Installation manual
Ethernet interface

KERN YKI-01
Version 1.1
2021-03
GB

YKI-01-BA-e-2111

GB

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Version 1.1 2021-03
Operating instructions
Ethernet interface

English

Contents

1 Scope of delivery

Delivery includes:

1. RS232 Ethernet Adapter
2. Mains adapter
3. 4x adhesive feet
4. Quick instructions (original, English) in paper format
5. KERN Operating Instructions (German/English) in paper format (this document)
6. 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 an Ethernet 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 an Ethernet 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.

> **i** 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:

⇒   Connect the mains adapter to the mains power (plug socket) and to the adapter. Make sure the "Ready" LED is illuminated.

⇒   Connect the adapter to a network using a standard Ethernet network cable. When connecting to a network-enabled device (such as a computer) a so-called *cross-over* cable must be used. During network activity, the "Link" LED should flash green.

⇒   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, download from website:

https://www.moxa.com/support/support_home.aspx?isSearchShow=1

4.1   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.

Download from website:

https://www.moxa.com/support/support_home.aspx?isSearchShow=1

⇒   Extract and run the executable file (exe) you will find there. Installation requires administrator privileges.

⇒   Confirm the installation dialogue boxes with "Next".

Finish installation.

4.2   Integration into the network

For communication between devices on an IP-based network, the IP address and subnet mask settings for both devices must be compatible.
The adapter is factory-set to an unusable IP domain, such that the IP address of the adapter must first be changed for it to be compatible with your network.

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 data. You can find out the most important information from your computer (which is already attached 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:

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, ...

> ℹ   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 NPort administrator software makes it possible to fix the IP address of the adapter via the ARP protocol. The program needs **Adminstrator privileges** for this.

⇒ Run the NPort Administrator Software with administrator privileges.

⇒ Click on "Search" in the tools menu:

The "searching" dialogue box will open.
The adapter to be configured should appear in the list here. You can identify your adapter by comparing the listed MAC address with the MAC address on the reverse of the adapter.
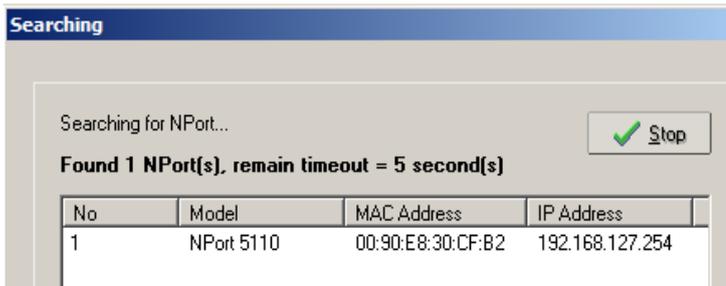
Once located, the adapter will also appear in the program's main window:
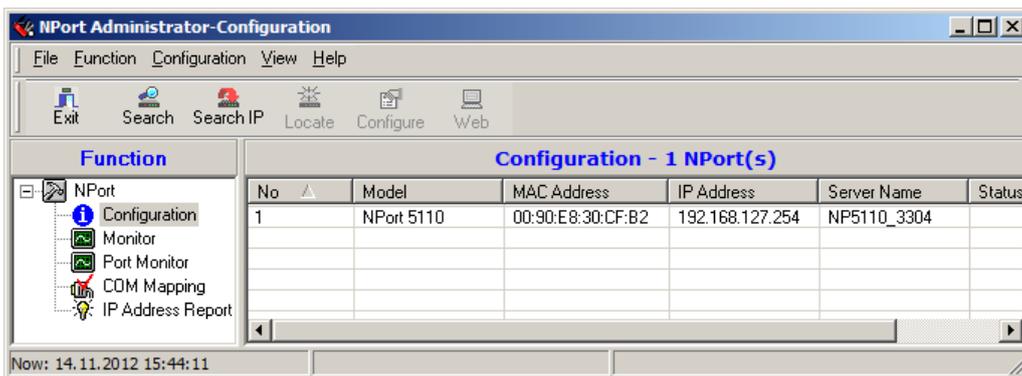
⇒ Right-click on the new entry (here "No. 1") and select "Assign IP address".
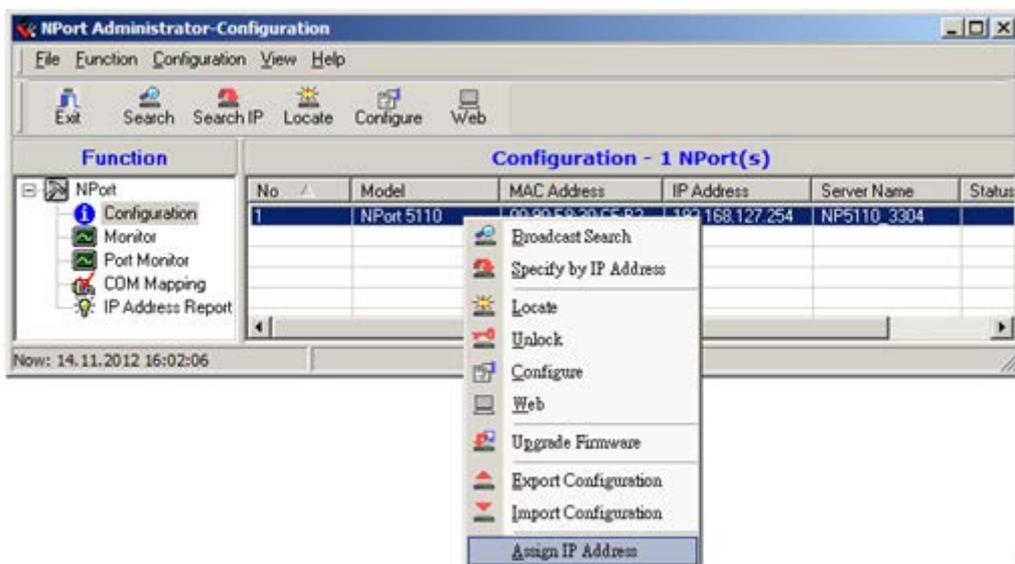
$\Rightarrow$ Enter the selected IP address for the adapter in the dialogue box that opens:

No	Model	MAC Address	IP Address
1	NPort 5110	00:90:E8:30:CF:B2	10.0.12.34

Assign IP

Assign IP Address

No	MAC Address	IP Address
1	00:90:E8:30:CF:B2	10.0.12.34

Assign IP Sequentially

✓ OK   ✗ Cancel
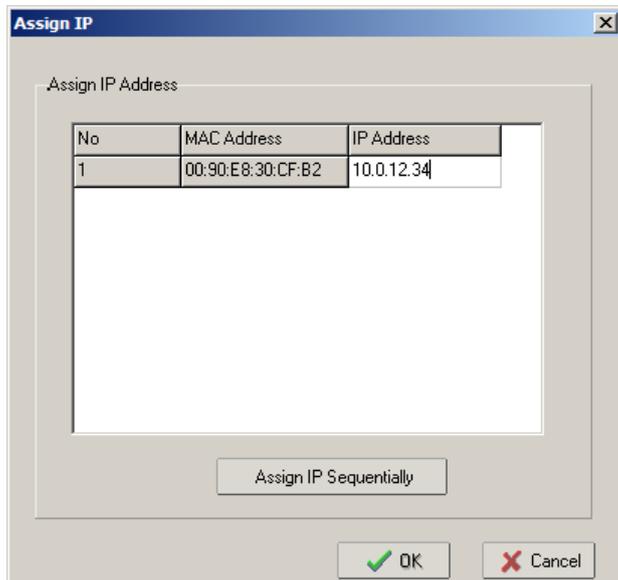
Confirm the entry by pressing "OK". The IP address is assigned. The new IP address appears in the main window:

ℹ If the NPort Administrator Software is run without administrator privileges, assigning an IP address is usually not possible.

No	Model	MAC Address	IP Address
1	NPort 5110	00:90:E8:30:CF:B2	10.0.12.34

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.

To install and configure a virtual COM port, please do the following:

⇒ Double click on the entry with the adapter to be configured.
This will open the "Configuration" dialogue box:
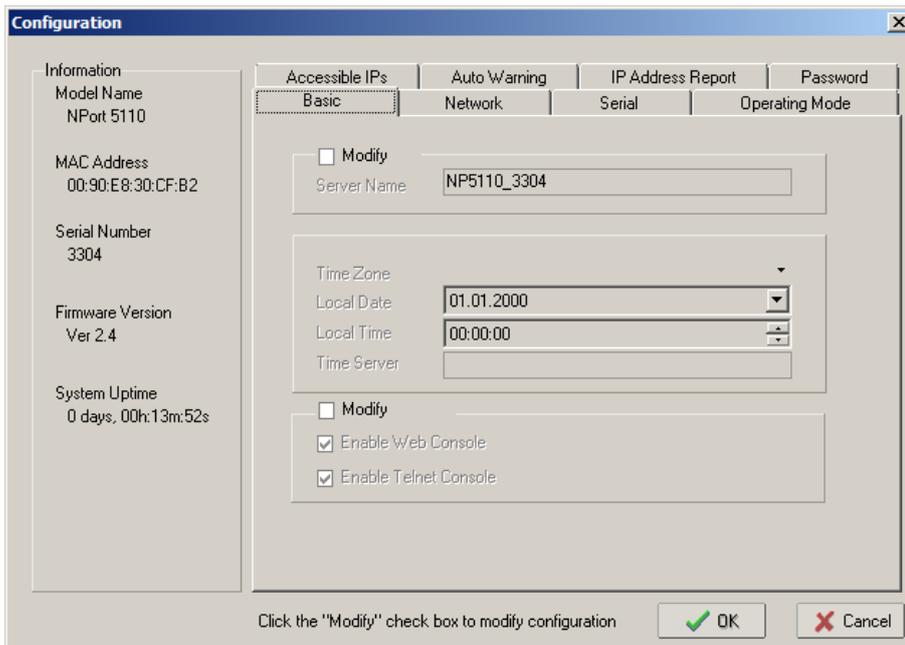
⇒ Change to the "Operating Mode" tab.
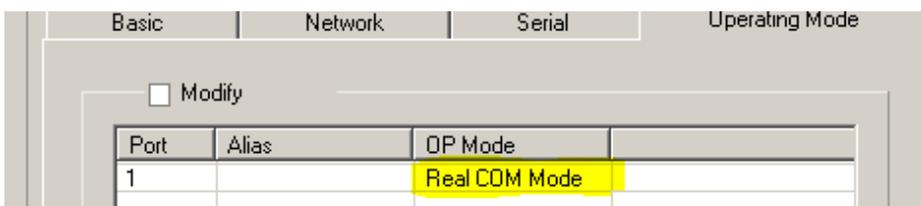
⇒ Make sure that the mode "Real COM Mode" is listed in the "OP Mode" menu.
This is the standard setting.
Changing the operating mode is described in the next chapter.

After configuring the adapter, a virtual COM port must be installed and assigned to the adapter. Proceed as follows:

⇒ From the directory map on the left in the main window, select the entry "COM Mapping".

⇒ Click on "add" in the tools menu:

⇒ Confirm with "OK" the dialogue boxes "Add NPort" that will open.

⇒ The name of the new virtual COM port will appear in the main window. In this example it is "COM12". The parameters of the COM port can be changed in the application.

	COM Mapping - 1 COM					
No △	Model	IP Address	Port	COM Port	Mode	Parameter
1	NPort 5110	10.0.12.34	1	COM12 +	Hi-Performance, FIFO Ena...	9600, None, 8, 1, None

⇒ Confirm settings by clicking on "Apply":

You can now use the virtual COM port to access the connected measuring device.

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.

⇒ Double click on the entry with the adapter to be configured. This will open the "Configuration" dialogue box:
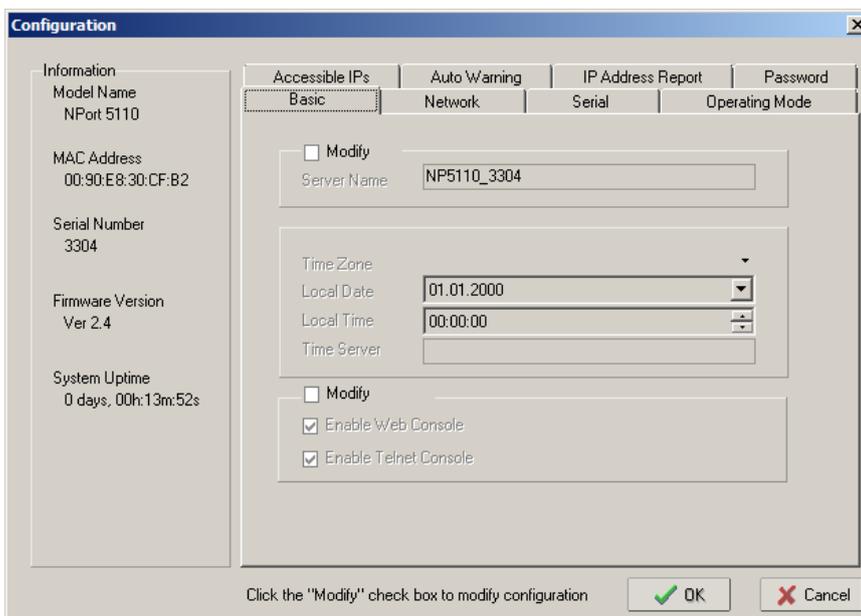
⇒ Change to the "Operating Mode" tab.
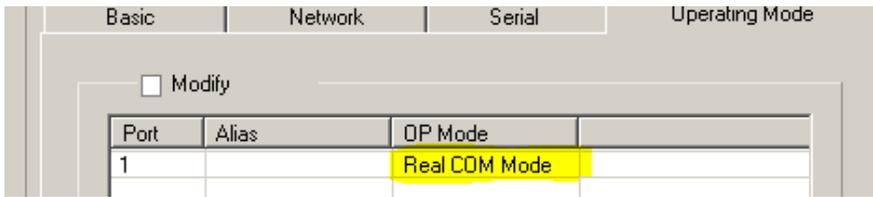
⇒ Activate the "Modify" check box.

⇒ Select the entry to be modified (Port 1) and
click on the "Settings" button.
The "Operating Mode" dialogue box will open:
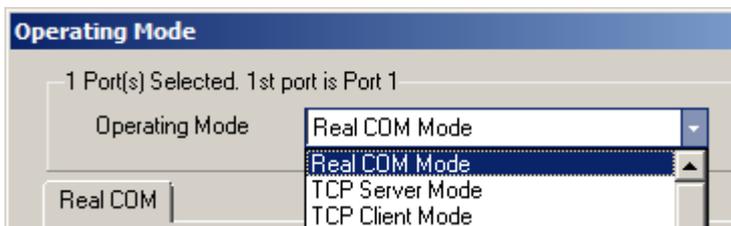
⇒ From the "Operating Mode" list, select "TCP Server Mode".
The possible configuration settings will change:
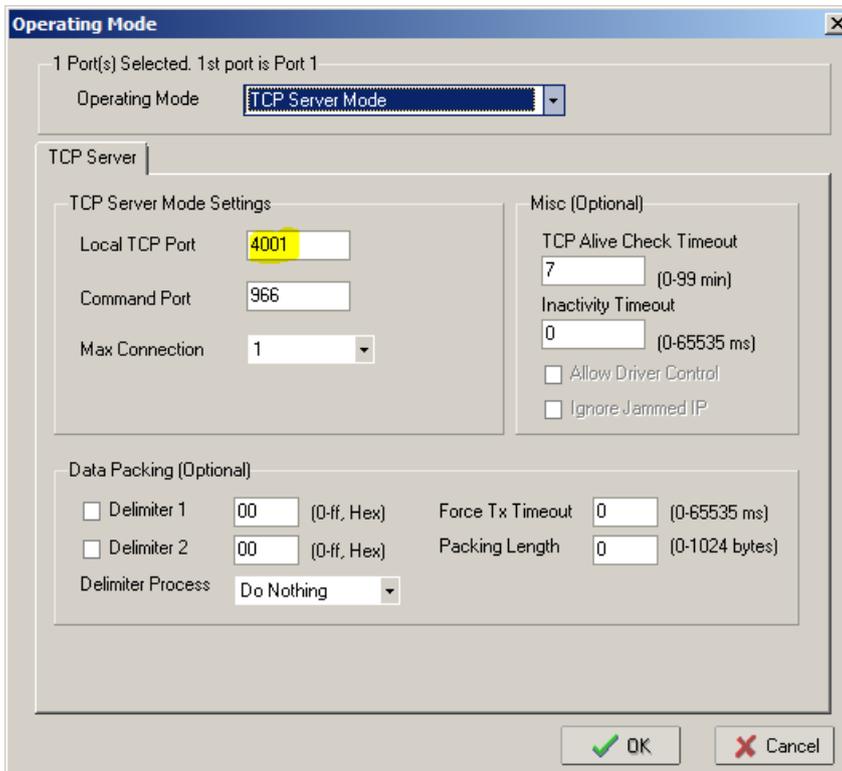
⇒ The "Local TCP Port" setting is important here. The standard value is 4001. The server is accessible at this port number. This figure must be entered in the application to be used. You can change the number to one of your choice.

⇒ Confirm the open dialogue box with "OK".

⇒ In the "Configuration" dialogue box, go to the "Serial" tab. This will show the current RS-232 settings of the adapter. These must match the settings of the connected measuring device.

⇒ As before, you can adapt the settings of the adapter by activating the check box and clicking on "Settings".

The adapter is now set up for operation as a "TCP Server".
Depending on the application, you may 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":

English

Host Name (or IP address) | Port
10.0.12.34 | 4001
Connection type:
⊙ Raw ○ Telnet ○ Rlogin ○ SSH ○ Serial

10.0.12.34 - PuTTY
w
        0.0 g
s
        35.2 g
s
        11.7 g
t
        0.0 g
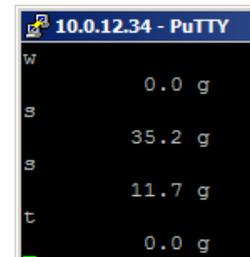
5 Instant help

Symptom	Remedy
The "Ready" LED fails to illuminate.	Check whether the network device is connected to the adapter and the network.
The "Link" LED fails to flash.	Check whether the network cable is connected to the adapter and the network (switch/hub/port). Test the connection with e.g. another network-enabled device.
The adapter cannot be found.	Make sure that the "Link" LED is flashing.
A fault occurs during configuration.	Make sure that the "NPort Administrator" program is running with administrator privileges.
No printing is taking place and paper does not emerge.	Check whether the connecting cable is connected at both ends, whether the printer prints the self-test and the SW switches are correctly set up.
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.