

# KENWOOD

## High Power VHF/UHF FM Repeater-Base Units

### TKR-740C/TKR-840C

Using the High-performance features of the TKR-740/840 receiver-exciter units, the Kenwood TKR-740C/840C high powered single channel repeater/multi-channel base is designed to stand-up to the demands of industrial and public service applications

#### VERSITILE LOW PROFILE DESIGN

The TKR-740C/840C high powered Repeater/Base comes packaged in a versitile cabinet. This cabinet was chosen for two purposes: As a stand alone repeater/base the unit is well ventilated, and can be wall-mounted for out of the way operation. If components are needed in a multi-channel rack or larger cabinet installation, the Kenwood supplied cabinet offers add shipping protection. As an added feature the unit is also hinged and can be opened for easy assess.

#### 32 CHANNEL SIMPLEX/FULL-DUPLEX BASE MODE & PRIORITY SCAN

The 32 channel simplex/full-duplex base mode provides a perfect platform for high-end conventional base station systems. The priority scan capability permits multiple channel usage full-time or on command while monitoring a primary dispatch channel. The remote control and programmable ports permit full dispatch console access to all base station controls and functions. The front panel programmable function-keys (PF keys) with status LED's provide full equipment room/on-site control and can be concealed and/or disabled all together. The two-digit LED display provides channel display, operational status, programming status and fault indications.

#### REPEAT MODE & INTERNAL CONTROLLER

The TKR-740C/840C repeater systems possesses all the remote control, programmability and site control attributes as in base mode. Front panel PF key functions as Takeover (remote disable), TX Disable and Repeat On/Off can be assigned for site setup and maintenance use.

The internal conventional repeater mode supports up to 16 user groups (16 QT/DQT) using Digital Signal Processing techniques. This also supports the traditional CW-ID, time-out timer, hang time, reverse burst squelch tail elimination, etc., repeater operations. The internal controller can be bypassed and an external conventional or trunking logic controller option used in its place.

#### MULTI-TONE/CODE TABLES & DSP PROCESSING

There are 16 programmable multi-tone/code tables each with 16 QT/DQT tone/code pairs that can be assigned on a per channel basis. This provides multi-channel base stations up to 16 users groups per channel. This feature can also be used for fail-safe standby base or repeater

units that can be activated into use in the even of a system failure (additional fail-safe systems engineering and components required).

#### AUXILIARY MACRO PORTS

The 25-pin D-Sub controller interface port also provides six AUX Outputs and three AUX Inputs. The AUX Outputs are software programmable with functions such as PLL unlock, transmit sense, supply voltage sense, RSSI, exciter temperature, etc., for site monitoring equipment and backup power and environmental systems. These AUX Outputs are programmable for active high or low and can be controlled by the AUX Input ports using



signals from remote console termination panels or site control equipment. The AUX Inputs are programmable active high or low and can be programmed for any front panel PF function, perform direct channel access or AUX Output port control (turned on, turned off or toggled on/off the AUX output). Each AUX input has a "macro" capability and can control up to three AUX Output ports simultaneously. The 12-pin accessory connector has 5 macro-capable AUX I/O ports that are programmable for either AUX Input or Output functions.

#### CONTINUOUS DUTY/HIGH STABILITY RF POWER OUTPUT

The 100% duty cycle, 1.5 PPM high stability RF power output is adjustable from 80 to 120 watts for VHF, and 70 to 100 watts for UHF. The filtered impedance-matched exciter output is the heart of the TKR-740C/840C repeater/base.

#### FLASH MEMORY ADVANTAGE

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.

#### WIDE/NARROW CHANNEL SPACING

The TKR-740C/840C are programmable for wide/narrow channel spacing\* on a per channel basis [TKR-740C: 25 (30) kHz wide/ 12.5 (15) kHz narrow; TKR-840C: 25 kHz wide /12.5 kHz narrow]. The enhanced synthesizer PLL channel step programmability accommodates channel allocations now and in the future.

\*Both models operate with no less than 25 kHz wide and 12.5 kHz narrow channel bandwidth.

#### PC PROGRAMMING AND TUNING

The TKR-740C/840C can be programmed/tuned quickly and efficiently without ever opening the case. Programming/tuning can be done though front panel microphone/handset jack with the KPG-47D software, KPG-46 interface cable, and any PC-compatible computer. The same can also be done via the rear panel 25-pin connector. The PC tuning parameters available are shown below:

- |                                  |                              |
|----------------------------------|------------------------------|
| ▫ Squelch (Analog/RSSI)          | ▫ QT deviation               |
| ▫ RX audio signal output (RA)    | ▫ DQT deviation              |
| ▫ RX detector signal output (RD) | ▫ Test tone deviation        |
| ▫ RF output power                | ▫ CW ID deviation            |
| ▫ Maximum Deviation              | ▫ Repeat gain                |
| ▫ TX audio input (TA)            | ▫ Voting tone level          |
| ▫ Remote TX audio input (RTA)    | ▫ Digital pager shift level  |
| ▫ Signaling Deviation (TD)       | ▫ Digital pager wave balance |
| ▫ Signaling balance              |                              |

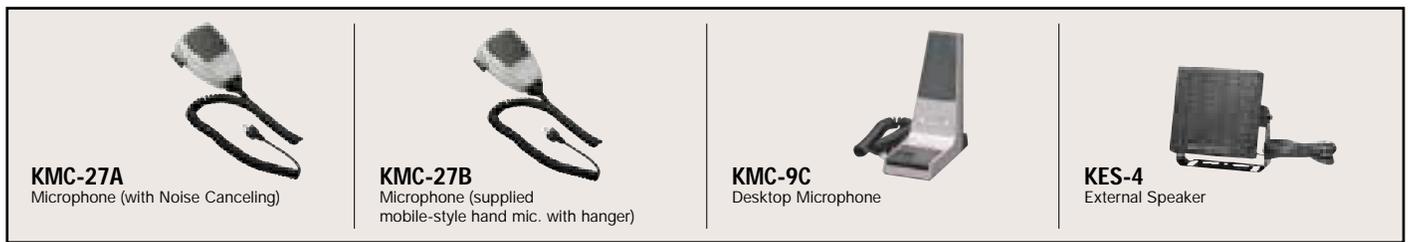
#### EXTERNAL REFERENCE INPUT

The internal oscillator already provides an excellent  $\pm 1.5$  PPM stability figure, but for more demanding applications such as simulcast or paging systems, you can inject an external oscillator standard to obtain a much higher stability factor. The "REF" LED on the front panel changes from green to red when the external signal is applied.

**Other Features:** ▫ COMPANDED AUDIO ▫ EIGHT CW MESSAGE MEMORIES ▫ VOTER TONE GENERATION ▫ VOICE SCRAMBLER PORT/CONTROL ▫ DIGITAL PAGING ENCODER INPUT (bi-level type; e.g. POCSAG)



# Options



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

## Specifications

	TKR-740C	TKR-840C
<b>GENERAL</b>		
Frequency Range	R X Type 1: 146 - 162 MHz Type 2: 158 - 174 MHz Type 3: 136 - 150 MHz T X Type 1: 136 - 174 MHz Type 2: 136 - 174 MHz Type 3: 136 - 174 MHz	R X Type 1: 450 - 480 MHz Type 2: 400 - 430 MHz T X Type 1: 450 - 480 MHz Type 2: 400 - 430 MHz
Number of Channels	32	
Channel Spacing	30, 25 kHz (wide) 15, 12.5 kHz (narrow) (PLL channel stepping 2.5, 5, 6.25 kHz)	25 kHz (wide) 12.5 kHz (narrow) (PLL channel stepping 5, 6.25 kHz)
Operating Voltage	13.8 V DC $\pm$ 15%	
Current Drain	Less than 1.0 A Standby Receive Less than 1.5 A Transmit/Receive Less than 25 A	
Duty Cycle	Receive: 100%, Transmit: 100%	
Frequency Stability	$\pm$ 0.00015% (-22° F ~ +140° F)	
Operating Temperature Range	-22° F ~ +140° F (-30° C ~ +60° C)	
Dimensions (W x H x D)	19-1/2 x 13 x 12 in.	
Weight (net)	39.8 lbs. (18.045kg)	
CANADA IC (RSS119)	VHF = 282195733	UHF = 282195735

	TKR-740C	TKR-840C
<b>RECEIVER</b> (Measurements made per EIA/TIA-204-D)		
Antenna Impedance	50 $\Omega$	
Sensitivity:	0.3 $\mu$ V 12 dB SINAD 0.4 $\mu$ V 20 dB quieting	
Selectivity	95 dB at $\pm$ 30 kHz (wide) 89 dB at $\pm$ 15 kHz (narrow) 87 dB at $\pm$ 12.5 kHz (narrow)	90 dB at $\pm$ 25 kHz (wide) 82 dB at $\pm$ 15 kHz (narrow)
Intermodulation	90 dB at $\pm$ 30, 60 kHz (wide) 85 dB at $\pm$ 15, 30 kHz (narrow)	85 dB at $\pm$ 25, 50 kHz (wide) 80 dB at $\pm$ 12.5, 25 kHz (narrow)
FM Hum & Noise	60 dB (wide) 55 dB (narrow)	
Audio Output (Ext. Speaker)	4 W (at 4 $\Omega$ , less than 5% distortion)	
Spurious & Image Rejection	100 dB	
Audio Distortion (Ext. Speaker)	Less than 2% at 1000 Hz	
Band Spread	Type 1: 3 MHz Type 2: 3 MHz Type 3: 3 MHz	Type 1: 5 MHz Type 3: 5 MHz

	TKR-740C	TKR-840C
<b>TRANSMITTER</b> (Measurements made per EIA-152-C)		
RF Power Output	80 - 120 watts	70 - 100 watts
Antenna Impedance	50 $\Omega$	
Type of Emission	16K0F3E (wide) 11K0F3E (narrow)	
Spurious & Response	70 dB	70 dB (60 dB at 100 mW)
FM Hum & Noise	55 dB (wide) 50 dB (narrow)	
Microphone Impedance	600 $\Omega$	
Audio Distortion	Less than 0.5% at 1000 Hz	Less than 1% at 1000 Hz
Band Spread	Type 1: 38 MHz Type 2: 38 MHz Type 3: 38 MHz	Type 1: 30 MHz Type 3: 30 MHz

	TKR-740C	TKR-840C
<b>REPEATER CONTROL</b> (Measurements made per TIA/EIA-603)		
Signaling (simultaneously) Maximum number of tones	16	
QT decoder/encoder Tone frequency Response time Squelch tail elimination time Encoder frequency error Sensitivity	67.0-210.7Hz (0.1 Hz step) 250 ms or less 140 to 200 ms $\pm$ 0.3% or less SINAD 8 dB 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, 12 bits) with error correction (11 bits) 250 ms or less 140 to 200 ms SINAD 8 dB or less	
Time-out timer	Off - 30 min.	
Repeater hold time	Off - 10 sec.	

	TKR-740C	TKR-840C
<b>EXTERNAL CONTROL</b>		
CW ID Maximum modulation CW tone frequency Morse code speed Maximum character memory	Maximum deviation of 40% $\pm$ 10% 400 Hz to 2000 Hz, (default 800 Hz) 5 to 30 word per minute, (default 20 WPM) Up to 20 characters	
CW Message Maximum character Number of bank	Up to 20 characters per bank 8 banks	
Test tone Maximum modulation Test tone frequency	Maximum deviation of 60% 300 Hz to 3000 Hz (default 1000 Hz)	
Voting pilot tone Tone frequency Output level (RA terminal)	1950 Hz, 2175 Hz, 2700 Hz, (default 1950 Hz) 400 mVrms at 1950 Hz	

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

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