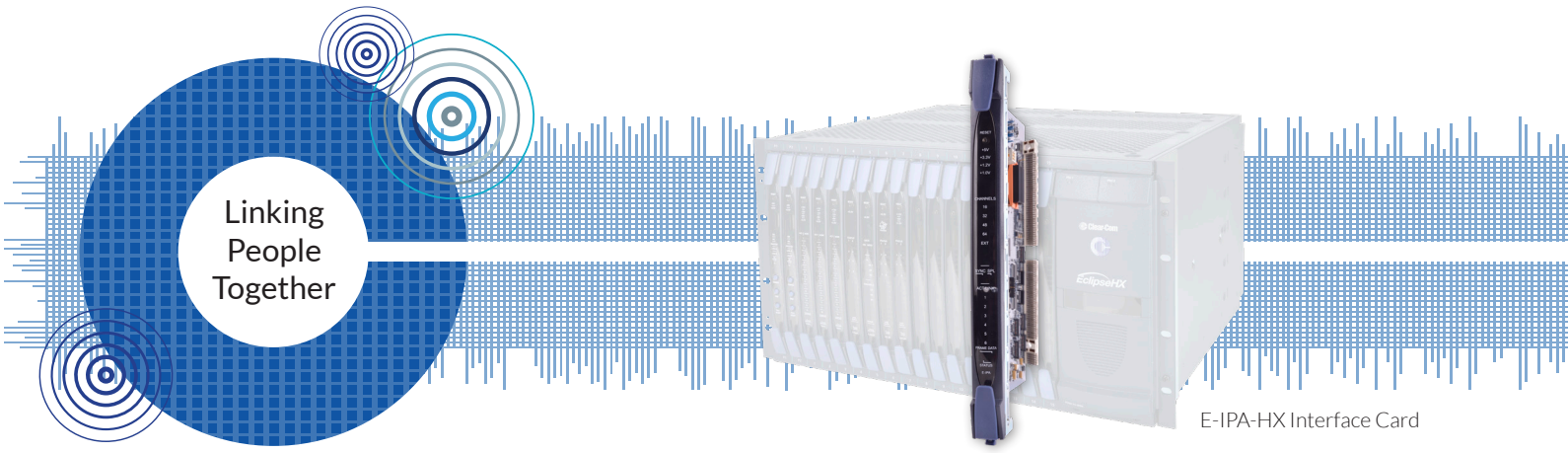
E-IPA-HX Audio-over-IP Interface Card

Eclipse HX Matrix Systems



E-IPA-HX Interface Card

Key Features and Benefits

E-IPA Card

- Available in 16, 32, 48, and 64 port cards (16 port upgrades)
- Software definable port configuration to support multiple IP connection and standards
- Compatible with Eclipse HX-Delta Lite, -Delta, -Median and -Omega frames
- Supports up to 64 IP ports (endpoint connections) and additionally up to 64 FreeSpeak IP Transceivers
- Max of 3 E-IPA cards in an Eclipse HX-Delta, max of 4 in -Median, and max of 5 in -Omega frames

Redundancy

- N+1 card redundancy on E-IPA cards to back up primary cards in a frame
- LAN connection network redundancy

Connectivity

- Supports connection to V-Series and V-Series Iris panels, Agent-IC mobile app, FreeSpeak II wireless beltpacks, LQ Series devices and Station-IC Virtual Desktop Client
- AES67-based connection to V-Series Iris panels providing intercom and 2 auxiliary audio channels
- SMPTE ST2110/AES67 connection to third-party devices; available in bundles of 8 port licenses
- Remote I.V. Core connection to V-Series and V-Series Iris panels providing intercom and 2 auxiliary audio channels

The E-IPA-HX AoIP Interface card provides multiple IP connection types for Eclipse® HX Matrix Intercom Systems, including support for AES67 and SMPTE ST2110 audio.

Description

The E-IPA-HX is a high density IP interface card that supports up to 64 Clear-Com intercom devices. The interface card can be used with the Eclipse HX-Delta Lite, HX-Delta, HX-Median, and HX-Omega matrix frames. Eclipse HX Configuration Software (EHX™) configures each port for its intended application and provides a dedicated IP Manager screen to monitor connections and add users. The E-IPA-HX card also supports SMPTE ST2110 and AES67 connectivity.

Connection to FreeSpeak II and FreeSpeak Edge Beltpacks

The E-IPA-HX card connects to FreeSpeak II® Beltpacks (1.9 or 2.4) in E1 mode via fiber to the FSII-SPL for the FSII-TCVR-24 or FSII-TCVR-19-XX transceivers. This will allow up to 50 beltpacks and 10 transceivers per card. The E-IPA-HX card also connects FreeSpeak II or FreeSpeak Edge™ devices via AES67 protocol to Eclipse HX frames. A single E-IPA card can connect up to 64 FSII-TCVR-IP-19 or FSE-TCVR-50-IP transceivers in any combination, supporting up to 64 FreeSpeak II or FreeSpeak Edge beltpacks.

Each FreeSpeak beltpack uses one card port and each IP transceiver supports a maximum of 10 beltpacks. Multiple E-IPA-HX cards can support larger wireless systems (please see Eclipse HX user manual for supported configurations).

The E1 Mode connectivity is a complete card mode switch available on E-IPA with 32 or more ports licensed.

Connection to V-Series and V-Series Iris Panels

All V-Series user keypanels can connect to an Eclipse HX host matrix by means of either an Ethernet connection or an analog-based connection. With the E-IPA-HX card, V-Series Iris™ panels can be configured to connect using a low latency Audio-over-IP AES67 audio channel or the I.V. Core® G.722 voice codec. Ethernet connectivity allows a diverse range infrastructure to be used, including local LANs/VLANs, microwave links or cellular networks. In each case, connection parameters can be optimized for the selected network type.

When connecting V-Series and V-Series Iris panels using the E-IPA-HX, one can optionally route two additional auxiliary audio channels to and from the matrix. This configuration transforms a panel into a combined intercom panel/audio distribution node.

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Connection to Agent-IC Virtual Mobile Clients

The E-IPA-HX card supports licensed connection of up to 64 smartphone or tablets running the Agent-IC® Virtual Mobile Client. Audio is encrypted to AES128 and silence suppression is an available option to reduce data usage. Agent-IC clients are typically connected over Wi-Fi, 3G, 4G, 5G or LTE networks.

Connection to Station-IC Virtual Desktop Client

The E-IPA-HX card supports connection of up to 64 PC or MAC running the Station-IC™ application (licensed at the client or in an Eclipse 13+). The audio has AES128 encryption, Station-IC applications typically connect over Wi-Fi, wired and cellular networks.

Connection to LQ Series

The E-IPA-HX card connects to LQ® IP interfaces for supporting communications with 2-wire, 4-wire, two-way radios, and non-Clear-Com intercom systems. An E-IPA-HX connection to one or more LQ devices may be used to implement IP connections from remote production sites. LQ can also provide SIP IP telephony interfacing for Eclipse HX systems with Dynam-EC™ for lines management.

Connection to Third-party AoIP Equipment

Ports on E-IPA-HX cards may also be configured to connect to incoming or outgoing SMPTE ST2110 or AES67 audio streams. SAP (Session Announcement Protocol) is used to advertise configured AoIP streams and detect streams available on the network. SDP (Session Description Protocol) information is exchanged either by file exchange (import/export) or with the SAP announcements.

Connection to Arcadia Central Station

The E-IPA-HX card supports I.V. Direct tie lines to Arcadia Central Station for use over LAN, WAN or the Internet.

Connection Between Eclipse HX Matrices

The E-IPA-HX card supports both direct tie lines and trunk lines (Eclipse HX to Eclipse HX) for intelligent linking. Eclipse intelligent linking enables up to 64 Eclipse HX matrices to be interconnected to provide a seamless intercom system of locally or globally located matrices. Depending on IP infrastructure, E-IPA-HX cards can use either AES67 or G.722 compressed audio channels to implement trunk lines between Eclipse HX matrices.

Card and Network Redundancy

The E-IPA-HX card supports N+1 card redundancy, allowing primary cards to have one or more back-ups. The E-IPA-HX card can also be licensed to support redundant IP networks. Both of these redundant feature support for either IVC or AES67 type connections.

Interface Standards

AES67

For details visit: AES PICS SUMMARY REPOSITORY

SMPTE ST2110 Audio

For details visit: JT-NM Tested CatLog and Results

*An AES67 license is not required for intelligent linking.

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Capacity Chart

	Max Beltpacks	Max TCVRs	Max BPs per TCVR
Eclipse HX (via E-IPA Cards)	192 Delta 200 Median/Omega	192 Delta (IP) or 30 (6 FSII-SPL) 256 Median (IP) or 40 (8 FSII-SPL) 320 Omega (IP) or 50 (10 FSII-SPL)	5 (E1: 1.9 GHz) 4 (E1: 2.4 GHz) 10 (IP)

* Note: Each E-IPA Card supports either a) up to 64 beltpacks with 64 IP Transceivers or b) up to 50 beltpacks with 10 E1 Transceivers using 2 Splitters

Technical Specifications

Maximum Cards Per Frame:
1 for -Delta Lite, 3 for -Delta, 4 for -Median and 5 for -Omega
Ports per card: 16, 32, 48, or 64
Physical LAN:
4x 100/1000BASE-T Full-Duplex Ethernet (auto-negotiation not supported) 2x 1G SFP fiber

I.V. Core Interfaces

Protocols: Clear-Com I.V. Core
CODEC: G.722 @ 16khHz sample rate
IP Addressing: Static and DHCP
Network Compatibility:
Layer 1, Layer 2 and Layer 3, LAN , WAN, and VPN infrastructure. Routable via 3G, 4G, LTE data services
Firewall: One open port required (configurable)
Quality of Service:
TOS set for Priority Immediate and Critical
Minimum Network Bandwidth Required:
140kb/s per each direction (I.V. Core)

AoIP Interfaces

Protocols:
RTP/RTSP/SAP
AES67
SMPTE 2110-10
SMPTE 2110-30
- Conformance level A (TX 1 to 4 ch, RX 1 to 8 ch)
- Conformance level B (TX 1 to 4, RX 1 to 8 ch)
- Packet time for Card (1ms or 125us)

Audio Sampling: 24 bit Linear 48KHz (by default)
IP Addressing: Static, mDNS & DHCP
Network Compatibility: Layer 2 & 3 LAN only
Quality of Service: DiffServ RFC2474
IGMP: On (AoIP)
Multicast: On (AoIP)
Network Timing: PTP v2(AoIP)
Minimum Network Bandwidth Required
Perduplex Connection: 11Mb/s

Power

(front and rear cards combined)
Min: +3.3V 4.75A
Max: +20.3V 5.7A

Environmental

Operating Temperature:
+32° to +104°F (0° to +40°C)
Storage Temperature:
-67° to +158°F (-55° to +70°C)
Humidity: 40 - 90%, non-condensing

Dimensions

Front Panel:
0.78 x 10.44 x 12.99in (WxHxD)
(20 x 265 x 330mm)
Rear Panel:
0.78 x 10.44 x 3.79in (WxHxD)
(20 x 265 x 96mm)

Weight

Front Card: 1.64lbs (0.75kg)
Rear Card: 9.2oz (0.26kg)

E-IPA-HX Audio-over-IP Interface Card

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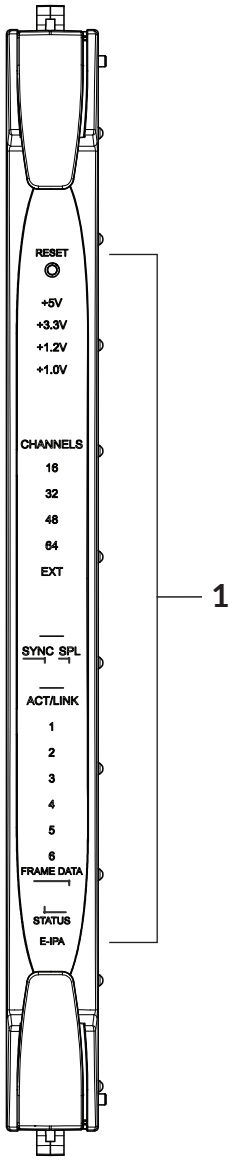
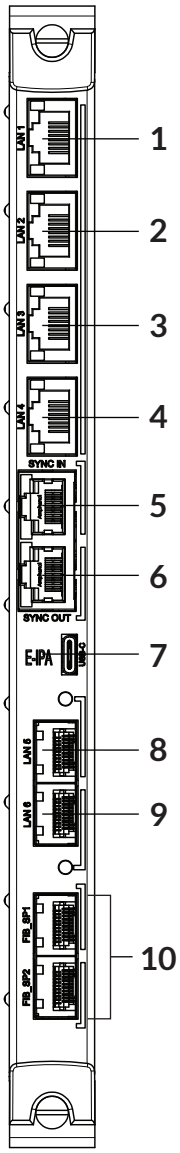
E-IPA-HX Front



E-IPA-HX Back



Legend

Front

1. Status LEDs

Back

1. LAN1 Copper RJ45
2. LAN2 Copper RJ45
3. LAN3 Copper RJ45
4. LAN4 Copper RJ45
5. DECT Sync In
6. DECT Sync Out
7. USB Type C
8. LAN5 SFP
9. LAN6 SFP
10. E1 SFP (fiber only)

Order Codes

SFP Parts

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

Order Codes

Initial Orders

E-IPA Cards

E-IPA-16-HX	16 ports
E-IPA-32-HX	32 ports
E-IPA-48-HX	48 ports
E-IPA-64-HX	64 ports

SMPTE ST2110/AES67 Licenses

E-IPA-AoIP-8-HX	8 ports
E-IPA-AoIP-16-HX	16 ports
E-IPA-AoIP-32-HX	32 ports
E-IPA-AoIP-48-HX	48 ports
E-IPA-AoIP-64-HX	64 ports

Field Upgrades

Port Capacity

E-IPA-UG16-HX	16-port license upgrade

SMPTE ST2110/AES67 Licenses

E-IPA-AoIP-Add-8-HX	Add 8 ports
E-IPA-AoIP-Add-16-HX	Add 16 ports
E-IPA-AoIP-Add-32-HX	Add 32 ports
E-IPA-AoIP-Add-48-HX	Add 48 ports
E-IPA-AoIP-Add-64-HX	Add 64 ports

Redundant Network License

E-IPA-RDT-NET-HX (one per card)

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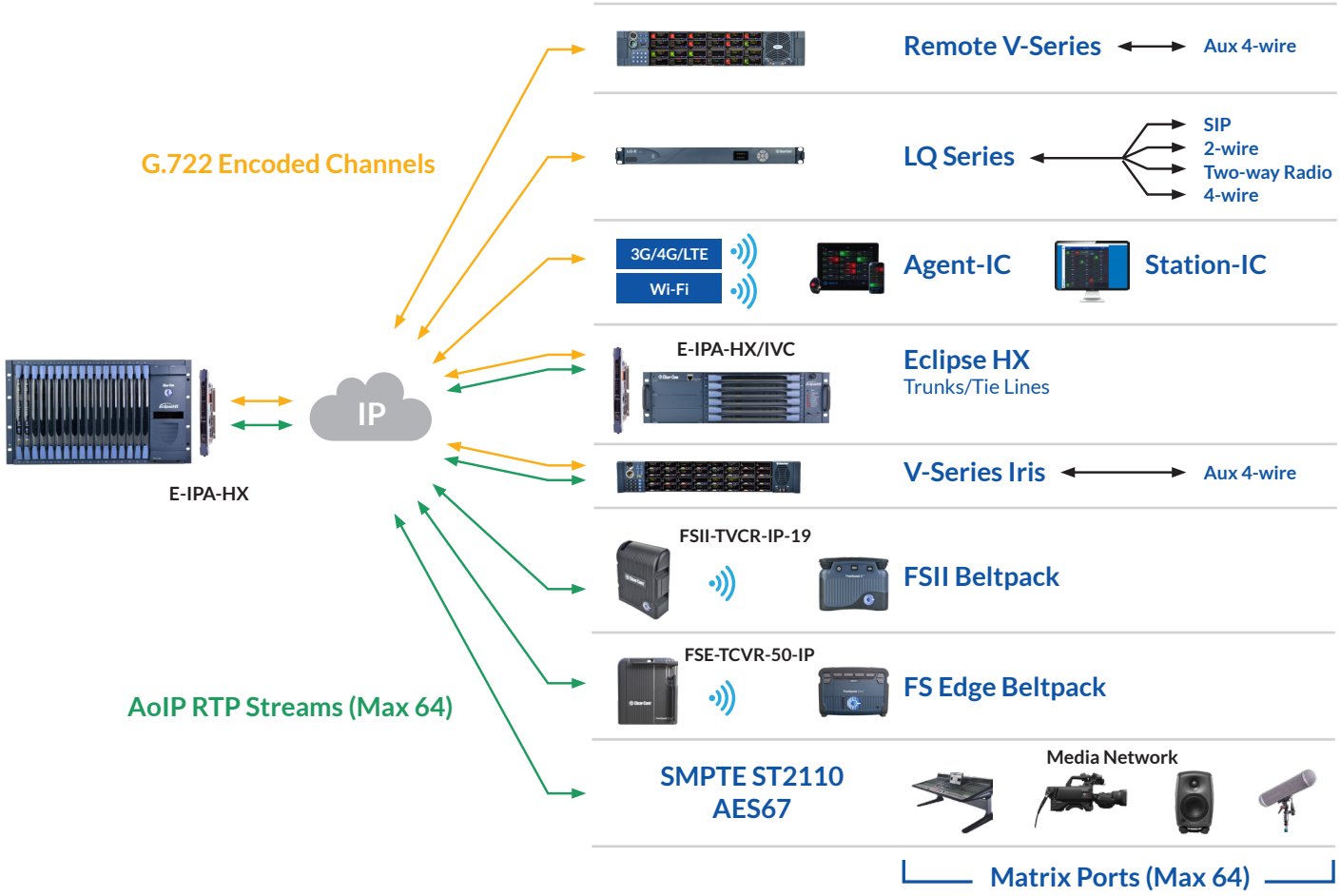
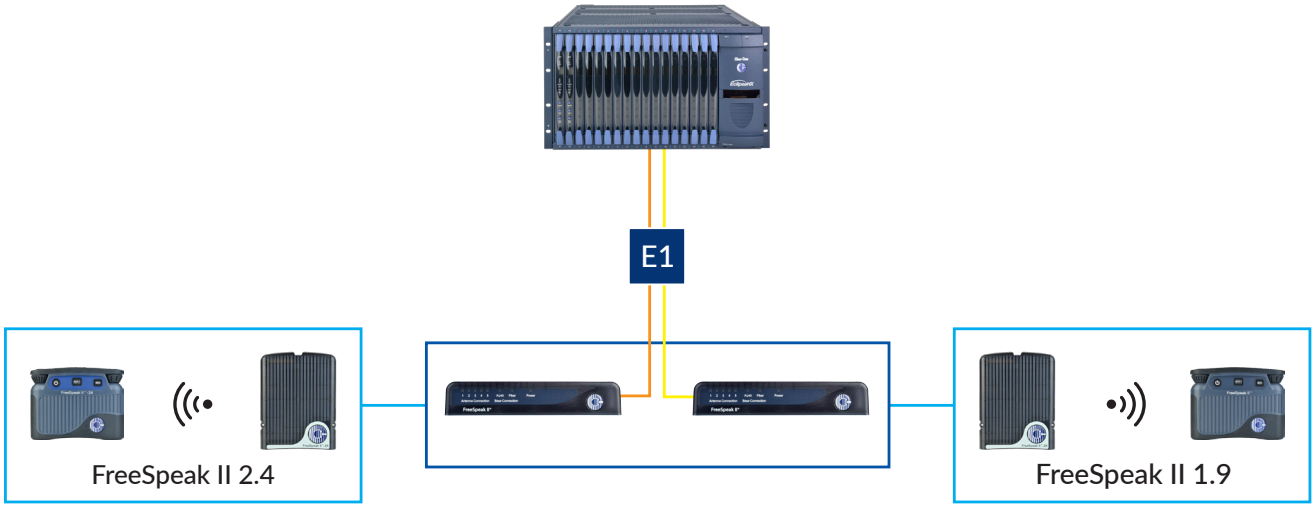
E-IPA-HX Card



E1 Mode



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WARNING: Cancer and Reproductive Harm - **www.P65Warnings.CA.Gov**

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