

*How do I?*

*An occasional series*

*This week: Taming the Yaesu FT857D for Digital Modes using CAT Control*



Some articles take a while to write. This one started about 6 months before November, 2018.

Disclaimer: The processes described below worked for this writer. Your mileage may vary!

We generally write in generic terms, using makes and models for reader reference only. In this case, specific data is not readily available, and some of the sources on the internet may be outdated. All opinions are the author's.

The Yaesu FT-857D and its big brother, the FT-897D are classic radios. The FT-857D is still in production. The FT-897D was retired from the Yaesu line up a couple years ago and has been replaced by the FT-991A (current production). Both the FT-857D and FT-897D entered the Yaesu lineup circa 2002.

The 857D is designed as a mobile (very compact, removable control head) 100 watt HF/VHF/UHF radio. It has wide-band receive coverage so if the ability to listen to commercial FM radio or railroad communications in the 160MHz land mobile band is a must have+, the 857D has you covered. It covers amateur radio bands 160-10 meters (including 60M) as well as 6 and 2 meters, and 70cm.

I forget when I bought mine, but it was the main shack radio for a couple years. I made lots of contacts with the 857D and I loved everything but the menus. Being compact, the menu buttons are tiny and many options are in menus. The manual never strayed far from it! This rig has become my **go to** portable radio. The radio itself, power supply, antenna tuner, external sound card, headphones, and various cables fit neatly in a metal carrying case.

What finally caused me to go from saying "wish I could get the guts of the 857D in the case of the Icom 718+ to actually buying a real desk top radio was FT8, one of the digital modes in the WSJT-X software suite. My Tigertronics Signalink USB sound card worked well with the 857D. But when WSJT-X went to version 1.9 and essentially required the use of CAT

(Computer Assisted Transmitter) control, I struggled to get the 857D to work. It seemed like no matter what I tried, or how carefully I followed online instructions, it failed. After about 6 months or so I gave up and bought a new radio. Yes, FT8 has sold a lot of new radios, and not all of them are Icom 7300s!

Because it is now a portable radio, not desk bound, and digital modes like PSK31 and FT8 work well in portable environments, I wanted to get the 857D to work with CAT control. This weekend I finally got to it. I was spurred by a poster on the WSJT-X reflector who said he was having issues. A couple of us tried to help him, and out of that discussion I had some new ideas.

The 857D does not have a USB or serial connection on the radio to connect it to a computer. It also does not have a built-in sound card. I knew the radio and Signalink connection worked. But how to get CAT control? One of the jacks on the rear (on the left as you face the rear) is the LINEAR jack. This is where an amplifier, antenna tuner or Yaesu CT62 CAT cable connects. I use a LDG YT-100 antenna tuner, so that jack was in use. the LDG YT-100 has an auxiliary jack just for this purpose. The jack to its right is the DATA jack. That is where the sound card connects.

I began by rounding up the usual suspects:

- Yaesu FT-857D
- Power Supply for the radio
- Signalink USB sound card with USB and 6-PIN Mini DIN cables
- LDG YT-100 tuner
- LDG radio-to-tuner auxiliary jack cable
- Windows 10 PC
- Dummy Load
- Yaesu CT62 cable
- Tripp Lite USB-to-serial converter

[Note: USB to serial converters can be temperamental. The one sold by RT Systems works well, and the Tripp Lite ones work well. I have tried cheaper, no-name, bargain store converters and no longer waste my time, I just use either the RTS or Tripp Lite converters]

Step 1 was to put the power supply for the radio, the radio, tuner, computer and sound card on a table. The table in my shack was too small to hold that much more stuff so I used a small folding table. I connected the Signalink USB sound card to the DATA jack on the radio and a USB port on the computer. The CT62 cable needed a serial connection, so one end was fastened to a Tripp Lite USB-to-serial conversion cable. The data end plugged into the LINEAR jack on the radio and the other end went to a USB port on the computer.

For the initial test, the LDG antenna tuner was left out of the circuit. The dummy load was fastened to the HF antenna connection. Everything powered up. The computer needed a minute to install all the new drivers. I use FLRIG as the radio interface between the radio and the WSJT-X suite and my N3JFP logging software. I went to set up the radio in FLRIG and it could not find any COM ports. So I went to the West Mountain Radio website and downloaded their driver package, which includes a COM-port manager. It said the radio was on COM 3. After restarting FLRIG a couple times it found it. I selected 857D as the radio in the drop down box in FLRIG and selected 4800 as the bit rate. That is what the radio was set

at, and it seems to work. I think I will try 9600 at some point. But for now I use 4800 since it works OK.

I then opened the WSJT-X suite and set it up (call sign, location, radio interface). FLRIG shows up in the F's in the radio look up field. WSJT-X opened for 20M JT9. I switched to FT8 so we had a shorter transmit cycle. The radio and FLRIG changed displayed frequencies when WSJT-X did! At this point I was ready to test. I reduced output power on the rig to 5 watts and clicked Transmit. WSJT-X began sending a CQ into the dummy load. The radio went into transmit mode and when I clicked HALT TX it stopped transmitting.

That test was successful. So I added the antenna tuner. That meant moving the dummy load to the antenna output on the tuner and adding a jumper from the HF jack on the radio to the transmitter jack on the tuner. Again, 5 watts of output power. WSJT-X, FLRIG and the radio performed as expected.

For actual field use, I expect to use a Yaesu SCU-17. This device essentially is a Signalink USB sound card (same chip set and controls) as well as a CAT control device+packaged in a small 8 ounce case. For the 857D two cable connections are required to the radio but those cables carry both CAT and audio data over the USB cable so it only ties up one USB port on your computer.

References:

[www.yaesu.com](http://www.yaesu.com)

[www.tigertronics.com](http://www.tigertronics.com)

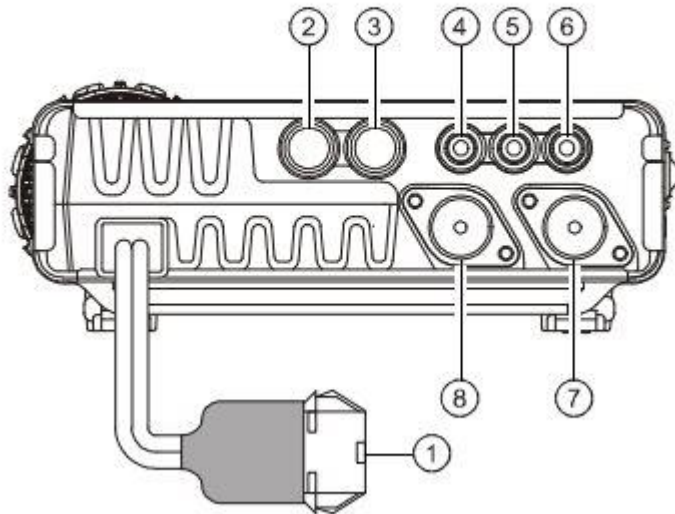
<http://www.w1hkj.com/flrig-help/>

<http://www.westmountainradio.com/>

<https://www.rtsystemsinc.com/>

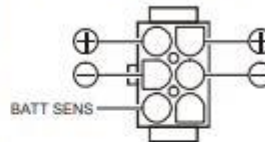
# REAR PANEL CONNECTORS

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## ① INPUT Jack

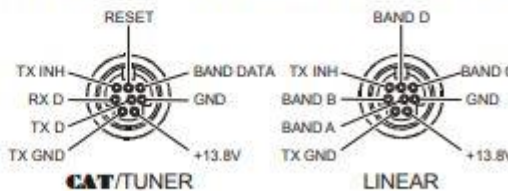
This is the DC power supply connection for the transceiver. Use the supplied DC cable to connect this jack to the car battery or DC power supply, which must be capable of supplying at least 22 Amps @ 13.8 VDC. Make certain that the Red lead connects to the Positive (+) side of the power source, and that the Black



lead connects to the Negative (-) side of the power source. This Jack also provides an Transmit Power Control terminal. If you connect pin-3 (BATT SENS) of the DC power jack to the ground, the **FT-857** automatically switches to 20 Watts (430 MHz: 10 Watts) of output power.

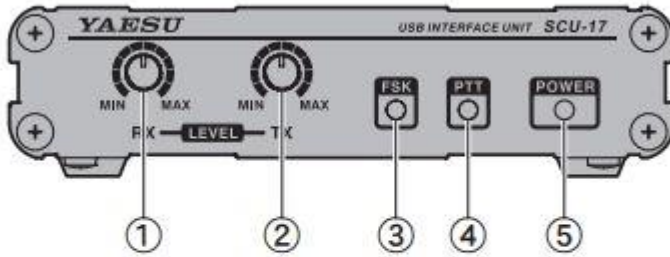
## ② CAT/LINEAR Jack

This 8-pin mini-DIN jack is used for connection to the **FC-30** External Automatic Antenna Tuner. It is also used for interfacing to a personal computer for control of the transceiver using the **CAT** system, and for interconnection to the **VL-1000** Linear Amplifier.

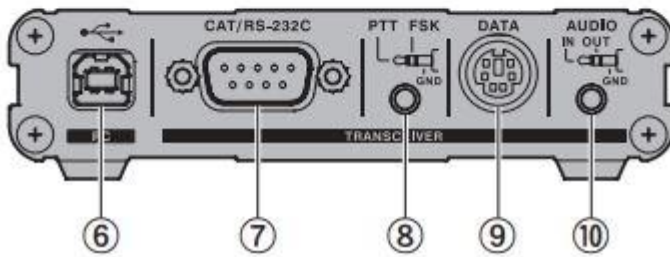


# Controls & Connections

## Front Panel



## Rear Panel



## FT-857D/SCU-17

