

TECHNOLOGIEN MIT
VORSPRUNG



the H@rt BluePack

User Manual



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CHAPTER 1 :

HARDWARE INSTALLATION

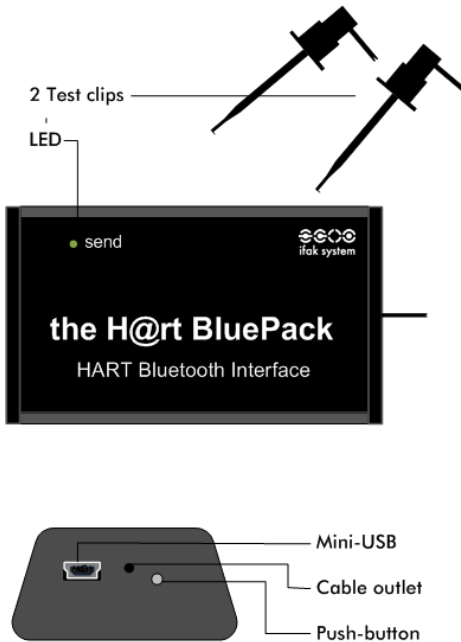
Introduction

the H@rt BluePack is a versatile interface which supports wireless (Bluetooth) and wired (USB) access to a HART network. It can be employed as an up-to-date replacement for the still widely used RS-232-HART modem solutions. Additionally to its modem capabilities the H@rt Blue- Pack runs an embedded HART master stack.

The active HART master stack guarantees compliance with the HART timing requirements regardless of the speed of the PC host application or the data transmission quality between the host and the Bluetooth device. This can be of considerable advantage if using the interface in multi-master environments or in connection with burst-mode slaves. The stack can be configured to work as primary or secondary master.

The interface can be powered via the USB connection or 3 replaceable AAA cells. If operating in battery mode it can be powered down by a push-button. To increase the life span of the batteries the device switches to sleep mode if no Bluetooth communication takes places. The activity on the HART network is indicated by an LED. Access to the HART network is achieved by two test clips.

Figure 1: HART interface the H@rt BluePack



The interface supports the transmission speed of 1200 bit/s and can work as primary Master as well as secondary Master. The interface is available with galvanic-isolation to the HART network. The device comes with a Windows DLL which allows the easy integration of the modem into any applications.

The device can work like a serial modem. Therefore it offers a serial COM-port so that already existing applications can be used without any changes.

Optionally a device type manager (DTM) compliant to the current version 1.2.1. of the FDT specification is delivered. It works like a device driver which allows the communication between devices on the HART bus and their DTMs. With the help of the DTM the start-up process of the HART bus can be done easily.

Power modi

Battery powered

You can power on the device by pressing the on/off-push button. A successful start of the firmware is indicated by the LED flashing quickly 3 times. For the next minute the isH@rt BluePack will be visible to other Bluetooth devices, so if you intend to install a Bluetooth connection, the device needs to be powered off and on again before searching for the BluePack over Bluetooth adapter of your computer (refer to page 18). During this period, the LED flashes quickly two times every 3 seconds.

After one minute, the device will fall into sleep mode, thus reducing power consumption sharply. In this state the device will be invisible to other Bluetooth devices. Nevertheless if you have installed previously the Bluetooth connection, you still can connect to the device. This state is indicated by a quick flash about every 10 seconds. As soon as a HART client application has connected to the BluePack and transmits a HART message the LED will be switched on permanently (for the duration of the transmission of the HART message).

You can power off the BluePack by pressing the on/off push button for about 2 seconds. The BluePack will confirm the shutdown by switching off the LED.

USB powered

The push button will have no effect as the device will be powered as soon as the device is plugged into a USB port. The LED flashes quickly 3 times indicating the successful start of the firmware. Afterwards, if the BluePack is not transmitting any HART messages, the LED flashes quickly two times every 3 seconds. While transmitting a HART message the LED will be switched on permanently. While connected to USB, the BluePack will be visible to other Bluetooth devices, allowing the installation of a Bluetooth connection (refer to page 12).

If connected to an USB port of a PC or laptop, the BluePack can communicate either over USB or over Bluetooth.

It is not possible to switch between battery power mode and USB powered mode 'on the fly'. A change of the power mode will cause the reboot of the H@rt BluePack. An existing open Bluetooth connection is closed and must be opened again. The same applies to the power saving modes of the PC or laptop. While the PC changes into standby mode, the Bluepack shuts down even if batteries are inside. An existing open Bluetooth connection is closed and must be opened again after the PC has resumed from standby mode.

Documentation

This documentation contains important information for the secure and correct operation of the interface the H@rt BluePack. 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 interface the H@rt BluePack with your computer an available USB port or a Bluetooth adapter are required. Operating systems Windows XP with Service Pack 2, Vista and Windows 7 are supported.

Delivery Contents

The interface the H@rt BluePack is delivered with user manual and driver software on CD.

Technical Data

Table 1: Hardware capabilities

Hardware	
the H@rt BluePack	
Connectors	2 test clips, mini-USB
Dimensions	85mm x 54mm x 26mm
Weight	102 grams
HART	
Modem Chip	DS8500
Transmission speed	1200 bit/s
USB	
Transmission speed	12 Mbit/s
Bluetooth	
Transmission speed	up to 2,1 Mbit/s
Range	100 meters (open air)
Operating frequency	2,4 GHz
Batteries	3 AAA alkaline cells

Table 2: Software capabilities

Driver	
Interfaces	DLL
Operating systems	Windows XP with Service Pack 2, Vista and Windows 7

Installation

Steps of Installation

1. Driver installation (see Chapter 2)
2. Device installation via USB or Bluetooth connection
3. Configuration (see Chapter 2)
4. Connection to a HART network or HART slave

ATTN: The driver software has to be installed **before** the hardware installation. Otherwise the operating system can't detect the driver!

Installation - USB connection

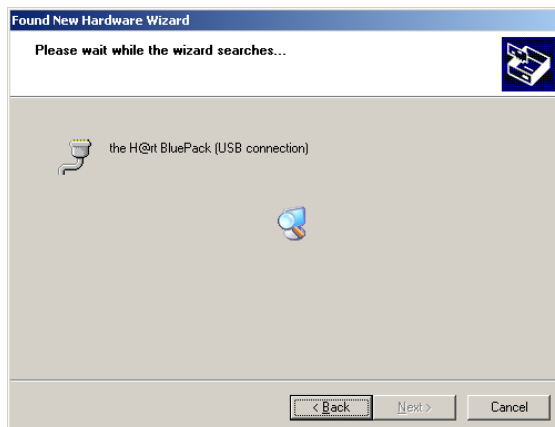
Connect the BluePack with a USB cable to the PC. Make sure the driver software has been installed previously. The hardware installation wizard will pop up.

Figure 1: Wizard helps to install



Click on Next and the window "Found new hardware wizard" pops up. After the device is found click on Next.

Figure 2: Wizard searches for the device



Continue the installation by clicking **Continue anyway** anyway.

Figure 3: Continue installing



When clicking **Finish** the installation of the software is done.

Figure 4: Closing the wizard



After the hardware wizard has finished you can check the serial COM-port number in the device manager. It is also shown when clicking on the `savely remove` button in the system tray.

Figure 5: Choosing the device for USB connection

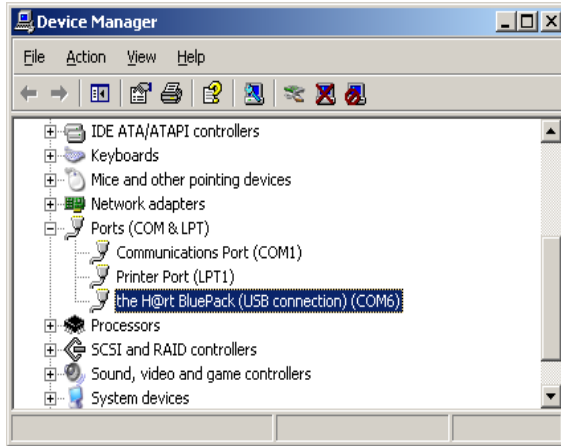
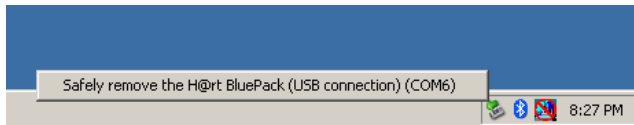


Figure 6: Remove the USB connection

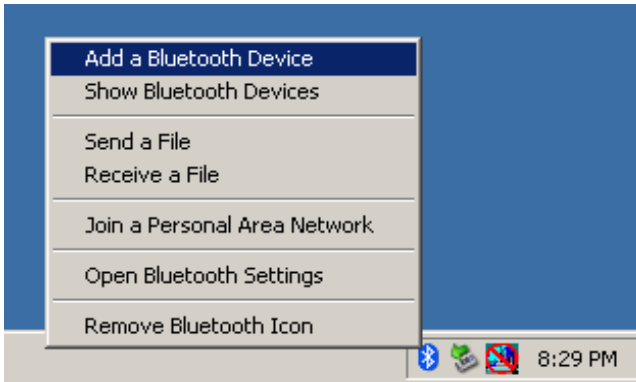


ATTN: The COM-port number is needed for the use with legacy applications when using the BluePack as a replacement for an RS232 modem.

Installation Bluetooth Connection

Double click on the Bluetooth icon in the control panel and select Add a Bluetooth Device.

Figure 7: Add a Bluetooth Device



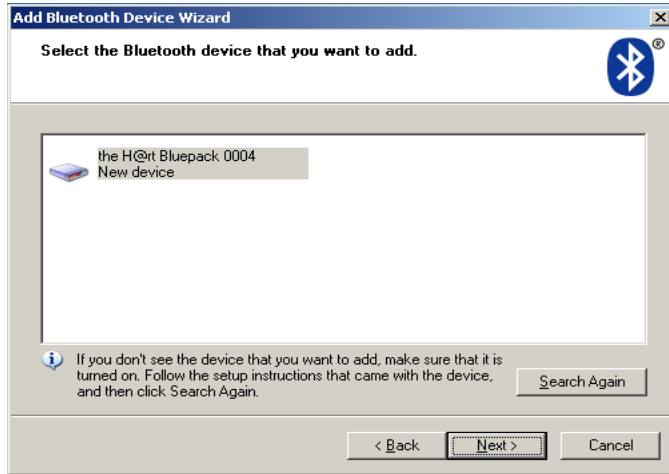
Then the "Add the Bluetooth Device Wizard" window will open. Chose "My device is set up and ready to be found", then click Next.

Figure 8: Add the Bluetooth Device Wizard



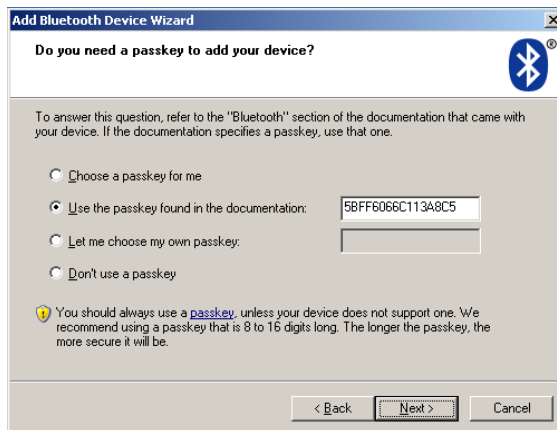
Select the Bluetooth device you want to add and click on Next.

Figure 9: Select the Bluetooth device you want to add



Enter the pass key that you can find in the documentation and click on Next.

Figure 10: Enter the pass key



You completed the add by clicking `Finish`.

Figure 11: Completing the Add Bluetooth Device Wizard



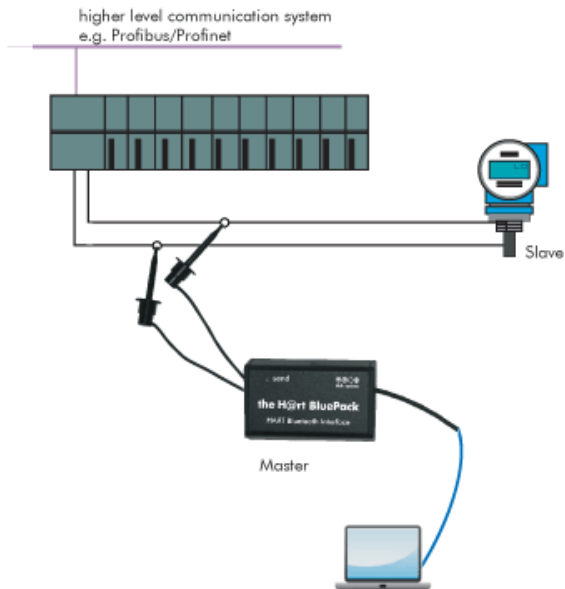
ATTN: Remember the outgoing COM-port. Later you need this COM-port in your application!

Connection to a HART network or HART slave

The interface can be connected to the HART network with the pin test clips directly.

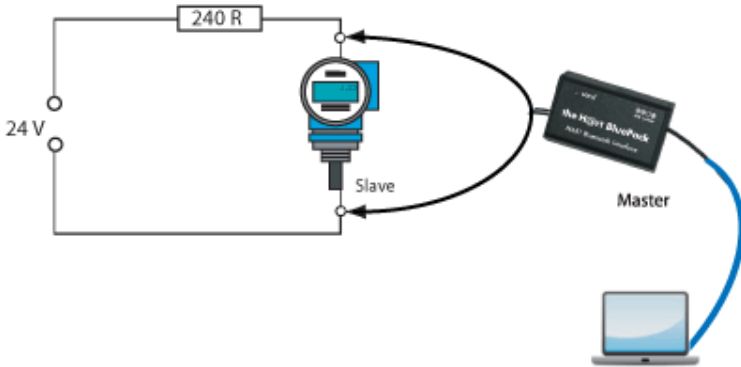
Connection to a HART network

Figure 12: Connection to a HART network



Connection to a 24 V power supply

Figure 13: Connection to 24 V power supply



CHAPTER 2 :

SOFTWARE INSTALLATION AND CONFIGURATION

Software Installation

The driver software package isHRT Multidriver contains a Dynamic Link Library (DLL) which allows the access to the HART firmware under the operating systems Windows XP with Service Pack 2, Vista and Windows 7. 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 isHRT Driver Configurator which is installed into the ifak system directory of the Start Menu.

The software comes on CD-ROM. The installation follows the steps mentioned below:

- Login as Administrator
- 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 HRT Multidriver *

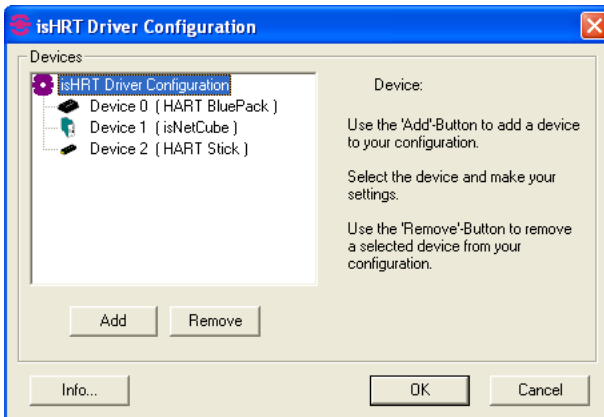
Configuration Software

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

This dialog based application allows the easy addition and removal of HART interfaces. It also checks the available resources of the system.

A device number is assigned to each USB interface which enables the software to address it. Empty devices can be included in order to allow gaps in the enumeration of devices; see section Empty-Slot.

Figure 2: 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 3: Configuration software: add a device



Device the H@rt BluePack

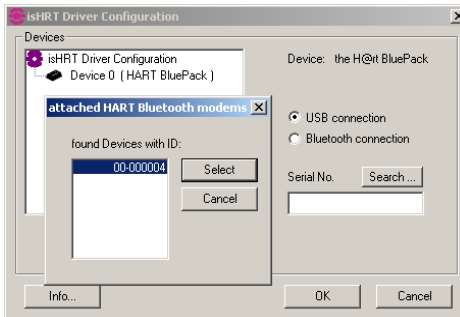
The device possesses an unique **serial number** for clear identification. The number is located on the downside of the case. The configuration software offers the possibility to search automatically for all attached devices and to detect their serial numbers. Please fill in the number in the intended field.

The device can work like a serial modem under the operating systems Windows XP with Service Pack 2, Vista and Windows 7. Therefore it offers a serial COM-port so that already existing applications can be used without any changes.

USB connection

If you want to connect the device via USB, click **USB connection**. Enter the serial number or click the **Search** button. The window "Attached HART Bluetooth modems" shows the HART BluePack devices that are connected via USB cable. Press **Select** to confirm the chosen device.

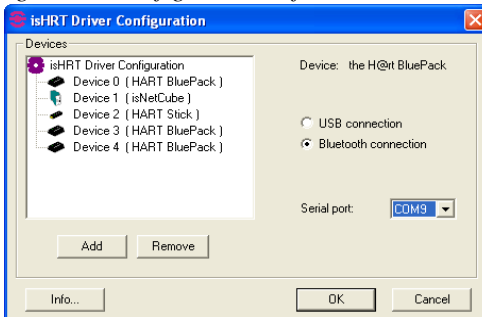
Figure 4: Select HART Bluetooth modem



Bluetooth connection

The serial COM-port you are going to select has to be the same one that Windows has assigned as outgoing COM-port while completing the "Add Bluetooth Device Wizard", described in chapter I, Installation Bluetooth Connection, figure 11.

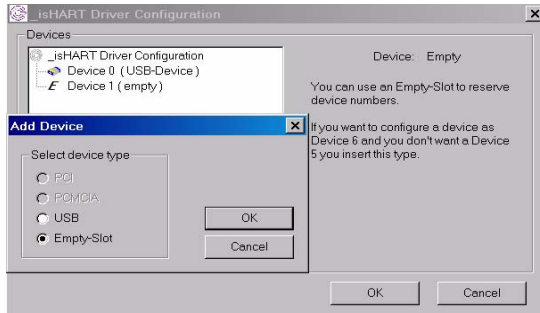
Figure 5: Configuration software: select a serial COM-port



Empty-Slot

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

Figure 6: Configuration software: add an empty slot



Remove a Device

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

isHRT Test

The correct installation and functionality of the H@rt BluePack can be checked with the "isHRT Testprogramm" in the driver software. The test programm searches for all connected HART slaves and displays them.

Figure 7: isHRT Testprogram

