OHV-F230-B17

PROFINET gateway for OHV handheld

Manual

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1 Introduction

1.1 Content of this Document

This document contains information required to use the product in the relevant phases of the product life cycle. This may include information on the following:

- Product identification
- Delivery, transport, and storage
- Mounting and installation
- Commissioning and operation
- Maintenance and repair
- Troubleshooting
- Dismounting
- Disposal

Note

For full information on the product, refer to the further documentation on the Internet at www.pepperl-fuchs.com.

The documentation comprises the following parts:

- This document
- Datasheet

In addition, the documentation may comprise the following parts, if applicable:

- EU-type examination certificate
- EU declaration of conformity
- Attestation of conformity
- Certificates
- Control drawings
- Instruction manual
- Other documents

1.2 Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismounting lies with the plant operator.

Only appropriately trained and qualified personnel may carry out mounting, installation, commissioning, operation, maintenance, and dismounting of the product. The personnel must have read and understood the instruction manual and the further documentation.

Prior to using the product make yourself familiar with it. Read the document carefully.

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1.3 Symbols Used

This document contains symbols for the identification of warning messages and of informative messages.

Warning Messages

You will find warning messages, whenever dangers may arise from your actions. It is mandatory that you observe these warning messages for your personal safety and in order to avoid property damage.

Depending on the risk level, the warning messages are displayed in descending order as follows:

Danger!

This symbol indicates an imminent danger.

Non-observance will result in personal injury or death.

Warning!

This symbol indicates a possible fault or danger.

Non-observance may cause personal injury or serious property damage.

Caution!

This symbol indicates a possible fault.

Non-observance could interrupt the device and any connected systems and plants, or result in their complete failure.

Informative Symbols

Note

This symbol brings important information to your attention.

Action

This symbol indicates a paragraph with instructions. You are prompted to perform an action or a sequence of actions.

2 Product Specifications

2.1 Description

The OHV-F230-B17 is a gateway that enables the connection of an OHV110-F228-R2 or an OHV1000 handheld reader to a PROFINET network. An OHV handheld reader is connected to the gateway via an RS-232 connection. The gateway communicates with a PROFINET network via a D-coded M12 connector. The PROFINET interface has an integrated switch. The handheld reader is supplied with power by the gateway.

2.2 Dimensions

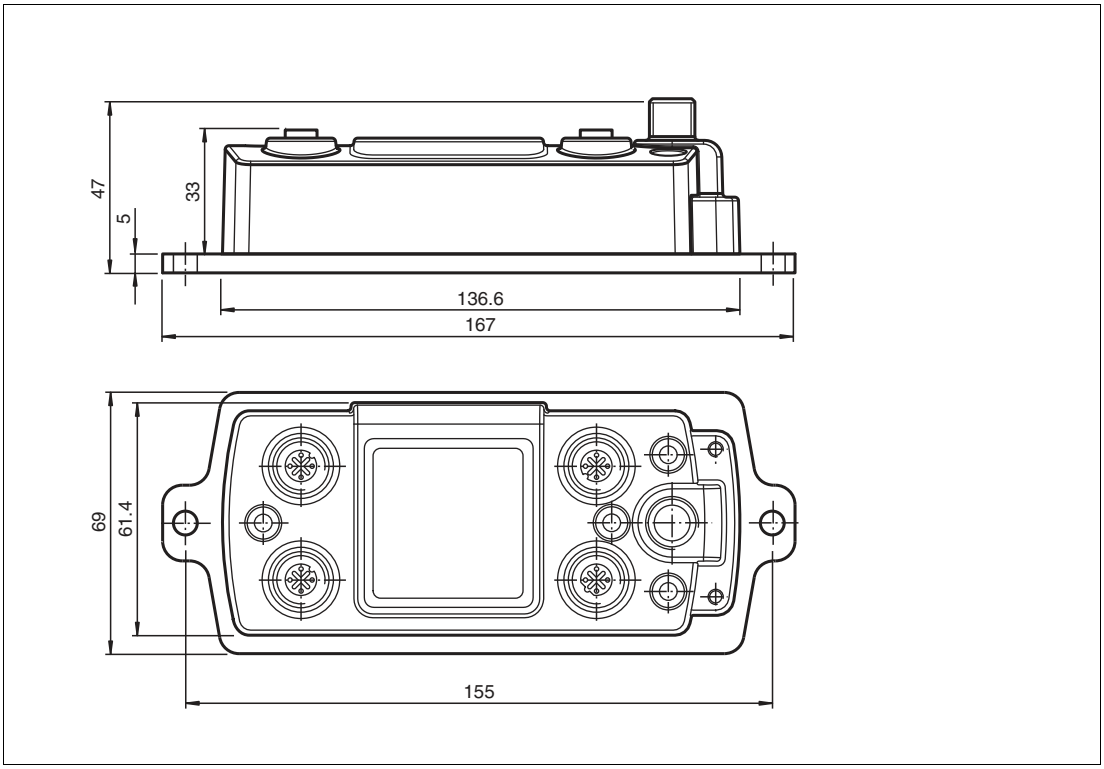
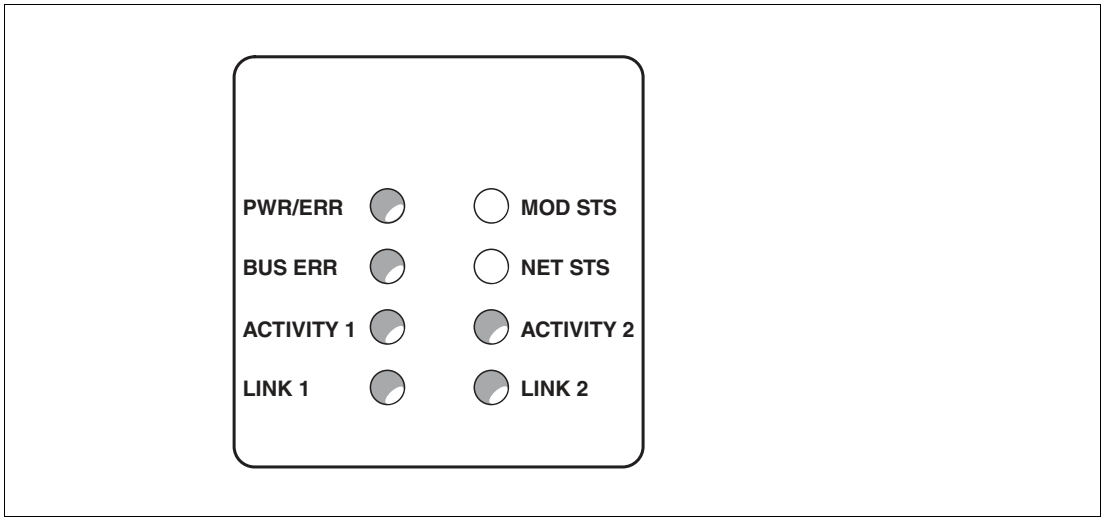


Figure 2.1

2.3 Indicators

The following indicators can be found on the OHV-F230-B17 gateway:



LEDs

PWR/ERR	Green: gateway is switched on Red: system error
BUS ERR	Red: communication error with PROFINET network Flashing red: configuration missing
ACTIVITY 1/ ACTIVITY 2	Yellow: data is being transferred to port 1 and port 2
LINK 1/LINK 2	Green: port 1 and port 2 are connected to the PROFINET network

2.4 Interfaces

The following interfaces are available on the OHV-F230-B17 gateway:

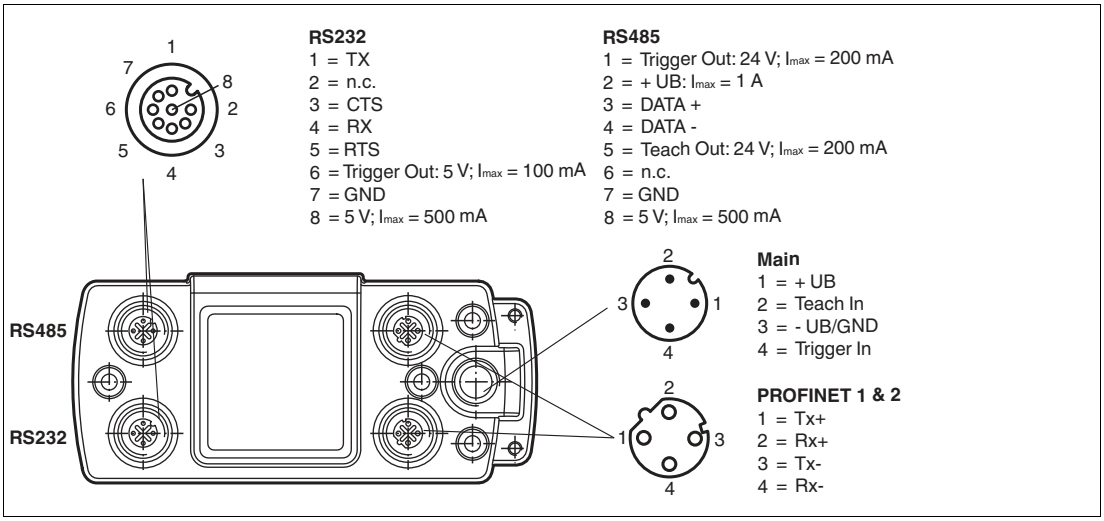


Figure 2.2

Interface	Description	Connection
RS-232	RS-232, EIA/TIA-232E Transfer rate: 115 k, 8N1	M12 socket, 8 pin, A-coded
RS-485	No function	M12 socket, 8 pin, A-coded
PROFINET	2 x PROFINET IO with int. switch Protocol: Conformance class B Realtime class RT Min. cycle time 1 ms Transfer rate: 10/100 Mbit/s	M12 socket, 4 pin, D-coded
Main	Power supply	M12 socket, 4 pin, A-coded

2.5 Accessories

Handheld readers

Designation	Description
OHV110-F228-R2	Handheld reader for all common 1-D and 2-D codes
OHV1000-F223-R2	Handheld reader for reading lasered, punched, or printed 1-D and 2-D codes

Cordsets

Designation	Description
V19S-G-1.7/3M-PVC-V50	Cordset for handheld reader/gateway
V1SD-G-*M-PUR-ABG-V1SD-G V1SD-G-*M-PUR-ABG-V45-G	PROFINET cordset; various lengths available
V1-*	M12, A-coded, 4-pin, connects the gateway to the power supply You can find a wide range of compatible connection cables at http://www.pepperl-fuchs.com.

3 Commissioning

3.1 Connecting the gateway to the handheld reader OHV1000-F223-R2

Establish connection

1. Connect the OHV1000-F223-R2 handheld reader to the gateway using the V19S-G-1.7/3M-PVC-V50 connection cable.
2. Connect the gateway to the power supply.
3. Scan the control code below using the handheld reader.

↳ The handheld reader is connected to the gateway.

3.2 Connecting the gateway to the OHV110-F228-R2 handheld reader

Establish connection

1. Connect the OHV110-F228-R2 handheld reader to the gateway using the V19S-G-1.7/3M-PVC-V50 connection cable. See chapter 2.4
2. Connect the gateway to the power supply.
3. Scan the control code below using the handheld reader.

CC004361_03

↳ The settings are deleted and the handheld reader is prepared for programming.

4. Scan the control code below using the handheld reader.

CC005641_01

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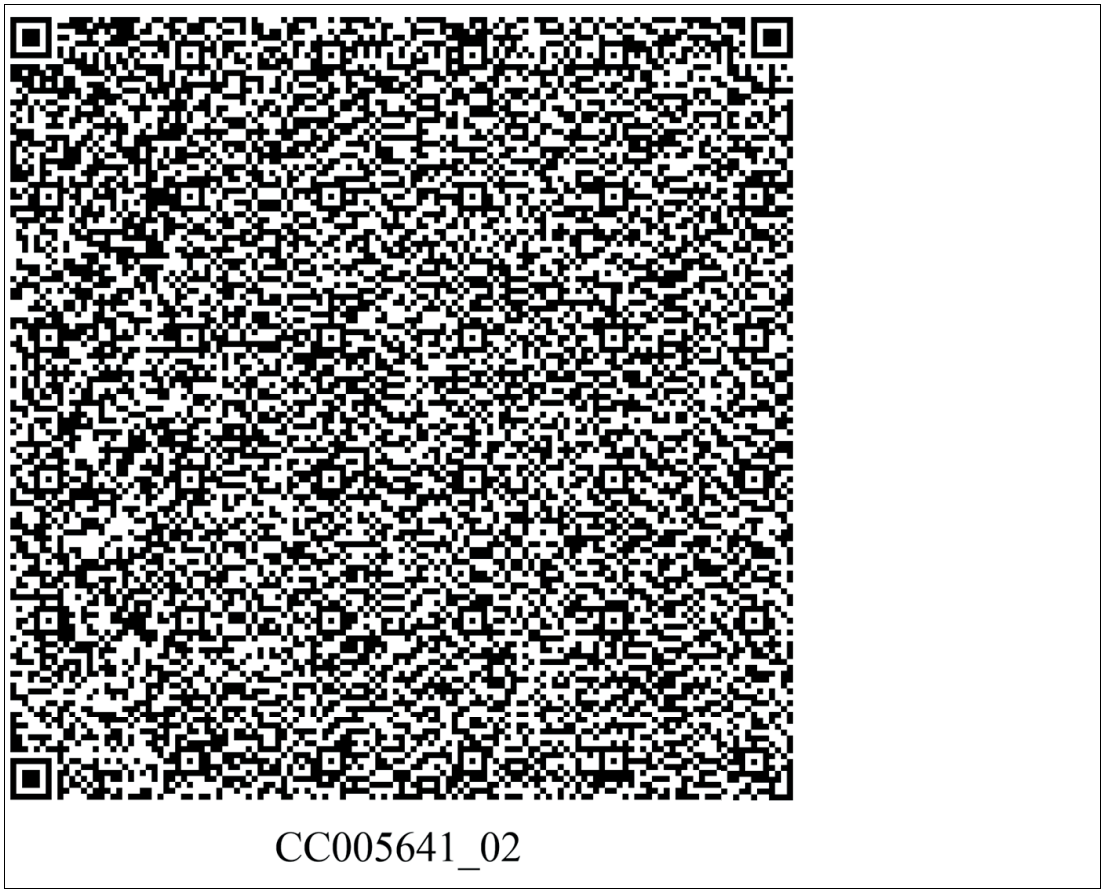

↳ The handheld reader is adapted for output to the gateway.

4 Operation and communication

4.1 Communication via PROFINET

4.1.1 General Information on Communication via PROFINET

PROFINET is an open standard for industrial automation based on industrial Ethernet. PROFINET integrates information technology with established standards such as TCP/IP and XML in automation technology.

Within PROFINET, PROFINET IO is the communication concept for the construction of decentralized applications. This means that decentralized field devices are integrated through PROFINET IO. The familiar IO view of PROFIBUS DP is used where the usable data of the field devices is transferred to the controller process image in cycles. PROFINET IO is a device model consisting of slots and channels, which is based on the main features of PROFIBUS DP. The field device properties are written in a Generic Station Description Markup Language (GSDML) based on XML. PROFINET IO is engineered in the same way as has long been the case for system integrators of PROFIBUS DP. The decentralized field devices are assigned in the design of a controller.

PROFINET IO distinguishes between the following three device types:

- IO controller: Controller that executes the automation program.
- IO device: Decentrally assigned field device that is assigned to an IO controller.
- IO supervisor: Programming unit/PC with commissioning and diagnostic functions.

4.1.2 PROFINET IO Interface

OHV-F230-B17 gateways are PROFINET IO devices that communicate cyclically with the assigned PROFINET IO controller during operation.

The PROFINET interface of the OHV-F230-B17 gateway supports:

- A transfer rate of 100 Mbit/s
- The real-time category RT
- The range of functions in accordance with **Conformance Class B**
- The identification and maintenance functions (I&M) IM0 – IM4

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4.1.2.1 Identification & Maintenance (I&M) Data

Identification and maintenance data (I&M data) is information stored in a device. I&M data uniquely identifies a device within a plant. The identification data (I data) includes information about the device, for example the item number and device name. Identification data cannot be changed.

Maintenance data (M data) includes information about the device within the plant, for example the installation location and installation date. Maintenance data is initially stored in the device during installation. Maintenance data can be changed.

Accessing and Editing I&M Data

The Step7 software from Siemens can be used to display and change the I&M data.

1. To do so, open the hardware configuration **HW Config** and call up the "Target system" menu.
2. Open one of the following functions:
   - "Download module identification"
   - "Download module identification in PG"

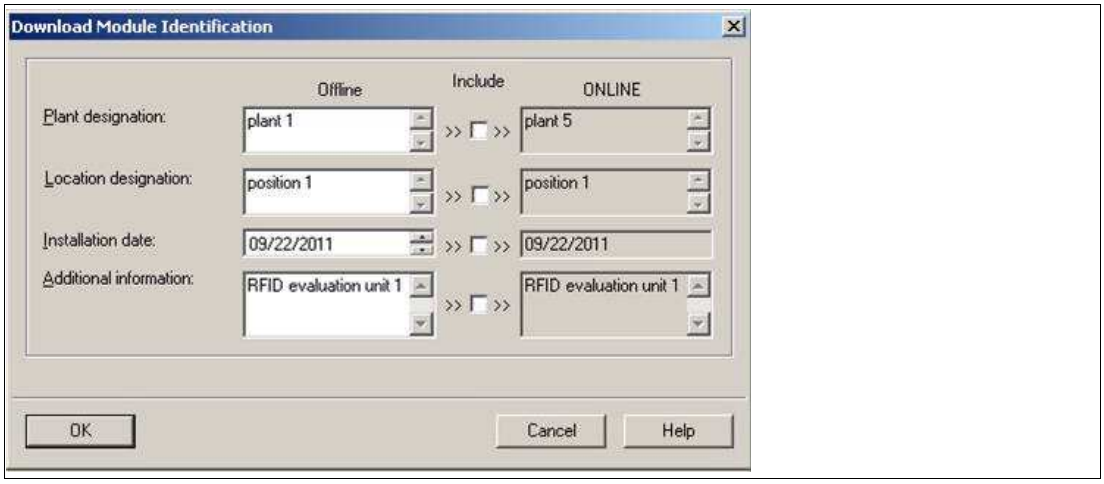

Figure 4.1

3. Depending on the requirement, read or edit the following I&M data:
   - I&M data 1: higher-level assignment, location designation
   - I&M data 2: installation date
   - I&M data 3: additional information

4.1.3 Project Planning Using Device Description

As with PROFIBUS DP, a field device is integrated into the project planning tool by way of a device description. The field device properties are described in the GSD file. The GSD file contains the field device data (technical features and information for communication) that you need to operate the device in a PROFINET network.

Import the GSD file into a project planning tool. Peripheral addresses are assigned to the individual channels of the field devices. The peripheral input addresses incorporate the received data. The user program evaluates and processes this data. The user program generates the peripheral output values and sends them to the control interface.

Once project planning is complete, the IO controller receives the planning and configuration data. The IO controller parameterizes and configures the field devices automatically.

Downloading the GSD File

You can find the relevant GSD file in the **Software** section of the product detail page for the device.

To access the product detail page for the device, go to http://www.pepperl-fuchs.com and type information about the device (e.g., the product description or the item number) into the search function.

Inserting the function block and data module

1. Unzip the zip file.
2. In the module folder, mark the **OHV-F230-B17** function block and the associated **iDB_OHV-F230-B17** instance data block. Right-click on the marked entries and select **Copy**.
3. Right-click the destination project and select **Insert**.

Connecting the gateway to the S7 control panel

1. Before installing a GSD file, close all hardware configuration projects.
2. To install the GSD file, select **Options** > **Install GSD files** in the hardware configuration.
3. Connect the gateway to the PROFINET network.
4. To integrate the gateway into your PROFINET, double-click the PN-IO unit in the rack.

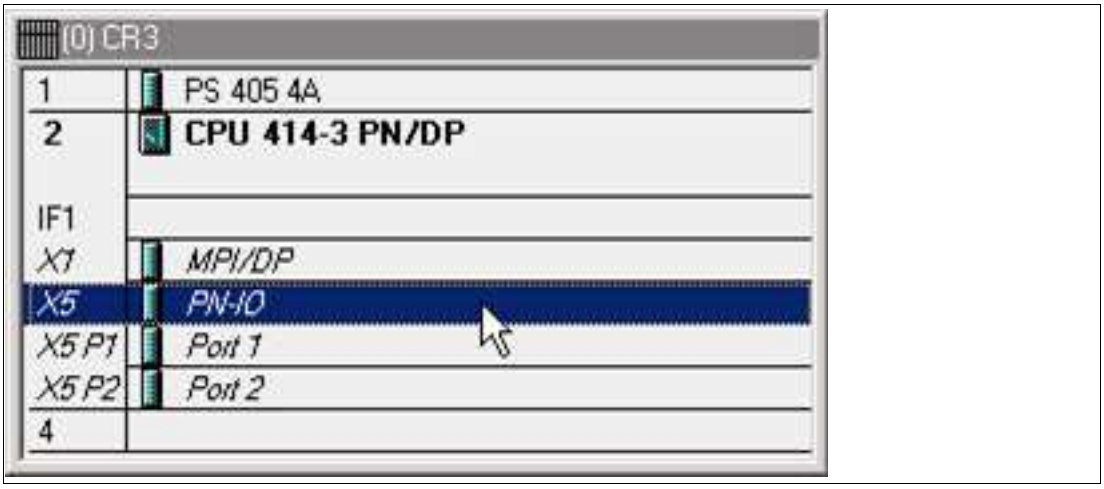

Figure 4.2 Assigned rack

↳ This opens the Properties window.

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5. Click **Properties**.
6. To create a new Ethernet subnet, click **New**.
7. To insert the Ethernet subnet into the hardware configuration, right-click the PN-IO unit and select **Insert PROFINET IO system**.

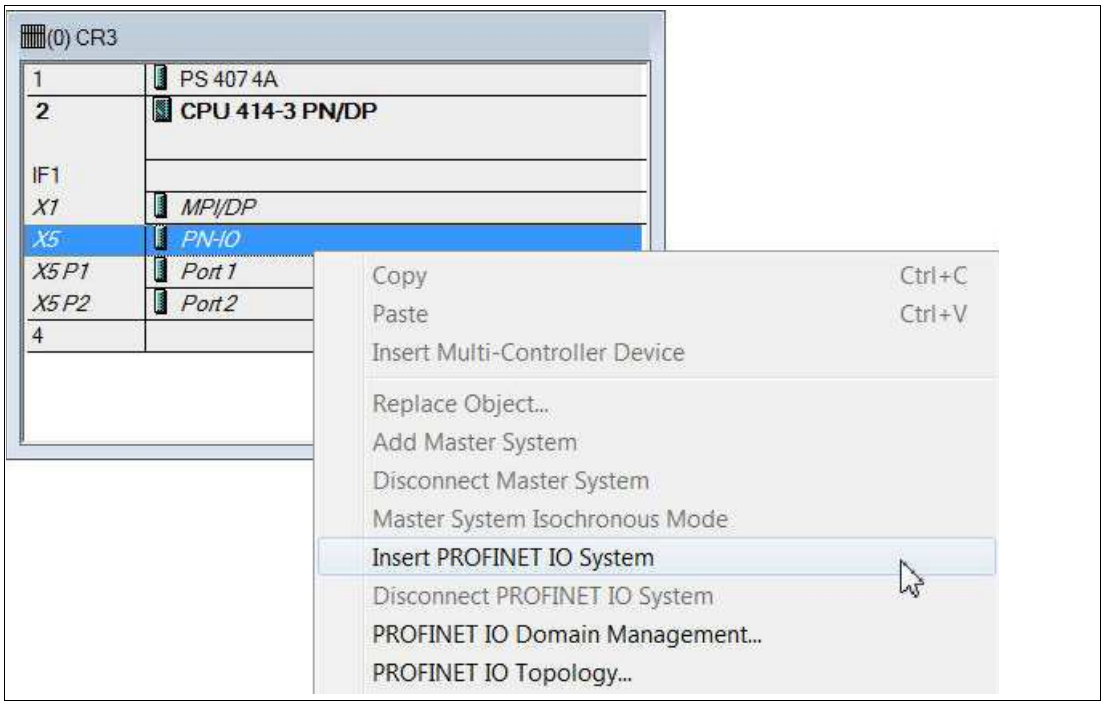

Figure 4.3 Inserting PROFINET-IO system

↳ A PROFINET IO system is now available to which you can connect new nodes.

8. Drag the PROFINET module of the gateway from the catalog into the connection window and link it to the PROFINET IO system.

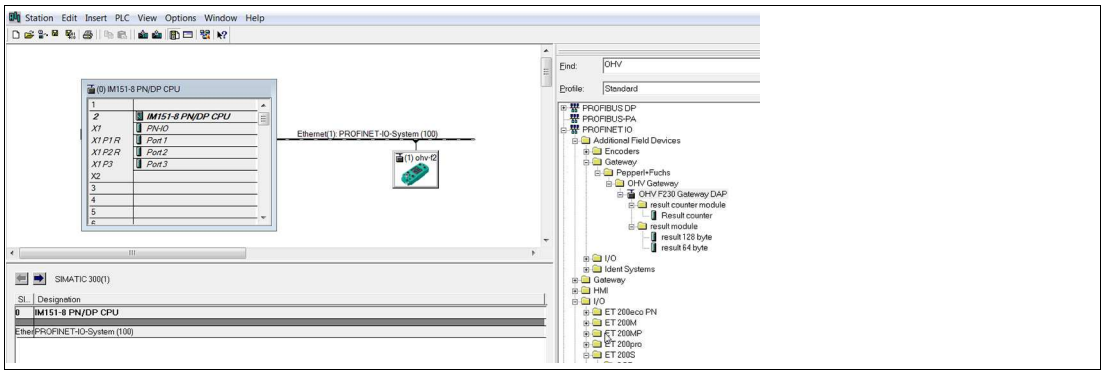

Figure 4.4 Assigned rack

9. To assign the gateway to the PROFINET module just inserted, select **Destination system > Ethernet > Edit Ethernet node** from the menu bar. In the window that opens, click **Browse**.

↳ A list opens containing all accessible nodes.

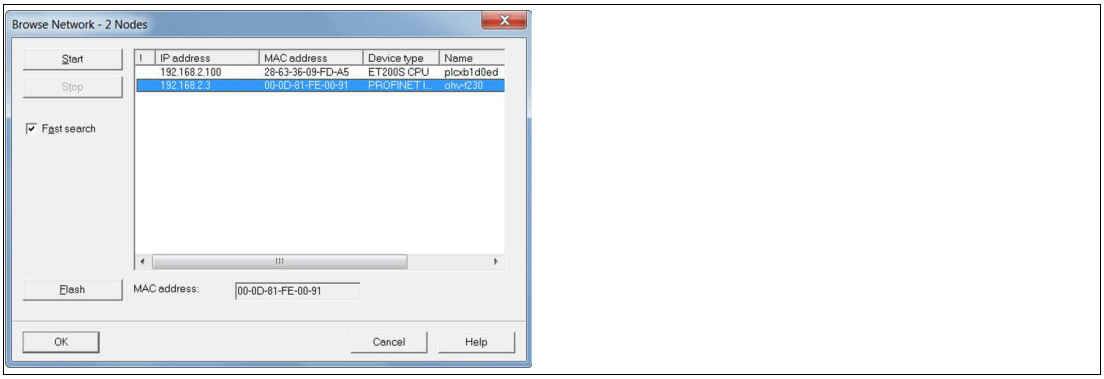

Figure 4.5 Browsing PROFINET

10. Click **OK**.
11. Activate the **Use IP parameters** option in the **Edit Ethernet node** window.

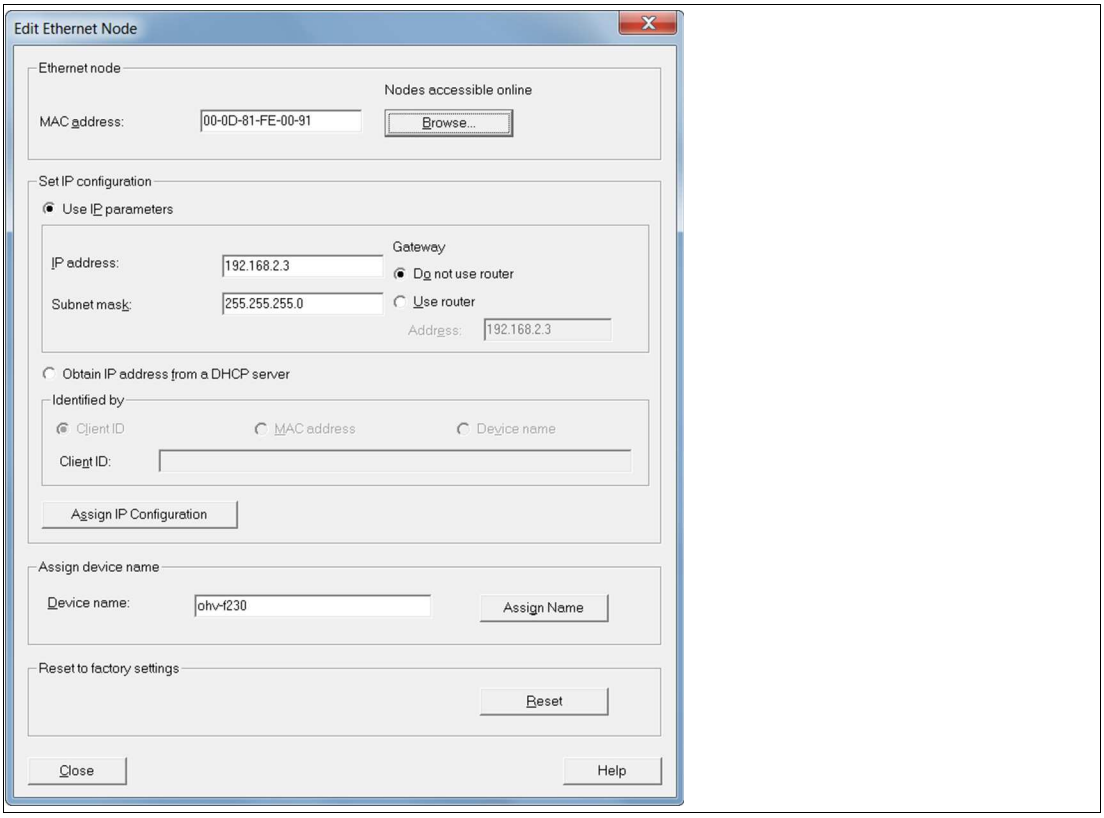

Figure 4.6 Editing Ethernet nodes

12. If the device name of the node from the list open previously is present in the section **Assign device name** (in this example **ohv-f230**), click **Assign name**.
13. Click **Close**.
14. Double-click the PROFINET module in the connection window and check whether the device name has been successfully transferred. If the device name has not been transferred, enter the device name in the field **Device name**.

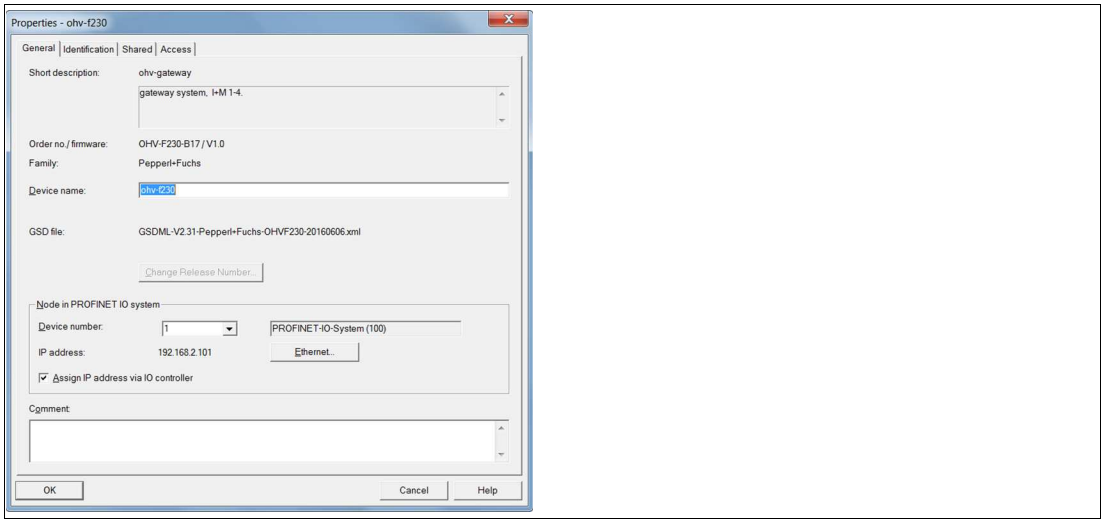

Figure 4.7 PROFINET module properties

15. Click **OK**.

16. To assign address areas for inputs and outputs, add the following modules from the catalog to the device:
- Result counter
- Result 64 byte

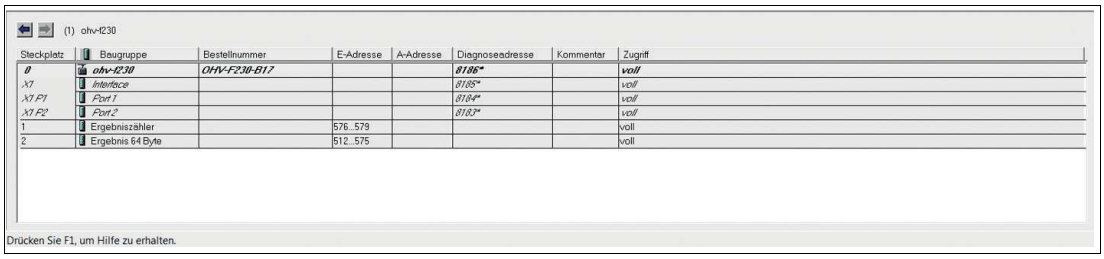

Figure 4.8 PROFINET configuration tables

4.1.4 PROFINET Address and Identifying a Device

Every PROFINET IO device has a unique device identification. This device identification consists of the following:

- A unique **MAC address**. This MAC address is printed on the back of the device.
- A **device name**. The default device name is `OHV-F230`.
- An **IP address**. The default IP address is `192.168.2.2`.

4.1.5 PROFINET Modules

1 word = 16 bit value

1 byte = 8 bit value

4.1.5.1 Modules with response telegram

The following modules enable gateway data to be retrieved using PROFINET.

Result counter 32 bit module

Size	Type	Content
2 words, consistent	Input data	32 bit scan data MSB first MSB = **m**ost **s**ignificant **b**yte

The result counter increments a 32 bit value when a handheld reader has sent a result to the gateway.

Result 64 byte module

Result message from the handheld reader

Status byte 0	Status byte
Status byte 1	Message length
Data byte 0	Start of the scan result MSB first[1]
Data byte 1	Scan result
...	Scan result
Data byte 61	End of the scan result

1. Example:

If the read code has a value of 123, the following data bytes are sent:

Data byte 0 = '1' (0x31)

Data byte 1 = '2' (0x32)

Data byte 2 = '3' (0x33)

All other data bytes: 0 (0x0)

Result 128 byte module

Result message from the handheld reader

Status byte 0	Status byte
Status byte 1	Message length
Data byte 0	Start of the scan result MSB first[1]
Data byte 1	Scan result
...	Scan result
Data byte 125	End of the scan result

1. Example:

If the read code has a value of 123, the following data bytes are sent:

Data byte 0 = '1' (0x31)

Data byte 1 = '2' (0x32)

Data byte 2 = '3' (0x33)

All other data bytes: 0 (0x0)

Explanation of status bytes

Byte	Content	Bit no.							
		7	6	5	4	3	2	1	0
Status byte 0	Status byte	ND[1]	0	DL[2]	0	0	0	0	0
Status byte 1	Message length Unsigned 8 bit Number of usable data bytes after the status bytes	LEN_7	LEN_6	LEN_5	LEN_4	LEN_3	LEN_2	LEN_1	LEN_0

1. New data flag. Changes when the gateway receives new data from the scanner and makes it available for fieldbus transmission. Is used to recognize new data with the same value.

2. Data loss flag. Flag is set to 1 if the length of the scanned code exceeds the maximum number of data bytes in the selected module. Is also set to 1 if a transmission error between the scanner and the gateway is detected.

5 Appendix

5.1 ASCII table

hex	dec	ASCII	hex	dec	ASCII	hex	dec	ASCII	hex	dec	ASCII
00	0	NUL	**20**	**32**	**Space**	40	64	@	**60**	**96**	'
01	1	SOH	**21**	**33**	**!**	41	65	A	**61**	**97**	**a**
02	2	STX	**22**	**34**	**"**	42	66	B	**62**	**98**	**b**
03	3	ETX	**23**	**35**	**#**	43	67	C	**63**	**99**	**c**
04	4	EOT	**24**	**36**	**$**	44	68	D	**64**	**100**	**d**
05	5	ENQ	**25**	**37**	**%**	45	69	E	**65**	**101**	**e**
06	6	ACK	**26**	**38**	**&**	46	70	F	**66**	**102**	**f**
07	7	BEL	**27**	**39**	**'**	47	71	G	**67**	**103**	**g**
08	8	BS	**28**	**40**	**(**	48	72	H	**68**	**104**	**h**
09	9	HT	**29**	**41**	**)**	49	73	I	**69**	**105**	**I**
0A	10	LF	**2A**	**42**	*****	4A	74	J	**6A**	**106**	**j**
0B	11	VT	**2B**	**43**	**+**	4B	75	K	**6B**	**107**	**k**
0C	12	FF	**2C**	**44**	**,**	4C	76	L	**6C**	**108**	**l**
0D	13	CR	**2D**	**45**	**-**	4D	77	M	**6D**	**109**	**m**
0E	14	SO	**2E**	**46**	**.**	4E	78	N	**6E**	**110**	**n**
0F	15	SI	**2F**	**47**	**/**	4F	79	O	**6F**	**111**	**o**
10	16	DLE	**30**	**48**	**0**	50	80	P	**70**	**112**	**p**
11	17	DC1	**31**	**49**	**1**	51	81	Q	**71**	**113**	**q**
12	18	DC2	**32**	**50**	**2**	52	82	R	**72**	**114**	**r**
13	19	DC3	**33**	**51**	**3**	53	83	S	**73**	**115**	**s**
14	20	DC4	**34**	**52**	**4**	54	84	T	**74**	**116**	**t**
15	21	NAK	**35**	**53**	**5**	55	85	U	**75**	**117**	**u**
16	22	SYN	**36**	**54**	**6**	56	86	V	**76**	**118**	**v**
17	23	ETB	**37**	**55**	**7**	57	87	W	**77**	**119**	**w**
18	24	CAN	**38**	**56**	**8**	58	88	X	**78**	**120**	**x**
19	25	EM	**39**	**57**	**9**	59	89	Y	**79**	**121**	**y**
1A	26	SUB	**3A**	**58**	**:**	5A	90	Z	**7A**	**122**	**z**
1B	27	ESC	**3B**	**59**	**;**	5B	91	[	**7B**	**123**	**{**
1C	28	FS	**3C**	**60**	**<**	5C	92	\	**7C**	**124**	**|**
1D	29	GS	**3D**	**61**	**=**	5D	93	]	**7D**	**125**	**}**
1E	30	RS	**3E**	**62**	**>**	5E	94	^	**7E**	**126**	**~**
1F	31	US	**3F**	**63**	**?**	5F	95	_	**7F**	**127**	**DEL**

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