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Quick Start Guide PN/PN Coupler

Version

1 en
as of FW 1.00

www.helmholz.de

Contents

1. Introduction

This document explains the initial commissioning of the PN/PN Coupler.

Note: Please observe the safety instructions for the product, which can be found in the manual. You can find the manual on the accompanying CD or it can be downloaded from the website www.helmholz.de in the download area.

2. Function of the PN/PN Coupler

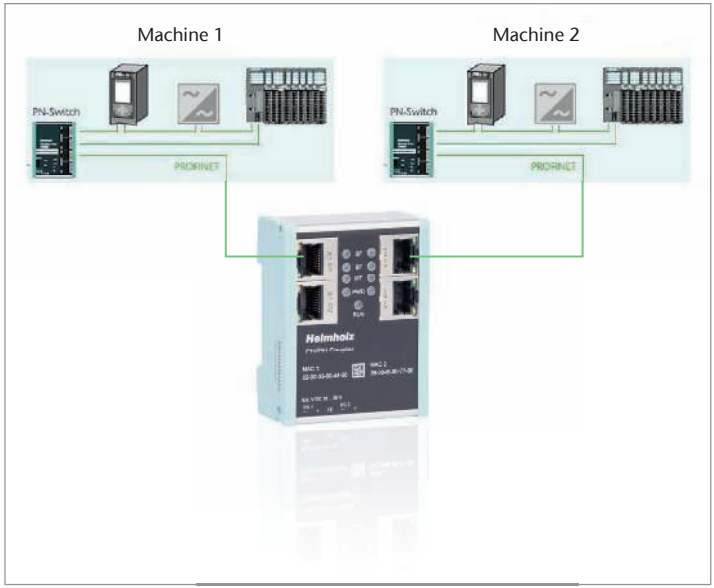
With the PN/PN Coupler, a simple and uncomplicated connection of two separate PROFINET networks is possible. The PN/PN Coupler enables data transmission between two PROFINET controllers. A PROFINET IO device is on both PROFINET network sides.

Received input data on one of the network sides is made available as output data to the other network side. The IO data transfer takes place live and as quickly as possible without additional handling blocks.

The maximum size of the transmitted IO data is 1024 bytes. Up to 16 slots for IO modules of 1 byte and up to 128 bytes are available.

The incorporation into the PLC engineering tool is made possible by a GSDML file; special configuration software isn't necessary.

Application example: 1

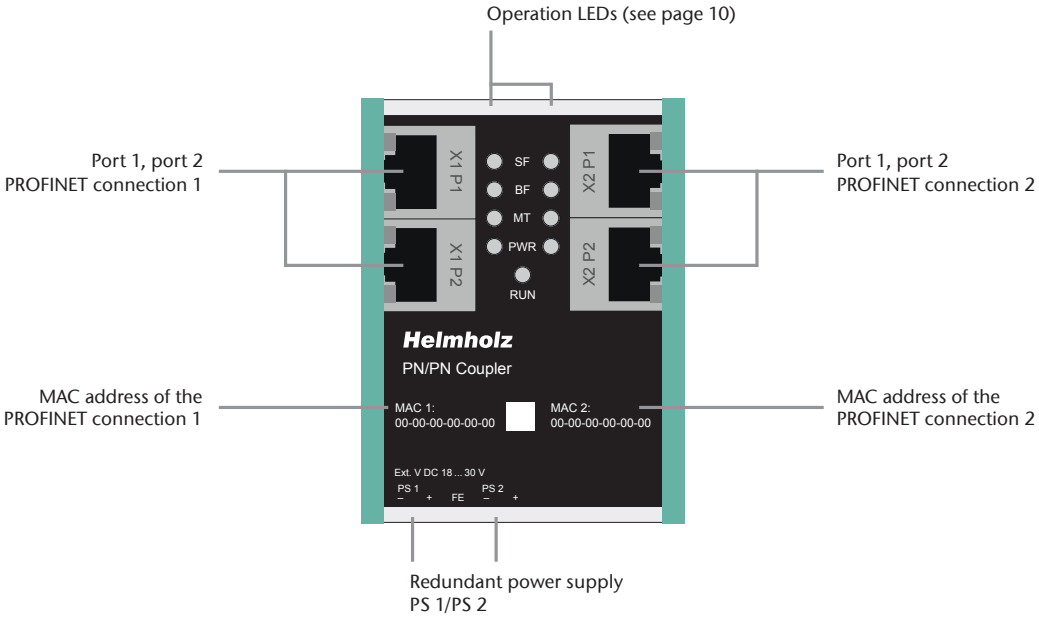


3. Connection

The RJ45 sockets “X1 P1” and “X1 P2” are for the connection of the left PROFINET network; the RJ45 sockets “X2 P1” and “X2 P2” are for the connection of the right PROFINET network.

The PN/PN Coupler must be supplied with 24 V DC at the wide range input 18 ... 30 V via the provided connector. The power supply is designed redundantly.
At least a supply path PS 1 or PS 2 must be connected.

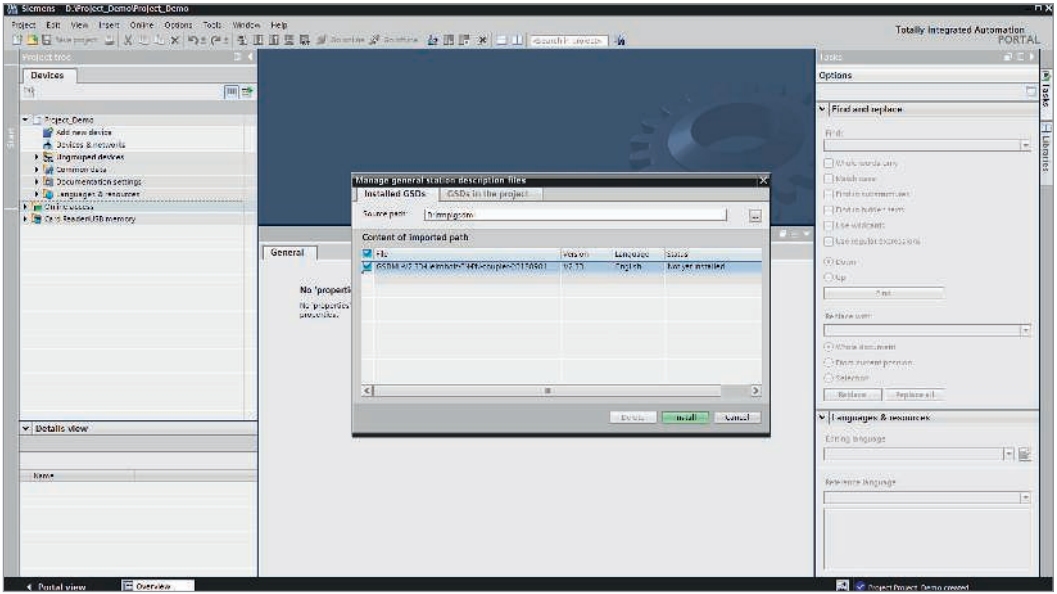
Note: *The housing of the PN/PN Coupler is not grounded. Please connect the functional grounding connection (FG) of the PN/PN coupler correctly with the reference potential.*



4. Install GSDML file

The GSDML files can be found on the accompanying CD or in the download area of the PN/PN Coupler at www.helmholz.de („GSDML-V2.34-Helmholz-PN-PN-coupler-_____.xml“).

Install the file in the engineering tool so that the PN/PN Coupler is available for configuration.



5. Configuration in the TIA portal

The PN/PN Coupler can be found in the hardware catalog under “Other field devices / PROFINET IO / Gateway / Helmholz GmbH & Co. KG / Helmholz PN/PN Coupler”.

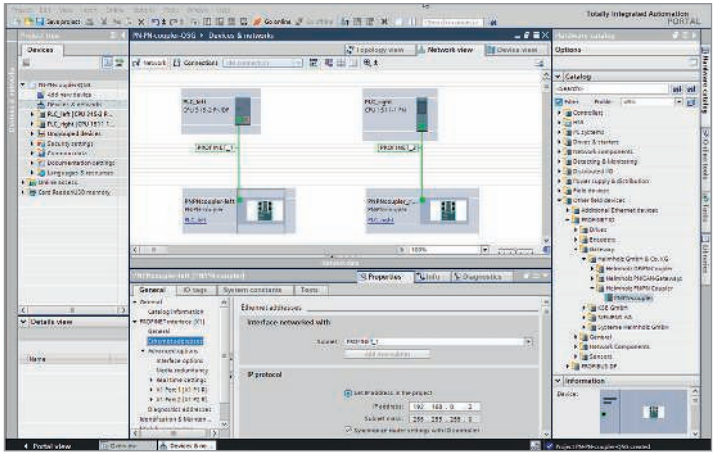
Provide the PN/PN Coupler with a PROFINET name under “General”. Connect the PROFINET network of the PROFINET controller with the PN/PN Coupler.

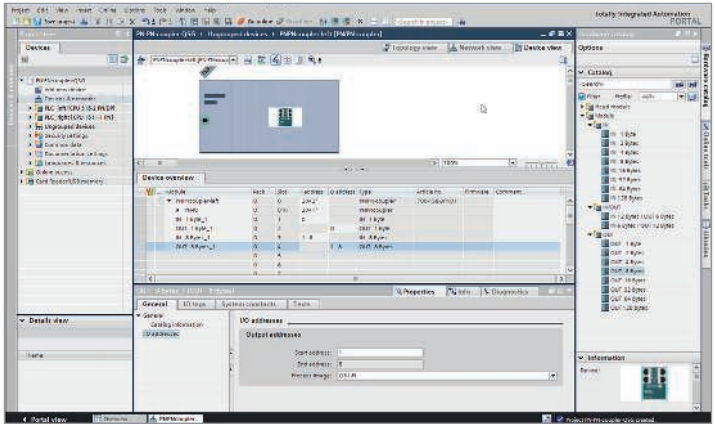
Now insert the desired IO modules into the plug points. IO modules for 1, 2, 4, 8, 16, 32, 64, and 128 bytes are available for input and output. Combined IN/OUT modules are also available.

Proceed in exactly the same way in the project of the CPU on the other PROFINET side.

Note: *Please note that ,the sequence and the sizes of the modules must always be selected to be consistent with the modules on the opposite PROFINET side.*

Example: *A 2-byte output module in the plug point 1 of the left PROFINET side requires a 2-byte input module in the plug point 1 of the right PROFINET side!*





6. Parameters of the PN/PN Coupler

Separate parameters can be set on both PROFINET sides of the PN/PN Coupler.

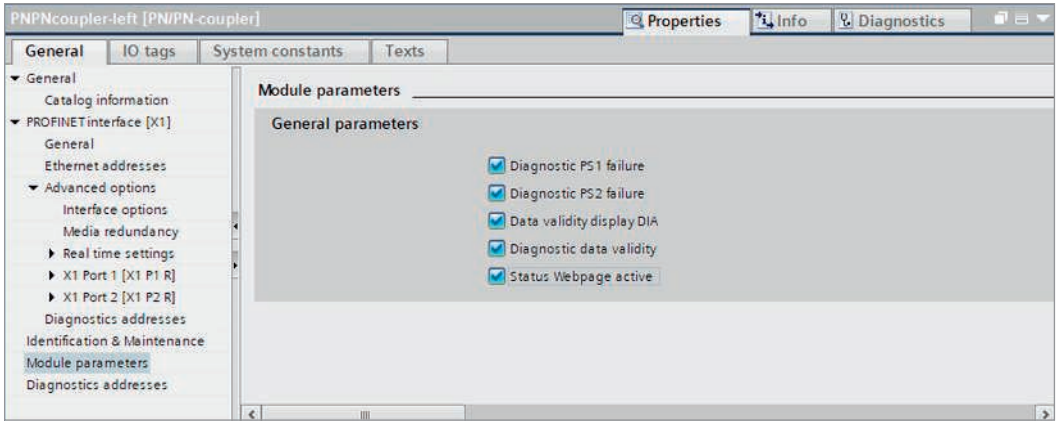
Diagnostic PS1/PS2 failure: Sending of a diagnostic message to the PLC in the event of a power supply failure to PS1 (left side) or PS2 (right side).

Data validity display DIA: The validity of the data is displayed in the bit with the lowest value (Bit 0) of the first input byte of the corresponding PROFINET side.

0 = data could not be transmitted.
1 = data is all valid.

Diagnostic data validity: Sending of a diagnostic message to the PLC when the data is not valid.

Status Webpage active: Display of webpage.



7. Assign a PROFINET device name to the PN/PN Coupler

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

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

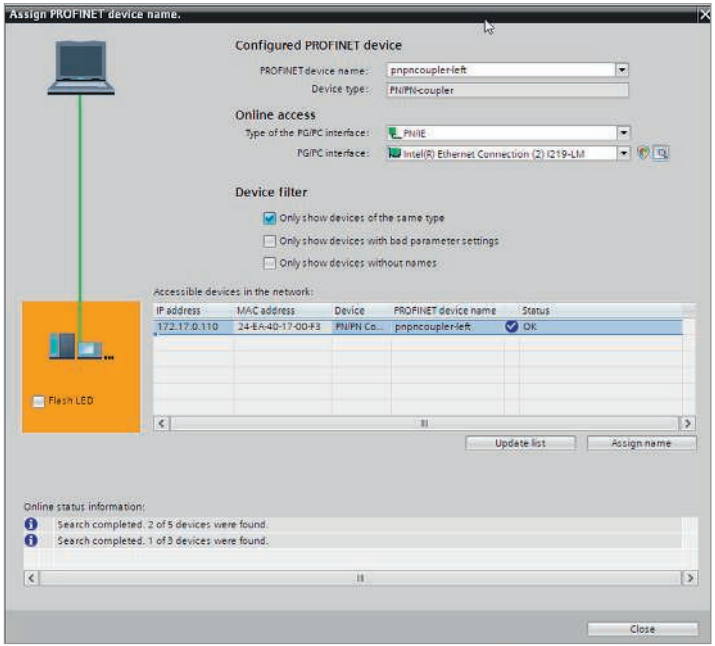
With the “Update list...” button, the network can be browsed for PROFINET participants. The PROFINET device name can be assigned to the device with “Assign name”.

The clear identification of the PN/PN Coupler 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 PN/PN coupler.

The Helmholz IPSet tool, which can be downloaded at no charge from the Hemholz website, can also be used to set the PROFINET name.

If the PN/PN Coupler 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 should be off.

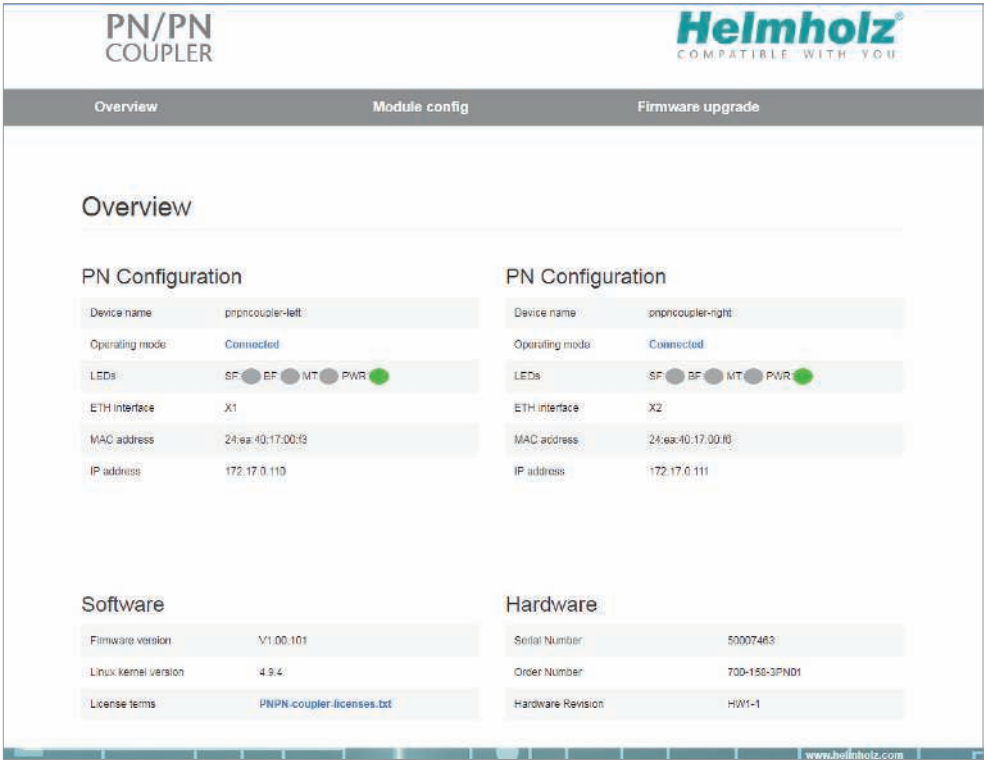
Proceed as described above for both PROFINET networks.



8. Web interface of the PN/PN Coupler

The web interface of the PN/PN coupler provides an overview of the status and the configuration of the device, as well as the possibility for carrying out a firmware update.

Note: *Calling up the website can influence the transmission capacity of the PN/PN Coupler.*



9. LED status information

	X1 PROFINET	X2 PROFINET
SF (rot)		
Off	Configuration correct	Configuration correct
On	There is no configuration, the configuration does not agree with the configuration on the right side (X2), or a diagnosis exists.	There is no configuration, the configuration does not agree with the configuration on the left side (X1), or a diagnosis exists.
Blinking together with BF and MT	PROFINET function “LED flashing” for finding the device is being carried out.	PROFINET function “LED flashing” for finding the device is being carried out.
BF (red)		
Off	The device is configured	The device is configured
On	The device has no configuration, the PROFINET device name is incorrect, or there is no connection with the PROFINET controller.	The device has no configuration, the PROFINET device name is incorrect, or there is no connection with the PROFINET controller.
Blinking together with SF and MT	PROFINET function “LED flashing” for finding the device is being carried out.	PROFINET function “LED flashing” for finding the device is being carried out.
MT (yellow)		
Flashing	A firmware update is being carried out.	A firmware update is being carried out.
Blinking together with SF and BF.	PROFINET function “LED flashing” for finding the device is being carried out.	PROFINET function “LED flashing” for finding the device is being carried out.
PWR (green)		
On	PS1 Power supply present	PS2 Power supply present
RUN (green)		
Off	Firmware or device defective. Please contact Support	
On	The device is ready to operate	
RJ45 LEDs	X1 P1/P2 and X2 P1/P2	
Green (Link)	Connected	
Orange (Act)	Data transfer at the port running	

10. Technical data

Order no.	**700-158-3PN01**
Article designation	PN/PN Coupler
Scope of delivery	PN/PN coupler (incl. Quick Start Guide and CD with GSDML file)
PROFINET interface	
- Number	2 with 2 ports each
- Protocol	PROFINET IO as defined in IEC 61158-6-10
- Transmission rate	100 Mbps full duplex
- I/O image size	max. 1024 bytes
- Number of configurable slots	16
- Connection	4x RJ45, integrated switch
- Features	Media redundancy (MRP client), automatic addressing, topology detection (LLDP, DCP), diagnosis alarms
Status indicator	9 LEDs function status 8 LEDs Ethernet status
Voltage supply	24 V DC (18 - 28 V DC)
Current draw	Max. 210 mA
Dimensions (D x W x H)	35 mm x 58 mm x 72 mm
Weight	Approx. 135 g
Ambient temperature	0 °C to 60 °C
Transport and storage temperature	-20 °C to 80 °C
Protection rating	IP 20
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 in the Internet at www.helmholz.de.

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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