

# KENWOOD

## VHF/UHF FM Repeater-Base Units

# TKR-750/850

**High-performance features — such as 16 full-duplex channels, flash memory, and PC/manual tuning — provide crystal-clear and reliable communications to make Kenwood's TKR-750/850 VHF/UHF FM repeaters the first choice for demanding applications.**

### HIGH STABILITY 100 % CONTINUOUS DUTY

The TKR-850's high stability 1.5PPM (2PPM for TKR-750) TCXO modules, 100% duty RF power amplifier (25W output), integrated die-cast heat sink and forced-air cooling provide site-friendly reliable 24/7-operation. The TKR-750 high power output is 50W (at 50% duty) a TKR-850 is 40W (at 50% duty).

### 16 FULL-DUPLEX CHANNELS & SINGLE PRIORITY SCAN

With 16 full-duplex channels, these versatile repeaters can function as a base station or repeater backup unit to suit various applications. The built-in 16 channels are preset and selectable from a remote control utilizing the remote I/O connector or pre-programmed key on the front panel. The programmable function (PF) keys located on the front panel permit adjustment and testing of repeater sites. In addition, single priority scan is available when the unit is operating in simplex mode.

### QT/DQT WITH DSP MULTI-DECODE

For QT/DQT groups sharing the same RF signal range, DSP processing allows up to 16 QT/DQT signal variations to be processed simultaneously via the multi-decode function. Two decode tables (main/sub) are available to facilitate the setup of channels to different multi-decode ranges.

### COMPANDED AUDIO

A built-in compander contributes to improved audio when operating as a simplex base station. A wide/narrow setting is available for each channel.

### FLASH MEMORY

Flash memory permits updates, advanced feature sets and system architectural changes to be made electronically without ever opening the unit. This means faster modifications for system operators and less downtime for users.

### 2-DIGIT NUMERIC LED DISPLAY

The 2-digit numeric LED on the front panel displays channel number and operational status information, such as an "unlocked" error.

### LED INDICATORS

The LED indicator lights provide clear system status information at a glance, including transmit, receive, battery backup, and DC power. If the transmitter or receiver becomes unlocked, the LEDs flash for quick problem assessment.



### WIDE/NARROW CHANNEL BANDWIDTH PER CHANNEL

The TKR-750/850 can handle both existing wide-band systems and emerging narrow band applications for extra flexibility and long-term viability. For VHF channels, compatibility is provided for a minimum frequency of 2.5kHz (U.S.A. only).

### WINDOWS® PROGRAMMING AND TUNING SOFTWARE

The repeater can be programmed from a Windows® compatible PC quickly and efficiently — without ever opening the case — using the optional FPU and programming interface cable.

Among the radio parameters available for programming are:

- Squelch
- RX audio signal output (RA)
- RX detector signal output (RD)
- RX frequency
- RF output power
- Maximum deviation
- TX audio input (TA)
- Signaling deviation (TD)
- DQT balance
- QT deviation
- DQT deviation
- Test tone deviation
- CW ID deviation
- Repeat gain
- TX frequency

Manual tuning is available for the following settings: RX helical resonator block bandwidth, MCF waveform, Quad detector coil, and MIC sensitivity.

### 6 PF KEYS & LOCAL SPEAKER

In addition to 6 programmable function keys (each equipped with an LED indicator), the front panel has a built-in speaker. This makes it easy to check on repeater site reception conditions. There is also a microphone terminal to allow audio transmission.

### EMBEDDED MESSAGE WITH PASSWORD LOCK

The repeater's flash memory can store an electronic message — with password protection — containing owner identification, property ID numbers, user and department names, service records, etc. Additionally, the FPU can be used to display an electronic serial number. A unit can thus be electronically identified even if the external labels, marking or factory serial numbers have been removed.

### EXTERNAL CONTROL I/O

The D-SUB25 connector on the rear panel provides a control I/O interface for external controllers to enable customization and integration with other features and capabilities.

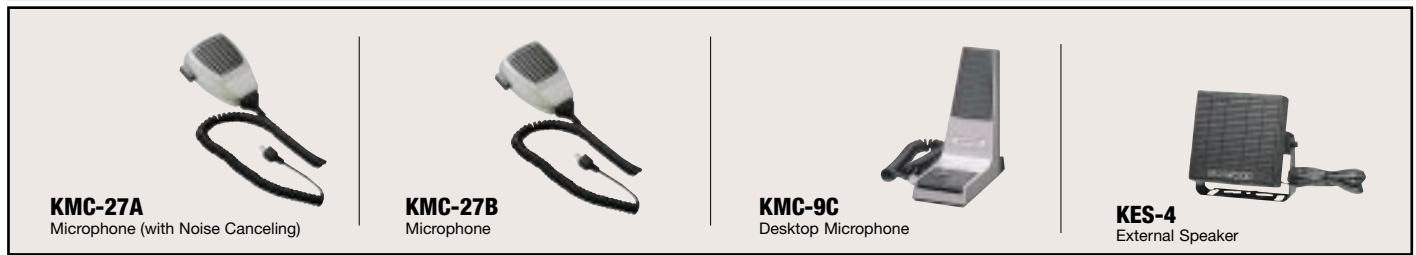
### BATTERY BACKUP SYSTEM

Several power-saving features, including a display-off function, help to reduce consumption. A built-in backup system supports automatic switching to a 12v battery\* if the AC-based power supply\* fails.

\*Not supplied



# Options



# Specifications

\* Not all accessories may be available, please contact dealers for details.

	TKR-750	TKR-850
<b>GENERAL</b>		
Frequency Range Type 1: Type 2:	146 ~ 174 MHz 136 ~ 150 MHz	450 ~ 480 MHz 480 ~ 512 MHz
Number of Channels	16	
Channel Spacing Wide Narrow (PLL channel stepping)	30, 25 kHz 15, 12.5 kHz (2.5, 5, 6.25, 7.5 kHz)	25 kHz 12.5 kHz (5, 6.25 kHz)
Operating Voltage	13.6 V DC $\pm$ 15%	
Current Drain Standby Standby (w/power save) Receive Transmit/Receive	0.8 A 0.3 A Operating mode; DC-IN:Backup, FAN:Temp, SAVE:On, DISP:Off 1.2 A Less than 13 A	
Duty Cycle	Receive: 100%, Transmit: 100% at 25 watts	
Frequency Stability	$\pm$ 0.0002% (-22° F ~ +140° F)	$\pm$ 0.00015% (-22° F ~ +140° F)
Operating Temperature Range	-22° F ~ +140° F (-30° C ~ +60° C)	
Dimensions (W x H x D)	19 x 3-1/2 x 13-1/3 in. (483 x 88 x 340 mm)	
Weight (net)	21.4 lbs. (9.7kg)	
FCC ID Type 1: Type 2:	ALH31103110 ALH31103120	ALH31113110 ALH31113120
FCC Compliance Type 1: Type 2:	22, 74, 90 90, 90.210	22, 74, 90, 95 90, 90.210
CANADA IC (RSS119) Type 1: Type 2:	282195726A 282195742A	282195725A
<b>RECEIVER</b> (Measurements made per TIA/EIA-603)		
Antenna Impedance	50 $\Omega$	
Sensitivity: 12 dB SINAD 20 dB quieting	0.35 $\mu$ V 0.45 $\mu$ V	
Selectivity Wide Narrow	85 dB at $\pm$ 30 kHz 80 dB at $\pm$ 15 kHz 77 dB at $\pm$ 12.5 kHz	83 dB at $\pm$ 25 kHz 75 dB at $\pm$ 12.5 kHz
Intermodulation Wide Narrow	80 dB at $\pm$ 30,60 kHz 75 dB at $\pm$ 15,30 kHz	78 dB at $\pm$ 25,50 kHz 75 dB at $\pm$ 12.5,25 kHz
FM Hum & Noise Wide Narrow	50 dB 45 dB	
Audio Output (Ext. Speaker)	4 W (at 4 $\Omega$ , less than 5% distortion)	
Spurious & Image Rejection	90 dB	
Audio Distortion (Ext.Speaker)	Less than 2.5% at 1000 Hz	
Band Spread Type 1: Type 2:	3 MHz 3 MHz	5 MHz 5 MHz

	TKR-750	TKR-850
<b>TRANSMITTER</b> (Measurements made per TIA/EIA-603)		
RF Power Output	50 W adjustable to 25 watts (100% duty at 25W)	40 W adjustable to 25 watts (100% duty at 25W)
Antenna Impedance	50 $\Omega$	
Type of Emission Wide Narrow	16K0F3E 11K0F3E	
Spurious Response Harmonics Others	80dB 80dB	80dB 75dB
FM Hum & Noise Wide Narrow	50 dB 45 dB	
Microphone Impedance	600 $\Omega$	
Audio Distortion	Less than 3% at 1000 Hz	
Band Spread Type 1: Type 2:	28 MHz 14 MHz	30 MHz 32 MHz
<b>REPEATER CONTROL</b> (Measurements made per TIA/EIA-603)		
Signaling (simultaneously) Maximum Number of Tones	16	
QT Decoder/Encoder Tone frequency Decoder response time Squelch tail elimination time Encoder frequency error Sensitivity	67.0 ~ 210.7Hz (0.1Hz step) 250ms or less 140 to 200 ms $\pm$ 0.3% or less SINAD 8dB or less	
DQT Decoder/Encoder DQT code Decoder response time Turn-off code transmission time Sensitivity	23 bits total: a 3-digit octal number (0 ~ 7,12bits) with error correction (11bits) 250ms or less 140 to 200 ms SINAD 8dB or less	
Time-out Timer	Off to 30 min.	
Repeat Hold Time	Off to 10 sec.	
<b>EXTERNAL CONTROL</b>		
CWID Maximum modulation CW tone frequency Morse code speed Maximum character memory	Maximum deviation of 40% $\pm$ 10% 400Hz to 2000Hz, (default 800Hz) 5 to 30 word per minutes, (default 20WPM) Up to 32 characters (include space)	
CW Message Maximum character Number of banks	Up to 32 characters per bank (include space) 8 banks	
Test Tone Maximum modulation Test tone frequency	Maximum deviation of 60% 300Hz to 3000Hz (default 1000Hz)	

Kenwood follows a policy of continuous advancement in development.  
For this reason specifications may be changed without notice.

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**JQA-1205 ISO 9001**  
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