## KENWOOD

### NX-5000 Series

NEXEDGE<sup>®</sup> VHF/UHF MULTI-PROTOCOL DIGITAL & ANALOGUE RADIOS



An Industry First — Triple-Digital Radios for **Enterprise and Public Safety** 









Bluetooth GPS FleetSync 5-tone

NEXEDGE®

KENWOOD

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# The NX-5000 Series – Supporting Digital Protocols plus FM Analogue







## NXDN, DMR and P25

Radios are a lifeline for those who work on the front lines — crews tackling a raging fire, utility engineers repairing ice-storm damage, or school guards responding to a security alert. They demand and deserve equipment that is truly fit for purpose, and then some.

To meet this demand KENWOOD has drawn on its extensive experience, its acclaimed technologies, and an expert analysis of market needs to develop NEXEDGE. This innovative digital solution satisfies the most stringent requirements of today's mission-critical radio users. And now NEXEDGE leaps further ahead of the competition with NX-5000 Series portable and mobile radios, ready to serve in all public sector, commercial and public safety roles with flawless performance and advanced feature sets.

And because these radios are compatible with three different digital protocols — NXDN, DMR and P25 — if you are planning migration from a legacy system, not only can you go on using your current radios, but you can be confident that, when you make the move, your NX-5000 radios will be deployed and ready.

What's more, if you adopt the NEXEDGE Gen2 Multi-Site Digital Trunked Network System, you can enjoy all the benefits of the NX-5000 Series over an extensive network linking all of your sites.

### The NX-5000 Series truly sets a new standard.

From nationwide enterprises looking to create large-scale digital trunked networks with NXDN to staff staying in touch via DMR and first responders maintaining vital contact with P25 – the NX-5000 Series can serve everyone, including those still using analog radios.

NXDN

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# An efficient, economical solution for dynamic businesses looking to upgrade their communications

DMR radios provide smooth communications and coordination between staff members in a wide variety of commercial environments, including retail, hospitality and manufacturing. Compatibility with the DMR AIS IP Console Interface facilitates radio dispatch operations, while Call Interruption and the Lone Worker function are ideal for security guards. Digital DMR Data Services and Remote Monitoring are among many additional benefits.

# The Enterprise Network Solution with cutting-edge digital technologies for scalable operation-critical communications

Providing all the benefits of advanced digital technology such as increased effective coverage area and low noise for superior clarity, NXDN has become established throughout the world, serving customers ranging from business & industrial to mission-critical. And now NEXEDGE 2nd Generation (Gen2) delivers a quantum leap in network scale and capability – supporting networks with as many as 1,000 sites or 24 networks for wide area roaming and calling.

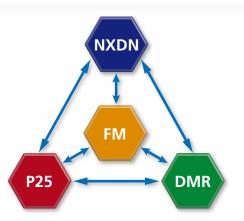
# The established mission-critical protocol for first responders, with proven reliability and interoperability

Round-the-clock public safety operations – involving the police and fire departments as well as EMS – can be extremely demanding for both personnel and equipment. That is why P25 radios are ruggedly robust and able to offer clear mission-critical communications in hot, dusty, noisy environments – even with sirens in the background. Additionally, features like Man-down Detection contribute to enhanced safety in the line of duty.

## NX-5000 SERIES FEATURES

#### **ONE-RADIO, MULTI-PROTOCOL SUPPORT**

The NX-5000 Series offers unsurpassed interoperability for a wide variety of users as it supports three digital CAIs — NXDN, DMR and P25 (Phase 1 & 2) — plus FM analogue in a single radio. Best of all, a desired CAI can be selected at will, giving you the freedom to migrate at your own pace — whether you are intent on going fully digital, undecided about which digital system to pick, or just wanting to maintain both digital and analogue for a while. An NX-5000 radio can simultaneously support two digital protocols plus analogue, offering the following combinations: FM/ DMR/NXDN, FM/NXDN/P25, and FM/DMR/P25.



- NXDN: The NXDN air interface can fit into the very narrow 6.25 kHz bandwidth using FDMA technology. Ensuring spectrum efficiency, wide coverage and virtually unlimited scalability, it provides for nationwide expansion: Type-C Trunking Gen2 offers enhanced features, flexibility and performance, linking up to 1,000 sites or 24 networks.
- DMR: For simple conventional communications, making use of existing infrastructure, DMR is an excellent, cost-effective solution. Being energy-efficient, it offers longer battery life. And thanks to 2-slot TDMA, it is possible to obtain 2 talk paths within an analog 12.5 kHz bandwidth, thus doubling the capacity. The NX-5000 Series supports Tier II conventional mode.
- **P25:** This digital CAI ensures interoperability among public safety agencies in North America, Australia and New Zealand. The NX-5000 Series is compatible with Phase 1 (conventional and trunked), and Phase 2 (trunked).



#### **AUTOMATIC CALL SIGNAL IDENTIFICATION**

An NX-5000 Series radio automatically identifies a call signal – whether it's NXDN, DMR, P25, or FM analog – and transmits in the same mode received. Setting your radio to Mixed Mode allows the radio to wait for a call in both digital and analog modes in a digital/analog environment. Moreover, the new Geographical Zone function allows these radios to operate in any mode – conventional or trunked – in the same zone.

#### **INTUITIVE DISPLAY & OPERABILITY**



DSE

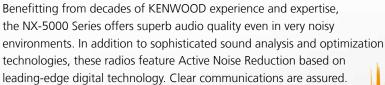
The 65,000-colour TFT display allows the user to check at a glance on operating status, shown in multi-line text to convey more information.

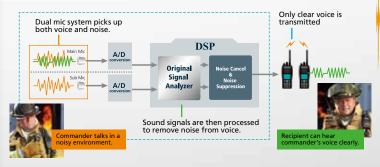
The portables feature a 1.74-inch (240 x 180 pixel) LCD that can be viewed clearly in direct sunlight or in the dark, even while wearing polarized sunglasses.

The mobile models feature a 2.55-inch (154 x 422 pixel) TFT display with integrated luminance sensor that automatically adjusts the brightness of the backlight. What's more, the optional remote control panel (KCH-20R) features a 2.75-inch (240 x 400 pixel) TFT display with Auto LCD Brightness mode to adjust display intensity for round-the-clock operation.

Further enhancing operating ease is the 4-way Directional-pad (D-pad) and 2-position lever switch, which offer intuitive control and can be operated with gloves on.

#### **RENOWNED KENWOOD AUDIO**







#### **TOUGH & ROBUST**



During the development stage, NX-5000 Series radios go through a number of stringent tests to make sure they can withstand harsh usage. In addition to MIL-STD-810 C/D/E/F/G environmental standards, NX-5000 portable radios comply with IP67/68 immersion standards, offering max. 2 hour protection at a depth of 1 meter\*. The rugged mobile radios comply with IP54/55\*\* dust/water ingress protection standards.



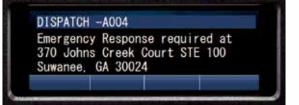
Dust test

Extreme temperature test

\*Applies for IP68 \*\* IP54: RF Deck of the mobile radio; IP55: Remote Control Head for the mobile radio



NX-5200/5300/5400 (actual size)



NX-5700/5800/5900 (actual size)

## NX-5000 SERIES FEATURES

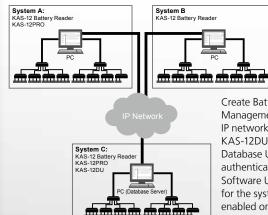
#### INTELLIGENT BATTERY MANAGEMENT SYSTEM (Portables: option)

The Intelligent Battery System helps to extend battery lifetime and ensure that the batteries are optimally maintained so as to be ready for mission-critical operations. The system comprises the optional high-capacity Li-ion and Ni-MH Batteries (KNB-L1/L2/L3/N4), Intelligent Charger (KSC-Y32), and Battery Reader software (KAS-12 or KAS-12PRO, an upgrade option). Up to 60 Rapid Chargers can be chain-connected to a PC installed with the KAS-12 Battery Reader software, which can display and manage information: battery type, model name, voltage, temperature, discharge cycle, expected life, and remaining capacity.

Additionally, with KAS-12PRO (software upgrade license), data can be stored for up to 5,000 batteries for centralized management of their initial date of use, elapsed days, discharge cycle, remaining capacity and deterioration (end-of-life).

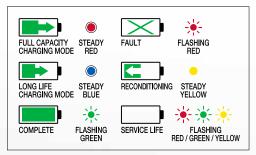
Long Life Charging Mode: stops recharging at 80 % capacity to extend life.
Up to 5,000 batteries can be managed at a time (requires KAS-12PRO).

• Deterioration (end-of-life) notification (requires KAS-12PRO).



Create Battery Reader Management System over IP networking by installing KAS-12DU Battery Reader Database Utility on a server and authenticating the KAS-12PRO Software Upgrade License for the system. Monitoring is enabled only on a system with KAS-12PRO authentication.





Battery conditions are displayed in colour illuminated indicators on the charger, which are also displayed on a connected PC with the same colour scheme. Colourcoordinated patterns provide users with at-a-glance information for comprehensive battery management.

#### **BUILT-IN BLUETOOTH® \*1**



Hands-free operation is vital for many

NX-5000 users. The radios' built-in Bluetooth<sup>®</sup> module is compatible with Headset and Serial Port Profiles (ver. 3.0) and keeps your hands open for other important tasks you are into.



#### GPS TO TRANSMIT YOUR POSITION \*1



Featuring an integrated GPS module and antenna, NX-5000 portable radios can transmit positional data, enabling effective management when used with tracking applications like KAS-10 software. Mobile models can support GPS with the optional KRA-40G GPS Active Antenna.

### ENCRYPTION EQUIPPED



Secure communications are an essential requirement, especially for public safety applications. NX-5000 radios are

equipped with 56-bit key Data Encryption Standard (DES) <sup>\*1</sup> Encryption. For even higher protection there is the optional KWD-AE31 Secure Cryptographic Module, which supports the 256-bit Advanced Encryption Standard (AES) Encryption.

#### MULTIPLE CONFIGURATION (Mobiles)

The NX-5000 mobile series allows users to create a variety of configurations to suit diverse requirements by combining different options.

- Single Remote Control Head x Single RF Deck
   Suited for distribution and courier services, this is the simplest
   configuration. The detachable front control panel of the
   NX-5000 mobile series is used as a Remote Control Head.
- 2. Single Remote Control Head x Multi RF Decks

You can operate multiple radios (e.g. VHF and UHF) as if they were one by adding an NX-5000 mobile series RF Deck. This configuration is recommended for law enforcement agencies.

3. Dual Remote Control Heads x Single RF Deck \*1

One controller can be mounted on the dashboard, with the other at the rear. Useful for EMS applications.

4. Dual Remote Control Heads x Multi RF Decks

This adds the convenience of a dual control head to the multi RF decks (3 max.) configuration. Two operators can control multiple radios (e.g. VHF, UHF) from separate control heads. Best suited for battalion chiefs.



\*1 License free features

#### **SD CARD SLOT**

For storing voice and data, memory capacity can be increased by up to a huge 32 GB.\*

\* Purchase a card separately.



#### SENSORS FOR USER SAFETY

Life-critical detection is built-in. When unusual behavior is detected by the acceleration and tilt sensors, one of three Emergency Modes – Man-down Detection, Stationary Detection, and Motion Detection – will be automatically engaged.

In addition to the built-in motion sensor, these portables feature a Lone Worker function that automatically places the radio in Emergency Mode if it is not operated for a certain period of time. Also the

bright orange Emergency Button is located at the top (portables) or front (mobiles) of the radio for high visibility and instant access when needed.



## NX-5200/5300

NEXEDGE VHF/UHF MULTI-PROTOCOL DIGITAL & ANALOGUE PORTABLE RADIOS



### NX-5700/5800 **NEXEDGE VHF/UHF MULTI-PROTOCOL DIGITAL & ANALOG MOBILE RADIOS**

#### **GENERAL FEATURES**

- Multi-Digital + FM Analog Operation
  - Gen2 & NXDN Conventional/Type-C Trunking Protocol
  - DMR Tier II Conventional
  - P25 Conventional/Trunking (Phase 1/Phase 2)
  - •FM Analog Conventional & LTR Zones
- Large, Colour 2.55" (154 x 422 pixel) TFT Display
- Easy-to-follow GUI and Multi-line Text Display
- Speaker Audio: 4 W/4  $\Omega$ ; 3 W/4  $\Omega$  for the Remote Control Head
- 6 Front PF keys & 4 Up / Down Selectors

**OPTIONAL ACCESSORIES** 

- Emergency Button
- FleetSync<sup>®</sup>/II, MDC-1200, QT/DQT, 5-Tone (Analog mode)
- Maximum of 4,000 CH/Radio capacity, 512 CH/Zone, 128 Zones
- Frequency Range
  - •VHF: 136-174 MHz (NX-5700)
  - •UHF: 450-520 MHz, 380-470 MHz (NX-5800)
- RF Output
  - •VHF: 50-5 W (NX-5700)
  - •UHF: 45-5 W (NX-5800)

- KCH-19 BASIC CONTROL HEAD KIT KCH-20R
- FEATURED CONTROL HEAD
- ■KRK-14H CONTROL HEAD INTERFACE KIT (Adapter for the Head)
- KRK-15B CONTROL HEAD REMOTE KIT (Adapter for the RF Deck)
- KCT-71 REMOTE CONTROL CABLE (Available in 3 lengths of 5.2 m, 7.6 m, 0.5 m)

- KCT-73MIC EXTERNAL MIC KIT (Cable length: 3m)
  - KCT-74PTT EXTERNAL PTT KIT (Cable length: 3m)
  - KWD-AE31 SECURE CRYPTOGRAPHIC MODULE
  - KPG-180AP OTAP MANAGER (PC Software)
  - KMC-35 MICROPHONE
  - KMC-36 **KEYPAD MICROPHONE**
  - KES-3 EXTERNAL SPEAKER (Compact low profile; φ3.5 mm plug)
  - KES-5 EXTERNAL SPEAKER (40 W max input, Requires KAP-2)

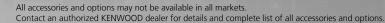


- KCT-23 DC POWER CABLE M: 3 m / M3: 7 m
- KCT-46 **IGNITION SENSE CABLE**
- KLF-2 LINE FILTER
- KMB-10 KEY LOCK ADAPTER
- KAP-2 HORN ALERT/P.A. RELAY UNIT
- KRA-40G **GPS ACTIVE ANTENNA**
- KPS-16 DC POWER SUPPLY





Combination of DC Power Supply KPS-16 and Desktop Microphone KMC-53 for the mobile radio. Suitable for applications such as taxi dispatching system, etc.



KENWOOD

Dispatch CH 1

S0.011 Zone-

#### **SPECIFICATIONS**

		Portable Ra	autos	Mobile R	uulos		
GENERAL		NX-5200	NX-5300	NX-5700	NX-5800		
requency Range		136-174 MHz	400-470 MHz	136-174 MHz	400-470 MHz		
Max. Channels Per Radio		1024 (Up to 4000 channels with option)					
lumber of Zones			1:	28			
Max. Channels Per Zone		512					
Channel Spacing	Analog	12.5/15/20/25/30 kHz	12.5/25 kHz	12.5/15/20/25/30 kHz	12.5/25 kHz		
	Digital	6.25/12.5 kHz	6.25/12.5 kHz	6.25/12.1	5 kHz		
ower Supply		7.5 V DC ±	20 %	13.6 V DC	±15 %		
Current Drain	Standby			0.45 A			
	RX			2.3 A			
	TX			13 A			
Battery Life	KNB-L1 (2,000 mAh)	10 hours / 6.5 hours					
(5-5-90/10-10-80 duty cycle)	KNB-L2 (2,600 mAh)	12.5 hours / 8.5 hours					
	KNB-L3 (3,400 mAh)	17 hours / 11 hours					
	KNB-N4 (2,500 mAh)	12 hours / 8.5 hours					
		High Power: Approx. 11	hours / 8 hours,	1			
	KBP-8 (w/AA x12)	Low Power: Approx. 26	hours / 18 hours				
Operating Temperature			-30 °C to	to +60 °C			
Frequency Stability		±2.0 ppm	±1.0 ppm	±1.0 ppm			
Dimensions (W x H x D)	Radio w / Control Head (KCH-19)			170.0 x 48.0 x 176.0 mm			
	KNB-L1 (2,000 mAh)	58.0 x 138.9 x	36.5 mm	-			
imensions (W x H x D)	KNB-L2 (2,600 mAh)	58.0 x 138.9 x 39.5 mm 58.0 x 138.9 x 44.9 mm		-			
adio w/ Battery,	KNB-L3 (3,400 mAh)			-			
Projections Not Included	KNB-N4 (2,500 mAh)	58.0 x 166.4 x 45.2 mm		-			
	KBP-8 (w/AA x12)	67.0 x 218.3 x 53.9 mm		_			
/eight (Net)	Radio w / Control Head (KCH-19)	w / Control Head (KCH-19) —		1.6 kg			
	KNB-L1 (2,000 mAh)	382 g		_			
	KNB-L2 (2,600 mAh)	406 g		_			
eight (Net)	KNB-L3 (3,400 mAh)	449 g		_			
Radio w/ Battery	KNB-N4 (2,500 mAh)	579 g		_			
	KBP-8 (w/AA x12)	712 g		-			
	ETSI (EMC)	EN 301 489-3, EN 301 489-5, EN 301 489-17		EN 301 489-3, EN 301 489-5, EN 301 489-17			
Applicable Standards	ETSI (Spectrum)	EN 300 086, EN 300 113, EN 300 219, EN 300 328, EN 300 440, EN 301 166		EN 300 086, EN 300 113, EN 300 219, EN 300 328, EN 300 440, EN 301			
FF	ETSI Safety	EN 60065, EN 60215, EN 60950-1		EN 60065, EN 60215, EN 60950-1			
ECEIVER		NX-5200 NX-5300		NX-5700	NX-5800		
Sensitivity	NXDN 3 % BER (6.25 kHz/12.5 kHz)	0.25 µV / 0.32 µV					
	NXDN 1 % BER (6.25 kHz/12.5 kHz)	- 4 dB µV (0.32 µV) - 1 dB µV (0.45 µV)					
	DMR 5 % BER	0.3 W (117.5 dBm)					
	DMR 1 % BER	0.45 µV (-117.3 dbill) 0.45 µV (-114 dBm)					
	P25 5 % BER	0.43 µV (-114 UBIII) 0.28 µV					
	Analog 12 dB SINAD (12.5/20&25 kHz)	0.32 µV / 0.28 µV					
	Analog 20 dB SINAD (12.5/20&25 kHz)	-1 dB µV (0.45 µV) / -3 dB µV (0.35 µV)					
lectivity	Analog 12.5 kHz	- 1 0b µV (+, y y )/ - 3 0b µV (+, z ) (+ y y )/ - 3 0b µV (+ z ) (+ y y )/ - 3 0b µV (+ z ) (+ y y y )/ - 3 0b µV (+ z )					
Selectivity	Analog 20 kHz	78 dB		74 dB			
	Analog 25 kHz	80 dB		74 dB 76 dB			
termodulation (Analog)	/ Holog 25 Kinz	65 dB		70 dB			
purious Rejection (Analog)		75 dB		80 dB			
purious Rejection (Analog) Judio Distortion		3 %		2 %			
Audio Distortion Audio Output Power		500 mW/8 Ω (3 % Distortion) / 1,000 mW /8 Ω (5 % Distortion)		4 W/4 Ω (Remote Control Head: 3 W/4 Ω)			
TRANSMITTER		NX-5200	NX-5300	NX-5700	NX-5800		
Power Output Power		6 to 1 W	5 to 1 W	25 to 5			
		01011					
Spurious Emission		-36 dBm ≤1 GHz, -30 dBm > 1 GHz					
VI Hum & Noise	Analog @ 25/20/12.5 kHz	45/45/40		50/50/4	5 dB		
Audio Distortion Emission Designator		2 16K0F3E, 14K0F2D, 14K0F3E, 12K0F2D, 11K0F3E, 8K50F3E, 7K50F2D, 8K30F1E, 8K30F1D, 8K30F7W, 8K10F1E, 8K10F1D, 8K10F1W, 7K60FXE, 7K60FXD, 4K00F1E, 4K00F1D, 4K00F1W, 4K00F2D		% 16K0F3E, 14K0F2D, 14K0F3E, 12K0F2D, 11K0F3E, 8K50F3E, 7K50F2D, 8K30F1E, 8K30F1D, 8K30F7W, 8K10F1E, 8K10F1D, 8K10F1W, 7K60FXE, 7K60FXD, 4K00F1E, 4K00F1D, 4K00F7W, 4K00F2D			

Details and timing of firmware and software updates are subject to change without notice. Specifications are measured according to applicable standards, and subject to change without notice, due to advancements in technology.

#### **APPLICABLE MIL-STD & IP**

MIL Standard	810C Methods/ Procedures	810D Methods/ Procedures	810E Methods/ Procedures	810F Methods/ Procedures	810G Methods/ Procedures			
Low Pressure	500.1/I	500.2/ I, II	500.3/ I, II	500.4/ I, II	500.5/ I, II			
High Temperature	501.1/ I, II	501.2/ I, II	501.3/ I, II	501.4/ I, II	501.5/ I, II			
Low Temperature	502.1/1	502.2/ I, II	502.3/ I, II	502.4/ I, II	502.5/ I, II			
Temp. Shock	503.1/I	503.2/1	503.3/1	503.4/ I, II	503.5/1			
Solar Radiation	505.1/I	505.2/1	505.3/1	505.4/ I	505.5/ I			
Rain	506.1/ I, II	506.2/ I, II	506.3/ I, II	506.4/ I, III	506.5/ I, III			
Humidity	507.1/ I, II	507.2/ II, III	507.3/ II, III	507.4	507.5/ II			
Salt Fog	509.1/ I	509.2/1	509.3/1	509.4	509.5			
Dust	510.1/1	510.2/1	510.3/1	510.4/ I, III	510.5/1			
Vibration	514.2/ VIII, X	514.3/1	514.4/1	514.5/ I	514.6/1			
Shock	516.2/ I, II, V	516.3/ I, IV, V*1	516.4/ I, IV, V*1	516.5/ I, IV, V*1	516.6/ I, IV, V*1			
Immersion*2	—	_	_	512.4/I	512.5/1			
International Protection Standa	ırd							
Dust & Water	IP54, IP55*3	IP54, IP55*3						
Immersion*2	IP67, IP68*4	IP67, IP68*4						

\*1: Shock (Crash Hazard) standard for 810D/E/F/G Method/Procedure V applies only for the mobile radios \*2: Immersion standard applies only for the portable radios \*3: IP54: RF Deck of the mobile radio; IP55: Remote Control Head for the mobile radio \*4: Conditions: Portable radio immersed for 2 hours at a depth of 1 meter • The Bluetooth word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. • SD and microSD are trademarks of SD-3C, LLC in the United States, and/or other countries • AMBE+2<sup>TM</sup> is a trademark of Digital Voice Systems Inc. • Windows® is a registered trademark of Microsoft Corporation. • NXDN<sup>TM</sup> is a trademark of JVCKENWOOD Corporation and Icom Inc. • NEXEDGE® is a registered trademark of JVCKENWOOD Corporation.

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