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Quick Start Guide
PROFINET switch 4-/8-/16-port

Order number: 700-850-4PS01, 700-850-8PS01, 700-850-16PS01

Version
10 en

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Content

1 Safety instructions

Target audience

This description is only intended for trained personnel qualified in control and automation engineering who are familiar with the applicable national standards.

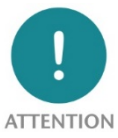
For installation, commissioning, and operation of the components, compliance with the instructions and explanations in this operating manual is essential. The specialist personnel is to ensure that the application or the use of the products described fulfills all safety requirements, including all applicable laws, regulations, provisions, and standards.

Intended use

The device has a protection rating of IP 20 (open type) and must be installed in an electrical operating room or a control box/cabinet in order to protect it against environmental influences. To prevent unauthorized operation, the doors of control boxes/cabinets must be closed and possibly locked during operation.

The consequences of improper use may include personal injury to the user or third parties, as well as property damage to the control system, the product, or the environment. Use the device only as intended!.

Operation



Successful and safe operation of the device requires proper transport, storage, setup, assembly, installation, commissioning, operation, and maintenance.

Operate the device only in flawless condition. The permissible operating conditions and performance limits (technical data) must be adhered to.

Retrofits, changes, or modifications to the device are strictly forbidden.

Security

ATTENTION

The device is a network infrastructure component and therefore an important element in the security consideration of a plant. When using the device, therefore, observe the relevant recommendations to prevent unauthorized access to installations and systems. Further information on this can be found in the device manual.

2 Introduction

NOTE

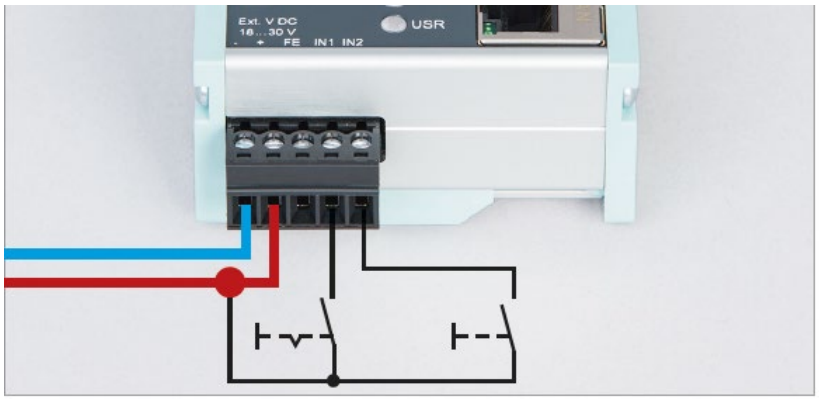
Please consider the safety instructions for the product, which can be found in the PROFINET-Switch manual. You can download the manual from the website www.helmholz.de in the download area of the product or use the shown QR code.

This document is intended to explain the initial commissioning of the PROFINET switch in a standard application case.

3 Preparing the PROFINET switch

3.1 Connecting

The PROFINET switch must be supplied with 24 VDC at the wide-range input 18 - 30 VDC via the supplied connector plug. The RJ45 sockets "P1 - P4" (4-port switch), "P1 - P8" (8-port switch) and "P1 - P16" (16-port switch) are used to connect the network devices (PROFINET or Ethernet).



The inputs IN1 and IN2 have no function in the current firmware version yet and will be available for possible additional functions in a later firmware version.

NOTE

The housing of the PROFINET switch is not grounded. Please connect the functional grounding connection (FG named FE on front) of the PROFINET switch correctly with the reference potential.

4 Setup and use

4.1 Install GSDML file

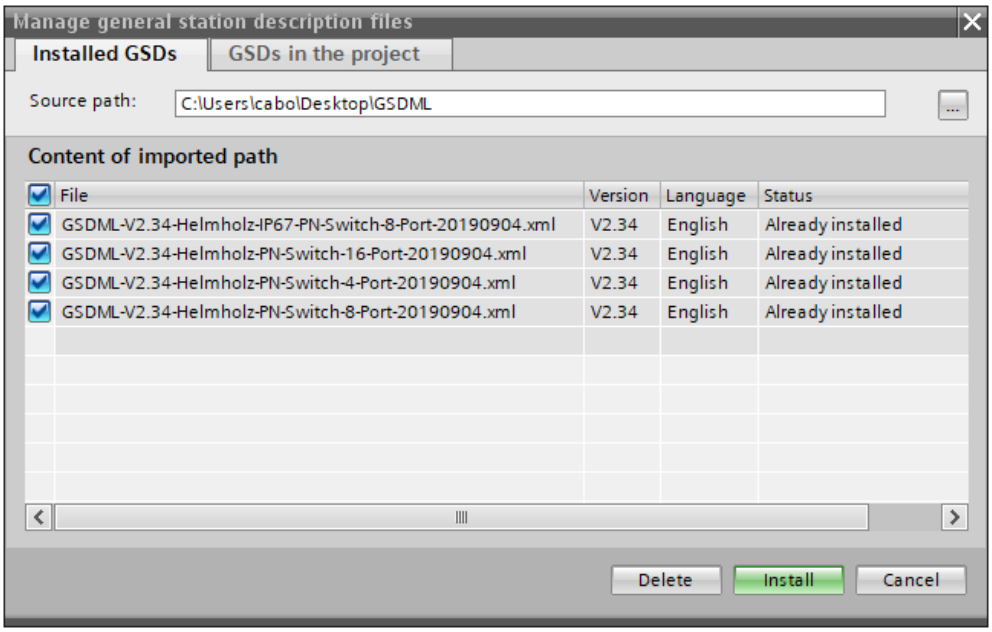
You can download the GSDML file from the website www.helmholz.de in the download area of the product or use the shown QR code.

PROFINET switch 4-port

PROFINET switch 8-port

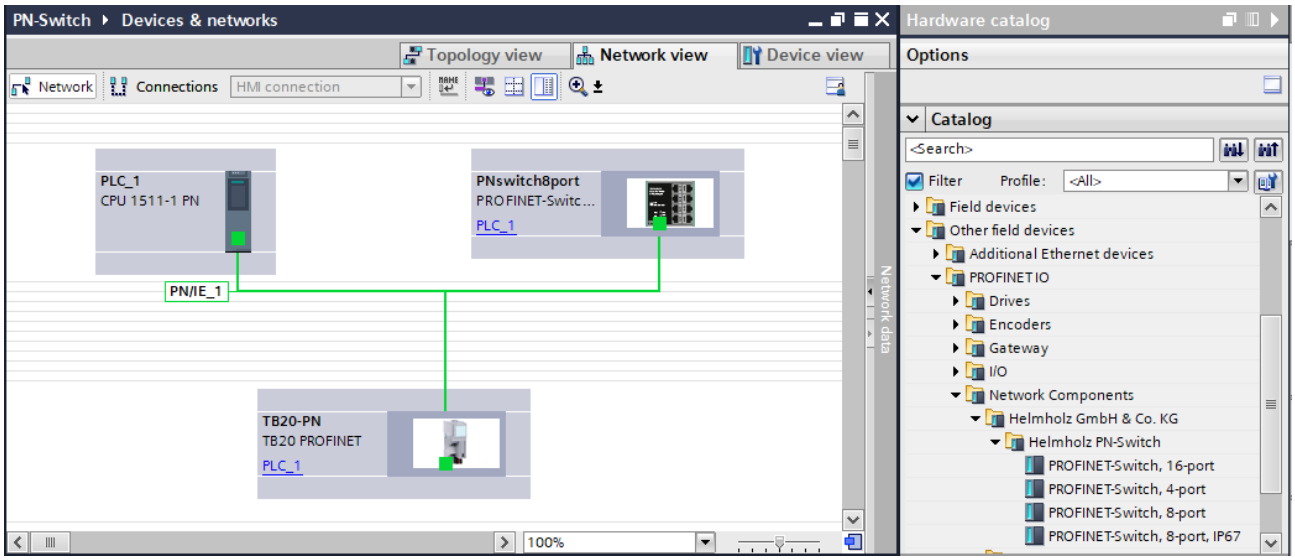
PROFINET switch 16-port

You can find the “Manage general station description files” dialog in TIA Portal in the menu “Options”.



4.2 Setup in the hardware-configuration

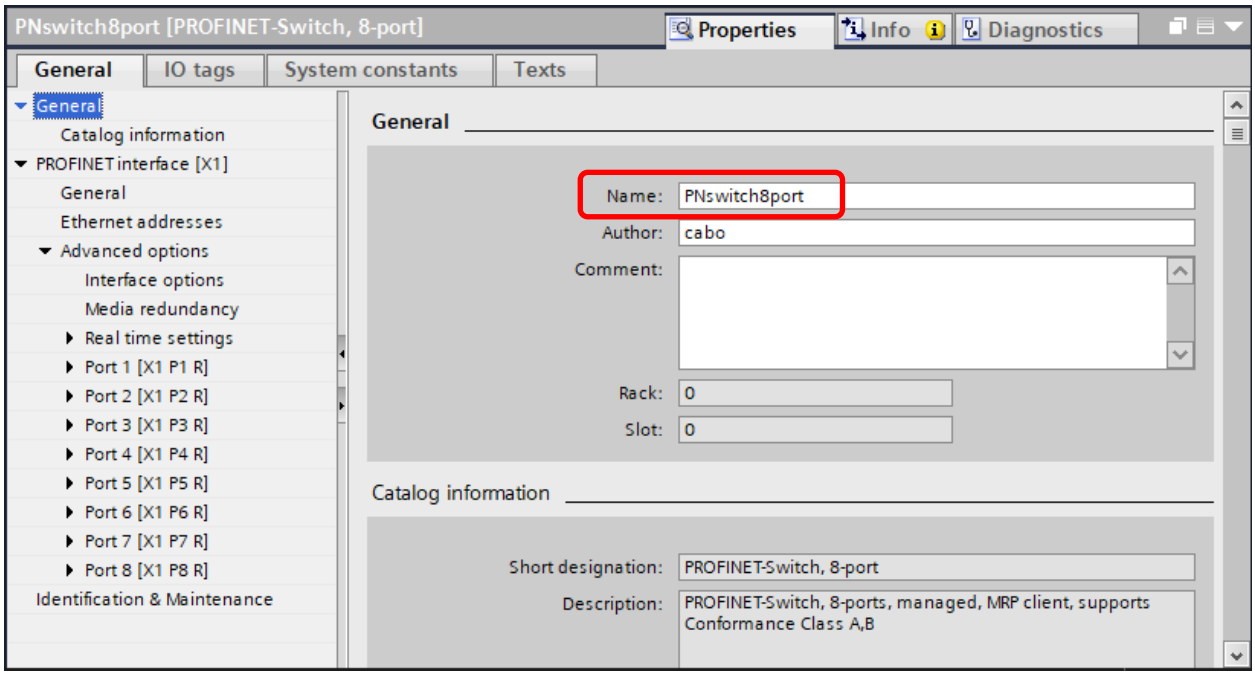
Following installation, the PROFINET switch can be found in the hardware catalog under “Other field devices -> PROFINET IO -> Network Components -> Helmholz GmbH & Co. KG -> Helmholz PN-Switch”. Add the “PROFINET-Switch, 4-port”, “PROFINET-Switch, 8-port” or “PROFINET-Switch, 16-port” device to the project and connect it with your PROFINET network.



By calling up the object properties, you must assign the PROFINET switch a unique PROFINET name in the project and check the IP address for plausibility.

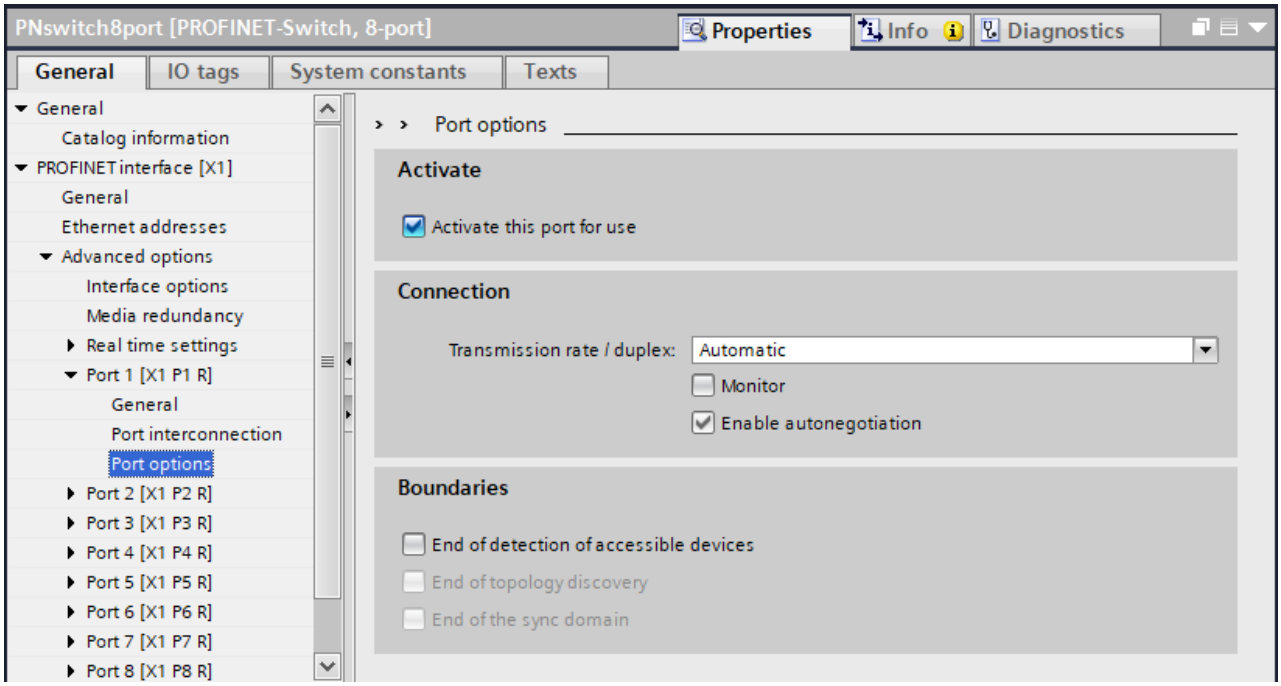
NOTE

The real device must later be assigned the same name as in the project.



4.3 Setting the port properties

Each port of the PROFINET switch can be individually configured.



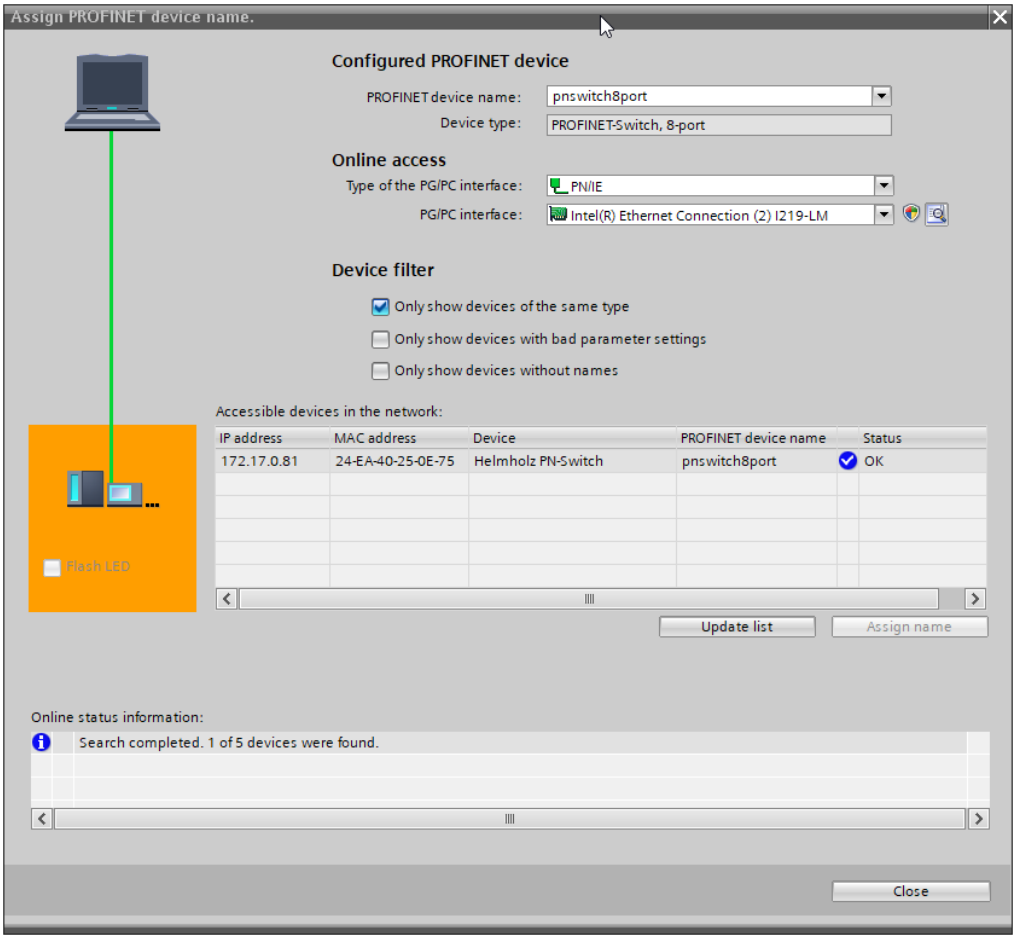
“Activate this port”	The port can be switched off here. This option is recommended when the port should not be used. Unauthorized trespass into the network is prevented.
Transmission rate / duplex “Automatic”	The port synchronizes itself automatically with the communication partner (auto-negotiation).
Transmission rate / duplex “TP 100 Mbps full duplex”	Fixed specification of the transmission rate. This option is recommended when connecting PROFINET IO devices.
Monitor	Send a diagnosis by Link Down
Enable autonegotiation	Automatic recognition of the transmission speed and the cable type (cross or patch cable)
End of detection of accessible devices	The DCP telegrams for recording accessible devices are not forwarded from this port. Subscribers behind this port are no longer displayed under "Accessible subscribers" in the topology. Users behind this port can no longer be reached by the CPU.
End of topology discovery	LLDP frames for topology discovery are not forwarded on this port.

4.4 Assign the PROFINET switch a name

When the configuration of the PROFINET switch has been completed in the hardware configurator of the engineering tool, it can be loaded into the PLC.

In order that the PROFINET switch can be found by the PROFINET controller, the PROFINET device name must be assigned to the PROFINET switch. To this purpose, use the function “Assign device name”, which you can access in the Online menu with the right mouse button when the PROFINET switch is activated.

With the “Update list” button, the network can be browsed for PROFINET participants. The PROFINET device name can be assigned to the device with “Assign name”.



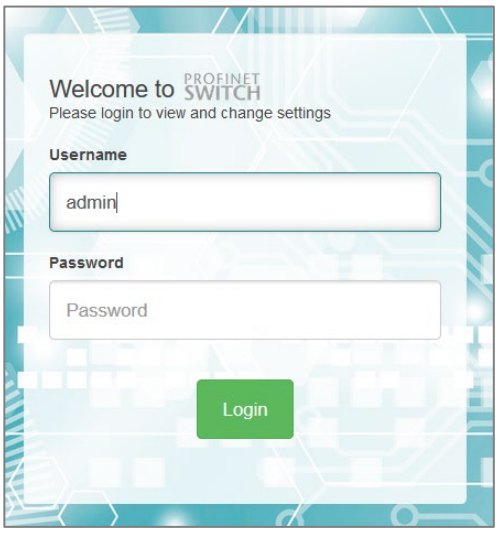
The clear identification of the PROFINET switch is ensured here by the MAC address of the device. The MAC address of the device can be found on the device front of the PROFINET switch.

If the PROFINET switch has been assigned the correct PROFINET name, it is recognized by the PLC and configured. If configuration has taken place correctly, the PROFINET “BF” LED is off.

The Helmholz IPSet tool, which can be downloaded at no charge from the Helmholz website, can also be used to set the PROFINET name. Scan the following QR code to download the IPSet tool:

4.5 Further configuration and diagnosis via the web interface

Via the web interface, the status of the PROFINET switch can be queried and further functions can be configured. Furthermore, a firmware update can be performed via the web interface.



The web interface can be operated as soon as the device has a network configuration. The IP address of the device must be entered as URL.

In the following login dialog the username is "admin" and the password is the serial number of the PROFINET switch which can be read at the device side. For the first login the default password must be changed.

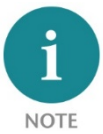
Further information about the web interface can be taken from the manual.

5 Diagnosis via LEDs

PWR	Off	No power supply or device defective
	On	Device is correctly supplied with voltage
RUN	On	Device is ready to operate
	Flashing	Device is starting up
	Flashing synchronous with BF and SF LED	PROFINET function device identification
BF	On	Bus error, no configuration
	Flashing synchronous with RUN and SF LED	PROFINET function device identification
SF	On	System error, network status in error
	Flashing synchronous with RUN and BF LED	PROFINET function device identification
RJ45 LEDs	Green (Link)	Connected
	Orange (Act)	Data transfer at the port

6 Technical data

Order no.	700-850-4PS01	700-850-8PS01	700-850-16P01
Name	PROFINET switch 4-port, managed	PROFINET switch 8-port, managed	PROFINET switch 16-port, managed
Scope of delivery	PROFINET switch 4-port, with power supply plug	PROFINET switch 8-port, with power supply plug	PROFINET switch 16-port, with power supply plug
Dimensions (D x W x H)	32.5 x 58.5 x 76.5 mm	32.5 x 83.5 x 76.5 mm	32,5 x 147 x 76,5 mm
Weight	Approx. 130 g	Approx. 190 g	Approx. 320 g
PROFINET interface			
Protocol	PROFINET IO Device as defined in IEC 61158-6-10		
Physical layer	Ethernet		
Transmission rate	100 Mbit/s, full duplex		
Connection	4 x RJ45, integrated switch	8 x RJ45, integrated switch	16 x RJ45, integrated switch
Features	PROFINET Conformance Class B Media Redundancy (MRP) automatic addressing (DCP) topology detection (LLDP) diagnostic alarms		
Status indicator	4 LEDs function status, 8 LEDs Ethernet status	4 LEDs function status, 16 LEDs Ethernet status	4 LEDs function status, 32 LEDs Ethernet status
Voltage supply	DC 24 V, 18 – 30 V DC		
Power consumption	max. 250 mA at 24 V DC	max. 110 mA at 24 V DC	max. 290 mA at 24 V DC
Current draw	Max. 2 W	Max. 2.4 W	Max. 5.5 W
Ambient conditions			
Installation position	Any		
Ambient temperature	-40°C ... +75°C	-40°C ... +75°C	0°C ... +60°C
Transport and storage temperature	-40°C ... +85°C		
Relative air humidity	95 % r H without condensation		
Pollution degree	2		
Protection rating	IP20		
Certifications	CE, UL, PROFINET Conformance Class B		
UL			
UL	UL 61010-1/UL61010-2-201		
Voltage supply	DC 24 V (18 ... 30 VDC, SELV and limited energy circuit)		
Pollution degree	2		
Altitude	up to 2000m		
Temperature cable rating	87°C		
CE			
RoHS	Yes		
REACH	Yes		



The contents of this Quick Start Guide have been checked by us so as to ensure that they match the hardware and software described.

However, we assume no liability for any existing differences, as these cannot be fully ruled out. The information in this Quick Start Guide is, however, updated on a regular basis. When using your purchased products, please make sure to use the latest version of this Quick Start Guide, which can be viewed and downloaded on the Internet from www.helmholz.de.

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