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# Installation manual RS-232 WLAN adapter

## KERN YKI-03

Version 1.0

12/2014

GB



YKI-03-BA-e-1410



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Version 1.0 12/2014

## Operating instructions RS-232 WLAN adapter

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English

## 1 Scope of delivery

Delivery includes:

1. RS232 Ethernet Adapter (incl. screw-on antenna)
2. Mains adapter (EU)
3. Ethernet network cable (ca. 1m)
4. 4x adhesive feet
5. CD with complete documentation (English) and software (English)
6. Quick instructions (original, English) in paper format
7. KERN installation instructions (German/English) in paper format (this document)
8. Guarantee slip

If one the articles listed above is missing please contact your supplier immediately.

## 2 Use

The adapter is used to connect devices with an RS-232 interface to a (WLAN) wireless network. The adapter supports a number of different operating modes. These instructions describe configuration for the two most important operating modes:

- **Virtual COM port:**

This operating mode simulates a driver of a virtual COM port (to be installed). This virtual COM port represents the RS-232 interface of the adapter and thus hides the fact that the measuring device is controlled via a wireless network. This also makes it possible for non-network-enabled applications to access the device transparently.

- **TCP Server:**

In this operating mode, the adapter offers a TCP service to which a network-enabled program can connect. Data sent over the network are forwarded to the device directly via the RS-232 interface. Responses from the device are sent back to the connected computer via the network.



Installation of the adapter should only be carried out in coordination with the appropriate network administrator.

### 3 Connecting the adapter

After unpacking the adapter, you should decide how the adapter is to be mounted. If you wish to lay the adapter flat on a table, please attach the adhesive feet to the underside of the adapter.

The enclosed “Quick Installation Guide” contains descriptions of other assembly options.

The adapter can then be connected to the measuring device and the network. Please proceed as follows:

- ⇒ Screw the antenna onto the adapter.
- ⇒ Connect the adapter using the included or a standard Ethernet network cable to either your computer directly or the network your computer is connected to.
- ⇒ Connect the mains adapter to the mains power (plug socket) and to the adapter. Alternatively, the adapter can be powered over the screw terminals (make sure the “Ready” LED is illuminated).
- ⇒ Connect the RS-232 port of the device (scales, dynamometer...) to the RS-232 port of the adapter using an appropriate interface cable.

After connecting the hardware, the device must now be configured appropriately.

## 4 Configuration

Configuration of the adapter can be carried out in several ways. The following description explains the steps for configuration over a network for Microsoft Windows with the help of the web interface integrated into the adapter. A static IP address is assigned.

Other methods (Telnet, RS-232, ARP) are to be found in the complete instructions on the enclosed CD.

### 4.1 Accessing the web interface

To access the adapter's web interface, a connection via the wired Ethernet interface has to be established first. Therefore, the IP address and subnet mask of the computer used for configuration has to be compatible with the adapter's settings.

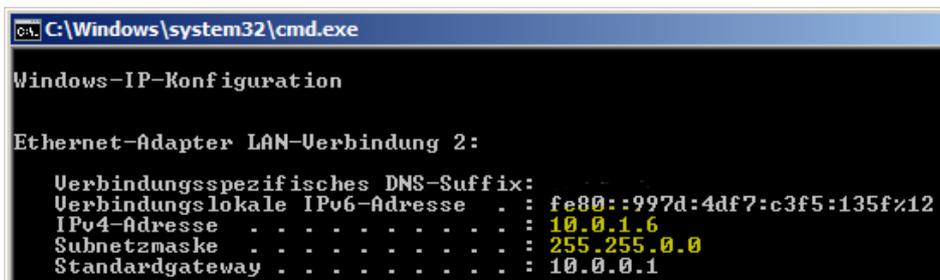
The following steps adjust the adapter settings so they match with the computer's configuration.

#### 4.1.1 Changing the adapters wired IP-address

Ideally you will be assigned a free IP address for the adapter by your network administrator. To select a free IP address yourself, you must know your network configuration. You can find out the most important information from your computer (which is already connected to the network):

- ⇒ Click on Start (Windows Vista/7) or Start -> Run or press the key combination "Windows key + R".
- ⇒ Enter the following command: `cmd /K ipconfig`  
Press return.

In the window that will open, you will see the computer's IP address and its subnet mask:



```

C:\Windows\system32\cmd.exe
Windows-IP-Konfiguration

Ethernet-Adapter LAN-Verbindung 2:
Verbindungsspezifisches DNS-Suffix:
Verbindungslokale IPv6-Adresse . . : fe80::997d:4df7:c3f5:135f%12
IPv4-Adresse . . . . . : 10.0.1.6
Subnetzmaske . . . . . : 255.255.0.0
Standardgateway . . . . . : 10.0.0.1
  
```

The parts of the subnet mask containing the number 255 have to correspond in the IP addresses of the adapter and computer. Compatible addresses in the example thus include: **10.0.1.7**, **10.0.12.34**, **10.0.200.300**, ...



Be sure to choose an IP address that is not in use elsewhere now or will not be in the future. It may otherwise be the case that another device on the network will not be able to communicate properly. For this reason, installation of the adapter should only be carried out in coordination with the appropriate network administrator.

In the following example, the address 10.0.12.34 has been selected for the adapter.

The adapter's IP address can be set multiple ways:

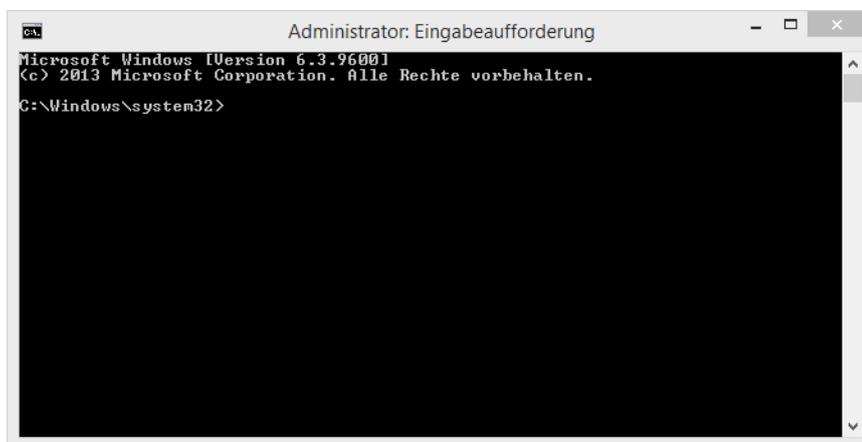
- a) over network: ARP, Telnet
- b) over RS-232

For the configuration by ARP proceed with the following steps.

⇒ Open a command prompt with administrator permissions:

- a. Press the Windows key
- b. Enter „cmd“
- c. Right-click on the highlighted search result („cmd“ or „Command Prompt“)
- d. Click „Run as administrator“
- e. Confirm the UAC security dialog

The result is an elevated command prompt.



⇒ In this, enter the following commands:

```
arp -s 10.0.12.34 00-90-E8-xx-xx-xx  
telnet 10.0.12.34 6000 (alternatively open http://10.0.12.34:6000 in a browser)
```

Here, „10.0.12.34“ is the IP address to be set and „00-90-E8-xx-xx-xx“ is the adapter's MAC address. It is listed on the type plate on the adapter's back side.

The adapter restarts with the newly set IP address.

## 4.1.2 Opening the web interface

After configuration of the IP-address, the web interface of the adapter is available on the standard HTTP Port (80). Enter the IP address into a browser of your choice (e.g. Microsoft Internet Explorer). In the previous example, this would be:

<http://10.0.12.34>

The login screen appears:

Account	<input type="text" value="admin"/>
Password	<input type="password"/>
<input type="button" value="Login"/>	

In the factory settings, the password of the „admin“ account is empty. Log in by clicking on the “Login” button, leaving the password field empty.

## 4.2 Configuration of the wireless network connection

The following steps describe the configuration of the wireless network connection:

- ⇒ Set the WLAN network IP address and subnet mask.

As previously, this new IP address should be unused in the wireless network and should be specified by your network administrator.

In the web interface, open the menu item „WLAN Settings“ -> „WLAN“:

<b>WLAN Settings</b>	
<b>IP configuration</b>	<input type="text" value="Static"/>
<b>IP address</b>	<input type="text" value="192.168.0.78"/>
<b>Netmask</b>	<input type="text" value="255.255.255.0"/>
<b>Gateway</b>	<input type="text"/>
<input type="button" value="Submit"/>	

<b>- Main Menu</b>
Overview
Wizard
Basic Settings
- Network Settings
General Settings
Ethernet Settings
-WLAN Settings
<b>WLAN</b>
Profile

<b>- Main Menu</b>
Overview
Wizard
Basic Settings
- Network Settings
General Settings
Ethernet Settings
-WLAN Settings
WLAN
<b>Profile</b>

⇒ Set the WLAN profile and security parameters:

Wireless LAN Profile

Network type	Infrastructure Mode ▾
Profile name	Infrastructure
	General Security
	Submit Activate

⇒ By clicking on “General”, you can specify the SSID of your wireless network.

## ⚙️ WLAN Profile Properties

General Properties

Profile name	Infrastructure
Operation mode	Auto ▾
SSID	profile1
Fast roaming	Disable ▾
Scan channels - 1	N/A ▾
Scan channels - 2	N/A ▾
Scan channels - 3	N/A ▾
Extended disconnect detection	Disable ▾
	Submit

⇒ By clicking on „Security“ you can set the encryption method and key used by your wireless network:

## ⚙️ WLAN Profile Properties

Security Properties

Profile name	Infrastructure
Authentication	WPA2-PSK ▾
Encryption	TKIP ▾
PSK passphrase	●●●●●●●●
	Submit

To activate the WLAN connection after configuration of the WLAN parameters, the network cable has to be unplugged and the adapter has to be restarted by disconnecting the power supply.

During initialization of the WLAN connection, the status LED „WLAN“ flashes.

When the connection is established successfully, the LED is permanently on.

## 4.3 Use with a virtual COM port

Many conventional applications still work exclusively with a direct RS-232 interface connection and are not network-enabled. To continue to be able to use these programs as usual, the adapter offers an option of simulating an RS-232 interface on the computer in the form of a virtual COM port.

### 4.3.1 Software-Installation

To use the virtual COM port feature, the required driver has to be installed on the computer accessing the device. It is included in the software „NPort Windows Driver Manager“. The following steps install this software on your computer.

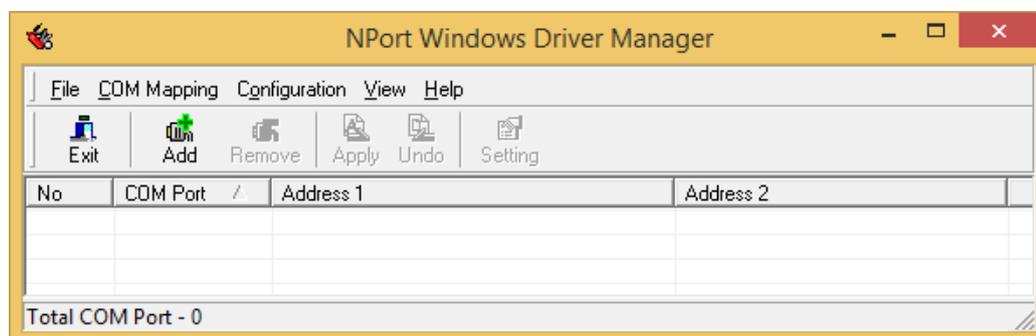
- ⇒ Place the enclosed CD in the CD drive of your computer.
- ⇒ Open the directory **D:\Software\Windows\NPort Windows Driver Manager** (where D: represents the drive letter of your CD drive)
- ⇒ Extract and run the executable file (exe) you will find there. Installation requires administrator privileges.
- ⇒ Confirm the installation dialogue boxes with “Next”.

Finish installation.

**i** For operating systems Microsoft Windows 8 and later, in some cases, an updated version of the software has to be downloaded from the manufacturer’s web site.

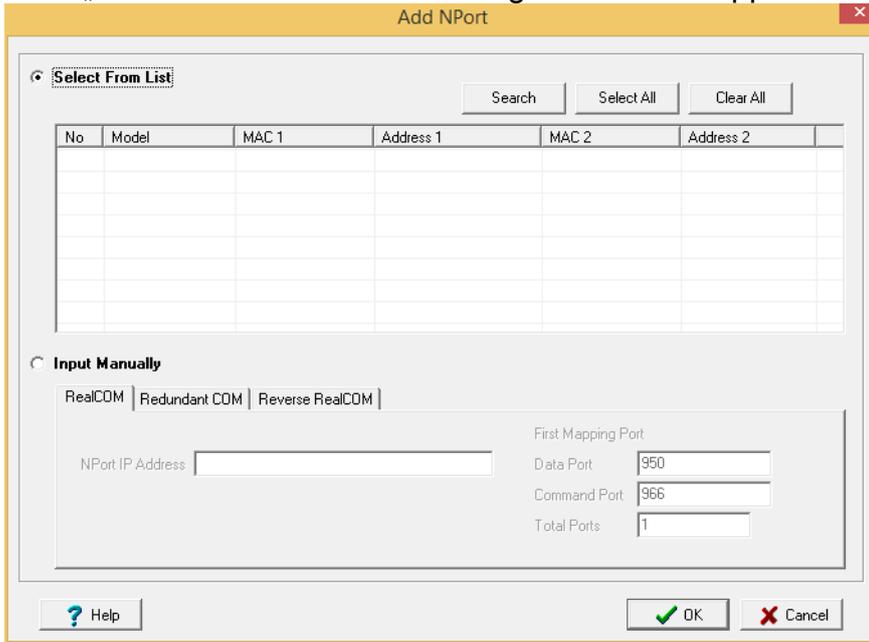
### 4.3.2 Configuring the virtual COM port

Open the „NPort Windows Driver Manager“ software as administrator.

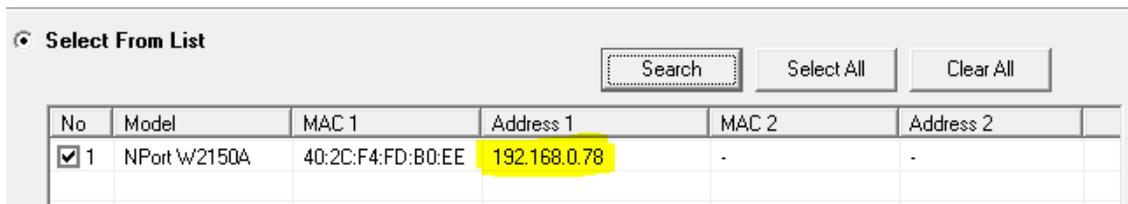


A new virtual COM port for your adapter with the following steps:

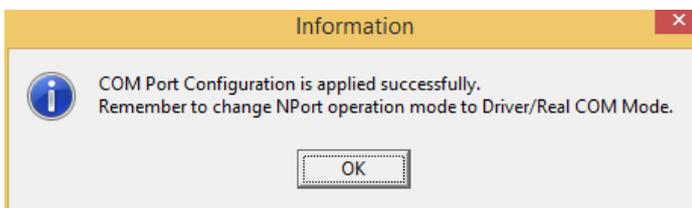
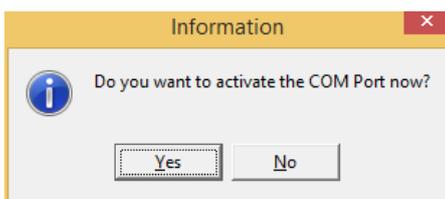
⇒ Click „Add“ in the toolbar. The dialog “Add NPort” appears:



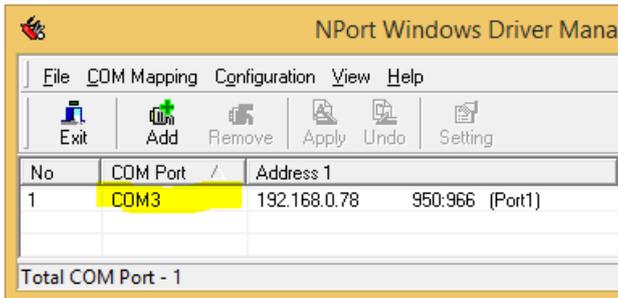
⇒ Press the button „Search“. The adapter connected to the WLAN will be found and listed in the list below the search button:



⇒ Press „OK“ to create and configure the new virtual COM port. In the process, confirm the following dialogs:



⇒ Read the number of your new COM port from the list in the main screen of the configuration software (here „COM3“):



You can now use the virtual COM port to wirelessly access your RS-232 device. The RS-232 communication parameters of the adapter will be automatically adjusted by the application accessing the virtual COM port.

#### 4.4 Use as a TCP Server

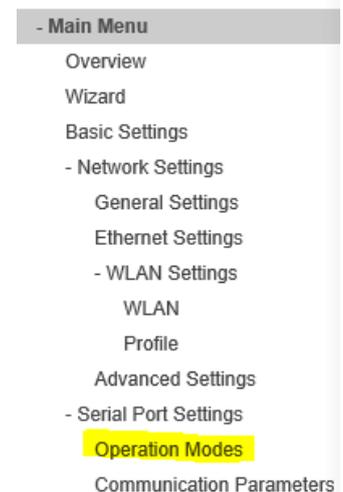
No installation of a virtual COM port is required to use the adapter in connection with a network-enabled application. The application can instead communicate directly across the network with the measuring device via the adapter. For this purpose, one way the adapter can be configured is to offer a service (server) in the network to which the application can connect.

To install and configure a virtual COM port, please follow these steps.

- ⇒ Open the web interface of the adapter, as described above.
- ⇒ Choose the menu item „Serial Port Settings“ -> „Operation Modes“:

**Operation Modes**

Port	Operating mode	Packing length
1	Real COM	0 Max connection:



⇒ Click on the „Real COM“ link to open the configuration of the first port:

## ⚙️ Operation Modes

**Port Settings**

---

**Port** 1

**Operation mode** Real COM

**TCP alive check time** 7 (0 - 99 min)

**Max connection** 1

**Ignore jammed IP** Disable

**Allow driver control** Disable

**Connection goes down** RTS  always low  always  
DTR  always low  always

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**Data Packing**

**Packet length** 0 (0 - 1024)

**Delimiter 1** 00 (HEX)  Enable

**Delimiter 2** 00 (HEX)  Enable

**Delimiter process** Do Nothing  (Processed)

**Force transmit** 0 (0 - 65535 ms)

⇒ For „operation mode“, choose „TCP Server“ (instead of „Real COM“) and submit the form.

⇒ Configure the RS-232 communication parameters, so they match with the ones of the RS-232 device to be connected. To do this, choose the menu item „Serial Port Settings“ -> „Communication Parameters“:

**⚙️ Serial Parameter**

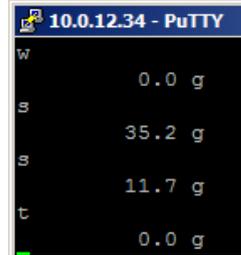
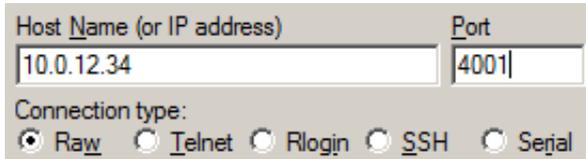
\* Modifying "Serial Parameter" settings will cause serial port restarting connections.

Port	Alias	Bard rate	Parity	Data bit	Stop bit
1	<input style="width: 80%;" type="text"/>	115200 <input type="button" value="v"/>	None <input type="button" value="v"/>	8 <input type="button" value="v"/>	1 <input type="button" value="v"/>

- Main Menu
- Overview
- Wizard
- Basic Settings
- Network Settings
  - General Settings
  - Ethernet Settings
  - WLAN Settings
    - WLAN
    - Profile
- Advanced Settings
- Serial Port Settings
  - Operation Modes
  - Communication Parameters
  - Data Buffering/Log

The adapter is now set up for operation as a “TCP Server”. Depending on the application, you are now be able to retrieve the measurement data at the IP address and port number used.

You can run a quick test using a terminal program such as “telnet” (pre-installed up to Microsoft Windows XP) or “PuTTY”:



## 5 Instant help

### Symptom

### Remedy

The “Ready” LED fails to illuminate.

Check whether the adapter is connected to the power supply.

The “WLAN” LED fails to flash.

Restart the adapter without a network cable connected. If the WLAN LED flashes, make sure the WLAN settings and keys are set correctly. Test the connection with e.g. another network-enabled device.

The adapter cannot be found.

Make sure that the “WLAN” LED is lit.

A fault occurs during configuration.

Make sure that the configuration program is running with administrator privileges.

Incorrect characters are produced.  
The measuring device does not respond to commands.

Check to see if the previous points apply and whether the RS-232 settings of the application and/or the TCP server match the settings of the measurement device.

If you are unable to remedy the error, please contact your supplier.