FreeSpeak Edge Base Station

FreeSpeak Digital Wireless Solutions

FreeSpeak Edge Base Station

Key Features and Benefits

Capacity

- Supports up to 6 IPT or FSE transceivers and up to 10 E1 transceivers (1.9 or 2.4GHz)
- Supports up to 100 channels

Base Station

- Standard 1 rack unit (RU) device
- High quality 12kHz audio to FS Edge beltpacks
- Supports up to 200 beltpacks on a single system (see Capacity Chart for details)
- 2 large full-color touch screen TFT displays
- 4 rotary encoders for gain and menu operation
- Headset connection
- Stage Announce and Prog. Audio cable included
- Functions as PTP Leader Clock

Connectivity

- Wireless 5GHz Edge transceivers and beltpacks
- Wireless 1.9GHz and 2.4GHz FSII splitters, transceivers and beltpacks
- Dante enabled audio devices
- AES67 devices via Dante controller
- 4-wire ports (8 ports RJ45)
- 2-Wire ports (4 XLR-3F)
- GPIO (D-type 9 pin)
- LAN - 2 x RJ45, 2 x SFP

Configuration

- CCM browser-based configuration tool
- Direct management with encoders and display

The FreeSpeak Edge® Base Station brings IP connectivity to the FreeSpeak® family products with support for both FreeSpeak II® and FreeSpeak Edge systems, as well as interconnectivity with third-party Dante devices. The system provides support for the 5 GHz, 2.4 GHz and 1.9 GHz bands to deliver a range of wireless connectivity.

Description

The FreeSpeak Edge Base Station is a standalone 1RU device that provides extensive connectivity to a wide range of Clear-Com endpoints along with third-party Dante devices. Built primarily to deploy 5 GHz transceivers and beltpacks, the base station also provides support to FreeSpeak II splitters, 1.9 GHz E1 and IP transceivers/ beltpacks*, and 2.4 GHz E1 transceivers/beltpacks. The base supports up to 6 IPT or FreeSpeak Edge (FSE) transceivers, up to 10 E1 transceivers (1.9 or 2.4GHz), and up to 100 channels. The base station also provides multiple software-defined interoperable IP ports that support both Dante and third-party devices. This third-party connection capability gives the base station a wide powerful breadth of device coverage for professional intercom users.

Operation

The FreeSpeak Edge Base Station can be managed directly by using four rotary encoders which can be used to quickly scroll through menus and shift pages. Beltpacks can be registered by USB ports and transceivers can be added from the front panel. With two large high resolution TFT color touch screens, configuration is simple and straight forward. The front panel of the base station is fitted with a connection point for headset which allows the base to serve users as a desktop communication device.

Configuration

The system is configured through Core Configuration Manager (CCM™) software. The CCM for the base station is an integrated, browser-based software utility supported on the latest versions of all major web browsers for enabling rapid setup, configuration and monitoring. The intuitive user interface has a consistent design for a quick and simple means of configuring the base station with role-based beltpacks, including save and restore, text messaging, individual beltpack and group call signal and remote mic kill.

*Note: A 1.9 GHz beltpack cannot roam between an E1 1.9 GHz transceiver and an IP 1.9 GHz transceiver. However, beltpacks on each system can communicate through the base station.

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Technical Specifications

Capacity
Beltpacks per Base Station: 16 BPs (FSII or FSE)
Transceivers/Antennas Supported by Base: 6 x IPT or FSE TCVR and 10 x E1 TCVRs (1.9 or 2.4GHz)

Headset Microphone Input
Input Type: Dynamic /Electret - Selectable
Frequency Response: Headset Mic - Partyline: 200Hz – 12kHz + 3dBu
Frequency Response: Headset Mic - Line Out: 200Hz – 20kHz + 3dBu
Mic Limiter Threshold: -50dBu ±3dB
Mic Limiter Range: ≥ 20dB
Max Input Level: -25dBu
Input Level: -60dBu nominal; -25dBu MAX
Headset Mic Voltage: 5V (Electret selectable)

Headset Output
Load Impedance: > 32Ω
Output Impedance: 33Ω
Max Output Level before Distortion: > 13dBu
Total Harmonic Distortion (THD): < 0.1% THD at 1kHz
Headset Mic - Partyline: -78dBu (Clear-Com mode)
Headset Mic - Line Out: -60dBu
Frequency Response: Partyline - Headset Out: 200Hz – 10kHz + 3dBu

Audio/Radio
4-wire I/O: Output Impedance >10kΩ, Input Impedance 200Ω + 10%, transformer isolated balanced input and output.
4-wire Operating Levels: 0dBu Nominal, 18dBu headroom
2-wire I/O: Selectable RTS or Clear-Com mode, Software controlled auto-null, null depth >60dB at 1kHz
2-wire Operating Levels: -18dBu nominal (Clear-Com Mode), -12dBu nominal (RTS Mode), Headroom 18dB

Frequency Response Base-to-Beltpack:
Freespeak Edge Beltpack: 200Hz – 12kHz,
Freespeak II Beltpack: 200Hz – 7.1kHz

Partyline I/O
2W Power On/Off: A/B, C/D paired- software controlled
2W Output Voltage: 25 – 28V DC, 560 mA per pair (A/B or C/D)
2W Impedance: >10kΩ
2W Frequency Response: 200 to 12kHz. ±3dB
2W Total Harmonic Distortion (THD): < 0.1% THD at 1 kHz

Relay Contacts or GPIO
Connector Type: 2 x DB9
Relay Contact Type: SPDT
Relay Quantity: 4
Relay Contact Voltage Rating: 30V DC
Relay Contact Current Rating: 1A
Input Type: Opto-Isolated
Input Quantity: 2
Input Voltage Range: 4 - 30 volts DC or AC
Input Current: >=1.2mA required

Connectors
4-wire I/O: (8) RJ45
2-wire I/O: (4) XLR-3F
Program Input:
XLR-3M, provided using cable assembly CAB-RJ45-PGM-SA
Stage Announce Output:
XLR-3F, provided using cable assembly CAB-RJ45-PGM-SA

Headset: 4-pin XLR-M, auto headset detect
USB: USB type A Receptacle
Number of E1 antenna ports: 2 x RJ45, 2 x Fiber (2 active at any time)
DECT Radio frequency sync:
Rear RJ45 input and output RF sync connectors

Indicators and Function
Displays: (2) 480 x 128 color TFT LED Touch Screen displays
Front Panel Indicators & Function:
(2) Power Supply Status LEDs
(1) Status LED (Edge)
(1) Three Color Level Control LED Array

Power:
AC Mains input: 100-240V AC, 50-60Hz, 160W Max, IEC60320 C14 inlet.
DC Low Voltage Input: 12V DC +/- 5%, 12A

External AC/DC Power Supply (453G020-1 Supplied):
Input: 100-240V AC, 50-60Hz, 2.2A Max, IEC60320 C14 inlet.
Output: 12V DC +/- 5%, 12.5A

Environmental
Operating: 32° to 113°F (0° to 45°C)
Storage: 86° to 158°F (30° to 70°C)
Humidity: 20-90% Non-Condensing

Dimensions
1RU

19 x 1.72 x 13.929in (WxHxL)
(43.6 x 482.6 x 353.8mm)

Depth: 260mm

Weight
7.25lbs (3.29kg)

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Network Specifications

AoIP Interfaces

Protocols:
RTSP/SAP
AES67
Dante

Audio Sampling: 24 bit Linear 48KHz
IP Addressing: Static, DHCP
Network Compatibility: Layer 2 & 3 LAN only
Quality of Service: DiffServ RFC2474
IGMP: On (AoIP)
Multicast: On (AoIP)
Network Timing: PTPv2 (AoIP) / PTP v1 (Dante)
Minimum Network Bandwidth Required
Perduplex Connection:
1 x FS II IPT bandwidth usage: ~7 Mbps.
1 x FS Edge IPT: ~ 9.6 Mbps

Network Protocols

Ethernet IPv4 Unicast Audio and Control
mDNS–Multicast Device Discovery

Network Ports

Unicast:
Port 80 TCP–Web Interface, System Management, Expansion
Port 443 for HTTPS
Port 6001 UDP–AES67 Data
Port 15000 – 15256 UDP – AES67 Audio

Multicast:
Port 5353 UDP–mDNS, Names, Discovery, Linking, Expansion, Dante (through various ports)

Network Jitter Tolerance:
< 1us required for RF Syncing of Transceivers

Recommended Ethernet Switches

- Managed Ethernet Switch – Layer 3
- 100/1000 Base-T ports for endpoints
- 1000 Base IP Trunks between switches
- QoS Configuration
- Energy Efficient Ethernet bypass option
- IGMP Snooping bypass option

Please refer to the Clear-Com AoIP Network Recommendations guide for additional switch settings and network characteristics.

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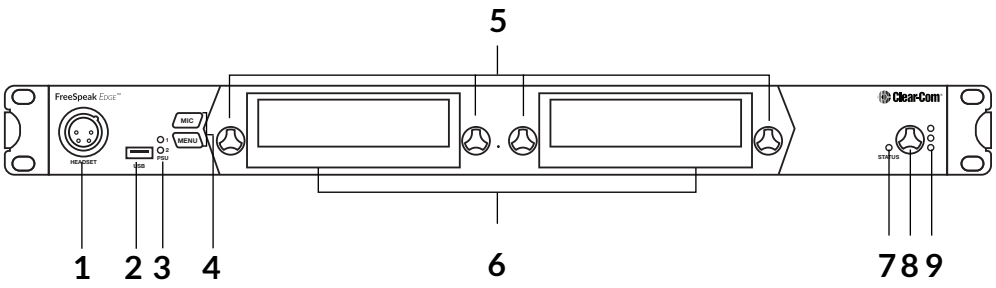
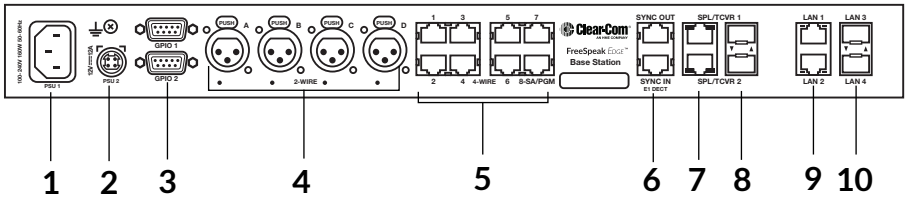
Capacity Chart

	Max Number of Supported Beltpacks	Max Number of Supported TCVRs	Max Number of BPs per TCVR
FreeSpeak Edge Base	16	6 (IP) 2 (E1) 10 (via E1 Splitters)	5 (E1: 1.9 GHz) 4 (E1: 2.4 GHz) 10 (IP)

*Note: Each E-IPA Card can support up to 64 BPs and 64 TCVRs (IP)





Legend

Front

1. XLR headset jack
   - 4-pin XLR-M
2. USB A
3. PSU LED indicators
4. Menu and mic keys
5. Rotary encoders
6. Touchscreen displays
7. Status LED
8. Main volume ecoder
9. Main volumer level LEDs

Rear

1. Internal PSU
2. External PSU
3. GPIO
4. 2-wire ports
5. 4-wire ports
6. DECT sync in & out
7. E1 RJ45
8. E1 Fiber SFP
9. LAN ports
10. LAN SFP ports

Order Codes

FSE-BASE

Includes:

(1) Four-Wire PGM/SA Breakout Cable (CAB-RJ45-PGM-SA)

(1) External PSU (PSU-EXT-001)

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