KENWOOD TS-870S WITH BUILT-IN ATU

INTELLIGENT DIGITAL ENHANCED COMMUNICATIONS SYSTEM

Features at a glance:

- 160 m ~ 10 m amateur band operation
- 100 kHz ~ 30 MHz general coverage receiver
- Next Generation IF-stage DSP (Digital Signal Processing)
- DSP filters & noise reduction
- Speech processor
- 57.6 Kbps computer control
- Built-in K1 LogiKey
- Built-in automatic antenna tuner
- IF Auto-Notch
- Beat Cancel
- Variable AGC circuit
- 100 W output
- AIP system
- Dual antenna terminals
- Programmable function keys

TS-870S in detail:

Next Generation Digital Signal Processing

DSP technology uses a dedicated computer chip to convert analog waveforms into digital information in "real-time", providing the opportunity to filter and enhance the quality of the signal before it is reconverted into analog form for the human ear or for radio frequency transmission.

The design approach we took with the TS-870S uses DSP at the IF stage, allowing the greatest range of control and unprecedented receiver performance. This Next Generation DSP is achieved by two 24-bit, 20 MIPS (Million Instructions Per Second) DSP chips with a dynamic range of 144 dB, enabling you to pick out weak signals that you've never even heard before, apply custom enhancements to your transmitted voice and achieve remarkable noise reduction.

Digital Filter
The key innovation setting the TS-870S apart from every other transceiver on the market is the IF-stage, Next Generation Digital Signal Processor. By capturing the signal at IF frequencies and applying complex algorithms according to your configuration parameters, you can achieve filtering that is simply impossible with an analog circuit. For instance, in SSB, CW and FSK modes you can tune the DSP filter sharp enough to attain over 100 dB out of pass band attenuation with virtually no signal loss. And there's no need to purchase additional filters -- it's all done with DSP.

SSB Mode
When operating in SSB mode, the Digital IF Filter enables both high and low cut frequency variance so you can operate it as a slope tune, cutting out noise with minimal effect on sound quality. The high cut variance is adjustable in 12 steps between 1.4 and 6.0 kHz, and the low cut variance is divided into 10 segments between 0 and 1000 Hz.

CW Mode
The Variable Bandwidth Tuning (VBT) function is supplemented by centre frequency shift, allowing you to tune out adjacent signal interference. The VBT provides 6 tuning steps between 50 and 1000 Hz, and the centre frequency shift can be adjusted in 13 steps between 400 and 1000 Hz.

FM Mode
In FM mode the VBT feature operates as a variable pass bandwidth in 6 steps between 5 and 14 kHz.

AM Mode
The independent high cut and low cut frequency control gives you slope tune capability in AM as well. In addition, the high cut frequency can reduce interference by controlling the IF pass bandwidth -- useful for receiving shortwave broadcasts. The high cut frequency is adjusted in 6 stages between 2.5 and 7 kHz, and the low cut frequency can be set to 0, 100, 200 or 500 Hz.

FSK Mode
Similar to FM mode, the VBT function provides noise reduction capabilities in FSK with 4 stages available: 250, 500, 1000 and 1500 Hz.

DSP Detection
Through DSP processing in the detector circuit, the TS-870S provides significantly better S/N ratio than a comparable analog circuit. This results in lower distortion and higher quality detection in all modes, far surpassing previous non-DSP designs.

Noise Reduction
The TS-870S offers you 2 methods of noise reduction to give you the edge in receiving weak signals: the Line Enhancer Method (LEM) and the Speech Processing/Auto Correlation (SPAC) function.

1. **LEM** allows you to custom-shape a filter curve around a target signal, essentially "carving" it out of the background noise -- a powerful tool in SSB operation.
2. **SPAC** utilizes a special statistical/correlation algorithm to pull weak signals out of the noise, ideal for tough CW conditions.

The characteristics of both the LEM and SPAC functions are fully configurable through the TS-870S menu interface.

Beat Cancel
The Beat Cancel function automatically detects and eliminates multiple beats interfering with a desired signal. It works in all modes except CW.

IF Auto-Notch

The IF Auto-Notch feature provides extremely sharp notch filtering of carrier frequencies from broadcast and continuous beat sources. Since it is dealing with the signal in a digital form at the IF stage, the interfering beat can be "sliced" out in a far more precise manner than is possible in conventional analog systems. The Auto-Notch will track with changes in the beat signal as well, so you can "set it and forget it". This works in all modes except CW and FSK.

Variable AGC Circuit

The AGC Circuit is modeled on a time-based continuously-variable design for maximum convenience. The digital format delivers very fast release characteristics, surpassing even the best analog designs. You can select automatic or manual mode and a custom release time for each mode.

Voice Equalizer

You can apply equalization to your transmit audio in AM and SSB modes by altering the bandpass filter's width and low cut frequency, giving you control over voice tonal qualities. The Bandpass Filter has 5 steps between 1.8 and 3.0 kHz, and the low-cut frequency is adjustable in 6 steps from 0 to 500 Hz. The transmit filter has an attenuation factor of 100 dB.

Speech Processor

The Speech Processor is divided into three audio frequency bands: low, mid and high. All are fully adjustable through the menu interface.

Transmit Equalizer

You can further tailor your transmit audio by adding clarity (high boost), strength (low boost) and removing background ambient noise other than voice (comb filter). This allows you to optimize your signal for specific contacts.

The back panel has a host of connectors: antenna 1 & 2 (UHF-type), FSK keying (RCA pin jack/phono socket), high-speed RS-232C PC control (D-SUB 9-pin), Digital modes (13-pin DIN), external antenna tuner (6-pin), external linear amp control (7-pin DIN), dual CW keys, external speaker (miniplug), station monitor connector (8.83 MHz; RCA pin jack/phono socket), and an external receiver antenna connection (RCA pin jack/phono socket).

Smooth Operating

The TS-870S has a full array of additional features that make HF operating a truly pleasurable experience. All of the drudgery is eliminated, leaving you free to pilot your way through DX contests, DXpeditions, or whatever your HF passion is. The TS-870S arms you with leading edge digital technology plus all of the convenience these features give you.

Built-in Electronic Keyer

You'll be flying high with morse code generated by the full-featured built-in Electronic Keyer. It's based on the popular K1 LogiKey and offers full or semi break-in, rise/fall times adjustable through DSP, plus a side tone monitor. The TS-870S also sports a second keyer connection.

CW Pitch Control
The CW Pitch Control is adjustable in 50 Hz steps between 400 Hz and 1000 Hz. It can also be linked to the side tone.

CW Reverse Mode
In reverse mode the pitch of interference competing with the CW signal is reversed, so the operator can approach the target from either side.

100-Watt Output
The TS-870S puts out 100 watts in SSB, CW, FSK, and FM modes. Output on AM is 25 watts.

Advanced Intercept Point (AIP)
AIP extends the receiver dynamic range and reduces adjacent signal interference. You can activate and store AIP on each band.

Multiple Scanning Modes
All-Scan Mode covers all memory channels that have stored information; Group Scan Mode scans all 100 memory channels in groups of 10; Lock-Out Memory Scan allows you to sample only certain channels; and Programme Scan is used to scan a frequency spread between two VFO settings. You can control the speed of any scan mode, and choose time-operated or carrier-operated busy-stop-resume.

Menu Function
All of the power of the DSP and other functions can be accessed through the menu-driven display interface on the front of the TS-870S. You may also activate the Quick Menu feature to access only your most commonly-used functions.

Auto Antenna Tuner
The sophisticated Auto Antenna Tuner works in all bands from 1.8 to 28 MHz with rapid tuning lock when using presets. It also operates when the radio is in receive mode, maximizing the strength of received signals.

Dual Antenna Terminals
You may connect two separate antennas at the same time and switch between them from the front panel controls. Antenna selection is stored in band memory for automatic recall when you change bands.

Receive Antenna
You can also hook up an external receiver to a dedicated connector to access other frequencies on the same antenna being used by the TS-870S.

Digital Recording Unit Option
The optional DRU-3 is a high-quality digital recording device which lets you store up to 4 messages for a total of 60 seconds.

TF-Set
Transmit Frequency Set allows you to perform a one-touch check of your transmit frequency while operating splits. You can lock the receive frequency and adjust the transmit frequency as well.

"Delta" Frequency
This function gives you an instant display of the frequency difference between transmit and receive when you are operating splits.

Quick Memory
Use the one-touch Quick Memory for storing temporary frequencies "on the fly" (5 channels). This is ideal for use during contests or changing conditions.

100 Main Memory Channels
You have more than enough room to store frequency, mode and other settings of your favorite operating hangouts. You can also set one channel for use as a programmable VFO or programmable scan.

Transmit AGC
The microphone AGC circuit ensures that your transmitted signal is not over-modulated, even if the voice input level varies (SSB, FM, AM).

Attenuator
You can select 4 stages of attenuation for each band: off, -6 dB, -12 dB, and -18 dB.

Noise Blanker
The Noise Blanker is a variable-level type that nulls pulse-type interference.

Programmable Function Keys
You can programme your most often used functions in any of 4 user-programmable keys for quick access.

High-Speed Computer Control Interface
The TS-870S is fully computer-controllable through a built-in, high-speed 57.6 Kbps RS-232C interface on the back panel.

Other Features:

- General coverage receiver (100 Hz to 30 MHz)
- RIT/XIT (Variable range: ±9.99 kHz)
- Voice Synthesizer compatible (with optional VS-2)
- All-mode squelch
- RF Gain
- Split transfer function
- VOX
- Frequency lock/transmit inhibit
- Variable beep (3 levels)

Dimensions (W x H x D)

- 330 x 120 x 334 mm (12.99 x 4.72 x 13.15 in.)

Please note that not all features and options may be available for the model sold in your region.