

SOFTING LIBRARY

Technology: PROFIBUS
Product: FG-100-PB
Topic: How-To

Use Softing's FG-100-PB with PACTware™ for configuring PROFIBUS PA Devices



Products Concerned

- FF-100-PB Softing's Remote Interface to access PROFIBUS networks. This product is offered as a single channel device (FG-100-PB), dual channel (FG-PB-2), and triple channel (FG-PB-3).
- PROFIdtm Communication Device Type Manager (commDTM) for Softing's PROFIBUS Interface Cards
- PACTware Vendor and Fieldbus independent FDT Container Software

Purpose of this Document

The purpose of this document is to describe how-to integrate and use Softing's FG-100-PB, FG-PB-2, and FG-PB-3 remote interface cards with PACTware. In the remainder of this document only the FG-100-PB is referenced.

Assumptions / Preconditions

It is assumed that the reader of this document is familiar with (a) PROFIBUS technology and the capabilities of available field devices and (b) with the FDT container software PACTware.

Introduction

FDT is an open technology that enables users to easily access and extract intelligent information from their automation products. Depending on the actual installation FDT technology requires three, maximum four types of components.

- FDT Container Application A Windows application that represents the user interface. The container application relies on CommDTM's to access the communication layer and invokes vendor specific DeviceDTM's to operate field devices.
- CommDTM A commDTM represents communication devices like PC communication cards, couplers, gateways, and linking devices. Provided by the interface card manufacturer.
- GatewayDTM GatewayDTMs are required if transitions between different network protocols exist. A gatewayDTM goes into action between the communication DTM and the device DTM..

- DeviceDTM

In a comparison the DeviceDTM corresponds to the printer driver. It is used in different systems in the same way.

Provided by the device manufacturer

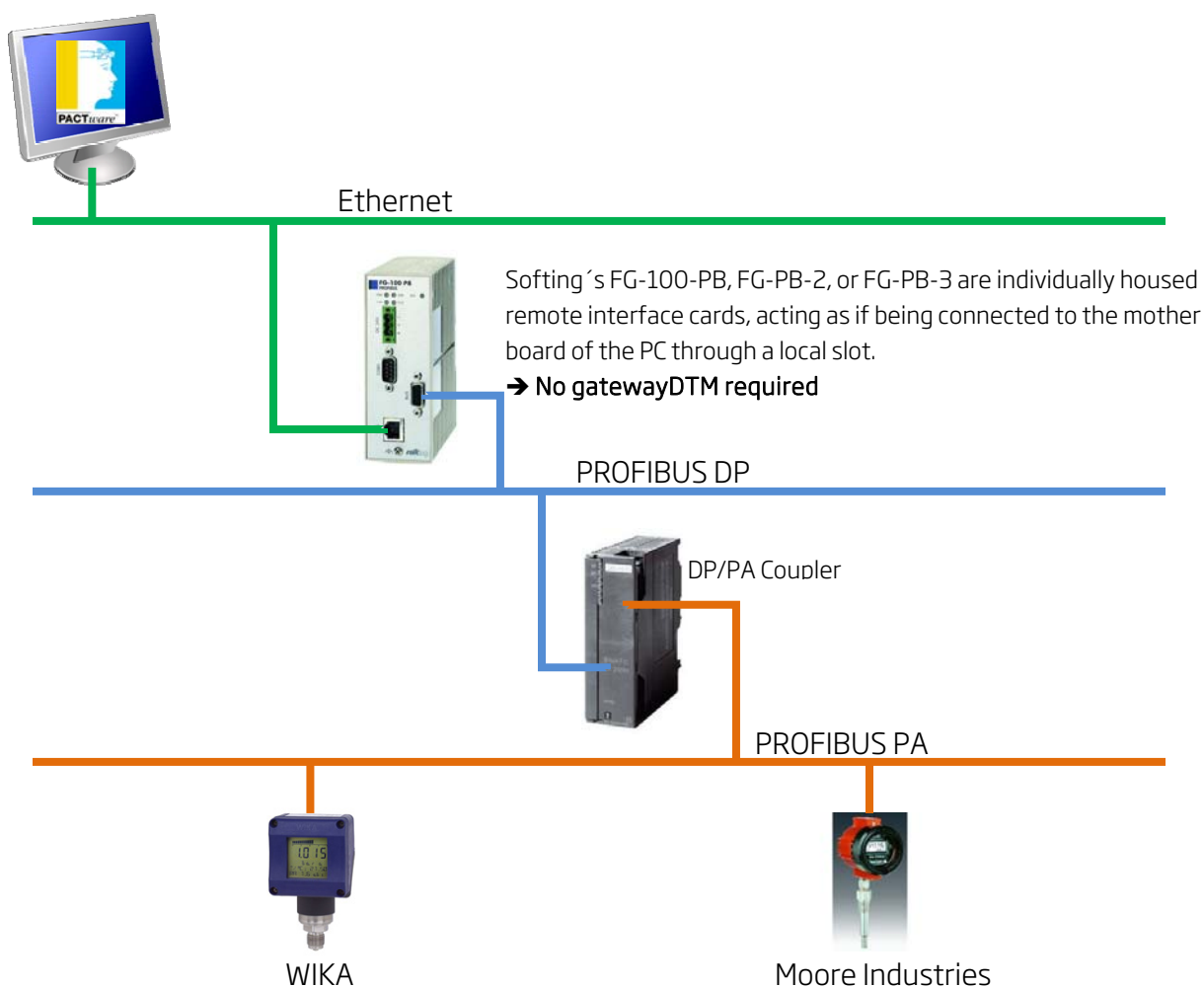
For more information on FDT technology please visit www.fdtgroup.org

Environment

The example environment consists of

- Computer running Windows 7 SP1 32-bits
- PACTware Version 4.0
- FG-100-PB remote interface card
- Two PROFIBUS PA field devices
- Siemens DP/PA coupler

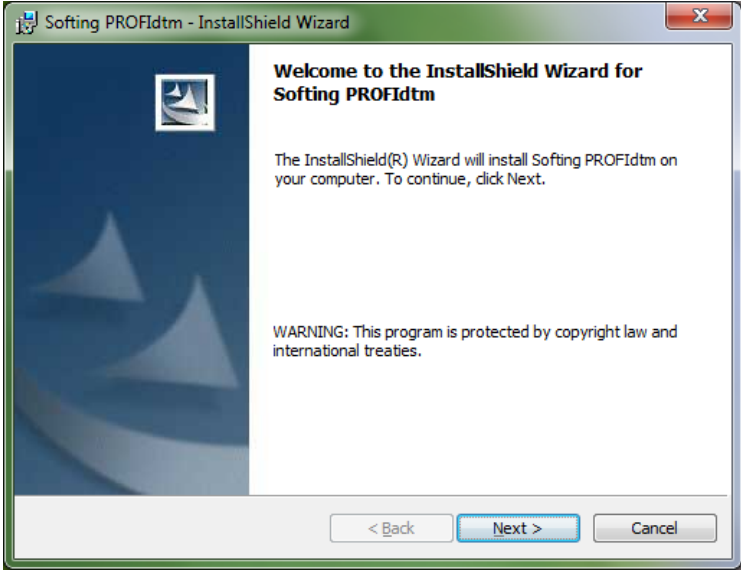

Network Diagram



Software Installation

First, install all components that make up the system.

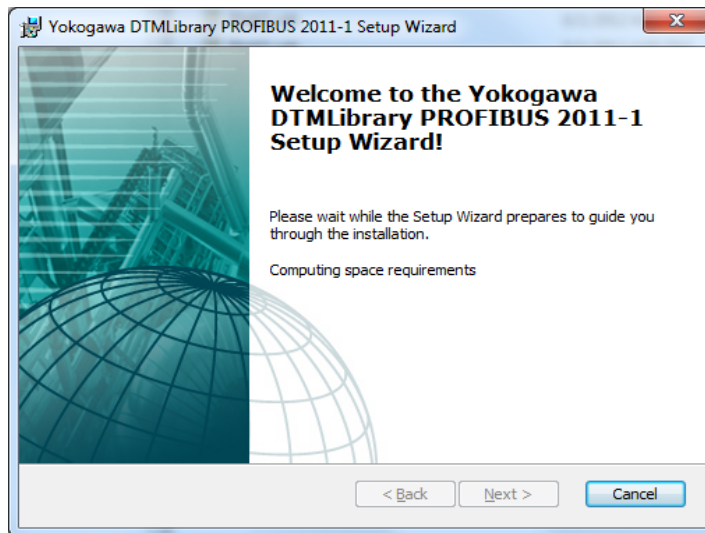
Step	Action																
1.a	<p>Locate the software CD included with the FG-100-PB and install the hardware driver. Depending on your version of Windows you might have to answer a few security questions. In our case, the driver for the 32-bit version of Windows 7 is installed.</p> <table border="1" data-bbox="302 632 1203 1020"> <thead> <tr> <th data-bbox="302 632 472 688">Version</th> <th data-bbox="472 632 805 688">Operating System</th> <th data-bbox="805 632 1003 688">Installation</th> <th data-bbox="1003 632 1203 688">Manuals</th> </tr> </thead> <tbody> <tr> <td data-bbox="302 688 472 814">5.45 (32-Bit)</td> <td data-bbox="472 688 805 814">Windows 7, Windows Vista, Windows XP and Windows 2000</td> <td data-bbox="805 688 1003 814">Software Installation ↓</td> <td data-bbox="1003 688 1203 814">User manual (Version 5.4) 📄</td> </tr> <tr> <td data-bbox="302 814 472 898">5.45 (64-Bit)</td> <td data-bbox="472 814 805 898">Windows 7, Windows Vista and Windows XP</td> <td data-bbox="805 814 1003 898">Software Installation ↓</td> <td data-bbox="1003 814 1203 898">User manual (Version 5.4) 📄</td> </tr> <tr> <td data-bbox="302 898 472 1020">5.27 (32-Bit)</td> <td data-bbox="472 898 805 1020">Window NT and Windows 9x/ME</td> <td data-bbox="805 898 1003 1020">Software Installation ↓</td> <td data-bbox="1003 898 1203 1020">User manual (Version 5.2) 📄</td> </tr> </tbody> </table>	Version	Operating System	Installation	Manuals	5.45 (32-Bit)	Windows 7, Windows Vista, Windows XP and Windows 2000	Software Installation ↓	User manual (Version 5.4) 📄	5.45 (64-Bit)	Windows 7, Windows Vista and Windows XP	Software Installation ↓	User manual (Version 5.4) 📄	5.27 (32-Bit)	Window NT and Windows 9x/ME	Software Installation ↓	User manual (Version 5.2) 📄
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1.b	Restart the computer																
2.a	<p>Locate or download the free-of-charge PROFIdtm from Softing.</p> <p>To download the PROFIdtm please follow the link below , click on "Downloads", and select "PROFIBUS CommDTM PROFIdtm Vx.yz Free of Charge":</p> <p>http://industrial.softing.com/en/products/functionality/interface-cards-gateways/remote-interfaces-over-ethernet/profibus/profibus-master-or-slave-configurable-single-channel-remote-interface.html</p>																

2.b	<p>Install the PROFIdtm</p> 
3	<p>Download and install PACTware (FDT frame application). You can download PACTware, for example, from http://www.pepperl-fuchs.us/usa/en/classid_162.htm</p> 

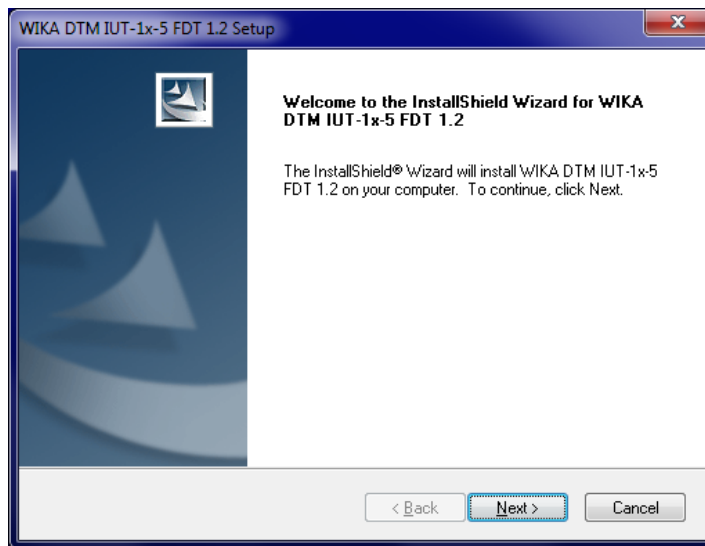
4

Locate or download the required deviceDTMs of all of your field devices and install them. Depending on your version of Windows you might have to answer a few security questions.

Install Example 1: Yokogawa DTM library for PROFIBUS devices






Install Example 2: Single deviceDTM for a WIKA device














Display Elements of the FG-100-PB remote interface card

On the front of the FG-100-PB are five LEDs (PWR (Power); LAN; RUN; ERROR;BUS) indicating the device status and the communication status.

The Table below shows the symbols used in this document for the various indications of the display elements (LED block).

Symbol	Meaning for Display Element
	LED OFF
	LED Permanent
	LED Flashing

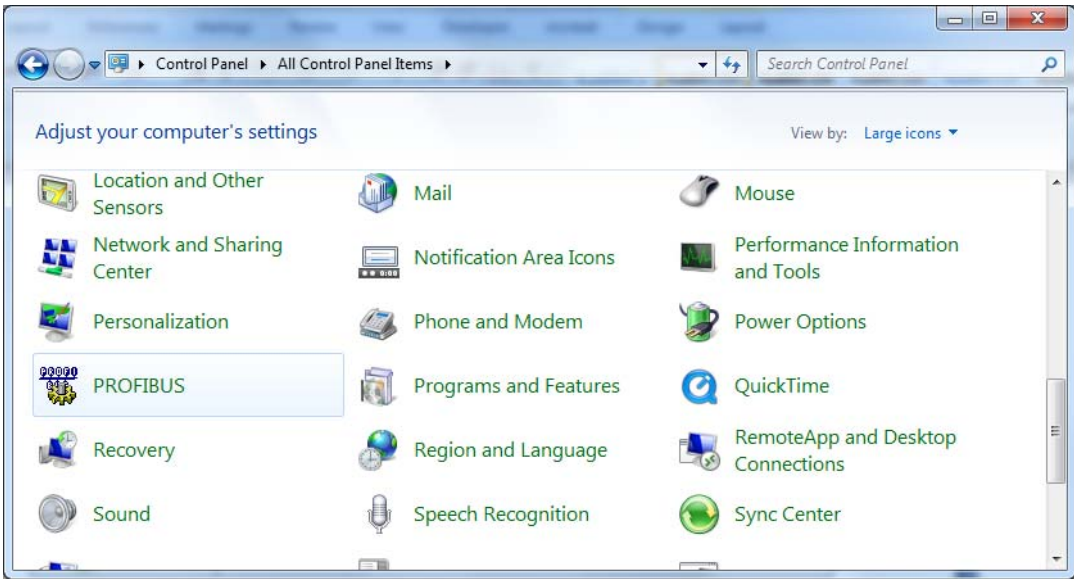
Display Element	Description
PWR (Power)	Power Indicator
 Off	No connection; No supply voltage is present.
 Green	24V power is on.
LAN	Status of Ethernet interface
 Off	Device is not connected to a hub, switch, or NIC
 Green	Ethernet link has be established.
 Green	Device is transmitting data over Ethernet
RUN	Status of FG-100-PB
 Off	Device is not operational
 Green	Device is operational
ERROR	Status of FG-100-PB
 Off	No internal or external Error

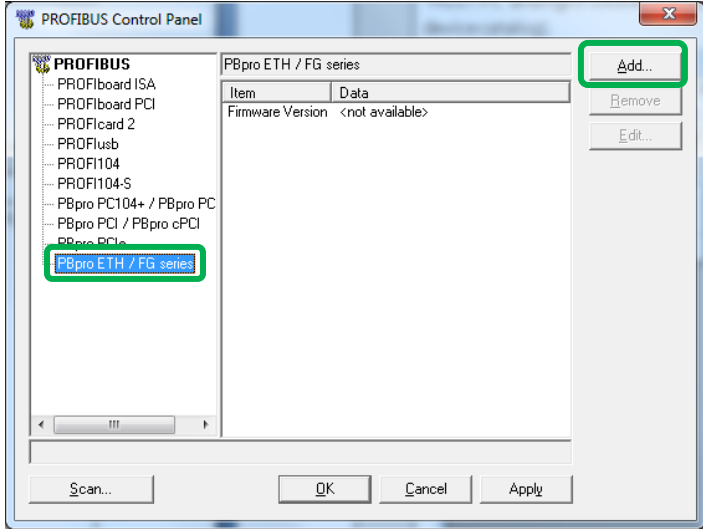
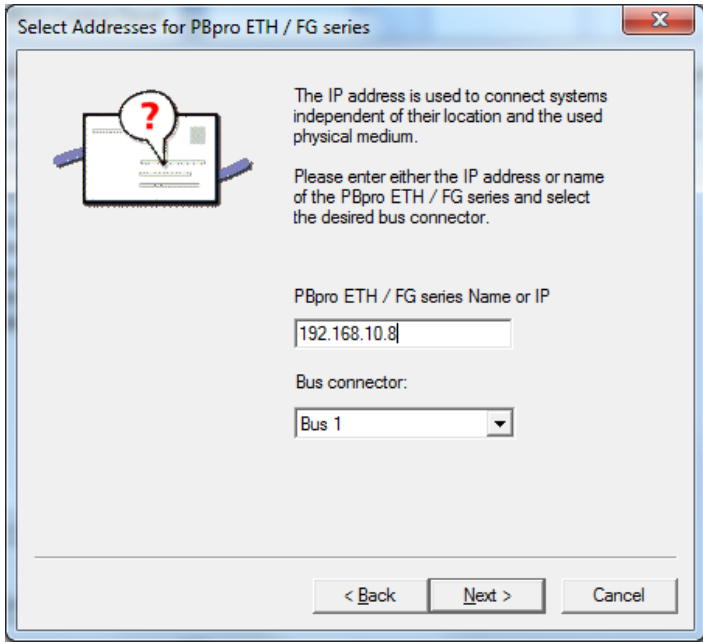
	Red	Error - Please refer to manual for further steps.
BUS		Status of PROFIBUS Communication
	off	No PROFIBUS communication
	Green	PROFIBUS communication active

Connecting the FG-100-PB

The following list the necessary steps to establish a link between a computer and the FG-100-PB and to connect the FG-100-PB to PROFIBUS.

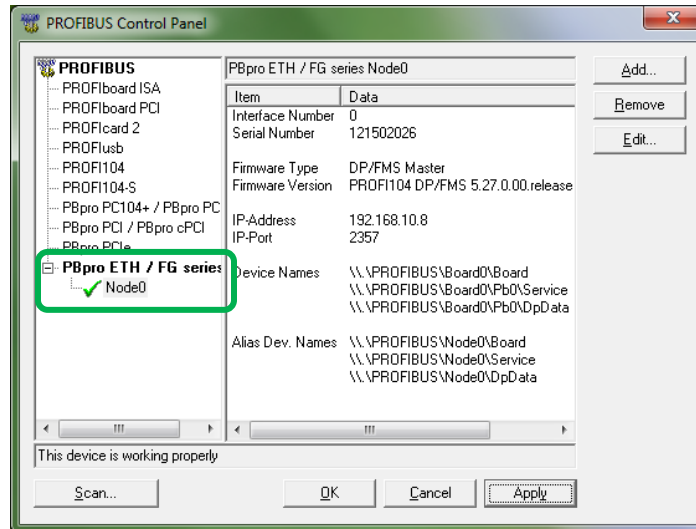
Note: The FG-100-PB is based on PROFIBUS DP as the physical layer. To access PROFIBUS PA devices a DP to PA coupler must be present in your network.

Step	Action
1	Establish an Ethernet link between the host computer and the FG-100-PB
1.a	<p data-bbox="293 726 1409 804">Open the "Control Panel" located and open the item "PROFIBUS". Note: You might have to switch from the "Category" view to the "Icon" view to see this item.</p>  <p>The screenshot shows the Windows Control Panel window titled 'Control Panel - All Control Panel Items'. The 'View by' dropdown is set to 'Large icons'. The 'PROFIBUS' icon is highlighted with a blue selection box. Other visible icons include Location and Other Sensors, Network and Sharing Center, Personalization, Recovery, Sound, Mail, Notification Area Icons, Phone and Modem, Programs and Features, Region and Language, Speech Recognition, Mouse, Performance Information and Tools, Power Options, QuickTime, RemoteApp and Desktop Connections, and Sync Center.</p>

<p>1.b</p>	<p>Select "PB pro ETH / FG series" and click on "Add.."</p> 
<p>1.c</p>	<p>Accept Default Settings and click "Next"</p>
<p>1.d</p>	<p>Enter the IP address of the FG-100-PB (in this example the IP address is 192.168.10.8) and click "Next".</p> 
<p>1.e</p>	<p>Accept Default Settings and click "Finish"</p>

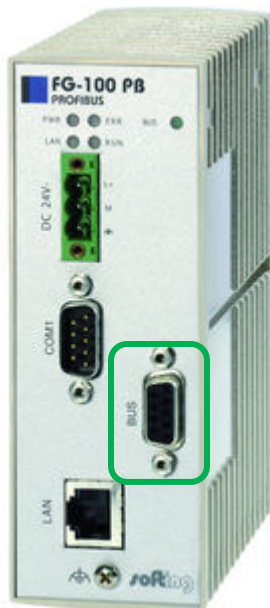
1.d

Click on "Apply". A green check mark will appear to indicate that an Ethernet link between the host computer and the FG-100-PB remote interface card has been established.



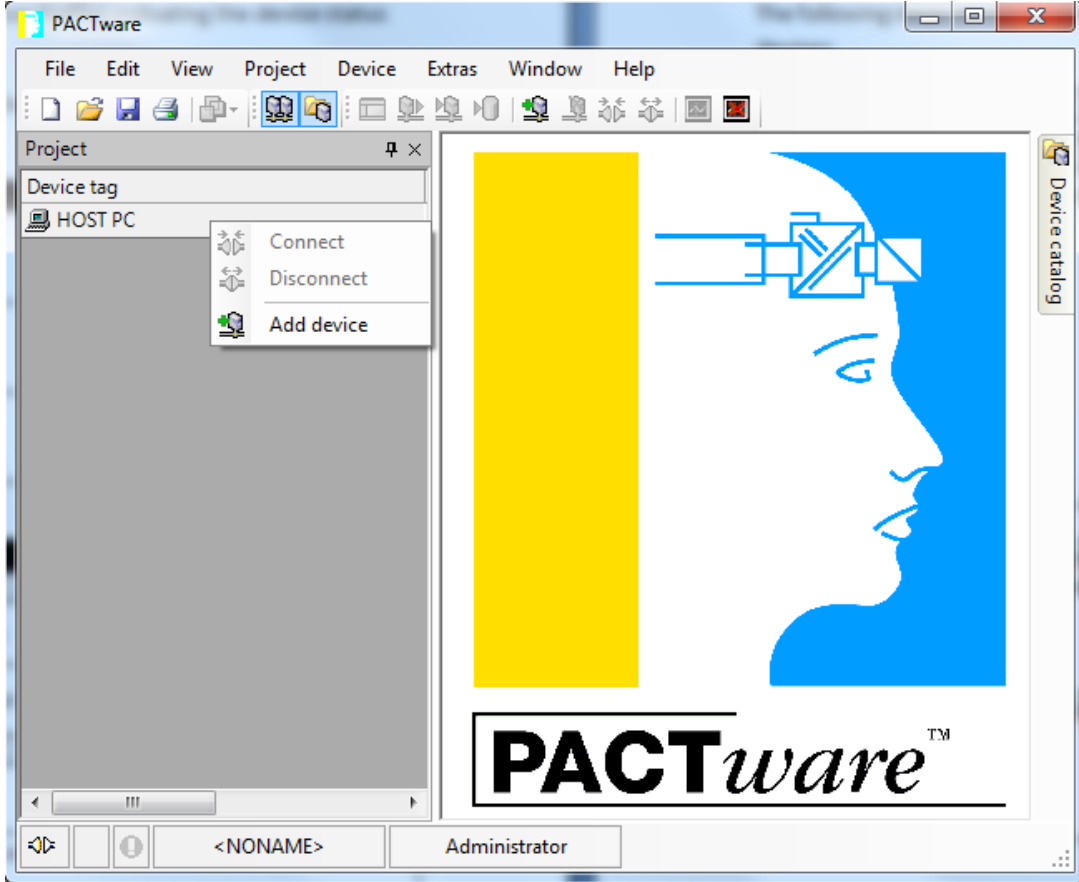
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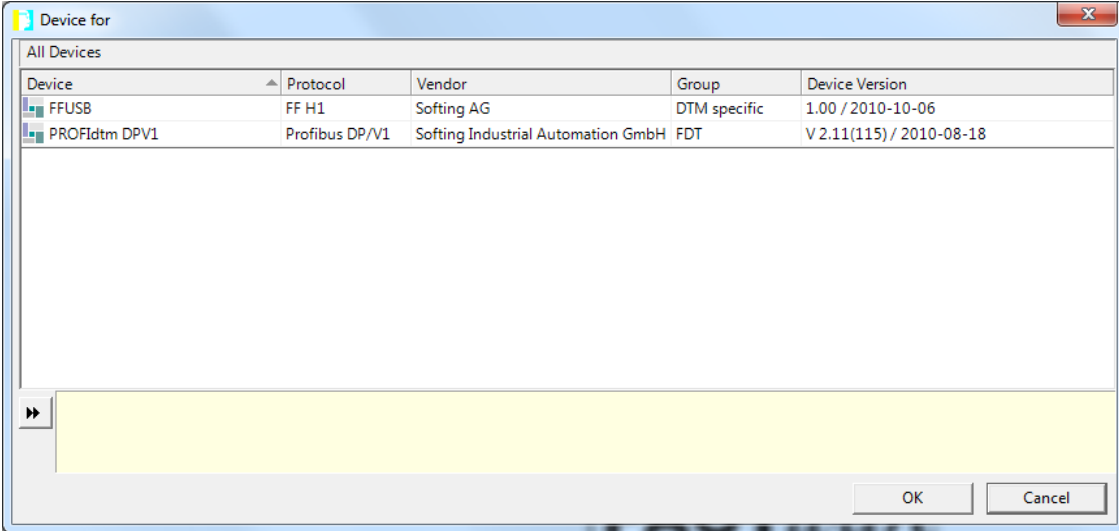
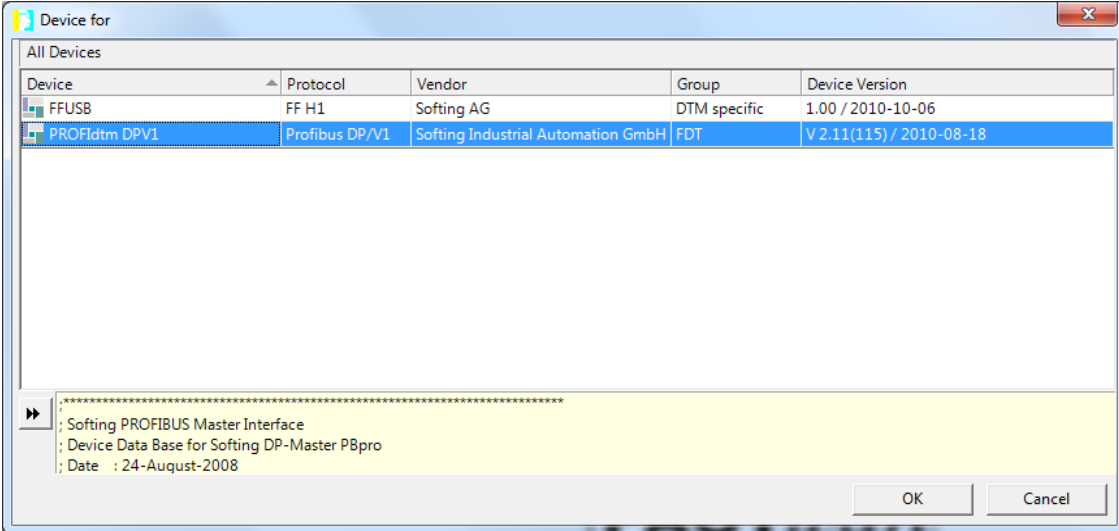
Use a standard 9-pin male PROFIBUS connector to connect the FG-100-PB to the PROFIBUS DP network.



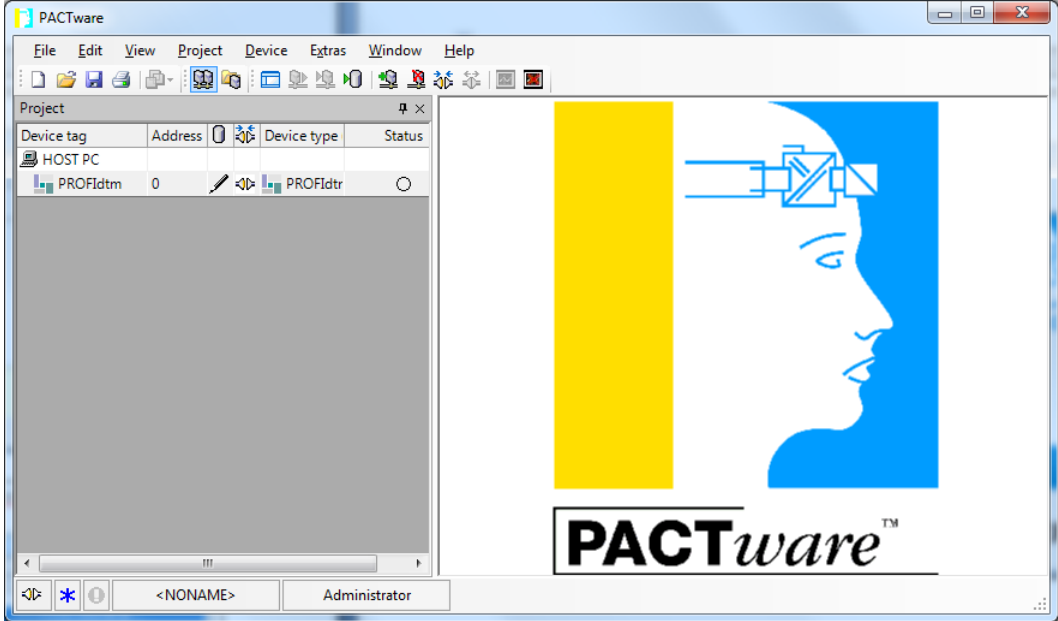
Selecting the FG-100PB within PACTware

The following steps demonstrate how to use Softing's FG-100-PB within PACTware to gain access to field devices.

Step	Action
1	Start the FDT container application PACTware. Note: Open and update the PACTware "Device Catalog" if necessary.
2	<p>First, you need to instantiate the commDTM. Hover with your mouse over the symbol "HOST PC" and right-click with your mouse (You can also use the F3 key to open the device catalog).</p> 

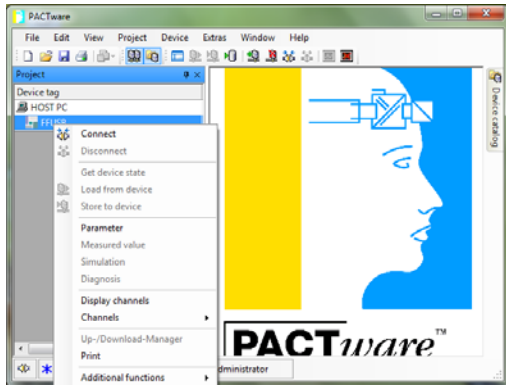
Step	Action															
3	<p>A left mouse-click on "Add device" displays the list of available commDTMs on your computer.</p>  <p>The screenshot shows a window titled "Device for" with a table of available devices. The table has the following data:</p> <table border="1"> <thead> <tr> <th>Device</th> <th>Protocol</th> <th>Vendor</th> <th>Group</th> <th>Device Version</th> </tr> </thead> <tbody> <tr> <td>FFUSB</td> <td>FF H1</td> <td>Softing AG</td> <td>DTM specific</td> <td>1.00 / 2010-10-06</td> </tr> <tr> <td>PROFIdtm DPV1</td> <td>Profibus DP/V1</td> <td>Softing Industrial Automation GmbH</td> <td>FDT</td> <td>V 2.11(115) / 2010-08-18</td> </tr> </tbody> </table>	Device	Protocol	Vendor	Group	Device Version	FFUSB	FF H1	Softing AG	DTM specific	1.00 / 2010-10-06	PROFIdtm DPV1	Profibus DP/V1	Softing Industrial Automation GmbH	FDT	V 2.11(115) / 2010-08-18
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PROFIdtm DPV1	Profibus DP/V1	Softing Industrial Automation GmbH	FDT	V 2.11(115) / 2010-08-18												
4	<p>Select the entry PROFIdtm and click on "OK". This is the commDTM for Softing's FG-100-PB remote interface card.</p>  <p>The screenshot shows the same "Device for" window, but now the "PROFIdtm DPV1" entry is selected (highlighted in blue). Below the table, there is a text area containing the following information:</p> <pre> :***** : Softing PROFIBUS Master Interface : Device Data Base for Softing DP-Master PBpro : Date : 24-August-2008 </pre>															

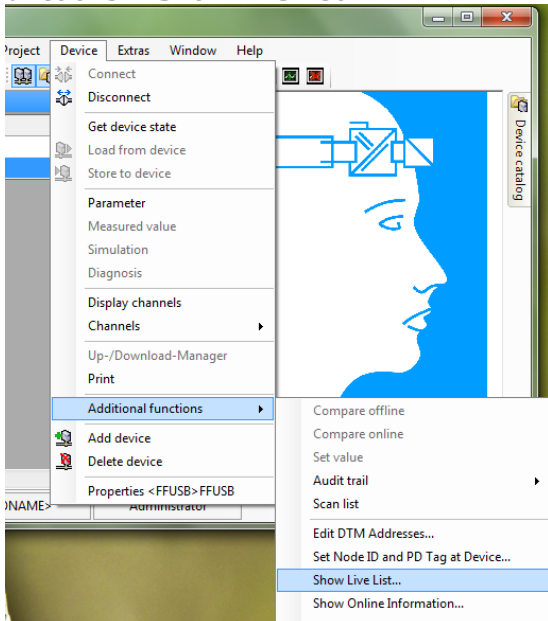
5 After few seconds a symbol representing the Softing commDTM will be added to the project.



Testing the FG-100-PB within PACTware

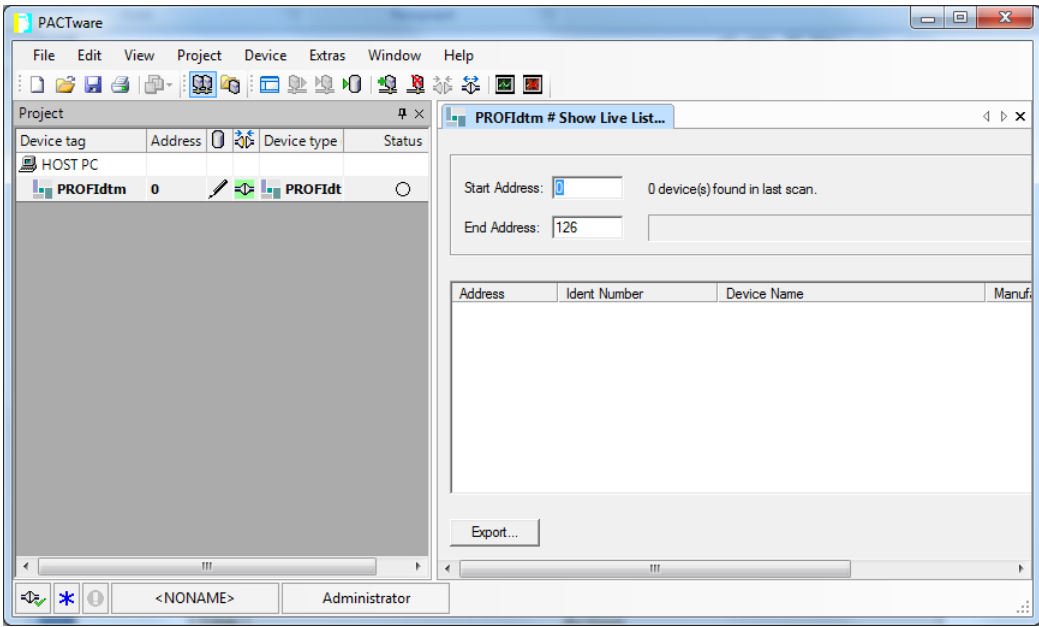
The following steps demonstrate how-to generate a live list of all connected PROFIBUS PA devices within PACTware.

Step	Action
1	<p>Right click on the PROFIdtm symbol and select "Connect" or select the PROFIdtm symbol and use the menu entry "Device->Connect".</p> 

Step	Action
2	<p>Right click on the PROFIdtm symbol and select "Additional Functions-> Show Live List..." or select the PROFIdtm symbol and use the menu entry "Device-> Additional Functions-> Show Live List..."</p>  <p>Please Note: The FG-100-PB requires a DP to PA coupler to access PA devices. Please refer to the manual of the DP/PA coupler to configure the correct baud rate within the PROFIdtm. You can select the baud rate by (a) right-clicking on PROFIdtm symbol and selecting "Parameter" or under menu entry "Device->Parameter".</p>



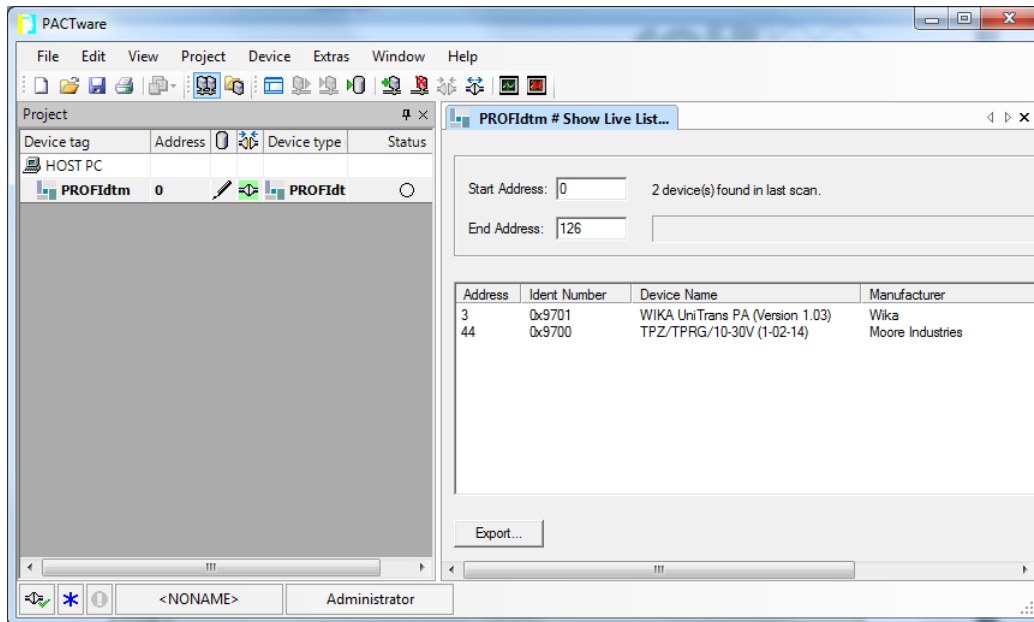
3 Click on the "Start Scan" Button on the right to start the process of creating the live list.



Step	Action
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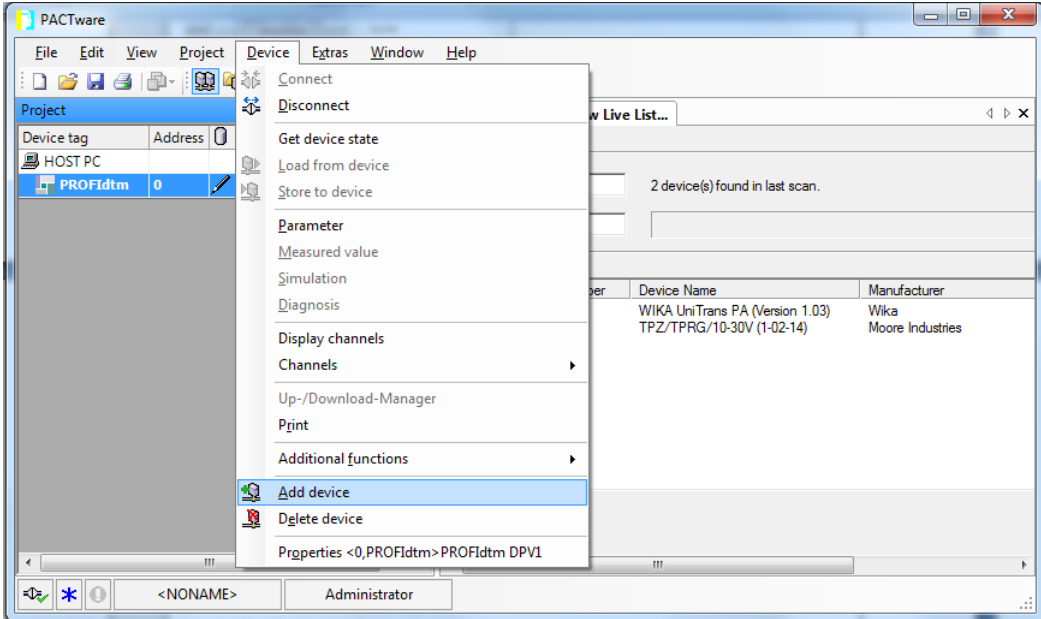
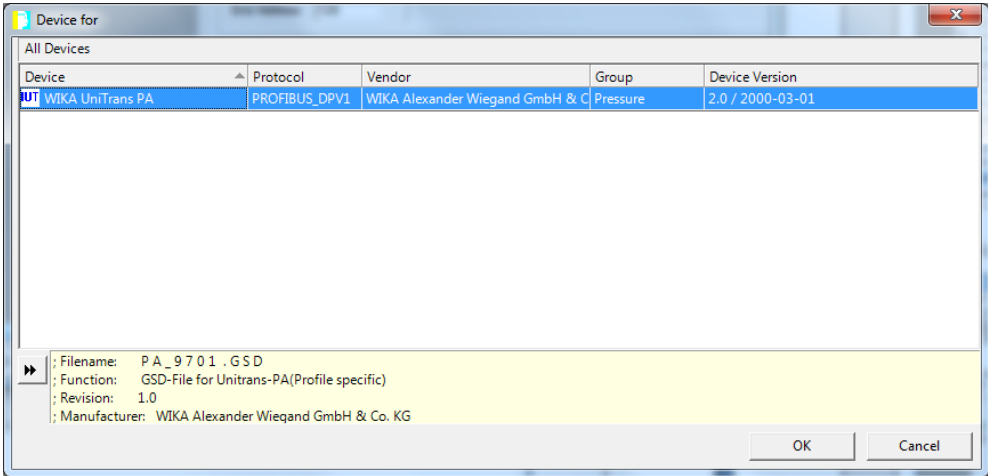
4

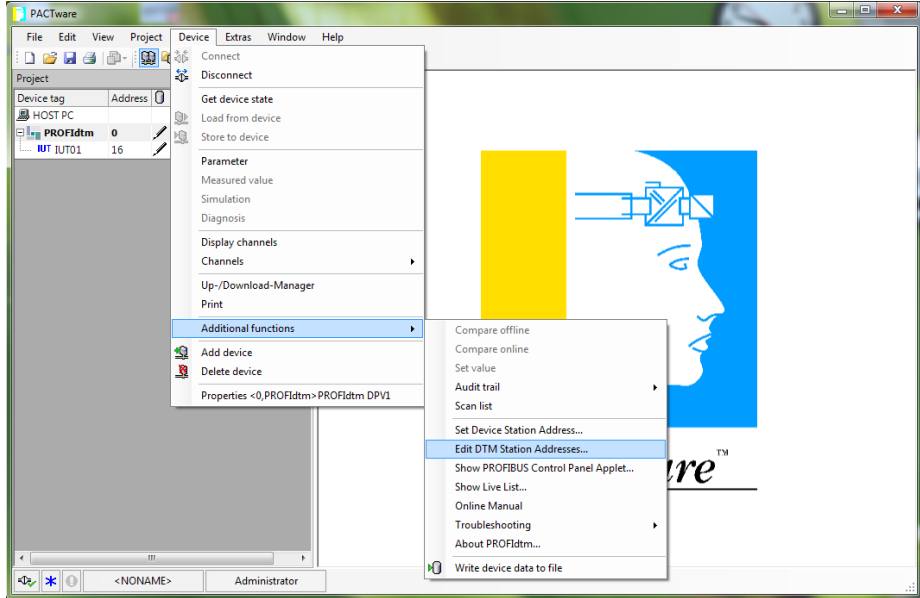
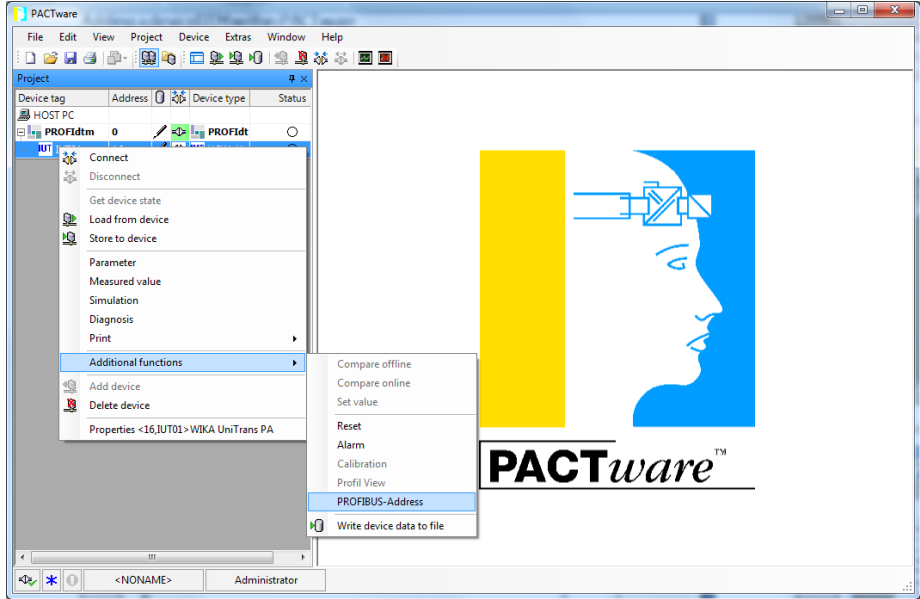
After a few minutes PACTware will display a list of all connected devices. Your PROFIdtm is working correctly with the FG-100-PB remote interface card.

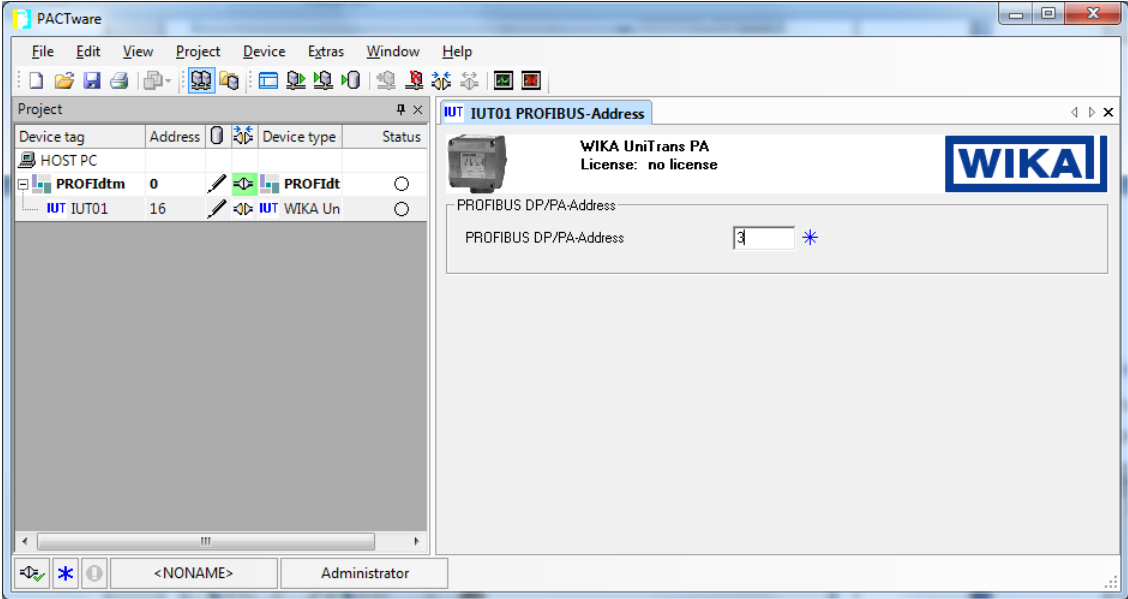


Adding a deviceDTM within PACTware

The following steps demonstrate how to add and configure a deviceDTM. In this example we add a deviceDTM from WIKA.

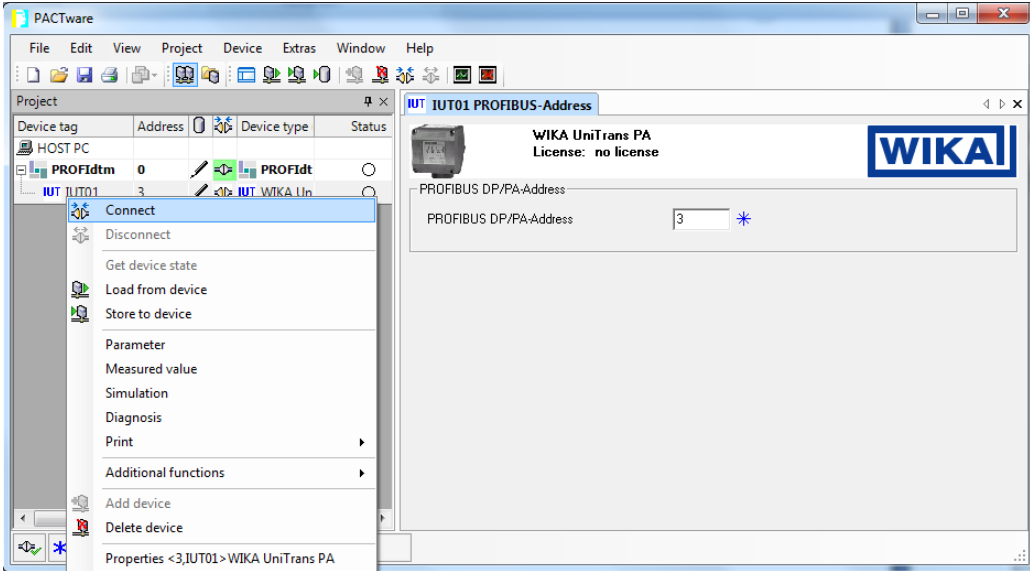
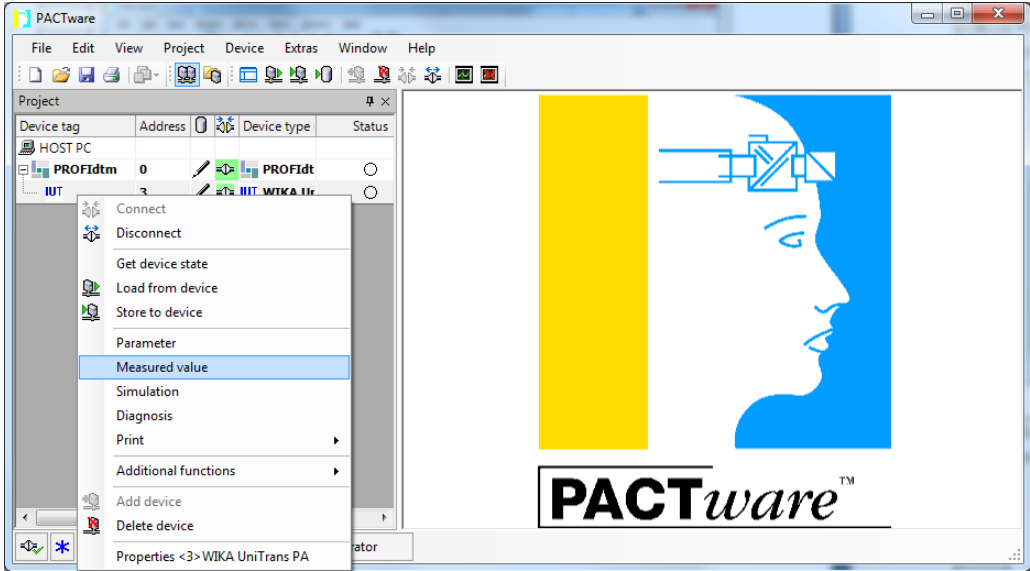
Step	Action										
1	<p>Right click on the PROFIdtm symbol and select "Add device" or select the PROFIdtm symbol and use the menu entry "Device->Add device". You can also use the F3 button to open the device catalog.</p>  <table border="1" data-bbox="917 888 1360 947"> <thead> <tr> <th>Device Name</th> <th>Manufacturer</th> </tr> </thead> <tbody> <tr> <td>WIKA UniTrans PA (Version 1.03) TPZ/TPRG/10-30V (1-02-14)</td> <td>Wika Moore Industries</td> </tr> </tbody> </table>	Device Name	Manufacturer	WIKA UniTrans PA (Version 1.03) TPZ/TPRG/10-30V (1-02-14)	Wika Moore Industries						
Device Name	Manufacturer										
WIKA UniTrans PA (Version 1.03) TPZ/TPRG/10-30V (1-02-14)	Wika Moore Industries										
2	<p>Select the appropriate deviceDTM. For this example we select the WIKA deviceDTM for the WIKA pressure transmitter.</p>  <table border="1" data-bbox="342 1444 1300 1503"> <thead> <tr> <th>Device</th> <th>Protocol</th> <th>Vendor</th> <th>Group</th> <th>Device Version</th> </tr> </thead> <tbody> <tr> <td>WIKA UniTrans PA</td> <td>PROFIBUS_DPV1</td> <td>WIKA Alexander Wiegand GmbH & C</td> <td>Pressure</td> <td>2.0 / 2000-03-01</td> </tr> </tbody> </table> <p> : Filename: P_A_9701 .GSD : Function: GSD-File for Unitrans-PA(Profile specific) : Revision: 1.0 : Manufacturer: WIKA Alexander Wiegand GmbH & Co. KG </p>	Device	Protocol	Vendor	Group	Device Version	WIKA UniTrans PA	PROFIBUS_DPV1	WIKA Alexander Wiegand GmbH & C	Pressure	2.0 / 2000-03-01
Device	Protocol	Vendor	Group	Device Version							
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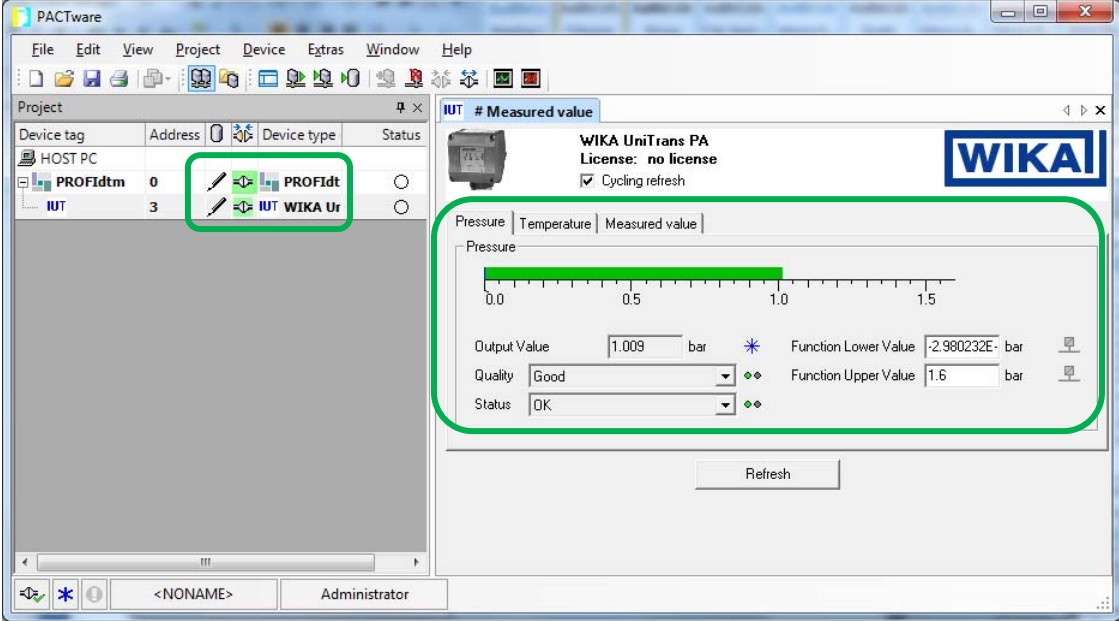
Step	Action
3	<p>Assign the field device address to the according deviceDTM. Please refer to the "Live List" for a list of all addresses used in your network.</p> <p>There are multiple methods to accomplish this configuration step. Here are two examples:</p> <ol style="list-style-type: none"> 1. Right-click on the PROFIdtm symbol and select "Additional functions-> Edit DTM Addresses".  <ol style="list-style-type: none"> 2. Right-click on the deviceDTM and select "Additional functions-> PROFIBUS-Address". 

Step	Action																
3	<p data-bbox="297 348 1357 422">Edit the PROFIBUS Address to match the settings in the actual field device. Please refer to the "live list" for the correct address.</p>  <p>The screenshot shows the PACTware interface. On the left, a 'Project' table lists devices:</p> <table border="1"><thead><tr><th>Device tag</th><th>Address</th><th>Device type</th><th>Status</th></tr></thead><tbody><tr><td>HOST PC</td><td></td><td></td><td></td></tr><tr><td>PROFIdm</td><td>0</td><td>PROFIdt</td><td></td></tr><tr><td>IUT IUT01</td><td>16</td><td>IUT WIKA Un</td><td></td></tr></tbody></table> <p>The main window displays the configuration for 'IUT IUT01 PROFIBUS-Address'. It shows a 'WIKA UniTrans PA' device with 'License: no license'. The 'PROFIBUS DP/PA-Address' field is set to '3'.</p>	Device tag	Address	Device type	Status	HOST PC				PROFIdm	0	PROFIdt		IUT IUT01	16	IUT WIKA Un	
Device tag	Address	Device type	Status														
HOST PC																	
PROFIdm	0	PROFIdt															
IUT IUT01	16	IUT WIKA Un															

Test the deviceDTM within PACTware

The following steps demonstrate how to use a deviceDTM of a specific PROFIBUS PA device to operate a field device within PACTware.

Step	Action
1	<p>Right click on the deviceDTM symbol and select "Connect" or select the deviceDTM symbol and use the menu entry "Device->Connect".</p>  <p>The screenshot shows the PACTware interface with a project tree on the left containing a device tag 'IUT IUT01'. A context menu is open over the device, with 'Connect' selected. The main window displays the 'IUT IUT01 PROFIBUS-Address' configuration for a 'WIKA UniTrans PA' device. The 'PROFIBUS DP/PA-Address' field is set to '3'.</p>
2	<p>Right click on the deviceDTM symbol and select, for example, "Measured value" or select the deviceDTM symbol and use the menu entry "Device-> Measured value".</p>  <p>The screenshot shows the PACTware interface with the same project tree. A context menu is open over the device, with 'Measured value' selected. The main window displays the PACTware logo, which features a stylized blue and yellow face profile.</p>

Step	Action
3	<p data-bbox="293 348 1421 470">If the deviceDTM is configured correctly the deviceDTM-specific "Measured value form" will be populated with actual data from the field device indicating that the deviceDTM is working correctly.</p>  <p>The screenshot displays the PACTware interface. On the left, a project tree shows a device with tag 'IUT' and address '3' of type 'WIKA Ur'. The main window shows the configuration for 'WIKA UniTrans PA' with 'License: no license' and 'Cycling refresh' checked. The 'Measured value' form is highlighted with a green box, showing a pressure of 1.009 bar, quality 'Good', and status 'OK'. A 'Refresh' button is located below the form.</p>