

Panaray® MA12 Modular Line Array Loudspeaker

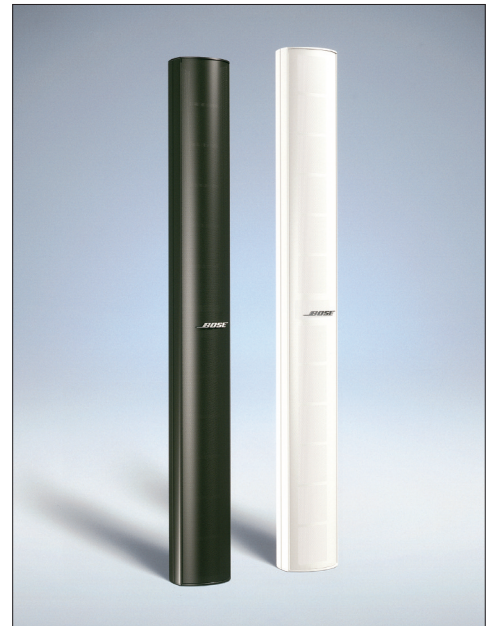
Key Features

- Designed to deliver high speech intelligibility in indoor acoustically demanding spaces
- Music performance from 155 Hz to 12 kHz (-3 dB); for full-range music performance, additional bass augmentation is required
- Wide horizontal dispersion for broad 145° coverage
- Available in black or white, paintable

Description

The Panaray® MA12 modular line array loudspeaker is designed for indoor applications where speech intelligibility is critical and speech reproduction is the main requirement. To deliver full-range music performance, bass augmentation is required.

The MA12 loudspeaker can be mounted in single or multiple loudspeaker configurations. This loudspeaker is well-suited for indoor applications such as houses of worship, auditoriums, transportation hubs, atriums, malls, gymnasiums and multi-purpose spaces.



TECHNICAL DATA SHEET

Descriptive Data

System Performance (Single Module)	
Frequency Response (-3 dB) ¹	155 Hz - 12 kHz
Frequency Range (-10 dB) ¹	100 Hz - 16 kHz
Calculated Maximum SPL @ 1m ²	113 dB
Input Power Rating (continuous/peak) ³	300W/1200W
Axial Sensitivity (SPL/1W @ 1m) ⁴	88 dB
Nominal Horizontal Coverage (-6 dB)	145°
Nominal Vertical Coverage (-6 dB) ⁵	20°
Nominal Impedance (transformer bypass)	8Ω
Minimum Impedance	6.2Ω
Crossover Frequency	N/A
Recommended High-Pass Filter	125 Hz
Transducers	
Driver Complement	Twelve 2.25" (57mm) mid/high-frequency drivers
Physical	
Enclosure Material	Powder-coated aluminum
Grille	Powder-coated steel
Environmental Specification	Indoor use only
Connectors	Two parallel-wired Neutrik Speakon® NL4 connectors One two-conductor barrier strip
Suspension Attachment	4 x M6 threaded inserts
Dimensions (H x W x D)	38.8" x 4.2" x 5.1" (986mm x 107mm x 130mm)
Net Weight	18.7lbs
Shipping Weight	20.8lbs

Notes:

¹⁻⁴See "How our Loudspeakers are Measured" on page 6.

⁵Vertical coverage varies by number of modules vertically arrayed and distance from line-source boundary. Use Modeler® software for the best prediction.

Panaray® MA12

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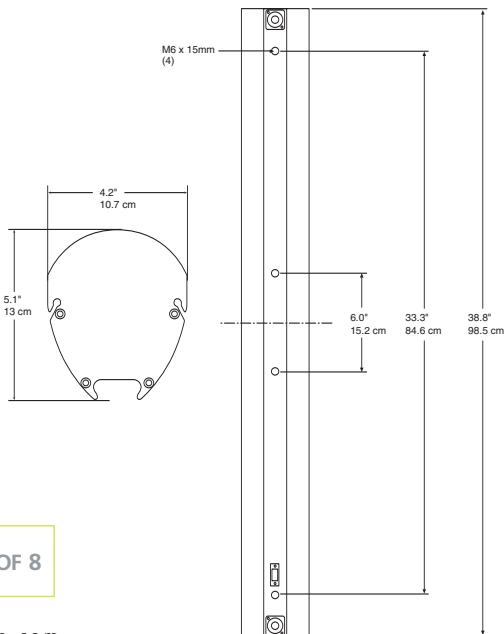


Recommended Equalization

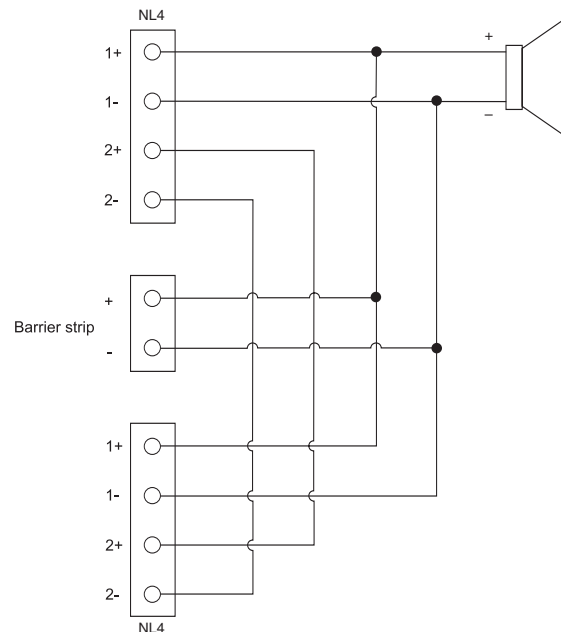
MA12 Processor Settings					
Application		MA12 Single	MA12 Single Wall	MA12 Stacked	MA12 Stacked Wall
HPF	Freq. (Hz)	141	141	141	141
	Slope (dB/octave)	24	24	24	24
	Type	Butterworth	Butterworth	Butterworth	Butterworth
PEQ1	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	141	141	141	141
	Bandwidth	1	1	0.63	0.32
	Level (dB)	10.7	7.2	6	1
PEQ2	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	501	501	398	398
	Bandwidth	1	1	1	1
	Level (dB)	-2.5	-2.5	-5.5	-5.5
PEQ3	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	1.26k	1.26k	1.4k	1.4k
	Bandwidth	1.25	1.25	2.5	2.5
	Level (dB)	-1	-1	-3	-3
PEQ4	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	7.08k	7.08k	1.58k	1.58k
	Bandwidth	0.8	0.8	2	2
	Level (dB)	3.7	3.7	-2.7	-2.7
PEQ5	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	10k	10k	6.3k	6.3k
	Bandwidth	0.8	0.8	1.25	1.25
	Level (dB)	-5.5	-5.5	2.3	2.3
PEQ6	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	14k	14k	14.1k	14.1k
	Bandwidth	1	1	0.8	0.8
	Level (dB)	11	11	6	6

Note: The above settings were developed for ControlSpace® Systems. Other devices will vary.

Mechanical Diagrams



Wiring Diagram

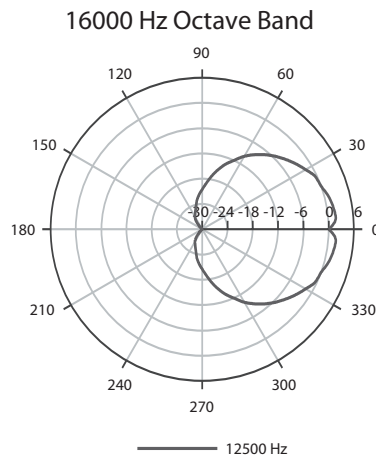
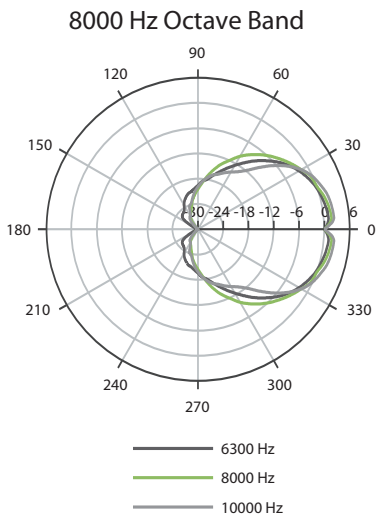
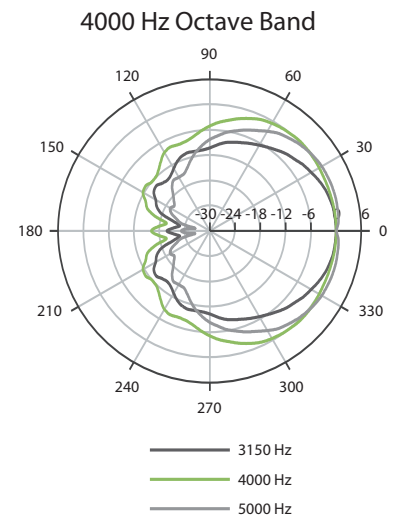
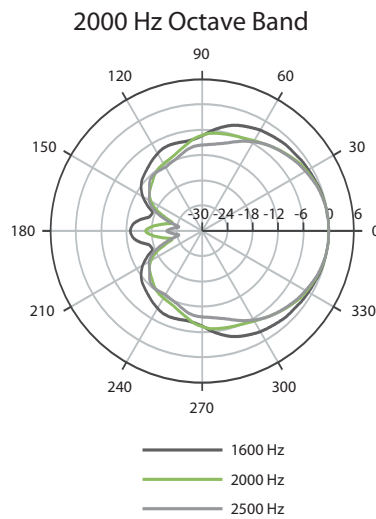
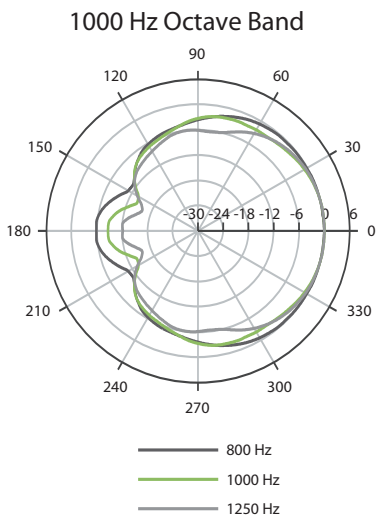
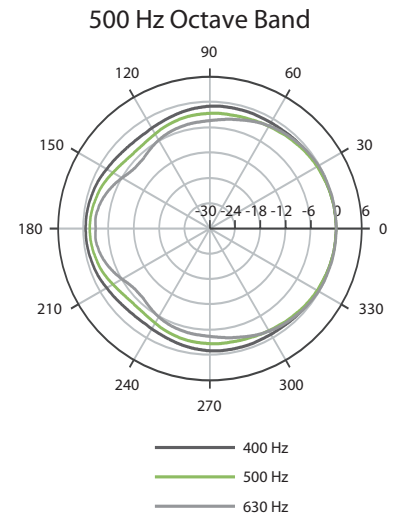
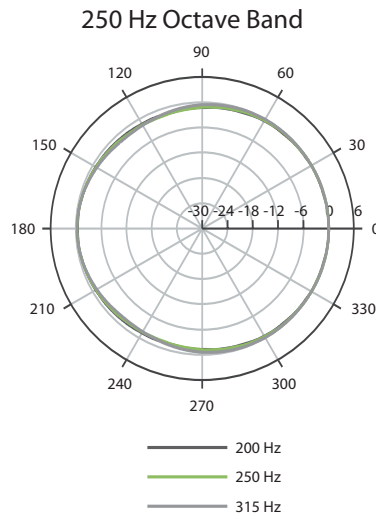
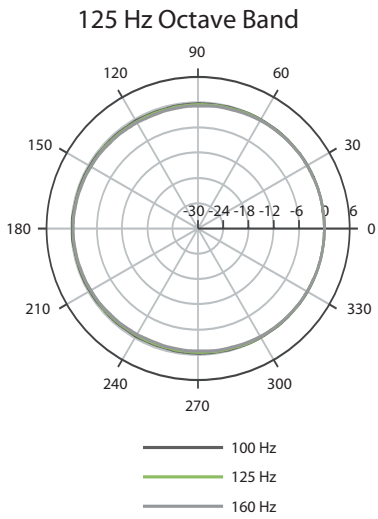


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Polar Plots 1/3 Octave Horizontal



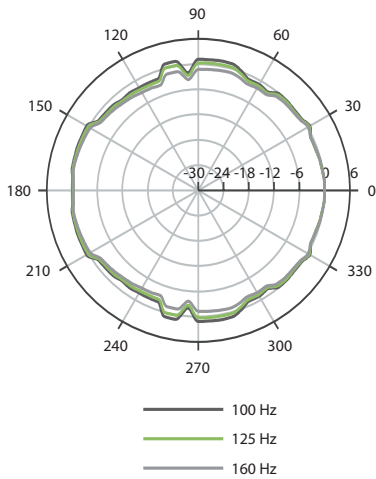
Panaray® MA12 Modular Line Array Loudspeaker



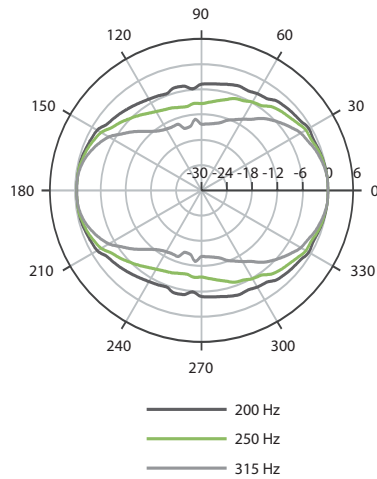
Polar Plots 1/3 Octave Vertical

TECHNICAL DATA SHEET

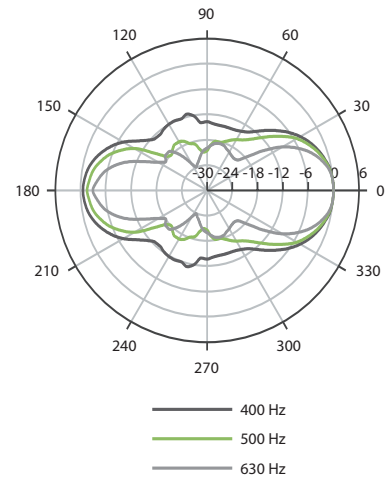
125 Hz Octave Band



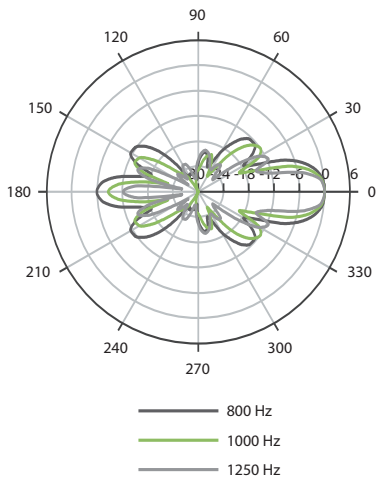
250 Hz Octave Band



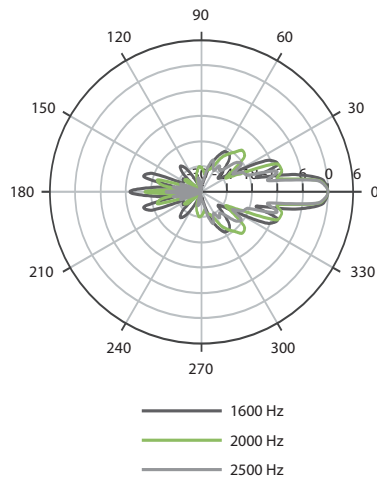
500 Hz Octave Band



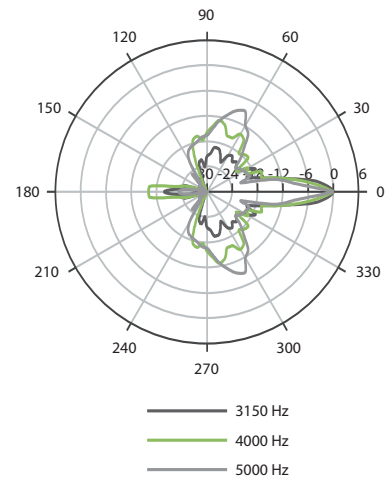
1000 Hz Octave Band



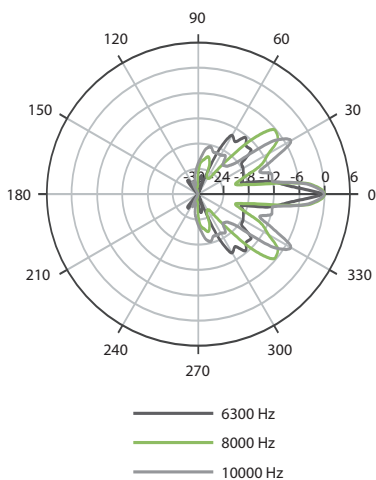
2000 Hz Octave Band



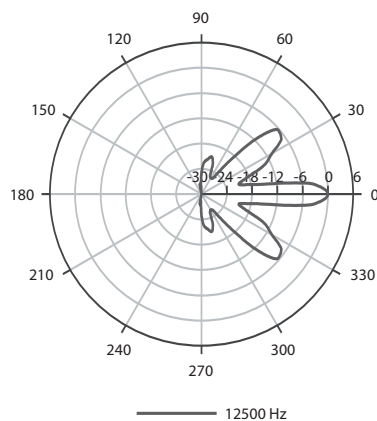
4000 Hz Octave Band



8000 Hz Octave Band



16000 Hz Octave Band

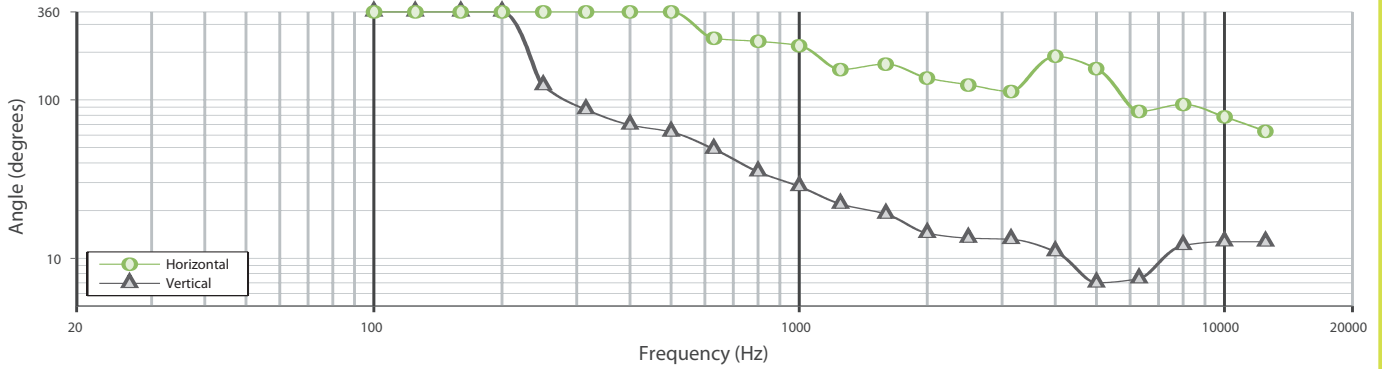


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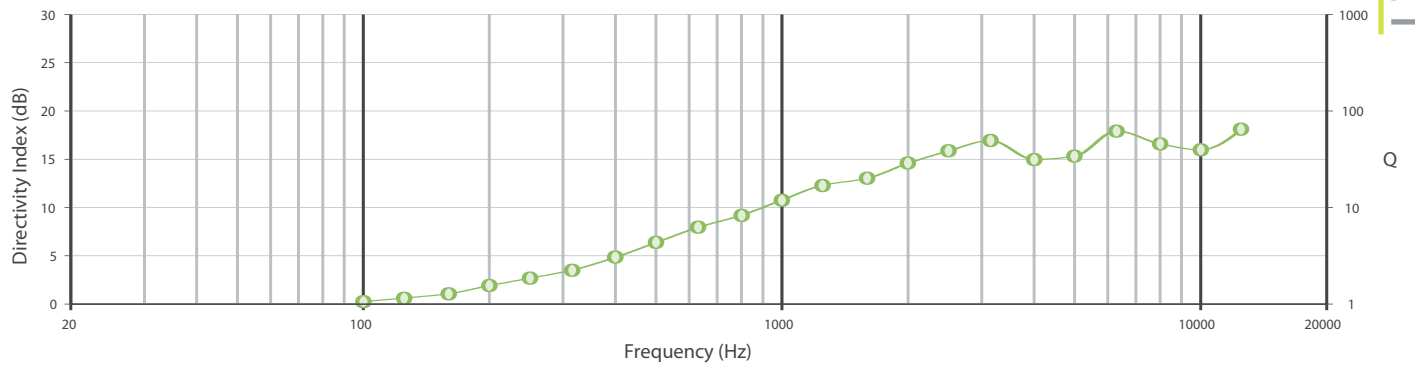
Modular Line Array Loudspeaker



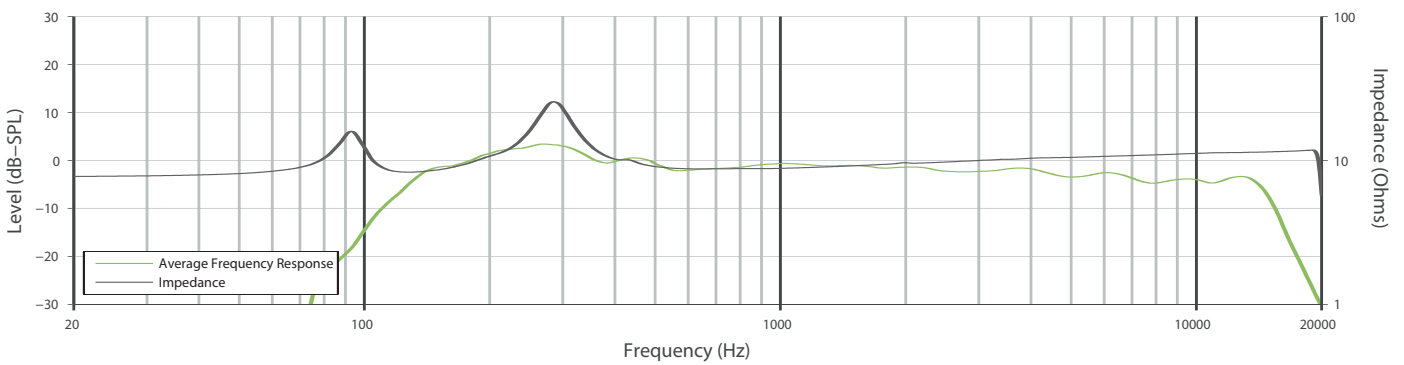
Beamwidth



Directivity Index and Q



Average Frequency Response and Impedance¹



¹See "How our Loudspeakers are Measured" on page 6.

Panaray® MA12 Modular Line Array Loudspeaker



Engineers' and Architects' Specifications

The loudspeaker shall be a multiple driver system with matched active equalization as follows:

The transducer complement shall consist of twelve 2.25" (57mm) mid/high-frequency drivers mounted in vertical line array. Each driver shall have a rated impedance of 6.2Ω and wired in series/parallel, resulting in a composite nominal impedance of 8Ω .

The nominal horizontal beamwidth of the loudspeaker shall be 145° , and the vertical coverage is a band of constant height. The power handling capacity of the loudspeaker shall be 300W continuous pink noise, band – limited from 155 Hz to 12 kHz (-3 dB).

The loudspeaker shall be provided with a ducted vent system, tuned at 150 Hz. The input connector of the loudspeaker module shall consist of two parallel-wired Speakon® NL4 receptacles and one two-conductor barrier strip.

The enclosure of the MA12 loudspeaker module shall be aluminum. Its outer dimensions shall be 38.8" H x 4.2" W x 5.1" D (986mm x 107mm x 130mm). Its weight shall be 18.7lbs.

The loudspeaker shall be the Bose® Panaray® MA12 modular line array loudspeaker.

Safety and Regulatory Compliance

The MA12 loudspeaker complies with ANSI/EIA-636 *Recommended Loudspeaker Safety Practices*.

Rigging

MA12 loudspeakers can be mounted as a single element or stacked in multiples to achieve line array performance. Bose MA12 loudspeaker mounting brackets are available and tested for use with single-, double- and triple-stack MA12 loudspeaker installations. For installations of four or more MA12 loudspeakers, obtain your mounting system from a reputable manufacturer. Select a system design that works for your loudspeaker of choice and its intended use. Always have a licensed professional engineer review the design and fabrication for structural integrity and safety in the intended application.

How our Loudspeakers are Measured

1. Frequency Response and Range

Data is the average response in the typical coverage area with the recommended equalization applied.

2. Calculated Max SPL

Calculated based on input sensitivity with recommended equalization applied and maximum input power rating exclusive of power compression.

3. Input Power Rating

Pink noise with a 6 dB crest factor is bandpass limited to the operating range of the loudspeaker and applied for 100 hours.

4. Axial Sensitivity

Full-bandwidth pink noise with recommended equalization amplified to a level of 1 watt and applied to the loudspeaker in an anechoic environment.

More Information

Technical literature and other materials are available at pro.bose.com.

Panaray® MA12 Modular Line Array Loudspeaker



Product Codes

Loudspeaker

MA12 Loudspeaker Black	PC 40189
MA12 Loudspeaker White	PC 40188

Accessories

CB-MA12 Coupling Bracket Black	PC 28337
CB-MA12 Coupling Bracket White	PC 28338
CVT-MA12 Transformer 70V/100V Black	PC 29388
CVT-MA12 Transformer 70V/100V White	PC 29389
WB-MA12 Pitch Only Bracket Black	PC 28333
WB-MA12 Pitch Only Bracket White	PC 28334
WB-MA12/MA12EX Pitch Only Bracket Black	PC 318418-0100
WB-MA12/MA12EX Pitch Only Bracket White	PC 318418-0200
WMB-MA12 Bi-Pivot Bracket Black	PC 040098
WMB-MA12 Bi-Pivot Bracket White	PC 040097
WMB-MA12/MA12EX Bi-Pivot Bracket Black	PC 318338-0100
WMB-MA12/MA12EX Bi-Pivot Bracket White	PC 318338-0200
WMB2-MA12/MA12EX Pitch Lock Upper Bracket Black	PC 318337-0100
WMB2-MA12/MA12EX Pitch Lock Upper Bracket White	PC 318337-0200

Replacement Parts

MA12 Grille Black	PC 298551-001
MA12 Grille White	PC 298551-002
Bose Logo Black	PC 298552-001
Bose Logo White	PC 298552-002
2.25" (57mm) driver	PC 298550
Endcap Black	PC 259132-001
Endcap White	PC 259132-002

