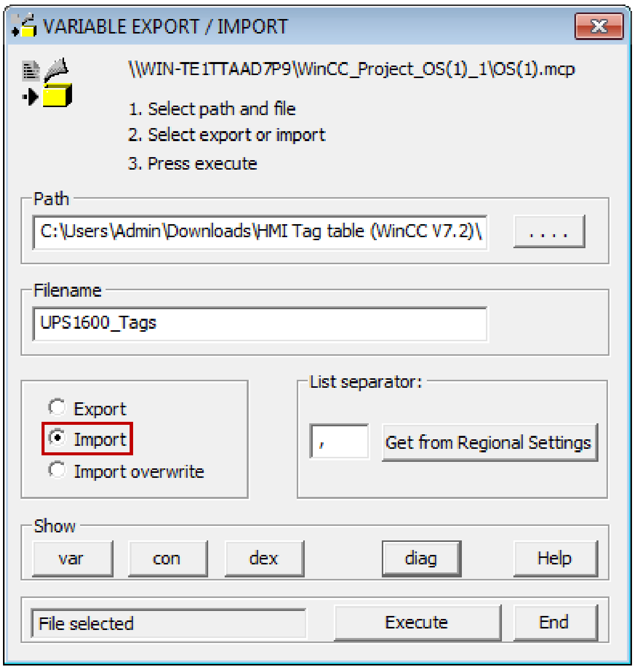
Filename: OS(1)

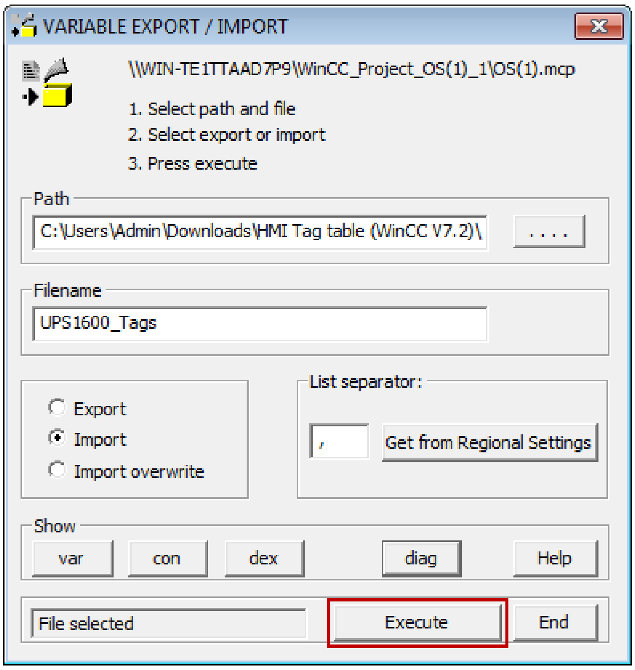
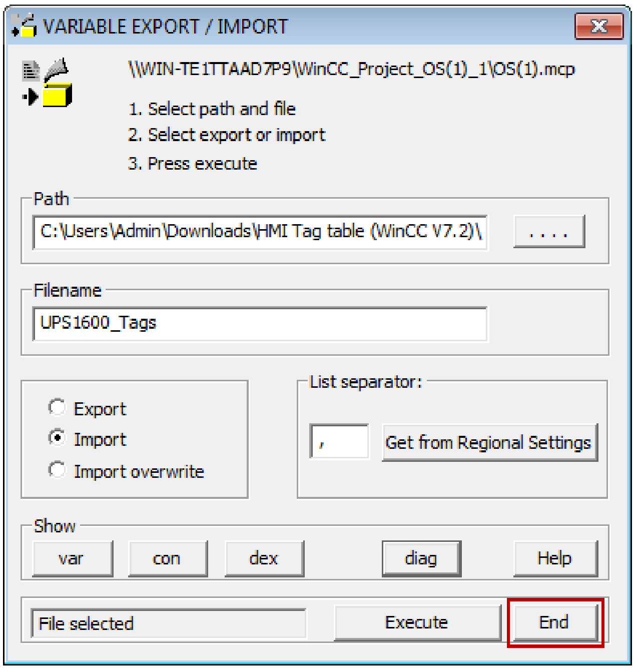
● Export
○ Import
○ Import overwrite

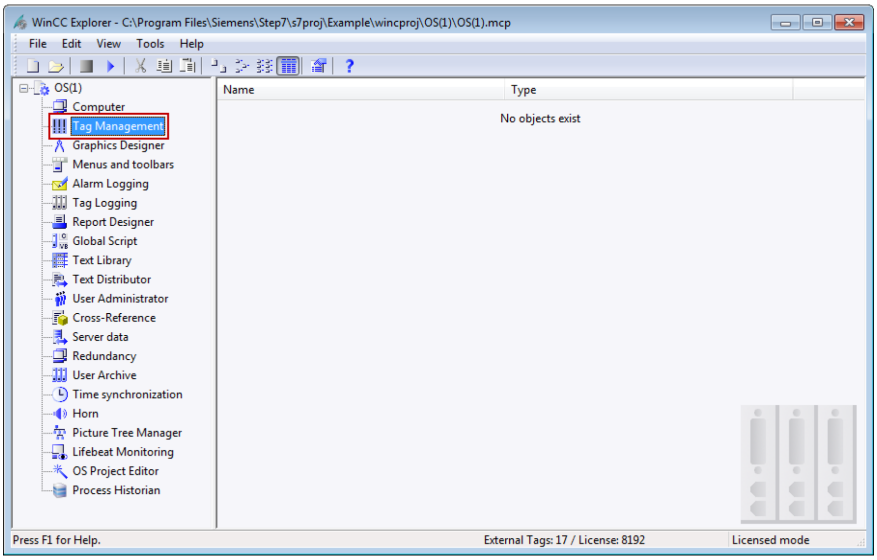
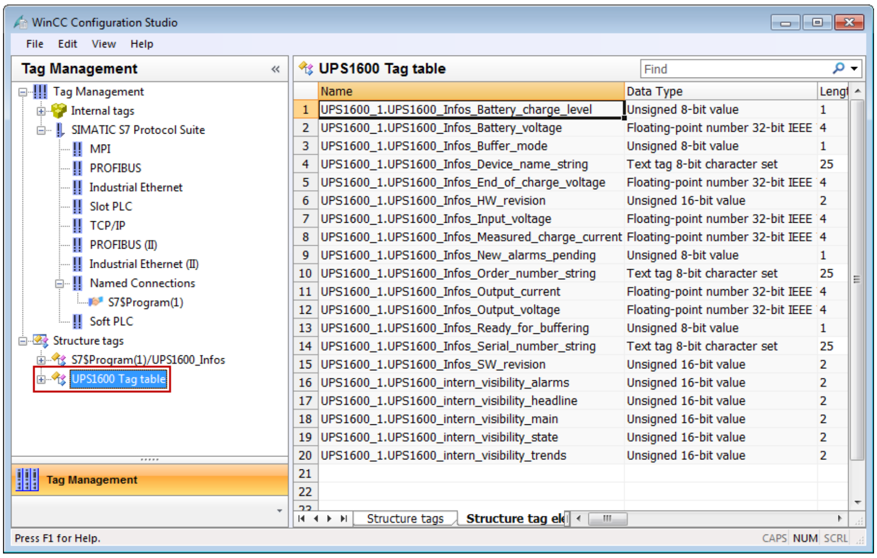
List separator: ,

File selected

</td></tr>
</table>

No.	Procedure
5.	Enter "UPS1600_Tags" under "Filename".  VARIABLE EXPORT / IMPORT \\WIN-TE1TTAAD7P9\WinCC_Project_OS(1)_1\OS(1).mcp 1. Select path and file 2. Select export or import 3. Press execute Path: C:\Users\Admin\Downloads\HMI Tag table (WinCC V7.2)\ Filename: UPS1600_Tags ● Export ○ Import ○ Import overwrite List separator: , File selected . . . . Get from Regional Settings Show var con dex diag Help Execute End
6.	Click the "Import" radio button.  VARIABLE EXPORT / IMPORT \\WIN-TE1TTAAD7P9\WinCC_Project_OS(1)_1\OS(1).mcp 1. Select path and file 2. Select export or import 3. Press execute Path: C:\Users\Admin\Downloads\HMI Tag table (WinCC V7.2)\ Filename: UPS1600_Tags ○ Export ● Import ○ Import overwrite List separator: , File selected . . . . Get from Regional Settings Show var con dex diag Help Execute End

No.	Procedure
7.	Click the "Execute" button and confirm all subsequent prompts with "OK". All required tags are now imported into the project.  VARIABLE EXPORT / IMPORT \\WIN-TE1TTAAD7P9\WinCC_Project_OS(1)_1\OS(1).mcp 1. Select path and file 2. Select export or import 3. Press execute Path: C:\Users\Admin\Downloads\HMI Tag table (WinCC V7.2)\ Filename: UPS1600_Tags ○ Export ● Import ○ Import overwrite List separator: , File selected . . . . Get from Regional Settings Show var con dex diag Help Execute End
8.	Click the "End" button.  VARIABLE EXPORT / IMPORT \\WIN-TE1TTAAD7P9\WinCC_Project_OS(1)_1\OS(1).mcp 1. Select path and file 2. Select export or import 3. Press execute Path: C:\Users\Admin\Downloads\HMI Tag table (WinCC V7.2)\ Filename: UPS1600_Tags ○ Export ● Import ○ Import overwrite List separator: , File selected . . . . Get from Regional Settings Show var con dex diag Help Execute End

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>9.</td><td>Navigate back to the WinCC project and open the "Tag Management".
 </td></tr>
<tr><td>10.</td><td>Check whether the structure "UPS1600 Tag table" has been created successfully.

<table>
<tr><th></th><th>Name</th><th>Data Type</th><th>Lengt</th></tr>
<tr><td>1</td><td>UPS1600_1.UPS1600_Infos_Battery_charge_level</td><td>Unsigned 8-bit value</td><td>1</td></tr>
<tr><td>2</td><td>UPS1600_1.UPS1600_Infos_Battery_voltage</td><td>Floating-point number 32-bit IEEE</td><td>4</td></tr>
<tr><td>3</td><td>UPS1600_1.UPS1600_Infos_Buffer_mode</td><td>Unsigned 8-bit value</td><td>1</td></tr>
<tr><td>4</td><td>UPS1600_1.UPS1600_Infos_Device_name_string</td><td>Text tag 8-bit character set</td><td>25</td></tr>
<tr><td>5</td><td>UPS1600_1.UPS1600_Infos_End_of_charge_voltage</td><td>Floating-point number 32-bit IEEE</td><td>4</td></tr>
<tr><td>6</td><td>UPS1600_1.UPS1600_Infos_HW_revision</td><td>Unsigned 16-bit value</td><td>2</td></tr>
<tr><td>7</td><td>UPS1600_1.UPS1600_Infos_Input_voltage</td><td>Floating-point number 32-bit IEEE</td><td>4</td></tr>
<tr><td>8</td><td>UPS1600_1.UPS1600_Infos_Measured_charge_current</td><td>Floating-point number 32-bit IEEE</td><td>4</td></tr>
<tr><td>9</td><td>UPS1600_1.UPS1600_Infos_New_alarms_pending</td><td>Unsigned 8-bit value</td><td>1</td></tr>
<tr><td>10</td><td>UPS1600_1.UPS1600_Infos_Order_number_string</td><td>Text tag 8-bit character set</td><td>25</td></tr>
<tr><td>11</td><td>UPS1600_1.UPS1600_Infos_Output_current</td><td>Floating-point number 32-bit IEEE</td><td>4</td></tr>
<tr><td>12</td><td>UPS1600_1.UPS1600_Infos_Output_voltage</td><td>Floating-point number 32-bit IEEE</td><td>4</td></tr>
<tr><td>13</td><td>UPS1600_1.UPS1600_Infos_Ready_for_buffering</td><td>Unsigned 8-bit value</td><td>1</td></tr>
<tr><td>14</td><td>UPS1600_1.UPS1600_Infos_Serial_number_string</td><td>Text tag 8-bit character set</td><td>25</td></tr>
<tr><td>15</td><td>UPS1600_1.UPS1600_Infos_SW_revision</td><td>Unsigned 16-bit value</td><td>2</td></tr>
<tr><td>16</td><td>UPS1600_1.UPS1600_intern_visibility_alarms</td><td>Unsigned 16-bit value</td><td>2</td></tr>
<tr><td>17</td><td>UPS1600_1.UPS1600_intern_visibility_headline</td><td>Unsigned 16-bit value</td><td>2</td></tr>
<tr><td>18</td><td>UPS1600_1.UPS1600_intern_visibility_main</td><td>Unsigned 16-bit value</td><td>2</td></tr>
<tr><td>19</td><td>UPS1600_1.UPS1600_intern_visibility_state</td><td>Unsigned 16-bit value</td><td>2</td></tr>
<tr><td>20</td><td>UPS1600_1.UPS1600_intern_visibility_trends</td><td>Unsigned 16-bit value</td><td>2</td></tr>
<tr><td>21</td><td></td><td></td><td></td></tr>
<tr><td>22</td><td></td><td></td><td></td></tr>
</table>
The tags required to display the parameters of the UPS1600 in the screen windows are now included in the WinCC project.</td></tr>
</table>

The integration of the screen windows is thus completed.

Displaying the PROFINET diagnostic messages

In order to display the PROFINET diagnostic messages of the SITOP UPS1600 within the screen windows, the respective WinCC project must already be configured for the display of PROFINET diagnostic messages.

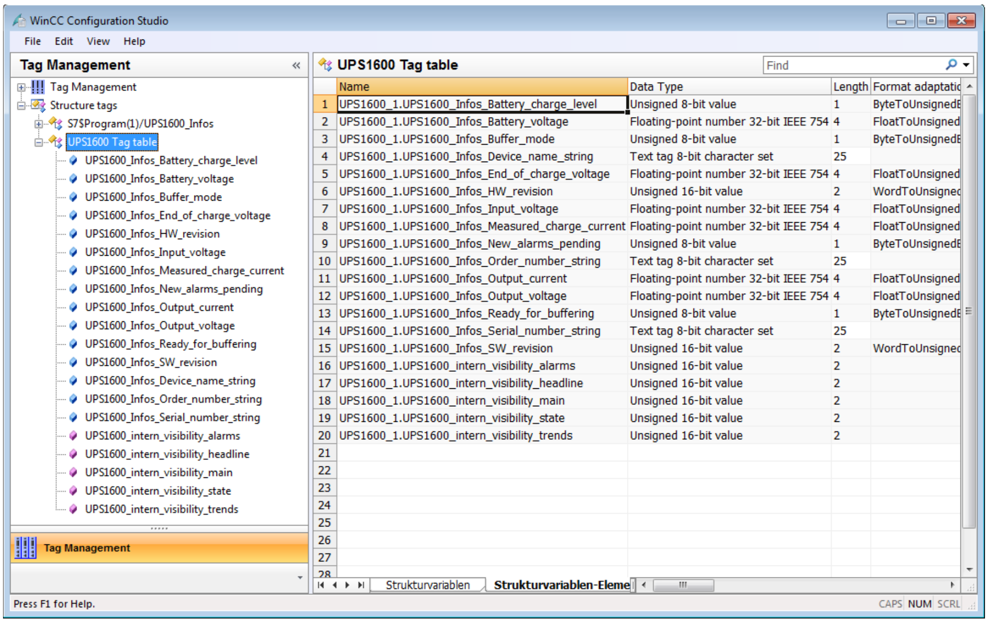
Information on the display and configuration of diagnostic messages in WinCC is available under the entry ID: 245799373.

Further notes regarding the PROFINET diagnostic messages of the SITOP UPS1600 are available in the SITOP UPS1600 User Manual in Chapter 3.2.1.

9.4 Interface description

The following chapter describes all tags that are contained in the library object "HMI Tag table (WinCC V7.2)" and required for the functioning of the screen windows.

Figure 9-1


WinCC Configuration Studio
File
Edit
View
Help
Tag Management
Tag Management
Structure tags
S7$Program(1)/UPS1600_Infos
UPS1600 Tag table
UPS1600_Infos_Battery_charge_level
UPS1600_Infos_Battery_voltage
UPS1600_Infos_Buffer_mode
UPS1600_Infos_End_of_charge_voltage
UPS1600_Infos_HW_revision
UPS1600_Infos_Input_voltage
UPS1600_Infos_Measured_charge_current
UPS1600_Infos_New_alarms_pending
UPS1600_Infos_Output_current
UPS1600_Infos_Output_voltage
UPS1600_Infos_Ready_for_buffering
UPS1600_Infos_SW_revision
UPS1600_Infos_Device_name_string
UPS1600_Infos_Order_number_string
UPS1600_Infos_Serial_number_string
UPS1600_intern_visibility_alarms
UPS1600_intern_visibility_headline
UPS1600_intern_visibility_main
UPS1600_intern_visibility_state
UPS1600_intern_visibility_trends
Tag Management
UPS1600 Tag table
Find
Strukturvariablen
Strukturvariablen-Eleme
Press F1 for Help.
CAPS
NUM
SCRL

	Name	Data Type	Length	Format adaptatic
1	UPS1600_1.UPS1600_Infos_Battery_charge_level	Unsigned 8-bit value	1	ByteToUnsignedE
2	UPS1600_1.UPS1600_Infos_Battery_voltage	Floating-point number 32-bit IEEE 754	4	FloatToUnsigned
3	UPS1600_1.UPS1600_Infos_Buffer_mode	Unsigned 8-bit value	1	ByteToUnsignedE
4	UPS1600_1.UPS1600_Infos_Device_name_string	Text tag 8-bit character set	25	
5	UPS1600_1.UPS1600_Infos_End_of_charge_voltage	Floating-point number 32-bit IEEE 754	4	FloatToUnsigned
6	UPS1600_1.UPS1600_Infos_HW_revision	Unsigned 16-bit value	2	WordToUnsignec
7	UPS1600_1.UPS1600_Infos_Input_voltage	Floating-point number 32-bit IEEE 754	4	FloatToUnsigned
8	UPS1600_1.UPS1600_Infos_Measured_charge_current	Floating-point number 32-bit IEEE 754	4	FloatToUnsigned
9	UPS1600_1.UPS1600_Infos_New_alarms_pending	Unsigned 8-bit value	1	ByteToUnsignedE
10	UPS1600_1.UPS1600_Infos_Order_number_string	Text tag 8-bit character set	25	
11	UPS1600_1.UPS1600_Infos_Output_current	Floating-point number 32-bit IEEE 754	4	FloatToUnsigned
12	UPS1600_1.UPS1600_Infos_Output_voltage	Floating-point number 32-bit IEEE 754	4	FloatToUnsigned
13	UPS1600_1.UPS1600_Infos_Ready_for_buffering	Unsigned 8-bit value	1	ByteToUnsignedE
14	UPS1600_1.UPS1600_Infos_Serial_number_string	Text tag 8-bit character set	25	
15	UPS1600_1.UPS1600_Infos_SW_revision	Unsigned 16-bit value	2	WordToUnsignec
16	UPS1600_1.UPS1600_intern_visibility_alarms	Unsigned 16-bit value	2	
17	UPS1600_1.UPS1600_intern_visibility_headline	Unsigned 16-bit value	2	
18	UPS1600_1.UPS1600_intern_visibility_main	Unsigned 16-bit value	2	
19	UPS1600_1.UPS1600_intern_visibility_state	Unsigned 16-bit value	2	
20	UPS1600_1.UPS1600_intern_visibility_trends	Unsigned 16-bit value	2	

The following table provides the definition of the structure type "UPS1600 Tag table". The created structure tag has the tag prefix "UPS1600_1".

Table 9-5

Structure element
UPS1600_Infos_Battery_charge_level
Data type: Unsigned 8-bit value
Length: 1
Format adaptation: ByteToUnsignedByte
Tag type: Control tag
Address: DB161,DBB171
UPS1600_Infos_Battery_voltage
Data type: Floating-point number 32-bit IEEE 754
Length: 4
Format adaptation: FloatToUnsignedWord
Tag type: Control tag
Address: DB161,DBW162
Linear scaling: AS (1000-0), OS (10-0)

Structure element
UPS1600_Infos_Buffer_mode
Data type: Unsigned 8-bit value
Length: 1
Format adaptation: ByteToUnsignedByte
Tag type: Control tag
Address: DB161,DBB168
UPS1600_Infos_Device_name_string
Data type: Text tag 8-bit character set
Length: 25
Tag type: Control tag
Address: DB161,DBB242
UPS1600_Infos_End_of_charge_voltage
Data type: Floating-point number 32-bit IEEE 754
Length: 4
Format adaptation: FloatToUnsignedWord
Tag type: Control tag
Address: DB161,DBW2
Linear scaling: AS (1000-0), OS (10-0)
UPS1600_Infos_HW_revision
Data type: Unsigned 16-bit value
Length: 2
Format adaptation: WordToUnsignedWord
Tag type: Control tag
Address: DB161,DBW6
UPS1600_Infos_Input_voltage
Data type: Floating-point number 32-bit IEEE 754
Length: 4
Format adaptation: FloatToUnsignedWord
Tag type: Control tag
Address: DB161,DBW154
Linear scaling: AS (1000-0), OS (10-0)
UPS1600_Infos_Measured_charge_current
Data type: Floating-point number 32-bit IEEE 754
Length: 4
Format adaptation: FloatToUnsignedWord
Tag type: Control tag
Address: DB161,DBW160
Linear scaling: AS (1000-0), OS (1-0)

Structure element
UPS1600_Infos_New_alarms_pending
Data type: Unsigned 8-bit value
Length: 1
Format adaptation: ByteToUnsignedByte
Tag type: Control tag
Address: DB161,DBB170
Linear scaling: AS (), OS ()
UPS1600_Infos_Order_number_string
Data type: Text tag 8-bit character set
Length: 25
Tag type: Control tag
Address: DB161,DBB186
UPS1600_Infos_Output_current
Data type: Floating-point number 32-bit IEEE 754
Length: 4
Format adaptation: FloatToUnsignedWord
Tag type: Control tag
Address: DB161,DBW164
Linear scaling: AS (1000-0), OS (5-0)
UPS1600_Infos_Output_voltage
Data type: Floating-point number 32-bit IEEE 754
Length: 4
Format adaptation: FloatToUnsignedWord
Tag type: Control tag
Address: DB161,DBW156
Linear scaling: (1000-0), OS (10-0)
UPS1600_Infos_Ready_for_buffering
Data type: Unsigned 8-bit value
Length: 1
Format adaptation: ByteToUnsignedByte
Tag type: Control tag
Address: DB161,DBB169
Linear scaling: AS (), OS ()
UPS1600_Infos_Serial_number_string
Data type: Text tag 8-bit character set
Length: 25
Tag type: Control tag
Address: DB161,DBB214
Linear scaling: AS (), OS ()

Structure element
UPS1600_Infos_SW_revision
Data type: Unsigned 16-bit value
Length: 2
Format adaptation: WordToUnsignedWord
Tag type: Control tag
Address: DB161,DBW8
UPS1600_intern_visibility_alarms
Data type: Unsigned 16-bit value
Length: 1
Tag type: Internal tag
UPS1600_intern_visibility_headline
Data type: Unsigned 16-bit value
Length: 1
Tag type: Internal tag
UPS1600_intern_visibility_main
Data type: Unsigned 16-bit value
Length: 1
Tag type: Internal tag
UPS1600_intern_visibility_state
Data type: Unsigned 16-bit value
Length: 1
Tag type: Internal tag
UPS1600_intern_visibility_trends
Data type: Unsigned 16-bit value
Length: 1
Tag type: Internal tag

10 Application of the Faceplates in WinCC Professional V12

10.1 Preconditions

The following requirements must be met to use the screen windows in WinCC Professional V12 SP1.

- The Hardware Support Package for the SITOP UPS1600 is installed in STEP 7 V12.
- Already existing S7 communication between the SITOP UPS1600 and SIMATIC S7 controller.
- All program blocks for STEP 7 V12 from the library "UPS1600 library TIA Portal V12 SP1" are integrated into the application program and executable.
- The library "UPS1600 library TIA Portal V12 SP1" is available.

Supported control panels

The use of the screen windows is approved for the following control panels:

- WinCC RT Professional V12

Supported languages

The screen windows support the following languages:

- English (USA)
- German (Germany)
- Chinese (PR China)

Note regarding the application

The screen windows can only be used in combination. Using just one of the faceplates separately is not possible.

10.2 Library for WinCC Professional

The following objects are part of the master copy "UPS1600 HMI Faceplates (WinCC Professional V12)" in the library "UPS1600 library TIA Portal V12 SP1".

Table 10-1

Name	Type	Description
HMI Windows (WinCC Professional V12)	Screen window	Comprises the screen windows "UPS1600" and "UPS1600_State".
HMI Scheduler job	Job (scheduler)	-
HMI Tag table	Tag folder	Separate tag folder with all required tags
HMI VB-Script	VB script	-

Name	Type	Description
HMI Screens (WinCC Professional V12)	Screens	Comprises the screens "UPS1600" and "UPS1600_State".

HMI Windows (WinCC Professional V12)

This object comprises the screen windows "UPS1600" and "UPS1600_State". In these screen windows, the screens "UPS1600" and "UPS1600_State" will be displayed later.

The two screen windows are combined to one master copy in the library.

HMI Scheduler job

This object contains the job "UPS1600_state_job" for the scheduler. This job cyclically executes the VB script "UPS1600_Faceplate_state_min".

HMI Tag table

This object in the library contains the tag folder "HMI Tag table". This folder comprises all tags required for the use of the faceplates.

The control tags in this folder are already equipped with a connection to the data block DB161 and a controller connection. The default connection name is "Connection_1".
After having integrated the tags from the library it might be necessary to adapt this connection name in your project.

HMI VB-Script

This object comprises the VB script "UPS1600_Faceplate_state_min".

This script controls the status indication of the SITOP UPS1600 in the screen window "UPS1600_State".

HMI Screens (WinCC Professional V12)

This object comprises the screens "UPS1600" and "UPS1600_State". The two screens are combined to one master copy in the library.

10.3 Integrating the screen windows

The following sections describe all steps required to integrate the screen windows into a WinCC Professional V12 project.

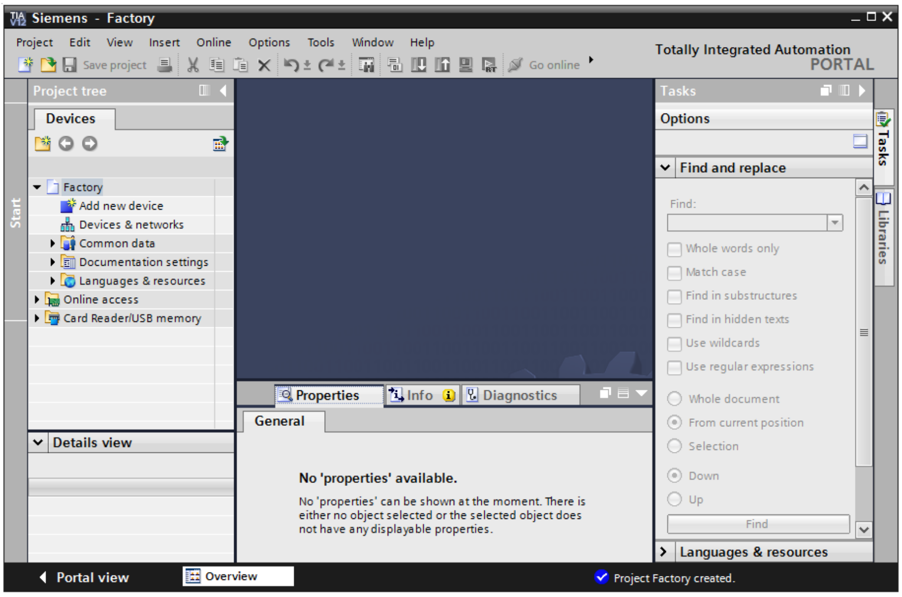
Target system used in this description:

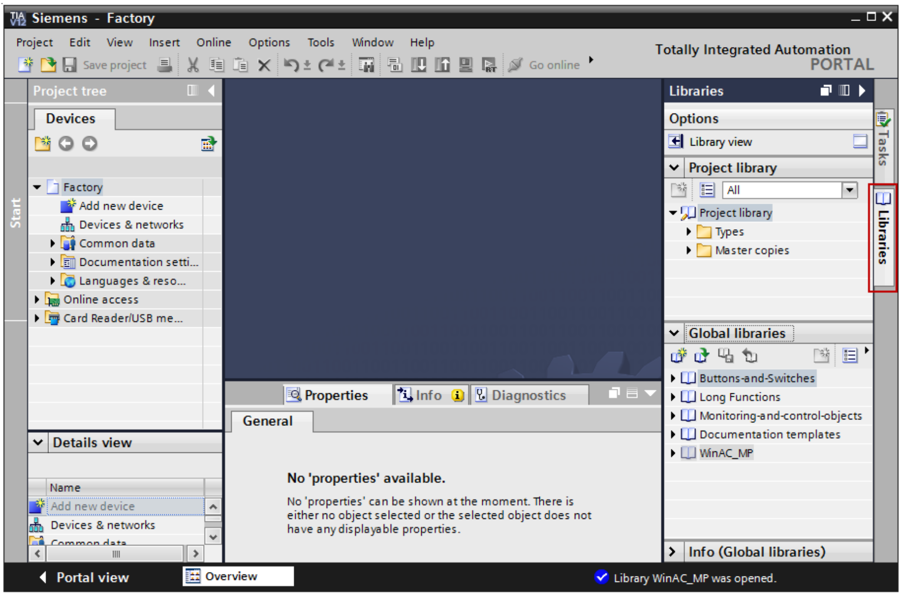
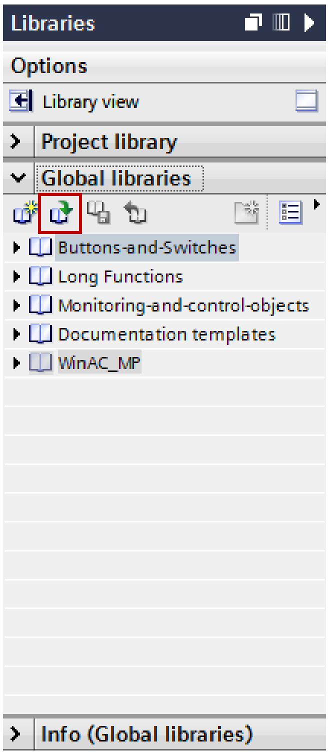
- WinCC RT Professional V12

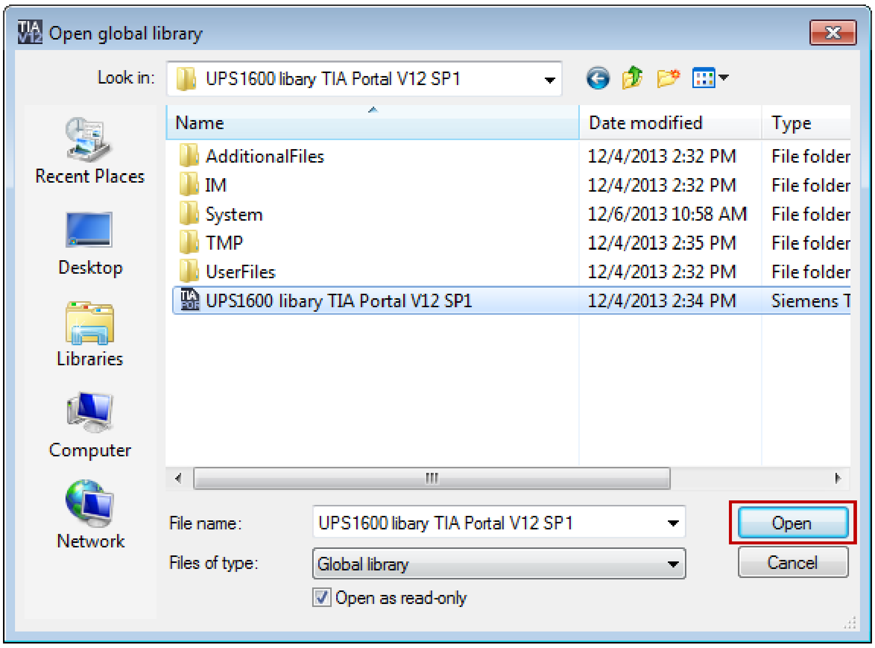
Opening the library in WinCC V12

The following steps describe how to open a library in WinCC Professional V12.

Table 10-2

No.	Procedure
1.	Open WinCC V12 in the Project view.  No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. Project Factory created.

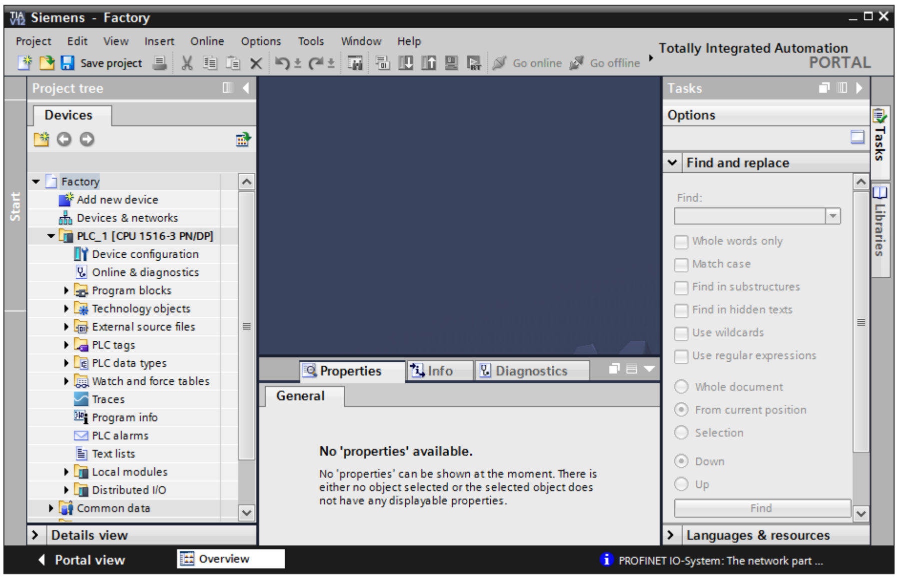
No.	Procedure
2.	Open the "Libraries" task card.  Siemens - Factory Project Edit View Insert Online Options Tools Window Help Save project Go online Totally Integrated Automation PORTAL Project tree Devices Factory Add new device Devices & networks Common data Documentation setti... Languages & reso... Online access Card Reader/USB me... Start Details view Name Properties Info Diagnostics General Libraries Options Library view Project library All Types Master copies Global libraries Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP Info (Global libraries) Tasks Libraries Portal view Overview No 'properties' available. No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties. Library WinAC_MP was opened.
3.	Under the "Global libraries" palette, click on the second icon from the left to open a global library.  Libraries Options Library view Project library Global libraries Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP Info (Global libraries) The "Open global library" dialog box opens.
4.	In the "Look in:" drop-down list, select the storage location of the library on your computer.

No.	Procedure
5.	Click the "Open" button. Open global library Look in: UPS1600 libary TIA Portal V12 SP1 Name — Date modified — Type AdditionalFiles — 12/4/2013 2:32 PM — File folder IM — 12/4/2013 2:32 PM — File folder System — 12/6/2013 10:58 AM — File folder TMP — 12/4/2013 2:35 PM — File folder UserFiles — 12/4/2013 2:32 PM — File folder UPS1600 libary TIA Portal V12 SP1 — 12/4/2013 2:34 PM — Siemens T File name: UPS1600 libary TIA Portal V12 SP1 Files of type: Global library ☑ Open as read-only Recent Places Desktop Libraries Computer Network Open Cancel The library is opened and displayed in the "Global libraries" palette.

Inserting screen windows into a project

The following table describes the procedure for integrating the screen windows from the master copy "UPS1600 HMI Faceplates (WinCC Professional V12)" of the library "UPS1600 library TIA Portal V12" into an existing WinCC V12 project.

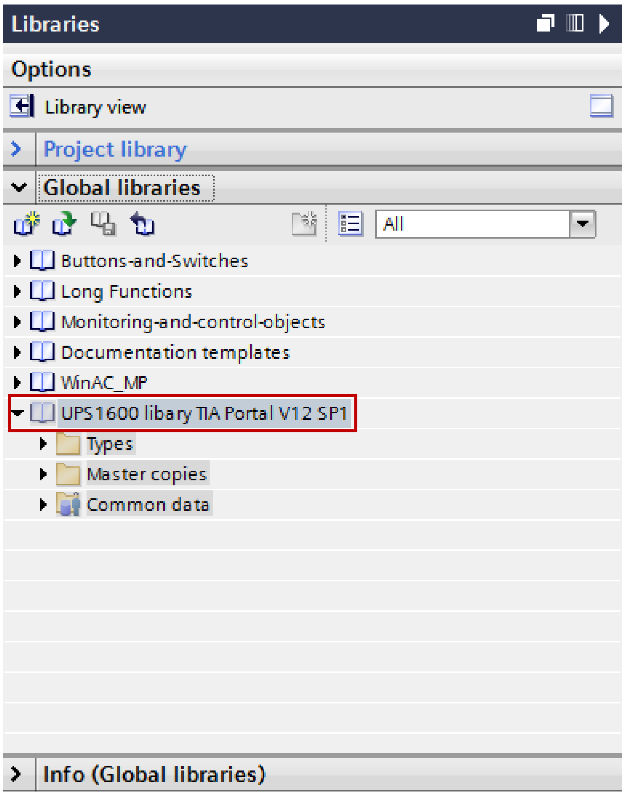
Table 10-3

No.	Procedure
1.	In the Project view, open the project into which you want to insert the screen windows. 

No 'properties' available.

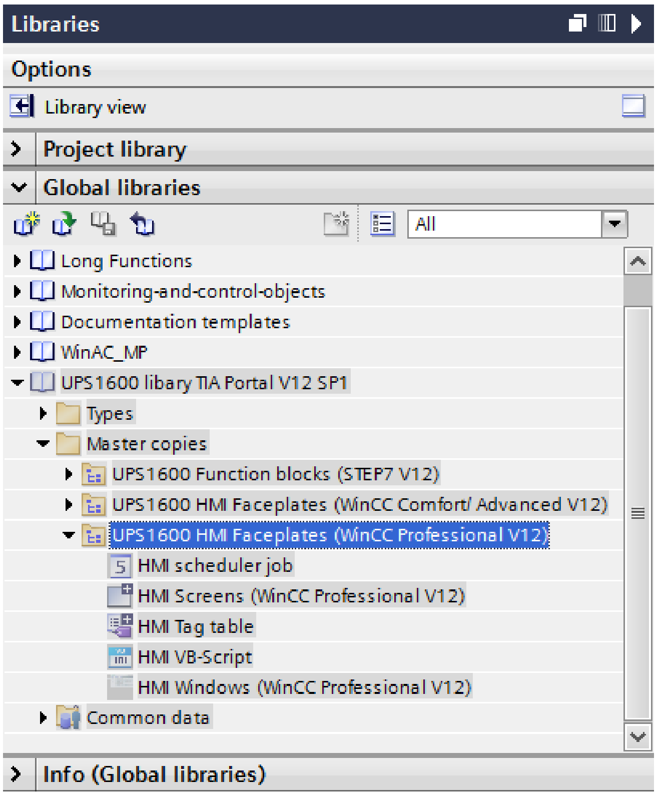
No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.

PROFINET IO-System: The network part ...

No.	Procedure
2.	Open the global library"UPS1600 library TIA Portal V12".  Libraries Options Library view Project library Global libraries All Buttons-and-Switches Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP UPS1600 libary TIA Portal V12 SP1 Types Master copies Common data Info (Global libraries)

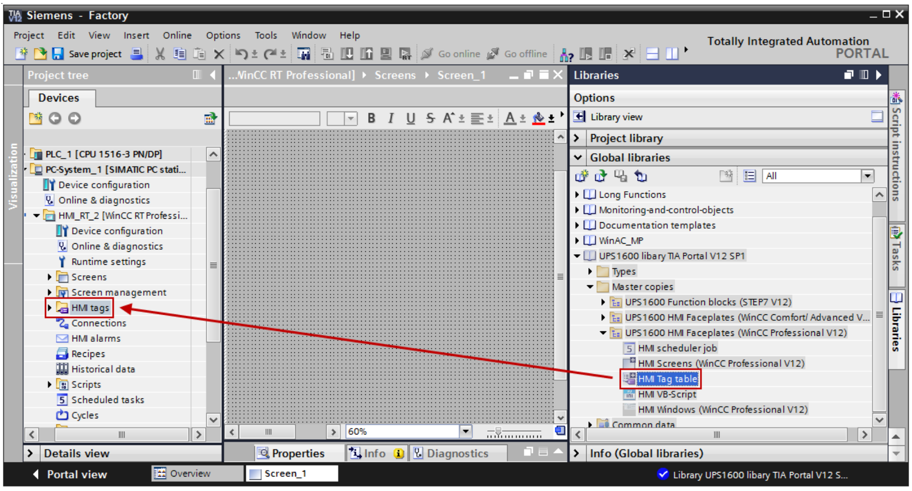
<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>3.</td><td>

Open the folder "Master copies > UPS1600 HMI Faceplates (WinCC Professional V12)" in the library.

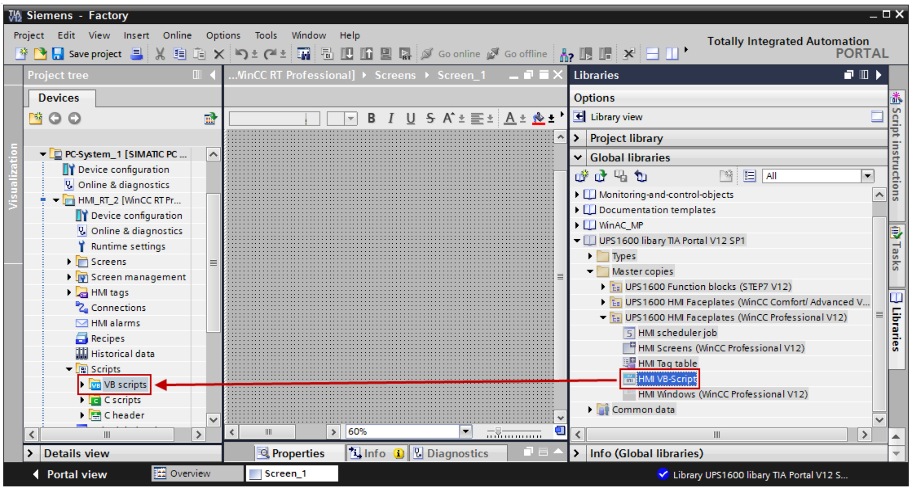
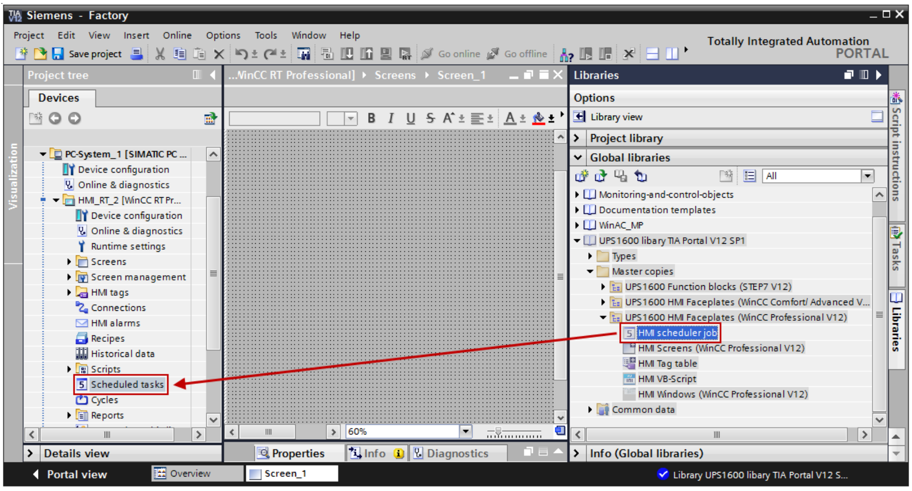

Libraries
Options
Library view
Project library
Global libraries
All
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
UPS1600 libary TIA Portal V12 SP1
Types
Master copies
UPS1600 Function blocks (STEP7 V12)
UPS1600 HMI Faceplates (WinCC Comfort/ Advanced V12)
UPS1600 HMI Faceplates (WinCC Professional V12)
HMI scheduler job
HMI Screens (WinCC Professional V12)
HMI Tag table
HMI VB-Script
HMI Windows (WinCC Professional V12)
Common data
Info (Global libraries)

</td></tr>
<tr><td>4.</td><td>Select the folder "HMI Tag table" in the library.</td></tr>
<tr><td>5.</td><td>

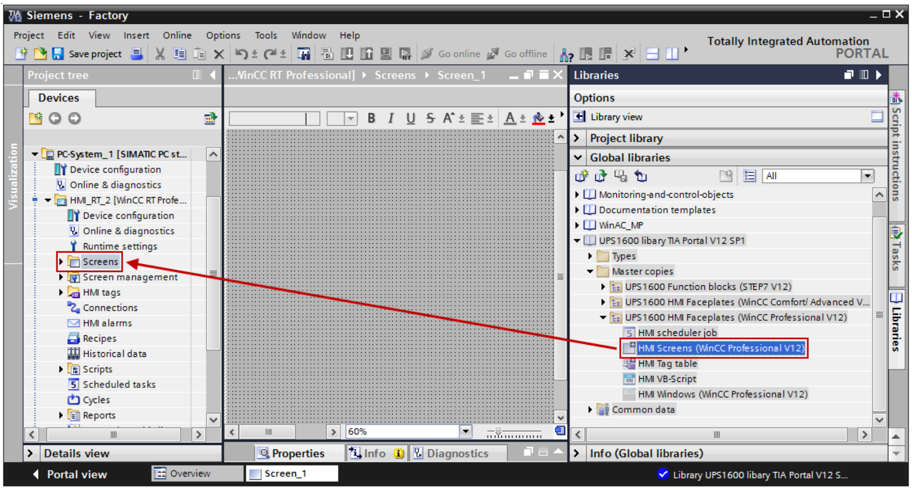
Drag and drop the folder "HMI Tag table" to the "HMI tags" folder in the project folder of your control panel.

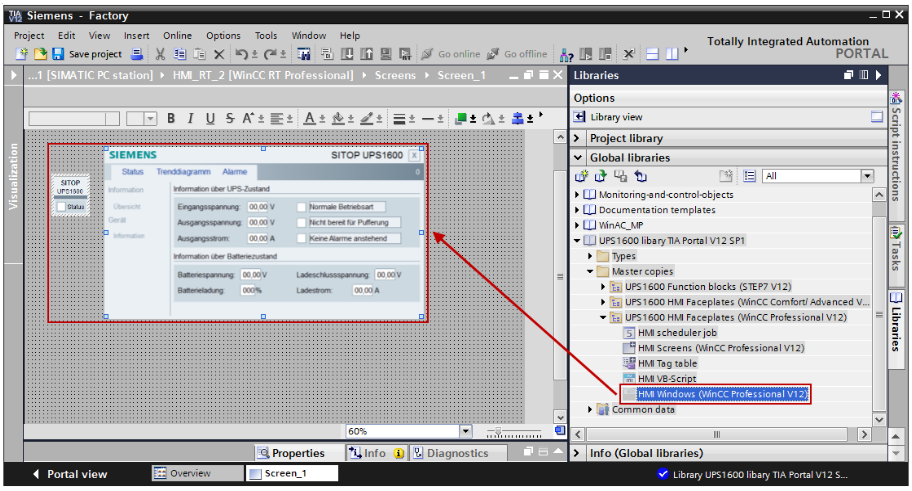


</td></tr>
<tr><td>6.</td><td>Select the folder "HMI VB-Script" in the library.</td></tr>
</table>

No.	Procedure
7.	Drag and drop the folder "HMI VB-Script" to the folder "Scripts > VB scripts" in the project folder of your control panel.  Siemens - Factory Totally Integrated Automation PORTAL Project tree Devices PC-System_1 [SIMATIC PC ... HMI_RT_2 [WinCC RT Pr... Scripts VB scripts C scripts C header ...WinCC RT Professional] ▸ Screens ▸ Screen_1 Libraries Global libraries UPS1600 libary TIA Portal V12 SP1 Master copies UPS1600 HMI Faceplates (WinCC Professional V12) HMI scheduler job HMI Screens (WinCC Professional V12) HMI Tag table HMI VB-Script HMI Windows (WinCC Professional V12) Portal view Overview Screen_1
8.	Select the folder "HMI scheduler job" in the library.
9.	Drag and drop the folder "HMI scheduler job" to the folder "Scheduled tasks" in the project folder of your control panel.  Siemens - Factory Totally Integrated Automation PORTAL Project tree Devices PC-System_1 [SIMATIC PC ... HMI_RT_2 [WinCC RT Pr... Scripts Scheduled tasks Cycles Reports Libraries Global libraries UPS1600 libary TIA Portal V12 SP1 Master copies UPS1600 HMI Faceplates (WinCC Professional V12) HMI scheduler job HMI Screens (WinCC Professional V12) HMI Tag table HMI VB-Script HMI Windows (WinCC Professional V12) Portal view Overview Screen_1
10.	Select the folder "HMI Screens (WinCC Professional V12)" in the library.

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>11.</td><td>Drag and drop the folder "HMI Screens (WinCC Professional V12)" to the folder "Screens" in the project folder of your control panel.


</td></tr>
<tr><td>12.</td><td>In your project, open the screen into which you want to insert the screen windows.</td></tr>
<tr><td>13.</td><td>Select the folder "HMI Windows (WinCC Professional V12)" in the library.</td></tr>
<tr><td>14.</td><td>Drag and drop the folder "HMI Windows (WinCC Professional V12)" to the screen.

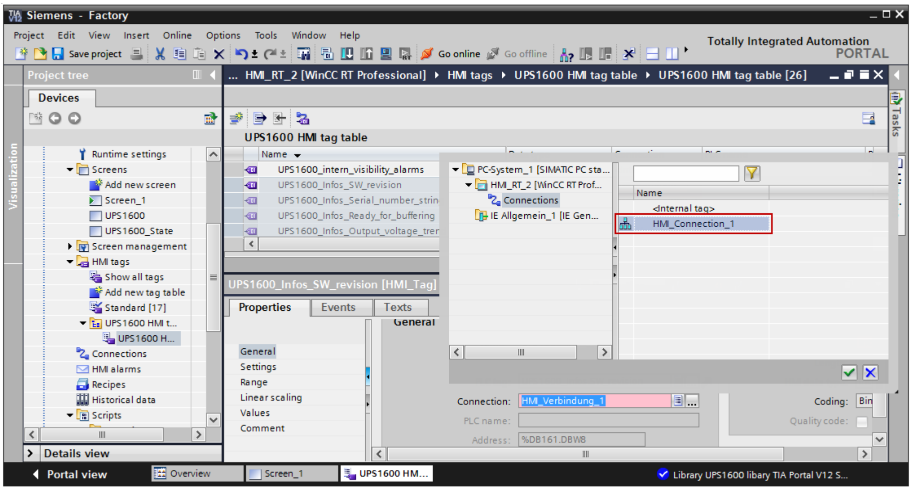

Siemens - Factory
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
Totally Integrated Automation
PORTAL
...1 [SIMATIC PC station] ▸ HMI_RT_2 [WinCC RT Professional] ▸ Screens ▸ Screen_1
Libraries
Options
Library view
Project library
Global libraries
All
Visualization
SIEMENS
SITOP UPS1600
Status
Trenddiagramm
Alarme
Information über UPS-Zustand
Eingangsspannung:
Ausgangsspannung:
Ausgangsstrom:
Normale Betriebsart
Nicht bereit für Pufferung
Keine Alarme anstehend
Information über Batteriezustand
Batteriespannung:
Batterieladung:
Ladeschlussspannung:
Ladestrom:
Monitoring-and-control-objects
Documentation templates
WinAC_MP
UPS1600 libary TIA Portal V12 SP1
Types
Master copies
UPS1600 Function blocks (STEP7 V12)
UPS1600 HMI Faceplates (WinCC Comfort/ Advanced V...
UPS1600 HMI Faceplates (WinCC Professional V12)
HMI scheduler job
HMI Screens (WinCC Professional V12)
HMI Tag table
HMI VB-Script
HMI Windows (WinCC Professional V12)
Common data
60%
Properties
Info
Diagnostics
Info (Global libraries)
Portal view
Overview
Screen_1
Library UPS1600 libary TIA Portal V12 S...
Script instructions
Tasks
Libraries

</td></tr>
<tr><td>15.</td><td>In the project folder, under "HMI tags > UPS1600 HMI tag table", open the tag table "UPS1600 HMI tag table".</td></tr>
</table>

<table>
<tr><th>No.</th><th>Procedure</th></tr>
<tr><td>16.</td><td>

Check the connection name entered for the control tags.

The connection name must be identical with the name of the connection you created in your project for the configured connection to your controller.



Siemens - Factory
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
Totally Integrated Automation PORTAL
Project tree
Devices
Visualization
Runtime settings
Screens
Add new screen
Screen_1
UPS1600
UPS1600_State
Screen management
HMI tags
Show all tags
Add new tag table
Standard [17]
UPS1600 HMI t...
UPS1600 H...
Connections
HMI alarms
Recipes
Historical data
Scripts
Details view
... HMI_RT_2 [WinCC RT Professional] ▸ HMI tags ▸ UPS1600 HMI tag table ▸ UPS1600 HMI tag table [26]
UPS1600 HMI tag table
Name
UPS1600_intern_visibility_alarms
UPS1600_Infos_SW_revision
UPS1600_Infos_Serial_number_strin
UPS1600_Infos_Ready_for_buffering
UPS1600_Infos_Output_voltage_trer
PC-System_1 [SIMATIC PC sta...
HMI_RT_2 [WinCC RT Prof...
Connections
IE Allgemein_1 [IE Gen...
Name
<Internal tag>
HMI_Connection_1
UPS1600_Infos_SW_revision [HMI_Tag]
Properties
Events
Texts
General
General
Settings
Range
Linear scaling
Values
Comment
Tasks
Portal view
Overview
Screen_1
UPS1600 HM...
Library UPS1600 libary TIA Portal V12 S...

Connection: HMI_Verbindung_1

PLC name:

Address: %DB161.DBW8

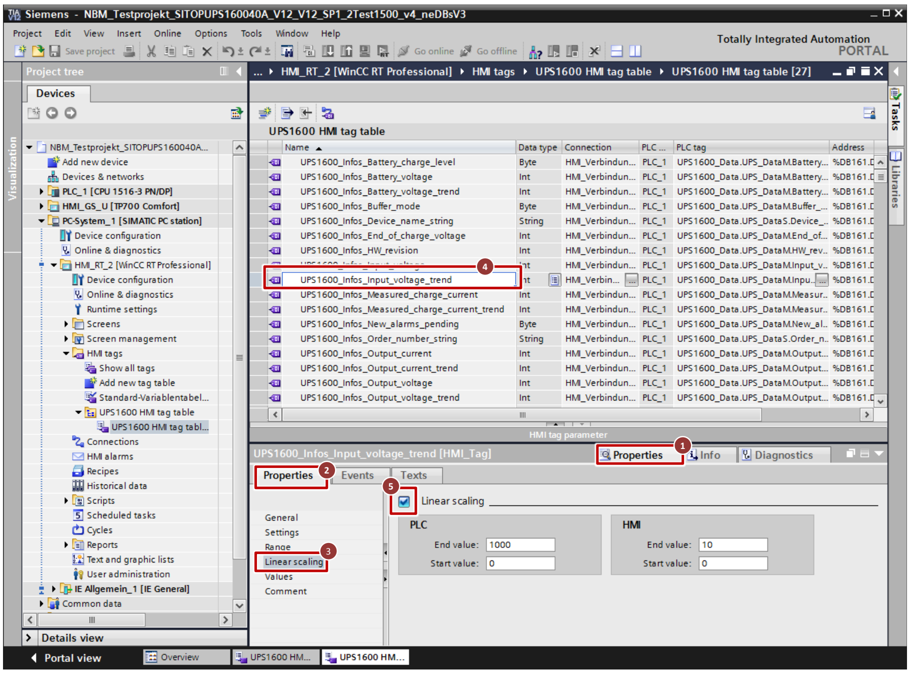
Coding: Bin

Quality code:

Note

Further information on this connection name is available in Chapter 10.2 under "HMI Tag table".

</td></tr>
</table>

No.	Procedure
17.	The scaling of tags has been stored in the library. Enable the following tags for scaling: - UPS1600_Infos_Battery_voltage_trend - UPS1600_Infos_Input_voltage_trend - UPS1600_Infos_Measured_charge_current - UPS1600_Infos_Measured_charge_current_trend - UPS1600_Infos_Output_current - UPS1600_Infos_Output_current_trend - UPS1600_Infos_Output_voltage_trend • Click the "Properties" tab and then "Linear scaling". • Select the respective tag in the tag table. • Enable the checkbox left from the heading "Linear scaling". • Repeat the process until linear scaling is enabled for all tags mentioned above. 

... ▸ HMI_RT_2 [WinCC RT Professional] ▸ HMI tags ▸ UPS1600 HMI tag table ▸ UPS1600 HMI tag table [27]

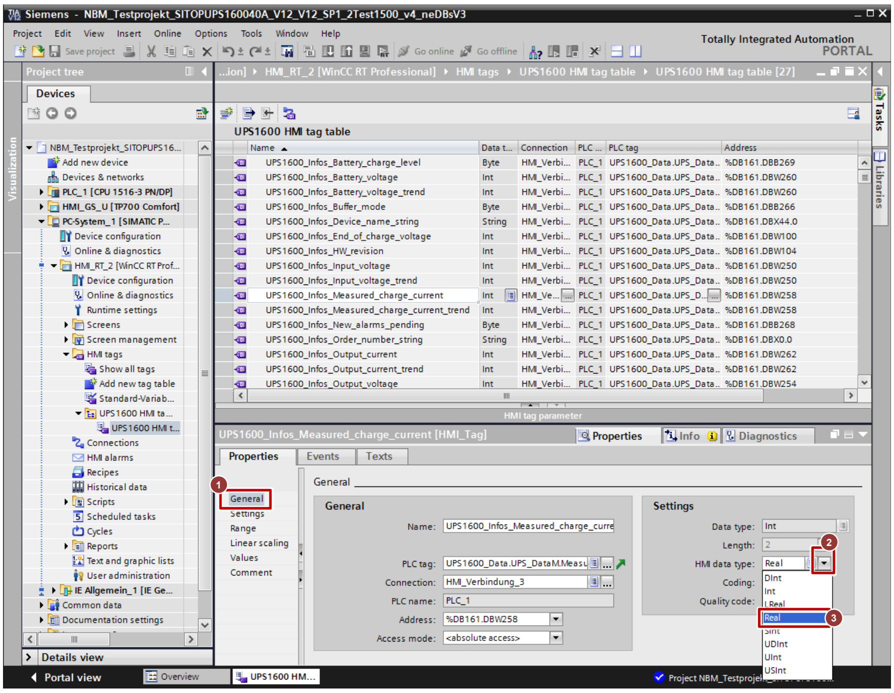
UPS1600 HMI tag table

Name	Data type	Connection	PLC ...	PLC tag	Address
UPS1600_Infos_Battery_charge_level	Byte	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Battery...	%DB161.[illegible]
UPS1600_Infos_Battery_voltage	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Battery...	%DB161.[illegible]
UPS1600_Infos_Battery_voltage_trend	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Battery...	%DB161.[illegible]
UPS1600_Infos_Buffer_mode	Byte	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Buffer_...	%DB161.[illegible]
UPS1600_Infos_Device_name_string	String	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataS.Device_...	%DB161.[illegible]
UPS1600_Infos_End_of_charge_voltage	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.End_of...	%DB161.[illegible]
UPS1600_Infos_HW_revision	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.HW_rev...	%DB161.[illegible]
[illegible]	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Input_v...	%DB161.[illegible]
UPS1600_Infos_Input_voltage_trend	Int	HMI_Verbin...	PLC_1	UPS1600_Data.UPS_DataM.Inpu...	%DB161.[illegible]
UPS1600_Infos_Measured_charge_current	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Measur...	%DB161.[illegible]
UPS1600_Infos_Measured_charge_current_trend	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Measur...	%DB161.[illegible]
UPS1600_Infos_New_alarms_pending	Byte	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.New_al...	%DB161.[illegible]
UPS1600_Infos_Order_number_string	String	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataS.Order_n...	%DB161.[illegible]
UPS1600_Infos_Output_current	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Output...	%DB161.[illegible]
UPS1600_Infos_Output_current_trend	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Output...	%DB161.[illegible]
UPS1600_Infos_Output_voltage	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Output...	%DB161.[illegible]
UPS1600_Infos_Output_voltage_trend	Int	HMI_Verbindun...	PLC_1	UPS1600_Data.UPS_DataM.Output...	%DB161.[illegible]

UPS1600_Infos_Input_voltage_trend [HMI_Tag]

1 Properties — 2 Properties — 3 Linear scaling — 4 UPS1600_Infos_Input_voltage_trend — 5 ☑ Linear scaling

	PLC	HMI
End value:	1000	10
Start value:	0	0

No.	Procedure
18.	Stay in "Properties" and click "General". Under "Settings", click the arrow beside "HMI data type". Select "Real" from the drop-down list for the following tags: - UPS1600_Infos_Battery_voltage - UPS1600_Infos_End_of_charge_voltage - UPS1600_Infos_Input_voltage - UPS1600_Infos_Measured_charge_current - UPS1600_Infos_Output_current - UPS1600_Infos_Output_voltage_trend 

Siemens - NBM_Testprojekt_SITOPUPS160040A_V12_V12_SP1_2Test1500_v4_neDBsV3
Project Edit View Insert Online Options Tools Window Help
Totally Integrated Automation PORTAL
Project tree
...ion] ▸ HMI_RT_2 [WinCC RT Professional] ▸ HMI tags ▸ UPS1600 HMI tag table ▸ UPS1600 HMI tag table [27]
Devices
Tasks
Libraries
HMI tag parameter
1
2
3
Portal view
Overview
UPS1600 HM...

UPS1600 HMI tag table

Name	Data t...	Connection	PLC ...	PLC tag	Address
UPS1600_Infos_Battery_charge_level	Byte	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBB269
UPS1600_Infos_Battery_voltage	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW260
UPS1600_Infos_Battery_voltage_trend	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW260
UPS1600_Infos_Buffer_mode	Byte	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBB266
UPS1600_Infos_Device_name_string	String	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBX44.0
UPS1600_Infos_End_of_charge_voltage	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW100
UPS1600_Infos_HW_revision	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW104
UPS1600_Infos_Input_voltage	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW250
UPS1600_Infos_Input_voltage_trend	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW250
UPS1600_Infos_Measured_charge_current	Int	HMI_Ve...	PLC_1	UPS1600_Data.UPS_D...	%DB161.DBW258
UPS1600_Infos_Measured_charge_current_trend	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW258
UPS1600_Infos_New_alarms_pending	Byte	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBB268
UPS1600_Infos_Order_number_string	String	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBX0.0
UPS1600_Infos_Output_current	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW262
UPS1600_Infos_Output_current_trend	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW262
UPS1600_Infos_Output_voltage	Int	HMI_Verbi...	PLC_1	UPS1600_Data.UPS_Data..	%DB161.DBW254

UPS1600_Infos_Measured_charge_current [HMI_Tag]

Properties | Events | Texts

General

General

Name: UPS1600_Infos_Measured_charge_curre

PLC tag: UPS1600_Data.UPS_DataM.Measu

Connection: HMI_Verbindung_3

PLC name: PLC_1

Address: %DB161.DBW258

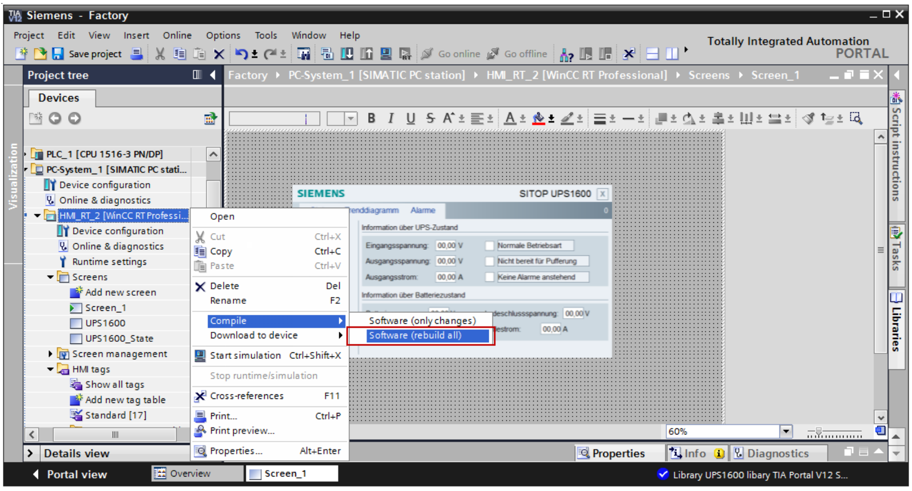
Access mode: <absolute access>

Settings

Data type: Int

Length: 2

HMI data type: Real

No.	Procedure
19.	Right-click on the project folder and select the context menu item "Compile > Software (rebuild all)". 

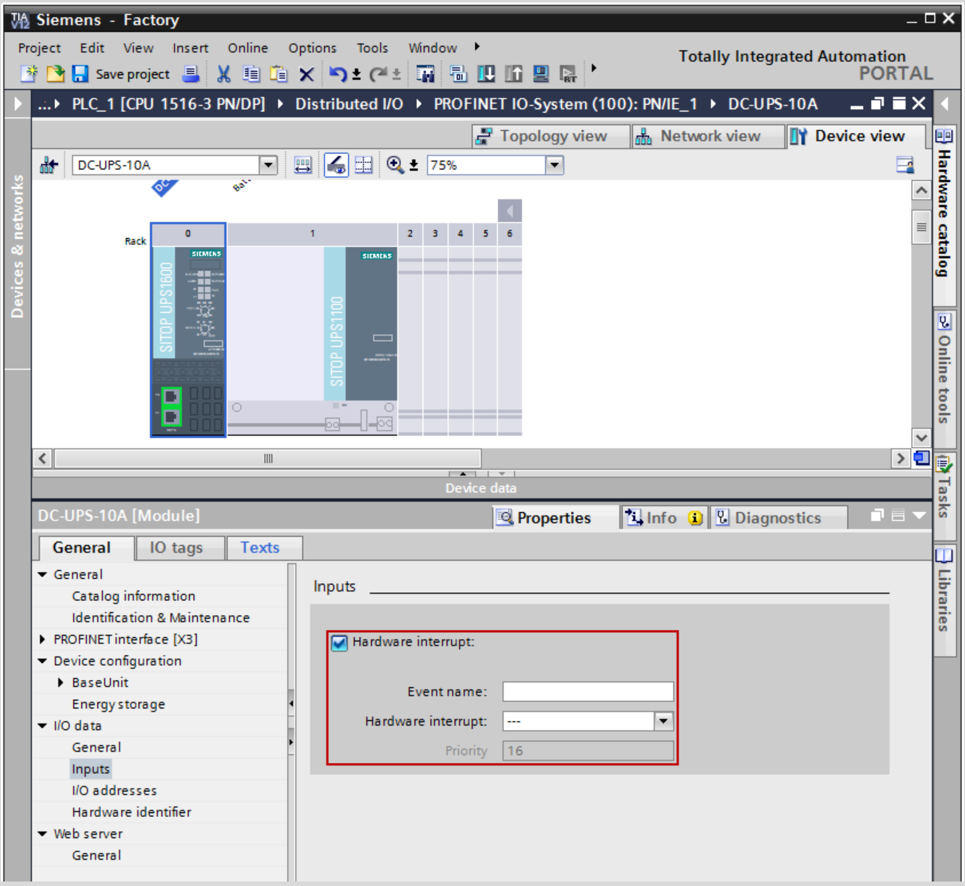
The integration of the screen windows is thus completed.

Displaying the PROFINET diagnostic messages

In order to display the PROFINET diagnostic messages of the SITOP UPS1600 within the screen windows, the respective WinCC TIA Portal project must already be configured for the display of PROFINET diagnostic messages.

Information on the display and configuration of diagnostic messages in WinCC TIA Portal is available under the entry ID: 62121503.

Note The activation of the PROFINET diagnostic messages of the SITOP UPS1600 can be found in the Device view of the UPS1600.



Inputs

☑ Hardware interrupt:

Event name:

Hardware interrupt: ---

Priority 16

Further notes regarding the PROFINET diagnostic messages of the SITOP UPS1600 are available in the SITOP UPS1600 User Manual in Chapter 3.2.1.

10.4 Interface description

The following chapter describes all tags that are contained in the library object "HMI Tag table" and required for the functioning of the screen windows.

The following tables provide the definition of the tags.

Internal tag

Table 10-4

WinCC TIA Portal tag
Faceplate_intern_visibility_alarm
Internal tag
Data type: Int
Faceplate_intern_visibility_headline
Internal tag
Data type: Int
Faceplate_intern_visibility_main
Internal tag
Data type: Int
Faceplate_intern_visibility_state
Internal tag
Data type: Int
Faceplate_intern_visibility_trends
Internal tag
Data type: Int

Control tags

WinCC TIA Portal tag
UPS1600_Infos.Battery_charge_level
Data type: Byte
Address: DB 161 DBB 269
Length: 1
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.Battery_voltage / UPS1600_Infos.Battery_voltage_trend
Data type: Int
Address: DB 161 DBW 260
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
Linear scaling: 1000 : 10
UPS1600_Infos.Buffer_mode
Data type: Byte
Address: DB 161 DBB 266
Length: 1

WinCC TIA Portal tag
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.Device_name_string
Data type: String
Address: DB 161 DBX 44.0
Length: 20
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.End_of_charge_voltage
Data type: Int
Address: DB 161 DBW 100
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
Linear scaling: 1000 : 10
UPS1600_Infos.HW_revision
Data type: Int
Address: DB 161 DBW 104
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.Input_voltage / UPS1600_Infos.Input_voltage_trend
Data type: Int
Address: DB 161 DBW 250
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
Linear scaling: 1000 : 10
UPS1600_Infos.Measured_charge_current
Data type: Int
Address: DB 161 DBW 258
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
Linear scaling: 1000 : 10
UPS1600_Infos.New_alarms_pending
Data type: Byte
Address: DB 161 DBB 268
Length: 1
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.Order_number_string
Data type: String

WinCC TIA Portal tag
Address: DB 161 DBX 0.0
Length: 20
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.Output_current / UPS1600_Infos.Output_current_trend
Data type: Int
Address: DB 161 DBW 262
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
Linear scaling: 1000 : 5
UPS1600_Infos.Output_voltage / UPS1600_Infos.Output_voltage_trend
Data type: Int
Address: DB 161 DBW 254
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
Linear scaling: 1000 : 10
UPS1600_Infos.Ready_for_buffering
Data type: Byte
Address: DB 161 DBB 267
Length: 1
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.Serial_number_string
Data type: String
Address: DB 161 DBX 22.0
Length: 20
Acquisition cycle: 1s
Acquisition mode: Cyclic on use
UPS1600_Infos.SW_revision
Data type: Int
Address: DB 161 DBW 106
Length: 2
Acquisition cycle: 1s
Acquisition mode: Cyclic on use

11 Related Literature

Internet link specifications

The following list is not complete and only represents a selection of relevant information.

Table 11-1

	Topic	Title
\1\	Link to this document	http://support.automation.siemens.com/WW/view/en/78817848
\2\	Siemens Industry Online Support	http://support.automation.siemens.com
\3\	SITOP UPS1600 Manual	http://support.automation.siemens.com/WW/view/en/84977415
\4\	STEP 7 Professional V12 System Manual	http://support.automation.siemens.com/WW/view/en/77991795
\5\	WinCC Advanced V12.0 SP1 System Manual	http://support.automation.siemens.com/WW/view/en/78318776
\6\	SIMATIC Programming with STEP 7 V5.5	http://support.automation.siemens.com/WW/view/en/45531107
\7\	WinCC flexible 2008 System Manual	http://support.automation.siemens.com/WW/view/en/18796010
\8\	WinCC System Manual	http://support.automation.siemens.com/WW/view/en/73506085
\9\	GSD for SITOP UPS1600 for integration into STEP 7 V5	http://support.automation.siemens.com/WW/view/en/75854605
\10\	HSP for SITOP UPS1600 for integration into STEP 7 V12 TIA	http://support.automation.siemens.com/WW/view/en/75854606

12 History

Table 12-1

Version	Date	Modifications
V1.0	2/2014	First version
V1.1	12/2014	SITOP UPS1600, 2nd delivery stage