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KENWOOD

New Product Release Information

October 2012

NEXEDGE™

**NX-720E / NX-820E series
NEXEDGE® Mid Tier Mobile Radio
VHF/UHF Digital & FM Transceiver**



NAME/TYPE	FREQ./PWR & GPS	TX PWR	Launch Schedule
NX-720 GE	136-174MHz, 25W, w/GPS	5-25W	November, 2012
NX-720 E	136-174MHz, 25W	5-25W	November, 2012
NX-820 GE	400-470MHz, 25W, w/GPS	5-25W	December, 2012
NX-820 E	400-470MHz, 25W	5-25W	December, 2012

Note : - NX-720GE/820GE versions include a factory-installed "GPS" module.

- NX-720E/820E versions are Non-GPS.

1. OVERVIEW

Mixed Mode Channel Spacing Enhanced

Current Analogue and NXDN® digital fleets can share a NEXEDGE® base/repeater station in 25, 20 or 12.5 kHz Analogue & 12.5 or 6.25 kHz NXDN conventional "Mixed Mode," thus providing uninterrupted service as long as needed and a straightforward migration path as aging Analogue fleets are replaced with digital. Also, NEXEDGE® trunked traffic channels can be shared with existing external Analogue conventional or trunked logic controllers, extending service to fleets as a transition to NXDN® trunking is underway.

- ✓ **12.5 kHz/ 6.25 kHz Band Width Operation (Digital Mode)**
The NX-720 / 820 can be used for 12.5 kHz (Narrow) or 6.25 kHz (Very Narrow) band width operation in NXDN® digital mode.
- ✓ **25 kHz/ 20 kHz / 12.5 kHz per Channel (Analogue mode)**
The NX-720 / 820 can be used for 25 kHz (Wide), 20 kHz (Semi Wide) or 12.5 kHz (Narrow) spacing operation per channel in Analogue mode.

OTAP

OTAP (Over The Air Programming) is a function to reprogramming NEXEDGE terminals remotely, and can do FPU setting of the terminals over the air.

OTAP Management software required to use the OTAP functionality.

Telephone Interconnect

Adding telephone interconnect solution to current NEXEDGE® trunked system will require KT1-4 with external telephone patch. Phone calls to the system or outgoing calls to PSTN or PABX will pass through KT1-4, which serves as modulator or demodulator for NEXEDGE® digital voice audio and Analogue audio.

QT/DQT/DTMF/5-TONE

The industry standard tone/code squelching formats QT (CTCSS) and DQT (digital) provide system access and group segregation on shared frequencies. DTMF PTT ID is included for dispatch operations or for a simple remote control application. The DTMF decode capabilities include a selective call, transpond and radio stun. 5-Tone encode and decode provides 12 different formats (ZVEI, ZVEI2, PZVEI, DZVEI, PDZVEI, CCIR, PCCIR, EIA, EEA, Natel, AP-369, Kenwood format) for selective call use. All selective calling formats (FleetSync®, DTMF & 5-Tone) have call alert tones and LED indications.

MDC-1200 signalling

Built-in MDC signalling added that the following features are available:

- ✓ PTT ID Encode /Decode • Emergency Encode/Decode
- ✓ Stun/Revive Decode • Radio Check Decode

MPT1327 trunked operation (Future Availability)

NEXEDGE series will support MPT1327 trunking operation. From small groups to large scale of fleets, Kenwood's MPT radios provide reliable communications over MPT trunking networks.

Flexible PC-settings allows easy and quick setting up.

Multiple Solutions – One System

NX-720 / 820 use advanced DSP-driven digital voice technologies and support both FM Analogue and new digital fleets. System type conversion or expansion only requires software options

and/or additional base station units, i.e., no major hardware upgrading. Kenwood offers NEXEDGE® conventional, trunked and wide area trunked IP network solutions with secure digital voice and an array of advanced digital feature sets for business and government sectors.

Meet Analogue & Digital ETSI European Standard

R&TTE Standard: EN 300 086, EN 300 113, EN 300 219, EN301 489,
EN 301 166 (Voice & Data for 6.25 kHz Digital)
EN 300 440* (Receiver Category 3)
Safety Standard: EN 60065, EN 60950-1, EN 60215

*Note: apply for only NX-720GE/820GE with built in GPS.

Extended Range over Analogue communication

As RF signal strength weakens with distance, FM Analogue reception becomes increasingly noisy and intermittent. NXDN®'s low BER improves reception in fringe areas, thereby increasing the effective range generally by as much as twenty percent over Analogue FM.

Natural Sounding Digital Voice plus Enhanced Kenwood Audio

The AMBE+2™ VOCODER, a state-of-the-art voice digitization technology, replicates an individual's natural human speech nuances accurately unlike early technologies that sounded unnatural and synthesized. The AMBE+2™ offers superior voice quality at varying signal strengths even while driving at motorway speeds.

In addition to this technology, Kenwood utilizes its long standing audio heritage to optimize voice frequency components so that the audio output cuts through typical ambient noise. This enhancement and the noise reduction also provide clarity and low distortion in FM Analogue mode.

Secure Voice & Data

NEXEDGE® offers voice security for personnel safety and reduced liability exposure by protecting sensitive communications for your facilities and operations.

Inherent Level of Security in Digital Mode

NXDN® digital air interface prevents casual eavesdropping. Furthermore, the built-in NXDN® Digital Scrambler allows more secure Voice & Data communication.

Voice Inversion Scrambler Built-in

The built-in Analogue voice inversion scrambler provides basic communications protection against casual eavesdropping.

General Features

- Partner with Middle Range NEXEDGE Portable NX-220/320
- NX-720G/820G versions include a factory-installed "GPS" module.
 - Requires Optional New GPS Antenna KRA-40G
 - Non-GPS Versions are also Available
- LCD: 10 digits, 13 segments Amber Colour Backlit Display
- D-sub 15 Accessory Connector
- Voice Announcement of Channel Number
- VHF(136-174MHz), UHF(400-470MHz) wideband coverage
- Flash Firmware Upgrading
- IP54 & Mil 810 Blowing Rain
- MIL-Spec Speaker Mic Options
- Time Out Timer
- 260 channels
- Emergency/AUX Key
- Transmit/Busy/Call Alert/Warn LED
- Emergency Call Features

- Special Alert Tone Patterns
- KPG-141D Windows® FPU
- Programmable TX/RX Indication (On/Off)
- Busy Channel Lockout
- Transparent Data Mode

Note : the NX-720 series don't have option board capability.

DIGITAL – GENERAL

- NXDN® Digital Air Interface
- 6.25 & 12.5 kHz Channels
- Emergency Call
- NXDN® Scrambler
- Remote Stun/Kill *
- AMBE+2™ VOCODER
- Over-the-Air Alias (TX)
- Short & Long Data Messages *
- Status Messaging*
- GPS Location with Voice *

* Requires NX subscriber unit PC Serial Interface compatible software application (e.g Kenwood AVL & Dispatch Messaging software) or hardware (e.g. console).

DIGITAL – CONVENTIONAL MODE

- 64 (including “none”) Radio Access Numbers (RAN)
- Individual & Group Selective Call
- Mixed FM/Digital Operation
- Conventional IP Networks
- Site Roaming

DIGITAL – TRUNKING MODE

- Individual Private Call
- 4 Priority Monitor ID's *1
- Broadcast Call
- Transmission Trunked Mode *1
- Failsoft Mode *1
- Telephone Interconnect *1*3
- Group Call
- Late Entry (UID & GID) *1
- Remote Group Add *2
- Message Trunked Mode *1
- Call Queuing with Priority *1

*1: These trunked features are primarily system programming and operational dependent. Priority Monitor also requires NX subscriber settings.

*2: Requires NX subscriber unit PC Serial Interface compatible software application (e.g Kenwood AVL & Dispatch Messaging software) or hardware (e.g. console).

*3: Require KTI-4 and teleco unit

DIGITAL – TRUNKING MULTI-SITE MODE

- 60,000 GIDs per Network
- Wide Area All Group Call
- Multi-Site IP Network Compatible
- 60,000 UIDs per Network
- Auto-Roaming / Registration
- Group Registration

SCAN TYPES (FM & NXDN® CONVENTIONAL)

- Single/Multi-Zone Scan
- List Scan
- Dual Priority Scan (Conventional)

FM MODES – GENERAL

- 25, 20 & 12.5 kHz Channels
- DTMF Encode / Decode
- Voice Inversion Scrambler
- FleetSync®/II
- Companded Audio

FM CONVENTIONAL ZONES

- QT / DQT
- Single/Two-Tone Encode*
- Voting
- *: Require K-firmware
- Two-Tone Decode
- 5-Tone Encode / Decode

FleetSync®/II * (FM)

- PTT ID Digital ANI (TX)
- Status Messaging*
- Power On/Off Status Messages *
- PTT ID & Emergency GPS Reporting *
- Short Text Messages *
- GPS Ack Request
- Selective Call & Group Call
- Emergency Status
- Send/Display GPS
- Status Message Block GPS Reporting *

*: Requires NX subscriber unit PC Serial Interface compatible software application (e.g Kenwood AVL & Dispatch Messaging software) or hardware (e.g.console).

2. OPTION

<EXISTING ACCESSORIES>

KMC-30	Microphone
KMC-32	Microphone w/ Keypad
KMC-35	Microphone
KMC-36	Microphone w/ Keypad
KMC-9C	Desktop Microphone
KES-3/5	External Speaker
KCT-18	Ignition Sense Cable
KCT-36	Extension Cable
KCT-60	Connection Cable
KLF-2	DC line Filter
KMB-10	Key Lock Adapter
KPG-46A/U	Programming Interface Cable
KPG-141D	Programming Software

<NEW OPTIONAL ACCESSORIES>

KRA-40G GPS ACTIVE ANTENNA



3. SUPPLIED ACCESSORIES

- DC code assy
- Bracket
- Screw set
- Instruction Manual (En, Sp, Ger, Fr, Du, It, Turkish, Greek)*
- *Russian and Portuguese will be provided with data

4. SPECIFICATIONS

General		NX-720E	NX-820E
Frequency Range		136-174 MHz	400-470 MHz
Number of Channels		260	
Zones		128	
Max. Channels per Zone		250	
Channel Spacing	Analog	12.5 / 20 / 25 kHz	
	Digital	6.25 / 12.5 kHz	
Antenna Impedance		50 Ω	
Operating Voltage		13.2 V DC (10.8 - 15.6 V DC)	
Operating Temperature Range		-30°C to +60°C	
Frequency Stability(-30°C to +60°C)		±1.0 ppm	
Dimensions (W x H x D)		160 x 43 x 136 mm	
Weight		1.2 kg	
Applicable Standards	ETSI R&TTE ETSI Safety	EN 300 086, EN 300 113, EN 300 219, EN 300 440* , EN 301 489, EN 301 166 EN 60065, EN 60950-1, EN 60215	
Environmental Specification and IP Rating		IP54, MIL-STD-810 C,D,E,F,G	
Receiver			
Sensitivity (Analog)	EIA 12dB SINAD	0.25 μV	
	(25kHz / 20kHz/12.5kHz) EN 20dB SINAD	-3 dB μV (0.35 μV)	
Sensitivity (Digital)	3% BER	0.28 μV / 0.20 μV	
	(12.5kHz/6.25kHz) 1% BER	-2 dB μV (0.40 μV)/ -5 dB μV (0.28 μV)	
Adjacent Channel Selectivity (Analog)	(25kHz / 20kHz/12.5kHz)	80 dB / 78 dB / 70 dB	78 dB / 76 dB / 68 dB
Intermodulation (Analog)		65 dB	
Spurious Response Rejection (Analog)		80 dB	
Audio Distortion		Less than 3%	
Audio Output		4 W / 4 Ω	

* Receiver Category 3

Transmitter	
RF Power output	5 -25 W
Modulation Limiting (Analog)	±5.0 kHz at 25 kHz ±4.0 kHz at 20 kHz ±2.5 kHz at 12.5 kHz
Spurious Emission	-36 dBm≤1 GHz, -30dBm > 1 GHz
FM Noise (EIA) (Analog, 25kHz / 20kHz /12.5kHz)	50 dB / 50 dB / 45 dB
Modulation Distortion	Less than 3%
Microphone Impedance	1.8 kΩ
Modulation	16K0F3E, 14K0F3E, 14K0F2D, 12K0F2D, 8K50F3E, 7K50F2D, 8K30F1E, 8K30F1D, 8K30F7W, 4K00F1E, 4K00F1D, 4K00F7W, 4K00F2D

Applicable MIL-STD

MIL Standard	Methods / Procedures				
	MIL 810C	MIL 810D	810E	810F	810G
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 / I	502.2 / I, II	502.3 / I, II	502.4 / I, II	502.5 / I, II
Temperature Shock	503.1 / I	503.2 / I	503.3 / I	503.4 / I, II	503.5 / I
Solar Radiation	505.1 / I	505.2 / I	505.3 / I	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 / I
Salt Fog	509.1 / I	509.2 / I	509.3 / I	509.4	509.5
Dust	510.1 / I	510.2 / I	510.3 / I	510.4 / I, III	510.5 / I
Vibration	514.2 / VIII, X	514.3 / I	514.4 / I	514.5 / I	514.6 / I
Shock	516.2 / I, II, III, V	516.3 / I, IV, V	516.4 / I, IV, V	516.5 / I, IV, V	516.6 / I, IV, V

Kenwood follows a policy of continuous advancement in development.

For this reasons, specifications may be changed without notice.

Analog measurements made per EN Standards or TIA/EIA 603 and specifications shown are typical.

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