For DX Enthusiasts

HF/50MHz TRANSCEIVER

TS-890S

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For this reason, specifications may be changed without notice.

*Alterations may be made without notice to improve the ratings or the design of the transceiver.

*The photographic and printing processes may cause the coloration of the transceiver to appear different from that of the actual transceiver.

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2 kHz spacing measurement standard - Receiver frequency 14.2 MHz, MODE CW, BW 500 Hz, PRE AMP OFF
The most rewarding results often take place when faced with the harshest and most challenging conditions. There are enthusiasts who know this all too well because of their love of DX. KENWOOD has the answer. Achieve results through certainty and not circumstance. Delivered through impeccable receiver and audio performance. This is our offering to you.
Top in its class with three dynamic ranges. Alive and well, the non-tiring KENWOOD tone keeps you listening.
Evolved power to perform with diverse displays and auto-scroll. A transmitter with stable output, quietness and high speed.

The unit carries a high definition 7-inch TFT color display. In addition to a diverse range of display content, the convenient AUTO SCROLL MODE provides strong support for competition or similar operation. Other strengths include clean and stable 100W transmitter output, improved quietness from twin cooling fans, and high-speed operation enabled by an auto antenna tuner.

**Operational capacity reinforced with displays and various features**

- **AUTO SCROLL MODE**
  - In addition to conventional CENTER MODE and FIXED MODE, the unit comes equipped with an AUTO SCROLL MODE. While in FIXED MODE, if the receive frequency goes over the scope edge, then auto-scroll will engage for half a screen width. Furthermore, with the EXPAND function turned on, the screen width displayed next can be chosen in advance. Also, with the SBFT function, the receive marker can be set in the desired position on the vertical grid, which is convenient when displaying a non-receive frequency as the center screen.

- **CENTER MODE**
  - When changing the receive frequency in CENTER MODE, there are many cases that display a bright line that flows obliquely over the waterfall, but with the TS-890S, the bright line remains straight and enables tuning operation.

- **FIXED MODE**
  - Allows you to switch between three kinds of displays ranging with a single touch of the panel screen. The initial value is preset based on the band plan, but this can be easily adjusted by a desired scope.

**A band scope providing ease-of-use**

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**Improved reference level operability ease-of-use**

The TS-890S has improved operability on the reference level focusing on the visibility of the waterfall. Through optimization of each span, readout is mostly unnecessary when switching between them. Settings are ratcheted for each band, and readout is also unnecessary for the PRE AMP ON and PRE AMP OFF bands.

- Spectrum scope vertical height changes during span switching.

**Filter scope display**

The popular sub-scope from the TS-990S is carried as a filter scope display. You can confirm receive filter selection status, moving filter bandwidth, IF filter passband information, receive for ex-audio spectrum, CW pitch frequency, and notch frequency all concentrated in one location.

**Other display system features**

- **filter display mode example**
  - Element digital meter displaying display of two kinds of transmit information even during analog meter display (scope spectrum, oscilloscope) able to display simultaneously with reduced scope (IF filter passband with display). Change of gradient for waterfall display. Frequency meter display function (MHz). Transmit-spectrum display (during CENTER MODE). TXI display mode.

**Heavy-duty design delivers transmission performance able to withstand long hours of operation.**

- **Fixed-stage amplifier circuit.**
  - The fixed-stage amplifier device is a Mitsubishi-made MOSFET Roy906HFF (Max. 176.5W) operating in push-pull. A MOSFET RD04HFHI has been used for the drive amp, and a MOSFET RD06HFHI for the pre-drive amp. Cross-stage matching and fine-tuning deliver superior transmit IMD even for a 15W final circuit, enabling operation with a clean and low-distortion signal.

- **Highly reliable 100W final-stage amplifier circuit.**
  - The TS-990S is carried as a filter scope. The popular sub-scope from the TS-990S has been displayed. The seven-inch TFT color LCD is the same size as that used in the TS-990S.

- **Operational capacity reinforced with displays and various features**
  - The seven-inch TFT color LCD is the same size as that used in the TS-990S. In addition to basic information including frequency, mode, and memory, the band scope and audio scope are also displayed. The TS-890S also displays further improvements in visibility and operability in tough usage scenarios such as competitions.

- **Built-in high-speed automatic antenna tuner enabling high-speed operation**
  - The antenna tuner is a preset type also operating during receive and covering amateur bands from 1.8MHz to 50MHz. High-speed operation and the proven relay method enable rapid QSY through instantaneous band changing. The menu can be used to set an ON/OFF memory for the antenna tuner for each band.

**Free settings enabled through linear amp control settings menu**

- **TCXO as standard, high frequency stability at ±0.1 ppm**
  - Equipped with a TCXO (temperature compensated crystal oscillator) requiring no warm-up as standard, high stability of ±5ppm has been obtained in a wide temperature range covering 32°F to 122°F. External standard signal (10MHz) input is also possible.
Delivering the ultimate in split-operation operability.
An interface that thinks of everything.

Operability

A variety of features achieve speedy split operation even with a single receiver. Speedy split frequency settings, split status band switching via a band direct key, and support for external TF watch via an external receiver. A panel layout enabling intuitive handling makes for comfortable operation.

Control

Stronger split-operation handling through VFOA/B

- **Split frequency settings**
  In addition to conventional split frequency setting methods, the TS-990S’s process split frequency settings have been included. For 2kHz UP/pas 2 Hz on the number pad after a long press of the split key and the settings are complete. Split frequencies can be set within the range of ±9kHz (1kHz steps).

- **Band changing possible while keeping split settings for each band (menu setting feature)**
  In the split state, changing the band or band memory via the band direct key, will make changes while keeping the split state. Individual settings are possible for the split frequencies and modes for each band memory, which is convenient for chasing DX-peditions during multiband/mode operation.

Split frequency changing (menu setting feature)

**In addition to the conventional method of operating the tuning knob during TF-SER, when RIT/XIT is not in use, the split frequency can also be changed by operating the RIT/XIT knob.**

Split frequency receive via external receiver (menu setting feature)

By connecting another TS-890S or TS-590S/SG** unit to the ANT OUT connector to use as a sub-receiver** and using the split transfer function A, this can enable assistance in 2-wire simultaneous receive during split operation.

Compatible with FM operation on 28MHz, 50MHz bands

The unit includes switching to FM mode for transmit and receive, as well as repeater operation support and FM signaling functionality (CTCSS, tone-tone).

DATA mode compatible with external input/output/switching

Separate from the microphone input, the back panel includes a variety of I/O interfaces, including analogue audio input and output, and LAN/SPDIF interface. By combining DATA mode with SSB/FM/AM modes, it is possible to finely set up conditions for modulation and demodulation. Furthermore, combined use with DATA VOX enables the transmission of modulation signals from a PC, rendering standing wiring and commands unnecessary.

Remote operation achieved without host PC Direct remote-control function (KNS)

When operating using the KNS (KENWOOD Network Command System), remote operation of the radio as possible by a direct LAN connection. Conventional connection using a host PC and ARHP (Amateur Radio Host Program) is also possible.

USB memory / USB cable firmware update function

Storing the unit in update mode and inserting a USB memory stick containing firmware into the front USB-A port will start an automatic update. Updates can also be carried out by connecting the TS-890S to a PC via a USB cable; and moving a firmware file using drag & drop to the top of the ‘TS-990S’ removable device that is displayed on the PC's desktop during update mode.

Recording functions

The TS-890S comes equipped with a 1GB internal memory, and can record a maximum of roughly 9 hours of audio without using USB memory. When using USB memory, depending on the capacity, there are no limits on the amount of audio recording. Recording options include normal, constant, and timer, and recording can also be linked to the squelch.

**Other file sharing, memory capacity may vary in less than 9 hours.**

Other functions, main connectors

- **12 channel memory**
- **XIT shift enabling one-touch transition to split mode from XIT operation**
- **Main band fan-forward**
- **CONFG A/B function enabling overall switching of menus and all settings depending on operation environment**
- **Voice guidance function**
- **IF firm function setting call-sign transmission guide**

Diverse functions supporting CW operation

- **PADDEL/KEY jack (one each on front/rear, compatible with paddle/straight key switching)**
- **CW auto tuning**
- **Full break-in and semi break-in (semi break-in delay time: 50ms~1000ms)**
- **CW Pitch control, Soft tone (pitch frequency linking /4 steps)**

**Requires a firmware update.**

FSK/PSK functions

- **RTTY basic operation settings (keystrokes, shift width, H/LG/O options, reverse mode)**
- **compatible with PSK31 (QPSK, BPSK) and PSK63 (BPSK)**
- **RTTY/PSK operation via on-board decoder/encoder (USB keyboard complaint)**
- **Message memory functions**
- **Tuning scope display (audio FFT, waterfall/HV, scope) (PSK/RTTY screen)***

**Requires a firmware update.**

**Compatible with CW Morse code decode/encode possible with stand-alone unit**

The unit is compatible with CW Morse code decode/encode. Transmission of Morse code is possible with input from a USB keyboard. Combined use of templates sent from message memories and Morse code transmissions via panel is also possible. Dedicated decode filter switching, and functions for transmission log and output of decoded text to PC are also included.

**Requires a firmware update.**

- **CW decode/encode screen**
- **RTTY basic operation settings (keying polarity, shift width, H/LG/O options, reverse mode)**
- **Compatible with PSK31 (QPSK, BPSK) and PSK63 (BPSK)**

**Requires a firmware update.**

- **Built-in electronic keyer (key speed settings, keyer mode A/B selection)**
- **K1/UP message memory function**
- **Auto-SDO to CW mode on breakdown in USB mode**
- **Microphone paddle mode**
- **CW auto-select/reverse**
- **CW reverse mode / CW BFO side band switching**

Other operation features

- **LSI channel memory**
- **XIT shift enabling one-touch transition to split mode from XIT operation**
- **Main band fan-forward**
- **CONFG A/B function enabling overall switching of menus and all settings depending on operation environment**
- **Voice guidance function**
- **IF firm function setting call-sign transmission guide**

**Requires a firmware update.**

Remote PC

(KENWOOD SKY COMMAND® II support)

(When connected to TH-D7A*/TH-D72A/TM-D710A*/TM-D710GA)** Enables full/dual operation with improved functionality such as visual confirmation of HF frequency on the LCD panel. Control via TNC (AX.25) enables more access to HF functions: XIT, mode switching, split-frequency operations on/off, memory shift, and frequency step selection. The transporter sends out its pre-programmed call sign via CW every 10 minutes.

**Requires a firmware update.**

**KENWOOD SKY COMMAND® II support**

(WP**5**: Requires a firmware update. **2**5: Requires an approximately 348 theoretical value is experienced. **3**5: Frequency transmit, standby, and sub- receive audio mix are possible. Requires separate antenna cable and RS-22C, cross-cable. Not compatible with combined SDA/telephone use. **4**5: Requires a firmware update. **5**5: Requires an approximately 348 theoretical value is experienced. **6**5: Frequency transmit, standby, and sub- receive audio mix are possible. Requires separate antenna cable and RS-22C, cross-cable. Not compatible with combined SDA/telephone use. **7**5: Requires a firmware update. **8**5: Requires an approximately 348 theoretical value is experienced. **9**5: Frequency transmit, standby, and sub- receive audio mix are possible. Requires separate antenna cable and RS-22C, cross-cable. Not compatible with combined SDA/telephone use.
**Main Options**

- **SP-980**
  - External Speaker 10W
- **MC-90**
  - Desktop Microphone
- **MC-60SB**
  - Desktop Microphone
- **MC-43S**
  - Hand Microphone
- **HS-5**
  - Open Air Headphones
- **HS-6**
  - Lightweight Headphones
- **PS-60**
  - Power Supply

**Supplied accessories**

- DC power cord (X1)
- Type DIN Plug (For MARINE connection) (X1)
- 1.2m Type A Plug (For MARINE connection) (X1)
- 2 in. Spade Fuse (X1)
- 1 in. Spade Fuse (X1)

**ARCP-890**

- Software Radio Host Program

- Software to use on the host side when controlling this TS-890 remotely over a software radio control program.

**Specifications**

### General
- **Frequency coverage**
  - Transmitter: 0.13 ~ 30 MHz, 50 ~ 54 MHz, 500 ~ 2500 MHz
  - Receiver: 0.13 ~ 30 MHz, 50 ~ 54 MHz, 500 ~ 2500 MHz
- **Display voltage**
  - DC 12 V or less
- **Speaker**
  - Model: 4 Ω ~ 8 Ω

### Adjustments
- **Notch filter attenuation**
  - Manual: 60 dB or more (Auto: 70 dB or more)
- **Unwanted sideband suppression**
  - 60 dB or more

### Electronic Specifications
- **Beat cancel attenuation**
  - 40 dB or more
- **Image Rejection Ratio**
  - HF: 70 dB or more, 50 MHz: 60 dB or more

### Dimensions
- **Receiver**
  - Width: 580 x Height: 278 x Depth: 352 mm

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* For your 80 m band, refer to applicable Amateur Radio regulations to your country.

Electronic specifications apply only to amateur bands. Receiver sensitivity drops in the vicinity of the 1st IF frequency (8.248 MHz) due to IF trapping.

*The above software is freeware that will be available for download from KENWOOD’s website.*