

User Guide

pnGate PA / pnGate PB




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Table of Contents

Chapter 1	About this guide.....	5
1.1	Read me first.....	5
1.2	Target audience.....	5
1.3	Typographic conventions.....	5
1.4	Document history.....	6
1.5	Related documentation and videos.....	6
1.6	Document feedback.....	6
Chapter 2	About pnGate PA / pnGate PB.....	7
2.1	Intended use.....	7
2.2	Scope of delivery.....	7
2.3	Supported features.....	8
2.4	System requirements.....	8
2.5	Safety precautions.....	8
Chapter 3	Installation	9
3.1	Hardware installation.....	9
3.1.1	Mounting and dismounting	9
3.1.2	Connection diagrams pnGate PA	10
3.1.3	Connection diagram pnGate PB	11
3.1.4	Connecting the power supply	11
3.1.5	Connecting to the network	12
3.1.6	Powering up the device	13
3.1.7	Ethernet ports	13
3.2	Software installation.....	14
Chapter 4	Configuration.....	16
4.1	Prerequisites.....	16
4.2	Changing the IP address of the pnGate PA / pnGate PB.....	16
4.3	Setting the IP address of the PC.....	18
4.4	User roles and settings.....	19
4.5	Opening the user interface.....	20
4.6	Changing the password.....	21
4.7	Updating the firmware.....	22
4.8	PROFINET configuration in the TIA Portal.....	23
4.8.1	Generating a GSDML import file	23
4.8.2	Creating a new project in Siemens TIA Portal	24

4.9	PROFIBUS parameterization with PACTware.....	28
4.9.1	Prerequisites	28
4.9.2	Configuring the PROFIBUS driver	28
4.9.3	Creating a project in PACTware	30
4.10	PROFIBUS parameterization with SIMATIC PDM.....	31
4.10.1	Prerequisites	31
4.10.2	Configuring the PROFIBUS driver	31
4.10.3	Connecting the SIMATIC Manager	31
Chapter 5	LED status indicators.....	35
5.1	Status LEDs (PWR, RUN, ERR and CFG) in stand-alone mode.....	36
5.2	PROFINET device LEDs (PN).....	37
5.3	PROFIBUS master LEDs (PA).....	37
Chapter 6	Technical data.....	38
6.1	Installation positions.....	38
Chapter 7	Declaration of conformity.....	40

1 About this guide

1.1 Read me first

Please read this guide carefully before using the device to ensure safe and proper use. Softing does not assume any liability for damages due to improper installation or operation of this product.

This document is not warranted to be error-free. The information contained in this document is subject to change without prior notice. To obtain the most current version of this guide, visit the download center on our website at: <http://industrial.softing.com/en/downloads>

1.2 Target audience

This guide is intended for experienced operation personnel and network specialists responsible for configuring and maintaining field devices in process automation networks. Any person using a pnGate PA / pnGate PB must have read and fully understood the safety requirements and working instructions in this guide.

1.3 Typographic conventions

The following conventions are used throughout Softing customer documentation:

Keys, buttons, menu items, commands and other elements involving user interaction are set in bold font and menu sequences are separated by an arrow

Open **Start** → **Control Panel** → **Programs**

Buttons from the user interface are enclosed in brackets and set to bold typeface

Press **[Start]** to start the application

Coding samples, file extracts and screen output is set in Courier font type

MaxDlsapAddressSupported=23

File names and directories are written in italic

Device description files are located in C:
 \<Application name>\delivery\software
 \Device Description files



CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



Note

This symbol is used to call attention to notable information that should be followed during installation, use, or servicing of this device.



Hint

This symbol is used when providing you with helpful user hints.



Video

Dieses Symbol weist auf ein Video zum entsprechenden Thema hin.

1.4 Document history

Document version	Modifications compared to previous version
1.00	Initial version
1.01	New Corporate Identity implemented
1.10	Application scenario SIMATIC PDM ³¹ (Chapter 5.5) added
1.20	description and instructions of pnGate PB model added
1.21	corrections and additions of video references

1.5 Related documentation and videos

The following documents and videos provide additional product information:

- [Conversion from PROFIBUS GSD to PROFINET GSDML](#)
- [PROFINET configuration in the TIA Portal](#)
- [PROFIBUS parameterization in PACTware](#)
- [PROFIBUS parameterization in SIMATIC PDM](#)

1.6 Document feedback

We would like to encourage you to provide feedback and comments to help us improve the documentation. You can write your comments and suggestions to the PDF file using the editing tool in Adobe Reader and email your feedback to support.automation@softing.com.

If you prefer to write your feedback directly as an email, please include the following information with your comments:

- document name
- document version (as shown on cover page)
- page number

2 About pnGate PA / pnGate PB

The Softing pnGate PA / pnGate PB is a PROFINET gateway host interface for integrating PROFIBUS PA and PROFIBUS DP segment devices in PROFINET systems. Softing offers this gateway for two solutions:

- pnGate PA is designed for direct integration of PROFIBUS PA (**P**rocess **A**utomation) segments in PROFINET systems at a fixed speed of 31.2 kbit/s, typically used in areas of process automation with explosive atmosphere.
- pnGate PB offers integration of PROFIBUS DP (**D**ecentralised **P**eripherals) networks in PROFINET systems at speeds of up to 12Mbit/s, typically via a centralized controller in factory automation.

Both gateways support industry-standard device configuration, parameterization and condition-monitoring tools. In addition, the gateways convert GSD files used by PROFIBUS devices to a GSDML file format used by PROFINET devices.

pnGate PA: two models, two designs

The pnGate PA device is available as 2-channel model and a 4-channel model. Both models come in two designs. The only difference between these designs is the installation position which is rotated by 180° (including front panel and the LED position) as shown on the cover. See Chapter [Connection diagrams](#)¹⁰ for more details.

pnGate PA and pnGate PB can be managed with the following tools:

- PROFINET engineering systems (e.g. Siemens TIA Portal)
- FDT frame application (e.g. PACTware)
- Siemens SIMATIC PDM (Process Device Manager)

2.1 Intended use

The PROFINET gateways pnGate PA and pnGate PB are designed to integrate PROFIBUS devices into PROFINET-based networks.



CAUTION

The unit must not be used in potentially explosive atmospheres. The permissible ambient conditions specified in Chapter [Technical data](#)³⁸ must be observed.

2.2 Scope of delivery

The following parts are delivered with the pnGate PA / pnGate PB:

- pnGate PA / pnGate PB device
- CD-ROM containing software applications, manuals and tutorial videos
- printed Quick Startup Guide

2.3 Supported features

The pnGate PA / pnGate PB gateways map PROFIBUS devices into PROFINET networks.

- pnGate PA can map two or four PROFIBUS PA network segments (with the 2-channel model supporting up to 32 PROFIBUS devices and the 4-channel model supporting up to 64 PROFIBUS devices).
- pnGate PB can map two PROFIBUS PA and one PROFIBUS DP network segments supporting up to 32 PROFIBUS devices.
- Both gateways support the conversion of PROFIBUS GSD files into a single PROFINET GSDML using an integrated web-based conversion tool.

2.4 System requirements

These gateways require the use of a PROFINET engineering system such as the Siemens TIA portal (version 15 or higher) and STEP 7 (version 5.5 SP 4 or higher). Engineering systems from other PLC vendors can also be used, provided they support PROFINET GSDML files. Further requirements include:

- 24V power supply
- PC with web browser
- GSD file for each PROFIBUS device on your network to create a GSDML file for PROFINET configuration

2.5 Safety precautions



CAUTION

During operation, the device's surface will be heated up. Avoid direct contact. When servicing, turn off the power supply and wait until surface has cooled down.



Note

Do not open the housing of the pnGate PA / pnGate PB. It does not contain any parts that need to be maintained or repaired. In the event of a fault or defect, remove the device and return it to the vendor. Opening the device will void the warranty!

3 Installation

3.1 Hardware installation



Note

With an ambient temperature above 55 °C at the place of installation connecting cables may heat up strongly if they are installed in an unfavourable position. In such cases, ensure that the permissible service temperature of the cables (i.e. 80 °C) is not exceeded or use cables sustaining high temperatures of at least 90 °C.

3.1.1 Mounting and dismantling



Note

Make sure the pnGate PA / pnGate PB is mounted in such a way that the power supply can be easily disconnected.



Note

Depending on the installation position, the maximum ambient operating temperature may differ. Refer to [Technical data](#) ³⁸ for detailed information.

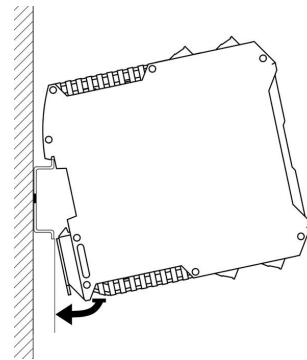


Installation and inspection

Installation and inspection must be carried out by qualified personnel only (personnel qualified according to the German standard TRBS 1203 or similar (Technical Regulations for Operational Safety). The definition of terms can be found in IEC 60079-17.

Mounting

1. For mounting the pnGate PA / pnGate PB on a DIN rail (35 mm), attach the two upper notches to the rail.
2. Press the device down towards the rail until it locks into place.

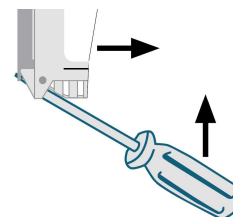


Note

Do not put stress on the system by bending or torsion.

Dismounting

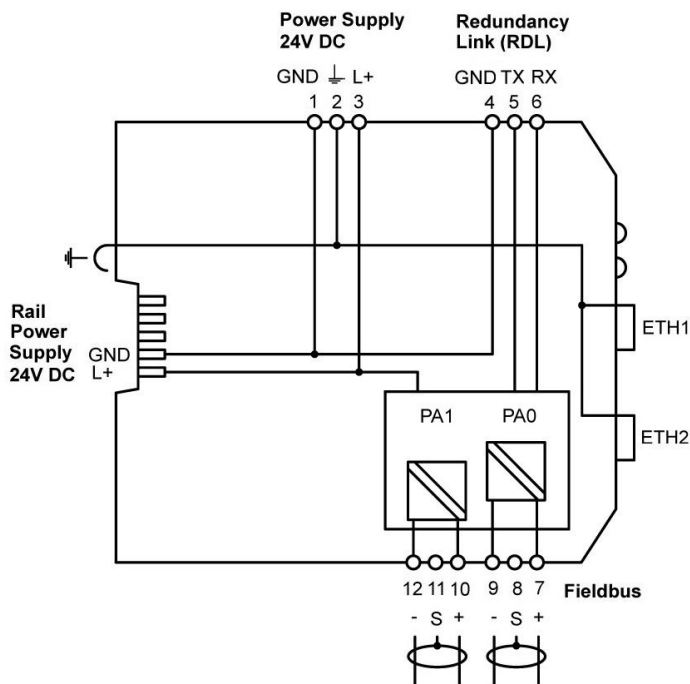
1. Slide a screw driver horizontally underneath the housing into the locking bar.
2. Slide the bar downwards – without tilting the screw driver – and fold the device upwards.



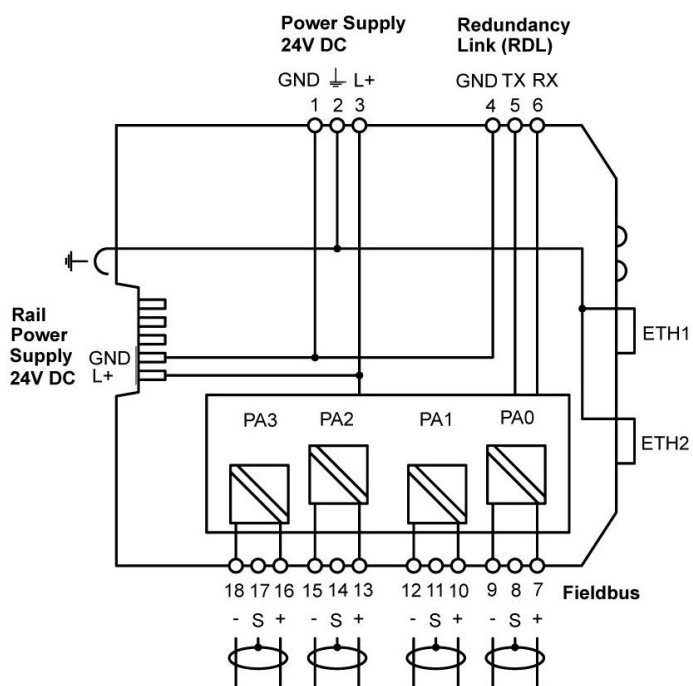
3.1.2 Connection diagrams pnGate PA

The following diagram shows the input and output interfaces of the pnGate PA. The 2-channel model has 2 physical PROFIBUS segment connections (PA0 to PA1), while the 4-channel model has 4 physical PROFIBUS segment connections (PA0 to PA3).

2-channel model

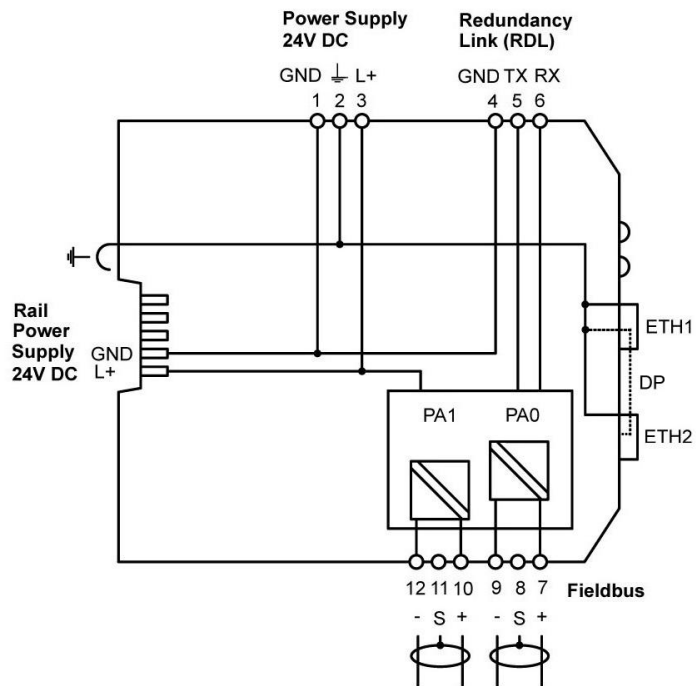


4-channel model



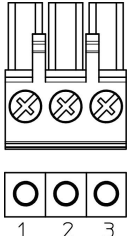

3.1.3 Connection diagram pnGate PB

The following diagram shows the input and output interfaces of the pnGate PB. The gateway has 2 physical PROFIBUS PA segment connections (PA0 to PA1) and supports on RS-485 link for PROFIBUS DP data communication.



3.1.4 Connecting the power supply

Connect the gateway to a 24 V DC power supply (not included in the delivery). The supply voltage (18 VDC ... 32 VDC) is connected by a 3-pole terminal block. The power supply is connected to the plug connector via flexible wires with a cross section of 0.75 to 1.5 mm². The ground connection wire must have a cross section of 1.5 mm².

	Pin	Signal	Description
	1	GND	Ground
	2		Functional earth
	3	L+	Positive supply voltage



CAUTION

The Functional Earth (FE) connection of the device has to be connected at low inductance with the Protective Earth (PE) of the system.



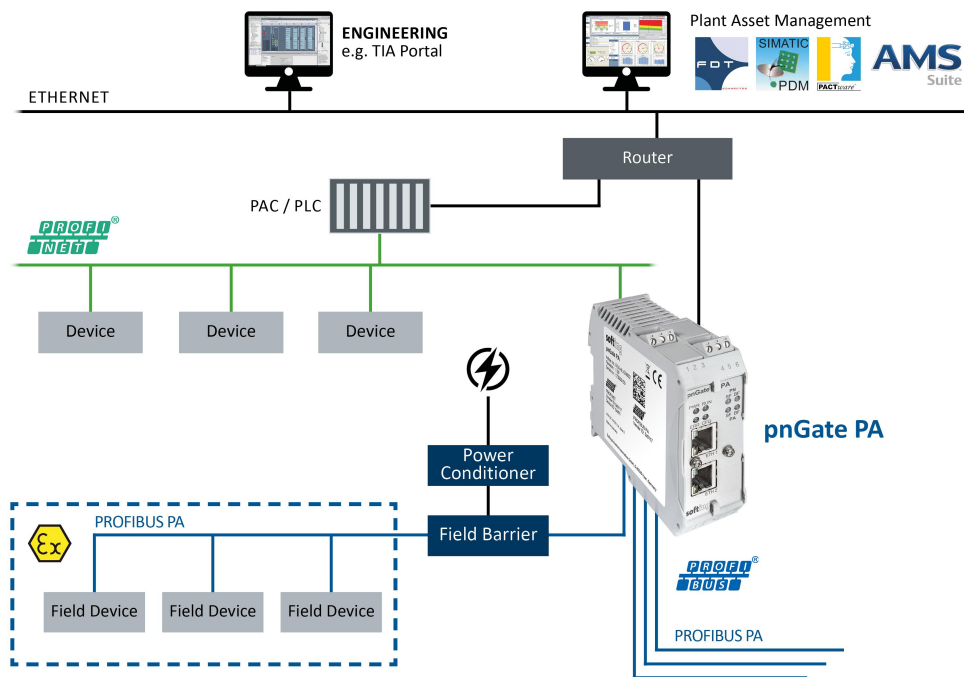
Note

As the connection diagrams show, the power can also be applied by a special DIN rail connector (Rail Power Supply). For further information contact Softing Industrial Automation GmbH.

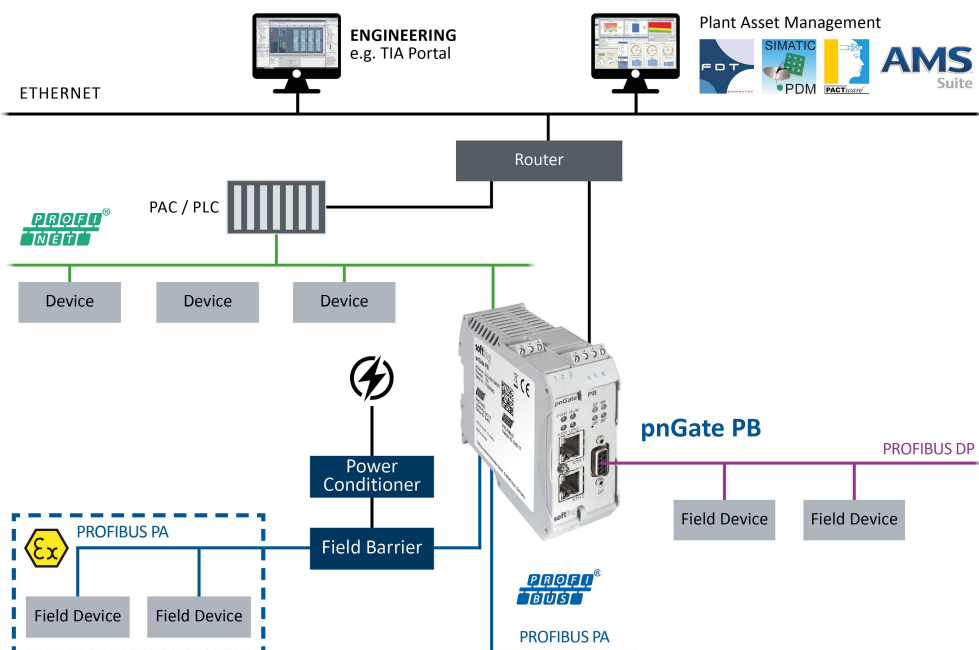
3.1.5 Connecting to the network

1. Connect the PROFIBUS PA devices to the PROFIBUS PA interfaces.
2. Connect the pnGate PA / pnGate PB to the PROFINET network.

pnGate PA network diagram



pnGate PB network diagram



3.1.6 Powering up the device

Turn on the power supply. The boot process will take around 15 seconds. For indication of proper operation refer to [LED status indicators](#)³⁵.

3.1.7 Ethernet ports

The pnGate PA / pnGate PB is equipped with two 10/100 Base-T Ethernet ports (RJ45). Both ports are connected to an internal switch for line topologies. The Ethernet ports corresponds to the IEEE 802.3 and have the following pin assignment.

Ethernet Port 1 (ETH 1):

Pin	Signal	Description
1	TX+	Transmit signal positive
2	TX-	Transmit signal negative
3	RX+	Receive signal positive
4	Not used	Drain wire
5	Not used	Drain wire
6	RX-	Receive signal negative
7	Not used	Drain wire
8	Not used	Drain wire

Ethernet Port 2 (ETH 2):

Pin	Signal	Description
1	TX+	Transmit signal positive
2	TX-	Transmit signal negative
3	RX+	Receive signal positive
4	Not used	Drain wire
5	Not used	Drain wire
6	RX-	Receive signal negative
7	Not used	Drain wire
8	Not used	Drain wire

3.2 Software installation

When you install a Softing product for the first time, you will be asked in a dialogue window to trust the publisher. Activate the option *Always trust software from Softing AG* if you do not want to be asked in subsequent installations and select **[Install]** to start the installation.

1. Insert the CD "Gateways for Process Industries" into the CD drive.

The CD contains the software packages of all Softing gateway products.

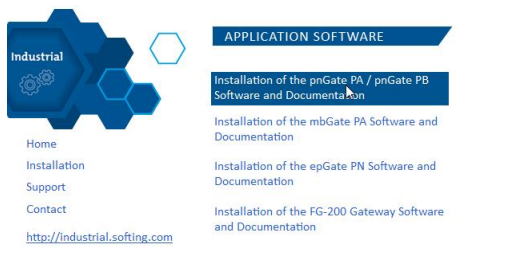
 - a. If Autorun is enabled on your PC, the startup page is opened.
 - b. If Autorun is disabled on your PC, open Windows Explorer, select your CD drive and double-click the file *start.exe* in the CD's root directory.

The installation window appears.

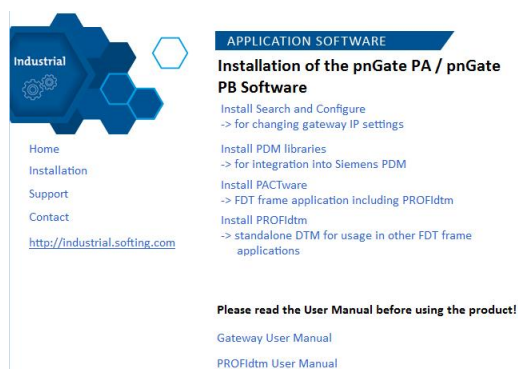


2. Select the installation language (German or English).

This is the language in which the software application will be running after the installation. A new window appears. Here you will see the software packages listed by gateway.



3. Select the pnGate PA / pnGate PB installation link.



4. Install the **Search and Configure** tool, **PDM libraries**, **PACTware** and **PROFdtm** and download the user manuals.

5. Follow the on-screen installation instructions.
6. Read the licence agreement carefully.
If you have questions, you can **[Cancel]** the installation at this point and contact us. Click **[Print]** if you want to print the license agreement to a PDF or on a printer.
7. Select *I accept the terms in the license agreement* and click **[Next]**.
8. Click **[Change...]** if you want to install the software at another destination folder.
9. Select a new folder and click **[Ok]** and **[Next]**.
10. Click **[Install]** to install the selected software application on your PC.
While the installation is in progress, the installation wizard status bar shows the different steps that are being executed. If you want to abort the installation, click **[Cancel]** button. The installation wizard will undo all modifications that have been made to your computer up to this point. Otherwise, wait until the installation is completed.
11. Press **[Finish]** to complete the installation and exit the wizard.
12. Install PACTware if no other FDT frame application is used.
PACTware and the Softing PROFIdtm will be installed.
13. Follow the on-screen installation instructions and continue with Steps 6 to 11.
14. Install PROFIdtm if you prefer using another FDT frame application like FieldCare or FieldMate.
15. Follow the on-screen installation instructions and continue with Steps 6 to 11.

4 Configuration

The pnGate PA / pnGate PB gateway connects to an integrated web server to configure the gateway and the connected PROFIBUS devices. One of the functions of the web server is to convert PROFIBUS GSD files into a single PROFINET GSDML file. The configuration is typically done offline in the PROFINET engineering system (e.g. Siemens TIA Portal) meaning that you do not need to be connected to a controller or a gateway.

The default IP address of the integrated web server is 192.168.0.10. To access the pnGate PA / pnGate PB from your PC, you either have to change the default IP address of the integrated web server to an address on your network or change the DHCP address on your PC to a static IP address that matches the network address of your gateway (e.g. 192.168.0.1). The following Chapter describes how you have to do one of the two options.

4.1 Prerequisites

- The *Search and Configure* tool is installed as described in [Software installation](#)¹⁴.
- GSD files are available for your devices.
- The PROFINET devices are connected to the PROFINET PA or PROFINET DP segment.

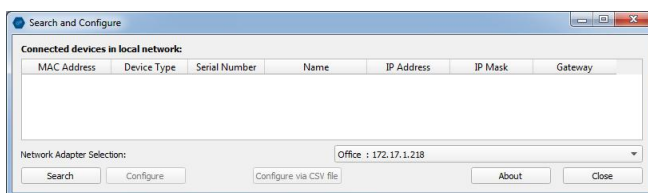
4.2 Changing the IP address of the pnGate PA / pnGate PB

Before you can configure the connected pnGate PA / pnGate PB you will have to change the preset IP default address of your gateway so that the integrated web server can communicate with your PC over the Local Area Network.

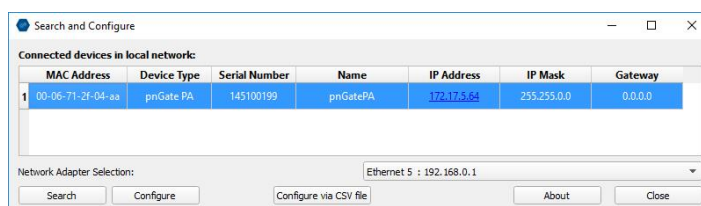
Searching for devices

The following steps apply to Windows 7.

1. Click **Start** → **All Programs** → **Softing** → **Search and Configure**.
The application window is opened.



2. Open the **Network Adapter Selection**.
3. Select the network on which you want to search for the connected gateway.
This selection menu shows all networks you can access from your PC.
4. Click **[Search]** to start searching for connected devices.
The search may take some time. The window Connected devices in local network appears.



5. Select the network device you want to configure.
6. Click **[Configure]** or double-click the device.
The configuration window opens. Here you can modify all relevant values.



Note

If you are starting the connected pnGate PA / pnGate PB for the first time and you have not yet assigned user roles for the gateway, the user name in the configuration window is preset to administrator.

7. Enter the default password **FGadmin!1** for username **administrator**.
8. Click **[Submit]**.
The changed settings are written to the device.



Note

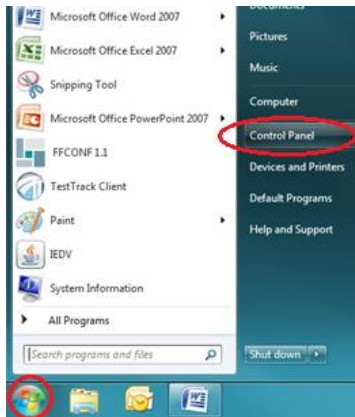
For the PROFINET communication to work properly ensure that the device's web server does not use the same IP address that is used by the PROFINET engineering system (e.g. TIA Portal) for the gateway.

4.3 Setting the IP address of the PC

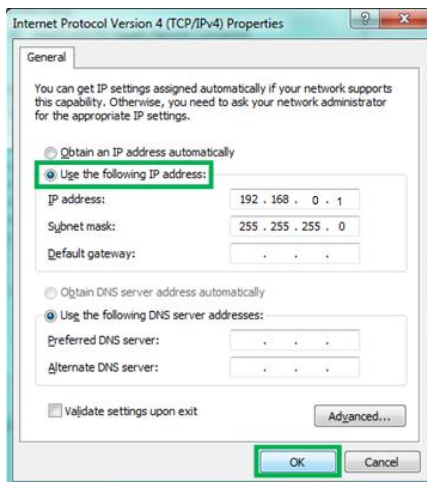
If you have not changed the IP address of the pnGate PA / pnGate PB as described in the previous you will need to configure the IP address of your PC to access the gateway over the network from your PC.

The following chapter describes how to set a static IP address in Windows 7.

1. Select **Start → Control Panel**.



2. Select **Network and Sharing Center**.
3. Right-click on **Local Area Connection** and select **Properties**.
4. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



5. Select **Use the following IP address** and enter a specific IP address and Subnet mask that corresponds to your network environment. In our example we use the following settings:
IP-Adresse: 192.168.0.1
Subnet mask: 255.255.255.0
6. Depending on your network environment, you may need to enter your **default gateway**.
7. Click **[OK]** to confirm.

4.4 User roles and settings

Access to the pnGate PA / pnGate PB configuration tool is managed by user roles where each role has certain permissions. The following user roles, permissions and passwords are available:

Role	Username	Password
Administrator	administrator	FGadmin!1
Maintenance	config	FGconfig!1
Operator	view	FGview!1
Expert	expert	FS-QsHnc7BWa{6w<
Diagnostics	diagnosis	?<fJ#\/\$eB2qtGd*

The tables shows which permissions/actions can be executed by which user role:

Permission	Administrator	Maintenance	Operator
Setting password	<input checked="" type="checkbox"/>		
Configuring gateway	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Reading configuration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

4.5 Opening the user interface

1. Open your web browser.
2. Type the IP address you set for your gateway or PC above into the address bar (URL field).
The web server login windows is opened.



Note

Depending on the web browser you are using the information presentation may vary.

3. Enter **administrator** in the **User Name** field and **FGadmin!1** in the **Password** field.
4. Click **[Login]**.

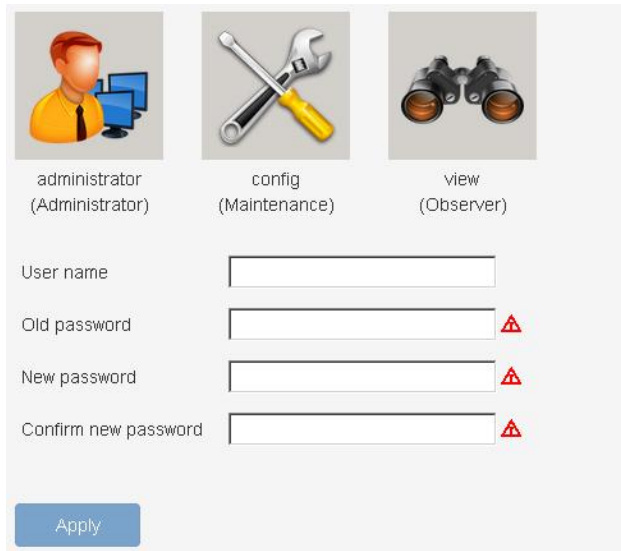
The login interface displays three role icons: an administrator (person at computer), a config icon (wrench and screwdriver), and a view icon (binoculars). Below these are the labels 'administrator (Administrator)', 'config (Maintenance)', and 'view (Observer)'. Underneath are two input fields: 'User Name:' with 'administrator' entered, and 'Password:' which is empty. A 'Login' button is at the bottom.

The user interface of the web sever opens with the information page showing details about the gateway like the serial number, firmware version and Host ID.

Information		Settings	Diagnosis	PROFINET IO	PROFIBUS
Device / System					
Serial Number	170700209				
Firmware Version	1.20.00.5754				
Bootloader Version	1.04.01.4613				
Factory Version	1.03.00.4613				
Hardware Version	1.00				
System ID	pnGate PA 4xPA				
Host ID	#00-06-71-35-04-E6#0427#0A2CADB1#				
Licence	pnGatePA				
Licence Options	*MQTT*				
Motherboard					
Serial Number	164800209				
Hardware Version	1.00				
Daughterboard					
Serial Number	164800209				
Hardware Version	1.00				

4.6 Changing the password

1. Log on to the web interface of the gateway.
2. Select **Settings** → **User Accounts**.
As administrator you can change and confirm the passwords for different roles.
See Section [User roles and settings](#)¹⁹.



	administrator (Administrator)	config (Maintenance)	view (Observer)
User name	<input type="text"/>		
Old password	<input type="password"/>	<input type="password"/>	<input type="password"/>
New password	<input type="password"/>	<input type="password"/>	<input type="password"/>
Confirm new password	<input type="password"/>	<input type="password"/>	<input type="password"/>

Apply

3. Enter the name of the user whose password you want to change, the **Old Password** and the **New Password** in the corresponding fields.
4. Retype the password in the **Confirm new password** field and click **[Apply]** to save the modified password.




Note

Be careful when changing the administrator password! If you lose your changed administrator password, you can no longer make changes to configurations or settings. In this case contact Softing support.

4.7 Updating the firmware

1. Log on to the web interface of the gateway.
2. Select **Settings** → **Firmware** in the side bar navigation.



The screenshot shows a web interface for updating firmware. At the top is a blue button labeled "Choose Firmware File...". Below it is a grey box containing the following information: "Current Firmware: 1.20.00.5754", "Firmware File: No file selected.", "Firmware Name:", "Firmware Signed:", and "Firmware Encrypted:". Below the grey box is a checkbox labeled "Erase Configuration". At the bottom are three blue buttons: "Restart", "Check", and "Update".

3. Click **[Choose Firmware File...]** to select the firmware file you want to download.
4. Tick the checkbox in the field **Erase Configuration**.
If you tick the checkbox your current configuration data will be deleted and your password is reset to default.
5. Click **[Update]** to download the firmware file and to reboot the system.
The system performs a firmware file check. The download starts automatically. When the download is completed the pnGate PA / pnGate PB will be rebooted. When the boot process is completed, the RUN LED is ON.



Note

Do not access the web server of the pnGate PA / pnGate PB before the "Success" message is displayed in the browser window. Otherwise you will have to clear the cache of your web browser after the boot process has finished and reconnect to the web server of the pnGate PA / pnGate PB.

4.8 PROFINET configuration in the TIA Portal

The following chapter describes how to convert the GSD file of a PROFIBUS PA field device to a GSDML using the built-in PROFIBUS configurator and how to use this file to configure a PROFINET device in the Siemens TIA Portal.

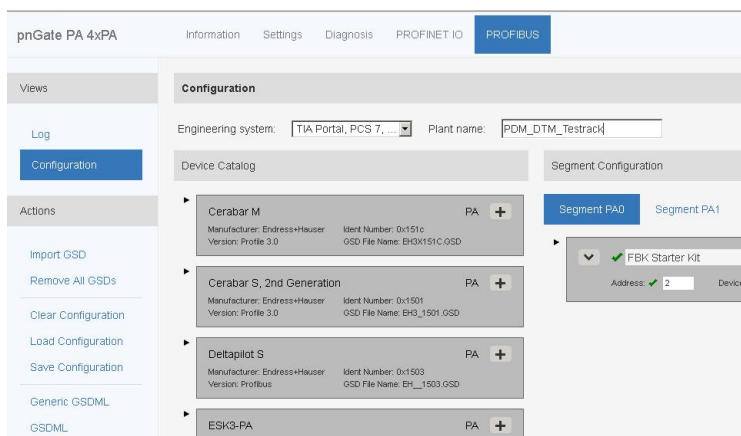


Video

See also the videos [Conversion from PROFIBUS GSD to PROFINET GSDML](#) and [PROFINET configuration in the TIA Portal](#).

4.8.1 Generating a GSDML import file

1. Log on to the the user interface of the gateway with your username and password.
2. Select **PROFIBUS → Configuration**.



3. Determine for which engineering system and for which installation (plant name) you want to generate a GSDML import file. The engineering system in the configuration page is set by default to the TIA Portal.



Note

As each engineering system often only supports a specific GSDML format, it is recommended that you select the engineering system you are using before converting the imported GSD files.

4. Click **[Import GSDs]** in the side menu.
5. Select the file(s) you want to import in the **File Upload** window and confirm the upload to the Device Catalog of your application clicking **[Open]**.
You can add up to 64 files for conversion. The selected file appears under Device Catalog
6. Click **[Generic GSDML]** in the side menu to generate a single GSDML file from the GSD files in the Device Catalog.



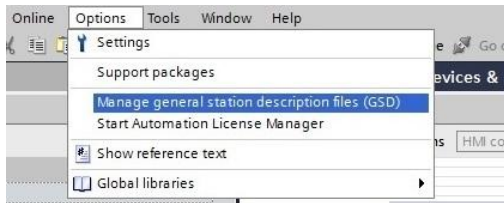
Note

By selecting **[Generic GSDML]** you will generate a dynamic GSDML file in which you can make manual changes to the assignment of the field devices at any time. This is not possible if you convert the GSD files to a static GSDML file using the **[GSDML]** function below.

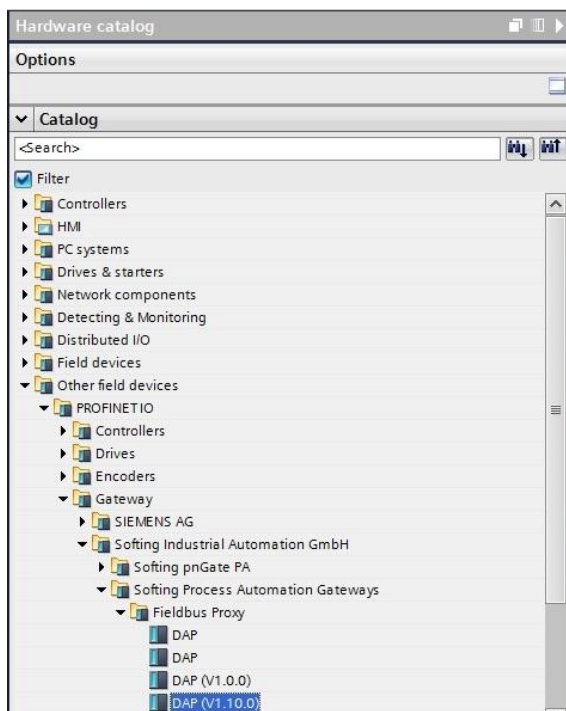
4.8.2 Creating a new project in Siemens TIA Portal

Open or create a new project in the TIA Portal using the PROFINET Controller.

1. Start the TIA Portal.
2. Select **Options → Manage general station description files (GSD)**.

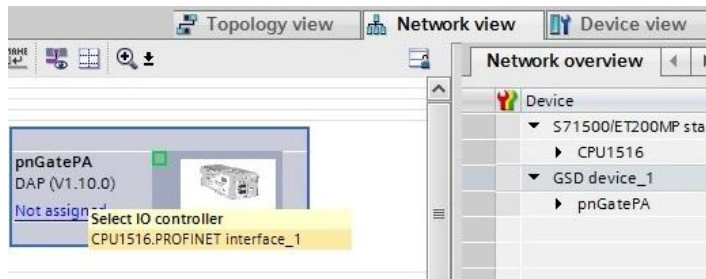


3. Navigate to the folder where the generated GSDML (see [Generating an import file](#)²³) is stored, tick the check mark of the file and click **[Install]**.
4. Open the Hardware catalog.
5. Select **Other field devices → PROFINET IO → Gateway → Softing Industrial Automation GmbH → Softing Process Automation Gateways → Fieldbus Proxy**.
6. Select **DAP**.

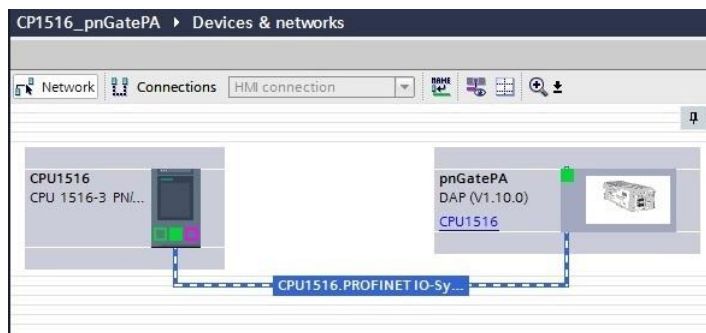


7. Select **Version** in the information dialog to identify the correct GSDML by date and time stamp.
8. Select the gateway, drag it from the hardware catalog and drop it into the Network View.

9. Click **[Not assigned]** in Network View.
10. Select the controller.



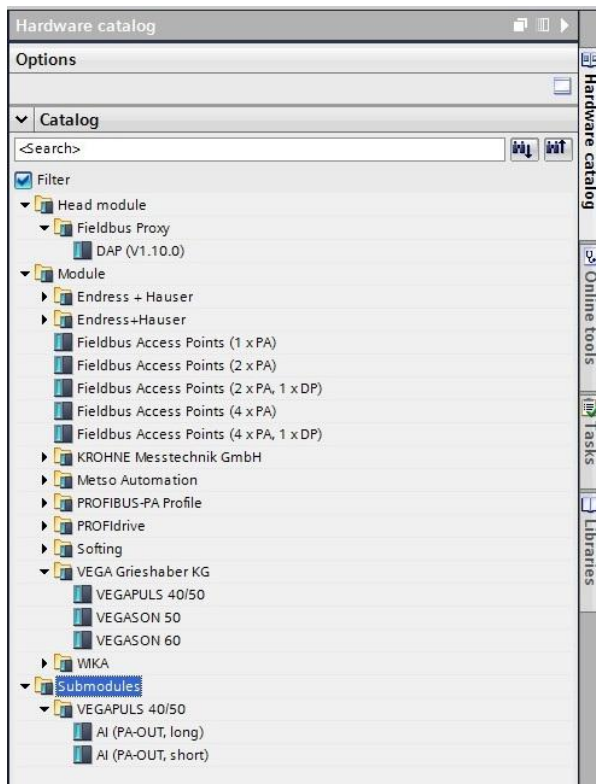
Now the gateway is assigned to the controller.



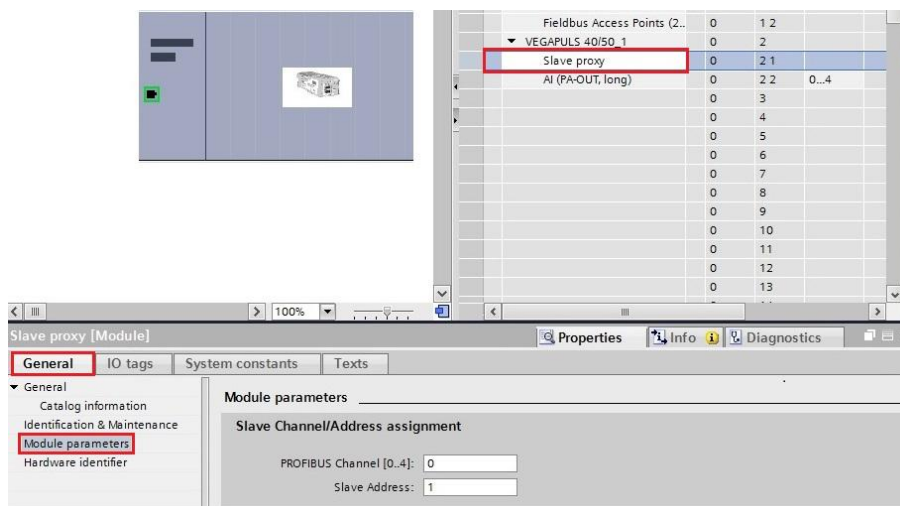
11. Double-click the gateway icon to open the Device Overview.

Module	Rack	Slot	I address
pnGatePA	0	0	
Interface	0	0	DAP...
Ethernet Port 1	0	0	DAP...
Ethernet Port 2	0	0	DAP...
Fieldbus Access Points (2 x P...)	0	1	
Fieldbus Access Points (2..	0	1	1
Fieldbus Access Points (2..	0	1	2
	0	2	
	0	3	
	0	4	
	0	5	
	0	6	
	0	7	

12. Drag a module to a free slot. The supported submodules are shown under **Submodules**.
13. Click the gray device symbol and select a submodule (e.g. temperature value) from the catalog to open the corresponding Properties dialog (configure the parameters of the submodule if required - similar to PA Function Block).



14. Select **Slave Proxy** → **General** → **Module parameters** and set the PROFIBUS master channel to the channel to which the PROFIBUS device is connected.
15. Enter the **Slave Address**.
If required, you can configure the parameters of a submodule in this dialog window after selecting it (corresponding to PA Function Block).

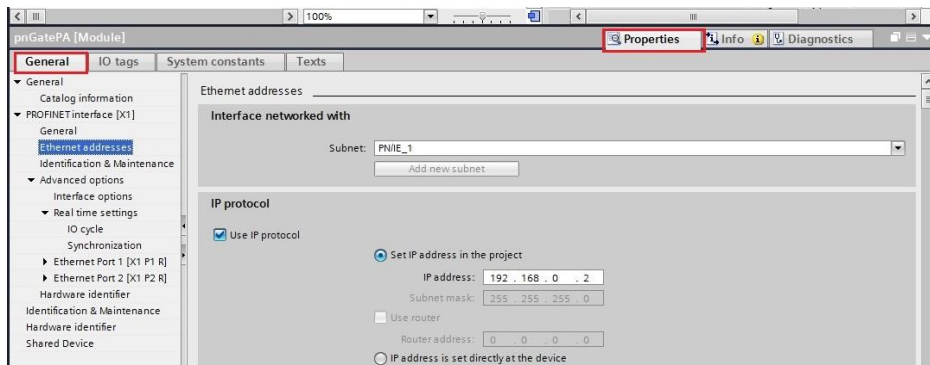


16. Select the default PROFINET IP address settings or click the gateway to configure these settings in **Properties → General**.

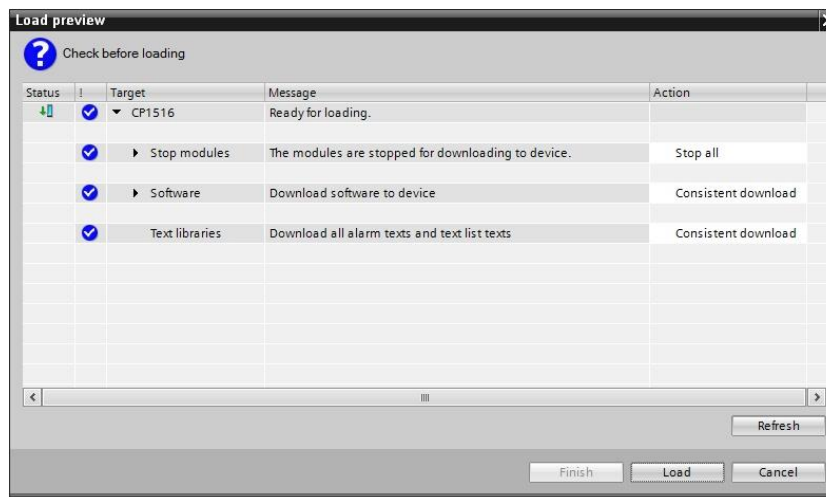


Note

Do **NOT** to use the same IP address for the gateway and the device's web server.
Example: 192.168.0.10 is the web server's default address. Use a different IP address for the PROFINET. For information on how to change the web server's address refer to [Changing the IP address of the pnGate PA / pnGate PB](#)¹⁶.



17. Save the project and download it to the device.
18. Select the corresponding PC network interface where the controller is connected.
19. Click **[Load]** and **[Finish]** to complete the setup.



A confirmation window appears displaying the message **Downloading to device completed without error**.

4.9 PROFIBUS parameterization with PACTware

The following chapter describes how to configure a PROFIBUS driver and parameterize PROFIBUS devices in PACTware using the Device Type Manager PROFIdtm.



Video

See also the video [PROFIBUS parameterization in PACTware](#).

4.9.1 Prerequisites


- The Search and Configure tool is installed as described in the Section [Software Installation](#)¹⁴.
- The default IP address of the built-in web server has been changed to an address on your network or the DHCP address on your PC has been changed to a static IP address corresponding to the network address of your gateway (e.g. 192.168.0.1). See chapter [Setting the IP address of the PC](#)¹⁸.
- PACTware 4.1 or any other FDT frame application is installed.
- PROFIdtm is installed.
- Microsoft hotfix KB3033929 has been installed for Windows 7. If not, do the following:
Open a command line, click **[Start]**, type **cmd** and in the command window that opens, type **wmic qfe | find "3033929"**.
The answer contains information about the time, date and Internet address of the installation.



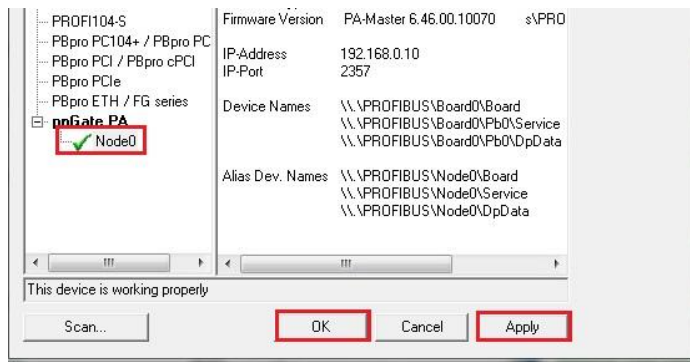
Hint

If you are running PACTware, the Softing PROFIdtm has been automatically installed.

4.9.2 Configuring the PROFIBUS driver

1. Select **Start → Control Panel**.
2. Click **PROFIBUS** to configure the PROFIBUS driver.

3. Allow Windows User Account Control (UAC) to modify settings.
The PROFIBUS Control Panel is opened.
4. Select **pnGate PA / mbGate PA**.
5. Click **[Add...]** and enter a symbolic node name (default value is Node0).
6. Click **[Next]** and enter the IP address of the gateway in the pnGate PA / mbGate PA interface name field of the next window, select a bus segment (e.g. PA0) and click **[Next]**.
Currently segment 1 or segment 2 are supported.
7. Click **[Next]** and set the timeouts (Timeout for Connect and Max Idle Time).
In most cases you can keep the default settings.
8. Click **[Finish]**.

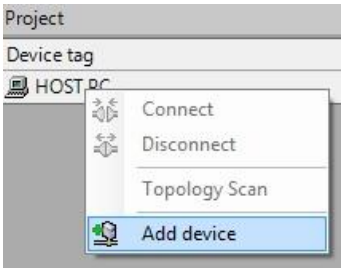
9. Click **[Apply]** and confirm saving all settings with **[Yes]**.
The device node is shown with a green check mark.



10. Click **[OK]** to close the PROFIBUS Control Panel.

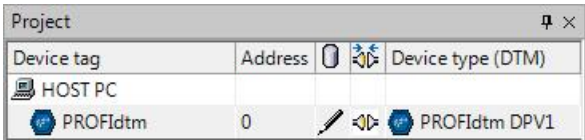
4.9.3 Creating a project in PACTware


- 1. Start PACTware.
- 2. Right-click **Host PC** → **Add Device** in the device tag column of the project view.



A new window appears with the available devices.

- 3. Select **PROFIdtm DPV1** from the list and confirm with **[OK]**.
The device is displayed in the project view.





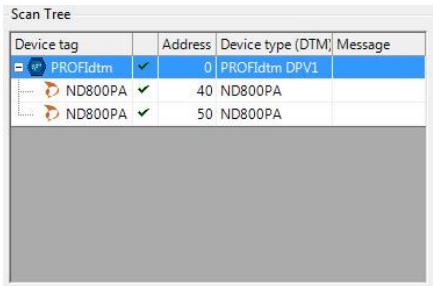
Note

Before you start a topology scan make sure the corresponding device DTM is installed.

- 4. Right-click **PROFIdtm** and select **Topology Scan** from the list.
The topology scan window is opened.
- 5. Click the arrow in the scan window to start the topology scan.



PROFIdtm connects to the network and starts the scan. The device detected is displayed together with its corresponding device information.



PROFIdtm and the PA devices are displayed in the project view.

4.10 PROFIBUS parameterization with SIMATIC PDM

The following chapter describes how to configure a PROFIBUS driver and connect a device type in the Siemens SIMATIC Process Device Manager (PDM).



Video

See also the video [PROFIBUS parameterization in SIMATIC PDM](#).



Note

SIMATIC PDM is currently NOT supported for PROFIBUS DP devices.

4.10.1 Prerequisites

- Siemens SIMATIC S7 and PDM must be installed.
- Siemens SIMATIC S7 and PDM licences must be available.
- EDD files and libraries of the PA devices must be imported in the PDM Device Integration Manager. If not available, download them from the Siemens support website and import them in the DIM.
- The Softing PROFIBUS CD must be available.

4.10.2 Configuring the PROFIBUS driver

See the description [Configuring the PROFIBUS driver](#)²⁸ in the previous chapter.

4.10.3 Connecting the SIMATIC Manager

Connecting the SIMATIC Manager with the pnGate PA device:

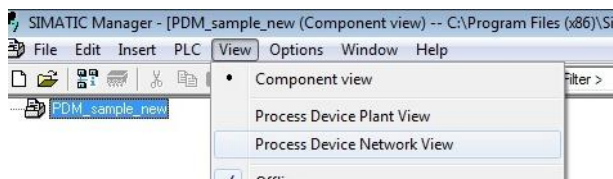
1. Select **Start → All Programs → Siemens Automation → SIMATIC → SIMATIC Manager** to create a new project.
2. Click **Options → Select PG/PC Interface**.
A new window with a dropdown menu opens.
3. Select from the dropdown menu **Interface Parameter Assignment used → Softing PROFIBUS Interface PROFIBUS.1**.
4. Click the **[Properties...]** button.
A new window opens.
5. Verify that the board number corresponds to the node number in Step 4 of the [previous section](#)³¹.
This is typically the default node name "**Node0**".
6. Close both windows with **[OK]**.
You will return to the main window (Component View).



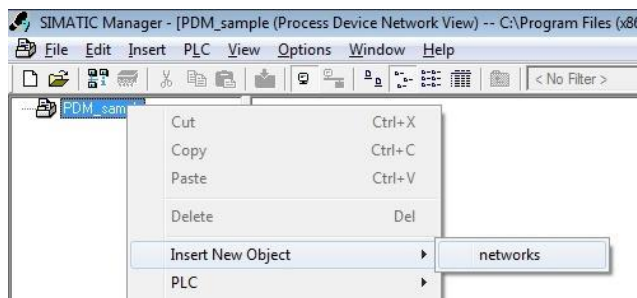
Note

A logical connection has been established between the pnGate PA and the SIMATIC Manager.

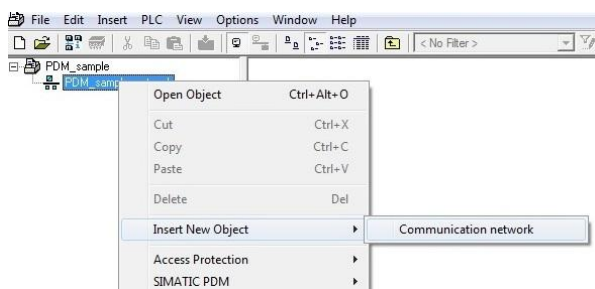
7. Go to **View → Process Device Network View**.



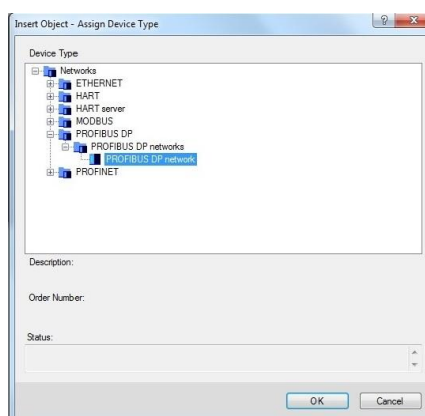
8. Right-click on the configuration symbol in the Process Device Network View and select **Insert New Object → networks**.



9. Right-click on the network symbol and select **Insert New Object → Communication networks**.



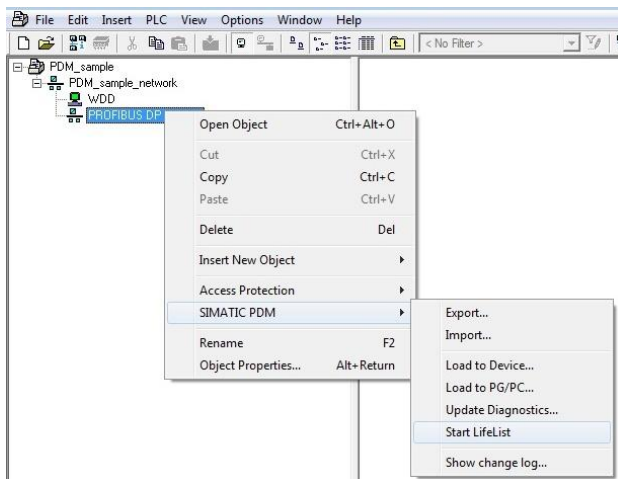
10. Click the **[Assign Device Type...]** button.
The Assign Device Type window is opened.
11. Select **PROFIBUS DP network** in the new window.



12. Click **[OK]** in both windows.

You are back in the Process Device Network View.

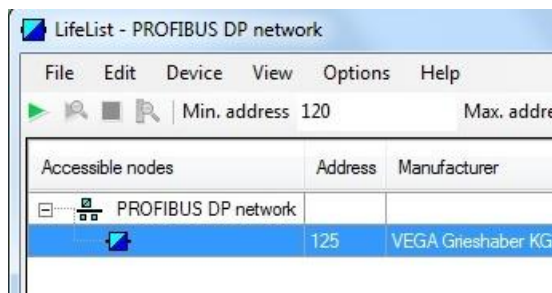
13. Right-click in the left column **PROFIBUS DP network** → **SIMATIC PDM** → **Start LifeList**.



14. Click the **Start Scan** icon (▶) in the top left corner under the menu bar.

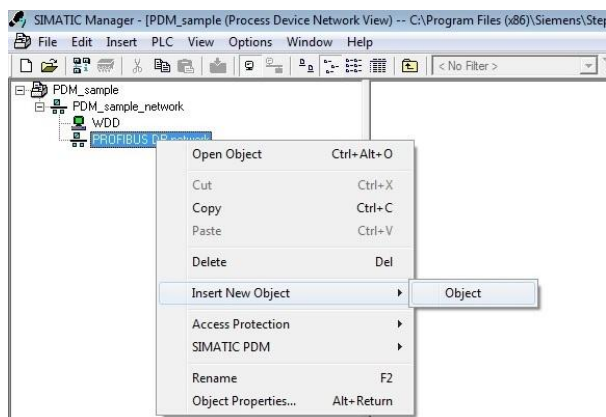
This will run a network scan to verify that the PA device can be reached.

The icon (▶) indicates that a device can be reached to read and write process parameters.

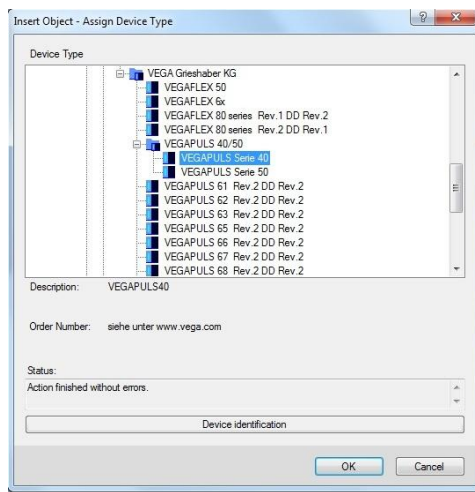


15. Close the window in the top right corner (✕)

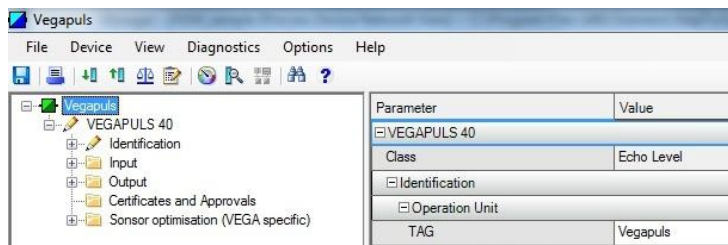
16. Right-click in the PROFIBUS DP network view and select **Insert New Object** → **Object**.




17. Click the **[Assign Device Type...]** button.
A new window opens.



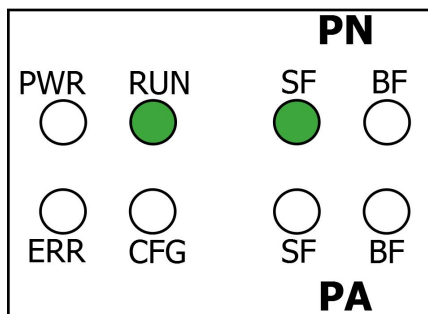
18. Select the device you want to access from the device type list and click **[OK]**.
19. Enter the PROFIBUS address.
20. Click **[OK]** to confirm.
The window closes.
21. Right-click in the Process Device Network View on the device you have just selected and select **Object**.
This opens the SIMATIC PDM view which shows the parameter values of the selected device.



22. Click the Measured Value Display icon () underneath the menu bar to import the parameter values of the PA device to the Process Device Manger.

5 LED status indicators

The device has eight LEDs on the front side:








































PWR	power supply
RUN	running
ERR	error
CFG	configuration, displays configuration upload
SF	System Faults, displays PROFINET/PROFIBUS system faults (wrong configuration, internal error, ...)
BF	Bus Faults, displays PROFINET/PROFIBUS bus faults














The LEDs may be permanently on or may be flash in different colors and at different frequencies. We use the following symbols:

Symbol	Color	Lighting
	none	off
	red	permanent
	green	permanent
	red	flashing (1 Hz)
	red	flashing quickly (5 Hz)
	green	flashing (1 Hz)
	green	flashing slowly (0.5 Hz)
	green	flashing quickly (5 Hz)













5.1 Status LEDs (PWR, RUN, ERR and CFG) in stand-alone mode

LEDs		Meaning
PWR   ERR	RUN   CFG	Start-up phase (approximately 10 seconds)
PWR   ERR	RUN   CFG	Operating system starts (approximately 2 seconds)
PWR   ERR	RUN   CFG	Device is running in factory mode (only firmware update is possible)
PWR   ERR	RUN   CFG	Device is running/operational
PWR   ERR	RUN   CFG	Software error A software error occurred. Reboot the device. Refer to error description in web browser (Diagnosis → Logfile → Support Data).
PWR   ERR	RUN   CFG	Permanent hardware fault detection during startup A fatal error has been detected. Refer to error description in web browser (Diagnosis → Logfile → Support Data).
PWR   ERR	RUN   CFG	Software error occurred, device has restarted automatically and error is reported in log file Delete log file in web browser (Diagnosis → Logfile → Support Data).
PWR   ERR	RUN  /   CFG	Firmware update is running (in factory mode if blinking red)
PWR   ERR	RUN   CFG	No power on device Check power supply.

5.2 PROFINET device LEDs (PN)

LEDs	Meaning
<div>SF </div> <div>BF </div>	No connection to controller Possible causes: PROFINET name is missing on the gateway or the physical connection to the gateway is interrupted.
<div>SF </div> <div>BF </div>	Connection establishment Time period the system needs to establish a connection; devices cannot yet communicate with each other.
<div>SF </div> <div>BF </div>	Connected to controller All devices are exchanging data.
<div>SF </div> <div>BF </div>	Configuration error or diagnosis Read errors from PROFINET engineering system.
<div>SF </div> <div>BF  / </div>	PROFINET signal function active
<div>SF </div> <div>BF </div>	Error in the PROFINET part of the device An error such as a software error ³⁶ or a license error has occurred.

5.3 PROFIBUS master LEDs (PA)

LEDs	Meaning
<div></div> <div>BF </div>	All channels offline
<div></div> <div>BF </div>	All devices exchange data on all channels
<div> / </div> <div></div>	At least one used channel is not online
<div></div> <div>BF  / </div>	At least one slave is not in data exchange (BF: green - all channels are online; red: not any channel is online.)
<div></div> <div>BF </div>	Error in the PROFIBUS part of the device An error such as a software error ³⁶ or a license error has occurred.

6 Technical data

Power supply	18 VDC...32 VDC; SELV/PELV supply mandatory Typical input current is 200 mA; maximum is 1 A (considering the rush-in current at switch-on).
Ethernet	IEEE 802.3 100BASE-TX/10BASE-T
Minimum ambient operating temperature	-40 °C (see section Installation positions ³⁸ for the maximum ambient temperature depending on the mounting position)
Storage temperature	-40 °C...+85 °C
Altitude	Must not exceed 2,000 m
Location	Indoor use only; no direct sunlight
Safety standard	IEC/EN/UL 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements and IEC/EN/UL 61010-2-201 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-201: Particular requirements for control equipment (both with CB scheme).

6.1 Installation positions

The pnGate PA / pnGate PB can be mounted horizontally and vertically. Depending on the installation position, different ambient operating temperatures (T_a) are allowed.



Minimum distance

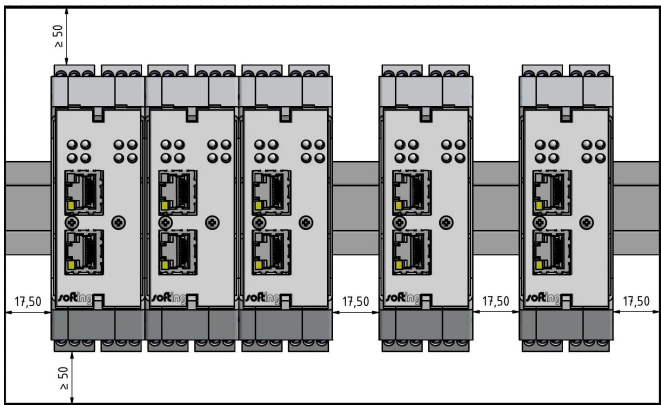
Provide a minimum distance of 50 mm to the air inlet and air outlet to ensure natural convection.



Rotated installation position

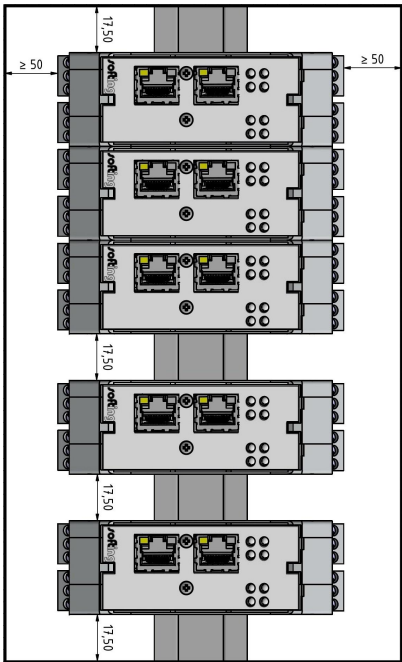
The maximum permissible ambient temperature values also apply to a 180° rotated installation position.

Horizontal installation position



Minimum distance	Maximum permissible ambient temperature T_a
0 mm	55 °C
17.5 mm	65 °C

Vertical installation position



Minimum distance	Maximum permissible ambient temperature T _a
0 mm	40 °C
17.5 mm	50 °C

7 Declaration of conformity

This device is compliant with EC directive 2014/30/EG, "Electromagnetic Compatibility" (EMC directive) and meets the following requirements:

- EN 55011 Industrial, scientific and medical (ISM) devices - radio disturbance - limits and methods of measurement
- EN 55032 Electromagnetic compatibility of multimedia equipment (MME) and interference emission
- EN 61000-6-4 Electromagnetic compatibility (EMC); Part 6-4: generic standard – emission for industrial environments
- EN 61000-6-2 Electromagnetic compatibility (EMC); Part 6-2: generic standard - immunity for industrial environments



Note

To fulfill the EMC requirements, the other components of your installation (DC adapter, Industrial Ethernet devices, etc.) also have to meet the EMC requirements. A shielded cable must be used. In addition, the cable shield must be grounded properly.



CAUTION

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures!



CE

A Declaration of Conformity in compliance with the above standards has been made and can be requested from Softing Industrial Automation GmbH.



ROHS

This product is ROHS compliant.



FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.



VCCI

This Class A product conforms to the regulations of Voluntary Control Council for Interference (VCCI) by Information Technology Equipment.






WEEE

Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime. Packaging material and worn components shall be disposed of according to the regulations applicable in the country of installation.

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