



Quick Start Guide FLEXtra SLIM PROFINET-Switch 5-/8-port, FO

Order number: 700-852-5PS01, 700-852-8PS01, 700-954-6FO21

As of firmware V0.90

Version
2 en

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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 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

forbidden.

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

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

One of the most important functions of a PROFINET switch is the prioritization of PROFINET telegram traffic in the machine network. The managed switches can distinguish whether the telegram is a web request, an FTP file transfer, a media stream, or a PROFINET telegram. In the event of a high transmission load, the cyclical PROFINET telegrams can thus be prioritized to prevent telegram losses in the machine components.

With the managed FLEXtra SLIM PROFINET switches, PROFINET components can be networked at speeds of up to 100 Mbps. PROFINET prioritization according to Conformance Class B of the machine components is always guaranteed.

The slim design saves space in the control cabinet. The clearly visible status LEDs on the top of the FLEXtra SLIM PROFINET switches enable easy diagnosis even when fully wired.

In addition to the PROFINET protocol, functions such as SNMP, NTP, VLAN, port mirroring, QoS/CoS mapping, and comprehensive statistics are also available for managing the Ethernet network.

The supported PROFINET protocols, such as LLDP, DCP, or diagnostic alarms, can be easily parameterized and managed.

The website provides comprehensive information about the status of the FLEXtra PROFINET switch, such as port status and statistics, stored MAC addresses, and the ARP table.

For more information about the network management functions, status displays, and configuration management, please refer to the detailed manual for the FLEXtra SLIM PROFINET switch.



NOTE

This document explains how to initially set up the FLEXtra SLIM PROFINET switch using a standard application scenario. The latest version of the document and the detailed manual can be found at www.helmholz.de or by scanning the QR code directly.

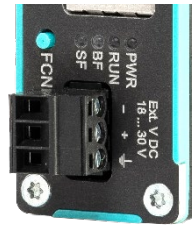


3 Preparing the PROFINET Switch

3.1 Connecting

The FLEXtra SLIM PROFINET switch must be supplied with 24 VDC at the wide-range input "Ext. V DC 18 ... 30 V" using the supplied connector plug.

The RJ45 sockets "X1 P1" – "X1 P5" and "X1 P1" – "X1 P8" are used to connect network participants (PROFINET or Ethernet).



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

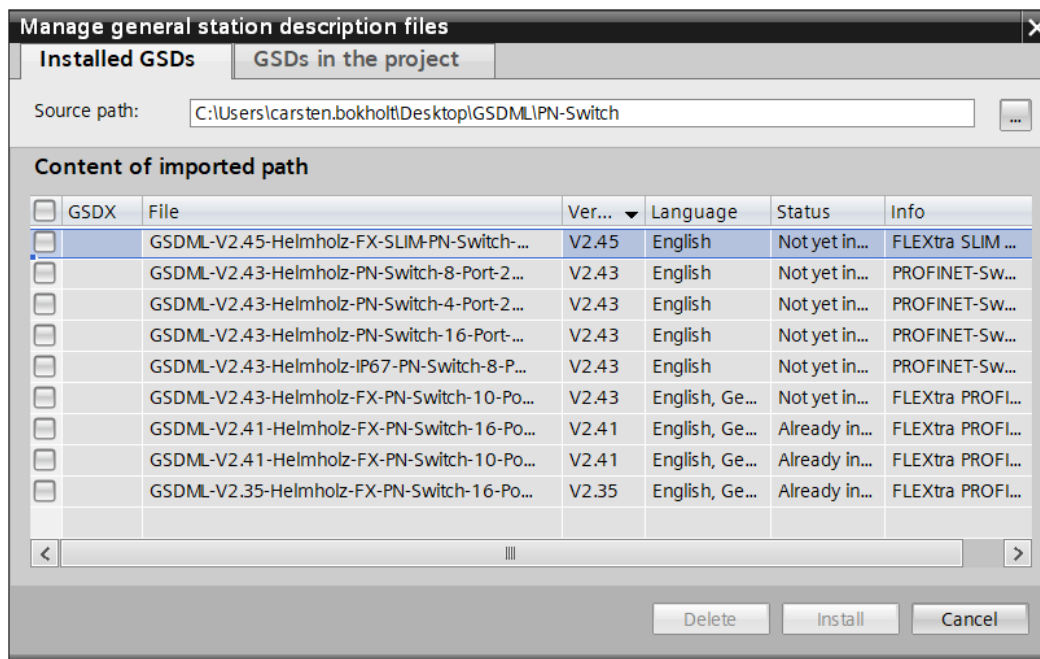
4.1 Install GSDML file

You can download the GSDML file for the FLEXtra SLIM PROFINET switches from the website www.helmholz.de in the download area of the desired product. Alternatively, the GSDML can also be downloaded from the web page of the device.

The GSDML file contains both the FLEXtra SLIM PROFINET 5-port switch and the 8-port switch.

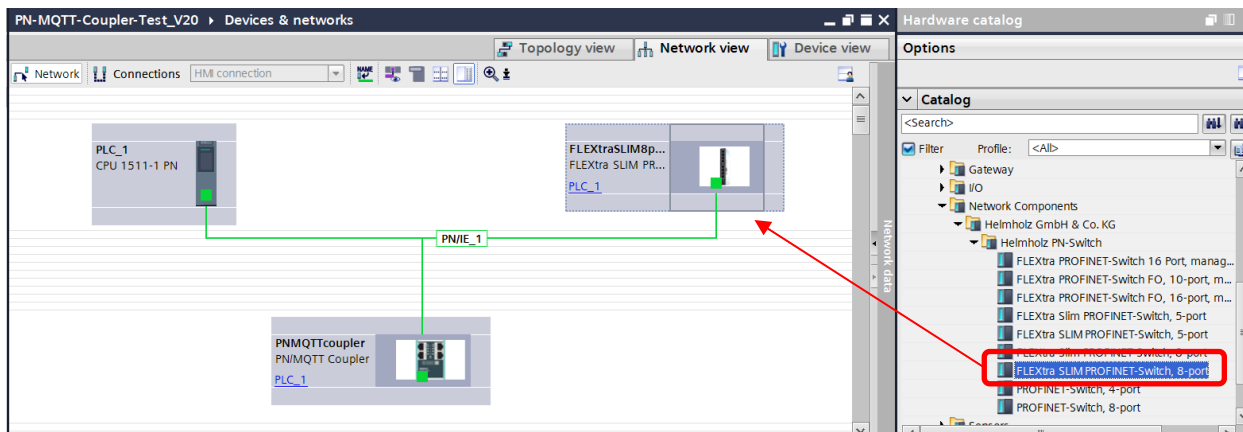


Install the GSDML file via the TIA Portal menu "Extras" / "Load device description file (GSD)".



4.2 Setup in the hardware-configuration

After installation, the FLEXtra SLIM 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. Add the desired device to the project and connect it to your PROFINET network.

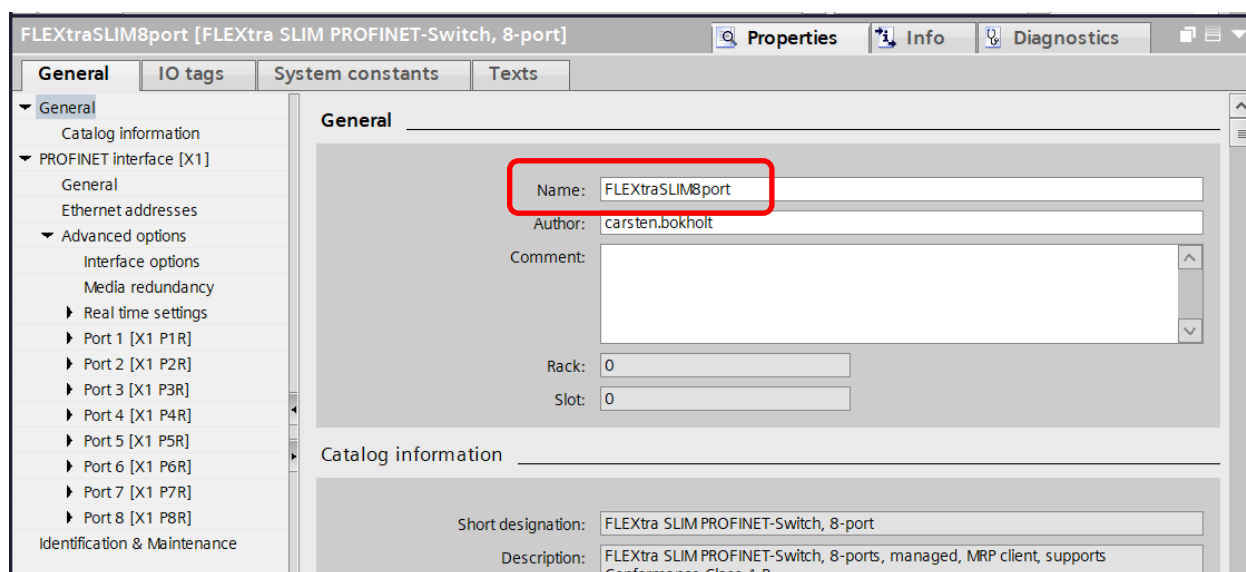


By calling up the object properties, you must give the FLEXtra SLIM PROFINET switch a unique PROFINET name in the project and check the IP address for plausibility.



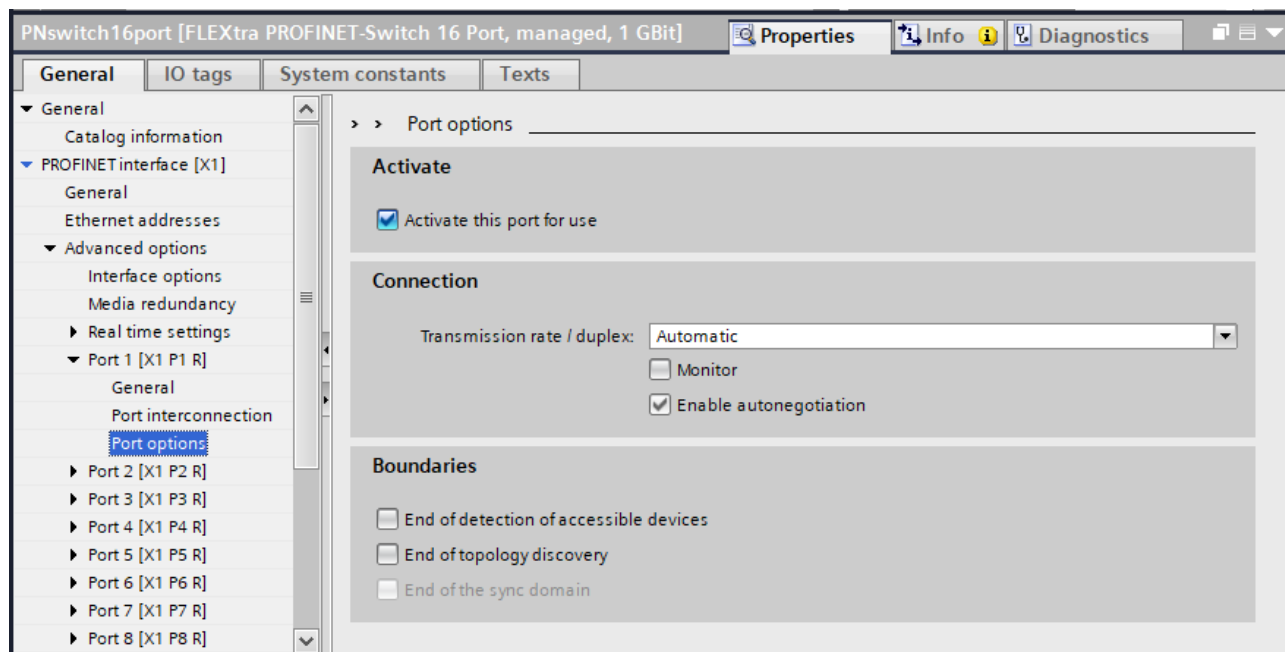
NOTE

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.



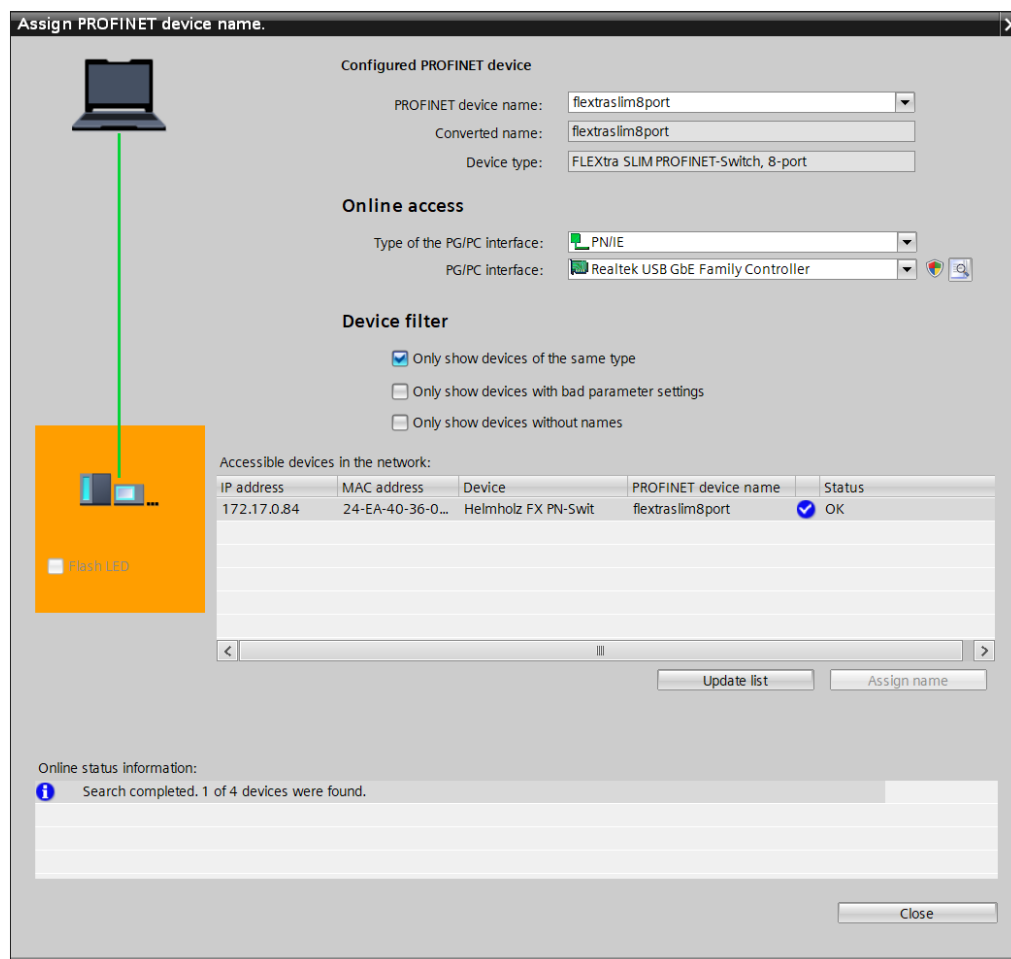
“Activate this port”	The port can be switched off here. This option is recommended when the port should not be used. Unauthorized trespass into the network is prevented.
Transmission rate / duplex “Automatic”	The port synchronizes itself automatically with the communication partner (auto-negotiation).
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 SLIM 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 PROFINET switch is ensured here by the MAC address of the device. The MAC address of the device can be found on the device label of the FLEXtra SLIM 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.

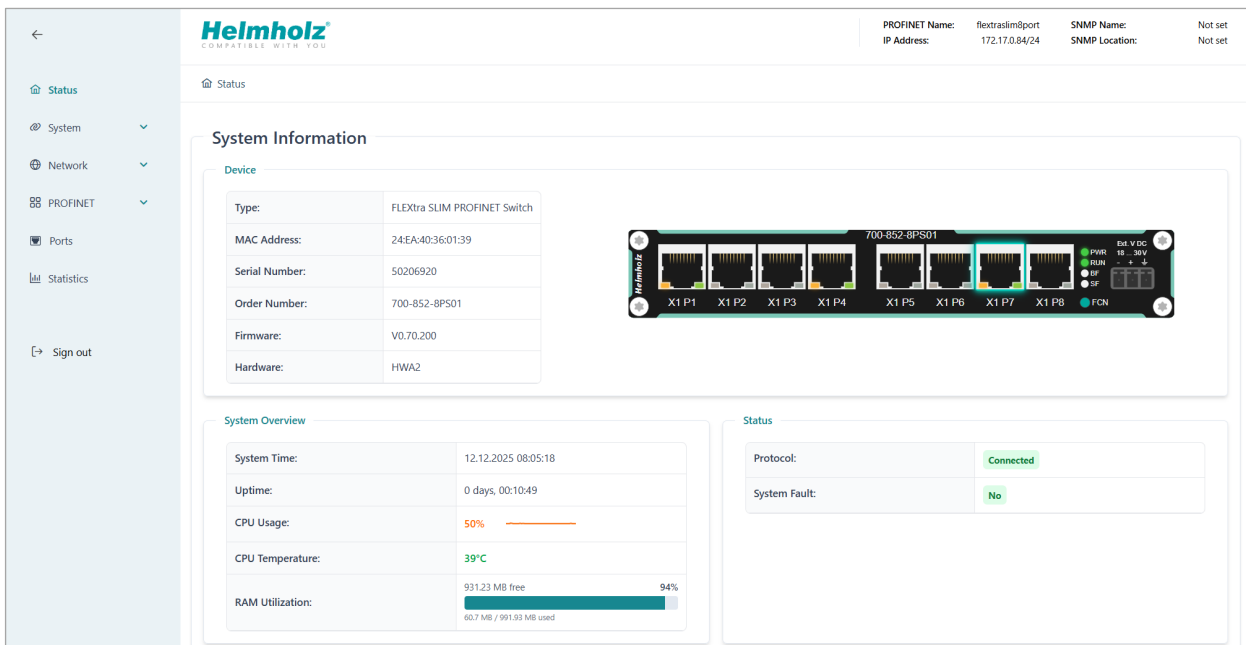


Depending on the browser used, a message such as "This is not a secure connection" may appear when connecting for the first time. The connection to the PROFINET switch website is SSL-encrypted, but the web interface certificate is a self-generated manufacturer certificate. This means that the browser cannot verify its trustworthiness. The PROFINET switch can be assigned its own HTTPS certificate later.

Allow access to the website in your browser.

In the following login dialog, use the username "admin" and the serial number of the PROFINET switch as the password, which can be found on the side of the device. After logging in for the first time, the default password must be changed.

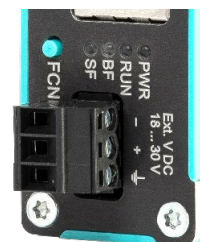
The menu "Status" contains basic information about the status of the PROFINET switch. The status web page displays the basic system status and information about the switch. On the left is the menu with additional diagnostic and configuration options.



Further information on the web interface can be found in the manual.

5 Diagnosis via LEDs

The two system LEDs "PWR" and "RUN" and the two PROFINET LEDs "BF" and "SF" indicate the system status of the switch.



5.1 System LEDs

PWR	Off	No voltage supply or device defective
	On	Device is correctly supplied with voltage
RUN	Off	Device is defective
	On	Device is ready for operation
	Flashing	Firmware upgrade (green) or factory reset (orange)
BF	On	Bus error or no configuration
	Flashing (together with the BF and SF LED)	PROFINET function device identification ("Flash LED")
SF	On	System error, network state faulty
	Flashing (together with the BF and SF LED)	PROFINET function device identification ("Flash LED")

5.2 Ethernet LEDs P1 – P8 (RJ45)

Off		No network cable connected, network cable defective or connected device is offline
Green	Off	No Ethernet connection
	steady on	Ethernet communication existing
Orange	steady on	Ethernet connection established
	flashes	Ethernet communication active

6 Function of button

With the "FCN" button the PROFINET switch can be reset to factory settings. If the "FCN" button is held down during the switch's start-up phase or after a reset, the "RUN" LED will flash orange for 10 seconds. During this period the FCN button must be released, otherwise the factory reset will not be initiated. After releasing the button, the switch will restart with factory settings.

7 Technical data

7.1 FLEXtra SLIM PROFINET-Switch 5-port

Order number	700-852-5PS01
Name	FLEXtra SLIMPROFINET-Switch 5-Port, managed, 100 Mbps
Scope of delivery	PROFINET-Switch 5-Port with power supply plug
Dimensions (D x W x H)	80 x 25 x 109 mm
Weight	Ca. 200 g
PROFINET/Ethernet interfaces (X1)	
Connection	5 x RJ45, integrated Switch
Transmission rate	10/100 Mbps
Protocol	PROFINET IO Device as defined in IEC 61158-6-10
Features	PROFINET Conformance Class B (<i>in preparation</i>), Netload Class III, Media Redundancy (MRP), automatic addressing (DCP), topology detection (LLDP), diagnostic alarms, VLAN, SNMP V2/V3, Port-Mirroring, Port statistics
Status indication	
Function status	4 LEDs (PWR, RUN, BF, SF)
Ethernet status	10 LEDs (bi-colored)
Power supply	
Operating voltage	DC 24 V, 18 – 30 V DC
Current draw	max. 140 mA with DC 24 V
Power dissipation	Max. 3.3 W
Ambient conditions	
Ambient temperature	-40° C to +75° C
Transport and storage temperature	-40° C to +85° C
Relative humidity	95% without condensation
Protection rating	IP 20
Mounting position	As desired
Approvals	CE, PROFINET Conformance Class B (<i>in preparation</i>)

7.2 FLEXtra SLIM PROFINET-Switch 8-port

Order number	700-852-8PS01
Name	FLEXtra SLIMPROFINET-Switch 8-Port, managed, 100 Mbps
Scope of delivery	PROFINET-Switch 8-Port with power supply plug
Dimensions (D x W x H)	80 x 25 x 157 mm
Weight	Ca. 275 g
PROFINET/Ethernet interfaces (X1)	
Connection	8 x RJ45, integrated Switch
Transmission rate	10/100 Mbps
Protocol	PROFINET IO Device as defined in IEC 61158-6-10
Features	PROFINET Conformance Class B (<i>in preparation</i>), Netload Class III, Media Redundancy (MRP), automatic addressing (DCP), topology detection (LLDP), diagnostic alarms, VLAN, SNMP V2/V3, Port-Mirroring, Port statistics
Status indication	
Function status	4 LEDs (PWR, RUN, BF, SF)
Ethernet status	16 LEDs (bi-colored)
Power supply	
Operating voltage	DC 24 V, 18 – 30 V DC
Current draw	max. 160 mA with DC 24 V
Power dissipation	Max. 3.8 W
Ambient conditions	
Ambient temperature	-40° C to +75° C
Transport and storage temperature	-40° C to +85° C
Relative humidity	95% without condensation
Protection rating	IP 20
Mounting position	As desired
Approvals	CE, PROFINET Conformance Class B (<i>in preparation</i>)

7.3 FLEXtra SLIM PROFINET-Switch FO 8-port, 1 GBit

Order number	700-854-6FO21
Name	FLEXtra SLIMPROFINET-Switch FO 8-Port, managed, 1 GBit
Scope of delivery	PROFINET-Switch FO 8-Port with power supply plug
Dimensions (D x W x H)	80 x 25 x 157 mm
Weight	Ca. 280 g
PROFINET/Ethernet interfaces (X1)	
Connection	6 x RJ45 2 x Fiber Optic (FO) for SFP Transceiver Module, Singlemode or Multimode integrated Switch
Transmission rate	RJ45: 10/100/1000 Mbit/s SFP: 1000 Mbit/s
Protocol	PROFINET IO Device as defined in IEC 61158-6-10
Features	PROFINET Conformance Class B (<i>in preparation</i>), Netload Class III, Media Redundancy (MRP), automatic addressing (DCP), topology detection (LLDP), diagnostic alarms, VLAN, SNMP V2/V3, Port-Mirroring, Port statistics
Status indication	
Function status	4 LEDs (PWR, RUN, BF, SF)
Ethernet status	16 LEDs (bi-colored)
Power supply	
Operating voltage	DC 24 V, 18 – 30 V DC
Current draw	max. 310 mA with DC 24 V
Power dissipation	Max. 7.4 W
Ambient conditions	
Ambient temperature	-40° C to +70° C
Transport and storage temperature	-40° C to +85° C
Relative humidity	95% without condensation
Protection rating	IP 20
Mounting position	As desired
Approvals	CE, PROFINET Conformance Class B (<i>in preparation</i>)



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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