

KPA1500 Connections to the Icom IC-7610

Application Note

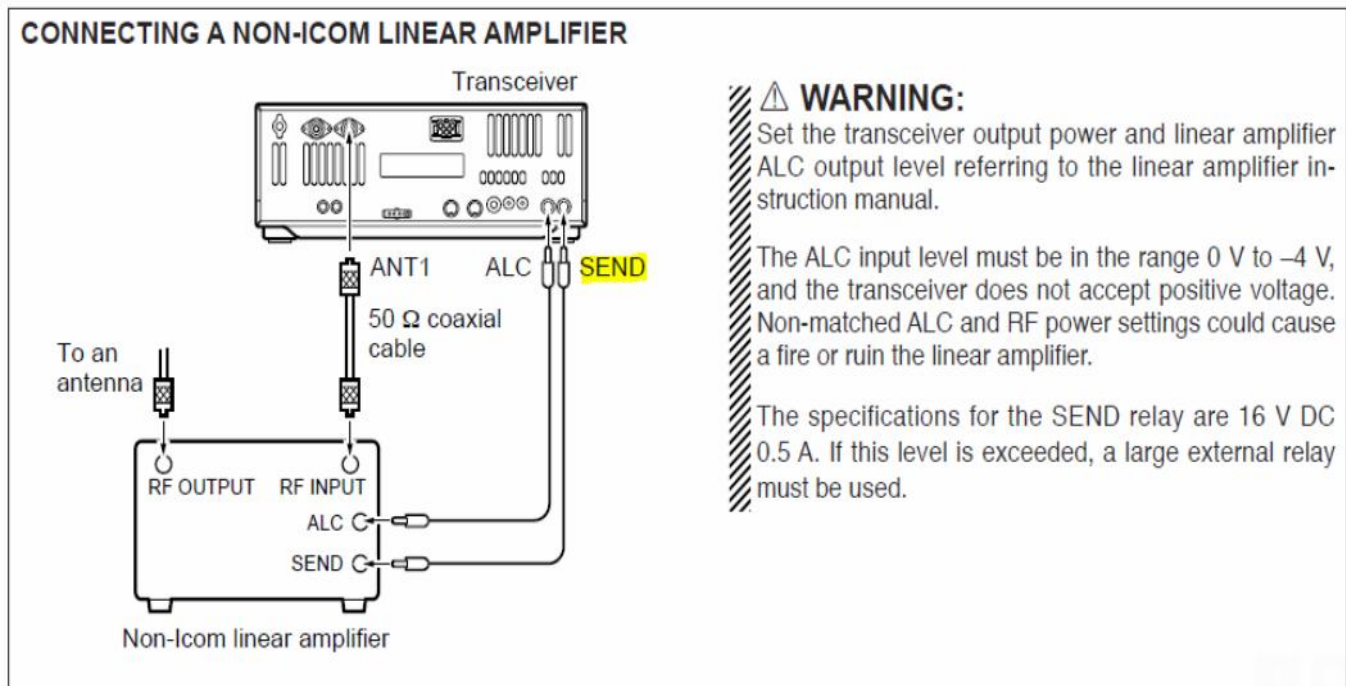
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Background

Many operators want to use the KPA1500 with their Icom transceiver. This Application Note will discuss how this can be done with the Icom IC-7610 radio. Many other Icom radios can likely be adapted to work with the KPA1500 using the techniques described here.

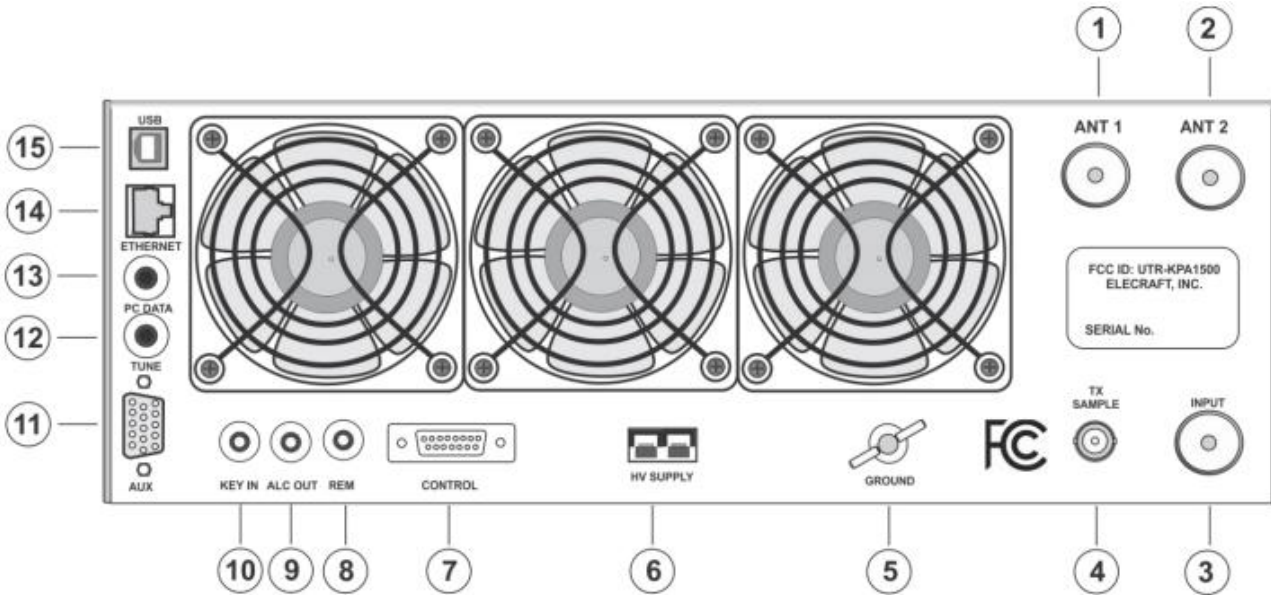
Connecting your radio to the KPA1500

You will be connecting the KPA1500 to the SEND jack on the rear of the Icom transceiver. Here's the wiring diagram from the Icom IC-7610 Owner's Manual.





It will then connect to the KPA1500's KEY IN jack (Item #10 in the image below) from the KPA1500 Owner's Manual. While the KPA1500 supports it, Elecraft does not recommend the use of ALC unless the transceiver vendor specifically recommends it.



Connecting the CI-V system

The KPA1500 includes the ability to read the VFO frequency directly from the Icom radio using Icom's CI-V communication system.

After Training the Tuner built into the KPA1500, it will be able to pre-select the tuning elements needed directly from memory as you QSY between bands or even frequencies within a band.

To make this work, use the Elecraft cable, (Elecraft part number E980229) to the XCVR SERIAL port on the KPA1500 and the Remote port on the Icom radio.

Setting up the CI-V connection in the KPA1500

In this section, we will be configuring the KPA1500 and the Icom radio so that the KPA1500 can read the VFO frequency automatically as you change bands and frequencies.

Please find the menu items below and make the designated changes.



ELECRAFT

	Menu item	Value
KPA1500	RADIO TYPE	ICOM
	SERIAL SPEED XVCR	4800, 9600 or 19200
ICOM radio	CI-V Baud Rate	4800, 9600 or 19200 <i>Must agree with KPA1500 setting</i>
	CI-V Output (for ANT)	ON

Note: All other Icom CI-V menu settings are assumed to be set to their Defaults as documented in the IC-7610 Owners Manual



Procedure for Training the Tuner of the KPA1500

Overview

We will be stepping through each band where you have an antenna connected to the KPA1500, where you'll selecting the top, bottom and places in the middle of each band where you expect to operate. At each of these points, we will be causing the Icom radio to emit a steady-state, CW RF signal for the KPA1500 to use while it executes a Full Tune Cycle. Since the KPA1500 contains an Automatic Tuner, it will remember the settings it finds at each of the points in the band. This is referred to as 'Training the Tuner'.

The following sequence assumes that the Icom and KPA1500 are connected as discussed above.

Set up

- On the Icom, set it to emit a constant 25 watts in CW mode
- On the KPA1500, Tap the ANT button to select the appropriate antenna for the selected band. The ANT LED will light solidly indicating the antenna port selected.
- On the Icom radio, select the the appropriate band. Then, adjust VFO A to the lowest spot in that band where your antenna will work.

For each VFO Setting perform the following to Train the Tuner in the KPA1500

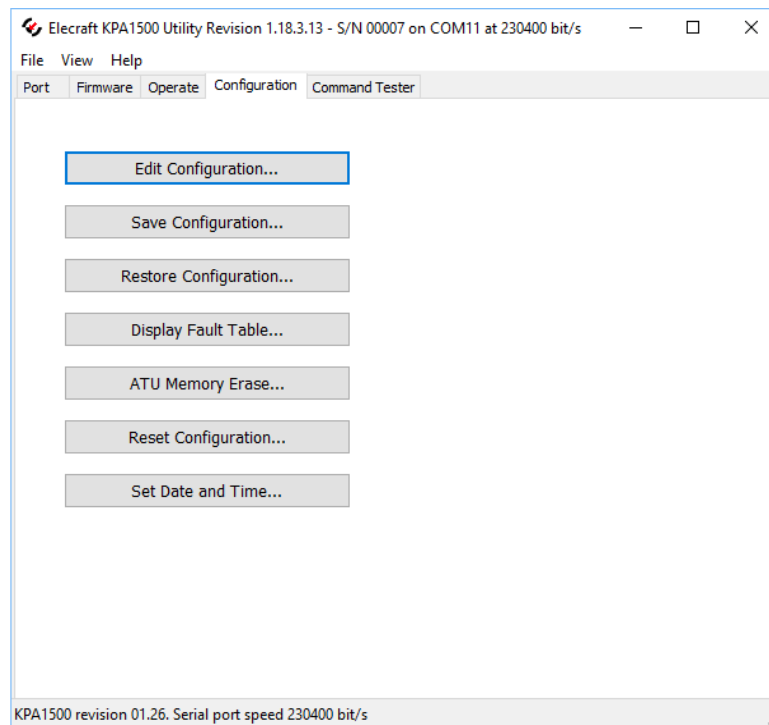
- Tap the ATU TUNE button. The ATU IN light will begin to flash to indicate it is waiting for RF from the transceiver.
- Apply 25 to 50 W of transmit drive. You will hear the relays searching for a match.
- When the relays stop, the ATU IN LED stops flashing, indicating Full Cycle Tune success.
- The resulting match is automatically stored in the appropriate memory bin.
- If a match cannot be found, the red FAULT LED illuminates, NO MATCH is shown on the LCD, and no settings are stored. The ATU can create a match for SWR as high as 10:1.
- If no match is found, make sure the correct frequency band and antenna are selected.
- You can use the KPA1500 Utility Operate panel to observe Full Cycle Tune activity and transmission line/ antenna system SWR.
- If you have multiple antennas on one or more bands, repeat this procedure for each antenna port and frequency combination. The KPA1500 tuner can remember settings for both antenna ports separately.



How do you know how many times per band is needed to fully train the tuner? See the Appendix of the KPA1500 Owners Manual for a table of all the frequencies to make it easier to choose the right ones for your station.

Make it Easy for Your Tuner to Remember what it was Trained to Do

Once you have fully trained your KPA1500 tuner on all bands and all Antennas, you can save your work using the KPA1500 Utility. Go to the Configuration tab in the Utility and select Save Configuration to complete your tuner's training. Here's what it looks like.



This completes the setup of the KPA1500 with the Icom IC-7610.