



Product Information

DMR Low Tier Digital

- Portable Radio : TK-D240K/D340K2 series
- Mobile Radio : TK-D740HK/D840HK2 series
- Repeater : TKR-D710K/810K2 series
- Conventional IP Network

1. New Model: TK-Dx40 series



Portable : **TK-D240K** (VHF), **TK-D340K2** (UHF)
Mobile : **TK-D740HK** (VHF), **TK-D840HK2** (UHF)

1. TDMA digital
2. Advanced VOCODING technology
3. High immunity to noise
4. Great quality audio reproduction



2. Product Line up



Portable Radios

Model Name	Description	Freq. (MHz)	PWR (W)	Supplied ACC	Shipping
TK-D240K	VHF Digital Transceiver	136-174	5/1	KNB-45L, KSC-35SK, KRA-26M, KBH-10	December 2015
TK-D340K2	UHF Digital Transceiver	406-470	4/1	KNB-45L, KSC-35SK, KRA-27M, KBH-10	December 2015

Mobile Radios

Model Name	Title	Freq. (MHz)	PWR (W)	Supplied ACC	Shipping
TK-D740HK	VHF Digital Transceiver	136-174	50/5	KMC-30, KCT-23M, Mounting Bracket	December 2015
TK-D840HK2	UHF Digital Transceiver	406-470	45/5	KMC-30, KCT-23M, Mounting Bracket	December 2015

Repeaters

Model Name	Title	Freq. (MHz)	PWR (W)	Shipping
TKR-D710K	VHF Digital Repeater	136-174	50/5	January 2016
TKR-D810K2	UHF Digital Repeater	406-470	40/5	January 2016

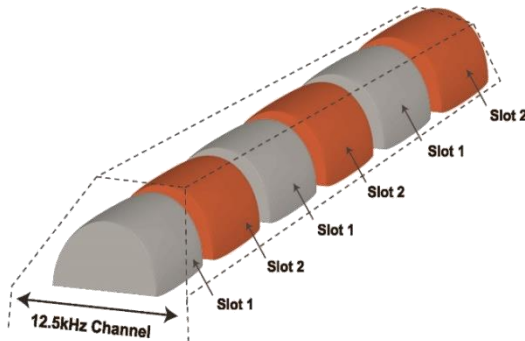
3. Two-slot TDMA 12.5kHz Technology



Two-slot TDMA in 12.5kHz channels

6.25 kHz equivalent bandwidth that complies with ETSI DMR Tier II standards

- ✓ Double the capacity — One can obtain 2 talk paths within an analog 12.5 kHz bandwidth.
NOTE: NXDN is a pure 6.25 kHz bandwidth protocol, but DMR makes it possible to double the capacity of existing 12.5 kHz equipment. Both CAIs have advantages and disadvantages depending on circumstances, situational conditions, legal requirements and different applications, which are 1) simple conventional use or 2) multi-site network trunking use like that of NEXEDGE Gen2.
- ✓ DMR is a standard adopted by ETSI (European Telecommunications Standards Institute).
NOTE: Because NXDN is not considered as an official standard in Europe, it has not been possible to promote NXDN in the same way as DMR to users (e.g. public organizations and enterprises) who are looking for ETSI compliance.



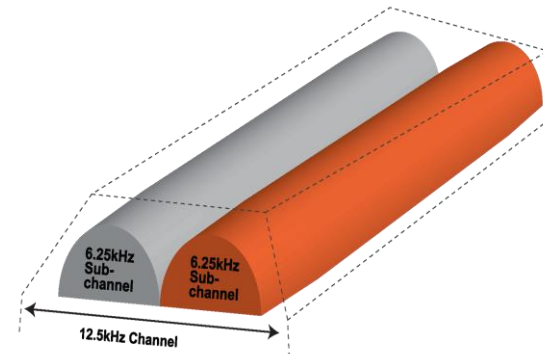
DMR 12.5 kHz Two-slot TDMA

Pros

- Cost-effective in an Infrastructure, in case of migration from 12.5 kHz FM
- Energy efficient leads to longer battery life

Cons

- Requires accurate time-slot management, tend to be affected by frequency selective multipath fading
- Intermittent TX generates burst noise emission
- Slower SCAN speed



NXDN 6.25 kHz Very Narrow FDMA

Pros

- Wider coverage: When compared to digital 12.5 kHz bandwidth operation, range extends by 15% owing to superior C/N ratio to attain higher sensitivity.
- Quite stable, because of its simplicity, making it better to build extensive multi-site trunking like Gen2

Cons

- Full-rate vocoder consumes currents rather than TDMA

3. Features: Portable & Mobile



Basic Features

➤ Two-slot TDMA

Belonging to **the DMR Tier II** category, which covers licensed conventional systems, these radios are specified for 2-slot Time Division Multiple Access (TDMA) operation in 12.5 kHz channels. This means they can offer greater spectrum efficiency plus coverage that is more than double that of analog. Digital DMR functions include Voice Service, Data Services, and Remote Monitoring.

➤ Two-in-One – Digital & Analog *January 2016 available

These versatile DMR radios can operate in both digital and FM analog modes, switching automatically as needed. Interoperability with legacy analog radios allows organizations to migrate to full digital at their own pace.

➤ Direct Mode

Up to two simultaneous direct-mode subscriber calls can be supported in a 12.5 kHz channel, without requiring a base station or repeater, thus doubling channel capacity.

3. Features: Portable & Mobile



➤ **Call Interrupt** *January 2016 available

In an emergency or whenever a user needs to interrupt a call, Call Interrupt is available in both direct and repeater modes, while encoding or decoding. **There is also a Lone Worker function** to protect employees working alone.

➤ **Programmable Blue LED**

The blue LED indicator can be customized to provide useful status information. For example, it can be used in combination with the orange LED for Selective Call differentiation.

➤ **Clear, Powerful Audio (Portable)**

A radio's most important quality is clarity – being able to hear, loud and clear, what the other party is saying. And these portables deliver just that. For a start, there is 1W of **audio output power**. Additionally, the AMBE+2™ VOCODER technology accurately replicates natural human speech nuances for superior voice quality, even with high levels of ambient noise. **Voice Announcement** can confirm the channel number, so there is no need to look at the display.

3. Features: Portable & Mobile



➤ Slim Styling (Portable)

Even when fitted with the battery, the radio is less than 34 mm deep *, making it one of the slimmest DMR models in the industry.

** Portable with KNB-45L Battery*

➤ Tough All-terrain (Portable)

These portable radios conform to MIL-STD C/D/E/F/G standards for ruggedness, and are IP54/55 rated for water & dust intrusion, making them more than capable of withstanding harsh operating conditions.

➤ Longer Battery Life (Portable)

Battery life is always important for radio users. Both Lithium-ion and Ni-MH rechargeable batteries are available, **offering up to 14 hours** of use.* Regardless of battery type, operating hours are longer in digital mode.

**Radio in digital mode with 5-5-90 duty-cycle, battery saver on, using the KNB-45L rechargeable battery. Actual hours vary depending on the usage conditions.*

3. Features: Portable & Mobile



➤ **Tough All-terrain (Mobile)**

These TK-740/840 mobile radios conform to MIL-STD C/D/E/F/G standards for ruggedness, and are IP54 rated for water & dust intrusion, making them more than capable of withstanding harsh operating conditions.

➤ **2-Digit LED Channel Display with Brightness Control (Mobile)**

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.

4. TK-D240K/D340K2 Features



[Initial Release (Dec 2015)]

General Features

- DMR Tier II (conventional) compatible
- Two-slot TDMA in a 12.5kHz spacing (DMR12.5k, Analog 12.5k)
- Max.32ch, 2zones (Max.16ch per zone)
- Selectable 8 channels or 16 channels by using channel stopper.
- Output power: VHF: 5/1W, UHF: 4/1W
- Audio Output power 1W /12Ω (Internal Speaker)
- MIL-STD-810 C/D/E/F/G, IP54/55 Water & Dust Intrusion
- 2 pin Audio connector
- VOX available (per Channel)
- Blue LED indicator
- Voice Annunciation
- Password Protection (Read/Overwrite)
- Lone Worker per channel.
- Scan: Single scan
- Embedded message
- Selective Call Alert LED

[Version-up 1 (Firm: Jan 2016, Production: Feb 2016)]

- Call Interrupt (Direct and Repeater Mode, Enc/Dec)
- Mixed Mode
- FleetSync: PTT ID, Stun/Revive, Mute hold, Talk Back, Sel Call

Digital Features

- AMBE+2 Vocoder Half-rate 3,600bps
- Dual slot direct mode
- Voice service:
Individual Call, Conference GRP Call, Remote Monitor
- Emergency functions
- Late Entry

Analog Features

- Analog Signaling: QT/DQT

[Version up 2 (3Q 2016)]

- Single Priority Scan
- Digital Scrambler (Bit scrambler on a NEXEDGE basis)
- Digital Data Service, Status
- Analog Scrambler (voice inversion)
- Analog Signaling: DTMF and 2 tone
- Auto Power TX

5. TK-D740HK/D840HK2 Features



[Initial Release (Dec 2015)]

General Features

- DMR Tier II (conventional) compatible
- Two-slot TDMA in a 12.5kHz spacing (DMR12.5k, Analog 12.5/25k)
- Max.32ch, 2 zones (Max.16ch per zone)
- Output power: VHF: 5-50W, UHF: 5-45W
- Audio Output power 4W /4Ω
- MIL-STD-810 C/D/E/F/G, IP54 Water & Dust Intrusion
- 2 digits LED display (2digits x 7 segments)
- D sub 15-pin
- Support GPS Module “Garmin GPS-15XL-W”
- VOX available (per Channel)
- Blue LED indicator
- Voice Annunciation
- Password Protection (Read/Overwrite)
- Lone Worker per channel.
- Scan: Single / Multi scan
- Embedded message
- Selective Call Alert LED

[Version-up 1 (Firm: Jan 2016, Production: Feb 2016)]

- Call Interrupt (Direct and Repeater Mode, Enc/Dec)
- Mixed Mode
- FleetSync: PTT ID, Stun/Revive, Mute hold, Talk Back, Sel Call
- Single Priority Scan
- Serial PC Interface

Digital Features

- AMBE+2 Vocoder Half-rate 3,600bps
- Dual slot direct mode
- Voice service:
Individual Call, Conference GRP Call, Remote Monitor
- Emergency functions
- Late Entry

Analog Features

- Analog Signaling: QT/DQT

[Version up 2 (3Q 2016)]

- Digital Scrambler (Bit scrambler on a NEXEDGE basis)
- Digital Data Service, Status
- Analog Scrambler (voice inversion)
- Analog Signaling: DTMF and 2 tone
- FleetSync: GPS
- Auto Power TX

5. Portable Accessories



Portable

Name	Description	Name	Description
KNB-29N	Ni-MH Battery Pack (1,500mA)	KMC-45	Speaker Microphone Note: Available for Analog only. NOT compatible with TDMA operations
KNB-45L	Li-Ion Battery Pack (2,000mA)	KMC-45D (NEW)	Speaker Microphone (TDMA compatible) Available mid December 2015
KSC-43K	Rapid Charger for Ni-MH and Li-ion Battery	KBH-10	Belt Clip
KMB-29	Six KSC-31K/35SK/43K Unit Charger Adapter	KPG-22U	USB Programming Cable
KRA-22	VHF Low Profile Helical Antenna	KEP-2	2.5mm Earphone kit for KMC-45D
KRA-23	UHF Low Profile Helical Antenna	KHS-7A	Single Muff Head Seat/ With In-Line PTT
KRA-26	VHF Helical Antenna	KHS-8BL	2-Wire Palm Mic w/ Earphone
KRA-27	UHF Whip Antenna	KHS-22	Behind-the-head Headset w/PTT
KRA-28	VHF Broadband Antenna	KHS-23	2-wire Palm Mic
KRA-29	UHF Broadband Antenna	KHS-25	D-Ring Ear Hanger with PTT & Boom Mic
KRA-41	VHF Stubby Antenna	KHS-26	Ear In-Line PTT Headset
KRA-42	UHF Stubby Antenna	KHS-27	D-Ring In-Line PTT Headset
KMC-21	Compact Speaker Microphone Note: Available for Analog only. NOT compatible with TDMA operations	KPG-166D	Programming Software

6. Mobile Accessories



Mobile

Name	Description	Name	Description
KMC-30	Microphone	KCT-60	Connection Cable
KMC-35	Microphone	KPG-46U	USB Programming Cable
KMC-36	Keypad Microphone	KLF-2	Line Filter
KMC-9C	Base Microphone Note: Available for Analog only. NOT compatible with TDMA operations.	KMB-10	Key Lock Adapter
KES-3SW	External Speaker	KMB-34	Mounting Case For KPS-15
KES-5	External Speaker	KPS-15K	DC Power Supply
KCT-18	Ignition Sense Cable	KPG-166D	Programming Software