



# BOSE ArenaMatch DeltaQ Array Loudspeakers Installation Guide

[Home](#) » [Bose](#) » BOSE ArenaMatch DeltaQ Array Loudspeakers Installation Guide 

## Contents

- 1 BOSE ArenaMatch DeltaQ Array Loudspeakers Installation Guide
- 2 Important Safety Instructions
  - 2.1 Please read and keep all safety and use instructions.
- 3 Regulatory Information
- 4 China Restriction of Hazardous Substances Table
- 5 Taiwan Restriction of Hazardous Substances Table
- 6 Overview
- 7 Product Features
- 8 ArenaMatch Array Modules
- 9 Product Details
  - 9.1 q Loudspeaker grille
- 10 Optional Accessories
  - 10.1 PRO.BOSE.COM
  - 10.2 Array Plates (AMAPSHRT) (AMAPLONG)
  - 10.3 Pullback Bracket (AMPULL)
  - 10.4 Module Connect Plate (AMMCPLAT)
  - 10.5 Spreader Bar (AMASPRD)
  - 10.6 U-bracket (AMUBRKT)
  - 10.7 Waveguides (AMWG)
- 11 Inspection & Maintenance
- 12 Maintaining Weather Resistance
- 13 Recommended Tools
- 14 Specifications
- 15 ArenaMatch AM40
- 16 Working Load Limits
- 17 Input Panel Wiring
  - 17.1 Passive Crossover with 70V/100V Transformer
- 18 Securing the Wiring
- 19 Attaching the Input Panel Cover
- 20 Recommended Amplifier Power
  - 20.1 PRO.BOSE.COM
- 21 Recommended Signal Processing
- 22 System Design Software
- 23 Technical Specifications
- 24 Footnotes
- 25 AM10 Frequency Response (60° waveguide)
- 26 PRO.BOSE.COM
- 27 Read More About This Manual & Download PDF:
- 28 Documents / Resources
- 29 Related Posts

# BOSE ArenaMatch DeltaQ Array Loudspeakers Installation Guide



## Important Safety Instructions

Please read and keep all safety and use instructions.

**This product is intended for installation by professional installers only!** This document is intended to provide professional installers with basic installation and safety guidelines for this product in typical fixed-installation systems. Please read this document and all safety warnings before attempting installation. Do not attempt to service this product yourself. Refer all servicing to authorized service centers, installers, technicians, dealers or distributors. To contact Bose Professional or to find a dealer or distributor near you, visit **PRO.BOSE.COM**



This symbol on the product means there are important operating and maintenance instructions in this guide.



Contains small parts which may be a choking hazard. Not suitable for children under age 3.



This product contains magnetic material. Consult your physician on whether this might affect your implantable medical device.

- All Bose products must be installed in accordance with local, state, federal and industry regulations. It is the installer's responsibility to ensure installation of the loudspeakers and mounting system is performed in accordance with all applicable codes, including local building codes and regulations. Consult the local authority having jurisdiction before installing this product.
- Unsafe mounting or overhead suspension of any heavy load can result in serious injury or death, and property

damage. It is the installer's responsibility to evaluate the reliability of any mounting method used for their application. Only professional installers with the knowledge of proper hardware and safe mounting techniques should attempt to install any loudspeaker overhead.

- Do NOT make unauthorized alterations to this product.
- Only use the mounting hardware supplied with this product.
- Do not mount on surfaces that are not sturdy, or that have hazards concealed behind them, such as electrical wiring or plumbing. If you are not sure about installing the bracket, contact a qualified professional installer. Ensure the bracket is installed according to local building codes.
- Do not use hydrocarbon based solvents, lubricants or cleaning agents of any type on or around Bose speakers, and associated mounting hardware, during installation. The use of such hydrocarbon based lubricants, solvents or cleaning agents on or around the mounting anchors and screws can lead to degradation of the plastic material, possibly resulting in cracking and premature failure of the product.
- Keep the product away from fire and heat sources. Do NOT place naked flame sources, such as lighted candles, on or near the product.
- The loudspeaker and all mounting components must be inspected annually by a qualified professional who is trained and certified in suspending loudspeaker systems. All rigging parts and components used in the suspension of the loudspeaker system should be visually inspected for signs of cracking, bending, water damage, corrosion, de-lamination, or any other condition that could compromise the system's integrity and create a dangerous falling hazard.
- The M6 and M10 threaded inserts are made of stainless steel. Exposure to chlorine could cause corrosion of the M6 and M10 threaded inserts that may not be detected through an annual inspection, creating a dangerous falling hazard. Therefore, do not suspend ArenaMatch loudspeakers using the M6 and M10 stainless steel inserts in environments where chlorine is present, such as indoor pools, indoor water parks, hot tub rooms, saunas, and steam rooms.

## Regulatory Information



This product conforms to all applicable EU directive requirements. The complete Declaration of Conformity can be found at [www.Bose.com/compliance..](http://www.Bose.com/compliance..)



■ This symbol means the product must not be discarded as household waste, and should be delivered to an appropriate collection facility for recycling. Proper disposal and recycling helps protect natural resources, human health and the environment. For more information on disposal and recycling of this product, contact your local municipality, disposal service, or the shop where you bought this product.

## China Restriction of Hazardous Substances Table

### Names and Contents of Toxic or Hazardous Substances or Elements

### Toxic or Hazardous Substances and Elements

Part Name	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent (Cr(VI))	Polybrominated Biphenyl (PBB)	Polybrominated diphenylether (PBDE)
PCBs	X	O	O	O	O	O
Metal Parts	X	O	O	O	O	O
Plastic Parts	O	O	O	O	O	O
Speakers	X	O	O	O	O	O
Cables	X	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364.

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

## Taiwan Restriction of Hazardous Substances Table

Equipment name: ArenaMatch DeltaQ Array Loudspeaker , Type designation: 794042

Restricted substances and its chemical symbols

Unit	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr +6)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
PCBs	—	○	○	○	○	○
Metal Parts	—	○	○	○	○	○
Plastic Parts	○	○	○	○	○	○
Speakers	—	○	○	○	○	○
Cables	—	○	○	○	○	○

**Note 1:** “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

**Note 2:** The “—” indicates that the restricted substance corresponds to the exemption.

**Date of Manufacture:** The eighth digit in the serial number indicates the year of manufacture; “7” is 2007 or 2017.

**China Importer:** Bose Electronics (Shanghai) Company Limited, Part C, Plant 9, No. 353 North Riying Road, China (Shanghai) Pilot Free Trade Zone

**EU Importer:** Bose Products B.V., Gorslaan 60, 1441 RG Purmerend, The Netherlands

**Mexico Importer:** Bose de México, S. de R.L. de C.V. , Paseo de las Palmas 405-204, Lomas de Chapultepec, 11000 México, D.F. For importer & service information: +5255 (5202) 3545

**Taiwan Importer:** Bose Taiwan Branch, 9F-A1, No. 10, Section 3, Minsheng East Road, Taipei City 104, Taiwan. Phone Number: +886-2-2514 7676

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## Warranty Information

This product is covered by a limited warranty. For warranty details, visit **PRO.BOSE.COM**.

## Overview

Bose Professional ArenaMatch array modules are outdoor-rated, sound-reinforcement loudspeakers with DeltaQ array technology designed for high-SPL installations that require both high-quality music playback and exceptional vocal intelligibility in every seat, such as sports stadiums, arenas, and outdoor entertainment venues.

DeltaQ technology allows full-range modules in both point-source and line array configurations, with choice of 10°, 20°, or 40° vertical coverage with field-changeable waveguides available in 60°, 80°, or 100° horizontal coverage. For many projects, this technology can reduce box count, array weight, installation time, and system costs.

## Product Features

**DeltaQ technology:** next-generation array technology that allows different “Q” (directivity) for each module in array to customize coverage and reduce box count.

**Outdoor direct-exposure rating:** weather-resistant, exterior-grade plywood enclosure, 3-layer stainless-steel grille, and input cover with gland-nut cable termination for direct-exposure outdoor installs.

**High SPL:** six (6) Bose EMB2S compression drivers on CADS manifold with 14-inch neodymium, high-excursion woofer allows peak output of up to 145 dB SPL in arrays.

**High Intelligibility:** large-format waveguides with DeltaQ array summation provide excellent vocal clarity and high speech transmission (STI) scores even with high audience background noise.

**Choice of 9 coverage patterns:** DeltaQ technology allows both point-source and line array applications for consistent sound quality from main arrays to zone-fill seating areas.

**Passive or Bi-amp or 70/100V inputs:** integrated passive crossover and 70/100V transformer provide choice of single-amp direct, bi-amp direct, or transformer coupled inputs.

**Replaceable waveguides:** horizontal coverage may be changed by replacing factory-installed waveguides with accessory kits.

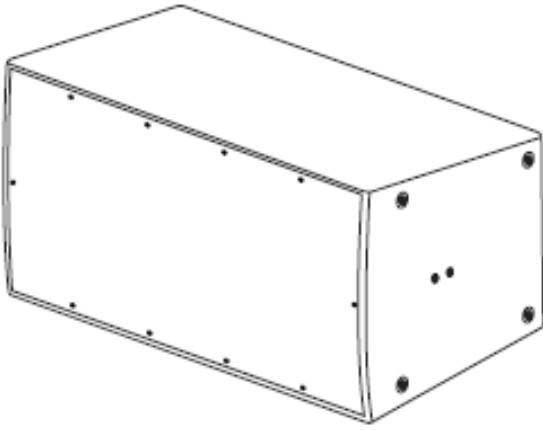
**Versatile suspension system:** M12 threaded inserts, with internal steel link bars, allow use with Bose accessory hardware or integrator-supplied custom frames for array suspension. Accessory U-bracket available for single-module wall, ceiling, or lighting-pole mounting.

**Bose PowerMatch DSP presets:** PowerMatch amplifier and ControlSpace processors include DSP presets.

**EN 54-24 Certified:** EN 54-24: 2008, Loudspeaker for Voice Alarm Systems for Fire Detection and Fire Alarm Systems for Buildings

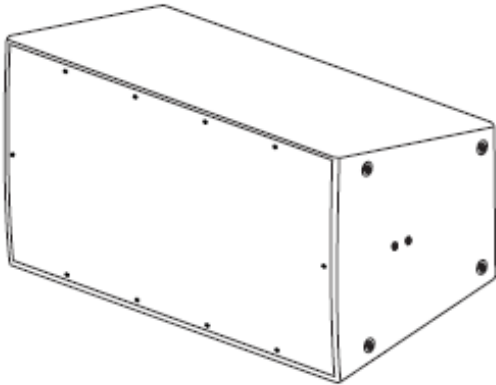
## ArenaMatch Array Modules

**ArenaMatch AM10 full-range module** with 10° vertical coverage. Available with 60°, 80°, or 100° horizontal waveguide pre-installed.



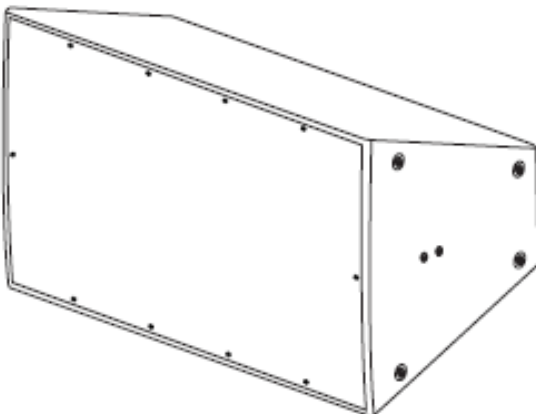
AM10/60 AM10/80 AM10/100

**ArenaMatch AM20 full-range module** with 20° vertical coverage. Available with 60°, 80°, or 100° horizontal waveguide pre-installed.



AM20/60 AM20/80 AM20/100

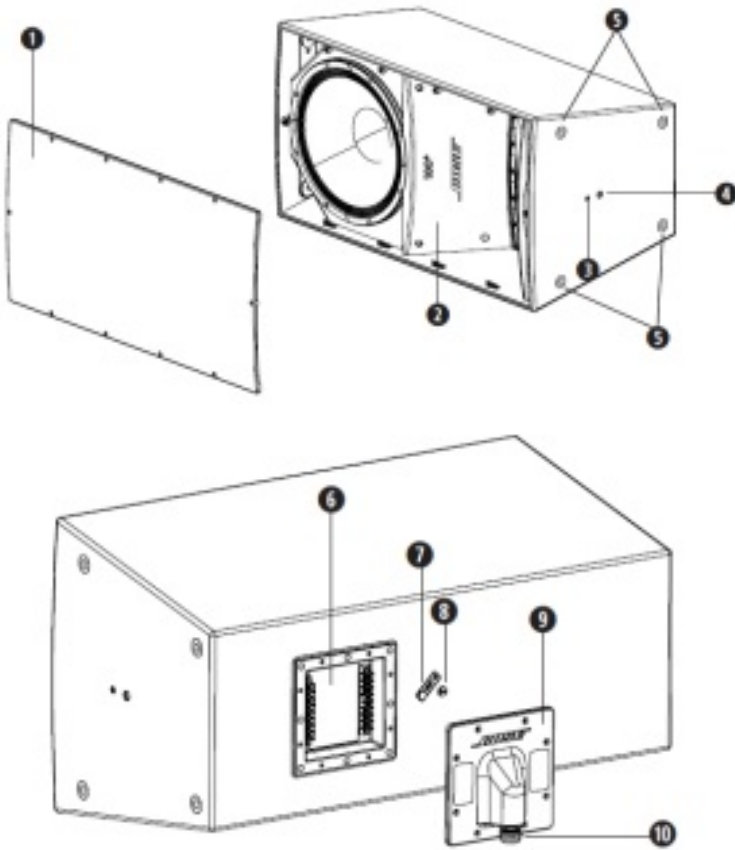
**ArenaMatch AM40 full-range module** with 40° vertical coverage. Available with 60°, 80°, or 100° horizontal waveguide pre-installed.



AM40/60 AM40/80 AM40/100

## Product Details





q Loudspeaker grille

**w Factory-installed waveguide:** Replaceable with optional horizontal waveguide accessory.

**M6 threaded insert:** Stainless steel inserts for use with the ArenaMatch U-bracket (AMUBRKT). For pitch angle stabilization.

**Note:** Torque to 20.3 to 27.1 newton-meters (15 to 20 pound-feet).

**M10 threaded insert:** Stainless steel inserts for use with the ArenaMatch U-bracket (AMUBRKT). For bracket attachment.

**Note:** Torque to 20.3 to 27.1 newton-meters (15 to 20 pound-feet).

**M12 threaded insert:** Non-stainless steel inserts for use with the ArenaMatch short array plate (AMAPSHRT), long array plate (AMAPLONG), module connect plate (AMMCPLAT), or pullback bracket (AMPULL).

**Note:** Torque to 40.7 newton-meters (30 pound-feet).

**Input panel:** Barrier-strip input terminals.

**Horizontal coverage indicator:** Removable badge that will help you identify the installed horizontal waveguide without having to remove the grille. When replacing the waveguide, remember to replace the coverage indicator with the corresponding indicator included with your optional waveguide accessory.

**Safety insert:** M10 stainless steel threaded insert for use with a safety cable.

**Note:** Torque to 20.3 to 27.1 newton-meters (15 to 20 pound-feet).

**Input panel cover:** Weather-resistant cover for input terminals.

**Gland nut:** Sized for cables of outer diameter from 13 millimeters to 18 millimeters (0.51 inches to 0.71 inches).

**Note:** Gland nut is rated IP68.

## Optional Accessories

PRO.BOSE.COM

ArenaMatch DeltaQ array loudspeakers include four M12 threaded inserts per side, designed to be used with optional ArenaMatch rigging accessories. Additionally, the M10 and M6 inserts on each side are designed to be used with the optional ArenaMatch U-bracket accessory. Refer to the ArenaMatch Array Rigging guide at **PRO.BOSE.COM** for more information regarding design and installation.

**Note:** Always confirm safe working load limits with exact array configurations, pitch angles, and connection points

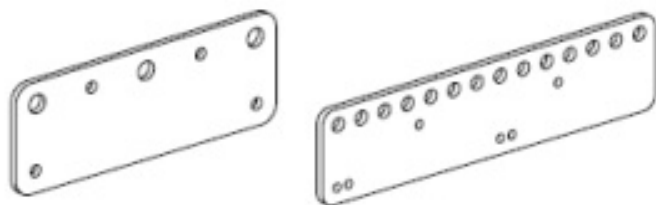
using approved array design software. See the ArenaMatch product page at **PRO.BOSE.COM** for a complete list of approved array design software.

**Note:** All lifting operations require two individuals positioned on each side of the loudspeaker.

The following accessories are available and designed for use only with ArenaMatch loudspeaker array modules. For more information about individual accessories, please view the installation guide for your chosen accessory at **PRO.BOSE.COM**.

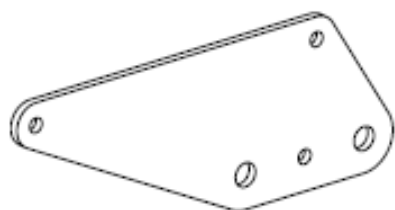
#### Array Plates (AMAPSHRT) (AMAPLONG)

Use the array plates to secure the top module of an array to building structures.



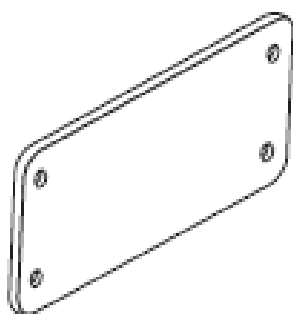
#### Pullback Bracket (AMPULL)

Use the pullback bracket to secure the bottom module of an array to building structures and adjust the overall angle of the array. Pullback brackets can be used on both the top and bottom of an array.



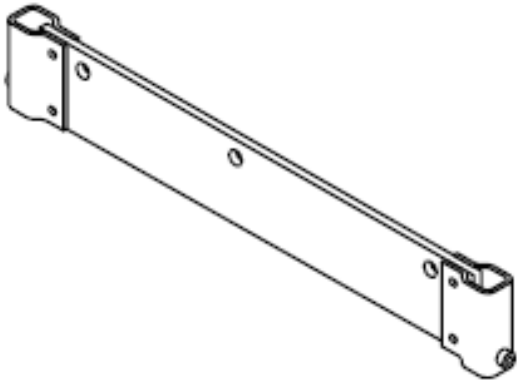
#### Module Connect Plate (AMMCPLAT)

Use the module connect plate to secure two ArenaMatch loudspeaker modules together.



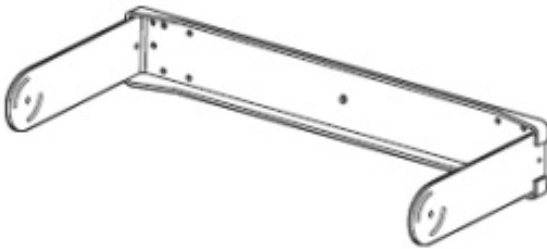
#### Spreader Bar (AMASPRD)

Use the spreader bar to provide alternate attachment points to help position the array in the final installation location.



**U-bracket (AMUBRKT)**

Use the U-bracket to secure a single ArenaMatch loudspeaker module to ceiling or wall building structures.

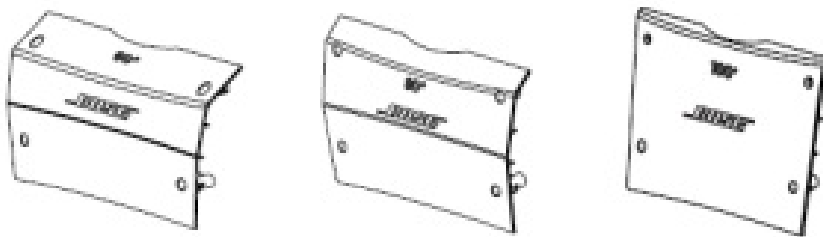


**Note:** The mounting accessories listed above have not been assessed to EN 54-24 specifications.

**Waveguides (AMWG)**

Field-changeable waveguides allow adjustment of horizontal coverage pattern.

**Note:** See the ArenaMatch Waveguide installation guide for a full list of waveguide models.



## Inspection & Maintenance



**WARNING:** The loudspeaker and all mounting components must be inspected annually by a qualified professional who is trained and certified in suspending loudspeaker systems. All rigging parts and components used in the suspension of the loudspeaker system should be visually inspected for signs of cracking, bending, water damage, corrosion, de-lamination, or any other condition that could compromise the system's integrity and create a dangerous falling hazard.



**WARNING:** The M6 and M10 threaded inserts are made of stainless steel. Exposure to chlorine could

cause corrosion of the M6 and M10 threaded inserts that may not be detected through an annual inspection, creating a dangerous falling hazard. Therefore, **do not** suspend ArenaMatch loudspeakers using the M6 and M10 stainless steel inserts in environments where chlorine is present, such as indoor pools, indoor water parks, hot tub rooms, saunas, and steam rooms.

## Maintaining Weather Resistance

ArenaMatch loudspeakers are rated for direct-exposure outdoor installations. To maintain weather resistance, please observe the following precautions:

1. Before, during, and after installation, check the surface of the loudspeaker enclosure to ensure that the factory-applied, weather-resistant coating has not been damaged.
2. During install, angle the loudspeaker at least 5° downward to reduce the potential of rain compromising the performance of the loudspeaker.
3. All mounting holes must be sealed off with steel screws (included with applicable accessories) or the included plastic plugs (pre-installed).
4. The gland nut that secures the loudspeaker cable is factory sealed. Do not remove the gland nut or the weather-resistant seal will be broken.
5. The loudspeaker is rated for direct-exposure installations, which means the grille is designed to withstand normal and wind-driven rain. The grille is not designed to withstand direct spraying of water from a hose or pressure washer.



**CAUTION:** If the above instructions are not observed, the weather-resistant integrity of your ArenaMatch loudspeaker could be compromised.



For fire and evacuation notification applications, environmental rated to IP33C per EN 54-24. For general purpose audio installation applications, environmental rated to IP55 per EN60529.

## Recommended Tools

The following tools are recommended for assembly of an ArenaMatch loudspeaker array:

Flathead screwdriver

#2 Phillips-head screwdriver

18-millimeter socket or wrench

14-millimeter socket or wrench

5-millimeter hex key

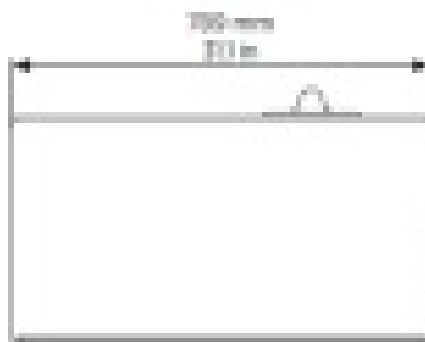
## Specifications

Product Dimensions

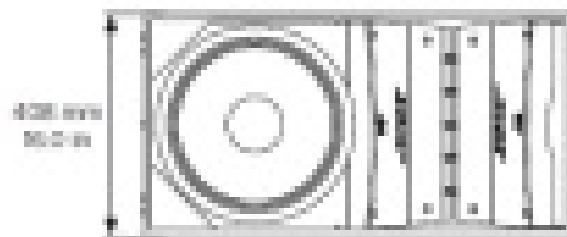
ArenaMatch AM10

Product net weight: 36.3 kg (80.0 lb)

Top View



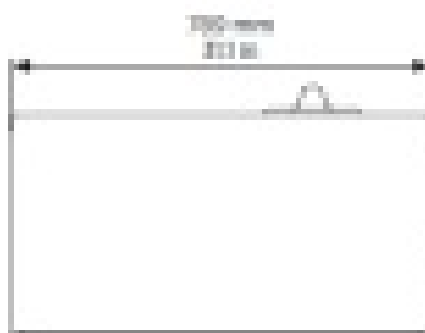
Front View



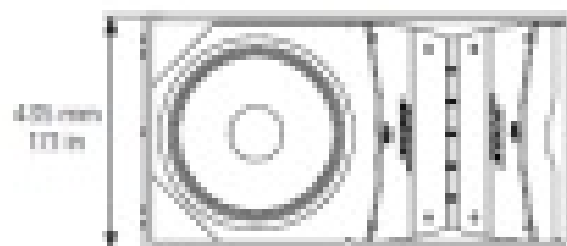
### ArmaMatch AM20

Product net weight: 36.5 kg (79.7 lb)

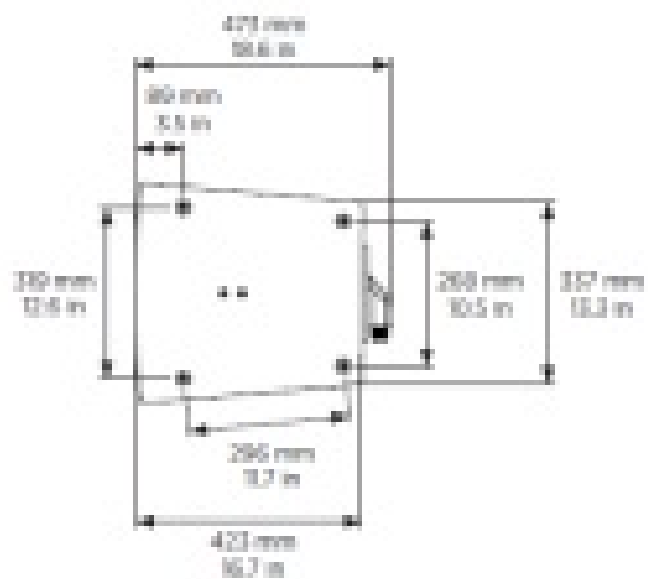
Top View



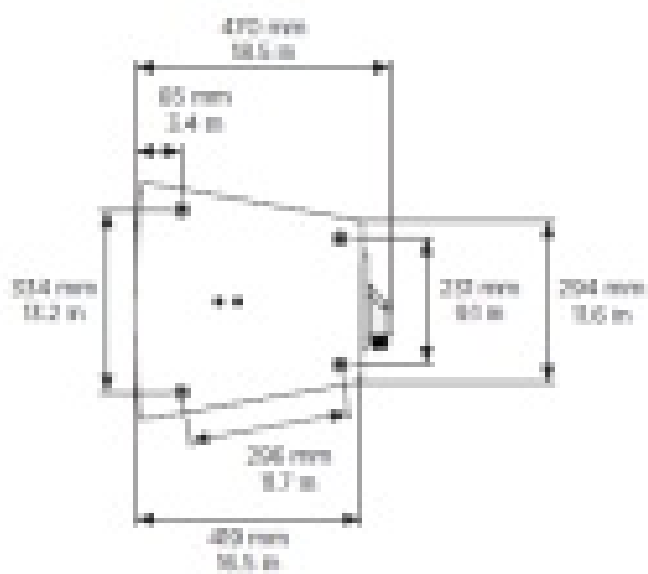
Front View



Side View

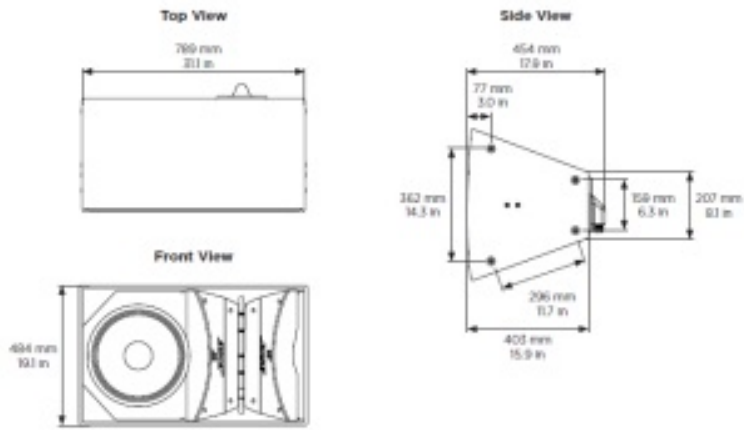


Side View



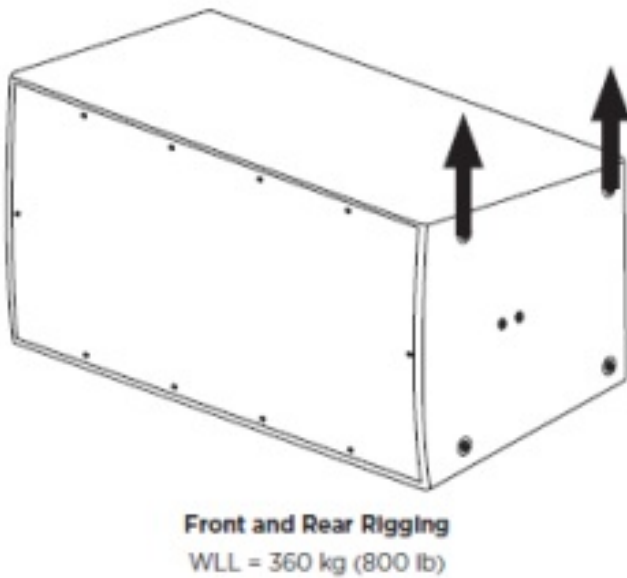
## ArenaMatch AM40

Product net weight: 34.9 kg (76.9 lb)



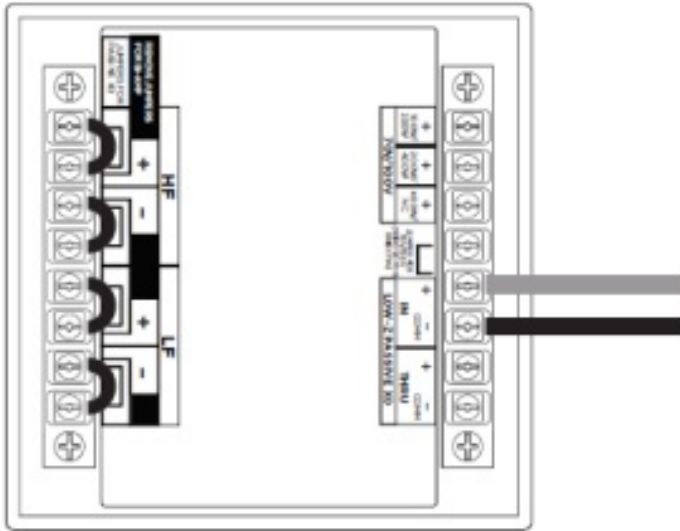
## Working Load Limits

All values listed are per suspension point.  
 ArenaMatch Full-range Modules (AM10, AM20, AM40)



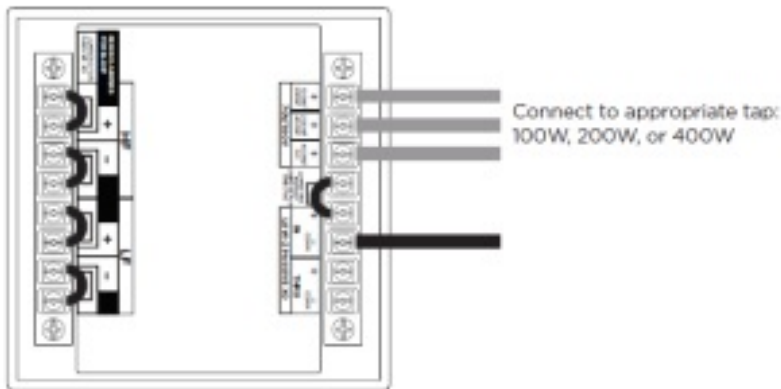
## Input Panel Wiring

Input connector terminals are available for passive, bi-amp, or 70V/100V transformer configurations. All ArenaMatch loudspeaker modules are shipped in the passive mode with transformer bypassed.  
 Note: The ArenaMatch AM10, AM20, and AM40 loudspeakers are designed to work with a maximum of 10 AWG (5.3 mm<sup>2</sup>) size wire. Passive Crossover (Low-impedance)



### Passive Crossover with 70V/100V Transformer

Your wiring can be adjusted to switch tap settings: 100W/200W, 200W/400W, or 400W/NC.



### Bi-amp

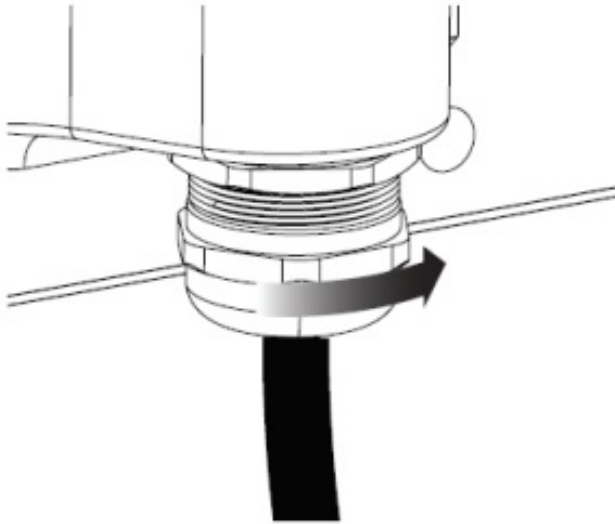


### Securing the Wiring

Feed the wiring through the gland nut on the bottom of the input panel. Once you are done wiring your loudspeaker, rotate the gland nut clockwise to seal the wire after attaching the input cover (see **Attaching the Input Panel Cover** section). Tighten the gland nut by hand until the wire is held firmly in place, then tighten the gland nut an additional quarter turn. Do not over-tighten.

**CAUTION:** If the gland nut is not properly fastened, water could get into the input panel and damage the loudspeaker.

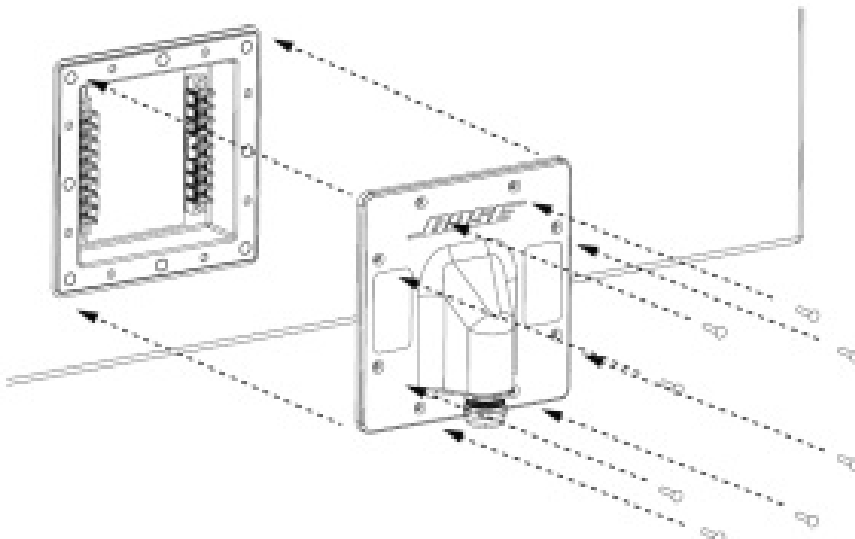




## Attaching the Input Panel Cover

ArenaMatch full-range modules are shipped with the rear input panel cover not installed. Once you've made input wiring connections, secure the cover over the input panel with the included eight screws.

**Note:** The input cover can be rotated to support four different orientations. Always be sure the gland nut and wiring are facing downward.



## Recommended Amplifier Power

[PRO.BOSE.COM](http://PRO.BOSE.COM)

Selecting the proper amplifier size for a given loudspeaker requires analysis of the transducer long-term (or RMS) power rating, dynamic range of the input-source material (crest factor), desired sound pressure levels, and other factors. As a general guideline, to optimize ArenaMatch system performance, the following amplifier configurations are recommended.



Nominal Coverage Pattern (H × V)	60° × 10° (AM10/60) or 80° × 10° (AM10/80) or 100° × 10° (AM10/100)									
Recommended High-pass Filter	60 Hz with minimum 12 dB / octave									
Crossover	950 Hz internal passive or external bi-amp (Bose ControlSpace presets)									
70V/100V transformer tap settings 2	70V: 100W (50 Ω), 200W (25 Ω), 400W (13 Ω); 100V: 200W (50 Ω), 400W (25 Ω)									
		Bose Extended Lifecycle Test 3					AES Transducer Test 4			
	LF (bi-amp)		HF (bi-amp)	Low-Z Passive	LF (bi-amp)		HF (bi-amp)	Low-Z Passive		
Power Handling, long-term continuous	600 W		150 W	750 W	1000 W		250 W		1250 W	
Power Handling, peak	2400 W		600 W	3000 W	4000 W		1000 W		5000 W	
		AM10/60			AM10/80			AM10/100		
	LF	HF	Low-Z Passive	LF	HF	Low-Z Passive	LF	HF	Low-Z Passive	

<b>Sensitivity (SPL / 1 W @ 1 m) 5</b>	94 d B	107 d B	100 dB		94 d B	106 dB	99 dB		94 d B	105 dB	98 dB	
<b>Calculated max. SPL @ 1 m (Bose power test) 6</b>	122 dB	129 d B	129 dB		122 dB	127 dB	128 dB		122 dB	127 dB	127 dB	
<b>Calculated max. SPL @ 1 m (2-hour power test)</b>	124 dB	131 d B		131 dB	124 dB	130 dB	130 dB		124 dB	129 dB	129 dB	
<b>Calculated max. SPL @ 1 m (Bose power test), peak</b>	128 dB	135 d B	135 dB		128 dB	134 dB	134 dB		128 dB	133 dB	133 dB	
<b>Calculated max. SPL @ 1 m (2-hour power test), peak</b>	130 dB	137 d B	137 dB		130 dB	136 dB	136 dB		130 dB	135 dB	135 dB	
<b>EN 54-24 Certified Ratings 7</b>	<b>100V/400W</b>		<b>Low-Z Passive</b>		<b>100V/400W</b>		<b>Low-Z Passive</b>		<b>100V/400W</b>		<b>Low-Z Passive</b>	
<b>Sensitivity (1 W @ 4 m)</b>	87.7 dB		87.7 dB		86.8 dB		86.8 dB		86.0 dB		86.0 dB	
<b>Measured max. SPL @ 4 m</b>	112.1 dB		115.3 dB		111.8 dB		114.4 dB		111.0 dB		113.7 dB	
<b>Coverage Angle Octave B and (Hz)</b>	500	1000	2000	4000	500	1000	2000	4000	500	1000	2000	4000
<b>Horizontal Coverage</b>	137°	108°	75°	54°	136°	98°	82°	78°	140°	93°	94°	96°



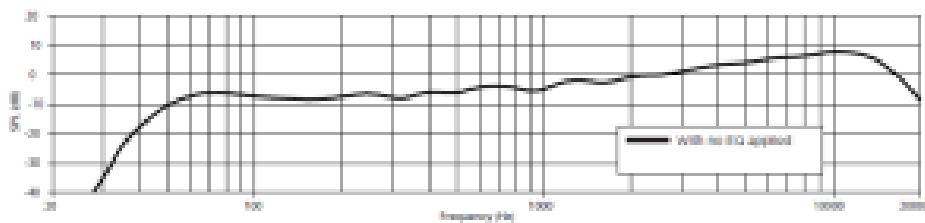
<b>Grille</b>	Powder-coated perforated stainless steel, acoustic foam, stainless steel mesh										
<b>Environmental 8</b>	Rated for direct-exposure outdoor installations (IP55 per EN60529; IP33C per EN54-24)										
<b>Connectors</b>	Barrier strips: passive in/through, bi-amp, and 70V/100V, with cover										
<b>Suspension/Mounting</b>	8 × M12 non-stainless steel threaded inserts (4 per side); 2 × M10 stainless steel threaded inserts (1 per side); 2 × M6 stainless steel threaded inserts (1 per side); 1 × M10 stainless steel threaded insert, rear safety connection										
<b>Dimensions (H × W × D)</b>	409 × 783 × 420 mm (16.1 × 30.8 × 16.5 in)										
<b>Net Weight</b>	36.3 kg (80 lb)										
<b>Shipping Weight</b>	43.5 kg (96 lb)										
<b>Accessories</b>	U-bracket, array suspension kits, waveguide kits										

## Footnotes

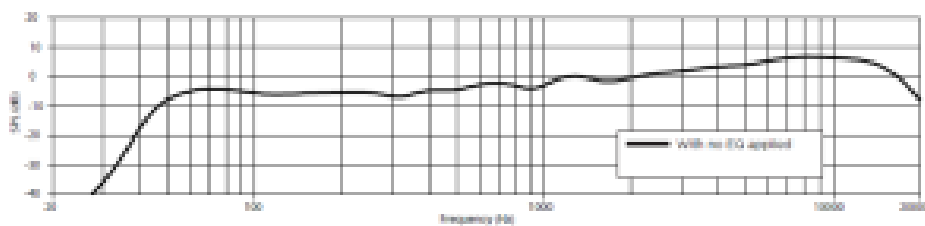
1. Frequency response and range measured on-axis in anechoic environment with recommended bandpass and EQ. Frequency response graphs display SPL axis with 0 dB line referenced to sensitivity SPL value.
2. Impedance measurements were recorded with the 60° waveguide installed, per EN 54-24.
3. Bose extended-lifecycle test using pink noise filtered to meet IEC268-5, 6-dB crest factor, 500-hour duration.
4. AES standard 2-hour duration with IEC system noise.

5. Sensitivity measured in anechoic environment with recommended bandpass and EQ.
6. Maximum SPL calculated using sensitivity and power ratings, exclusive of power compression.
7. The specifications data was measured in an anechoic chamber, free-field. Reference plane is on the grille surface. Reference axis is perpendicular to center of grille surface.  
Horizontal plane is containing the reference axis and parallel to the horizontal axis defined by longest enclosure dimension.
8. Tested to IP55 per EN60529 when used in General Purpose Audio installation, not for Fire and Evacuation notification applications. Notified Body certified by UL per the EN54-24 standard for an IP33C rating, acceptable for use in a Fire and Evacuation Notification System application.

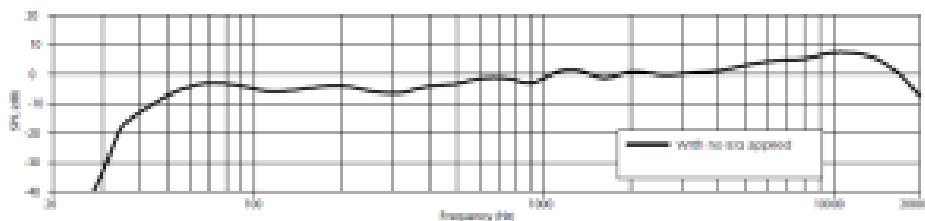
### AM10 Frequency Response (60° waveguide)



AM10 Frequency Response (80° waveguide)



AM10 Frequency Response (100° waveguide)



**PRO.BOSE.COM**



Bose Corporation

100 The Mountain Rd, Framingham, MA 01701 20

DOP 429257-4

EN 54-24: 2008

Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings

ArenaMatch AM10


Provided options: Type B

For DOP 429257-4, see [pro.Bose.com/AM10DOP\\_UK](http://pro.Bose.com/AM10DOP_UK)



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