

# KENWOOD

Listen to the Future



## TKR-751/851

VHF/UHF FM Repeater-Base Units

A versatile unit, the TKR-751/851 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-751/851 is "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 1W-to-25W adjustable output power is ideal for on-site low power repeater applications.

### CONVENTIONAL OR TRUNKING SYSTEM USE

The TKR-751/851 can serve as the core element of a 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-751/851 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.

	TKR-751	TKR-851
<b>GENERAL</b> (Measurements made per TIA/EIA-603)		
Frequency Range Type 1:	146 ~ 174 MHz	450 ~ 480 MHz
Number of Channels	16	
Channel Spacing Wide	30, 25 kHz	25 kHz
Narrow (PLL channel stepping)	15, 12.5 kHz (2.5, 5, 6.25 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	Operating mode; DC-IN: Backup, FAN: Temp, SAVE: On, DISP: Off 1.2 A	
Transmit/Receive	Less than 8 A	
Duty Cycle	Receive: 100%, Transmit: 100% at 1 to 25w	
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:	ALH35573110	ALH35583110
FCC Compliance Type 1:	22, 74, 90, 90.210	22, 74, 90, 90.210, 95
<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	83 dB at ±25 kHz
Narrow	80 dB at ±15 kHz 77 dB at ±12.5 kHz	75 dB at ±12.5 kHz
Intermodulation		
Wide	80 dB at ±30,60 kHz	78 dB at ±25,50 kHz
Narrow	75 dB at ±15,30 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	5 MHz

	TKR-751	TKR-851
<b>TRANSMITTER</b> (Measurements made per TIA/EIA-603)		
Antenna Impedance	50 Ω	
RF Power Output		
Hi	25 W	25 W
Low	1 W	1 W
	(100% duty at 1-25 W) (100% duty at 1-25 W)	
APC Variable Range	1-25 W	1-25 W
Type of Emission		
Wide	16KØF3E/16KØF1D	
Narrow	11KØF3E/11KØF1D	
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	30 MHz
<b>REPEATER CONTROL</b> (Measurements made per TIA/EIA-603)		
Signaling (simultaneously)		
Max. Number of Tones	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

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