



Quick Start Guide FLEXtra PROFINET switch 16 Port, 10/100/1000MBit

Order number: 700-855-16P01

Version
1 en

Content

| | | |
|-----|---|---|
| 1 | Safety instructions | 2 |
| 2 | Introduction | 3 |
| 3 | Preparing the PROFINET-Switch | 3 |
| 3.1 | Connecting | 3 |
| 4 | Setup and use | 4 |
| 4.1 | Install GSDML file | 4 |
| 4.2 | Setup in the hardware-configuration | 5 |
| 4.3 | Setting the port properties..... | 6 |
| 4.4 | Assign the PROFINET switch a name | 7 |
| 4.5 | Further configuration and diagnosis via the web interface | 8 |
| 5 | Diagnosis via LEDs | 8 |
| 5.1 | System LEDs | 8 |
| 5.2 | Ethernet LEDs P1 – P16 (RJ45)..... | 8 |
| 6 | Function of buttons | 9 |
| 7 | Technical data | 9 |

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



ATTENTION

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.

2 Introduction



NOTE

Please consider the safety instructions for the product, which can be found in the FLEXtra 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 FLEXtra PROFINET switch in a standard application case.

3 Preparing the PROFINET-Switch

3.1 Connecting

The FLEXtra PROFINET switch has a redundant power supply. The FLEXtra PROFINET switch must be supplied with 24 VDC via the supplied connector plug at at least one of the two "-/+ " wide-range inputs (18 - 30 VDC).



The RJ45 sockets "X1 P1 - X1 P16" are used to connect the network devices (PROFINET or Ethernet).



NOTE

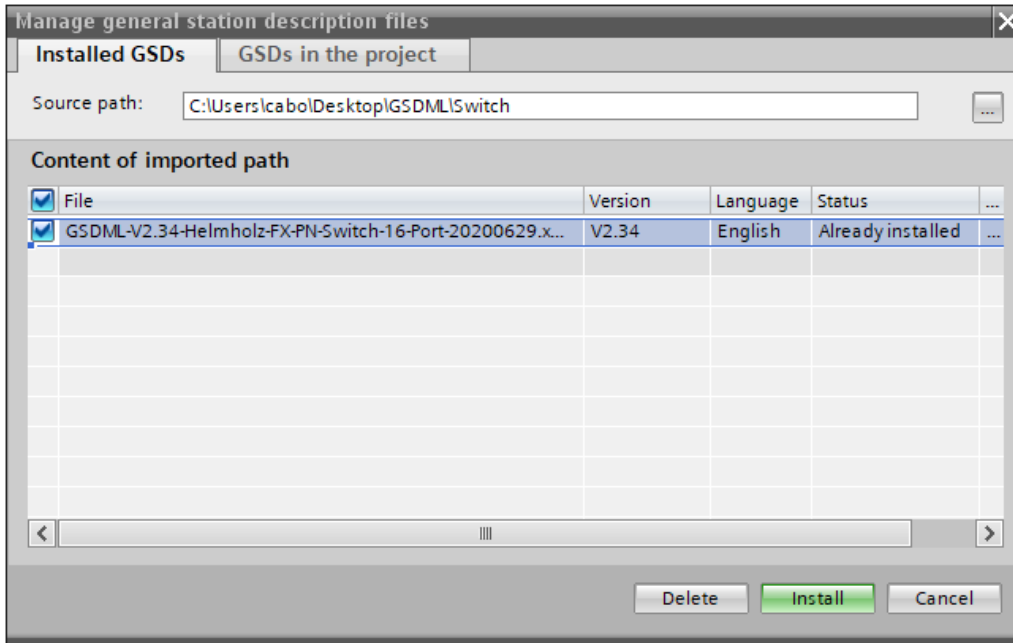
The housing of the PROFINET switch is not grounded. Please connect the functional grounding connection (FG named FE on front) of the PROFINET switch correctly with the reference potential.

4 Setup and use

4.1 Install GSDML file

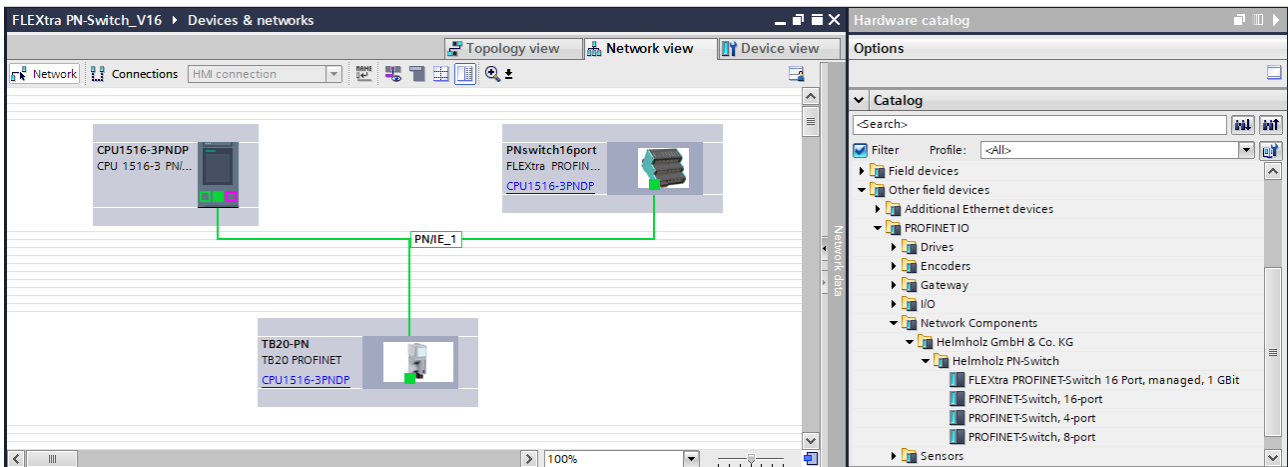
You can download the GSDML file for the FLEXtra PROFINET switch from the website www.helmholz.de in the download area of the product or use the QR code shown.

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



4.2 Setup in the hardware-configuration

After installation, the FLEXtra PROFINET switch is listed in the hardware catalog under "Other field devices → PROFINET IO → Network Components → Helmholz GmbH & Co. KG → Helmholz PN-Switch" in the hardware catalog. Insert the "FLEXtra PROFINET Switch 16 port" device into the project and connect it to your PROFINET network.

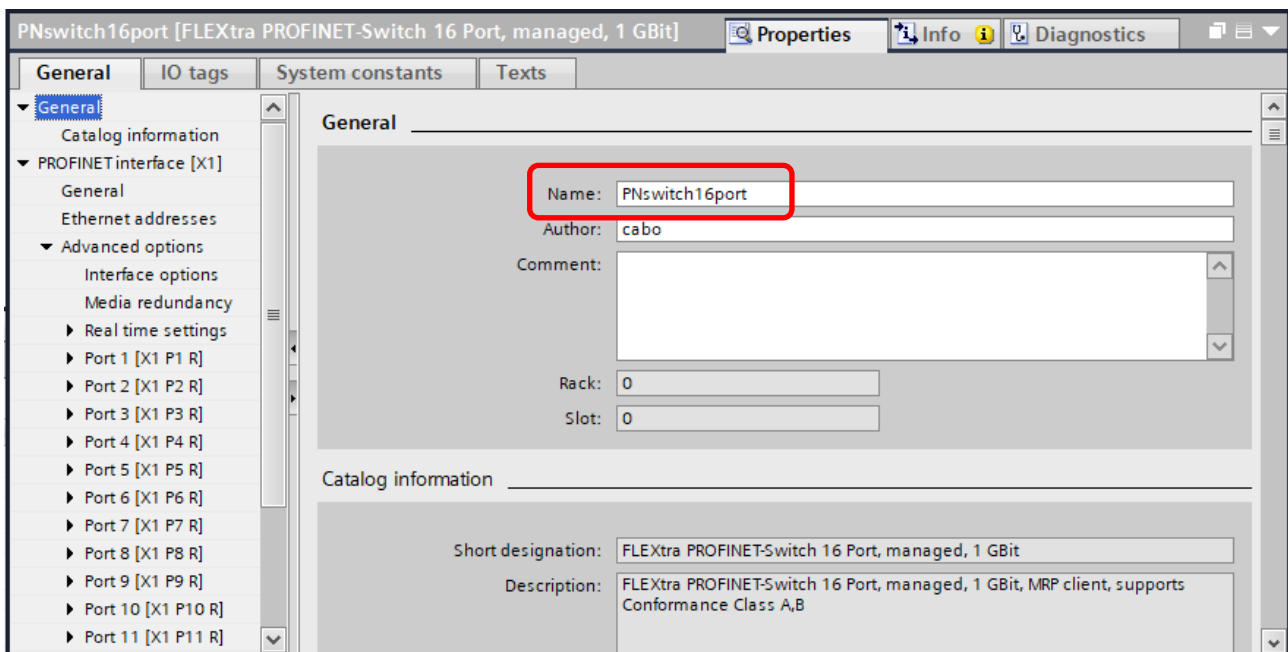


By calling up the object properties, you must give the FLEXtra PROFINET switch a unique PROFINET name in the project and check the IP address for plausibility.



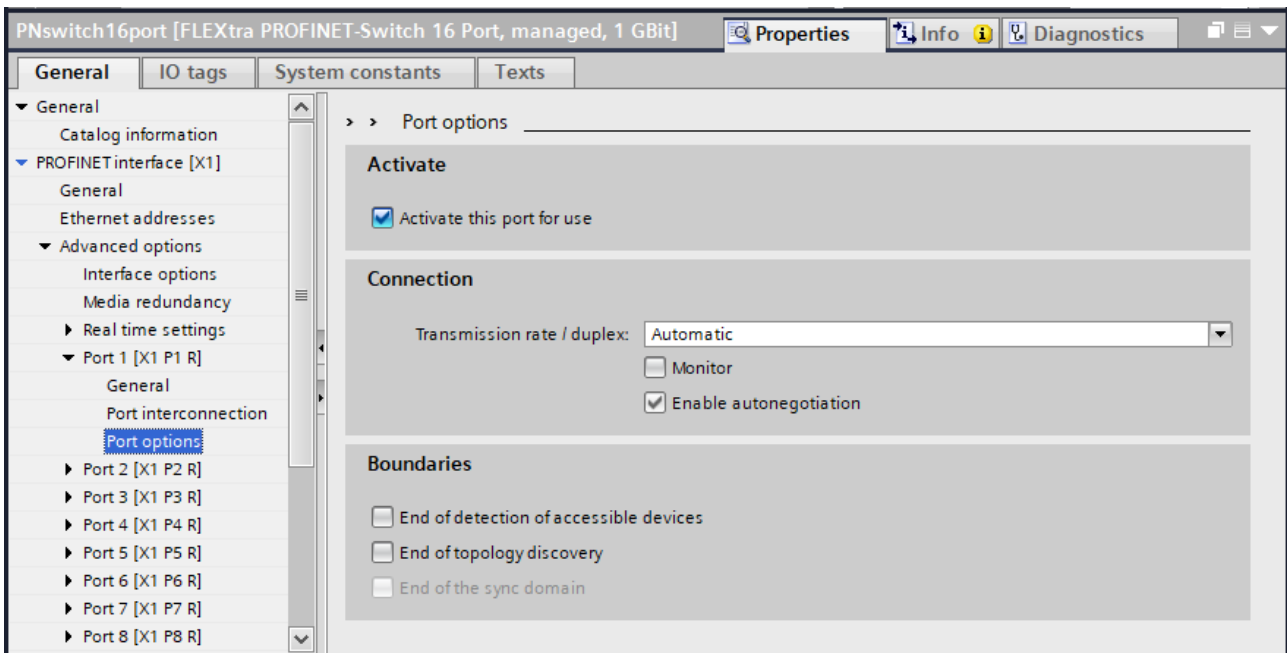
NOTE

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.



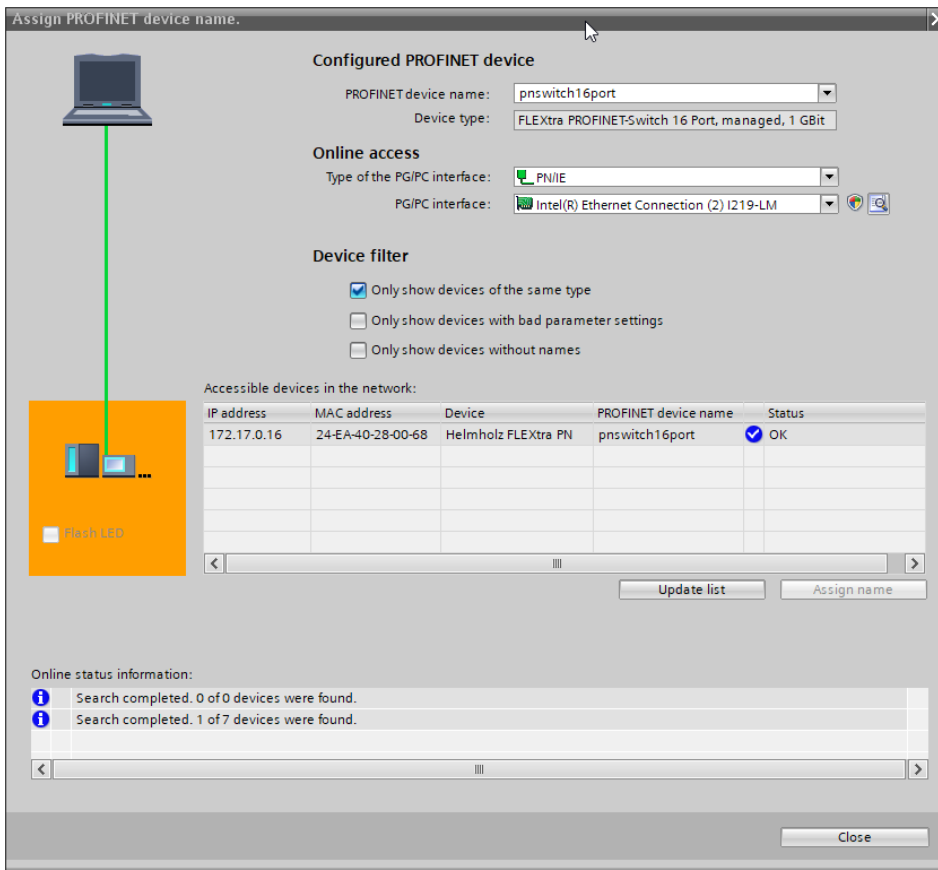
| | |
|---|---|
| “Activate this port” | The port can be switched off here. This option is recommended when the port should not be used. Unauthorized trespass into the network is prevented. |
| Transmission rate / duplex “Automatic” | The port synchronizes itself automatically with the communication 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 FLEXtra PROFINET switch has been completed in the hardware configurator of the engineering tool, it can be loaded into the PLC.

In order that the FLEXtra 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 FLEXtra 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 FLEXtra 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

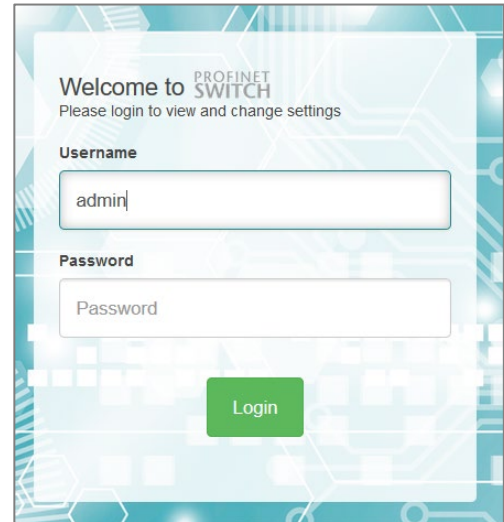
Via the web interface, the status of the PROFINET switch can be queried and further functions can be configured.

Furthermore, a firmware update can be performed via the web interface.

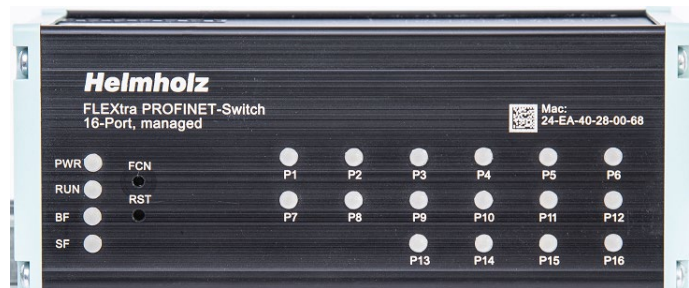
The web interface can be operated as soon as the device has a network configuration. The IP address of the device must be entered as URL.

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



5.1 System 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 |

5.2 Ethernet LEDs P1 – P16 (RJ45)

| | | |
|--------|----------|---|
| Off | | No network cable connected or network cable defective or partner device off |
| Green | On | Ethernet connection with 10/100 Mbit/s |
| | Flashing | Ethernet communication with 10/100 Mbit/s |
| Orange | On | Ethernet connection with 1000 Mbit/s |
| | Flashing | Ethernet communication with 1000 Mbit/s |

6 Function of buttons

The "RST" button triggers an immediate restart of the PROFINET switch in which all stored settings are retained.

With the "FCN" button the PROFINET switch can be reset to factory settings. If the "FCN" button is pressed during the startup phase of the switch, the orange "SF" LED starts flashing. The flashing indicates that the switch will be reset to factory settings and restarted immediately after the button is released. The start-up phase is indicated by the flashing of the "RUN" LED.

7 Technical data

| | |
|-----------------------------------|--|
| Order number | 700-855-16P01 |
| Name | FLEXtra PROFINET-Switch 16-Port, managed, 10/100/1000Mbit |
| Scope of delivery | FLEXtra PROFINET-Switch 16-Port with power supply plug |
| Dimensions (D x W x H) | 78 x 125 x 111 mm |
| Weight | Ca. 550 g |
| PROFINET-Schnittstelle | |
| Protocol | PROFINET IO Device as defined in IEC 61158-6-10 |
| Physical layer | Ethernet |
| Transmission rate | PROFINET: 100 Mbit/s Ethernet: 10/100/1000 Mbit/s |
| Anschluss | 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, 16 LEDs Ethernet-Status (two-colored) |
| Voltage supply | 2x DC 24 V, 18 – 30 V DC, redundant |
| Power consumption | max. 400 mA with DC 24 V |
| Current draw | Max. 9,6 W |
| Ambient conditions | |
| Installation position | Any |
| Ambient temperature | -40 °C ... +75 °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 |
| RoHS | Ja |
| REACH | Ja |



NOTE

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.

Our products contain open source software, among others. This software is subject to the respectively relevant license conditions. We can send you the corresponding license conditions, including a copy of the complete license text together with the product. They are also provided in our download area of the respective products under www.helmholz.de. We also offer to send you or any third party the complete corresponding source text of the respective open source software for an at-cost fee of 10.00 Euro as a DVD upon request. This offer is valid for a period of three years, starting from the date of product delivery.

Our customers are important to us, we are happy to receive suggestions and ideas for improvement. If you have any questions regarding the use of the product, please contact Helmholz Support by phone or send an e-mail to support@helmholz.de.

** Simatic and STEP 7 are registered trademarks of Siemens AG.*

** Windows is a registered trademark of Microsoft Corporation.*