

# KENWOOD

Listen to the Future

## NEXEDGE®

KENWOOD DIGITAL SYSTEMS

NEXEDGE® Multiple Solutions, One System

# NEXEDGE®

## Delivering DIGITAL Extending ANALOG

Advanced features, extended coverage, strong security and 12.5 / 6.25 kHz compatibility are just some of the benefits of adopting next-generation NEXEDGE® for advanced digital communications. In addition, NEXEDGE® is designed for self-paced migration and upgrades by offering continued service to analog fleets as long as needed and software-driven upgrades for adding advanced digital system configurations and operations.

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NEXEDGE®





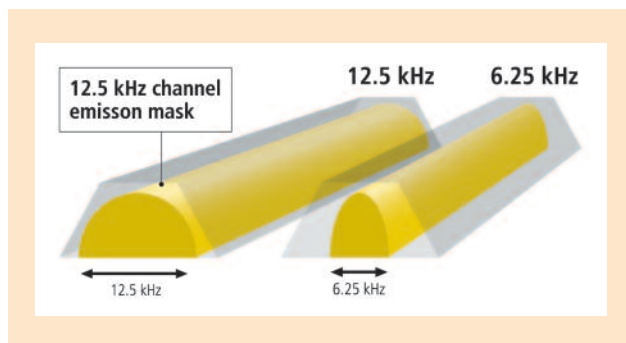
## Advantages

# Stacking up

NEXEDGE® makes sound business sense

## Timeless Spectrum Efficiency

All NEXEDGE® equipment operates in 25 & 12.5 kHz analog and 12.5 & 6.25 kHz NXDN® digital modes – satisfying spectrum requirements today & tomorrow.



## Operationally Fit

NEXEDGE® systems are configurable in traditional conventional, trunked and wide area trunked network operation modes. IP connectivity for NEXEDGE® trunked sites provides wide area calling and system scalability over existing private LAN/WAN assets and commercial services.

## Migration by Design

NEXEDGE® supports both NXDN® digital and analog modes via common transceiver technology. Service to both analog and digital fleets provides a self-paced migration path that accommodates any budgetary, administrative, organizational or time constraints.

NEXEDGE® uses existing power amps and site management equipment providing a return on existing investments and a choice of multiple suppliers for years to come.

NEXEDGE® Conventional operates in 12.5 kHz “Mixed Mode” so that analog and digital fleets can share the same channel.

NEXEDGE® digital trunked traffic channels can be shared with analog conventional, analog trunked or both types of traffic.

## Digital Voice Technology

NEXEDGE® uses the AMBE+2™ VOCODER, a state-of-the-art voice digitization and compression technology offering enhanced Forward Error Correction and noise reduction that offers superior clarity at varying signal strengths.



## Advantages

### Secure Privacy

NEXEDGE's NXDN® digital signal offers inherent security against casual electronic eavesdropping versus easily intercepted analog radio. The built-in NXDN® scrambling provides security and confidentiality for communications within the same system and talk group. Inter-site IP links are further secured through encrypted VPN tunneling. The NEXEDGE® system manager allows operators to validate/invalidate unit and group IDs for system access via IP access as fleet organization changes or as temporary or seasonal users come and go. Each NEXEDGE® subscriber radio has a factory embedded unchangeable unique one-of-a-kind Electronic Serial Number (ESN) that can be invalidated to prohibit access to unauthorized, cloned, lost or stolen radios while preserving the organization's unit and talk group ID numbering schemes.

### Asset Management with ROI

The NEXEDGE® System Manager for NXDN® trunked sites and networks reduces operational and maintenance costs with remote programming, firmware uploading, subscriber unit privileging, monitoring and diagnostic capabilities all from a secure user-friendly Windows®-based application via direct connection, dial-up modem, or IP connection.

### Critical Features for Critical Jobs

NEXEDGE® 65,519 ID range accommodates group and individual private unit-to-unit calling for large fleets and multi-user shared systems.

The NEXEDGE® Over-the-Air Alias feature sends each user's text name over the air, providing a user friendly caller ID even if the receiving radios alias list hasn't been updated.

Paging with alert provides traditional "beeper" and talk back pager functionality while voice storage options allow users to recall and playback missed dispatcher voice calls. Emergency features can alert a dispatcher, a supervisor or a whole talk group to a unit in distress. The All Group Call and Broadcast Call features provide facility-wide general announcements or communications command and control during emergency evacuation or lock down procedures. Remote Stun/Kill and Revive temporarily or permanently disables lost or compromised subscriber units that may compromise security or cause system interference and Remote Check enables a dispatcher to verify if a unit is in system range. All subscribers have simultaneous voice and GPS capability for automatic fleet tracking.



## Technologies & Operating Modes

# Adding Up

NEXEDGE® offers you the formidable advantages of tomorrow's technologies

## The NXDN® Digital Advantage

As signal strength decreases, noise and dropouts increase in analog systems thus degrading intelligibility.

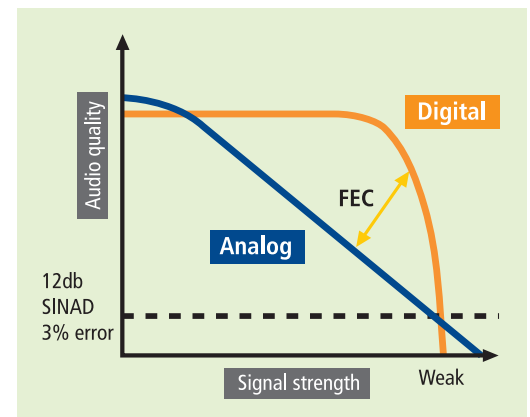
NXDN® signal reduces noise and detects and corrects digital errors before being heard by the user thus increasing the effective range beyond that of analog systems.

**NEXEDGE® systems support the following NXDN® digital modes:**

- NXDN® Conventional\*
- NEXEDGE® Conventional IP Networks\*\*
- NXDN® Trunked\*\*
- NEXEDGE® Multi-Site IP Networks

\* NXR-700/800, NXR-710/810; \*\*NXR-700/800

In addition, NEXEDGE® equipment supports analog modes.



## NXDN® Conventional Mode

NEXEDGE® base units include a 16-RAN (Radio Access Number) capacity conventional repeater controller for 16 user group site sharing. The 65,519 (each) Group ID and Unit ID capacity adds group and individual selective calling capability beyond conventional analog. Also, Mixed mode operation allows analog & NXDN® conventional units to share the same RF channel.

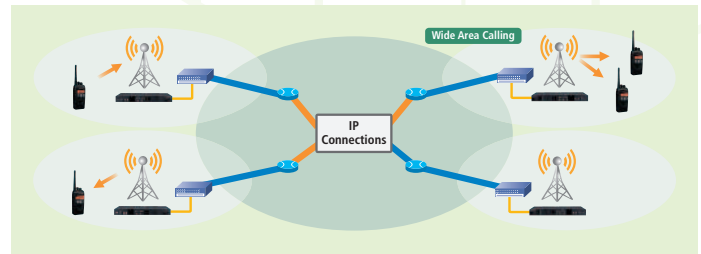


# Technologies & Operating Modes

## NEXEDGE® Conventional IP Networks

NEXEDGE® Conventional IP links up to 16 or 48 digital conventional repeaters\* into one system for wide area coverage or coverage fill-in extensions. As users roam throughout the network the subscriber units use the beacon signals and to chose the best repeater for communications.

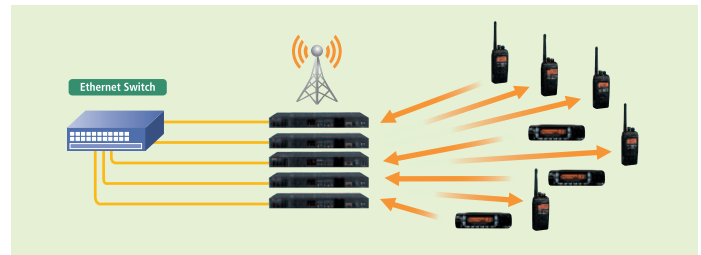
*\*Version 2.00 or later and certain routing type required [16 (unicast); 48 (multicast)] for maximum no. of repeaters per network.*



## NXDN® Trunked Mode

NEXEDGE® trunked mode provides increased capacity, enhanced call capabilities, improved security and faster communications with less required user operation than conventional systems. The system automatically assigns channels for faster, efficient use of spectrum, allowing users to concentrate on the job at hand. The 3,000 (each) Unit ID and Group ID per-site capacity provides ample unit and fleet organization capabilities. Group and Individual calls enjoy complete privacy as other users in the system cannot monitor the calls. The Priority Monitor feature will monitor for up to 4 high-priority talk groups and switch users to those calls in progress so important calls are not missed. During peak

usage hours, system Call Queuing stacks call requests and processes calls when a channel becomes available. System operators can assign important individuals higher queue priority and even pre-empt lower priority users for more important dispatch and emergency calls.

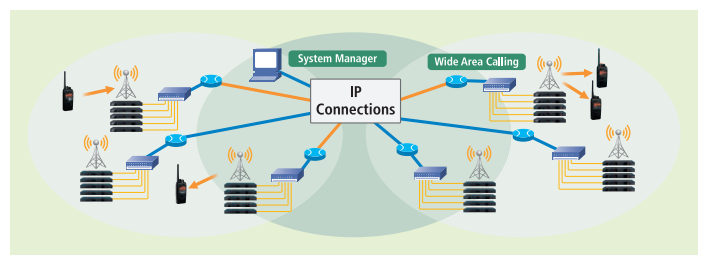


## NEXEDGE® Multi-Site IP Networks

The network option leverages the power of IP to link up to 16, 30 or 48 digital trunked sites\* together for wide area roaming and calling capabilities. Scalable networks can be created over existing IT assets, private microwave, spread-spectrum links or carrier services using standard 10/100 Base-T Ethernet switches and routers. IPSec VPN tunneling provides encrypted, secure communications links within any IP network. Subscriber units use advanced control channel hunting algorithms, RF signal strength and digital signal quality (low bit-error-rate) to automatically determine the best sites to register on while moving through a network. The 60,000 Group ID and Unit ID network capacity is sufficient for large

organizations and multi-user system sharing.

*\*Version 2.00 or later and certain type routing required [16 (unicast); 30 (multicast); 48 (multicast)] for maximum no. of sites per network and inter-site group call to all sites.*



# Ready to Deploy

High-performance NEXEDGE® hardware



## NX-200/300

### VHF/UHF Digital & FM Portable Radios

Despite their compact lightweight design, these handheld radios are fully equipped for both digital and analog operating modes. The clear backlit display and ergonomic layout of the controls enhance operating ease, while the rugged MIL-STD construction ensures all-weather reliability.

## NX-210

### VHF Digital & FM Portable Radio

For users desiring a larger keypad for frequent selective paging, phone interconnect, dispatch center signaling or remote control signaling, the NX-210 offers a compact, rugged platform with the same display as the NX-200 in only a slightly larger platform.





## NX-700/800

### VHF/UHF Digital & FM Mobile Radios

As smart in operation as they are in looks, these NX-700/800 radios feature everything necessary to take full advantage of both digital and analog operating modes.

Mobile users will appreciate the large dot-matrix LCD, intuitive controls and multi-scan capabilities.



## NXR-700/800

### VHF/UHF Digital & FM Base Units

The NXR-700/800 repeater / base units offer full NEXEDGE capabilities including analog and digital conventional, conventional networking, trunking and multi-site trunked network capabilities. Like c

platform offers superior transmit and receive performance in a low profile 1RU design that saves valuable site space for choice of power amplifiers, power supplies, site monitoring



## NXR-710/810

### VHF/UHF Digital & FM Base Units

The NXR-710/810 repeater / base units offer analog and digital conventional capabilities ideal for small and medium-size systems, but without compromising on performance, reliability or value. As with all NEXEDGE repeaters, the

NXR-710/810 provides a built-in analog-to-digital migration path. Kenwood looks to bring the NXR-710/810 even more advanced options and capabilities in the future.

*For details and specifications, refer to the individual product catalogs.*

## Case Studies

# In Active Service

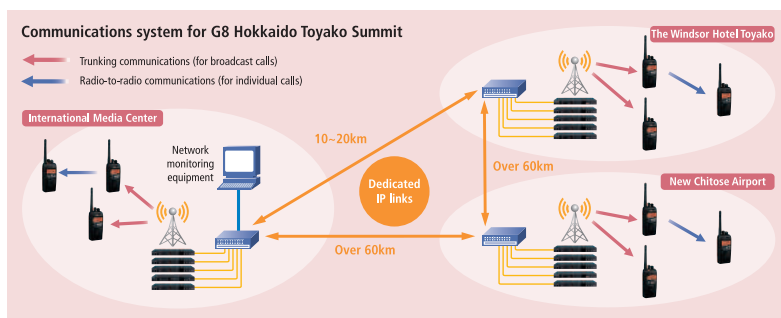
How NEXEDGE® is already making a difference

## G8 Hokkaido Toyako Summit

For the G8 Summit at Toyako in Hokkaido, which was held in July 2008, Kenwood's NEXEDGE® was chosen to provide group-call communications for Japan's Ministry of Foreign Affairs. Ministry officials wanted to link three sites – New Chitose Airport, the International Media Center, and the Summit venue – while allowing radio-to-radio communications within each area.



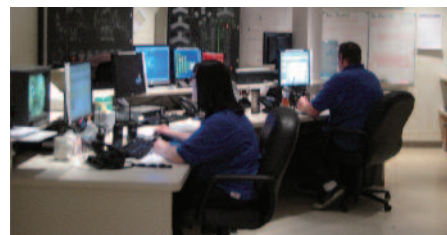
The system had to guarantee security and confidentiality, as well as clear voice quality. And the perfect solution was NEXEDGE®. During the Summit the system performed flawlessly and the Ministry expressed its satisfaction. For its part, Kenwood is proud that NEXEDGE® could play a key role in supporting an event of such international importance.



## The Venetian Las Vegas Hotel Casino (supplied by Anderson Communications, Inc.)

Opened in 1999, the Venetian Resort Hotel Casino is one of the largest luxury resorts in the world, and it continues to grow. With the addition of the Venezia Tower and the Palazzo – increasing the number of rooms to over 7,000 – the management needed to add another 1,000 radios to the 2,000 already in use. **They picked NEXEDGE® as it allowed them to migrate gracefully from their 12-channel LTR® system, doubling capacity to 24 channels without buying more frequencies.** Being reliable,

adaptable and scalable were all important factors, but so too was cost: **since NEXEDGE® enables analog and digital radios to coexist, the management can continue to make use of their assets as they switch over, department by department, to digital radios. Additionally, in fringe areas where signal strength was a problem, voice quality is now crystal clear.** And as this Venice-themed hotel continues to expand, NEXEDGE® will grow with them; site networking is included, so new properties can be added seamlessly.



## CN Tower, Toronto (supplied by Mobile Business Communications Ltd.)

Since 1976, Toronto's CN Tower – the tallest freestanding structure in North America – has played a key role in the city's telecommunications infrastructure, and it also offers visitors a superb view from its two observation decks. A building of this unusual nature poses some special challenges for the people who work there – and that goes for their radio system too. According to Kerry Adams, President of MBC – the Toronto dealer who installed the CN Tower system – **ensuring that a solid signal propagates throughout the facility was an important factor in the selection of NEXEDGE® – with its 6.25 kHz capability** – to replace the previous analog LTR® trunked system. **The new digital trunked system also brought them increased capacity, allowing for multiple talk groups** – not previously possible with the LTR® system – so

**employees in different departments can all be talking simultaneously yet independently, enjoying excellent voice quality with greater protection from eavesdropping.** And as the new system uses the same 450 MHz band, migration was smooth. NEXEDGE® has proved to be an ideal solution for this famous Canadian landmark.



## A Beep, Chicago

A Beep was started in 1996 as a paging service, but now the company is one of the largest SMR operators in Chicago. To compete effectively with cellular systems, they selected NEXEDGE® for their new Diga-Talk service. They cite 5 key reasons for their choice: **IP networking, 6.25 kHz modulation, sound quality, system layout, and cost. Ease of management, and proven Kenwood quality and support only made the decision easier.** With 9 sites linked by IP network and another 3 scheduled, A Beep can offer

wide area seamless roaming over the entire Chicago metropolitan area, which has a population of 9 million.

**Increased coverage brings portable radios more availability in the field, just like mobile radios. Also, Diga-Talk can satisfy the needs of smaller companies, not just fleet customers. The opportunities for messaging and GPS are also attracting new clients, such as limousine services, cab companies, and landscapers.**





# Listen to the Future

Kenwood has always connected with people through sound. Now we want to expand the world of sound in ways that only Kenwood can, listening to our customers and to the pulse of the coming age as we head toward a future of shared discovery, inspiration and enjoyment.

## Kenwood U.S.A. Corporation Communications Division Headquarters

3970 Johns Creek Court, Ste. 100 Suwanee, GA 30024, U.S.A.  
TEL: +1 (678) 474-4700 FAX: +1 (678) 474-4730  
<http://www.kenwoodusa.com/Contact/>

## Kenwood Electronics Canada Inc.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8  
TEL: +1 (905) 670-7211 FAX: +1 (905) 670-7248  
[general@kenwood.ca](mailto:general@kenwood.ca)

## Kenwood Electronics UK Limited

Kenwood House, Dwight Road, Watford, Herts, WD18 9EB, United Kingdom  
TEL: +44 (0) 1923 816 444 FAX: +44 (0) 1923 819 131  
[comms@kenwood-electronics.co.uk](mailto:comms@kenwood-electronics.co.uk)

## Kenwood Electronics Belgium N.V.

Leuvensesteenweg 248J, B-1800 Vilvoorde, Belgium  
TEL: +32 (0)2 757 90 60 FAX: +32 (0)2 757 91 40  
[comms@kenwood.be](mailto:comms@kenwood.be)

## Kenwood Electronics France S.A.

L'ETOILE PARIS NORD 2, 50 Allée des Impressionnistes,  
BP58416 VILLEPINTE, 95944 ROISSY CH DE GAULLE CEDEX  
TEL: +33 (0) 825 800 109 FAX: +33 (0)1 48 17 44 01  
[info@kenwood-electronics.fr](mailto:info@kenwood-electronics.fr)

## Kenwood Electronics Deutschland GmbH

Rembrücker Str. 15, 63150 Heusenstamm, Germany  
TEL: +49 (0) 61 04 69 01-0 FAX: +49 (0) 61 04 6 39 75  
[info@kenwood.de](mailto:info@kenwood.de)

## Kenwood Electronics Italia S.p.A.

Via G. Sirtori 7/9, 20129 Milano, Italy  
TEL: +39.02.204821 FAX: +39.02.29516281  
[info@kenwood.it](mailto:info@kenwood.it)

## Kenwood Iberica S.A.

Bolivia, 239-08020 Barcelona, Spain  
TEL: +34 (93) 507 5252 FAX: +34 (03) 266 0235  
[kenwood@kenwood.es](mailto:kenwood@kenwood.es)

## Kenwood Electronics Singapore Pte Ltd

1 Ang Mo Kio Street 63, Singapore 569110  
TEL: +65 6741-3336 FAX: +65 6741-3633  
[sales@kenwoodaudio.com](mailto:sales@kenwoodaudio.com)

## Kenwood Electronics Australia Pty. Ltd.

16 Giffnock Avenue, Centrecourt Estate, North Ryde, N.S.W. 2113, Australia  
TEL: +61 (0)2 8879 2266 FAX: +61 (0)2 8879 2233  
[comdept@kenwood.com.au](mailto:comdept@kenwood.com.au)

## Kenwood Electronics (Hong Kong) Ltd.

Unit no. 3712-3724, Tower 1, Metroplaza, No. 223 Hing Fong Road,  
Kwai Fong, N.T., Hong Kong  
TEL: +852 2410 4567 FAX: +852 2424 2174  
[webmaster@kenwoodhk.com.hk](mailto:webmaster@kenwoodhk.com.hk)

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