KENWOOD

NEXEDGE®

NX-230EX/330EX

VHF/UHF Digital & FM Portable Radios

Intrinsically Safe NEXEDGE® Handheld Radios For Use in Potentially Explosive Atmospheres

ATEX Certifications

Gas : II 2G Ex ib IIC T4 Gb

Dust : II 2D Ex ib IIIC T110°C Db

Mining : I M2 Ex ib I Mb

IP Code: IP65/IP67

NXDN® 5-tone FleetSync® by KENWOOD Lone Worker You'll never work alone. StaffSafe

NX-230EX/NX-330EX

NXDN® INDUSTRY STANDARD FOR DIGITAL RADIOS

These NEXEDGE® radios feature NXDN® digital technology by KENWOOD. There are several advantages of digital radio over analogue, but most prominent are high voice quality with low noise for superior clarity, wide effective coverage area, and inherently secure voice communication.

Reliable communications in a noisy environment

AMBE+2™ Vocoder voice compression & digitisation technology delivers superior voice quality, eliminating most of the background noise even in such loud environments as drilling platforms and oil refineries. When used with the ATEX-certified audio accessories offered by KENWOOD partners, the NX-230EX/330EX assures mission-critical clarity, safety and reliability.

Extended communications range

Whereas RF signal strength weakens with distance, making communications increasingly susceptible to noise, NXDN® digital technology delivers better sensitivity and higher reception performance, effectively extending the range of clear, noise-free communications.

Simplified migration

Mixed Mode enables sharing of the same RF channel by both FM analogue and NXDN digital conventional radios. Subscriber units and base stations sense incoming analogue and digital calls, automatically enabling talkback or repeat in the same mode. The NX-230EX/330EX also supports a variety of signalling modes to facilitate the coexistence of analogue and digital radios.

- MPT1327 Trunked operation support: Reliable communications over existing MPT trunking networks, from small groups to large-scale fleets.
- Built-in 5-Tone encoder/decoder: 5-Tone signalling for 6 different formats, 8-Tone signalling, 2-frame 5-Tone, or 3-frame 5-Tone.
- QT/DQT/DTMF: QT/DQT for segregating talk groups, DTMF with PTT ID for dispatch operations or a simple remote control application, and DTMF decoding functions.
- Fleetsync®, PTT ID, Selective Calling capabilities: For managed dispatch operations using FleetSync® digital signalling protocol.

STAFF SAFE FUNCTIONS

For crew working remotely or in hazardous areas, various staff safe functions are available that make use of the built-in motion sensor to identify a potential emergency and automatically transmit an alert to a designated person or system.

- Man-down: Factory default. When the radio is not upright for a length of time.
- Stationary*: When the radio is stationary for a preset period.
- Motion Mode (Panic)*: When the radio is being shaken/swung violently as when someone is running for a length of time.
- Lone Worker: If the radio is not operated for a certain amount of time (programmable).
- Orange Emergency Key: Clearly identified orange key can be assigned exclusively for emergency signalling to send alert to a designated person or system.

*Software license option; requires activation file.

INTRINSIC SAFETY

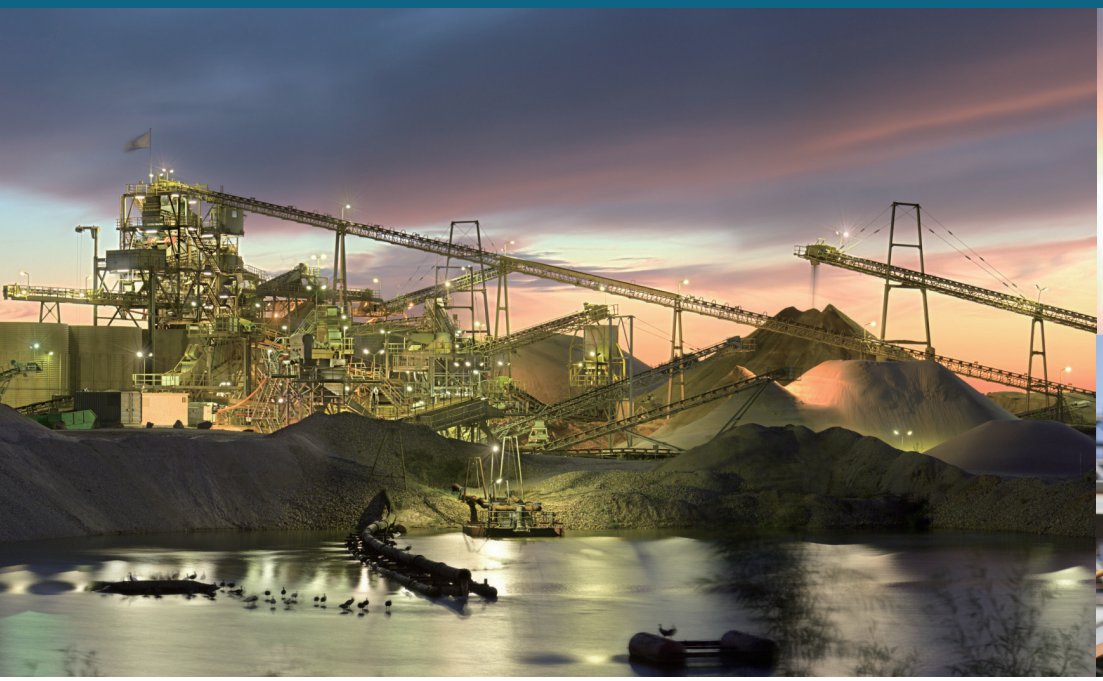
Special enclosure and circuitry designs ensure that these portables meet ATEX requirements for intrinsic safety. Anti-static resin is used for the casing, battery and belt hook. Also effective RF output is 1.2W, maintained within the upper limit set by ATEX directive.

QUALITY CONTROL

The NX-230EX/330EX is manufactured in KENWOOD's ISO 9001 certified factory in Japan under strict quality management. Each transceiver has passed KENWOOD's own stringent quality tests, which simulate years of sustained, demanding use in harsh operating conditions. These tests are more exacting than any other accepted industry standards.

Other Features

- Built-in GPS receiver for personnel location management.
- Over-the Air Alias for displaying caller group or unit name.
- Telephone Interconnect for making phone calls to a trunked system or outgoing calls to PSTN or PABX via KTI-4 option and external patch.
- OTAP (Over-the-Air-Programming) for reprogramming NEXEDGE terminals remotely using OTAP Management Software. Compatible with Over-the Air Alias for efficient and easy user management.
- Applicable MIL-STD & IP standards.



Intrinsically Safe ATEX/IECEx-Certified Radios Featuring Advanced NEXEDGE® Digital Technology

Introducing the latest additions to KENWOOD's renowned NEXEDGE® range of digital radios, the NX-230EX/330EX. As well as offering the benefits of advanced digital technology – including increased effective coverage area, low noise for superior clarity, and inherently secure voice communication – these radios are ATEX/IECEx-certified for use in potentially explosive atmospheres such as oil refineries, chemical plants, grain silos, pipeline and other chemical applications.

ATEX & IECEx CERTIFIED

Offering the highest levels of safety in the industry, the NX-230EX/330EX complies with both the ATEX Directive (**AT**mospheres **Ex**plosive) and the IECEx (International certification system for Ex products) Scheme. These trusted certifications ensure the safe functioning of equipment and protective systems with respect to the risks of explosion covered by these standards. As listed below, the various classes relate to the use in specific environments.

ATEX/IECEx Gas Certification

ATEX Gas Protection: II 2G Ex ib IIC T4 Gb IECEx Gas Protection: Ex ib IIC T4 Gb	
II	Use enabled in Group II environments such as chemical industries, refineries, etc.
2G	High-level of protection, suitable for use in Sector G (Gas), Zones 1 and 2.
Ex	The product is explosion-proof equipment.
ib	Type of intrinsic safety protection.
IIC	Protection in the most explosive gas environments (hydrogen, acetylene, etc.).
T4	Device surface temperature will not exceed 135°C; Class T4 covers gasses and vapours in classes T1, T2, and T3.
Gb	Protection level suitable for Sector G (Gas)

ATEX/IECEx Dust Certification

ATEX Dust Protection: II 2D Ex ib IIIC T110°C Db IECEx Dust Protection: Ex ib IIIC T110°C Db	
II	Use enabled in Group II environments such as chemical industries, refineries, etc.
2D	High-level of protection, suitable for use in Sector D (Dust), Zones 21 and 22.
Ex	The product is explosion-proof equipment.
ib	Type of intrinsic safety protection.
IIIC	Protection in conductive dust environments.
T110°C	Surface temperature will not exceed 110°C.
Db	Protection level suitable for Sector D (Dust).

ATEX/IECEx Mining Certification

ATEX Mining Protection: I M2 Ex ib I Mb IECEx Mining Protection: Ex ib I Mb	
I	Use enabled in Group I mining environment.
M2	High-level of protection. The equipment does not operate in a potentially explosive atmosphere, and must be de-energized when an explosive atmosphere is encountered.
Ex	The product is explosion-proof equipment.
ib	Type of intrinsic safety protection.
I	The equipment is protected for use in an explosive gas environment (methane).
Mb	Protection level suitable for Sector M (Mining)

FUNCTIONS & FEATURES

General

- VHF (136-174 MHz) / UHF (400-470 MHz) Models
- 512 CH-GID/128 Zones
- 12-Key Keypad
- 14-Character Alphanumeric Aliases
- Backlit Dot Matrix LCD
- 3-Digit Sub-Display
- Function/Status LCD Icons
- RSSI Indicator
- Transmit/Busy/Call Alert/Warn LED
- On/Off Volume Knob
- 16-Position Mechanical Selector
- 6 Front PF & Menu Keys
- 2 Side PF Keys
- Emergency/AUX Key
- 500 mW Speaker Audio
- VOX Ready
- Emergency Call Features
- Special Alert Tone Patterns
- Time-Out-Timer
- Busy Channel Lockout
- LCD Battery Status Indicator
- Low Battery Alert
- Battery Saver
- Weather-Sealed ACC Connector
- Front Panel Test
- Cloning
- SDM Manual Input
- TX LED On/Off Setting
- Multi-Language Display
- Transparent Data Mode
- Built in GPS
- Stationaly/Motion Sensor
- PC Protocol Interface

DIGITAL – General

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

DIGITAL – Conventional Mode

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

DIGITAL – Trunking Mode

- Individual Private Call
- Group Call
- 4 Priority Monitor IDs
- Late Entry (UID & GID)
- Broadcast Call
- Remote Group Add
- Transmission Trunked Mode
- Message Trunked Mode
- Failsoft Mode
- Call Queuing with Priority
- Telephone Interconnect

DIGITAL – Trunking Multi-Site Mode

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

SCANNING (FM & NXDN® Conventional)

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

GENERAL – FM Modes

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

FM Conventional Zones

- QT/DQT
- 5-Tone Encode/Decode
- Single/Two-Tone Encode
- Voting

FleetSync®/II

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

Options

■ **KBH-16EX***
Belt Clip

■ **KNB-70LEX***
Li-ion Battery
(1,430 mAh, min)

■ **KRA-26***
VHF Helical Antenna

■ **KRA-27***
UHF Whip Antenna

■ **KRA-22***
VHF Low-Profile
Helical Antenna

■ **KRA-23***
UHF Low-Profile
Helical Antenna

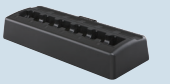
■ **KRA-43G***
VHF/GPS Antenna

■ **KRA-44G***
UHF/GPS Antenna

■ **KSC-32S**
Tri-Chemistry Rapid
Rate Charger for
the KNB-70LEX*1*2

■ **KCT-69EX**
Fuse Box for
the KSC-32S*1*2

■ **KSC-326S**
6-Pocket Multiple
Rapid Rate Charger
for the KNB-70LEX*1*3



■ **KMC-46EX***
Heavy-duty Speaker
Microphone

■ **KLH-188EX***
Soft Leather Case

*ATEX/IECEx-certified accessories only when used with the NX-230EX/330EX. *1 Do not use this accessory in hazardous areas. *2 The KCT-69EX is mandatory for the KSC-32S user, required under the ATEX/ IECEx directive (60079-11: 2011), section 6.2.5. The KCT-69EX fuse box protects the IS circuit in the NX-230EX/330EX when the KNB-70LEX battery is charged with KSC-32S rapid charger in a non-hazardous area. It is important to remember that the KSC-32S cannot be used in hazardous areas (even with the KCT-69EX). *3 Note that the standard KSC-326 multiple charger cannot be used with NX-230EX/330EX batteries as it is not an ATEX/IECEx-certified accessory.

All accessories and options may not be available in all markets. Contact an authorised KENWOOD dealer for details and complete list of all accessories and options.

Main Specifications

		NX-230EX	NX-330EX
GENERAL			
Frequency Range		136-174 MHz*1	400-470 MHz
Number of Channels		512	
Zones per Radio		128	
Max. Channels per Zone		250	
Channel Spacing	**Analogue**	25 / 20 / 12.5 kHz	
	Digital	12.5 / 6.25 kHz	
Operating Voltage		7.5 V DC 6.2-8.4 V	
Battery Life			
GPS On: 5-5-90 with battery saver on		8.5 hours	
GPS Off: 5-5-90 with battery saver on		14.0 hours	
Operating Temperature Range		-20°C ~ 50°C*2	
Frequency Stability		± 2.0ppm	±1.0ppm
Antenna Impedance		50 Ω	
Dimensions (W x H x D)	**Radio Only, Projections Not Included**	138 x 58 x 39.8 mm (5.43 x 2.28 x 1.56 in)	
Weight (net)	**Radio Only**	343 g (12.09 oz)	
	with KNB-70LEX	493 g (1.08 lbs)	

*1: Signal transmission between 157.1625MHz and 157.9125MHz may suffer inference from GPS.
*2: Operating temperature range of the KNB-70LEX Li-ion Battery Pack: -10°C to +50°C

		NX-230EX	NX-330EX
RECEIVER			
Sensitivity	**Digital @12.5 kHz**	0.32 µV (3% BER), -1 dBµVemf (1% BER)	
	Digital @6.25 kHz	0.25 µV (3% BER), -4 dBµVemf (1% BER)	
	Analogue @25 / 20 kHz	0.28 µV (EIA 12 dB SINAD), -3 dBµVemf (EN 20 dB SINAD)	
	Analogue @12.5 kHz	0.32 µV (EIA 12 dB SINAD), -1 dBµVemf (EN 20 dB SINAD)	
Adjacent Channel Selectivity	**Digital @25 / 20 kHz**	76 / 75 dB	
	Analogue @12.5 kHz	68 dB	
Intermodulation Distortion	**Analogue**	65 dB	
Spurious Response Rejection	**Analogue**	70 dB	
Audio Distortion		3%	
Audio Output		500 mW	
TRANSMITTER			
RF Power Output		1.2 W	
Modulation Limiting @Analogue		±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, -30 dBm > 1 GHz	
FM Hum & Noise	**Analogue @25 / 20 kHz**	48 / 48 dB	
	Analogue @12.5 kHz	43 dB	
Audio Distortion		3%	
Modulation		16K0F3E, 14K0F3E, 14K0F2D, 12K0F2D, 8K50F3E, 7K50F2D, 8K30F1E, 8K30F1D, 8K30F7W, 4K00F1E, 4K00F1D, 4K00F7W, 4K00F2D	

Specifications are subject to change without notice, due to advancements in technology.
Specifications shown are typical.
Analogue measurements made per EN 300 086 and 113.
Digital measurements made per EN 300 113 and EN301 166.

FleetSync® is a registered trademark of JVCKENWOOD Corporation.
AMBE+2™ is a trademark of Digital Voice Systems Inc.
NXDN® is a registered trademark of JVCKENWOOD Corporation and Icom Inc.
NEXEDGE® is a registered trademark of JVCKENWOOD Corporation.

Approved Standard

Standard	Detail	ID
Low Voltage Directive	EN 60065, EN 60950-1, EN 60215	
R&TTE Directive	EN 300 086-2, EN 300 113-2, EN 300 219-2, EN 301 166-2, EN 301 489-3, EN 301 489-5, EN 301 440-2	
ATEX Directive **Gas:** **II 2G Ex ib IIC T4 Gb** **Dust:** **II 2D Ex ib IIIC T110°C Db** **Mining:** **I M2 Ex ib I Mb** **IP Code:** **IP65/IP67**	EN 60079-0, EN 60079-11	DEKRA 13ATEX0114 X
IECEx Scheme **Gas:** **Ex ib IIC T4 Gb** **Dust:** **Ex ib IIIC T110°C Db** **Mining:** **Ex ib I Mb** **IP Code:** **IP65/IP67**	IEC 60079-0, IEC 60079-11	IECEx DEK 13.0031X

Applicable MIL-STD & IP

MIL Standard	MIL 810C Methods/Procedures	MIL 810D Methods/Procedures	MIL 810E Methods/Procedures	MIL 810F Methods/Procedures	MIL 810G Methods/Procedures
Low Pressure	500.1/Procedure I	500.2/Procedure I, II	500.3/Procedure I, II	500.4/Procedure I, II	500.5/Procedure I, II
High Temperature	501.1/Procedure I, II	501.2/Procedure I, II	501.3/Procedure I, II	501.4/Procedure I, II	501.5/Procedure I, II
Low Temperature	502.1/Procedure I	502.2/Procedure I, II	502.3/Procedure I, II	502.4/Procedure I, II	502.5/Procedure I, II
Temperature Shock	503.1/Procedure I	503.2/Procedure I	503.3/Procedure I	503.4/Procedure I, II	503.5/Procedure I
Solar Radiation	505.1/Procedure I	505.2/Procedure I	505.3/Procedure I	505.4/Procedure I	505.5/Procedure I
Rain	506.1/Procedure I, II	506.2/Procedure I, II	506.3/Procedure I, II	506.4/Procedure I, III	506.5/Procedure I, III
Humidity	507.1/Procedure I, II	507.2/Procedure II, III	507.3/Procedure II, III	507.4	507.5/Procedure II
Salt Fog	509.1/Procedure I	509.2/Procedure I	509.3/Procedure I	509.4	509.5
Dust	510.1/Procedure I	510.2/Procedure I	510.3/Procedure I	510.4/Procedure I, III	510.5/Procedure I
Vibration	514.2/Procedure VIII, X	514.3/Procedure I	514.4/Procedure I	514.5/Procedure I	514.6/Procedure I
Shock	516.2/Procedure I, II, V	516.3/Procedure I, IV	516.4/Procedure I, IV	516.5/Procedure I, IV	516.6/Procedure I, IV
Immersion	—	—	—	512.4/Procedure I	512.5/Procedure I
International Protection Standard					
Dust & Water Protection:	IP65/IP67: Protection for the radio body only; Meets IP65 when used with the KMC-46EX heavy duty speaker microphone				

JVCKENWOOD Belgium NV
Leuvensesteenweg 248J - 1800 Vilvoorde, Belgium
comms@be.jvckenwood.com - www.kenwood.be

JQA-QMA1205 091-A
ISO9001 Registered
Communications Equipment Division
Kenwood Corporation
ISO9001 certification