

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.

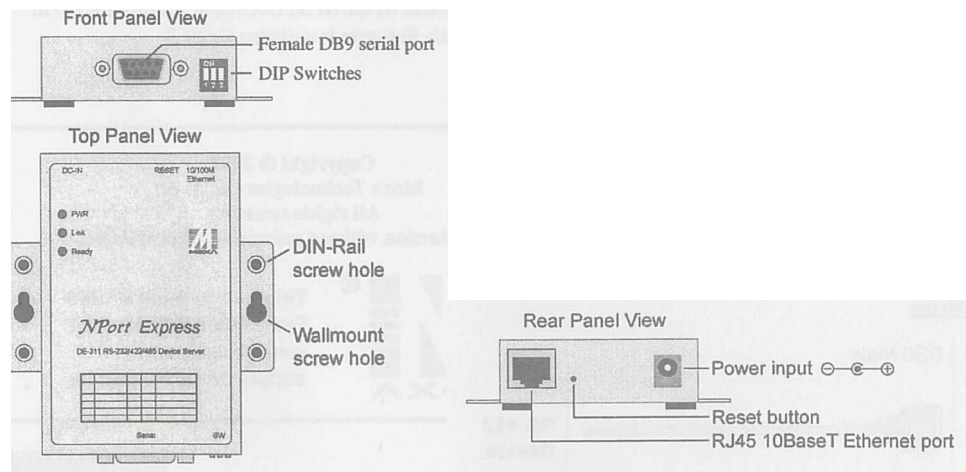


Figure 1. Physical aspects of the DE-311

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.

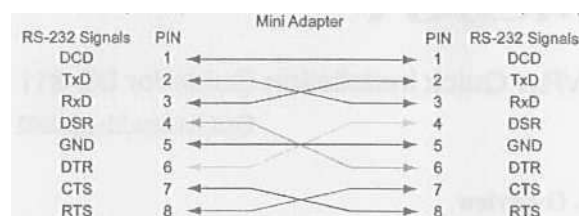


Figure 2. Mini Null-modem adapter wiring

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

- Install NPort Windows Driver Manager (On USB flash drive in folder Utilities\MOXA)



Figure 3. Setup NPort Windows Driver Manager

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

- The NPort Windows Driver Manager is now started
- Choose button “Add” to add NPort servers

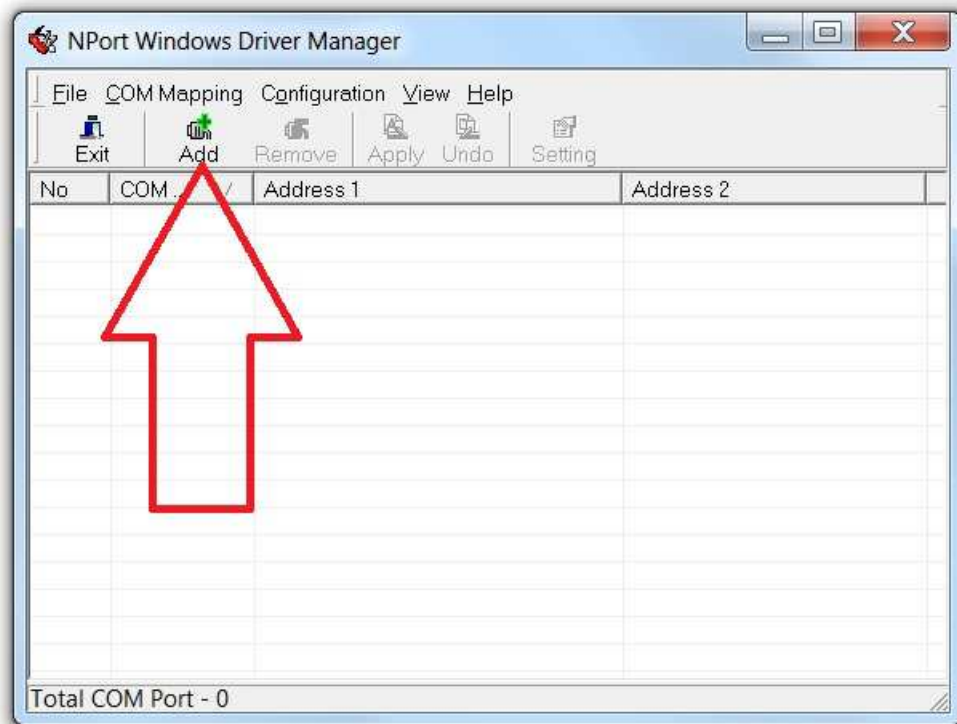


Figure 4. Add NPort Servers

- Choose button “Search”, the network will be searched and all available NPort servers will be listed

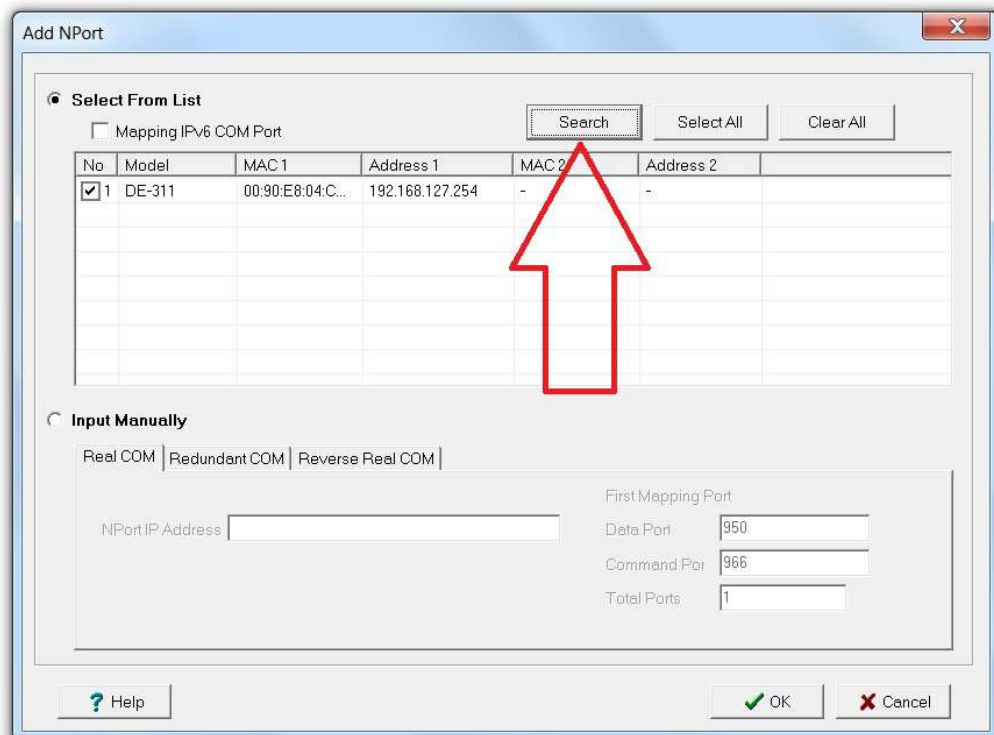


Figure 5. Search for NPort Servers

- 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 MAC Address that figures on the bottom of the device.
- Click "OK" to add selected devices
- If you confirm to activate COM Port now, next free COM ports will automatically be assigned to the NPort servers

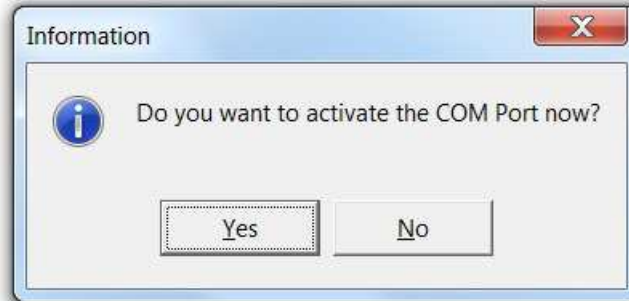


Figure 6. Activate COM Port now

- By double clicking on the row of the device to be set up, COM Port Setting Window appears
- In tab "Basic Settings" a COM Port can be chosen manually
- To work with a GSR parameters in tab "Serial Parameters" must be set. Default Value for GSR is 38400 baud, but best is to connect to the GSR directly with the serial cable and check set values for communication.

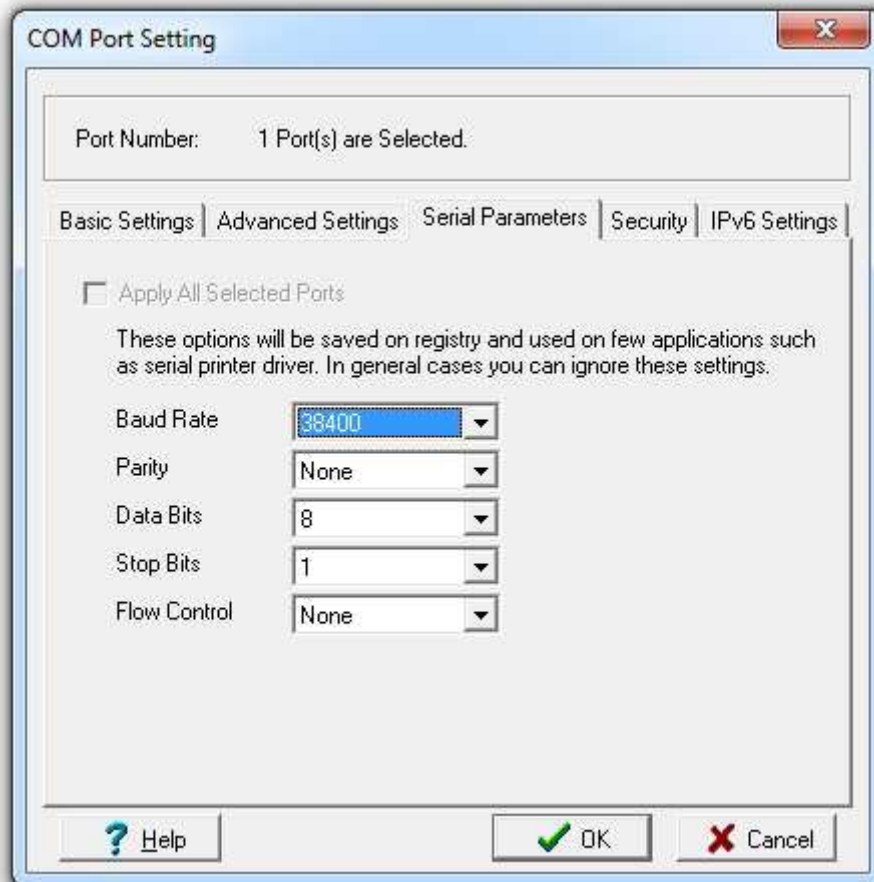


Figure 7. COM Port Setting

- Confirm with OK and apply changes in main window of NPort Windows Driver Manager
- Now NPort Server is ready to operate and GSR recorder can be configured in GeoDAS

1.5.3. Changing IP settings on NPort Server

- 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.
- To set up IP address of NPort Server execute following steps:
- Start Telnet console session using uCon
- The factory default IP address of the NPort server is static and set to 192.168.127.254

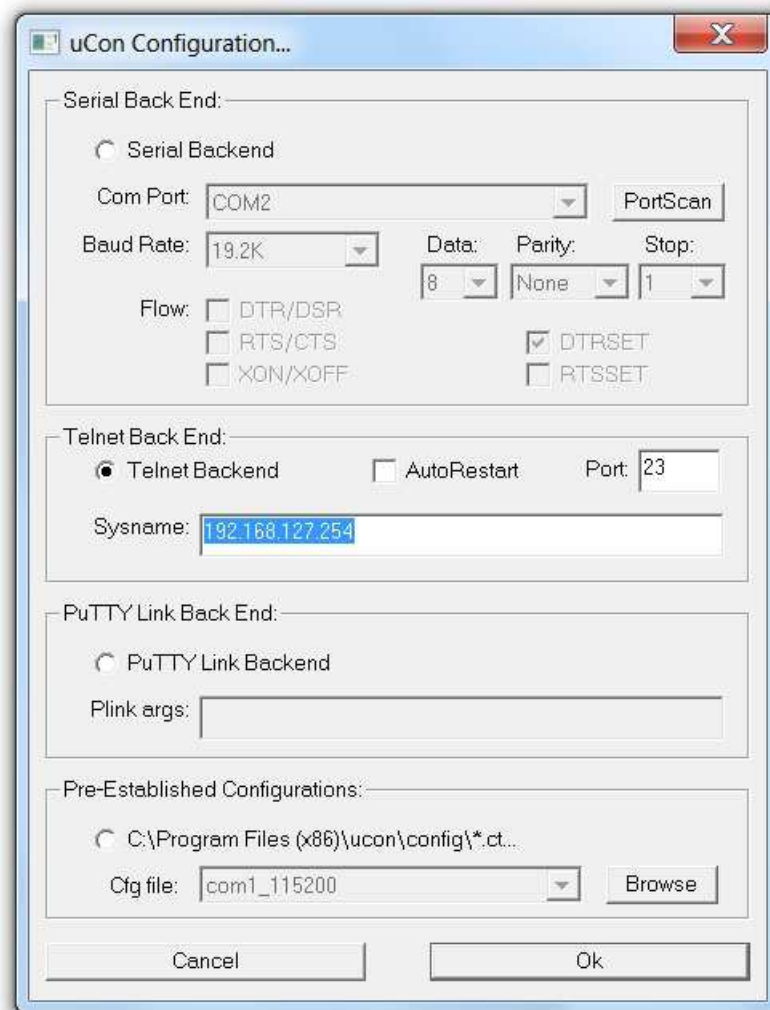


Figure 8. Telnet console session

- Click "OK" to start Telnet session

- Make sure “Echo outgoing characters to screen” is unchecked in Config → Miscellaneous
- At the prompt, enter “1” for ansi/vt100 and then press Enter.

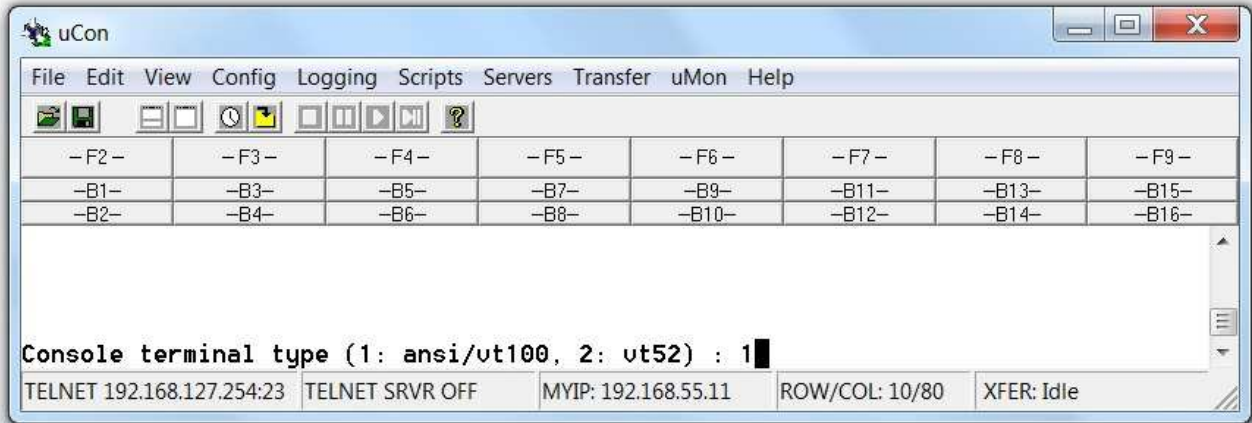


Figure 9. Console terminal type

- Use the arrow keys to navigate between different options
- Select [serverConfig] in main menu to change IP settings

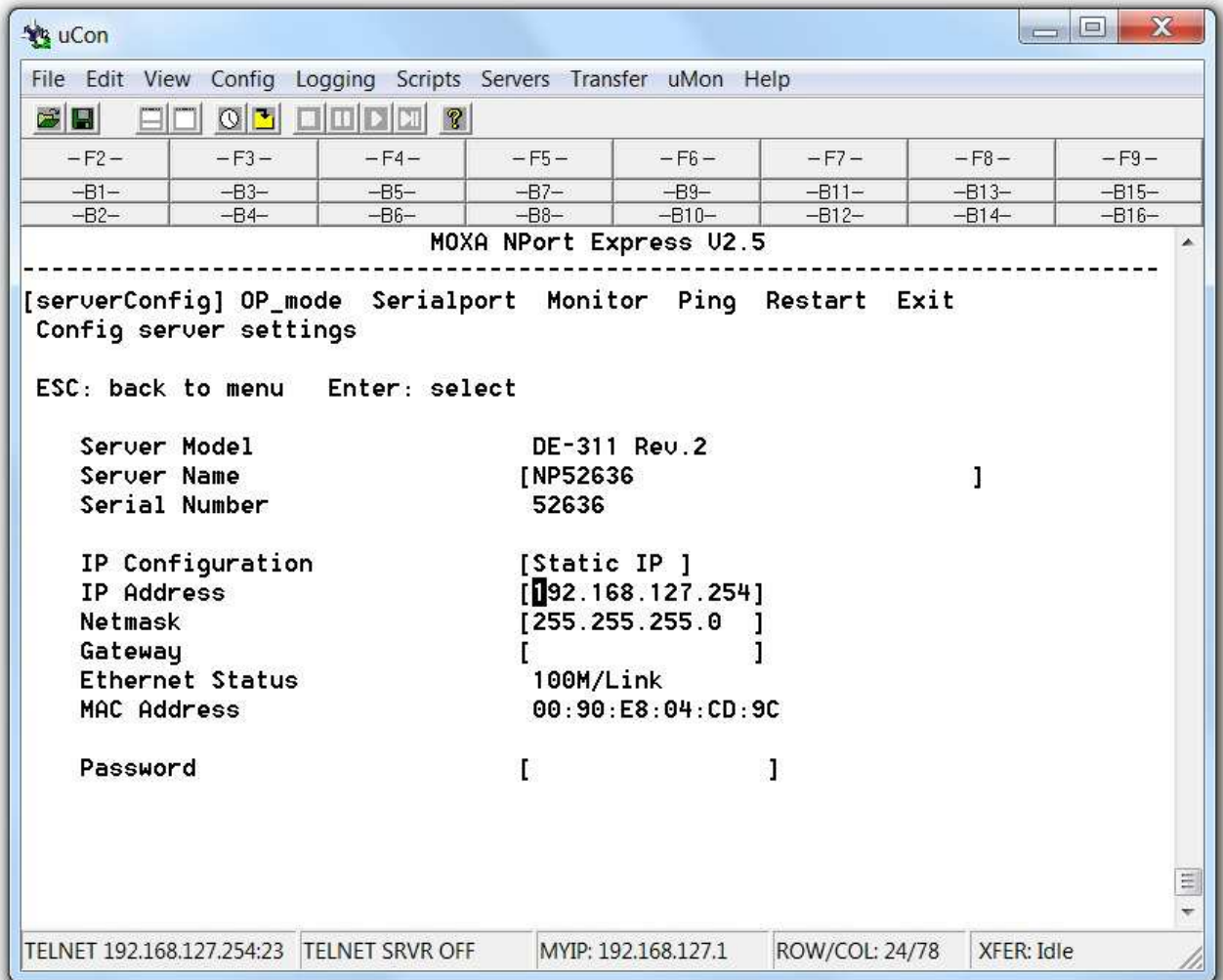



Figure 10. Server settings

- 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.

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.