



FreeSpeak Edge Base Station

FreeSpeak Edge Base Station

FreeSpeak Wireless Intercom

Key Features and Benefits

FreeSpeak Edge Base Station

- Wireless Intercom Base Station
- Partyline 2-Wire Integration
- Line-Level 4-Wire Interfacing
- Dante Audio Interfacing
- Headset User Station
- CCM™ browser setup, configuration & monitoring
- Front panel color touch screen with encoders for control and configuration
- Plug-and-go central discovery and pairing

Capacity

- FreeSpeak Wireless Intercom
 - (10) E1 Transceivers (1.9¹, 2.4 GHz)
 - (6) IP Transceivers (1.9¹, 5 GHz)
 - (16) Beltpacks (1.9¹, 2.4, 5 GHz)
- Dante Audio Network Interfaces
 - (8) Dante Ports

Configuration

- (100) Channels
- (100) Groups
- (200) Roles for FreeSpeak

Connectivity

- (8) 4-Wire – 1 for PGM/SA
- (4) 2-Wire – 550mA per pair
- (2) GPI Optically Isolated
- (4) GPO Relay
- (2) FreeSpeak E1 – RJ45/SFP switchable
- (4) LAN-(2) RJ45, (2) SFP; Assignable to management, AES67, Dante Primary & Secondary

FreeSpeak Edge Base Station is a standalone wireless base station for FreeSpeak® wireless with Dante, 2-Wire, 4-Wire and GPIO interfaces.

Description

FreeSpeak Edge Base Station is the foundation of a wireless intercom system with support for up to 16 wireless intercom belt packs of various frequencies and connectivity. Coupled with Dante and analog interfacing of audio and control, the FSE-BASE is suitable for any infrastructure. The base's compact 1RU form factor features front panel intercom headset station, fast and easy setup, configuration and monitoring.

Technical Specifications

Capacity

- FreeSpeak Wireless Intercom**
- (10) E1 Transceivers (1.9¹, 2.4 GHz)
 - (6) IP Transceivers (1.9¹, 5GHz)
 - (16) Beltpacks (1.9, 2.4, 5GHz)

Dante Audio Network Interfaces

- (8) Dante Ports

Configuration

- (100) Channels
- (100) Groups
- (200) Roles for FreeSpeak

Connectors

Headset: 4-pin XLR-M

2-Wire I/O: (4) XLR-3F

4-Wire I/O: (8) RJ45

Audio Crossover Mode: Software selectable
Special use of Port #8 using provided cable;

Program Audio Input/ Stage Announce

Output: XLR-3F, XLR-3M

GPIO: (2) DB9F (1 GPI, 2 GPO, 12V – each connector)

FreeSpeak II E1 TCVR/SPL Ports: (2) RJ45, (2) SFP (RJ45 or SFP)

FSII DECT Synchronization: (2) RJ45 (Input and Output)

LAN: (2) RJ45, (2) SFP (Function assignable)

AC Power Connector: IEC-C14

DC Power Connector: KPJX-4S-S

Grounding Screw: Terminal

Note: While mechanically identical, SFPs are designed with different properties for data rates, power and fiber cable type. Please refer to the Clear-Com [SFP Compatibility Chart](#) for compatible SFP transceivers.

Controls and Indicators

Front Panel:

- (2) Color Touch Screen Displays
- (2) Power Supply Status LED
- (1) Mic button
- (1) Menu Access Button
- (4) Encoders for Menu & Level Control
- (1) Reset button – For service use
- (1) Main Listen Level LEDs

Rear Panel:

- (2) LAN RJ45 Link/Activity LEDs
- (2) FSII E1 TCVR RJ45 Link/Activity LEDs
- (4) 2-Wire Power/Configuration Indicator LEDs

Microphone Input

Input Type: Dynamic/Electret – Selectable

Headset Mic Voltage: 5V

Input Level (nominal): -45dBu

Input Level (max): -10dBu

Frequency Response: 200Hz to 12kHz ±3dB

Mic Limiter Threshold: -35dBu ±3dB

Mic Limiter Range: ≥ 20dB

¹1.9 GHz E1 and IPT transceivers should not overlap on the same system. Beltpacks will not roam between E1 and IPT Transceivers.

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Technical Specifications (Continued)

4-Wire Line Level Interfaces

Transformer balanced input and output

Input:

Nominal Level: 0dBu (adjustable -12dB to +12dB)

Maximum Level: +18dBu

Frequency Response: 80Hz to 20kHz \pm 3dB

Impedance: \geq 10K Ω

Output:

Nominal Level: 0dBu (adjustable -12dB to +12dB)

Maximum Level: +18dBu

Frequency Response: 80Hz to 20kHz \pm 3dB

Impedance: 200 Ω + 10%

2-Wire Partyline Interfaces

Unbalanced High-Impedance bridging

Compatibility: Clear-Com, RTS-TW with Call and Remote Mic Kill

Termination: Optional per pair (A/B or C/D)

Nulling: User initiated Auto-Calibration

Null Depth: $>$ 60dB at 1kHz

Nominal Level: CC: -18dBu, RTS-TW: -12dBu (adjustable -3dB to +3dB)

Headroom: 18dB

Frequency Response: 200Hz to 12kHz \pm 3dB

Impedance: \geq 10K Ω bridging

Total Harmonic Distortion (THD): $<$ 0.1% THD @ 1 kHz

Power: 560mA optional per pair (A/B or C/D)

Voltage: 25-28V DC

Use [Encore Partyline Power Calculator](#) to validate power requirements of the analog partyline intercom system.

Frequency Response

Headset Mic: 200Hz to 12kHz

Freespeak Edge: 200Hz to 12kHz

Freespeak II: 200Hz to 7.1kHz

Dante: 20Hz to 20kHz

4-Wire: 80Hz to 20kHz

2-Wire: 200Hz to 12kHz

Logic Power Output

To power Logic Inputs

Output Voltage: 12V, separate pin

Current (Max): 2mA

Logic Inputs - GPI

Assignable to activation of audio crosspoints or call

Input: 2

Style: Optically isolated

Input Voltage Range: 4 - 30V DC or AC

Input Current: \geq 1.2mA required

Logic Outputs - GPO/Relay

Assignable to talk, call keys and audio crosspoints or call

Outputs: 4

Style: SPDT/Power Relay

Normalized: Open or Closed, separate pins

Switching Voltage (Max): 30V DC

Switching Current (Max): 1A

Power

AC Internal Power Supply:

Input Frequency Range: 100-240V AC

Input Frequency Range: 50-60Hz

Input Power (Max): 160W

BTU (Max): 545BTU/h

Input Power Connector: IEC-C14

DC Power Input:

Voltage: 12V DC \pm 5%

Current (Max): 12A

Power (Max): 144W

BTU (Max): 491BTU/hr

Input Power Connector: KPJX-4S-S

This unit can be powered via DC input using:

AC Adapter - Inline:

Type: PSU-EXT-001 (supplied)

Mounting Bracket: 272G048-SP (optional)

Input Voltage Range: 100-240V AC

Input Frequency Range: 50-60Hz

Input Power Connector: IEC-C14

Output Voltage: 12V DC \pm 5%

Output Current (Max): 12.5A

Output Power (Max): 150W

Output Power Connector: KPPX-4-P

Environmental

Operating: 32° to 113°F (0° to 45°C)

Storage: -22° to 158°F (-30° to 70°C)

Humidity: 20-90% Non-Condensing

Dimensions

1RU

19 x 1.7 x 13.9in (WxHxD)

(482.6 x 43.2 x 353.1mm)

Weight

7.3lbs (3.3kg)

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Network Specifications | Firmware Release 3+

The FSE-BASE includes 4 physical LAN connections (2 x RJ45, 2 x SFP) which can be assigned to different functions. This allows various network setups, from converged to having physically separate network per function.

Administration

For CCM Management & Control

Network Protocols

Ethernet IPv4 – Unicast Control
mDNS – Multicast Device Discovery
HTTP – Management
HTTPS – Secured Management
NTP – Network Time Protocol

Network Ports

Unicast:

Port 80 TCP – Web Interface, System Management
Port 443 TCP – Secured Web interface, System Management

Network Parameters

MAC Address Prefix: 00:0e:98:....

Link-Local Default IP Address Range: 169.254.0.0/16

System Reserved IP Ranges:

10.0.0.0-7 Internal Systems
127.0.0.0/8 Local Host
169.254.0.0/16 Link Local
172.23.0.0/16 Link Group
224 -239.0.0.0/8 Multicast

Above addresses cannot be assigned.

Restrictions: Do not plug any two physical LAN ports on FSE-BASE into the same network/VLAN. This can create a network loop affecting IP stability.

Recommended Ethernet Switches:

- Managed Ethernet Switch
- 100/1000 Base-T Ports
- 1000 Base IP Switch Trunks
- QoS Configuration
- Energy Efficient Ethernet bypass option
- GMP Snooping options

AES67

For FreeSpeak IP Transceivers

Network Protocols

Ethernet IPv4 – Unicast Audio & Control
mDNS – Multicast Device Discovery
Layer 2 Non-Routable
HTTP – Management
PCM – Audio Codec to TCVR
DiffServ – QoS
PTPv2 – Synchronization
SAP – Session Announce Protocol
RTSP – Real Time Streaming Protocol

Network Ports

Unicast:

Port 80 TCP – Web Interface for service
Port 6001 UDP – Control

Multicast:

Port 15000 – 15256 UDP – Audio
Port 5353 UDP – mDNS, Names, Discovery, Pairing

Network Parameters

FS IP TCVR Support: 6

Bandwidth:

FS II IPT TCVR: ~7 Mbps (max) each
FS Edge TCVR: ~ 9.6Mbps (max) each

Network Jitter Tolerance: < 1µs required for RF Synchronization

QoS Tags:

Clock: DSCP=46, Expedited Forwarding (EF)
Media: DSCP=34, Assured Forwarding (AF41)
Management: DSCP=0, Best Effort (DF)

PTP Parameters: (Device hard coded)

PTP domain: 0

Priority 1: 127

Priority 2: 128

Announce interval: 1/2s

Sync Rate: 8/s

IGMP: Enabled

Multicast: Enabled

MAC Address Prefix: 00:0e:98:....

Link-Local Default IP Address Range: 169.254.0.0/16

System Reserved IP Ranges:

10.0.0.0-7 Internal Systems
127.0.0.0/8 Local Host
169.254.0.0/16 Link Local
172.23.0.0/16 Link Group
224 -239.0.0.0/8 Multicast

Above addresses cannot be assigned.

Restrictions: Cannot be combined with Dante. Recommended use with assigned IP addresses. Cannot be on Management subnet unless on same physical LAN port. Static or DHCP assigned IP addresses are recommended for FreeSpeak IP Transceivers.

Further Details: Refer to the [AES67 Network Recommendations](#) for further information, for network performance and use on converged networks.

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Network Specifications | Firmware Release 3+ (Continued)

Dante (Firmware Version 4.2)

For 3rd Party Audio Networking

Network Protocols

Ethernet IPv4 – Unicast/Multicast Audio & Control

mDNS – Multicast Device Discovery

PCM – Audio Codec

DiffServ – QoS

PTPv1 – Synchronization

SAP – Session Announce Protocol

RTP – Real Time Protocol for AES67

Network Ports

Unicast:

Ports 14336-14591 UDP-Audio

Port 4440 UDP-Audio Control

Port 4444 UDP-Audio Control

Port 4455 UDP-Audio Control

Port 8751 UDP-Dante Controller

Port 8800 UDP-Control & Monitoring

Multicast:

IP 224.0.0.251 Port 5353 UDP-mDNS, Names, Discovery

IP 224.0.1.129-132 Ports 319-320 UDP-PTP

IP 239.254.3.3 Port 9998 UDP-PTP

IP 239.255.0.0/16 Port 4321 UDP-Audio

IP 224.0.0.230-233 Ports 8700-8708 UDP-Control

IP 239.69/16 Port 5004 UDP (default) -RTP/AES67 Audio

IP 239.255.255.255 Port 9875 UDP-AES67 Discovery

Network Parameters

Audio: 24 bit, Linear, 48kHz

Bandwidth:

6 Mbps per 4 channel unicast flow

1.5 Mbps per multicast channel

Network Jitter Tolerance: Dependent on Dante latency configuration

QoS Tags:

Clock: DSCP=56, AControl (CS7)

Media/Clock: DSCP=46, Expedited Forwarding (EF)

Other: DSCP=0, Best Effort (DF)

IGMP: Enabled for multicast use

Multicast: Enabled for multicast use

Link-Local Default IP Address Range:

169.254.0.0/16 Primary

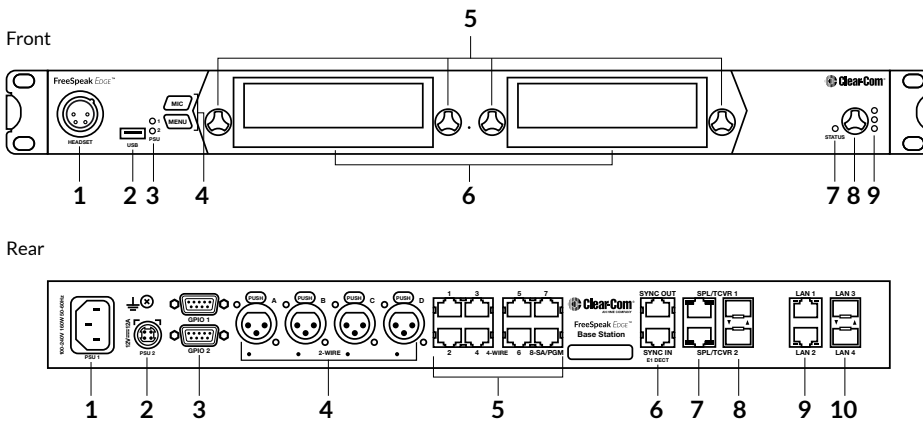
172.32.0.0/16 Secondary

Restrictions: Cannot be combined with AES67. Primary and Secondary cannot be assigned to same physical LAN port.

Further Details: Refer to documentation from [Audinate](#) for further information.

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Legend

Front

1. XLR Headset Connector
 - 4-pin XLR-M
2. USB A
3. PSU LED indicators
4. Microphone & Menu keys
5. Rotary encoders
6. Touchscreen displays
7. Speaker LED
8. Main volume encoder
9. Main volume level LEDs

Rear

1. Power Input - AC
2. Power Input - DC
3. GPIO
4. 2-Wire ports
5. 4-Wire ports
6. DECT sync in & out
7. FSII E1 TCVR/SPL RJ45
8. FSII E1 SPL 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)

Optional Parts

- SFP-MMFO-1G-SX: Multi-mode LAN SFP
- SFP-SMFO-1G-LX: Single-mode LAN SFP
- SFP-RJ45-1G: RJ45 LAN SFP
- SFP-MMFO-100M-FX: Multi-mode E1 SFP
- SFP-SMFO-100M-LX: Single-mode E1 SFP
- HLI-MMFO: Multi-mode E1 SFP - Legacy
- HLI-SMFO: Single-mode E1 SFP - Legacy
- 272G048-SP: PSU Mounting Bracket

