

# TCI-1

## TUNER INTERFACE

*Operator's Manual*  
Version 4.0

Icom and SGC – A perfect match every time

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The TCI-1 Tuner Control Interface provides full compatibility between an Icom or Allinco radio and an SGC™ Smartuner like the SG237. With the TCI-1, all of the radio's tuner features will function as though it had an Icom AH-4 tuner attached.

### Connecting the TCI-1

Wiring up the TCI-1 is a simple matter of connecting it between the tuner control wires and the 4-pin tuner connector on the rear of the radio. A short cable with a 4-pin molex connector is ready to plug into the radio's connector. All you need to do is to connect the four (or five) wires from the tuner to the interface PC board terminal strip and set the jumper plug at J3 according to the type of SGC tuner.

About 1/8-inch of insulation should be stripped from each of the four (or five) tuner leads. Light tinning of the leads is recommended. You can also slip a piece of insulation over the four leads if desired to keep them bundled together.

Remove the two screws holding the rear panel of the TCI-1 to the cabinet. Slide the rear panel and plastic bezel off the cabinet and the PC board part way out in order to gain access to the terminal strip.

If your tuner has separate reset and hold control wires (SG-231/235) then pull the jumper from J3 on the PC board. If your tuner uses a single reset/hold control wire (SG-230/237/239) then ensure that the jumper plug is in place.

Next push the appropriate four (or five) leads from the tuner cable through the empty grommet. **Be sure to check the wire color code with your tuner manual in case SGC makes changes.** Connect the tuner wires to the terminals of the PC connector labeled "TUNER" as follows.

<u>PC Pin</u>	<u>4-Wire Color</u>	<u>5-Wire Color</u>	<u>Signal</u>
1	White/Black	Green	TUNED
2	White/Red	Blue	RESET
3	Red	Red	+12VDC
4	Black	Black	Ground
5	not used	White	Hold

To do this, you will loosen the screw on the terminal block, insert the bare wire end into the block, and tighten the screw onto the wire.

Now slip the PC board back into the cabinet, making sure the switch and LED protrude through the holes in the front panel. Slide the rear panel and bezel along the wires into position on the cabinet. Reattach the panel to the cabinet using the two screws. Be careful not to over-tighten and strip the screws.

**Note: The tuner connector is protected by a 4A fuse located inside the radio. Shorting the +12V lead with the radio on will blow the fuse, killing power to the interface and the tuner. It will then be necessary to open the radio case to replace the fuse.**

### Operation

Ensure that the radio's menu item 27, A-TUNE STRT is set to its default OFF setting. If you need to automatically tune in response to a high SWR, let the SGC tuner do that by placing the Locked/Normal switch in the Normal position.

### Locked/Normal Switch

In the Locked (down) position the tuner will not attempt to retune in response to a high SWR. You may want to select this setting if temporary changes in SWR as the whip moves about during vehicle motion is causing many retune attempts and erratic operation. The locked position will not inhibit tuning when commanded from the radio so it can be left in the locked position at all times.

The Normal position permits the tuner to automatically retune any time the SWR is high during a normal transmission.

### The Fault LED

The Red LED on the front panel of the interface will light any time that the tuner is in bypass or otherwise not properly tuned.

### Tuner Bypass

Changing bands on the radio or momentarily pressing the TUNE button on the radio when the tuner is matched will cause the tuner to enter bypass mode. Bypass removes all tuning elements and connects the antenna directly to the input of the radio. This generally provides a better receive signal strength than routing the signal through a tuner that is not properly set so it is a good starting point when making a major change in frequency. You can remain in bypass until you are able to transmit a tune signal without causing interference to other stations. The tuner also enters the bypass mode each time it is powered up by turning on the radio.

### Tune From Memory

When commanded to tune, the tuner first checks to see if it has a solution saved in memory for that frequency. If so, it will quickly pull the settings from memory rather than going through the more lengthy tuning process. If the resulting SWR is under 2:1 then the tuner will retain these settings. If you are not satisfied with the resultant SWR, perhaps because there has been a small change in the antenna environment, you can force a retune (SG-237 only). Place the tuner in bypass and then tune again on the same frequency. This is done by pressing and holding the TUNE button for two seconds. This time the tuner will do a full retune and then save the new results in the memory bin for that frequency.

### Tune

You can manually initiate tuning by pressing and holding the TUNE button on the radio for two seconds. If the tuner is already in bypass then a quick press of the TUNE button will also initiate tuning. The radio will emit a tone from its speaker during the tuning process.

Pressing the TUNE button while the system is tuning will cancel the tune signal and put the tuner in bypass.

If you set the radio's menu item 28, PTT TUNE to ON, then the radio will automatically initiate retuning on the first press of the microphone PTT button after a frequency change of 1% or more. Using this feature of the radio is highly convenient.

When tuning from memory, the total "on the air" time will typically be about 500mS. Full retune times will vary from about 2 to 5 seconds, depending on the frequency and the antenna. Lower frequencies usually take longer to tune than higher frequencies.

### Alinco

Alinco radios such as the DX-70 and DX-77 do not have the bypass or PTT TUNE functions. Be sure to place the PC board jumper at OPT-B when using the interface with an Alinco radio.