

**Q. I don't have any of your fancy testing equipment - how do I set up your modem to my radio?**

**A.** Without access to proper communications test equipment many parameters cannot be easily measured for fine tuning the integration process.

The following method however, while not optimal, will often give acceptable results.

Effective data transfer requires that the Nexion modem be properly matched to the transceiver unit. Many manufacturers provide access to the audio, busy and PTT signals by the way of an accessories connector and this is where we must start. Contact the manufacturer of the radio and enquire about available option boards and accessory connector cable assemblies.

When integrating a Nexion modem with a transceiver, if using both radio and its manufacturers approved data interface, no modification to the radio is normally required.

To integrate a Nexion modem to a radio, you will need:

A CRO

A computer with terminal program (Hyper Terminal, Tera Term etc.)

2 or more radios with modems for each.

**Prepare**

- Set up 2 radios so you can talk with them.
- Pick one as the sending unit to start with.

**Setting input levels**

- Drive the sending radios microphone input to it's maximum (loud noise / whistle etc.) and, using a CRO, measure the output voltage of the option board / cable of the receiving unit. Because the sending unit was driven to use its maximum deviation, the voltage measured at the receiving radios data option output is the maximum reference voltage.
- Apply a 1500Hz audio test tone from the modem connected to the sending radio (AT&T3).
- If the radio is fitted with a method of input adjustment\*, modify both it and the modems register S115 to achieve a voltage output of approximately 60%-70% of the previously measured maximum voltage. The 30%-40% spare is to provide enough 'headroom' to avoid clipping the signal. Any distortion or clipping will reduce data performance of the modem.
- Using a CRO examine the signal and check for any distortion to the signal. Fine tune by adjusting the sending modems S115 register and the radios input attenuator\*.

**Setting output levels**

- Send a test tone from the sending modem (AT&T3).
- At the receiving modem, using the output of AT%Q quality reports, adjust S114 and the radios output attenuator\* to achieve a level reading of 900 - 1000.

Configure other units in the same way.

**Setting Lead in duration S111**

Once data transfer is reliable the lead in delay can be optimized.

- Reduce the default setting, transfer some data and examine the error count (AT%Q).
- Continue reducing the S111 setting and testing until errors are introduced.
- Set S111 to a higher number.

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\* Manual attenuation is not a standard option on some radios.