Helmholz®
COMPATIBLE WITH YOU

Quick Start Guide PROFINET-Switch 8-port, IP67

Version
1 en

www.helmholz.com

Contents

:z-beipack-143

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 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.

2. Introduction

This Quick Start Guide explains the basic settings for the initial commissioning of PROFINET-Switches for use in a PROFINET project.

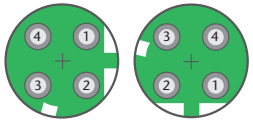
You can find further information in the manual. You can find this under **www.helmholz.com** or scan the QR code directly.

SCAN QR CODE TO GET MANUAL

PROFINET-Switch, 8-port, IP67
Documentation

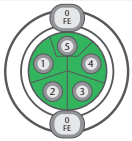
1.1. Connection layout M12

X1, M12 D-coded PROFINET connector



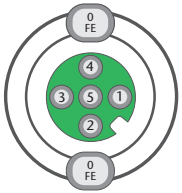
Pin 1	TX-P
Pin 2	RX-P
Pin 3	TX-N
Pin 4	RX-N

X2, M12 L-coded Power connector

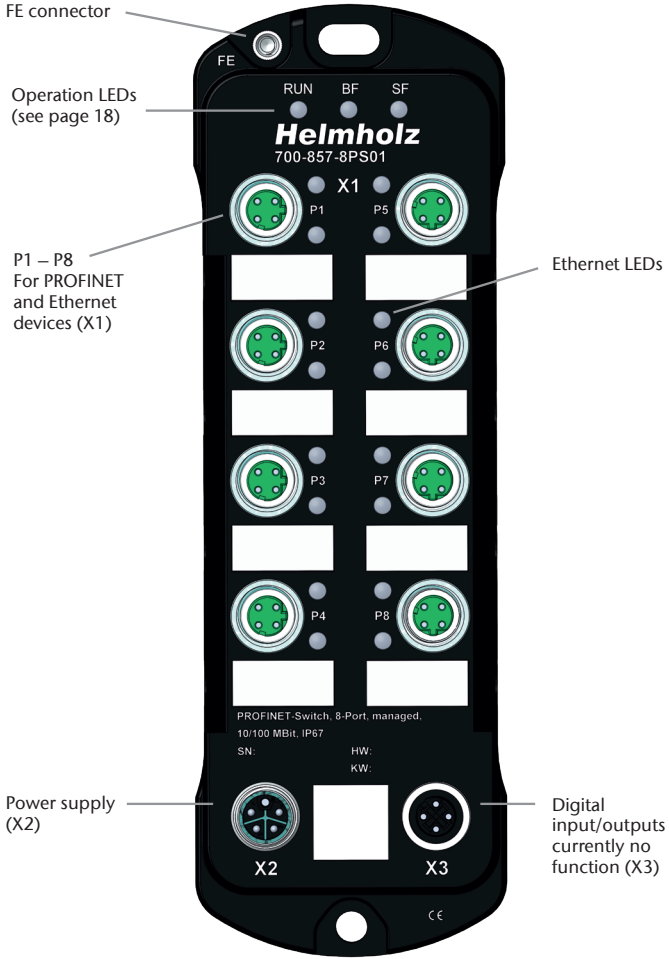


Pin 1	24 V DC in
Pin 2.4	not connected
Pin 3	GND
Pin 5	FG

X3, M12 A-coded I/O connector



Pin 1	24 V DC out
Pin 2	D1 Input Type 3 EN 61131-2, output 24 V DC 500 mA electronic fuse
Pin 3	GND
Pin 4	D2 Input Type 3 EN 61131-2, output 24 V DC 500 mA electronic fuse
Pin 5	FG



3. Preparing the PROFINET-Switch

2.1 Connection

The PROFINET-Switch must be supplied with 24 V DC at the wide range input 18 – 30 V DC via the M12 connector plug (X2). The connection (FE) is for the functional ground. Connect this correctly with the reference potential.

The M12 sockets “P1 – P8” (X1) serve the purpose of connection of the network participants (PROFINET or Ethernet).

2.2 Install GSDML file

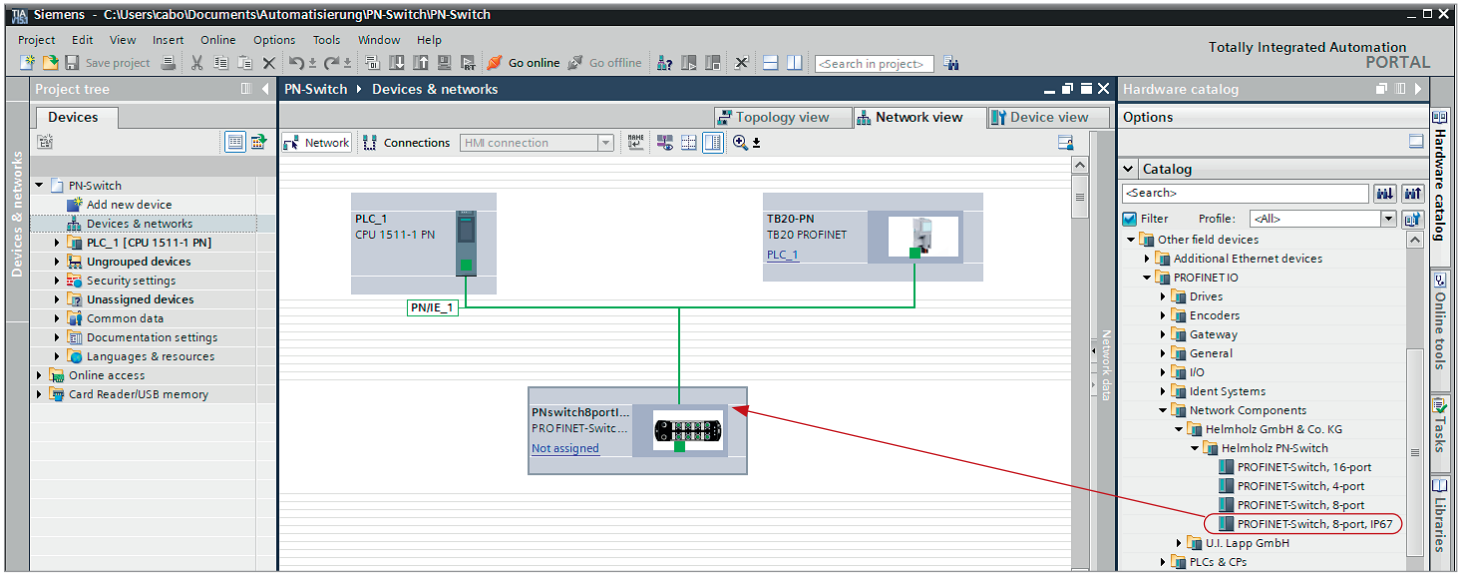
Please download the GSDML file under **www.helmholz.com** or scan the QR code.

4. Project planning for PROFINET-Switch

Following installation, the PROFINET-Switch can be found in the hardware catalog under “PROFINET IO → Other field devices → Network components → Helmholz PN-Switch”. Add the “PROFINET-Switch 8-port, IP67” device to the project and connect it with your PROFINET network.

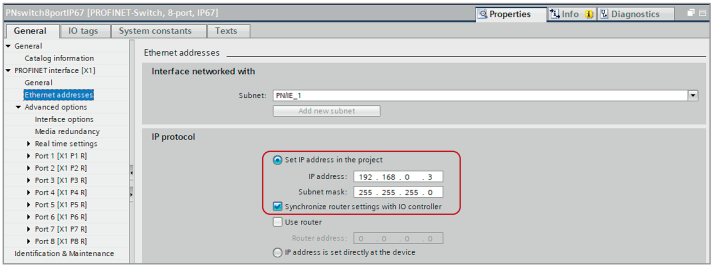
SCAN QR CODE TO GET GSDML

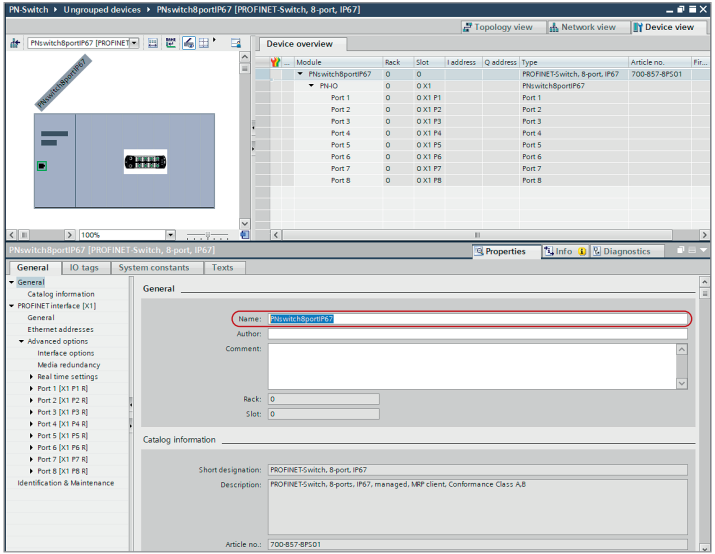
PROFINET-Switch, 8-port, IP67
GSDML file



By calling up the properties in the device view, you must assign the PROFINET-Switch a unique PROFINET name in the project and check the IP address for plausibility.

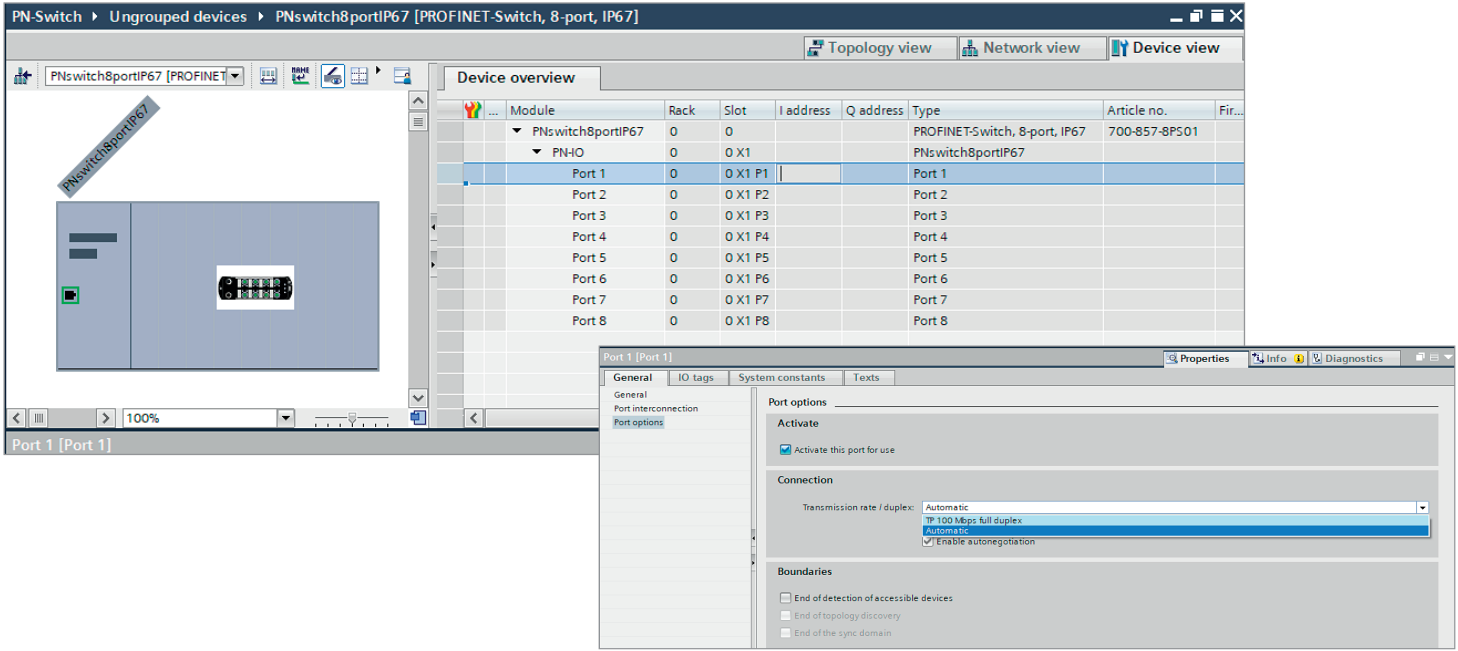
Important: *The real device must later be assigned the same name as in the project.*
See also Chapter .6





5. Setting the port properties

Each port of the PROFINET-Switch can be individually configured.



Transfer medium/duplex:

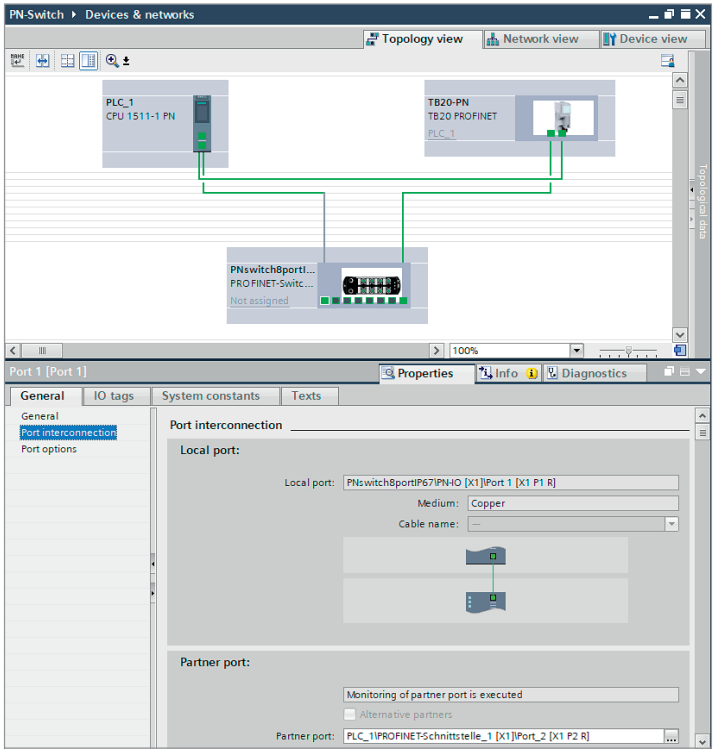
“Activate this port for use”	The port not being used can be deactivated with this option. Unauthorized access of the network is prevented.
“Automatic” setting	The port synchronizes itself automatically with the communication partner (10/100 Mbps/as well as half/full duplex).
“TP 100 Mbps“	Fixed specification of the transmission rate. This option is recommended when connecting PROFINET IO devices.
“Monitor”	If no network connection can be established via this port, a diagnostics alarm is triggered.
“Enable autonegotiation”	The port automatically detects the cable type (cross or patch cable)

6. Topology detection

The PROFINET-Switch supports the mechanisms for neighborhood detection (LLDP). With this function it is possible to detect the topology of a PROFINET network, or to specify it for purposes of checking for the correct structuring by the configuration.

If the topology was prescribed in the configuration, neighboring devices can also be assigned the PROFINET name in the event of the replacement of a device.

This makes the recognition and testing of the network topology and the “device exchange in operation” of connected PROFINET participants possible.



7. Assign the PROFINET-Switch a name

When the configuration of the PROFINET-Switch has been completed in the hardware configurator, it can be loaded into the PLC.

For the switch connected to the PROFINET to be detected by the PROFINET controller, the PROFINET name must be set in the device.

The function “Assign name” in the TIA portal can be used for this purpose.

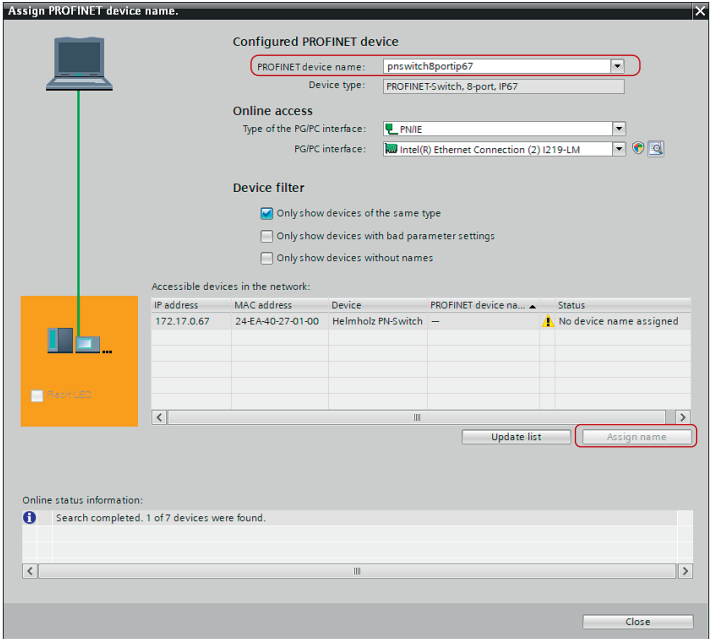
With the “Update list” button, the network can be browsed for PROFINET participants.

The clear identification of the PROFINET-Switch is ensured here by the MAC address of the device.

***Important**: The assigned name must match the name defined in the hardware configurator. See Chapter 3, pages 4/ 5*

If the PROFINET-Switch has been assigned the correct name, it is recognized by the PLC and configured.

If configuration has taken place correctly, the green “RUN” LED should be on and the “BF” and “SF” LEDs off.



Alternatively, the free “IPset” software can be used.

Please download the software file under **www.helmholz.com** or scan the QR code.

SCAN QR CODE
TO GET SOFTWARE

PROFINET-Switch, 8-port, IP67
IPset

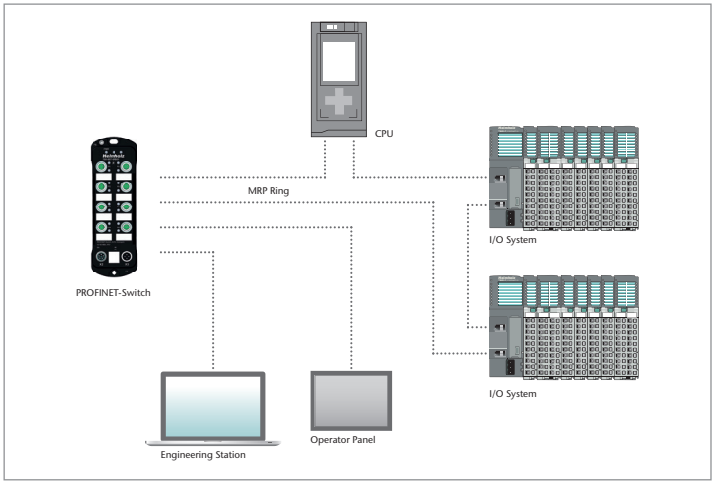
8. Media Redundancy Protocol (MRP)

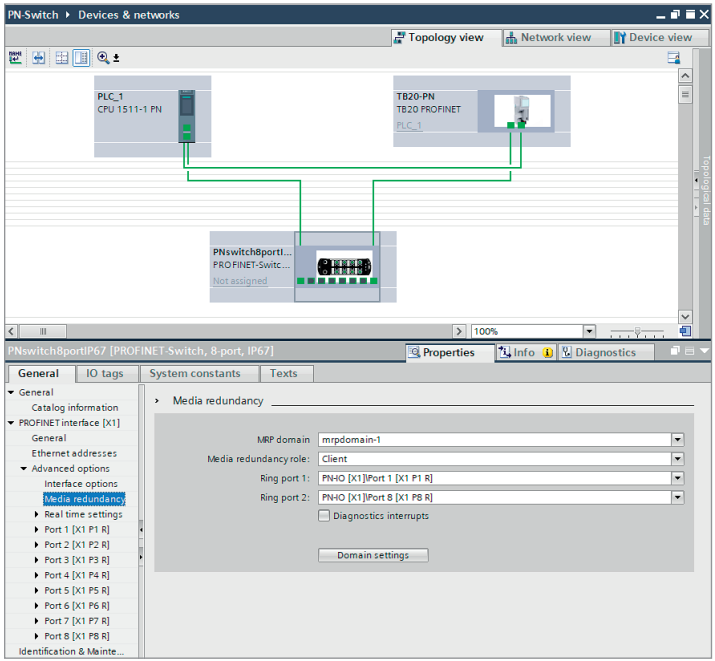
The PROFINET-Switch supports the optional media redundancy protocol (MRP) as MRP client. MRP stands for “media redundancy protocol”. MRP enables ring wiring, which also makes operation of the PROFINET network possible in the event of the failure of a cable or of a participant.

There must be at least one MRP master (e.g. the CPU) in an MRP ring. All other participants of the ring are then MRP clients.

In order to assign the PROFINET-Switch to an MRP ring, the “MRP domain” must be set at slot X1 for the option “Media redundancy role” and the role set to “Client”.

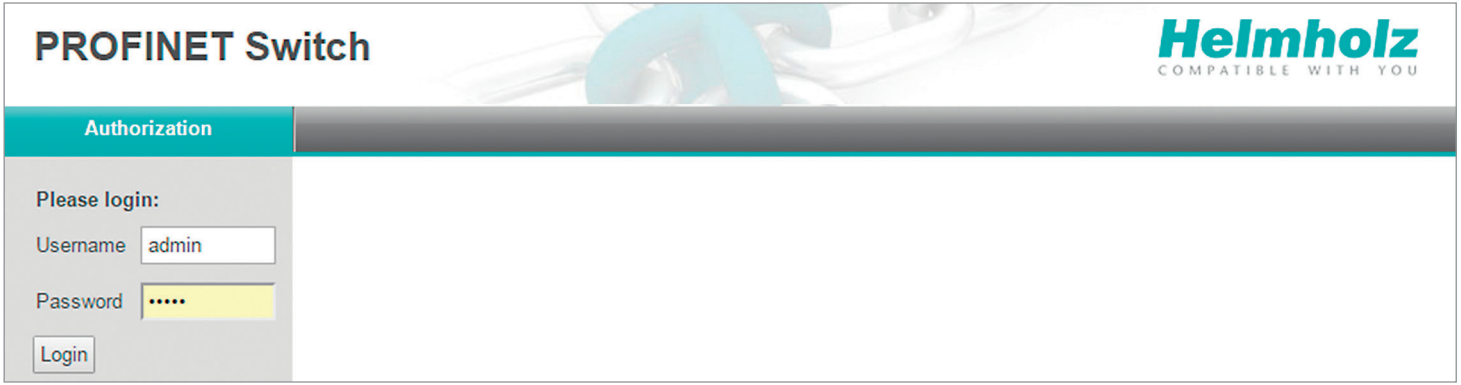
Important: *If ring wirinig is established without without the MRP roles being configured for all devices involved, this can result in functional disruptions of the PROFINET network!*



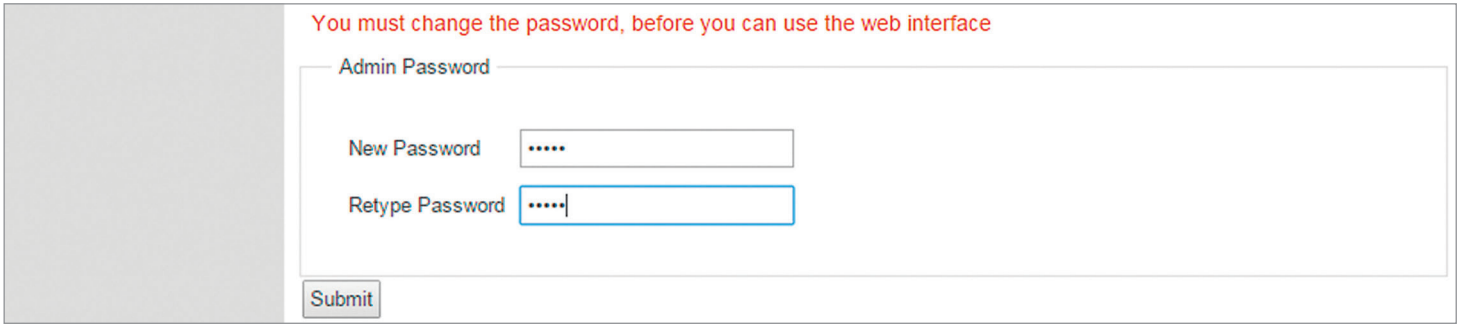


9. Diagnosis and configuration via the web interface

The web interface is also accessible via the IP address assigned to the PROFINET-Switch in the PROFINET network.



When the web interface is first called up, the password of the “admin” user is the serial number of the device. The serial number is printed on the right housing side part (e.g. “50001234”). It is absolutely necessary to assign a new password following the first login:

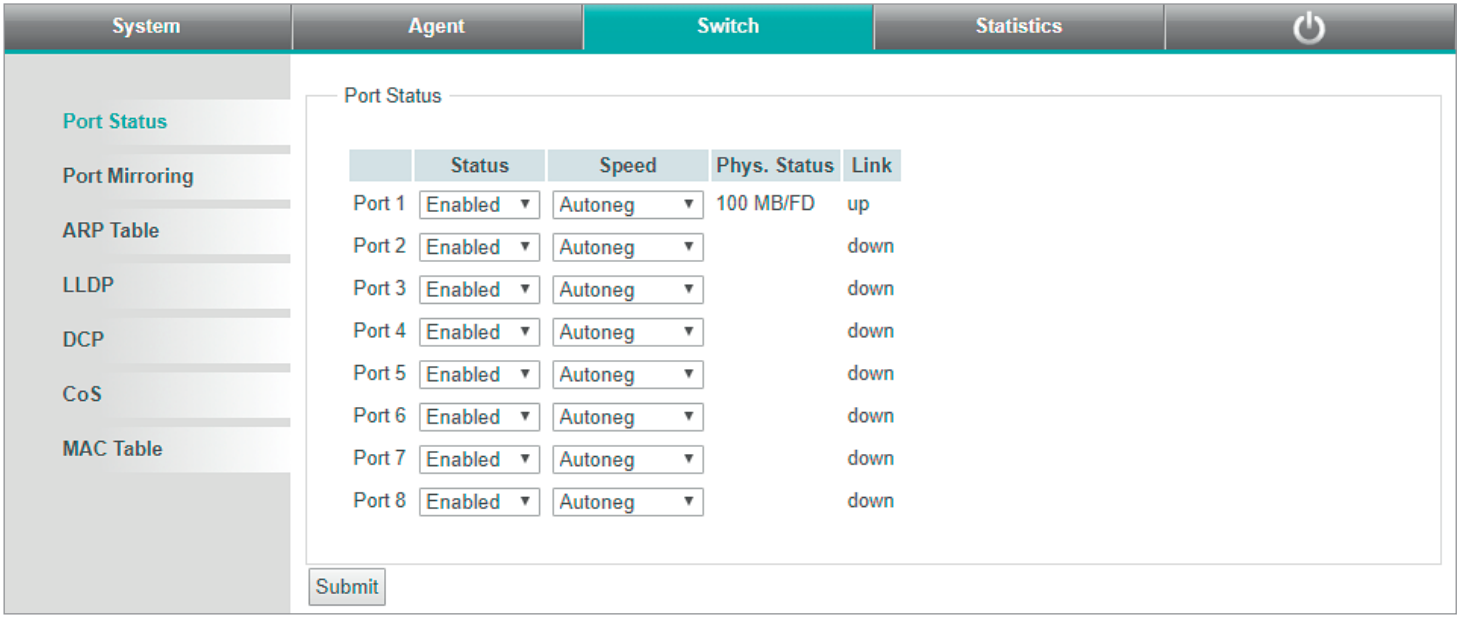


One goes to the system view following entry of the new password:

Note: *If the PROFINET-Switch is configured and used in a PROFINET network, settings in the web interface are only to be viewed as a diagnosis. A reconfiguration of PROFINET-related settings (Port Status, LLDP, DCP, Ring Redundancy) is then not possible in the web interface.*

10. Switch diagnosis and settings

Extensive information and settings for the function of the switch are accessible in the Switch menu.

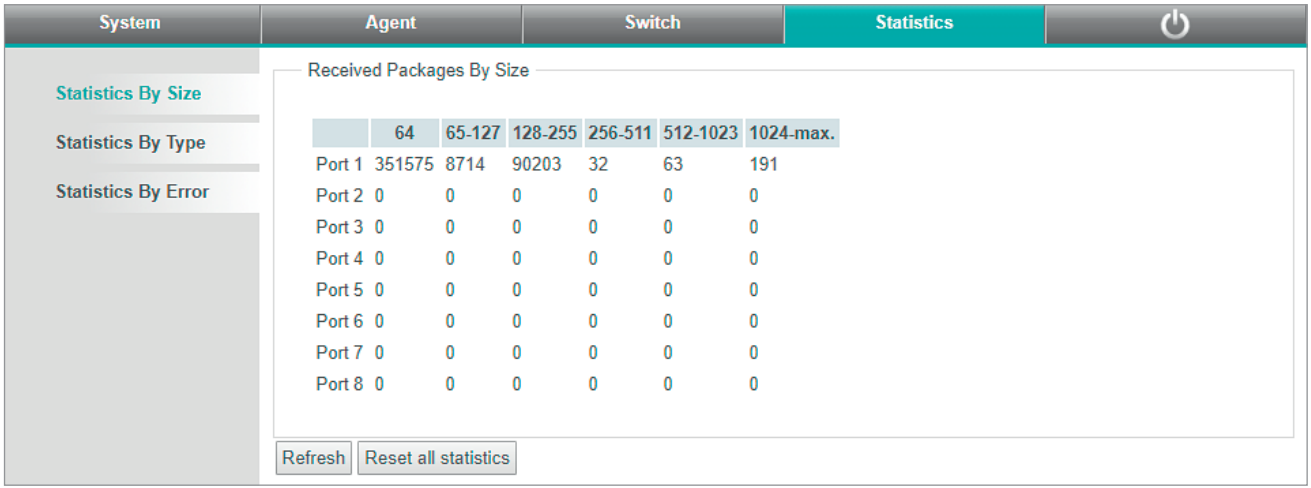


11. Port mirroring

In order to be able to carry out frame analyses or recordings, Port Mirroring can be activated in the PROFINET-Switch. With Port Mirroring, the frame transfer from one “Mirrored Port” to the “Monitor Port” is completely mirrored, on which an analysis PC can then record everything.

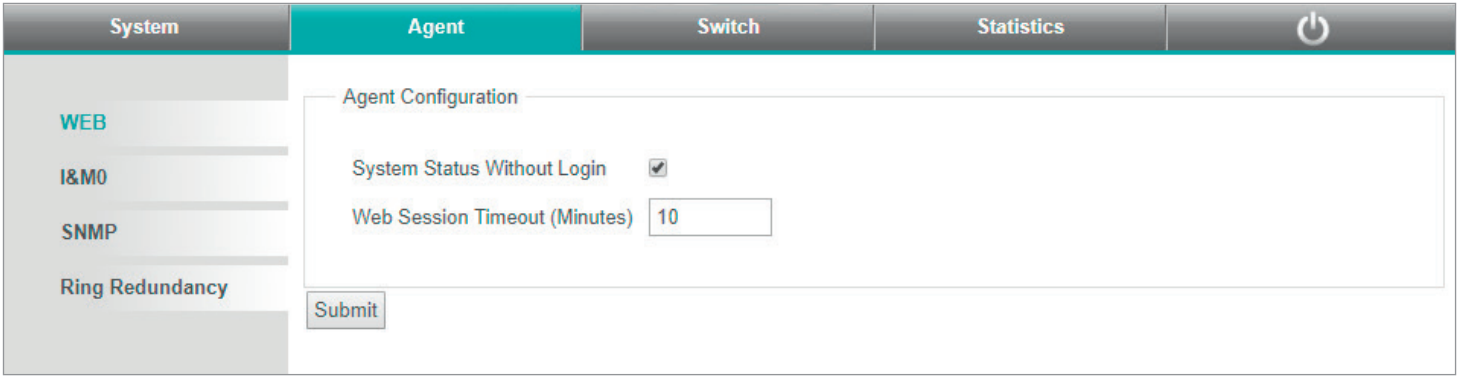
12. Statistics

Detailed statistics on the data transfer can be queried in the “Statistics” menu.
Among other things, the quality of the transmission can be monitored in the sub-menu “Statistics by Error.”



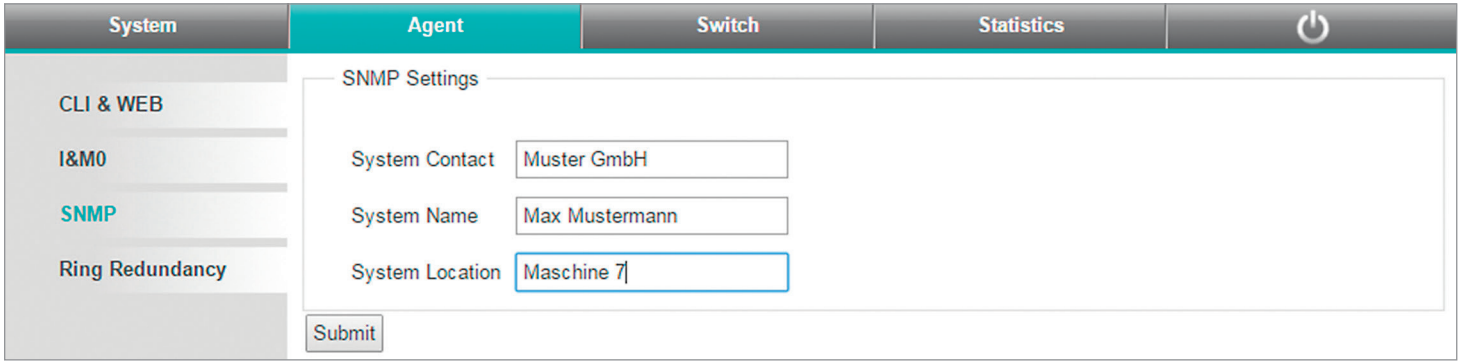
13. Agents

In order to already be able to view basic information about the switch at the start website, before or without having logged in, the option “System Status Without Login” can be selected. With “Web Session Timeout”, it can be defined whether an automatic logout should take place in the event of inactivity at the website for security reasons.



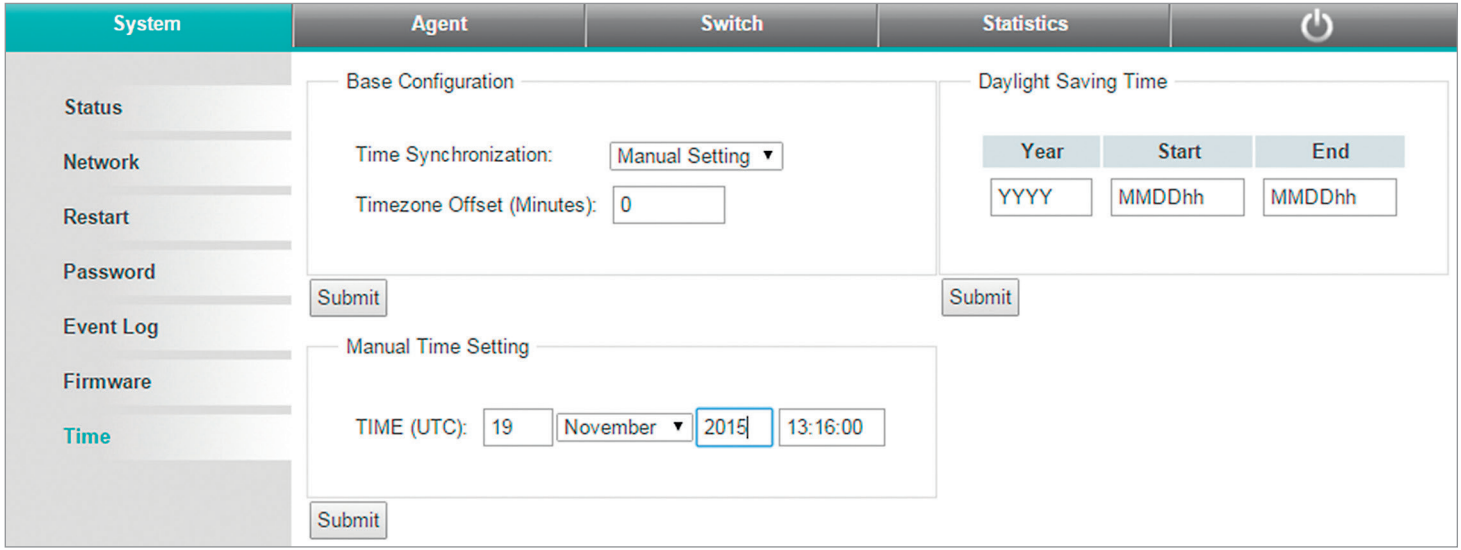
14. SNMP

The PROFINET-Switch supports SNMP (“Simple Network Management Protocol”) in order to also enable the identification and diagnosis of the switch for IT administration tools.



15. Setting the time

The PROFINET-Switch contains a system clock for the issuing of logs and alarm messages. This can be set either manually or automatically by an SNTP server.



16. Resetting to factory settings

In order to reset the PROFINET-Switch to the delivery status, the function “Factory Reset” can be used in the web interface under “System” → “Restart”.

17. Firmware update

A firmware update can be carried out via the web interface.

Please download the firmware file under **www.helmholz.com** or scan the QR code.

SCAN QR CODE TO GET FIRMWARE

PROFINET-Switch, 8-port, IP67

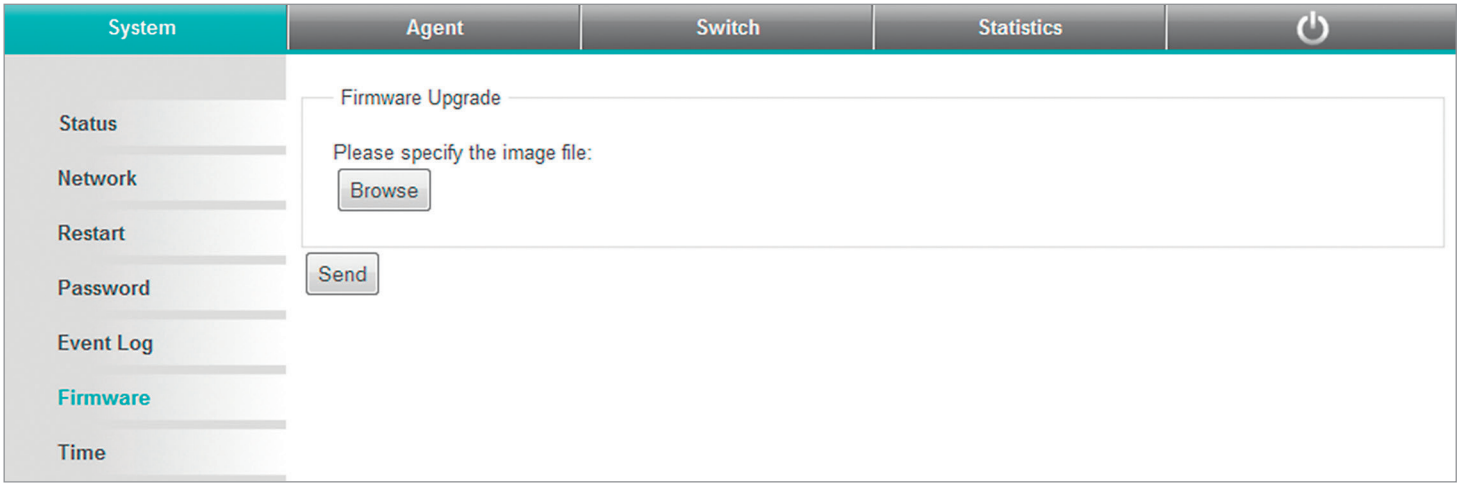
Firmware

The firmware update file can be selected in the menu “System → Firmware”. The file has the ending “HUF” (Helmholz Update File).

The firmware is transferred to the PROFINET-Switch and burned with the “Send” button.

The new firmware is active following a restart of the PROFINET-Switch.

***Important**: Switching off the power supply during the update process can make the device unusable.*



18. LED status information

RUN

Flashing light	The device starts
On	The device is ready to operate

BF

On	The device has no configuration and/or there is no connection with the PROFINET controller

SF

On	A PROFINET diagnosis is available

Ethernet LEDs

Green (Link)	Connected
Orange (Act)	Networktraffic

Note: *The LEDs "RUN," "BF," and "SF" all flash synchronously when the PROFINET function for device identification has been activated.*

19. Technical data

PROFINET-Switch 8-port, managed, IP67 (700-857-8PS01)

Dimensions (D x W x H)	24 x 62 x 190 mm
Weight	Approx. 410 g
PROFINET ports (X1)	
- Protocol	PROFINET IO device as per IEC 61158-6-10
- Physical layer	Ethernet
- Type	10Base-T/ 100Base-T
- Transmission rate	10/100 Mbps
- Connection	M12 D-coded
- Features	Media Redundancy Protocol (MRP), automatic addressing / topology detection (LLDP, DCP)
Status indicator	3 LEDs, function status 16 LEDs, Ethernet status
Voltage supply (X2)	24 V DC, 18–30 V DC
- Connection	M12 L-coded
Current draw	Max. 130 mA at 24 V DC
Power dissipation	Max. 3.5 W
Permissible ambient temperature	-40 °C .. +75 °C
Transport and storage temperature	-40 °C .. +85 °C
Protection rating	IP67
Certifications	CE

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.

1) SIMATIC is a registered trademark of Siemens AG.

Our customers are at the center of everything we do. We welcome all ideas and suggestions.

Helmholz GmbH & Co. KG | Hannberger Weg 2 | 91091 Großenseebach | Germany | Phone +49 9135 7380-0 | Fax +49 9135 7380-110 | info@helmholz.de | www.helmholz.com