

MPS-488HP Power Supply



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MPS-488HP Operating Instructions, PN 05.205.005.01 C

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CONTENTS

Chapter 1: Introduction	5
How to Use This Manual	5
MPS-488HP External Power Supply	5
Chapter 2: MPS-488HP Front and Rear Panels	7
MPS-488HP Front Panel	7
MPS-488HP Rear Panel	8
MPS-488HP Current Draw	11
Electrical Safety Guidelines	11
Chapter 3: Powering Loudspeakers with the MPS-488HP	13
Chapter 4: MPS-488HP RMS Option	15
Compass RMS Software	15
RMS Module	16
Neuron ID for RMS Module	16
Resetting the RMS Module	16
Discovering the MPS-488HP	17
Muting, Soloing, and Winking the MPS-488HP	17
Appendix A: MPS-488HP Accessories	19
Appendix B: Assembling Loudspeaker Cables	21
Appendix C: MPS-488HP Specifications	29

CHAPTER 1: INTRODUCTION

HOW TO USE THIS MANUAL

Make sure to read these instructions in their entirety before configuring a Meyer Sound MPS-488HP. In particular, pay close attention to material related to safety issues.

As you read these instructions, you will encounter the following icons for notes, tips, and cautions:



NOTE: A note identifies an important or useful piece of information relating to the topic under discussion.



TIP: A tip offers a helpful tip relevant to the topic at hand.



CAUTION: A caution gives notice that an action may have serious consequences and could cause harm to equipment or personnel, or could cause delays or other problems.

Information and specifications are subject to change. Updates and supplementary information are available at www.meyersound.com.

Meyer Sound Technical Support is available at:

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- **Web:** www.meyersound.com/support
- **Email:** techsupport@meyersound.com

MPS-488HP EXTERNAL POWER SUPPLY

The MPS-488HP IntelligentDC power supply delivers power and balanced audio to up to eight Meyer Sound loudspeakers that require an external DC power supply.



MPS-488HP External Power Supply

The 1-space rackmount MPS-488HP can be used with a number of products that feature IntelligentDC technology, such as: MM-4XP miniature loudspeaker, MM-10XP miniature subwoofer, and HMS series surround loudspeakers.

Meyer Sound's externally powered loudspeakers are equipped with onboard amplification and signal-processing circuits that store DC power and tolerate voltage drops (up to 30 percent), thereby accommodating light-gauge cables and lengthy cable runs. Powering loudspeakers from an external source eliminates the need for wiring conduits while still preserving the advantages of self-powered systems.

The MPS-488HP receives eight channels of balanced audio from its XLR female input connectors and routes the audio, along with DC power, to its eight output connectors. Input channels feature toggle switches that route audio to corresponding outputs only, or to adjacent, contiguous outputs. For example, channel input 1 can be routed to channel outputs 1–2 and channel input 3 can be routed to channel outputs 3–4. Another example would be to route channel input 1 to channel outputs 1–4 and channel input 5 to channel outputs 5–8. All eight channel inputs can be routed in parallel to their corresponding channel outputs.

The MPS-488HP's eight channel outputs are equipped with sophisticated microprocessor-controlled current limiting that protects each channel from short circuits and unexpected voltages. The channel outputs are available as either Phoenix™ 5-pin male connectors on the MPS-488HPP model, or SwitchCraft® EN3™ 5-pin female connectors on the MPS-488HPE model. Outputs can deliver DC power to loudspeakers at cable lengths up to 150 feet or 300 feet (depending on the loudspeaker model) with just 1 dB of loss in peak SPL using 18 AWG wire. The use of composite mul-

iconductor cables (such as Belden® 1502) allows a single cable to carry both audio and DC power from the MPS-488HP to the loudspeakers. Longer cable lengths are possible for moderate applications that don't drive the loudspeakers to maximum output, as well as for installations with heavier wire gauges.

NOTE: The MPS-488HP external power supply replaces the MPS-488 model, which was originally designed for use with MM-4XP loudspeakers. The MPS-488 is also compatible with larger IntelligentDC models, but can only power a maximum of four of these loudspeakers; when powering these loudspeakers with the MPS-488, they should only be connected to channel outputs 1, 3, 5, and 7 (do not use the even-numbered channel outputs).



MPS-488HP Model with Phoenix Output Connectors



MPS-488HPE Model with EN3 Output Connectors

The power supply's front panel has two LEDs per channel output that provide useful feedback on the status of the system. The blue voltage LEDs indicate when voltage is present for each channel output. The green load current LEDs indicate when a loudspeaker is connected to a channel output, glow brighter as the signal level increases, and flash when a short circuit is encountered.

Available as a factory-installed option is the RMS™ remote monitoring system module, which provides loudspeaker muting and monitoring of output voltage and load current parameters from a Mac®- or Windows®-based computer. For more information, see Chapter 4, "MPS-488HP RMS Option."



MPS-488HP with Factory-Installed RMS Option



MPS-488HPE with Factory-Installed RMS Option

CHAPTER 2: MPS-488HP FRONT AND REAR PANELS

MPS-488HP FRONT PANEL

The MPS-488HP front panel includes a power switch and LEDs for monitoring each loudspeaker channel.



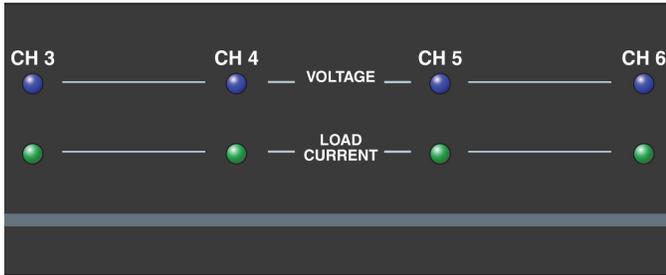
MPS-488HP Power Supply Front Panel

AC Power

The MPS-488HP is powered on and off with the AC Power switch.

Voltage and Load Current LEDs (1–8)

The Voltage and Load Current LEDs are useful for verifying whether each channel output has voltage and whether the connected loudspeakers are receiving DC power and audio.



MPS-488HP Channel LEDs

Blue Voltage LEDs (1–8)

The blue Voltage LEDs indicate whether voltage is present for the channel outputs. These LEDs should be lit when the MPS-488HP is powered on. The MPS-488HP's intelligent circuit protection shields connected loudspeakers from surges and shorts. When a blue Voltage LED is unlit and its corresponding green Load Current LED is flashing, a surge or short has been detected for the channel. If a surge or short is encountered, power down the MPS-488HP and inspect the loudspeaker cabling for that channel.

Table 1 lists the possible states for the Voltage LEDs.

Table 1: Voltage LEDs

State	Cause	Recommended Action
Unlit (all LEDs)	MPS-488HP not powered on	Verify the MPS-488HP is powered on and verify its power source
Unlit (single LED)	Surge or short encountered for channel (corresponding Load Current LED flashes)	Power down the MPS-488HP and inspect the loudspeaker cabling for the channel
Flashing (all LEDs)	Internal failure encountered	Service required. Power down and disconnect the MPS-488HP, then contact Meyer Sound
Flashing (single LED)	Residual voltage detected for channel	Unplug and plug the channel's loudspeaker cable; if the problem persists, verify the loudspeaker cabling

CAUTION: When a blue Voltage LED is unlit and its corresponding green Load Current LED is flashing, indicating a surge or short for the channel, power down the MPS-488HP and inspect the loudspeaker cabling for that channel.

Green Load Current LEDs (1–8)

The green Load Current LEDs indicate whether loudspeakers are connected to the channel outputs and receiving power. As a channel’s audio signal level increases, its LED glows brighter. If an LED is not lit, check that the channel’s Voltage LED is lit and verify the cable connection to the loudspeaker. The MPS-488HP’s intelligent circuit protection shields connected loudspeakers from surges and shorts. When a green Load Current LED flashes and its corresponding blue Voltage LED is unlit, a surge or short has been detected for the channel. If a surge or short is encountered, power down the MPS-488HP and inspect the loudspeaker cabling for that channel.

Table 2 lists the possible states for the Load Current LEDs.

Table 2: Load Current LEDs

State	Cause	Recommended Action
Unlit (all LEDs)	MPS-488HP not powered on or no loudspeakers connected	Verify the MPS-488HP is powered on and verify its power source; inspect the loudspeaker cabling
Unlit (single LED)	No loudspeaker connected	Power down the MPS-488HP and inspect the loudspeaker cabling for the channel
Flashing (all LEDs)	Internal failure encountered	Service required. Power down and disconnect the MPS-488HP, then contact Meyer Sound
Flashing (single LED)	Surge or short encountered for the channel (corresponding Voltage LED is unlit)	Power down the MPS-488HP and inspect the loudspeaker cabling for the channel
Glow brighter (single LED)	LED glows brighter as channel’s audio signal level increases	None required

CAUTION: When a blue Voltage LED is unlit and its corresponding green Load Current LED is flashing, indicating a surge or short for the channel, power down the MPS-488HP and inspect the loudspeaker cabling for that channel.

MPS-488HP REAR PANEL

The MPS-488HP rear panel includes an AC Input connector, eight channel XLR inputs for receiving source audio, eight channel outputs for delivering DC power and balanced audio, and seven Link switches for routing audio from inputs to outputs.



MPS-488HP Power Supply Rear Panel



MPS-488HPE Power Supply Rear Panel

AC Input

The MPS-488HP has a powerCON 20 twist-lock AC Input connector (line, neutral/line, earth). The connector can accept different power cable types for outlets used throughout the world. Make sure to use the correct power cable for the AC power in your area. The MPS-488HP operates at an AC voltage range of 100–240 V at 50–60 Hz.

Channel Inputs

Up to eight channels of balanced audio are received from the MPS-488HP’s eight channel inputs. The inputs are equipped with XLR female connectors (pin 1, ground; pin 2, signal positive; pin 3, signal negative). Make sure to use standard balanced XLR cables with all three pins connected on both ends.



MPS-488HP Channel Inputs

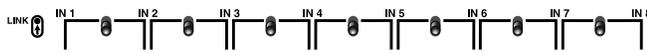
Channel inputs default to being routed to their corresponding channel outputs but can also be routed to adjacent outputs with the Link switches, though this affects their input impedance (see “Input Impedance for Linked Channel Inputs” on page 10).

Link Switches

Link switches determine how inputs are routed to outputs. When an input's Link switch is OFF (set to the down position), the input is only routed to its corresponding output, for example, Input 1 routed to Output 1.

When a Link switch is ON (set to the up position), the input is routed to its corresponding output and also to the next adjacent output, for example, Input 1 routed to Output 1 and Output 2.

If multiple adjacent Link switches are ON, the input is routed to each adjacent output. For example, when Link switches 1 and 2 are ON, Input 1 is routed to Outputs 1-3.



Link Switches

NOTE: Inputs are inactive when the Link switch for the preceding input is enabled. Connections should not be made to inactive inputs.

Link Switch Routing Examples

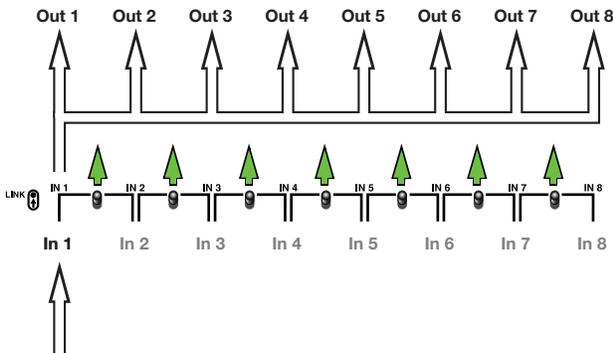
The following examples illustrate several common routing applications for the Link switches.

Routing One Input to Eight Outputs

To route one input to eight channel outputs:

- Set all Link switches to ON.

Link 1	Link 2	Link 3	Link 4	Link 5	Link 6	Link 7
On						

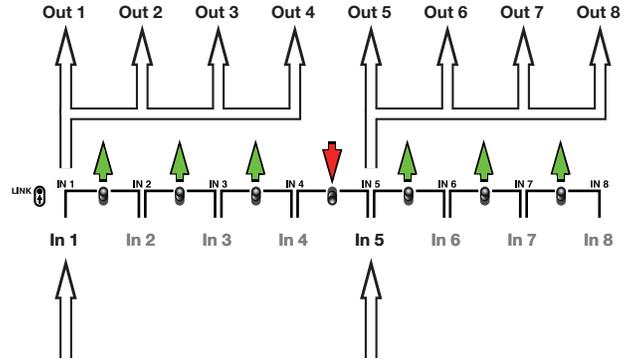


Routing Two Inputs to Four Outputs Each

To route two inputs to four channel outputs each:

- Set the Link 4 switch to OFF and all other Link switches to ON.

Link 1	Link 2	Link 3	Link 4	Link 5	Link 6	Link 7
On	On	On	Off	On	On	On

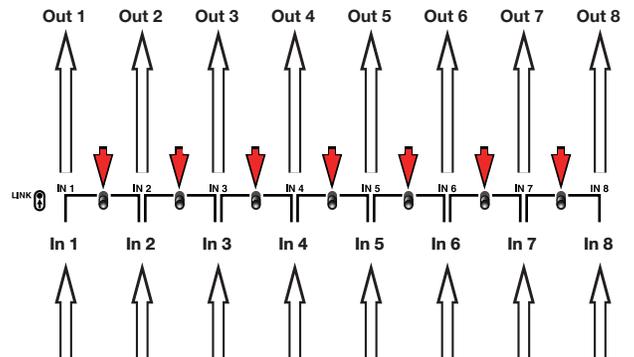


Routing Eight Inputs to Eight Separate Outputs

To route eight inputs to eight separate channel outputs:

- Set all Link switches to OFF.

Link 1	Link 2	Link 3	Link 4	Link 5	Link 6	Link 7
Off						



Input Impedance for Linked Channel Inputs

When a Link switch is enabled, the channel input's unbuffered source signal is transmitted in parallel to each linked channel output. This causes the channel input's impedance (normally 10 kOhms for one loudspeaker) to be reduced for each linked output. For example:

- 1 channel output, 10 kOhm input impedance
- 2 channel outputs, 5 kOhm input impedance
- 4 channel outputs, 2500 ohms input impedance
- 8 channel outputs, 1250 ohms input impedance

To avoid distortion when linking channel inputs, make sure the source device can drive the total load impedance of the linked loudspeakers. The audio source must be capable of producing +16 dBV (6.3 V rms, 9 V peak) into 600 ohms to produce the maximum peak SPL over the operating bandwidth of the loudspeaker.

 **NOTE:** Most source devices are capable of driving loads no smaller than 10 times their output impedance. To drive eight loudspeakers linked from a single channel input, the source device should have an output impedance of approximately 100 ohms or less.

Channel Outputs

The MPS-488HP's eight channel outputs deliver DC power (48 V DC) and balanced audio to up to eight loudspeakers. The channel outputs are available as either Phoenix 5-pin male connectors (on the MPS-488HPP model) or EN3 5-pin female connectors (on the MPS-488HPE model).

 **NOTE:** For information on cable requirements for your loudspeaker, refer to its operating instructions. For information on cables and cable accessories available from Meyer Sound, see Appendix A, "MPS-488HP Accessories."

 **TIP:** A single composite cable (such as Belden 1502 or equivalent) wired for both DC power and balanced audio can be used to connect loudspeakers to channel outputs.

 **CAUTION:** Make sure loudspeaker cables are wired correctly. For details on assembling loudspeaker cables, refer to Appendix B, "Assembling Loudspeaker Cables."

 **NOTE:** HMS-15 loudspeakers require power from two contiguous channels of the MPS-488HP. If audio signal is present on both channels connected to an HMS-15, the signal is summed internally.

MPS-488HPP Channel Outputs

The MPS-488HPP channel outputs are Phoenix 5-pin male connectors with three pins for balanced audio (positive, negative, and shield) and two pins for DC Power (positive and negative). The pins are clearly labeled on the MPS-488HPP rear panel.

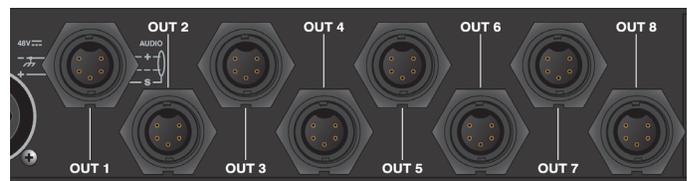


MPS-488HPP Channel Outputs

Each MPS-488HPP comes with eight Phoenix 5-pin female cable connectors for assembling loudspeaker cables.

MPS-488HPE Channel Outputs

The MPS-488HPE channel outputs are EN3 5-pin female connectors with three pins for balanced audio (positive, negative, and shield) and two pins for DC Power (positive and negative). The pins are clearly labeled on the MPS-488HPE rear panel.



MPS-488HPE Channel Outputs

Each MPS-488HPE comes with eight EN3 5-pin male cable connectors for assembling loudspeaker cables.

MPS-488HP CURRENT DRAW

The current draw for the MPS-488HP and its connected loudspeakers is dynamic and fluctuates as operating levels change. Since different cables and circuit breakers heat up at varying rates, it is important to understand the following types of current ratings and how they affect circuit breaker and cable specifications.

- **Idle Current** — The maximum rms current during idle periods.
- **Maximum Long-Term Continuous Current** — The maximum rms current during a period of at least 10 seconds. The maximum long-term continuous current is used to calculate temperature increases for cables, to ensure that cable sizes and gauges conform to electrical code standards. This current rating is also used as a rating for slow-reacting thermal breakers, which are recommended for loudspeaker power distribution.
- **Burst Current** — The maximum rms current during a period of around 1 second. The burst current is used as a rating for magnetic breakers. It is also used for calculating the peak voltage drop in long AC cable runs according to the following formula:

$$V_{pk}(\text{drop}) = I_{pk} \times R(\text{cable total})$$
- **Maximum Instantaneous Peak Current** — A rating for fast-reacting magnetic breakers.
- **Inrush Current** — The spike of initial current encountered when powering on.

For current draw values for the MPS-488HP with connected loudspeakers, see Appendix C, “MPS-488HP Specifications.”

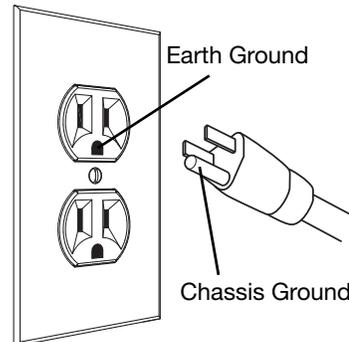
The minimum electrical service amperage required by an MPS-488HP is the sum of the maximum long-term continuous current for all loudspeakers connected to the MPS-488HP. An additional 30 percent above the minimum amperage is recommended to prevent peak voltage drops at the service entry.

 **NOTE:** For best performance, the AC cable voltage drop should not exceed 10 V, or 10 percent at 115 V and 5 percent at 230 V. Make sure that even with AC voltage drops that the AC voltage always remains within the operating window.

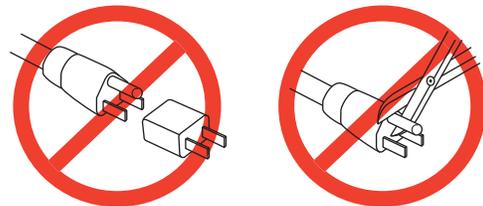
ELECTRICAL SAFETY GUIDELINES

Pay close attention to these important electrical and safety guidelines.

- This Meyer Sound product requires a grounded outlet. Always use a grounded outlet and plug.



- Do not use a ground-lifting adapter or cut the AC cable ground pin.



- The AC power connector must not be engaged or disengaged when under load or live.
- Disconnect the mains plug before disconnecting the powerCON plug from the unit.
- Keep all liquids away from the unit to avoid hazards from electrical shock.
- Do not operate the unit if the power cable is frayed or broken.

CHAPTER 3: POWERING LOUDSPEAKERS WITH THE MPS-488HP

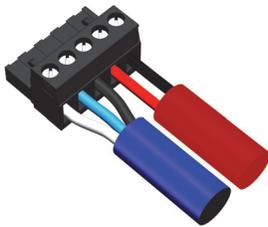
 **NOTE:** For information on cable requirements for your loudspeaker, refer to its operating instructions. For information on cables and cable accessories available from Meyer Sound, see Appendix A, “MPS-488HP Accessories.” For information on cable assembly, refer to Appendix B, “Assembling Loudspeaker Cables.”

 **CAUTION:** Make sure loudspeaker cables are wired correctly. For details on assembling loudspeaker cables, refer to Appendix B, “Assembling Loudspeaker Cables.”

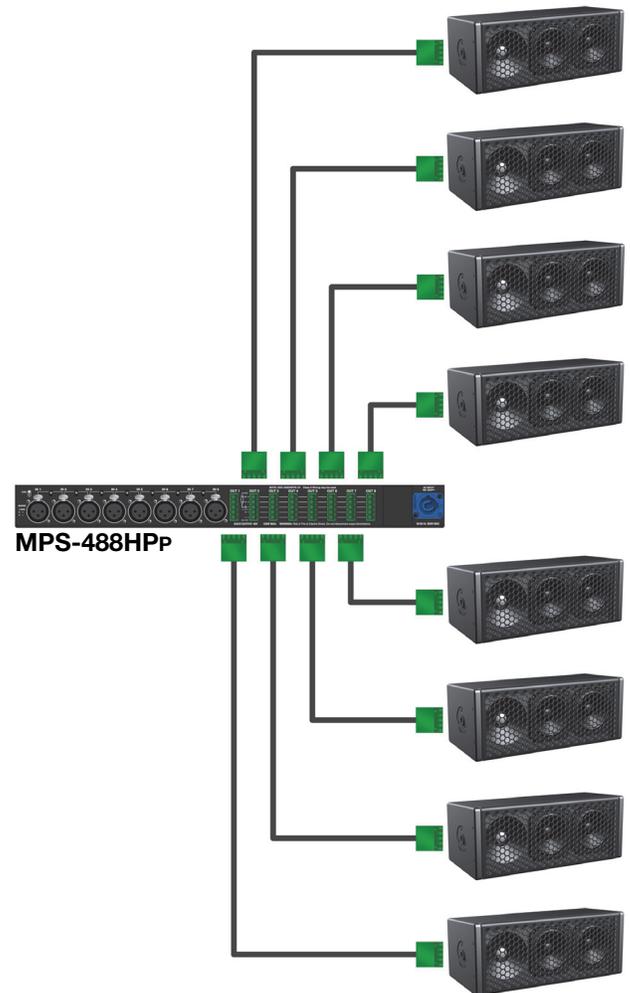
To power loudspeakers with the MPS-488HP:

1. Power off the MPS-488HP.
 2. Connect audio sources (from a mixer or processor) to the MPS-488HP channel inputs. Use balanced XLR cables.
 3. Use the MPS-488HP Link switches to route channel inputs to the desired channel outputs (see “Link Switches” on page 9).
 4. Connect the loudspeakers to the MPS-488HP channel outputs. Use composite cables (such as Belden 1502 or equivalent) wired for both DC power and balanced audio and outfitted with the appropriate connectors.
- When connecting loudspeakers equipped with Phoenix connectors to the MPS-488HP power supply, use Phoenix 5-pin female to Phoenix 5-pin female cables.

 **TIP:** With the MPS-488HP, you can use two separate cables for loudspeaker connections: a 2-conductor cable for DC power and a 3-conductor cable for balanced audio, both attached to a single Phoenix connector on each cable end. This allows you to use a larger gauge for the DC cable so you can achieve longer cable runs.



Phoenix Connector with Separate Cables



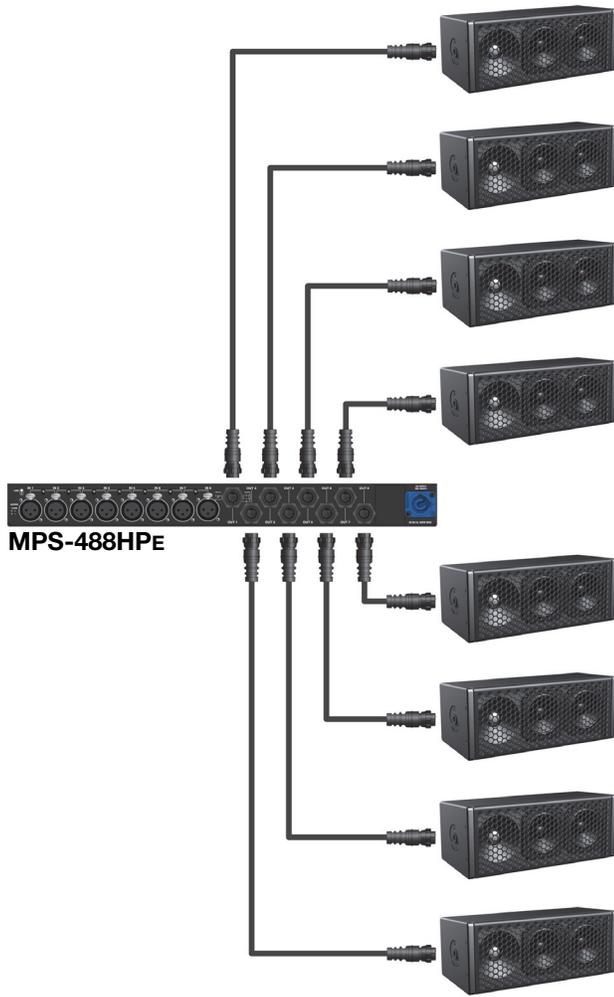
MPS-488HP with Eight UP-4XP Loudspeakers

 **NOTE:** HMS-15 loudspeakers require power from two contiguous channels of the MPS-488HP. If audio signal is present on both channels connected to an HMS-15, the signal is summed internally.

- When connecting loudspeakers equipped with EN3 connectors to the MPS-488HPE power supply, use EN3 5-pin male to EN3 5-pin female cables.

CAUTION: Make sure loudspeaker cables are wired correctly. For details on assembling loudspeaker cables, refer to Appendix B, “Assembling Loudspeaker Cables.”

5. Power on the MPS-488HP and monitor the LEDs on its front panel to verify the connections (see “Voltage and Load Current LEDs (1–8)” on page 7).
6. Check loudspeaker LEDs to verify whether the loudspeakers are ready to reproduce audio.
7. Enable output from the audio sources (from the mixer or processor) connected to the MPS-488HP.



MPS-488HPE with Eight UP-4XP Loudspeakers

- To join two EN3 cables, one with an EN3 5-pin male cable mount connector to one with an EN3 5-pin female cable mount connector, use an EN3 5-pin female-to-male cable coupler (PN 28.163.033.01).



- When connecting loudspeakers equipped with ECO-M connectors to the MPS-488HPP power supply, use Phoenix 5-pin female to ECO-M 7-pin female cables.

CHAPTER 4: MPS-488HP RMS OPTION

The RMS remote monitoring system module allows the MPS-488HP external power supply to be connected to an RMS network. RMS reports, in real time, the status and power usage of multiple Meyer Sound loudspeakers from a Mac or Windows-based computer. The host computer communicates with RMS-equipped loudspeakers and power supplies via RMServer™, a compact, Ethernet-based hardware unit with two FT-10 ports. RMServer stores system configurations internally, eliminating most manual data entry. Systems can be monitored from a computer at front-of-house or backstage using an Ethernet connection, or from a laptop anywhere within the venue over WiFi.

IntelligentDC loudspeakers are connected to an RMS network with the MPS-488HP (when equipped with the factory-installed RMS option). Up to eight IntelligentDC loudspeakers can be connected to the MPS-488HP with their voltage and DC current being monitored from Compass RMS software. Loudspeakers can also be muted and unmuted from the software. Supported loudspeakers include any IntelligentDC loudspeaker.

 **NOTE:** The RMS module is only available as a factory-installed option for the MPS-488HP. For more information, contact Meyer Sound Technical Support.

 **NOTE:** The MPS-488HP power supply occupies the same RMS bandwidth as four normal loudspeakers (four nodes). A maximum of 12 MPS-488HPs can be connected to a single RMServer.

 **NOTE:** For the latest RMS system requirements, visit the Meyer Sound website (<http://www.meyersound.com>).

COMPASS RMS SOFTWARE

Compass RMS™ software provides extensive system status and performance data for each active loudspeaker, including amplifier voltage, limiting activity, power output, fan and driver status, as well as mute and solo capability. Loudspeakers are added to the RMS network and assigned a node name during a one-time discovery procedure. Once loudspeakers are identified on the RMS network, they appear in Compass RMS as icons that can be customized to suit your needs.



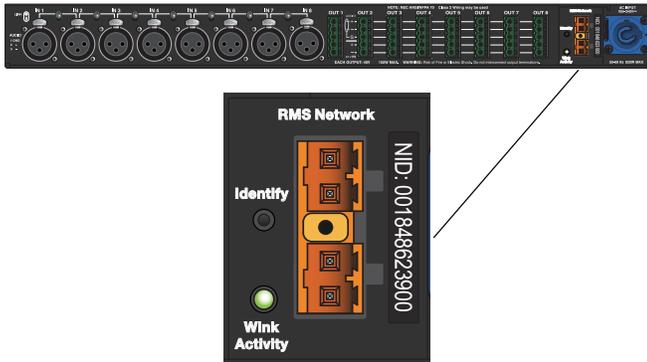
Compass RMS Window

Individual loudspeakers can be physically identified with the Wink option in RMS, which lights the Wink LED on the RMS module for that particular loudspeaker. Conversely, a loudspeaker can be identified in Compass RMS by pressing the Identify button on the loudspeaker's RMS module.

Loudspeaker icons can be arranged in Compass RMS and saved as pages to represent how the loudspeakers have been deployed in the system. Multiple pages can be saved and recalled for specific performances and venues.

RMS MODULE

The RMS user panel includes an Identify button, Wink/Activity LED, and two FT-10 Network connectors.



RMS Module

Identify Button

The Identify button serves the following functions:

- If the MPS-488HP has not yet been discovered on the RMS network (Wink/Activity LED not lit), press the Identify button to discover and enable it.
- To remove the MPS-488HP from the RMS network, press and hold the Identify button during startup (see “Discovering the MPS-488HP” on page 17).
- To *wink* a discovered MPS-488HP, press and hold the momentary Identify button on the rear panel. The Wink LED on the MPS-488HP icon in Compass RMS lights up and the Wink/Activity LED on the RMS user panel turns solid green. Release the Identify button to unwink the MPS-488HP.

 **TIP:** The Wink function is useful for identifying the physical MPS-488HP corresponding to an icon in Compass RMS.

 **TIP:** The MPS-488HP can also be winked by clicking the Wink button on the MPS-488HP icon in Compass RMS.

Wink/Activity LED (Green)

The green Wink/Activity LED indicates the status of the MPS-488HP:

- During startup, the LED flashes green 10 times.
- If the MPS-488HP has not yet been discovered on the RMS network, the LED is not lit after startup.

- If the MPS-488HP has been successfully discovered on the RMS network, the LED flashes green continuously and flashes more rapidly with increased data activity.
- When the MPS-488HP is winked, either by clicking the Wink button in Compass RMS or by pressing the Identify button on the RMS user panel, the LED is solid green. The LED remains solid green until the MPS-488HP is unwinked.

 **TIP:** The Wink function is useful for identifying the physical MPS-488HP corresponding to an icon in Compass RMS.

RMS Network Connectors

The Weidmuller 2-conductor, locking connectors transfer data to and from the RMS network. Two connectors are provided to allow for easy connection of multiple (daisy-chained) RMS devices on the network. Included with each RMS-equipped MPS-488HP are RMS cable connectors and mounting blocks for constructing RMS cables. The RMS blocks allow cables to be securely attached to the RMS module with screws.

NEURON ID FOR RMS MODULE

Each RMS module has a unique 12-character Neuron ID (NID) that identifies the MPS-488HP on the network. The NID is automatically detected by RMServer. The NID label is located on the RMS user panel near the orange Network connectors.

RESETTING THE RMS MODULE

You can use the Identify button to reset the RMS module when powering on the MPS-488HP. This will cause the MPS-488HP to be removed from the RMS network.

To reset the RMS module:

1. Power down the MPS-488HP by pressing its power switch.
2. Press and hold the Identify button.
3. While continuing to hold down the Identify button, power on the MPS-488HP by pressing its power switch.
4. After the Wink/Status LED flashes on and off, release the Identify button. The RMS module is reset and the MPS-488HP is removed from the RMS network.

DISCOVERING THE MPS-488HP

The MPS-488HP is discovered in Compass in the same manner as loudspeakers. To discover the MPS-488HP, it must be powered on and connected to the network. The MPS-488HP is added to the network as four loudspeaker nodes, regardless of the number of loudspeakers connected to it.

MUTING, SOLOING, AND WINKING THE MPS-488HP

The MPS-488HP icon in the RMS program includes global Mute and Solo buttons at the bottom of the icon that affect all loudspeakers connected to the MPS-488HP, as well as a Wink button for identifying the power supply. The MPS-488HP icon also includes individual Mute buttons for each loudspeaker channel.



NOTE: Because 48 V DC loudspeakers store DC power to deliver high power peaks with light cable gauges and long cable runs, muting and unmuting for these loudspeakers incurs a delay to ramp down or ramp up their power supplies. This results in less responsive muting and unmuting for the 48 V DC loudspeakers when compared to other self-powered loudspeakers.

APPENDIX A: MPS-488HP ACCESSORIES

PHOENIX AND EN3 LOUDSPEAKER CABLES

The following Phoenix and EN3 cables are available from Meyer Sound and can be used to connect loudspeakers to MPS-488HP power supplies.



NOTE: Phoenix and EN3 loudspeaker cables and bulk cable use Belden 1502R (regular) or Belden 1502P (plenum) cable. Belden 1502 is a composite cable comprised of two 18 AWG wires for DC power, two 22 AWG wires for balanced audio, and one 24 AWG wire for audio shield.

Phoenix and EN3 Loudspeaker Cables

Part Number	Cable	Color	Coating	Length
524.014	Bulk (no connectors)	Black	Regular	500 ft (152 m) spool
524.015	Bulk (no connectors)	White	Plenum	500 ft (152 m) spool
28.163.009.01	EN3 5-pin female to pigtail	Black	Regular	10 ft (3 m)
28.163.009.11	EN3 5-pin female to pigtail	White	Plenum	10 ft (3 m)
28.163.009.21	EN3 5-pin female to EN3 5-pin male	Black	Regular	10 ft (3 m)
28.163.009.22				20 ft (6.1 m)
28.163.009.23				30 ft (9.1 m)
28.163.009.24				50 ft (15.2 m)
28.163.009.25				100 ft (30.5 m)
28.163.009.26				150 ft (45.7 m)
28.163.009.31	EN3 5-pin female to EN3 5-pin male	White	Plenum	10 ft (3 m)
28.163.009.32				20 ft (6.1 m)
28.163.009.33				30 ft (9.1 m)
28.163.009.34				50 ft (15.2 m)
28.163.009.35				100 ft (30.5 m)
28.163.009.36				150 ft (45.7 m)
28.163.033.01	Cable coupler EN3 5-pin female-to-male (joins two cables: one with an EN3 5-pin male cable mount connector to one with an EN3 5-pin female cable mount connector)			5 in (0.12 m)
28.163.009.41	EN3 5-pin female to Phoenix 5-pin female	Black	Regular	10 ft (3 m)
28.163.009.42				20 ft (6.1 m)
28.163.009.43				30 ft (9.1 m)
28.163.009.44				50 ft (15.2 m)
28.163.009.45				100 ft (30.5 m)
28.163.009.46				150 ft (45.7 m)
28.163.009.51	EN3 5-pin female to Phoenix 5-pin female	White	Plenum	10 ft (3 m)
28.163.009.52				20 ft (6.1 m)
28.163.009.53				30 ft (9.1 m)
28.163.009.54				50 ft (15.2 m)
28.163.009.55				100 ft (30.5 m)
28.163.009.56				150 ft (45.7 m)

PHOENIX AND EN3 CABLE CONNECTORS AND ADAPTERS

The following cable connectors and adapters are available from Meyer Sound.

Phoenix and EN3 Cable Connectors and Adapters

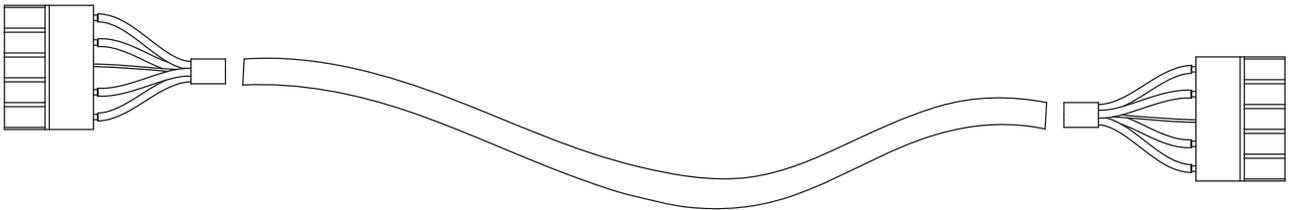
Part Number	Connector/Adapter	Use
484.065	Phoenix 5-pin female cable mount connector	Connects to MPS-488HP channel outputs and loudspeakers equipped with Phoenix connectors
468.069	EN3 5-pin female cable mount connector	Connects to loudspeakers equipped with EN3 connectors
468.071	EN3 5-pin male cable mount connector	Connects to MPS-488HP channel outputs
468.072	EN3 5-pin female inline cable adapter	Connects to EN3 5-pin male cable mount connector
468.073	EN3 5-pin male inline cable adapter	Connects to EN3 5-pin female cable mount connectors
468.081	ECO-M 7-pin female cable mount connector	Connects to loudspeakers equipped with ECO-M 7-pin male panel mount connectors
28.163.033.01	Cable coupler EN3 5-pin female-to-male (5-inch, 0.12 m)	Joins two cables: one with an EN3 5-pin male cable mount connector to one with an EN3 5-pin female cable mount connector

APPENDIX B: ASSEMBLING LOUDSPEAKER CABLES

CAUTION: When wiring loudspeaker cables, it is extremely important that each pin be wired correctly. Make sure the 48 V DC from the external power supply is wired directly (and only) to the 48 V DC pins on the loudspeaker connector, and that the polarity is observed (negative to negative, positive to positive) to avoid damage to the loudspeaker. In addition, make sure that audio pins are wired correctly; polarity reversals for audio signals affect system performance.

ASSEMBLING PHOENIX-TO-PHOENIX LOUDSPEAKER CABLES

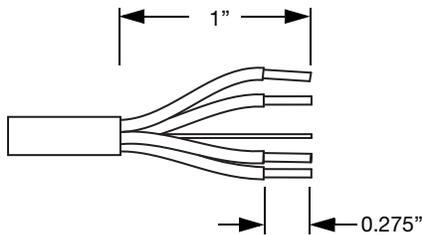
When connecting loudspeakers and power supplies equipped with Phoenix connectors, you need a Phoenix 5-pin female to Phoenix 5-pin female cable. The following procedure documents how to assemble this cable.



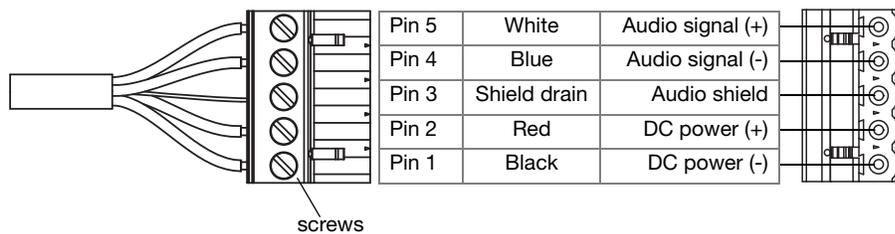
Assembled Phoenix-to-Phoenix Cable

To assemble a Phoenix-to-Phoenix cable:

1. If the cable has not yet been stripped, strip one end of the cable. Strip the outer shielding by 1 inch and then strip the black, red, blue, and white wires by 0.275 inch.



2. Insert the five exposed conductors into the five cable holes in a Phoenix 5-pin female cable mount connector. Use the following wiring scheme.



Pin Destinations for Phoenix 5-Pin Female Cable Mount Connector

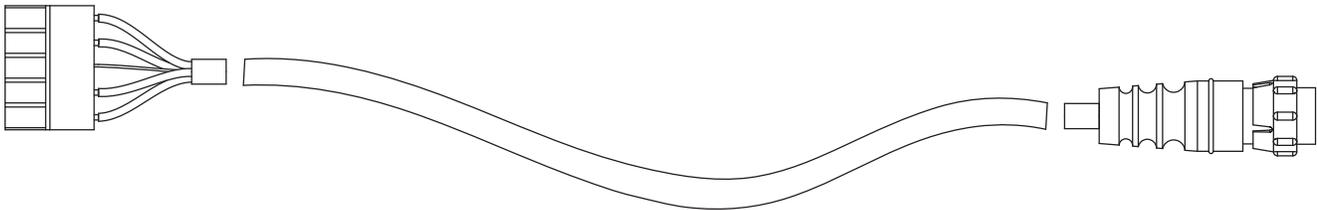
- Secure the conductors by tightening the five screws in the Phoenix cable mount connector. Screws should be torqued to 5–6 Nm (4.4–5.3 In-Lbs).

CAUTION: Screws should not be inserted into the Phoenix connector while the connector rests in a mating plug. Doing so will damage the contacts. During assembly, the Phoenix connector should only be held in place externally.

- Repeat the previous steps and attach the other end of the cable to another Phoenix 5-pin female cable mount connector.
- Verify the wiring polarity is correct for both cable ends.

ASSEMBLING PHOENIX-TO-EN3 LOUDSPEAKER CABLES

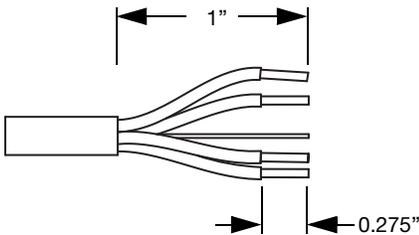
When connecting loudspeakers equipped with EN-3 connectors to the MPS-488HPp power supply, you need a Phoenix 5-pin female to EN3 5-pin female cable. The following procedure documents how to assemble this cable. If you are starting with an EN3-to-pigtail cable, you can skip steps 4–7 in this procedure.



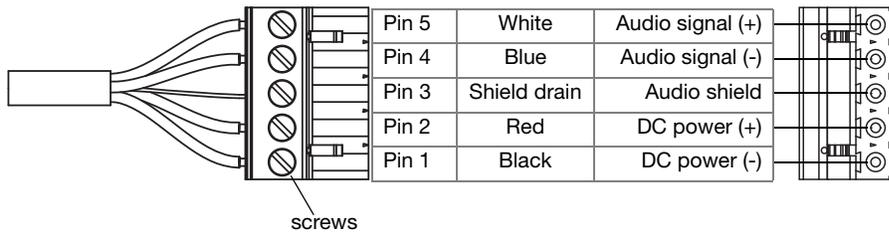
Assembled Phoenix-to-EN3 Cable

To assemble a Phoenix-to-EN3 cable:

- If the cable has not yet been stripped, strip one end of the cable. Strip the outer shielding by 1 inch and then strip the black, red, blue, and white wires by 0.275 inch.



2. Insert the five exposed conductors into the five cable holes in a Phoenix 5-pin female cable mount connector. Use the following wiring scheme.

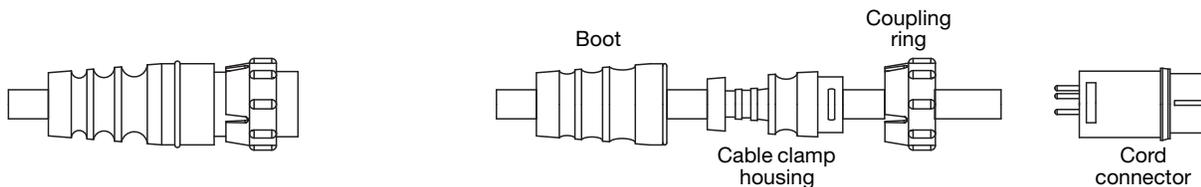


Pin Destinations for Phoenix 5-Pin Female Cable Mount Connector

3. Secure the conductors by tightening the five screws in the Phoenix cable mount connector. Screws should be torqued to 5–6 Nm (4.4–5.3 In-Lbs).

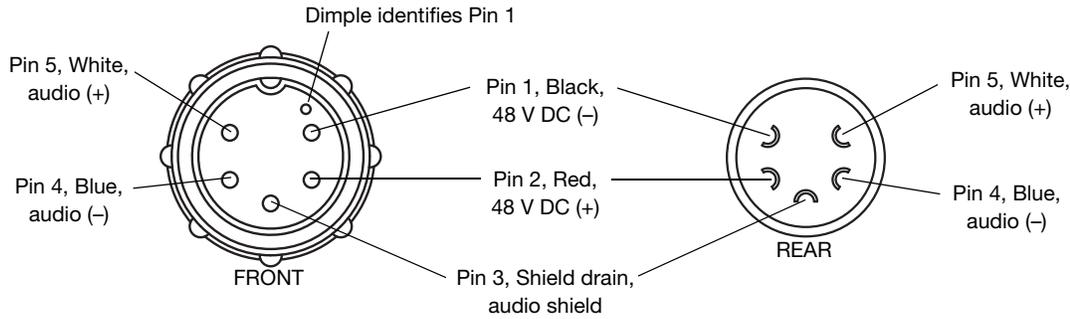
CAUTION: Screws should not be inserted into the Phoenix connector while the connector rests in a mating plug. Doing so will damage the contacts. During assembly, the Phoenix connector should only be held in place externally.

4. If the other (EN3) end of the cable has not been stripped, strip the outer shielding 1 inch and then strip the black, red, blue, and white wires 0.275 inch.
5. Disassemble the EN3 5-pin female connector and feed the stripped cable through the boot, cable clamp housing, and coupling ring.



EN3 5-Pin Female Cable Mount Connector, Assembled (Left), Disassembled (Right)

6. Solder the five exposed conductors to the five pins on the EN3 cord connector using the following wiring scheme.



Pin Destinations for EN3 5-Pin Female Cable Mount Connector

7. Reassemble the EN3 5-pin female connector:

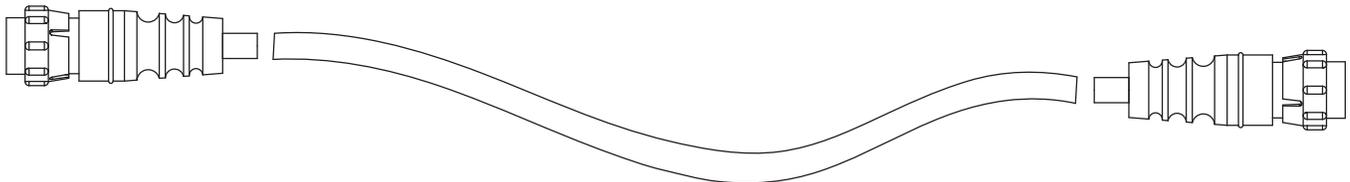
- Align the coupling ring's side notches with the cord connector's side notches and slide the couple ring onto the cord connector.
- Carefully insert the end of the cable clamp housing into the cord connector until it locks into place. Snap the cable clamps in the cable clamp housing into their compartments.
- Slide the boot forward so it covers the cable clamp housing completely.

8. Verify the wiring polarity is correct for both cable ends.

ASSEMBLING EN3-TO-EN3 LOUDSPEAKER CABLES

When connecting loudspeakers and power supplies equipped with EN3 connectors, you need an EN3 5-pin female to EN3 5-pin male cable. The following procedure documents how to assemble this cable. If you are starting with an EN3-to-pigtail cable, you can skip step 5 in this procedure.

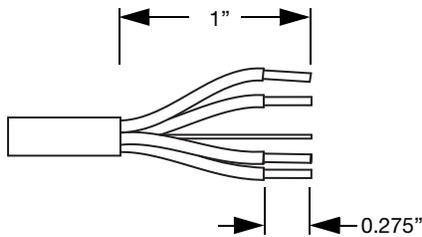
 **NOTE:** Cable mount connectors cannot connect to other cable mount connectors. Cable mount connectors can only connect to panel mount connectors or inline connectors. To extend cables with EN3 connectors on both ends you can use an EN3 5-pin female-to-male cable coupler.



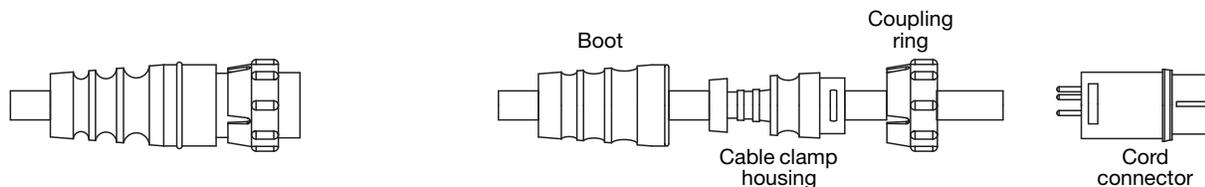
Assembled EN3-to-EN3 Cable

To assemble an EN3-to-EN3 loudspeaker cable:

1. If the cable has not yet been stripped, strip one end of the cable. Strip the outer shielding by 1 inch and then strip the black, red, blue, and white wires by 0.275 inch.

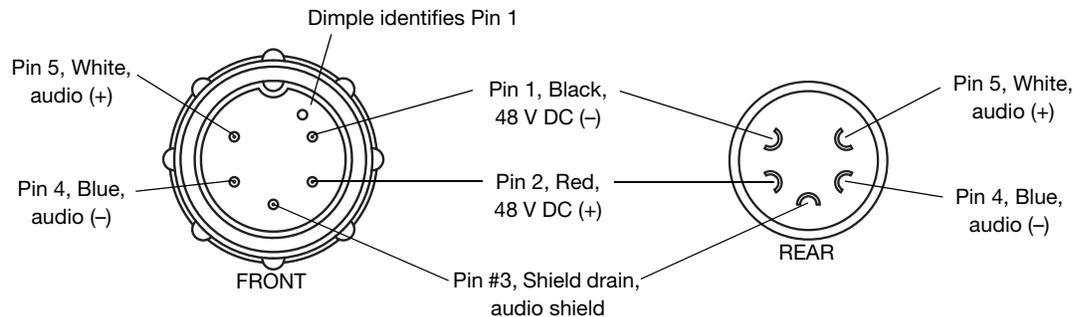


2. Disassemble the EN3 5-pin male connector and feed the stripped cable through the boot, cable clamp housing, and coupling ring.



EN3 5-Pin Male Cable Mount Connector, Assembled (Left), Disassembled (Right)

3. Solder the five exposed conductors to the five pins on the EN3 cord connector using the following wiring scheme.

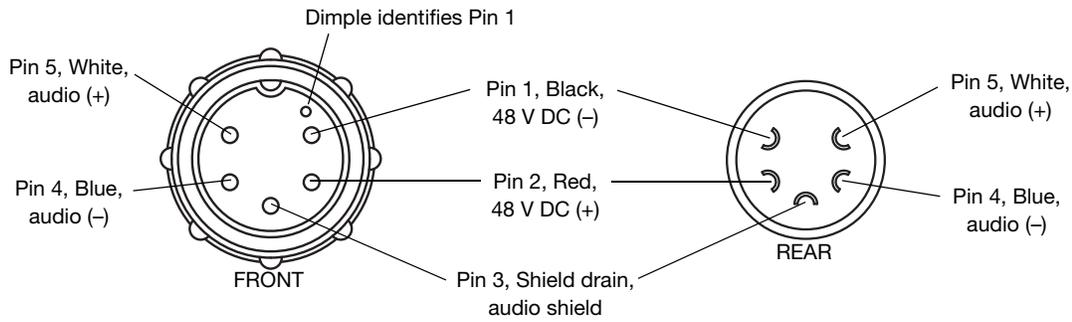


Pin Destinations for EN3 5-Pin male Cable Mount Connector

4. Reassemble the EN3 5-pin male connector:

- Align the coupling ring's side notches with the cord connector's side notches and slide the couple ring onto the cord connector.
- Carefully insert the end of the cable clamp housing into the cord connector until it locks into place. Snap the cable clamps in the cable clamp housing into their compartments.
- Slide the boot forward so it covers the cable clamp housing completely.

5. Repeat the previous steps to attach the EN3 5-pin female connector to the other end of the cable.

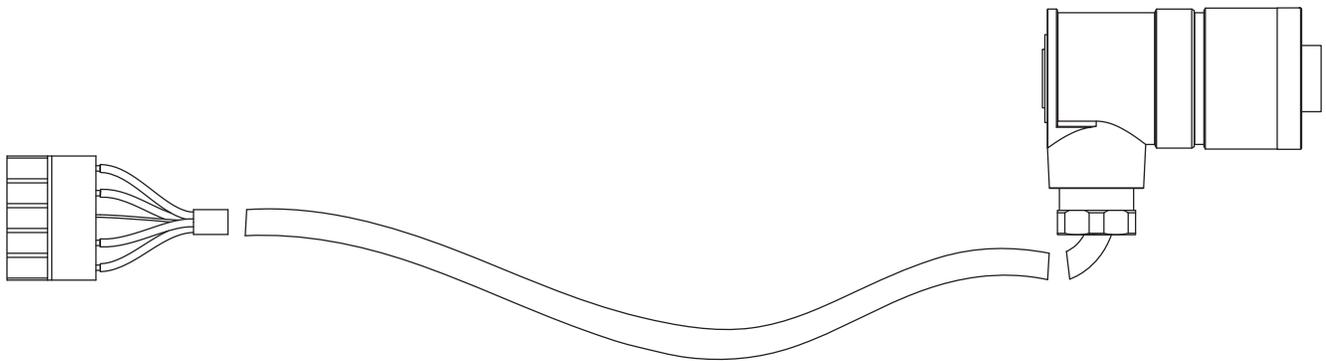


Pin Destinations for EN3 5-Pin Female Cable Mount Connector

6. Verify the wiring polarity is correct for both cable ends.

ASSEMBLING PHOENIX-TO-ECO-M LOUDSPEAKER CABLES

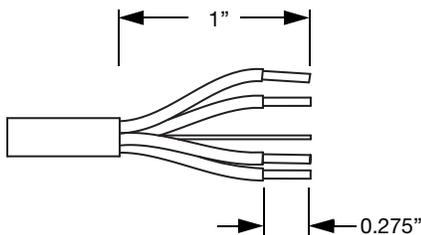
When connecting loudspeakers and power supplies equipped with combination of Phoenix and ECO-M connectors, you need a Phoenix 5-pin female to ECO-M 7-pin female cable. The following procedure documents how to assemble this cable.



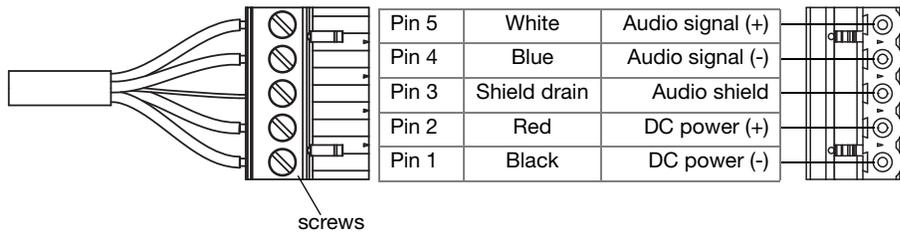
Assembled Phoenix-to-ECO-M Cable

To assemble a Phoenix-to-ECO-M cable:

1. If the cable has not yet been stripped, strip one end of the cable. Strip the outer shielding by 1 inch and then strip the black, red, blue, and white wires by 0.275 inch.



2. Insert the five exposed conductors into the five cable holes in a Phoenix 5-pin male cable mount connector. Use the following wiring scheme.

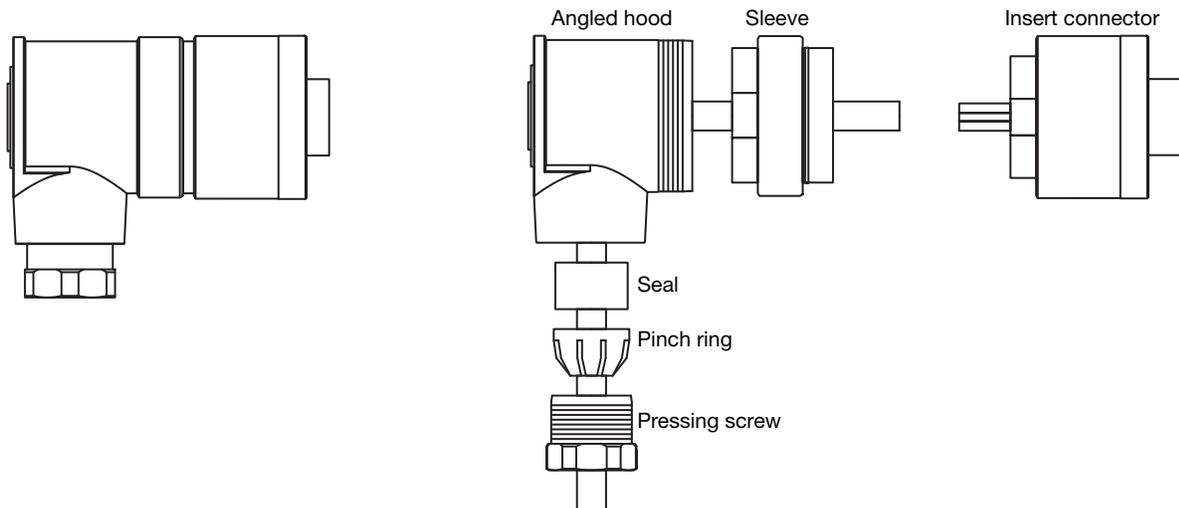


Pin Destinations for Phoenix 5-Pin Male Cable Mount Connector

3. Secure the conductors by tightening the five screws in the Phoenix cable mount connector. Screws should be torqued to 5–6 Nm (4.4–5.3 In-Lbs).

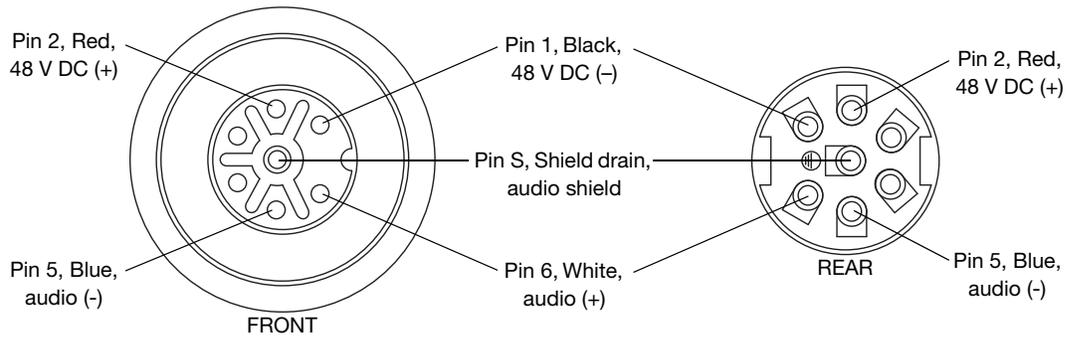
CAUTION: Screws should not be inserted into the Phoenix connector while the connector rests in a mating plug. Doing so will damage the contacts. During assembly, the Phoenix connector should only be held in place externally.

4. If the other (ECO-M) end of the cable has not been stripped, strip the outer shielding 1 inch and then strip the black, red, blue, and white wires 0.100 inch.
5. Disassemble the ECO-M 7-pin female connector and feed the stripped cable through the pressing screw, pinch ring, seal, angled hood, and sleeve.



ECO-M 7-Pin Female Cable Mount Connector, Assembled (Left) and Disassembled (Right)

6. Fasten the five exposed conductors to the (1, 2, S, 5, and 6) pins on the ECO-M insert connector using the following wiring scheme.



Pin Destinations for ECO-M 7-Pin Female Cable Mount Connector

7. Reassemble the ECO-M 7-pin female connector:
- Return the sleeve to the angled hood and secure it with the insert connector.
 - Return the seal and pinch ring to the angled hood and secure it with the pressing screw.
8. Verify the wiring polarity is correct for both cable ends.

APPENDIX C: MPS-488HP SPECIFICATIONS

MPS-488HP Specifications

FRONT PANEL	
LEDs	Eight LEDs to indicate output voltage Eight LEDs to indicate load current
REAR PANEL	
Audio Inputs	Eight XLR 3-pin female connectors Link switches to route inputs to outputs
Channel Outputs	On MPS-488HPP model, eight Phoenix 5-pin male connectors On MPS-488HPE model, eight EN3 5-pin male connectors
Output Voltage	48 V DC per channel (with intelligent circuit protection against surges and shorts)
AC POWER	
AC Connector	powerCON 20
Safety Rated Voltage Range	100–240 V AC; 50–60 Hz
<i>Current Draw with Eight MM-4XP Loudspeakers</i>	
Idle	0.73 A rms (115 V AC); 0.60 A rms (230 V AC); 0.82 A rms (100 V AC)
Maximum Long-Term Continuous	2.19 A rms (115 V AC); 0.99 A rms (230 V AC); 2.48 A rms (100 V AC)
Burst	5.94 A rms (115 V AC); 2.98 A rms (230 V AC); 6.62 A rms (100 V AC)
Maximum Instantaneous Peak	6.87 A peak (115 V AC); 5.32 A peak (230 V AC); 9.10 A peak (100 V AC)
Inrush	20.0 A peak (115 V AC); 20.0 A peak (230 V AC); 20.0 A peak (100 V AC)
<i>Current Draw with Eight UP-4XP Loudspeakers</i>	
Idle	1.02 A rms (115 V AC); 0.68 A rms (230 V AC); 1.18 A rms (100 V AC)
Maximum Long-Term Continuous	4.15 A rms (115 V AC); 2.03 A rms (230 V AC); 4.83 A rms (100 V AC)
Burst Current	6.24 A rms (115 V AC); 2.32 A rms (230 V AC); 6.29 A rms (100 V AC)
Maximum Instantaneous Peak	10.18 A peak (115 V AC); 5.46 A peak (230 V AC); 9.49 A peak (100 V AC)
Inrush	20.0 A peak (115 V AC); 20.0 A peak (230 V AC); 20.0 A peak (100 V AC)
<i>Current Draw with Eight HMS-10 Loudspeakers</i>	
Idle	1.23 A rms (115 V AC); 0.74 A rms (230 V AC); 1.53 A rms (100 V AC)
Maximum Long-Term Continuous	8.39 A rms (115 V AC); 4.44 A rms (230 V AC); 10.37 A rms (100 V AC)
Burst	11.98 A rms (115 V AC); 6.87 A rms (230 V AC); 12.19 A rms (100 V AC)
Maximum Instantaneous Peak	14.84 A peak (115 V AC); 10.59 A peak (230 V AC); 15.71 A peak (100 V AC)
Inrush	20.0 A peak (115 V AC); 20.0 A peak (230 V AC); 20.0 A peak (100 V AC)

MPS-488HP Specifications

Current Draw with Eight MM-10XP Subwoofers	
Idle	0.74 A rms (115 V AC); 0.54 A rms (230 V AC); 0.81 A rms (100 V AC)
Maximum Long-Term Continuous	3.08 A rms (115 V AC); 1.49 A rms (230 V AC); 3.46 A rms (100 V AC)
Burst	5.48 A rms (115 V AC); 3.21 A rms (230 V AC); 5.57 A rms (100 V AC)
Maximum Instantaneous Peak	9.56 A peak (115 V AC); 4.96 A peak (230 V AC); 10.28 A peak (100 V AC)
Inrush	20.0 A peak (115 V AC); 20.0 A peak (230 V AC); 20.0 A peak (100 V AC)
PHYSICAL	
Dimensions	1-space rackmount 19.00 inches W x 1.73 inches H x 13.57 inches D (483 mm x 44 mm x 345 mm)
Weight	15.5 lbs (6.6 kg)
ENVIRONMENTAL	
Operating Temperature	0° C to +45° C
Non Operating Temperature	-40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4,600 m (15,000 ft)
Non Operating Altitude	To 6,300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INDUSTRY CANADA COMPLIANCE STATEMENT

This Class A digital apparatus complies with Canadian ICES-003.

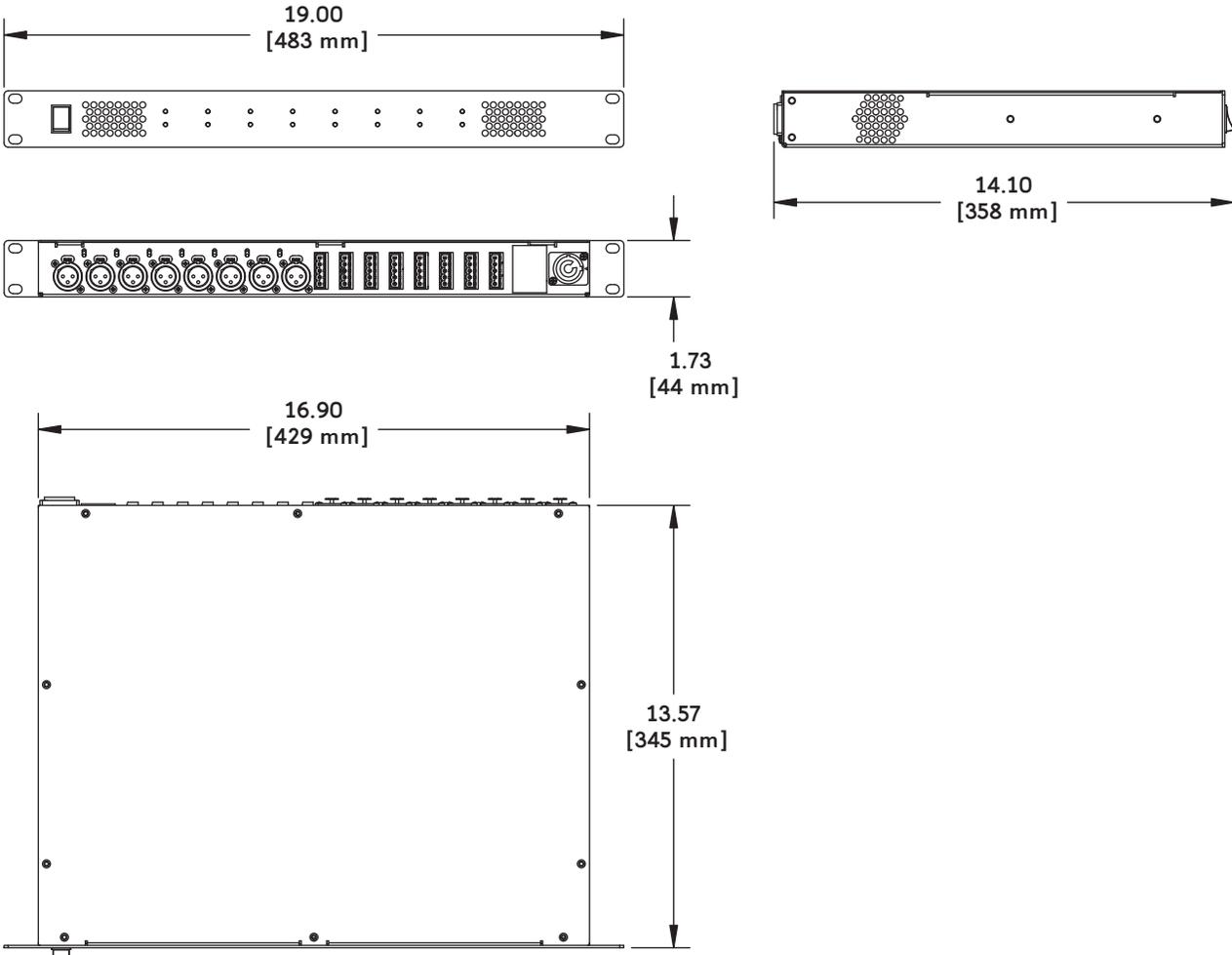
AVIS DE CONFORMITÉ À LA RÉGLEMENTATION D'INDUSTRIE CANADA

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

EN 55032 (CISPR 32) STATEMENT

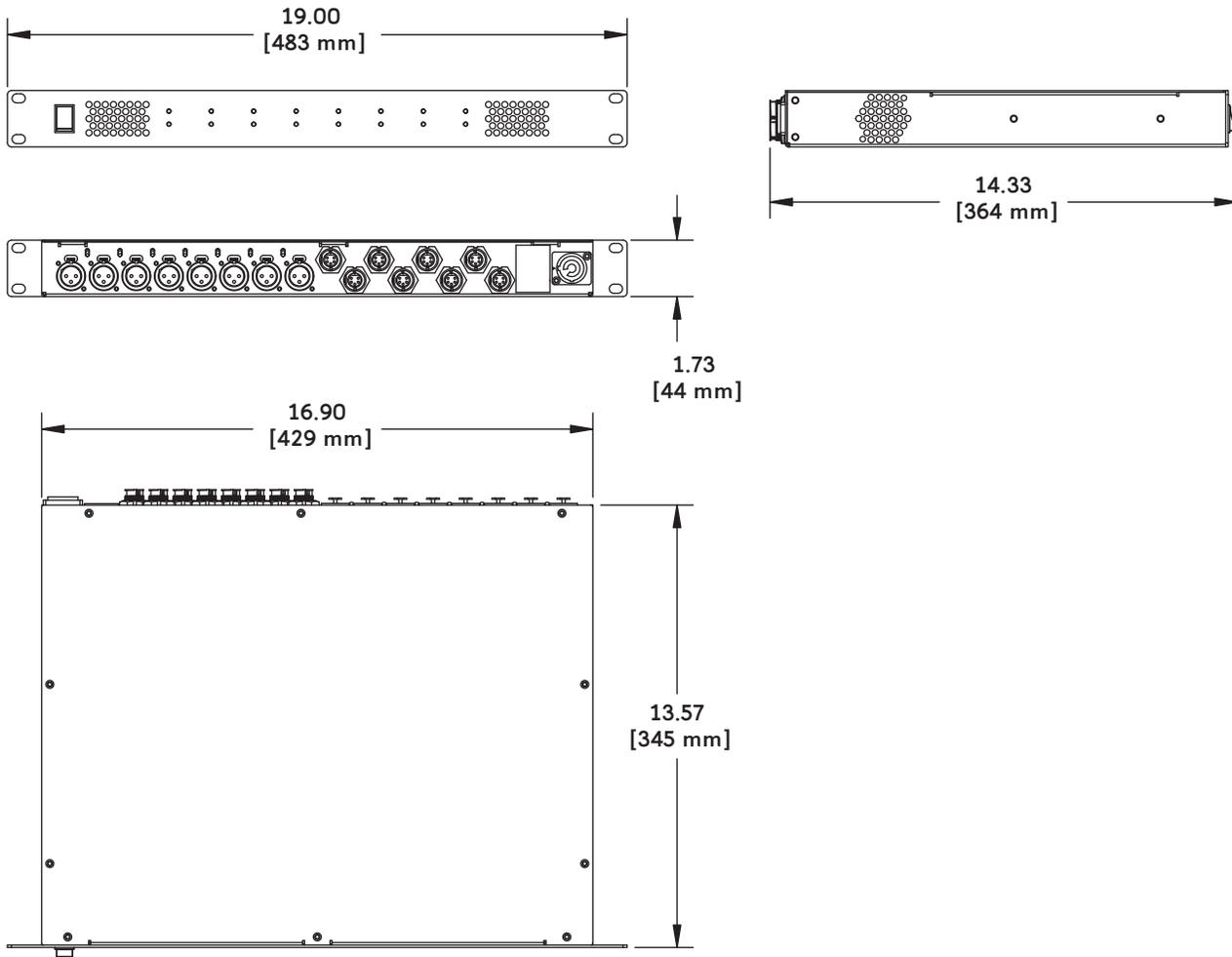
Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

MPS-488HPP DIMENSIONS



MPS-488HPP Dimensions

MPS-488HPE DIMENSIONS



MPS-488HPE Dimensions







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MPS-488HP Operating Instructions
PN 05.205.005.01 C