

HelixNet Powerline Device

Digital Partyline Solutions

Linking
People
Together



HelixNet Powerline Device (HXII-DPL)

Key Features and Benefits

HelixNet Powerline Device

- Networked Powerline Bridge
For: HelixNet on Arcadia or HMS-4X¹
- Powerline to HelixNet User Stations
To: Beltpack, Speaker & Remote Stations
- Device Status Indicators
- Central Diagnostics in Arcadia CCM
- Compact for Optimal Installation
- Multiple Installation Options
Portable
Surface Mount - Optional
Rack Mount - Optional

Powerline

- Digital over 3 pin XLR cable
- Passive Cabling Infrastructure
Supporting Y Splits & Daisy Chain
- Long Cable Distances
- Robust connectivity

Connectivity

- Ethernet
- Powerline
- DC Power Input

Capacity

- (24) Powerline Devices per system
- (1) Powerline per device
- (7) HelixNet Beltpacks or power equivalent Remote & Speaker Stations

HelixNet[®] is a networked partyline intercom with up to 24 channels and Program Audio over XLR, LAN or WAN.

Description

The HelixNet powerline device (HXII-DPL) facilitates connectivity of HelixNet user stations, beltpacks, speaker stations and remote stations to a HelixNet system host, such as the Arcadia Central Station or HelixNet HMS-4X¹ main station over powerline.

Powerline

Powerline is a connectivity method allowing Ethernet to be modulated on a 3-pin shielded XLR cable providing multiple devices on the line with power and network communication. Powerline may be split, daisy chained and otherwise distributed passively over traditional XLR infrastructure to provide various installation options.

Powerline Device

The HelixNet powerline device bridges Ethernet to Powerline and provides an injection of power for the devices on the Powerline. Using the powerline device HelixNet user stations, operating on compatible firmware versions, can connect to their paired HelixNet system host, such as the Arcadia Central Station or HelixNet HMS-4X¹ main station, via the system host's network interface.

HelixNet powerline device supports up to (7) HelixNet beltpacks or its power equivalent HelixNet remote and speaker stations. HelixNet beltpacks can be daisy chained using the optional SP-2 intercom splitter cable, or equivalent passive splitters.

HelixNet powerline device can be located anywhere on the network it is optimal to connect the powerline within the cabling infrastructure. Multiple powerline devices can be on the network, providing the appropriate user station capacity and quality of service required for the installation.

HelixNet powerline device includes simple indicators for device local troubleshooting of up-and-downstream cabling and overload conditions, while centrally the Arcadia Core Configuration Manager™ (CCM) accessible by any web browser, displays connection status and diagnostics information for all powerline connected devices.

¹HMS-4X is a legacy product. HMS-4X operation requires HLI-ET2 Ethernet Interface Module.

Installation Options

The HelixNet powerline device is designed to allow for various installation options in different environments. Compact portable form-factor allows for the device to be placed or mounted wherever needed. Supplied rubber feet can be installed on the bottom of the device to allow for “throwdown” style usage. Optional SM-100 surface mount allows the powerline device to be permanently installed with screws, straps or using 3rd party DIN rail clips. Optional RK-100 19” rack mount allows up to (4) HXII-DPL powerline devices to be mounted in 1 rack space. Heavy duty industrial Velcro is provided for optional installation of the external inline power supply.

Technical Specifications

Compatibility

Arcadia Central Station v2.11+

HelixNet HMS-4X¹ v4.5+²

HelixNet User Stations

Beltpack (HXII-BP, HBP-2X)

Speaker Station (HKII-KB, HKB-2X)³

Remote Station (HXII-RM, HRM-4X)³

Note: HelixNet User Stations must be upgraded to a compatible firmware version prior to regular use with the HXII-DPL Powerline Device. Upgrade options include: User station Network connection or HMS-4X¹ Powerline connection.

Capacity

(24) HXII-DPL Powerline Devices on a HelixNet System Host such as Arcadia or HMS-4X¹

Connectors

(1) Digital Intercom / XLR Powerline: 3-pin XLR-M

(1) LAN Ethernet: EtherCON RJ45

(1) DC Power: 3-pin KPJX-PM-3-S

Controls and Indicators

Front Panel:

(1) LAN / Network Activity Link & Activity LED - Amber

(1) Digital Intercom / XLR Powerline Link & Activity LED - Amber

(1) Overload LED - Red

(1) Power - Green

Rear Panel:

(1) LAN / Network Activity Link & Activity LED - Amber

(1) Digital Intercom / XLR Powerline Link & Activity LED - Amber

(1) Digital Intercom / XLR Powerline Overload LED - Red

Network

Data rate: 100Mb

Powerline

One independent network XLR Powerline

Frequency Modulated Ethernet - OFDM

Output Voltage: $\pm 28.5V$ DC

Output Current (Max): 0.8A per Powerline

Protected for cable shorts or overload

Frequency: 1.8 - 67.5MHz

Requires shielding integrity between different Powerlines

Support up to 7 beltpacks each

Support up to 2-7 remote & speaker stations each

Locally powered remote & speaker stations count as beltpack

Use [HelixNet Cable Calculator](#) to validate load and cable distance.

Power

Voltage: 48V DC

Current (Max): 1.8 A

Power (Max): 87 W

BTU (Max): 297 BTU/hr

Dependent on powerline connected devices

Input Power Connector: KPJX-PM-3-S

This unit is powered via:

AC Adapter - Inline:

Type: PSU-EXT-005 (supplied)

Input Voltage Range: 100 - 240V AC

Input Frequency Range: 50 - 60Hz

Input Power Connector: IEC-C14

Output Voltage: 48V DC

Output Current (Max): 1.88A

Output Power (Max): 90W

Output Power Connector: KPPX-3P

Cable Length: 59in (1.5m)

Dimensions:

1.3 x 2.1 x 5.23in (HxWxD)

(33 x 53 x 133mm)

Weight: 0.55lbs (0.25kg)

Mounting

VESA Sockets Center-to-Center: 2.95in (75mm)

VESA Thread Type: M4x10

Note: Velcro is included for optional mounting of PSU. Apply Velcro to plastic (non-label) surface and cure for 24 hours before use

Environmental

Operating: 32° to 104°F (0° to 40°C)

Storage: -22° to 158°F (-30° to 70°C)

Humidity: 20-90% Non-Condensing

Acoustical: 42 dB SPL A-Weighted @ 1 ft (32dB SPL A-Weighted @ 1 mtr)

Dimensions

Device: 1.555 x 4.213 x 7.78in (HxWxD)

(39.5 x 107 x 197.58mm) – Includes handles

Shipping: 5.5 x 8.5 x 12.25in (HxWxD)

(140 x 216 x 311mm)

Weight

Device: 1.3lbs (0.65kg) – Excludes power supply & regional power cable

Shipping: 5lbs (2.25kg) – Excludes regional power cable

¹HMS-4X is a legacy product. HMS-4X operation requires HLI-ET2 Ethernet Interface Module.

²Use with HMS-4X does not feature central pairing and diagnostics

³Remote and Speaker Stations are form, fit and functionally equivalent, differing in material and construction

Technical Specifications

SM-100 – Surface Mount Bracket (optional part)

Fits (1) HXII-DPL Powerline Device

HXII-DPL Mounting

(3) VESA75 patterns for HXII-DPL for center or side mounting

(4) M4 Counter sunk screw holes for each pattern

VESA Socket Pattern Center-to-Center: 2.95in (75mm) squared

3rd Party DIN Rail Clip Mounting

For use with Bud Industries Inc. Part number: DNC-4796

(1) M4 Counter sunk screw hole for 3rd party DIN rail clip

Center to SM-100 top edge: 0.734in (18.6mm)

Note: Use with flat head M4 screw.

Screw Head Mounting

(2) Keyholes for screw head mounting

Keyhole Position Center-to-Center: 5in (127mm)

Keyhole Diameter: 0.4-0.183in (10.16-4.65mm)

Strap Mounting

(4) Slots for Strap or Screw Mounting

Slot Position Center-to-Center: 5in (127mm)

Slot Width: 0.15in (3.81mm)

Slot Length: 0.75in (19.05mm)

Includes: (4) M4 x10 screws

Dimensions: 7.154 x 6.37 x 0.075in (HxWxD)

(181.7 x 161.8 x 1.9mm)

Weight: 0.9lbs (0.4kg)

RK-100 – Rackmount Kit (optional part)

Fits (4) HXII-DPL Powerline Devices or (1) FSII-SPL FreeSpeak II Splitter

HXII-DPL Mounting

(4) VESA75 patterns for HXII-DPL

(4) M4 Counter sunk screw holes for each pattern

VESA Screw Hole Pattern Center-to-Center: 2.95in (75mm) squared

FSII-SPL Mounting

(1) FSII-SPL pattern

(4) 4-40 Counter sunk screw holes

Max screw length: 0.25 in / 6.35 mm

Screw Hole Pattern Center-to-Center:

4.37 x 3.55in (WxD) (111 x 90.2mm)

Includes: (16) M4 x10 screws

Note: 4-40 x 0.2" Screws for FSII-SPL are not included

Dimensions: 1RU, 1.725 x 19 x 7.2in (HxWxD)

(43.82 x 482.6 x 183mm)

Weight: 3.6lbs (1.46kg)

Technical Specifications

Figure 1. SM-100 Front

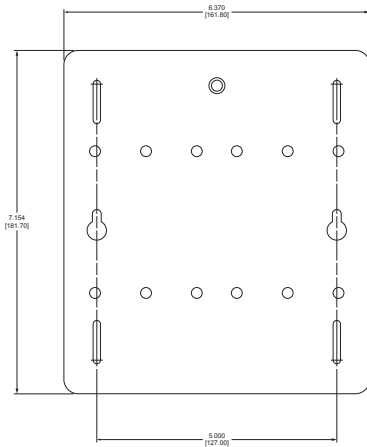


Figure 4. SM-100 with 3rd Party DIN Rail Clip

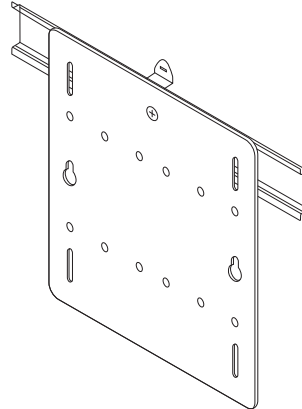


Figure 2. SM-100 with HXII-DPL for surface mounting

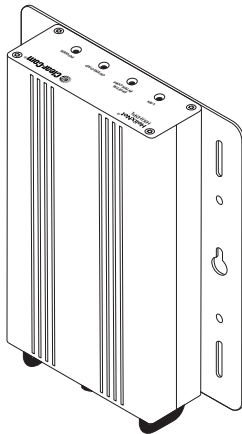


Figure 1. RK-100 Front

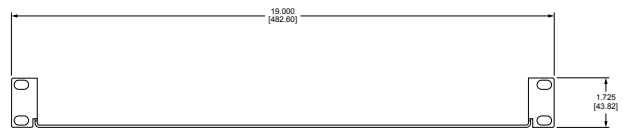


Figure 2. RK-100 Top

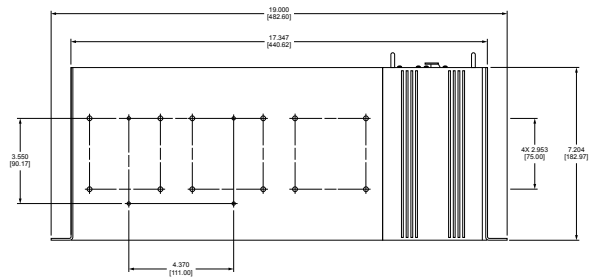


Figure 3. SM-100 with HXII-DPL and PSU for portable use

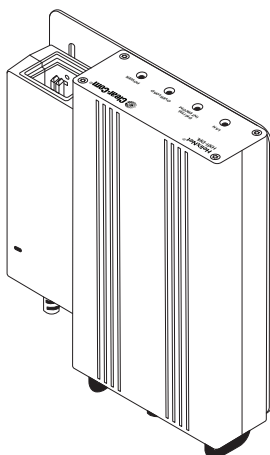
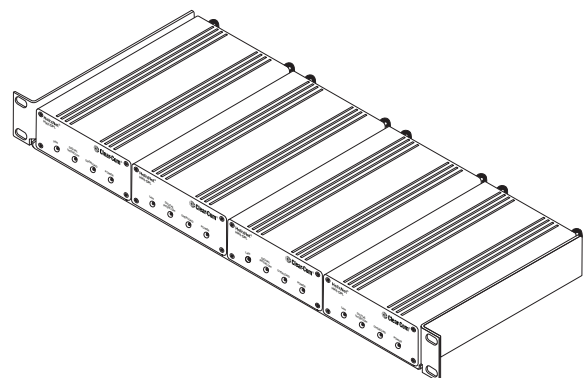


Figure 3. RK-100 with (4) HXII-DPL



Network Specifications (Firmware Version 4.5+)

Network Protocols

Ethernet IPv4–Unicast Audio and Control
mDNS–Multicast Device Discovery
Layer 3 routable with mDNS function limitations
HTTP–Management
TFTP–File Transport Protocol
NTP–Network Time Protocol
I.V. Core–Decentralized Network Routing & Mixing
IVP–Proprietary intercom Audio and Control
WavPack–Audio Codec

Network Ports

Unicast:

Port 69 UDP–Firmware File Server
Port 80 TCP–Web Interface, System Management, Expansion
Port 123 UDP–Time Stamps for Service Logs
Port 6001 TCP–System Management
Port 6001 UDP–Audio Streams

Multicast:

Port 5353 UDP–mDNS, Names, Discovery, Linking, Expansion
Optional for device names and linking, mandatory for HMS/HRM Expansion

Network Parameters

HMS-4X¹ Endpoint Resource Use: None

Bandwidth:

300-600 (max) kbps from each HelixNet endpoint audio input to HelixNet System Host
1200-2400 (max) kbps from HelixNet System Host to each HelixNet endpoint audio output

Network Jitter Tolerance:

<= 128ms jitter buffer per audio stream receiver automatically adjusted to network performance

QoS Tags: DSCP=34, Assured Forwarding (AF=41)

HelixNet Link-Local Default IP Address Range: 169.254.0.0/16

System Reserved IP Ranges:

10.0.0.0/16 for HelixNet endpoints
172.23.0.0/16 for HMS-4X Link Group

Note: See Arcadia datasheet for reserved IP Ranges

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 HelixNet Network Guide](#) for additional switch settings and network characteristics.

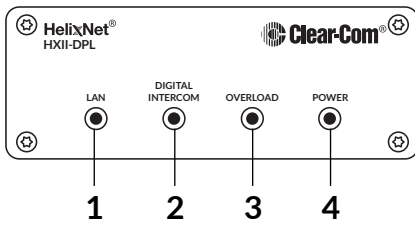
Note: HelixNet Powerline device is the functional equivalent of a dual port switch that otherwise does not generate network traffic or connections. Ports, protocols and other specifications listed in this section refer to the traffic that is passed through the HelixNet Powerline device between HelixNet System Host and Endpoints.

¹HMS-4X is a legacy product. HMS-4X operation requires HLI-ET2 Ethernet Interface Module.

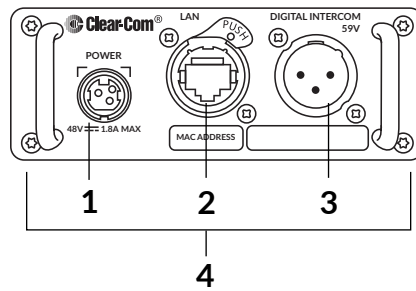
HXII-DPL Powerline Device

HelixNet Digital Partyline Solutions

Front



Back



Legend

Front

1. LAN / Network Link & Activity LED
2. Digital Intercom / XLR Powerline Link & Activity LED
3. Digital Intercom / XLR Powerline Overload LED
4. Power

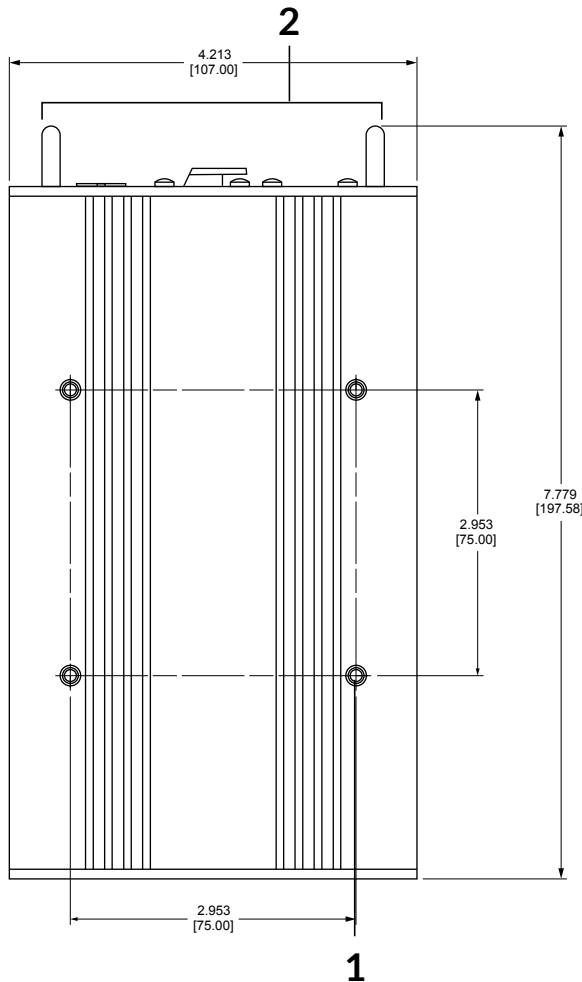
Back

1. DC Power Input
2. LAN / Network
3. Digital Intercom / XLR Powerline
4. Handles

Bottom

1. VESA 75 M4 Screw sockets for mounting accessories
2. Rubber feet (optionally installed)

Bottom



Order Code

HXII-DPL: HelixNet Powerline Device

Includes:

- (1) Inline PSU 90W 48V DC (PSU-EXT-005)
- (1) Rubber Feet kit (MECH-00379)
- (1) Velcro for PSU Mounting (235G032)

Optional Accessories (Sold Separately):

- SM-100 Surface Mount
- RK-100 Rack Mount
- SP-2 Intercom Splitter Cable - XLR-M to XLR-M & F
- SP-3 Intercom Splitter - (1) XLR-F to (3) XLR-M

Side

