

# KENWOOD

## HF TRANSCEIVER **TS-850S**

*True Reach: Expanding the envelope of  
HF transceiver performance*





A rewarding experience. Kenwood's renowned digital technology endows the TS-850S HF transceiver with specs that put it firmly in the top ranks of Amateur Radio equipment. Features include a preprogrammed automatic antenna tuner (built-in or optional), Kenwood's Advanced Intercept Point system for enhanced dynamic range, 100 memory channels with three scan modes, a Direct Digital Synthesizer (DDS) and digital PLL system to permit ultra-fine (1Hz) tuning, plus an optionally available digital signal processor—the high-performance DSP-100. Impressive credentials, but the TS-850S also offers reassuring operating ease.

# For Global Reach: Kenwood's Competition-Class TS-850S





## 160m to 10m amateur band operation with 100kHz to 30MHz general coverage receiver

### Kenwood's AIP system for clearer reception

AIP (Advanced Intercept Point) is an exclusive circuit design that provides superior dynamic range. The use of two selective RF amplifiers — one with large gain for enhanced sensitivity, the other with small gain for better intermodulation characteristics — results in a significantly reduced noise floor level.

### Automatic antenna tuner (built-in or optional)

For operator convenience, the TS-850S can be supplied with a completely automatic antenna tuner covering all amateur bands from 160 through 10 meters. This is factory-installed or ordered separately as an option. The microprocessor that controls the tuner has been preprogrammed to assure minimum SWR.

### Optional digital signal processor

For greater signal purity, the TS-850S can be equipped with the optional DSP-100 digital signal processor. Among the many benefits of converting the signal into a digital waveform are increased suppression of unwanted sidebands during SSB operation and improved CW operation.

### Ultra-fine (1Hz) tuning

The TS-850S uses a microprocessor-controlled Direct Digital Synthesizer (DDS) and digital PLL system to control the frequency in 1Hz steps.

### Heavy duty cycle design

A large, die-cast aluminum heat sink and high-efficiency cooling fan help to assure increased reliability — especially important for digital mode operation.

### Outstanding receiver performance

- **High sensitivity**

Special circuits automatically boost signal reception in the 24.5 to 30MHz range.

- **Selectable IF filter with memory**

To suit mode, band, and QRM conditions, the optimum filter bandwidth can be selected using the front-panel 8.83MHz and 455kHz filter keys.

### Superior interference reduction

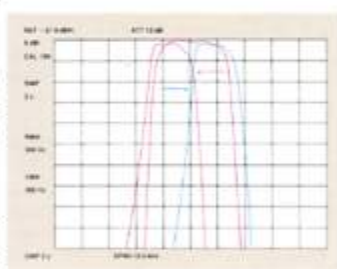
- **IF slope tuning (for SSB, CW and FSK modes)**

The low- and high-frequency slopes of the IF passband can be adjusted independently to obtain maximum signal intelligence.

- **Tunable IF notch filter**

For all modes except FM, this enables highly selective filtering of an interfering signal with approximately 40dB of attenuation.

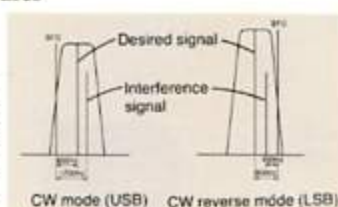
- **Dual-mode noise blanker ("pulse" & "woodpecker") with level control**



### Dependable CW operating features

- **Variable pitch control and reverse mode**

Variable pitch control shifts the 4th IF passband in the demodulator circuit while raising or lowering the pitch of the audible beat frequency. In reverse mode the pitch of interference competing with the CW signal is reversed, so the operator can approach the target from either side.



- **Full break-in and semi break-in**

- **High-performance electronic keyer circuit**

The electronic keyer circuit has dynamic dot and dash memories controlled by a microprocessor. A weighting control allows tailoring of the CW waveform.

### Superb split-frequency performance

- **Split-frequency operation using memory channels**

- **TF-SET (transmit frequency set)**

When the TF-SET key is depressed, the main dial can be used to adjust the transmit frequency without affecting the receive frequency.

### 100 memory channels

There are 90 memory channels for independent storing of transmit and receive parameters — such as frequency, mode, filter setting, AIP data and tone frequency. A further 10 channels are used to establish the upper and lower limits for the programmable band marker.

### Easy-to-operate scan functions

All 100 memory channels are available for scanning. Programmable memory channel lock-out allows selected channels to be skipped during scan. Other features include group scan, programmable band scan (within the limits specified by the programmable band marker), and variable scan speed (using the RIT/XIT control knob).

### Digital recording systems

The TS-850S offers CW and voice digital recording systems with remote control capability. Up to 50 characters can be stored in each of the 3 built-in CW memories, while an optional digital recording unit (DRU-2) allows transmission voice recording using 3 audio memories — 2 of 8 seconds, one of 16 seconds — for SSB, FM and AM calling.

- **All-mode RF output power control**

- **RIT/XIT control (10Hz steps)**

- **Adjustable transmit monitor circuit (SSB, AM and FSK modes)**

- **Large, multi-function LCD display and digital bar meter**

- **Data transfer capability for master/slave applications**

- **RF type speech processor**

- **High-frequency TX boost function**

- **4-step RF attenuator (0, 6, 12 or 18dB steps)**

### DSP-100



## Optional Accessories

**SM-230**  
Station Monitor



**SW-2100**  
SWR/Power Meter  
(1.8 - 30 MHz)



**AT-850**  
Automatic Antenna Tuner Unit



**AT-300**  
Automatic Antenna Tuner



**DSP-100**  
Digital Signal  
Processor Unit



**DRU-2**  
Digital Recording Unit



**MC-90**  
DSP-Compatible Desktop  
Microphone (with DSP-100)



**MC-80**  
Desktop Microphone



**MC-60A**  
Deluxe Desktop  
Microphone



**MC-435**  
Hand Microphone



**SP-31**  
External Speaker



**PC-1A**  
Phone Patch Controller  
(Available only where  
phone patch operation is legal)



**YK-88C-1**  
500 Hz CW Filter for  
8.83 MHz IF



**YK-88CN-1**  
270 Hz CW Filter for  
8.83 MHz IF



**YK-88SN-1**  
1.8 kHz SSB Narrow  
Filter for 8.83 MHz IF



**YK-455C-1**  
500 Hz CW Filter  
for 455 kHz IF



**YG-455C-1**  
500 Hz CW Filter  
for 455 kHz IF



**YG-455CN-1**  
250 Hz CW Narrow  
Filter for 455 kHz IF



**LF-30A**  
Low-pass Filter



**VS-2**  
Voice Synthesizer



**SO-2**  
Temperature-Compensated  
Crystal Oscillator



**IF-232C**  
Interface Unit



**PS-31**  
Power Supply (20.5A)



**PS-52**  
Heavy-Duty Power  
Supply (22.5A)



**PG-2Z**  
DC Power Cable (2m)



**RM-1**  
Remote Function Keypad



**HS-5**  
Deluxe Headphones (8Ω)



**HS-6**  
Small Headphones (12.5Ω)



## Specifications

TS-850S	
<b>GENERAL</b>	
Transmitter Frequency Range	160, 80, 40, 30, 20, 17, 15, 12, 10 meter amateur bands
Receiver Frequency Range	100 kHz - 30 MHz
Mode	A1A (CW), A3E (AM), J3E (SSB), F1A (FSK), F3E (FM)
Power Requirement	13.8 V DC $\pm 15\%$
Current Drain (approx.)	20.5 A (transmit), 2 A (standby)
Operating Temperature	-10°C - +50°C
Frequency Stability	Within $\pm 10 \times 10^{-6}$ (-10°C - +50°C)
Antenna Impedance	50 $\Omega$
Microphone Impedance	600 $\Omega$
Dimensions, projections not included (W x H x D)	13 x 4-3/4 x 13-1/8 in. (330 x 120 x 334 mm)
Weight (approx.)	24.25 lbs. (11 kg)
<b>TRANSMITTER</b>	
RF Output Power	SSB/CW/FSK: 100 W AM: 40 W
Modulation	
SSB	Balanced modulation
FM	Reactance modulation
AM	Low-power modulation
Maximum Frequency Deviation	$\pm 5$ kHz
FSK Shift Width	170 Hz (variable)
Spurious Radiation	Less than -60 dB
Carrier Suppression	Greater than 40 dB
Unwanted Sideband Suppression	Greater than 40 dB (1.5 kHz modulation frequency)
Transmit Frequency Response (SSB)	400 - 2600 Hz (-6 dB)
<b>RECEIVER</b>	
Circuitry	Triple Conversion Superheterodyne
Intermediate Frequency	
1st IF	73.05 MHz
2nd IF	8.83 MHz
3rd IF	455 kHz
Sensitivity	
SSB/CW/FSK (S+N/N 10 dB)	Less than 0.2 $\mu$ V (100 - 500 kHz, 1.705 - 24.5 MHz) Less than 4 $\mu$ V (500 kHz - 1.705 MHz) Less than 0.13 $\mu$ V (24.5 - 30 MHz)
AM (S+N/N 10 dB)	Less than 2 $\mu$ V (100 - 500 kHz, 1.705 - 24.5 MHz) Less than 32 $\mu$ V (500 kHz - 1.705 MHz) Less than 1.3 $\mu$ V (24.5 - 30 MHz) Less than 0.25 $\mu$ V (28 - 30 MHz)
FM (12 dB SINAD)	
Squelch Sensitivity	SSB/CW/FSK/AM: Less than 2 $\mu$ V (100 - 500 kHz, 1.705 - 30 MHz) FM: Less than 20 $\mu$ V (500 kHz - 1.705 MHz) Less than 0.25 $\mu$ V (28 - 30 MHz)
Spurious Response	
Image Ratio	Greater than 80 dB (1.8 - 30 MHz)
IF Rejection	Greater than 80 dB (1.8 - 30 MHz)
Selectivity	
SSB/CW/FSK	Greater than 2.4 kHz (6 dB), Less than 3.8 kHz (-60 dB)
AM	Greater than 6 kHz (-6 dB), Less than 15 kHz (-60 dB)
FM	Greater than 12 kHz (-6 dB), Less than 24 kHz (-60 dB)
RTX/MT Variable Range	$\pm 1.2$ kHz (10 Hz step) / $\pm 2.4$ kHz (20 Hz step)
Notch Filter Attenuation	Greater than 40 dB
Audio Output Power	1.5 W (10% distortion)
Audio Output Impedance	8 $\Omega$

Kenwood follows a policy of continuous advancement in development.  
For this reason specifications may be changed without notice.  
These specifications are guaranteed for Amateur Bands only.



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