



Getting Started Windows DF PROFI II

1 Disclaimer

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2 Validity

This document describes the installation of the software and the configuration of the DF PROFI II with Windows.

3 Operating Systems

The software supports Windows 7 and newer versions.

Windows 2000, Windows XP

Please note that the 32/64 Bit setup, version 1.0.8, still supports Windows XP. There is an older setup, which still supports Windows 2000, in the directory Windows 2000 on the delivery DVD.

Please note, that we cannot provide any technical support for these operating systems.

4 Install Software

Install the DF PROFI II PCI/CPCI/PCIe board in your PC system.

Please note, if a DF PROFI II CPCI board is used, the board does not support Hot Plugging. If installing/uninstalling the board, the Compact PCI system must be switched off and the power supply must be interrupted.



Figure 1: Hardware Installation

- Switch on the PC system.
- Ignore the dialogue box “New hardware” which is popped up automatically after the board was installed.

- Start the setup from the KUNBUS driver DVD delivered with the package.
- Please note that Windows 2000 will no longer be supported with the 32/64Bit setup, version 1.0.8 and newer. There is an older setup which still supports Windows 2000 in the directory Windows 2000 on the delivery DVD.
- After the driver is successfully installed, start the DFTEST program from the DPCI menu from the START button menu. The installed board(s) is(are) shown:

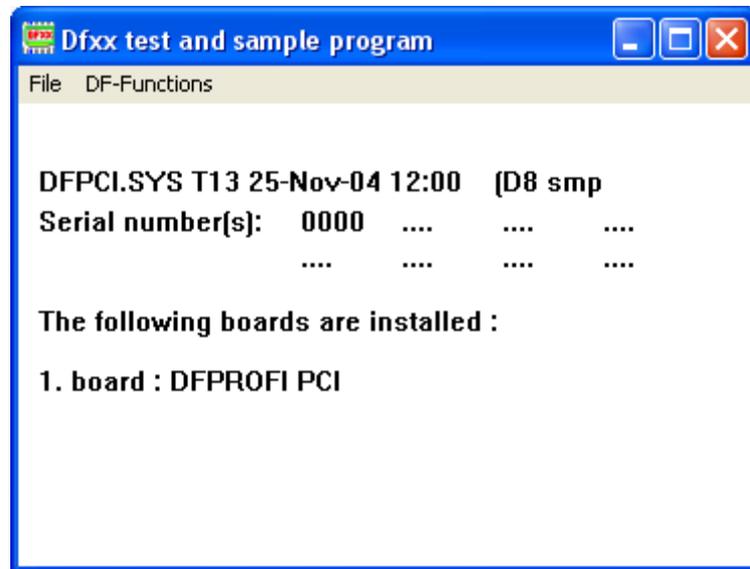


Figure 2: Installed DF PROFI II board(s)

5 Configure PROFIBUS

The PROFIBUS configuration is carried out by the KUNBUS PROFIBUS configuration tool Configurator III. Configurator III is the perfect tool to create, download and test a PROFIBUS configuration. Refer to the program's online help menu for all details.

Create a configuration and download it to the DF PROFI II board.

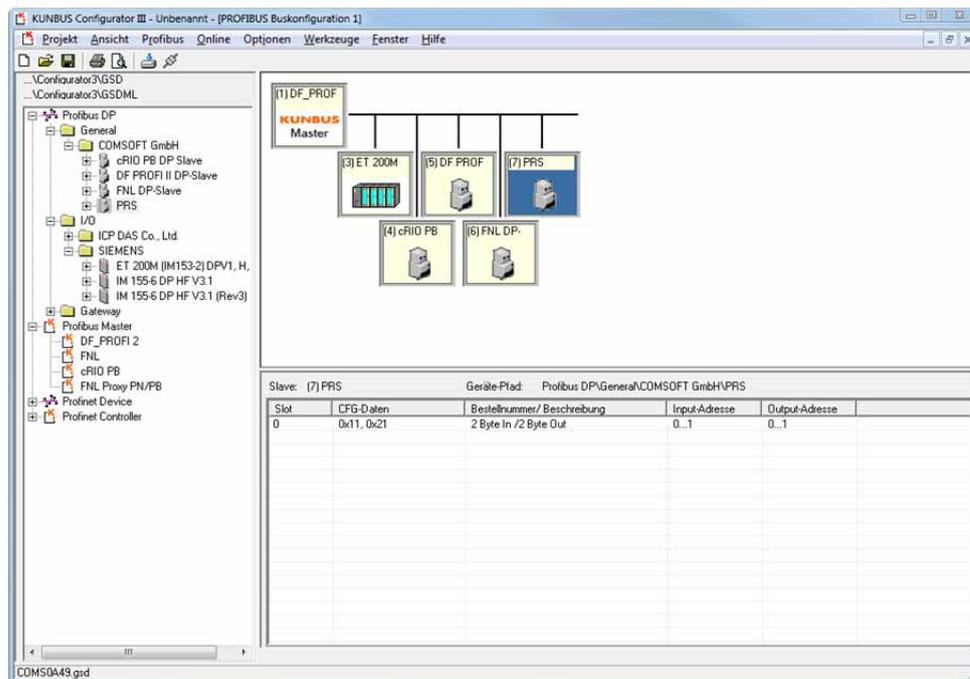


Figure 3: PROFIBUS configuration tool Configurator III

6 LED Indication

Green LED:

On: Firmware loaded and started.

Off: Firmware not loaded.

Yellow LED:

On: PROFIBUS started.

Off: PROFIBUS stopped.

Red LED:

On: PROFIBUS failure (at least one Slave is not connected to the bus or with external diagnosis).

Off: No PROFIBUS failure.

7 Sample Programs

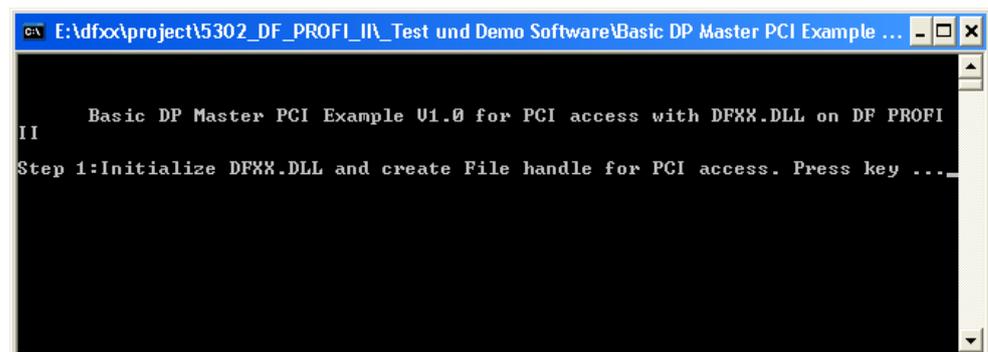
PROFIBUS Basic C and C++ sample

This sample exemplarily shows how to use the interface to the PCI card in an easy way. First, a configuration has to be downloaded to the card via Configurator III.

The sample is located in the directory “c:\Program Files (x86)\Comsoft GmbH\DFPCI\DF-Tools\CS PROFIBUS Demo \DFProfi_2_PCI_DEMO.exe”.

The code sample is prepared for use with Microsoft Visual C++6.0 or higher. It is a Windows 32-Bit console application, which works step by step. More information how the software works could be found in the source code. The main file is “DFProfi_2_PCI_DEMO.cpp”. Configurator III supports a powerful online mode with a lot of graphical features for setting the PROFIBUS network into operation.

The delivered “DFProfi_2_PCI_DEMO.exe” could be used directly:



```
Basic DP Master PCI Example V1.0 for PCI access with DFXX.DLL on DF PROFIBUS
II
Step 1: Initialize DFXX.DLL and create File handle for PCI access. Press key ...
```

Figure 4: Basic sample

The sample is running step by step by pressing “return”. The following steps are available:

Step 1: Initialize DFXX.DLL and create file handle for hardware access.

Step 2: Reset DF PROFI II hardware.

Step 3: Open communication channel to DF PROFI II.

Step 4: Start the cyclic PROFIBUS traffic on the DF PROFI II.

Step 5: Get the current configuration running on the DF PROFI II.

Step 6: Exchange data on the PROFIBUS.

Step 7: Reset DF PROFI II hardware and stop the PROFIBUS.

PROFIBUS C and C++ sample

This sample shows how to:

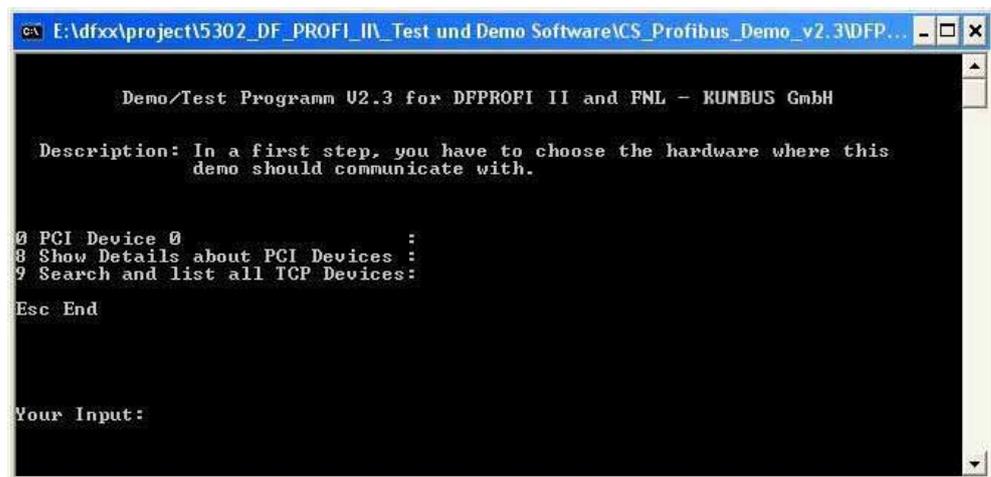
- initialize the DF PROFI II board
- start the DF PROFI II board
- exchange process and diagnostic data
- handle DPV1 services

The sample program is located in the directory

“C:\Program Files (x86)\Comsoft GmbH\DFPCI\DF-Tools\CS PROFIBUS Demo\DFProfi_2_PCI_DEMO.exe”.

The code sample is prepared for use with Microsoft Visual C++6.0. The directory includes all files to compile and link the sample project. Focused on the DF PROFI II programming interface this sample is only a Windows 32-Bit console application with a simple command line interface without any graphical features. For setting the PROFIBUS network into operation Configurator III supports a powerful online mode with many graphical features.

Navigate to subdirectory release and start the DF_PROFII_PCI.exe program and press '0' to choose the first PCI device.



```
E:\dfxx\project\5302_DF_PROFII_IV_Test und Demo Software\CS_Profibus_Demo_v2.3\DFP...
Demo/Test Programm U2.3 for DFPROFI II and FNL - KUNBUS GmbH

Description: In a first step, you have to choose the hardware where this
demo should communicate with.

0 PCI Device 0
8 Show Details about PCI Devices
9 Search and list all TCP Devices

Esc End

Your Input:
```

Figure 5: Sample program

Press Return to display the possible commands:

```

E:\dfxx\project\5302_DF_PROFI_II\Test und Demo Software\CS_Profibus_Demo_v2.3\DFP...
Demo/Test Programm U2.3 for DFPROFI II and FNL - KUNBUS GmbH

Basic Functions
1 Initialize hardware      :
2 Open channel (PCI)     :
3 Close channel (PCI)    :
4 Open Relais Disconnect :
5 Close Relais Connect   :
6 Get Hardware Information :

Master Functions
21 Start profibus Traffic :
22 Stop Profibus Traffic  :
23 Get Process Data       :
24 Put Process Data       :
25 Exchange processdata   :
26 Get Slave Diagnose     :
27 Get Cyclic Slave Diagnose :
28 Activate HardwareWatchdog :
29 Do Freeze              :
30 Do Sync                :
31 Get cyclic input data   :
32 Write cyclic output data :
33 Get cyclic output data  :
34 Get slave status       :
35 Get slave mapping       :
36 Pending Read Input (PCI) :
37 Check Bus Changes (PCI) :

Slave Functions
40 Init as Slave          :
41 PutGet SlaveData      :

DPV1 Functions
50 DPV1 Initiate         :
51 DPV1 Data Read        :
52 DPV1 Data Write       :
53 DPV1 Data Transport   :
54 DPV1 Abort            :

99 Back to Hardware selection:
Your Input:

```

Figure 6: Sample program – Command palette

Please note, that for proper working of the sample program, a valid PROFIBUS configuration must be downloaded to the DF PROFI II board.

To activate the PROFIBUS perform the following steps:

- Press “1” for initializing the board: Green light in the front panel of the board is switched on
- Press “2” for opening a communication channel
- Press “21” for starting the PROFIBUS
 - ⇒ The yellow light in the front panel of the board is switched on. If not all configured Slaves are working properly, e.g. if one Slave is not connected, additionally the red light is switched on.
- Press “23” for reading the process data

- Press “24” for writing process data
- Press “25” for reading and writing process data
- Press “27” for reading diagnostic data from a specific Slave:
 - ⇒ The structure of the process image and the diagnostic data are detailed described in the chapters 2.3.8 – 2.3.11 of the documentation
DP_DPV1_E.pdf.
- Press “22” to stop the PROFIBUS
- Press “3” to close the communication channel

Visual Basic sample program

A Visual Basic sample program is included in the delivery package, which describes the access to the DF PROFI II from Visual Basic. The functionality is similar to the functionality in chapter 4.

The sample software is located in the folder:

„c:\Program Files (x86)\Comsoft GmbH\DFPCI\DF-Tools\ Visual Basic V6.0 Sample\DFProfi2.exe“.

The directory includes all files to compile and link the sample project. The sample program shows and executes only the most common functions of the DF PROFI II. Special options have to be configured in the source code. After starting the “DFProfi2.exe”, the following screen is displayed:

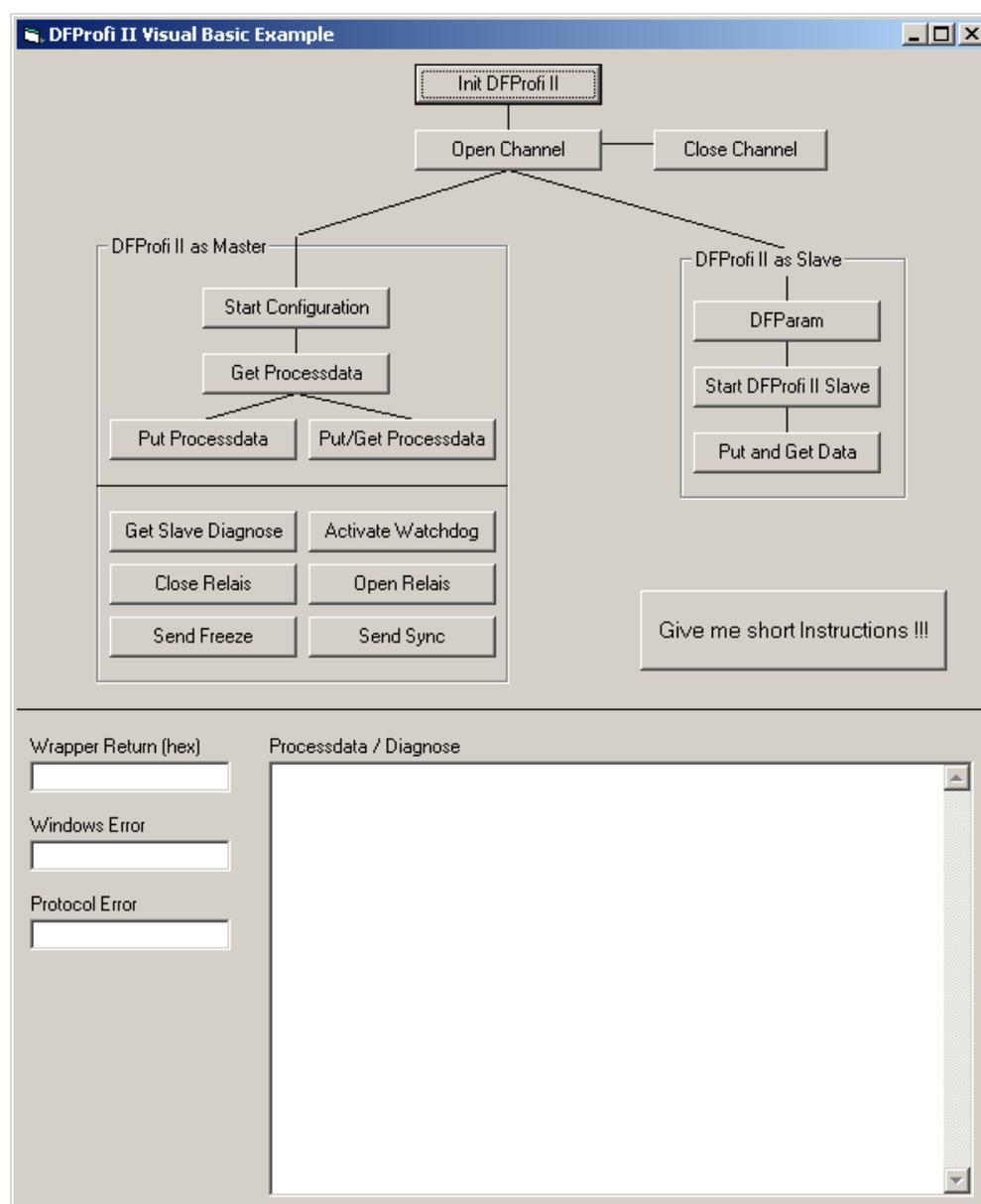


Figure 7: VB Sample software

The graphical user interface shows a top down structure to get DF PROFI II started. The board can be initialized as DP Master (left hand side) or as a DP Slave (right hand side). With the button “Give me short Instructions!!!” helpful instructions are displayed.

Please consider the following:

Master and Slave mode are not allowed to be mixed.

To use Master mode, at first a PROFIBUS configuration has to be downloaded to the DF PROFI II by KUNBUS Configurator III tool (within the scope of delivery).

Initialization functions

- “Init DF PROFI II” resets and initializes the board and gets the board into a defined state (for example before starting a new configuration).
- “Open Chanel” is opening a communication channel.

DP Master functions

- “Start Configuration” starts the flashed PROFIBUS configuration on the board. This configuration must be previously downloaded / flashed by the tool Configurator III.
- “Get Processdata” reads the process data and initializes the process image structure to send output data to the board. The process image is displayed in the output box.
- “Put Processdata” the output data for the DP Slave, and writes the process image to the board. The output data can be modified in the VB source code.
- “Put/Get Processdata” is the combination of the both commands above. The input data is read and the output data is set in a combined call. The whole process image is displayed in the output box.

Extended functions:

- “Get Slave Diagnose” reads the diagnostic data from a DP Slave with any address between 1 and 128 (selectable).
- “Activate Watchdog” activates the board watchdog. If the PROFIBUS chip on the board does not update the process data in between the watchdog time, the board watchdog expires and resets the board. The watchdog time is set to 1,024 s in the VB sample software. It can be changed in the VB source code.
- “Open Relais” disconnects the board physically from the PROFIBUS network. This function is used for the DP Master redundancy concepts, if two identical DP Masters are connected simultaneously to the PROFIBUS network.
- “Close Relais” reconnects the board physically to the PROFIBUS network.
- “Send Freeze” and “Send Sync” could be used for freeze and sync commands.

DP Slave functions:

- “DfParam” initializes the board as DP Slave. Three parameters have to be assigned:
 - Slave address (1 - 128),
 - baud rate,
 - size of the input and output data.
The sample software offers the most common data formats to be selected. Further formats can be found in the DF PROFI II GSD file and added to the source code in an easy way.
- “Start DF PROFI II as Slave” activates the DF PROFI II as DP Slave.
- “Put and Get Data” sets the input data transmitted to the DP Master, reads the output data received from the DP Master, and displays all data in the output box.

Return values:

With every command, the 3 return values in the textboxes on the left side are updated. If the value “Wrapper Return” is “0” means that the command was executed correctly. If this value is different from zero, the other 2 values show detailed error information. For testing use the button “Open Channel” twice. The second time, the software will refuse opening the channel, because it is already opened. It has first to be closed with “Close Channel” before opening again.

Error Messages:

- Windows Error:
In Windows Error the error messages of the board's windows driver are displayed. For detailed descriptions refer to the document “Windows board driver” Chapter 6.1 Board Driver messages.
- Protocol Error:
In Protocol Error, error messages from the PROFIBUS protocol stack running on the DF PROFI II board are displayed. For a detailed description refer to the document PROFIBUS “DP/DPV1 PROFIBUS protocol driver”.