

KENWOOD

ALL-MODE
TRANSCEIVER

2-m 70-cm
TR-751E, TR-851E



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ALL-MODE TRANSCEIVERS

The new TR-751E 2-m and TR-851E 70-cm all-mode transceiver delivers superior performance and "All Mode Mobility". Packed with all of the most often needed features including auto-mode selection, dual digital VFOs, 10 memories with lithium battery back-up various scan functions, all-mode squelch, noise blanker, RIT, DCL (Digital Channel Link) and easy-to-operate front panel layout. And, designed with the latest state-of-the-art technology, this compact rig is the one to choose for VHF and UHF stations on-the-go.



25W RF Output, with HI/LO Power Switch
The TR-751E and TR-851E provide a powerful 25 watts of RF output on SSB/CW/FM modes, for mobile or base station operation. A HI/LO power switch allows for power reduction to 5 watts.

Compact and Lightweight (TR-751E/851E)
Measures only 180 (7.09)W x 60 (2.36)H x 195 (7.68)/ 215 (8.46)Dmm (inch) and weighs only 2.1kg (4.63 lbs)/2.5kg (5.51 lbs), approx.

High Performance Receive/Transmit Specifications

The extra high receive sensitivity and excellent dynamic range provided by the use of GaAs FETs in the RF amplifier, plus KENWOOD's special high-speed antenna switching circuit, coupled with transmitter modulation characteristics that have been carefully selected for superior sound quality and minimum distortion, result in an outstanding KENWOOD 2-m and 70-cm radio series having the highest in receive/transmit specifications.

Easy-To-Operate Functions

- a) All-mode operation
Modes include FM, USB, LSB and CW transmit and/or receive. Mode selection is easily done by pressing the appropriate mode key. When a mode key is depressed, the first letter of the selected mode is verified with Morse Code.
- b) Auto-mode operation
When the "AUTO" key is depressed, mode selection is automatically selected, depending on frequency.

144	144.15	144.5	145.85	146MHz
CW	USB	FM	USB	

TR-751E

430	432.15	432.5	435	438	440MHz
CW	USB	FM	LSB	FM	

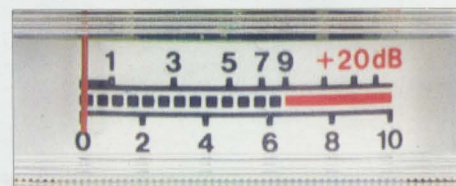
TR-851E

Optional MU-1 DCL "Digital Channel Link System" Unit

The optional DCL modem unit MU-1 is easily installed inside the cabinet. DCL is revolutionary new signaling system developed by KENWOOD for Amateur radio, and utilizes the most advanced digital data transmission technology. Its features include automatic connection, recall, vacant frequency location, reverse function and selective calling of individual transceivers or groups of transceivers. By utilizing a 5-digit code group, 100,000 combinations are possible, thus providing a high level of code security. In addition to the selective calling code, the DCL system also transmits a 6 digit alpha numeric group, which is normally used for the station call sign, e.g. JA1YKX. The call sign is inserted using decimal ASCII code, by using the optional CD-10 "Call Sign Display", which can be used with any receiver, the operator may store up to 20 incoming call signs for later review or logging.

Easy-To-Read S & RF Analog Meter

An analog type S & RF meter measures signal strength and relative RF power output.



Various Frequency Control Functions

●Dual Digital VFOs built-in

The built-in dual digital VFOs tune independently, including mode selection, frequency step and repeater information, allowing maximum operational convenience. Selection of the frequency step is accomplished utilizing the front panel "F. STEP" switch, as illustrated in the following table:

MODE STEP	TR-751E		TR-851E	
	SSB/CW	FM	SSB/CW	FM
ON	50Hz	5kHz	50Hz	5kHz
OFF	5kHz	12.5kHz	5kHz	12.5kHz

10 Memories with Lithium Battery Back-up

The memories store frequency, mode and repeater offset for increased convenience and simplicity of operation.

- Memory 1 is for the priority ALERT channel.
- Memories 7 and 8 store the lowest DCL scan frequency and the DCL skip frequency which are used for automatic connection with the DCL system (with MU-1 "DCL MODEM unit").
- Memories 9, and ϕ channels store transmit and receive frequencies independently, allowing operation on repeaters having both standard or odd offsets.
- Internal lithium battery (estimated 5 year life) backs up memory data for convenience in moving the transceiver from car to the home or vice versa.

- ▲ MHz/M.CH/AL (Alert)
- ▲ MHz/M.CH: Shifts 1MHz/memory channel up
- AL: Memory channel 1 is monitored for 0.2 seconds out of approx. every 6 seconds.

NB: Noise blanker

RIT: "Receiver Incremental Tuning" switch

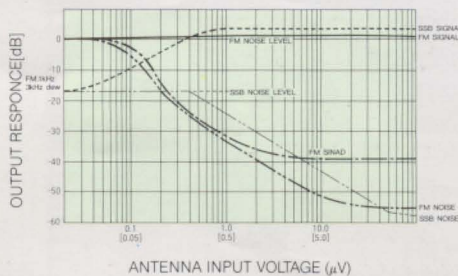


DCL (Digital Channel Link) key
 RESET key
 CHL (Channel Link) key
 CS (Code Set) key
 C.SQ (Code Squelch) key

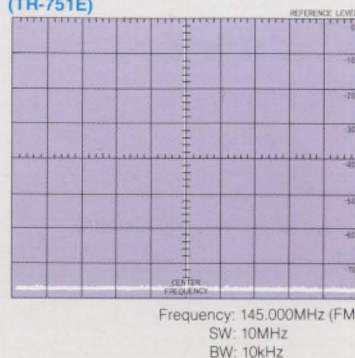
- MR: (Memory recall): Activates memory recall of selected channels.
- FSTEP: Tuning step frequency in VFO.
- SCAN: Used to activate or stop scan.
- M (Memory input): Used to store the frequency
- OFFSET: Selects $\pm 600\text{kHz}$ or simplex, and memory channels 9 and ϕ are for odd repeater shift.
- A/B: Selects the VFO A or VFO B

SIGNAL TO NOISE RATIO, OUTPUT LEVEL vs ANTENNA INPUT VOLTAGE (TR-751E)

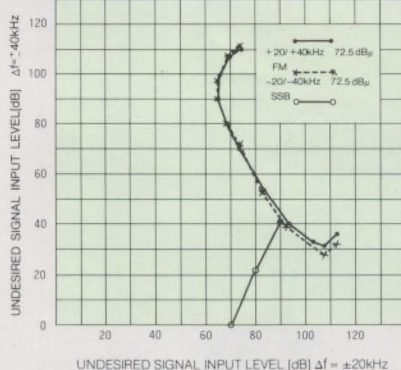
CARRIER FREQ: 145.000MHz
 MOD. FREQ: 1kHz
 MOD. DEPTH: 3.0kHz



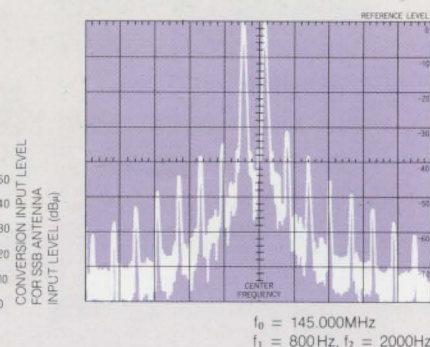
ADJACENT SPURIOUS RADIATION (TR-751E)



INTERMODULATION CHARACTERISTIC (TR-751E)



TRANSMITTER 2 TONE IMD CHARACTERISTIC (TR-751E)



Various Scan Function

● Programmable Band Scan

Depressing the "SCAN" switch initiates program band scan depending on VFO frequency step. The scan direction may be changed by depressing the UP or DOWN key on the microphone by or rotating the position of the main knob during scan. Two frequencies (transmit and receive), stored independently in memory ϕ , set band scan frequency limits.

● Memory Scan

MS switch initiates memory scan.

● Memory Channel Mode Scan

Depressing the [MR], the [MODE] key, then the [SCAN] key will initiate memory channel mode scan. This allows scanning all memory channels in the same mode.

● Alert

When the "AL" switch is depressed, memory channel 1 ("Alert" channel), is monitored for approximately 0.2 seconds out of every 6 seconds. If a signal is present, a double "beep" will sound through the speaker to alert the operator.

Repeater Offset

Transmitter offset [$\pm 600\text{kHz}$ (TR-751E), $-7.6\text{MHz}/-1.6\text{MHz}$ (TR-851E), or simplex] is selected by the front panel offset switch. Memory channels 9, and ϕ are provided for odd shifts.

Tone Switch

The tone switch activates the accurate 1,750Hz repeater access tone oscillator.

Repeater Reverse Switch

Depressing the reverse switch transposes the transmit and received frequencies. Useful for checking signals on the input of repeater, to determine whether you are in simplex range.

Superb SSB and CW Operating Functions

The TR-751E and TR-851E incorporate a number of high performance functions found on HF transceivers.

● All-mode Squelch Circuit

The squelch circuit is effective in suppressing background noise in all operating modes.

● Noise Blanker

The noise blanker eliminates pulse-type interference such as ignition noise.

● Semi Break-In and Side Tone

Semi break-in side tone circuits are provided in the TR-751E and TR-851E for optimum CW operation.

● Built-in RIT

The front panel "RIT (Receiver Incremental Tuning)" control shifts only the receiver frequency (0.0 ~ $\pm 1.2\text{kHz}$), for tuning in stations slightly off frequency without shifting the transmitter frequency.

Large, Easy-to-read LCD Display

A green, back-lighted semi-penetration type LCD display is provided, for best visibility in direct sunlight or after dark.

Other features

● Memory Shift Function

When a frequency is recalled from memory, rotating the VFO knob automatically restores VFO control beginning at the recalled frequency. This provides increased flexibility for the operator.

● Optional VS-1 Voice Synthesizer Unit

The optional VS-1 is available, which announces the frequency, memory channel number, digital code, and tone frequency.

● Frequency Lock Switch

A front panel "F.LOCK" switch prevents accidental loss of selected frequency when in the "LOCK" position.

● "BEEPER" Amplified Through Audio Circuit.

The operation of the various functions is confirmed by the sounding of distinct "beeper" tones. With the front panel volume control set at your usual operating position, the audio output level of these tones may be adjusted to a comfortable level, through use of an internally located variable resistor.

● Low Power Output Level Adjustment.

An internally mounted variable resistor is provided for adjusting the power output for "LO" power operations.

● Easy-to-Install Mobile Mount.

● AUX Terminal on rear panel for linear amplifier control

● Standard Accessories (Supplied)

- Operating manual
- Hand microphone
- DC cable with fuse
- Mobile mounting bracket

TR-751E/851E OPTIONAL ACCESSORIES

CD-10 Call Sign Display

The CD-10 stores the call sign of the calling station in its memory and displays it on an LCD display.

[Option] AC-10 AC Adaptor



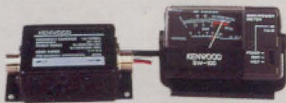
PS-430 DC Power Supply

Supplies regulated 13.8 VDC at 10A continuous with built-in cooling fan and protection circuit for maximum reliability.



SW-100A/B SWR/POWER Meter

A: 1.8 ~ 150MHz, B: 140 ~ 450MHz
Compact and lightweight SWR/POWER/VOLT meter for mobile use (0 ~ 150W)



SW-200A/B SWR/POWER Meter

A: 1.8 ~ 150MHz, B: 140 ~ 450MHz
SWR/POWER meter for base station use. (0 ~ 20/200W)



SWT-1/2 2-m/70-cm Antenna Tuning Unit

Use in conjunction with an SWR/POWER meter for efficient transmission.



MU-1 MODEM Unit for DCL system



VS-1 Voice Synthesizer Unit



MB-10 Mobile Mount



SP-40 Compact Mobile Speaker (4Ω)

SP-50 Mobile Speaker (8Ω)

Compact and smart, high quality external speakers, provide flexibility of installation for maximum convenience.



PG-3A DC Line Noise Filter (for Mobile Transceivers)

Max. current 15A. (continuous)



MC-60A (8 pin) Deluxe Desk-top Microphone with UP/DOWN controls (50kΩ/500Ω)

Unidirectional dynamic microphone



MC-80 (8 pin) Desk-top Microphone with UP/DOWN controls (700Ω)

Omnidirectional electret condenser microphone



MC-85 (8 pin) Deluxe Desk-top Microphone with tone adjustments and three outputs (700Ω)

Unidirectional electret condenser microphone



MC-55 (8 pin) Mobile Microphone with time-out-timer

Electret condenser microphone



TR-751E/851E SPECIFICATIONS

[GENERAL]

Frequency Range	TR-751E = 144 — 146MHz TR-851E = 430 — 440MHz
Mode	A3J [J3E] (SSB), A1 [A1A] (CW) F3 [F3E], F2 [F2D] = with DCL mode (FM)
Antenna Impedance	50 ohms
Temperature Range	— 20°C ~ + 60°C
Power Requirements	13.8VDC ± 15% Negative grounding
Power Consumption	Transmit: HI Less than 6.0A (TR-751E), 7.5A (TR-851E) Receive (no signal): Less than 0.8A
Frequency Tolerance	Less than ± 15PPM (TR-751E) ± 20PPM (TR-851E) (— 20°C ~ + 60°C)
Microphone	
Impedance	500 ~ 600 ohms
Dimensions mm (inch)	180 (7.09)W × 60 (2.36)H × 195 (7.68) [TR-751E]/ 215 (8.46) [TR-851E] D (Projections not included)
Weight	TR-751E: 2.1kg (4.63 lbs.) approx. TR-851E: 2.5kg (5.51 lbs.) approx.

[TRANSMITTER]

RF Output Power	HI = 25W, LO = 5W
Modulation	SSB = Balanced Modulation FM = Reactance Modulation
Spurious Radiation	Less than — 60dB
Maximum Frequency	
Deviation	± 5kHz (FM)
Carrier Suppression	Better than 40dB
Unwanted Sideband	
Suppression	Better than 40dB
Modulation Distortion	Less than 3% (300Hz ~ 3,000Hz)

[RECEIVER]

Circuitry	TR-751E: SSB/CW = Single Conversion Superheterodyne FM = Double Conversion Superheterodyne TR-851E: SSB/CW = Double Conversion Superheterodyne FM = Triple Conversion Superheterodyne
Intermediate Frequency	
	TR-751E TR-851E
1st IF	10.695MHz 41.415MHz
2nd IF	455kHz (FM) 10.695MHz
3rd IF	— 455kHz (FM)
Sensitivity	SSB/CW = 10dB S + N/N Less than 0.13μV (TR-751E), 0.11μV (TR-851E) FM = 12dB SINAD Less than 0.2μV (TR-751E), 0.18μV (TR-851E)
Selectivity	SSB/CW = More than 2.2kHz (— 6dB), Less than 4.8kHz (— 6dB) FM = More than 12kHz (— 6dB), Less than 24kHz (— 60dB)
RIT Variable Range	More than ± 1.2kHz
Spurious Response	Better than 70dB (TR-751E), (except IF/2) Better than 60dB (TR-851E)
Squelch Sensitivity	Less than 0.1μV (TR-751E), Less than 0.09μV (TR-851E)
Audio Output Power	More than 2W (8 ohms at 5% distortion)
Audio Output Impedance	8 ohms
Specifications are subject to change without notice due to advance in technology.	

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