

KENWOOD

Listen to the Future

TKR-750/850 Version 2.0

VHF/UHF FM Repeater-Base Units

A versatile unit, the TKR-750/850 is ready for deployment as a 16-user group conventional repeater, a simplex or full duplex base station or as the RF core of a trunking system.

Advanced features such as the DSP audio processing, DTMF over-the-air remote control and programmable Auxiliary I/O's combined with round-the-clock reliability add up to a superlative performing unit.

CONVENTIONAL REPEATER OPERATION

The TKR-750/850 are "community repeater-ready" with the 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, exciter or low power repeater applications. [DC power supply not included]

CONVENTIONAL OR TRUNKING SYSTEM USE

The TKR-750/850 can serve as the core element of any conventional or trunking repeater system. The basic internal conventional controller can be bypassed and an external conventional or trunking logic controller unit 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 (requires internal modifications; see service manual). The accessory connectors provide DC or tone remote control interface. Also programmable are the six PF function keys, LED indicators, volume knob, local speaker, control/warning/alert/power-on tones and tone volume for facilitating any local, equipment room or remote site installation. [DC power supply not included]

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 unique DTMF codes (up to 16 digits each) and provide an acknowledgement single tone or custom DTMF transpond code. Also AUX Outputs, upon activation and deactivation will encode unique DTMF codes for monitoring and alarm purposes (example: COR, fan status, low DC power supply, RF power down, PLL unlock, TOR and TX sense). For external analog sensor and switch sensing, AUX Inputs not assigned a programmable function can encode unique active and inactive DTMF codes (example: Air conditioning failure, open door/gate).

LED DISPLAY & INDICATORS

The enhanced 7-segment/2-character front panel LED provides a high-visibility 2-character alphanumeric channel designator and scan indicator for base station operation and a PLL unlock indicator and a PC program mode status for both base and repeater modes. 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.

WINDOWS® PROGRAMMING AND TUNING SOFTWARE

Windows® compatible PC programming and tuning provides easy setup and alignment using the optional KPG-91D software and KPG-46 programming interface cable. The most common tuning parameters* are adjustable without opening the unit or using tools.

*Note: Receiver helical resonator bandwidth, MCF waveform, and quadrature detector coil require manual tuning.
Windows® is a registered trademark of the Microsoft Corporation, U.S.A.

REPEATER FEATURES

- Full-Duplex Operation
- Built-in 16 QT/DQT Tone/Code Pair Community Repeater Operation
- External Controller Interface
- Conventional or Trunking Controller Compatible
- Courtesy Tone
- 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 Indicator
- 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
- Front Microphone Jack
- Front Panel Speaker
- Voice Encryption Option Port

GENERAL

- Adjustable 15W-to-50W (TKR-850: 15W-to-40W) setting
- Continuous Transmit Duty (100% @ 15-25W)
- 19" Rack Mount Design • Wide/Narrow Channel Spacing • Primary DC Input Connector (AC-to-DC power supply optional) • Auto-Switched Back-up DC Input Connector • Backup Battery Warning/Operation Tones
- Rear External Speaker Output (4 W Audio)
- Rear Accessory / Logic Controller Connector (25-Pin)
- 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) • Macro-Function AUX Inputs • Selectable Toggle or Momentary Operation on AUX Input Ports • DTMF Over-the-Air Remote Function & Auxiliary Output Control
- Pre-Emphasis On/Off Control (at TA AUX Input)
- External PTT Input @ Power On • DSP Processed QT/DQT • DSP Processed Companded Audio (simplex base operation) • QT/DQT Squelch-Tail Elimination
- Beep Function for Control, Warning, Alert & Power On Tones • Electronic Serial Number (ESN) • Embedded Message with Password Protection • High Stability Oscillators (TCXO) • Windows® 98/2000/Me/XP compatible PC programming & tuning • Flash Memory • 2 Years Parts and Labor Warranty



Options

■ KMC-27A

Microphone
(with Noise Canceling)



■ KMC-27B

Microphone



■ KMC-9C

Desktop Microphone



■ KES-5

External Speaker



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

Specifications

	TKR-750	TKR-850
GENERAL (Measurements made per TIA/EIA-603)		
Frequency Range		
Type 1:	146 ~ 174 MHz	450 ~ 480 MHz
Type 2:	136 ~ 150 MHz	480 ~ 512 MHz
Type 3:	—	400 ~ 430 MHz
Number of Channels	16	
Channel Spacing		
Wide	30, 25 kHz	25 kHz
Narrow	15, 12.5 kHz	12.5 kHz
(PLL channel stepping):	(2.5, 5, 6.25 kHz)	(5, 6.25 kHz)
Operating Voltage	13.6 V DC ±15%	
Current Drain		
Standby	0.8 A	
Standby	0.3 A	
(w/power save)	Operating mode; DC-IN: Backup, FAN: Temp, SAVE: On, DISP: Off	
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)	483 x 88 x 340 mm	
Weight (net)	9.7 kg	
RECEIVER (Measurements made per TIA/EIA-603)		
Antenna Impedance	50 Ω	
Sensitivity:		
12 dB SINAD	0.35 μV (-116 dBm)	0.35 μV
20 dB Quieting	0.45 μV (-114 dBm)	0.45 μV
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
Type 2:	3 MHz	5 MHz
Type 3:	—	3 MHz

TKR-750		TKR-850
TRANSMITTER (Measurements made per TIA/EIA-603)		
Antenna Impedance	50 Ω	
RF Power Output		
Hi	50 W	40 W
Low	25 W	25 W
	(100% duty at 15-25 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	30 MHz
Type 2:	14 MHz	32 MHz
Type 3:	—	30 MHz
REPEATER CONTROL (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.	
EXTERNAL CONTROL		
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)	

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

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