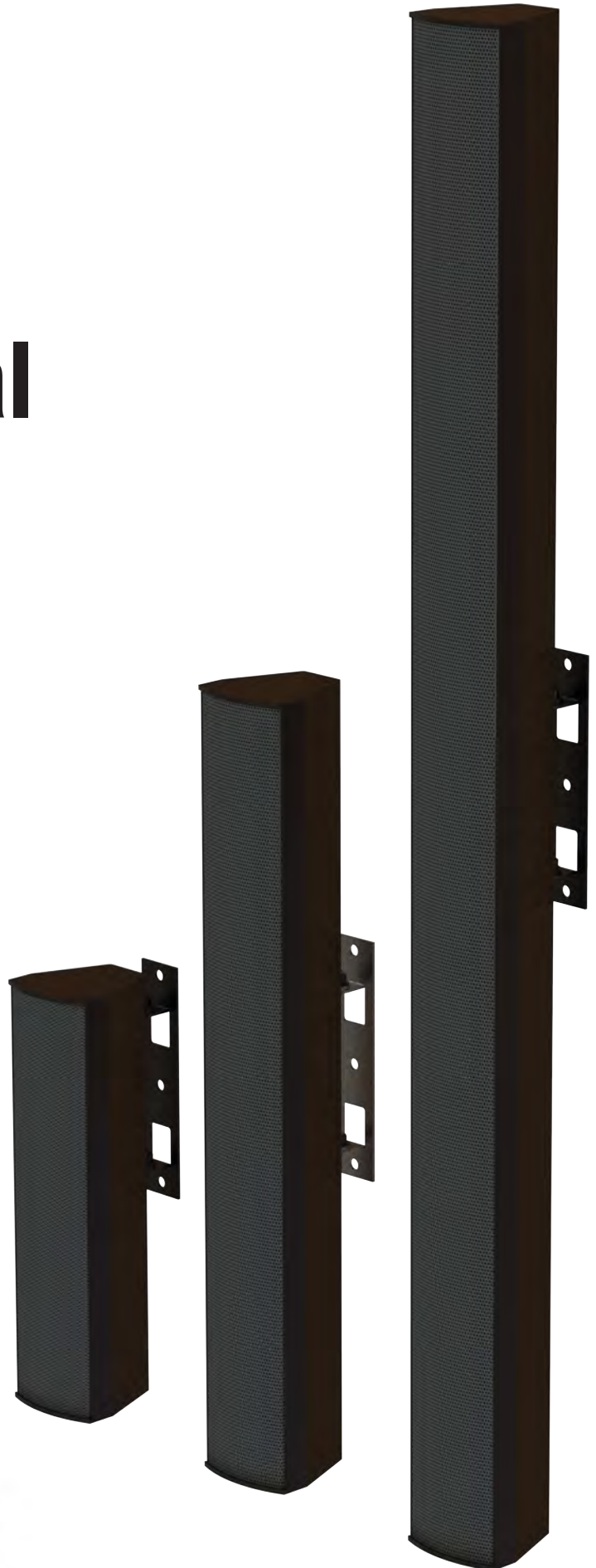




# UBX Series

# User's Manual

Passive Column Arrays  
featuring Renkus-Heinz'  
Passive UniBeam Technology.





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## EU DECLARATION OF CONFORMITY

According to: 2011/65/EU (RoHS Directive) on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE).

For the following equipment:

Product: Passive audio loudspeakers, inherently inert

Model: All models in the UBX SERIES

UBX4, UBX8, UBX16.

UBX models may include suffix -WT or -BK to designate color. All colors are included within this declaration even if not specifically identified in the model number.

Manufacturer: Renkus-Heinz, Inc.  
19201 Cook Street  
Foothill Ranch, CA 92610-3501, USA

The products listed above are in conformity with:

2011/65/EU (RoHS Directive) on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE).

Responsible for marking this declaration:

Renkus-Heinz, Inc.  
19201 Cook Street  
Foothill Ranch, CA 92610-3501, USA

Person responsible for making this declaration:

Name James I. Mobley  
Position VP Operations  
Place Orange County, California, USA

Signature

Date


November 8, 2022

## IMPORTANT SAFETY INSTRUCTIONS


1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Clean with damp rag and light cleaning agents.
6. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Only use attachments/accessories specified by the manufacturer.
9. Install all cabling or conduit with drip loops to prevent water wicking.
10. Refer all servicing to qualified service personnel. Servicing is required when the loudspeaker has been damaged in any way. If the interior of the loudspeaker has been exposed to rain or moisture, if it does not operate normally, or if it has been dropped.

**“CAUTION: THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.”**

Explanation of Graphical Symbols




The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "Dangerous Voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to humans.




The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Erklärung der graphischen Symbole



Der Blitz mit nach untenzielendem Pfeil in einem gleichseitigen Dreieck weist den Benutzer auf das Vorhandensein einer unisolierten, "gefährlichen Spannung" im Gehäuse hin, die stark genug sein kann, einer Person einen gefährlichen elektrischen Schlag zu versetzen.



Das Ausrufezeichen in einem gleichseitigen Dreieck weist den Benutzer auf wichtige Betriebs- und Wartungsvorschriften in den beiliegenden Unterlagen des Gerätes hin.

CAUTION

**RISK OF ELECTRONIC SHOCK:  
OPEN ONLY IF QUALIFIED AS  
SERVICE PERSONNEL**

VORSICHT

**GEFAHR EINES ELEKTRISCHEN SCHLAGES:  
NUR VON QUALIFIZIEREM WARTUNGSPERSONAL  
ZU ÖFFNEN**

To reiterate the above warnings: servicing instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than that contained in the Operation Instructions unless you are qualified to do so. Refer all servicing to qualified personnel.

Eindringliche Warnung: Wartungsvorschriften dienen nur der Benutzung durch qualifiziertes Personal. Zur Vermeidung eines elektrischen Schlages keine anderen als die in den Betriebsvorschriften beschriebenen Wartungsarbeiten ausführen, es sei denn Sie sind dafür qualifiziert. Wartungsarbeiten auszuführen.

**IMPORTANT**  
**Your Renkus-Heinz UBX Series Loudspeaker contains no user-serviceable parts, all service should be referred to qualified service personnel.**



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### Introduction

Congratulations on your purchase of a Renkus-Heinz UBX Series column array loudspeaker featuring Passive UniBeam Technology. Your Renkus-Heinz loudspeaker has been designed to provide years of trouble-free, high performance operation. We hope you enjoy it.

Your Renkus-Heinz loudspeaker was completely tested and inspected before leaving our factory and should have arrived in perfect condition. Please carefully inspect your loudspeaker and its shipping carton for any noticeable damage, and if any damage is found, immediately notify the shipping company.

Only the consignee may institute a claim with the carrier for any damage incurred during shipping. Be sure to save the carton and all packing materials for the carrier's inspection.

Important:

*Your Renkus-Heinz loudspeaker contains no user-serviceable parts and all service should be referred to qualified service personnel. We recommend that it be returned to the factory in its original packing carton if factory service is required.*

### General Information

The UBX Series is an incredibly compact, versatile, weather resistant, multi-operational family of passive columns featuring Passive UniBeam Technology. The UBX Series comprises of 3 models, the UBX4, UBX8, and UBX16. All UBX models feature state of the art, neodymium 3" full-range transducers and include high-quality, low insertion loss 70/100 V Transformers and wall-mount brackets as standard features to simplify integration.

The UBX Series' new Passive UniBeam Technology utilizes the same complex steering algorithms from our industry leading Iconyx style columns, and implements them in the passive domain. The end result is a fixed, asymmetrical vertical lobe with constant directivity and inherent downward bias that delivers unmatched coverage consistency and speech intelligibility.

Heavy-duty aluminum extrusions and covered input pockets deliver an IP64 rating, and extreme salt/chlorine and UV resistance ensure your UBX Series loudspeaker will look as good as it sounds for years to come.

## UBX Series Mode Selection Switch

UBX Series loudspeakers can be installed in many different ways, and our Mode Selection Switch helps facilitate easy selection of the desired operating conditions.

All models feature a traditional Low Impedance mode, and a 70/100 V mode which is ideal for distributed audio systems with high numbers of loudspeakers.

When operating in Low Impedance Mode, sound quality can be impacted by the power loss associated with long cable runs, and the increase in amplifier load with increasing numbers of loudspeakers.

When dealing with very long cable runs, or large numbers of loudspeakers, Renkus-Heinz recommends using your UBX Series loudspeaker in 70/100 V mode. When operating in 70/100 V mode, many loudspeakers can be installed in parallel on each amplifier channel which can greatly simplify installation of larger systems. Various wattage taps in each voltage range helps to give additional flexibility when deploying large numbers of loudspeakers.

When operating the Mode Selection Switch please note that the switch does not rotate 360 degrees and there are only 6 positions. Position number 1 is Lo-Z, rotate clock-wise to reach the 5 additional switch positions. Position number 6 is the highest wattage tap, either 60 W (UBX4), or 100 W (UBX8 and UBX16), rotate counter-clockwise to return to the other positions. Do not attempt to rotate past position 1 or position 6 or damage will occur.



UBX4



UBX8 & UBX16

### UBX Series Wiring and Connections

All UBX Series loudspeakers feature the same style input connections. Input connections are made via a 4 Conductor (2 pair) Barrier strip, the pairs are internally paralleled. Polarity of the barrier strip is indicated in the pocket.

When connecting a UBX Series loudspeaker to an amplifier, please connect the positive (+) conductor from the amplifier to the positive (+) barrier strip, and the negative (-) conductor from the amplifier to the negative (-) barrier strip. Many speakers can be connected together on one amplifier channel in parallel or series/parallel using the second internally paralleled barrier strip.

Pay careful attention to cable type when selecting cabling for your UBX Series loudspeakers. Cabling with too small a cross sectional area relative to impedance load and cable length can result in greater power loss and reductions in sound quality. Under the majority of conditions, 12 AWG cabling will be appropriate, however when cable runs are very long wire gauge should be increased.

When selecting an amplifier to drive UBX Series loudspeakers, care should be taken to ensure you have appropriate output capability. Please select an amplifier with the appropriate amount of power for the application, typically we recommend at least 3 dB of amplifier headroom. Ensuring that more than enough power is available will prevent driving the system into overdrive reducing possible damage to both the amplifier, and loudspeaker.

When running multiple UBX Series loudspeakers in parallel while in Low Impedance mode, pay careful attention to amplifier stability under heavy load. Impedance varies by frequency and while nominal impedance is a good indicator of a loudspeakers load some frequencies will have lower impedance than what is nominal.



UBX Series Input Pocket

### Constant Voltage Operation

All UBX Series loudspeakers feature a 70/100 V transformer inside the loudspeaker. This transformer allows many same model UBX loudspeakers to be connected in parallel to a single amplifier channel. The included transformer greatly simplifies installation while reducing cost and complexity of the system.

When connecting UBX Series loudspeakers in Constant Voltage mode connect the positive (+) conductor of the amplifier, or prior loudspeaker to the positive (+) terminal of the barrier strip and connect the negative (-) conductor of the amplifier, or prior loudspeaker to the negative (-) terminal of the barrier strip. The second paralleled barrier strip inside the input pocket is available for connecting to additional loudspeakers.

When selecting an amplifier for UBX Series loudspeakers in Constant Voltage mode, the available power per channel must be greater than the total of all loudspeaker power taps loaded onto the channel. In order to prevent damage to both the amplifier, and loudspeaker Renkus-Heinz recommends at least a safety margin with at least 3 dB above the total power requirements per channel.

The UBX4 features a 60 W Transformer, and the UBX8 and UBX16 both feature 100 W Transformers. The table to the right details the wattage taps for each transformer type.

UBX4	
70 V	100 V
8 W	15 W
15 W	30 W
30 W	60 W
60 W	

UBX8 & UBX16	
70 V	100 V
12.5 W	25 W
25 W	50 W
50 W	100 W
100 W	

### Securing Connections Outdoors

All UBX Series loudspeakers include a cover for the input pocket that features a factory-installed Gland-Nut to seal connections from the elements. The Gland-Nut has a cable jacket tolerance range of 0.23" to 0.395" (5.8 mm to 10.0 mm). When installing UBX Series loudspeakers outdoors using the included Gland-Nut cover, please ensure there is a drip loop to prevent water wicking into the pocket.



UBX Series Input Pocket Cover

### Wall Mounting UBX Series Loudspeakers

The UBX Series and the Passive UniBeam technology delivers inherent downward bias, asymmetrical coverage, and constant directivity deliver incredibly consistent coverage, even when plumb to the wall. The UBX Series was designed to be surface-mounted in most applications, and the included wall mount bracket enables safe, simple installation.

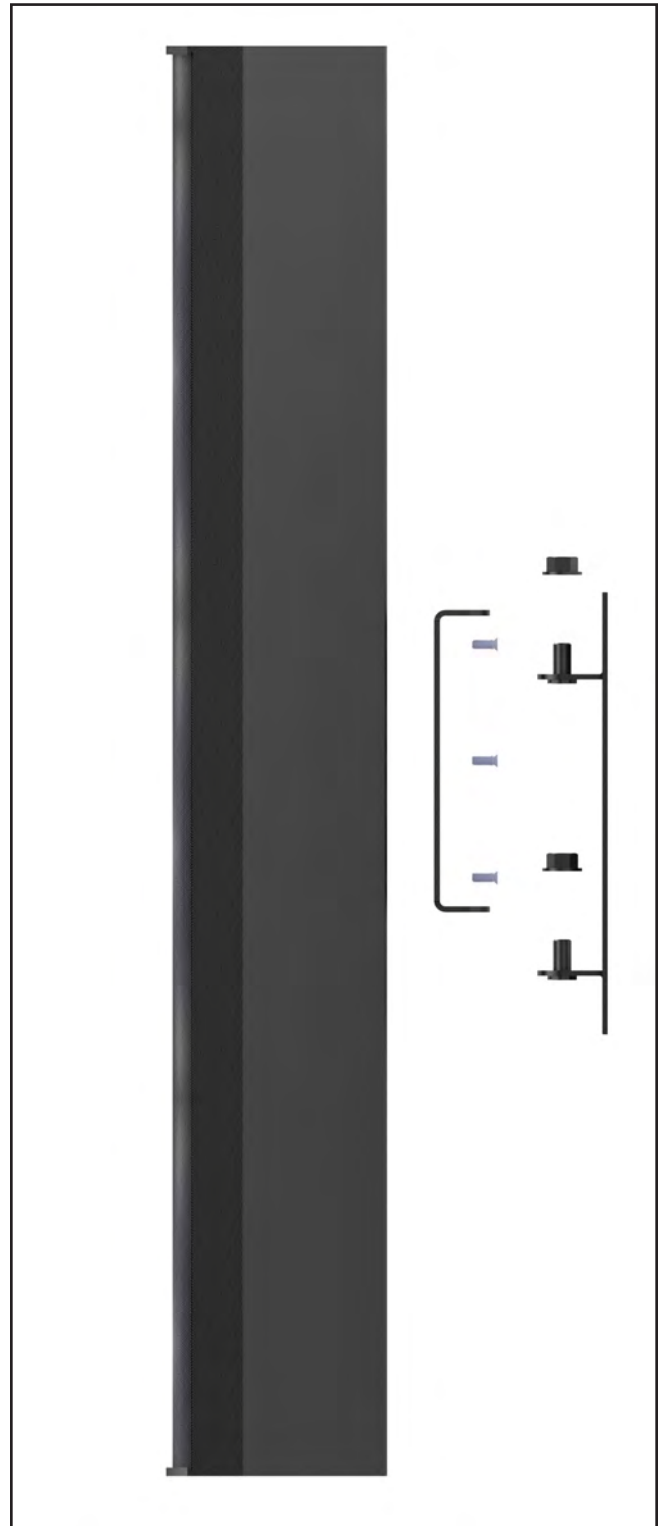
As the installer you must insure that the wall or other mounting surface is capable of safely supporting the weight of the array and wall bracket plus the safety margin legally required for your territory. Weights for the UBX Series plus wall bracket is as follows:

- UBX4: 11 lbs./ 5 kgs.
- UBX8: 17 lbs./ 7.7 kgs.
- UBX16: 31 lbs./ 14.1 kgs.

UBX Series loudspeakers are too heavy to be supported by gypsum wallboard alone, you must anchor the brackets to structure able to support the weights listed above.

### Wall Bracket Instructions

- Disassemble the bracket into the wall and loudspeaker halves by removing the 12 mm bolts and star washers. Remove the three, 6 mm Phillips-head screws from the back of the loudspeaker using a #3 Phillips screwdriver. Be sure to use a #3 Phillips, using a #2 may damage the screws.
- Mount the loudspeaker half of the bracket to the loudspeaker cabinet using the three 6 mm Phillips screws. Use thread locking compound to prevent the screws from loosening.
- The wall half of the bracket is intended to be installed with the bolts facing up. This allows the loudspeaker column to rest on the wall before tightening the nuts and locking splay angles.
- Follow the instructions on the following page for the type of wall to which you are mounting. If you are mounting to a wall type other than those listed on the next page, you must insure that the method you use can safely support the weights listed.



UBX8 and Wall Mount Side View



### Wooden Stud Wall

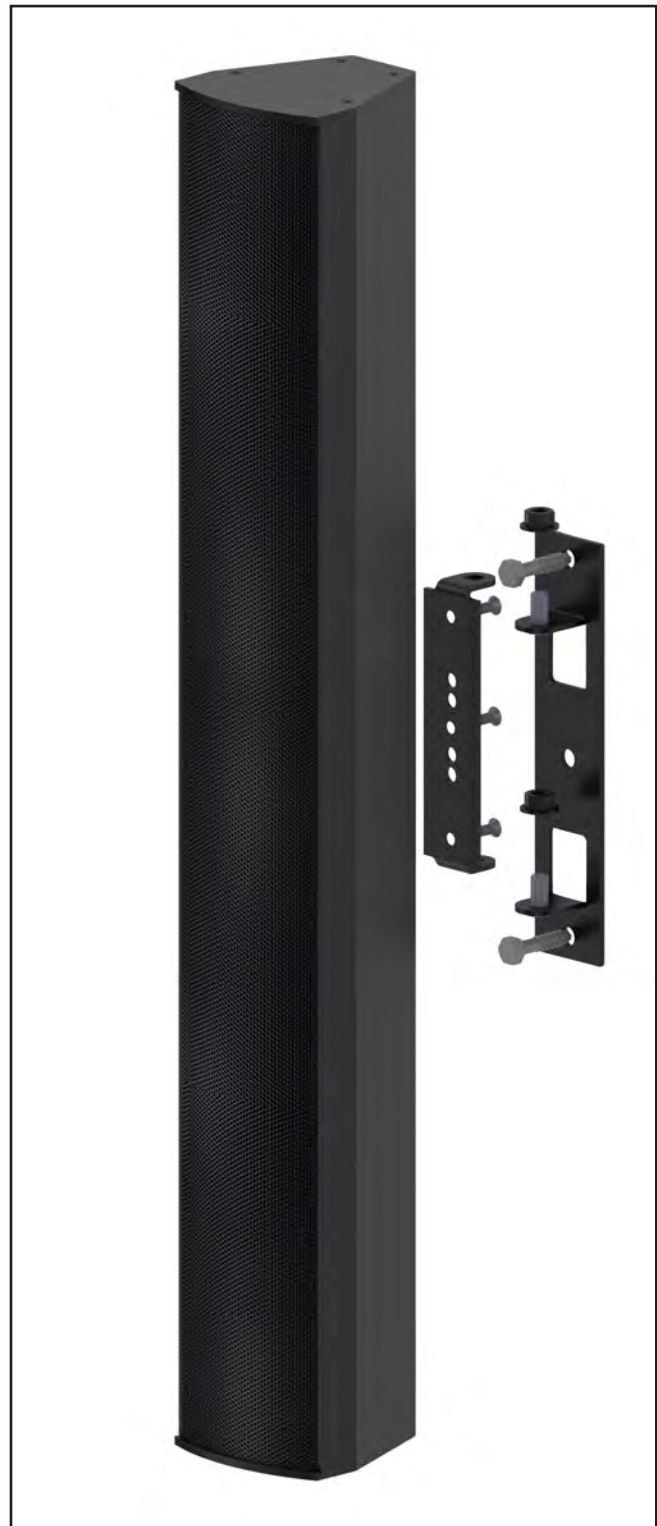
- Determine the desired mounting location on the wall. Locate a stud at the desired mounting location. If there isn't a stud at your desired mounting location, you will need to locally reinforce the wall as the loudspeakers are too heavy to mount directly to gypsum wall board.
- The mounting bracket is centered on the loudspeaker, the center hole of the wall bracket is a good reference point for the center of the mounted loudspeaker.
- Mark and drill pilot holes for the mounting screws.
- Mount the wall bracket to the wall using 1/4 in. diameter x 2 in. long (6 mm dia. x 50 mm long) lag bolts or equivalent. Use at least two mounting screws or bolts.

### Masonry Walls

- Determine the desired mounting location on the wall. The mounting bracket is centered on the loudspeaker, the center hole of the wall bracket is a good reference point for the center of the mounted loudspeaker.
- For mounting on concrete, CMU (concrete block) or brick walls, use masonry sleeve anchors, 1/4 in. diameter x 1-1/2 in. long (6 mm dia. x 38 mm long) Red Head Dynabolt or equivalent. Use at least two mounting screws or bolts.
- Mark and drill clearance holes for the mounting anchors following the anchor manufacturer's instructions for diameter and depth.

### Mounting the loudspeaker to the bracket

- Slide the loudspeaker and its bracket half over the wall bracket, drop down onto the 12 mm bolts, and secure with the nuts and star washers.
- Select the horizontal aiming and tighten the bolts securely to lock the aiming angle in place.
- Connect the audio and your loudspeaker is ready to enjoy.



UBX8 and Wall Mount

### Optional Pan/Tilt Wall Bracket

The UBX Series was designed to address most installations with surface-mounting plumb to the wall via the included wall bracket. For more extreme applications, Renkus-Heinz developed an optional Pan/Tilt Wall-Bracket, part number W-WALL-UBX-PT.

- Disassemble the bracket into the wall and loudspeaker halves by removing the 12 mm bolts and star washers. Remove the three, 6 mm Phillips-head screws from the back of the loudspeaker using a #3 Phillips screwdriver. Be sure to use a #3 Phillips, using a #2 may damage the screws.
- The speaker half of the bracket must first be disassembled into the 2 plates by removing the two 8 mm Socket Head Screws. The inner plate can then be attached to the loudspeaker using a #3 Phillips screwdriver. Be sure to use a #3 Phillips, using a #2 may damage the screws. After the inner plate has been attached to the loudspeaker, the speaker half can be reassembled, and angle set using the two 8 mm Socket Head Screws.
- The wall half of the bracket is intended to be installed with the bolts facing up. This allows the loudspeaker column to rest on the wall before tightening the nuts and locking splay angles.
- The table below details the maximum down angles achievable with optional Pan/Tilt bracket.

Model	Maximum Angle
UBX4	-15 degrees
UBX8	-15 degrees
UBX16	-10 degrees



UBX8 and Pan/Tilt Wall Bracket

## UBX Series DSP Settings

While the UBX Series does include an extensive passive crossover network, that network is primarily designed for implementation of the Passive UniBeam Technology. The crossover does not address voicing, or loudspeaker protection and as such all UBX loudspeakers require active digital signal processing.

The tables below include our recommended settings for voicing and protection of UBX Series Loudspeakers.

<b>UBX4</b>			
<b>FILTER</b>	<b>FREQUENCY (Hz)</b>	<b>Q / BW</b>	<b>GAIN (dB)</b>
HPF	120	24 dB/Oct	Butterworth
LPF			
PEQ 1	125	1.2 / 1.2	4
PEQ 2	1000	.7 / 1.9	-4
PEQ 3	2500	1 / 1.4	-3
PEQ 4	7000	1 / 1.4	2
PEQ 5	9450	3 / 0.5	-4
PEQ 6			

<b>UBX8</b>			
<b>FILTER</b>	<b>FREQUENCY (Hz)</b>	<b>Q / BW</b>	<b>GAIN (dB)</b>
HPF	110	24 dB/Oct	Butterworth
LPF			
PEQ 1	125	1.2 / 1.2	4
PEQ 2	200	1.5 / 1	-2
PEQ 3	1000	1 / 1.4	-3
PEQ 4	4000	3 / 0.5	-4
PEQ 5	6000	1 / 1.4	5
PEQ 6	13500	1.5 / 1	-3

<b>UBX16</b>			
<b>FILTER</b>	<b>FREQUENCY (Hz)</b>	<b>Q / BW</b>	<b>GAIN (dB)</b>
HPF	110	24 dB/Oct	Butterworth
LPF			
PEQ 1	125	1.2 / 1.2	4
PEQ 2	200	1.5 / 1	-2
PEQ 3	1000	1 / 1.4	-3
PEQ 4	4000	3 / 0.5	-4
PEQ 5	6000	1 / 1.4	5
PEQ 6	12000	1.5 / 1	-3



## Design Guidelines for UBX Series

Renkus-Heinz has developed a new coverage generation technology specifically for the UBX Series, Passive UniBeam Technology. Renkus-Heinz' UniBeam coverage is asymmetrical in nature and has the ability to generate incredibly consistent sound pressure levels and frequency responses in the intended audience areas. In addition to incredible coverage consistency in the intended areas, UniBeam algorithms have extreme off-axis rejection and feature extensive side and gradient lobe suppression, which assist in reducing the effects of reflections and reverberations in any venue.

UniBeam technology has been shaping the sound of Iconyx steerable sound systems for years, and now all the benefits of UniBeam coverage is available for the first time in passive column solutions in the UBX Series. Each model in the series features an extensive passive crossover network that addresses each transducer with a highly specialized passive filter that includes all necessary time, frequency, and amplitude adjustments necessary to achieve the UniBeam coverage.

Due to the inherent benefits that Passive UniBeam technology provides, UBX Series models were designed to be surface-mounted plumb to the wall with zero degrees of additional downward angle when used within our recommended mounting heights. All UBX Series models were designed to be mounted at heights of about 6 ft to 8 ft (1.83 m to 2.44m) above finished floor. When mounted at these heights, very consistent coverage should be expected to the distances outlined in the table below

<b>UBX Series Maximum Coverage Guidelines</b>		
<b>Model</b>	<b>Low (6 ft / 1.8 m)</b>	<b>High (8 ft / 2.4 m)</b>
<b>UBX4</b>	30 ft (9.1 m)	50 ft (15.2 m)
<b>UBX8</b>	60 ft (18.3 m)	90 ft (27.4 m)
<b>UBX16</b>	120 ft (36.6 m)	160 ft (48.8 m)

The above guidelines are ideal when surface-mounting the UBX Series loudspeakers using the standard wall mount with 0 degrees of inherent down angle. These guidelines are also largely intended for flat, or very gently raked audience planes. For more extreme mounting heights, or non-standard applications we also offer an optional Pan/Tilt Wall Bracket that is detailed on previous pages.

## Simulating UBX Series Loudspeakers

If simulation and virtual design work is required when specifying UBX Series loudspeakers, Renkus-Heinz offers GLL files for both EASE Focus 3, and EASE software for design and simulation. The GLL package can be found on our website.



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