



Integrated  
Wired,  
Wireless & IP  
Communications

## **Eclipse<sup>®</sup> HX Matrix Intercom**

V-Series Keypanels

Agent-IC<sup>®</sup> Mobile App

Integrated FreeSpeak II<sup>®</sup> Wireless

Clear-Com Concert Virtual Panel

Interactive IFB Controls

Production Maestro Pro

Connectivity Solutions

## About Intercom Technology

An intercom (intercommunication system) is a standalone, closed-circuit system for one-way “simplex” and/or two-way “duplex” communication. The general purpose of a professional intercom system is to facilitate simple to complex communication setups for a few to thousands of users who need to be continuously on talk and/or listen mode. Two-way communication systems can operate in half-duplex or full-duplex. With half-duplex systems, one party talks while the other party listens. With full-duplex systems, both parties can talk and listen at the same time as if they are in a natural conversation in person.

Users, who have different roles in a particular operation, can be in a conference or partyline together. Or they can be sub-divided into a matrix of independent groups in any one or many private intercom channels. In addition to establishing communication points, intercom can also interface with third-party devices such as 2-way radios, 4-wire audios, telephone, TV cameras, AES3 digital audio, relay control (for signal light activation or door control), etc. Coordinating activities via voice or through third-party devices such as relay controls require low-latency (delays measured in milliseconds).

The core technology of an intercom system could be based on one of the following platforms: 2-wire/analog, 4-wire/digital, wireless, and IP networks. The decision to deploy one platform over the other will greatly depend on requirements, environment and budget. These intercom platforms operate independently or can be integrated to form a larger system in order to address specific unique communication workflow needs. Moreover, intercom systems can be bridged together with different communication systems as part of a multi-platform solution.

In certain applications, intercom systems need to be geographically distributed to support the various communication positions in a given workflow. Therefore, they can be connected over 2-wire or 4-wire; MAD1 for close-distance connections such as floor-to-floor; optical fiber for short to long distances within a building; E1/T1 for inner-city connections; and IP networks (LAN, WAN, or Internet) for connections across a wide area, across town, and across the country.

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Eclipse® HX is the advanced digital matrix intercom platform for enabling critical communications among work teams. The system enables direct (point-to-point) and one-to-many (group and partyline or conference) connections. It is highly flexible and extensible for large scale installations. Eclipse HX can also seamlessly integrate with IP communications, interoperability and SIP telephony interfaces, digital wireless solutions, and many other platform devices.

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Compatible microphones and headsets for matrix intercom.

# DIGITAL MATRIX INTERCOM

Eclipse HX digital matrix intercom systems provide reliable and flexible communications backbones for non-blocking distribution of audio and data signals across thousands of users within a communication network. All systems can intelligently trunk over IP, Fiber, MADI, CAT5, and POTS without compromising on audio quality and performance. Eclipse HX delivers high system performance, intuitive management software, and high capacity for system expansion to meet the constant changing production demands.

## System Frames

Eclipse HX can support thousands of user connections on a networked, 64-matrices system. Designed and engineered to meet a wide variety of communication needs.

Clear-Com Eclipse HX is unrivaled in terms of speed of performance, extensibility and scalability.

Eclipse HX-Omega, -Median, -Delta and -PiCo Matrices provide flexible

and scalable communications backbone for point-to-point, partyline or conference communications.



	Eclipse HX-PiCo	Eclipse HX-Delta	Eclipse HX-Median	Eclipse HX-Omega
<b>Dimensions</b>	1RU x 330mm (1.2 inch)	3RU x 420mm (16.5 inch)	6RU x 300mm (11.5 inch)	6RU x 410mm (16 inch)
<b>Card slots</b>	Fixed, 1 CPU and 36 ports	2 CPU and 4 slots	2 CPU and 7 slots	2 CPU and 15 slots
<b>Maximum number of ports</b>	36	256	448	512
<b>Maximum system size</b>	16 frames (if PiCo only)	64 frames (any combination)	64 frames (any combination)	64 frames (any combination)
<b>Redundancy options</b>	Dual AC	AC, DC, CPU, LAN, Trunking	AC, CPU, LAN, Trunking	AC, CPU, LAN, Trunking
<b>Networking / Linking</b>	4-wire	4-wire, Fiber, IP, MADI, E1, T1	4-wire, Fiber, IP, MADI, E1, T1	4-wire, Fiber, IP, MADI, E1, T1
<b>System interfacing</b>	4W, 2W, POTS, SIP, IP, GPIO	4W, 2W, POTS, SIP, IP, FSII, MADI, GPIO	4W, 2W, POTS, SIP, IP, FSII, MADI, GPIO	4W, 2W, POTS, SIP, IP, FSII, MADI, GPIO
<b>Remote IP Users/Trunking</b>	Via LQ Series IP interface	IP panels, IP Mobile clients and trunking to other frames	IP panels, IP Mobile clients and trunking to other frames	IP panels, IP Mobile clients and trunking to other frames
<b>Live operations</b>	EHX & Production Maestro Pro	EHX & Production Maestro Pro	EHX & Production Maestro Pro	EHX & Production Maestro Pro

## System Frame Cards

6RU frame cards for the Eclipse HX-Delta, Eclipse HX-Median and Eclipse HX-Omega system frames to establish intelligent connections.

### MXV-A16-HX Card

A 16-port audio and data card for use with panels, interface modules and direct ports using balanced 4-wire audio and RS422 data interfacing.

### E-QUE-HX Card

A wireless cell controller card that can seamlessly connect FreeSpeak II digital wireless beltpacks to the Eclipse HX matrix system for untethered communications. Alternately, the card can provide E1 and T1 intelligent linking to interconnect matrix frames with signaling.

### IVC-32-HX Card

The IVC-32-HX Card supports up to 32 channels of high quality, low latency audio over IP networks. Each channel can be independently configured for connection to multi-channel V-Series panels, Agent-IC, Eclipse HX systems, LQ Series or Concert soft clients. The card uses the highly regarded G.722 audio CODEC and is designed to operate seamlessly over LAN, WAN and Internet infrastructures.

N+1 card redundancy is supported, enabling a single IVC-32-HX card to operate as a hot standby for other IVC-32-HX cards in the matrix frame. IVC-32-HX makes extending intercom access to new users, in local or remote locations, both straightforward and cost-effective.

### E-FIB-HX Card

The Fiber-Net card enables dual redundant audio fiber network connections to 63 other frames. Comes with a standard SFP transceiver housing allowing different fiber options. Single Mode transceivers supplied.

### E-MADI64-HX Card

The E-MADI64-HX (Multiple Audio Digital Interface) card provides connection with standard MADI devices, with up to 64 AES3 format digital audio “4-wires”. The card can be configured for 24, 32, 48, 56 or the full 64 channels with sample rates up to 96kHz. It can also connect V-Series panels over MADI.

### LMC-64-HX Card

The IP-based audio level monitor card, installed in the Eclipse HX system frame, enables the Production Maestro Pro application to use the Clear-Vu Audio Metering for up to 64 channels per card. Using two standard scaling options, Nordic and VU, the LMC-64-HX Card enables easy and rapid audio adjustments for any critical application.



## Communication Points

Users of Eclipse HX can access the central intercom system using various types of communication devices: hardware key panels, portable digital wireless beltacks, mobile application on smartphone/tablet devices, or integrated software client on a personal computer.

### V-Series Key Panels

These are available as Rotary, Lever and Pushbutton.



12-Key Rotary Desktop Panel



12-Key Rotary Panel



24-Key Rotary Panel

#### Broadest variations in form:

- 12 or 24 keys
- Rotary, Lever or Pushbutton keys
- Rack panel or portable desktop panel

#### Distinctive and extensive graphic display:

- High contrast yellow OLEDs
- 10-character displays
- International character fonts
- Supports Roman English and European character fonts and Cyrillic, Chinese, Japanese and Arabic fonts
- Dual label facility
- Horizontal or vertical text display

#### Unique panel features:

- Native multi-channel IP connectivity built in
- 8 shift pages within panel, and up to 8 expansion panels
- Listen Again digital memory for 30 seconds audio replay
- Digital Signal Processing (DSP) for audio routing and equalization
- Scroll assignment for quick and easy key changes at panel
- Supervisor capability
- Color tallies for IFB and partyline keys (Rotary panels only)

### i-Series Key Panels



i-1200E



i-1430E



e-1410E



i-1400E



i-1470E

#### Seven standard variants available:

**i-1110E** 1x8-key display, gooseneck and headset connections and loudspeaker with level controls (not shown)

**i-1200E** 2x8-key non-display, gooseneck and headset connections and loudspeaker with level control

**i-1210E** 2x8-key display, gooseneck and headset connections and loudspeaker with level controls (not shown)

**i-1400E** 4x8-key non-display, gooseneck and headset connections and loudspeaker with level control

**i-1430E** 4x8-key display gooseneck and headset connections and loudspeaker with level control with keypad (dial and assignment menus)

**i-1470E** as per I-1430E, but with AUX-101 option (local audio and GPIs)

**e-1410E** 4x8-key display extension panel

## Integrated FreeSpeak II® Wireless Beltpacks

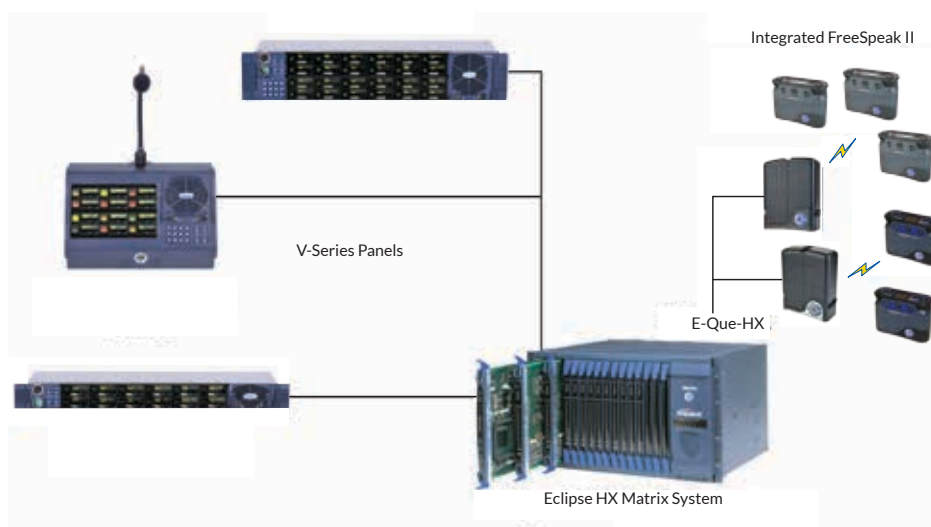
Eclipse HX users have the option to roam while staying connected on the intercom over a digital wireless solution. FreeSpeak II operates in the 1.9GHz and 2.4GHz bands, and can co-operate in the same matrix system. It provides a robust and reliable wireless connection directly to the Eclipse HX matrix system and delivers the powerful

matrix capabilities to roaming FreeSpeak II beltpack users.

The distributed Transceiver Antennas enable seamless roaming among beltpack users across expansive coverage areas. The antennas connect to the E-Que-HX cellular controller card that is slotted into the Eclipse HX system frame. As many as 50 1.9GHz and 40 2.4GHz

(or 25 1.9GHz in North America plus 40 2.4GHz) full-duplex wireless beltpacks can be used at the same time by strategically placing up to 10 or more distributed remote antenna to create an expansive coverage zone. Up to 800ft (245m) range can be achieved under good radio frequency conditions.

DECT Carrier Frequency Bands:  
 U.S.: 1.92-1.930  
 Rest of world: 1.88-1.91  
 Each region uses approved  
 5 or 10 bands



### 1.9GHz & 2.4GHz FreeSpeak II Wireless Beltpacks

The five-channel, full-duplex FreeSpeak II digital beltpacks were uniquely designed for the rigorous demands of large-scale operations and continuous communication use. Ergonomic form factor, intuitive operation, and rugged housing make the beltpacks ideal for extended use.

- Up to five communication routes per beltpack with selective access to more than 24 channels
- Secure system – beltpacks are registered to a particular base station or Matrix or can have secure access to multiple control functions
- Internal antenna – no antenna breakage or damage
- Long battery usage – typically 18 hours of continuous talk time
- IP-65 rated: water and dust resistance
- Over-the-air beltpack easy registration and regionalization
- Real-time monitoring of battery per beltpack
- “Listen Again” audio memory to replay last 15 seconds of audio
- Technician’s flash light on bottom
- 1.9GHz and 2.4GHz beltpacks can co-operate in the same system
- Scroll assignment for quick and easy key changes at beltpack



## IP Communication Points

### Agent-IC®

Users in ancillary positions or who work remotely can be given access to the Eclipse HX intercom system right on their smartphones or tablets. Similar to a key panel, the Agent-IC mobile app is cost-effective, easy to deploy, and useful from any location where IP networks are available. Users can access pages of 6 keys on phone devices and up to 15 on tablets.

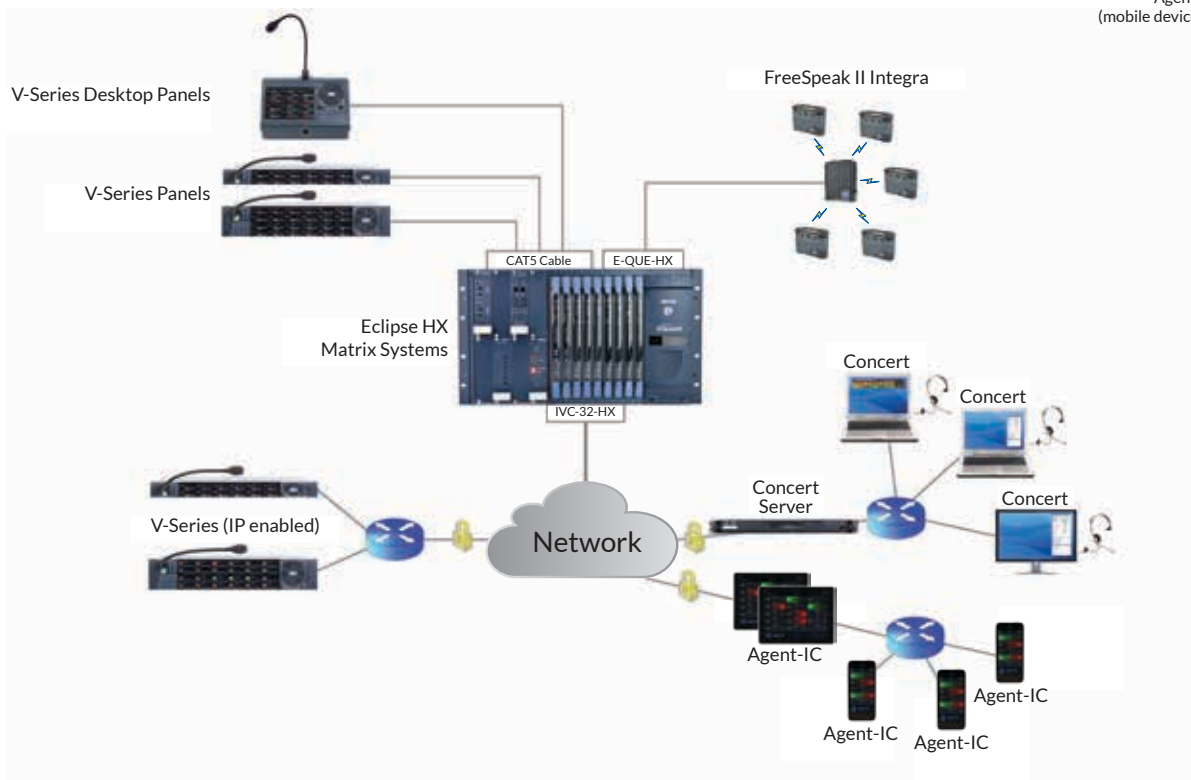
#### Key Features

- Designed for smart phones and tablet devices
- Managed under central administration control
- Fully featured: point to point calling, point to multi-point group calling, partyline, PTT, local cross-point audio level control and notifications
- Excellent audio quality
- Ease of deployment and use—no training required

- Secure—NSA approved
- Accessible on multiple IP networks: 3G/4G/Wi-Fi



Agent-IC mobile app (mobile devices not included)



### Clear-Com Concert®



Concert IP-based integrated software client for PCs (monitor not included)

Clear-Com Concert integrates directly with Eclipse HX Systems, enabling remote users to connect back to the central intercom system. Permitted Concert users on PCs simply connect to the LAN, WAN or IP networks, and immediately communicate with other members on the Clear-Com partyline and/or matrix intercom circuit.

An intuitive, point-and-click, browser-based user interface and low latency

audio experience make Concert ideal for many communication applications.

The connection between Concert and Eclipse HX matrix system is enabled by the IVC-32-HX high density IP card, which provides 32 IP connections.

The Concert system can operate as a standalone system even when it is disconnected from the matrix.



## Advanced Live Controls

### Production Maestro Pro

Production Maestro Pro is an add-on software module of the Eclipse HX Configuration Software for flexible and fast conference and lines routing setup. It manages live external lines in and out of any small or large intercom system to user panels and their keys. Sound Engineers can simply route 4-wire lines to groups of panel users

instantly with the graphical assignment system.

Production Maestro Pro's Clear-Vu Audio Metering enables visual audio levels on a PC screen using real-time graphical meters. Clear-Vu provides both activity and level monitoring of feeds at a glance and spatially arranges the audio traffic routed to monitor speakers.



Production Maestro Pro for real-time flexible and fast audio and conference routing.

## Interactive IFB Management (within PM Pro)

Embedded within Production Maestro Pro are new IFB Management facilities delivering a much more interactive "See-Touch-Hear" all-in-one experience. This new design allows system managers to set up, monitor and manage from a few to hundreds of IFB feeds sourced across one or more sites from a single centralized view shown on a tablet, laptop or touchscreen PC.

The active status of external lines and IFB routing is readily viewed as it happens. IFB routing can be monitored audibly at multiple points to confirm what is being sent to On-air Talent. All parameters of IFB are easy to change dynamically and independently from multiple control surfaces. The system scales up seamlessly for large events and for geographically distributed intercom networks.



#### Key Features

- Dynamic graphical presentation of IFB status with both Detailed and Summary views
- Multiple audio monitors points per IFB
- Dynamic visual display of IFB status with option for Assignable VU meters
- Virtualized IFBs with dynamic assignment of Program Sources, Intercom panels, Destination ports and Talent Return
- Control surface options for IFB assignment system: tablets, laptops, and touchscreen PCs
- Up to 200 virtual IFB's per matrix frame; Up to 64 matrix frames in one system
- Supports both Single and Multi-user administration (Up to 15 system System Managers can work in parallel)

## Interface Frames

Rack-mountable interface frames offer a scalable way to hold interface modules and directly connect external audio sources to the Eclipse HX systems.

**IMF-3** interface frame holds up to 11 interface modules in a 3RU chassis. Modular rear-mounted connector units feature two RJ-45 connectors to the matrix ports and two DB-9s attaching the connected devices. The frame is used in conjunction with the PSU-101 rack-mountable dual power supply, providing power to the enclosed interfaces.



IMF-3

**IMF-102** interface frame combines an internal power supply, connection for a second redundant supply, a rear input/output connector panel and slots for two modular interfaces – all in a 1RU chassis. The compact frame offers a practical way to add two interfaces to an Eclipse HX-Omega, -Median, -Delta or -PiCo Matrix frame. A PSU-101 can be added for power supply redundancy.



IMF-102

**PSU-101** is the power supply for the IMF-3 interface frame. It has both an audible failure alarm and failure relay contacts to activate a remote signal. A single PSU-101 will power a minimum of two interface frames depending on the type of interfaces and their individual power requirements.



PSU-101

## Standalone Interfaces

**IFB-104** (Matrix IFB interface) provides an easy way to connect Matrix systems to 4 on-air Talent channels using IFB (Interruptible FoldBack). The IFB-104 interface receives program audio from either an Audio Console or intercom Matrix and intercom from up to four ports on the Matrix intercom frame and sends IFB outputs to the on-air talents. Both the audio inputs and outputs are transformer isolated. A single program input can feed all 4 IFB outputs. DC power is only necessary if the talent receivers connected to the IFB ports require it.



IFB-104

**BAL-8** (8-way Transformer Balance unit) is a 1RU interface containing eight transformer isolated ports. The unit isolates the connection between matrix ports and peripheral devices such as two-way radios and 4-wires. (All Eclipse HX matrix direct outputs are low impedance and electronically balanced.)



BAL-8

**TW-60** interface supports “Radio Interoperability” and interfaces with up to four Land Mobile Radios. The interface can connect to earphone, microphone and push-to-talk radio controls. An audio output delay, to allow key-up time of a radio system on the outbound side of each connection, is also included with delay between 0 and 5000ms. Receive level, Transmit level and Delay time are three separate controls for each radio.



TW-60

## Interface Modules

Connections with third-party devices or panels are enabled in Eclipse HX using a variety of interface modules.



**CCI-22** (Dual Partyline Ring Interface Module) connects two 2-wire full-duplex partyline circuits with the matrix. The interface supports Clear-Com signaling to and from the matrix system, deriving its power from the external partyline circuit. Levels and cable nulling are completely adjustable. The CCI-22 works with Clear-Com and other third-party 2-wire intercom systems. The CCI-22 can also connect to V-Series panels for remote operation over IP networks.



**FOR-22** (Dual 4-wire Transformer Balance and Radio Relay Control Module) connects two external 4-wire circuits to the matrix. The module provides proper impedance matching, transformer isolation and level adjustments between systems. It also supports external relay activation and call-sense circuitry. The FOR-22 can also connect to V-Series panels for remote operation over IP networks.



**AES-6-CX and AES-6-RJ**  
The six-channel AES-6-CX module connects V-Series panels to Eclipse HX matrices over AES3 digital audio pairs (RJ) or Co-Ax (CX), providing two audio paths to the intercom panel. Alternately, these modules can be used to connect Eclipse HX to third party equipment, with AES interface ports.



**TEL-14** (Dual Telephone Interface Module) The two-line, auto-nulling digital hybrid telephone interface module is designed for establishing IFB connections between the main intercom and remote production trucks, and enabling telephone calls directly from any intercom panel in an Eclipse HX matrix.



**RLY-6** (6-way Relay Control Module) provides six fully programmable SPDT (Single Pole, Double Throw) relay outputs to support dedicated switching functions external to the matrix system. This provides external DC signal light activation or door control, for example.



**GPI-6** (6-way General Purpose Input Control Module) provides six general purpose Opto logic inputs into the matrix, allowing external sources to trigger routing changes and other events through the matrix system.

## EHX Configuration Software

EHX gives system administrators and operators an intuitive graphical view of the system, panels and control logic for ease of configuration and management of the entire Eclipse HX network.

Built-in automation, pre-set factory configuration, and intuitive hardware discovery powerfully enhance the out-of-box start-up experience.

### EHX Features

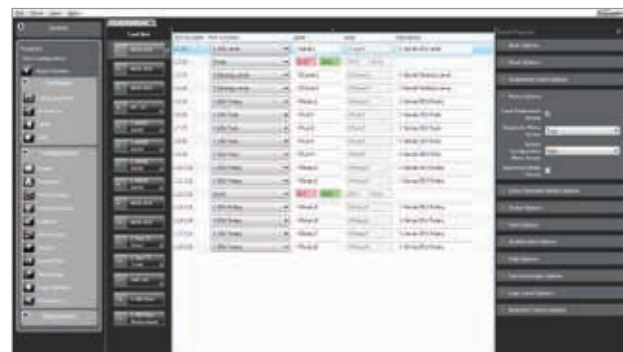
- Automatic setup of initial configuration by hardware discovery and default factory configuration
- Configuration upload from frames and seamless configuration changes for multi-matrix systems
- Real-time key assignment routes, IFB and partyline routing
- Centrally set global and local IFB operations
- Programmable and real-time V-Series Panel audio routing-mixing
- DTMF dial tone inward conditional access
- Activation of relays, routes, and DTMF sequences via controls
- Global label based key latch disable
- Configuration of frame and panel relay controls
- Port I/O audio level control
- Centrally set local and global ISO routes
- Four configuration maps stored in local memory per frame
- Simple user interface for set up of matrix cards and ports
- Hardware graphical diagnostics and reporting
- Event and status logging
- Online Help
- Highlighted off-normal crosspoint levels
- Fast software algorithms enable real-time, system-wide updates
- User rights for managing user types and access levels in software
- Resource chart to display user configuration limits



EHX configuration



Panel Programming

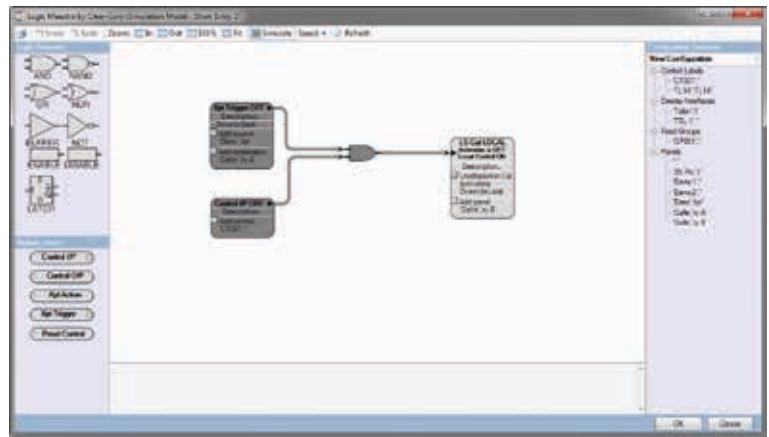


Cards configuration

## System Management Logic Maestro

In the everyday running of a communications system between many users working on a single or multiple projects, there is often the need to link the intercom to other systems, like signal lights or door control, or change the routing depending on external states such as microphones being live. Such conditional interfacing has been programmed in software using Control Macros scripts within the Eclipse HX Configuration Software (EHX) system until now.

Logic Maestro augments text based Control Macros with a simple and graphical logic programming tool within EHX, enabling significantly easier programming of powerful intercom control functions. Logic Maestro is a free, add-on module.



Logic Maestro control macro

## HCI (Host Control Interface)

Eclipse matrices include the option to have third-party control systems make changes and receive status information within Eclipse HX intercom networks. Eclipse HX HCI (Host Control Interface) is an open protocol, which allows a third-party computer or automation system to control an Eclipse HX matrix. The protocol provides a rich set of

control and monitor commands which are used to implement a wide variety of control applications. HCI commands include crosspoint control, audio level control, panel key assignment, GPI monitoring, and routing/monitoring of both conferences and IFBs. HCI can implement many types of application, including placing intercom under third-party automation system control. It can also be used to help tie Eclipse HX systems intelligently to other makes

of intercom system. The protocol is licensed per matrix frame and includes supporting utility software and documentation.

Note: HCI is designed to be used by software engineers. In addition to the HCI license, Clear-Com provides a starter support package to assist application development. If required, extended support is available for more complex requirements.

## Field Staff:

Team members often need to work off site. While in the field, they need to talk to the producer, director or operations manager to receive instructions. This communication link is over IP using any one of several communication points.

- Agent-IC mobile app (on smartphones or tablets)

## FIELD STAFF



- V-Series IP control panel (in mobile units)
- Clear-Com Concert Soft Panel (on PCs)

## Security/Law Enforcement:

Common on large campuses are internal security teams. They are typically speaking on two-way radios and may be disconnected from other communication systems. With the Clear-Com Gateway interoperability solution and SIP interfacing, law enforcement/security and other IP phones can be patched/bridged with the Eclipse HX communication network seamlessly allowing the security team to speak with other authorized users.

- ▲ SECURITY/LAW ENFORCEMENT  
2-way radios (connected to Eclipse HX via Clear-Com Gateway)



- SPORTS PRODUCTION  
Encore/HelixNet partyline systems connected to Eclipse HX via (LQ devices)



## Internal Communications inside Campus over LAN

- Encore/HelixNet partyline systems connected to Eclipse HX via LQ devices)
- FreeSpeak II wireless beltpacks and V-Series panels
- ▲ SIP Phones (via Gateway)  
2-way radio



**REMOTE BUREAU**



- V-Series IP control panel
- DX410 wireless systems

**Remote Bureau:**

In a neighboring city, a remote bureau/office is set up for a subset of team members. They often need to communicate with those in the Control Room. This is possible over IP connectivity, using the IP-enabled V-Series panels and a local wireless system called DX Series that are connected to Eclipse HX.

**CONTROL ROOM**



**Control Room**

- Eclipse HX matrix system
- FreeSpeak II wireless beltpacks
- Clear-Com Gateway (for radio bridging or interfacing)
- V-Series IP enabled control panels
- Concert Server (for Concert Soft Panels)




**Sports Production:**

On the campus, a mid-size sport venue often hosts local team sporting events. These events are often captured, produced and broadcasted out to the community/internal television channels. Communication between camera positions, visiting mobile units, and Director all take place within the venue, and links back to headquarters via the Eclipse HX system.

**Control Room:**

At the heart of the communication network is the Eclipse HX matrix intercom system, where the Control Room is typically situated at the headquarters or main facility. It enables communications within the building and all surrounding buildings that make up a wide area campus. Users who need to communicate within the network are typically on V-Series key panels at fixed locations, integrated FreeSpeak II wireless beltpacks, beltpacks for mobility inside and outside of the building, or Concert Soft Panel at remote office locations. These user controls are connected over 2-wire, 4-wire and IP connections.

**Communications over**

-  IP Connectivity
-  Interoperability & SIP Interfacing
-  2-wire & 4-wire connection using LQ IP Interfaces

**WIDE AREA COMMUNICATION**

# CONNECTIVITY SOLUTIONS

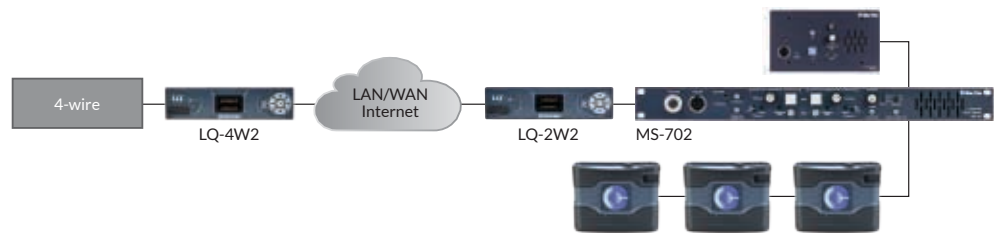
Clear-Com offers connectivity solutions designed for linking multiple intercom systems together over IP networks, routing and distributing audio and video signals over optical fiber networks, and interfacing communication solutions with SIP telephony protocols and 2-way radios.

## LQ Series IP Interfaces

LQ devices extend and connect any combination of 2-wire partyline intercom, 4-wire and 4-wire with GPIO audio over IP circuits (House LAN, Corporate WAN or Internet connections). LQ Series devices can remotely connect to any Eclipse HX frame via connection to an IVC-32-HX card.

### For linking multiple systems from different locations:

Place an LQ device at each end of the intercom system, then establish links among the LQ devices using the Core Configuration Manager from any browser.



Linking 4-wire with 2-wire intercom system



Linking matrix to GPIO, 2-wire or 4-wire intercom system

## ProGrid Signal Transport Solution

ProGrid is a premium-grade audio and signal transport solution, offering high performance and resilience as well as fast and flexible deployment. Based on the open AES3 and AES10 (MADI) standards, ProGrid is designed for ultra-fast transport, distribution, and routing of audio, intercom, video signals\* and control data using the OPTOCORE® (Optical Fiber) and SANE (Synchronous Audio Network + Ethernet) platforms. All serial data, word clock sync, analog, AES, MADI audio with timecode, and all major

brand intercom signals are transmitted synchronously at extremely low latency and across long distances over ProGrid.

### Analog Audio Converter Devices:

Digital I/O interface devices for transporting audio and data signals.

### Intercom Interface Devices:

Seamless integration of intercom audio and control data from Clear-Com intercom panels, interfaces and matrices.

### Digital MADI Interface Devices:

Two MADI input and two MADI output ports for transmitting up to 128 input and 128 output digital audio channels.

### AES/EBU Connectivity Devices:

Digital audio interface with AES/EBU ports for connecting and transporting

32 AES/EBU digital audio channels, i.e. 64 mono channels.

**Yamaha Interface Cards:** Direct connection of Yamaha consoles to the fiber links.



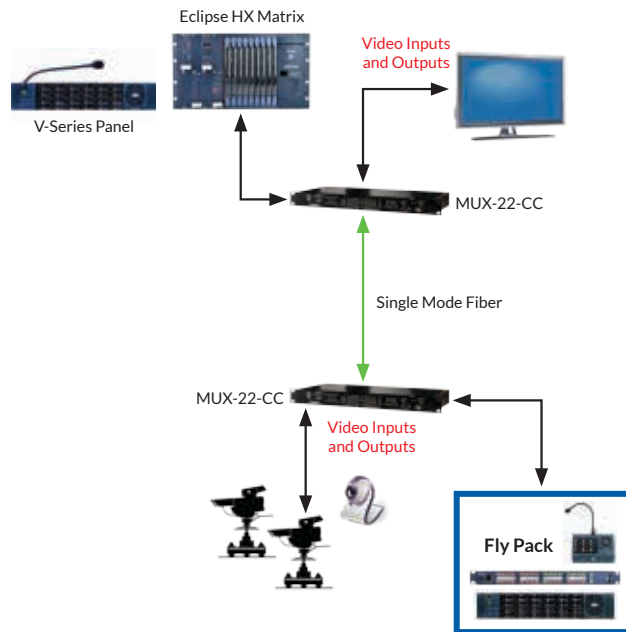
\* Composite video is available over the Optocore network using the PG2-MADI-FX and PG32-AES-FX units. HD SDI video is available through the use of the MUX-22-CC.

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## MUX-22-CC Video Signal Transport

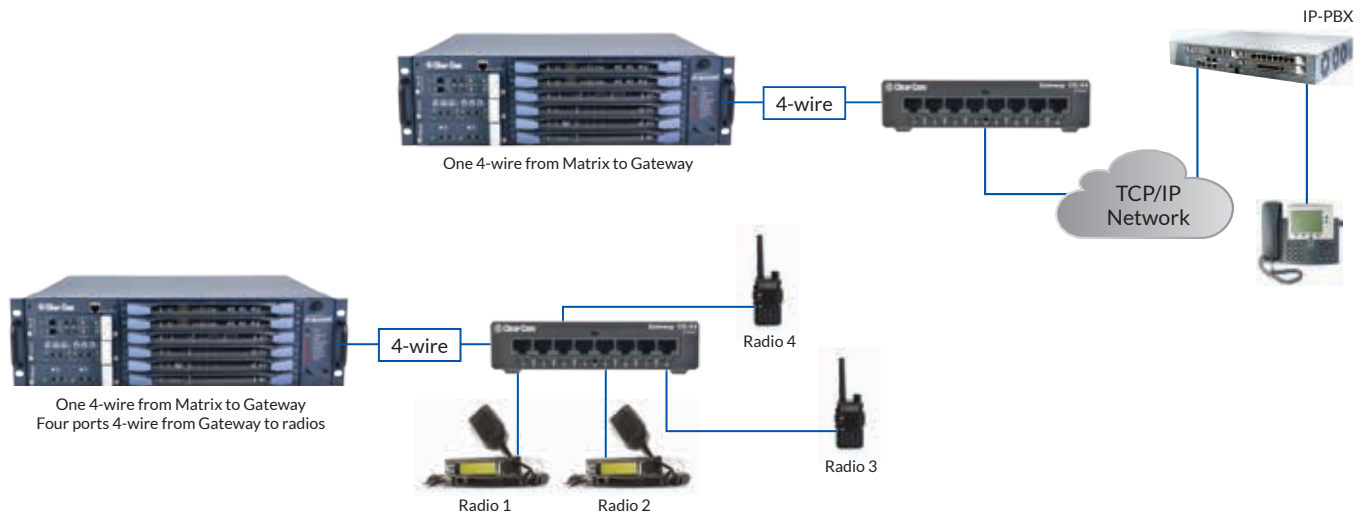
Scalable, protocol independent routing, repeating, transport and distribution of multiple professional video and audio signals such as SD/HD/3G-SDI, over the same optical fiber cable. Equipped with four video inputs and four outputs, and four 4-wire RJ45 matrix ports.



## Clear-Com Gateway Interoperability Solution

Clear-Com Gateway is an interoperability platform for linking and bridging disparate communication systems to deliver advanced radio interfacing and IP connectivity on a single platform. The compact CG-X1 and CG-X4 devices connect 2-way radios, intercoms, telephones and IP networks.

Clear-Com Gateway supports standards based IP interfacing for Voice-over-IP (VoIP), RTP, RoIP, Unicast, Multi-unicast and SIP applications for connectivity and interoperability. Each IP module comes with eight SIP accounts. When connected to Clear-Com intercom systems, Clear-Com Gateway provides a SIP interface that can emulate a TEL-14.



# INTERCOM ACCESSORIES

## Compatible Intercom Headsets



Sales Part #	Headset	Mic type	Mic/Headphone Impedance	Mic Boom
CC-110-X4	Light-weight single-ear	Dynamic	200/400 Ohms	300-degrees rotation for muting mic on/off
CC-220-X4	Light-weight double-ear	Dynamic	200/400 Ohms	300-degrees rotation for muting mic on/off
CC-300-X4	Single-ear	Dynamic	200/400 Ohms	300-degrees rotation for muting mic on/off
CC-400-X4	Double-ear	Dynamic	200/400 Ohms	300-degrees rotation for muting mic on/off
CC-40	Single-ear	Dynamic	200/400 Ohms	Adjustable
CC-60	Double-ear	Dynamic	200/400 Ohms	Adjustable
CC-15-MD4 / CC-15-X4	Single-ear	Electret	2.2K / 40 Ohms	360-degrees rotation for left or right side use
CC-30-MD4 / CC-30-X4	Double-ear	Electret	2.2K / 40 Ohms	360-degrees rotation for left or right side use
CC-26K	Light-weight single-ear	Dynamic	200/200 Ohms	360-degrees rotation for left or right side use
CC-010A	Single-ear	Dynamic	200 Ohms	None (Listen only)

## Compatible Intercom Microphones



Sales Part #	Length	Compatibility with
110/100 110/340 110/490	10 cm (3.9") 34 cm (13.4") 49 cm (19.3")	V-Series matrix user panels, HelixNet Main station and Remote station



Sales Part #	Length	Compatibility with
GN-250 GN-450	25 cm (10") 45 cm (18")	Both microphones are compatible with the I-Series user panels

# OTHER CLEAR-COM INTERCOM SOLUTIONS

Clear-Com offers the broadcast set of wired, wireless, and IP intercom solutions. In addition to the matrix intercom system, here are the other sets of products that are used worldwide.

## Partyline Intercom Systems

### Clear-Com Encore

Analog 2-wire, group communication systems with intuitive plug-and-play design and superior audio clarity best known as the “Clear-Com Sound”.

### HelixNet

Flexible, scalable, and intelligent digital network partyline system platform for dynamic group communication.



## Wireless Intercom Systems

### DX Series—2.4GHz

All DX Series wireless intercom systems feature Spectrum-Friendly™ technology for interference-free operation. The DX Series enable full-duplex communications in a range of system offerings, from a portable base station

for few wireless users to co-located rack-mount base stations for up to 16 full-duplex users on two channels. DX Series intercoms are cost-effective, easy to set up, and deliver exceptional sound clarity.



### FreeSpeak II®—1.9GHz & 2.4GHz

FreeSpeak II is the most powerful and sophisticated distributed wireless solution. Its ability to maintain a strong and continuous wireless connection

across an expansive coverage area while providing crystal-clear digital audio makes FreeSpeak II the ideal wireless roaming solution.



### WBS—518-608MHz and 614-686MHz

WBS Systems operate in select frequency UHF bands. Whether WBS is used as a standalone wireless

communication system or combined with wired intercoms, its frequency agility, rich feature set, audio clarity and performance reliability make every WBS system an excellent choice.





## **Corporate Description**

Clear-Com, an HME company, is a trusted global provider of professional real-time communications solutions and services since 1968. We innovate market proven technologies that link people together through wired and wireless systems.

Clear-Com was first to market portable wired and wireless intercom systems for live performances. Since then, our history of technological advancements and innovations has delivered significant improvements to the way people collaborate in professional settings where real-time communication matters.

For the markets we serve – broadcast, live performance, live events, sports, military, aerospace and government – our communication products have consistently met the demands for high quality audio, reliability, scalability and low latency, while addressing communication requirements of varying size and complexity.

Our reputation in the industry is not only based on our product achievements, but also on our consistent level of customer engagement and dedication to delivering the right solutions for specialized applications, with the expertise to make it work. Around the globe and across markets, Clear-Com's innovations and solutions have received numerous awards and recognitions for ingenuity and impact to customers.

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