

**SIEMENS**

*Ingenuity for life*



# Connecting a SIMATIC HMI Panel with a SIMATIC S7-1500R/H

WinCC TIA Portal / V16 / Comfort Panels, Basic Panels,  
S7-1517R/H

<https://support.industry.siemens.com/cs/ww/en/view/109781687>

Siemens  
Industry  
Online  
Support



## Legal information

### Use of application examples

Application examples illustrate the solution of automation tasks through an interaction of several components in the form of text, graphics and/or software modules. The application examples are a free service by Siemens AG and/or a subsidiary of Siemens AG ("Siemens"). They are non-binding and make no claim to completeness or functionality regarding configuration and equipment. The application examples merely offer help with typical tasks; they do not constitute customer-specific solutions. You yourself are responsible for the proper and safe operation of the products in accordance with applicable regulations and must also check the function of the respective application example and customize it for your system.

Siemens grants you the non-exclusive, non-sublicensable and non-transferable right to have the application examples used by technically trained personnel. Any change to the application examples is your responsibility. Sharing the application examples with third parties or copying the application examples or excerpts thereof is permitted only in combination with your own products. The application examples are not required to undergo the customary tests and quality inspections of a chargeable product; they may have functional and performance defects as well as errors. It is your responsibility to use them in such a manner that any malfunctions that may occur do not result in property damage or injury to persons.

### Disclaimer of liability

Siemens shall not assume any liability, for any legal reason whatsoever, including, without limitation, liability for the usability, availability, completeness and freedom from defects of the application examples as well as for related information, configuration and performance data and any damage caused thereby. This shall not apply in cases of mandatory liability, for example under the German Product Liability Act, or in cases of intent, gross negligence, or culpable loss of life, bodily injury or damage to health, non-compliance with a guarantee, fraudulent non-disclosure of a defect, or culpable breach of material contractual obligations. Claims for damages arising from a breach of material contractual obligations shall however be limited to the foreseeable damage typical of the type of agreement, unless liability arises from intent or gross negligence or is based on loss of life, bodily injury or damage to health. The foregoing provisions do not imply any change in the burden of proof to your detriment. You shall indemnify Siemens against existing or future claims of third parties in this connection except where Siemens is mandatorily liable.

By using the application examples you acknowledge that Siemens cannot be held liable for any damage beyond the liability provisions described.

### Other information

Siemens reserves the right to make changes to the application examples at any time without notice. In case of discrepancies between the suggestions in the application examples and other Siemens publications such as catalogs, the content of the other documentation shall have precedence.

The Siemens terms of use (<https://support.industry.siemens.com>) shall also apply.

### Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the Internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place. For additional information on industrial security measures that may be implemented, please visit <https://www.siemens.com/industrialsecurity>.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed at: <https://www.siemens.com/industrialsecurity>.

# Table of contents

<b>Legal information</b> .....	<b>2</b>
<b>1 Introduction</b> .....	<b>4</b>
1.1 Overview.....	4
1.2 Task.....	4
1.3 Scope of the application example .....	4
1.4 Components used .....	5
<b>2 Redundantly linking a SIMATIC Panel to an S7-1500R/H controller</b> .....	<b>6</b>
2.1 Panel directly in the redundant PROFINET ring .....	6
2.2 Panel in redundant PROFINET ring via a switch .....	11
<b>3 Linking a SIMATIC Panel to an S7-1500R/H controller</b> .....	<b>16</b>
3.1 Creating connections.....	17
3.2 Creating tags .....	21
3.3 Creating scripts .....	23
3.4 Task scheduler .....	24
3.5 "20_PlCMonitoring" screen .....	25
<b>4 Evaluating the operating state of the connection</b> .....	<b>26</b>
4.1 Evaluating the PLC state.....	26
4.1.1 Parameterization of "R_H_Sys_Status" (FB3) .....	27
4.1.2 Parameterization of "plcStateEvaluation" (FB102).....	30
4.1.3 "MonitoringS7_1500" library.....	31
4.2 HMI configuration for Comfort Panel.....	32
4.2.1 Tags.....	32
4.2.2 Faceplate.....	34
4.2.3 Script "plcStopMonitoring" .....	34
4.2.4 Task scheduler .....	34
4.2.5 "20_PlCMonitoring" screen .....	35
4.3 HMI configuration for KTP1200 Basic .....	36
<b>5 Appendix</b> .....	<b>37</b>
5.1 Service and support .....	37
5.2 Links and literature .....	38
5.3 Change documentation .....	38

# 1 Introduction

## 1.1 Overview

### Redundant system S7-1500R/H

In an S7-1500R/H redundant system, the CPUs are duplicated (i.e. redundantly available). Both CPUs process the same project data and the same user program in parallel. Both CPUs synchronize over two redundancy connections. If one CPU fails, the other CPU maintains control over the process.

### HMI operator device on a S7-1500R/H

If an HMI operator device is connected to a redundant system such as the S7-1500R/H, the operator device must be connected to the active CPU.

There are two ways of switching over to the active CPU:

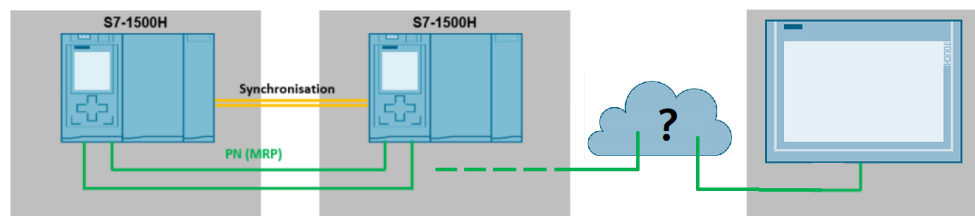
- The SIMATIC S7-1500R/H controller can be configured in such a way that, should one PLC module fail, the HMI operator device will automatically connect with the second, still running, PLC module.
- Alternatively, there is the option of switching from the failed PLC module to the running PLC module with the help of a script in the HMI configuration.

## 1.2 Task

You wish to connect an HMI operator device with a SIMATIC S7-1500R/H controller.

You also want to evaluate the current status of each CPU (Stop/Run).

Figure 1-1



## 1.3 Scope of the application example

The application example describes:

- how to redundantly link a SIMATIC Comfort Panel or a SIMATIC Basic Panel to an S7-1500R/H controller.
- how to link a SIMATIC Comfort Panel to an S7-1500R/H controller and switch the connection using scripts.
- how to evaluate the operating mode of the S7-1500R/H controller with a function block and output it via the HMI operator device.

## 1.4 Components used

The following hardware and software components were used to create this application example:

Table 1-1

Components	Quantity	Item number	Note
SIMATIC WinCC TIA Portal V16	1	6AV210.-....6-0	Alternatively, a newer version
SIMATIC STEP 7 Professional V16	1	6ES7822-1AA06-0YA5	Alternatively, a newer version
CPU 1517H-3 PN	2	6ES7517-3HP00-0AB0	--
TP1200 Comfort	1	6AV2124-0MC01-0AX0	--
KTP1200 Basic	1	6AV2123-2MB03-0AX0	--
SCALANCE X308-2	1	6GK5308-2GG00-2AA2	--

This application example consists of the following components:

Table 1-2

Components	File name	Note
Documentation	109781687_Panels_and_1500H_DOC_en	--
HMI library	109781687_S7_1500H_Monitoring_Lib	
Project_01	109781687_S7_1500H_Monitoring_MRP	
Project_02	109781687_S7_1500H_ChangeConnection	



## 2 Redundantly linking a SIMATIC Panel to an S7-1500R/H controller

If a redundant connection between the HMI operator device and the controller is required, then use the X1 interfaces on the PLC modules. If one connection between the PLC and the operator device fails, then there is always another connection via the second port of the operator device.

The switchover of the connection between an HMI operator device and the S7-1500H controller will occur automatically in this case.

### Note

The configuration for this chapter can be found in the project "109781687\_S7\_1500H\_Monitoring\_MRP".

### Connection between panel ↔ PLC via the "X1 P1 R" and "X1 P2 R" PROFINET interfaces

The operator device is integrated in the redundant PROFINET ring of PLC modules directly via the "X1 P1 R" and "X1 P2 R" PROFINET interfaces.

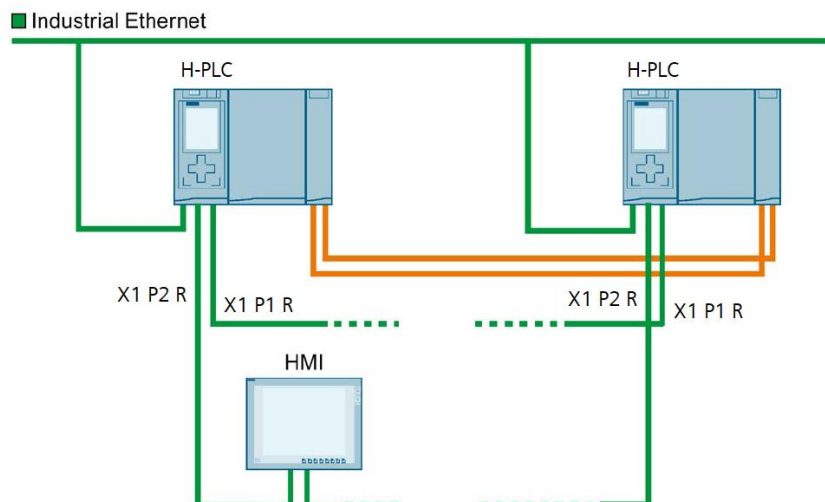
- The PROFINET ring is based on media redundancy (MRP). Media redundancy is a function that ensures network and system availability.
- All PROFINET devices in this PROFINET ring must support media redundancy (MRP). A detailed description of the "MRP" topic can be found here: [\3](#).
- The interface has the advantage that, in the event of an error (failure of a CPU), the connection to the HMI operator device remains intact **without** additional configuration effort.

### 2.1 Panel directly in the redundant PROFINET ring

In this chapter, the HMI operator device is integrated directly via the PLC PROFINET interfaces "X1 P1 R" and "X1 P2 R".

The HMI operator device must have **two** ports in order to do this.

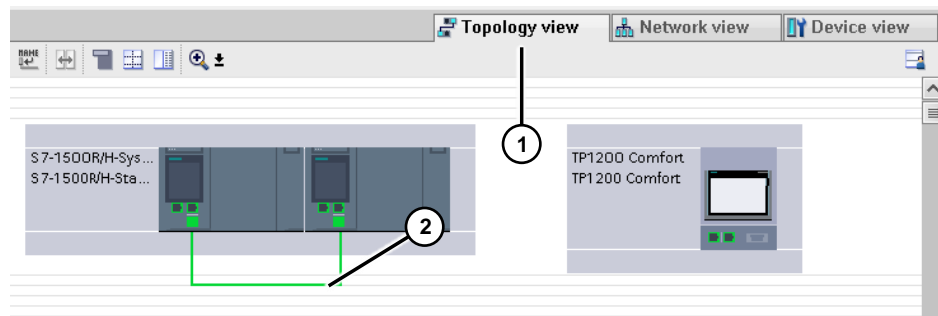
Figure 2-1



### Creating a connection

1. Use the Project tree to open the device configuration of the first PLC module and then select "Topology view" (1).  
The X1 PROFINET interface "Port\_2 [X1 P2]" is already networked with both PLC modules by default (2).

Figure 2-2



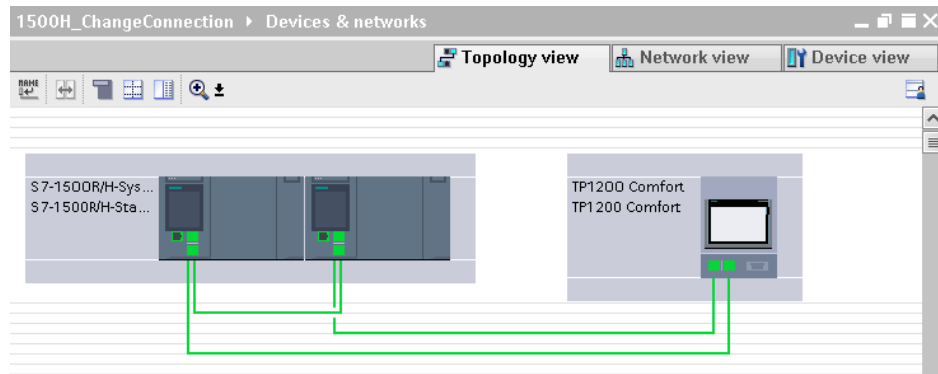
2. Network the "X1" PLC interfaces and the interfaces of the Comfort Panel such that they form a closed ring.

To use the example:

PLC\_2\Port\_1 [X1 P1 R]  
PLC\_1\Port\_1 [X1 P1 R]

<< >> TP900 Comfort\_CP\_1\Port\_1  
<< >> TP900 Comfort\_CP\_1\Port\_2

Figure 2-3



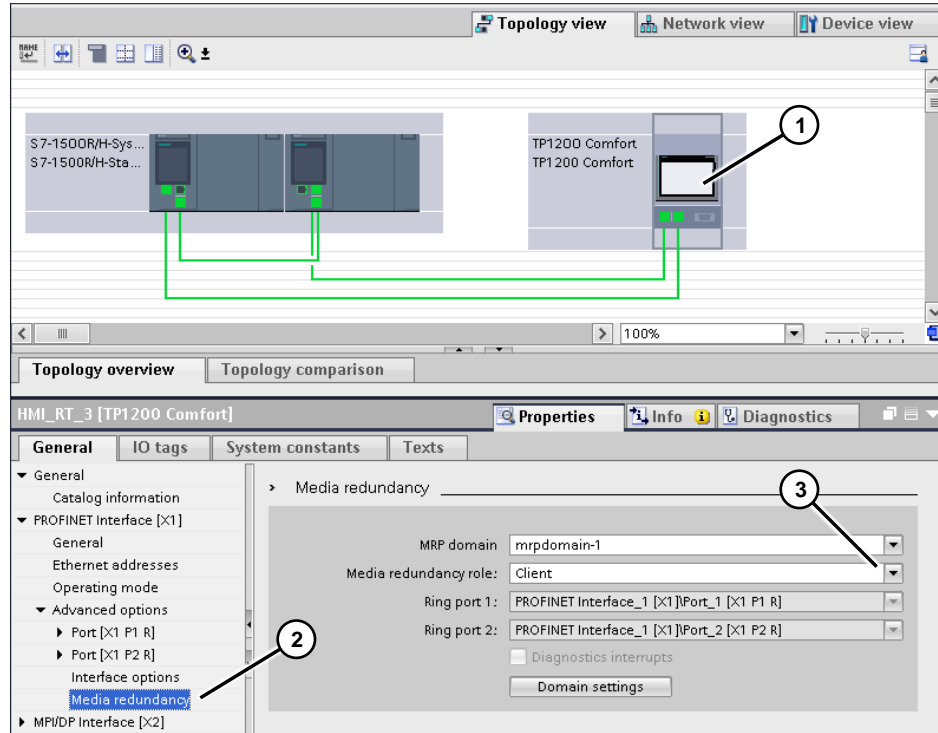
**Note**

You must network the devices on the hardware level exactly as you have arranged them in the configuration.

## 2 Redundantly linking a SIMATIC Panel to an S7-1500R/H controller

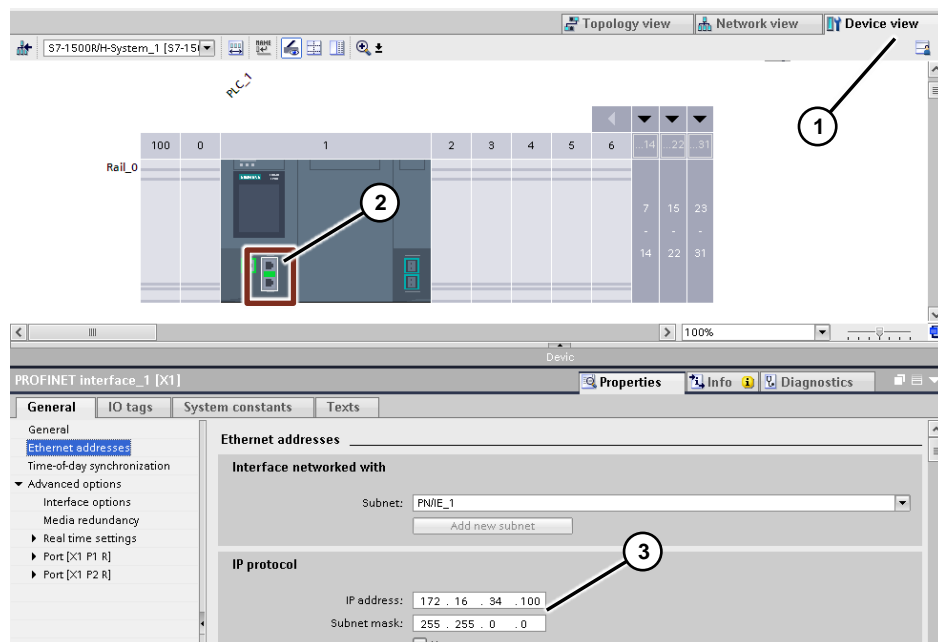
3. Select the Comfort Panel (1) and open the "Media redundancy" menu item (2) via the Properties.  
(PROFINET interface [X1] > Advanced options > Media redundancy).  
Use the drop-down list under "Media redundancy role" (3) to select the option "Client".

Figure 2-4



4. Switch to the "Device view" (1). Select the "X1" PROFINET interface of the first PLC (2) and specify an IP address (3) for the first PLC under the "Ethernet addresses" menu.

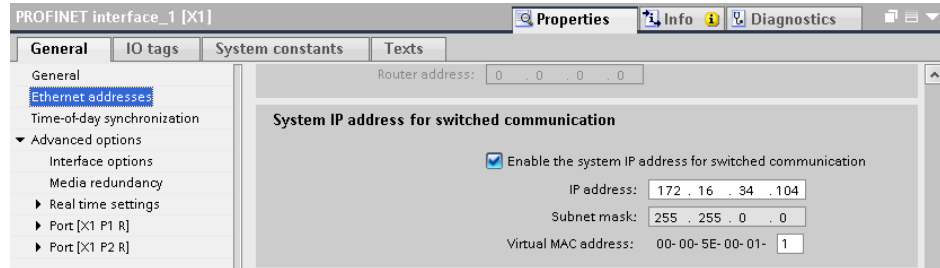
Figure 2-5





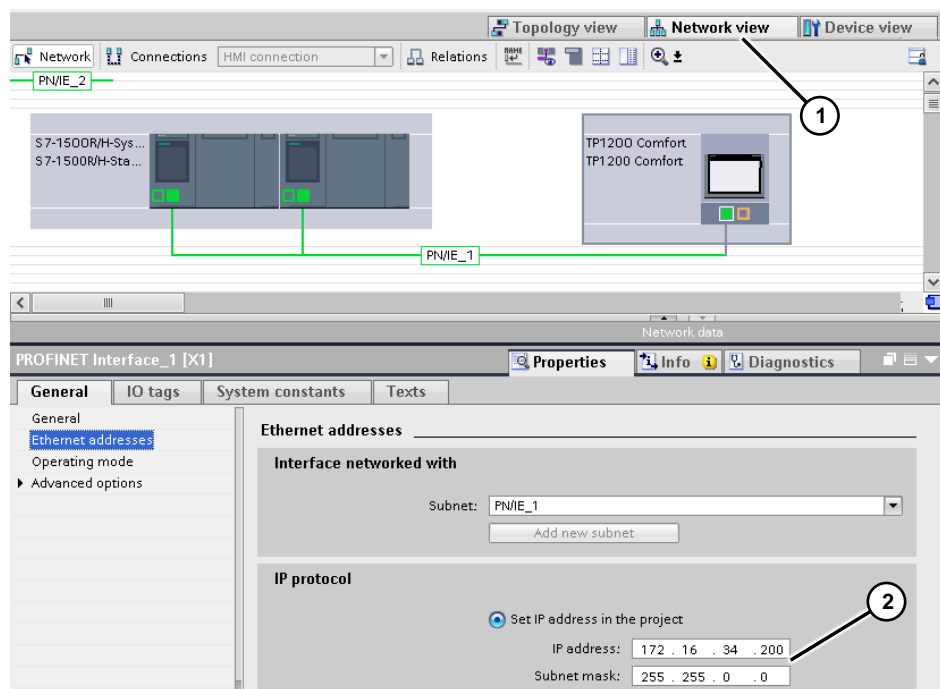
- In the section below, enable the option "Enable system IP address for switched communication" and enter an IP address. The HMI operator device will use this IP address to communicate with the PLC. Make sure that the IP address is in the same IP range as the IP address specified previously.

Figure 2-6



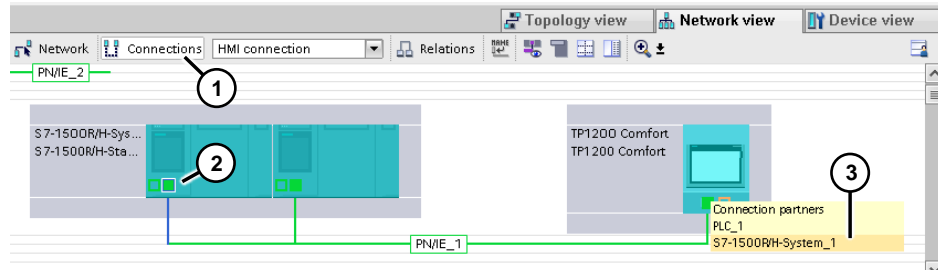
- Click an "empty" field in the Device view and scroll to the second PLC module. There, select the "Ethernet addresses" menu item and enter an IP address. In the section below that, the configuration of the first PLC has already enabled the option "Enable system IP address for switched communication".
- Switch to the Network view (1). Highlight the Comfort Panel and select the menu item "Ethernet addresses" via the properties. Enter an IP address (2).

Figure 2-7



## 2 Redundantly linking a SIMATIC Panel to an S7-1500R/H controller

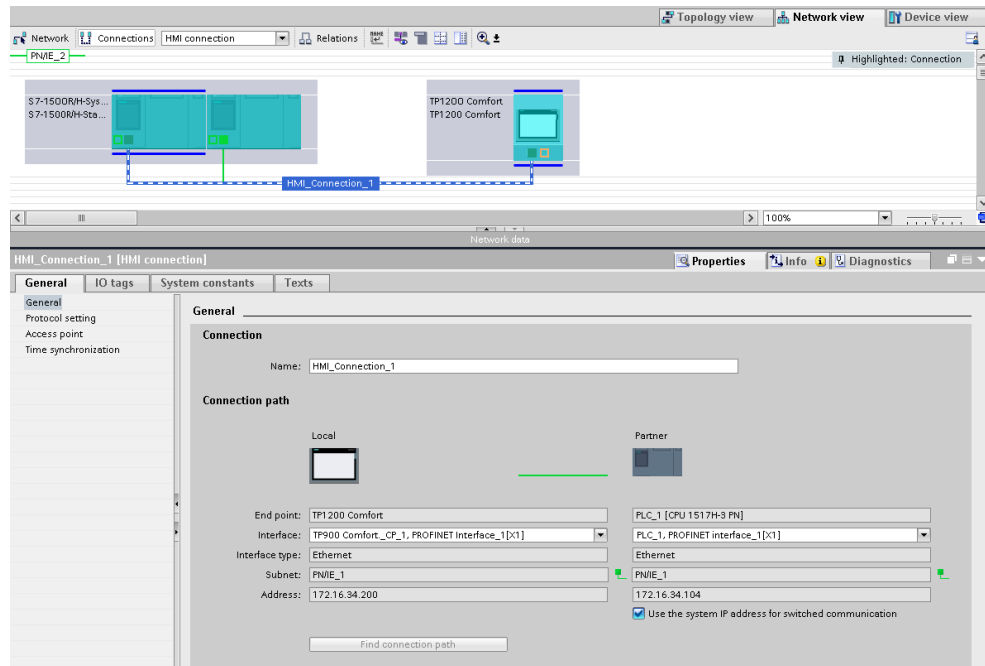
8. In the Network view, select the "Connections" tab (1).  
Left-click to select the "X1" interface (2) of the first PLC, then hold down the left mouse button and drag a connection to the Ethernet interface of the HMI operator device. A selection window opens.  
Here, select "S7-1500R/H-System\_1" (3).  
Figure 2-8



The settings in the hardware configuration are now complete.

The figure below shows an overview of the configured network.  
(Network view > Connections. Left-click on the HMI connection and select a connection. Then click on the connection again).

Figure 2-9

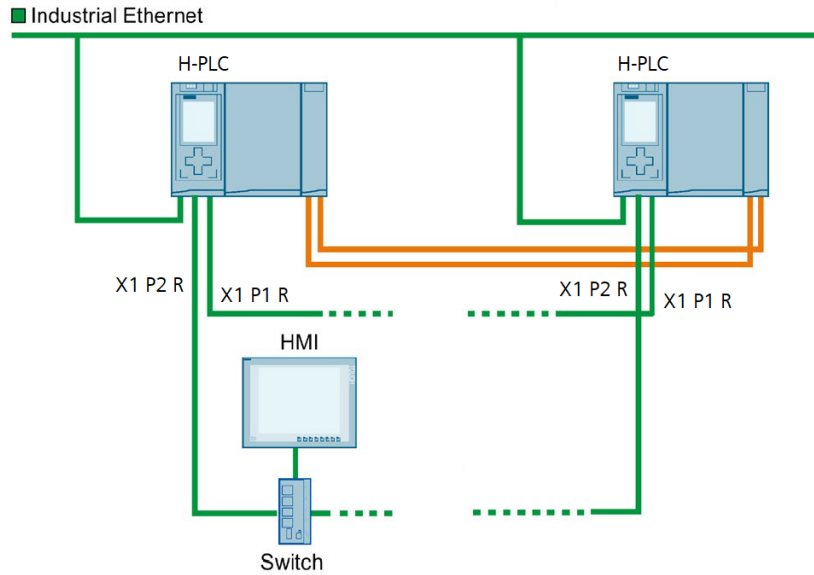


## 2.2 Panel in redundant PROFINET ring via a switch

In this chapter, the HMI operator device is integrated directly into the "X1 P1 R" and "X1 P2 R" PLC PROFINET interfaces via an MRP-capable switch.

In comparison to the previous configuration, the HMI operator device is only connected with the PLC modules by only **one** port (Ethernet cable).

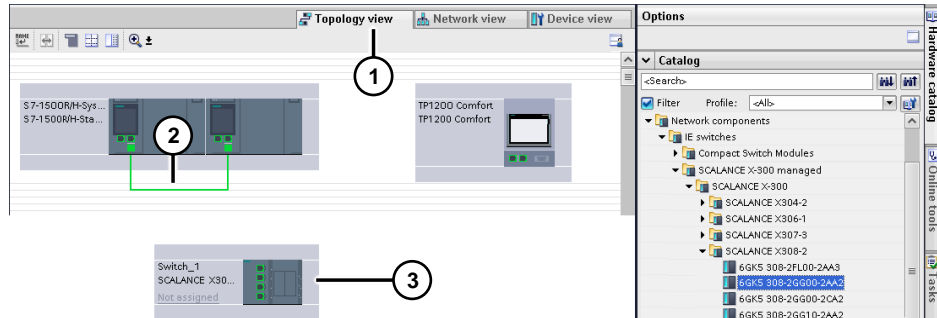
Figure 2-10



### Creating a connection

1. Use the Project tree to open the device configuration of the first PLC module and then select "Topology view" (1).  
By default, the PROFINET X1 interface is already networked (2) with both PLC modules.  
Add an MRP-capable switch from the catalog, in this case a SCALANCE X308-2 (3).

Figure 2-11



2. Network the PLC interfaces and the SCALANCE X308 so that they form a closed ring.

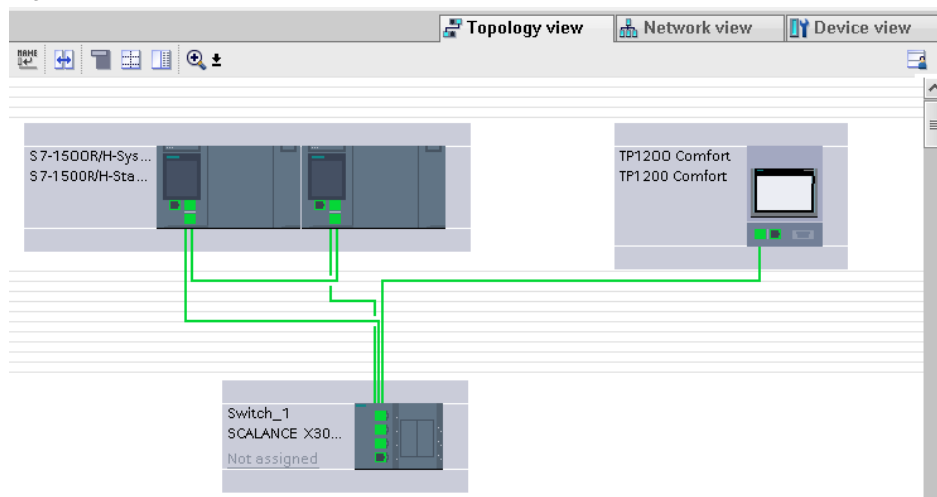
#### Note

Only the first two ports on the SCALANCE X308 are MRP-capable!

To use the example:

- a. PLC\_2\Port\_1 [X1 P1 R] << >> Switch\_1\Port\_1
- b. PLC\_1\Port\_1 [X1 P1 R] << >> Switch\_1\Port\_2
- c. TP900 Comfort.CP\_1\Port\_1 << >> Switch\_1\Port\_3

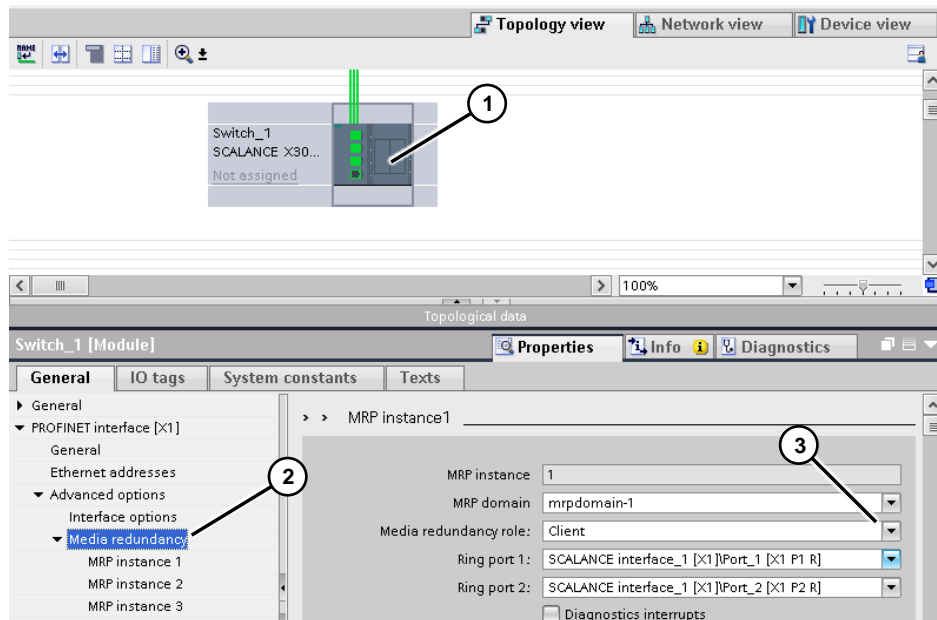
Figure 2-12



## 2 Redundantly linking a SIMATIC Panel to an S7-1500R/H controller

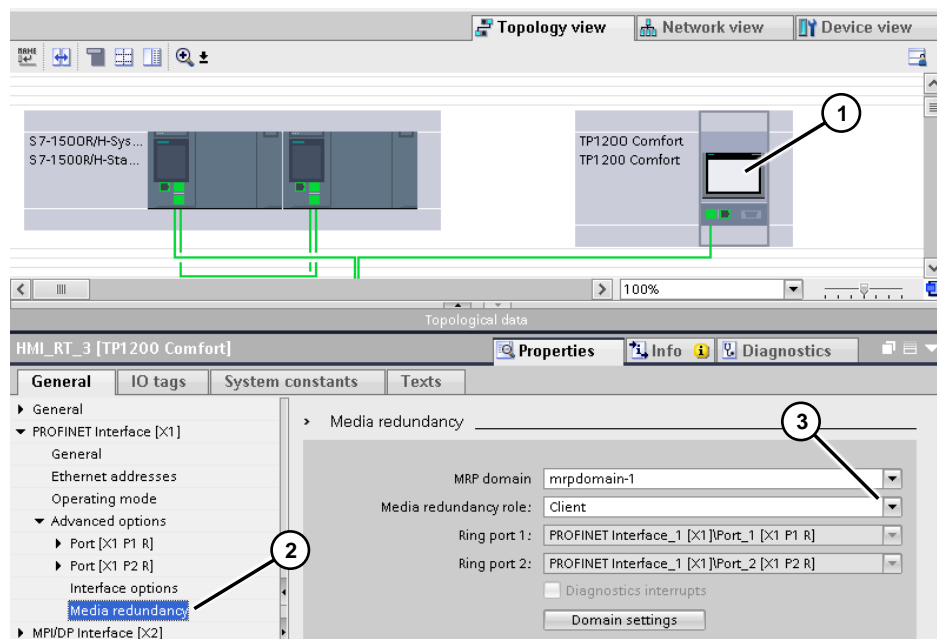
3. Select the SCALANCE X308 (1) and open "Media redundancy" via the properties ("PROFINET interface [X1] > Advanced options > Media redundancy > MRP instance 1"). Use the drop-down list under "Media redundancy role" (3) to select the option "Client".

Figure 2-13



4. Select the Comfort Panel (1) and open the "Media redundancy" menu item (2) via the Properties (PROFINET interface [X1] > Advanced options > Media redundancy). Use the drop-down list under "Media redundancy role" (3) to select the option "Client".

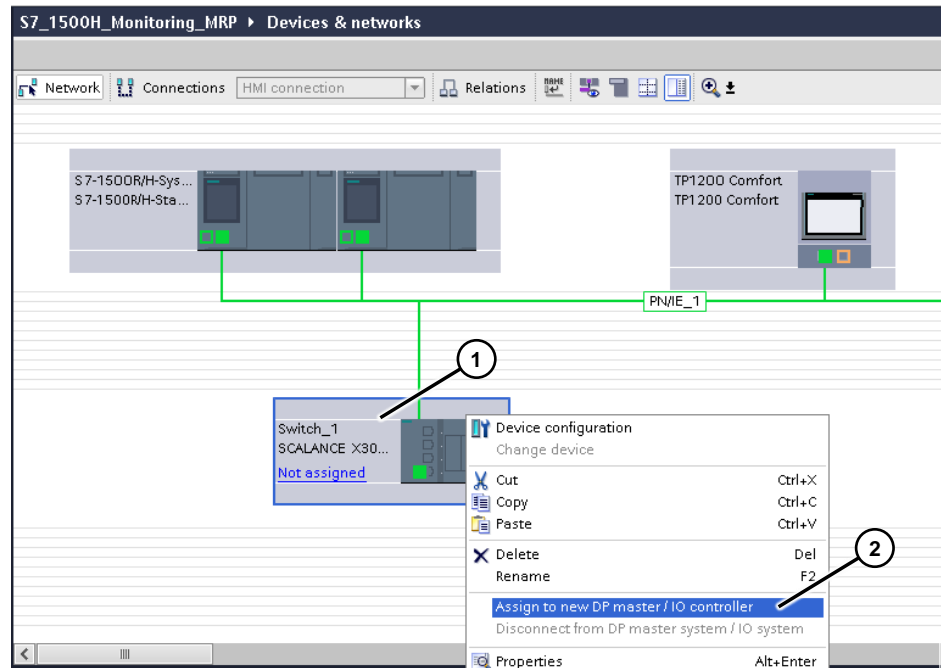
Figure 2-14



## 2 Redundantly linking a SIMATIC Panel to an S7-1500R/H controller

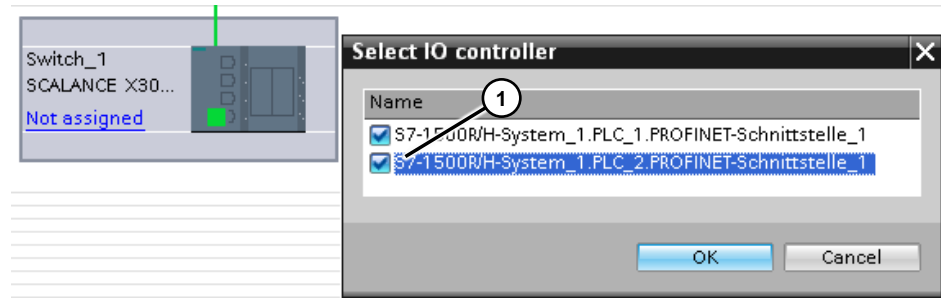
5. Change to the network view.  
Right-click to select the SCALANCE X308 (1).  
In the context menu, select the option  
"Assign to new DP master / IO controller" (2)

Figure 2-15



Another window opens.  
Assign the two IO controllers (1) to the SCALANCE X308.

Figure 2-16

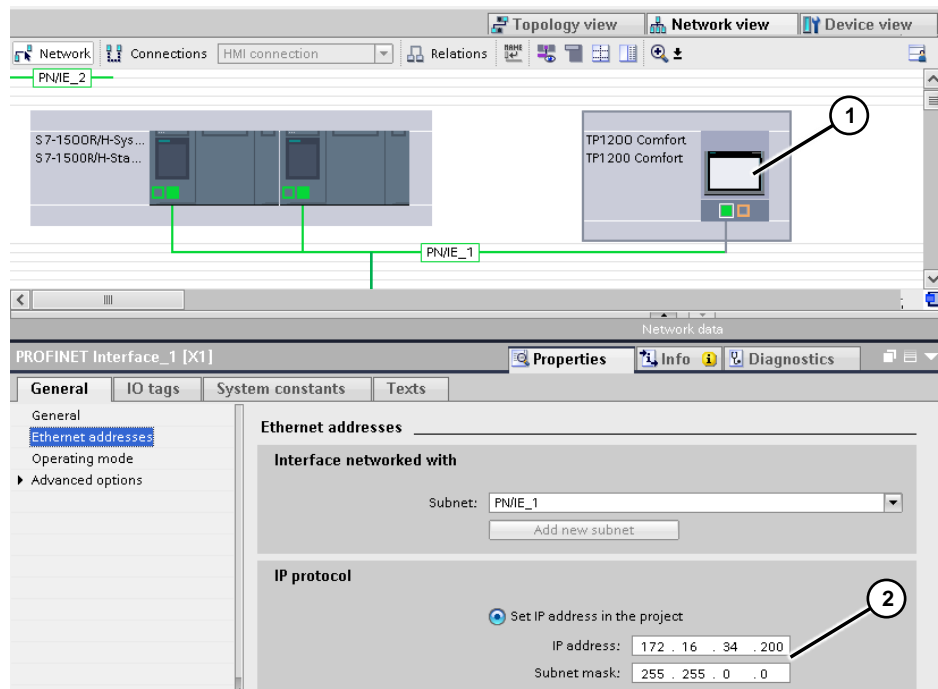




## 2 Redundantly linking a SIMATIC Panel to an S7-1500R/H controller

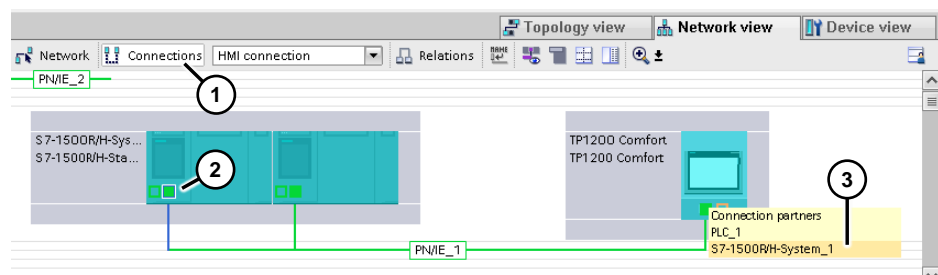
6. Highlight the Comfort Panel (1) and select the menu item "Ethernet addresses" via the properties. Enter an IP address (2).

Figure 2-17



7. In the Network view, select the "Connections" tab (1). Left-click to select the "X1" interface (2) of the first PLC, then hold down the left mouse button and drag a connection to the Ethernet interface of the HMI operator device. A selection window opens. Here, select "S7-1500R/H-System\_1" (3).

Figure 2-18



The settings in the hardware configuration are now complete.

### 3 Linking a SIMATIC Panel to an S7-1500R/H controller

If no redundant connection between the HMI operator device and the controller is required, then you can connect the HMI operator device via the X2 interface of the PLC modules.

In this case, the automatic switchover of the connection between an HMI operator device and the S7-1500H controller will be accomplished with three scripts.

#### Note

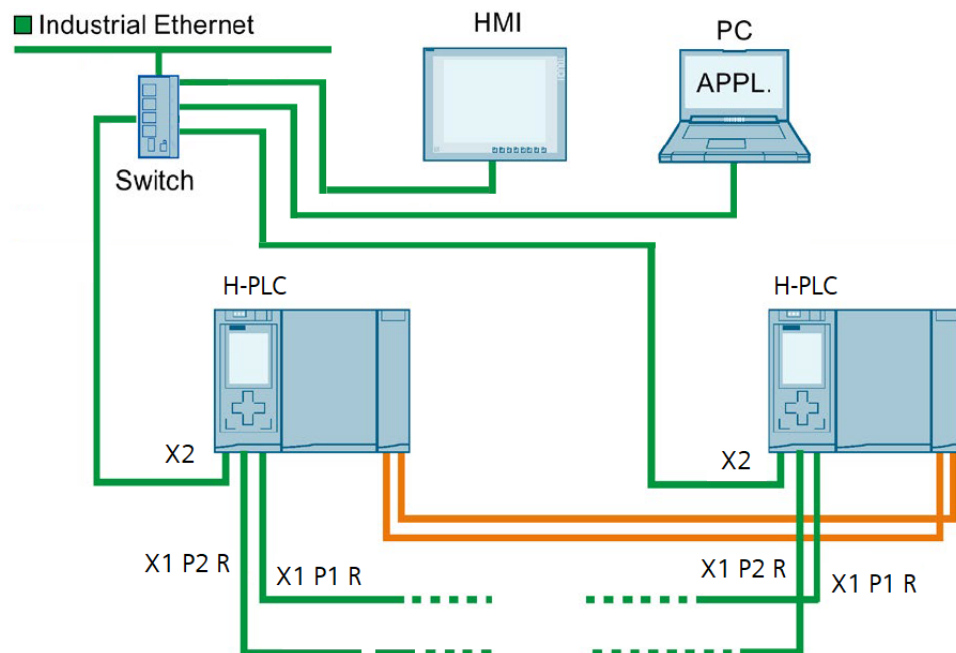
The configuration for this chapter can be found in the project "109781687\_S7\_1500H\_ChangeConnection".

#### Connection between panel ↔ PLC via the PROFINET X2 interface

The operator device is connected via the "X2 interface" of the PLC module.

- The operator device is **not** integrated into the redundant PROFINET ring of the PLC modules.
- In the event of a fault, the connection will be switched over with scripts in the HMI configuration. For this purpose, the HMI operator device must support script functionality.
- Here, the HMI operator device is connected to the CPU with only **one** port (Ethernet cable).
- The switch being used does not have to be MRP-capable.

Figure 3-1

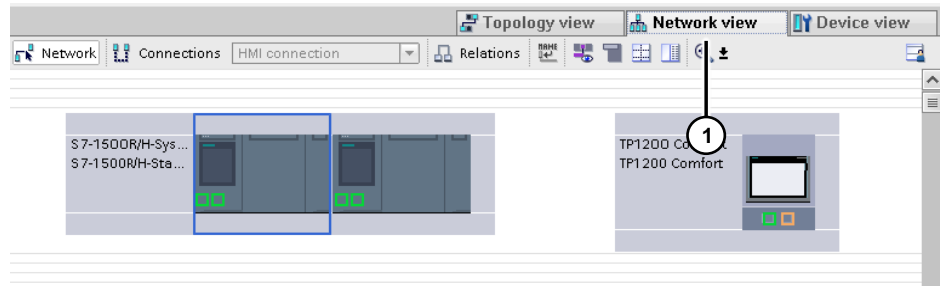


### 3.1 Creating connections

So that the connection is automatically routed to the second controller if the first one fails, a total of three connections must be created.

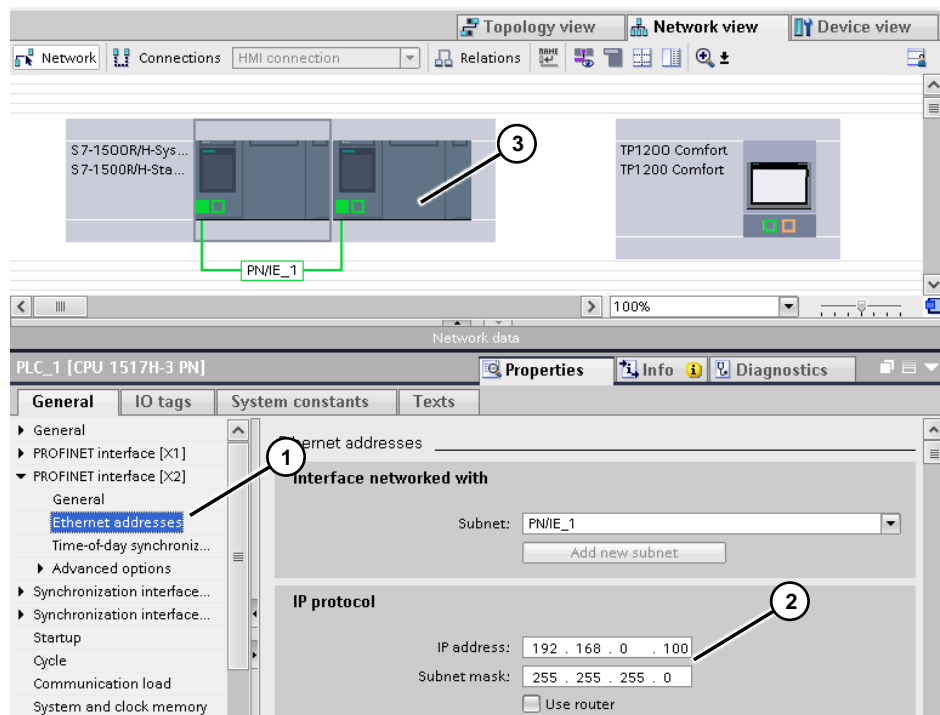
1. Use the Project tree to open the device configuration and then select the "Network view" (1).

Figure 3-2



2. Select the first PLC module and, in the Properties, open the menu "PROFINET interface [X2] > Ethernet addresses" (1). Specify an IP address (2) for the first PLC, in the example "192.168.0.100". Then select the second PLC module (3) and enter another IP address under "PROFINET interface [X2] > Ethernet addresses", in the example "192.168.0.102".

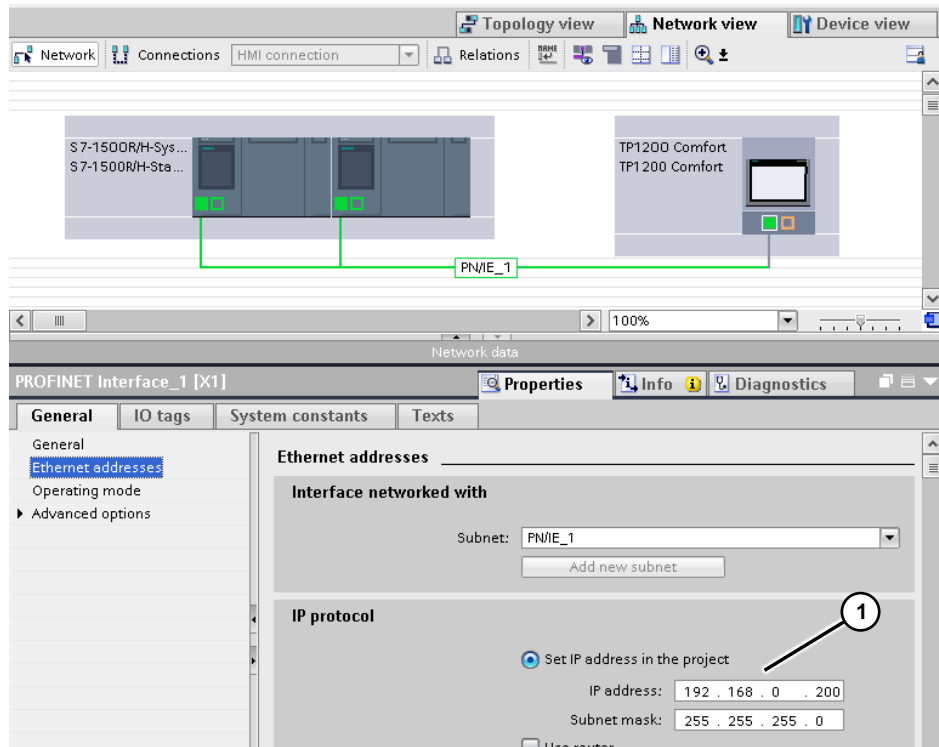
Figure 3-3



### 3 Linking a SIMATIC Panel to an S7-1500R/H controller

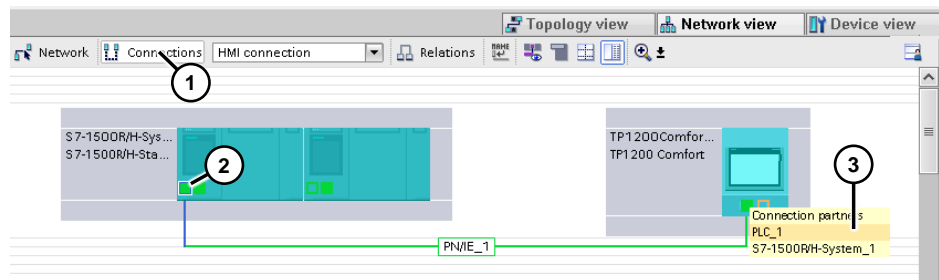
3. Select the Comfort Panel and open the menu "PROFINET interface [X1] > Ethernet addresses" in the Properties. Enter an IP address (1), in the example "192.168.0.200".

Figure 3-4



4. In the Network view, select the "Connections" tab (1). Left-click to select the "X2 interface" of the first PLC (2), then hold down the left mouse button and drag a connection to the Ethernet interface of the HMI operator device. A selection window opens. Here, select "PLC\_1" (3).

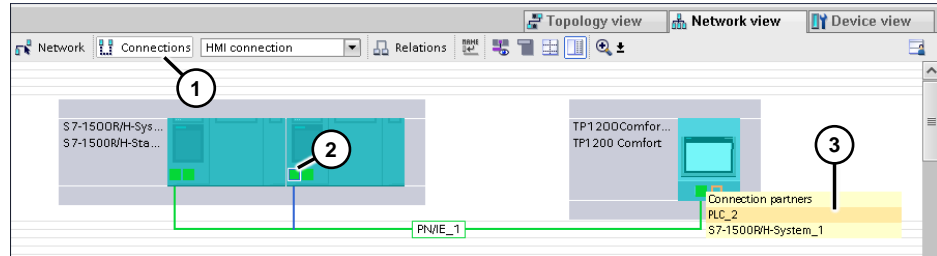
Figure 3-5



### 3 Linking a SIMATIC Panel to an S7-1500R/H controller

5. Left-click to select the "X2 interface" of the second PLC (2), then hold down the left mouse button and drag a connection to the Ethernet interface of the HMI operator device. A selection window opens. Here, select "PLC\_2" (3).

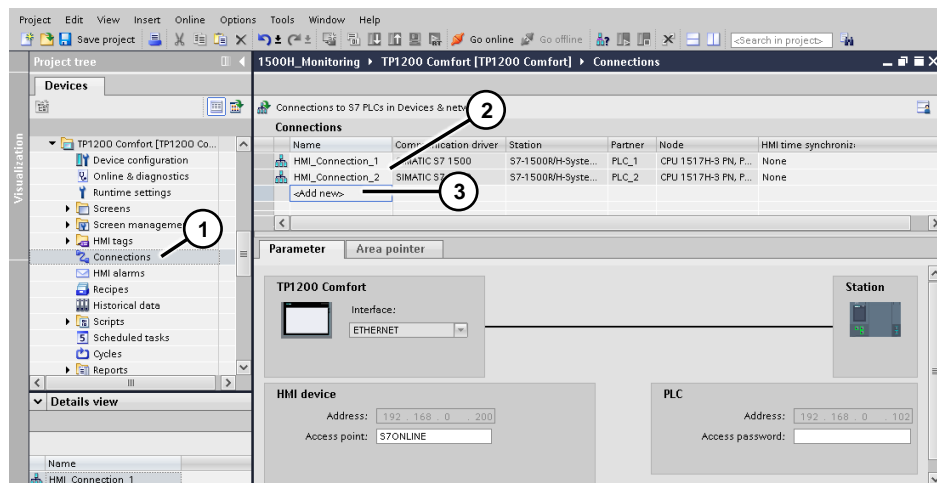
Figure 3-6



6. A third HMI connection is needed so that the connection to the HMI operator device automatically switches over in the event of a fault (failure of a PLC). The switchover is accomplished with scripts in the HMI configuration.

Via the Project tree, select the Comfort Panel and open the "Connection" (1). You will see the two connections that you created earlier (2). Manually add a third connection with "<Add new>" (3).

Figure 3-7

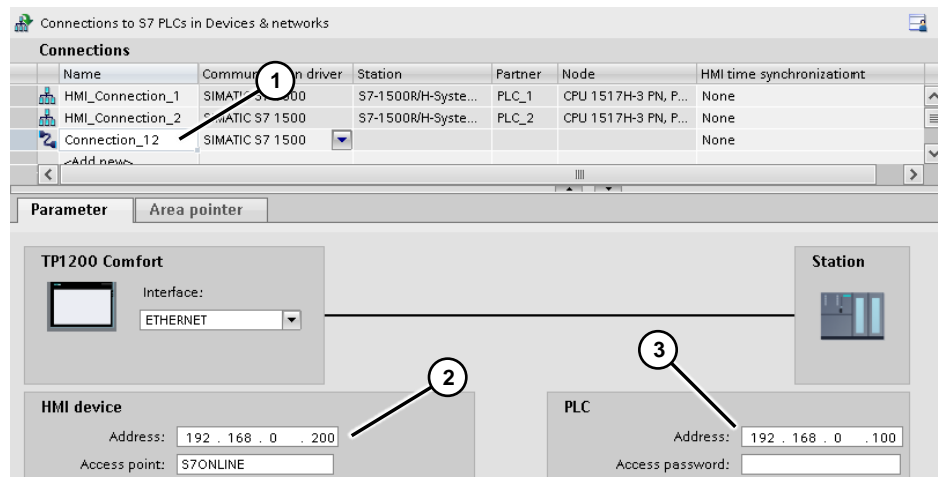


### 3 Linking a SIMATIC Panel to an S7-1500R/H controller

Enter the following parameters:

- Name: Connection12
- Communication driver: SIMATIC S7 1500
- HMI device: (IP address of the Comfort Panel; in the example this is "192.168.0.200")
- PLC: IP address of the first PLC module, the example "192.168.0.100".

Figure 3-8





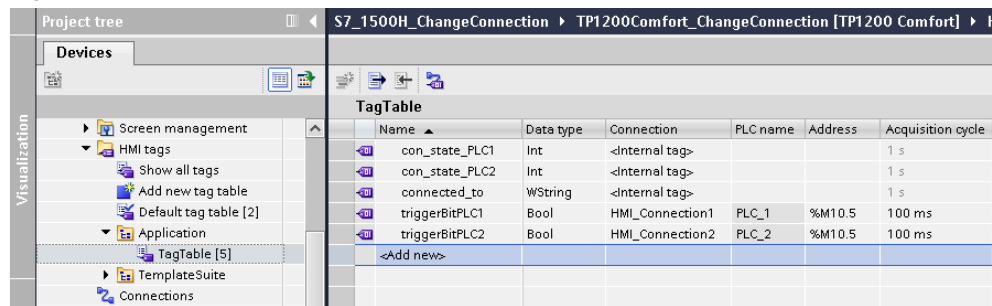
## 3.2 Creating tags

1. Open the Tag editor via "Project tree > HMI tags > Application".
2. Create the following tags:

Table 3-1

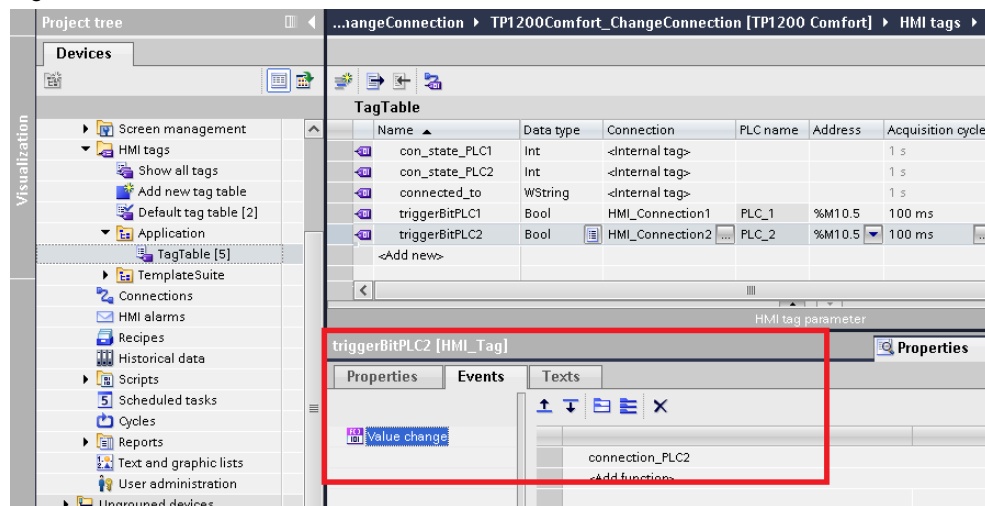
Tag	Type	Connection
con_state_PLC1	Integer	Internal tag
con_state_PLC2	Integer	Internal tag
connected_to	WString	Internal tag
triggerBitPLC1 (Clock memory)	Bool	HMI_Connection1
triggerBitPLC2 (Clock memory)	Bool	HMI_Connection2

Figure 3-9



3. Specify the tag properties.
  - a. triggerBitPLC1
    - "Properties > Events > Value change"
    - Call the script "connection\_PLC1".
  
    - "Properties > Properties > Settings"
    - Acquisition mode:       Cyclic continuous
    - Acquisition cycle:       100 ms
  - b. triggerBitPLC2
    - "Properties > Events > Value change"
    - Call the script "connection\_PLC2".
  
    - "Properties > Properties > Settings"
    - Acquisition mode:       Cyclic continuous
    - Acquisition cycle:       100 ms

Figure 3-10



**Note** Default communication between the H CPU and the HMI operator device happens over the connection "**Connection12**".

### 3.3 Creating scripts

Three scripts are used for the automatic switchover between the PLC controller and the HMI operator device:

- connection\_lost
- connection\_PLC1
- connection\_PLC2

#### Script "connection\_lost"

You do not need to modify this script for the application.

The script is called once every minute by the Task scheduler.

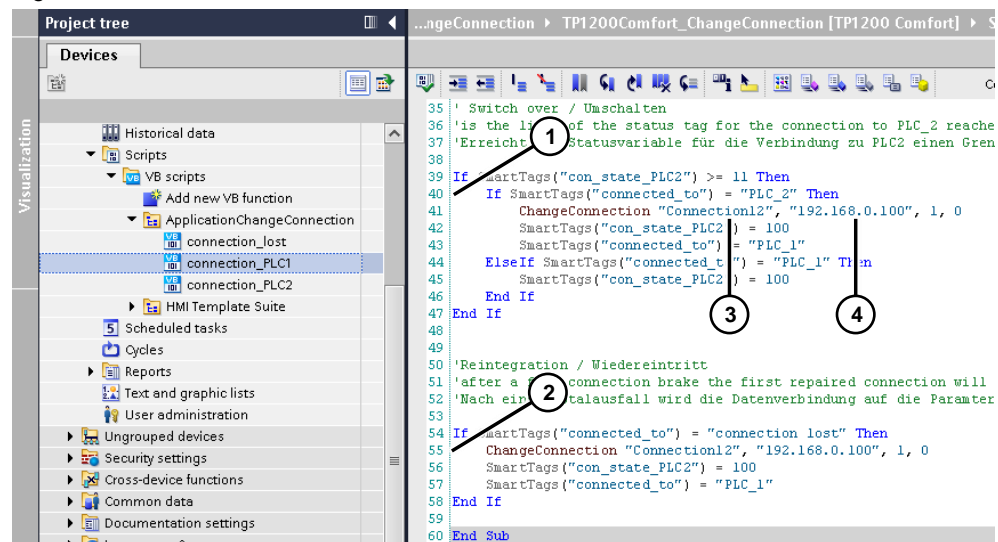
#### Script "connection\_PLC1"

Modify the parameters to suit your application.

The script is called once a second via the tag "triggerBitPlc" (clock memory).

1. Call the script with "Project tree > Scripts > VB scripts > ApplicationChangeConnection".
2. You have to adjust the parameters of the "ChangeConnection" function in line 40 (1) and line 55 (2).
  - Connection name: The name must match the name stored under "Connections". In this case, the name is "Connection12" (3).
  - Modify the IP address as per the first connection (4).

Figure 3-11



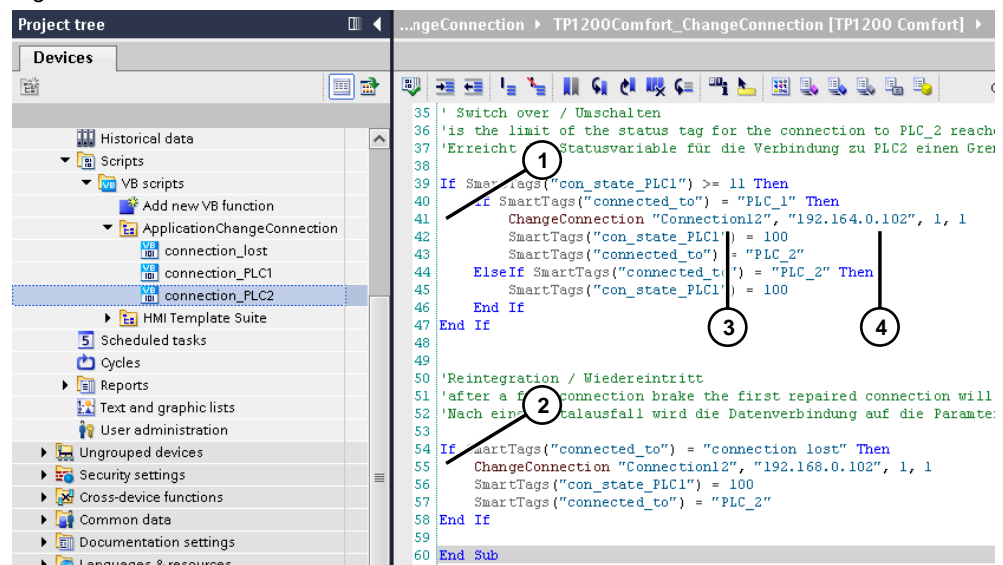
### Script "connection\_PLC2"

Modify the parameters to suit your application.

The script is called once a second via the tag "triggerBitPlc2" (clock memory).

1. Call the script with "Project tree > Scripts > VB scripts > ApplicationChangeConnection".
2. You have to adjust the parameters of the "ChangeConnection" function in line 41 (1) and line 55 (2).
  - Connection name: The name must match the name stored under "Connections". In this case, the name is "Connection12" (3).
  - Modify the IP address as per the second connection (4).

Figure 3-12



© Siemens AG 2020. All rights reserved

## 3.4 Task scheduler

The "connection\_lost" script is called once a minute by the Task scheduler.

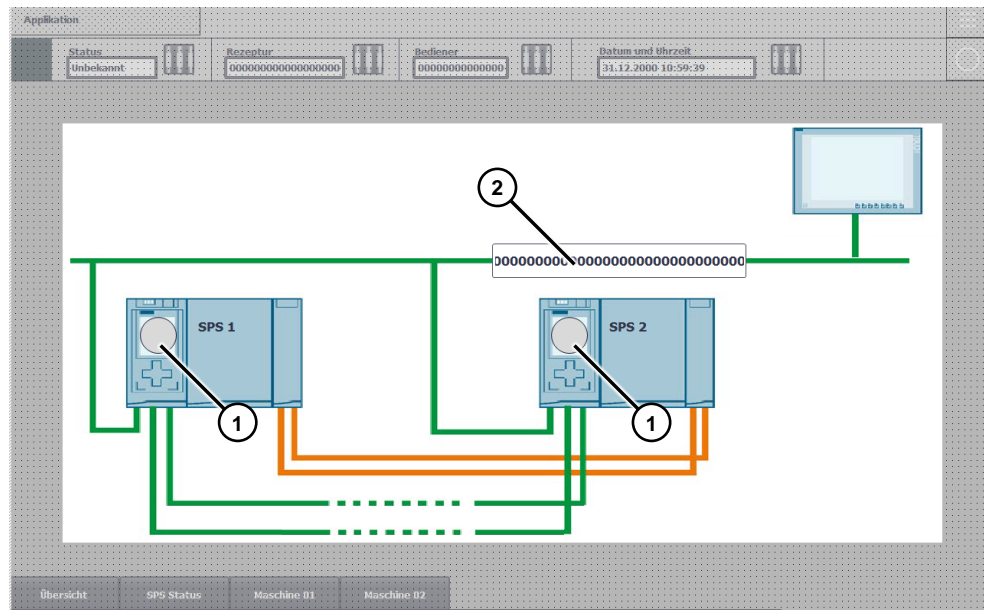
"Project tree > Task scheduler > Events"

### 3.5 "20\_PlcMonitoring" screen

The "20\_PlcMonitoring" screen shows a graphical connection between the HMI operator device and the two PLC modules.

An animated graphic (1) displays the current status of the two PLC modules. Additionally, a text field indicates which controller the HMI operator device is currently communicating (2).

Figure 3-13



#### Animated graphic (1)

The tag "triggerBitPLC1" is used for the first PLC module under "Properties > Animation > Display > Appearance". Similarly, the tag "triggerBitPlc2" is used for the second PLC module.

#### Text field (2)

The tag "connected\_to" is assigned to the text field under "Properties > Properties > General".

The value assignment for the tag comes from the scripts "connection\_PLC1" or "connection\_PLC2".

## 4 Evaluating the operating state of the connection

A complete configuration as well as a library are included with the application example.

The library contains:

- All necessary blocks.
- A fully configured TP1200 Comfort Panel project.
- A fully configured KTP1200 Basic project.

The following description pertains to the included configuration.

### 4.1 Evaluating the PLC state

The blocks from the AWB "Diagnostics of the operating state of an S7-1500R/H system using a function block" have been used for the evaluation of the PLC status.

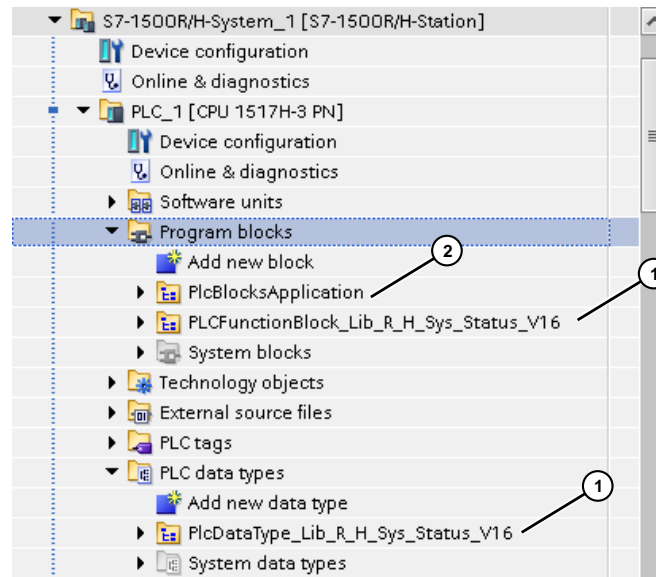
You can find the article at the following link: [\4](#)

#### PLC program overview

The folder labeled with (1) contains the blocks for diagnosing the operating state. The blocks come from the AWB "Diagnostics of the operating state of an S7-1500R/H system using a function block".

The folder labeled with (2) contains the blocks for outputting the PLC status via the HMI operator device.

Figure 4-1

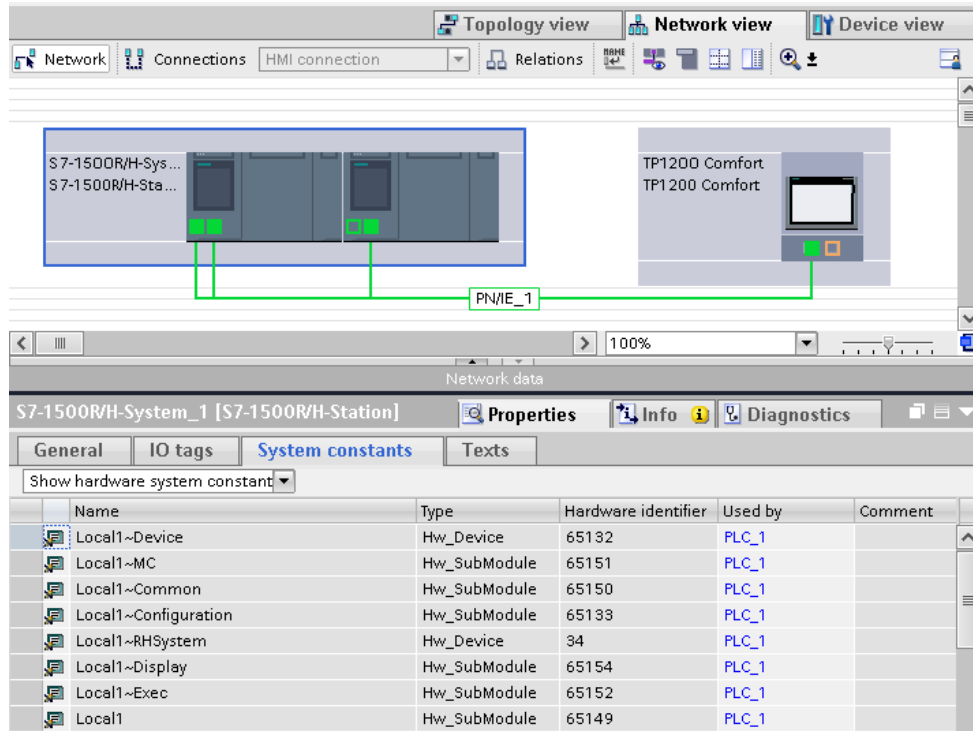




### 4.1.1 Parameterization of "R\_H\_Sys\_Status" (FB3)

- The function block FB3 is called via the OB "Main" (OB1).
- The input parameters for the FB can be found under the "System constants" of the PLC (Device configuration > Network view > Properties > System constants).

Figure 4-2



**Configured "FB3"**

- (1) Input parameters with the system constants
  - (2) You can navigate to the system constants using the button.
- System constants in use (HW identifier)

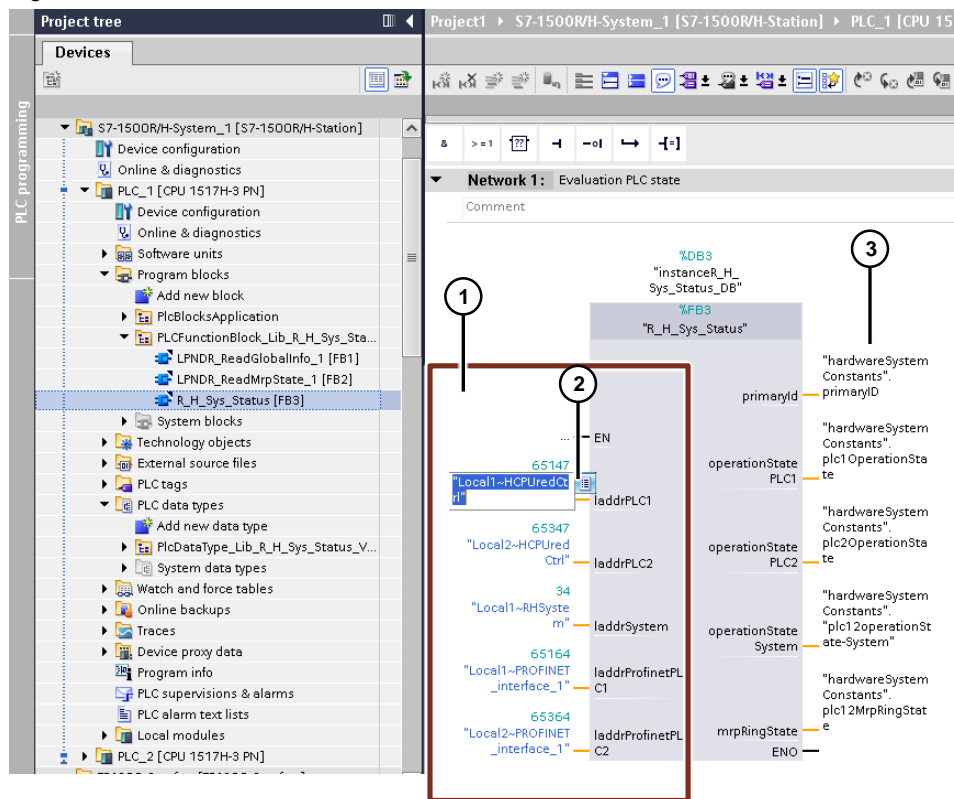
Figure 4-3

PLC_1 [CPU 1517H-3 PN]				
General		IO tags	System constants	Texts
Show hardware system constant				
Name	Type	Hardware iden...	Used by	
Local1~RHSystem	Hw_Device	34	PLC_1	
Local1~PROFINET-Schnittstelle_1	Hw_Interface	65164	PLC_1	
Local1~HCPuredCtrl	Hw_SubModule	65147	PLC_1	

- 65147 – PLC\_1
- 65347 – PLC\_2
- 34 – PLC\_1
- 65164 – PLC\_1
- 65364 – PLC\_2

- (3) Output parameters used for further evaluation.

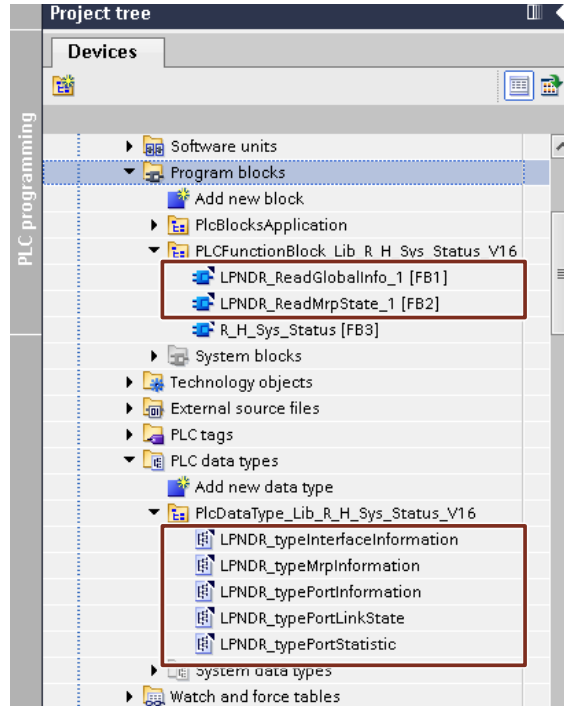
Figure 4-4



### Other blocks for "FB3"

- "FB3" needs other blocks to evaluate the PLC status.
- The blocks are not called separately, instead they are only loaded into the controller. You can find the blocks in the included library.

Figure 4-5

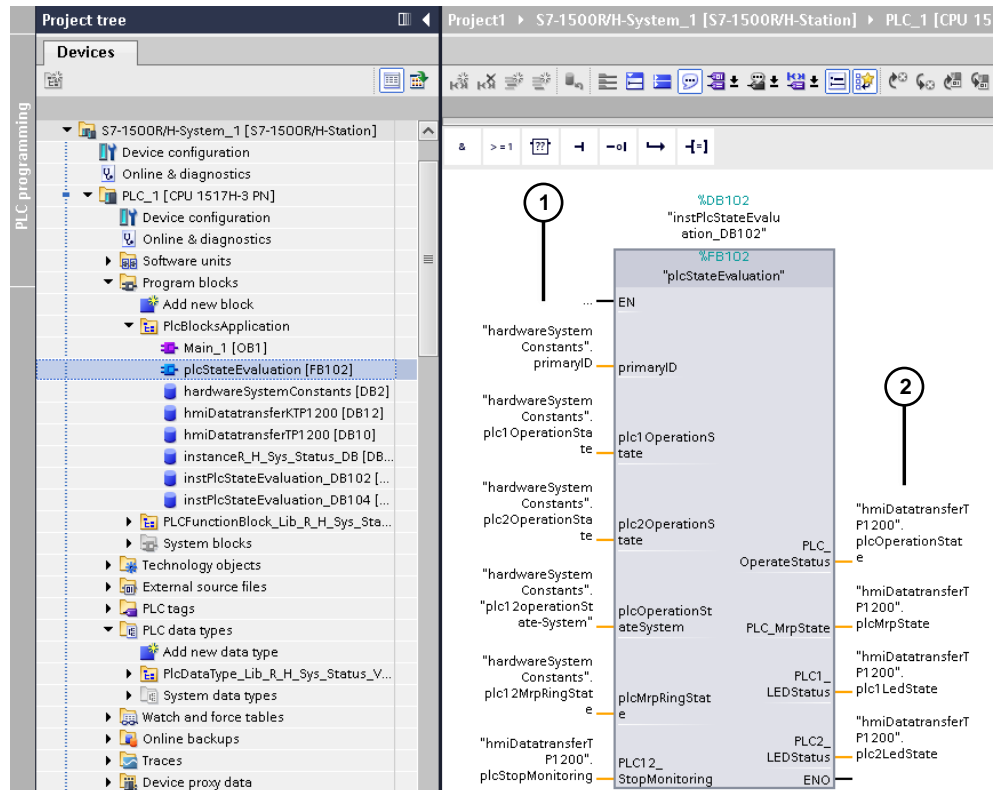


### 4.1.2 Parameterization of "plcStateEvaluation" (FB102)

- This FB evaluates the output signals from "FB3" and forwards them to the HMI operator device.
- The function block is called via the OB "Main" (OB1).
- The input parameters of "FB102" (1) correspond to the output parameters of the FB "R\_H\_Sys\_Status" (FB3).

The individual PLC states are forwarded to the HMI operator device via the output parameters (2). A faceplate is created for the display.

Figure 4-6



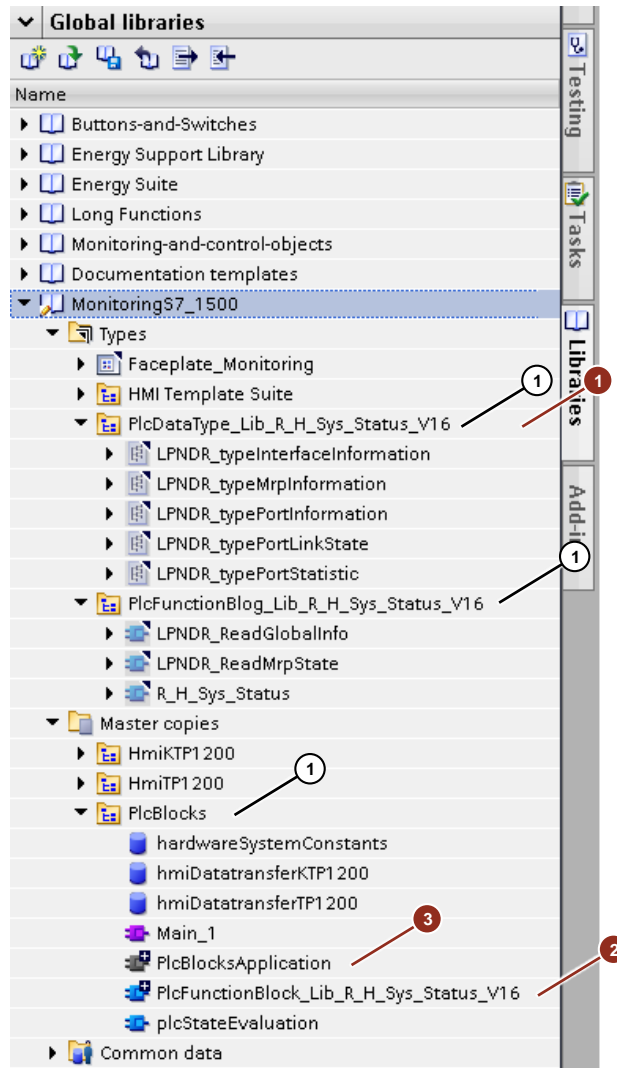
### 4.1.3 "MonitoringS7\_1500" library

All blocks listed above can be found in the global library "MonitoringS7\_1500".

(1) PLC program blocks

- If, for example, you select a "folder" and add it to your project, all blocks inside that folder will also be added. This ensures that no blocks are forgotten.
- The numbers marked in "red" describe the order in which you should add the folders (program elements) to your project.

Figure 4-7



## 4.2 HMI configuration for Comfort Panel

The HMI configuration is composed of the HMI Template Suite and the screens and objects for evaluating the PLC status.

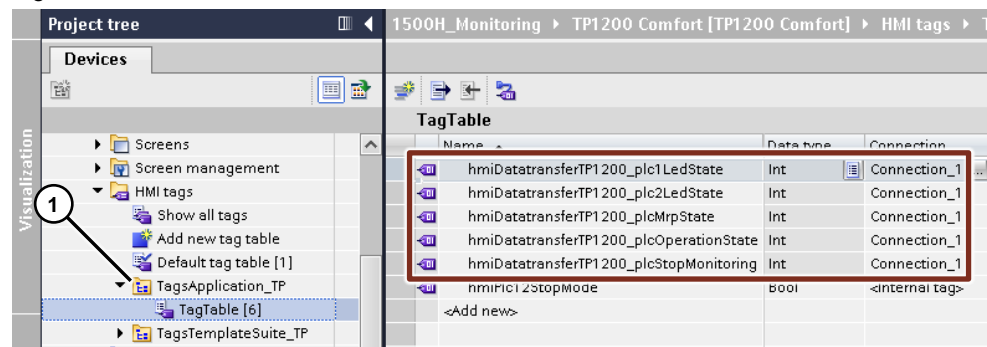
- For the sake of recognizability, the screens, tags, etc. used for evaluating the PLC status are stored in the folders with the label "Application".
- The screens, tags, etc. used for the "Template Suite" are stored in the folders with the label "TemplateSuite".

You can find a precise description of the HMI Template Suite at the following link: [\8\](#)

### 4.2.1 Tags

The tags are located in the folder "TagsApplication\_TP" (1); they are the output parameters of the function block "FB102". These are passed to the faceplate and its interface.

Figure 4-8

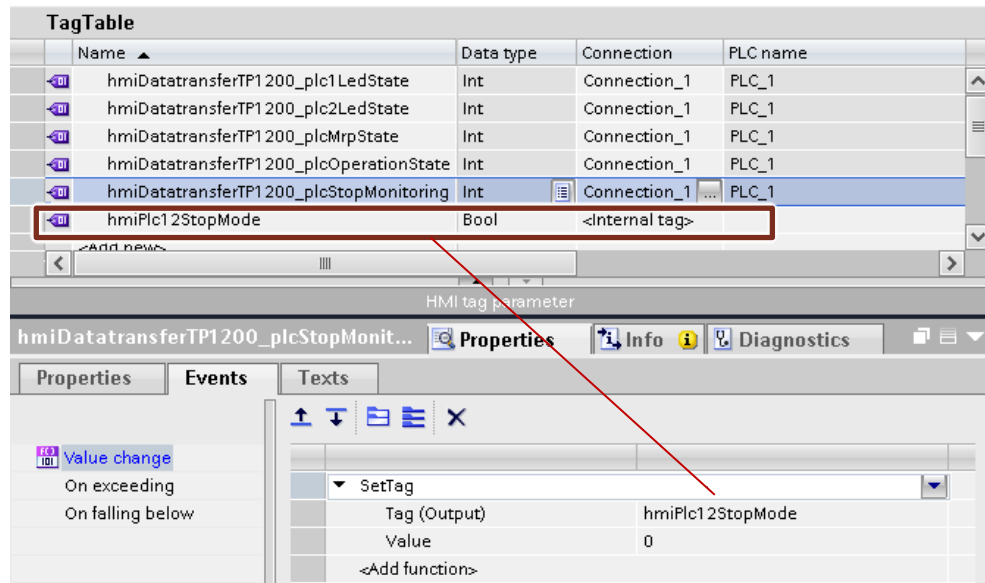


### Tag "hmiDatatransferTP1200\_plcStopMonitoring"

Two properties are assigned to the tags.

- Properties > Properties > Settings
  - Acquisition mode: Cyclic continuous
  - Acquisition cycle: 500 ms
- Properties > Events > Value change
  - SetTag (see figure)

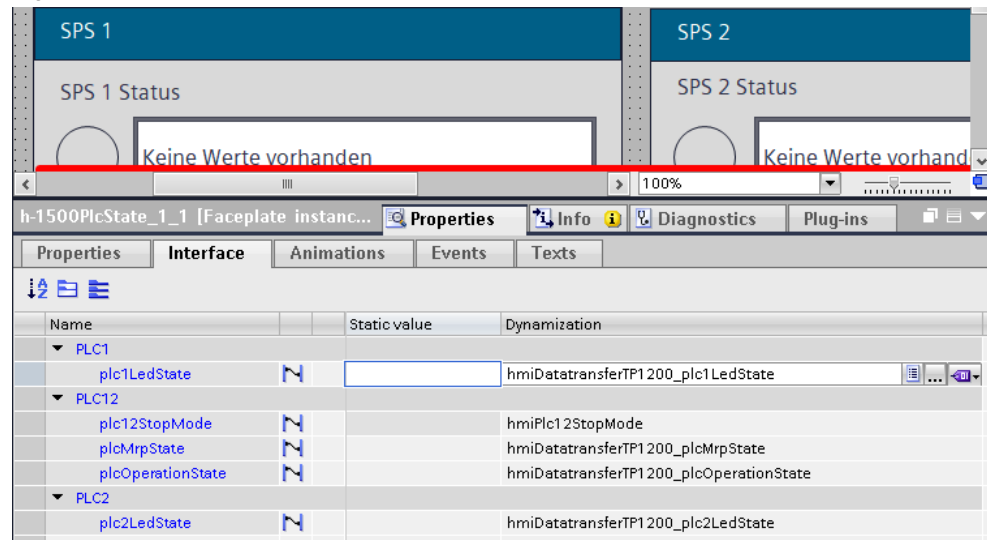
Figure 4-9



## 4.2.2 Faceplate

The faceplate displays the status of the two PLC modules.  
Tag assignment is carried out via the "interface" (see figure).

Figure 4-10



For a description of creating a faceplate, refer to [9](#).

## 4.2.3 Script "plcStopMonitoring"

The script is called once every minute by the Task scheduler.  
If both PLC controllers fail, or if the connection between PLC and HMI operator device fail completely, then the PLC cannot perform any "action/function".  
The script serves to evaluate this edge case.

### Principle of operation

- A fixed value of "200" for the tag "plcStopMonitoring" is passed via the controller.
- This value is overwritten by the script once a minute with the value "zero".
- As long as there is a connection, the value reset by the script is in turn overwritten with "200".
- If there is no connection, then the value remains "zero" and an alarm is output via the HMI operator device after a delay period.

## 4.2.4 Task scheduler

The "plcStopMonitoring" script is called once a minute with the Task scheduler.

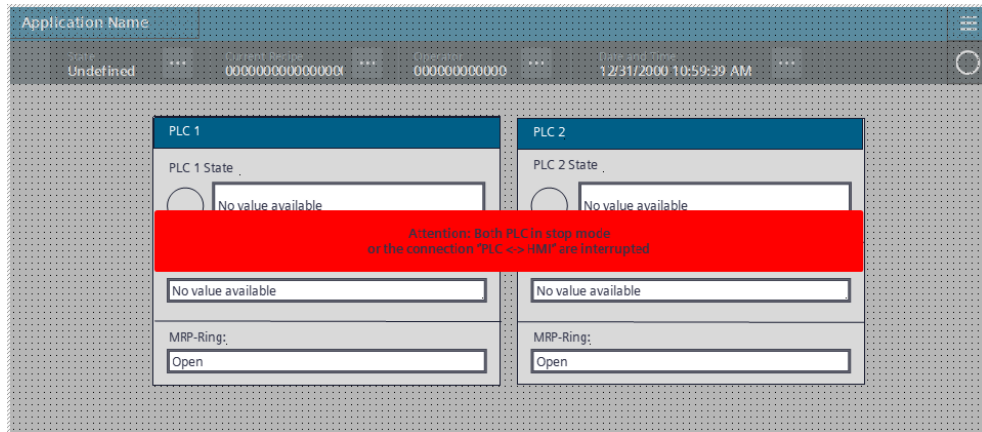


### 4.2.5 "20\_PlcMonitoring" screen

The "20\_PlcMonitoring" screen has been created for the evaluation. The screen contains a faceplate which outputs the PLC status.

The faceplate is stored in the attached project and in the library.

Figure 4-11



### 4.3 HMI configuration for KTP1200 Basic

In addition to the TP1200 Comfort, the AWB also contains a KTP1200 Basic configuration.

The functionality is equivalent to that of the TP1200 Comfort configuration.

The differences are briefly described below.

- The panel does not use a "faceplate" to output the PLC status, but rather individual objects. Connection to the controller is effected with the same tags.
- The panel does not support scripts.
- A clock memory is used to evaluate the edge case (both CPUs in STOP or connection is completely severed).
- The status of the PLC is output with an animated graphic (circle).
  - Blinking graphic => At least one PLC is in "RUN".
  - Graphic not blinking => The connection or both PLC controllers are in "STOP".

## 5 Appendix

### 5.1 Service and support

#### Industry Online Support

Do you have any questions or need assistance?

Siemens Industry Online Support offers round the clock access to our entire service and support know-how and portfolio.

The Industry Online Support is the central address for information about our products, solutions and services.

Product information, manuals, downloads, FAQs, application examples and videos – all information is accessible with just a few mouse clicks:

<https://support.industry.siemens.com>

#### Technical Support

The Technical Support of Siemens Industry provides you fast and competent support regarding all technical queries with numerous tailor-made offers – ranging from basic support to individual support contracts. Please send queries to Technical Support via Web form:

[www.siemens.com/industry/supportrequest](http://www.siemens.com/industry/supportrequest)

#### SITRAIN – Training for Industry

We support you with our globally available training courses for industry with practical experience, innovative learning methods and a concept that's tailored to the customer's specific needs.

For more information on our offered trainings and courses, as well as their locations and dates, refer to our web page:

[www.siemens.com/sitrain](http://www.siemens.com/sitrain)

#### Service offer

Our range of services includes the following:

- Plant data services
- Spare parts services
- Repair services
- On-site and maintenance services
- Retrofitting and modernization services
- Service programs and contracts

You can find detailed information on our range of services in the service catalog web page:

<https://support.industry.siemens.com/cs/sc>

#### Industry Online Support app

You will receive optimum support wherever you are with the "Siemens Industry Online Support" app. The app is available for Apple iOS, Android and Windows Phone:

<https://support.industry.siemens.com/cs/ww/en/sc/2067>

## 5.2 Links and literature

Table 5-1

No.	Subject
\1\	Siemens Industry Online Support <a href="https://support.industry.siemens.com">https://support.industry.siemens.com</a>
\2\	Link to the article page of the application example <a href="https://support.industry.siemens.com/cs/ww/en/view/109781687">https://support.industry.siemens.com/cs/ww/en/view/109781687</a>
\3\	SIMATIC S7-1500 redundant system S7-1500R/H <a href="https://support.industry.siemens.com/cs/ww/en/view/109754833">https://support.industry.siemens.com/cs/ww/en/view/109754833</a>
\4\	Diagnostics of the operating state of an S7-1500R/H system using a function block <a href="https://support.industry.siemens.com/cs/ww/en/view/109763768">https://support.industry.siemens.com/cs/ww/en/view/109763768</a>
\5\	SIMATIC S7-1500R/H Getting Started <a href="https://support.industry.siemens.com/cs/ww/en/view/109757712">https://support.industry.siemens.com/cs/ww/en/view/109757712</a>
\6\	SIMATIC HMI operator devices - Comfort Panels <a href="https://support.industry.siemens.com/cs/ww/en/view/49313233">https://support.industry.siemens.com/cs/ww/en/view/49313233</a>
\7\	SIMATIC HMI operator devices - Basic Panels 2nd Generation <a href="https://support.industry.siemens.com/cs/ww/en/view/90114350">https://support.industry.siemens.com/cs/ww/en/view/90114350</a>
\8\	HMI design with the HMI Template Suite <a href="https://support.industry.siemens.com/cs/ww/en/view/91174767">https://support.industry.siemens.com/cs/ww/en/view/91174767</a>
\9\	Creating Faceplates with WinCC Runtime Advanced and Comfort Panels <a href="https://support.industry.siemens.com/cs/ww/en/view/68014632">https://support.industry.siemens.com/cs/ww/en/view/68014632</a>

## 5.3 Change documentation

Table 5-2

Version	Date	Change
V1.0	10/2020	First edition