KENWOOD

Setting up the TS-890S for FT8 operations
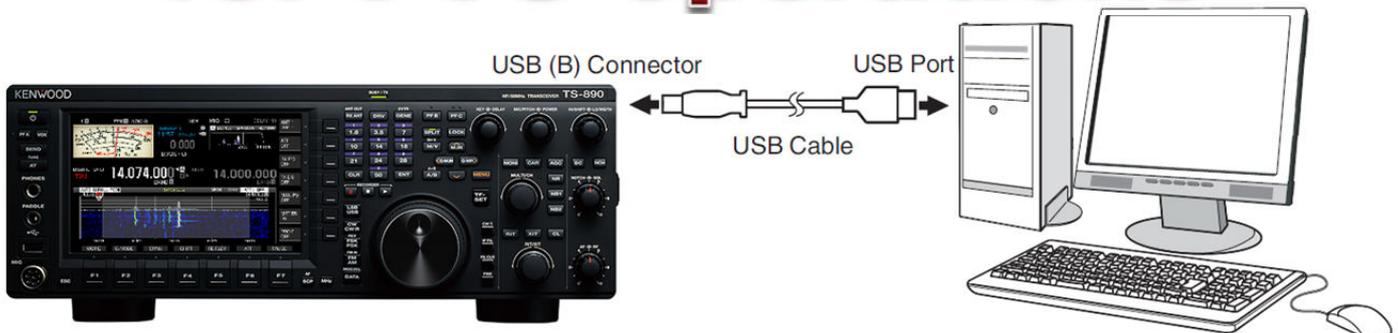
The KENWOOD TS-890S is equipped with a USB (B) connector for exchanging both of audio signals and PC control commands for performing data communication with an external device such as a PC.

To operate the FT8 data communication just using a USB cable and a PC, set up the TS-890S and the PC as follows.

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1. Download the WSJT-X software Windows version from the following web page of Dr. Joseph Taylor K1JT (the author of WSJT-X), and install on the PC.
   https://physics.princeton.edu/pulsar/k1jt/wsjtx.html

   (For data communication such as FT8 or JT65, the PC clock needs to be properly adjusted within ±1 second.)

2. Download the virtual COM port driver from the following KENWOOD web page and install on the PC for USB cable connection.
   https://www.kenwood.com/i/products/info/amateur/software_download.html

3. Connect the TS-890S to the PC using a commercially available USB cable.
   (USB cable with ferrite core would be recommended to prevent RF interference.)

4. Confirm the COM port numbers which are assigned to the TS-890S.
   There are 2 types of virtual COM port on the TS-890S, namely virtual COM (Standard) port and virtual COM (Enhanced) port. Refer to the virtual COM port driver download page above for how to identify these ports.

5. Once reset the TS-890S as follows in order to initialize the audio input/output, PC control, and other settings as follows.

   Press [MENU], then press F [RESET] to display the Reset screen. (If F [RESET] is not displayed, press F [MORE] to display F [RESET].)
   Select "Standard Reset" or "Full Reset" and press F4 [SELECT]. A message to confirm the start of the reset process is displayed. Then press F4 [RESET]. Reset is performed and the TS-890S reboots automatically.

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6. Launch the WSJT-X software and set the parameters as follows.

Click [File] → [Settings] to open the "Settings" window.
Then select the "General" tab to set your Callsign and Grid Locator.
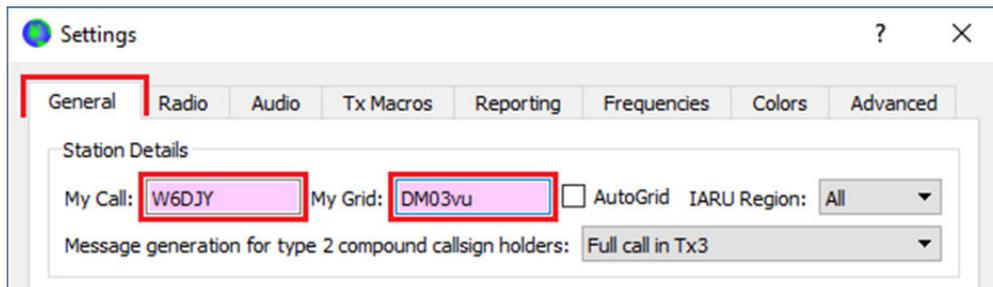
Open the "Radio" tab and set the parameters as follows.
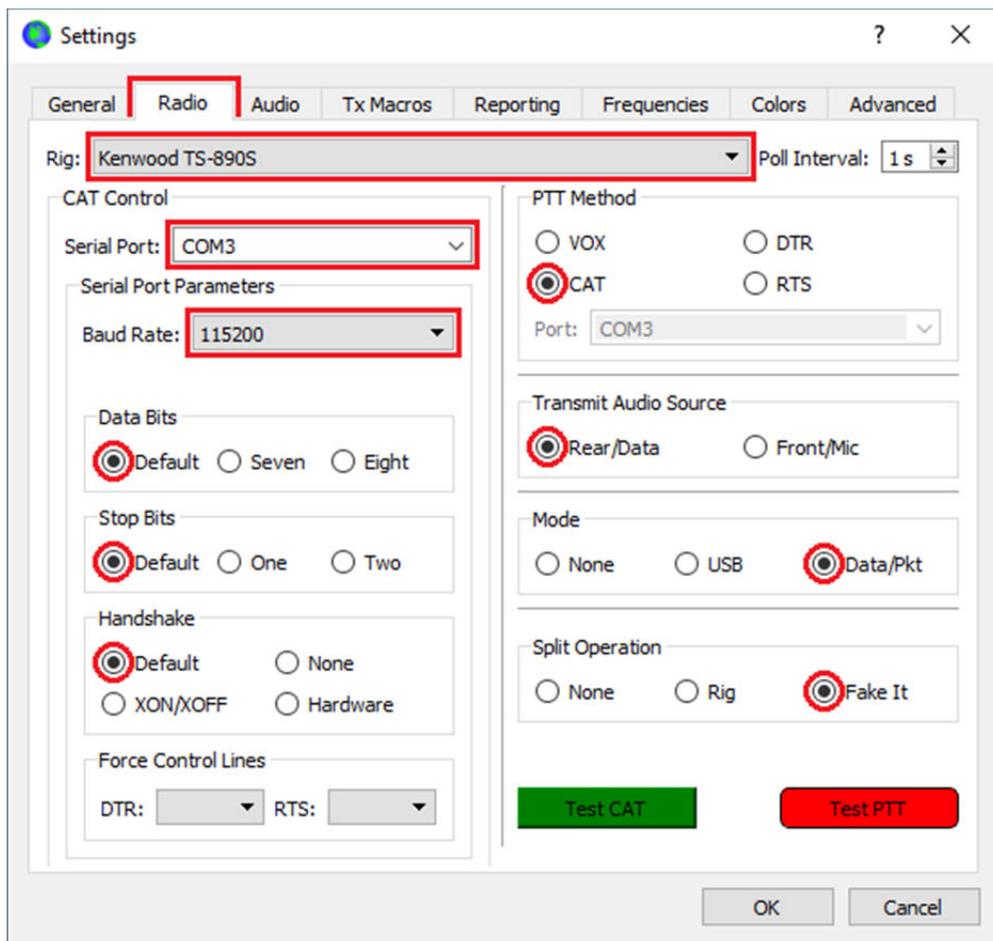
"Rig:" → "Kenwood TS-890S"
"Serial Port:" → The port number assigned to the TS-890S virtual COM (Standard)
　　　　　　port which is confirmed in the previous page step 4.
"Baud Rate:" → "115200" (TS-890S's default value. Confirm in the TS-890S
　　　　　　Menu [7-01] "Baud Rate (Virtual Standard COM)".
"Data Bits" → "Default"
"Stop Bits" → "Default"
"Handshake" → "Default"
"PTT Method" → "CAT" (The TS-890S transmits by PC control commands.)
"Transmit Audio Source" → "Rear/Data"
"Mode" → "Data/Pkt"
"Split Operation" → "Fake It" (The "Fake It" shifts the transceiver's VFO frequency
　　　　　　during transmission automatically so that the AF modulation
　　　　　　frequency is set to be in the range of 1500 Hz to 1999 Hz.
　　　　　　The fundamental is not reduced and the harmonics are driven
　　　　　　out of the TX IF filter passband.)

Open the "Audio" tab and make sure "USB AUDIO CODEC" is set as an audio device for both Input and Output.
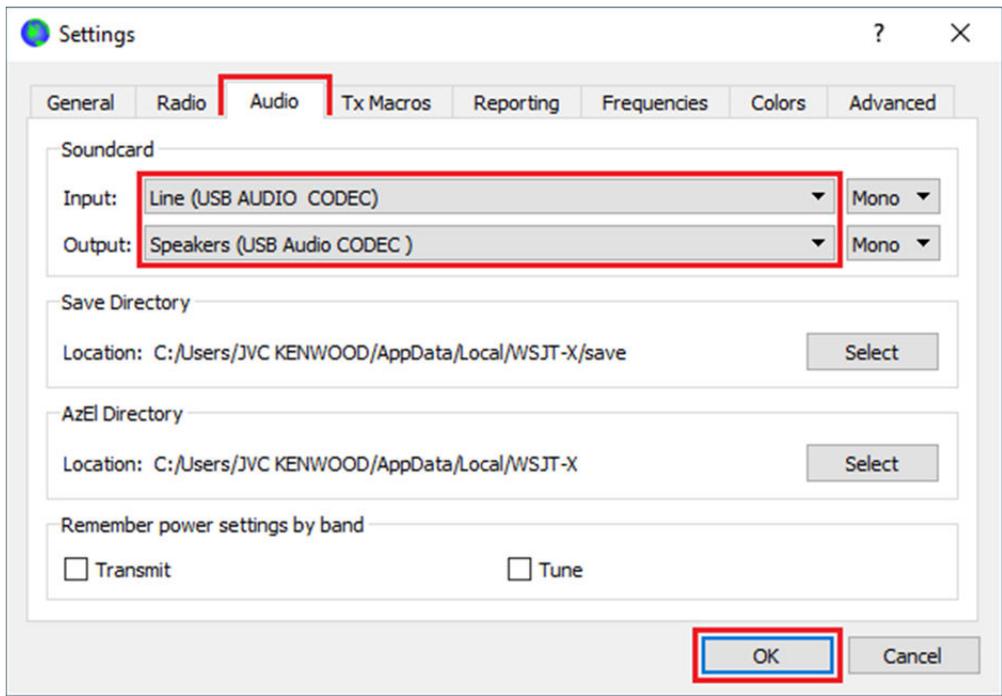
Click [OK] to apply the settings and exit.

7. Configure the TS-890S audio source input for data transmission triggered by PC commands in SSB-DATA mode as follows.
   1) Press and hold [DATA] to display the audio source input screen.
   2) Press [DATA] to switch from "Data Mode Off" to "Data Mode On".
   Check the "Rear" setting under "Audio Input" for "DATA SEND (PF)" under "TX Method".
   Select "USB Audio" (default).
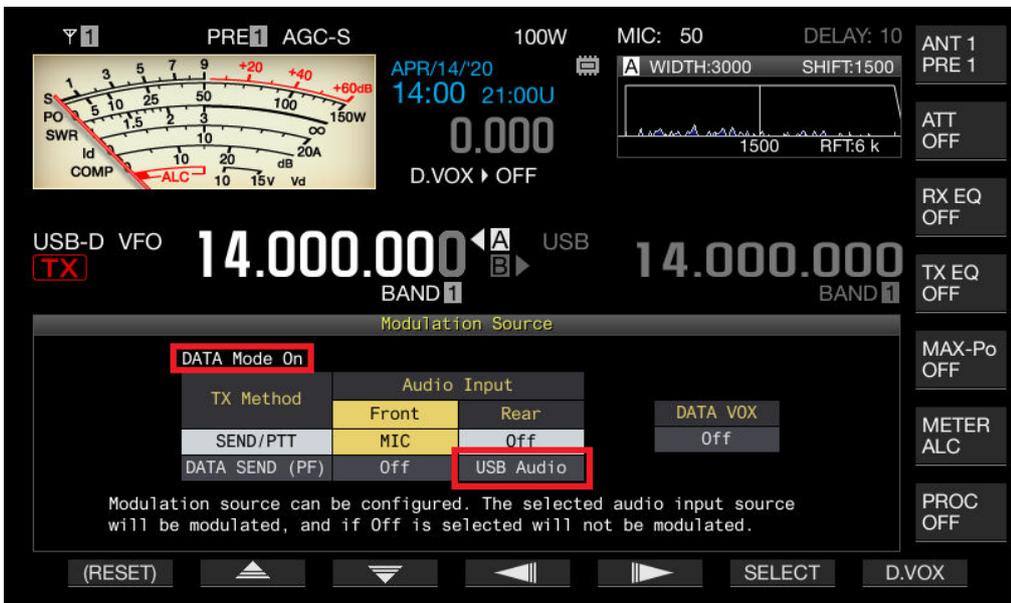
8. Configure the DSP filter control method in Menu [6-12] "Filter Control in SSB-DATA mode (High/Low and Shift/Width)". Select "High & Low Cut" to switch the RX bandwidth by cutting off the high or low frequencies within the frequency range of 0Hz to 5000Hz even in the SSB-DATA mode, in the same way as in SSB mode.

9. After turning the TS-890S power on, launch the WSJT-X software and click [Mode] to select "FT8" from the pull-down menu, and select the frequency to operate from the band selection pull-down menu. The frequency and mode (USB-DATA) are set to the transceiver.
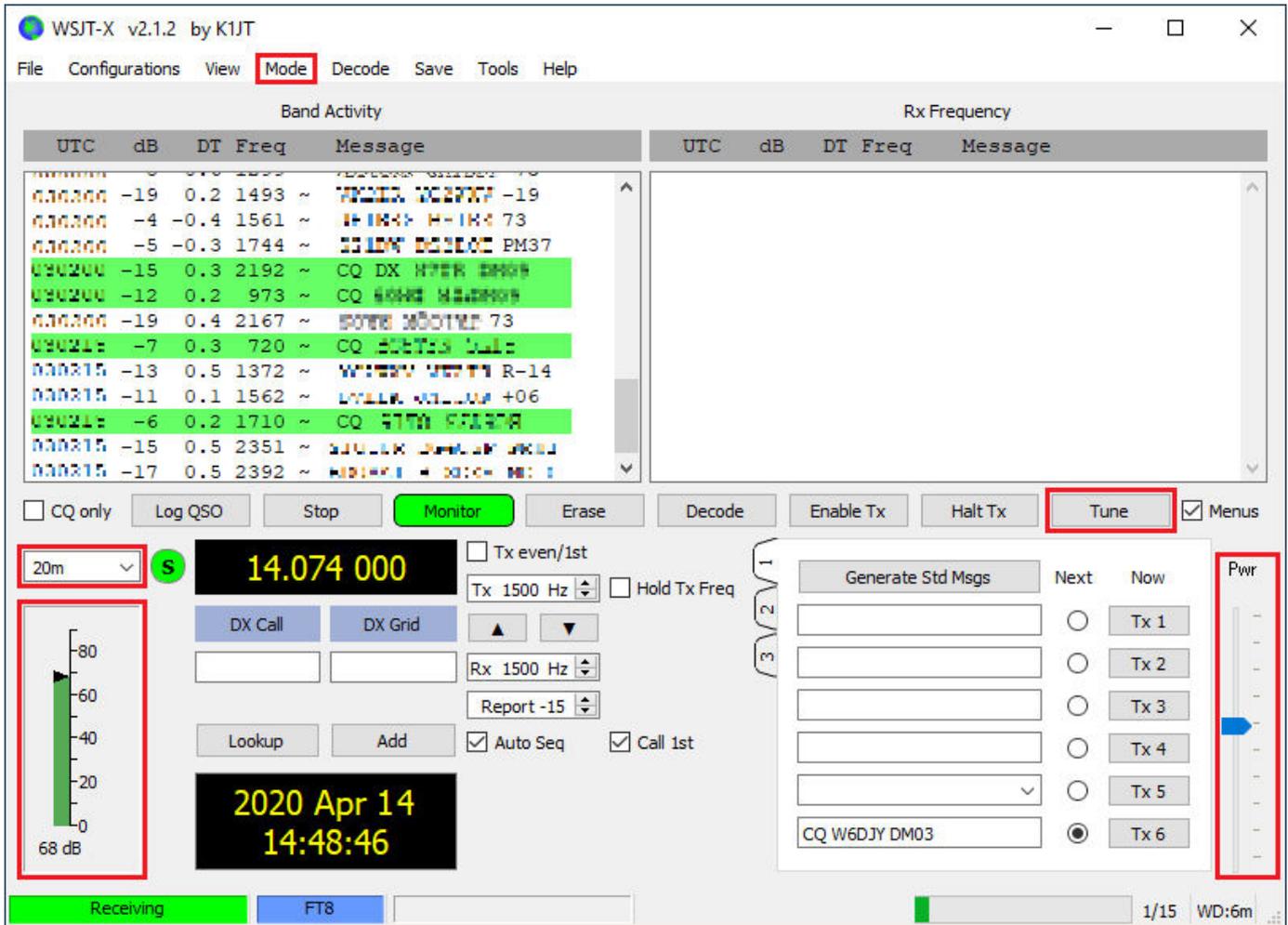
●RX Level Adjustment

RX level is indicated below the band selection. Appropriate level would be around 30dB when the transceiver is on and there is no input signal from the antenna connector. If necessary, adjust the level with the PC sound settings (Recording devices), and if still cannot, adjust the audio output level from the TS-890S in Menu [7-08] "USB: Audio Output Level".

●TX Level Adjustment

First set the TX power on the TS-890S and press the software [Tune] to transmit. Adjust the audio (single tone) output level from the PC to the TS-890S by "Pwr" slide bar in the software to the level that the ALC meter just starts swinging as shown on the right in order to prevent distortion in AF stage by excessive audio input.
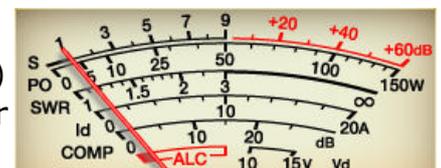
And press and hold [MONI] to enable the TS-890S TX monitor function to audibly confirm that the modulation signal has no distortion and no noise.

If necessary, adjust the level with the PC sound settings (Playback devices), and if still cannot, adjust the audio input level to the TS-890S in Menu [7-06] "USB: Audio Input Level".