

# KENWOOD

Listen to the Future



## TKR-750/850

VHF/UHF FM Repeater-Base Units

A versatile unit, the TKR-750/850 is a 16-user group conventional repeater, a simplex or full duplex base station or the RF core of a trunking system. Advanced features include DSP audio processing, DTMF over-the-air remote control and programmable Auxiliary I/O's.

### CONVENTIONAL REPEATER OPERATION

The TKR-750/850 are "community repeater-ready" with a built-in internal 16 QT/DQT group controller and programmable repeater functions such as CW Transmitter ID, Hang-Timer, Time-Out-Timer and Repeat Enable/Disable Key. The 15W-to-50W (TKR-850: 15W-to-40W) adjustable output power is ideal for on-site low power repeater applications.

### CONVENTIONAL OR TRUNKING SYSTEM USE

The TKR-750/850 can serve as the core element of any conventional or trunking repeater system. The internal conventional controller can be used, or an external conventional or trunking logic controller can be easily interfaced for advanced systems.

### SIMPLEX OR DUPLEX BASE STATION OPERATION

The TKR-750/850 can be operated in simplex or full-duplex base station mode with up to 16 channels and priority scan. Internal solid state antenna switching is provided for simplex single-antenna base station operation. The accessory connectors provide remote control interface. Also programmable are the six PF function keys, LED indicators, control/warning/alert/power-on tones and tone volume for facilitating any remote site installation.

### DTMF OVER-THE-AIR REMOTE CONTROL

All front panel PF Key functions and AUX Input functions can be remotely activated and deactivated over-the-air via DTMF codes (up to 16 digits each) and provide an acknowledgement single tone or custom DTMF transpond code. Also AUX Inputs, upon activation and deactivation will encode unique DTMF codes for monitoring and alarm purposes.

### LED DISPLAY & INDICATORS

The enhanced 7-segment/2-character front panel LED provides 2-character alphanumeric channel designator and scan indicator for base station operation, a PLL unlock indicator and a PC program mode status. Front panel dual-color LED's provide Transmit, Busy, Primary/Backup DC Power indications.

### BACKUP POWER FEATURES

The Backup Battery Warning Tone transmits an over-the-air 5-second tone after DC supply has switched from "main" to "backup" power. Optionally a reminder Operation Tone can be transmitted while on backup power. These tones can be triggered when either DC power is connected to the "backup" DC input line or when the supplied voltage is lower than the programmed Power Supply Level DC voltage setting.

### REPEATER FEATURES

- Full-Duplex Operation
- Built-in 16 QT/DQT Tone/Code Pair Community Repeater Operation
- External Controller Interface
- Conventional or Trunking Controller Compatible
- Repeat Enable/Disable
- 8 CW Transmitter IDs
- Repeat Hold Timer (hang timer)
- Time Out Timer

### BASE STATION FEATURES

- 16 Channel
- Simplex or Full Duplex Operation
- Antenna Switch For Simplex/Single Antenna Operation
- Priority Scan
- Remote Control Inputs
- 7-Segment 2-Character Channel & Scan LED
- 2 Character Alphanumeric Channel Designator
- Power/Transmit/Busy LED Indicators
- 6 Lighted PF Keys
- Local Takeover/Remote PF Key
- Channel Up/Down PF Keys
- Volume Control Knob
- Courtesy Tone
- Front Microphone Jack
- Front Panel Speaker
- Voice Encryption Port

### GENERAL

- 19" Rack Mount Design
- Primary DC Input Connector
- Auto-Switched Back-up DC Input Connector
- Backup Battery Warning/Operation Tones
- Rear External Speaker Output (4 Watts Audio)
- Rear Test-Speaker-AUX Connector (15-Pin)
- Built-in Cooling Fan (temperature or continuous)
- Programmable AUX Input/Output Functions
- BCD Remote Channel Selection (4 lines)
- Toggle or Momentary Operation on AUX Input Ports
- Pre-Emphasis On/Off Control (at TA AUX Input)
- DSP Processed QT/DQT
- DSP Processed Companded Audio
- QT/DQT Squelch-Tail Elimination
- Beep Tones for Control, Warning, Alert & Power On
- Electronic Serial Number (ESN)
- Embedded Message with Password Protection
- High Stability Oscillators (TCXO)
- Windows® 98/2000/Me/XP PC programming & tuning
- Flash Memory



# Options

■ **KMC-27A**  
Microphone  
(with Noise Canceling)



■ **KMC-27B**  
Microphone



■ **KMC-9C**  
Desktop Microphone



■ **KES-5**  
External Speaker



## Specifications

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

	<b>TKR 750</b>	<b>TKR 850</b>
<b>GENERAL</b> (Measurements made per TIA/EIA-603)		
Frequency Range	Type 1: 146 ~ 174 MHz Type 2: 136 ~ 150 MHz Type 3: —	450 ~ 480 MHz 480 ~ 512 MHz 400 ~ 430 MHz
Number of Channels	16	
Channel Spacing	Wide: 30, 25 kHz Narrow: 15, 12.5 kHz (PLL channel stepping)	25 kHz 12.5 kHz (5, 6.25 kHz)
Operating Voltage	13.6 V DC ±15%	
Current Drain	Standby: 0.8 A Standby (w/power save): 0.3 A Receive: 1.2 A Transmit/Receive: Less than 12 A	
Duty Cycle	Receive: 100%, Transmit: 100% at 25 watts	
Frequency Stability	Less than ±0.0002% (-22° F ~ +140° F)	Less than ±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. (9.7 kg)	
FCC ID	Type 1: ALH31103110 Type 2: ALH31103120 Type 3: —	ALH31113110 ALH31113120 ALH31113130
FCC Compliance	Type 1: 22, 74, 90, 90.210 Type 2: 90, 90.210 Type 3: —	22, 74, 90, 90.210, 95 90, 90.210 90, 90.210
IC Certification	Type 1: 282195726A Type 2: 282195742A Type 3: —	282195725A — 282196779A
<b>RECEIVER</b> (Measurements made per TIA/EIA-603)		
Antenna Impedance	50 Ω	
Sensitivity:	12 dB SINAD: 0.35 μV (-116 dBm) 20 dB Quieting: 0.45 μV (-114 dBm)	
Selectivity	Wide: 85dB at ±30 kHz Narrow: 80 dB at ±15 kHz 77 dB at ±12.5 kHz	83 dB at ±25 kHz 75 dB at ±12.5 kHz
Intermodulation	Wide: 80 dB at ±30,60 kHz Narrow: 75 dB at ±15,30 kHz	78 dB at ±25,50 kHz 75 dB at ±12.5,25 kHz
Hum & Noise	Wide: 50 dB Narrow: 45 dB	
Audio Output (Ext. Speaker)	4 W (at 4 Ω, less than 5% distortion)	
Spurious & Image Rejection	90 dB	
Audio Distortion (Ext. Speaker)	Less than 2.5% at 1000 Hz	
Band Spread	Type 1: 3 MHz Type 2: 3 MHz Type 3: —	5 MHz 5 MHz 3 MHz

	<b>TKR 750</b>	<b>TKR 850</b>
<b>TRANSMITTER</b> (Measurements made per TIA/EIA-603)		
Antenna Impedance	50 Ω	
RF Power Output	Hi: 50 W Low: 25 W (100% duty at 15-25 W)	40 W 25 W (100% duty at 15-25 W)
APC Variable Range	15-50 W	15-40 W
Type of Emission	Wide: 16KØF3E Narrow: 11KØF3E	
Spurious Response	80 dB	
FM Hum & Noise	Wide: 50 dB Narrow: 45 dB	
Microphone Impedance	600 Ω	
Audio Distortion	Less than 3% at 1000 Hz	
Band Spread	Type 1: 28 MHz Type 2: 14 MHz Type 3: —	30 MHz 32 MHz 30 MHz
<b>REPEATER CONTROL</b> (Measurements made per TIA/EIA-603)		
Signaling (simultaneously)	16	
QT Decoder/Encoder	Tone Frequency: 67.0 – 210.7Hz (0.1Hz step) Decoder Response Time: 250 ms or less Squelch Tail Elimination Time: 140 to 200 ms Encoder Frequency Error: ±0.3% or less Sensitivity: SINAD 8 dB or less	
DQT Decoder/Encoder	DQT code: 23 bits total: a 3-digit octal number (0 – 7, 12 bits) with error correction (11 bits) Decoder Response Time: 250 ms or less Turn-off Code Transmission Time: 140 to 200 ms Sensitivity: SINAD 8dB or less	
Time out Timer	Off to 30 min.	
Repeat Hold Time	Off to 10 sec.	
<b>EXTERNAL CONTROL</b>		
CW ID	Maximum Modulation: Maximum deviation of 40%±10% CW Tone Frequency: 400Hz to 2000Hz, (default 800Hz) Morse Code Speed: 5 to 30 words per minute, (default 20WPM) Maximum Character Memory: Up to 32 characters (includes space)	
CW Message	Maximum Character: Up to 32 characters per bank (includes space) Number of Banks: 8 banks	
Test Tone	Maximum Modulation: Maximum deviation of 60% Test Tone Frequency: 300Hz to 3000Hz (default 1000Hz)	

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# KENWOOD

Kenwood U.S.A. Corporation  
Communications Sector Headquarters  
3975 Johns Creek Court, Suwanee, GA 30024-1265  
1-800 TRUNKING (878-6546) Main: (678) 474-4700 Web Site: kenwood.net

Order Administration/Distribution  
P.O. BOX 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745



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