

1.88-1.9GHz DIGITAL WIRELESS INTERCOM SYSTEM

FreeSpeak®



Digital Clarity and Versatile Operations
For Unsurpassed Wireless Performance

FreeSpeak is not available in the U.S. and Canada.



Clear-Com®
AN HME COMPANY

About Clear-Com®

Clear-Com, an HME company, is a global provider in professional voice communications systems since 1968. We develop and market proven intercom technologies such as Analog & Digital Partyline, Digital Matrix, Wireless and Intercom-over-IP systems for critical communication applications in broadcast, performance venues, military, government and enterprise markets. Recognized for our legacy of intercom innovations, production teams around the world have come to depend on Clear-Com for clear, reliable and scalable communications solutions.

About HM Electronics, Inc. (HME)

A privately held company founded in 1971, HME has continued to be a leading provider of innovative technology focused on enhancing productivity and customer service for multiple markets including pro audio, sports, and restaurants. HME developed the first wireless intercom system for pro audio and continues to introduce exciting, cutting-edge wireless intercoms that enhance communications, increase productivity and facilitate creativity for virtually any application.

FreeSpeak operates in the license-free 1.88-1.9GHz frequency band, where it is away from the crowded radio spectrum that is saturated with Wi-Fi or other wireless devices. FreeSpeak can be offered as a standalone system, complete with a 1RU Base Station and up to 20 beltpacks. Alternatively, it can be utilized as a seamless wireless beltpack solution to the Clear-Com Eclipse Matrix System, providing up to 40 wireless user connections and adapting the functions offered by the main system.

The Clear-Com FreeSpeak Wireless Intercom System is a true class act.



Unsurpassed crystal-clear digital sound clarity gives users full duplex (talk-listen) 7kHz “commentator” bandwidth of audio. This level of sound quality is ideal for users with extended usage needs.

Wide wireless coverage can be achieved by strategically placing up to 10 remote antennas. Each Active Antenna can be positioned as far as 3,200 feet away from the Base Station, and can create a coverage zone of up to 800 feet.

Flexible cellular roaming technologies allow users to move freely about in large, multi-room production environments without the worries of fading or losing connections. With DECT (Digital Enhanced Cordless Telecommunications) technology at its core, FreeSpeak continuously scans, selects, and connects with the best Active Antenna for uninterrupted communication.

FreeSpeak Base Station

The FreeSpeak Base Station serves as the heart of the wireless communications system for all digital wireless belt-pack users. The Base Station supports up to 20 full-duplex wireless belt-packs. FreeSpeak cellular auto-roaming technology enables belt-packs to continuously detect and automatically select the best connection. Even in the most crowded RF environments, FreeSpeak remains highly secure and free from interference.



Each belt-pack can be individually addressed by the Base Station, allowing multiple combinations of belt-pack-to-belt-pack (point-to-point) and small-group (partyline) conversations to happen simultaneously.

FreeSpeak is **highly programmable with software menus** on the base or via the PC-based software. All aspects of the belt-packs, the rear-panel connectors, creation of communication routes and groups can be configured. Relative audio levels among belt-packs, and input and output levels for the wired connections are also under software control.

The Base Station has **four 4-wire and two partyline intercom connectivity** on the rear panel of the FreeSpeak Base Station that allows communication with other wired intercom systems. Program feed input, Stage announce output and Stage announce relay output are also available connections at the back of the Base Station.



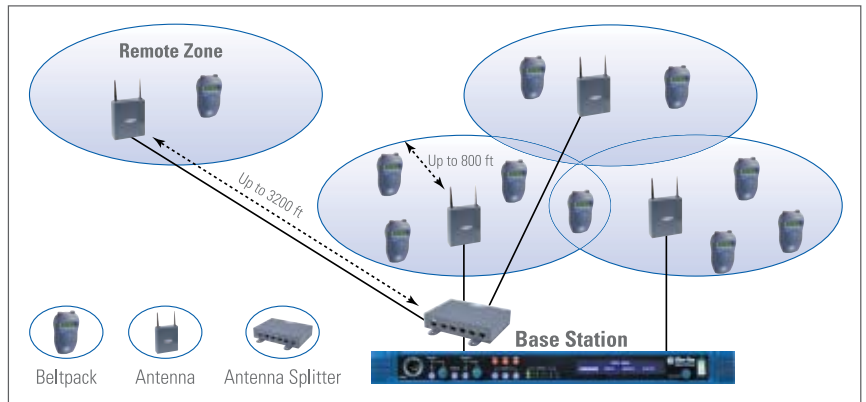
ACTIVE ANTENNA

FreeSpeak users can **roam far distances away from the Base Station** while staying connected. This is achieved through Active Antennas, which make wireless connections to the beltpacks.

Locally-powered Antennas may be located up to 3,200ft (1,000m) away or 800ft (250m) when centrally powered from the Base Station.

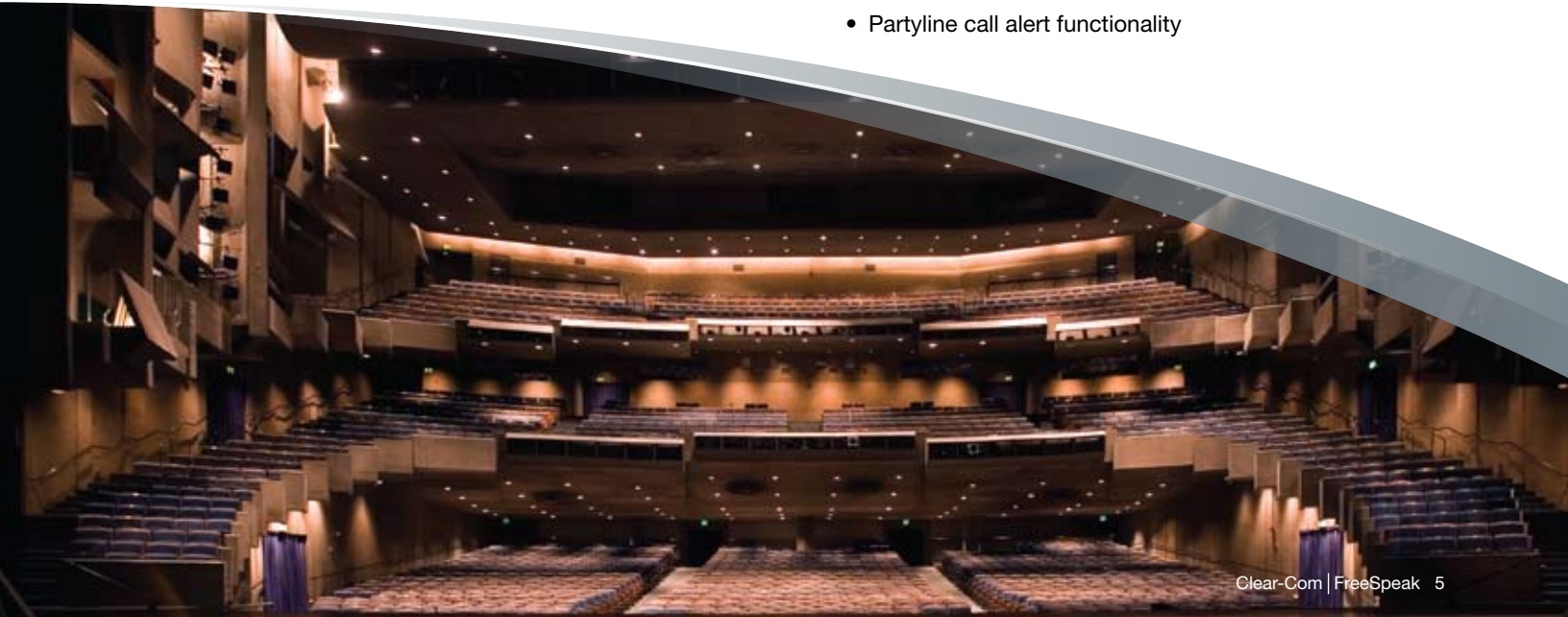
The **omni-directional coverage area** may be up to 800ft (50 to 150m typical) in radius, although typical distances in production environments range from approximately 160 to 640ft (50 to 200m).

Each Active Antenna supports up to **five full-duplex beltpacks in one coverage area**. By co-locating additional Active Antennas, more than 5 beltpacks can be supported in a particular area.



FREESPEAK SYSTEM FEATURES

- License-free 1.88-1.9GHz DECT operations
- Supports up to 20 wireless beltpacks
- Point-to-point and small group wireless communications
- Creates user placed coverage zones with up to 10 remote antennas
- 10 LED active antenna indicators
- Locates Active Antennas up to 3,200ft (1,000m) from Base Station
- Create, name, and assign groups
- Two partyline and four 4-wire connectors
- Frequency and channel-hopping technology automatically finds clear spectrum
- Interrupted fold-back (IFB) functionality for on screen talents
- 5 wireless partyline groups
- Partyline call alert functionality



Wireless Beltpack

The FreeSpeak Beltpack offers a clever design to combine an unparalleled set of features and functions, with an ergonomic and compact form factor.

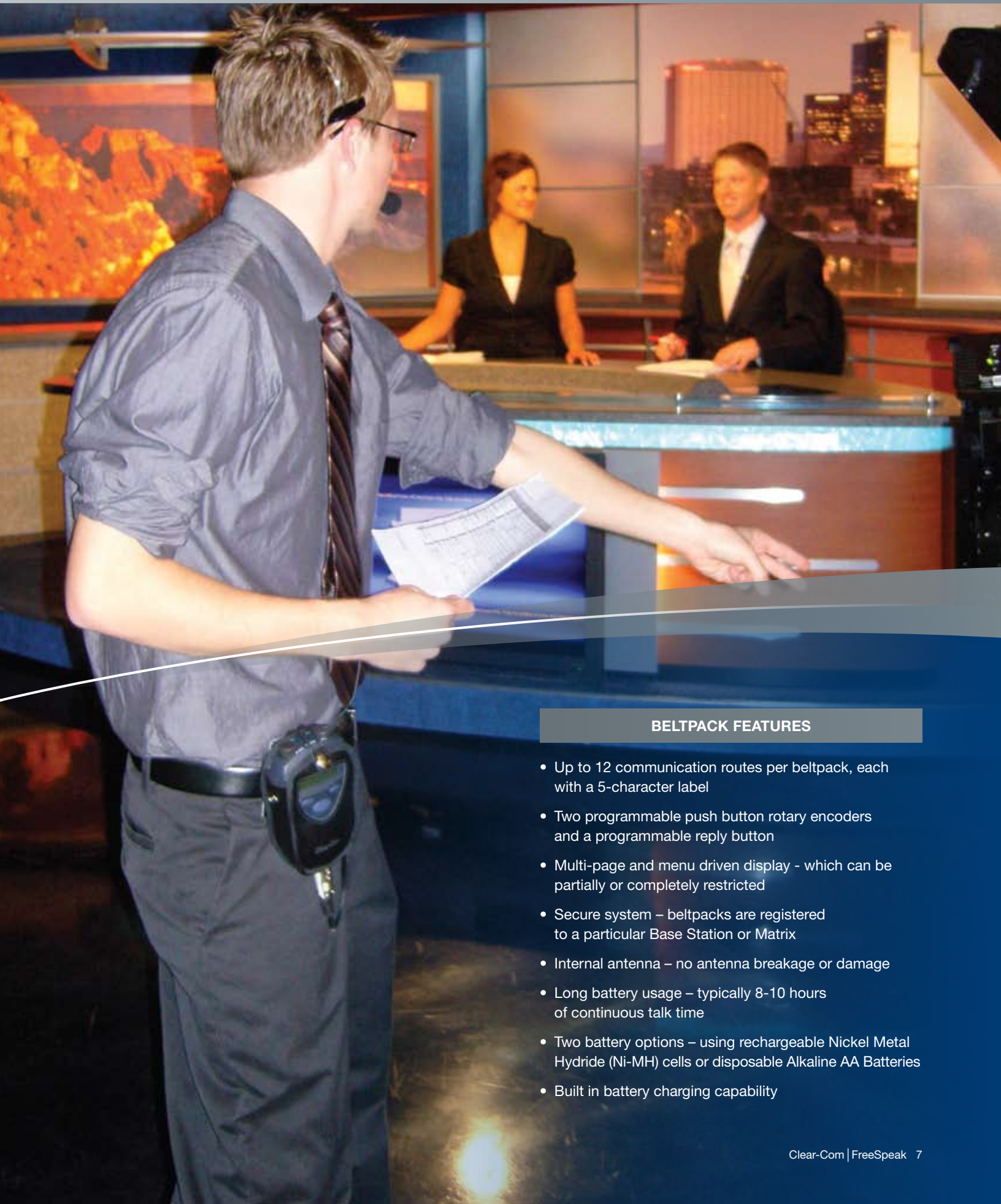


Full duplex 7kHz “commentator” bandwidth offers high audio quality and reduces the strain on the user’s ears after long-time usage.

Two push-to-talk rotary encoders and multi-page display allow up to 12 communication routes to be assigned to each beltpack. These can be any desired combination of group and point-to-point communication assignments.

Large LED backlit display provides extensive information, including the names of beltpacks, assigned users and groups of each beltpack, and battery level and signal strength.

A variety of **beltpack menus are accessible via the display** including headset levels, microphone levels, audible alert at low battery level, and adjustable local sidetone.



BELTPACK FEATURES

- Up to 12 communication routes per beltpack, each with a 5-character label
- Two programmable push button rotary encoders and a programmable reply button
- Multi-page and menu driven display - which can be partially or completely restricted
- Secure system – beltpacks are registered to a particular Base Station or Matrix
- Internal antenna – no antenna breakage or damage
- Long battery usage – typically 8-10 hours of continuous talk time
- Two battery options – using rechargeable Nickel Metal Hydride (Ni-MH) cells or disposable Alkaline AA Batteries
- Built in battery charging capability

Unique to Clear-Com, FreeSpeak Integra is the only seamlessly integrated wireless beltpack to Digital Matrix Systems intercom solution on the market.

FreeSpeak Integra allows all FreeSpeak beltpack users to communicate to any matrix panel, partyline or interface on the Clear-Com Matrix System on a one to one or group basis. The FreeSpeak Beltpack seamlessly integrates with the Clear-Com Eclipse-Omega and Eclipse-Median Matrix Systems via a cell controller card, called the E-Que card, which is directly fitted in the matrix frames.

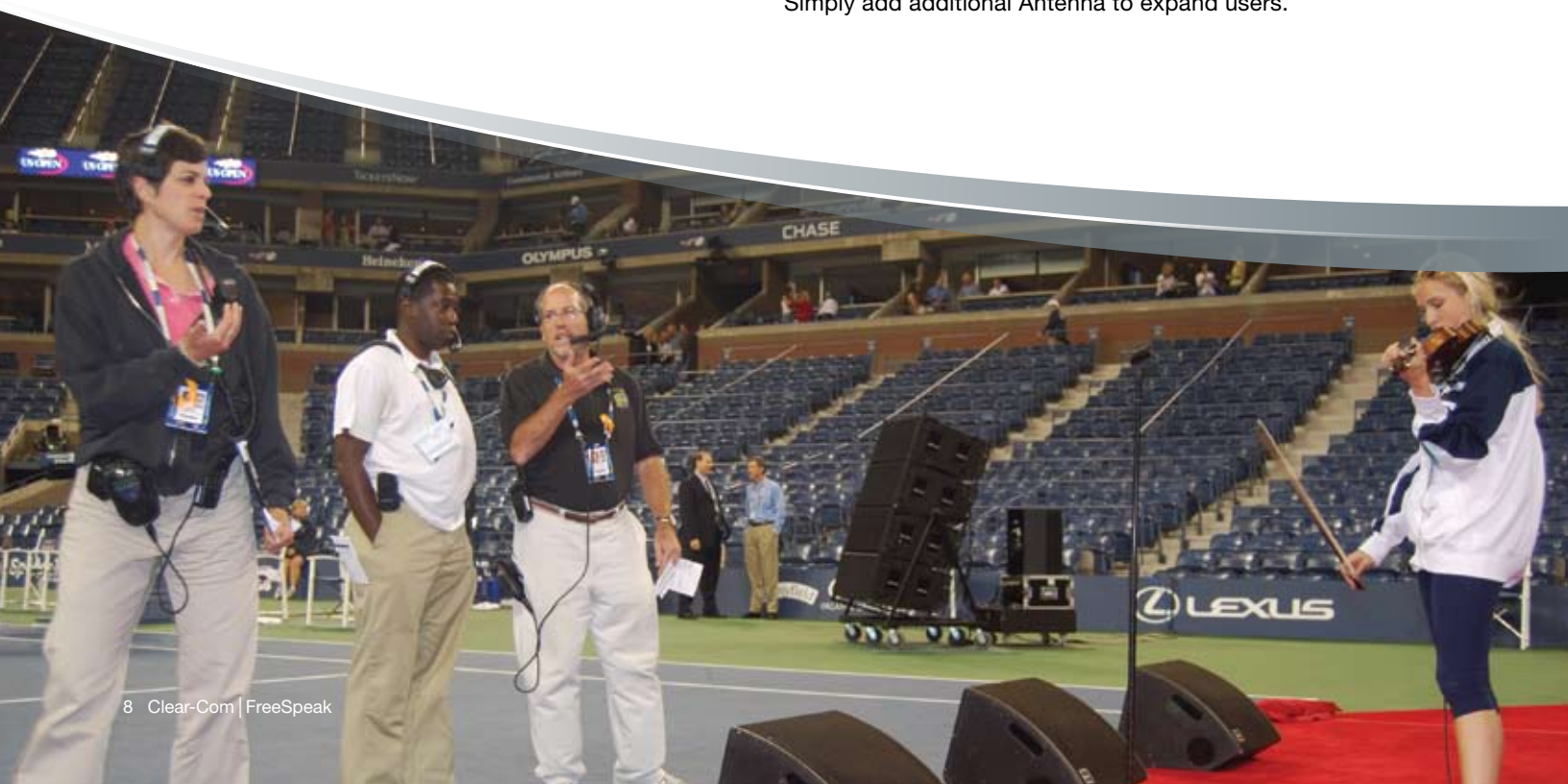
The E-Que card provides connectivity between the beltpacks and any number of ports within the matrix system, thereby creating a **truly seamless environment**.

Up to **40 wireless beltpacks** (depending on environment) can roam between 40 Active Antennas and communicate on a Matrix System.

FreeSpeak Integra offers the ability to **individually address** each beltpack and then connect that beltpack to one or many users on the Matrix.

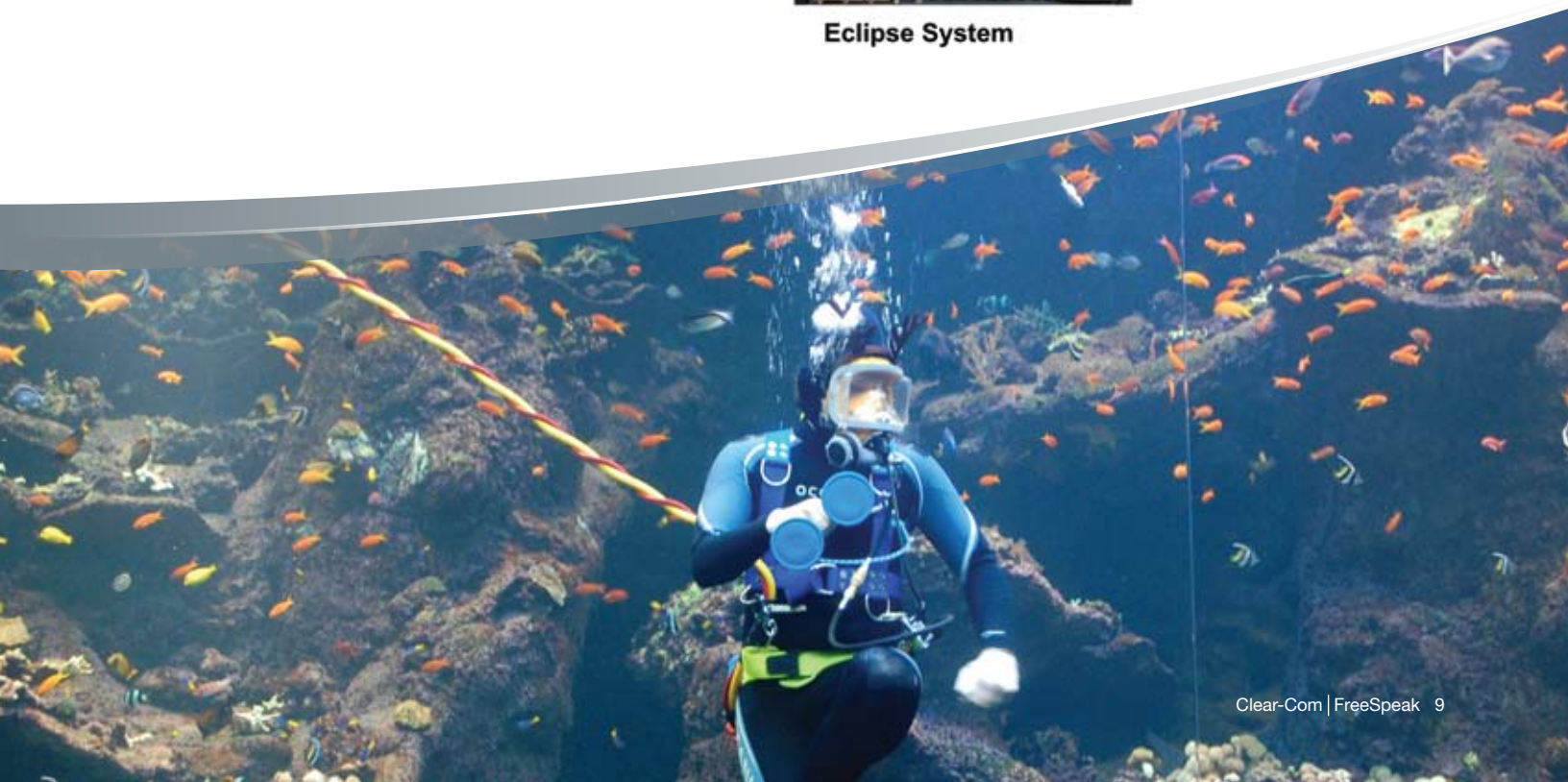
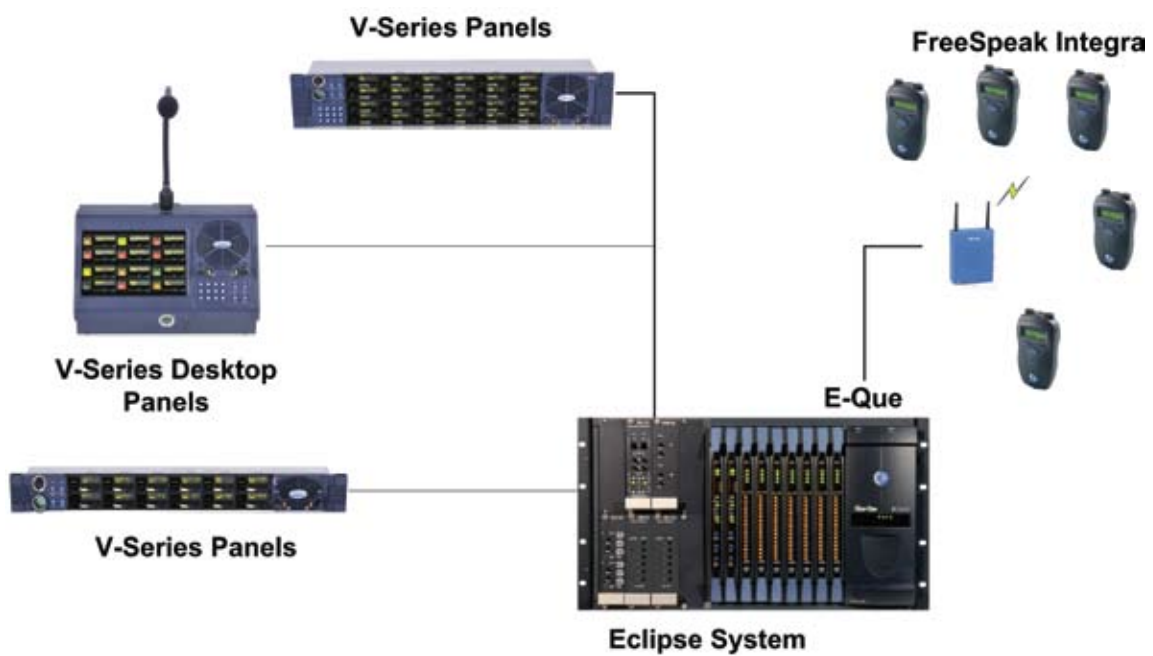
Patented Dynamic Port Allocation technology allows the beltpacks to roam between Active Antennas without breaking connections to the matrix users.

Standard CAT-5 cabling connects beltpacks to the Matrix via a network of active antenna and antenna splitter. Simply add additional Antenna to expand users.



KEY FEATURES

- Up to 40 users per E-Que card (depending on the environment)
- Up to 4 E-Que cards can be used in one matrix (expanding up to 40 antenna per system)
- Up to 800ft (50 to 150m typical) range under good radio frequency conditions. Adding more Active Antennas can extend the range
- Cellular Roaming –free roaming between antennas
- Digital encoding keeps calls private
- Quick & easy programming of audio routes from the beltpack via standard software
- Seamlessly integrates with Eclipse-Omega and Eclipse-Median matrices



BELTPACK-TO-BASE STATION TECHNICAL SPECIFICATIONS

FREESPEAK, BASE STATION	
Base-to-BeltPack Frequency Response	100Hz – 7.1kHz
No. of BeltPacks Per Base Station	20
No. of Transceiver/Antennas Supported by Base, Basic Base	10
No. of Active Antenna Ports	2
PC Programming Port	DB9
Relay Port	DB9
Party-Line Intercom A and Intercom B (each)	XLR-3F with XLR-3M loop through, on/off termination switch (via software)
Four-Wire/Matrix Connection	4 RJ-45 (Intercom 3 – 6)
Program Input	XLR-3F, transformer isolated, line-level input
Stage Announce Output	XLR-3M, transformer isolated, line-level output
Front-Panel Headset	4-pin male connector with 2-channel capability and individual talks and listens
Front-Panel Display	254 x 32 dot-graphic VFD
Front-Panel Indicators	2 Talk LEDs for front-panel headset, CH A and CH B party-line enable LEDs, Program Input enable LED, 10 individual antenna LEDs
Base-Station Programming/Editing	Push-to-enter rotary encoder
Dimensions	1RU unit, 1.75 x 19.0 x 12.5in (44 x 483 x 312mm) (HxWxD)
Weight	10.8lbs (4.9kg)

BELTPACK	
Audio Bandwidth	100Hz – 7.1KHz (G.722)
No. of Pages	3
No. of Full-Duplex Audio Paths	Up to 6 with individual level control (3 pairs)
Mode of Operation	Full Duplex on all routes
Level/Talk Controls	2 top-mounted push-to-talk rotary encoders
“Page”/Menu Scroll Buttons	2
Enter/Answer-Back Button	1
Frequency Spectrum	1.88GHz – 1.9GHz DECT Cellular auto-roaming technology
RF Output	200mW Burst, 17mW average
Range	Up to 800ft (50 – 150m typical) in good radio frequency conditions
Battery	4 AA Alkaline cells, Rechargeable: 4 AA Ni-MH cells
Battery Charging	In unit, via external power supply connected to beltPack
Battery Life	8-10 hours with 4 x Ni-MH – also accepts 4 x Alkaline AA cells
Headset Connector	4-pin male, Clear-Com standard
Microphone Type	Electret and Dynamic, selectable in beltPack menu
Microphone Level and Headset Limiter	Selectable in beltPack menu
Headset Limiter	Selectable from beltPack menu
Environmental	-67°F to +158°F (-55°C to +70°C)
Dimensions	Tapered design at largest points approx. 1.5 x 3.5 x 5.75in (38 x 87 x 144mm) (dwh)
Weight	8.8oz (0.25kg) excluding batteries 12.4oz (0.35kg) including batteries

ACTIVE ANTENNA	
BeltPacks Supported Per Active Antenna	5
Active Antenna Transmission Range	Up to 800ft (50 – 150m typical) to beltPack (50 to 150m typical)
Active Antenna Output	200mW burst, 80mW average
Maximum Distance, Base to Antenna Via Transceiver Port	3,200ft (1,000m) on 4-pair CAT-5 or better cable
Maximum Distance, Antenna Powered by Base	975ft (300m) on CAT-5 or better cable
Local Powering	24VDC power supply
Connection to FreeSpeak Base	RJ-45
Antenna Connector Type	SMA, two; supplied omnidirectional whip antennas
Mounting	Via integral tabs with holes for screws
Dimensions	1.5 x 5.0 x 6.1 in (38 x 125 x 153mm) (HxWxD)
Weight	14oz (0.4kg)

ACTIVE SPLITTER	
No. of Antennas	5
No. of Splitters Per Base	2
Connection Between Base and Splitter	CAT-5 or better cable with RJ-45
Connection Between Splitter and Antennas	CAT-5 or better cable with RJ-45
Powering of Splitter	Locally powered via supplied external power supply
Weight	16oz (0.45kg)

TRANSMISSION METHOD	
Method of RF Operation	Uses two slots per beltPack for wider frequency response
Modulation	QPSK
Frequencies of Operation	from 1.8 – 1.9GHz (restricted by software)
RF Output	250mW burst, average as new FCC level 2 – 4mW

INTEGRA INTEGRATED WIRELESS TECHNICAL SPECIFICATIONS

SYSTEM (CELL CONTROLLER CARD, ACTIVE ANTENNA & ANTENNA SPLITTER)	
Frequency Spectrum	1.88GHz – 1.9GHz DECT Cellular auto-roaming technology
Size	Cell Controller Card (in Matrix): Standard 6RU Eurocard (HxWxD) Active Antenna: 6.18 x 5.04 x 1.61in (157 x 128 x 41mm) Antenna Splitter: 6.18 x 5.04 x 1.61in (157 x 128 x 41mm)
Maximum Beltpacks Per Cell Controller	40
Maximum Cell Controller Cards per Matrix	4
Maximum Antenna per Cell Controller Card	10
Connection between Cell Controller Card & Active Antenna	2 x RJ45 (CAT 5 screened cable) up to 4,800ft (1,500m) from matrix
Environmental	-67°F to +158°F (-55°C to +70°C)

BELTPACK	
Audio Bandwidth	100Hz - 7.1KHz (G.722)
No. of Pages	6
Number of Duplex Routes Per Beltpack	Up to 12 with individual level control (3 pairs)
Mode of Operation	Full-Duplex on all routes
No. of Full-Duplex Audio Paths	Up to 6 with individual level control (3 pairs)
Level/Talk Controls	2 top-mounted push-to-talk rotary encoders
“Page”/Menu Scroll Buttons	2
Enter/Answer-Back Button	1
Frequency Spectrum	1.88GHz – 1.9GHz DECT Cellular auto-roaming technology
RF Output	200mW Burst, 17mW average
Range	Up to 800ft (50 – 150m typical) in good radio frequency conditions
Battery	4 AA Alkaline cells, Rechargeable: 4 AA Ni-MH cells
Battery Charging	In unit, via external power supply connected to beltpack
Battery Life	8 - 10 hours with 4 x Ni-MH – also accepts 4 x Alkaline AA cells
Headset Connector	4-pin male, Clear-Com standard
Microphone Type	Electret and Dynamic, selectable in beltpack menu
Microphone Level and Headset Limiter	Selectable in beltpack menu
Headset Limiter	Selectable from beltpack menu
Environmental	-67°F to +158°F (-55°C to +70°C)
Dimensions	Tapered design at largest points approx. 1.5 x 3.5 x 5.75in (38 x 87 x 144mm) (dwh)
Weight	8.8oz (0.25kg) excluding batteries 12.4oz (0.35kg) including batteries

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Beltpacks Supported Per Active	5
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Maximum Distance, Base to Antenna via Transceiver Port	3,200ft (1,000m) on 4-pair CAT-5 or better cable
Local Powering	24VDC power supply
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TRANSMISSION METHOD	
Method of RF Operation	Uses two slots per beltpack for wider frequency response
Modulation	QPSK
Frequencies of Operation	1.88 – 1.9GHz (restricted by software)
RF Output	250mW burst, average as new FCC level 2 – 4mW



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