

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.

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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 \pm 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 | |
| Transmit/Receive | 1.2 A | |
| | Less than 12 A | |
| Duty Cycle | Receive: 100%, Transmit: 100% at 25 watts | |
| Frequency Stability | Less than \pm 0.0002% (-22° F ~ +140° F) | Less than \pm 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 μ V (-116 dBm) | 0.35 μ V |
| 20 dB Quieting | 0.45 μ V (-114 dBm) | 0.45 μ V |
| Selectivity | | |
| Wide | 85dB at \pm 30 kHz | 83 dB at \pm 25 kHz |
| Narrow | 80 dB at \pm 15 kHz | 75 dB at \pm 12.5 kHz |
| Intermodulation | | |
| Wide | 80 dB at \pm 30,60 kHz | 78 dB at \pm 25,50 kHz |
| Narrow | 75 dB at \pm 15,30 kHz | 75 dB at \pm 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) | |
| APC Variable Range | 15-50 W | 15-40 W |
| Type of Emission | | |
| Wide | 16K Φ F3E | |
| Narrow | 11K Φ F3E | |
| 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 | \pm 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% \pm 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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ISO9001 Registered
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