

## 1. MOXA NPort Express TCP/IP to RS-232 server

### 1.1. General Explanations

The NPort Express RS-232/422/485 Device server allows equipment with RS-232 port to be connected through a TCP/IP Network. This Appendix describes the installation of the device to connect to a GSR recorder.

### 1.2. NPort Server Package Content

The MOXA NPort Express RS-232/422/485 server type DE-311 is a cigarette box size device supplied with a AC-DC adapter, a D-SUB-9 null-modem adapter, a CD with software and drivers and a quick installation guide.

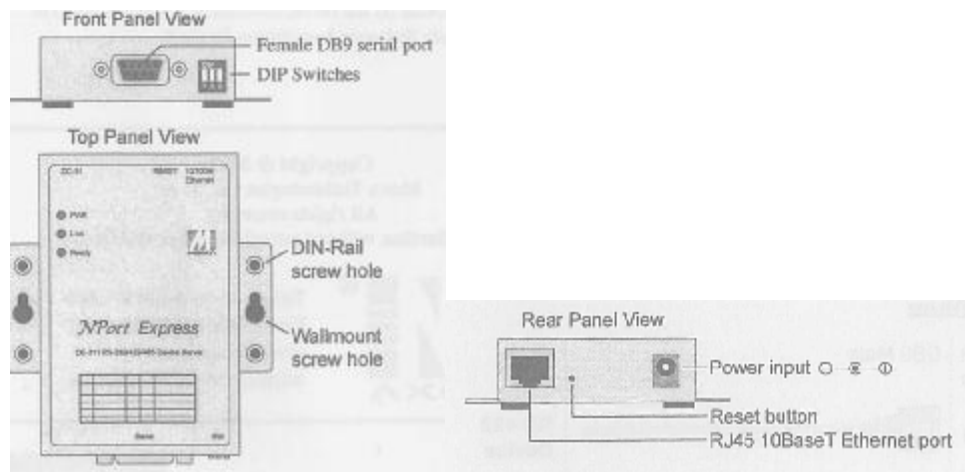


Figure 1. Physical aspects of the DE-311

### 1.3. Modem or NPort Server

The NPort server is connected to the GSR like a modem, to connect the NPort server to the GSR with a standard GeoSIG RS-232 cable the D-SUB-9 Null-modem adapter must be used. The same for connecting a GSR to a standard telephone modem, a Null-modem cable or the Null-modem adapter of the NPort server needs to be used for this purpose.

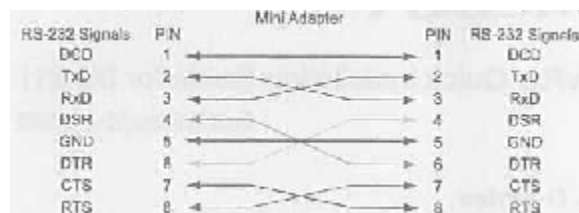


Figure 2. Mini Null-modem adapter wiring

### 1.4. Principle of Connecting

The NPort server compresses the serial signals from and to the recorder to packets and sends them over LAN network with TCP/IP protocol to a computer. On computer side there is not need to connect physically a device to the RS-232 serial port, but the computer needs to be connected to the local network on which the NPort server figures. In the computer a virtual COM port will be created with the software supplied by the NPort server, all necessary steps are described in this attachment.

## 1.5. Configuring the NPort Server

Following steps must be done to establish a connection between computer and GSR

### 1.5.1. Recorder Side (NPort Server)

- Set 3 dip switches on NPort Server to OFF (low)
- Connect NPort server to the GSR with the standard RS-232 cable supplied and use the Null-Modem mini adapter
- Connect NPort server to the network with a standard RJ45 cable (Cable is not supplied in shipment)
- Connect the AC-DC adapter, or another 12 VDC supply (Warning, with the AC-DC adapter the network communication is lost during a mains power failure)
- When Power is available the 3 LED on the front of the NPort server must be on after approximately 10 seconds (PWR: Red, Link: Green, Ready: Green) If not then refer to the MOXA manual

### 1.5.2. Computer Side

- Insert the MOXA installation CD into the computer, a menu will appear, press "Installation"
- Choose all utilities to be installed like below



Figure 3. Installation Select Utilities

- Continue installation and keep default settings
- Choose to run configurator (Default) and finish installation) (Configurator can be launched from the start menu → Programs → NPort Management Suite



Figure 4. Installation Configure NPort Settings

- The configurator application is now started
- In configurator choose indicated button for a broadcast search, the network will be searched and all available NPort servers will be shown

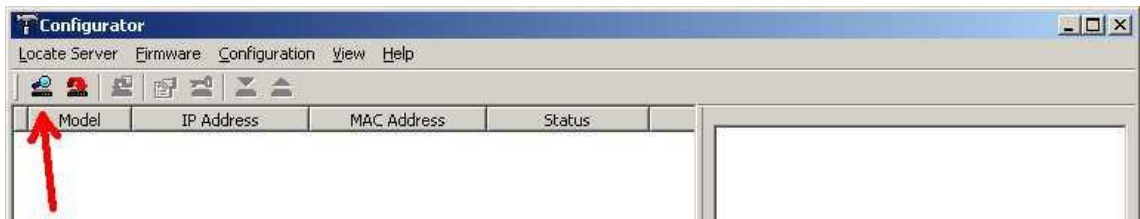


Figure 5. Configurator

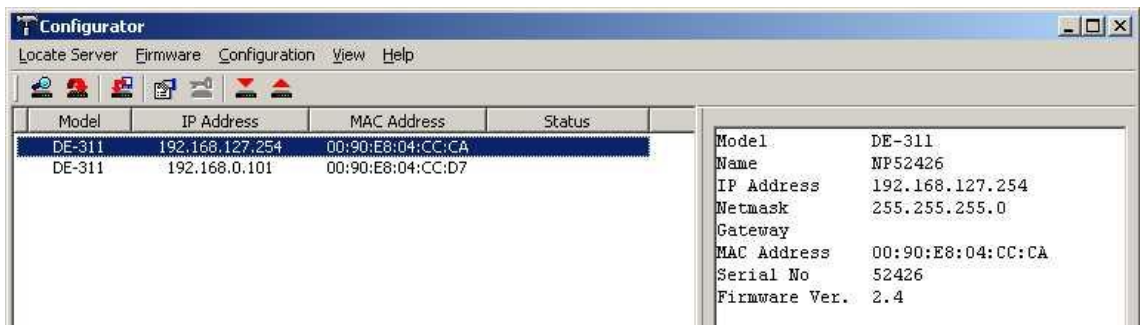


Figure 6. Configurator after broadcast search

- The factory default IP address of the NPort server is static and set to 192.168.127.254, to set up the correct device refer to the serial number that figures on the bottom of the device.

### 1.5.3. Configuration of the Device

- Now the device is visible on the network it must be set up therefor execute following steps:
- Note: In case of trouble the device can be reset with pressing for more than 10 seconds on the reset button, factory defaults will be restored.
- Double click on the row of the device to be set up, following window will pop up

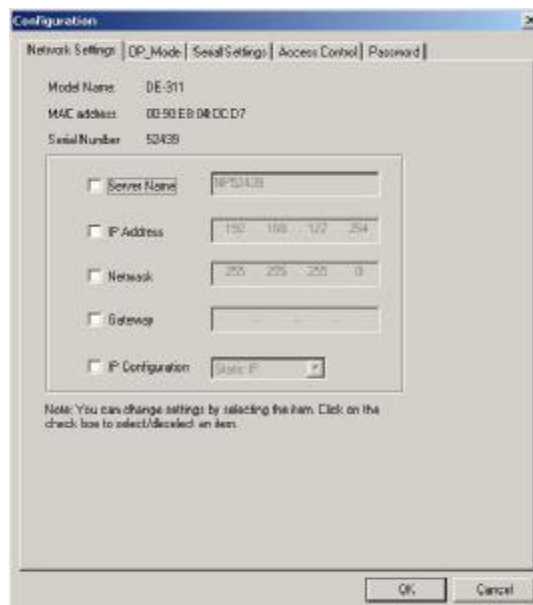



Figure 7. Configuration of NPort Server

- Select the setting that need to be changed, the textbox next to will become active.
- Depending on the network, either choose a static IP address, or select an IP configuration (For example DHCP if such server is available on the network). It is important to choose a correct IP address, please ask to your local network administrator who can tell which setting to use. For using a direct connection to the computer the best option is to use directly the serial port. In case of a demo a direct connection from the NPort server to the computer is possible, but needs a crossed

RJ45 cable. In direct connection static IP addresses for computer and NPort server must be used. Check the first three blocks of the IP Address, usually for local networks the first two are: 192.168, the third value can change between 0 and 255 and should be the same as the one on the computer. The fourth value is the subscriber number, avoid duplicate IP Addresses on one network that result in conflicts.

 *Hint: with the command prompt application in Programs → Accessories the command “ping” followed with the IP address can be entered to see if such address already exist (Ex ping 192.168.127.254).*

- Choose the Serial Settings tab.



Figure 8. Configurator Serial Settings

- To work with a GSR the Serial Settings must be set. Activate Change serial port settings
- Baud rate must be set, default value for GSR is 38400 baud, and other values can be default. Best is to connect to the GSR directly with the serial cable and check set values for communication.
- Close the application

Now the NPort server is ready to operate, only the computer needs to be set up with a correct COM port.

#### 1.5.4. Create a Virtual COM Port

The configurator is an application for setting up the NPort servers, another application manages the virtual COM ports of the computer used to access directly to a NPort device using a standard application dedicated to the instrument to be reached.

- Launch “Real COM Installer” (located in Start Menu → Programs → NPort Management Suite → COM Port Mapping

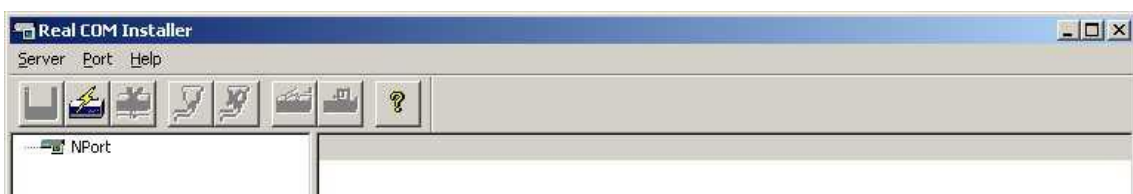




Figure 9 Real COM Installer

- Add a server with the second menu button
- Follow the steps of installing
  -  Best to search *automatically* the LAN for an IP Address
  -  In the displayed list choose the right NPort by help of the name, serial number or IP address if known
- Select NPort you wish to connect to
- Choose the COM port (Best way is to choose the next free port)

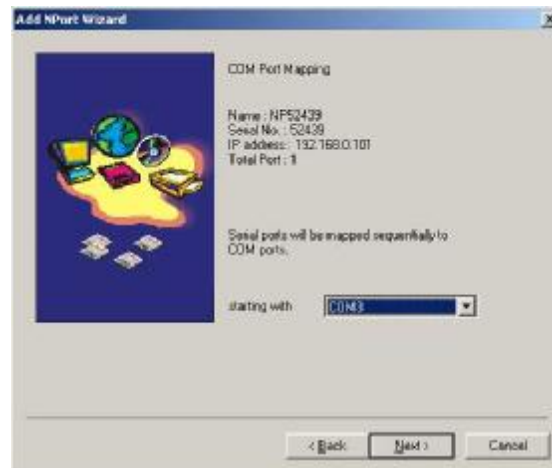


Figure 10. Choose COM Port

- Continue with scrolling with default settings until you come back in the Real COM Installer
- A new device has been added

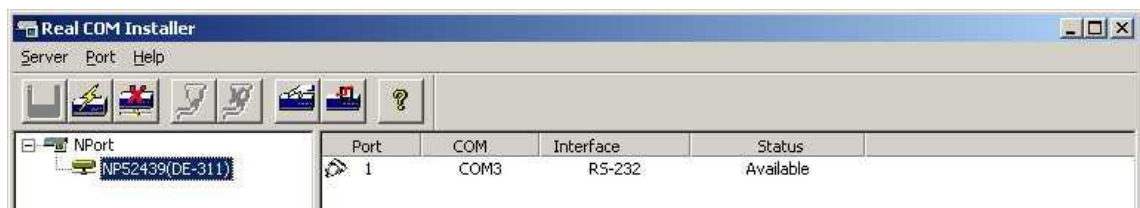


Figure 11. Real COM Installer, with new device

- No further operations are needed, properties can be viewed by double clicking on the device
- Application can be closed
- Start GeoDAS and configure the GSR recorder as described in the GeoDAS manual

## 1.6. Working behind NAT router to private IP

If you want to allow NPort to use private IP behind your NAT/firewall, you should use NAT protocol to map the Public IP to NPort's private IP in your NAT router. Most of routers/firewalls all support this function now. For example, when you configure NPort's private IP as 192.168.1.1, and the NAT router's Public IP is 61.x.x.x. Next, you should map TCP/UDP port numbers shown as follow:

Protocol	Public IP	Port No.	NPort Private IP	Port No.
TCP	61.x.x.x	23	192.168.1.1	23
TCP	61.x.x.x	4000	192.168.1.1	4000
TCP	61.x.x.x	950	192.168.1.1	950
TCP	61.x.x.x	966	192.168.1.1	966
UDP	61.x.x.x	1029	192.168.1.1	1029



*It is important to set the gateway properly in the device properties (see chapter [Configuration of the Device](#)).*

*For connecting to the device remotely, use the public IP to establish the connection.*

## **1.7. Troubleshooting**

In case GeoDAS reports an error accessing the GSR, and the correct COM port is selected, the problem is in most of the cases in the assignment of IP addresses. Verify in such case that the first three groups of values in the IP address of the device are the same as the ones on the computer, and that there is no conflict with another subscriber.

## **1.8. Further Settings**

For further settings please refer to the user manual on the CD supplied with the NPort server.