

# KENWOOD

VHF/UHF Desktop Repeater

## TKR-720/820

The TKR-720/820 desktop repeater provides a quality solution for any small to medium-sized RF communications system, whether it's busy downtown in 'intermod alley' or working a lumber yard in the suburbs. The rugged, compact design utilizing advanced synthesized RF technology lets you build a quality system that users can depend on around the clock.

- **Synthesized Design for rapid set-up and reliable performance**
- **Adjustable power output suitable for small- to medium-sized applications**
- **High performance receiver works equally well in urban, suburban and rural areas**
- **Field programmable Quiet Talk (QT) and Digital Quiet Talk (DQT) signaling systems**
- **Compact packaging for desktop operation**
- **Die-Cast Chassis and Large Heatsink provide a stable foundation for heavy duty-cycle use**
- **Modular design isolates receiver and transmitter sections for maximum reliability and shielding**

**Advanced synthesized RF design** means the TKR-720/820 is easy to program and reconfigure as necessary, utilizing E<sup>2</sup>PROM technology, so you have both flexibility and reliability combined in a compact, attractive package. In addition, **the temperature compensated crystal oscillator (TCXO)** provides the utmost in frequency accuracy and stability.

The **adjustable RF power output** delivers just the right amount of coverage for your requirements. It can be configured with low power for small industrial plants on UHF (TKR-820) or high power on VHF (TKR-720) to cover an entire valley in the remote wilderness. Your technician can program the UHF power from 2 to 20 watts, and the VHF power from 15 to 50 watts.

The **high-performance receiver** has excellent sensitivity, selectivity, intermodulation and spurious/image rejection specifications so you can operate the unit equally well in both RF-congested urban areas and wide open rural settings.

The **Quiet Talk (QT) and Digital Quiet Talk (DQT)** signaling systems allow you to operate up to 8 tones, including cross tone or cross code. And because users only hear traffic relevant to their job, productivity and overall system effectiveness goes up.

The **compact desktop design** means that you do not have to create special rooms with environmental controls — the TKR-720/820 is equally at home on a working desktop at the center of the action or in a dedicated communications equipment room.

The **die-cast chassis and large heatsink** keep the circuitry well-protected from physical abuse and enable long operating hours. And if the AC power goes down, the optional **DC auto-revert** feature keeps your communications system up until technical help arrives.

Inside, the **modular design** carries the dependability factor even further, separating the receiver and transmitter circuits for optimal shielding and isolation.



# Options

 <p><b>KPT-50</b> Field Programming Unit (stand-alone)</p>	 <p><b>KPG-21D</b> Programming Disk (for use with KPT-50)</p>	 <p><b>KCT-11</b> Duplexer Installation Kit (TKR-720 — for internal installation of a compact vehicle-style duplexer. Included with the TKR-820.)</p>	<p>DC auto-revert circuit modification parts (See service manual for part numbers.)</p> <p>Mounting bracket for 19" rack or surface mount (See service manual for part numbers.)</p>
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# Specifications

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

	TKR-720	TKR-820
<b>GENERAL</b>		
Frequency range	150 – 174 MHz	Type 1: 450 – 470 MHz Type 2: 470 – 490 MHz Type 3: 490 – 512 MHz Type 4: 406 – 430 MHz
Number of channels	1	1
Channel spacing	30 kHz	25 kHz (PLL step: 12.5 kHz)
Input voltage	120 V AC 50/60 Hz (Modifiable to DC back-up)	120 V AC 50/60 Hz (Modifiable to DC back-up)
Power Consumption	230 watts maximum	200 watts maximum
Duty cycle	50% at 50 watts output (100% at 15 watts output)	50% at 20 watts output (100% at 5 watts output)
Operating temperature range	-30° C ~ +60° C (-22° F ~ +140° F)	-30° C ~ +60° C (-22° F ~ +140° F)
Dimensions (W x H x D)	4-3/4 x 13 x 15 in. (120 x 330 x 383 mm)	4-3/4 x 13 x 15 in. (120 x 330 x 383 mm)
Weight (net)	28.66 lbs. (13 kg)	28.66 lbs. (13 kg)
FCC compliance	FCC parts 22, 74, 90	FCC parts 22, 74, 90 and 95A
FCC ID	ALH TKR-720-1 (150 – 174 MHz)	ALH9TKR-820-1 (450 – 470 MHz) ALH TKR-820-2 (470 – 490 MHz) ALH TKR-820-3 (490 – 512 MHz) ALH TKR-820-4 (406 – 430 MHz)
<b>RECEIVER</b> (Measurements made per EIA standard EIA-204-C)		
RF input impedance	50 Ω	50 Ω
Sensitivity:		
EIA 12 dB SINAD	0.35 μV	0.35 μV
20 dB quieting	0.45 μV	0.45 μV
Squelch sensitivity	0.2 μV threshold	0.2 μV threshold
Modulation acceptance	±7 kHz	±7 kHz
Selectivity	-85 dB	-80 dB
Intermodulation distortion	-80 dB	-75 dB
Spurious & image rejection	-90 dB	-85 dB
Frequency stability	±0.0005% (-30° C ~ +60° C)	±0.00025% (-30° C ~ +60° C)
Audio output	4 W (at 4 Ω, less than 5% distortion)	4 W (at 4 Ω, less than 5% distortion)
<b>TRANSMITTER</b> (Measurements made per EIA standard EIA-152-B)		
RF power output	50 watts adjustable to 15 watts	20 watts adjustable to 2 watts
RF output impedance	50 Ω	50 Ω
Spurious & harmonics	-80 dB	-70 dB
Modulation	F3E ±5 kHz for 100% at 1000 Hz Direct FM Modulation	F3E ±5 kHz for 100% at 1000 Hz Direct FM Modulation
FM noise	-50 dB	-50 dB
Microphone impedance	Low impedance	Low impedance
Audio distortion	Less than 3% at 1000 Hz	Less than 3% at 1000 Hz
Frequency stability	±0.00025% (-30° C ~ +60° C)	±0.00025% (-30° C ~ +60° C)
<b>REPEATER CONTROL UNIT</b>		
Signaling:		
Maximum number of tones	8	8
QT decoder/encoder		
Decoder/encoder tone frequency	67.0 to 210.7 Hz (in 0.1 Hz steps)	67.0 to 210.7 Hz (in 0.1 Hz steps)
Decoder response time	200 msec. or less	200 msec. or less
Squelch tail elimination time	100 msec	100 msec
Encoder frequency error	±0.05% or less	±0.05% or less
Sensitivity	SINAD 8 dB or less	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)	23 bits total; a 3-digit octal number (0-7, 12 bits) with error correction (11 bits)
Decoder response time	250 msec. or less	250 msec. or less
Turn-off code transmission time	156 msec.	156 msec.
Sensitivity	SINAD 8 dB or less	SINAD 8 dB or less
Time-out timer	Adjustable OFF, 30 sec. ~ 5 min.	Adjustable OFF, 30 sec. ~ 5 min.
Hang timer	Adjustable 0 ~ 5 sec.	Adjustable 0 ~ 5 sec.

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

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**ISO 9001**  
**JQA-1205**

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