

VA3TO v2.1 LINKING INTERFACE ***Hookup, Configuration & Use***

Hookup

Connect the board to your computer and link radio as shown in the Hook-up Diagram, using the appropriate length cables with 1/8" (3.5mm) plugs. If you make up your own cables using stereo plugs, use the "tip" and the outermost "sleeve", leaving the middle "ring" unused. Wire the hot side to the tip and the return to the sleeve.

Echolink can accept a hard COS for RX Control if the necessary signal is provided. This offers sure sensing of the received signal, virtually eliminating drop-out and other "falsing" experienced when using the normal VOX RX Control. Version 2.1 of the VA3TO Linking Interface provides a COS input for this purpose. The COS input (J9) connects to opto-isolator U5. The output of the opto-isolator controls the CD* line on the serial port (via level conversion through U3).

The input signal to J9 should be active-Hi (Hi when squelch is open) at 2 to 5vdc. Connect the Hot (signal) to tip and return (rig ground) to sleeve. If signal level pre-conditioning of the COS output from the radio is required, resistor R21 may be changed, or it may be removed and wired out to the prototyping area where the necessary circuitry can be built. A "COS Breakout" jumper is also available on the output side of the opto-isolator if logic inversion circuitry is required. Cut the pcb jumper between the two pins under TP2 (bottom side of board) and wire it out on the top side to the prototyping area. Very few radios have a ready COS signal brought out to a connector. Most radios will require the COS signal to be picked off from within. Some have a "Squelch Open" type indicator that you may be able to use, others will require the signal to be picked off at the squelch control or from some other point that switches when the squelch changes state. If you are unsure of where to look for the appropriate signal, get an experienced person to help you or stick with VOX operation for RX Control. (Modify radio at your own risk.)

PTT is supplied by a darlington pair opto-isolator. Wire J8 to the PTT of your radio (usually at the mic connector). Connect the Hot (PTT) to tip and ground to sleeve.

The Auxiliary Relay contacts (AUX CTL) are brought out to J7. These contacts can be used to control a signal or to switch power or audio on a peripheral in your shack. These are isolated Normally-Open "dry" contacts coming off relay K1. This relay is actuated by the DTMF "C" (on) and "D" (off) keys from a remote radio accessing the link.

All audio connections can be made directly using cables with 1/8" plugs on each end.

Connect P1 on the interface to the computer serial port using a 9 pin serial cable.

Use a 12 to 15vdc, 300mA (or better) power cube with a centre positive 2.1mm barrel connector plugged into J1.

Configuration

With the interface appropriately connected to the radio and computer, apply power to J1.

Interface Configuration in Echolink

Run the Echolink software on your computer and go into TOOLS - SYSOP SETTINGS. Configure these settings as follows:

RX Control

- If you are using a hard COS signal, set the RX Control to "Serial CD". Otherwise, leave it set to "VOX".

TX Control

- Set the TX Control to ASCII Serial. (RTS/DTR can be used but the PTT LED will not operate.) Select the appropriate COM port as applicable.

DTMF Decoder

- Leave the DTMF Decoder set to External.

Set your callsign and all other parameters as applicable.

Adjusting Audio Levels

The best way to adjust the audio settings is to get a "radio check" by making an Echolink connection through the link using your HT. Set the RX and TX Audio Adjustment pots on the interface to their mid position. Use the "VOLUME CONTROL" and "MICROPHONE" sliders in the Windows™ Audio Control panel in conjunction with the RX and TX Audio Adjustment pots on the board to obtain optimum, undistorted audio. This is a trial-and-error task that is different for each computer sound-card/radio set-up, so there are no hard and fast settings that work in all cases.

Using Echolink

Consult the Echolink web site and documentation for specific operating instructions of the software.

Digital Mode use

The VA3TO v2.1 Linking Interface can also be used as a passive sound-card interface for Ham Radio digital modes such as PSK-31, SSTV, RTTY etc. Various programs for these modes are available on the Internet. No changes to the hardware or set-up are required.