

## TS-990S

## Firmware update information

Last updated : March 12, 2020

The TS-990S firmware has been updated from Version 1.24 to Version 1.25 as follows.

TS-990S owners can update the transceiver's firmware by using a USB flash drive as detailed below.

**Updated items : (Version 1.24 ⇒ 1.25) [March 12, 2020]**

The following features are updated.

- 1.Improves the power supply circuit control in order to reduce the standby power consumption at transceiver power turned OFF when Advanced Menu No.22 "Standby State Low Power Consumption" is "Off" from 20W (approx) to 12W (approx).
- 2.Reduces TX/RX switching noise in CW full break-in operation in the sub band.
- 3.Revises the expanded memory channels (E0~E4) default values according to the band plan. (K-type for USA and Canada only)

**Updated item : (Version 1.23 ⇒ 1.24) [September 12, 2019]**

The following symptom is revised.

- 1.An error message (ERR:005C) may be displayed due to false detection, even though there is no failure in the transmitter circuit (FETs, ICs, Relays, etc.).

**Updated items : (Version 1.22 ⇒ 1.23) [February 28, 2019]**

The following symptoms are revised.

- 1.After directly entering the frequency, the bandscope marker position might not be updated correctly under certain conditions.
- 2.In rare cases, the TX monitor On/Off status is not backed up.

**Updated items : (Version 1.21 ⇒ 1.22) [February 14, 2019]**

The following symptoms are revised.

- 1.After changing the operating mode from FSK/PSK to USB/LSB, filter width in the sub screen may not be indicated correctly under certain conditions.
- 2.The meters may not be updated at the correct timing.
- 3.After receiving an invalid PC control command from some external devices via the COM port, the transceiver may not work correctly.

**Updated item : (Version 1.20 ⇒ 1.21) [February 1, 2019]**

The following symptom is revised.

- 1.When the preselector is turned on, the internal relays may not be set correctly.

**Updated items : (Version 1.13 ⇒ 1.20) [January 30, 2019]**

The following features are updated.

- 1.Adds CW decode function.
  - In CW mode when the configuration screen or bandscope is off, pressing F3 [DECODE] turns the CW encode/decode screen on, and decoded Morse code characters will be displayed on the screen.(Decodes main band signals only.)
- 2.Improves bandscope functions.
  - Adds waterfall in the compressed bandscope which appears with the configuration screen or encode/decode screen.
  - In center mode, adds 30kHz span between 20kHz and 50kHz.
  - In center mode, stores frequency span settings separately in SSB/AM/FM mode and CW/FSK/PSK mode.
  - In center mode, enables setting the waterfall pause off.
    - Set the Menu No.8-33 (Waterfall Pause when Tuning (CenterMode)) to "Off" as necessary.(There is no "Straight" setting like the TS-890S.)

- Stores the bandscope attenuation level and reference level in each frequency band.
  - Stores the bandscope averaging level separately in SSB/AM/FM mode and CW/FSK/PSK mode.
  - Enables changing the waterfall color type.  
The weakest signal strength color can be set by Menu No.8-35 (Waterfall Color Type) to "Type 1" (blue) or "Type 2" (black).
- 3.Improves frequency setting functions.
- Adds frequency fast forward function. The fast forward rate of the main and sub tuning knobs can be set by Menu No.3-11 (Tuning Speed Control (Main)) and Menu No.3-13 (Tuning Speed Control (Sub)).
  - Enables setting only the main and sub tuning knobs in the frequency lock function. Set the Menu No.3-10 (Lock Function) to "Tuning Control Lock".
  - Enables configuring the MULTI/CH control frequency step size in SSB mode separately from CW/FSK/PSK mode.
  - The configured MULTI/CH control frequency step size by Menu No.3-05 (9kHz Step in AM Broadcast Band (Multi/Channel Control)) is applied to LF band (153~279kHz) as well as MF band (153~279kHz).
  - Adds RIT shift function.  
When RIT is on, long pressing [RIT] adds the current RIT frequency to the receiving frequency, and then the RIT frequency is cleared.
  - Adds XIT shift function.  
When XIT is on, long pressing [XIT] adds the current XIT frequency to the transmitting frequency, and then the XIT frequency is cleared.
- 4.Enhances the RX filter (main/sub) setting parameters in each operating mode as follows.
- SSB: [LO CUT]12→22, [HI CUT]14→28
  - SSB-DATA: [WIDTH]17→36, [SHIFT] 100Hz Step→50Hz Step
  - CW: [WIDTH]14→19, [SHIFT] 50Hz Step →10Hz Step
  - FSK: [WIDTH]6→8
  - PSK: [WIDTH]12→27
  - AM: [HI CUT]4→14
  - FM: [HI CUT]14→24
- 5.Enables setting the TX/RX (main/sub) DSP equalizer frequency characteristics separately in DATA band and non-DATA band.
- 6.Improves touchscreen operations.
- Enables settings the TX/RX DSP equalizer frequency characteristics, meter type for the main band, and the playback position of the audio file by touchscreen operations.
  - Enables applying MULTI/CH control frequency step size to the touchscreen tuning operation in SSB/CW/FSK/PSK mode as well as AM/FM mode. Set Menu No.8-34 (Touchscreen Tuning Step Correction (SSB/CW/FSK/PSK)) to "On".
  - Improves touchscreen operation tuning accuracy in CW mode.  
Long touching the screen around the target signal activates the peak-search function before auto zero-in (CW auto tune) works.
- 7.Improves TX related functions.
- Stores the TX monitor On/Off status in each operating mode group (SSB/FM/AM, SSB-DATA/FM-DATA/AM-DATA, FSK/PSK).
  - Enables assigning "TX TUNE2" (operates while the key is being pressed down) to PF keys (Programmable Function keys) as well as "TX TUNE" (renamed to "TX TUNE1", starts TX tuning when the key is pressed).
- 8.Improves the following other functions.
- Enables configuring selectable antenna connector numbers. In Menu No.7-19 (Antenna Numbers), select "1" to "4" as necessary.
  - Enables configuring DATA mode numbers (DATA1~DATA3). In Menu No.0-34 (Data Mode Numbers), select "1" to "3" as necessary.
  - Stores the preselector On/Off status in each frequency band.
  - While in dual-band reception in SWL mode, the S-meter indicates the signal level of the selected operating band.
  - When changing operating mode, displays the selected mode (CW/FSK/PSK) dedicated encode/decode screen automatically.
  - When FSK/PSK mode encode/decode screen is on, enables using the built-in FSK/PSK encoder even after turning the TX on by [SEND] or [PTT] manually.
  - The screen saver works even when an external device such as a PC is connected.  
The following symptom is revised.
- 9.RX filter (main/sub) configurations may not be backed up when turning the transceiver off and on under certain conditions.
- For details, please refer to the [revised Instruction Manuals](#).
  - **Please also update the Radio Control Program [ARCP-990](#) and the Radio Host Program [ARHP-990](#) which include above revisions for functional compatibility.**

Updated item : (Version 1.12 ⇒ 1.13) [November 17, 2016]

The following symptom is revised.

1. In split-frequency operation, antenna relay circuit might not work correctly.

#### Updated item : (Version 1.11 ⇒ 1.12) [August 3, 2016]

The following symptom is revised.

1. The internal antenna tuner may not work correctly under certain conditions.

#### Updated items : (Version 1.10 ⇒ 1.11) [April 20, 2016]

The following symptoms are revised.

1. In a stored CW message with text entry, "%N" (contest number) may not be sent correctly under certain conditions.
2. In a stored CW message with text entry, the leading space character is not recognized as an interval.

#### Updated items : (Version 1.09 ⇒ 1.10) [May 12, 2015]

The following features are updated.

1. Adds a new algorithm within the main band NB2 (Digital noise blanker in the IF stage).
  - When pressing and holding in the [NB2] key of the main band, the NB2 function setting display appears on the main screen. This then allows toggling between "TYPE A" (conventional algorithm) and "TYPE B" (newly added algorithm) by pressing the [TYPE](F6) key. If "TYPE B" is selected, the "WIDTH" (width of the pulse noise blanking) and "DEPTH" (depth of the pulse noise blanking) parameters can be adjusted.
  - Pressing and holding in [NB2] or pressing [ESC] closes the NB2 function setting screen.
  - The "TYPE A" discriminates and suppresses the pulse noise by calculating the received signal's envelope. Since the algorithm does not cut off the receiving signal, it would be effective for a weak signal buried in strong pulse noise conditions.
  - The "TYPE B" discriminates and blanks the pulse noise by calculating the transient of signal amplitude. However, it cuts off the received signal momentarily, thus allowing adjustment of the "WIDTH" and "DEPTH" to appropriate levels.
  - The "TYPE B" is not applied to the sub band due to limitations of the DSP memory capacity.
  - For both of the NB2 "TYPE A" and "TYPE B", using NB1 (Analog noise blanker in the IF stage) simultaneously, or configuring a wider roofing filter manually, it would be effective to reduce the pulse noise level under some noise conditions.
2. Changing of the RX IF filter passband is enabled by rotating the [HI/SHIFT]/[LO/WIDTH] knobs while transmitting.
  - If Menu No.8-01 (TX Audio Waveform Display) is set to "On" (default), the current status of the RX IF filter is not displayed in the sub screen while transmitting in SSB/AM/FM mode. If you need to view the status of the RX IF filter while transmitting in SSB/AM/FM mode, set the Menu No.8-01 to "Off".
  - **Please also update the Radio Control Program [ARCP-990](#) which includes above revisions for functional compatibility.**

The following symptom is revised

1. When playing and transmitting a stored CW messages with text entry, the consecutive space characters for intervals are deleted.

#### Updated item : (Version 1.08 ⇒ 1.09) [January 30, 2015]

The following symptom is revised.

1. After updating the firmware, some indications might not work correctly until full-resetting.

#### Updated items : (Version 1.07 ⇒ 1.08) [January 29, 2015]

The following features are updated.

1. Revises the functions of the Band Scope in Fixed mode.
  - Adds "Auto Scroll function" when long pressing [CTR/FIX] (F3) to apply Center mode display frequency range to Fixed mode. When the marker for the selected band becomes off-range, the scope area shifts automatically in order to display the marker near the center. ("Auto Scroll" appears on the upper left side of the grid then.)
  - When long pressing [CTR/FIX] (F3) to apply Center mode display frequency range to Fixed mode, or pressing [MKR.CTR] in Fixed mode, the revised lower / upper limit frequencies do not overwrite the configurations in Menu No.8-05 ~ 8-32.
2. Enables the selection of "0"(Off) for "Main Display" and "Sub Display" in "Dimmer 4" settings.
3. Revises the behavior when AC power is switched on.
  - When selecting "Off" in Advanced Menu No.22 (Standby State Low Power Consumption), after AC power is switched on by pressing the main I/O power switch or switched on at the household AC outlet using the AC cable, after 40 seconds the front panel power switch LED blinks orange for a few seconds and quick start by the front panel power switch becomes available.
4. Enables output of the 475kHz band (472~479kHz) signal from the rear panel DRV (drive output) connector as well as the 135kHz band.
5. When frequency tracking is on, changing frequency band for the main band does not turn the frequency tracking off.

6. Enables changing the band, mode, memory channel, or split operation settings while the CW/Voice Message screen is displayed.

- Please also update the Radio Control Program [ARCP-990](#) which includes above revisions for functional compatibility.

The following symptoms are revised.

1. After turning the transceiver off and on, status of the internal antenna tuner might not be backed up correctly.
2. When Menu No.0-10 (Meter Display Pattern) is set to "Type 1" (Digital), S-meter might indicate while transmitting.
3. In full break-in operation, may not save the transmitted CW signal correctly in Full-time Recording.
4. Transverter Power Limit (Advanced Menu No.08) or Max. Power Limit affect the output level from the rear panel DRV (drive output) connector.

- To avoid any unexpected damage to external devices using the drive output, please confirm the drive output level again after updating the firmware.

#### Updated item : (Version 1.06 ⇒ 1.07) [November 13, 2014]

The following symptom is revised.

1. When NB1 is active on the main band, just after returning to receive mode the main band RX audio might be muted.
  - The above symptom appears only in the serial number range from S/NO.B47xxxxx through S/NO.B4Axxxxx.
  - The firmware Ver.1.07 only revises the electronic device compatibility issue. There is no other functional change from Ver.1.06.

#### Updated items : (Version 1.05 ⇒ 1.06) [March 27, 2014]

The following symptoms are revised.

1. On 21.5MHz ~ 30MHz when preamplifier is on, the S-meter may appear too sensitive to variations in signal levels due to excessive IF gain.(The update does not affect RX sensitivity.)
2. Just after TX tuning starts, a click noise may be heard momentarily.
3. Stored band memory number may not be indicated correctly just after the power is turned OFF and ON by the rear panel main power switch.

#### Updated items : (Version 1.04 ⇒ 1.05) [November 15, 2013]

The following symptoms are revised.

1. When RIT is on and the [VOICE] key is pressed, the transceiver announces a frequency which does not include the RIT frequency offset.
2. TX tuning RF output power might exceed the preset value momentarily.
3. In SSB-DATA, FM-DATA, or AM-DATA mode, XIT may not work correctly.

#### Updated items : (Version 1.03 ⇒ 1.04) [August 23, 2013]

The following symptoms are revised.

1. When sending certain character sequences using the built-in RTTY function, garbled text might be encoded.
2. When Advanced Menu No.22 "Standby State Low Power Consumption" is set to "On" and the TS-990S is turned off by the front panel power switch, the ARCP-990 may not detect the power off status correctly.

#### Updated items : (Version 1.02 ⇒ 1.03) [July 12, 2013]

The following features are updated.

1. Enables use of the TF-SET function while the CW/Voice Message screen is displayed.
2. Enables toggling Sub Band reception between ON and OFF while the CW/Voice Message screen is displayed.
3. When PF keys are pressed to play a CW/Voice Message while CW/Voice Message screen is not displayed, the CW/Voice Message screen is opened. It closes again after playing the message is completed.
  - If playing a message is stopped by F4[STOP] key, the CW/Voice Message screen remains.
4. Enables TF-SET function in Simplex mode while "XIT is ON and RIT is OFF".
  - While [TF-SET] key is pressed, XIT offset frequency can be set by [Tuning] (Main) control as well as [RIT/XIT] control.
  - The function does not work when RIT is ON.
  - Please also update the Radio Control Program [ARCP-990](#) which includes above revisions.
5. Increases TX monitor maximum level by approximately 6dB.
6. Reduces CW full break-in RX noise.
7. Extends default AGC time constant values in "FAST", "MIDDLE", "SLOW"

#### Updated items : (Version 1.01 ⇒ 1.02) [April 12, 2013]

The following feature is updated.

- 1.Changes default value of the Menu No.9-00 "Send Message by Function Keys (USB Keyboard)" from "Off" to "On".

The following symptom is revised.

- 1.TX output power fed back to other ANT connectors might affect internal circuits.(The firmware Ver.1.02 deactivates (opens) other ANT relays every time the radio transmits.)

#### Updated items : (Version 1.00 ⇒ 1.01) [March 29, 2013]

The following feature is updated.

- 1.Adds the following menus for audio output terminal configurations.(USB, ACC2, Optical)

Menu No.7-16 "USB: Audio Output Configuration"

Menu No.7-17 "ACC 2: Audio Output Configuration"

Menu No.7-18 "Optical: Audio Output Configuration"

You can set the value to "Normal"(default), "Reversed", or "Mixed" for each output terminal above.

For details, please refer to the [revised Instruction Manuals](#).

- The above configurations are necessary when operating the TS-990S with KENWOOD NETWORK COMMAND SYSTEM.

The following symptom is revised.

- 1.While in TX TUNE, incorrect SWR value is indicated when Type2 or Type 3 (analog type) meter is configured.

#### ●Applicable units :

The firmware update is applicable to the following units.

Model: TS-990S

Serial numbers: From S/NO.B32xxxx through S/NO.C03xxxxx approx.

Notes : You can find the serial number imprinted on the rear panel model name label; it consists of an 8-digit number beginning with "S/NO."

: You can check the firmware version of your TS-990S by pressing [M.IN](Memory) + Power ON. After startup, the Firmware Update screen appears and shows the firmware version.

\*There are two [M.IN] keys on this transceiver; one is for Memory and the other is for Quick Memory. To view the firmware version, ensure you use the [M.IN](Memory) key.

#### ●Notes on usage

- JVCKENWOOD Corporation does not warrant that quality and functions of this software comply with each user's purpose of use of this software, and unless specifically described in this document, JVCKENWOOD Corporation shall be free from any responsibilities to any defects and indemnities to any damages or losses. Selection and installation of this software shall be done by the user's own designation. The user shall take full responsibility for the use and effects of this software.
- JVCKENWOOD Corporation shall be free from any responsibilities for any incidental losses or damages, such as missing communications or a call opportunity, caused by a failure or performance error of this software.
- The software embedded in the product consists of a multiple number of and individual software components. Title to and ownership of copyrights for each software component is reserved for JVCKENWOOD Corporation and the respective bona fide holder. Any copying, reproducing or disclosing on an Internet website of the JVCKENWOOD Corporation copyrighted software components is strictly prohibited. Furthermore, any reselling, assigning or transferring of the JVCKENWOOD Corporation copyrighted software components is also strictly prohibited without embedding the software in the product memories.
- The software employs the software component in accordance with the End User License Agreement (hereinafter referred to as the "EULA") stipulated by JVCKENWOOD Corporation and/or the respective bona fide holder. There is free software stipulated and governed by the "EULA", and this, a distribution condition of the software component in the executable format under the terms and conditions contained in the GNU General Public License or Lesser General Public License (hereinafter referred to as the "GPL/LGPL"), requires to make the source code for the relevant software components available. Access the URL below for details of the software component stipulated in the "GPL/LPGL".  
<https://www.kenwood.com/gpl/e.html>  
Please note that we are unable to answer any inquiry relating to the contents, etc. of the source code.  
Please note that any software component licensed under "EULA" which is not subject to "GPL/LGPL", and those developed or created independently by JVCKENWOOD Corporation shall not be subject to the requirement for provision of the source code.
- Important notice about software can be displayed in the transceiver's menu below.  
Advanced Menu No.29 "Important Notices concerning Free Open Source"  
The GPL/LGPL license agreement can be displayed in the transceiver's menu below.  
Advanced Menu No.30 "About Various Software License Agreements"

**●Firmware updating procedure**

1)Download the firmware file "TS-990\_V125.zip" onto your PC.

2)Save the downloaded firmware file "TS-990\_V125.zip" to a USB flash drive.

**\*You must store the firmware file "TS-990\_V125.zip" in the root directory of the USB flash drive without extracting the zip file, otherwise the firmware cannot be updated.**

3)Press and hold the [M.IN](Memory) key, then turn the transceiver ON.The transceiver starts up with the Firmware Update screen after the start screen appears. You can verify the current firmware version.

4)Insert the USB flash drive containing the firmware file in the USB-A connector on the front panel.The firmware updating progress bar appears on the main screen. Upon completion of the firmware updating, "The firmware update is completed" appears on the main screen.

\*Depending on the number of CPUs being updated, the time necessary for updating may vary. It can take 20 to 30 minutes to update the firmware.

5)Turn the transceiver OFF.

6)Remove the USB flash drive.

7)Turn the transceiver ON again.

The transceiver restarts with the new firmware enabled.

**Notes:**

:If a message notifying you of an update failure appears during the firmware updating, refer to the Instruction Manual page 18-4. (Troubleshooting.)

:You can also update the firmware by connecting the transceiver to your PC using a USB cable.For details, please refer to the Instruction Manual page 17-2.

If you agree with the details listed above, click the following link to download the firmware file.

**(The latest version includes all previous updates.)**

TS-990S Firmware Version 1.25 (March / 2020)

**[TS-990 V125.zip : 13.0MB download](#)**