

KENWOOD



DMR PRODUCT RANGE



DMR

Harnessing the Power of DMR

DMR (Digital Mobile Radio) is an open radio standard established in 2005 by the European Telecommunications Standards Institute (ETSI) for commercial communications. It's a simple, affordable solution that uses 2-slot TDMA in a 12.5 kHz channel, effectively doubling the capacity of existing 12.5 kHz equipment. KENWOOD fully supports the DMR standard, offering a full range of radios (portable and mobile) plus a repeater to enable users to discover the potential of DMR Tier II – combined with the sterling features and performance for which KENWOOD radios are renowned.

DMR



TK-D240/D340

VHF/UHF DIGITAL PORTABLE TRANSCEIVER



TK-D740/D840

VHF/UHF DIGITAL MOBILE TRANSCEIVER

With their robust performance and clear audio, these radios impressively satisfy the requirements of a wide range of professional fields.



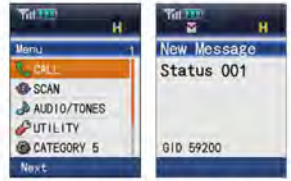


TK-D200(G)/D300(G)
VHF/UHF DIGITAL PORTABLE TRANSCEIVER

KENWOOD's handheld TK-D200(G)/D300(G) provides all the benefits of advanced digital technology to increase the efficiency of your business.

2-inch Colour LCD

The TK-D200/D300 features a 2.0-inch colour QVGA (320 x 240) TFT display that allows the user to check at a glance on signal strength, battery level, and caller identity. The sunlight-readable transreflective LCD is recessed for protection, while backlighting and brightness adjustment ensure easy viewing in the dark. Vibrant 250-colour icons can be assigned separately for each channel to easily distinguish callers, while a function can be assigned to any key on the keypad, which is then displayed on the LCD (Key Guide). What's more, the user can send extra-long text messages (up to 368 characters), and as many as 200 status messages can be stored for convenience.



Contact List

The user can call up a Contact List that holds Individual IDs and Group IDs, enabling quick selection and access to any individual, group, status or message functions.

Built-in GPS

The TK-D200G and TK-D300G models (identified by the letter G) feature an integrated GPS module which can transmit positional data (latitude, longitude, and altitude). In Emergency Mode, this information can be sent to a dispatch or control centre (designated separately for each zone/channel). The user can also view GPS data on the LCD and using GPS Combination mode it is possible to transmit positional data while using Voice Call, Status and Emergency modes.



To extend the effective coverage of your DMR radios, you can install one or more repeaters that receive and retransmit signals from portable and mobile radios.

Solid Repeater Performance

Capable of outputting up to 50 W in the VHF (136-174 MHz) range, and up to 40 W in the UHF (400-470 MHz) range, the TKR-D710/D810 repeater is compatible with the DMR Tier II air interface operating in both digital conventional and FM analogue conventional modes. Both 12.5 and 25 kHz channels are supported for FM (VHF and UHF). Features include a 2-digit LED display, 6 backlit programmable functions keys, and 15 QT/DQT repeater controls. Additional features offered via repeater software upgrade include Call Interruption, Intersite Voice/Data Message Call, User List, 10 console sessions, 100 groups, and encryption pass-through.

Conventional IP Network

A powerful way to expand coverage is to use IP to connect multiple conventional repeaters installed in different sites. Each repeater is equipped with a KTI-5 Network Interface Unit to provide the required Ethernet capability.

AIS IP Console Interface

AIS (Application Interface Standard) is a voice/data communications protocol recently set by the DMR Association. By using the AIS IP Console Interface, it is possible to communicate from the dispatch console installed at a base station (command station), connecting to portable and mobile subscriber units via conventional repeaters linked via IP. A total of 10 IP consoles can be registered to a repeater, and up to 2 IP consoles can communicate simultaneously. For group registration, up to 20 group IDs can be registered simultaneously from an IP console.

Intersite Voice/Data Message Call

Up to 16 repeaters can be interconnected using IP for unicast transmission whereas for multicast transmission the maximum number of repeaters depends on the router used.



TKR-D710/D810
VHF/UHF DIGITAL REPEATER

Two-slot TDMA

These DMR Tier II category radios are specified for 2-slot Time Division Multiple Access (TDMA) operation in 12.5 kHz channels, thus offering greater spectrum efficiency.

Two-in-One – Digital & Analogue

These DMR radios can operate in both digital and FM analogue modes, switching automatically as needed.

Mixed Mode Operation

This is a huge benefit in systems that combine both analogue and digital radios, enabling seamless communications and allowing organizations to migrate to full digital at their own pace.

Dual-slot Direct Mode

Two simultaneous direct-mode subscriber calls can be conducted in a 12.5 kHz channel, without requiring a repeater, thus doubling channel capacity.

Call Interruption

In an emergency or whenever a user needs to interrupt a call, Call Interrupt is available in both direct and repeater modes, encoding or decoding. Also featured are emergency functions to help protect staff in remote areas, etc.

All-terrain Tough

These radios conform to MIL-STD C/D/E/F/G standards for ruggedness, and are IP54*1/IP55*2 rated for dust & water intrusion, making them more than capable of withstanding harsh operating conditions.

Clear, Powerful Audio

A radio's most important quality is clarity – being able to hear, loud and clear, what the other party is saying, and these mobiles deliver just that. For instance, the AMBE+2™ VOCODER technology accurately replicates natural human speech nuances for superior voice quality, even with high levels of ambient noise.

Voice Announcement

Voice Announcement can confirm the zone and channel number, so there is no need to look at the display. English is the default language, but Spanish, French, German, Italian, Dutch, and Russian are also available.

Analogue Signalling

Support is provided for analogue signalling, including FleetSync, 5-tone, QT/ DQT & DTMF.

4-colour LED

An attractive feature is the 4-colour LED (Blue / Red / Green / Orange). The blue indicator can be customized to provide useful status information; for example, it can be used in combination with the orange for Selective Call differentiation.

*1: For mobile radios, IP54 applies only when using a microphone KMC-35 or KMC-36.

*2: IP55 is only for the portable radios.



Other features

- Lone Worker Alert (per channel)
- Remote Monitor
- Electronic Serial Number (ESN)
- Comander per channel
- PTT Release Tone
- Mic Sense
- Late Entry
- Time Out Timer
- Busy Channel Lockout
- Password protection
- Embedded message
- 2 PF Keys (Portable) / 9 PF Keys (Mobile)
- VOX Ready (Portable)
- Battery Saver (Portable)
- External D-sub 15-pin (DE-15) interface (Mobile)
- GPS connectivity (Mobile) (future firmware update)
- Multiple Scan
- Horn alert/P.A. function (Mobile)
- Ignition sensing (Mobile)



PORTABLE-Specific Features

Longer Battery Life

TDMA inherently makes less demand on battery life, leading to extended operating hours. Both Lithium-ion and Ni-MH rechargeable batteries are available.

TK-D240/D340
VHF/UHF DIGITAL PORTABLE TRANSCIVER

MOBILE-Specific Features

2-Digit LED Channel Display with Brightness Control

The large 2-digit LED display provides a clear indication of which channel is being used, and the brightness level can be adjusted (high/low) to suit the time of day and ambient light conditions. The front panel also features 9 programmable function keys for enhanced operating ease.



TK-D740/D840
VHF/UHF DIGITAL MOBILE TRANSCIVER

OPTIONS FOR PORTABLE TRANSCEIVERS TK-D240/D340

BATTERY PACK

■ **KNB-45L**
Li-ion BATTERY PACK
(7.2 V/2000 mAh)



■ **KNB-53N**
Ni-MH BATTERY PACK
(7.2 V/1400 mAh)



■ **KNB-69L**
Li-ion BATTERY PACK
(7.2 V/2450 mAh)



RAPID CHARGER

■ **KSC-35S**
RAPID CHARGER
(for Li-ion KNB-45L/69L)



■ **KSC-43**
RAPID CHARGER (for Li-ion
KNB-45L/69L &
NI-MH KNB-53N)



6-POCKET MULTIPLE CHARGER

■ **KSC-356**
for Li-ion
KNB-45L/69L



CHARGER POCKET/ MULTI CHARGER ADAPTER

■ **KMB-35**
MULTI CHARGER ADAPTER
(6 unit for
KSC-35SCR)



■ **KSC-35SCR**
CHARGER POCKET
(for KMB-35)



ANTENNA

■ **KRA-22**
VHF HELICAL ANTENNA
(Low Profile)



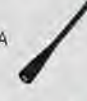
■ **KRA-23**
UHF HELICAL ANTENNA
(Low Profile)



■ **KRA-26**
VHF HELICAL ANTENNA
(Standard Length)



■ **KRA-27**
UHF WHIP ANTENNA
(Standard Length)



■ **KRA-41**
VHF STUBBY ANTENNA



■ **KRA-42**
UHF STUBBY ANTENNA



SPEAKER MICROPHONE/EARPHONE/HEADSET

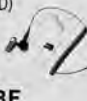
■ **KMC-21**
SPEAKER MICROPHONE
(Compact Size)



■ **KMC-45D**
SPEAKER MICROPHONE



■ **KEP-2**
2.5 mm EARPHONE
KIT (for KMC-45D)



■ **KHS-8BL/BE**
2-WIRE PALM MIC W/
EARPHONE



■ **KHS-8NC**
2-WIRE PALM
MIC W/
EARPHONE, NC



■ **KHS-22**
BEHIND-THE-HEAD
HEADSET W/ PTT



OTHER

■ **KBH-10**
BELT CLIP



OPTIONS FOR PORTABLE TRANSCEIVERS TK-D200/D300

BATTERY PACK

■ **KNB-55L**
Li-ion BATTERY PACK
(7.2 V/1480mAh)



■ **KNB-56N**
Ni-MH BATTERY PACK
(7.2 V/1400 mAh)



■ **KNB-57L**
Li-ion BATTERY PACK
(7.2 V/2000 mAh)



RAPID CHARGER

■ **KSC-25S**
RAPID CHARGER
(for Li-ion KNB-55L/57L &
Ni-MH KNB-56N)



■ **KSC-25LS**
RAPID CHARGER
(for Li-ion KNB-55L/57L)



■ **KSC-256**
RAPID CHARGER
(for Li-ion KNB-55L/57L &
Ni-MH KNB-56N)



ANTENNA

■ **KRA-22**
VHF HELICAL ANTENNA
(Low Profile)



■ **KRA-23**
UHF HELICAL ANTENNA
(Low Profile)



■ **KRA-26**
VHF HELICAL ANTENNA
(Standard Length)



■ **KRA-27**
UHF WHIP ANTENNA
(Standard Length)



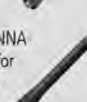
■ **KRA-41**
VHF STUBBY ANTENNA



■ **KRA-42**
UHF STUBBY ANTENNA



■ **KRA-43G**
VHF HELICAL ANTENNA
(GPS Combination, for
radios with suffix G)



■ **KRA-44G**
UHF HELICAL ANTENNA
(GPS Combination, for
radios with suffix G)



SPEAKER MICROPHONE

■ **KMC-41D**
SPEAKER
MICROPHONE
(IP55)



■ **KMC-42WD**
SPEAKER
MICROPHONE
(IP67)



■ **KMC-47GPSD**
GPS SPEAKER
MICROPHONE
(for models without
GPS function)



■ **KMC-51D**
SPEAKER
MICROPHONE
(Noise Cancel/IP55)



■ **KMC-52D**
SPEAKER MICROPHONE
(Noise Cancel/IP67)



OTHERS

■ **KBH-10**
BELT CLIP



■ **KBH-12**
BELT CLIP



OPTIONS FOR MOBILE TRANSCEIVERS TK-D740/D840

MICROPHONE

■ **KMC-30**
MICROPHONE



■ **KMC-32**
KEYPAD
MICROPHONE



■ **KMC-35**
MICROPHONE



■ **KMC-36**
KEYPAD
MICROPHONE



■ **KMC-9C**
BASE
MICROPHONE



■ **KMC-53**
DESK TOP
MICROPHONE



SPEAKER

■ **KES-3**
EXTERNAL
SPEAKER



■ **KES-5**
EXTERNAL
SPEAKER



CABLE

■ **KCT-18**
IGNITION SENSE
CABLE



■ **KCT-36**
EXTENSION
CABLE



■ **KCT-60**
CONNECTION
CABLE



OTHERS

■ **KLF-2**
LINE FILTER



■ **KMB-10**
KEY LOCK ADAPTER



OPTION FOR DIGITAL REPEATER TKR-D710/D810

■ **KTI-5**
INTERFACE BOX



SPECIFICATIONS

	MOBILE			PORTABLE		
	TK-D740	TK-D840	TK-D240	TK-D340	TK-D200(G)	TK-D300(G)
GENERAL						
Frequency Range	136-174 MHz	400-470 MHz	136-174 MHz	400-470 MHz	136-174 MHz	400-470 MHz
Number of Channels	128 ch/4 zones (Max. 32ch/zone)		32 ch/2 zones		LCD model: 512 ch/128 zones (Max. 250 ch/zone) Non-LCD model: 64 ch/4 zones (Max. 16 ch/zone)	
Channel Spacing	Analogue Digital		25/20/12.5 kHz 12.5 kHz			
Operating Voltage	13.2 V DC (10.8 - 15.6 V DC)			7.5 V DC ± 20 %		
Battery Life (5-5-90, battery saver off)	Analogue/Digital		approx. 11.5/13.5 hrs w/KNB-45L approx. 14/17 hrs w/KNB-69L approx. 8/10 hrs w/KNB-53N		10 hrs w/KNB-55L in digital 8.5 hrs w/KNB-56N in digital 13.5 hrs w/KNB-57L in digital	
Operating Temperature Range	-30°C to +60°C		-30°C to +60°C (with KNB-45L/69L: -10°C to +60°C)		-30°C to +60°C (with KNB-55L/57L: -10°C to +60°C)	
Frequency Stability	±2.0 ppm	±1.0 ppm	±2.0 / ±1.0 ppm		±1.5 ppm	
Antenna Impedance	50 Ω					
Dimensions (W x H x D)	Radio only (Projections not included) w/Battery		160 x 43 x 122.6 mm		-	
Weight (net)	Radio only w/Battery		1.1 kg		-	
			285 g (w/KNB-45L) 310 g (w/KNB-69L) 360 g (w/KNB-53N)		LCD model: 353 g; Non-LCD model: 343 g (w/KNB-55L) LCD model: 452 g; Non-LCD model: 442 g (w/KNB-56N) LCD model: 380 g; Non-LCD model: 370 g (w/KNB-57L)	
RECEIVER						
Sensitivity	Digital 1 % BER Digital 5 % BER Analogue (20 dB SINAD) @ 25/20/12.5 kHz		-1 dBµV (0.45 µV) -4.5 dBµV (0.3 µV) -3 dB µV (0.35 µV) / -3 dB µV (0.35 µV) / -1 dB µV (0.45 µV)			
Adjacent Channel Selectivity	Analogue @ 25/20/12.5 kHz		75/73/69 dB	74/72/67 dB	76/74/68 dB	
Intermodulation Distortion	Analogue		65 dB			
Spurious Response	Analogue		75 dB	70 dB	75 dB	
Audio Distortion			Less than 5 %		Less than 2 %	
Audio Output			4 W/4 Ω	1 W/12 Ω (Internal speaker) 500 mW/8 Ω (External speaker)		500 mW/8 Ω
TRANSMITTER						
RF Power Output	25-5 W		5-1 W	4-1 W	5-1 W	4-1 W
Spurious Response	<1 GHz ≤ -36 dBm, 1 GHz - 4 GHz ≤ -30 dBm					
FM Hum & Noise	Analogue @ 25/20/12.5 kHz		45/45/40 dB			
Audio Distortion	Less than 5 %		Less than 10 %		Less than 3 %	
Emission Designator	16K0F3E, 14K0F2D, 14K0F3E, 12K0F2D, 8K50F3E, 7K50F2D, 7K60FXE, 7K60FXD					
GPS (Featured on model with suffix G)						
TTF	Cold Start Hot Start		-		<1 minute <10 seconds	
Horizontal Accuracy	<10 meters					
GPS Receiver Category	Category 3					

Analogue measurements made per EN 300 086, 219, and TIA-603; Digital measurements made per EN 300 413. Specifications shown are typical.

R&TTE & Safety Standards: EN 300 086-2, EN 300 113-2, EN 300 219-2, EN 301 489-5, EN 60065, EN 60950-1, EN 60215, EN 62209 (SAR)

Specifications are subject to change without notice, due to advancements in technology. Specifications shown are typical. AMBE+2™ is a trademark of Digital Voice Systems Inc. All other trademarks are the property of their respective holders.

ENVIRONMENTAL SPECIFICATIONS

MIL-STD*1	Method / Procedures				
	810C	810D	810E	810F	810G
Low Pressure	500.1/1	500.2/1, II	500.3/1, II	500.4/1, II	500.5/1, II
High Temperature	501.1/1, II	501.2/1, II	501.3/1, II	501.4/1, II	501.5/1, II
Low Temperature	502.1/1	502.2/1, II	502.3/1, II	502.4/1, II	502.5/1, II
Temperature Shock	503.1/1	503.2/1	503.3/1	503.4/1, II	503.5/1
Solar Radiation	505.1/1	505.2/1	505.3/1	505.4/1	505.5/1
Rain*1	506.1/1, II	506.2/1, II	506.3/1, II	506.4/1, III	506.5/1, III
Humidity	507.1/1, II	507.2/1, III	507.3/1, III	507.4	507.5/1, II
Salt Fog*1	509.1/1	509.2/1	509.3/1	509.4	509.5
Dust*1	510.1/1	510.2/1	510.3/1	510.4/1, III	510.5/1
Vibration	514.2/ VIII, X	514.3/1	514.4/1	514.5/1	514.6/1
Shock	516.2/1, II, V	516.3/1, IV, V*2	516.4/1, IV, V*2	516.5/1, IV, V*2	516.6/1, IV, V*2

International Protection Standard

Dust & Water Protection

Dust & Water Protection IP54/55*1

*1: For the TK-D740/D840: Testing requirements are: (a) Microphone (KMC-35/36) is connected; (b) cap is installed on D-sub 15pin connector; (c) external antenna is connected to antenna receptacle; and (d) neither the KCT cable nor speaker cable is connected.

For the TK-D240/D340: The 2-pin connector cover has to be connected to the radio, or the locking bracket has to be attached to the KMC-45D external speaker microphone.

For the TK-D200/D300: The phone jack connector and USB connector must be covered; Locking bracket must be attached.

*2: For the Mobile Only.

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ISO9001 Registered

Communications Systems Business Unit
JVC KENWOOD Corporation