

general catalog


amateur radio equipment



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The TS-930S is a superlative, high performance, all solid-state, HF transceiver capable of operation in the SSB, CW, FSK, and AM modes on all Amateur 160 through 10 meter bands. It incorporates an excellent general coverage receiver with an exceptionally high dynamic range (100dB typical on 20m, CW bandwidth) having continuous coverage of all frequencies from 150kHz through 30MHz. Keyed to the exacting requirements of the DX and contest operator, the TS-930S provides a variety of the most useful performance features, including

new, innovative, interference rejection circuits, such as SSB slope tuning, CW VBT (variable bandwidth tuning), IF notch filter, CW pitch control, and audio peak-tuned CW filter. Equally important, the TS-930S design includes dual digital VFO's, eight memory channels, CW full break-in switchable to semi break-in, a unique built-in automatic antenna tuner, and a new higher voltage operated solid-state final amplifier that provides the ultimate in reduction of IM and spurious emissions.

The all-in-one design of the TS-930S (transceiver,

antenna tuner, and power supply in a single cabinet) makes it the ideal transceiver for use in the ham shack, or when out on a DX-pedition.

The TS-930S may be ordered with the automatic antenna tuner installed or available as a dealer installed option.

FEATURES

- 160 ~ 10 Meter Amateur bands, plus 150 kHz ~ 30 MHz general coverage receiver
- Superior receiver dynamic range
- All solid-state, 28V operated final amplifier
- Automatic antenna tuner built-in
- CW full break-in
- Dual digital VFO's
- Eight memory channels
- SSB IF slope tuning
- CW VBT (variable bandwidth tuning) and pitch controls
- IF NOTCH filter
- Various IF filters (built-in and optional)
- Audio filter built-in
- Dual mode noise blanker
- Fluorescent tube digital display (10 Hz display modifiable)
- AC power supply built-in
- RF speech processor

SPECIFICATIONS

[GENERAL]

- Transmitter frequency range: 1.8 – 2.0 MHz, 3.5 – 4.0 MHz, 7.0 – 7.3 MHz, 10.1 – 10.15 MHz (10 MHz



MC-60A

SP-930

TS-930S

WWV, 14.0 – 14.35 MHz, 18.068 – 18.168 MHz, 21.0 – 21.45 MHz, 24.89 – 24.99 MHz, 28.0 – 29.7 MHz ● Receiver frequency range: 150 kHz – 30 MHz ● Mode: A3J (USB, LSB), A1 (CW), F1 (FSK), A3 (AM) ● Antenna impedance: 50Ω (20 – 150Ω with antenna tuner [TX only]) ● Power requirement: 120V/220V/240V AC, 50/60 Hz ● Power consumption: TX = max. 510W, RX = 80W ● Dimensions: 374 (14.7)W × 141 (5.6)H × 350 (13.8)D mm (inch) ● Weight: 18.5 kg approx. (with antenna tuner), 16.8 kg approx. (without antenna tuner)

[TRANSMITTER]

● Final power input: 250W for SSB/CW/FSK opera-

tion, 80W DC for AM operation ● Carrier suppression: better than 40 dB ● Unwanted sideband suppression: better than 50 dB ● Harmonic radiation: less than -40 dB ● Modulation: SSB: balanced modulation, AM: low level modulation (IF stage) ● FSK shift width: 170 Hz ● Microphone impedance: 500Ω or $50\text{ k}\Omega$

[RECEIVER]

● Circuitry: quadruple conversion system ● Intermediate frequency: 1st IF: 44.93 MHz, 2nd IF: 8.83 MHz, 3rd IF: 455 kHz, 4th IF: 100 kHz ● Sensitivity (at 10 dB S/N): 150 – 500 kHz = less than 0 dB μ (1 μ V) for SSB, CW and FSK, less than 20 dB μ (10 μ V)

for AM, 500 kHz – 1.8 MHz = less than 12 dB μ (4 μ V) for SSB, CW and FSK, less than 30 dB μ (32 μ V) for AM, 1.8 – 30 MHz = less than -12 dB μ (0.25 μ V) for SSB, CW and FSK, less than 6 dB μ (2 μ V) for AM ● Image ratio: more than 80 dB (1.8 MHz – 30 MHz) ● IF rejection: more than 70 dB (1.8 MHz – 30 MHz) ● Selectivity: SSB, CW, FSK, AM(N) = 2.7 kHz (-6 dB), 4 kHz (-60 dB), AM(W) = 6 kHz (-6 dB), 18 kHz (-60 dB) ● Variable bandwidth: SSB slope tune = high-cut: more than 1,500 Hz, low-cut: more than 700 Hz, CW VBT = 600Hz – 2.4 kHz (continuously variable without optional filter) ● RIT variable range: ± 9.99 kHz ● Dynamic range: 100 dB (with 500 Hz filter) ● Notch filter attenuation: more than 40 dB ● Audio output power: more than 1.5W

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OPTIONAL ACCESSORIES

● SP-930: External speaker ● AT-930: Built-in automatic antenna tuner, 80 ~ 10-m ● AT-250: External automatic antenna tuner, 160 ~ 10-m ● SO-1: Temperature compensated crystal oscillator ● YK-88A-1: 6 kHz AM filter ● YK-88C-1: 500 Hz CW filter ● YG-455C-1: 500 Hz CW filter ● YG-455CN-1: 250 Hz CW narrow filter ● MC-60A: Deluxe desk-top microphone ● MC-80: Desk-top microphone ● MC-85: Multi-function desk-top microphone

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The TS-430S combines the ultimate in compact styling with its counterparts in advanced circuit design and performance. An all solid-state SSB, CW, and AM transceiver, with FM optional, covering the 160 – 10 meter Amateur bands including the new WARC bands, this remarkable radio also incorporates a 150 kHz – 30 MHz general coverage receiver having an extra wide dynamic range. Key features include dual digital VFO's, eight memory channels, memory scan, programmable band

scan, IF shift, notch filter, fluorescent tube digital display, built-in speech processor, all-mode squelch circuit, and a host of other features designed to enhance its versatility and flexibility of use in Amateur operations.

FEATURES

- 160 – 10 meter operation, with general coverage receiver
- USB, LSB, CW, AM, with optional FM all mode
- Compact, light weight design
- 10 Hz step dual digital VFO's
- Eight memories store frequency, mode and band data
- Lithium battery memory back-up
- Memory scan
- Programmable band scan
- IF shift circuit for minimum QRM
- Tuneable NOTCH filter built-in
- Narrow-wide filter selection
- Speech processor built-in
- All solid state
- Fluorescent tube digital display
- All mode squelch circuit built-in
- Built-in noise blanker
- RF attenuator
- VOX circuit
- Rugged construction and styling

SPECIFICATIONS

[GENERAL]

• Transmitter frequency range: 160, 80, 40, 30, 20, 17*, 15, 12*, 10 meter Amateur bands *Transmis-

sion on 17 and 12 meter bands possible with simple modification

- Receiver frequency range: 150 kHz to 30 MHz
- Mode: A3J (LSB, USB), A1 (CW), A3(AM), F3(FM) (optional accessory)
- Frequency stability (0°C to + 50°C): less than $\pm 30 \times 10^{-6}$, within ± 200 Hz during the first hour after 1 minute of warm up, and within ± 30 Hz during any 30 minutes after warm up
- Antenna impedance: 50 Ω
- Power requirement: 12.0 – 16.0V DC (13.8V nominal)
- Power consumption: 20A approx. in transmit mode, 1.2A approx. in receive mode
- Frequency tolerance (0°C to + 50°C): Less than $\pm 10 \times 10^{-6}$ (at RIT OFF)
- Operating temperature: -10°C + 50°C
- Dimensions: 270(10.6)W x 96(3.8)H x 275(10.8)D mm (inch)
- Weight: 6.5kg (14.3 lbs.)

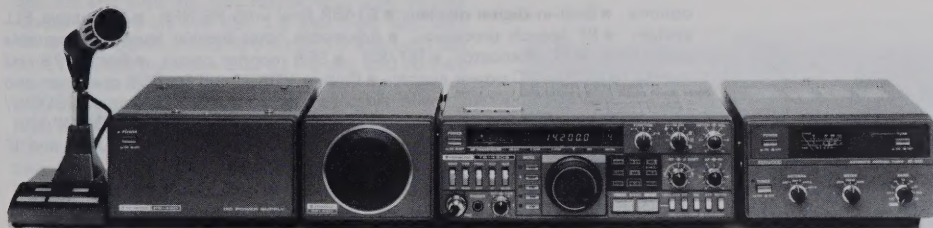
[TRANSMITTER]

• Final power input:

Band \ Mode	SSB	CW	FM	AM
160m – 15m	250W PEP	200W DC	–	60W
10m	250W PEP	200W DC	120W	60W

• Modulation: SSB = balanced modulation, FM = variable reactance direct shift, AM = low level modulation (IF stage)

- Carrier suppression: better than 40 dB



NC-60A

PS-430

SP-430

TS-430S

AT-250

● Unwanted sideband suppression: better than 50 dB ● Spurious radiation: less than -40 dB ● Maximum frequency deviation (FM): ± 5 kHz (with FM-430 optional accessory) ● Microphone impedance: 500 Ω to 50k Ω

[RECEIVER]

● Circuitry: SSB, CW, AM = double conversion superheterodyne, FM = double conversion superheterodyne (transmit), Triple conversion superheterodyne (receive) ● Intermediate frequency: (receive) 1st IF = 48.055 MHz, 2nd IF = 8.83 MHz, 3rd IF = 455 kHz (only FM); (transmit) 1st IF = 8.83 MHz, 2nd IF = 48.055 MHz

● Sensitivity: (at 10 dB S/N)

Frequency Mode	150 kHz ~ 500 kHz	500 kHz ~ 1.8 MHz	1.8MHz ~ 30 MHz
SSB/CW	less than 1 μ V	less than 4 μ V	less than 0.25 μ V
AM	less than 13 μ V	less than 40 μ V	less than 2.5 μ V
FM (S/N=26dB)	-	-	*less than 1 μ V
FM (SINAD=12 dB)	-	-	*less than 0.7 μ V

*with FM-430 optional accessory
Image ratio: better than 70 dB (1.8 - 30 MHz), better

than 50 dB (FM = 3rd image ratio) ● IF rejection: better than 70 dB (1.8 - 30 MHz)

● Selectivity:

Selectivity Mode	-6 dB	-60 dB
SSB/CW	2.4 kHz	less than 4.4 kHz
AM *1	6 kHz	less than 12 kHz
FM *2	15 kHz	less than 32 kHz

*1 with YK-88A optional filter

*2 with FM-430 optional accessory

● RIT variable range: more than ± 1 kHz ● Audio output impedance: 4 Ω to 16 Ω ● Audio output power: more than 1.5W across 8 Ω (at 10% distortion)

OPTIONAL ACCESSORIES

● PS-430: DC power supply ● KPS-21: DC power supply ● AT-130: Antenna tuner ● AT-250: Automatic antenna tuner ● SP-430: External speaker ● FM-430: FM unit ● MB-430: Mobile mount ● YK-88C: 500 Hz CW filter ● YK-88CN: 270 Hz CW narrow filter ● YK-88SN: 1.8 kHz SSB narrow filter ● YK-88A: 6 kHz AM filter ● MC-60A: Deluxe desk-top microphone ● MC-80: Desk-top microphone ● MC-85: Multi-function desk-top microphone ● MC-42S: Up/Down hand microphone



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The TS-830S is a high-performance, HF SSB/CW transceiver with every conceivable operating feature built in for 160 through 10 meters (including the three new bands). The TS-830S combines a high dynamic range with variable bandwidth tuning, IF shift, and an IF notch filter, as well as very sharp filters in the 455 kHz second IF. Its optional VFO-230 digital VFO provides five memories.

FEATURES

- 160-10 Meters, including three new bands
- Wide receiver dynamic range
- VBT-Variable Bandwidth Tuning
- IF notch filter
- IF shift
- Various IF filter

- options
- Built-in digital display
- 6146B final with RF NFB
- Innovative PLL system
- RF speech processor
- Adjustable noise-blanker level
- Adjustable audio tone
- RF attenuator
- RIT/XIT
- SSB monitor circuit
- Built-in 25 kHz marker
- Built-in AC power supply
- Built-in VOX circuit for SSB operation and CW semi break-in operation with sidetone
- Switchable AGC circuit (SLOW/FAST/OFF)
- FIX channel switch
- Multifunction meter (ALC/IP/RF/COMP/HV)
- LED indicators (RIT, XIT, RF ATT, VFO, FIX and NOTCH)
- IF OUT-1 and IF OUT-2 terminals for SM-220 station monitor

SPECIFICATIONS

[GENERAL]

- Frequency range: 1.8 – 2.0 MHz, 3.5 – 4.0 MHz, 7.0 – 7.3 MHz, 10.1 – 10.15 MHz (10.0 MHz WWV), 14.0 – 14.35 MHz, 18.068 – 18.168 MHz, 21.0 – 21.4 MHz, 24.89 – 24.99 MHz, 28.0 – 29.7 MHz
- Modes: SSB/CW
- RF output impedance: 50Ω-75Ω
- Power requirement: 120V AC (220V modifiable)
- Power consumption: TX = 295W, RX = 32W (with heater off)
- Dimensions: 333 (13.1) × 133 (5.2) × 333 (13.3) mm (inch)
- Weight: 13.5 kg (29.8 lbs)

[TRANSMITTER]

- *Final power input: 220W PEP for SSB operation, 180W DC for CW operation
- Carrier suppression: more than 40 dB
- Sideband suppression: more than 60 dB
- Spurious radiation: more than 60 dB
- Audio input impedance: 500Ω – 50 kΩ

*Will transmit on the new 17, and 12 meter bands. Diodes have been installed to prevent accidental transmission. They may be removed easily when government authorization has been granted for Amateur operation.

[RECEIVER]

- Sensitivity: 0.25 μV at 10 dB S/N
- Selectivity: SSB/CW WIDE = 2.4 kHz (-6

dB), 3.6 kHz (-60 dB), CW NARROW = with YK-88C (option) = 500 Hz (-6 dB), 1.5 kHz (-60 dB), with YK-88CN (option) = 270 Hz (-6 dB), 1.1 kHz (-60 dB), with YG-455C (option) = 500 Hz (-6 dB), 820 Hz (-60 dB), with YG-455CN (option) = 250 Hz (-6 dB), 500 Hz (-60 dB) ● Variable bandwidth: SSB with 2.7 kHz filter = 500 Hz - 2.4 kHz (-6 dB) continuously variable, CW with optional YK-88C and YG-455C 500 Hz filters = 150 Hz - 500 Hz (-6 dB) continuously variable ● IF rejection: more than 80 dB ● Notch-filter attenuation: more than 40 dB ● Audio output power: 1.5W (8 Ω)

OPTIONAL ACCESSORIES

● VFO-230: Digital remote VFO ● VFO-240: Remote VFO ● AT-230: Antenna tuner ● AT-250: Automatic antenna tuner ● SP-230: External speaker ● MC-30S/35S: Hand microphone ● MC-60 (N4): Deluxe desk-top microphone ● MC-60A: Deluxe desk-top microphone (with MJ-84 Microphone plug adapter or PG-4A microphone cable) ● MC-80: Desk-top microphone (with MJ-84 Microphone plug adapter or PG-4D microphone cable) ● MC-85: Multi-function desk-top microphone (with MJ-84 Microphone plug adapter or PG-4D microphone cable) ● KB-1: Deluxe VFO knob ● YG-455C: 500 Hz CW filter ● YG-455CN: 250 Hz CW filter ● YK-88C: 500 Hz CW filter ● YK-88CN: 270 Hz CW filter



SP-230

TS-830S

VFO-230

Combination of IF filters

MODE SWITCH		8.83MHz	455 kHz	Overall Pass-bandwidth	VB
SSB		2.7 kHz	2.7 kHz	2.4 kHz	500 Hz ~ 2.4 kHz
CW	WIDE	2.7 kHz	2.7 kHz	2.4 kHz	500 Hz ~ 2.4 kHz
	NARROW	a (YK-88C 500 Hz)	2.7 kHz	(500 Hz)	*
		b (YK-88CN 270 Hz)	2.7 kHz	(270 Hz)	*
		c 2.7 kHz	(YG-455C 500 Hz)	(500 Hz)	*
		d 2.7 kHz	(YG-455CN 250 Hz)	(250 Hz)	*
	e	(YK-88C 500 Hz)	(YG-455C 500 Hz)	(500 Hz)	150 Hz ~ 500 Hz

Notes: ● () = optional filter installation ● * Although VB circuit operates, optimum VB characteristics cannot be expected due to the characteristic differences of 8.83 MHz and 455 kHz filters ● The optional 455 kHz filter YG-455C (500 Hz) and YG-455CN (250 Hz) have sharper selectivity, because of low-frequency characteristics.



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The TS-530SP HF transceiver is designed in accordance with KENWOOD's latest, most advanced circuit technology, providing wide dynamic range, high sensitivity, very sharp selectivity with selectable filters and IF shift, NOTCH filter, built-in digital display, speech processor, and other features for optimum, yet economical, operation on 160 through 10 meters.

FEATURES

- 160-10 meter coverage, including three new bands
- Built-in digital display
- Narrow/wide filter combinations
- IF shift reduces QRM
- Tuneable NOTCH filter built-in
- Wide receiver dynamic range
- Built-in speech processor
- Two 6146B's in the final
- Advanced single-conversion PLL system
- Adjustable noise-blanker level
- RF attenuator for IMD rejection
- More flexibility with optional VFO's

- Expanded frequency coverage
- Built-in VOX semi-break-in
- Built-in 25 kHz marker
- RIT/XIT
- Attractive appearance with rugged construction
- Amplified type AGC circuit
- Amplified type ALC circuit
- Built-in AC power supply
- Final cooling fan
- LED indicators
- Multifunction meter
- Built-in CW zero-beat function
- Carrier level control
- Microphone gain control
- Heater switch (for driver and final tube filaments)
- Built-in speaker
- Carrying handle

COMBINATION OF IF FILTER

MODE OPTIONAL FILTER(S)	SSB		CW	
	WIDE	NARROW	WIDE	NARROW
YK-88SN	2.4 kHz	1.8 kHz	2.4 kHz	1.8 kHz
YK-88C	2.4 kHz	—	2.4 kHz	500 Hz
YK-88CN	2.4 kHz	—	2.4 kHz	270 Hz
YK-88SN + YK-88C	2.4 kHz	1.8 kHz	*2.4 kHz or 1.8 kHz	500 Hz
YK-88SN + YK-88CN	2.4 kHz	1.8 kHz	*2.4 kHz or 1.8 kHz	270 Hz
YK-88C + YK-88CN	2.4 kHz	(500 Hz)	500 Hz	270 Hz

*2.4 kHz or 1.8 kHz selected by inside jumper.



SP-230

TS-530SP

VFO-240

AT-230

SPECIFICATIONS

[GENERAL]

● Frequency range: 1.8 – 2.0 MHz, 3.5 – 4.0 MHz, 7.0 – 7.3 MHz, 10.1 – 10.15 MHz (10.0 MHz WWV), 14.0 – 14.35 MHz, *18.068 – 18.168 MHz, 21.0 – 21.45 MHz, 24.89 – 24.99 MHz, 28.0 – 29.7 MHz. *Receiving only. (Transmission on these bands is possible with simple modification.) ● Mode SSB/CW ● RF output impedance: $50\Omega \sim 75\Omega$ ● Power requirement: 120V AC 50/60 Hz ● Power consumption: TX = 295W, RX = 27W (with heater OFF) ● Dimensions:

333 (13.1) × 133 (5.2) × 333 (13.1) mm (inch)
● Weight: 12.8 kg (28.2 lbs.)

[TRANSMITTER]

● Final power input: 220W PEP for SSB operation, 180W DC for CW operation ● Carrier suppression: better than 40 dB ● Unwanted sideband suppression: better than 50 dB ● Spurious radiation: better than 60 dB ● Harmonic radiation: better than 40 dB

[RECEIVER]

● Sensitivity: $0.25\mu\text{V}$ at 10 dB S/N ● Image ratio:

better than 60 dB ● Receiver system: single superheterodyne ● IF rejection: better than 70 dB ● Selectivity: SSB/CW WIDE = 2.4 kHz (–6 dB), 4.2 kHz (–60 dB), SSB NARROW = with YK-88SN (option filter) 1.8 kHz (–6 dB) 3.3 kHz (–60 dB), CW NARROW = with YK-88C (option filter) 500 Hz (–6 dB), 1.5 kHz (–60 dB), CW NARROW = with YK-88CN (option filter) 270 Hz (–6 dB), 1.1 kHz (–60 dB) ● Audio output power: 1.5W (8Ω)

OPTIONAL ACCESSORIES

● VFO-240: Remote VFO ● VFO-230: Digital remote VFO ● AT-230: Antenna tuner ● AT-250: Automatic antenna tuner ● SP-230: External speaker ● MC-60 (N4): Deluxe desk-top microphone ● MC-50: Desk-top microphone ● MC-60A: Deluxe desk-top microphone (with MJ-84 or PG-4A) ● MC-80: Desk-top microphone (with MJ-84 or PG-4D) ● MC-85: Multi-function desk-top microphone (with MJ-84 or PG-4D) ● KB-1: Deluxe VFO knob ● YK-88 C: 500 Hz CW filter ● YK-88 C: 500 Hz CW filter ● YK-88CN: 270 Hz CW narrow filter ● YK-88SN: 1.8 kHz SSB narrow filter ● HS-4, HS-5, HS-6, HS-7: Headphones

TS-130SE/130V

HF TRANSCEIVER



FEATURES

- 80 – 10 Meters, including three new bands
- Built-in speech processor
- CW narrow/wide selection
- SSB narrow selection
- Sideband mode selected automatically
- Optional DFC-230 digital frequency controller
- Optimum performance in a compact package
- All solid-state ... Easy to operate
- Built-in digital display
- IF Shift eliminates QRM
- Innovative single conversion PLL system
- Built-in RF attenuator
- Protection circuit for final transistor
- Expanded frequency coverage
- Built-in VOX circuit
- Built-in noise blanker
- Enhanced selectivity with innovative MCF
- Built-in 25 kHz marker
- Fixed channels
- Rugged construction and handsome styling.

The TS-130 Series is an incredibly compact, full-featured reasonably priced, all solid-state HF SSB/CW transceiver for both mobile and fixed operation. It covers 3.5 – 29.7 MHz (including the three Amateur bands) and is loaded with optimum operating features such as digital display, IF shift,

speech processor, narrow/wide filter selection (for both SSB and CW modes), and optional (DFC-230) digital frequency controller.

The TS-130SE runs high power, and the TS-130V is a low-power version for QRP operation.



PS-30

SP-120

TS-130SE

VFO-120

SPECIFICATIONS

[GENERAL]

● Frequency range: 3.5 – 4.0 MHz, 7.0 – 7.3 MHz, 10.1 – 10.15 MHz (10.0 MHz WWV), 14.0 – 14.35 MHz, *18.068 – 18.168 MHz, 21.0 – 21.45 MHz, *24.89 – 24.99 MHz, 28.0 – 29.7 MHz, *Receiving only. (Transmission on these bands is possible with a small modification) ● Mode: SSB/CW ● RF output impedance: 50Ω ● Power requirement: TS-130SE = RX: 0.7A 13.8V DC, TX: 19A 13.8V DC, TS-130V = RX: 0.7A 13.8V DC, TX = 4A 13.8V DC ● Dimensions: TS-130SE = 241 (9.6)W × 94 (3.8)H × 293 (11.7)D mm (inch), TS-130V = 241 (9.6)W × 94 (3.8)H

× 235 (9.4)D mm (inch) ● Weight: TS-130SE = 5.6 kg (12.3 lbs.), TS-130V = 4.9 kg (10.8 lbs.)

[TRANSMITTER]

● Final power input: TS-130SE = 80 – 15m 200W PEP for SSB operation, 160W DC for CW operation, 12 – 10m 160W PEP for SSB operation, 140W DC for CW operation, TS-130V = All band = 25W PEP for SSB operation, 20W DC for CW operation ● Carrier suppression: better than 40 dB ● Unwanted side-band suppression: better than 50 dB ● Spurious radiation: better than 40 dB ● Audio input impedance: 500Ω – 50 k Ω

[RECEIVER]

● Sensitivity: 0.25 μ V at 10 dB S/N ● Selectivity: SSB/CW WIDE = 2.4 kHz (–6 dB), 4.2 kHz (–60 dB), SSB NARROW = 1.8 kHz (–60 dB), 3.3 kHz (–60 dB), with optional YK-88SN filter, CW NARROW = 500 Hz (–6 dB), 1.5 kHz (–60 dB) with optional YK-88C filter or 270 Hz (–6 dB) 1.1 kHz (–60 dB), with optional YK-88CN filter ● Image ratio: better than 50 dB ● IF rejection: better than 70 dB ● Audio output power: 1.5W ● Audio output impedance: 4 – 16 Ω

OPTIONAL ACCESSORIES

● VFO-120: Remote VFO ● DFC-230: Digital frequency controller ● AT-130: Compact antenna tuner ● AT-250: Automatic antenna tuner ● SP-120: External speaker ● PS-30/430: DC power supply (for TS-130SE) ● PS-20: DC power supply (for TS-130V) ● YK-88SN: 1.8 kHz SSB narrow filter ● YK-88CN: 270 Hz CW narrow filter ● YK-88C: 500 Hz CW filter ● FA-4: Fan unit (for TS-130SE) ● MC-50: Desk-top microphone ● MC-30S/35S: Noise cancelling hand microphone ● MC-60 (N4): Deluxe desk-top microphone ● MC-60A: Deluxe desk-top microphone (with MJ-84 or PG-4A) ● MC-80: Desk-top microphone (with MJ-84 or PG-4D) ● MC-85: Multi-function desk-top microphone (with MJ-84 or PG-4D) ● MB-100: Mobile mount



12

The TS-660 "Quad Bander" is a unique all-mode transceiver designed for operation on the 6 meter VHF band, and on the 10, 12, and 15 meter HF high bands, all in one compact package sized for base or mobile operation. Engineered utilizing the latest technology, the TS-660 incorporates such key features as dual VFO's for split frequency or cross-band operation, five memories, memory scan, and IF shift. These features allow maximum versatility on 6 meters as well as on the HF high bands, including operation on 10 meter FM.

FEATURES

● 6 meters, plus 10, 12, 15 meters ● All-mode opera-

tion ● 10 Hz step digital VFO with F.STEP switch ● Dual VFO's ● Precision VFO encoder ● Built-in 5 channel memory, with band information ● Memory SCAN ● Microphone UP/DOWN frequency control ● Frequency lock function ● IF Shift circuit (built-in) ● Easy-to-read fluorescent digital display ● All-mode squelch circuit ● Noise blanker ● CW semi break-in circuit ● Wide-band power amplifier ● Dual antenna terminals ● RIT control ● Optional speech processor/VOX unit ● Optional IF filters for CW and AM.

SPECIFICATIONS

[GENERAL]

● Frequency range: 21.0 – 21.45 MHz, 24.89 – 24.99 MHz, 28.0 – 29.7 MHz, 50 – 54 MHz ● Mode: SSB (A3J), CW(A1), AM(A3), FM(F3) ● Power requirement: 12V – 16V DC (13.8V DC nominal) ● Power consumption: TX: 4A, RX: 1A ● Dimensions: 241 (9.5)W x 94(3.7)H x 236(9.3)D mm (inch) ● Weight: 4.9 kg (10.8 lbs.)

[TRANSMITTER]

● RF output power: SSB, CW, FM = 10W, AM = 4W

● Modulation: SSB = balanced modulation, FM = variable reactance direct shift, AM = low level modulation (IF stage) ● Carrier suppression: better than 40 dB ● Unwanted sideband suppression: better than 50 dB ● Spurious radiation: 15m – 10m band = better than 40 dB, 6m band = better than 60 dB

[RECEIVER]

● Sensitivity: SSB, CW = 0.25 μ V for 10 dB S/N, AM = 1 μ V for 10 dB S/N, FM = 1 μ V for 30 dB S/N, less than 0.4 μ V for 12 dB S/N AD ● Image ratio: better than 60 dB ● IF rejection: better than 70 dB ● Selectivity: SSB, CW, AM = 2.4 kHz (–6 dB), 4.2 kHz (–60 dB), FM = 15 kHz (–6 dB), 32 kHz (–60 dB), Optional filter AM filter YK-88A: 6 kHz (–6 dB), 11 kHz (–60 dB), CW filter YK-88C: 500 Hz (–6 dB), 1.5 kHz (–60 dB), YK-88CN: 270 Hz (–6 dB), 1.1 kHz (–60 dB) ● Audio output power: more than 1.5W

OPTIONAL ACCESSORIES

● PS-20: DC power supply ● SP-120: External speaker ● VOX-4: VOX/speech processor ● MC-42S: UP/DOWN hand microphone ● MC-60A: Deluxe desk-top microphone ● MC-80: Desk-top microphone ● MC-85: Multi-function desk-top microphone ● TK-1: AC adaptor for memory back-up ● MB-100: Mobile mount ● YK-88A: 6 kHz AM filter ● YK-88C: 500 Hz CW filter ● YK-88CN: 270 Hz CW narrow filter



The R-600 is a high performance general coverage communications receiver covering 150 kHz to 30 MHz in 30 bands. Use of PLL synthesized circuitry provides highly accurate frequency control with maximum ease of operation. Use of the latest technology assures the ultimate in short wave listening enjoyment on all covered frequencies, whether using AM, SSB, or CW modes of operation. The compact size of the R-600 allows the user the maximum flexibility in placement of the radio, and the front mounted speaker permits the radio to be located between shelves without degradation of audio quality.

FEATURES

- Continuous frequency coverage from 150 kHz to 30 MHz
- 30 bands, each 1 MHz wide
- Five digit frequency display
- Two built-in IF filters
- Up-conversion PLL circuit
- Communication type noise blanker
- RF attenuator
- Tone control
- Front mounted speaker
- "S" meter with SINPO S-scale

- Three antenna terminals
- 100/120/220/240 V AC operation
- Optional 13.8 V DC operation kit "DCK-1"
- Recording output jack on front panel
- Muting terminal
- Antenna input protection
- External speaker jack
- Headphone jack
- Carrying handle

SPECIFICATIONS

- Frequency range: 150 kHz – 30 MHz
- Mode: AM, SSB, CW
- Sensitivity (S + N/N 10 dB or more, antenna impedance 50 Ω)

Frequency \ Mode	SSB/CW	AM
150 kHz ~ 2 MHz	less than 2 μ V	less than 20 μ V
2 MHz ~ 30 MHz	less than 0.5 μ V	less than 5 μ V

- Selectivity AM (WIDE) = 6 kHz (–6 dB), 18 kHz (–50 dB), AM (NARROW) = 2.7 kHz (–6 dB), 5 kHz (–50 dB), SSB/CW = 2.7 kHz (–6 dB), 5 kHz (–50 dB)
- Image ratio: better than 60 dB
- IF rejection: better than 60 dB
- Antenna impedance: 50 Ω /500 Ω
- Audio output power: 1.5W (8 Ω load, 10% distortion)
- Audio output impedance: 4 Ω – 16 Ω , external speaker or headphone
- Power consumption: 16W AC, 13.8V DC, 0.8A (with optional DCK-1)
- Power requirements: 100/120/220/240V AC, 50/60 Hz, 13.8V DC (with optional DCK-1)
- Dimensions: 299 (11.8)W x 110 (4.3)H x 200 (7.9)D mm (inch)
- Weight: 4.5 kg (9.9 lbs.)

OPTIONAL ACCESSORIES

- DCK-1: DC operation cable kit
- HS-4: Headphones
- HS-5: Deluxe Headphones
- HS-6: Light-weight headphones
- HS-7: Personal micro headphones
- HC-10: Digital world clock
- AL-2: Lightning & Static protector



The R-1000 is a high class general coverage receiver covering 30 bands from 200 kHz – 30 MHz with a PLL synthesizer that incorporates a variety of KENWOOD's sophisticated electronic technology acquired over many years. Both a digital display readout (1 kHz step) and analog dial are provided for more convenient operation.

The R-1000 also boasts a quartz digital clock with timer, three IF filters, RF ATT and TONE control, etc. to enhance receiving conditions for each mode. Due consideration has been given to innovative design and compactness, making the R-1000 indispensable for Amateur radio operators, professionals, BCL's and SWL's, etc.

FEATURES

- PLL synthesizer that covers 30 bands from 200 kHz – 30 MHz
- Simple operation
- Refined style and compactness
- Large 10 cm built-in speaker
- Built-in quartz digital clock with timer
- Three IF filters for receive mode
- Built-in noise blanker
- RF attenuator in antenna circuit
- Changeable light intensity
- Tone control
- Recording terminal
- Selectable AC power voltage
- Wire and coaxial antenna terminals
- Accessory terminals

SPECIFICATIONS

- Frequency range: 200 kHz – 30.0 MHz
- Modes: AM, SSB, CW
- Sensitivity (for 10 dB or more S + N/N): SSB = 5 μ V, 200 kHz – 2 MHz; 0.5 μ V, 2 MHz – 30 MHz; AM = 500 μ V, 200 kHz – 2 MHz; 5 μ V, 2 MHz – 30 MHz
- Image ratio: more than 60 dB
- IF Rejection: more than 70 dB
- Selectivity: AM (WIDE) = 12 kHz (–6 dB), 25 kHz (–50 dB), AM (NARROW) = 6 kHz (–6 dB), 18 kHz (–50 dB) adaptable AM (wide) 6 kHz (–6 dB) and AM (NARROW) 2.7 kHz (–6 dB), SSB/CW = 2.7 kHz (–6 dB), 5 kHz (–60 dB)
- Antenna impedance: MW 200 kHz – 2 MHz, 1 k Ω (unbalanced), SW A 2 MHz – 30 MHz, 50 Ω (unbalanced), SW B 2 MHz – 30MHz, 1 k Ω (unbalanced)
- Audio output power: 1.5W min.
- Clock section (quartz) accuracy: \pm 15 seconds max. per month
- Power consumption: 20W
- Power requirements: 100/120/220/240V AC, 50/60 Hz
- Dimensions: 300 (11.8)W x 115 (4.5)H x 218 (8.6)D mm (inch)
- Weight: 5.5 kg (12.1 lbs.)

OPTIONAL ACCESSORIES

- SP-100: External speaker
- DCK-1: DC operation cable kit
- HS-4/5/6/7: Headphones



The R-2000 is an innovative all-mode SSB, CW, AM, FM receiver that covers 150 kHz – 30 MHz, with an optional VC-10 VHF converter unit to provide coverage of the 118-174 MHz frequency range.

FEATURES

- Covers 150 kHz – 30 MHz in 30 bands ● Optional 118-174 MHz Coverage
- All modes: SSB, CW, AM, and FM ● Digital VFO's feature excellent stability
- Ten memories store frequency, band, and mode data ● Lithium battery memory back-up ● Memory scan ● High performance receiver circuits ● Fluorescent tube digital display (100 Hz resolution) ● Dual 24-hour quartz clocks, with timer
- Three built-in IF filters with narrow-wide selector switch. (CW filter optional)
- Squelch circuit, all mode, built-in ● Noise blanker built-in ● Large front mounted speaker ● Tone control ● RF step attenuator ● AGC switch ● "S" meter with SINPO "S" scale ● High and low impedance antenna terminals ● 100 – 240 VAC operation ● Optional 13.8 VDC operation ● Record output jack on front panel ● Remote terminal ● Other provisions for versatility and ease of operation

SPECIFICATIONS

- Frequency Range: 150 kHz ~ 30 MHz ● Mode: AM, FM, SSB (USB/LSB), CW ● Sensitivity (0 dBμ = 1 μV): (S + N/N = 10 dB): SSB/CW; less than 2 μV (150 kHz ~ 2 MHz), less than 0.4 μV (2 MHz ~ 30 MHz), less than 1 μV (118 ~ 174 MHz), AM; less than 20 μV (150 kHz ~ 2 MHz), less than 4 μV (2 MHz ~ 30 MHz), less than 10 μV (118 ~ 174 MHz), FM; less than 1 μV (2 MHz ~ 30 MHz), less than 2 μV (118 ~ 174 MHz) ● Selectivity: AM-WIDE; 6 kHz (–6 dB), 18 kHz (–50 dB), AM-NARROW: 2.7 kHz (–6 dB), 5 kHz (–50 dB), SSB/CW; 2.7 kHz (–6 dB), 5 kHz (–50 dB), CW-NARROW: 500 Hz (–6 dB)*, 820 Hz (–60 dB)*, FM; 15 kHz (–6 dB), 30 kHz (–50 dB) *: with YG-455C optional CW crystal filter ● Image Ratio: Better than 70 dB ● IF Rejection: Better than 70 dB ● Frequency Stability: Within ±300 Hz during the first hour after 1 minute of warm-up. Within ±50 Hz during any 30 minutes period thereafter. ● Frequency Accuracy: ±10 × 10^{–6} or better (at normal temperatures) ● Squelch Sensitivity: (threshold, 0 dBμ = 1 μV), AM/SSB/CW = Less than 3.12 μV [5 μV], FM = Less than 0.5 μV [1 μV] ● Audio Load Impedance: 4Ω to 16Ω ● Audio Output Power: 1.5W (8Ω load, 10% distortion) ● Antenna Impedance: 50Ω/500Ω Power Consumption: (at no signal) = 14W AC [16W], 13.8VDC, 0.6A (with optional DCK-1) [0.8A], (at Memory Back-up) = 3W AC [16W], 13.8VDC, 0.1A (with optional DCK-1) ● Power Requirements: 100/120/220/240V AC, 50/60 Hz, 13.8VDC (with optional DCK-1) ● Dimensions: 375 (14.8) W × 115 (4.5) H × 210 (8.3) D mm (inch) ● Weight: 5.5 kg (12.1 lbs.) approx.

[]: When the VC-10 is installed on the rear panel of the R-2000.

OPTIONAL ACCESSORIES

- VC-10: VHF converter unit ● HS-4, HS-5, HS-6, HS-7: Headphones ● YG-455C: 500 Hz CW filter ● DCK-1: DC cable kit ● HC-10 Digital world clock ● AL-1/AL-2: Lightning & Static Protector



The TR-2500 is a compact, designed for tomorrow, 2 meter FM handheld transceiver, incorporating the latest in electronic technology, including LCD readout, 10 channel memory with improved memory back up, memory scan, programmable automatic band scan, keyboard channel selection, and improved flexibility, with a variety of new accessories. Big in features, big in performance, the TR-2500 will surprise you with its small size.

FEATURES

- Extremely compact size and light weight
- LCD digital frequency readout
- Ten-channel memory
- Lithium battery memory back-up
- Memory SCAN
- Programmable automatic band scan
- UP/DOWN manual scan
- Extended frequency coverage

(143.900 – 148.995 MHz) ● Keyboard frequency selection ● Built-in 16 key auto-patch encoder ● Built-in tuneable sub-tone encoder ● HI/LOW power output selection ● Reverse operation ● Optional power sources ● High impact plastic case ● "Slide-lock" battery pack ● Battery status indicator ● Two "lock" switches ● High efficiency, extra thin quality speaker ● BNC antenna terminal

SPECIFICATIONS

[GENERAL]

● Frequency range: 144.000 – 147.995 MHz ● Memory channels: 10 CH ● Mode: FM(F3) ● Operating voltage range: 8.4V DC \pm 25% ● Power requirement: 8.4V 400 mA (Ni-Cd battery pack) ● Back-up power requirement: BR-2325 type lithium battery (built-in) ● Current drain: less than 30 mA in receive mode with no input signal, less than 800 mA in HI transmit signal, less than 800 mA in HI transmit mode (at 8.4V), less than 400 mA in Low transmit mode (at 8.4V), less than 1 μ A for memory back-up ● Dimensions: 66 (2.6)W x 168 (6.6)H x 40 (1.6)D mm (inch) ● Weight: With Ni-Cd battery: 540g (1.2 lbs.)

[TRANSMITTER]

● RF power output: HI = 2.5W, LOW = 0.3W approx.

● Modulation: variable reactance direct shift ● Maximum frequency deviation: \pm 5 kHz ● Frequency tolerance: less than $\pm 20 \times 10^{-6}$ ● Spurious radiation: less than -60 dB

[RECEIVER]

● Circuitry: double conversion superheterodyne ● Intermediate frequency: 1st IF = 10.7 MHz, 2nd IF = 455 kHz ● Sensitivity: better than 1 μ V for 30 dB S/N, less than 0.2 μ V for 12 dB S/N AD ● Pass-band width: more than 12 kHz (-6 dB) ● Selectivity: less than 24 kHz (-60 dB) ● Spurious response: better than 50 dB ● Squelch sensitivity: less than 0.25 μ V (threshold) ● Audio output power: more than 400 mW

OPTIONAL ACCESSORIES

● ST-2: Base stand ● MS-1: Mobile stand ● VB-2530: 2-m RF power amplifier (25W) ● SMC-25: Speaker microphone ● TU-1: Programmable tone encoder ● BT-1: AA manganese/alkaline battery case ● PB-25/PB-25H: Ni-Cd battery pack ● LH-2: Deluxe leather case ● BH-2A: Belt hook ● EP-1: Earphone ● WS-1: Wrist strap ● DC-25: DC-DC converter for 12V operation ● RA-3: Telescoping antenna ● RA-5: Telescoping antenna



The TR-3500 is a compact, designed for tomorrow, 70-cm FM Hand-held transceiver, incorporating the latest in electronic technology, including LCD read out, 10 channel memory with improved memory back up, memory scan, programmable automatic band scan, keyboard channel selection, built-in autopatch encoder, and enhanced flexibility, with a variety of new accessories.

FEATURES

- Extremely compact size and light weight
- LCD digital frequency readout
- Ten channel memory

- Lithium battery memory back-up
- Memory scan
- Programmable automatic band scan
- UP/DOWN manual scan
- Keyboard frequency selection
- Built-in 16 key auto-patch encoder
- TX offset switch
- HIGH/LOW power output selection
- Reverse operation
- Auto/manual squelch
- Tone switch
- High impact plastic case
- "Slide-lock" battery pack
- Battery status indicator
- Two "lock" switches
- High efficiency, extra thin, quality speaker
- BNC antenna terminal

SPECIFICATIONS

[GENERAL]

- Frequency range: 440.000 – 449.995 MHz
- Memory channels: 10 CH
- Mode: FM (F3)
- Operating voltage range: 8.4 V DC \pm 25%
- Power requirement: 8.4V 400mA (Ni-Cd battery pack)
- Back-up power requirement: CR-2032 type lithium battery (built-in)
- Current drain: less than 35 mA in receive mode with no input signal, less than 700 mA in HIGH (1.5 W) transmit mode, less than 350 mA in LOW (300 mW) transmit mode
- Antenna impedance: 50 Ω (unbalanced)
- Op (unbalanced)
- Operating temperature: -20°C to +50°C
- Dimensions: 66 (2-5/8)W x 168 (6-5/8)H x 40 (1-5/8)D mm (inch)
- Weight: 540g (1.2 lbs.) (with Ni-Cd battery)

[TRANSMITTER]

- RF output power: HIGH = 1.5W, LOW = 300 mW approx.
- Modulation: variable reactance direct modulation
- Maximum frequency deviation: \pm 5 kHz
- Spurious radiation: less than -60 dB

[RECEIVER]

- Circuitry: double conversion superheterodyne
- Intermediate frequency: 1st IF = 21.6 MHz, 2nd IF = 455 kHz
- Sensitivity: better than 1 μ V for 30 dB S/N, less than 0.25 μ V for 12 dB S/N AD
- Pass-band width: more than 12 kHz (-6 dB)
- Selectivity: 24 kHz (better than -45 dB)
- Spurious response: better than 40 dB
- Squelch sensitivity: less than 0.25 μ V
- Audio output power: more than 400 mW (at 10% distortion and 8 Ω load)

OPTIONAL ACCESSORIES

- ST-2: Base stand
- MS-1: Mobile stand
- SMC-25: Speaker microphone
- PB-25: 400 mAH Ni-Cd battery pack
- PB-25H: 490 mAH heavy duty Ni-Cd battery pack
- BT-1: AA manganese/alkaline battery case
- LH-2: Deluxe leather case
- TU-35B: Programmable tone encoder
- DC-25: DC adapter (for 12V operation)
- BH-2A: Belt hook
- EP-1: Earphone
- WS-1: Wrist strap
- RA-5: Telescoping antenna



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The TS-780 is a new 2-m/70-cm all mode dual bander that maintains the KENWOOD tradition of outstanding engineering expertise in state-of-the-art VHF and UHF designs in the TS-780, transmission and reception performance has been improved by up-grading basic functions: 10 channel memories, 2 re-writable priority memory (PRIO.M) channels, a memory scan function, 5 selectable scanning bandwidths, use of power modules in final stage of the power amplifier, an IF shift function, and featuring KENWOOD's renowned reliability, in a two-in-one design with compact dimensions.

FEATURES

- Full coverage of the 2-m and 70-cm bands
- 20 Hz step, dual digital VFO
- 8-bit microprocessor supports a variety of functions (1) push type band switch system (2) convenient F.STEP and F.LOCK switches (3) 10 channel memory stores band information as well as frequencies (4) PRIO.M. switches for access to memory channels 9 and 10 (5) memory scan function optimizes utilization of the 10 channel memory (6) 5 selectable scanning bandwidths (7) repeater shift features (2m: ± 600 kHz)
- Improved transmission and reception performance (1) 3SK76's in the receiver front end provide high sensitivity (2) power modules in the transmitter final amplifier stage
- IF shift circuit rejects adjacent interference

SPECIFICATIONS

[GENERAL]

- Frequency range: 144.00 – 148.00 MHz, 430.00 – 440.00 MHz
- Mode: SSB (USB, LSB), CW, FM
- Power requirement: 120/220V AC, 50/60 Hz, 13.8V DC $\pm 15\%$ (grounding = negative)
- Power consumption: TX = 130W, 5.0A, RX = (no signal) = 45W, 1.2A, Back-up current = (battery) less than 10 μ A
- Dimensions: 290 (11.6)W \times 124 (5.0)H \times 322

(12.9)D mm (inch) ● Weight: 10.1 kg (22.2 lbs.) approx.

[TRANSMITTER]

- RF output power: High (SSB, CW, FM) = 10W, Low (FM) = 1W approx.
- Modulation: FM = variable reactance frequency shift, SSB = balanced modulation
- Carrier suppression: better than 40 dB
- Unwanted sideband suppression: better than 40 dB
- Spurious radiation: High = better than -60 dB, Low = better than -40 dB

[RECEIVER]

- Sensitivity: FM = better than 1 μ V for 30 dB S/N, less than 0.2 μ V for 12 dB SINAD, SSB, CW = better than 0.2 μ V for 10 dB S/N
- Selectivity: FM = more than 14 kHz (-6 dB) less than 30 kHz (-60 dB), SSB/CW = more than 2.2 kHz (-6 dB), less than 4.8 kHz (-60 dB)
- Squelch sensitivity: less than 0.16 μ V (threshold)
- Audio output power: more than 2.0W

OPTIONAL ACCESSORIES

- MC-42S: UP/DOWN microphone
- TK-1: AC adaptor for memory back-up
- MC-60A: Deluxe desk-top microphone
- MC-80: Desk-top microphone
- MC-85: Multi-function desk-top microphone

Note: The frequency range authorized by law varies according to the country.



An "FM Dual-Bander", the KENWOOD TW-4000A provides new versatility in VHF and UHF operations, uniquely combining 2-m and 70-cm FM functions in a single compact package.

FEATURES

- 2-m and 70-cm FM in a compact package
- 25 watts RF power on 2-m and 70-cm bands
- Large, easy-to-read LCD display
- Optional VS-1 "Voice synthesizer unit"
- 10 memories with offset recall and Lithium battery backup
- Programmable memory scan
- Band scan in selected 1 MHz segments
- Priority watch function
- Common channel scan
- Dual digital VFO's
- 10-key autopatch UP/DOWN

- microphone
- Repeater reverse switch
- Front panel illumination
- High performance receiver and transmitter
- Rugged die-cast chassis
- Optional TU-4C two-frequency CTCSS encoder
- Microphone test function
- "Beeper" circuit, with audio amplification
- Easy-to-install, adjustable-angle mobile mount
- Extended frequency coverage 142,000 ~ 149,000 MHz

SPECIFICATIONS

[GENERAL]

- Frequency range: VHF 144 ~ 148 MHz, UHF 440 ~ 450 MHz
- Mode: FM (F3E)
- Power requirement: 13.8 VDC \pm 15% (Negative grounding)
- Power consumption: Transmit (max.) = 7.5A (13.8 VDC), Receive (no signal) = 0.6A (13.8 VDC), Back-up current = (Battery) Less than 2 μ A
- Operating temperature: -20°C to +50°C
- Antenna impedance: 50 Ω (VHF and UHF)
- Microphone impedance: 500 Ω
- External speaker impedance: 8 Ω
- Dimensions: 2-3/8(60)H \times 6-3/8(161)W \times 8-9/16(217)D, inches (mm)
- Weight: 4 lbs (2.0 kg)

[TRANSMITTER]

- RF output power: HI 25W, LO 5W
- Modulation: Variable Reactance Direct Shift
- Maximum frequency deviation: \pm 5 kHz
- Spurious radiation:

- HI/LO less than -60 dB
- Modulation distortion: Less than 3%

[RECEIVER]

- Circuitry: Double Conversion Superheterodyne
- Intermediate frequency: 1 st IF = 30.865 MHz, 2nd IF = 455 kHz
- Sensitivity: SINAD 12 dB less than 0.17 μ V
- Selectivity: More than 14 kHz (-6 dB), Less than 30 kHz (-60 dB)
- Spurious response: Better than 70 dB (except IF/2)
- Squelch sensitivity: Less than 0.1 μ V
- Audio output power: More than 2.0W (at 8 Ω load, 10% distortion)

OPTIONAL ACCESSORIES

- KPS-7A: DC power supply
- PS-430: DC power supply
- VS-1: Voice synthesizer
- TU-4C: Two-frequency programmable CTCSS encoder
- SP-40: Compact mobile speaker
- SP-50: Mobile speaker
- MA-4000: Dual band mobile antenna with duplexer
- MC-55: Mobile microphone with time-out-timer
- MC-60A: Deluxe desk-top microphone with built-in pre-amplifier
- MC-80: Desk-top microphone with built-in pre-amplifier
- MC-85: Multi-function desk-top microphone with built-in audio level compensation
- MB-4000: Mobile mount
- PG-3A: Noise filter

Note: The frequency range authorized by law varies according to the country.



FEATURES

- New, large, easy-to-read LCD display
- New-21 multifunction memory channels
- Long life lithium battery memory back-up
- 45W and 25W versions
- Pre-programmed automatic offset
- Programmable priority alert
- Programmable memory scan lock-out
- Programmable band-scan width
- Center stop during band-scan, with indicator
- Scan resume selection
- Scan control using up/down microphone
- Programmable sub-tone channels
- Built-in 16 key autopatch encoder with audible monitor circuit
- Front-panel keyboard selection
- Extended frequency coverage 142.000 – 148.995 MHz
- Repeater reverse switch

SPECIFICATIONS

[GENERAL]

- Frequency range: 144.000 – 147.995 MHz
- Mode: FM(F3)
- Power requirement: 13.8V DC $\pm 15\%$
- Current drain: 0.5A in receive mode with no input signal, TR-7950 = 9.5A in HIGH transmit mode, 3.0A in LOW transmit mode, TR-7930 = 6.5A in HIGH transmit mode, 2.5A in LOW transmit mode
- Dimensions: TR-7950 = 175 (6.9)W x 64 (2.5)H x 220 (8.7)D mm (inch), TR-7930 = 175 (6.9)W x 64 (2.5)H x 206 (8.1)mm (inch)
- Weight: TR-7950 = 1.9 kg (4.2 lbs.), TR-7930 = 1.8 kg (4.0 lbs.)

[TRANSMITTER]

- RF Output power: TR-7950 = HIGH: 45W, LOW; approx. 5W, TR-7930 = HIGH; 25W, LOW; approx. 5W
- Modulation: variable reactance direct shift
- Spurious radiation: (HIGH) less than -70 dB, (LOW) less than -60 dB
- Max. frequency deviation: ± 5 kHz
- Microphone: dynamic microphone with PTT switch, 500 Ω .

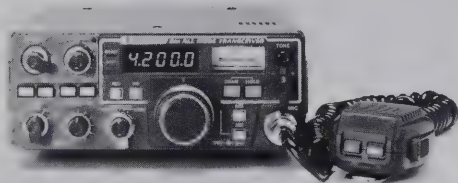
[RECEIVER]

- Circuitry: double conversion superheterodyne
- Sensitivity: better than 0.5 μ V for 30 dB S/N, better than 0.25 μ V for 12 dB SINPO
- Selectivity: more than 12 kHz (-6 dB), less than 24 kHz (-60 dB)
- Spurious response: better than 70 dB
- Squelch sensitivity: 0.16 μ V (threshold)
- Audio output power: more than 2.0W

OPTIONAL ACCESSORIES

- KPS-12: DC power supply (for TR-7950)
- KPS-7A: DC power supply (for TR-7930)
- TU-79: 3 tone CTCSS encoder
- MC-60A: Deluxe desk-top microphone (with MJ-86 or PG-4B)
- MC-46: 16-button autopatch UP/DOWN microphone
- MC-80: Desk-top microphone (with MJ-86 or PG-4E)
- MC-85: Multi-function desk-top microphone (with MJ-86 or PG-4E)
- SP-40: Compact mobile speaker
- SP-50: Mobile speaker

KENWOOD, in its new TR-7950/TR-7930 2 meter FM mobile transceivers, introduces a completely new concept of versatility and performance in 2 meter operations. Among the more important convenience features providing enhanced ease of operation is a new large, easy-to-read (direct sunlight or dark) LCD display, 21 new multi-function memory channels that store such information as frequency, offset, and sub-tone channel data (sub-tone unit optional), a choice of output powers, with a hefty 45 watts in the TR-7950, or 25 watts in the TR-7930, and the use of microprocessor technology throughout.



The TR-9130 is a powerful, yet compact, 25 watt FM/USB/LSB/CW transceiver. Available with a 16-key autopatch UP/DOWN microphone (MC-46), or a basic UP/DOWN microphone.

FEATURES

- 25 watt RF output power on FM/SSB/CW
- FM/USB/LSB/CW all mode operation
- Six memories
- Internal battery memory back-up (battery not supplied)
- Memory SCAN
- Automatic band scan (1 MHz segments)
- Hand microphone with UP/DOWN switch
- Squelch circuit on all modes (FM/SSB/CW)
- Repeater reverse switch
- Tone switch

- Tuning transmit frequency for OSCAR operations
- Built-in CW semi break-in with side tone
- Digital display with green LED's
- Dual digital VFO's
- High performance receive-transmit characteristics
- Compact design and light weight
- Transmit OFFSET switch
- High performance noise blanker
- RF gain control
- RIT circuit
- AGC time constant automatically selected
- HIGH/LOW power switch
- Accessory terminal (rear panel)
- Piezoelectric beeper
- Visual indicators
- Quick release mounting bracket.

SPECIFICATIONS

[GENERAL]

- Frequency range: 144.000.0 – 147.999.9 MHz
- Mode: F3(FM), A3J(SSB), A1(CW)
- Power requirement: 13.8V DC \pm 15%
- Current drain; 0.7 A in receive mode with no input signal, 5.5A in HIGH transmit mode, 2.7A in LOW transmit mode, less than 3.0 mA for memory back-up
- Dimensions: 170(6.7)W x 68(2.7)H x 241(9.5)D mm (inch)
- Weight: 2.4 kg (5.3 lbs.) approx.

[TRANSMITTER]

- RF output power: HIGH (FM, SSB, CW) = 25W, LOW (FM, CW) = 5W approx.
- Modulation: FM = reactance direct shift, SSB = balanced modulation
- Spu-

rious radiation: HIGH = less than -60 dB, LOW = less than -53 dB

- Carrier suppression: Better than 40 dB
- Unwanted side band suppression: Better than 40 dB
- Maximum frequency deviation (FM): \pm 5 kHz
- Microphone: UP/DOWN dynamic microphone with PTT switch, 500 Ω

[RECEIVER]

- Circuitry: FM = double conversion superheterodyne, SSB, CW = single conversion superheterodyne
- Intermediate frequency: 1st IF = 10.695 MHz (FM, SSB, CW), 2nd IF = 455 kHz (FM)
- Sensitivity: FM = less than 0.25 μ V for 12 dB S/N AD, better than 1 μ V for 35 dB S/N, SSB, CW = better than 0.25 μ V for 10 dB S/N
- Selectivity: FM = more than 12 kHz (-6 dB), less than 24 kHz (-60 dB), SSB, CW = more than 2.2 kHz (-6 dB), less than 4.8 kHz (-60 dB)
- Spurious radiation: better than 70 dB
- Audio output power: more than 2.0W

OPTIONAL ACCESSORIES

- BO-9A: System base
- SP-120: External speaker
- KPS-7A: DC power supply
- TK-1: AC adaptor for memory back-up
- MC-46: Touch tone microphone
- MC-60A: Deluxe desk-top microphone (with MJ-86 or PG-4E)
- SP-40: Compact mobile speaker
- SP-50: Mobile speaker



The TR-9500 is a compact 70 cm USB/LSB/CW/FM transceiver providing increased versatility of operation on the UHF bands. It features dual digital VFO's six memory channels, memory scan, automatic band scan, SSB/CW search, high performance receive and transmit, and a host of other features. It should be especially appealing to the OSCAR or 70 cm SSB/CW operator.

FEATURES

- Covers 430 – 440 MHz
- USB/LSB/CW/FM all-mode operation
- Dual digital VFO's
- Transmit frequency tuning for OSCAR operations
- 1 MHz step switch for quick frequency change
- Six memory channels
- SSB/CW search scan
- Memory scan
- Automatic band scan
- UP/DOWN manual scan
- Digital display with green LED's
- Low noise, high sensitivity receiver, with excellent dynamic range
- Clean SSB signal
- Pure transmission spectrum
- PIN diode antenna switch
- 10 Watt RF output, with HIGH/LOW power switch
- High performance noise blanker
- RF gain control, all modes
- RIT circuit
- Amplified AGC
- Compact size and light weight

SPECIFICATIONS

[GENERAL]

- Frequency range: 430.000.0 – 439.999.9 MHz
- Mode: FM (F3), SSB (A3J), CW (A1)
- Power requirement: 13.8V DC \pm 15%
- Current drain: 0.7A in receive mode with no input signal, 3.8A in transmit mode, 2.0 mA for memory back-up
- Grounding: Negative
- Dimensions: 170 (6.7)W x 68 (2.7)H x 241 (9.5)D mm (inch)
- Weight: 2.7 kg (5.9 lbs.) approx.

[TRANSMITTER]

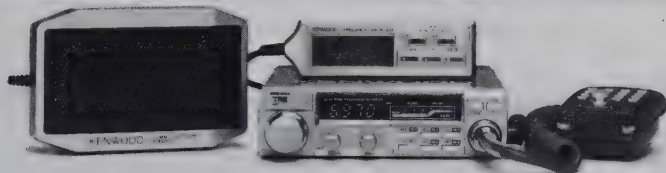
- RF output power: FM, SSB, CW = 10W
- Modulation: FM = variable reactance direct shift, SSB = balanced modulation
- Frequency tolerance: less than $\pm 10 \times 10^{-6}$
- Spurious radiation: less than -60 dB
- Carrier suppression: better than 40 dB
- Unwanted sideband suppression: better than 40 dB
- Maximum frequency deviation (FM): ± 5 KHz
- Microphone: dynamic microphone with PTT switch, 500 Ω

[RECEIVER]

- Circuitry: double conversion superheterodyne
- Intermediate frequency: 1st IF = 21.6 MHz, 2nd IF (FM) = 455 KHz (SSB, CW) = 8.83 MHz
- Sensitivity: FM = better than 0.5 μ V for 35 dB S/N, better than 0.25 μ V for 12dB S/N AD, SSB, CW = better than 0.5 μ V for 20 dB S/N
- Selectivity: FM = more than 12 kHz (-6 dB), less than 25 kHz (-60 dB) SSB, CW = more than 2.4 kHz (-6 dB) less than 4.8 kHz (-60 dB)
- Spurious radiation: better than 60 dB
- Squelch sensitivity: 0.2 μ V (threshold)
- Auto scan stop level: less than 0.2 μ V (threshold)
- Audio output power: more than 2.0W

OPTIONAL ACCESSORIES

- BO-9A: System base
- SP-120: External speaker
- KPS-7A: DC power supply
- PS-20: DC power supply
- TK-1: AC adaptor for memory back-up
- MC-60A: Deluxe desk-top microphone (with MJ-86 or PG-4E)
- MC-80: Desk-top microphone (with MJ-86 or PG-4E)
- MC-85: Multi-function desk-top microphone (with MJ-86 or PG-4E)
- SP-40: Compact mobile speaker
- SP-50: Mobile speaker



The KENWOOD TM-201A 2-meter FM mobile transceiver is designed to be the ultimate in compact size and lightweight, allowing maximum flexibility in automotive installations. New microprocessor controlled operating features, improved receive and transmit circuitry, a powerful 25 watts of RF output, and an easy-to-operate front panel control layout in a new, ultra compact radio, providing extended flexibility and ease of operation.

FEATURES

- Ultra compact and lightweight
- 25 watt output, with HI/LO power switch
- Dual digital VFO's built-in
- 5 memories plus "COM" channel, with lithium battery back-up
- Priority alert scan
- Memory scan and programmable band scan
- High visible yellow LED frequency display
- Optional FC-10 frequency controller
- Audible "beeper" confirms operation
- External high quality speaker supplied
- 16-key auto-

patch UP/DOWN microphone supplied

- High performance receiver/transmitter
- Repeater offset switch and reverse switch
- Optional TU-3 two-frequency tone encoder
- Easy-to-install, adjustable-angle mobile mount
- Extended frequency coverage: 142,000 ~ 149,000 MHz

SPECIFICATIONS

[GENERAL]

- Frequency range: 144 – 148 MHz
- Mode: FM (F3E)
- Power requirement: 13.8 VDC \pm 15% (Negative grounding)
- Power consumption: Transmit (HI) = Less than 5.5A, Transmit (LO) = Approx. 2.5A, Receive (no signal) Less than 0.5A
- Operating temperature: -20°C to +50°C
- Antenna impedance: 50 Ω
- Microphone impedance: 500 Ω
- External speaker impedance: 8 Ω
- Dimensions: 141 (5.6)W x 39.5 (1.6)H x 183 (7.3)D mm (inch)
- Weight: 1.25 kg (2.8 lbs.)

Note: The frequency range authorized by law varies according to the country.

[TRANSMITTER]

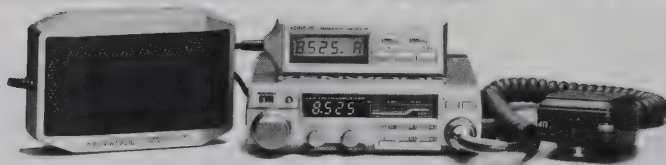
- Final power output: HI = 25W, LO approx. = 5W
- Modulation: Reactance Modulation
- Spurious radiation: (HI) Less than -70 dB, (LO) Less than -60 dB
- Modulation distortion (Modulation degree 60%): Less than 3% (300 Hz – 3000 Hz)

[RECEIVER]

- Circuitry: Double Conversion Superheterodyne
- Intermediate frequency: 1 st IF 10.695 MHz, 2nd IF 455 kHz
- Sensitivity: SINAD Less than 0.22 mV
- Selectivity: More than 12 kHz (-6 dB), Less than 24 kHz (-60 dB)
- Spurious response: Less than -70 dB (except IF/2)
- Squelch sensitivity: Less than 0.16 μ V
- Scan stop level: Less than 0.2 μ V audio output power: More than 2.0W (5% distortion)

OPTIONAL ACCESSORIES

- FC-10: Frequency controller
- TU-3: Two-frequency tone encoder
- KPS-7A: DC power supply
- PS-430: DC power supply
- SW-100B: SWR/POWER meter
- MA-4000: Dual-band mobile antenna with duplexer
- MC-55: Mobile microphone with time-out-timer
- MC-60A: Deluxe desk-top microphone
- MC-85: Desk-top microphone
- MC-85: Multi-function desk-top microphone
- PG-3A: Noise filter



The KENWOOD TM-401A 70-centimeter FM mobile transceiver is designed to be the ultimate in compact size and lightweight, allowing maximum flexibility in automotive installations. New micro-processor controlled operating features, improved receive and transmit circuitry, 12 watts of RF output, and an easy-to-operate front panel control layout in a new, ultra compact radio, providing extended flexibility and ease of operation.

FEATURES

- Ultra compact and lightweight
- 12 watt output, with HI/LO power switch
- Dual digital VFO's built-in
- 5 memories plus "COM" channel, with lithium battery back-up
- Priority alert scan
- Memory scan and programmable band scan
- High visible yellow LED frequency display
- Optional FC-10 frequency controller
- Audible "beeper" confirms operation
- External high quality speaker supplied
- 16-key auto-

patch UP/DOWN microphone supplied

- High performance receiver/transmitter
- Repeater offset switch and reverse switch
- Optional TU-3 two-frequency tone encoder
- Easy-to-install, adjustable-angle mobile mount

SPECIFICATIONS

[GENERAL]

- Frequency range: 440 ~ 450 MHz
- Mode: FM (F3E)
- Power requirement: 13.8 VDC \pm 15% (Negative grounding)
- Power consumption: Transmit (HI) = Less than 3.8A, Transmit (LO) = Approx. 1.6A, Receive (no signal) Less than 0.5A
- Operating temperature: -20°C to $+60^{\circ}\text{C}$
- Antenna impedance: 50Ω
- Microphone impedance: 500Ω
- External speaker impedance: 8Ω
- Dimensions: 141 (5.6)W \times 39.5 (1.6)H \times 183 (7.3)D mm (inch)
- Weight: 1.25 kg (2.8 lbs.)

[TRANSMITTER]

- Final power output: HI = 12W, LO approx. = 1W
- Modulation: Reactance Modulation
- Spurious radiation: (HI) Less than -60 dB, (LO) Less than -60 dB
- Modulation distortion (Modulation degree 60%): Less than 3% (300 Hz – 3000 Hz)

[RECEIVER]

- Circuitry: Double conversion superheterodyne
- Intermediate frequency: 1 st IF 21.60 MHz, IF 455 kHz
- Sensitivity: SINAD Less than $0.2 \mu\text{V}$
- Selectivity: More than 12 kHz (-6 dB), Less than 24 kHz (-60 dB)
- Spurious response: Less than -70 dB (except IF/2)
- Squelch sensitivity: Less than $0.16 \mu\text{V}$
- Scan stop level: Less than $0.2 \mu\text{V}$
- Audio Output Power: More than 2.0W (5% distortion)

OPTIONAL ACCESSORIES

- FC-10: Frequency controller
- TU-3: Two-frequency tone encoder
- KPS-7A: DC power supply
- PS-430: DC power supply
- SW-100: SWR/POWER meter
- MA-4000: Dual-band mobile antenna with duplexer
- MC-55: Mobile microphone with time-out-timer
- MC-60A: Deluxe desk-top microphone
- MC-80: Desk-top microphone
- MC-85: Multi-function desk-top microphone
- PG-3A: Noise filter

Note: The frequency range authorized by law varies according to the country.

TL-922A

HF LINEAR AMPLIFIER



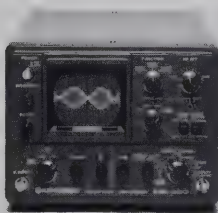
The TL-922A is a class AB₂ grounded grid linear amplifier developed by KENWOOD through advanced high-power technology using two high-performance EIMAC 3-500Z power tubes. It covers 160m through 15m for SSB, CW and RTTY modes of operation. (not usable with full break-in, semi break-in only)

SPECIFICATIONS

- Mode: SSB CW, RTTY ● RF input power: SSB = 2,000W PEP, CW, RTTY = 1,000W DC ● Power requirement: 120/240V 28A, 50/60 Hz ● Dimensions: 390 (15.4)W × 190 (7.5)H × 407 (16.0)D mm (inch)
- Weight: 31 kg (68 lbs.)

SM-220

STATION MONITOR



Based on a wide-frequency range oscilloscope (up to 10 MHz), the SM-220 station monitor features, in combination with a built-in two-tone generator, a wide variety of waveform-observing capabilities. An optional feature is a unique pan-display capability.

SPECIFICATIONS

- Frequency range: 1.8 – 150 MHz ● Maximum power: 2 kW (1.8 – 54 MHz), 100W (150 MHz) ● Deflection sensitivity: more than 1 div. at 2W input ● Attenuator: 6 steps ● Power supply: 120/220/240V AC, 50/60 Hz, 21W ● Dimensions: 215 (8.6)W × 153 (6.1)H × 355 (13.4)D mm (inch) ● weight: 5 kg (1.1 lbs.)

Pan Display Unit

- BS-5 adaptor (for TS-520 series), BS-8 adaptor (for TS-530S, TS-830S and TS-180) ● Input center frequency: 3.395 MHz (BS-5), 8.830 MHz (BS-8)

PC-1A

PHONE PATCH



(FCC part 68 registered)

Model PC-1A phone patch has been carefully engineered and manufactured under rigid quality standards, and should give satisfactory and dependable operation for many years. 25

FEATURES

- Provides connection between a transceiver and a telephone line ● High isolation between receive input and transmit output ● Compact design for easy installation in a limited space.

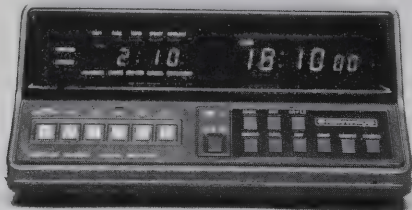
SPECIFICATIONS

[Impedance levels]

- Line: 600Ω nominal ● RX in: 8Ω nominal ● SP out: 8Ω nominal ● Mic: 50 kΩ nominal

HC-10

DIGITAL WORLD CLOCK



The HC-10 is a highly advanced world clock with dual display that can memorize 10 major world cities and two additional regions.

This clock, incorporating a precise quartz and digital display system as well as a built-in microcomputer, can also recall and display the starting time of QSO for logging purposes.

SPECIFICATIONS

- Power requirements: 120V AC, 50/60 Hz, 5W (approx.)
- Dimensions: 217 (8.5)W x 94 (3.7)H x 117 (4.6)D mm (inch)
- Weight: 900g (2 lbs.) approx.

DM-81

DIP METER

The DM-81 dip meter is intended for use in adjustment of radio equipment and antennas. It is a self-excited oscillator designed for external coupling to the equipment being tested.

FEATURES

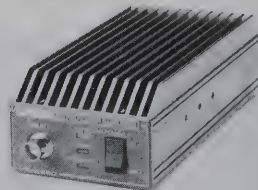
- Measurable frequency range of 700 kHz – 250 MHz in seven bands
- Capacitive Probe for measurements without removing coil shields
- Storage compartment for all seven dip meter coils, capacitive probe, earphone and ground clip lead
- Convenient for both in indoor and outdoor measurements; all solid-state with built-in battery

SPECIFICATIONS

- Power requirements: battery 9V (006P)
- Power consumption: 9 mA
- Dimensions: 70 (2.8)W x 180 (7.1)H x 45 (1.8)D mm (inch)
- Weight: 690g (with accessories) approx.

VB-2530

2-m RF POWER AMPLIFIER



The VB-2530 is a 144 MHz, 25W, RF power amplifier specifically designed for use with the TR-2500 to extend the capability of the transceiver from handy type to mobile use.

SPECIFICATIONS

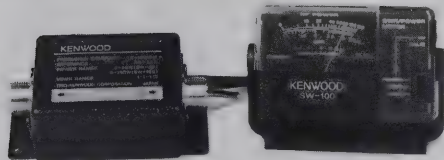
- Frequency range: 144 – 148 MHz
- Mode: F3 (FM)
- Antenna impedance: 50Ω (unbalanced)
- Power requirement: DC 13.8V ± 15%
- Grounding: negative
- Current drain: 4A approx. (at 56W)
- Operating temperature: -20°C to +50°C
- RF output power: 25W (drive power 2.5W)
- Drive power: 1 to 4W
- Spurious radiation: less than -60 dB
- Dimensions: 75 (3.0)W x 48 (1.9)H x 170 (6.7)D mm (inch)
- Weight: 620g (1.4 lbs.)

SW-100A/B

SW-200A/B, 2000

DFC-230

SWR/POWER METER



Compact and lightweight SWR/POWER/VOLT meters cover 1.8 – 150 MHz (SW-100A), 140 – 450 MHz (SW-100B) in range of 150W full scale for mobile use.

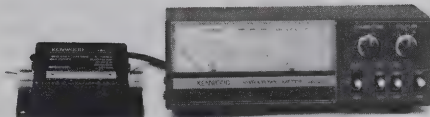
SPECIFICATIONS

- Impedance: 50 – 52 Ω
- Frequency range: 1.8 – 150 MHz (SW-100A), 140 – 450 MHz (SW-100B)
- Power Measuring range: 0 – 150W
- DC VOLT meter: 0 ~ 20V
- Accuracy: Better than $\pm 10\%$ of full scale
- Meter illumination: 12V, 50 mA
- Dimensions: display: 92 (3.6) W x 64 (2.5) H x 36 (1.4) D mm (inch), coupler 62 (2.4) W x 50 (2.0) H x 30 (1.2) D mm (inch)

[OPTIONS]

- SWC-1 (1.8 – 150 MHz) Coupler for SW-200A/B, 2000
- SWC-2 (140 – 450 MHz) Coupler for SW-200A/B, 2000
- SWC-3 (1.8 – 54 MHz) Coupler for SW-2000

SWR/POWER METER



Selectable Peak-reading/RMS, SWR/POWER meters cover 1.8 – 150 MHz (SW-200A), 140 – 450 MHz (SW-200B). 1.8 – 54 MHz (SW-2000) in range of 0 – 20/200W (SW-200A/B), 0 – 200/2000W (SW-2000) full scale for base station use. (Each SWR/POWER meter supplied with coupler.)

SPECIFICATIONS

- Impedance: 50 – 52 Ω
- Frequency range: 1.8 – 150 MHz (SW-200A), 140 – 450 MHz (SW-200B), 1.8 – 54 MHz (SW-2000)
- Power measuring range: 0 – 20/200W (SW-200A/B), 0 – 200/2000W (SW-2000)
- Accuracy: Better than $\pm 10\%$ of full scale
- Sensitivity: Less than 2W (SW-200A/B), 20W (SW-2000)
- Power supply: 12 VDC 100 mA
- Dimensions: 193 (7.6) W x 62 (2.4) H x 79 (3.1) D mm (inch)
- Weight: 0.7 kg (1.5 lbs.) approx.

DIGITAL FREQUENCY CONTROLLER



The very compact DFC-230 Digital Frequency Controller provides maximum efficiency and flexibility for mobile and fixed operation, by combining a 20 Hz step digital VFO with four memories. Matches TS-130 Series and TS-120 Series (also 27 compatible with TS-830S or TS-530S).

FEATURES

- 20 Hz step digital VFO
- Four memories
- Built-in digital display
- Compact size
- UP/DOWN manual scan
- Cross-operation switch
- RIT (Receiver Incremental Tuning)
- Expanded frequency coverage
- RIT, VFO and MEMO indicators

SPECIFICATIONS

- Oscillating frequency: 5.4 – 6.1 MHz
- Dimensions: 148 (5.8)W x 51 (2.0)H x 166 (6.5)D mm (inch)
- Weight: 1.3 kg (2.9 lbs.)

VFO-120

REMOTE VFO



Allows split-frequency operation with TS-130 series when DX chasing, and finding an unused frequency while retaining the original frequency.

FEATURES

- 28 ● T-F SET switch: allows quick setting of transmit frequency; reverses transmit and receive frequency momentarily, to prevent transmitting on wrong frequency during split-frequency operation ● Cross-operation function switch ● LED indicators show VFO functions at a glance ● Capability with TS-130/120 series, TS-830S and TS-530S

SPECIFICATIONS

- Oscillator frequency: 5.50 – 6.00 MHz
- Oscillator circuit: Clapp
- Output voltage: $0.2V \pm 1 \text{ dB}$
- Power source: from TS-130 Series
- Dimensions: 123 (4.8)W × 96 (3.8)H × 235 (9.3) D mm (inch)
- Weight: 2.5 kg (5.6 lbs.)

VFO-230

DIGITAL REMOTE VFO



The VFO-230 matches the TS-530S, TS-830S in design and appearance.

FEATURES

- 20 Hz step digital VFO
- Five memories
- Built-in digital display
- Cross-operation flexibility
- Expanded frequency coverage
- T-F SET switch
- Lock switch
- MAIN, RMT, and MEMO indicators
- Compatibility with TS-830S, TS-530S, TS-130 and TS-120 Series.

SPECIFICATIONS

- Oscillating frequency: 5.4 – 6.1 MHz
- Frequency stability: 1×10^{-5} (at normal temperture): 3×10^{-5} (0 – 50°C)
- Output signal: $0.2V +3 \text{ dB/-1 dB}$
- Power requirement: 120V AC 50/60 Hz, 13W
- Dimensions: 180 (7.1)W × 133 (5.2)H × 287 (11.3)D mm (inch)
- Weight: 3.1 kg (6.8 lbs.)

The VFO-230 digital VFO provides maximum efficiency and flexibility for all operating conditions, including split-frequency operation, by combining a 20 Hz step digital VFO with five memories.

VFO-240

REMOTE VFO



The VFO-240 remote analog VFO is a valuable, yet affordable station for split-frequency operation, temporary QSY and fast return to a net frequency, searching for a clear frequency, and other applications. The VFO-240 matches the TS-530S, TS830S in design and appearance.

FEATURES

- T-F SET switch: allows operator to set transmit frequency quickly; reverses transmit and receive frequency momentarily, to prevent transmitting on wrong frequency during split-frequency operation
- Cross-operation function switch
- RIT control
- MAIN and RIT indicators
- Capability with TS-830S, TS-530S and TS-130/120 series

SPECIFICATIONS

- Oscillating frequency: 5.5 – 6.0 MHz
- Oscillator circuit: modified Clapp
- Power source: from TS-530S, TS-830S and TS-130 series
- Dimensions: 180 (7.1)W × 133 (5.2)H × 288 (11.3)D mm (inch)
- Weight: 2.4 kg (5.3 lbs.)

AT-130

ANTENNA TUNER



The AT-130 is a compact and light-weight antenna tuner designed for base or mobile use (includes the three new WARC bands).

SPECIFICATIONS

[GENERAL]

● Input connector: UHF type (50 Ω) ● ANT connector: UHF type (50 Ω) ● GND: wing nut and stud ● Dimensions: 152 (6.1)W x 60 (2.4)H x 159 (4.9)D mm (inch) ● Weight: 1.6 kg (3.5 lbs.) approx.

[ANTENNA COUPLER]

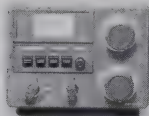
● Frequency range: 8 Amateur bands from 3.5 – 29.7 MHz ● Input impedance: 50 Ω ● Output impedance: 20 – 300 Ω , unbalanced ● Through power: 150W max. (3.5 MHz band, 120W) ● Insertion loss: less than 0.5 dB at optimum match

[SWR METER]

● Frequency range: 3.5 – 29.7 MHz ● Max. power: 150W ● Measurable range: 1: 1 – 10: 1 ● Min. power required: 2W

AT-230

ANTENNA TUNER



The AT-230 antenna tuner includes the three new WARC bands and functional features such as a through-line watt-meter, SWR meter and antenna selector switch.

SPECIFICATIONS

[GENERAL]

● Connectors, Input: UHF type, 50 Ω ● Connectors, ANT-1 = UHF type, ANT-2 = UHF type, ANT-3 = wire antenna only, GND ● Dimensions: 180 (7.1)W x 133 (5.2)H x 287 (11.3)D mm (inch) ● Weight: 3.4 kg (7.5 lbs.)

[ANTENNA COUPLER]

● Frequency range: 9 amateur bands from 1.8 – 30.0 MHz ● Input Impedance: 50 Ω ● Through power: 200W max.

[WATTMETER]

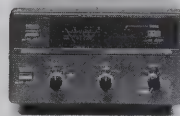
● Type: through line wattmeter ● Measurable RF power: up to 20/200W, switched, forward and reflected

[SWR METER]

● SWR detection: toroidal core directional coupler ● Measurable range: 1.1 – 10

AT-250

AUTOMATIC ANTENNA TUNER



The AT-250 is an automatic antenna tuner that covers 160 ~ 10 meters, including the new WARC bands, and features ABC (Automatic Band Changing) system for the TS-430S, and AC power supply with DC Terminals, a built-in SWR/POWER meter, and 4 separate antenna connectors.

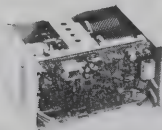
● Frequency range: 1.8 – 29.7 MHz ● Input impedance: 50 Ω unbalanced ● Output impedance: 20 – 150 Ω unbalanced ● Through power: 100W (200W PEP) ● Insertion loss: Less than 0.9 dB ● Minimum power required: 3W ● Maximum tuning time: less than 15 seconds ● Power meter accuracy (peak-reading type): $\pm 10\%$ of full scale on 10W and 100W range ● Power consumption: AC 15W, DC 13.8V 600 mA ● Power requirements: 100V/120V/220V/240VAC 13.8VDC ● Dimensions: 385 (15.1) W x 167 (6.5) H x 264 (10.4) D mm (inch) ● Weight: 4.8 kg (10.6 lbs)

SPECIFICATIONS

● Input connector: UHF type (50 Ω) ● ANT connectors: ANT-1 – ANT-4 = Coaxial connector (UHF type) ● Frequency range: All amateur bands from 1.8 – 29.7 MHz ● Input impedance: 50 Ω unbalanced ● Output impedance: 20 – 150 Ω unbalanced ● Through power: 100W (200W PEP) ● Insertion loss: Less than 0.9 dB ● Minimum power required: 3W ● Maximum tuning time: less than 15 seconds ● Power meter accuracy (peak-reading type): $\pm 10\%$ of full scale on 10W and 100W range ● Power consumption: AC 15W, DC 13.8V 600 mA ● Power requirements: 100V/120V/220V/240VAC 13.8VDC ● Dimensions: 385 (15.1) W x 167 (6.5) H x 264 (10.4) D mm (inch) ● Weight: 4.8 kg (10.6 lbs)

AT-930

ANTENNA TUNER



The AT-930 is an optional automatic antenna tuner that can be installed in TS-930 series transceivers that are not equipped with antenna tuners.

FEATURES

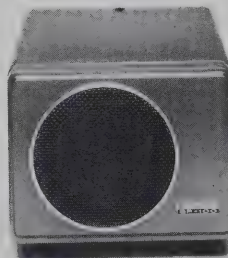
● Automatic 2-step motor speed control: The motor speed is automatically reduced when the SWR drops below a certain level to enable precise tuning of the variable capacitors. ● AUTO-THRU switch disabled during transmission: The AUTO-THRU circuit is disabled during transmission to protect the final transistors in case the AUTO-THRU switch is accidentally operated.

SPECIFICATIONS

● Frequency range: four Amateur bands 3.5 – 29.7 MHz including the new 10, 18, 24.5 MHz bands ● Input impedance: 50Ω , unbalanced ● Output impedance: 20Ω – 150Ω , unbalanced ● Insertion loss: less than 1 dB at 3.5 MHz (at optimum match) ● Through power: 150W max. ● Motor stop SWR Value: less than 1.2

SP-100

EXTERNAL SPEAKER



The SP-100 is a free edge cone speaker designed for use with the R-1000 receiver. The SP-100 can be used in place of the receiver's built-in speaker for greater clarity and improved tone. The speaker's cabinet matches the R-1000's front panel to provide a clean

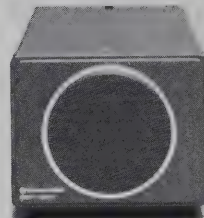
looking, integrated receiving system.

SPECIFICATIONS

● Speaker diameter: 100 mm (4 inch) ● Max. input power: 1.5W ● Impedance: 8Ω ● Frequency response: 200 Hz – 10 kHz ● Dimensions: 149 (5.9)W x 115 (4.5)H x 211 (8.3)D mm (inch) ● Weight: 1.5 kg (3.3 lbs.) approx.

SP-120

EXTERNAL SPEAKER



The SP-120 is a good looking compact speaker matching the TS-130/120 Series or TR-9130/9500 styling and is designed for home station use. A low distortion speaker unit provides clear audio reproduction.

SPECIFICATIONS

● Speaker diameter: 75 mm (3 inch) ● Max. input power: 1W ● Input impedance: 8Ω ● Frequency response: 300 Hz – 5 kHz ● Dimensions: 123 (4.8)W x 96 (3.8)H x 235 (9.3)D mm (inch) ● Weight: 1.3 kg (2.9 lbs.) approx.

SP-230

EXTERNAL SPEAKER



The SP-230 external speaker matches the TS-830S and TS-530S HF transceiver.

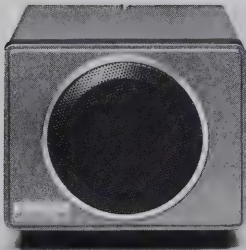
It is a low-distortion speaker with selectable frequency response for high intelligibility in any mode. The frequency response is determined

by the built-in audio filters, which are effective in improving signal-to-noise ratio under certain interference conditions, or when receiving weak signals.

SPECIFICATIONS

● Speaker diameter: 120 mm (4.8 inch) ● Max. input power: 2W ● Impedance: 8Ω ● Frequency response: 100 Hz – 5 kHz ● Filter cut off frequency: Low = 400 Hz, High 1 = 3 kHz, High 2 = 1.5 kHz, High 1 + High 2 = 1.0 kHz (–3 dB) ● Filter attenuation: –6 dB/Oct. ● Dimensions: 180 (7.1)W × 133 (5.2)H × 287 (11.3)D mm (inch) ● Weight: 1.8 kg (4.0 lbs.)

SP-430



The SP-430 is a good looking compact speaker matching the TS-430S styling and is designed for home station use. A low distortion speaker unit provides clear audio reproduction.

SPECIFICATIONS

● Speaker diameter: 75 mm (3 inch) ● Max. input power: 1W ● Input impedance: 8Ω ● Frequency response: 300 Hz – 5 kHz ● Dimensions: 123 (4.8)W × 96 (3.8)H × 235 (9.3)D mm (inch) ● Weight (2.9 lbs.)

SP-930

EXTERNAL SPEAKER



The SP-930 external speaker matches the TS-930S HF transceiver.

It is a low-distortion speaker with selectable frequency response for high intelligibility in any mode. The frequency response

is determined by the built-in audio filters, which are effective in improving signal-to-noise ratio under certain interference conditions, or when receiving weak signals.

SPECIFICATIONS

● Speaker diameter: 100 mm (4.0 inch) ● Max. input power: 1.5W ● Impedance: 8Ω ● Frequency response: 160 Hz – 7,000 Hz ● Filter cut off frequency: Low = 430 Hz (–3 dB), High 1 = 3 kHz (–3 dB), High 2 = 1.0 kHz (–3 dB), High 1 + High 2 = 730 Hz (–3 dB) ● Filter attenuation: –6 dB/Oct. ● Dimensions: 180 (7.1)W × 133 (5.2)H × 287 (11.3)D mm (inch) ● Weight: 1.9 kg (4.2 lbs.) approx.

KPS-7A

DC POWER SUPPLY



The KPS-7A heavy-duty regulated power supply is designed for use with the TR-7930, TR-7730, TR-9130 and TR-8400 as a fixed station rig. It is not rated to supply

power to more than one transceiver at a time. The KPS-7A may be used with other transceivers or for other purposes if the continuous duty current drain is 6A or less.

SPECIFICATIONS

● Power requirement: 120V AC 50 – 60 Hz ● Power consumption: less than 200W ● Output voltage: 13.8V DC ● Output current: intermittent 7.5A, continuous 6A ● Ripple component: less than 1 mV ● Protection circuit operating point at 8 – 9A output current ● Dimensions: 140 (5-1/2)W × 90 (3-3/4)H × 230 (9)D mm (inch) ● Weight: 3.5 kg (8 lbs.) approx.

KPS-12

DC POWER SUPPLY



The KPS-12 heavy-duty regulated power supply is designed for use with mobile transceivers operating as fixed stations. It is not rated to supply power to more than one transceiver at a time. The KPS-12 may be used for other purposes if the continuous duty current drain is 10A or less. The KPS-12 features current protection.

SPECIFICATIONS

● Power requirement: 117V AC $\pm 10\%$, 60 Hz ● Power consumption: less than 400W ● Output voltage: 13.8V DC $\pm 0.1V$ ● Output current: 12A intermittent (50% duty cycle), 10A continuous ● Operating temperature: -10°C to $+45^{\circ}\text{C}$ (14°F to 113°F) ● Dimensions: 200 (7.9)W × 125 (4.9)H × 230 (9.1)D mm (inch) ● Weight: 6.6 kg (14.6 lbs.) approx.

KPS-21



The KPS-21 heavy-duty regulated power supply (21A intermittent) is designed for use with the TS-130S/SE, TS-430S as a fixed station rig. It is not rated to supply power to more

than one transceiver at a time. The KPS-21 may be used for other purposes if the continuous duty current drain is 16A or less. The KPS-21 features current protection.

SPECIFICATIONS

● Power requirement: 120V $\pm 10V$ AC, 60 Hz ● Power consumption: less than 400W ● Output voltage: 13.8V DC $\pm 0.1V$ ● Output current: 21A intermittent (50% duty cycle), 16A continuous ● Ripple component: less than 1 mV (r.m.s.) (at 16A output current 120V AC $\pm 10V$ input) ● Regulation: better than $\pm 0.05V$ ● Protection circuit: current limiting circuit activates at 23 27A ● Dimensions: 200 (7.9)W × 125 (4.9)H × 230 (9.1)D mm (inch) ● Weight: 7.8 kg (17.2 lbs.)

PS-20

DC POWER SUPPLY



Supplies regulated 13.8V DC at 4A continuous, 4.5A intermittent load with complete ease and safety due to the use of large heat sinks and an automatic reset electronic overload trip.

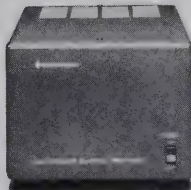
The model PS-20 is a regulated DC power supply designed to match the TS-130V, TS-120V, TS-660 and TR-9000, TR-9500 transceivers.

SPECIFICATIONS

● Power requirements: 120 AC ● Power consumption: 100W (approx.) ● Output voltage: 13.8V DC ● Output current: 4.5A, 4A ● Output voltage fluctuation: within ± 50 mV, within 0.1V ● Ripple voltage: less than 5 mV at 13.8V DC, 4A ● Dimensions: 123 (4.8)W x 96 (3.8)H x 235 (9.3)D mm (inch) ● Weight: 3.8 kg (8.4 lbs.)

PS-30

DC POWER SUPPLY



Supplies regulated 13.8V DC at 20A intermittent load with complete ease and safety due to the use of large heat sinks and an automatic reset electronic overload trip.

The model PS-30 is a regulated DC power supply designed to match the TS-130SE/130S, TS-120S, reliable fixed station operation.

SPECIFICATIONS

● Power requirements: 120V AC ● Power consumption: 600W (approx.) ● Output voltage: 13.8V DC ● Output current: 20A, 15A ● Output voltage fluctuation: within ± 700 mV, within 400 mV ● Ripple voltage: less than 20mV at 13.8V DC, 20A ● Dimensions: 180 (7.1)W x 133 (5.2)H x 287 (11.3)D mm (inch) ● Weight: 8.9 kg (19.6 lbs.) approx.

PS-430

DC POWER SUPPLY



Matches the TS-430S in size, a color and appearance. Supplies regulated 13.8V DC at 20A intermittent with built-in cooling fan and protection circuits for maximum reliability. A 120V/220V/240V line voltage

selector provided. Since extra terminals for 13.8V at 10A are also provided, the PS-430 can be used as a power source for other mobile transceivers.

SPECIFICATIONS

● Power requirements: 120V/220V/240V AC ● Power consumption: Approx. 500W ● Output voltage: 13.8V ● Output current: 20A intermittent ● Output voltage fluctuation: Within ± 0.7 V at 2 – 15A load current ● Ripple voltage: less than 20 mV at 13.8V DC 15A ● Dimensions: 173 (6.8)W x 96 (3.8)H x 245 (9.7)D mm (inch) ● Weight: Approx. 7 kg (15.4 lbs.)

- MC-30S (500 Ω)
- MC-35S (50 k Ω)
Noise Cancelling Hand
Microphone (4 Pin)



- MC-42S (500 Ω)
UP/DOWN Microphone
(8 Pin)



- MC-46 (500 Ω) (6 pin)
- MC-48 (500 Ω) (8 pin)
16-button Autopatch
UP/DOWN Microphone



- MC-50 (50 k Ω /500 Ω)
Desk-top Microphone
(4 Pin)



- MC-60 (N4) (50 k Ω /500 Ω)
Deluxe Desk-top
Microphone (4 Pin)



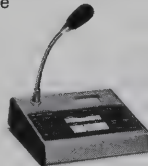
- MC-60A (500 Ω /900 Ω)
Deluxe Desk-top
Microphone built-in
Pre-amplifier (8 Pin)



- MC-80 (700 Ω)
Desk-top Microphone with
built-in Pre-amplifier (8 pin)
Electret condenser micro-
phone



- MC-85 (700 Ω)
Multi-function desk-top mi-
crophone (8 pin)
Electret condenser micro-
phone



- MC-55 (700 Ω)
Mobile Microphone with
time-out-timer (8 pin)
Electret condenser micro-
phone



- MJ-Series
Microphone Plug Adaptor
MJ-48 (4P – 8P)
MJ-84 (8P – 4P)
MJ-86 (8P – 6P)



- PG-4 Series
Microphone Cable for
MC-60/60A & MC-85
PG-4A (for 4P) PG-4D (for 4P)
PG-4B (for 6P) PG-4E (for 6P)
PG-4C (for 8P) PG-4F (for 8P)



- PG-3A
Noise filter (Max. current
15A) for mobile transceivers



- SP-40 (4 Ω)
Compact Mobile Speaker



- SP-50 (8 Ω)
Mobile Speaker



- RD-20 (50 Ω)
RF Dummy Load
(20W Continuous)



- HS-4 (8 Ω)
Headphones



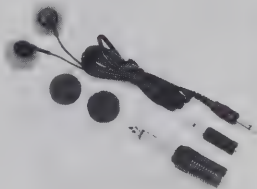
- HS-5 (8 Ω)
Deluxe Headphones



- HS-6 (12.5 Ω)
Small-sized Headphones



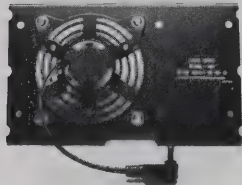
- HS-7 (16 Ω)
Micro Headphones



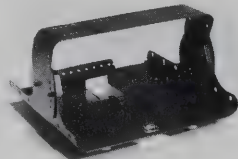
- VOX-4
VOX/Processor
for TS-660



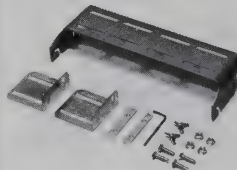
- FA-4
Fan Unit for TS-130SE



- MB-100
Mobile Mount for
TS-130S/130SE/130V/660



- MB-430
Mobile Mount for
TS-430S



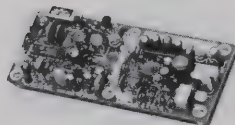
- MB-4000
Mobile Mount for TW-4000A



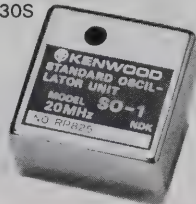
- MB-201
Mobile Mount for
TM-201A/401A



- FM-430
FM Unit for TS-430S



- SO-1
Superior Compensated
Crystal Oscillator for
TS-930S



- DCK-1
DC Cable Kit for
R-600/1000/2000



- SMC-25
Speaker Microphone
for TR-2500/3500



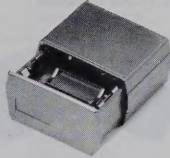
- PB-24
Ni-Cd Battery Pack
for TR-2400



- PB-25
400 mA Ni-Cd Battery Pack
- PB-25H
490 mA Ni-Cd Battery Pack
for TR-2500/3500



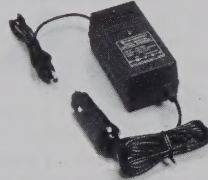
- BT-1
AA Manganese/Alkaline
Battery Case
for TR-2500/3500



- DC-25
DC-DC Converter for
12V operation for
TR-2500/3500



- BC-5
DC-DC Quick Charger
for TR-2400



- ST-1
Base Stand/Quick Charger
for TR-2400



- ST-2
Base stand for TR-2500,
TR-3500



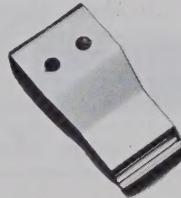
- MS-1
Mobile stand (for TR-2500,
TR-3500)



- LH-1/LH-2
Leather Case for TR-2500
(LH-1), TR-2500/3500 (LH-2)



- BH-2A
Belt Hook for
TR-2500/3500



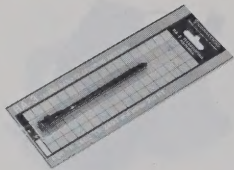
- WS-1
Wrist Strap for
TR-2500/3500



- EP-1
Earphone for TR-2500/3500



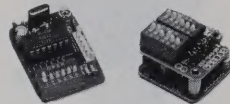
- RA-3
Telescoping Antenna
for TR-2400/2500



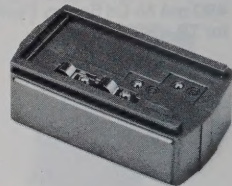
- RA-5
2M/70CM 2 Band
Telescoping Antenna
(for TR-2400/2500/3500)



- TU-3
Two Frequency Tone Encoder
- TU-4C
Two Frequency Programmable CTCSS Encoder



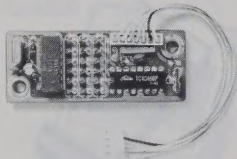
- TU-1
Tone Encoder for TR-2500



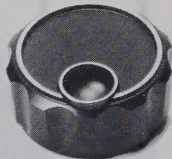
- TU-35B
Programmable Tone
Encoder for TR-3500



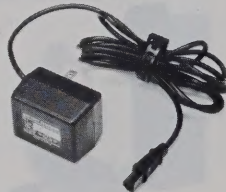
- TU-79
3 Frequency Tone Unit
for TR-7950/7930



- KB-1
Deluxe VFO Knob
for TS-830S/530S/VFO-240



- TK-1
AC Adaptor for Memory
Back up



- BO-9A
System Base



Specifications for optional microphones

Model	Type	Impedance	Number of pins	Others	Transceiver
MC-30S/35S	Hand microphone	50k/500 Ω	4	Noise cancelling type	TS-130SE-S-V/530S/530SP/830S
MC-42S	Hand microphone	500 Ω	8	Built-in UP-DOWN switch	TS-930S/660/430S
MC-46	Hand microphone	500 Ω	6	Touch tone (DTMF) with UP-DOWN	TR-7730/7800/7850/9130/8400/7930/7950
MC-50	Desk-top	50k/500 Ω	4		TS-130SE-S-V/530S/530SP/830S
MC-60	Desk-top	50k/500 Ω	4		TS-130SE-S-V/530S/530SP/830S
MC-60A	Desk-top	500 Ω /900 Ω	8	UP-DOWN SW w/pre-amp SW with microphone amplifier	TS-930S/430S/660 TW-4000A TM-201A/401A
MC-80	Desk-top	700 Ω	8	UP/DOWN SW w/pre-amp.	TS-930S/430S/660 TW-4000A TM-201A/401A
MC-85	Desk-top	700 Ω	8	UP/DOWN SW w/Audio Level Compensation	TS-930S/430S/660 TW-4000A TM-201A/401A

Specifications for optional filters

Model	Center frequency	Bandwidth -6dB	Bandwidth -60dB	Guaranteed attenuation	Transceivers
YG-455C	455,7kHz	500Hz	820Hz	More than 80dB	TS-830S/R-2000
YG-455C-1	455,0kHz	500Hz	820Hz	More than 80dB	TS-930S
YG-455CN	455,7kHz	250Hz	500Hz	More than 80dB	TS-830S
YG-455CN-1	455,0kHz	250Hz	480Hz	More than 80dB	TS-930S
YK-88A	8831,5kHz	6kHz	11kHz	More than 80dB	TS-430S/600
YK-88A-1	8830,0kHz	6kHz	11kHz	More than 80dB	TS-930S
YK-88C	8830,7kHz	500Hz	1,8kHz	More than 80dB	TS-130SE-S-V/430S/530S/830S
YK-88C-1	8830,0kHz	500Hz	1,5kHz	More than 80dB	TS-930S
YK-88CN	8830,7kHz	270Hz	1,2kHz	More than 80dB	TS-130SE-S-V/430S/530S/830S
YK-88SN	8830,0kHz	1,8kHz	3,6kHz	More than 80dB	TS-130SE-S-V/430S/530S

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