

# **EEAW**<sup>®</sup>

**EASTERN ACOUSTIC WORKS**



## Passive Point Source Application Guide

# Passive Point Source **Application Guide**

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# Passive Point Source Application Guide

## Using the Loudspeaker

Users will need to perform the following general tasks to properly put a EAW passive point source product into use. This manual includes details for each task.

1. Design the system using the Resolution™ 2 Design & Control Software (see the [program Help File for further information about using Resolution](#)).
2. Design and install suspension points to support the product(s)/rigging in intended locations and aimed in the desired directions. If ground-stacked, provide a level surface capable of supporting the total weight of the loudspeaker(s).
3. Connect the loudspeakers to a supported EAW Processor and/or power amp.
4. Set-up and adjust overall system gain and signal processing, as needed to maximize the array's performance for the application.
5. Provide training to operate the loudspeakers within their limits.
6. Provide regular inspection and maintenance to maintain the integrity of the installation and the performance of the loudspeakers.

## Sound System Design

See [Resolution Help File](#) for assistance in properly designing line array systems.

## Software

EAW Resolution 2 software is designed to assist in SPL predictions, determine splay angles, and calculate rigging limits for all line array items.

Always ensure that your EAW Resolution software is up-to-date.

For a complete list of recommended system requirements, please refer to the [Resolution 2 help file](#).

## Using EAW Resolution™

EAW Resolution is the key to determining the optimal loudspeaker configuration for any application. Rooted in EAW's proprietary FChart modeling and calculation engine, Resolution allows users to easily model any venue and visualize a wide variety of sound system designs to determine what particular configuration is best suited to the venue.

Users simply need to define the loudspeaker position, allowable trim, minimum clearance, and quantity available and use the Assistant to determine the optimal loudspeaker configuration for a given venue. In many situations no further prediction work will be necessary for optimal results. Users can also adjust the results after running the Assistant by manually adding/removing modules or adjusting coverage and observing changes in predicted results.

Please visit [www.eaw.com](http://www.eaw.com) to download the latest version of Resolution. Instructional videos can be viewed on [education.eaw.com](http://education.eaw.com).

# Passive Point Source Application Guide

## Passive Point Source Products - MKC Series



MKC50 - No grill



MKC80 - No grill

- ▶ Available in four models, MKC50, MKC60, MKC80, MKC120 (coaxial 5", 6", 8", and 12" respectively).
- ▶ MKC50 & MKC60 1 in Dome tweeter provides superior dispersion, fidelity and output.
- ▶ MKC80 & MKC120 Patented CSA coaxial horn provides superior control, fidelity and output.
- ▶ MKC80 & MKC120 Integrated handle and pole mount.
- ▶ MKC120 Integrated M10 mounting points.
- ▶ Inherent weather resistance for outdoor use when used under cover.
- ▶ Available WP Models for long term outdoor installations.
- ▶ Multitap transformer options provide solutions for distributed and fill systems.
- ▶ MKC Series can be deployed in either vertical or horizontal orientations.



MKC60 - No grill

# Passive Point Source Application Guide

## Passive Point Source Products - MKi Series

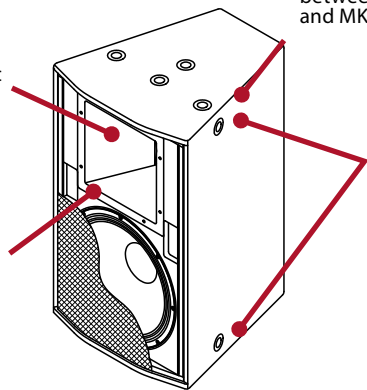


MK5326i ▶ 120° x 60°	MK5394j ▶ 90° x 45°
MK5364i ▶ 60° x 45°	MK5396i ▶ 90° x 60°
MK5366j ▶ 60° x 60°	MK5399j ▶ 90° x 90°
MK2326i ▶ 120° x 60°	MK2394j ▶ 90° x 45°
MK2364i ▶ 60° x 45°	MK2396i ▶ 90° x 60°
MK2366i ▶ 60° x 60°	MK2399j ▶ 90° x 90°
MK8126i ▶ 120° x 60°	MK8196i ▶ 90° x 60°

### INSIDE EAW TECHNOLOGIES

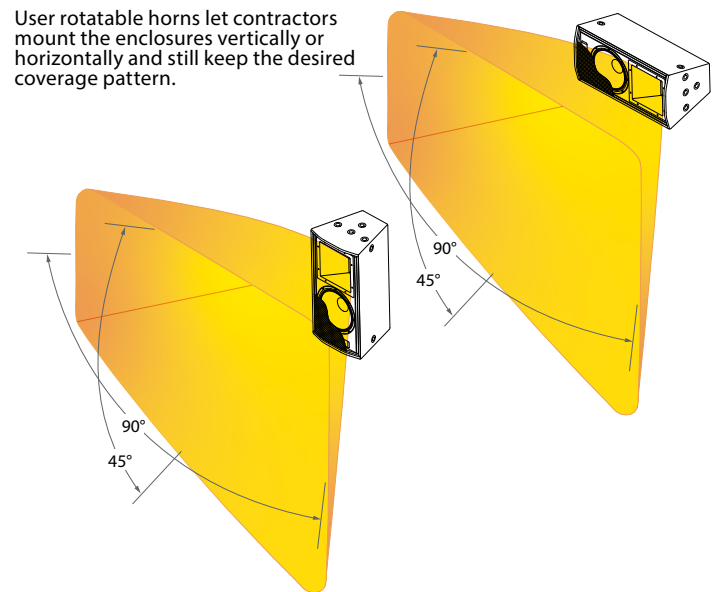
Coverage options with specific beamwidth matched crossovers

Rotatable horns



Common dimensions between MK2300 and MK5300 series

Multiple mounting points for flexible mounting options

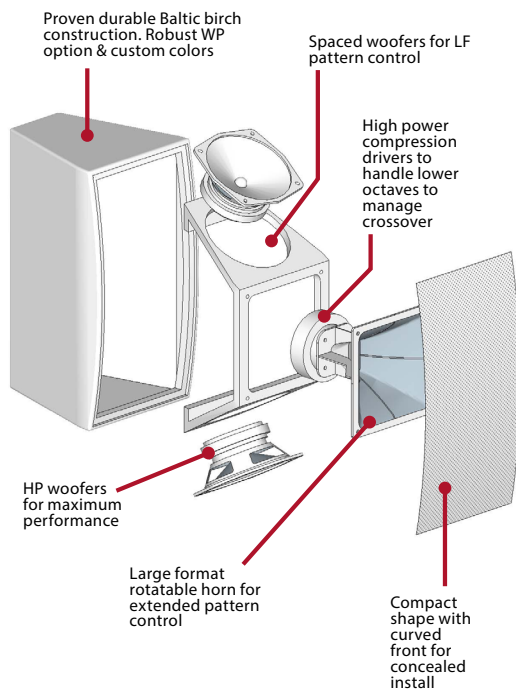


User rotatable horns let contractors mount the enclosures vertically or horizontally and still keep the desired coverage pattern.

Features	Benefits
Proven track record over many years	Confidence that the system will be built to last
Wide-ranging product family with three size tiers (8", 12", 15")	Outfit an entire project with loudspeakers that share a common tonality, making tuning easier
Available in range of colors and finishes	Standard white or black for typical applications, color-matching for specific visual environments and WP for outdoors
Large-format horns and beamwidth-matched crossovers	Consistent tonality throughout the entire coverage pattern
Rotatable horns	Can be easily used for horizontal or vertical installations
Enhanced with Greybox processing	

# Passive Point Source Application Guide

## Passive Point Source Products - MKD Series



MKD1000 - No Grill



### MKD800 SERIES

2-WAY FULL RANGE LOUDSPEAKER

#### SUBSYSTEM

2 x 8in Cone, 2in Voice Coil, Vented  
1 x 1in Exit, 2in Compression Driver,  
Horn Loaded

NOMINAL BEAMWIDTH Horizontal 60°, 90°, 120°  
Vertical 45°, 60°  
(by Model)

FREQUENCY 62Hz – 19kHz

MAX SPL 135 dB

### MKD1000 SERIES

2-WAY FULL RANGE LOUDSPEAKER

#### SUBSYSTEM

2 x 10in Cone, 2.5in Voice Coil, Vented  
1 x 1.4in Exit, 4in Neodymium  
Compression Driver, Horn Loaded

NOMINAL BEAMWIDTH 120° x 60°, 60° x 45°  
90° x 60° (by Model)

FREQUENCY 57Hz – 20kHz

MAX SPL 141dB

### MKD1200 SERIES

3-WAY FULL RANGE LOUDSPEAKER

#### SUBSYSTEM

2 x 12in Cone, 3in Voice Coil, Vented  
1 x 2in Exit, 3.5in Voice Coil,  
Compression Midrange, Horn Loaded  
1 x 2in Exit, 1.75in Voice Coil,  
Compression driver, Horn Loaded

NOMINAL BEAMWIDTH 60° x 45°, 90° x 45°  
(by Model)

FREQUENCY 47Hz – 20kHz

MAX SPL 147 dB

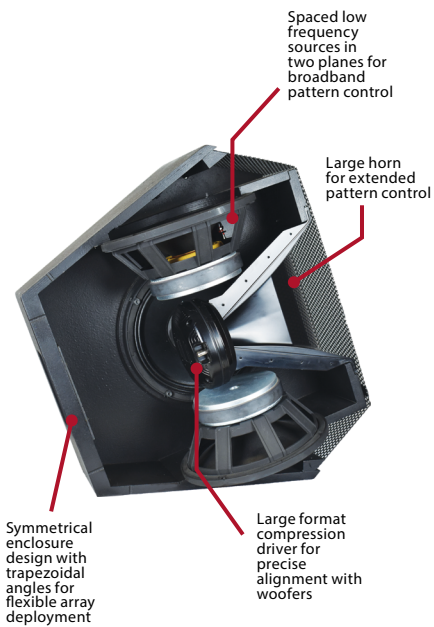
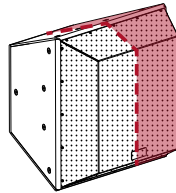
# Passive Point Source Application Guide

## Passive Point Source Products - QX Series



QX544i ▶ 45° x 45°	QX594i ▶ 90° x 45°
QX564i ▶ 60° x 45°	QX596i ▶ 90° x 60°
QX566i ▶ 60° x 60°	
QX326 ▶ 120° x 60°	QX394 ▶ 90° x 45°
QX364 ▶ 60° x 45°	QX396 ▶ 90° x 60°
QX366 ▶ 60° x 60°	QX399 ▶ 90° x 90°

### INSIDE EAW TECHNOLOGIES SIDE VIEW CROSS



### QX300 SERIES

TWO-WAY TRAPEZOIDAL ENCLOSURE

#### SUBSYSTEM

LF 4. 10-in cone  
HF 1. 1.4-in. exit, 4-in. voice coil compression driver

NOMINAL BEAMWIDTH 60° x 45° to 120° x 60° (by Model)

FREQUENCY 66hz – 20khz

MAX SPL 141 – 144dB (Variable by Model)

### QX500 SERIES

THREE-WAY TRAPEZOIDAL ENCLOSURE

#### SUBSYSTEM

LF 4x 12 in. cone  
MF 1x. 2 in. exit 3.5 in. compression  
HF 1x 2 in. exit, 1.75 in compression driver

NOMINAL BEAMWIDTH 45° x 45° to 90° x 60° (by Model)

FREQUENCY 55hz – 20khz

MAX SPL 145 – 147 dB (by Model)

# Passive Point Source Application Guide

## Increased Directivity & Performance for every application in one solution

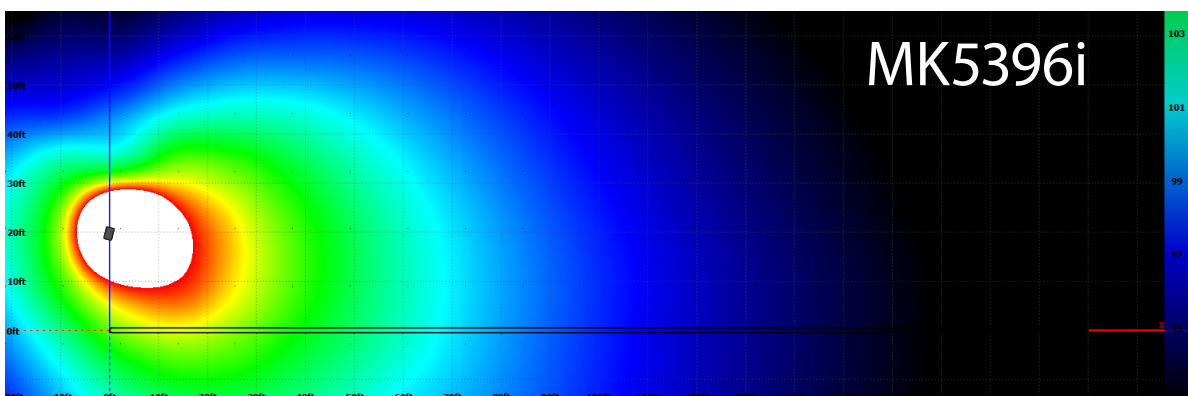
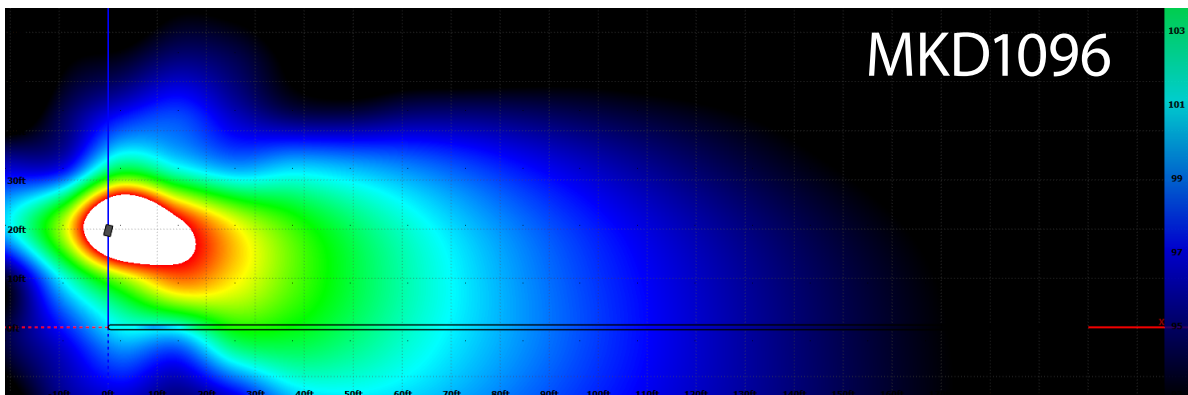
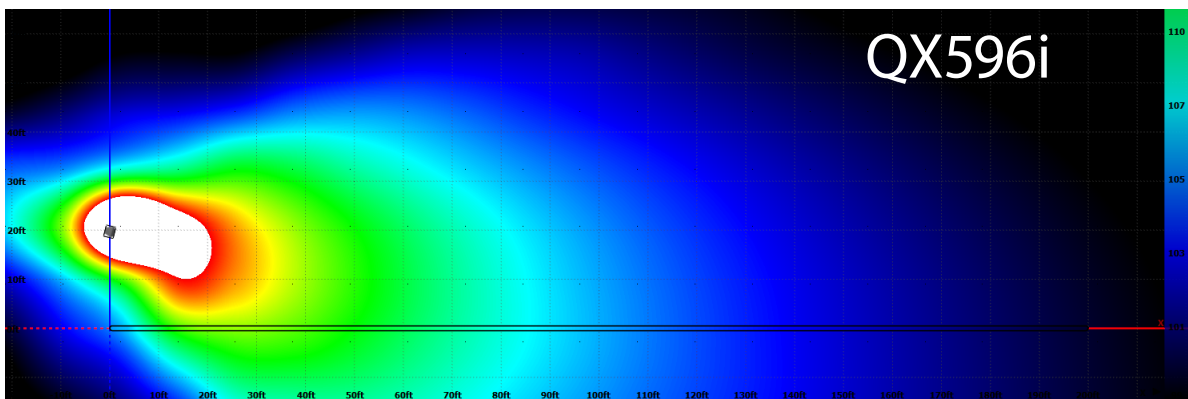
It's helpful to look at EAW point source products as one solution. Meaning, where one product may leave off, another can easily take it's place and complete the task.

For instance, if QX series is specified but cost is of concern, MKD series is a viable solution with only a small sacrifice in performance. Same

could be said when looking at MKD series to MKi series. Though these are different series, they compliment each other.

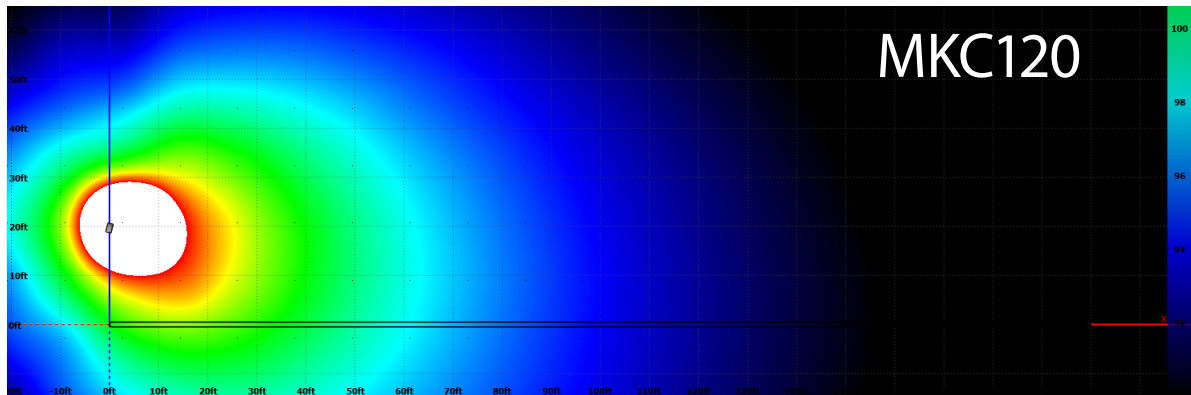
All have various matching horn patterns, which enables coverage matching between these products to remain seamless, with only a drop in performance and clarity.

Below are some examples on how directivity scales between each product line (1 octave, 400hz)





# Passive Point Source Application Guide



## Pairing with EAW Power Amplifiers

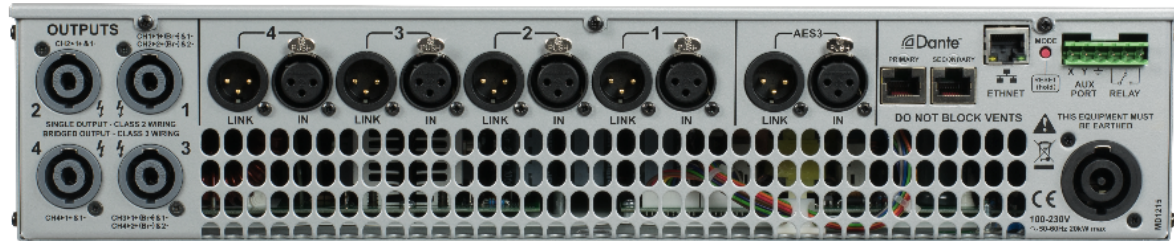
Below are the recommended configurations when using UXA amps with point source products

EAW UXA Loudspeaker Matching										
		Power (W)	Load (ohms)	UXA4401 - max / ch.	4401 Bridge	UXA4403 - max / ch.	4403 Bridge	UXA4410 - max / ch.	4410 Bridge	UXA4416 - max / ch.
Point Source	MKC50	150	8	1		4				4
	MKC60	250	8	1*	1	3				4
	MKC80	450	8		1*	1		4		4
	MKC120	600	8			1	1**	4		4
	MK8100	300	8	1*	1	2		4		4
	MK2300	500	8		1*	1		4		4
	MK5300	800	8			1*	1	3		4
	MKD500	250	8	1*	1	3				4
	MKD800	800	8			1*	1	3		4
	MKD1000	1000	8			1*	1	2		4
	MKD1200	1200	8					2		3
	MKD1500 LF	1600	4					1		2
	MKD1500 HF	150	8			3		4		4
	QX300	2000	2					1		1
	QX500i LF	2000	2					1		1
QX500i HF	150	8			3		4		4	

\* Note: Amplifier configuration approximately -3dB from maximum loudspeaker SPL.

\*\* Recommended for use when highest possible SPL is required.

# Passive Point Source Application Guide



UXA4410 Front & Back Panel



UXA4401

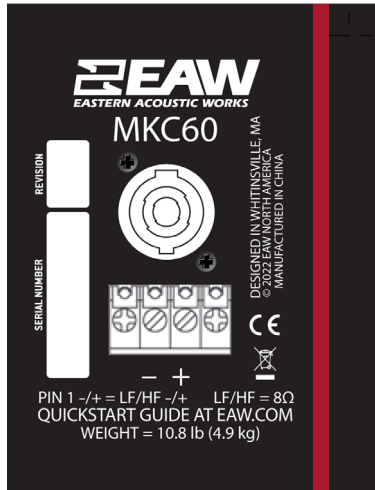


UXA4403

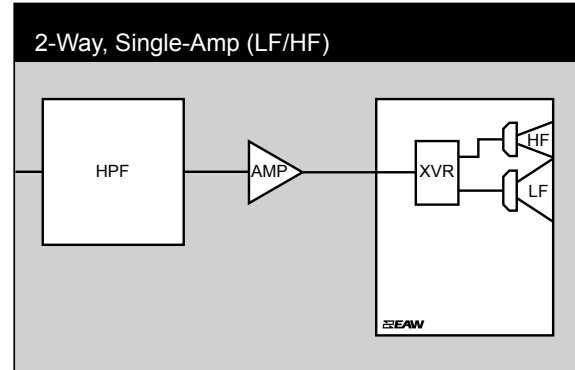
# Passive Point Source **Application Guide**

Input Connections - Neutrik NL4, 2-pin barrier strip

## INPUT

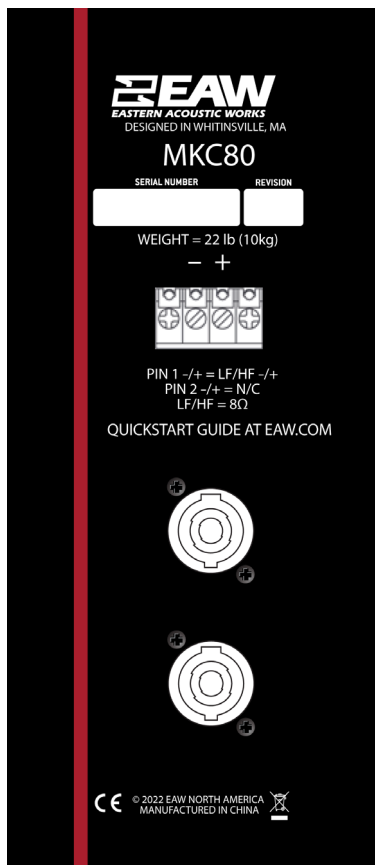


## SIGNAL

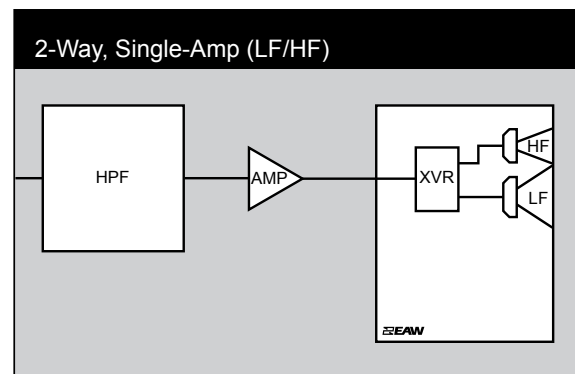


MKC50 & MKC60

## INPUT



## SIGNAL



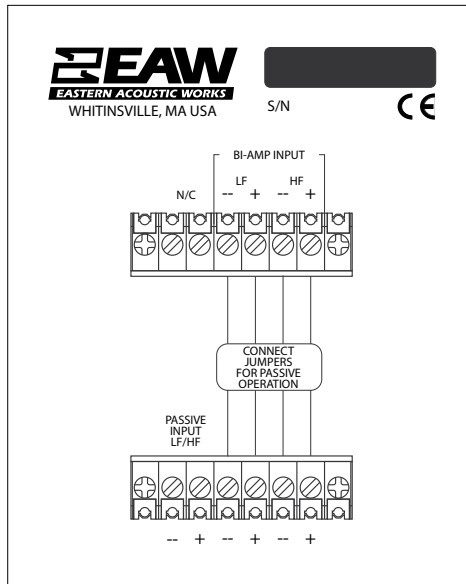
MK8100i\*, MKD800\*,  
MKC80 & MKC120

\*Labeling may vary with these products

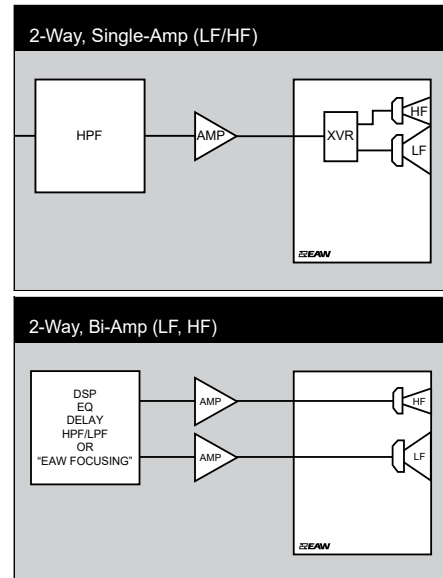
# Passive Point Source Application Guide

6-pin barrier strip

## INPUT

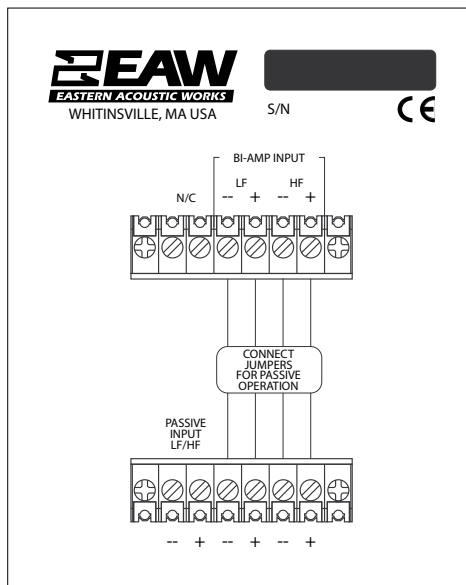


## SIGNAL

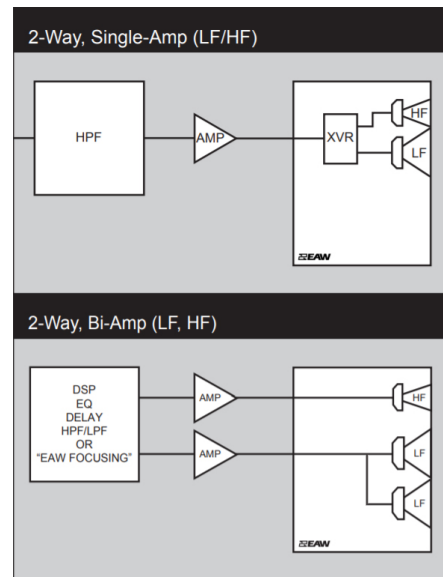


MK2300i & MK5300i

## INPUT



## SIGNAL

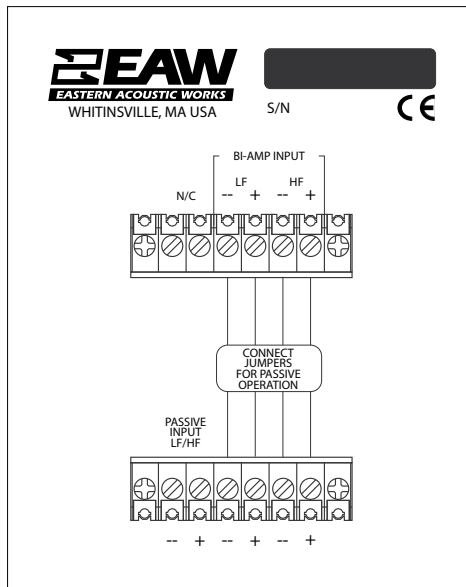


MKD1000

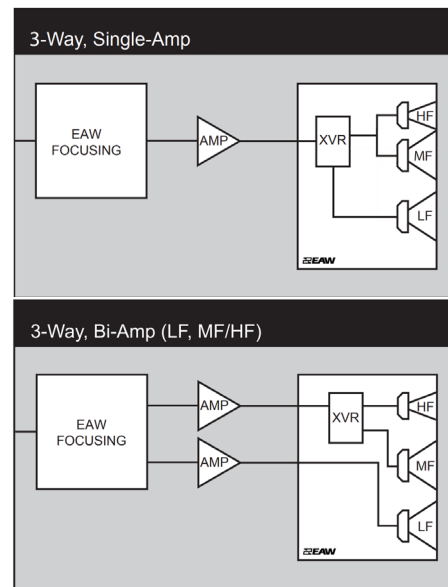
<b>HPF</b>	High Pass Filter for crossover or Recommended High Pass
<b>LPF</b>	Low Pass Filter for crossover
<b>LF/MF/HF</b>	Low Frequency / Mid Frequency / High Frequency
<b>AMP</b>	User Supplied Power Amplifier –or– Integral Amplifier
<b>XVR</b>	Passive LPFs, HPFs, and EQ integral to the loudspeaker
<b>EAW Focusing</b>	Digital Signal Processor capable of implementing EAW

# Passive Point Source Application Guide

## INPUT

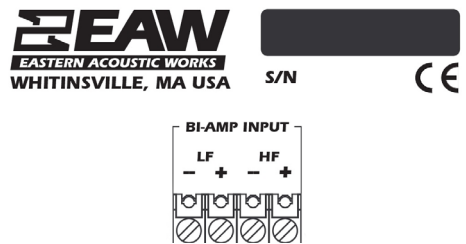


## SIGNAL

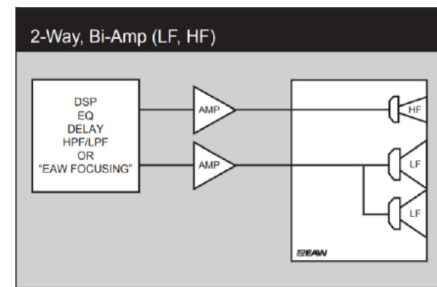


MKD1200

## INPUT



## SIGNAL

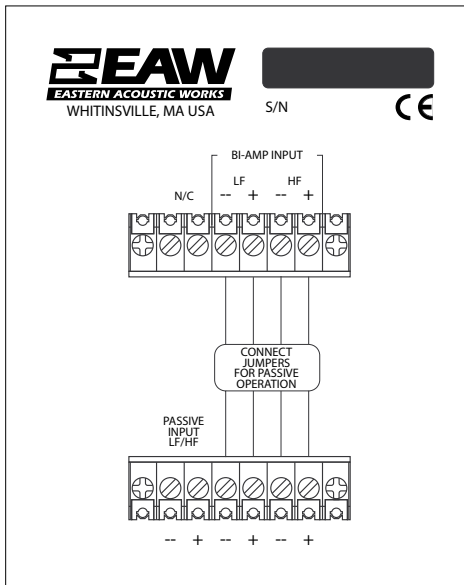


MKD1500

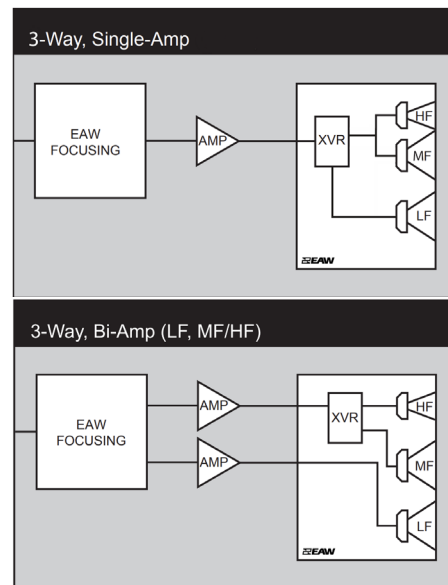
<b>HPF</b>	High Pass Filter for crossover or Recommended High Pass
<b>LPF</b>	Low Pass Filter for crossover
<b>LF/MF/HF</b>	Low Frequency / Mid Frequency / High Frequency
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<b>EAW Focusing</b>	Digital Signal Processor capable of implementing EAW

# Passive Point Source Application Guide

## INPUT

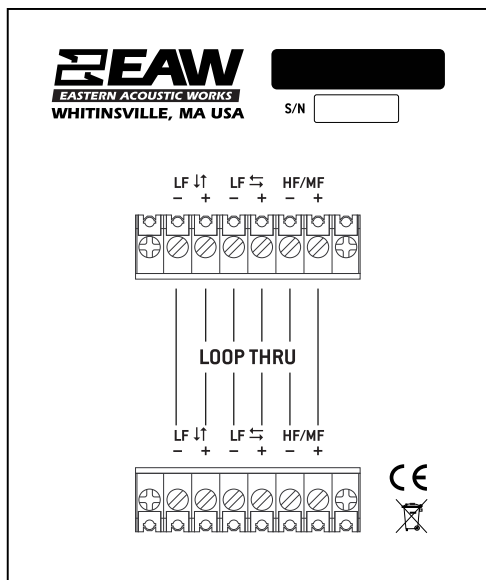


## SIGNAL

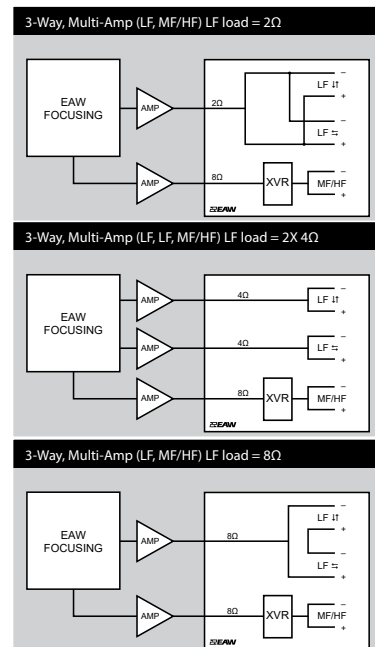


QX300

## INPUT



## SIGNAL

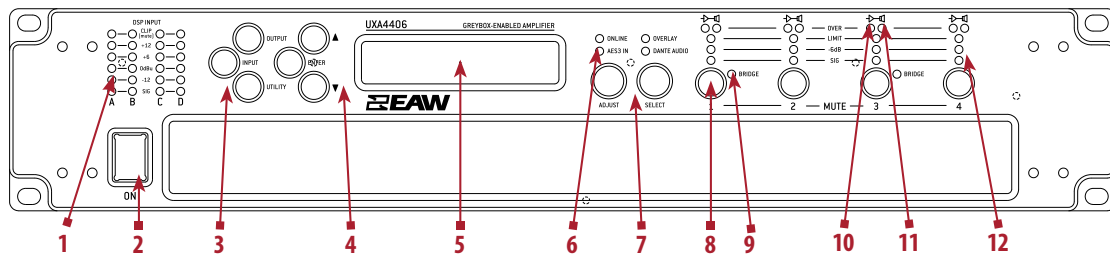


QX500i

<b>HPF</b>	High Pass Filter for crossover or Recommended High Pass
<b>LPF</b>	Low Pass Filter for crossover
<b>LF/MF/HF</b>	Low Frequency / Mid Frequency / High Frequency
<b>AMP</b>	User Supplied Power Amplifier –or– Integral Amplifier
<b>XVR</b>	Passive LPFs, HPFs, and EQ integral to the loudspeaker
<b>EAW Focusing</b>	Digital Signal Processor capable of implementing EAW

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## Using UXA4410 Power Amplifier



**1. Input Signal Indicators**– A set of five indicators show “Sig”, “-12”, “0dBu”, “+6” and “+12” and “Clip (mute)” for each of the DSP inputs “A” “B” “C” “D”. The signal present Indicators operate at approximately –40 dBu. The Clip/mute Indicators warn the user of input overload and operate at 1dB before clip. This indicator also shows a muted input.

**2. Power Switch**– Applies mains power to the device. If the device has entered Sleep mode, it may be woken up again either from the EAW Resolution software application, or by switching this switch off, then on again.

**3. Menu Buttons**– There are three buttons to determine which section of the device to view or edit. The <OUTPUT> button displays pages of parameters associated with a particular output channel. The <INPUT> button displays pages of parameters associated with a particular input socket or input DSP channel. Pressing <INPUT> or <OUTPUT> buttons repeatedly will scroll through the inputs/outputs of the device. After the last channel, navigation returns to the Home screen. The <UTILITY> button displays pages of miscellaneous parameters not associated with any particular channel. Whilst in Edit mode, one of these three buttons will be illuminated. They are mutually exclusive – pressing one of the buttons will deselect any others that are active. Pressing Utils will escape back to the Home screen.

**4. Page Selection Buttons**– When one of the buttons <INPUT>, <OUTPUT> or <UTILITY> is illuminated, the up <P> and down <Q> arrows will also illuminate, informing the user that these buttons may be used to scroll through the various pages of parameters that may be viewed and edited. The <ENTER> button is used to confirm an operation. It will illuminate when the user is being invited to press it. It will flash when warning the user that pressing this button will activate an important function.

**5. Graphical Display**– This will show the Home screen; a useful overview of channel allocation. On most pages the currently selected channel and parameter information is displayed on the upper part of the screen and the parameter value on the lower part of the screen; this can also optimize the viewing angle.

**6. Status Indicators**– The “OVERLAY” indicator is not currently used. The <DANTE AUDIO> indicator illuminates when one or more of the inputs is using a Dante source. The “ONLINE” indicator has three states: Off– the unit is offline and not connected to a computer or network. Flashing– the unit is searching for an IP address; if the unit does not find an IP address the unit will assign itself an IP address automatically and the indicator will stop flashing. On– the unit is online and connected with software. IP settings can be viewed or changed within the

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<UTILITY> pages. The “AES3 IN” indicator illuminates when one or more of the inputs is using an AES3 source.

7. **Parameter Encoders**– Two velocity sensitive parameter encoders are used to adjust parameters shown on the display. Up to three parameters at a time are displayed on the screen. The parameter name is shown above the parameter value in each of the three screen sections. Use SELECT to highlight the parameter, then ADJUST to change it.

8. **Bridge Indicator**– This will illuminate when the channel pair is in Bridge mode. The controls for the left channel of the pair will determine the settings. See Bridge Mode

9. **Mute Buttons**– DSP output mute status is indicated and controlled by an illuminated button for each channel. These flash when the entire unit is muted from the AUXA port or from EAW Resolution software Mute-All, or if this channel has been muted by the protection systems.

10. **Amplifier Indicator**– This indicates when the amplifier protection systems are reducing the gain to keep the parameters of the amplifier within specification, or when that the channel is clipping.

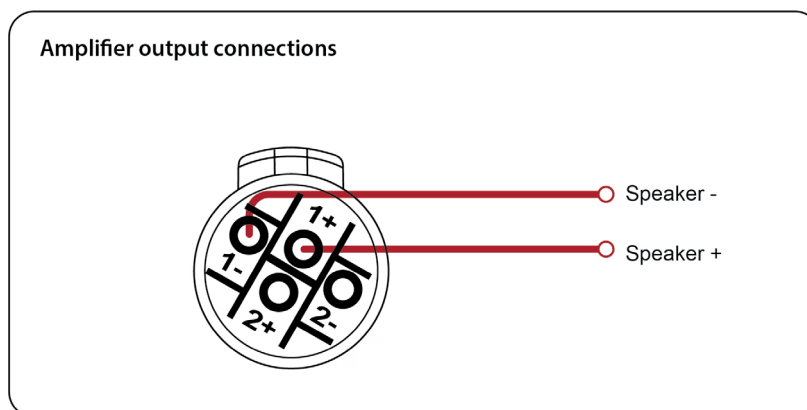
11. **Driver Indicator**– This indicates the output limiter is engaged.

12. **Limiter Indicators**– The output indicators shows the status of the limiter and output level. The level indicated is that before the limiter, referenced to the limiter threshold. The <SIG> indicator shows when a signal is present on the output. The second indicator <-6dB> shows that the signal has reached 6dB below the limiter threshold. The third <LIMIT> indicator indicates that the threshold of that output channel has been reached.

## UXA4410 Amplifier Output Connections

Note : The UXA4410 amplifier can produce high voltages at their outputs. Always use genuine Neutrik NL4 connectors. Un-bridged outputs must use Class 2 or class 3 wiring. Bridged channel pairs must use Class 3 wiring. Custom wiring must only be performed by qualified personnel.

The UXA4410 amplifier is fitted with one NL4 connector per amplifier channel.. The appropriate conductor terminations are shown below and on the rear panel of the unit.

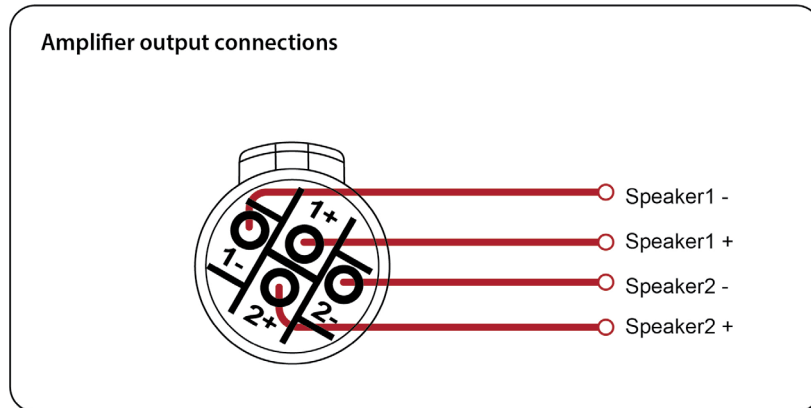




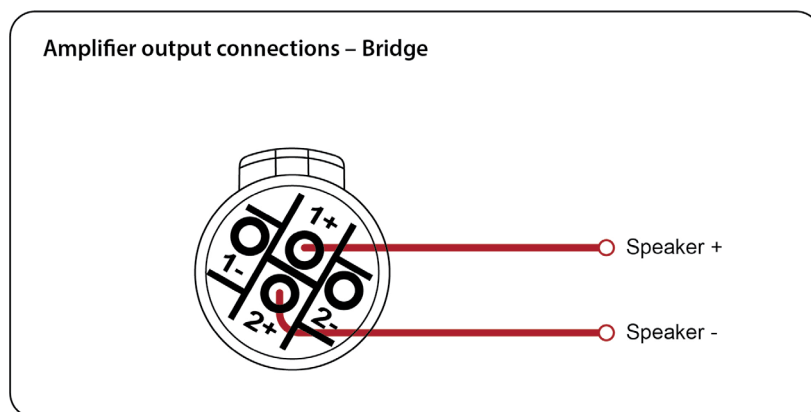
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Additionally, the channel 2 output is duplicated on the NL4 connector for amplifier channel 1 for Bi-Amp wiring. Similarly, the channel 4 output is duplicated on the NL4 connector for amplifier channel 3. This can be useful for making a connection to two loudspeakers with one 4-core cable (i.e. Bi-Amp).

On the UX4810 model, all outputs are Bi-Amp; each NL4 connector carries two amplifier outputs – Channels 1&2, Channels 3&4, Channels 5&6 and Channels 7&8.



In addition, the channel 1 or channel 3 connector (all the NL4 connectors on the UX4810 model) can also be used if the pair of amplifier channels is being operated in bridged mode.



More than one speaker can be connected to each channel provided the total impedance per channel is not less than 2 ohms. In bridged mode the minimum total impedance should not be less than 4 ohms.

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## UXA4410 Load Matching

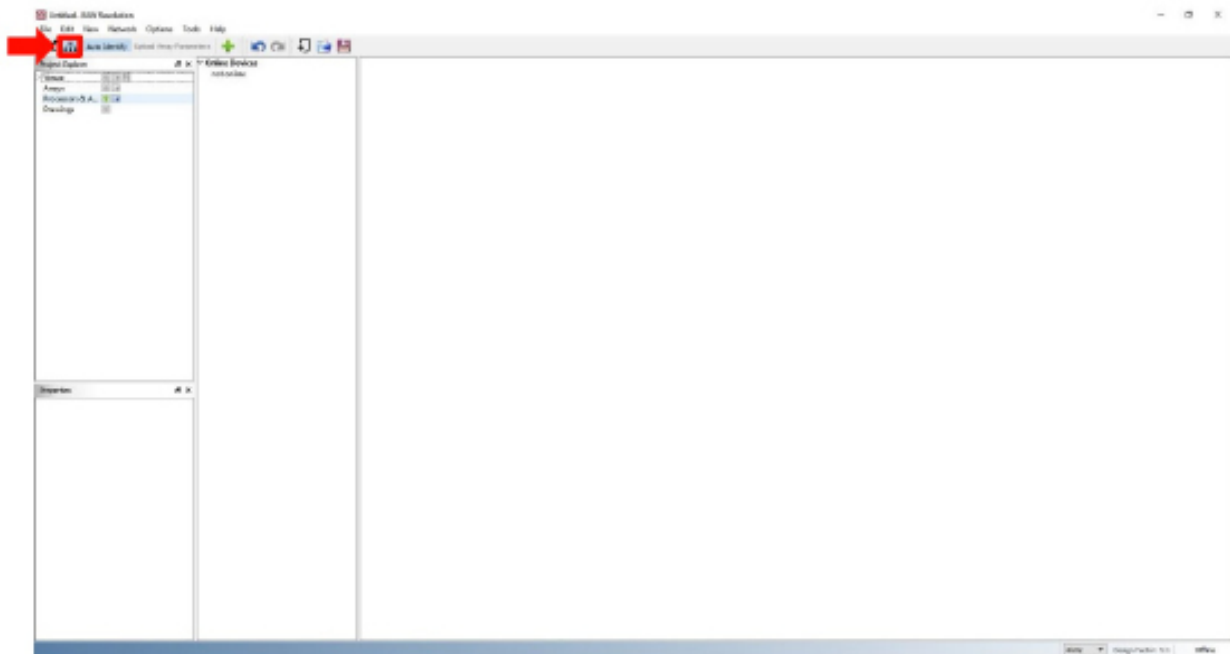
Each output of the device can be optimized to drive either a low impedance load (e.g. 2, 4 or 8 Ohms), or a Constant Voltage (C.V.) Using the Load parameter in the Output menu. There are several C.V. settings (25V, 70V and 100V Line) which determine the maximum RMS voltage that the amplifier will produce. Select the one which is appropriate for the installation. A number of low impedance settings (depending on the model) are also available. Although it is not critical that this setting matches the impedance of the connected load, this will maximize the power that is available for the load.

## Going Online with UXA4410

Before going online, assure the computer being used is connected to the same Ethernet network as the UX/UXA units. Two network cables will need to be connected to the processors/amplifiers for Control and DSP (one to the ETHNET port, the other to one of the DANTE ports).

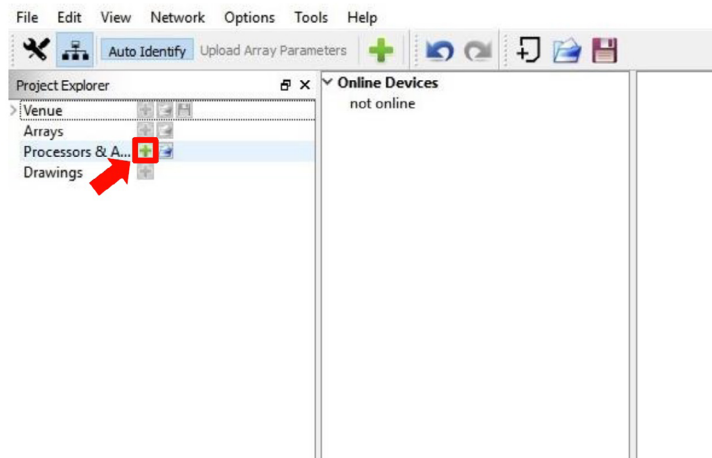
**NOTE:** If processors/amplifiers are on a DANTE Network consisting of more than 2 multicast flows, communication issues may occur. As such, the UX/UXA products are only supported on DANTE networks with 2 or less multicast flows. Also important, is though these products may receive DANTE input signal, they do not support DANTE output (i.e. cannot be used as an on-ramp).

When first opening Resolution, start by switching to **Network Configuration View**.

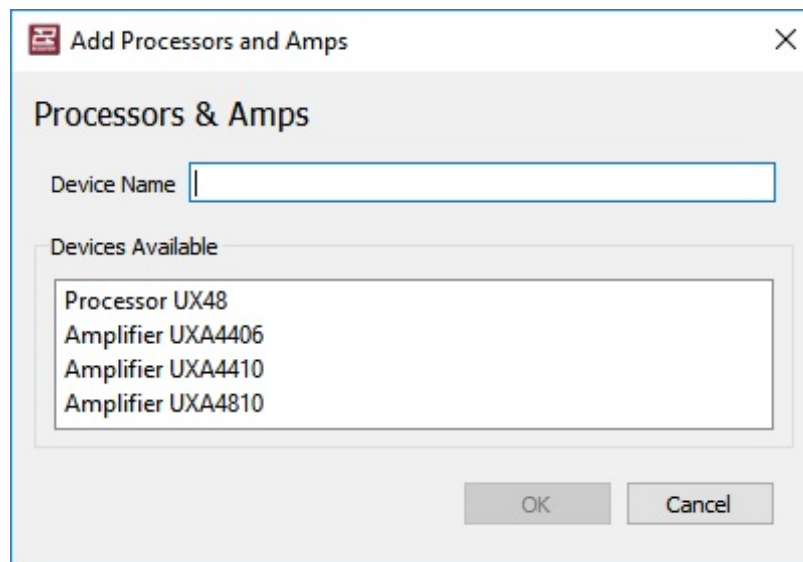


# Passive Point Source Application Guide

To add a processor or amplifier to the system, click on the “+” symbol next to Processors & Amplifiers in the Project Explorer window.

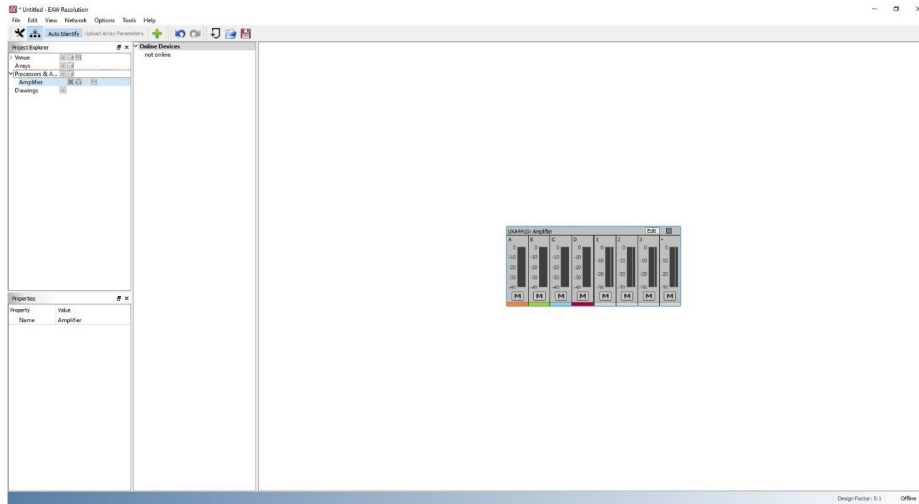


Upon being prompted, choose a name and a product from the devices available. Click “OK” once complete.

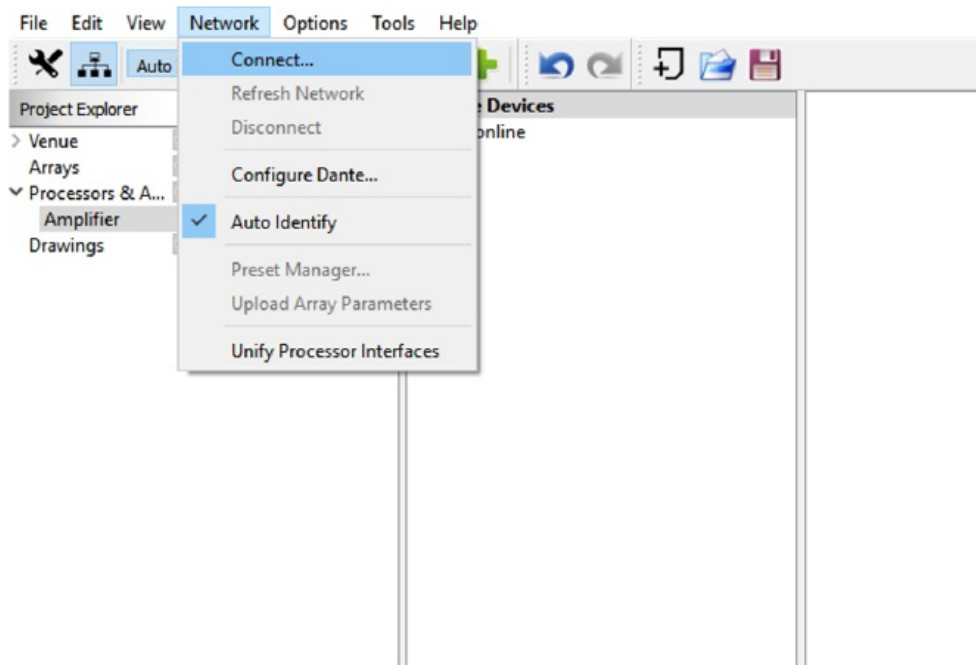


# Passive Point Source Application Guide

The selected device will now be loaded into the system. In this case, as offline.

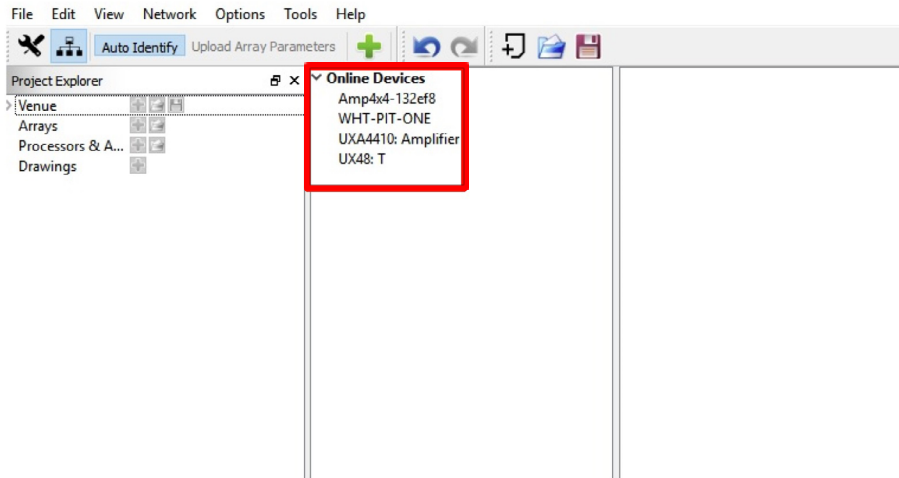


To connect the processor or amplifier to the system, start by clicking **Network > Connect**.

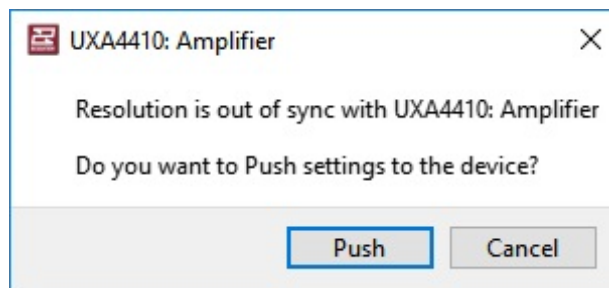


# Passive Point Source Application Guide

After a quick scan, all available products will now appear listed under **Online Devices**. Click and drag each detected device, and drop it over the top of previously set up offline devices.

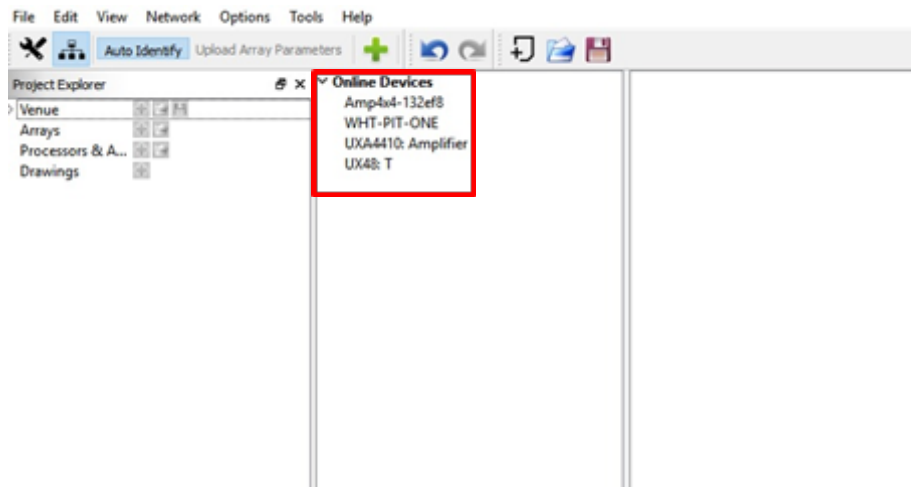


A prompt may appear if Resolution is not in sync with the device. Choose whether to push the Resolution settings to the device, or cancel to use the last known settings.

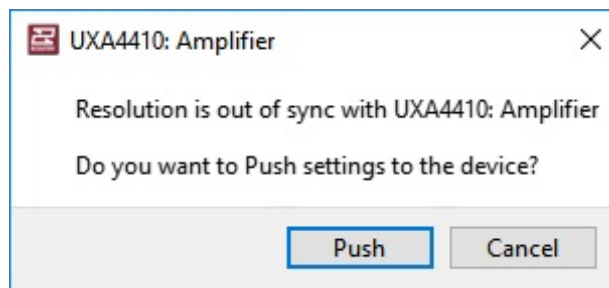


# Passive Point Source Application Guide

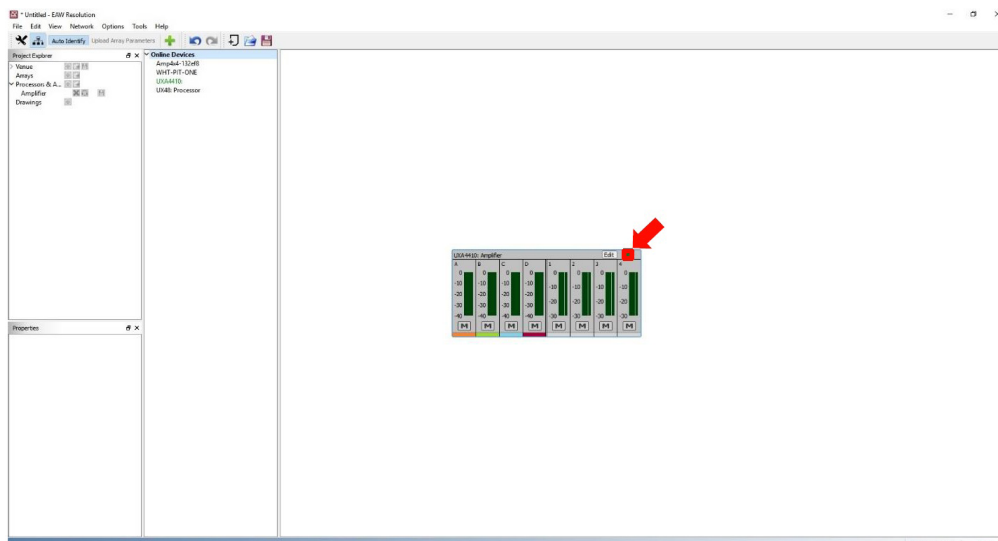
After a quick scan, all available products will now appear listed under **Online Devices**. Click and drag each detected device, and drop it over the top of previously set up offline devices.



A prompt may appear if Resolution is not in sync with the device. Choose whether to push the Resolution settings to the device, or cancel to use the last known settings.

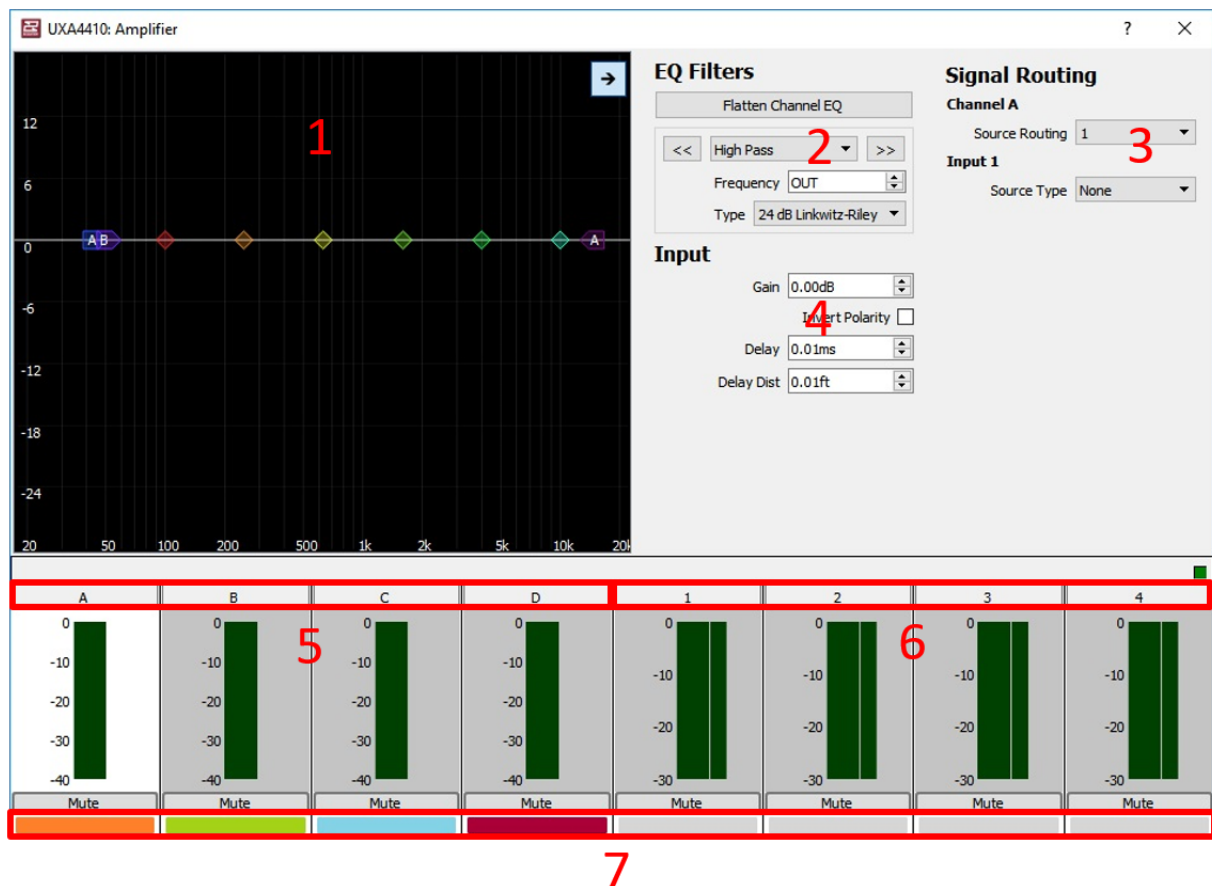


At this point, the device is online and ready to use in the system (as indicated by the green light).



# Passive Point Source Application Guide

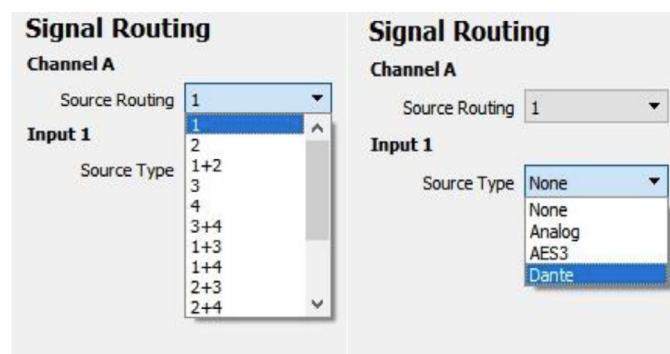
## UXA4410 Input Section



**1. EQ/Filter Graphic Window:** Click and drag functionality to control Low Shelf Filters, (5) PEQ Filters, and an FIR Hi Shelf Filter. Clicking the right facing arrow at the top corner expands and hides the detail pane.

**2. EQ/Filters Section:** Manually adjust settings for all Filters. Use << >> buttons to navigate from one band to the next. There is an additional pull-down menu to choose type of filter, with an option to disable the FIR High Shelf to reduce latency (this filter is disabled by default).

**3. Signal Routing:** Assign input sources to input channels, or combine input sources to a single input channel. Select an input source type between Analog, AES3, and Dante (See both pull-down menus below).



# Passive Point Source Application Guide

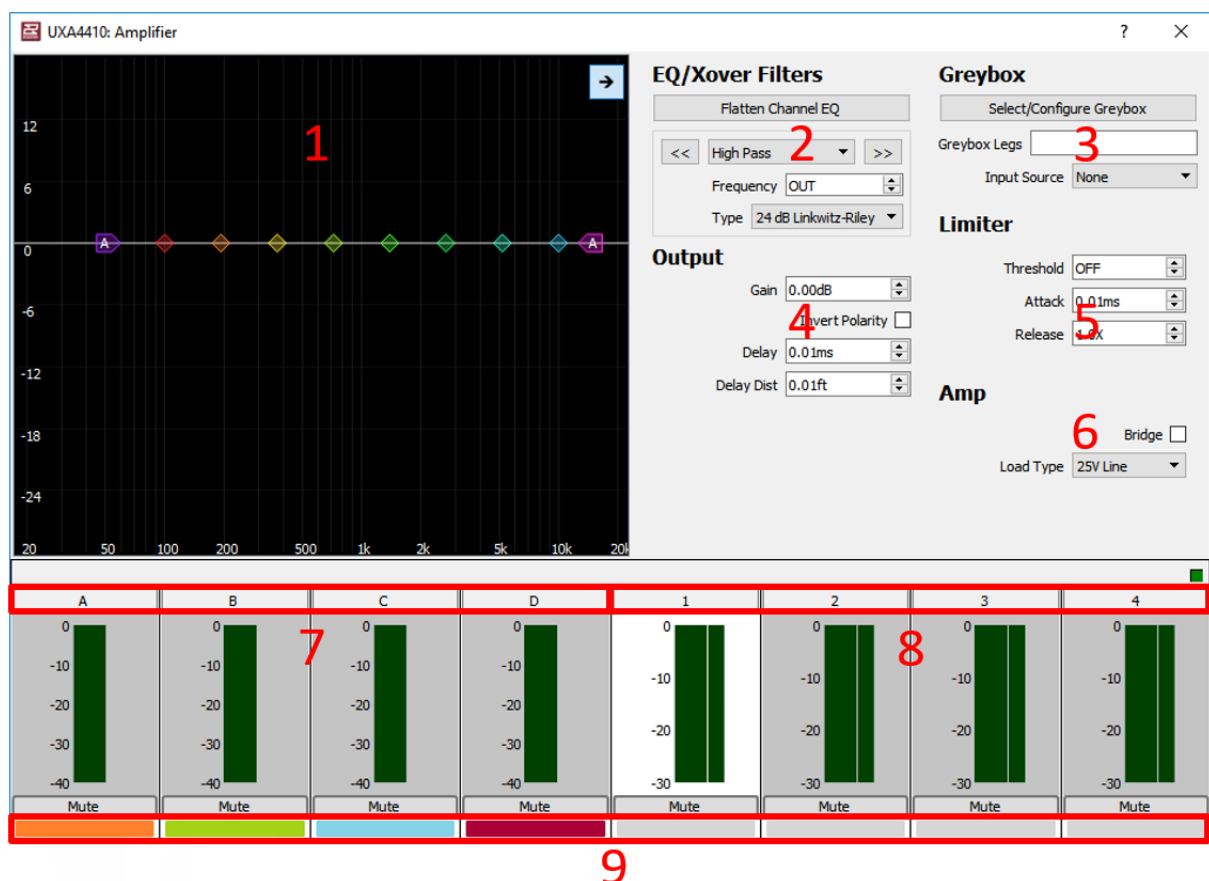
**4. Input Section:** Adjust gain, invert polarity, and set delay or delay distance.

**5. Input Channels:** Signal meters and channel labels. To change a channel label, double click on the default letter/number and type in a friendly name.

**6. Output Channels:** Signal meters and channel labels. To change a channel label, double click on the default letter/number and type in a friendly name.

**7. Input/Output Color Indicators:** An easy method to distinguish which outputs are utilizing which input source (Assigned output channels will match the color of input channels).

## UXA4410 Output Section



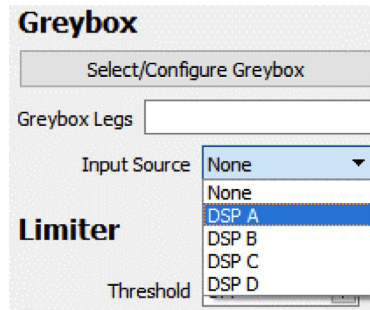
**1. EQ/Filter Graphic Window:** Click and drag functionality to control a Low/High Pass Filters, Low/High Shelf EQs, and (6) PEQ Filters. Clicking the right facing arrow at the top corner expands and hides the detail pane. Once a Greybox is loaded, only the HPF may be modified.

**2. EQ/Filter Section:** Manually adjust settings for all EQ/Filter bands. Use << >> buttons to navigate from one band to the next. There is an additional pull-down menu to choose type of filter. Once a Greybox is loaded, only the HPF may be modified.



# Passive Point Source Application Guide

**3. Greybox:** Load EAW Greyboxes and set Input source (See pull down menu below).



**4. Output Section:** Adjust gain, invert polarity, and set delay or delay distance. Unity Gain and Invert Polarity is disabled once a Greybox is loaded.

**5. Limiter:** Set Voltage Threshold, as well as Attack and Release times.

**6. Amp:** Bridge amplifier output channels and select the load type in either voltage or ohms (an auto option is also available).

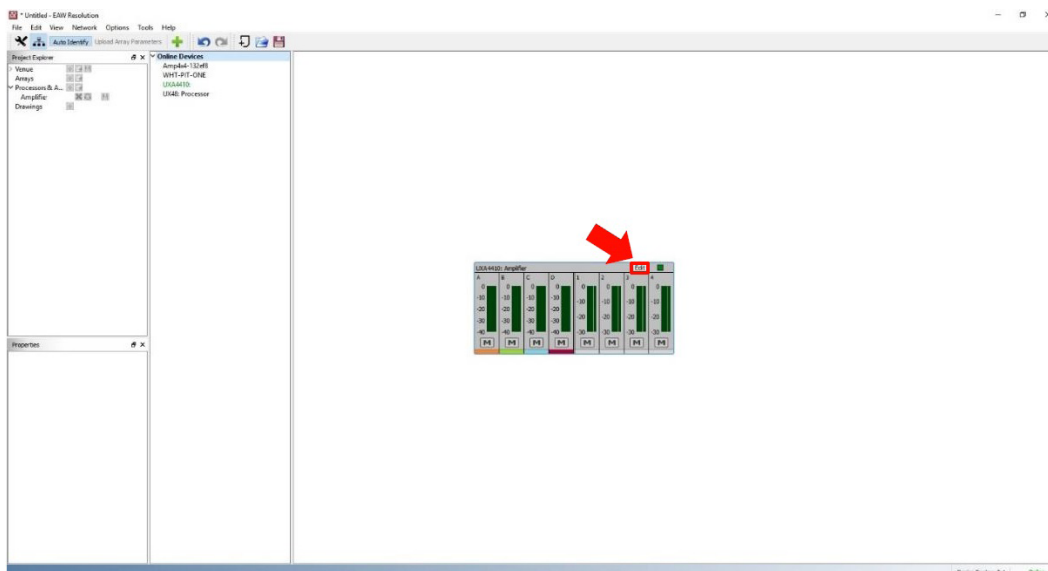
**7. Input Channels:** Signal meters and channel labels. To change a channel label, double click on the default letter/number and type in a friendly name.

**8. Output Channels:** Signal meters and channel labels. To change a channel label, double click on the default letter/number and type in a friendly name.

**9. Input/Output Color Indicators:** An easy method to distinguish which outputs are utilizing which input source (Assigned output channels will match the color of input channels).

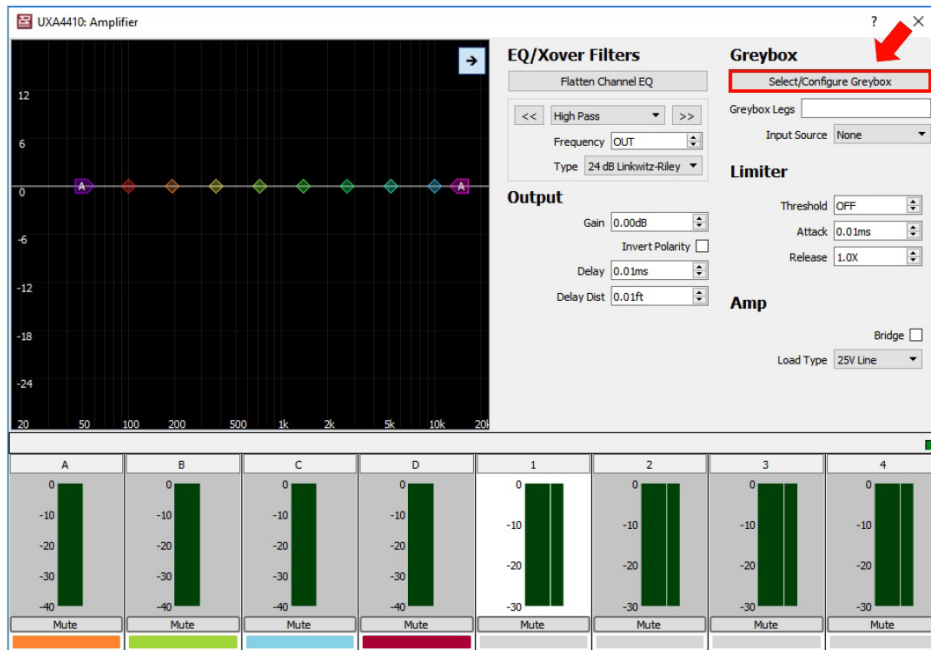
## Loading Greyboxes (EAW Speaker Preset Files) into UX4410

To load a Greybox onto one of the UX4 devices, click the **Edit** button to open the edit **window**.

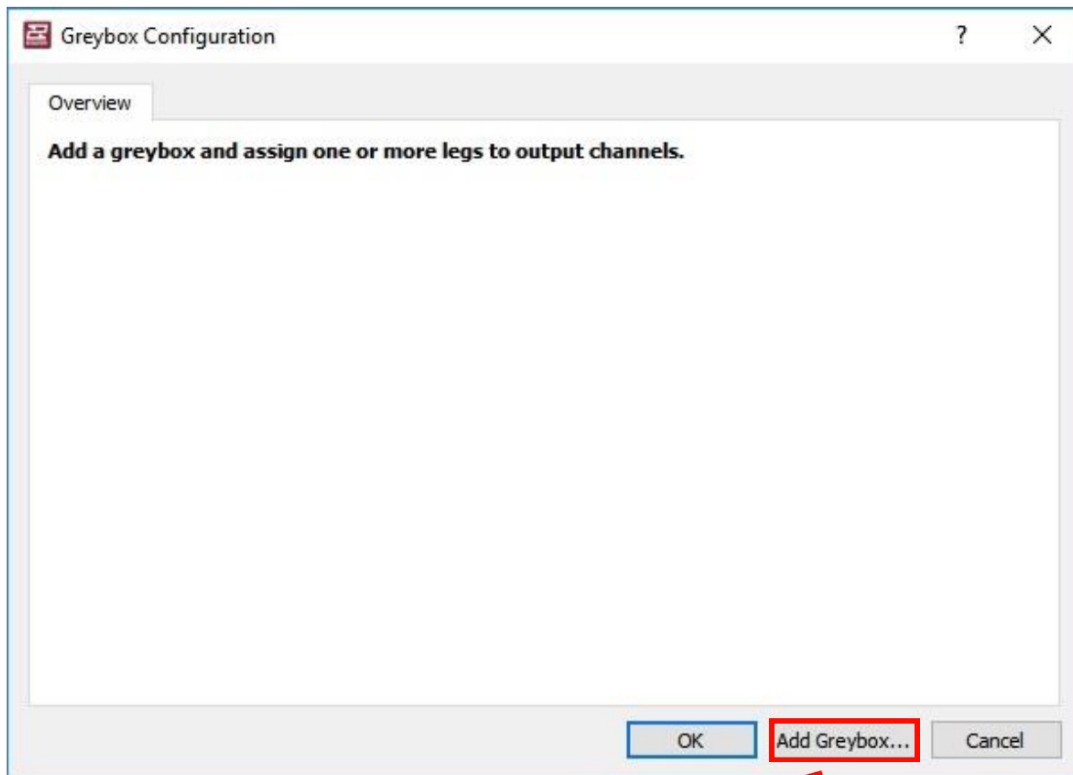


# Passive Point Source Application Guide

Click any output channel, then click on **Select/Configure Greybox**.

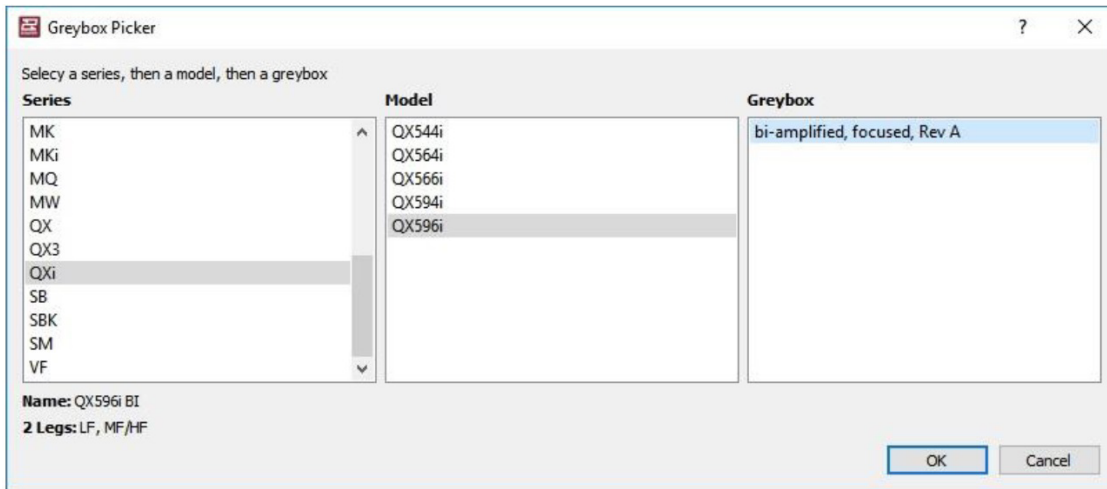


On the main Greybox Configuration window, click **Add Greybox...**



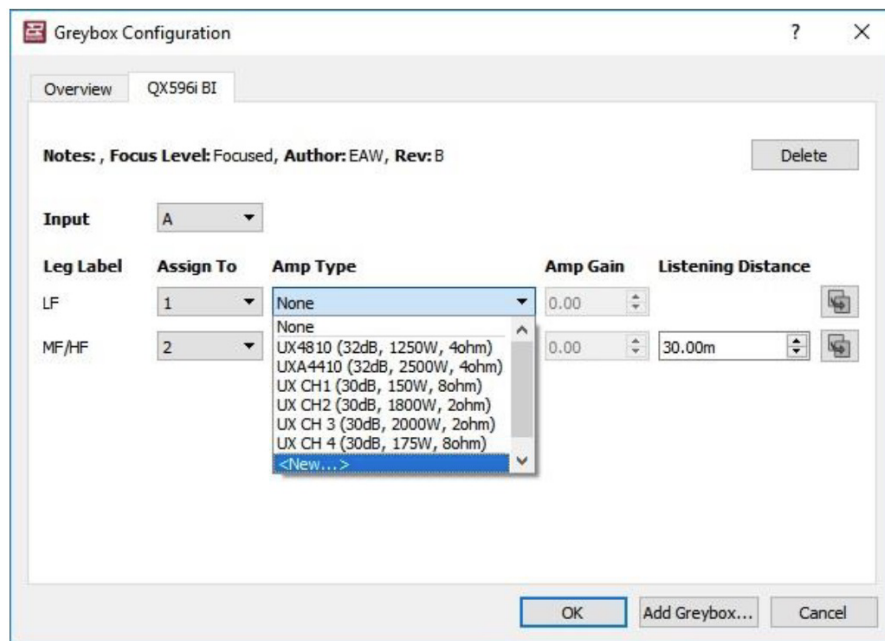
# Passive Point Source Application Guide

In the Greybox Picker window, choose the Series, Model, and exact Greybox configuration of the Loudspeaker. Click "OK" to proceed.



The Greybox Configuration window should now be populated with set up options. Here, assign an input, an output channel for each Leg, Amp Type, Amp Gain, and Listener Distance.

Either choose an available Amp Type or create one new by clicking on <New...> under the pull-down menu.



# Passive Point Source Application Guide

When the Add an Amplifier window appears, fill in each setting as specified by the Amplifier spec/cut sheet. Entry Method may either be by Voltage or Power.

The 'Add an Amplifier' dialog box contains the following fields and controls:

- Entry Method:** Radio buttons for 'Voltage' and 'Power' (selected).
- Name:** Text input field containing 'UX4410'.
- Max Gain:** Spin box set to '32.00 dB'.
- Power:** Spin box set to '2500|W'.
- Impedance:** Dropdown menu set to '2 ohm'.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

Back to the Greybox configuration window, the newly created amplifier will now be available on all channels under Amp Type. Click "OK" once complete.

The 'Greybox Configuration' window shows the following configuration:

- Notes:** Focus Level: Focused, Author: EAW, Rev: B
- Input:** A
- Table:**

Leg Label	Assign To	Amp Type	Amp Gain	Listening Distance
LF	1	UX4410 (32dB, 2500W, 2ohm)	32.00	
MF/HF	2	None	0.00	30.00m

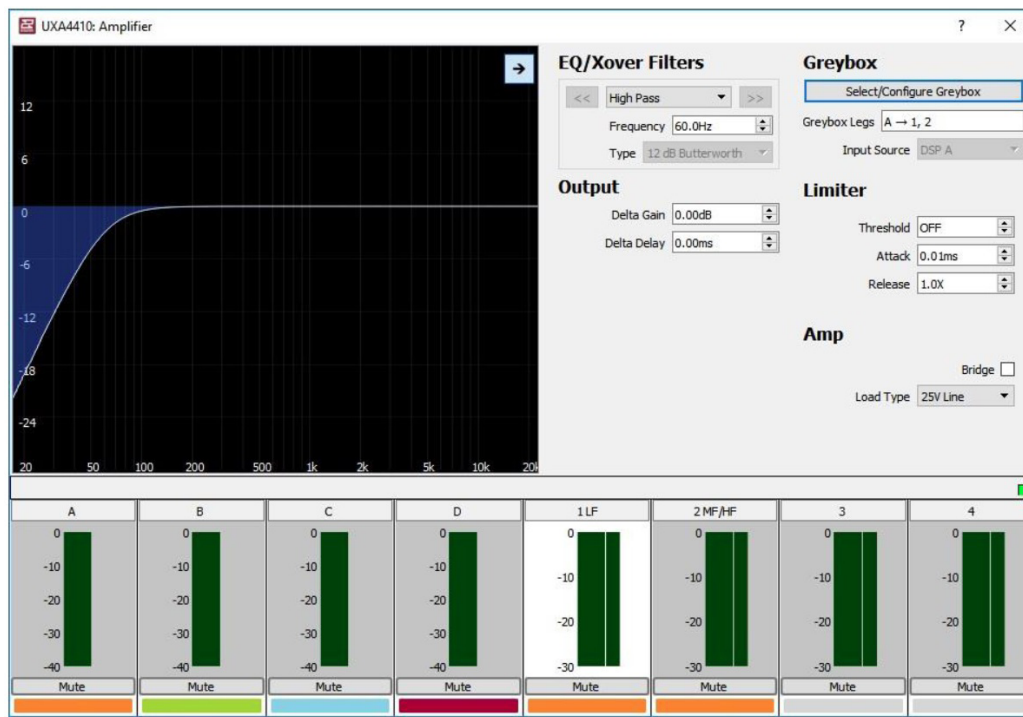
The 'Amp Type' dropdown for MF/HF is open, showing the following list of options:

- None
- UX4410 (32dB, 2500W, 2ohm)
- UX4810 (32dB, 1250W, 4ohm)
- UXA4410 (32dB, 2500W, 4ohm)
- UX CH1 (30dB, 150W, 8ohm)
- UX CH2 (30dB, 1800W, 2ohm)
- UX CH 3 (30dB, 2000W, 2ohm)
- UX CH 4 (30dB, 175W, 8ohm)

Buttons at the bottom: 'OK', 'Add Greybox...', 'Cancel'.

# Passive Point Source Application Guide

The Greybox is now loaded, as shown below in the Edit Window. NOTE: The output channels should be color coded to match the assigned input channel (i.e. orange in this example).



## Unify Processor Interfaces for UX4410 Amplifiers (Resolution 2.10.2 and below)

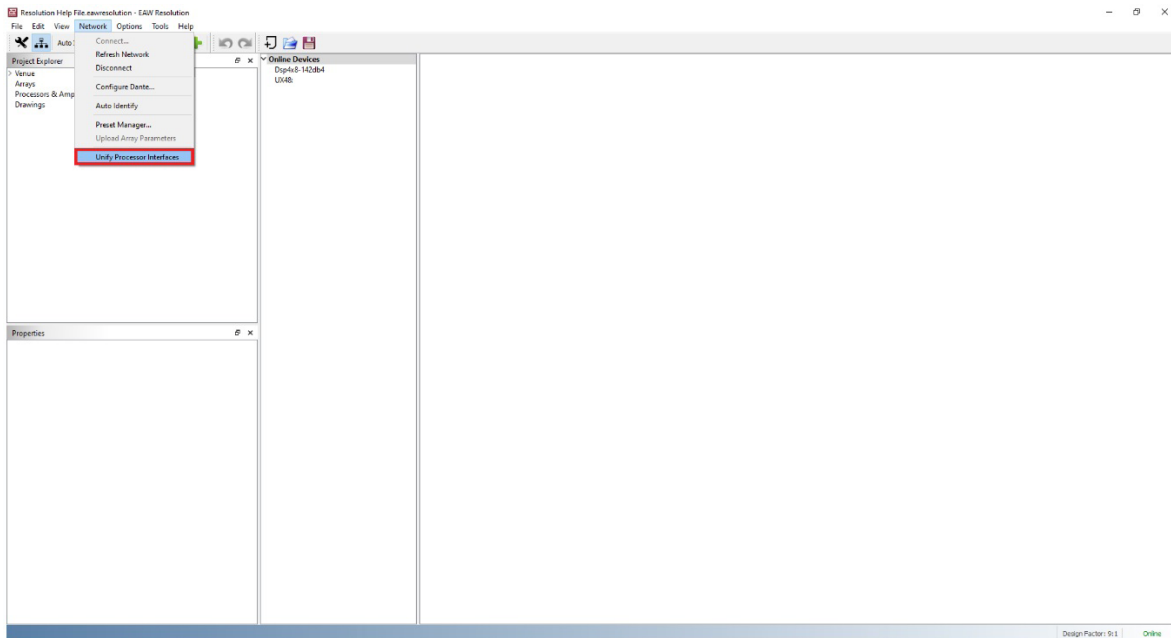
### CRITICAL SETUP NOTE:

It is necessary to “teach” each amplifier which Dante card is installed internally. If more than one Processor and Dante Interface is seen in the list, it is suggested to turn off all amplifiers except one. Refresh the network, then Unify the processor to the Dante card. Repeat this for each amplifier. This will ensure that you are connecting the correct Amplifier Processor to the Correct Dante Card in that amplifier.

**This will not be necessary in a future firmware build, but for now it is highly suggest doing this step to ensure network control stability.**

This function is to assist in determining the network address of the primary and secondary Dante card when Resolution is connected to the Ethernet port of a UX processor or UX4 amplifier. The IP address of the Dante card is stored in the internal memory. This is only required once unless the internal Dante card is replaced.

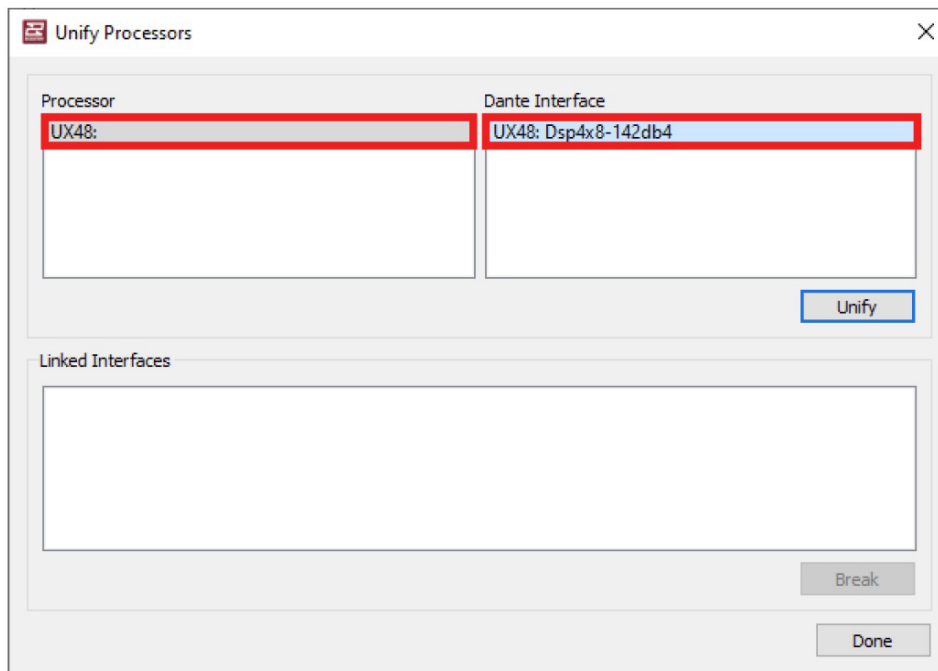
# Passive Point Source Application Guide



Resolution needs to know the Dante address so routing can be done between devices in Resolution.

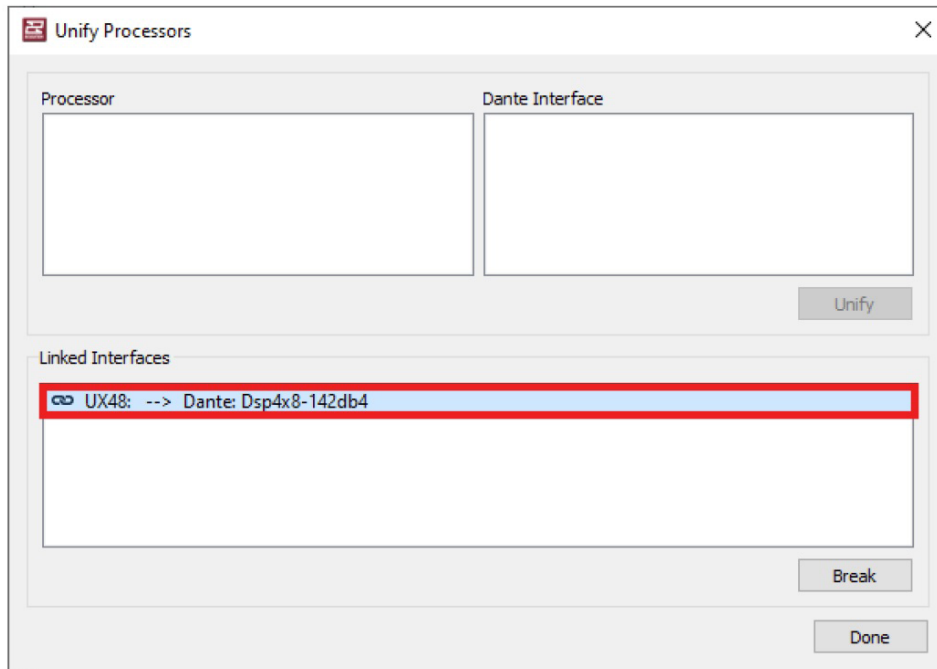
*NOTE: Processor or Amplifier control will work fine without a unified Dante port.*

With the Unify Processors window open, select the processor and Dante interface that needs to connect. Click Unify to complete.

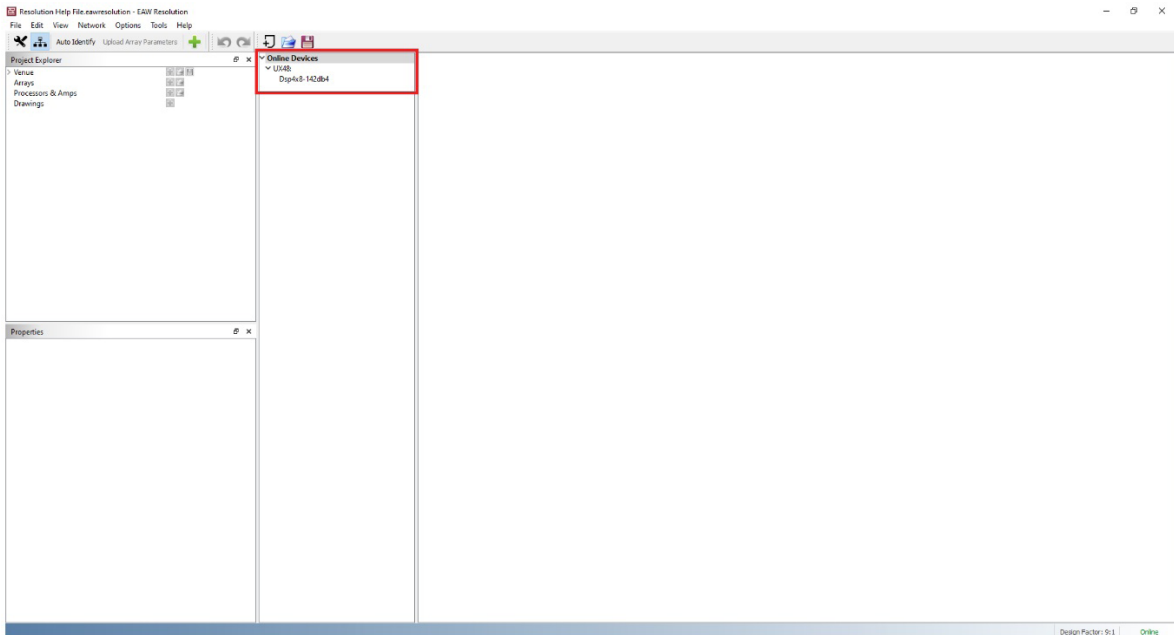


# Passive Point Source **Application Guide**

After the function is complete, the linked interface may be viewed in the bottom pane as illustrated below. Click Done to accept or Break to undo and reverse the action.



Under Online Devices, Resolution now associates the Dante card with the processor or amplifier.



# Passive Point Source Application Guide

## Using UXA4401 & UXA4403 Power Amplifiers

### Installation of UXA4401

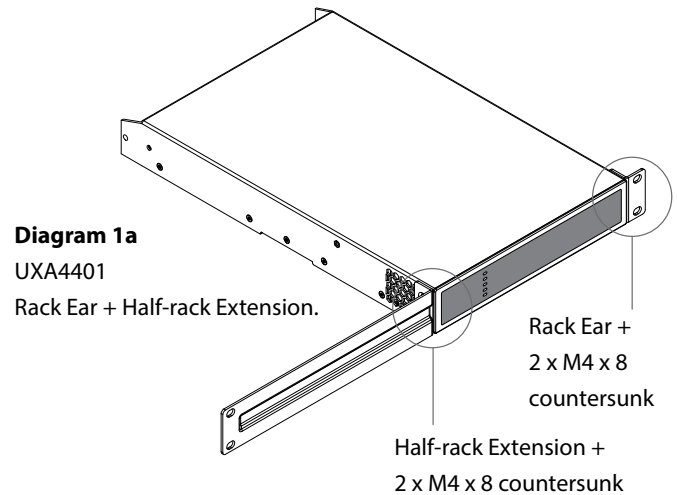
Note: The rack mounting and desk/wall mounting components described and illustrated in Sections 4.1 to 4.3 are not supplied with UXA4401 amplifiers but are available to purchase as accessories. Contact your amplifier re-seller for more information.

### UXA4401 Mounting

The UXA4401 amplifiers are shipped without rack mount hardware attached but can be configured for rack installation using one standard rack 'ear' and one half-rack extension piece as illustrated in **Diagram 1a**. The installation and equipment rack should be configured to provide appropriate ventilation airflow space around the sides and rear of the amplifier. Ventilation airflow space of at least 25 mm (1 in) should be maintained along at least one side of the amplifier at all times. Ventilation apertures are also located on the rear panel of the amplifier and must not be obstructed. It is important to retain at least 80 mm (3.1 in) free space for airflow behind the amplifier rear panel.

In addition to rack mount ears, optional rack mount rear support hardware is available and can be attached to the amplifier. Rear support hardware may be appropriate if the amplifier is to be used in a mobile rack or potentially be subject to significant movement. **Diagram 1b** illustrates the use of rack mount rear support hardware.

Multiple UXA4401 amplifiers can also be mechanically connected using accessory connecting plates. **Diagram 1c** illustrates the use of connecting plates.



**Diagram 1a**

UXA4401

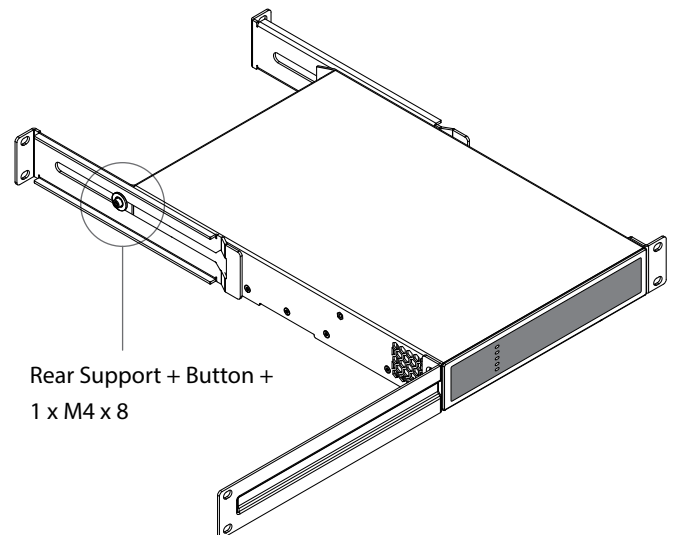
Rack Ear + Half-rack Extension.

Rack Ear +  
2 x M4 x 8  
countersunk

Half-rack Extension +  
2 x M4 x 8 countersunk

**Diagram 1b**

UXA4401 Rack Support hardware. 2 positions.

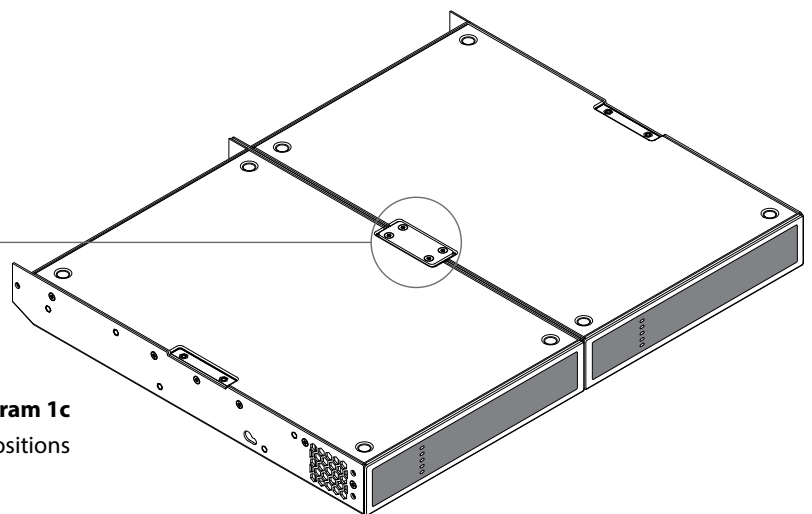


Rear Support + Button +  
1 x M4 x 8

Connection Plate +  
4 x M3 x 6 countersunk

**Diagram 1c**

2 x UXA4401 with Connection Plate. 2 positions





# Passive Point Source Application Guide

## Free-standing

If not installed in an equipment rack, UXA4401 amplifiers can be placed free-standing on a flat surface. Adhesive rubber feet are supplied for this purpose.

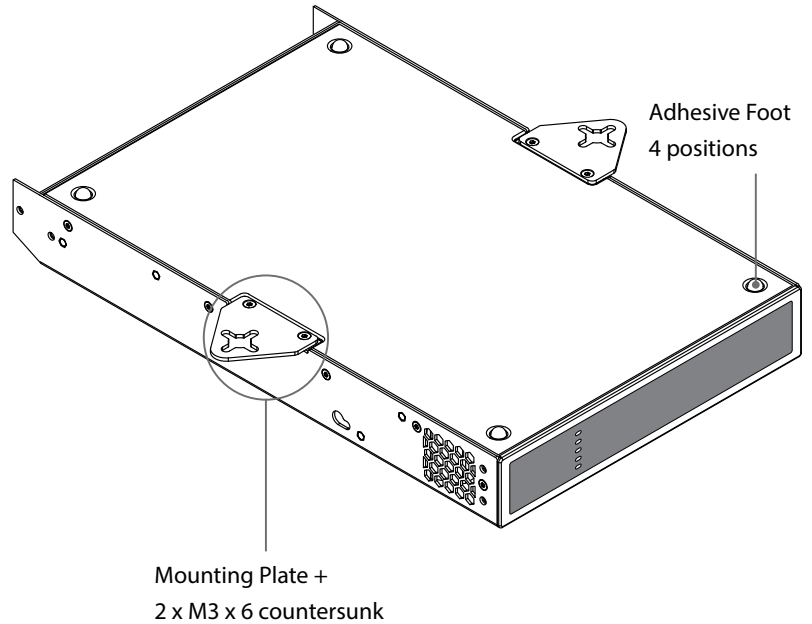
UXA4401 amplifiers can also be attached to the underside of desks or wall mounted using connecting plate hardware. The adhesive rubber feet should also be used in these circumstances to minimise the possibility of vibration between the amplifier and mounting surface. Wall and desk mounting is illustrated in **Diagrams 2a and 2b**.

It is important in any free standing installation that airflow through the amplifier's side panel mounted fans and rear panel ventilation apertures is not compromised by adjacent items. At least 80mm of free space behind the amplifier and 25mm along at least one side should be retained at all times.

**Diagram 2a**

UXA4401

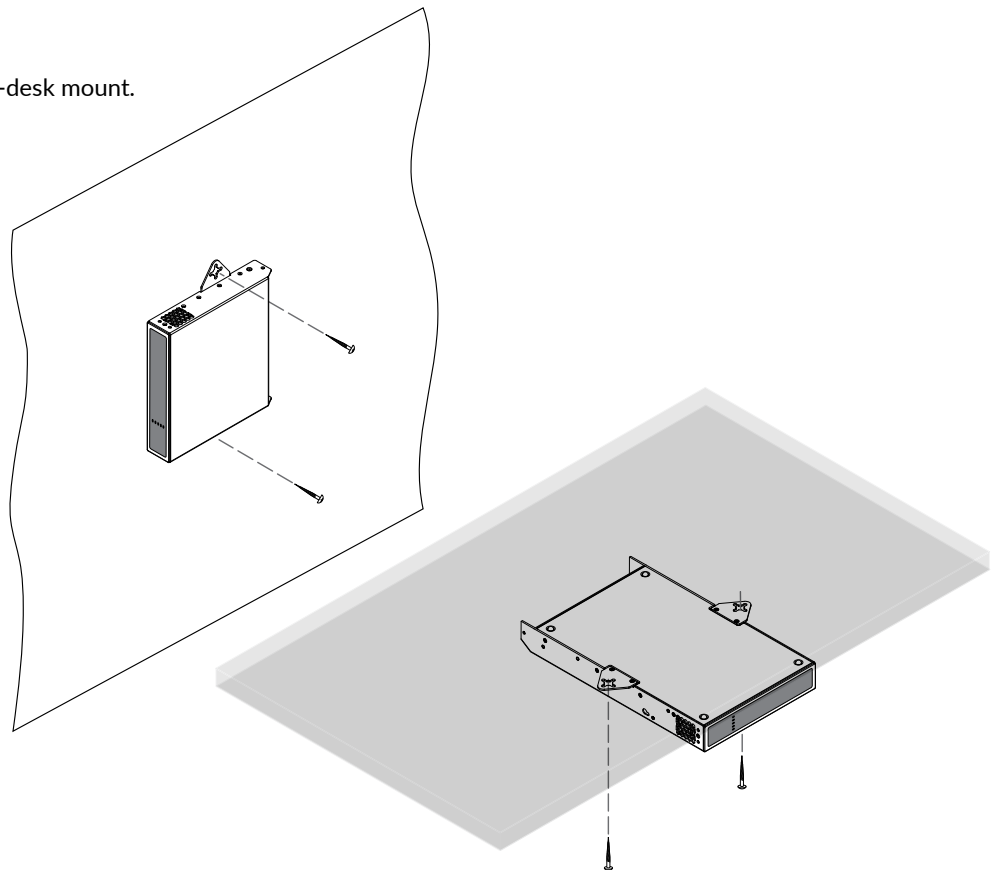
with desk/wall Mounting Plate and adhesive feet.  
2 positions and 4 positions.



**Diagram 2b**

UXA4401

wall and under-desk mount.



# Passive Point Source **Application Guide**

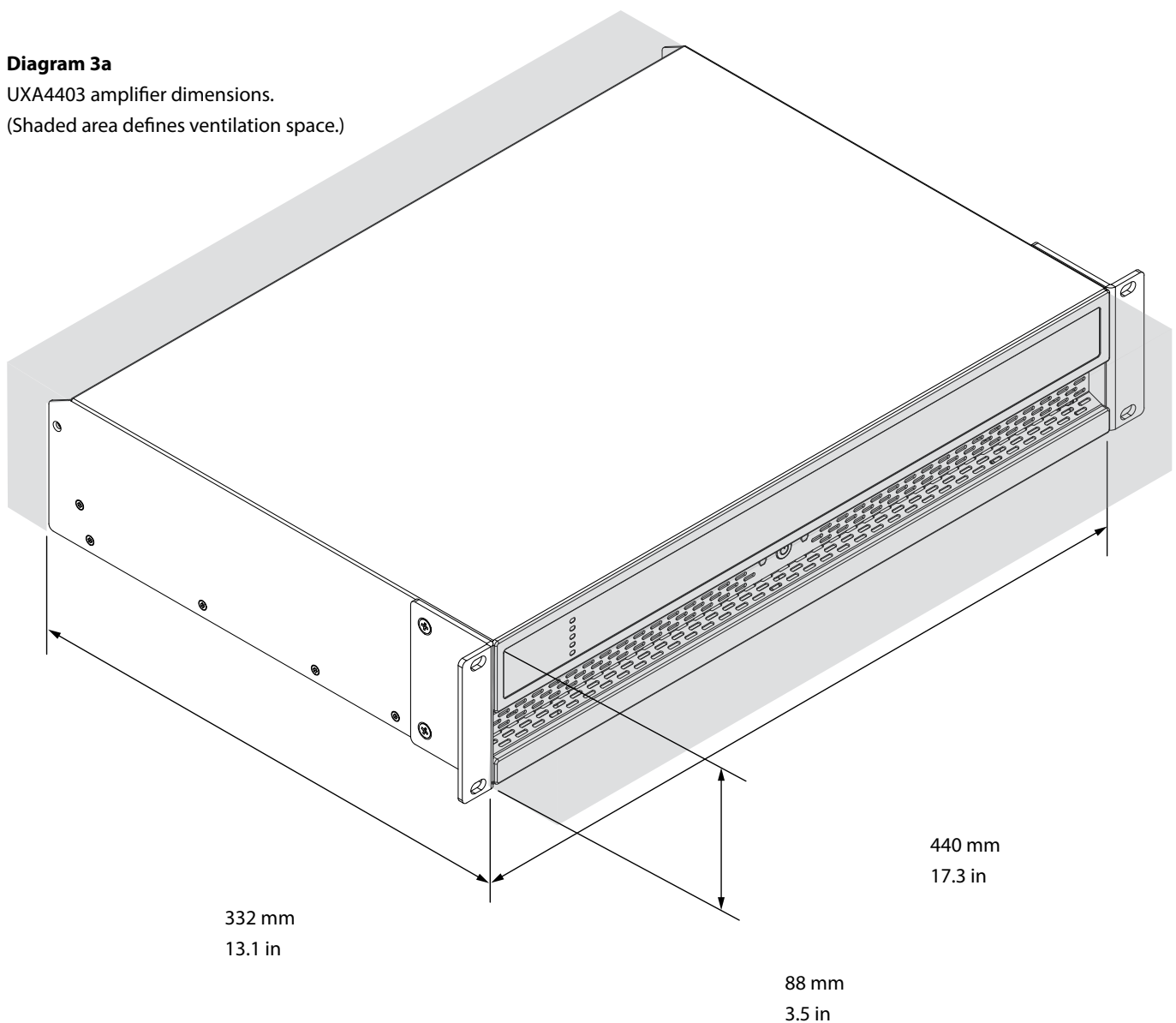
## Installation of UXA4403

UXA4403 amplifiers are shipped with rack “ears” attached and are primarily intended for standard (19 inch) equipment rack installation. If not to be installed in an equipment rack, UXA4403 amplifiers can be placed free-standing on a flat surface. Adhesive rubber feet are supplied for this purpose.

It is important that any installation provides space for airflow through the ventilation apertures at the front and rear of the amplifier. This is illustrated in **Diagram 3a**.

**Diagram 3a**

UXA4403 amplifier dimensions.  
(Shaded area defines ventilation space.)



# Passive Point Source **Application Guide**

## Configuring UXA4401 & UXA Amplifier

**Before making input, output and GPIO connections, an initial amplifier configuration should be established. It is particularly important that the amplifier output format is configured appropriately for the speakers that are to be connected.**

**Configuration requires that the amplifiers are connected to mains power and network services. These connections are described in the following two sections.**

### Mains Power Connection

UXA amplifiers incorporate a power factor corrected power supply and can be used with mains input voltage from 100V AC to 240V AC, 50/60Hz. Use the mains cable supplied with the amplifier and connect it to a switched mains supply.

UXA amplifiers have no mains power switch and are operational as soon as mains power is connected.

### Network Services

**UXA amplifiers are configured via a web page interface. Before the configuration menus can be accessed, the amplifiers must be connected to the same TCP/IP network as the computer or mobile device that is to be used for configuration access.**

#### Wired (Ethernet) Network Connection

To connect an amplifier to a TCP/IP network using a wired connection (Ethernet) follow the steps below.

1. Use an Ethernet cable to connect the amplifier rear panel Network Control socket to a free socket on a network router or switch, or directly to an Ethernet equipped laptop or desktop computer.
2. Connect the amplifier to mains power using the supplied mains cable. Wait for the front panel Network indicator to illuminate green to indicate that the amplifier has network connectivity.
3. The UXA Amplifier amplifier default LAN IP address is 192.168.64.100. Configure the laptop or desktop computer for a fixed IP address in the

same IP range; eg. 192.168.64.10, with Subnet mask of 255.255.255.0 (or prefix 24) and set the Gateway to 192.168.64.1.

4. Open a laptop or desktop web browser and enter the address <http://192.168.64.100>. The UXA Amplifier Control Web App interface will open to enable amplifier configuration as required.

*Note: UXA amplifiers can be configured to use DHCP for network connection if required. However, if an amplifier using DHCP is power cycled, it is possible that the TCP/IP network router will assign it a different IP address, leaving its configuration page inaccessible via the previous address. If this occurs, a network scanning app can be used to identify the new IP address. DHCP and Fixed IP address option settings can be found in the Settings Tab menu described in Section 5.3.*

#### Wireless (WiFi) Network Connection

To connect an amplifier to a TCP/IP network using a wireless connection (WiFi) follow the steps below.

1. With the amplifier connected to mains power, wait for the front panel WiFi indicator to illuminate green.
2. Use a mobile, laptop or desktop device to search for available WiFi networks. Connect to, UXA44xx (product serial number)' using the password, '**password**'. The amplifier serial number can be found on its rear panel.
3. Open a computer or mobile device web browser and enter the IP address: 192.168.4.1. The UXA Control Web App interface will open to enable amplifier configuration as required.
4. Select the Web App Settings Tab followed by WiFi > WiFi Mode > Client to configure the amplifier to connect to the required WiFi network. The WiFi network name and password will be required.

**It is strongly recommended that the UXA Amplifier amplifier Access Point WiFi password is changed following initial wireless connection.**

# Passive Point Source Application Guide

## Configuration Menus

Opening a web browser that is network connected to a UXA Amplifier amplifier initially displays the UXA Amplifier Control Web App Dashboard illustrated in **Diagram 4a**. The Dashboard is the 'home' page from which all other configuration options can be accessed.

The Dashboard displays the amplifier status, output zones and the configuration menu tabs. It also enables immediate access to zone volume

control. The functions available under each configuration menu tab are described in the following sections.

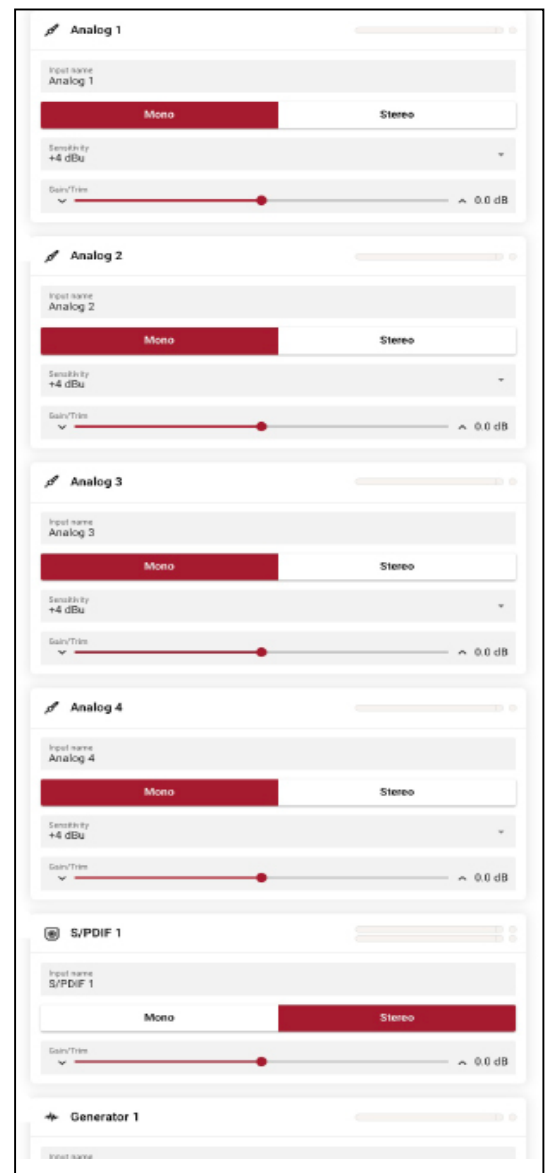
## Input Tab

The **Input Tab** provides **naming, mono/stereo selection, sensitivity, and gain trim** for each amplifier input channel. An internal pink noise source, provided for system testing and set up, can also be enabled or disabled, and adjusted for gain via the Input Tab. **Diagram 4b** illustrates the **Input Tab**.



**Diagram 4a** Configuration Dashboard display

*Note: When adjusting input gain, the input level display should remain green. If it displays red, the input gain should be reduced.*



**Diagram 4b** Input Tab display

# Passive Point Source Application Guide

## Zone Tab

The **Zone Tab** enables installation zones to be defined and named, and provides access to further sub-menus. Zones might be bar or restaurant areas for example, or different rooms in a home. For all Zone Tab menus, the installation zone under configuration is selected by highlighting one of the zone identifiers (A, B, C or D) at the top of the page. **Diagram 4c** illustrates the **Zone Tab**.

- The **Source** menu option enables inputs to be assigned to zones.
- The **GPIO Volume Control** (Diagram 4d) option enables external volume control to be applied to individual zones. The GPIO configuration menu can be found under the **Settings Tab**.
- The **Compressor** (Diagram 4e) option enables default or custom signal compression to be applied to individual installation zones.

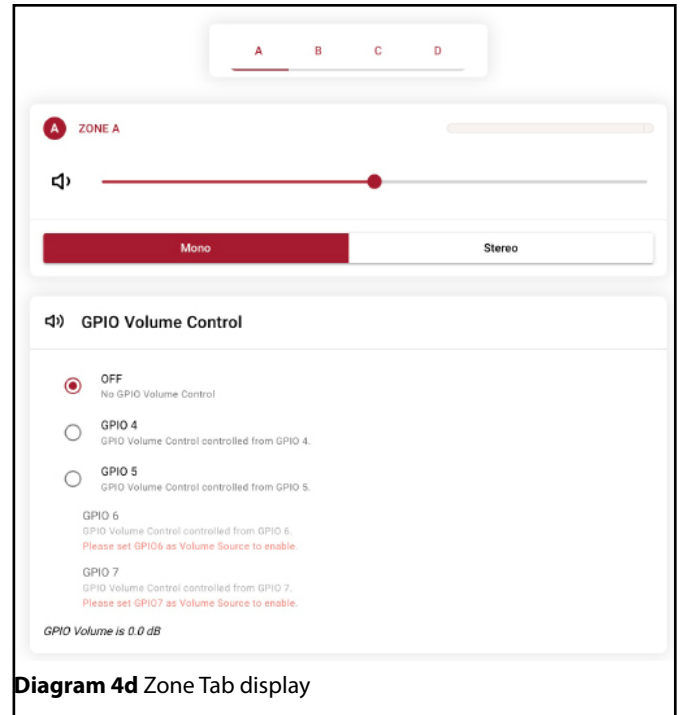


Diagram 4d Zone Tab display

*Note:: Compression can be useful to reduce the volume difference between loud and quiet audio material. The lower the compression threshold is set, the more the difference between loud and soft will be reduced. The overall zone volume may need to be increased*

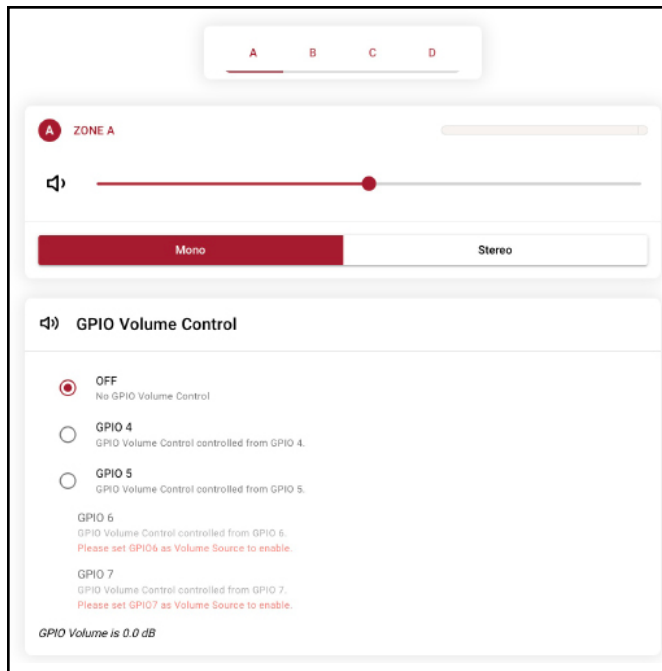


Diagram 4c Zone Tab display

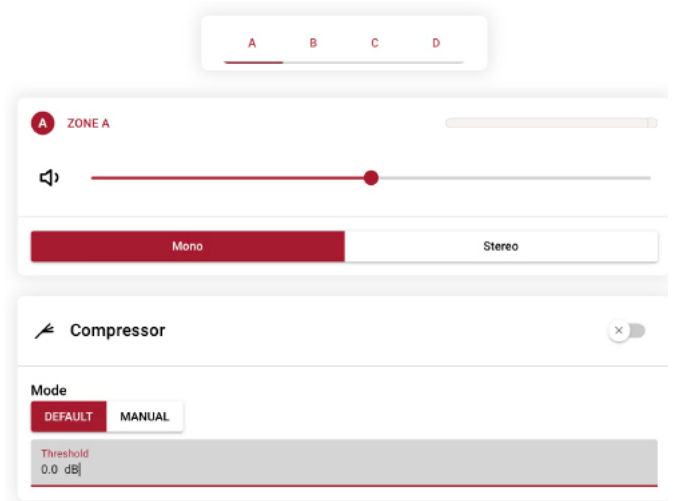


Diagram 4e Zone Tab display

# Passive Point Source Application Guide

## Output Tab

The **Output Tab** enables amplifier outputs to be named and provides access to further sub-menus. For all Output Tab menus, the amplifier output under configuration is selected by highlighting one of the output identifiers (1, 2, 3 or 4) at the top of the display. The **Output Tab** also enables **Speaker Preset** configurations to be created, exported, imported or cleared.

*Note:: The number of individual outputs available for configuration will depend on the UXA Amplifier amplifier model and the input, zone and output mode configuration.*

- The **Routing** menu (**Diagram 4f**) enables zones to be assigned to amplifier outputs.

*Note: Routing for zones specified as stereo will automatically offer three output options: left channel, right channel or summed mono. The summed mono signal can potentially be used to drive a mono subwoofer.*

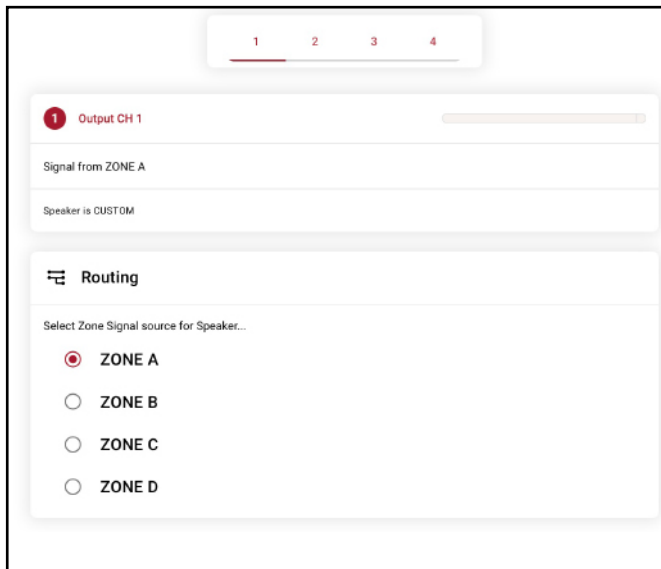


Diagram 4f

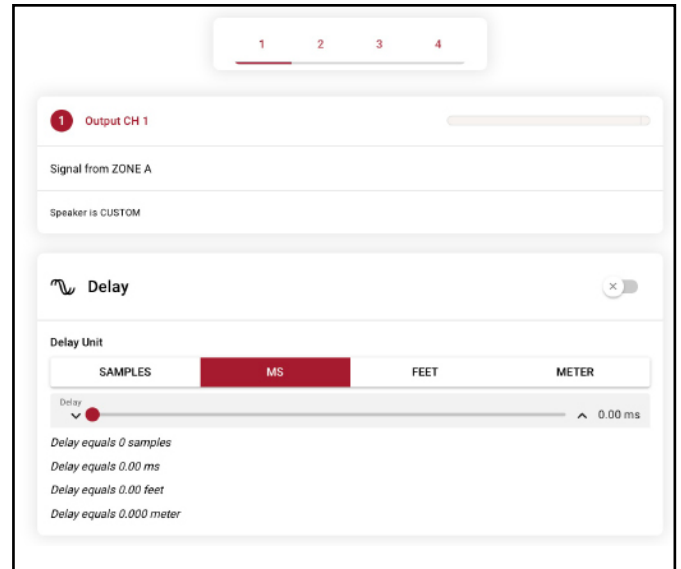


Diagram 4g

- The **Delay** menu (**Diagram 4g**) enables delay to be applied to individual amplifier outputs.
- The **Equalizer** menu (**Diagram 4h**) enables parametric equalization to be applied to individual amplifier outputs. Equalizer settings configured for one amplifier output.

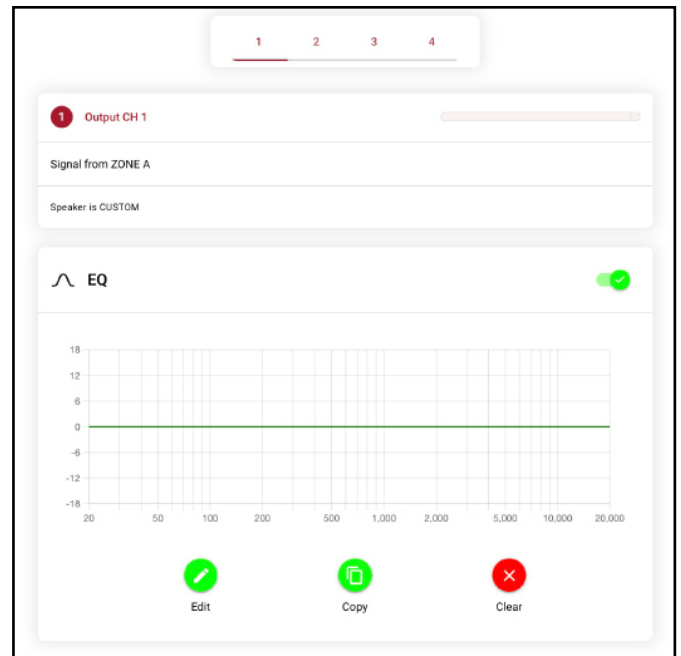


Diagram 4h

# Passive Point Source Application Guide

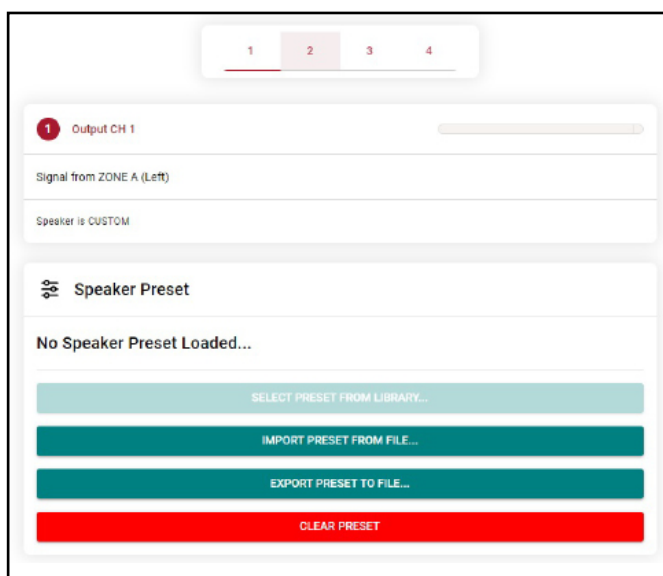
- The **Speaker Preset** menu enables a set of speaker parameters to be adjusted, and preset configurations to be created.
- Speaker Presets can be simply applied to the selected amplifier output or imported, chosen from a library, exported or cleared. The preset configurations can include any or all of the parameters described in Section 5.3.4 and can be locked to prevent inadvertent modification. **Diagrams 4i to 4k** illustrate the application of speaker presets.

**Speaker Preset** data provided by third parties for use with specific speakers can be imported and applied to amplifier outputs. To import speaker preset parameters follow the steps described below and illustrated in the diagrams.

1. Select either the **IMPORT PRESET FROM FILE** or **SELECT PRESET FROM LIBRARY** option from the **Speaker Preset** menu. If no import option is visible, select **CLEAR** to delete any existing speaker preset data.

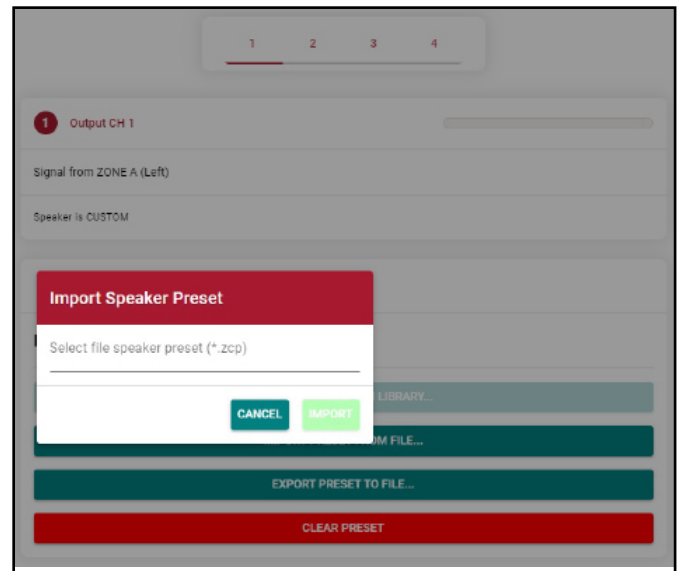
*Note: The SELECT PRESET FROM LIBRARY option will be unavailable if no speaker preset libraries have been created. Speaker preset library creation and management is described in Section 5.3.5.*

2. Select the appropriate '.zcp' format speaker preset data file to import from either a Library or a computer folder. The preset



**Diagram 4i** Speaker Preset Parameters

**Diagram 4j** Speaker Preset import file selection



data will be applied to the selected amplifier output as soon as the file import is complete.

3. If the Speaker Preset data requires modification it can be customized by selecting the CUSTOMIZE PRESET option.

*Note: If an imported Speaker Preset data file includes locked parameters, they will be unavailable for modification.*

## 5.3.4 Speaker Preset Menu Parameters

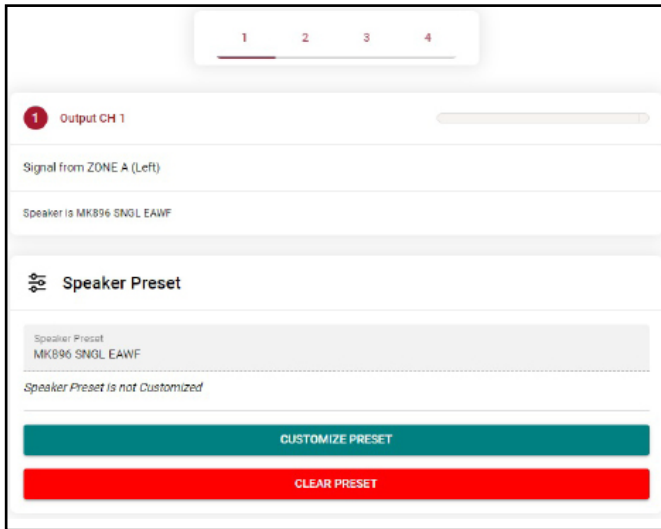
- The **Crossover & Gain** preset menu enables high or low-pass crossover filters and gain adjustment to be applied to individual amplifier outputs.
- The **Speaker EQ** preset menu enables parametric equalization to be applied to individual amplifier outputs.
- The **FIR** preset menu enables FIR (Finite Impulse Response) based equalization filter coefficients generated by external speaker measurement software to be imported and applied to individual amplifier outputs.

*Note: FIR coefficient files in either .csv or .txt format can be imported.*

- The **Driver Alignment** preset menu enables delay to be applied to individual amplifier outputs.

# Passive Point Source Application Guide

Diagram 4k Speaker Preset applied



- The **Crossover & Gain** in the preset menu allows for configuring a Low Pass and High Pass Filter, as well as adjusting global gain (**Diagram 4l**).



Diagram 4l Preset Crossover & Gain

- The **Speaker EQ** in the preset menu allows for configuring customized parametric EQ on the output level. (**Diagram 4m**).

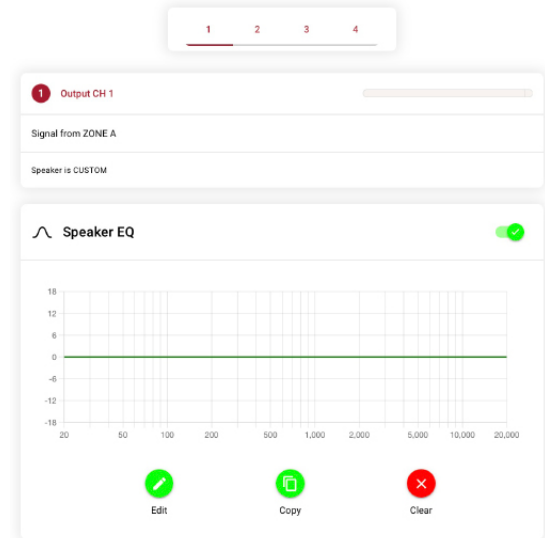


Diagram 4m Preset Speaker EQ

- FIR** in the preset menu provides a way to load a file with determined FIR filters and parameters (**Diagram 4n**).

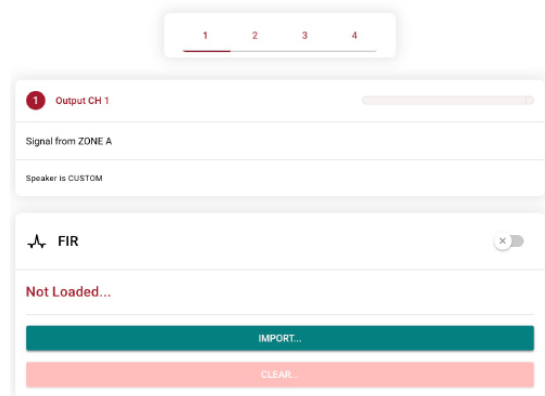
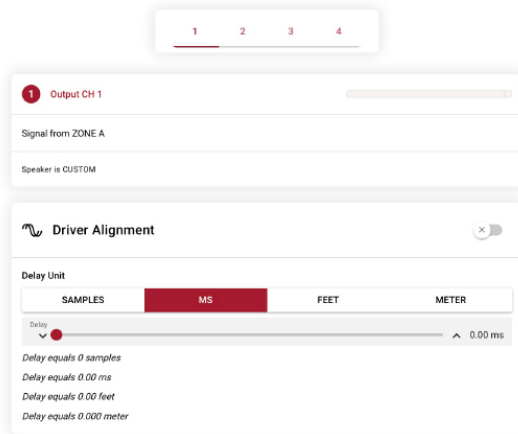


Diagram 4n Preset FIR



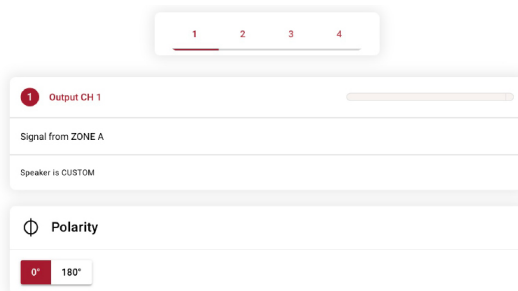
# Passive Point Source Application Guide

- **Driver Alignment** in the preset menu will allow for delay to be set between driver passbands (**Diagram 4o**).



**Diagram 4o** Preset Driver Alignment

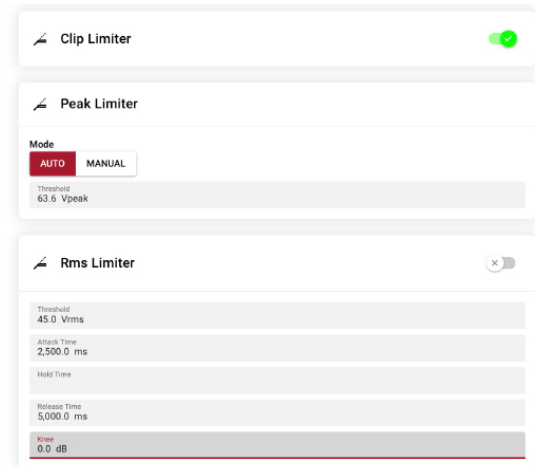
- The **Polarity** preset menu enables the polarity of individual amplifier outputs to be reversed



**Diagram 4p**  
Preset Polarity

- The **Limiter** preset menu enables signal limiting to be applied to individual amplifier outputs. Clip limiting, peak limiting and RMS limiting can be individually or collectively engaged. The Peak limiter can be set to either automatic or custom parameter values. The RMS limiter has default parameter values that can be adjusted but has no automatic option (**Diagram 4q**).

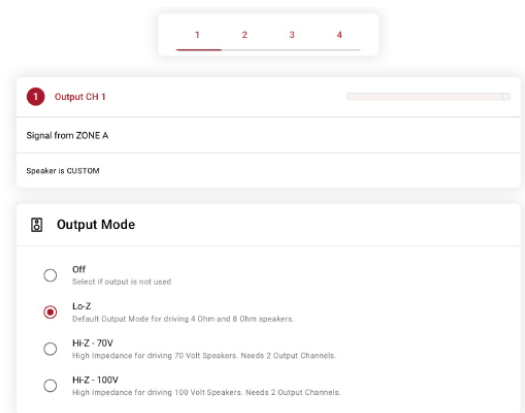
*Note: In automatic mode, the peak limiter parameters adjust automatically in response to Crossover & Gain high-pass filter settings.*



**Diagram 4q** Preset Limiter

- The **Output Mode** preset menu enables individual amplifier outputs to be switched off or configured for Lo-Z or Hi-Z modes. In Hi-Z modes, a high-pass filter can also be configured and applied to the output. The number of outputs available will depend on the amplifier model, input setup and zone setup. For example, a two output amplifier will have two outputs available if Lo-Z mode is selected but only one output available if Hi-Z mode is selected (**Diagram 4r**).

*Note:: Use of a high-pass filter with Hi-Z mode loudspeakers is useful to avoid the possibility of distortion caused by low frequency line transformer saturation. Begin with the default filter setting of 70Hz. If low frequency distortion is still audible, increase the frequency setting one step at a time until the distortion is no longer audible.*



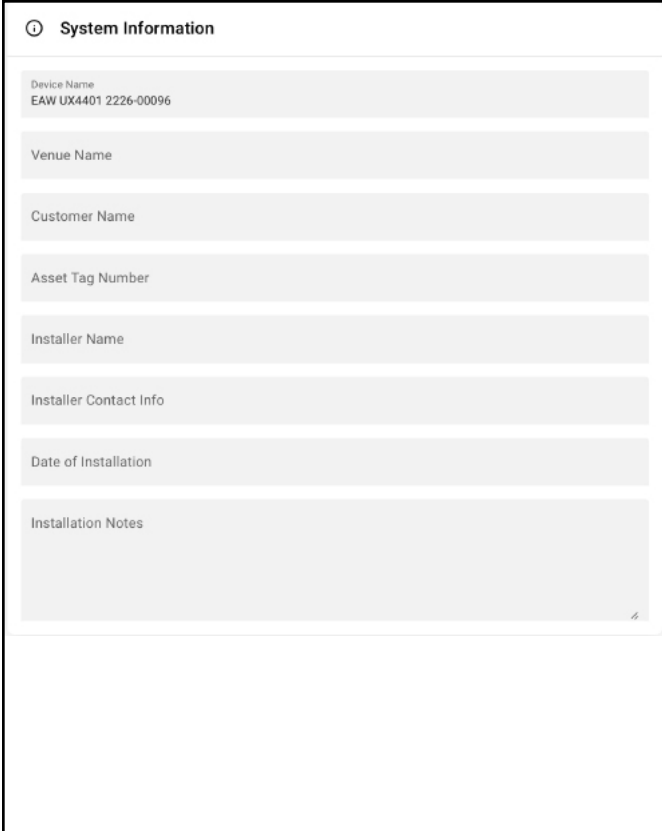
**Diagram 4r** Preset Limiter

# Passive Point Source Application Guide

## Settings Tab

The **Settings Tab** enables miscellaneous amplifier settings to be configured and installation data to be recorded. The Settings Tab provides access to further sub-menus. **Diagram 4s** illustrates the **Settings Tab**.

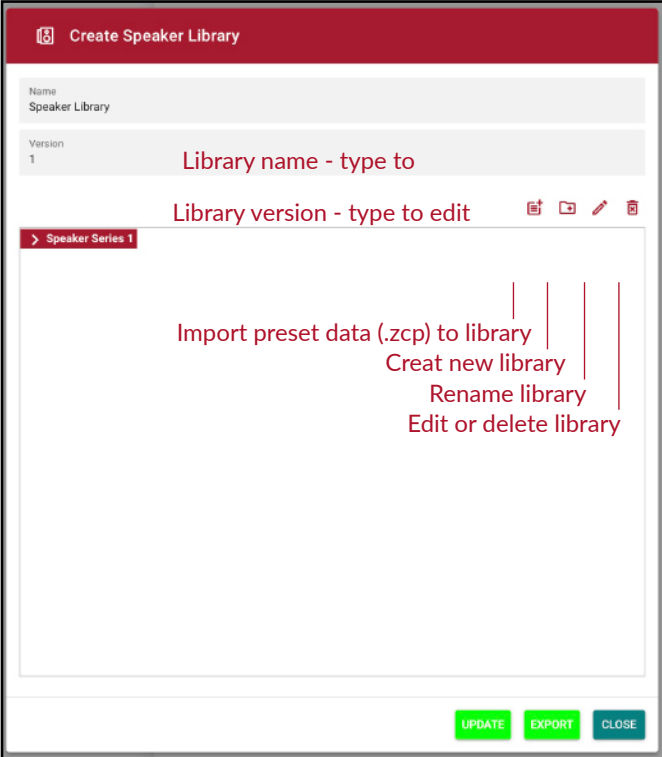
- The **System Information** menu provides text fields for the recording of installation data.
- The **Device** menu records amplifier specific information such as the model number and firmware version. A firmware update routine and identifier button can also be found under the Device menu.
- The **Backup & Restore** menu enables amplifier configuration data to be downloaded to an external archive, and enables previously saved configuration files to be uploaded and adopted by the currently connected amplifier.
- The **Speaker Library** menu enables management of speaker preset libraries. Existing libraries of speaker preset files (.zcl) can be created or imported, and existing libraries edited or fully deleted. **Diagram 4t** illustrates the creation and management of speaker preset libraries.
- The **Power Management** menu enables various automatic switch-on options to be engaged. The Power Management menu also offers timed Standby and Mute functions.
- The **GPIO** menu enables configuration of the multi-purpose GPIO interface pins.
- The **LAN** menu enables configuration and reset of the wired network options and parameters.
- The **WiFi** menu enables configuration and reset of the wireless network options and parameters.



The screenshot shows the 'System Information' menu with the following fields:

- Device Name: EAW UX4401 2226-00096
- Venue Name
- Customer Name
- Asset Tag Number
- Installer Name
- Installer Contact Info
- Date of Installation
- Installation Notes

**Diagram 4s** Settings Tab menu



The screenshot shows the 'Create Speaker Library' menu with the following fields and options:

- Name: Speaker Library
- Version: 1
- Library name - type to
- Library version - type to edit
- Speaker Series 1
- Import preset data (.zcp) to library
- Create new library
- Rename library
- Edit or delete library
- Buttons: UPDATE, EXPORT, CLOSE

**Diagram 4t** Speaker Library Creation and Management

# Passive Point Source Application Guide

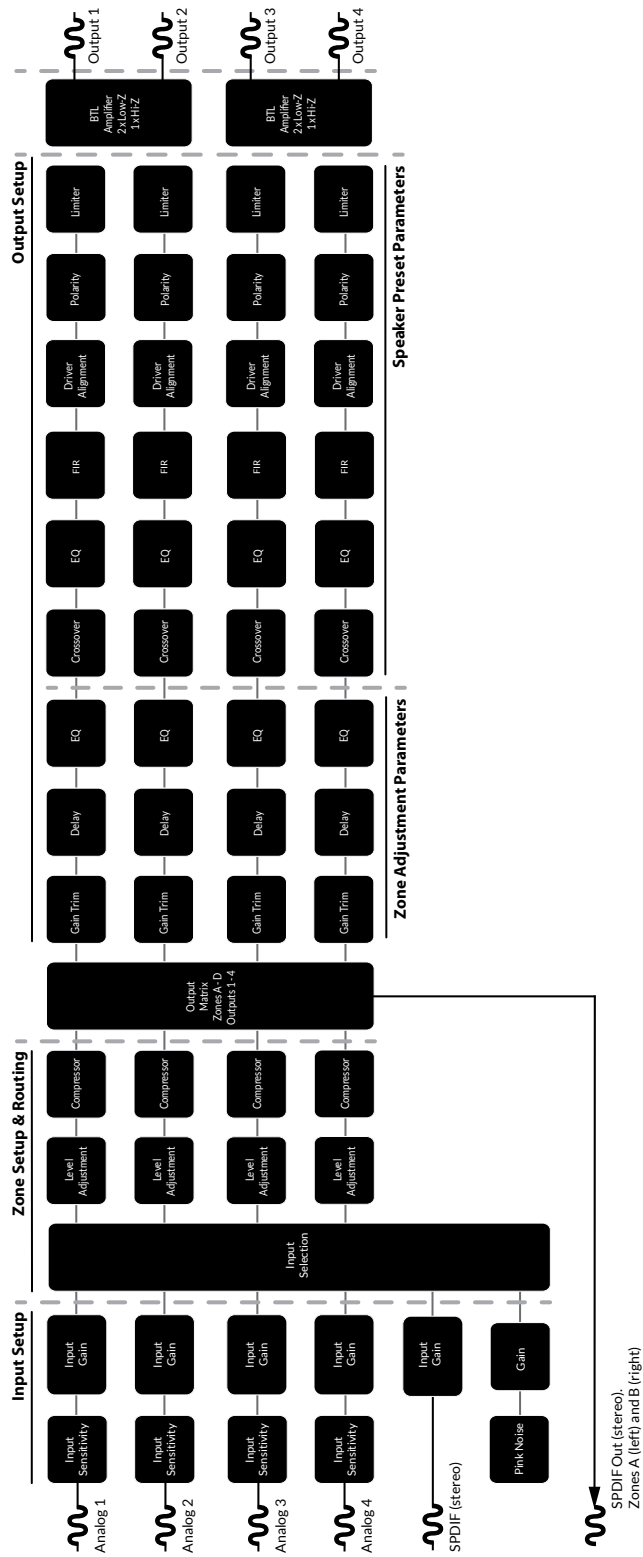


Diagram 4u Signal Flow Schematic (four output amplifier)

## 5.4 Setup and Signal Routing

Thanks to their network based configuration features, UXA amplifiers offer considerable versatility in terms of sources, signal routing, installation zones and output modes. Inputs can be freely assigned to installation zones, and those zones assigned freely to the available amplifier outputs in either Lo-Z or Hi-Z modes.

This versatility enables, for example, one amplifier simultaneously to drive both Lo-Z and Hi-Z speakers, or for different inputs to be routed to different output zones.

The following paragraphs describe and illustrate the recommended procedure for configuring input, zone and output routing. A general signal flow schematic is also illustrated in **Diagram 4u**.

SPDIF Out (stereo).  
Zones A (left) and B (right)

# Passive Point Source **Application Guide**

## Input Setup

Open the configuration Dashboard and select the **Input Tab**. The Input Tab is shown in **Diagram 4b**.

- To edit default input names simply select and type in the Input Name field.
- Define a mono or stereo input by selecting the appropriate option. Defining a stereo input will reduce the total number of discrete inputs available.
- Select an input sensitivity option from the drop-down menu: +14dB, +4dB, -10dB and 'microphone' options are available. Generally, the +14dB or +4dB options are appropriate for 'professional audio' source hardware with balanced outputs, while the -10dB option is more appropriate for 'consumer audio' source hardware with unbalanced outputs. The 'microphone' option provides the significantly greater sensitivity required for microphones.

*Note:: Only dynamic microphones are suitable for connection. Phantom power for condenser microphones is not provided.*

- If necessary, adjust the input gain using the slider or up/down icons. Gain adjustment is intended to be used for fine output level adjustment following initial use.

## Zone Setup & Routing

Open the configuration Dashboard and select the **Zone Tab**. The Zone Tab is shown in **Diagram 4c**.

- Select the zone to be configured. The number of zones available and their channel format (stereo or mono) will depend on the amplifier model, input setup and output mode (Lo-Z or Hi-Z). For example, a two output amplifier can have the following zone configurations:
  - 1 x stereo Lo-Z zone
  - 2 x mono Lo-Z zones
  - 1 x mono Hi-Z zone
- A four output amplifier can have the following zones configured:
  - 2 x stereo Lo-Z zones
  - 4 x mono Lo-Z zones
  - 2 x mono Hi-Z zone
  - 1 x mono Hi-Z zone + 1 x stereo Lo-Z zone
  - 1 x mono Hi-Z zone + 2 x mono Lo-Z zones

*Note: When configured in Hi-Z mode UXA Amplifier amplifiers operate in 'bridged' mode where the output of two channels is combined. This means that the number of output channels available in Hi-Z mode is half that available in Lo-Z mode .*

*Note: Mono signals might be mono at source, created though combining the left and right channels of a stereo signal (summed mono) or treating the left and right channels of a stereo signal independently (split mono).*

- Name zones by typing in the Zone Name field.
- Adjust the zone volume if required by using the slider.
- Define a mono or stereo zone by selecting the appropriate option. Defining a stereo zone will reduce the total number of further zones available.
- Specify an input for the zone by selecting from the drop-down menu. Selecting a stereo input for a mono zone will automatically sum the stereo channels to mono.

# Passive Point Source Application Guide

## GPIO Setup and Connection

UXA Amplifiers provide a GPIO socket that enables remote control of volume, standby, mute and trigger functions. The GPIO connector pin functions are described in the **GPIO Settings** menu illustrated in **Diagram 4v**. The connection of GPIO based remote volume control and standby/mute are illustrated in **Diagram 4w** and **Diagram 4y** respectively.



Note: The GPIO connector must not be used for any unintended purpose. Amplifier damage may result from incorrect use of GPIO.



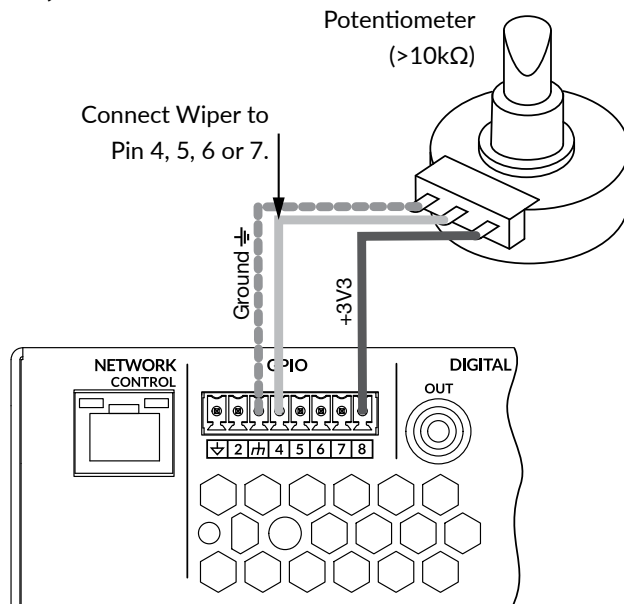
Note: Shielded cable must be used when connecting standby switches and potentiometers via GPIO.



Note: GPIO Pin 8 has a low output impedance and is able to supply a maximum current of 10mA.

Note: GPIO Pin 1 and Pin 3 both offer ground connections: Pin 1 is connected directly to the amplifier chassis.

Pin 3 is connected to the chassis via a 220 Ohm resistor. The 'soft ground' connection of Pin 3 is potentially useful for managing ground loops that may cause audible hum.



**Diagram 4w** Potentiometer connections for remote volume control via GPIO.

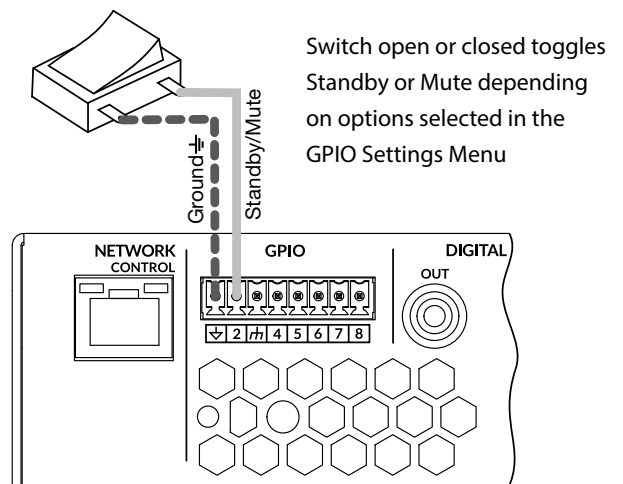
Note: *Diagram 6c* illustrates use of the GPIO connector.

## Diagram 4v GPIO Settings Menu

GPIO	
<b>Pin 1</b>	<p>Soft Ground Use for 12V trigger and standby/mute input reference</p> <p><input checked="" type="radio"/> Off Pin has no functionality (Default)</p> <p><input type="radio"/> Standby (NO) Amplifier will enter standby when Pin 2 is connected to GND.</p>
<b>Pin 2</b>	<p><input type="radio"/> Standby (NC) Amplifier will enter standby when Pin 2 is unconnected (floating).</p> <p><input type="radio"/> Mute (NO) All amplifier outputs are muted when Pin 2 is connected to GND.</p> <p><input type="radio"/> Mute (NC) All amplifier outputs are muted when Pin 2 is unconnected (floating).</p>
<b>Pin 3</b>	<p>Ground Use as reference for Voltage Control and Trigger Out.</p>
<b>Pin 4</b>	<p><input checked="" type="radio"/> GPIO Volume Control When selected the pin is used for external volume control</p> <p><input type="radio"/> Off Pin has no functionality (Default)</p>
<b>Pin 5</b>	<p><input checked="" type="radio"/> GPIO Volume Control When selected the pin is used for external volume control</p> <p><input type="radio"/> Off Pin has no functionality (Default)</p>
<b>Pin 6</b>	<p><input checked="" type="radio"/> 12V Trigger In Amplifier will operate when 12V signal is applied to Pin 6 - will enter standby when no signal applied. Requires Trigger Mode selected in Power-Mode Section.</p> <p><input type="radio"/> GPIO Volume Control When selected the pin is used for external volume control</p> <p><input type="radio"/> Off Pin has no functionality (Default)</p>
<b>Pin 7</b>	<p><input checked="" type="radio"/> 12V Trigger Out 12V Output Trigger (Default)</p> <p><input type="radio"/> GPIO Volume Control When selected the pin is used for external volume control</p> <p><input type="radio"/> Off Pin has no functionality</p>
<b>Pin 8</b>	<p>Power 3.3V 3.3V Power for GPIO volume controls</p>

## Diagram 4y Connections for remote standby/mute switch via GPIO.

Note: *Diagram 6c* illustrates use of the GPIO connector.



Switch open or closed toggles Standby or Mute depending on options selected in the GPIO Settings Menu

# Passive Point Source Application Guide

## Mains Power Connection

UXA amplifiers incorporate a power factor corrected universal power supply and can be used with mains input voltage from 100V AC to 240V AC, 50/60Hz. Use the mains cable supplied with the amplifier.

UXA amplifiers have no mains power switch and are operational as soon as mains power is connected. **Ensure that all signal, GPIO and output connections are made before connecting the amplifier to mains power.**

## Input Connection

All UXA amplifier models provide four balanced or unbalanced analog audio inputs and a stereo S/PDIF digital audio input. Any input channel can be routed to any output channel. Input routing options can be configured via the amplifier network interface. See **Section 5** of this manual.

## Analog Inputs

UXA amplifier analog inputs are of line level format with a default input sensitivity of +4dBu (full output voltage swing/sensitivity) in all output modes. Input signal levels up to +24dBu can be handled without input clipping. Input sensitivity options can be set via the amplifier network interface. See **Section 5** of this manual.

Balanced input connections to the amplifiers are made via male 'Euro Block' connectors. Connecting cables to the supplied female input connectors is illustrated in **Diagram 5b**.

Unbalanced input connections to the amplifiers are made via RCA phono sockets connected in parallel with the balanced inputs.

## Digital Inputs

UXA amplifiers S/PDIF stereo digital audio input

connections are made via a single RCA Phono socket. The S/PDIF input is connected by default to amplifier installation Zones A (left) and B (right).

## Digital Outputs

UXA amplifier S/PDIF stereo digital audio output connections are made via a single RCA Phono socket. The S/PDIF output signal by default reflects the input to amplifier installation Zones A and B and is intended to be used for daisy-chaining UXA amplifier.

Note: 75Ω RCA Phono cables specifically intended for digital audio should always be used for S/PDIF connections. Standard Phono cables can be used but may not result in optimal performance.

Note: The S/PDIF output level is by default set at -10dB to reduce the possibility of downstream input clipping.

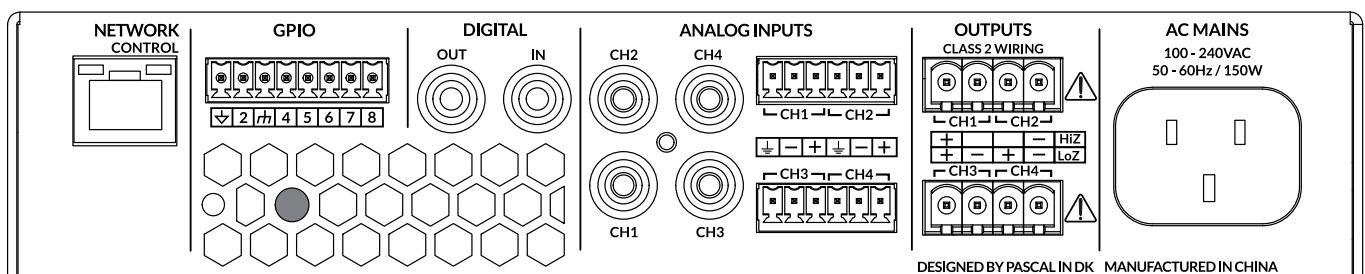
## Output Connections

Output connections from the amplifiers are achieved via male 'Euro Block' connectors. Ensure that speaker connection polarity is correct throughout the installation:

In the case of Lo-Z speaker connections, positive (+) amplifier terminals should always be connected to positive speaker terminals and negative (-) amplifier terminals always connected to negative speaker terminals.

In the case of Hi-Z speaker connections, the two speaker cable conductors should be connected between the positive (+) terminal of Output 1 and the negative terminal (-) of Output 2, and likewise for Outputs 3 and 4.

Output mode options (Lo-Z or Hi-Z) can be configured via the amplifier network interface.



# Passive Point Source **Application Guide**

## Rigging: Mounting/Suspension

**DANGER:** Mounting or overhead suspension of any heavy load can result in serious injury and equipment damage. This work should be done by qualified persons following safe rigging practices in accordance with all applicable safety and construction standards. Such persons must determine the required load ratings and design factors. They must determine the mounting or suspension method that meets static, dynamic, shock, and any other load requirements. All such work must be done in accordance with and in compliance with all federal, state, and local regulations governing such work.

**CAUTION: The user assumes all responsibility and liability for the proper design, installation, and use of any rigging and mounting systems for EAW loudspeakers.**

**CAUTION: Accessory items are available from EAW and from aftermarket suppliers to facilitate suspension, wall, ceiling, or other rigging. When using these items, review all enclosed documentation and carefully follow all instructions and safety precautions.**

### Rigging Design Practices

*Rigging a loudspeaker requires determining:*

1. The rigging methods and hardware that meet static, shock, dynamic, and any other load requirements for supporting the loudspeaker.
2. The design factor for and the required WLL (Working Load Limit) for this support.

*EAW strongly recommends the following rigging practices:*

1. Documentation: Thoroughly document the design with detailed drawings and parts lists.
2. Analysis: Have a qualified professional, such as a licensed Professional Engineer, review and approve the design before its implementation.
3. Installation: Have a qualified professional rigger install and inspect the system.
4. Safety: Use adequate safety precautions and back-up systems.
5. Consider applying thread-locker to hardware per qualified professionals recommendation.

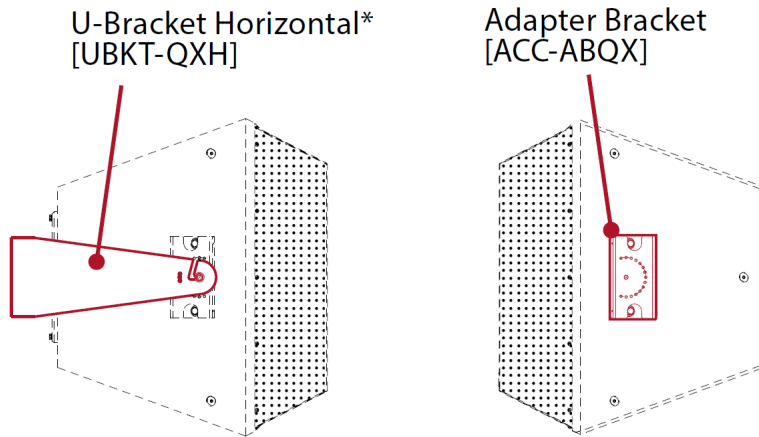
### Rigging Hardware and Accessories

Rigging EAW loudspeakers will invariably require hardware not supplied by EAW. Various types of load-rated hardware are available from a variety of third-party sources. There are a number of companies specializing in manufacturing hardware for, designing, and installing rigging systems. Because of the hazardous nature of rigging work and the potential liability, engage companies that specialize in these disciplines to do the work required.

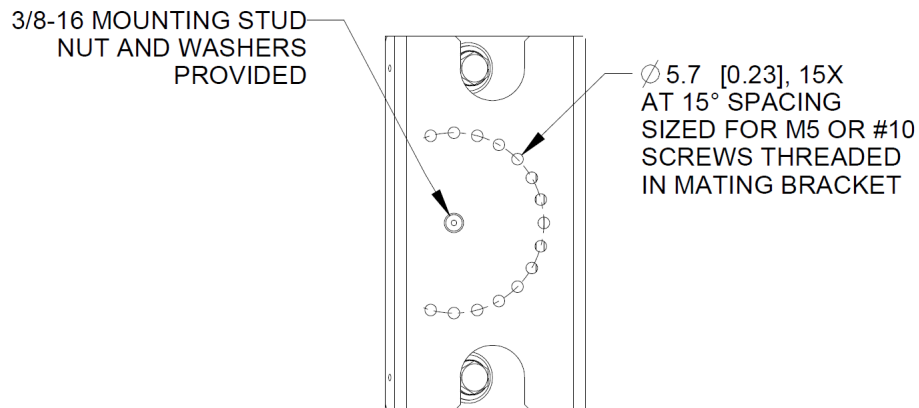
# Passive Point Source Application Guide

## U-Brackets for QX Series

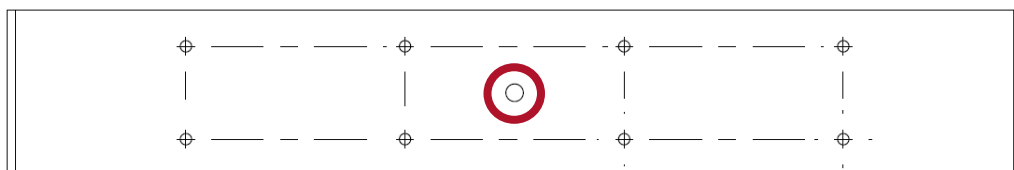
QX500 & QX300 Series have optional U-Brackets that may be used. These brackets may only be deployed horizontally, and MUST be used with adapter brackets that are not included with the U-Bracket kit. Without the adapter brackets, the U-brackets cannot physically attach to the cabinets.



Each Adapter Bracket ships with mounting stud nut and washers. The bracket allows for angle locking every 15°. Two brackets will be needed per QX, and they ship in pairs for this reason.



It is important to note the center hole on U-Bracket (as indicated below) is meant for cable pass through and NOT for mounting.



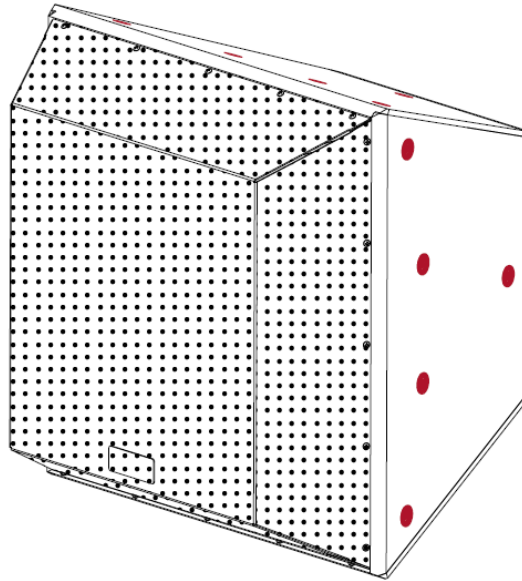


# Passive Point Source Application Guide

## Suspension methods for QX Series

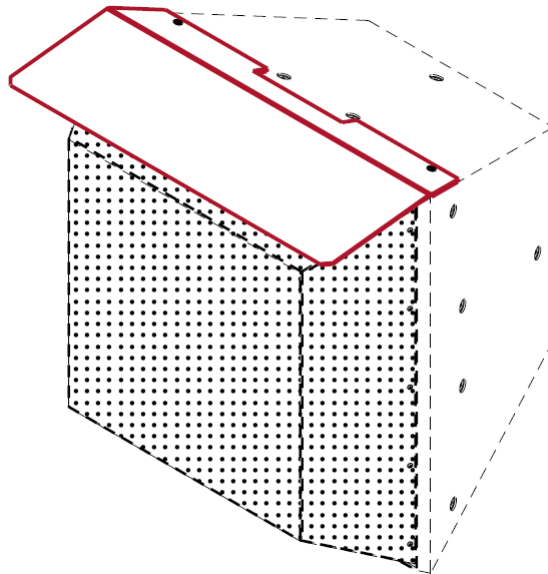
QX500 & QX300 Series both are symmetrical cabinets. Each have the same number of mounting points on all sides (see image below). Using 3/8"-16 eye bolts, it is possible to suspend QX from ceilings or structures.

*NOTE: Under **NO** circumstances is possible to suspend another loudspeaker under a QX when using available mounting points. Doing so risks both damage to the speaker and imposes a serious safety risk. The supported weight is for one QX series product only.*



## Weather Protection for QX Series

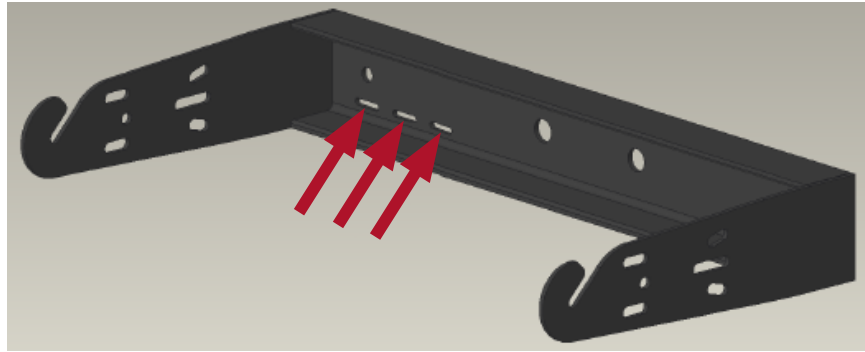
WP versions of all QX models are available. Both QX500 & QX300 U-brackets and Adapter brackets are made from aluminum and are rated for direct exposure to the elements. If WP speakers are ordered, they ship with Weather Protection Shields (see below) recommended for use.



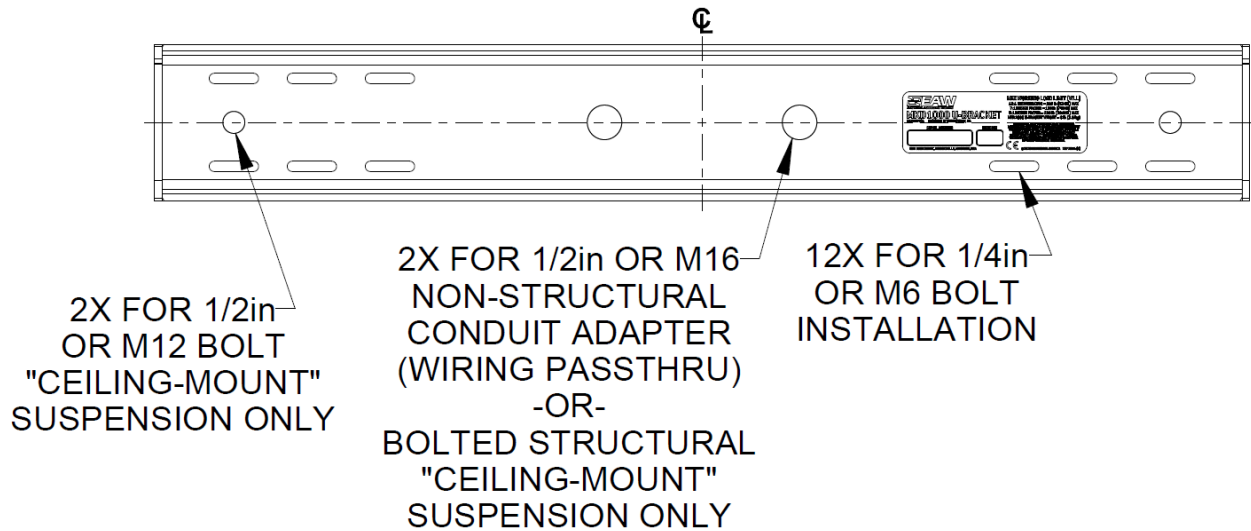
# Passive Point Source Application Guide

## U-Brackets for MKD Series

MKD800, MKD1000, and MKD1200 Series products all have optional U-Brackets that may be used. These brackets may only be deployed horizontally. If one of these loudspeakers is to be deployed in a vertical orientation, a different method must be used. Use 1/4in or M6 Bolt for installation using slots as indicated below (MKD1000 Series illustrated in examples)

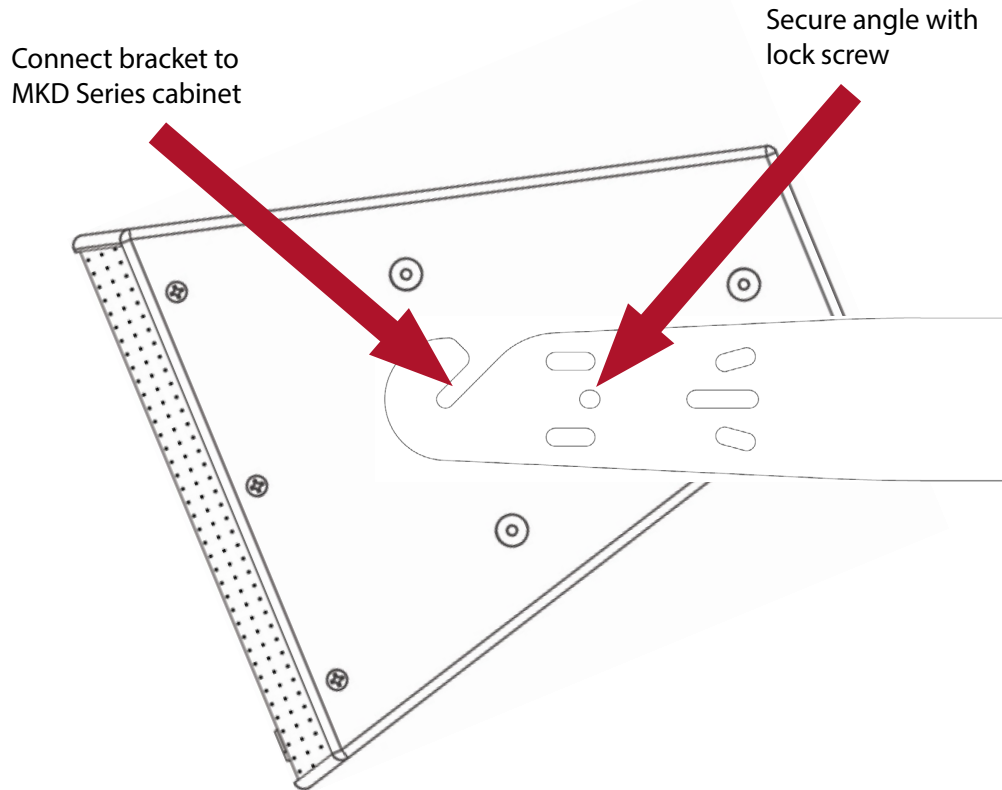


It is important to note the two center holes and two outer holes on U-Bracket (as indicated below) is meant for cable pass through and NOT for mounting (unless for a bolted structural "ceiling mount" suspension)



# Passive Point Source **Application Guide**

Each MKD Series U-Bracket comes with mounting bolt, nut, and washers need to connect to the cabinet. Connect bracket to the cabinet as indicated below, then deploy lock screw to keep tilt angle secure.



## Suspension methods for MKD Series

MKD800, MKD1000 & MKD1200 Series have M10 mounting points on the top, bottom and both sides of the cabinet so it may be flown in either a vertical or horizontal deployment. There are also two mounting points on the back to either be used for pull back or used in a "ceiling speaker" configuration.

*NOTE: Under **NO** circumstances is possible to suspend another loudspeaker under a MKD when using available mounting points. Doing so risks both damage to the speaker and imposes a serious safety risk. The supported weight is for one MKD series product only.*

# Passive Point Source **Application Guide**

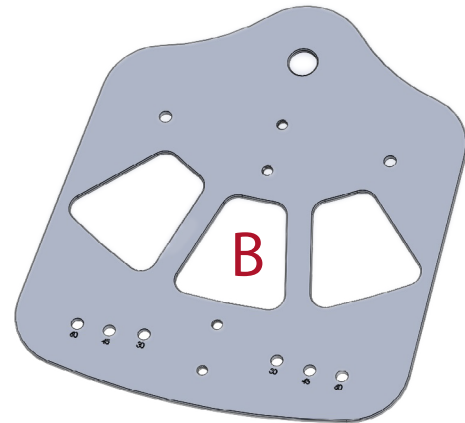
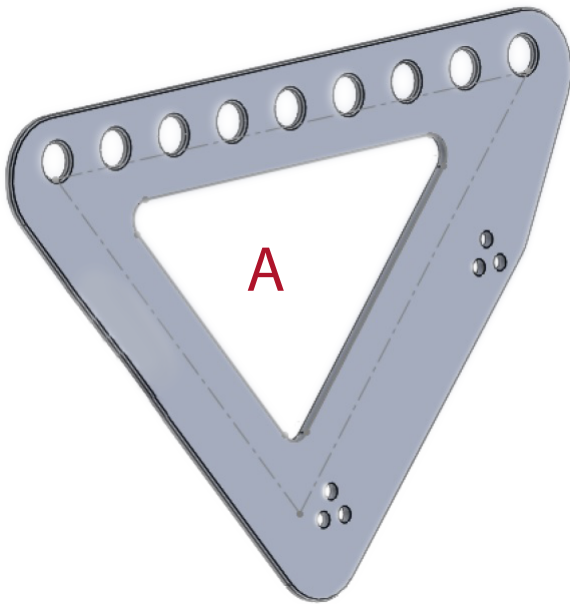
## Splay Brackets (MKD1000 Series only)

### Required Tools & Supplies

- 6mm Allen Wrench

### Inventory your kit

Part #	Part Name	Quantity	Reference
-	Suspension Rigging Bracket	2	A
-	Cabinet Rigging Bracket	2	B



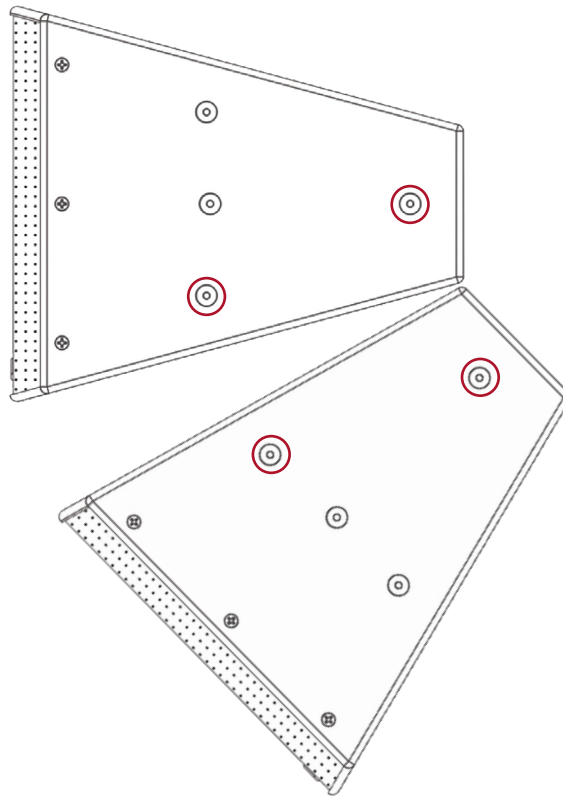
# Passive Point Source **Application Guide**

## Model System in Resolution 2

*NOTE: There are a variety of splay angles and pick point combinations that may be used with the brackets. This will be determined by the MKD models selected and coverage area geometry. Data files for the brackets are available in Resolution 2 to allow for exact configuration and angles that should be deployed.*

## Connect Cabinet Rigging Bracket to Bottom MKD1000

1. Position MKD1000 loudspeakers on side (using protective material to prevent any cosmetic damage).
2. Remove screws from MKD cabinets as shown in Figure 1.



*Figure 1 - Remove screws from MKD1000 cabinets*

3. Line up holes on bottom speaker to rear cabinet rigging points, then select and secure the angle suggested from Resolution 2 using supplied hardware screws (See Figure 2)

# Passive Point Source Application Guide

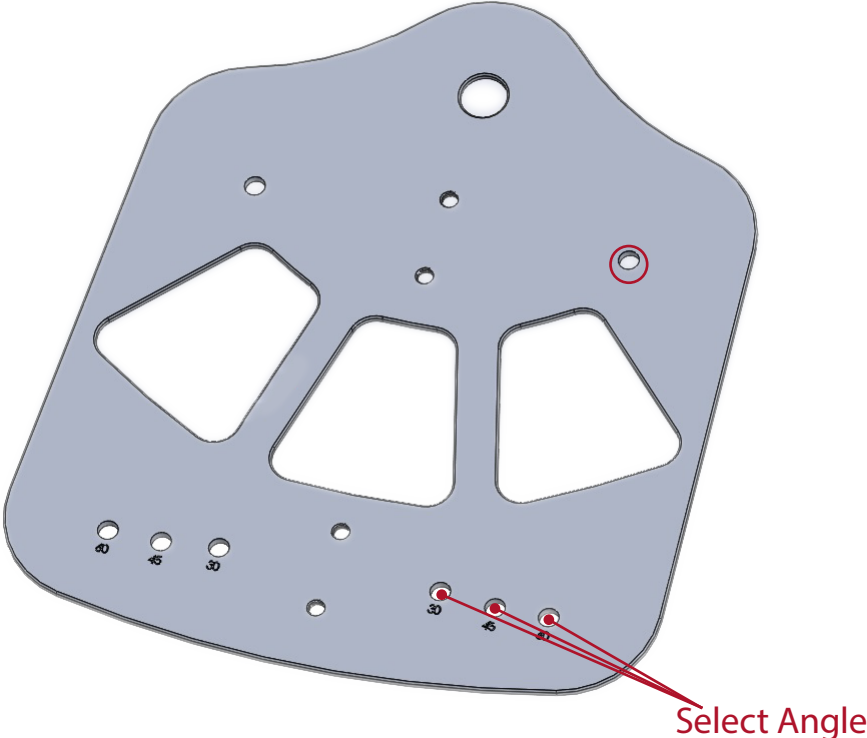
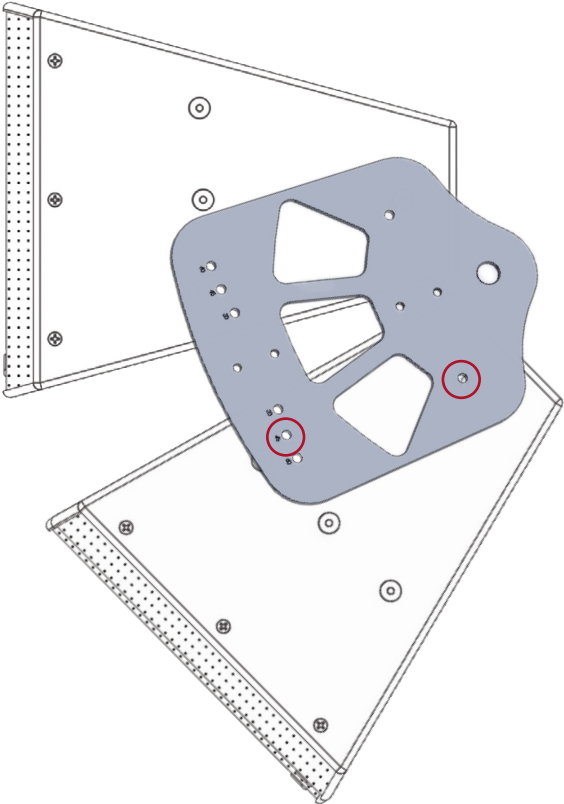


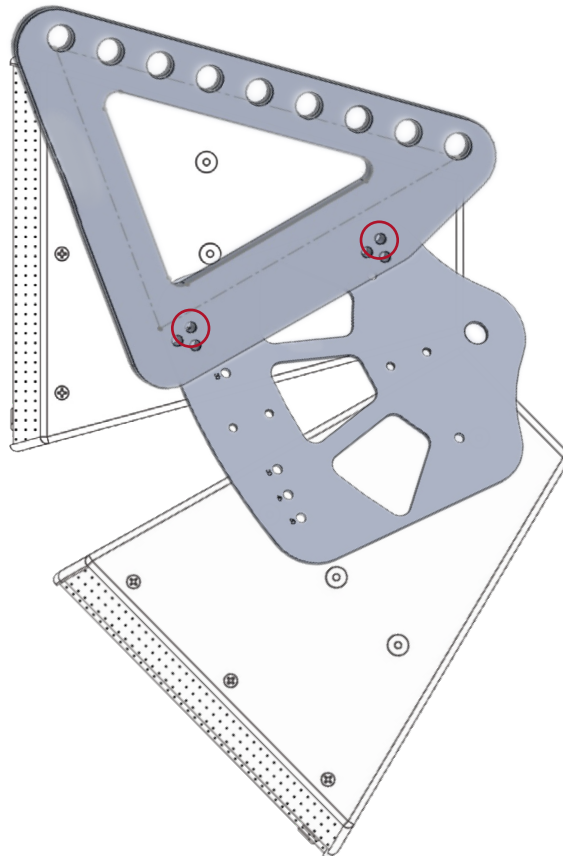
Figure 2 (above) & Figure 3 (below) - Secure to bottom MKD Cabinet and select angles



# Passive Point Source **Application Guide**

## Connect Cabinet & Suspension Bracket to Top MKD1000

4. Line up holes on top MKD1000 with Cabinet Bracket rear point/splay angle, and Suspension Bracket as suggested by Resolution 2 software.
5. Secure in place using supplied hardware screws (Figure 4)



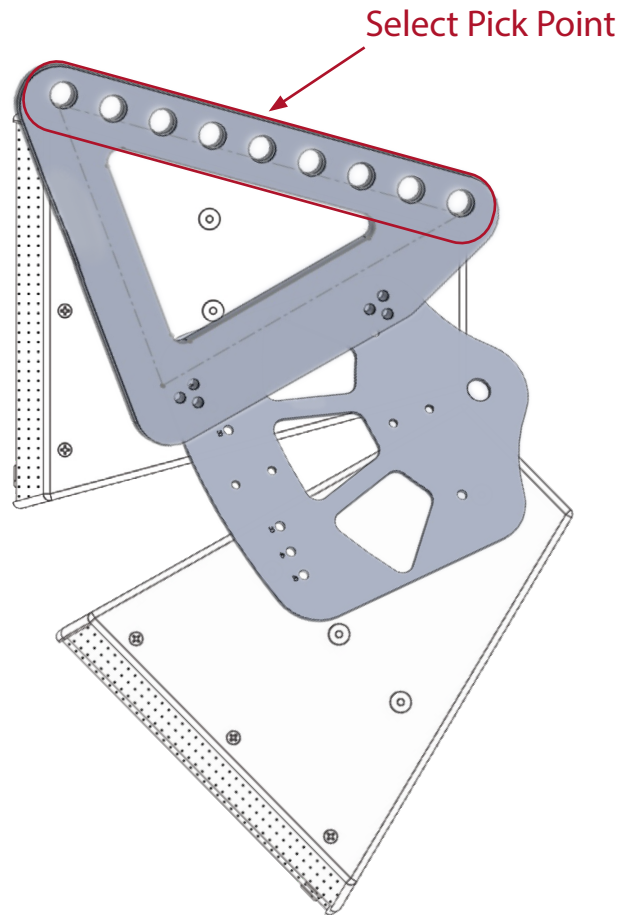
*Figure 4 - Suspension & Cabinet Bracket secured*

Note: Using two people, carefully alternate MKD1000 to other side and follow above steps to complete the array.

## Suspend MKD Array

6. Using pick point designated by Resolution 2, attach shackle to two points. This may either be two points on the Suspension Bracket (Figure 5), or two points on the Cabinet Bracket (more information on Cabinet Bracket configuration later in this document)

# Passive Point Source **Application Guide**



*Figure 5 - Select Pick Point*

7. It is possible to suspend or fly a pair of MKD1000 using only the cabinet bracket. This configuration would be utilized if loudspeakers needed to be aimed directly down at a surface or coverage area.
- Follow steps 1-3 as listed above for bottom MKD1000.
  - For top MKD1000, Do not connect Suspension Bracket, but secure rear and splay angle using holes in the Cabinet Bracket



# Passive Point Source Application Guide

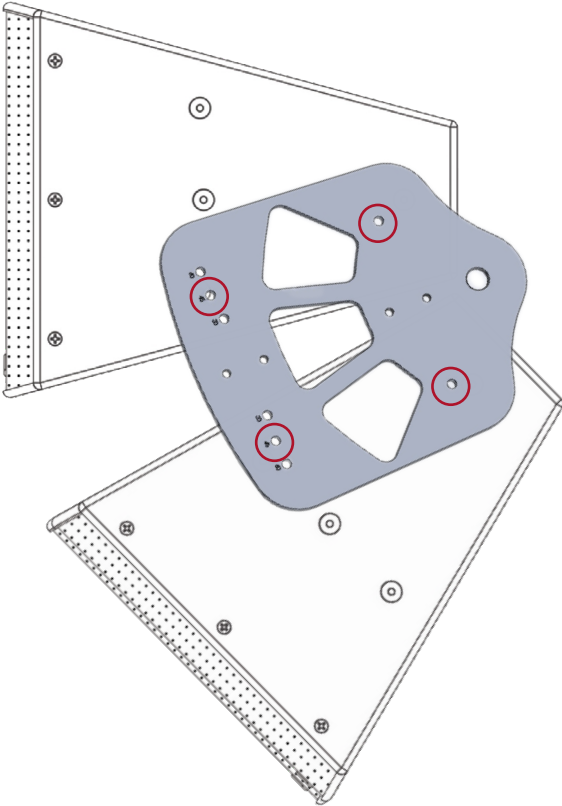
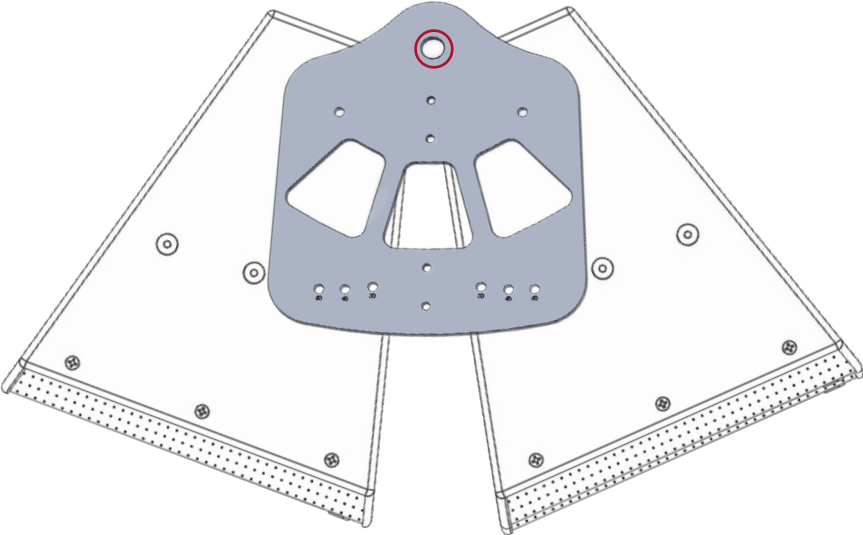


Figure 6 - Secure bottom and top MKD1000 with Cabinet Bracket

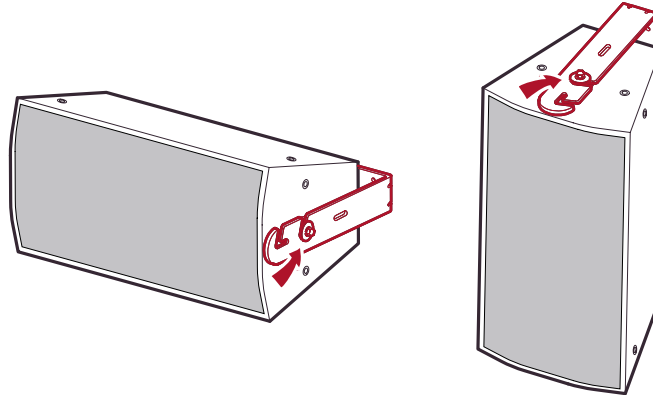
8. To deploy, connect shackles to rear rigging points on Cabinet Bracket and suspend.



# Passive Point Source Application Guide

## U-Brackets for MK Series

MK8100, MK2300i, & MK5300i Series products all have optional U-Brackets that may be used. These brackets may only be deployed horizontally. If one of these loudspeakers is to be deployed in a vertical orientation, a different method must be used.



## MK2300i/MK5300i U-Bracket Instructions

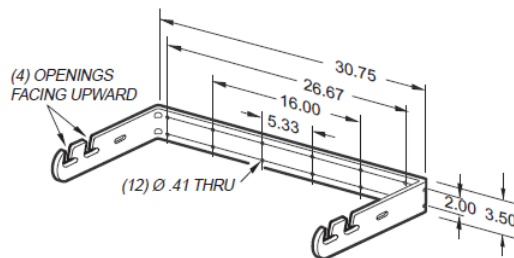
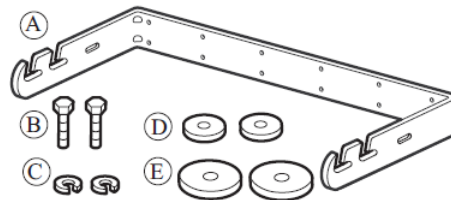
**Warning:** Installation should only be done by an experienced technician. Improper installation may cause serious injury.

### 1. Inventory

These instructions are to be used to install all MK2000/5000 series bracket kits.

Before beginning installation, inventory your bracket kit to items listed.

Item	Qty	Description
A	1	Bracket/MK2000/5000
B	2	Screw, 3/8-16 x 1-1/2 Lg
C	2	Lock Washer
D	2	Flat Washer
E	2	Large Rubber Washer



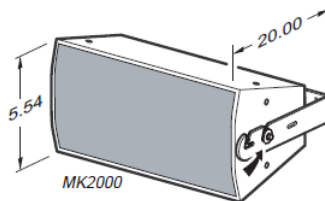
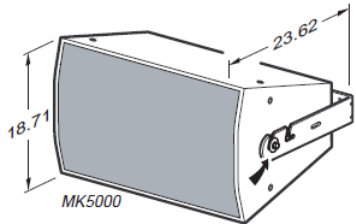
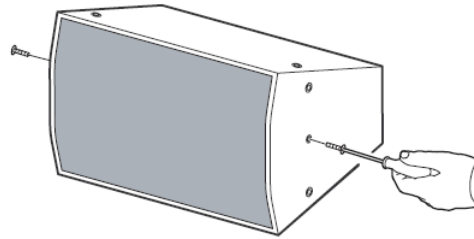
### 2. Mounting the Bracket

Due to various construction methods and materials, the hardware for securing the bracket to the mounting surface is not supplied. It is recommended that you consult a building professional for the proper mounting hardware before mounting the bracket. When horizontally mounting an enclosure make sure the four openings in the bracket arms face upward.

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### 3. Removing the Shipping Hardware

Remove the flat head screws from the sides of the enclosure. Use a 7/32 inch Allen wrench.

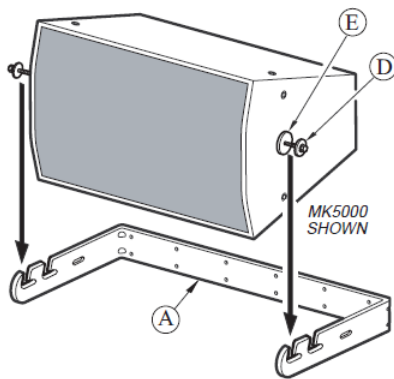
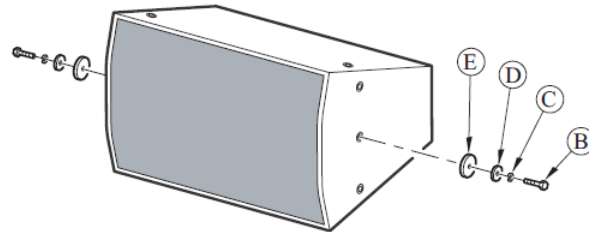


### 4. Choosing which Slot to Use

There are three slots in each bracket arm. Use the forward slot for the MK5000 series cabinet and the second slot for a MK2000 series cabinet. The third slot is to be used when the mounted cabinets side is adjacent to the wall.

### 5. Attaching the Hardware to the Enclosure:

Onto each of the two screws (B), place a lock washer (C), a flat washer (D) and a large rubber washer (E). Thread these screws and related hardware three complete turns into the 2 mounting holes shown.



### 6. Mounting the Cabinet to the Bracket

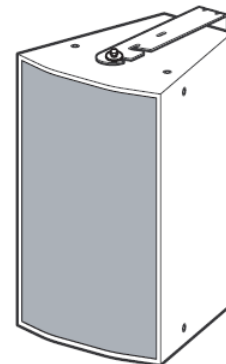
Leave as large a space as possible between the large rubber washer (E) and the flat washer (D). Place the enclosure into the appropriate bracket slots with the large rubber washers (E) inside the bracket (A) and the flat washers (D) and lock washers (C) outside the bracket (A) as shown. Position to the desired angle and tighten with a 5/16 inch Allen wrench.

### 7. Mounting the Bracket/Cabinet Vertically

The bracket and cabinet may be mounted vertically.

### 8. Positioning the Angle of the Cabinet:

The cabinet may be adjusted to any angle by loosening the 2 screws (B) repositioning the cabinet then re-tightening the 2 screws.



# Passive Point Source Application Guide

## MK8100 U-Bracket Instructions

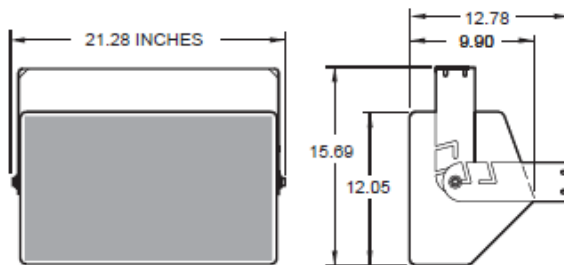
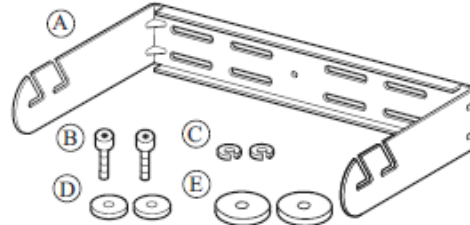
**Warning:** Installation should only be done by an experienced technician. Improper installation may cause serious injury.

### 1. Inventory

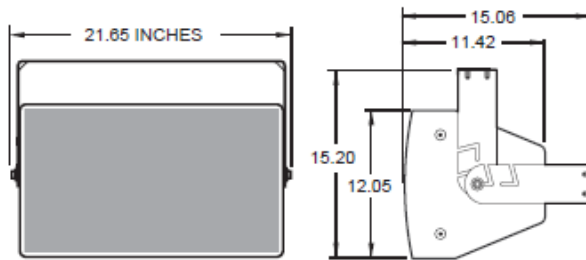
These instructions are to be used to install all UB80 & MK8000 series bracket kits. Most of the illustrations in this instruction sheet show the MK8000 series enclosure.

Before beginning installation, inventory your bracket kit to items listed.

Item	Qty	Description
A	1	Bracket/Wallmount/UB80/MK8000
B	2	Screw, 3/8-16 x 1-1/2 inch Lg
C	2	Lock Washer
D	2	Flat Washer
E	2	Large Rubber Washer



UB80 SERIES LOUDSPEAKER & BRACKET



MK8000 SERIES LOUDSPEAKER & BRACKET

### 2. Mounting the Bracket

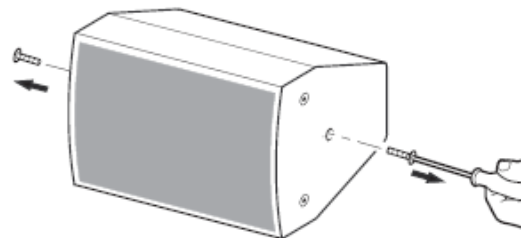
Due to various construction methods and materials, the hardware for securing the bracket to the mounting surface is not supplied.

It is recommended that you consult a building professional for the proper mounting hardware before mounting the bracket.

When horizontally mounting an enclosure make sure the four openings in the bracket arms face upward.

### 3. Removing the Shipping Hardware

Remove the flat head screws from the sides of the enclosure. Use a 7/32 inch Allen wrench.



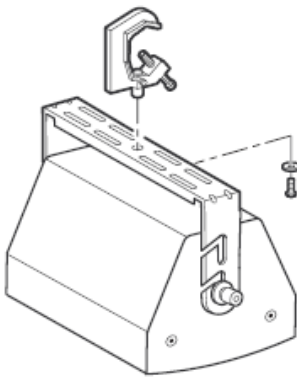
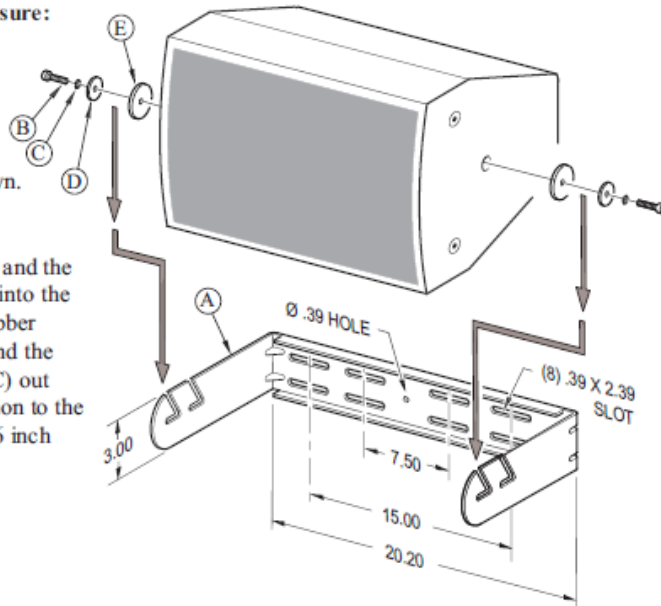
### 4. Choosing which Slot to Use

There are two slots in the bracket arm. The forward slot is used in these instructions. The forward slot is intended for use with weather protected cabinets. The back slot is intended for indoor installations where cable connections are made to the terminal strip.

# Passive Point Source Application Guide

## 5. Attaching the Hardware to the Enclosure:

- a. Onto each of the two screws (B), place a lock washer (C), a flat washer (D) and a large rubber washer (E). Thread these screws and related hardware three complete turns into the 2 mounting holes shown.
- b. Leave as large a space as possible between the large rubber washer (E) and the flat washer (D). Place the enclosure into the appropriate bracket slots with the rubber washers (E) inside the bracket (A) and the flat washers (D) and lock washers (C) out side the bracket (A) as shown. Position to the desired angle and tighten with a 5/16 inch Allen wrench.



## 6. Pipe Clamp Installation

A user-supplied, heavy duty pipe clamp with 1/2 inch instrument yoke attachment bolt may be affixed (Altman 510-HD or similar).

Assemble the pipe clamp to the bracket as shown.

## Suspension methods for MK Series

All MK Series products have 3/8"-16 mounting points on the top, bottom and both sides of the cabinet so it may be flown in either a vertical or horizontal deployment. There are also two mounting points on the back to either be used for pull back or used in a "ceiling speaker" configuration.

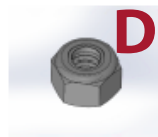
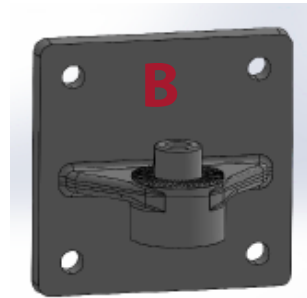
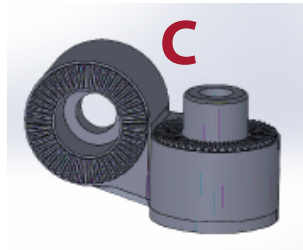
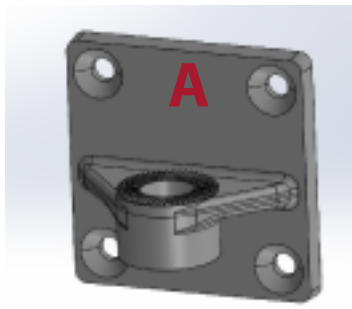
**NOTE:** Under **NO** circumstances is possible to suspend another loudspeaker under a MKD when using available mounting points. Doing so risks both damage to the speaker and imposes a serious safety risk. The supported weight is for one MKD series product only.

# Passive Point Source **Application Guide**

## Plastic Pan & Tilt Bracket for MKC50/60

### 1. Inventory your kit

Item	Description	Quantity
A	EAW MKC Plastic Wall Mount Speaker Bracket	1
B	EAW MKC Plastic Wall Mount Wall Bracket	1
C	EAW MKC Plastic Wall Mount Link Bracket	1
D	NUT LOCK M6	2
E	SCREW SS Alloy Steel M6 x 1.00 x 25mm Long Flanged Button Head	2



# Passive Point Source **Application Guide**

## 2. MKC Series Pan & Tilt Bracket limits of use

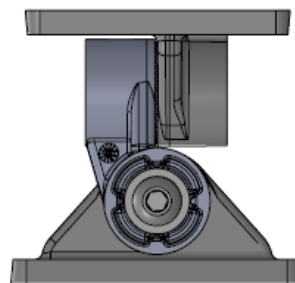
a. The MKC Series Pan & Tilt Brackets are designed to mount MKC50 and MKC60 loudspeakers only. No other MKC Series may be used with this bracket.

b. The MKC Series Pan & Tilt Brackets are designed to mount only one loudspeaker per bracket.

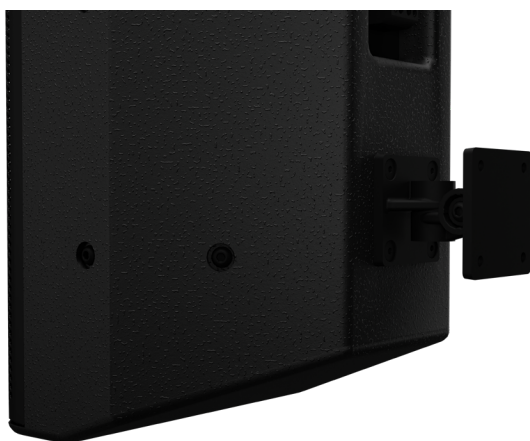
c. Any geometric or structural modifications to the MKC Series Pan & Tilt Bracket or hardware are not EAW-approved will void the warranty and may result in damage, injury, or death.

e. **WARNING:** Take care when lifting MKC Series products to avoid harm or damage to product.

f. MKC Series Pan & Tilt Bracket is not intended to be used with direct exposure to elements, and is not approved in situations where weather protection is required.



*Pan & Tilt Bracket with Link Bracket*



*Pan and Tilt with Link Bracket installed on MKC60*

## 3. Installation of the MKC Series Pan & Tilt Bracket to a mounting surface

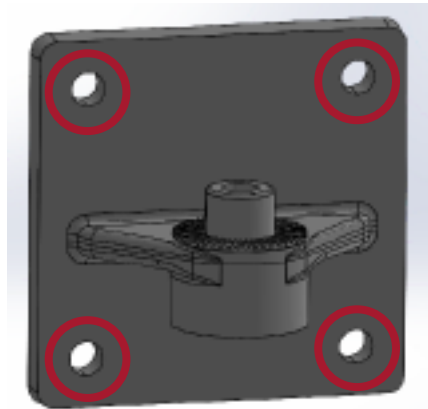
a. Test fit an MKC Series Pan & Tilt Bracket on an MKC50 or MKC60 Loudspeaker to confirm the correct angle, loudspeaker and bracket orientation before installing the wall bracket to the mounting surface. Also verify desired configuration and mounting procedure will allow for easy tool access.

b. Configurations - Depending on mounting option used, MKC50 or MKC60 may be installed in a vertical or horizontal orientation with the ability to pan or tilt depending on mounting position of the wall bracket. Using the Link Bracket, it is possible to mount with both pan and tilt ability in either loudspeaker orientation.

# Passive Point Source **Application Guide**

## c. Mounting options

NOTE: It is recommended that you consult a building professional for the proper mounting hardware before mounting the bracket. Due to various construction methods and materials, the hardware for securing the bracket to the mounting surface is not supplied. It is required that the use of hardware locking methods, not limited to lock washers, thread-locker, or nylon-retention feature, be applied when securing the pan and tilt wall bracket to the mounting surface or structure.



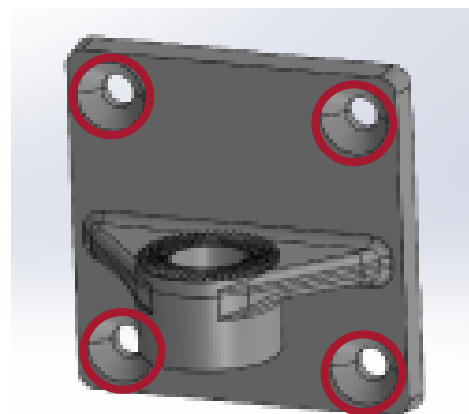
*Each MKC Series Pan & Tilt wall bracket hole will need to mount to permanent structure*

- i. All four mounting holes will need to mount to permanent structure utilizing approved mounting hardware.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing bracket to the wall.

## 4. Installation of an MKC Series Loudspeaker to the MKC Series Pan & Tilt Bracket.

### a. Choosing an MKC50 or MKC 60 Loudspeaker configuration

- i. Note if loudspeaker will need to pan or tilt, or perform a combination of both options.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing speaker bracket.
- iii. To connect bracket to the speaker, remove hardware from rear of MKC50 or MKC60, place speaker bracket over mounting pattern, and secure with previously removed hardware.



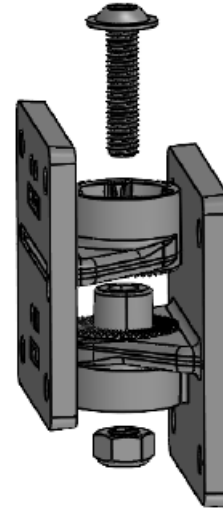
*Each mounting hole will correspond to mounting hole on MKC50 or MKC60*



# Passive Point Source **Application Guide**

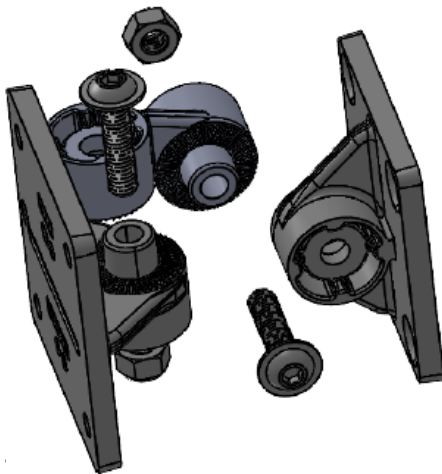
## b. Connecting Speaker Bracket to Wall Bracket with NO Link Bracket

- i. Line up the two brackets and secure with M6 screw and lock nut
- ii. Tighten with 4mm hex tool. Do not tighten fully.
- iii. Rotate or tilt MKC loudspeaker using the moulded grooves to lock angle in place.
- iv. Once desired angle is achieved, fully tighten the screw.



*Connecting the Pan & Tilt Wall and Speaker Brackets*

## c. Connecting the Speaker Bracket to the Wall Bracket WITH Link Bracket



*Connecting the Pan & Tilt Wall and Speaker Brackets using the Link Bracket*

- i. Based on test fit, determine if tool access is improved with Link Bracket connected to the Wall Bracket or the Speaker Bracket
- ii. Connect Link Bracket to Wall or Speaker Bracket using M6 screw with lock nut. Tighten with a 4mm hex tool. Do not tighten fully.
- iii. Connect Link Bracket to remaining Wall or Speaker Bracket using M6 screw with lock nut. Tighten with a 4mm hex tool. Do not tighten fully.
- iv. Rotate or tilt MKC loudspeaker using the moulded grooves to lock initial angle in place.
- v. Once desired angle is achieved, fully tighten the screw.
- vi. Repeat the last two steps above to achieve second pan or tilt angle.

# Passive Point Source **Application Guide**

## 5. Review the MKC Series Loudspeaker installation

- a. Confirm the loudspeaker is level or plumb depending on the configuration.
- b. Confirm the aim angle is as expected.
- c. Confirm all hardware is tight.

## 6. Maintenance of an MKC Series U-Bracket installation

- a. **WARNING:** Not following Maintenance instructions could result in equipment damage, serious injury or death.
- b. Maintenance should only be performed by an experienced technician.
- c. As with any professional loudspeaker system, routine maintenance must be conducted in order to ensure the longevity and safe, consistent performance.
- d. Inspect the MKC Series Pan & Tilt Bracket for damage. Brackets with visible damage should be replaced and discarded.
- e. Inspect hardware securing the u-bracket to the mounting surface for corrosion or looseness. Tighten loose hardware and consider installing hardware locking methods. Replace and discard corroded hardware.
- f. Inspect hardware mounting the MKC Series loudspeaker to the brackets for corrosion or looseness. Tighten loose hardware. Replace and discard corroded hardware.
- g. Clean the MKC Series Pan and Tilt Brackets and MKC Series Loudspeaker with a dry cloth.

## 7. Dismantling the MKC Series U-Bracket installation

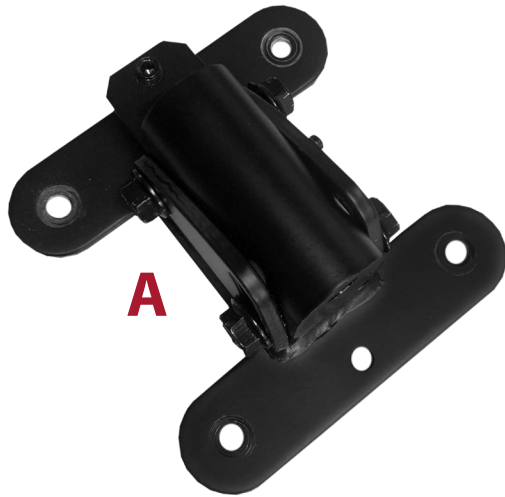
- a. Fully support the weight of the MKC Series Loudspeaker. Using a 4mm Allen wrench, remove the screws securing either the Speaker Bracket or Link Bracket. Carefully lower the loudspeaker to the ground.
- b. Remove the mounting hardware securing the Wall Bracket to the mounting surface.
- c. Discard all damaged components.

# Passive Point Source Application Guide

## Metal Pan & Tilt Bracket for all MKC Models

### 1. Inventory your kit

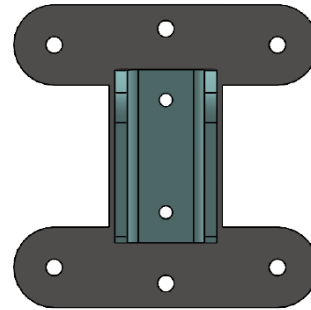
Item	Description	Quantity
A	EAW MKC Metal Wall Mount Speaker Bracket	1
B	EAW MKC Metal Wall Mount Wall Bracket	1
C	Button Head Hex Drive Screw	1
D	18-8 Stainless Steel Split Lock Washer	1
E	18-8 Stainless Steel Oversized Washer	1



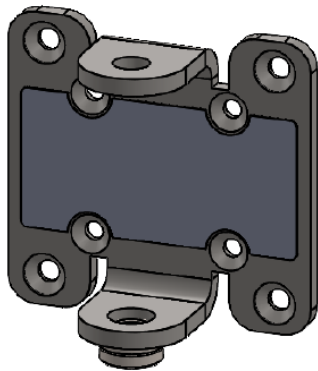
# Passive Point Source **Application Guide**

## 2. MKC Series Metal Pan & Tilt Bracket limits of use

- a. The MKC Series Metal Pan & Tilt Brackets are designed to mount MKC Series & MKD526 loudspeakers only. No other EAW Product Series may be used with this bracket.
- b. The MKC Series Metal Pan & Tilt Brackets is designed to mount only one loudspeaker per bracket.
- c. Any geometric or structural modifications to the MKC Metal Series Pan & Tilt Bracket or hardware are not EAW-approved will void the warranty and may result in damage, injury, or death.
- d. **WARNING: Take care when lifting larger MKC Series products to avoid harm or damage to product.**



*Wall Bracket with Pivot Block removed*



*Cabinet Bracket showing mounting options*

- ## 3. Installation of the MKC Series Metal Pan & Tilt Bracket to a mounting surface
- a. Test fit an MKC Series Metal Pan & Tilt Bracket on an MKC or MKD526 Loudspeaker to confirm the correct angle, loudspeaker and bracket orientation before installing the wall bracket to the mounting surface. Also verify desired configuration and mounting procedure will allow for easy tool access.
  - b. Configurations - Depending on mounting option used, MKC Series products or MKD526 may be installed in a vertical or horizontal orientation with the ability to pan and tilt depending on mounting position of the wall bracket.

# Passive Point Source Application Guide

## c. Mounting options

*NOTE: It is recommended that you consult a building professional for the proper mounting hardware before mounting the bracket. Due to various construction methods and materials, the hardware for securing the bracket to the mounting surface is not supplied. It is required that the use of hardware locking methods, not limited to lock washers, thread-locker, or nylon-retention feature, be applied when securing the pan and tilt wall bracket to the mounting surface or structure.*



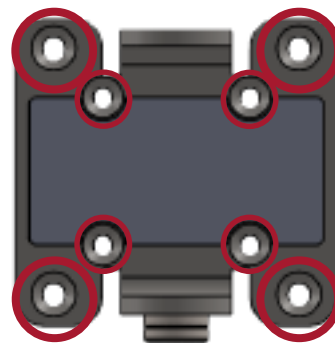
*Each MKC Series Metal Pan & Tilt wall bracket (A) hole will need to mount to permanent structure*

- i. All four mounting holes will need to mount to permanent structure utilizing approved mounting hardware.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing bracket to the wall.

## 4. Installation of an MKC Series or MKD526 Loudspeaker to the MKC Series Metal Pan & Tilt Bracket.

### a. Choosing an MKC Series or MKD526 Loudspeaker configuration

- i. *Note if loudspeaker will need to pan or tilt, or perform a combination of both options.*
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing speaker bracket.
- iii. To connect bracket to the speaker, remove hardware from rear of MKC Series or MKD526, place speaker bracket (B) over mounting pattern, and secure with previously removed hardware.

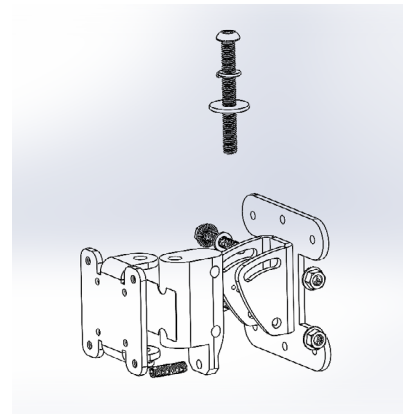


*Each mounting hole will correspond to mounting hole on an MKC Series product or MKD526*

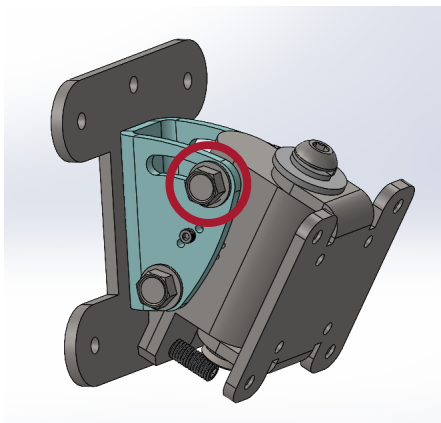
# Passive Point Source **Application Guide**

## b. Connecting Speaker Bracket (B) to Wall Bracket (A)

- i. Line up the two exposed speaker bracket holes with opening in pivot block
- ii. Slide Button Head Hex Drive Screw (C) connect brackets together
- iii. Tighten with lock (D) and oversized (E) washers using 6mm allen wrench.



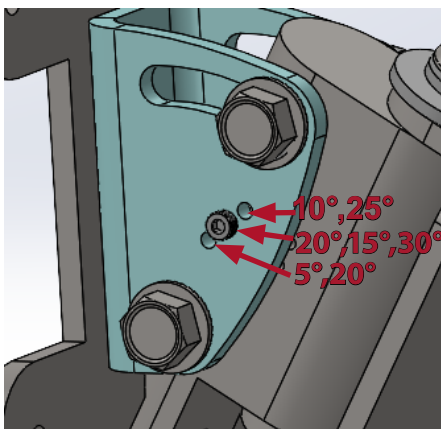
*Connecting the Pan & Tilt Wall and Speaker Brackets*



## c. Configuring Pan & Tilt angles

*NOTE: Not all angles will be achievable due to the physical restraints of loudspeakers used with bracket.*

*NOTE: Depending on orientation of the wall bracket (A) pan and tilt hardware configuration will vary*



- i. Loosen bolt and nut locking the current angle on the Pivot Block in place using (2) 10mm wrenches (see top left image)
- ii. The lock pin will work in increments of 5 degrees (See bottom left image). Set desired rotate or tilt angle for pivot block.
- iii. Loosen Button Head Hex Drive Screw (C) connecting wall and cabinet bracket using a 6mm allen wrench
- iv. Once desired pan or tilt angle is achieved, fully tighten the bolt.

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## 5. Review the MKC Series or MKD526 Loudspeaker installation

- a. Confirm the loudspeaker is level or plumb depending on the configuration.
- b. Confirm the aim angle is as expected.
- c. Confirm all hardware is tight.

## 6. Maintenance of an MKC Series Metal Pan & Tilt Bracket installation

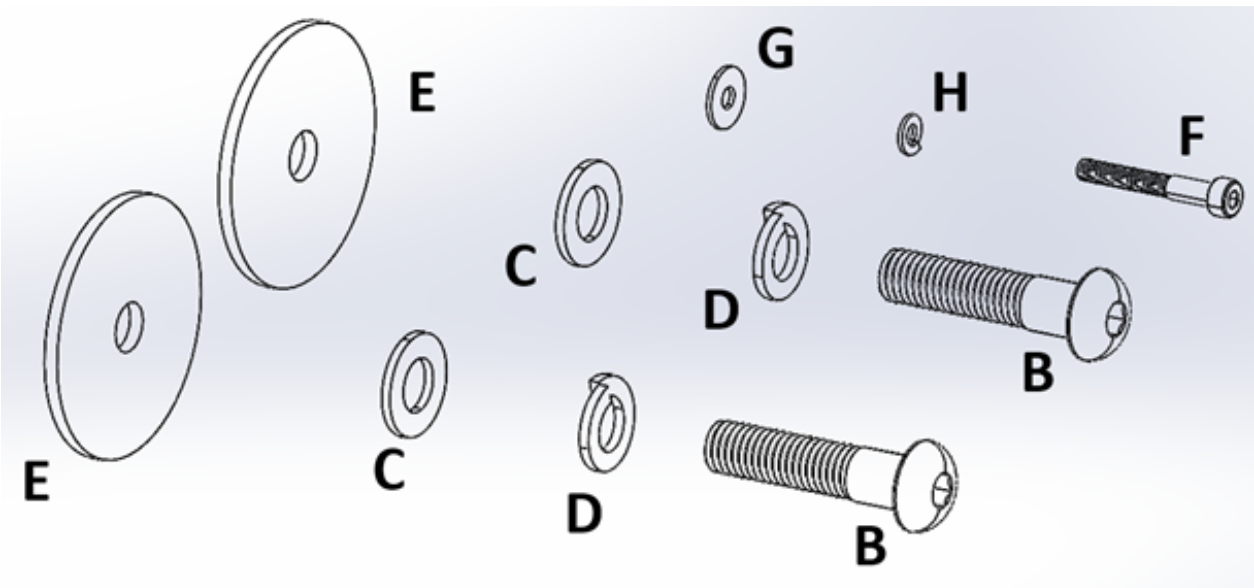
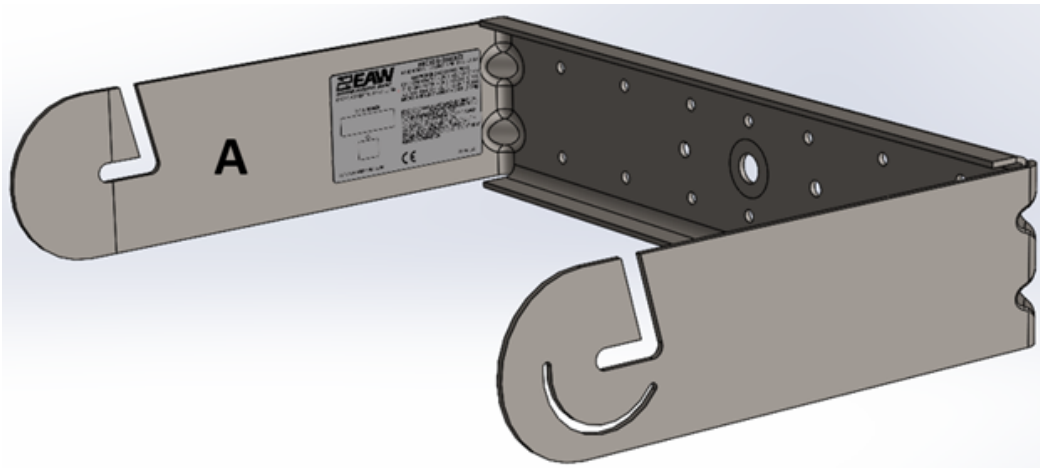
- a. **WARNING: Not following Maintenance instructions could result in equipment damage, serious injury or death.**
- b. Maintenance should only be performed by an experienced technician.
- c. As with any professional loudspeaker system, routine maintenance must be conducted in order to ensure the longevity and safe, consistent performance.
- d. Inspect the MKC Series Metal Pan & Tilt Bracket for damage. Brackets with visible damage should be replaced and discarded.
- e. Inspect hardware securing the u-bracket to the mounting surface for corrosion or looseness. Tighten loose hardware and consider installing hardware locking methods. Replace and discard corroded hardware.
- f. Inspect hardware mounting the MKC Series loudspeaker to the brackets for corrosion or looseness. Tighten loose hardware. Replace and discard corroded hardware.
- g. Clean the MKC Series Metal Pan and Tilt Brackets and MKC Series or MKD526 Loudspeaker with a dry cloth.

# Passive Point Source Application Guide

## U-Brackets for MKC Series & MKD526

### Inventory your kit

Item	Description	Quantity
A	Bracket	1
B	Button Head Screw	2
C	Flat Washer	2
D	Split-lock Washer	2
E	Rubber Washer	2
F	Socket Head Screw	1
G	Flat Washer	1
H	Split-lock Washer	1



**\*\*Tools Needed: 3mm & 6mm Allen wrench\*\***



# Passive Point Source **Application Guide**

## 2. MKC Series U-Bracket limits of use

a. The Brackets are designed to suspend each corresponding MKC Series & MKD526 loudspeaker with a design factor designated on its appropriate bracket label or exceed most global suspension regulations. Maximum working load limits of each bracket can be located on its appropriately applied label. These values have been confirmed with Finite Element Analysis and destructive testing.

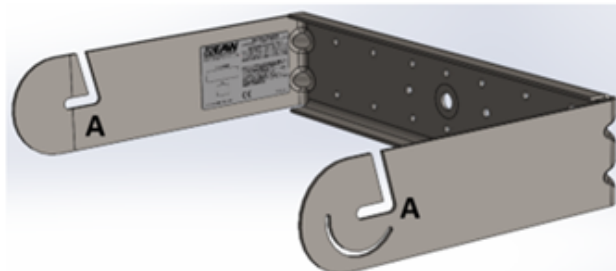


Figure 1 - Horizontal Configuration

b. The weight/mass of each bracket is also listed on its appropriately applied label.

c. Each bracket are designed to suspend only one loudspeaker per bracket.

d. Any geometric or structural modifications to the bracket or hardware that is not EAW-approved will void the warranty and may result in damage, injury, or death.

e. **WARNING:** Take care when lifting MKC Series or MKD526 products to avoid harm or damage to product.

f. **WARNING:** MKC & MKD526 brackets are for suspension of loudspeakers only. Suspension of persons is prohibited.



Figure 2 - Vertical Orientation.  
May also be flipped 180° from above image (Not applicable with MKD526 Bracketry)

## 3. Installation of the brackets to a mounting surface

a. Test fit a bracket on an MKC Series or MKD526 loudspeaker to confirm the correct angle, loudspeaker and bracket orientation before installing the bracket to the mounting surface.

b. Configurations - Depending on mounting option used, the MKC Series U-Brackets may be installed horizontal (back and arms are level/parallel to the ground - figure 1) or vertical (back and arms are plumb/perpendicular to the ground - figure 2). MKD526 U-Brackets may only be used in a horizontal orientation. If a vertical deployment is needed, the Yoke bracket may be used.

# Passive Point Source **Application Guide**

NOTE: the outermost mounting point "A" is designed as an open slot to allow for easy locating of an MKC Series or MKD526 Loudspeaker and loosely pre-installed hardware. If using the slotted mounting point, the bracket must be installed oriented with the slot angled upward as visually shown in Figure 1, opposing the ground.

c. Level - The back flange of the brackets must be level when installed to the mounting surface for either figure 1 or 2 orientation and before installing an MKC Series or MKD526 loudspeaker to the bracket. Any geometric or structural modifications to the brackets or hardware that are not EAW-approved will void the warranty and may result in damage, injury, or death.

d. Mounting options

NOTE: It is recommended that you consult a building professional for the proper mounting hardware before mounting the bracket. Due to various construction methods and materials, the hardware for securing the bracket to the mounting surface is not supplied. It is required that the use of hardware locking methods, not limited to lock washers, thread-locker, or nylon-retention feature, be applied when securing the bracket to the mounting surface or

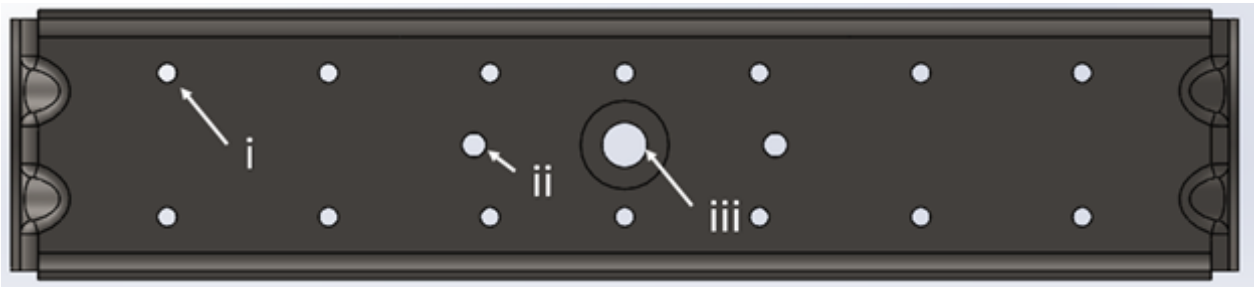


Figure 3 - The MKC U-Bracket has multiple mounting hole options as shown above

One  $\text{\O}5/8\text{in}$  ( $\text{\O}15.9\text{mm}$ ) hole (iii)

1. This hole can be used as a ceiling pole mount or a wall wire pass through.
2. If installing any bracket by this hole, a secondary safety point is suggested to be secured.

Two inner  $\text{\O}5/16\text{in}$  ( $\text{\O}8.5\text{mm}$ ) holes (ii)

1. These inner holes are spaced apart from each other on center and aligned.
2. These two inner holes may be used to install the bracket to a mounting surface using load bearing hardware; both holes must be secured.

4. Installation of an MKC Series or MKD526 loudspeaker to a bracket.

a. Choosing a loudspeaker configuration

- Each bracket has an angle lock option.
- The mounting point is always connected using the M10 screw location on the top and bottom of the loudspeaker (exception being MKD526 Yoke Bracket)

# Passive Point Source Application Guide

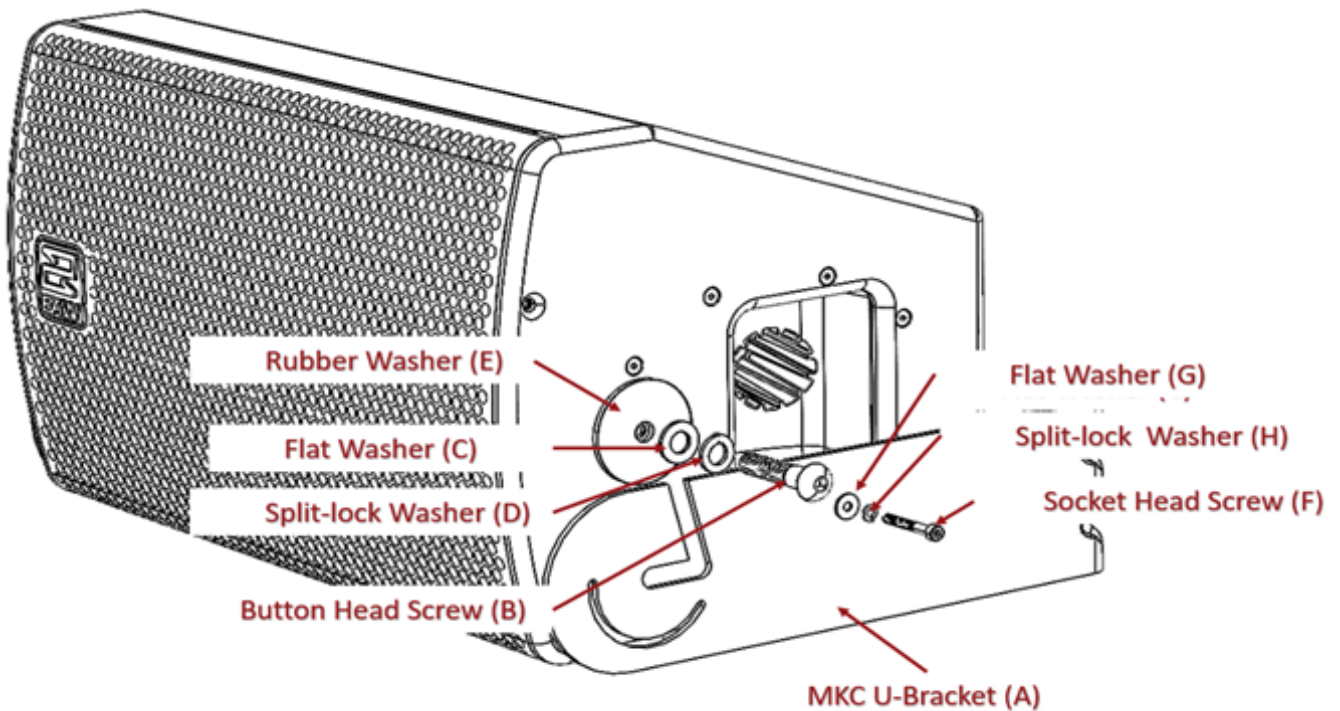


Figure 4 - Locking washer is first on bolt, then flat washer, rubber washer to be inside of U-Bracket flanges

- The outermost mounting point "A" is designed as an open slot to allow for easy locating of the loudspeaker and loosely pre-installed hardware when using the slotted mounting point, the bracket must be installed oriented with the slot angled upward, opposing the ground.
- Use of the angle lock point is optional. The angle lock point is used for locking the loudspeaker at a specific set angle.

## b. Installing a loudspeaker onto a mounted bracket.

**WARNING:** Take care when handling and wear PPE gloves to protect from crushing and impacts with digits, limbs, and/or product.

*Note, for weather protected applications (using WP Series Loudspeakers), apply user-supplied, waterproof, non-hardening, non-locking thread sealant to the threads of two button head screws (B) & the single socket head screw (F) per the thread sealant's instructions. Failure to do so could result in water ingress and damage to the loudspeaker.*

- Onto each of two button head screws (B), place a split-lock washer (C) and a flat washer (D).
- Onto each of the socket head screw (F), place a split-lock washer (H) and a flat washer (G).

# Passive Point Source **Application Guide**

**WARNING HEAVY LIFTING, MULTIPLE PERSON LIFT – Lift the loudspeaker to align the center threaded mounting hole with the brackets preferred mounting point.**

- Using an Allen wrench, loosely thread the screws and washers (B, C & D) through the bracket mounting point, through the selected rubber washer (E) and into the loudspeaker's center threaded mounting hole. Repeat for the opposite side.
  - Do to the bracket's slotted mounting point "A", the hardware may be preassembled to the loudspeaker.
    - *Note: If using the slotted mounting point, the bracket must be installed oriented with the slot angled upward, opposing the ground.*
    - Onto each of two button head screws (B), place a split-lock washer (C), a flat washer (D) and the selected rubber washer (E). Thread these screws and related hardware three complete turns into the loudspeaker's two threaded mounting holes.
    - Leave as large a space as possible between the rubber washer (E) and the flat washer (D).
    - **WARNING HEAVY LIFTING, MULTIPLE PERSON LIFT – Lift the loudspeaker into the bracket slots with the large rubber washers (E) inside the bracket and the flat and lock washers (C & D) outside the bracket.**
  - Position the loudspeaker to the desired angle.
  - In securing the angle using the angle locking point, align the loudspeaker to desired angle.
    - Onto a socket head screw (F), place a lock washer (H) and a flat washer (G).
    - Using an Allen wrench, loosely thread the screw and washers (F, G, & H) through the bracket angle lock point and into the loudspeaker's center threaded mounting hole.
  - Using Allen wrenches, tighten all screws (B & F).
5. Review the MKC Series or MKD526 Loudspeaker installation
- a. Confirm the loudspeaker is level or plumb depending on the configuration.
  - b. Confirm the aim angle is as expected.
  - c. Confirm all hardware is tight.
  - d. For weather protected applications, confirm all sealants were applied properly.

# Passive Point Source **Application Guide**

## 6. Maintenance of an MKC Series or MKD526 U-Bracket installation

- a. **WARNING:** Not following Maintenance instructions could result in equipment damage, serious injury or death.
- b. Maintenance should only be performed by an experienced technician.
- c. As with any professional loudspeaker system, routine maintenance must be conducted in order to ensure the longevity and safe, consistent performance.
- d. Inspect the bracket for corrosion and other damage. Brackets with visible damage should be replaced and discarded.
- e. Inspect hardware securing the bracket to the mounting surface for corrosion or looseness. Tighten loose hardware and consider installing hardware locking methods. Replace and discard corroded hardware.
- f. Inspect hardware mounting the loudspeaker to the bracket for corrosion or looseness. Tighten loose hardware. Replace and discard corroded hardware.
- g. For weather protected applications (using WP Series Loudspeakers), inspect hardware sealants for cracking or gaps in sealant. Replace damaged sealant with user-supplied, waterproof, non-hardening, non-locking sealant per the sealant's instructions. Failure to do so could result in water ingress and damage to the loudspeaker.
- h. Clean brackets and loudspeakers with a dry cloth.

## 7. Dismantling the MKC Series or MKD526 bracket installation

- a. **WARNING HEAVY LIFTING – Fully support the weight of the loudspeaker. Using a allen wrench, remove the screws at the mounting and angle lock points. Carefully lower the loudspeaker to the ground.**
- b. Support the weight of the bracket. Remove the mounting hardware securing the bracket to the mounting surface. Carefully lower the bracket to the ground.
- c. Discard all damaged components.

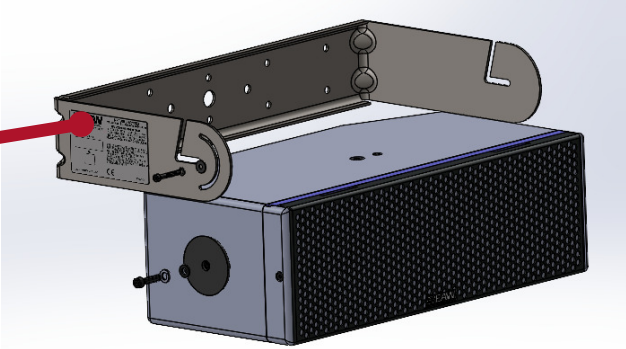
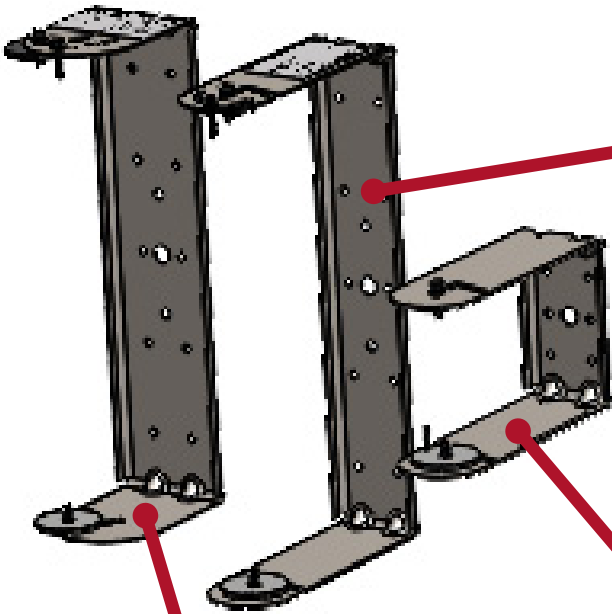
### **EU Declaration of Conformity**

EAW North America Inc hereby declares that this device is in compliance with Directive 2006/42/EC

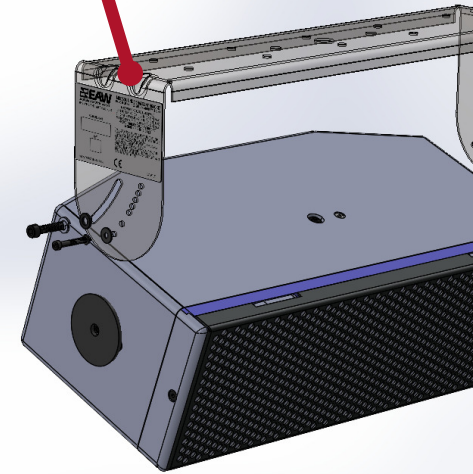
A copy of this EU Declaration of Conformity is available at <https://eaw.com/downloads/#142-660-wpfd-certifications>

# Passive Point Source Application Guide

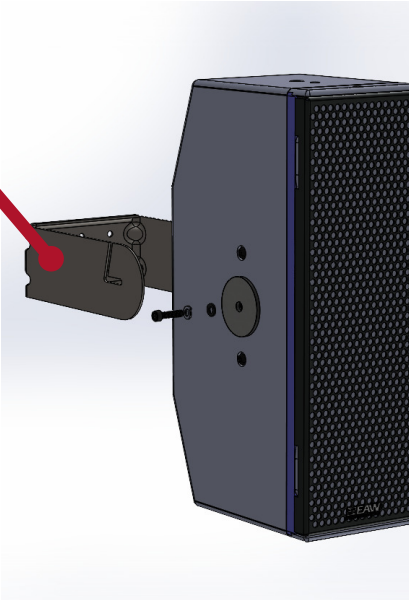
## APPENDIX A - MKD526 Bracketry



U-Bracket



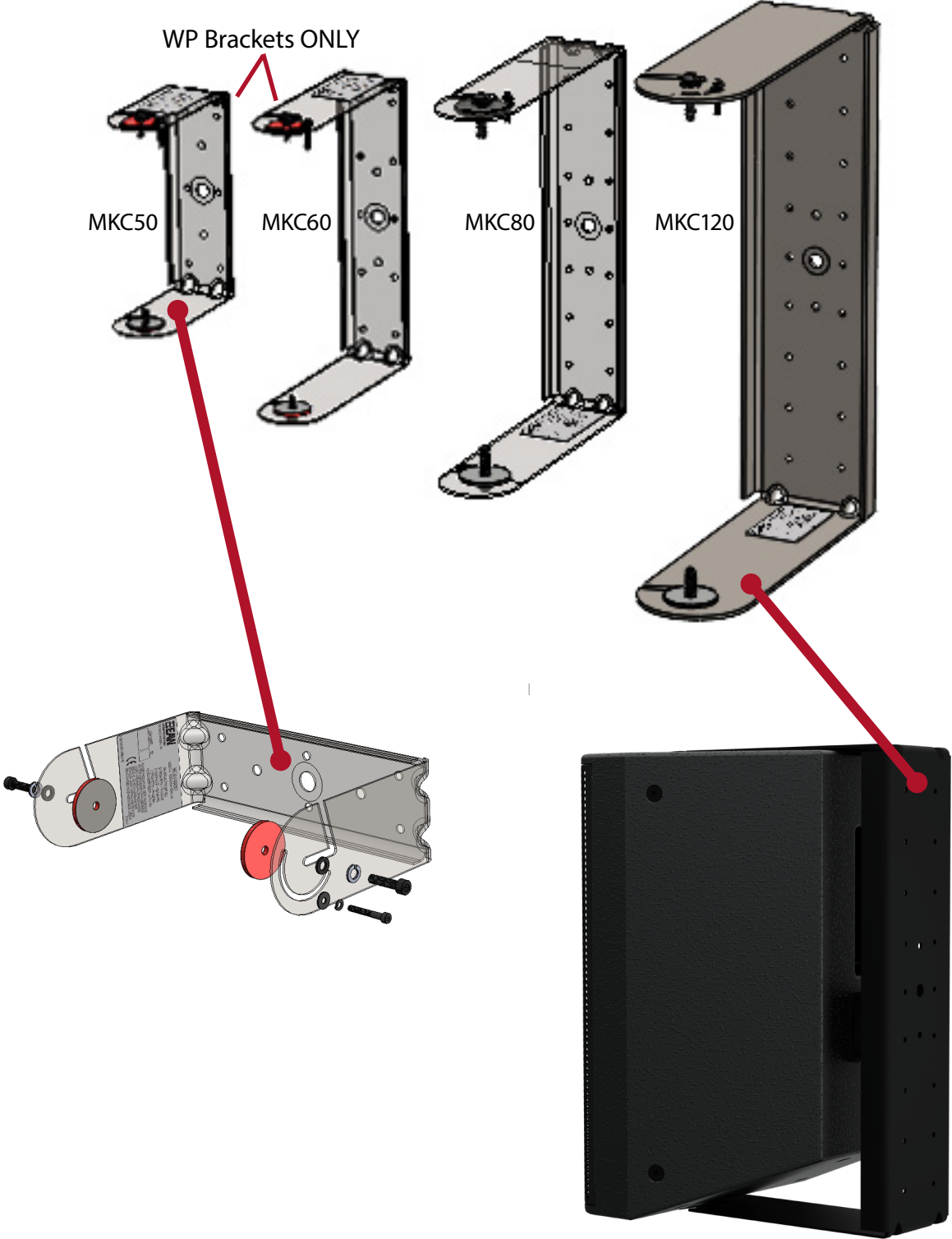
Under Balcony Bracket (WP not available)



Yoke Bracket

# Passive Point Source Application Guide





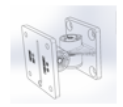
## APPENDIX B - MKC Series Bracketry

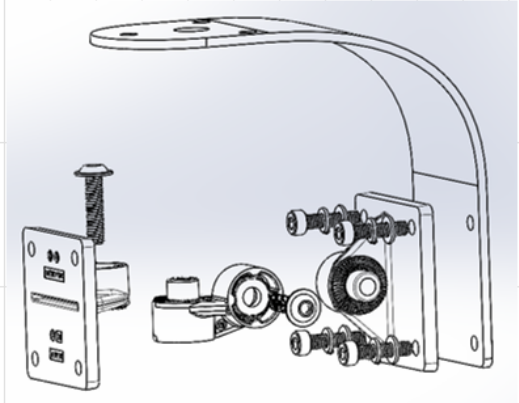


# Passive Point Source Application Guide

## MKC Series Small Ceiling Bracket

### Inventory your kit

PICTORIAL	PART NUMBER	QTY	DESCRIPTION	NOTES
	20T1913	2	EAW MKC SMALL CEILING BRACKET (MKC50-60)	
	0010024	8	WASHER FLAT M5 (DIN125 A)	
	0016417	8	WASHER LOCK M5 (DIN127 A)	
	0010073	8	SCR CAP M5x25 SKT	
	20T1939	----	EAW MKC Polymer Wall Speaker Mount	Not included in kit, ships with product.



**\*\*Tools Needed: 3mm & 6mm Allen wrench\*\***



# Passive Point Source **Application Guide**

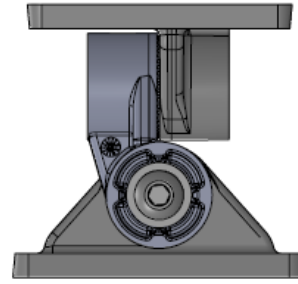
## 2. MKC Series Pan & Tilt Bracket limits of use

a. The MKC Series Ceiling/Pan & Tilt Brackets are designed to mount MKC50 and MKC60 loudspeakers only. No other MKC Series may be used with this bracket.

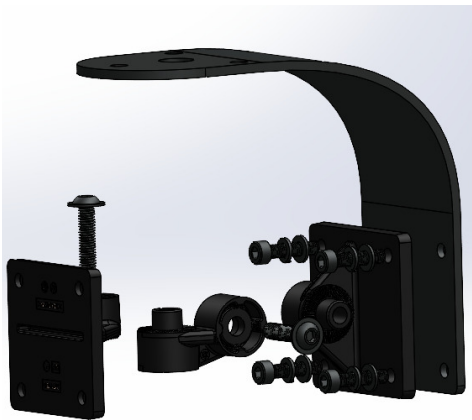
b. MKC Series Brackets are designed to mount only one loudspeaker per bracket.

c. Any geometric or structural modifications to the MKC Series Pan & Tilt Bracket or hardware are not EAW-approved will void the warranty and may result in damage, injury, or death.

d. MKC Series Pan & Tilt Bracket is not intended to be used with direct exposure to elements, and is not approved in situations where weather protection is required.



*Pan & Tilt Bracket with Link Bracket*



*Exploded view of ceiling bracket kit with plastic Pan & Tilt Mount kit*

## 3. Installation of the MKC Series Pan & Tilt Wall Bracket (B) to Ceiling Bracket (F)

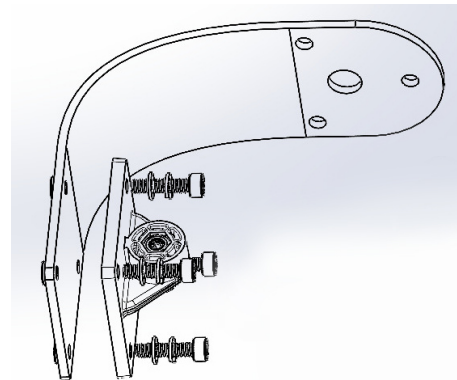
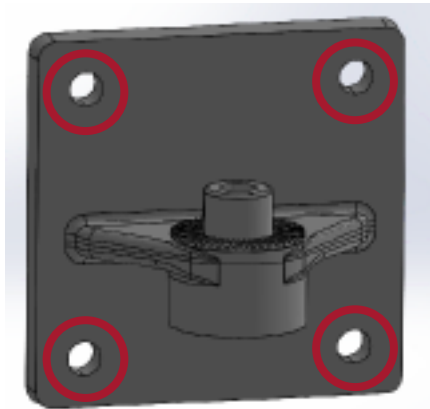
a. Test fit MKC Series Ceiling/Pan & Tilt Bracket on an MKC50 or MKC60 Loudspeaker to confirm the correct angle and bracket orientation before installing the wall bracket to the ceiling bracket, and ceiling bracket to surface. Also verify desired configuration and mounting procedure will allow for easy tool access when needed.

b. Configurations - Depending on mounting option used, MKC50 or MKC60 may be installed in a vertical or horizontal orientation with the ability to pan or tilt depending on mounting position of the wall bracket. Using the Link Bracket, it is possible to mount with both pan and tilt ability in either loudspeaker

# Passive Point Source **Application Guide**

## c. Mounting options

NOTE: It is recommended that you consult a building professional for the proper mounting hardware before mounting the bracket. Due to various construction methods and materials, the hardware for securing the ceiling bracket to the mounting surface is not supplied. It is required that the use of hardware locking methods, not limited to lock washers, thread-locker, or nylon-retention feature, be applied when securing the pan and tilt wall bracket to the mounting surface or structure.



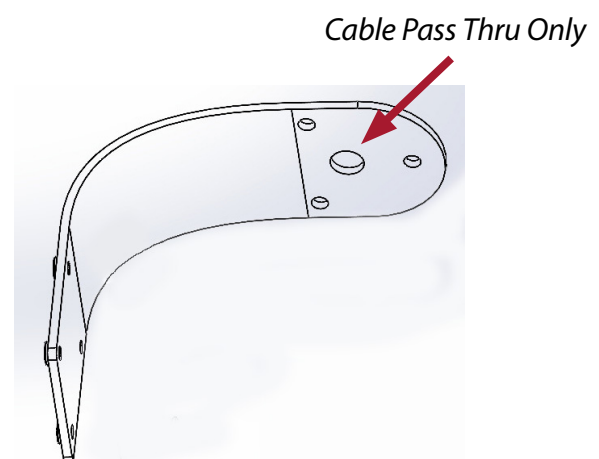
*Each MKC Series Pan & Tilt wall bracket (B) hole will mount to ceiling bracket (F)*

- i. All four mounting holes will need to mount to ceiling bracket utilizing included mounting hardware.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing wall bracket to ceiling bracket to the wall.

## 4. Installation of an Ceiling Bracket (F) to structure

a. Once the wall bracket is secured to ceiling bracket, mount the ceiling bracket to a permanent structure using available mounting holes on back and top of the ceiling bracket

- i. Note if loudspeaker will need to pan or tilt, or perform a combination of both options.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing speaker bracket.
- iii. To connect bracket to the speaker, remove hardware from rear of MKC50 or MKC60, place speaker bracket over



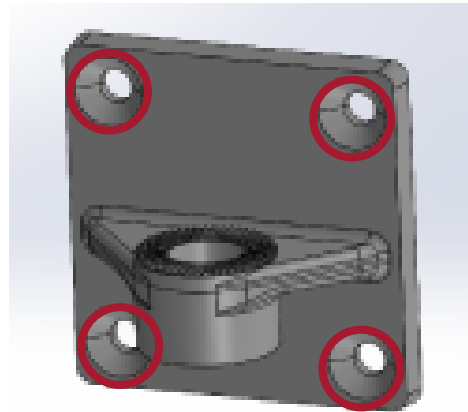
*Ceiling Bracket Only*

# Passive Point Source **Application Guide**

## 5. Installation of an MKC Series Loudspeaker to the MKC Series Pan & Tilt Bracket.

### a. Choosing an MKC50 or MKC 60 Loudspeaker configuration

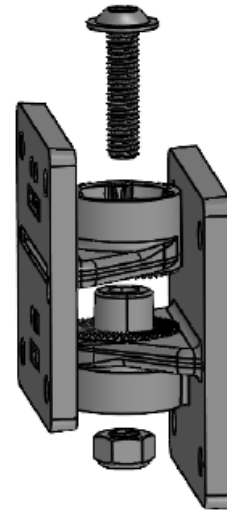
- i. Note if loudspeaker will need to pan or tilt, or perform a combination of both options.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing speaker bracket.
- iii. To connect bracket to the speaker, remove hardware from rear of MKC50 or MKC60, place speaker bracket over mounting pattern, and secure with previously removed hardware.



*Each mounting hole will correspond to mounting hole on MKC50 or MKC60*

### b. Connecting Speaker Bracket to Wall Bracket with NO Link Bracket

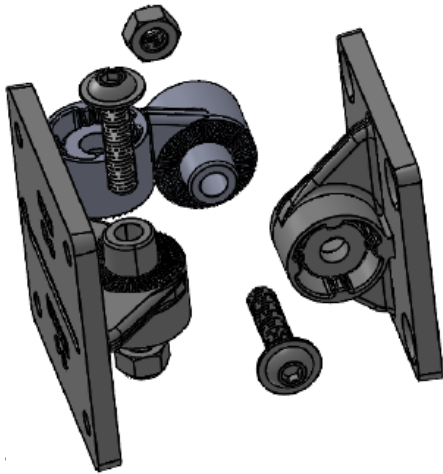
- i. Line up the two brackets and secure with M6 screw and lock nut
- ii. Tighten with 4mm hex tool. Do not tighten fully.
- iii. Rotate or tilt MKC loudspeaker using the moulded grooves to lock angle in place.
- iv. Once desired angle is achieved, fully tighten the screw.



*Connecting the Pan & Tilt Wall and Speaker Brackets*

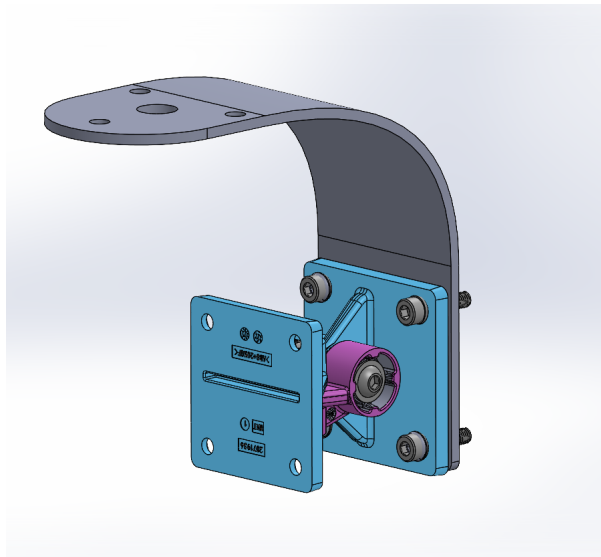
# Passive Point Source **Application Guide**

## c. Connecting the Speaker Bracket to the Wall Bracket WITH Link Bracket



*Connecting the Pan & Tilt Wall and Speaker Brackets using the Link Bracket*

- i. Based on test fit, determine if tool access is improved with Link Bracket connected to the Wall Bracket or the Speaker Bracket
- ii. Connect Link Bracket to Wall or Speaker Bracket using M6 screw with lock nut. Tighten with a 4mm hex tool. Do not tighten fully.
- iii. Connect Link Bracket to remaining Wall or Speaker Bracket using M6 screw with lock nut. Tighten with a 4mm hex tool. Do not tighten fully.
- iv. Rotate or tilt MKC loudspeaker using the moulded grooves to lock initial angle in place.
- v. Once desired angle is achieved, fully tighten the screw.
- vi. Repeat the last two steps above to achieve second pan or tilt angle.



*Plastic Pan & Tilt Bracket Assembly Mounted to Ceiling Bracket*

# Passive Point Source **Application Guide**

## 5. Review the MKC Series Loudspeaker installation

- a. Confirm the loudspeaker is level or plumb depending on the configuration.
- b. Confirm the aim angle is as expected.
- c. Confirm all hardware is tight.

## 6. Maintenance of an MKC Series Ceiling Bracket installation

- a. **WARNING:** Not following Maintenance instructions could result in equipment damage, serious injury or death.
- b. Maintenance should only be performed by an experienced technician.
- c. As with any professional loudspeaker system, routine maintenance must be conducted in order to ensure the longevity and safe, consistent performance.
- d. Inspect the MKC Series Pan & Tilt Bracket for damage. Brackets with visible damage should be replaced and discarded.
- e. Inspect hardware securing the u-bracket to the mounting surface for corrosion or looseness. Tighten loose hardware and consider installing hardware locking methods. Replace and discard corroded hardware.
- f. Inspect hardware mounting the MKC Series loudspeaker to the brackets for corrosion or looseness. Tighten loose hardware. Replace and discard corroded hardware.
- g. Clean the MKC Series Pan and Tilt Brackets and MKC Series Loudspeaker with a dry cloth.



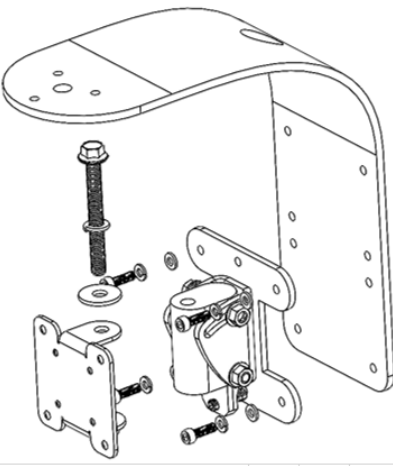


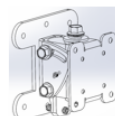
## 7. Dismantling the MKC Series Ceiling Bracket installation

- a. Fully support the weight of the MKC Series Loudspeaker. Using a 4mm Allen wrench, remove the screws securing either the Speaker Bracket or Link Bracket. Carefully lower the loudspeaker to the ground.
- b. Remove the mounting hardware securing the Wall Bracket to the mounting surface.
- c. Discard all damaged components.

# Passive Point Source **Application Guide**

## MKC Series Large Ceiling Bracket

### Inventory your kit

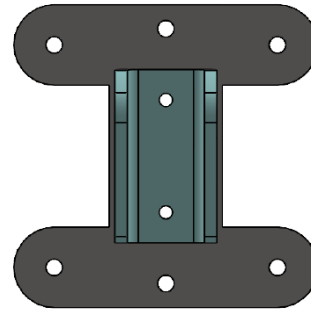
PICTORIAL	PART NUMBER	QTY	Reference	DESCRIPTION	NOTES
	2071912	1	A	EAW MKC LARGE CEILING BRACKET	
	0010020	4	B	WASHER FLAT M6 [DIN125 A]	
	0010021	4	C	WASHER LOCK M6 [DIN127 B]	
	102116	4	D	SCR CAP M6x20 SKT [DIN912 A2]	
	2072197-90/2072198-90	1	E	EAW MKC Polymer Wall Speaker Mount	

**\*\*Tools Needed: (2)13mm wrench, 2.5mm & 6mm Allen wrench\*\***

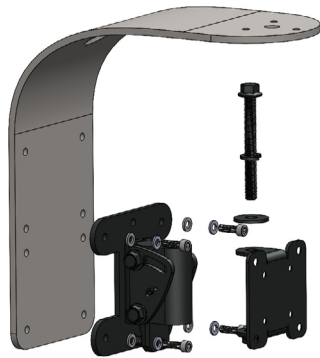
# Passive Point Source **Application Guide**

## 2. MKC Series Large Ceiling Bracket limits of use

- a. The MKC Series Large Ceiling Brackets are designed to mount MKC Series loudspeakers only. No other EAW Product Series may be used with this bracket.
- b. The MKC Series Large Ceiling Brackets is designed to mount only one loudspeaker per bracket.
- c. Any geometric or structural modifications to the MKC Large Ceiling Bracket or hardware are not EAW-approved will void the warranty and may result in damage, injury, or death.
- d. **WARNING: Take care when lifting larger MKC Series products to avoid harm or damage to product.**



*MKC80 utilizing Ceiling Bracket with Pan & Tilt Bracket*



*Exploded view of ceiling bracket kit with plastic Pan & Tilt Mount*

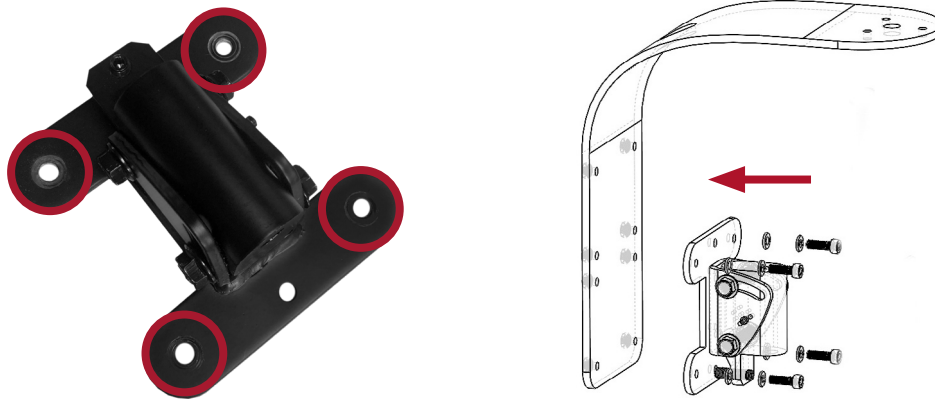
## 3. Installation of the MKC Series Metal Pan & Tilt Bracket to a Ceiling Bracket

- a. Test fit an MKC Series Ceiling Bracket (A)/Metal Pan & Tilt Bracket (E) on an MKC Series Loudspeaker to confirm the correct angle, loudspeaker and bracket orientation before installing the wall bracket to the mounting surface. Also verify desired configuration and mounting procedure will allow for easy tool access.
- b. Configurations - Depending on mounting option used, MKC Series products may be installed in a vertical or horizontal orientation with the ability to pan and tilt depending on mounting position of the wall bracket.

# Passive Point Source Application Guide

## c. Mounting options

*NOTE: It is recommended that you consult a building professional for the proper mounting hardware before mounting the bracket. Due to various construction methods and materials, the hardware for securing the bracket to the mounting surface is not supplied. It is required that the use of hardware locking methods, not limited to lock washers, thread-locker, or nylon-retention feature, be applied when securing the pan and tilt wall bracket to the mounting surface or structure.*



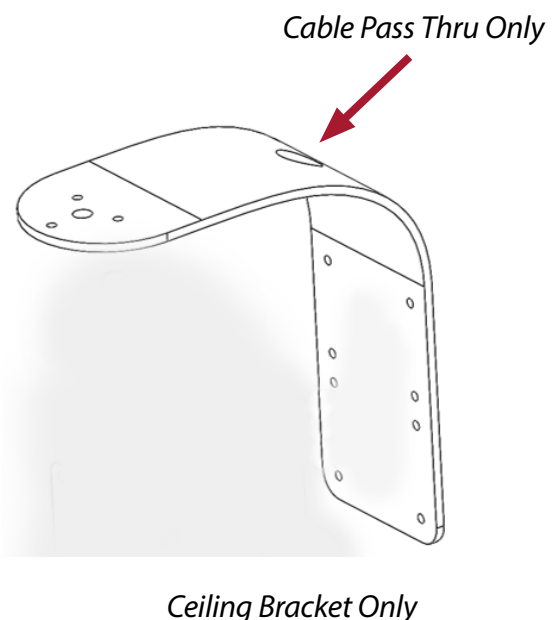
*Each MKC Series Metal Pan & Tilt wall bracket (E) holes will need to mount to Ceiling Bracket (A)*

- i. All four mounting holes will need to mount to ceiling bracket utilizing 4x M6x20 bolts (D), 4x Lock Washers (C), and 4x Flat Washers (B).
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing bracket to the wall.

## 4. Installation of an Ceiling Bracket (A) to structure

a. Once the wall bracket is secured to ceiling bracket, mount the ceiling bracket to a permanent structure using available mounting holes on back and top of the ceiling bracket

- i. Note if loudspeaker will need to pan or tilt, or perform a combination of both options.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing speaker bracket.
- iii. To connect bracket to the speaker, remove hardware from rear of MKC loudspeaker, place speaker bracket over mounting pattern, and secure with previously removed hardware.



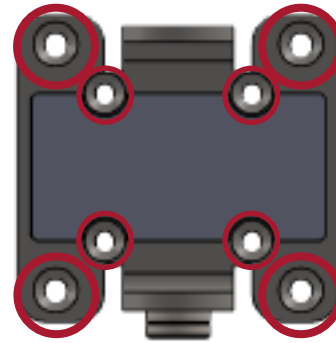


# Passive Point Source Application Guide

## 5. Installation of an MKC Series Loudspeaker to the Metal Pan & Tilt Bracket.

### a. Choosing an MKC Series Loudspeaker configuration

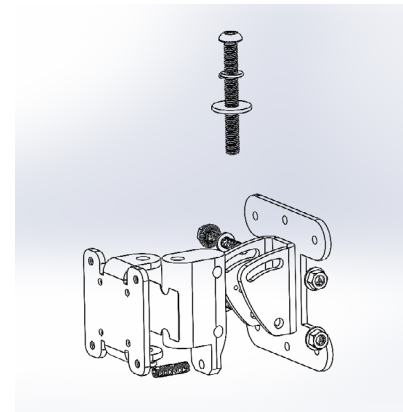
- i. Note if loudspeaker will need to pan or tilt, or perform a combination of both options.
- ii. Consider orientation of loudspeaker (horizontal or vertical) before securing speaker bracket.
- iii. To connect bracket to the speaker, remove hardware from rear of MKC Series, place speaker bracket over mounting pattern, and secure with previously removed hardware.



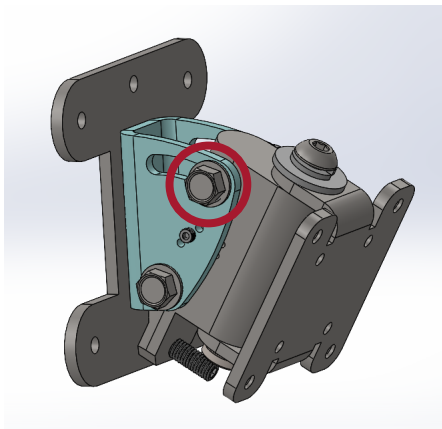
Each mounting hole will correspond to mounting hole on an MKC Series product

### b. Connecting Speaker Bracket to Wall Bracket

- i. Line up the two exposed speaker bracket holes with opening in pivot block
- ii. Slide Button Head Hex Drive Screw connect brackets together
- iii. Tighten with lock and oversized washers using 6mm allen wrench.



Connecting the Pan & Tilt Wall and Speaker Brackets

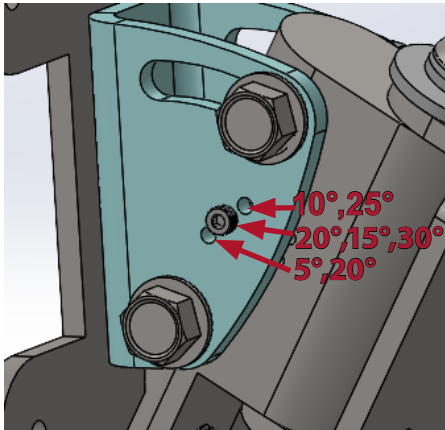


### c. Configuring Pan & Tilt angles

*NOTE: Not all angles will be achievable due to the physical restraints of loudspeakers used with bracket.*

*NOTE: Depending on orientation of the wall bracket pan and tilt hardware configuration will vary*

# Passive Point Source Application Guide



- i. Loosen bolt and nut locking the current angle on the Pivot Block in place using (2) 10mm wrenches (see image on previous page)
- ii. The lock pin will work in increments of 5 degrees (See left image). Set desired rotate or tilt angle for pivot block.
- iii. Loosen Button Head Hex Drive Screw connecting wall and cabinet bracket using a 6mm allen wrench
- iv. Once desired pan or tilt angle is achieved, fully tighten the bolt.

## 6. Review the MKC Series Loudspeaker installation

- a. Confirm the loudspeaker is level or plumb depending on the configuration.
- b. Confirm the aim angle is as expected.
- c. Confirm all hardware is tight.

## 7. Maintenance of an MKC Series Brackets installation

- a. **WARNING: Not following Maintenance instructions could result in equipment damage, serious injury or death.**
- b. Maintenance should only be performed by an experienced technician.
- c. As with any professional loudspeaker system, routine maintenance must be conducted in order to ensure the longevity and safe, consistent performance.
- d. Inspect the MKC Series Brackets for damage. Brackets with visible damage should be replaced and discarded.
- e. Inspect hardware securing the bracket to the mounting surface for corrosion or looseness. Tighten loose hardware and consider installing hardware locking methods. Replace and discard corroded hardware.
- f. Inspect hardware mounting the MKC Series loudspeaker to the brackets for corrosion or looseness. Tighten loose hardware. Replace and discard corroded hardware.
- g. Clean the MKC Series Brackets and MKC Series loudspeakers with a dry cloth.

# **EAW** Warranty

These EAW products were designed and engineered at our headquarters in Whitinsville, MA USA and go through multiple quality checks during manufacturing. We guarantee our loudspeakers against defects in workmanship, materials and against malfunctions for a period of 6 years from date of delivery. Terms and conditions apply. Download the complete warranty policy at

[www.eaw.com/warranty](http://www.eaw.com/warranty)



Product Damaged in Transport? Contact the freight carrier immediately and note concealed shipping damage. Then contact EAW for replacement.

Scan code to contact EAW



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