

Using JPS Communications NXU-2 Network Extension Units for Simultaneous Voice and Data Over an Ethernet Network with Series 6000 Radio Direction Finders

A Technical Application Note from Doppler Systems

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1.0 Introduction

The JPS Communications Inc. NXU-2 Network Extension unit provides a way to simultaneously transmit and receive data and audio over a standard Ethernet connection. This application note describes the connections and setup required to use the NXU-2 with the Doppler 6000 series direction finders.

2.0 Programming the NXU-2

Connect the serial cable provided with the unit to the serial port of a standard PC and the NXU-2 (J4). Use a terminal emulator program such as HyperTerm to connect to the NXU-2. The required settings are

- Baud Rate: 9600
- Databits: 8
- Parity: None
- Stopbits: 1
- Flow Control: None

2.1 Using HyperTerm

To program the modems using HyperTerm, first, setup HyperTerm for a direct connection to your serial port (assumed to be COM1). Configure the port for 9600 baud as described above and leave all other options at their default settings.

Make sure your serial cable is connected and the NXU-2 is powered. After the unit has been powered for 10 seconds type in three plus signs (+++). The unit should respond with OK. If it does not respond check the NXU-2 manual for more information.

Two NXU-2 units are required to establish a connection. One NXU-2 must be configured as a server and one as a client. Type in the following commands to configure the server unit. Type in each command followed by the enter key. After each entry the NXU-2 will respond with OK.

- BAUD 2400 (for DDF 6000 or 6001)

- BAUD 9600 (for DDF 6100 or 6002)
- CONMODE 1
- COR 0
- CORINH 0
- MYIP <ip address of server>
- SUBNET <subnet ip address>
- GATEIP <gateway ip address>
- SAVE

The server ip address is the address the client will use to connect with the server and needs to be entered in dotted quad notation (e.g. 192.168.0.1). Be sure to enter an address that is unique to your network. See your network administrator if you do not know what address to use. The subnet ip address is similarly entered (e.g. 255.255.255.0). If you are on a LAN with no gateway do not enter a gateway ip address. Otherwise enter the ip address of the gateway.

Switch the serial connection to the unit that will be the ***client*** and type in the following commands

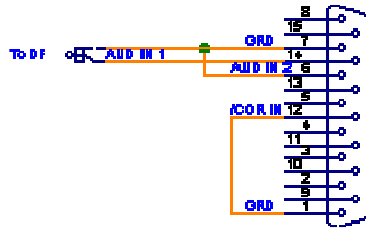
- BAUD 2400 (for DDF 6000 or 6001)
- BAUD 9600 (for DDF 6100 or 6002)
- CONMODE 0
- COR 0
- CORINH 0
- CONN <ip address of server>
- MYIP <ip address of client>
- SUBNET <subnet ip address>
- GATEIP <gateway ip address>
- SAVE

The client's ip address must be different from that of the server. See the NXU-2 manual for a complete explanation of these settings.

Note: After you change the baud rate settings you must reconfigure your HyperTerm connection to that baud rate in order to change the NXU-2 configuration.

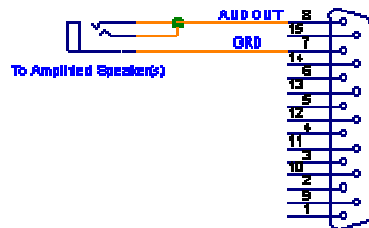
3.0 Installing the NXU-2s

The server unit will be installed at the remote (direction finder) site. Two cables are required to connect the direction finder to the NXU-2: a serial cable and an audio cable. The serial cable is a standard null modem cable (DCE-to-DCE connection). The audio cable is wired as shown in the figure below.



Plug the phone plug from the audio cable into the audio output of the direction finder (J6), and connect the DB15 connector to the NXU-2 (J7). Next connect the null modem serial cable between the direction finder (J1) and the NXU-2(J4). Use a category 5 RJ-45 Ethernet Patch Cable to connect the NXU-2 (J3) to the Ethernet network.

The client unit will be installed at the fixed (computer) site. Connect a standard RS232 cable (DTE-to-DCE) from the computer to J4 on the NXU-2. Use a category 5 RJ-45 Ethernet Patch Cable to connect the NXU-2 (J3) to the Ethernet network. The client-end audio cable is wired as shown in the figure below.



Connect the DB15 connector to the NXU-2 (J7). A set of headphones or an amplifier is required to hear the audio.

4.0 Operation

At the remote site use the receiver and tune to a known station. Adjust the volume control of the receiver until you see the audio input indicator flash occasionally on audio peaks.

At the fixed site you should be able to clearly hear the audio. Once you hear the audio start the direction finder software and use it as you would normally.