

# μSmartDigi™ Cables

## TNC-X External Connectors

There are six connectors on the rear of the μSmartDigi-TNC-X:

DC Power	Coaxial Plug 5.5mm OD, 2.5mm ID, 10mm Long (Radio Shack N, 274-1573)
Main Serial Port	DB-9R DCE
Aux Serial Port	3.5mm Stereo Jack
Receive Audio	3.5mm Mono Jack
Transmit Audio + PTT	3.5mm Stereo Jack
Optional USB Main Port	USB

DC power is applied to the 5.5mm plug, positive on the center pin. Using a well heat sinked 7805 regulator the DC input voltage can approach 35 volts. The minimum is about 7.5 volts.

The μSmartDigi has two jumpers at J3 to select how the μSmartDigi's transmit and receive serial data is connected to these external connectors. These jumpers basically connect the separate transmit and receive to one or either of the Main (DB-9R or USB) or Aux (3.5mm Stereo Jack) TNC-X connectors.

When using the Digipeater, one does not need any external serial connections. However, you can connect a GPS to the Aux configured for the receive data to the μSmartDigi. You can also connect a PC using the DB-9R for transmit data so an application such as Hyperterminal can monitor the activity. If both GPS and Monitor are connected you will need to split the transmit and receive connectors, one on Main and one on Aux, by using the μSmartDigi J3 jumpers.

When using the D-Gate, one must split the ports to connect a monitor because one port must be connected to the D-STAR radio serial output.

To load firmware or download Configurations or Rules you must use a non-split configuration and connect both transmit and receive data to one of the connectors and then connect it to your PC. For this, the most convenient is the DB-9R. Simply connect a straight cable to it from your PC.

## Mating with Icom D-STAR Cables

The Icom ID-800 uses a DIN to DB-9R DCE cable for serial data. Its part number is OPC-1384.

Other Icom radios such as IC-91A/D, V82 and U82 use a 2.5mm Stereo Plug to DB-9R DCE cable for serial data. Its part number is OPC-1529R.

There are three methods one can mate these cables to the μSmartDigi:

### 1. For use with the Icom DB-9R DCE cable

The Icom DB-9 cable terminates as a DCE with a DB-9R (female). To construct an adapter cable for the TNC-X Aux Stereo Jack use a 3.5mm Stereo Plug wired to a DB-9P (male). Depending on what cables one already has there are two ways to do this by constructing one of these with the following pin mappings:

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A. For use with a Null Modem adapter or cable

<u>DB-9P</u>	<u>3.5mm Stereo Plug</u>
2	Tip
3	Ring
5	Sleeve

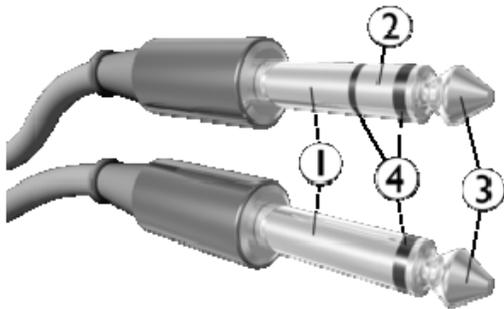
B. For direct connection (without a Null Modem adapter or cable)

<u>DB-9P</u>	<u>3.5mm Stereo Plug</u>
3	Tip
2	Ring
5	Sleeve

2. For use with Icom Stereo Jack to μSmartDigi Stereo Jack

Icom radios use a 2.5mm Stereo Jack for serial data. Construct a cable with the following pin mappings:

<u>2.5mm Stereo Plug</u>	<u>3.5mm Stereo Plug</u>
Tip	Tip
Ring	Ring
Sleeve	Sleeve



- 1. Sleeve**
- 2. Ring**
- 3. Tip**
- 4. Insulation**

## Icom Programming cables

Icom uses different cables and radio interfaces to perform the radio configuration and programming. The Icom serial data cables previously described cannot be used for programming.

The 3.5mm to DB-9R cable is part number is OPC-478.

The 3.5mm to USB (with a small converter box inline) is part number OPC-478U.