

HelixNet Partyline



Optimum Flexibility and Performance
For Highly-Dynamic Production Communications

HelixNet Partyline Platform

The Clear-Com HelixNet platform is the latest stage in intercom evolution. Based on the groundbreaking I.V. Core Technology, HelixNet delivers the legendary “Clear-Com Sound” you’ve come to expect, along with the added benefits of network intelligence, ease of operations and simplified cabling.



Audio Clarity

Hear every cue with absolute clarity and focus on information without distraction.

Network Intelligence

Central administration of the network from any main station.

Cabling Simplicity

Employ flexible cable options with the ability to leverage an existing cable infrastructure.



ABOUT I.V. CORE TECHNOLOGY

Clear-Com’s Instant Voice Core (I.V. Core) is a suite of Internet Protocol (IP) technologies at the heart of all HelixNet products. I.V. Core delivers:

- Low latency through the use of an intelligent decision engine that routes only the audio packets containing needed voice information.
- Superb audio quality through the use of wideband CODECS, enabled thanks to a highly optimized design that eliminates multiple encode/decode cycles.
- Encryption, noise-reduction, and error-recovery through proprietary algorithms optimized for human voice characteristics.

Traditional Voice-Over-IP solutions mix and encode audio at the server, consuming valuable IT network resources, reducing audio quality, and adding latency. In contrast, the I.V. Core routes only packets that contain actual voice data, mixing and encoding them just once at the client, thereby delivering a higher quality voice communications experience than ever before possible.

MAIN STATION

The HMS-4X HelixNet Main Station provides power and up to 12 networked channels of audio to support up to 20 digital beltpacks. The sleek 1RU digital system can be mounted into any standard 19" rack.



MAIN STATION HIGHLIGHTS

High Channel Density. Up to 12 networked intercom channels and power for beltpacks transmitted over a single shielded twisted-pair (Ex. microphone cable, CAT5, or CAT6 cable).*

No Rewiring Required. System designed to preserve investment by operating on existing infrastructure.

Single Cable Operation. Fewer cables save time and cost during setup and configuration.

No Hum. No Buzz. All-digital system offers immunity to electro-magnetic interference and ground loops.

High User Capacity. A single HMS-4X Main Station, offering four channels, can support up to 20 beltpacks. Main Stations can be connected over LAN or fiber to support many beltpacks over a network.

Quick Startup. Get up-and-running fast and effortlessly with easy plug-and-go installation and hardware auto-discovery.

Seamless Linking. Main Stations share resources over a LAN or Fiber link so users can select local or remote partyline channels and program audio feeds from the beltpack. Optional two-wire and four-wire interface modules further extend connectivity to existing analog partyline or matrix intercoms.

Easy-to-Navigate Menu. Quick access to system settings and configuration for fast and painless set up.

Easy Updates. Apply firmware maintenance and upgrades easily via USB ports.



MAIN STATION FEATURES

Front Panel

- Remote Microphone Kill
- Stage Announce Out
- Line Status Indication
- Large Format OLED Displays
- Up to 10 Characters for User-defined Labels
- Talk and Call Keys
- Speaker and Program Level Controls
- Rotary Channel Level Controls
- USB-A and USB Micro-AB Ports
- XLR Headset Connector
- Microphone and Headset On/Off Key

Back Panel

- Universal Power Connector
- GPIO- DB-25 (Four Relays and Four Opto Inputs)
- Hot Microphone Output
- Stage Announce (SA) Out
- Program Input
- XLR-3M and XLR-3F Powerline Intercom Ports
- Ethernet Module
- Built-in Expansion Bays for Optional Interface Modules including Ethernet LAN and Fiber Linking



*Refer to diagram on p.5

Delivering superb digital sound quality, the two-channel HBP-2X HelixNet Beltpack enables access to two of any four system channels over a single cable. The rugged, ergonomically designed HelixNet Beltpack was created to perform on the big stage, offering reliability and durability that will withstand the most demanding production environments.

BELTPACK HIGHLIGHTS

Channel Density. Similar to a source assignment panel, a single cable gives every connected beltpack the capacity to access all networked system channels.

Selectable Channels. The full-duplex, two-channel beltpack can select up to two of the available system channels and program audio feeds, each with individual level control.

Save Resources. Networked audio is distributed over a single shielded twisted pair, reducing the number of cables to yield time and cost savings.

Passively Interconnection. Beltpacks can be set up in daisy-chain or star configurations with no need for active split boxes.

Clear-Com Sound. Legendary contoured audio frequency response provides maximum intelligibility and exceptional sound quality.

Efficient Administration. System configuration and firmware upgrades are centrally managed from the main station.

Intuitive Operations. Present logical channel labels on the high-contrast, 10-character OLED display.

Effortless Navigation. Optimally positioned buttons and volume knobs are easy to locate, identify and control on the beltpack.

Highly Durable. Fabricated from lightweight cast aluminum, the beltpack is able to endure the rigors of intensive applications.

Mounting Flexibility. Sturdy beltclip, rubber bumpers and integrated strap guide offer useful mounting options.

BELTPACK FEATURES

- Two-channel Beltpack
- Power and Audio over a Single Cable
- Program Audio with Separate Program Level Control
- User-Facing Keypad Controls
- Recessed Level Rotary Knob Controls
- Pushbutton Menu Access
- Integrated Mounting Strap Guide
- Tabletop Resting Supports
- USB Micro-AB Port
- XLR Lock Release
- Cast Aluminum Alloy Case
- High-resolution, Large Format OLED Display (Up to 10 Characters for Unique Labels)
- Visual and Vibrating Call Alerts
- Ridge Guide for Tactile Navigation and Mechanical Protection
- XLR-4M Headset Jack (5-Pin Option)
- 2.5 mm TRS Headset Jack
- XLR-3F Intercom Line
- XLR-3M Intercom Pass-through (Daisy-chain)



LINKING MODULES

HelixNet Main Stations accept Ethernet and Fiber as well as two-wire and four-wire optional interface modules, offering seamless linking over LAN or Fiber and connection to virtually all common two-wire and four-wire audio systems.



HLI-ET2 ETHERNET MODULE

The HLI-ET2 Ethernet Linking Module provides a dual LAN interface to connect to other HelixNet Main Stations.* Once connected, stations share partyline channels and program audio, and make them available to any station and beltback on the linked system. All labels are transferred across the network automatically.

Technical Specifications

Dimensions

7.36in W x 2.24in H x 1.54in D (187mm x 57mm x 39mm)

Weight

13oz (0.35kg)

Connectors

LAN 1 and 2: (2) RJ-45 (Ethernet)

LAN Network Connection

10/100 BaseT, DHCP Capable

HLI-FBS FIBER MODULE

The HLI-FBS Fiber Linking Module provides a daisy-chain fiber interface to connect to other HelixNet Main Stations. With Ethernet Modules, stations share partyline channels and program audio, and make them available to any station and beltback on the linked system. Fiber Modules can be mixed with Ethernet Modules in the same network.

Technical Specifications

Dimensions

7.36in W x 2.24in H x 1.54in D (187mm x 57mm x 39mm)

Weight

13oz (0.35kg)

Transceiver Connectors

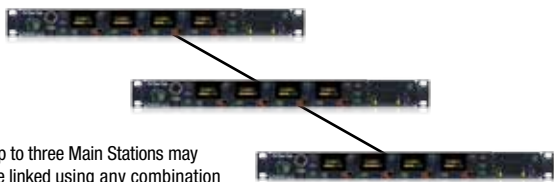
2 x SFP LC duplex Single-Mode (Sales option for Multi-Mode)

Ships with one Single-Mode SFP fitted and the other position is left blank.

2 x SFP (small form-factor pluggable) Cage Connections, each capable of supporting either HLI-SMFO Single-Mode transceiver or HLI-MMFO Multi-Mode transceiver.

Ships with one HLI-SMFO Single-Mode transceiver and the other position is left blank.

*HelixNet Partyline Station-to-Station Networked Linking



Up to three Main Stations may be linked using any combination of HLI-ET2 Ethernet or HLI-FBS Fiber modules.



HLI-2W2 TWO-WIRE INTERFACE MODULE

Designing a seamless interface between analog two-wire and digital systems is no simple feat, yet Clear-Com has done just that. The HLI-2W2 Interface Module enables two-channels of Clear-Com or RTS intercom to transparently interface with digital HelixNet intercom channels. This two-wire module preserves the wideband two-wire frequency response, is conveniently packaged in a rugged, pluggable module, and is easily assignable to any of the HelixNet Main Station intercom channels.

Technical Specifications

Dimensions

7.36in W x 2.24in H x 1.54in D (187mm x 57mm x 39mm)

Weight

16oz (0.45kg)

Connectors

Intercom Line: (2) 3-pin XLR-F

Partyline

Maximum Level Before Clipping: 6dBu

Nominal Input Level: -18dBu (C-C), -12dBu (RTS)

Input Impedance: $\geq 10K\Omega$ bridging

The following specified for a route to four-wire input at 0dBu in:

Frequency Response: 100 Hz - 10 kHz $\pm 3dB$

Distortion: $< 0.2\%$ THD @ 1kHz

Noise: $< -55dBu$

The following specified for a route from a four-wire output at 0dBu out:

Frequency Response: 40 Hz - 10 kHz $\pm 3dB$

Distortion: $< 0.2\%$ THD @ 1 kHz

Noise: $< -75dBu$

Auto-nulling and Echo Cancellation

RTS/Clear-Com Selectable

Termination: External

Power: 30V max external

Power Requirements

0.025mA/channel

DC Voltage Range: 20-30 volts

HLI-4W2 FOUR-WIRE INTERFACE MODULE

The HLI-4W2 Interface Module provides an easy way to interface common four-wire audio paths such as matrix ports, cameras, and telephone circuits with a HelixNet Main Station. Each of the two ports employs both transformer and electrical balancing to ensure incoming and outgoing audio paths are free of hum and noise.

Technical Specifications

Dimensions

7.36in W x 2.24in H x 1.54in D (187mm x 57mm x 39mm)

Weight

13oz (0.35kg)

Connectors

Intercom Line: (2) RJ-45 (Ethercon)

Four-wire Option Module Inputs

Maximum Level Before Clipping: 18dBu

Nominal Input Level: 0dBu (selectable)

Input Impedance: $\geq 10K\Omega$

The following specified for a route to four-wire output at 0dBu out:

Frequency Response: 20Hz - 10kHz $\pm 3dB$

Distortion: $< 0.2\%$ THD @ 1kHz

Noise: $< -65dBu$

Four-wire Option Module Outputs

Maximum Level Before Clipping: 18dBu

Nominal Output Level: 0dBu (selectable)

Output Impedance: $\leq 100\Omega$

The following specified for a route from a dynamic headset:

Frequency Response: 300 Hz - 12 kHz $\pm 3dB$

Distortion: $< 0.1\%$ THD @ 1 kHz

Noise: $< -55dBu$

TECHNICAL SPECIFICATIONS

MAIN STATION

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS.

Linking

Up to three Main Stations may be linked using any combination of HLI-ET2 Ethernet or HLI-FBS Fiber modules.

Channels

Four local plus any networked intercom channels
One local and any networked program audio feeds
(Assignable to intercom channels)

Connectors

Intercom Line: (2) 3-pin XLR-M
(2) 3-pin XLR-F
Headset: 4-pin XLR-M
USB: Type A & Micro AB
Program: 3-pin XLR-F
SA (Stage Announce): 3-pin XLR-M
Hot Mic / IFB Interface: 1/4" (0.64 cm) phone jack
GPI: 25 way D-type female

Microphone Pre-amplifier

Headset Mic Impedance: 200Ω (Dynamic)
Headset Mic Voltage: 1.7V (Electret selectable)
Limiter: +23dB

The following specified for a route to four-wire output at 0dBu out:
Mic Gain: 60dB (Dynamic), 45dB (Electret)
Frequency Response: 300Hz – 10 kHz ±3dB
Contoured for Intelligibility
Distortion: <0.2% THD @ 1kHz
Noise: <-55dBu (Dynamic), <-65dBu (Electret)

Headphone Amplifier

Load Impedance: >32Ω
Output Level: +12dBu before clipping
Sidetone: -12dBu (selectable)

The following specified for a route from a four-wire input at 0dBu in:
Max Gain: 0dB
Frequency Response: 40Hz - 10kHz ±3dB
Distortion: <0.1% THD @ 1kHz
Noise: <-65dBu
Headphone Limiter: 0dBu (selectable)

Loudspeaker Amplifier

Load Impedance: 8Ω
Output Level: +18dBu before clipping
The following specified for a route from a four-wire input at 0dBu in:
Max Gain: 18dB
Frequency Response: 200Hz - 10kHz ±3dB
Distortion: <0.1% THD @ 1kHz
Noise: <-50dBu

Program Line Input

Maximum Level Before Clipping: 18dBu
Nominal Input Level: 0dBu (selectable)
Input Impedance: ≥ 10KΩ

The following specified for a route to four-wire output at 0dBu out:
Frequency Response: 20Hz - 10kHz ±3dB
Distortion: <0.2% THD @ 1kHz
Noise: <-65dBu

Stage Announce Output

Maximum Level Before Clipping: 18dBu
Nominal Output Level: 0dBu (selectable)
Output Impedance: ≤ 100Ω

The following specified for a route from a dynamic headset:
Frequency Response: 300Hz - 12kHz ±3dB
Distortion: <0.1% THD @ 1kHz
Noise: <-55dBu

Hot Mic Output

Maximum Level Before Clipping: 12dBu
Nominal Output Level: 0dBu (selectable)
Output Impedance: ≤ 100Ω

The following specified for a route from a dynamic headset:
Frequency Response: 300Hz - 12kHz ±3dB
Distortion: <0.2% THD @ 1kHz
Noise: <-55dBu

Main Power

Input Voltage Range: 100 - 240VAC
Input Frequency Range: 50 - 60Hz
Input Power: ≤ 250VAC
Output Voltage: +/-29VDC ± 1V
Output Current per Channel: 1.5A (continuous)
Power Connector: IEC60320-1-C14

Environmental

Max temperature is 40°C (104°F)
0 - 90% relative humidity

Dimensions

19" W x 1.75" H x 13" D
(483mm x 44mm x 320mm)

Weight

5.83lbs (2.65kg)

BELTPACK

Channels

Two intercom channels (Selectable)
Program Audio (Assignable from Main Station)

Connectors

Intercom Line: (2) 3-pin XLR-M-F
Headset: 4-pin XLR-M & 2.5mm TRS jack
USB: Micro AB

Microphone Pre-Amplifier

Headset Mic Impedance: 200Ω (Dynamic)
Headset Mic Voltage 1.7V (Electret selectable)
Limiter: +23dB

The following specified for a route to four-wire output at 0dBu out:
Mic Gain: 60dB (Dynamic), 45dB (Electret)
Frequency Response: 300Hz – 10 kHz ±3dB
Contoured for Intelligibility
Distortion: <0.2% THD @ 1kHz
Noise: <-55dBu (Dynamic), <-65dBu (Electret)

Headphone Amplifier

Load Impedance: >32Ω
Output Level: +12dBu before clipping
Sidetone: -12dBu (selectable)

The following specified for a route from a four-wire input at 0dBu in:
Max Gain: 0dB
Frequency Response: 40Hz - 10kHz ±3dB
Distortion: <0.1% THD @ 1kHz
Noise: -65dBu
Headphone Limiter: 0dBu (selectable)

Power Requirements

4W
DC Voltage Range: 30-60 volts

Environmental

Max temperature is 45°C (113°F)
0 - 90% relative humidity

Dimensions

6" H x 4" W x 1" D
(152mm x 102mm x 25mm)

Weight

16oz (.454kg)



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)

HM Electronics, Inc. is a diverse group of companies providing solutions that enhance productivity and customer service in markets including restaurants, sports and professional audio. Founded in 1971, we sell, service and support products in 89 countries worldwide, via company-owned offices in the U.S., Canada, Europe, and China, and an extensive network of HME-authorized distributors, dealers and service agents. Every day quick service restaurants take over 24 million orders using HME systems. With the recent acquisition of Clear-Com, HME is the world's leading provider of professional intercom systems.

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