

TECHNOLOGIEN MIT
VORSPRUNG



is DNet USB

User Manual



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Contents

Chapter 1: Hardware Installation

Introduction	1
Documentation	2
Our Service	2
PC Connection	3
System Requirements	3
Delivery Contents	3
Technical Data	4
Installation	5
Steps of Installation	5

Chapter 2: Software Installation and Configuration

Software Installation	7
Installed Files	9
Configuration Software	10
Add a Device	11
Empty Slot	12
Remove a Device	12
Test Software	13

Appendix: Index	15
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CHAPTER 1 :

HARDWARE INSTALLATION

Introduction

The Interface is DNet USB provides a communication link between a desktop computer or PC notebook and a Device Network. The PC can be connected with the Device Network using the USB plug & play features. Real time data of the field devices are available for operational areas, e.g. mobile data acquisition and parameterization. The interface is not dependent on external power supplies. The processor and its periphery are powered by the USB bus. The transceiver is galvanic decoupled, its supply results from the DeviceNet Bus.



The interface supports the DeviceNet Standard Version 2.0. Its connector cable comes with a 5-pin connector. The DeviceNet Stack works alternative or in parallel as Master (and IO scanner) or Slave. The scanner allows a dynamic change of the slave list, which means while the DeviceNet is working slave devices can

be added to or eliminated from the scan list. The cyclic time of the the scan can be set as required by the system. The "Explicit Messaging" functionality is performed employing asynchronous command and event queues. Thus any data lengths can be transmitted.

Documentation

This documentation contains important information for the secure and correct operation of the interface is CAN USB. Please read this documentation carefully before using the device.

Throughout the manual different fonts are used to indicate different meanings. A short explanation can be found below:

Courier New: file names, code sequences
Arial: names, commands, remarks

Our Service

In case you have any questions which can't be solved by this manual, please contact our service by phone, fax or e-mail.

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PC Connection

System Requirements

To connect the is DNet USB interface with your computer an available USB port is required. The PC must be equipped with a x86-prozessor. Operating systems Windows 98, ME, 2000 and XP are supported.

Delivery Contents

The interface is DNet USB is delivered with an user manual (English/German) and the driver and configuration software on CD. The latest driver you can download any time from our homepage.

Technical Data

Table 1: Hardware capabilities

Hardware	
DeviceNet	
Asic	SJA1000
Connector	COMBICON 5-polig
Transmission speed	125 kbit/s, 250 kbit/s, 500 kbit/s
USB 2.0	
Controller	CY7C68014A
Transmission speed	Full Speed: 12 Mbit/s High Speed: 480 Mbit/s
Operation	up to 16 devices in parallel

Table 2: Software capabilities

Driver	
Interfaces	DLL,
Operating systems	Windows 98, ME, 2000, XP;

Installation

Steps of Installation

1. Driver installation
The driver software has to be installed **before** the hardware installation. Otherwise the operating system can't find the respective driver.
2. Interface installation
3. Configuration

The Interface can be connected to the CAN/CANopen network with its D-Sub 9 pin connector directly. The USB cable connects the interface with the PC/notebook.

Two LEDs indicate the actual operation mode.

The Module Status LED (MS) displays the status of the device.

LED	meaning
off	device is not in use
green	normal operating status
green/red flashing	self test is being completed
red	error, device can be out of order

The network status (NS) LED gives information about the status of the communication.

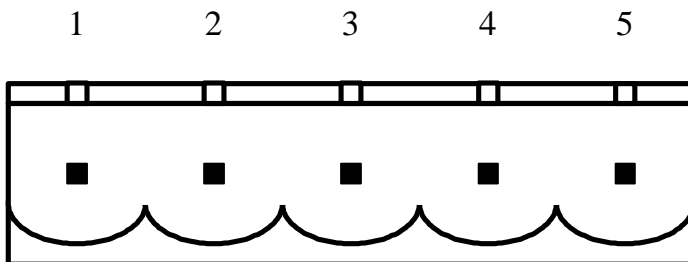
LED	Bedeutung
off	device is offline
green flashing	online, no connections are active
green	online, there is at least one connection
red flashing	at least one connection is at timed-out status
red	MAC-ID-conflict or connection to the bus is being disturbed

At beginning of the initialisation both LEDs are running through all their possible states of lightning (MS=green, MS=red, NS=green, MS= red). This allows to check the LEDs functionality.

Connector pin assignment

The contacts of the 3-pin COMBICON-connector have following meanings:

Figure 1: Device Connector (Male Contacts)



Pin 1: V-(OV), black

Pin 2: CAN_LOW, blue

Pin 3: drain,

Pin 4: CAN_HiGH, white

Pin 5: V+ (24 V), red

CHAPTER 2 :

SOFTWARE INSTALLATION AND CONFIGURATION

Software Installation

The driver software has to be installed **before** the hardware installation. Otherwise the operating system can't find the respective driver.

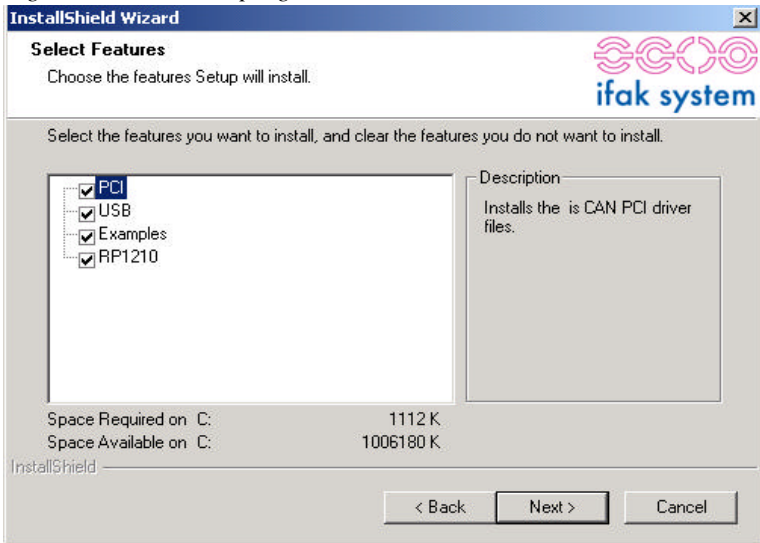
The driver software package is DNet Multidriver contains a Dynamic Link Library (DLL) which allows the access to the DNet firmware under the operating systems Windows 98, ME, NT 4.0, 2000 and XP. The actual operating system is detected automatically by the driver DLL.

The configuration of the interface can be done fast and easily with the configuration software is DNet Driver Configurator which is installed into the ifak system directory of the Start Menu.

The installation follows the steps mentioned below:

- Login as administrator under the operating systems Windows 2000 and XP.
- Insert the installation CD-ROM into your CD drive.
- The setup starts with an autoroutine; proceed according to the instructions displayed on the screen.
- The software is installed in the default program directory of your computer under the subdirectory
*ifak system\is DNet Multidriver *

Figure 2: Installation program: driver selection



Installed Files

Depending on the operating system the following files are installed on your computer.

Table 3: Installed files

DLL:	
isDNdrv.dll	Dynamic Link Library providing access to the firmware (driver DLL)
isDNdrv.lib	corresponding library for C/C++ environments
INC:	
	definition of software interface and error codes
USB Driver:	
isDNusb.sys	provides access to the USB device driver under Win 2000 and XP
isDNusbW2k.inf	installation information for Win 2000 and XP
isDNusb.inf	installation information for Win 98 and ME
Configuration Software:	
DNetM μ DriverConfig.exe	Setup Program
Test Software:	
bin\isCANTest.exe	Test Program
Examples:	
VC-Examples	Programming example in Visual C++

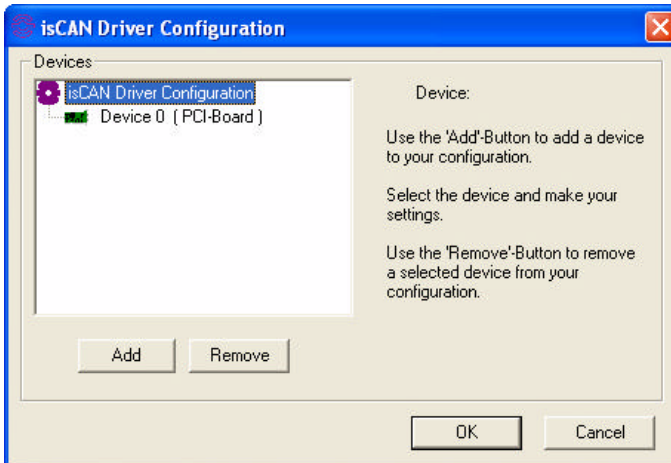
Configuration Software

The configuration software is DNet Driver Configurator is provided in order to adapt the DLL access to your hardware. It is installed in the MS Windows Start Menu.

This dialog based application allows the easy addition and removal of DeviceNet interfaces. It also applies serial numbers of connected interfaces.

A device number is assigned to each interface which enables the software to address the device. Empty devices can be included in order to allow gaps in the enumeration of devices.

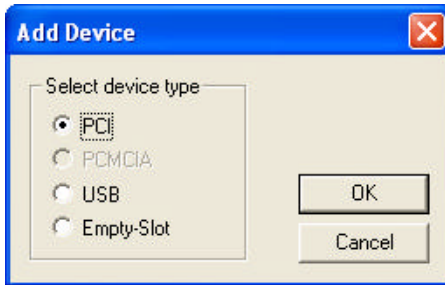
Figure 3: Configuration program: add and remove devices



Add a Device

Please press the button **Add**, choose the device type you would like to add. Then make your settings.

Figure 4: Configuration software: add a device



The USB-interface is DNet USB possesses an unique **serial number** for clear identification. The number is located on the downside of the case and additionally stored in the interface.

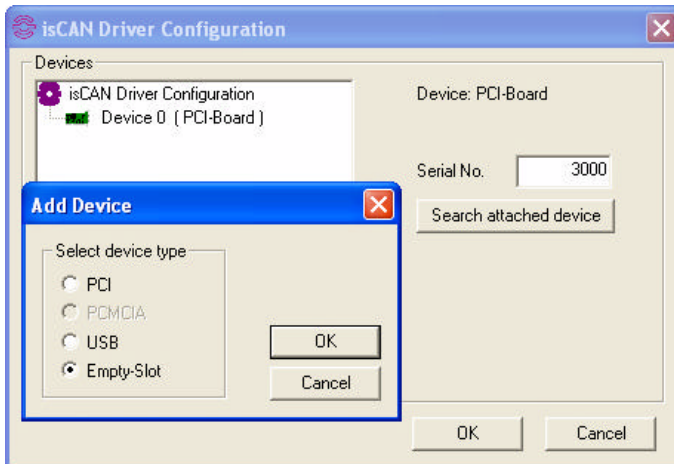
The configuration software offers the possibility to search automatically for all attached devices and to detect their serial numbers.

When you are working under Windows 98, ME, 2000 or XP just fill in your settings and end with **OK**.

Empty Slot

The empty device does not contain any resources. It serves as a substitute for device numbers not yet assigned. Using this devices enables a free enumeration of devices by inserting empty devices between existing ones.

Figure 5: Configuration software: add an empty slot



Remove a Device

Mark the device you wish to remove and press the button Remove.

Test Software

The correct operation of is CAN interfaces which have been added with the is CAN Driver Configurator can be checked with the help of the test program isCAN Test. It is installed in the ifak system folder of the Start Menu.

The following functions are provided by the application:

- Choice of configured interfaces (is CAN USB, is CAN PCI)
- Baudrate settings
- Transmisson of messages
- Display of received messages

Figure 6: Baudrate setting

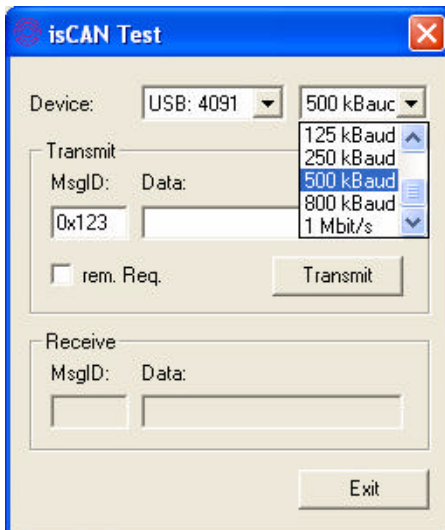
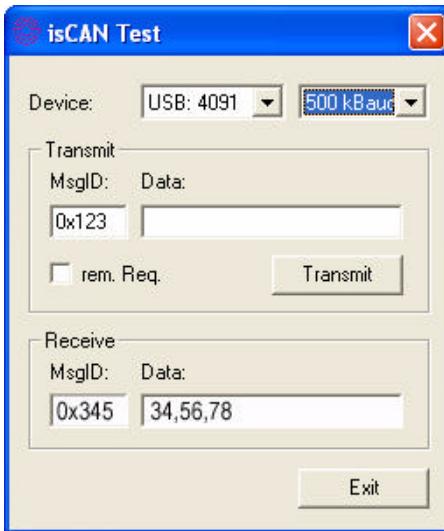


Figure 7: Display of a received message

INDEX

C

Configuration software 10

D

Delivery contents 3

Device

Add 11

Empty Slot 12

Remove 12

Driver

Installation 7

Installed files 9

O

Operation 3

S

Software installation 7

Steps of installation 5

System requirements 3

T

Technical data 4

Test Software 13

