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AUTOMATION

Quick Start Guide

UM QS EN PROFINET STARTERKIT 3

Order No.: —

Installing and starting up the PROFINET starter kit 3.0

PHOENIX CONTACT
INSPIRING INNOVATIONS

AUTOMATION

Quick Start Guide
Installing and starting up the PROFINET starter kit 3.0

02/2009

Designation: UM QS EN PROFINET STARTERKIT 3

Revision: 00

Order No.: —

This user manual is valid for:

Designation	Version	Order No.
PROFINET starter kit 3.0	3.0	2988395

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1 General

1.1 Introduction

The PROFINET starter kit 3.0 is a combination of hardware and software. It contains all the components you need in order to create and start up a basic PROFINET IO system.

1.2 Information about this document

Using an example project, this document helps you to install and parameterize a bus configuration and to program the application program (according to IEC 61131).

It is assumed the user has knowledge and experience in the operation of PCs and Windows® operating systems, and knowledge in IEC 61131.

For more detailed information about the hardware components, please refer to the documentation for the components. The documentation is also included on the CD supplied with the PROFINET starter kit 3.0. Moreover, the documentation can be downloaded at **www.phoenixcontact.net/download**.

More detailed information about the individual functions of PC WorX can be found in the online help for the program. The entire help function can be called via "Help" in the menu bar. Help for specific functions can be called via F1.

This manual describes the quickest way to start up. Since the devices are read, a complete physical bus configuration is required.

No functions or commands that require communication with the control system can be executed without a physical bus configuration. However, complete parameterization is possible in the "offline" state. The application program can also be created and compiled. Should you wish to proceed in this way, please refer to the Quick Start Guide for PC WorX.

1.3 PROFINET starter kit 3.0 components

Table 1-1 PROFINET starter kit 3.0 components

Description	Type	Order No.	Number
Software			
PC WorX programming software	PC WORX version 5.20 SP 3 or later	See AUTOMATION catalog from Phoenix Contact	
Hardware (modules)			
Inline controller	ILC 350 PN	2876928	1
Smart Managed Compact Switch with eight ports in RJ45 format	FL SWITCH SMCS 8TX	2891123	1
PROFINET IO bus coupler	IL PN BK DI8 DO4 2TX-PAC	2703994	1
Inline terminal with 4 digital outputs	IB IL 24 DO 4-ME	2863931	1
Inline terminal with 4 digital inputs	IB IL 24 DI 4-ME	2863928	1
Hardware (accessories, part of the starter kit)			
Parameterization memory	IBS CF FLASH 256MB	2888780	1
Programming cable	PRG CAB MINI DIN	2730611	1
Ethernet patch cable (5 pcs.)	FL CAT5 PATCH 1.0	2832276	1
Power supply unit	STEP-PS-100-240AC/24DC/1.5	2938947	1
Toggle switch (pre-assembled)	SCHALTER KIPP-KONFEKTIONIERT	9149195	2
Double terminal block for DIN rail, gray	UDK 4	2775016	1
Cover for double terminal block, gray	D-UDK 4	2775113	1
Double terminal block for DIN rail, blue	UDK 4 BU	2775090	1
Cover for double terminal block, blue	D-UDK 4 BU	2775197	1
Documentation			
Quick start guide	UM QS EN PROFINET STARTERKIT 3.0	—	1

Table 1-2 Accessories (not included in the PROFINET starter kit 3.0)

Description	Type	Order No.
Standard end clamp	CLIPFIX 35-5	3022276
Spring-cage ground terminal block	ST 4-PE	3031380
Cover for spring-cage ground terminal block	D-ST 4	3030420
"Installing and starting up the PROFINET starter kit 3.0t" quick start guide	UM QS EN PROFINET STARTERKIT 3.0	—

1.4 System requirements for the PC WorX programming software version 5.20 service pack 3 or later

1.4.1 Supported operating systems

– Windows® 2000
– Windows® XP (recommended)
– Windows® Vista

1.4.2 Hardware and software requirements

The hardware and software required to operate PC WorX can be found in the "?, PLC Help" menu under "Programming System Help, System requirements".

Minimum System Requirements	Windows XP	Windows 2000	Windows NT/SP 6
CPU	800 MHz	800 MHz	1 GHz
Main memory	256 MB RAM	256 MB RAM	256 MB RAM
Hard-disk-storage	400 MB	400 MB	400 MB
Monitor (resolution)	SVGA (800 x 600)	SVGA (800 x 600)	SVGA (800 x 600)
Mouse	X	X	X
CD-ROM drive	X	X	X
Internet Explorer 5.5 or higher	X	X	X

Recommended System Requirements	Windows XP / Windows 2000
CPU	1 GHz
Main memory	256 MB RAM
Hard-disk-storage	400 MB
Monitor (resolution)	XGA (1024 x 768)
Mouse	X
CD-ROM drive	X
Internet Explorer 5.5 or higher	X

Figure 1-1 Hardware and software requirements

1.4.3 Firmware version requirements

Table 1-3 Firmware version requirements

Device	Firmware version
ILC 350 PN	≥ 2.00
IL PN BK DI8 DO4 2TX-PAC	≥ 2.00
FL SWITCH SMCS 8TX	≥ 2.20

If the firmware version on your device is earlier than that specified in Table 1-3, please update your firmware. The latest firmware version can be downloaded at www.phoenixcontact.net/download.

2 Installing hardware

One possible installation method is shown in Figure 2-1.

- Please mount all PROFINET IO components and the corresponding accessories on DIN rails. To do so, proceed as described in the corresponding package slips.

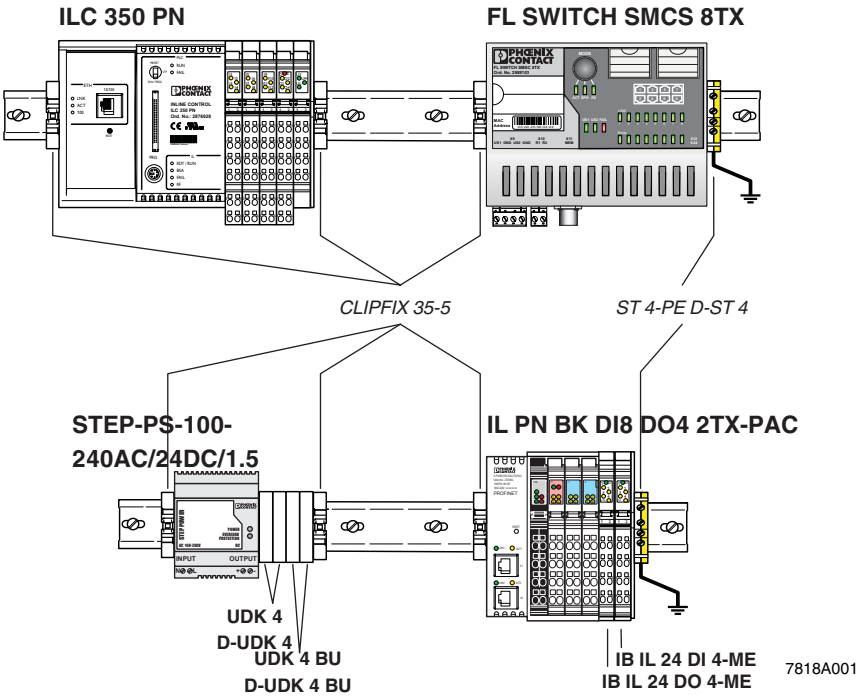


Figure 2-1 Possible installation method for the PROFINET starter kit 3.0

Key:

Bold	Part of the starter kit
Italic	Order as accessories

- Connect the supply voltage cables.

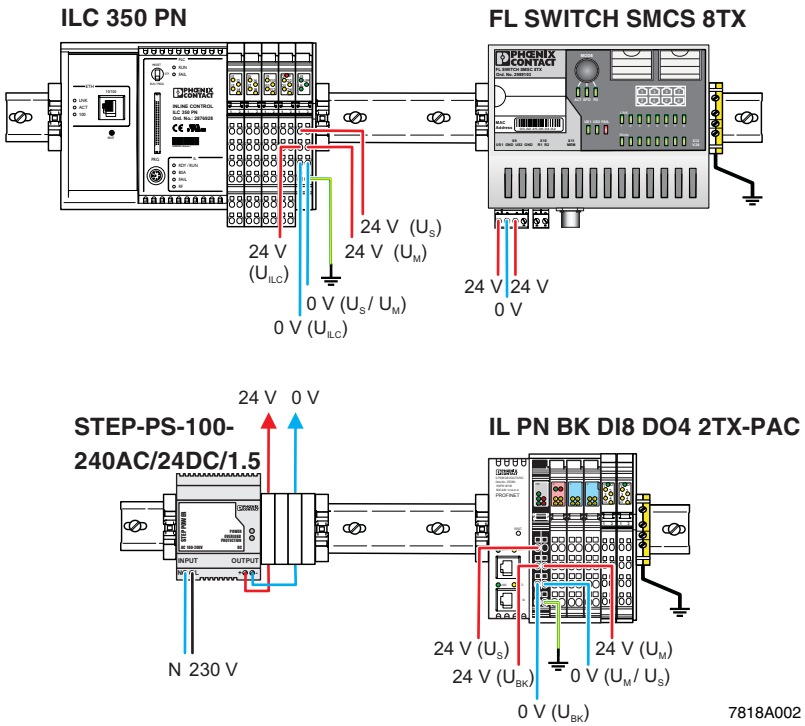


Figure 2-2 Possible installation of the PROFINET starter kit 3.0 - Illustration with supply voltage wiring

- Connect the I/O devices. The PROFINET starter kit 3.0 also contains two pre-assembled toggle switches. Connect them to the I/O connectors. To do so, proceed as described in the package slip for the module.

For the example program in this documentation, the following inputs and outputs are used:

Table 2-1 Inputs and outputs used in the example

Device	Input/output	Signal at	Variable
ILC 350 PN	Input I11	Connector 3 terminal point 1.4	ONBOARD_INPUT_BIT10
IB IL 24 DI 4-ME	Input I1	Terminal point 1.1	IN2
IL PN BK DI8 DO4 2TX-PAC	Output 07	Connector 4 terminal point 1.4	OUT

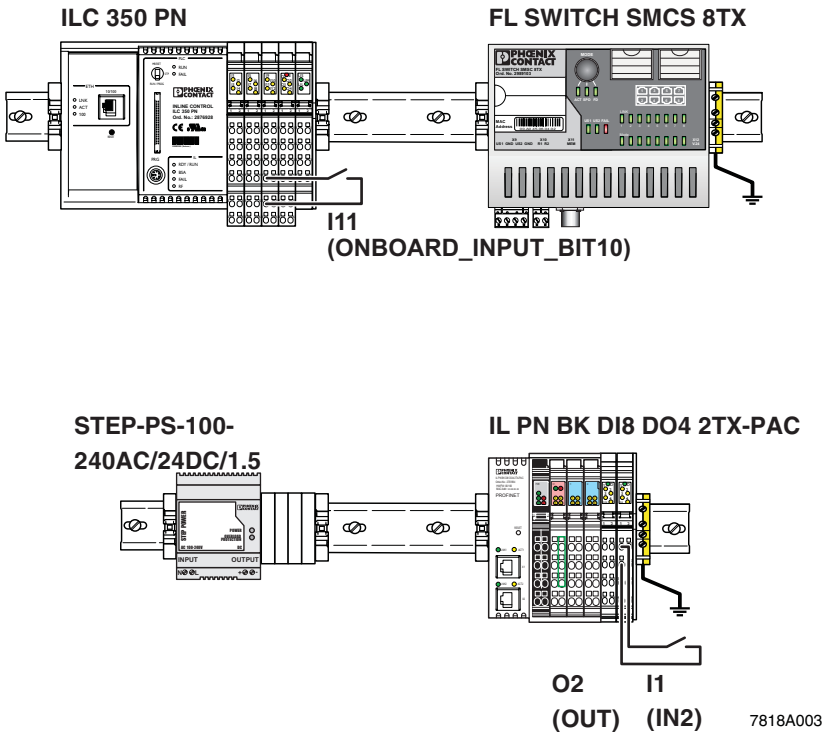


Figure 2-3 Possible installation of the PROFINET starter kit 3.0 - Illustration with input and output wiring

- Connect the Ethernet cables.

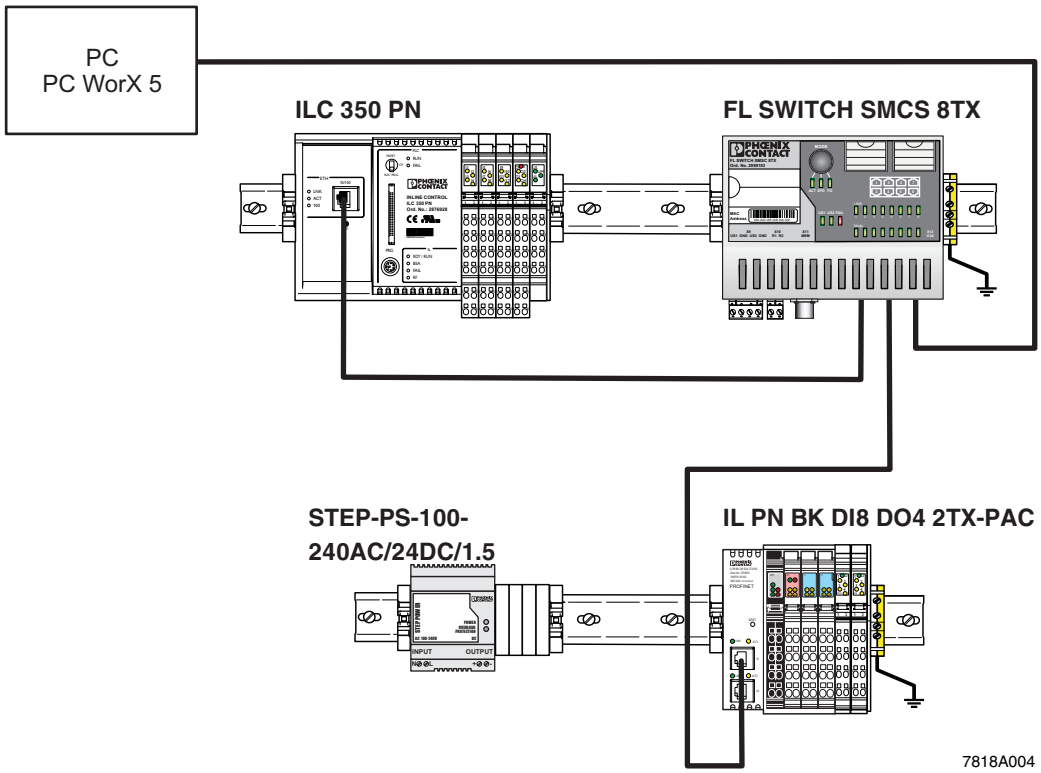


Figure 2-4 Possible installation of the PROFINET starter kit 3.0 - Illustration with Ethernet cabling

- Switch on the supply voltage.

3 Installing and enabling the PC WorX 5 software

3.1 Installing software

3.1.1 Prior to installation

Prior to installation, close all open Windows® applications.

NOTE:
If there already is a version of PC WorX on the PC on which PC WorX 5 is to be installed, please uninstall it before installing the new version.

3.1.2 Starting the installation program

Usually, the installation program will start automatically a few seconds after you place the CD-ROM in the CD drive.

- If it does not, start the "SETUP.EXE" file from the "[Drive]:\SETUP\" directory on the CD-ROM. This file calls the installation wizard, which guides you through the installation process.
- Follow the instructions in the installation program.

Automatic management of VAR_EXTERNAL

During installation you can select automatic management of VAR_EXTERNAL declarations.

By activating the checkbox you disable use of VAR_EXTERNAL declarations. PC WorX does the complete management of VAR_EXTERNAL. Please note, that when this option is enabled you cannot use VAR_EXTERNAL_PG and VAR_EXTERNAL_FB.

The compiler times increase when this option is enabled.

After having started PC WorX you may change the option via the "Extras/Options/General/Hide external variables" menu.

The installation program will generate all the directories necessary for operation and will copy the files according to your selection in the installation program.

- Following successful installation, restart your PC to apply the changes to the configuration files. To do this, click "Finish" at the end of the installation process.

3.1.3 Starting PC WorX

- For installation using the default settings, start PC WorX via "Start, All programs, Phoenix Contact... AUTOMATIONWORX Software Suite... PC WorX ...".

Valid versions for working with the PROFINET starter kit 3.0:

AUTOMATIONWORX Software Suite	2008 V1.40 or later
PC WorX	5.20 SP 3 or later

When started for the first time, PC WorX 5 runs in demo mode with limited resources. For the example project in this manual DEMO mode is sufficient.

If you wish to switch from demo mode to the full version, enable your PC WorX license.

3.2 Enabling the PC WorX license

After starting PC WorX, proceed as follows to enable your PC WorX license:

- Select the "Register..." command from the "?" menu.
- Enter your registration code.

The registration code for this starter kit version of PC WorX 5 is **1DC98-E7798-CFC06-06D0A-63F31-11A3E-EA6**.

- Confirm your entry with OK.

Registration will come into effect when PC WorX is started again.

4 Helpful information about PC WorX

4.1 Online help

More detailed information about the individual functions of PROFINET starter kit 3.0 can be found in the online help for the program. The entire help function can be called via "Help" in the menu bar. Help for specific functions can be called via F1.

4.2 The PC WorX user interface

The user interface consists of the following main components: menu bar, toolbars, main window, and status bar. The contents of the main window depend on the workspace.

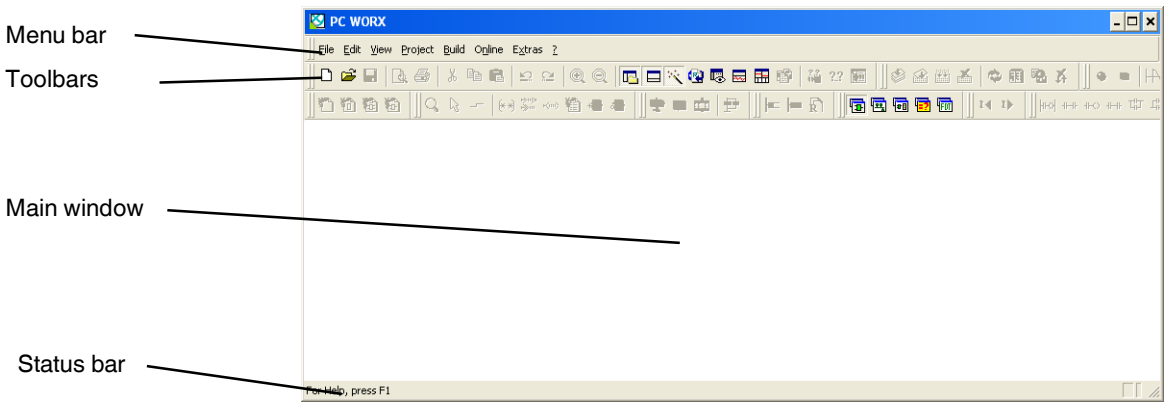


Figure 4-1 User interface

4.3 Toolbars

The program contains several toolbars with different icons, which enable frequently used operations to be executed quickly. Alternatively, these operating steps can be called via menu items or predefined shortcuts.

By default, all the toolbars are shown. To display or hide a specific toolbar, use the "Extras/Options" dialog box.

When the mouse pointer is placed over an icon (without clicking on it), a tool tip appears. The tool tip displays the name of the current icon. In addition, a short function description appears in the status bar. If tool tips are not displayed, this feature can be activated in the "Extras/Options/Toolbars" dialog box.

Icons for selecting the workspace

The workspace can be changed via the icons in the toolbar:

Activate IEC programming workspace.

Activate bus configuration workspace.

Activate process data assignment workspace.

Activate workspace for project comparison.

Activate FDT workspace.

Which windows will actually be displayed depends on which windows have been toggled on. The last setting for each workspace is saved when the program is closed and restored when it is started again.

Frequently used icons for compiling and debugging

Online modifications.

Make (compile project; corresponds to "Build/Make" in the menu bar).

Switch debug mode on/off.

Display project control dialog box.

4.4 Workspaces

PC WorX is divided into the following workspaces:

– IEC programming
– Bus configuration
– Process data assignment
– Project comparison
– FDT.

The "View" menu or the corresponding icon in the toolbar can be used to switch between the workspaces. Following initial installation the IEC programming workspace is the default setting.

Figure 4-2 to Figure 4-6 show the default workspaces. The windows that you wish to display can be defined at any time for each workspace.

IEC programming workspace

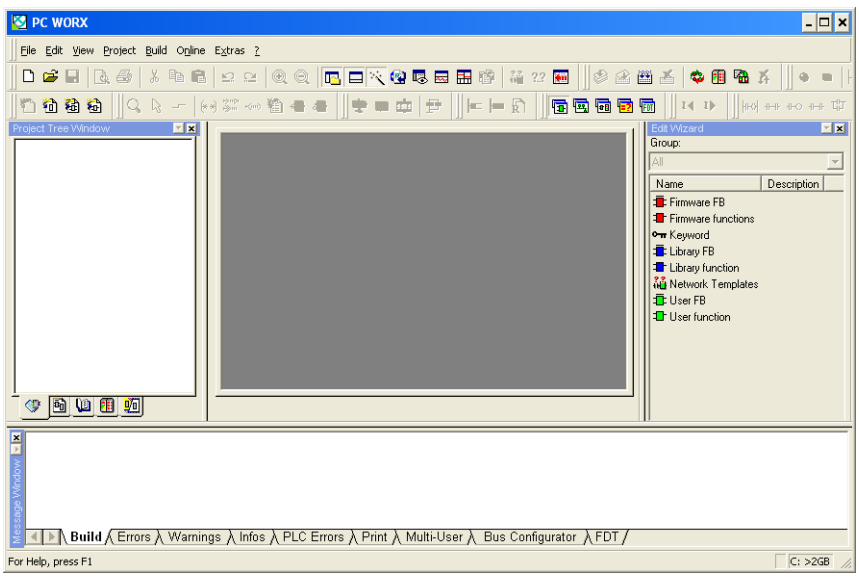


Figure 4-2 IEC programming workspace

Bus configuration workspace

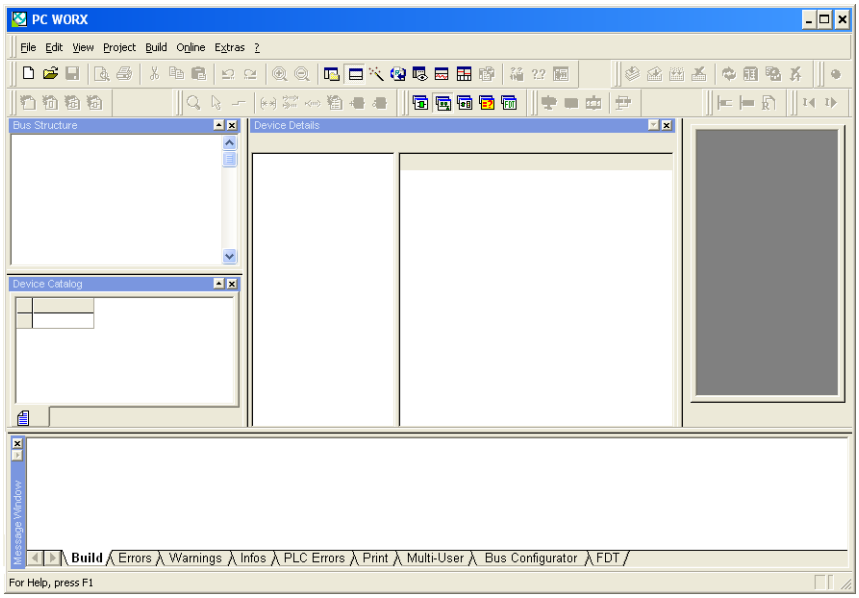


Figure 4-3 Bus configuration workspace

Process data assignment workspace

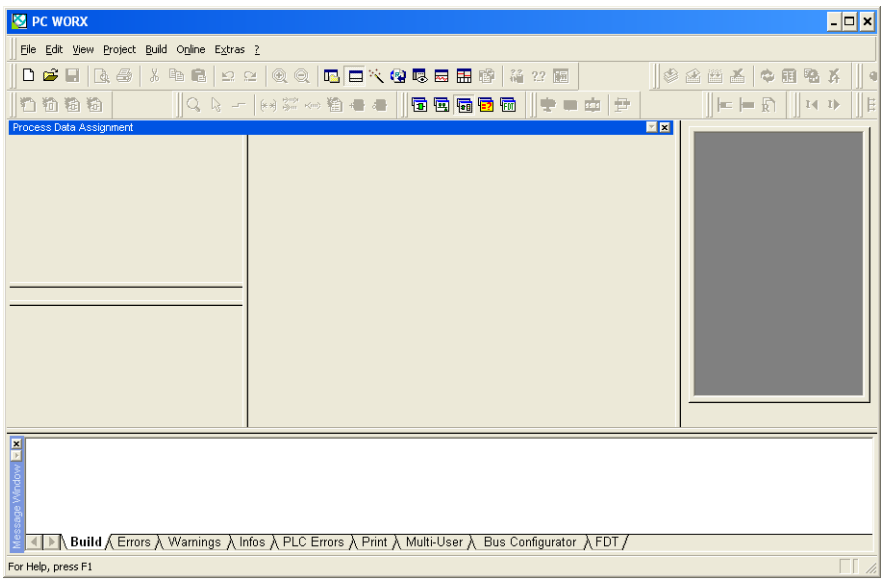


Figure 4-4 Process data assignment workspace

Project comparison workspace

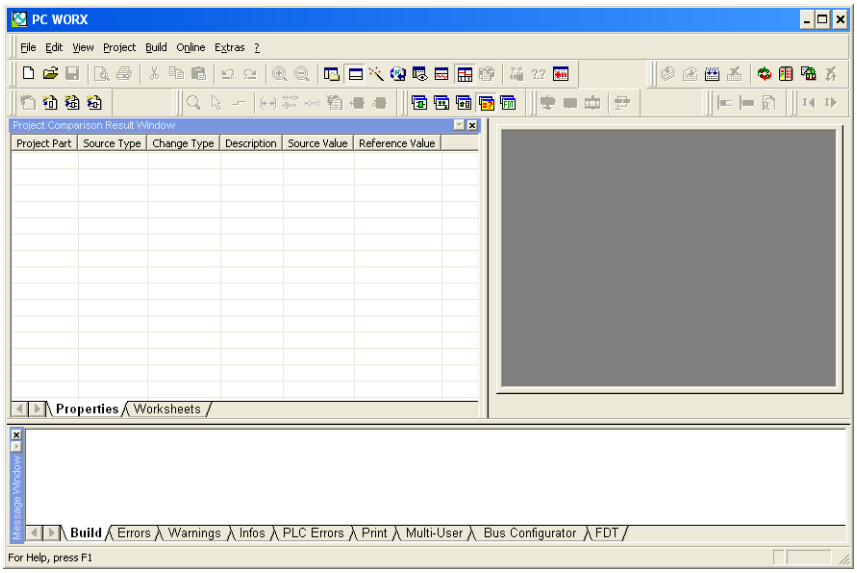


Figure 4-5 Project comparison workspace

FDT workspace

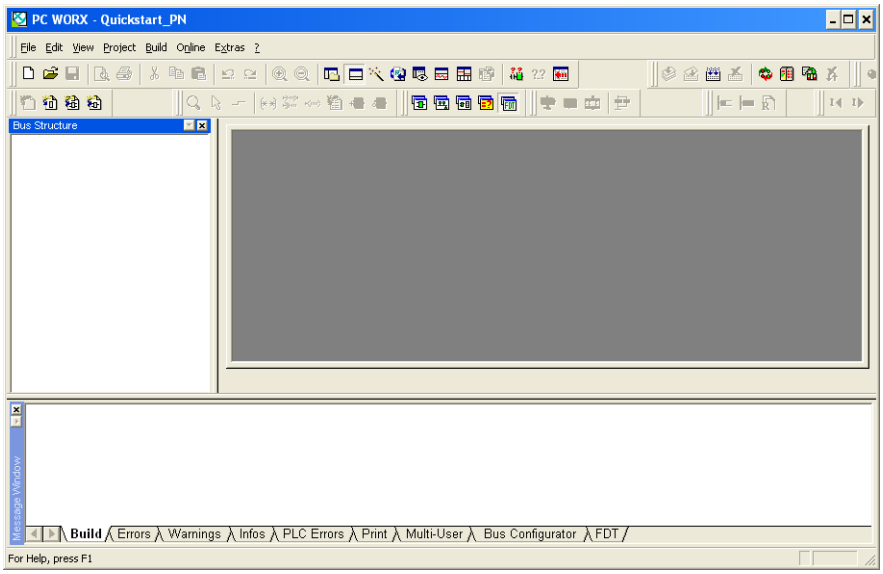


Figure 4-6 FDT workspace

Toggling on/off

Each window can be toggled on/off via the "View" menu by selecting the corresponding menu item.

Docking/undocking

For each window, you can specify whether it is to be docked in the other windows or not. There are various options for docking/undocking windows:

1. Permanent docking/undocking:
   In the title bar or the gray frame of the relevant window right-click with the mouse and activate/deactivate the "Allow Docking" menu item.
   Move an undocked window to the position where it is to be inserted in the desktop.
2. Undocking temporarily:
   Double-click on the gray window frame or the title bar of the window. The window is then displayed as a "normal" window. Its size can be modified and it can be moved to any position on the screen. In order to re-dock the window, i.e., to reinsert it in the desktop, double-click on the title bar.

4.5 "Bus Structure" window

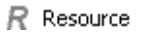
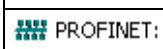
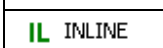
The "Bus Structure" window is used to display and edit the bus topology.

4.5.1 Icons in the "Bus Structure" window

4.5.1.1 Logical device functions

The individual device functions are identified in the "Bus Structure" window with logical icons. The logical icons in the example bus topology have the following meaning:

Table 4-1 Icons for logical device functions (examples)

Icon	Meaning
	**Control system resource** When creating the project using a template, the control system resource is inserted below this icon. When creating the project using the wizard, the control system resource is inserted below this icon.
	**PROFINET IO controller** Insert all PROFINET IO devices below this icon in the lower level.
	INTERBUS master Below this icon, insert the INTERBUS devices that are directly connected to the device that this icon refers to (local bus and remote bus).
	**Inline** Below this icon, insert the Inline terminals that are connected to the Inline bus coupler (local bus).
	PROFINET IO devices: Device proxy and modules For PROFINET IO devices, the display is divided into the device proxy (bus interface) and its modules. The device proxy is indicated with "@". The slot number is specified after the graphical representation of the device proxy or modules (setting in context menu under "Edit Device Representation"). The icons for the device proxy and modules are stored in the device description file (e.g., FDCML, GSD). They may vary from manufacturer to manufacturer. PROFINET IO devices from Phoenix Contact Example 1: FL SWITCH SMCS 8TX Example 2: ILB PN 24 DI16 DIO16-2TX (not included in the starter kit) Default icons, if none are stored in the device description file.