Universal QSYer

Direct Frequency Entry for ICOM, Yaesu, and Kenwood Radios

Configuration and Operating Manual

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Thank you for purchasing the Universal QSYer. This product will allow you to directly enter frequencies into nearly any ICOM brand radio.[*] It will also work with the Yaesu FT-100, FT857, FT897, FT-817 and FT-840 models. It will also work with older Kenwood models such as the TS-440.   In addition to direct frequency entry, the QSYer will also select the most likely operating mode for any particular frequency you select. It will allow you to toggle between the two VFO's in your radio. It will also optionally announce the current frequency and operating mode of the radio in Morse code.*** Additional functions are also available depending on your radio as follows:

ICOM and Kenwood – The keypad can also call up any memory in the radio by memory number. For ICOM radios that support computer control of the speech

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[*] Exceptions are the 731 and 735. Certain radios, such as the 728 support all functions except toggling between VFOs.

function, the keypad will also kick off the voice announcement of the radio's frequency and mode.

Yaesu – The keypad can also change operating modes, change the repeater offset and step through the various filters that you have installed in the radio.[**]

Configuration Instructions

If you are using the QSYer with an ICOM or Kenwood radio, you will need to install a 9 volt battery before screwing the back on the keypad. The keypad draws very little current and a single battery should last for months, if not years. If you are using the keypad with a Yaesu radio, no battery is required.

First, a word of caution about Yaesu radios. I have found that the computer ports on Yaesu radios are extremely susceptible to any signals that might be interpreted as data. Even plugging in or unplugging the keypad while the radio is on can result in unexpected and undesired results. If you send data to the FT-817 when the keypad is in ICOM mode, for example, the radio will hang up. No damage will be done, but you will have to cycle the radio's power off and on by unplugging the battery. I recommend that you never plug or unplug the keypad without first turning off the radio.

Ensure that your radio is set up to communicate at 4800 baud or 9600 baud. The Yaesu FT-100 and most Kenwood radios are permanently set to 4800 baud and cannot be changed. The baud rate on the FT-817 or newer ICOM radios can be checked and changed from the radio's configuration menus. On some older radios, it is necessary to set internal jumpers or switches in order to set the baud rate.

Currently, the keypad will work with all older Kenwood radios as well as ICOM and Yaesu, including the TS-440. The keypad will not currently work with the newer Kenwood radios, such as the TS480 and TS570 because they have RS-232 interfaces built into them. I am currently working on a modification that will permit these radios to be controlled as well. As a guideline, if your Kenwood radio connects directly to your computer, the keypad will not work. If your radio required something like the Kenwood IF-232C interface, the keypad will work. Note that this interface is NOT REQUIRED AND SHOULD NOT BE USED with the keypad, I mention it only to help you determine whether your Kenwood is supported by the keypad or not.

Note also that the TS-440 was not shipped with a computer interface built into it. It required that two chips be added that were part of the "IC-10" kit. There are a CD4040 and an 8251A. Currently both of these are available from www.jameco.com for under $5 for the pair.

[**] Filter stepping is not available on the FT-817.

[***]Frequency announcement not available on the FT-100

If you are using an ICOM radio, you must also check to see what the CI-V address of the radio is. If it is one of the newer radios (such as the 706, 746, 756, etc.) it can be checked from the radio's configuration menu. Note that if the menu says 48h, for example, this means that the address is 48. For older radios, it is not possible to change the address, but the radios manual will tell you what the address is.

If your ICOM radio has a menu item that says something like "CI-V 731 mode," make sure it is set to "off". Also be make sure that the CI-V transceive setting is set to "off". This will cause the battery in the keypad to last longer.

Make sure the keypad is hooked to the proper jack (the one for computer control) on the radio. Note that you will need a different cable for ICOM radios than for Yaesu and yet a different cable for Kenwood. For now, leave the radio turned off. Now press the # key once, just to ensure that the keypad is in a known state.

Press the following key sequence to configure the keypad:

817   for the FT-817.

100   for the FT-100.

0XX   for any ICOM radio, where XX is the CI-V address of the radio.

Because ICOM addresses are specified in hexadecimal numbers, you may run into a problem if the CI-V address that you want to use contains the hexadecimal digits "A", "B", "C", "D", or "E", because this keypad does not have 16 keys. To specify one of these digits, press the # key first and then 1 for A, 2 for B and so on. So, for example, if you want to specify the address 46, press the following keys:

046

but if you want to specify the address 2E use the following:

02#5   (where #5 represents the E)

300   for Kenwood TTL Models (e.g. TS-440)

Note: This configuration procedure only needs to be performed the first time you use your keypad with your radio. The configuration will be remembered by the keypad, even if the battery is disconnected. If you want to use the keypad with more than one radio, you can do so by simply reconfiguring the keypad whenever you switch between radios. Verify that the radio is working properly by entering a frequency and pushing the # key.

The keypad can be set up to operate at either 9600 baud or 4800 baud (the FT-100 and most Kenwood radios will only support 4800 baud, though).

To place the keypad in 4800 baud mode enter:
**480

To place the keypad in 9600 baud mode enter:
**960

Note: You need not set the baud rate if you are using the keypad with a Kenwood radio. It will automatically be set to 4800 baud.

Operating Instructions

To enter a frequency, simply enter the digits (using the star key as a decimal, if needed) and finish by pushing the pound (#) key. You may enter the frequency either in kilohertz or megahertz, the keypad is smart enough to figure out which you mean. Here are some examples:

3*725#   = 3.725 MHz
3725#   = 3725 kHz
14250*5# = 14250.5 kHz
146*64#   = 146.64 MHz
0*730   = 730 kHz
14   = 14 MHz

Note that you cannot enter a star as the first character. If you wish to enter a frequency starting with a decimal point, enter a zero first and then the star.

Pressing the B key will toggle between VFO's (note this does not work on a few of the older ICOM radios). Pushing the C key will cause the radio to step through its operating modes.

The functions of the A and D keys differ depending upon the radio in use. On ICOM and Kenwood radios, the A key can be used to access the radio's memories. To do this simply press A followed by the two digit memory number. When accessing a one digit memory, use a zero for the other digit. For example, to go to memory number 1 press "A01". Do not press then # key after you enter the memory number. To return to VFO mode you can either enter a frequency, or simply press # to go to the last frequency that the VFO was on. When you are in VFO mode, you can go to the last memory that was in use by pressing the A key three times in a row.

Yaesu's CAT computer control scheme does not allow computer access to the radio's memories (don't blame me, this was Yaesu's decision). As a result, there is no way to access the Yaesu memories from the keypad. On the Yaesu FT-100 the A key can be used to step through the filters installed in the radio. However, you will only notice a change if you have that particular filter installed. The CAT command set on the FT-817 does not support this function, so on the 817, the A key is unused.

On ICOM radios pressing the D key twice kicks off the speech synthesizer to announce the operating frequency if the speech option is installed in your radio and if your radio supports this feature via computer control. It appears that only the newest ICOM radios support this function. So far, this has been confirmed to work on the IC-746 and the IC-756PRO. This feature was specifically incorporated to assist blind operations.

On the Yaesu radios, pressing the D key twice allows you to step through the + , - , and simplex repeater offsets when you are operating in repeater band.

You can get also use the D key to get a frequency and mode readout in Morse Code. Pressing D followed by 1 will give the frequency's megahertz digits. Pressing the D key followed by the 2 will give the frequency's kilohertz digits. Pressing the D key followed by the 3 will give the frequency's hertz digits. Pressing the D key followed by the A key will give the operating mode.

If you find that the keypad hangs up or quits working, you can recover it by pushing the reset button. Just tap the button, don't hold it down for an extended period of time. I expect that you will never actually need to use this button, it is provided in case all else fails. Pressing this button will not affect the keypad's configuration… you do NOT need to redo the configuration routine.

Thank you again for your purchase. If you have any problems, you can contact me by email at:

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