

**DNT24/DNT24ADK**

**Quick Start  
Guide**



**Items Supplied in the Kit:**

- DNT24DK - 2 DNT24P radios installed in DNT24 interface boards, labeled Base and Remote
- DNT24DK - 2 patch antennas and two 2 dBi dipole antennas with MMCX/RSMA adapter cables
- DNT24ADK - 2 DNT24PA radios installed in DNT24 interface boards, labeled Base and Remote
- All Kits - 2 wall-plug power suppliers, 9 VDC, 120/240 VAC, plus 2 batteries, 9 VDC (not show above)
- All Kits - 2 RJ-45/DB-9F cable assemblies and two A/B USB cables
- All Kits - DNT24DK/DNT24ADK documentation and software CD

**Additional Items Needed:**

- One PC with Microsoft Windows XP, Vista or Windows 7 operating system. The PC must be equipped with a USB port or a serial port capable of operation at 9600 bps.

**Developer's Kit Default Operating Configuration:**

The default operating configuration of the DNT24DK developer's kit is point-to-point with transparent serial data at 9600 bps, 8N1. One DNT24P is preconfigured as a base and the other as a remote. Labels on the bottom of the interface boards specify *Base* or *Remote*.

## Developer's Kit Assembly:

1. Figure 1 shows a DNT24P radio installed on an interface board, and a patch antenna. Observe ESD precautions when handling the kit circuit boards. Install a patch antenna on each interface board by pressing the antenna into the interface board RF connector with moderate pressure until the antenna snaps onto the connector, as shown in Figure 2. Note that no external antenna is required when using the DNT24PA radios supplied in the DNT24A Kits.
2. As shown in Figure 3, there are three serial connectors and a power connector on the end of each interface board. The RJ-45 connector provides an RS232 interface to the DNT24 main serial port. The USB connector provides an optional interface to the radio's main serial port.

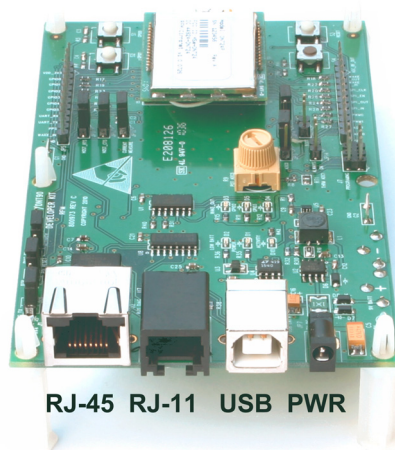
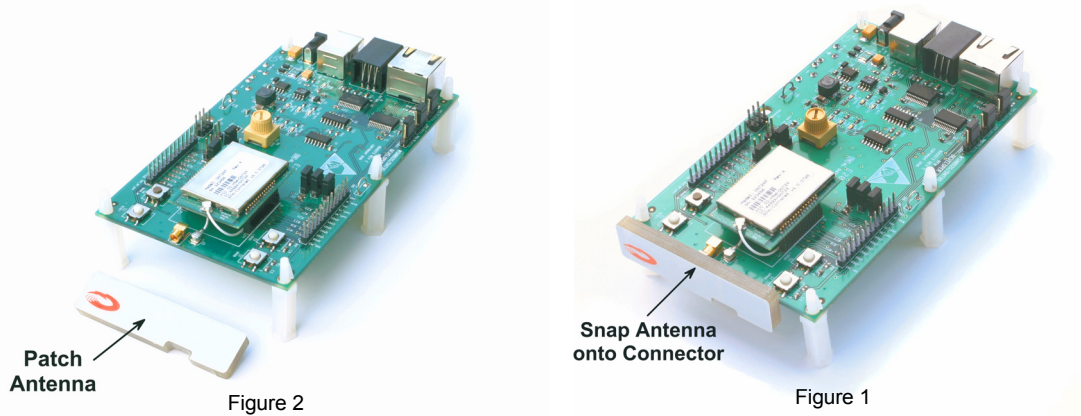


Figure 3

3. If using a serial cable, connect the Base interface board to the PC using a RJ-45/DB-9F cable assembly (labels on the bottom of the interface boards specify Base or Remote). Then power the Base with a supplied wall-plug power supply. Continue at Step 5 below.

4. If using a USB cable continue with this Step to install the USB drivers, else continue at Step 5. Plugging in the USB cable automatically switches operation to the USB connector. The USB interface is based on an FT232RL serial-to-USB converter IC manufactured by FTDI. The FT232RL driver files are located in the i386 and AMD64 folders on the CD, and the latest version of the drivers can be downloaded from the FTDI website, [www.ftdichip.com](http://www.ftdichip.com). The drivers create a virtual COM port on the host PC.
  - a Power the Base using one of the included wall-plug power supplies.
  - b Next connect the Base to the PC with a USB cable. The PC will find the new USB hardware and open a driver installation dialog box. Enter the letter of the drive holding the kit CD and click Continue. The installation dialog will run twice to complete the driver installation
5. The DNT24 Demo utility program is located in the *PC Programs* folder on the kit CD. The DNT24 Demo requires no installation and can be simply copied to the PC and run.

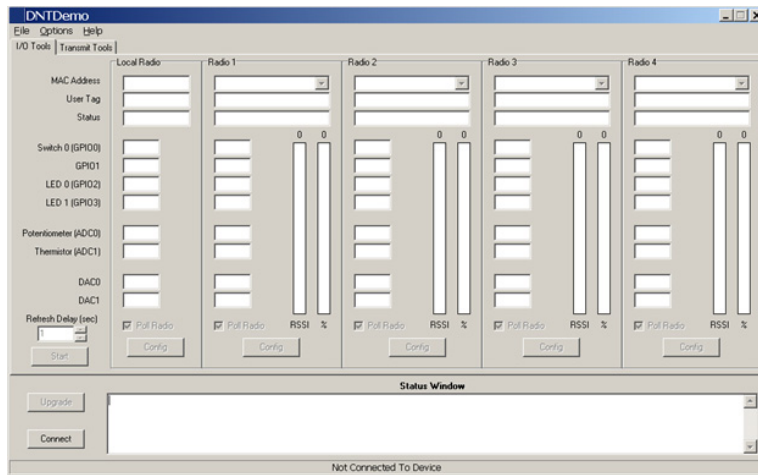


Figure 4

6. Start the Demo on the PC. The Demo program start-up window is shown in Figure 4.
7. Click on Connect to open the Select Comm Port Settings dialog box, as shown in Figure 5. If necessary, set the baud rate to 9600 bps. Set the Comm Port to match the serial port connected to the *Base* - either the hardware port or the USB virtual serial port. Then click OK to activate the serial connection.

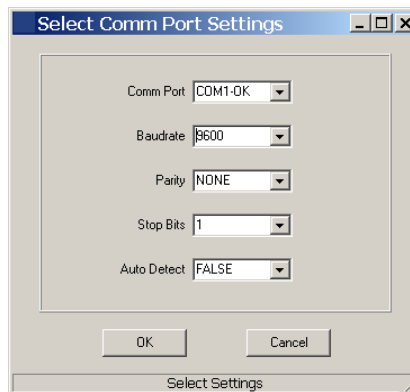


Figure 5

8. At this point the Demo will collect data from the *Base*, filling in the *Local Radio* column on the Demo window as shown in Figure 6.
9. Next power up the *Remote* using a wall-plug power supply. The Remote will transmit a “heartbeat” message on power up as shown in the *Status Window*.

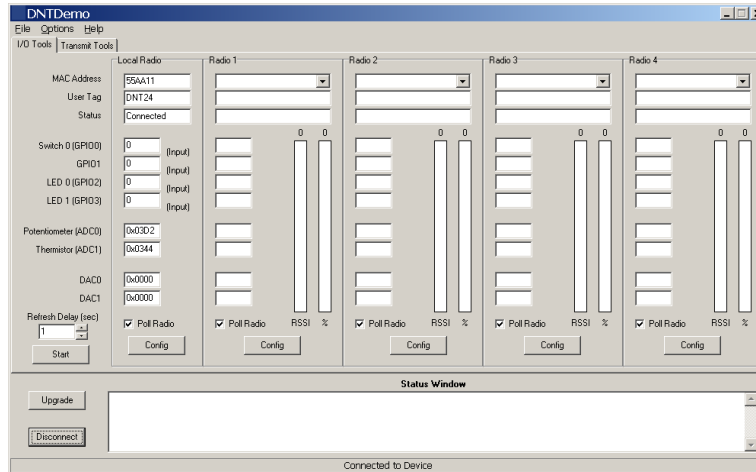


Figure 6

10. Click on the drop-down box at the top of the Radio 1 column and load the MAC Address for the Remote from the heartbeat message.

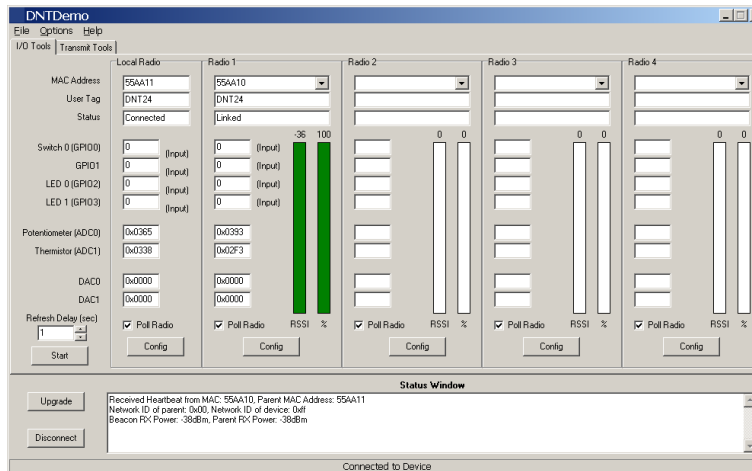


Figure 7

11. Next press the Start button using the default 1 second Refresh Delay.
12. The Demo will display data on the Remote in the Radio 1 column, including bar graphs of RSSI (signal strength) and percent packet success rate, as shown in Figure 7. Adjusting the pot on the Remote can be observed in the Potentiometer (ADC0) data. You can change the Refresh setting from the drop down menu at the bottom left. Adjusting the pot on the base can be observed in the Potentiometer (ADC0) data in the Local Radio column.

If any difficulty is encountered in setting up your DNT24DK, contact Murata's module technical support group. The phone number is +1.678.684.2000. Phone support is available from 8:30 AM to 5:30 PM US Eastern Time Zone, Monday through Friday. The E-mail address is tech\_sup@murata.com.

For more details on the DNT24 module and to learn more about its features and capabilities see the Integration Guide on the CD.