

# Panaray® MA12EX Modular Line Array Loudspeaker



## Key Features

- Designed to deliver full-range music and high speech intelligibility in both indoor and outdoor acoustically demanding spaces
- Full-range music performance from 75 Hz to 13 kHz (-3 dB) without the need for additional bass augmentation
- Articulated Array® loudspeaker technology delivers wide horizontal dispersion for broad 160° coverage\*
- Available in black or white, paintable

## Description

The Panaray® MA12EX modular line array loudspeaker is designed for indoor and outdoor applications where full-range music and speech intelligibility are required. The Panaray MA12EX loudspeaker is engineered to provide full-range music performance from 75 Hz to 13 kHz (-3 dB) without the need for additional bass augmentation.

The MA12EX loudspeaker can be mounted in single or multiple loudspeaker configurations. This loudspeaker is well-suited for indoor and outdoor applications such as houses of worship, multi-purpose spaces, recreation, restaurants, auditoriums, transportation hubs, gymnasiums, atriums and malls.



TECHNICAL DATA SHEET

## Descriptive Data

System Performance (Single Module)	
Frequency Response (-3 dB) <sup>1</sup>	75 Hz - 13 kHz
Frequency Range (-10 dB) <sup>1</sup>	58 Hz - 16 kHz
Calculated Maximum SPL @ 1m <sup>2</sup>	109 dB
Input Power Rating (continuous/peak) <sup>3</sup>	150W/600W <sup>6</sup>
Axial Sensitivity (SPL/1W @ 1m) <sup>4</sup>	87 dB
Nominal Horizontal Coverage (-6 dB)	160°
Nominal Vertical Coverage (-6 dB) <sup>5</sup>	20°
Nominal Impedance (transformer bypass)	8Ω
Minimum Impedance	7.1Ω
Crossover Frequency	N/A
Recommended High-Pass Filter	65 Hz
Transducers	
Driver Complement	Twelve 2.25" (57mm) high-excursion, weather-resistant drivers
Physical	
Enclosure Material	Powder-coated aluminum
Grille	Powder-coated aluminum
Environmental Specification	Indoor and outdoor use per IEC 529 IPX5 specifications
Connectors	Two parallel-wired Neutrik Speakon® NL4 connectors Two two-conductor barrier strips
Suspension Attachment	6 x M6 threaded inserts
Dimensions (H x W x D)	38.8" x 4.1" x 5.5" (986mm x 104mm x 140mm)
Net Weight	20.8lbs
Shipping Weight	22.9lbs

### Notes:

\*Articulated Array loudspeaker technology produces wide, uniform sound coverage by angling every other driver within the enclosure to create 160 degrees of horizontal coverage and consistent tonal balance.

<sup>1-4</sup>See "How our Loudspeakers are Measured" on page 6. <sup>5</sup>Vertical coverage varies by number of modules vertically arrayed and distance from line-source boundary. Use Modeler® software for the best prediction.

<sup>6</sup>150W for full-range music and speech applications. Speech-only applications (155 Hz to 12 kHz), power handling (continuous) at 300W/1200W.

# Panaray® MA12EX

## Modular Line Array Loudspeaker



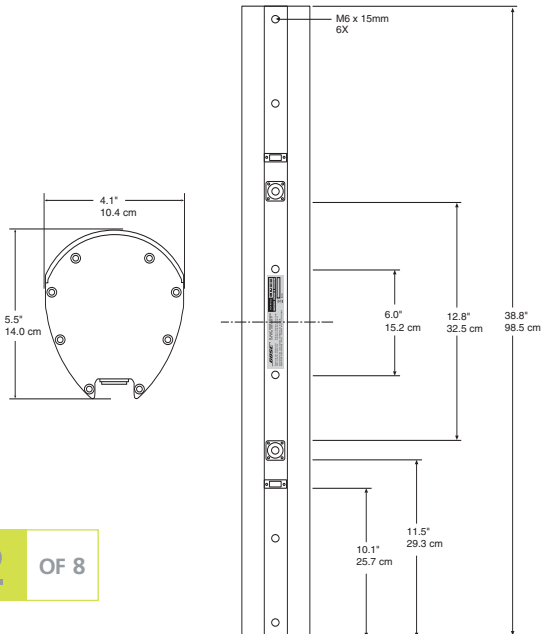
TECHNICAL DATA SHEET

### Recommended Equalization

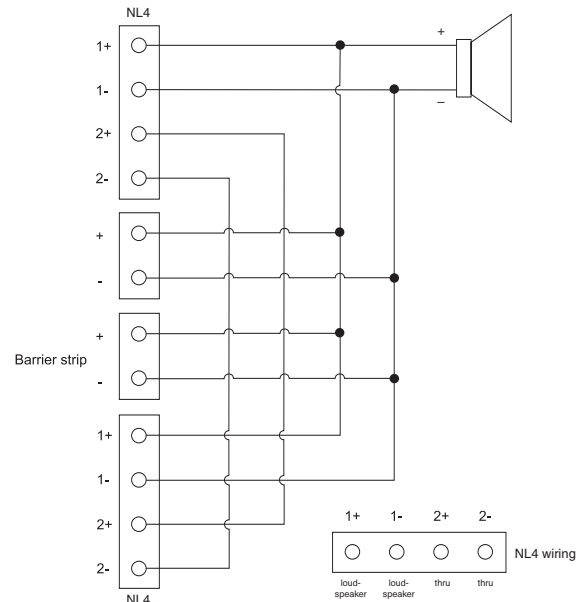
		MA12EX Processor Settings			
Application		MA12EX Free Air	MA12EX Wall	MA12EX Stacked Free	MA12EX Stacked Wall
HPF	Freq. (Hz)	63.1	63.1	70	63.1
	Slope (dB/octave)	24	24	24	24
	Type	Butterworth	Butterworth	Butterworth	Butterworth
PEQ1	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	100	89.13	100	199.5
	Bandwidth	1.6	1.25	1.6	1.25
	Level (dB)	6	3	6	-4
PEQ2	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	251.2	251.2	251.2	631
	Bandwidth	1.25	1	1	0.8
	Level (dB)	-6	-4	-4.5	-3
PEQ3	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	891.3	794.3	707.9	794.3
	Bandwidth	2	0.63	2	1.25
	Level (dB)	-4	-3	-5	-5.5
PEQ4	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	2k	2k	1.78k	2k
	Bandwidth	1	1	0.8	1
	Level (dB)	-4.5	-3.5	-3	-5
PEQ5	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	7.94k	7.94k	7.08k	7.08k
	Bandwidth	1.25	1	0.63	1
	Level (dB)	-10	-8	-8	-8
PEQ6	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	12.6k	12.6k	12.6k	12.6k
	Bandwidth	0.8	0.63	1.6	0.63
	Level (dB)	5.5	7	6	7

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

### Mechanical Diagrams



### Wiring Diagram

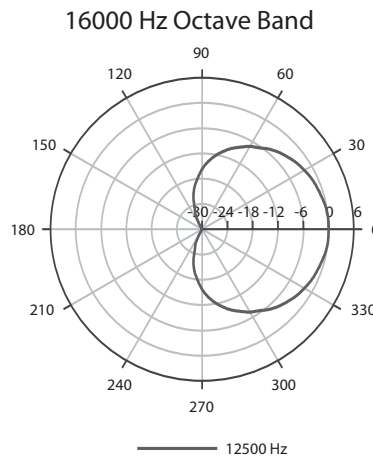
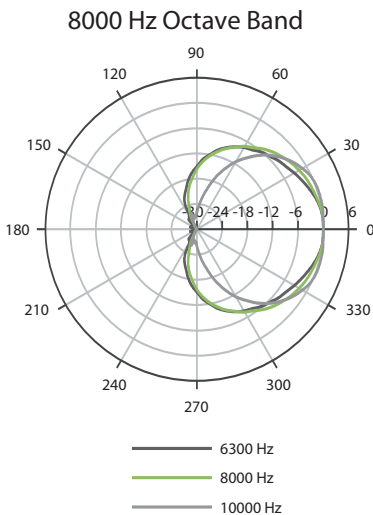
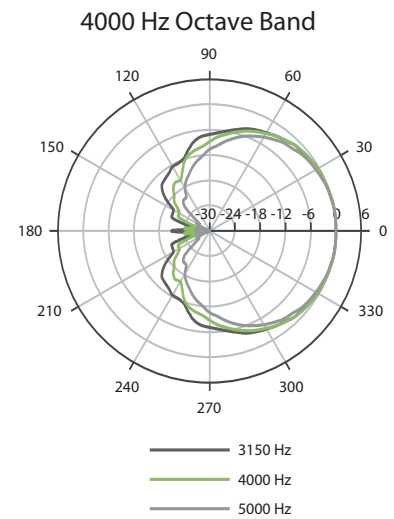
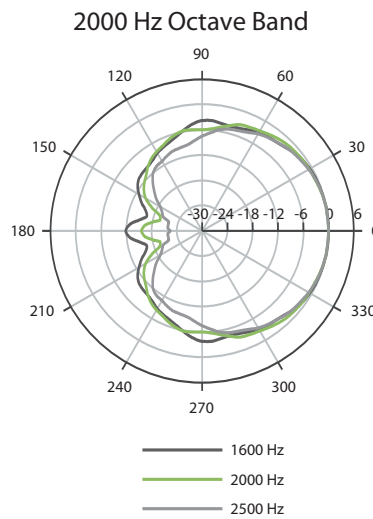
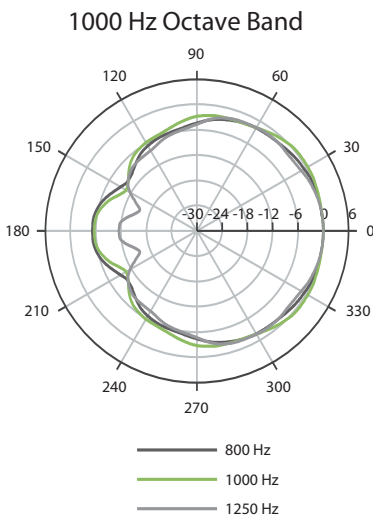
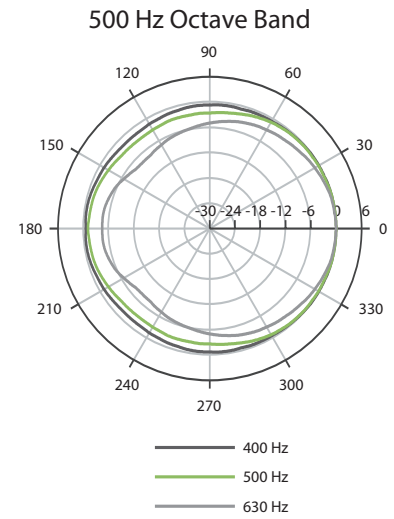
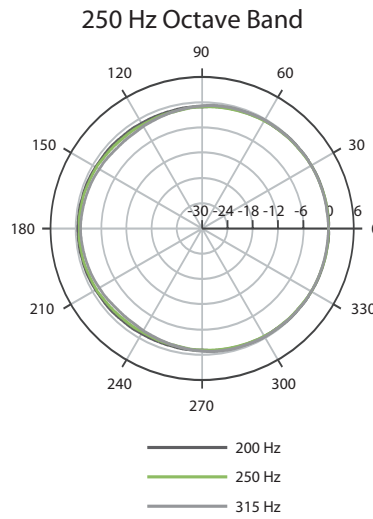
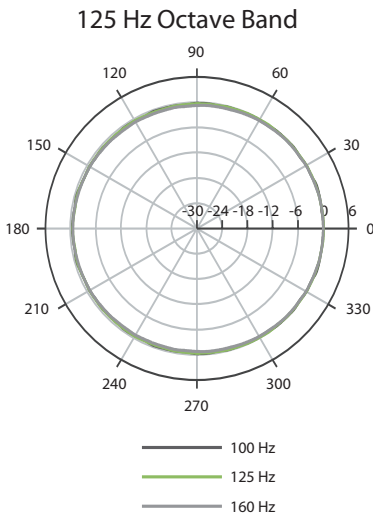


# Panaray® MA12EX

## Modular Line Array Loudspeaker



### Polar Plots 1/3 Octave Horizontal



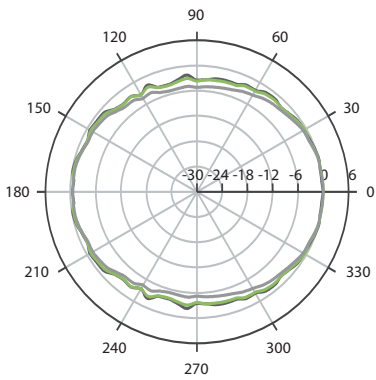
# Panaray® MA12EX Modular Line Array Loudspeaker



## Polar Plots 1/3 Octave Vertical

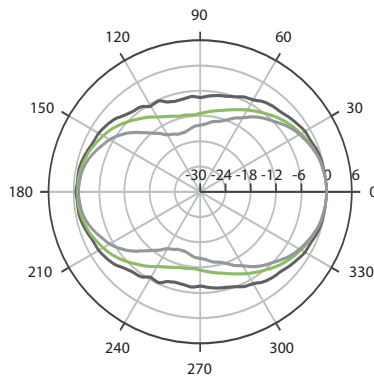
TECHNICAL DATA SHEET

125 Hz Octave Band



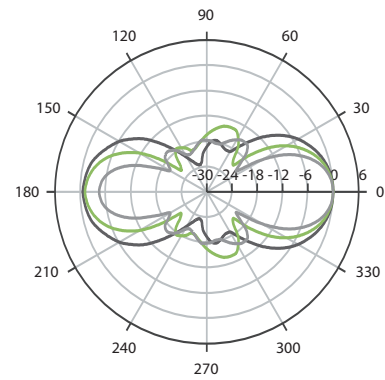
- 100 Hz
- 125 Hz
- 160 Hz

250 Hz Octave Band



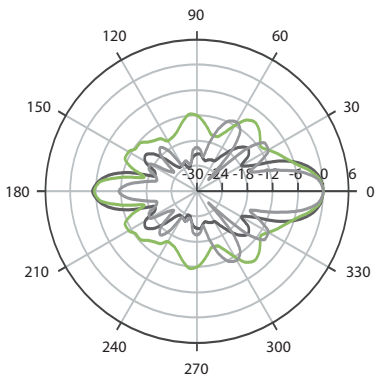
- 200 Hz
- 250 Hz
- 315 Hz

500 Hz Octave Band



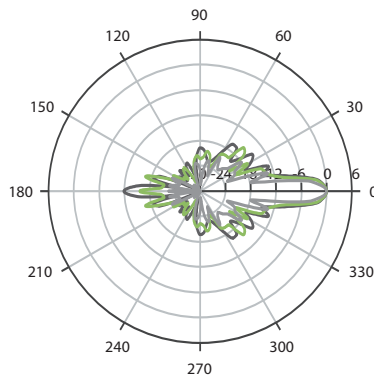
- 400 Hz
- 500 Hz
- 630 Hz

1000 Hz Octave Band



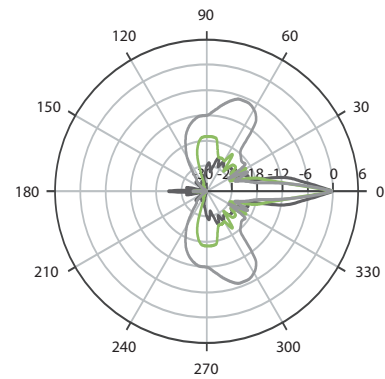
- 800 Hz
- 1000 Hz
- 1250 Hz

2000 Hz Octave Band



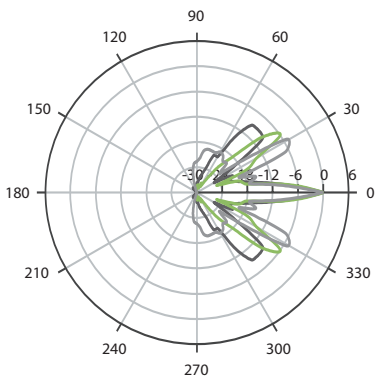
- 1600 Hz
- 2000 Hz
- 2500 Hz

4000 Hz Octave Band



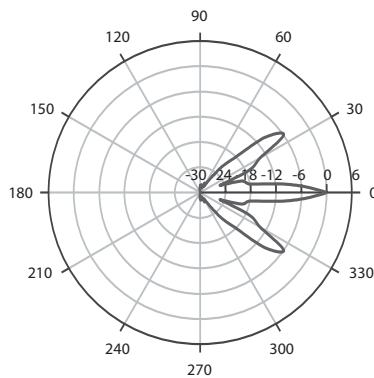
- 3150 Hz
- 4000 Hz
- 5000 Hz

8000 Hz Octave Band



- 6300 Hz
- 8000 Hz
- 10000 Hz

16000 Hz Octave Band



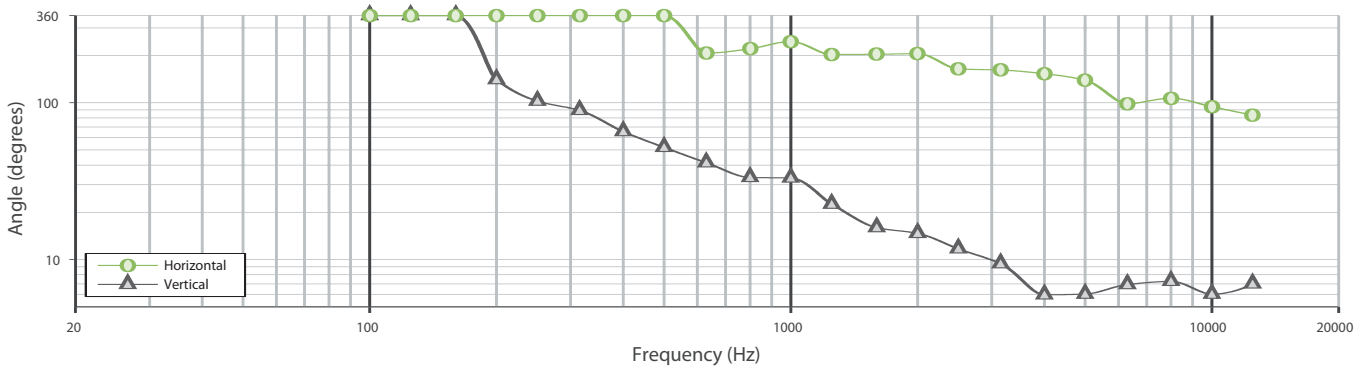
- 12500 Hz

# Panaray® MA12EX Modular Line Array Loudspeaker

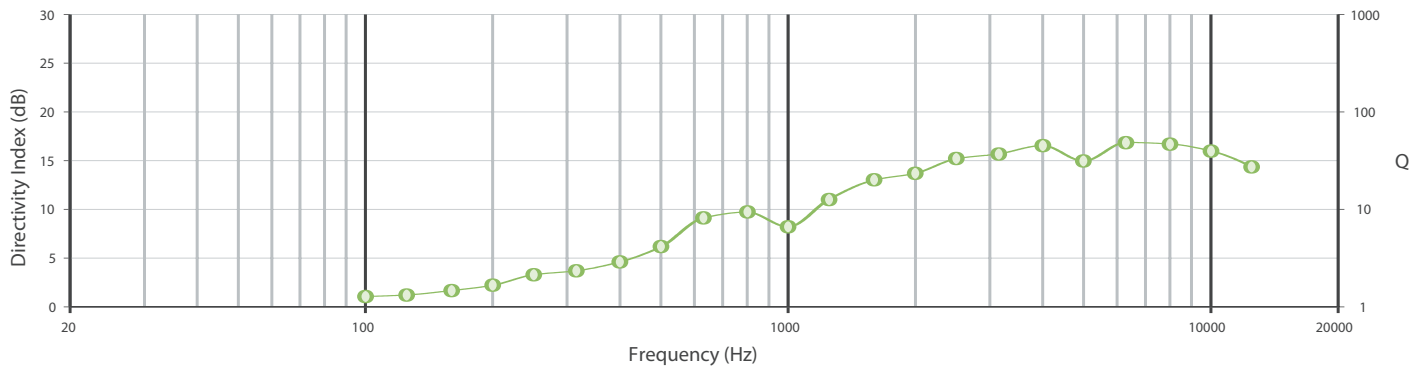


TECHNICAL DATA SHEET

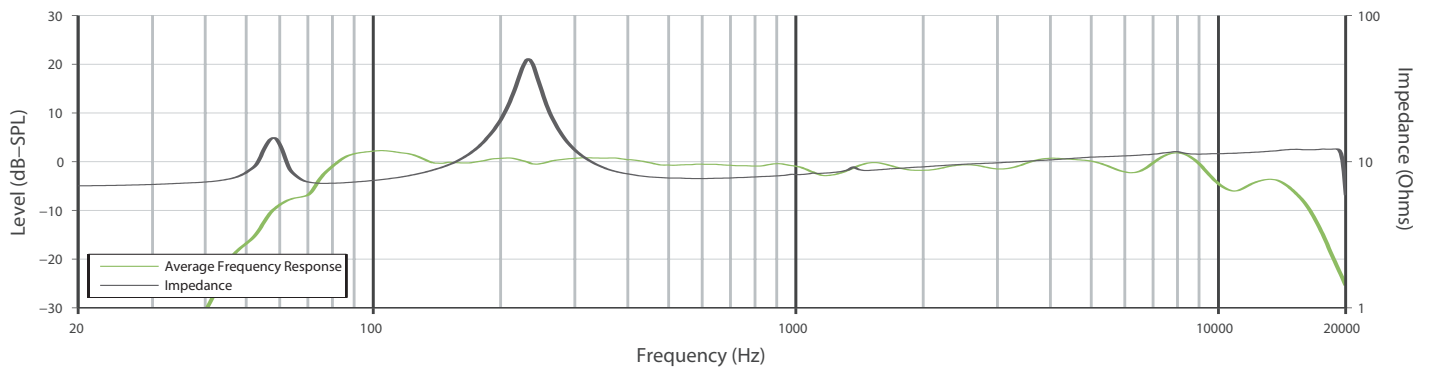
## Beamwidth



## Directivity Index and Q



## Average Frequency Response and Impedance<sup>1</sup>



<sup>1</sup>See "How our Loudspeakers are Measured" on page 6.

# Panaray® MA12EX Modular Line Array Loudspeaker



## Engineers' and Architects' Specifications

The loudspeaker shall be a multiple driver, full-range system with matched active equalization as follows:

The transducer complement shall consist of twelve 2.25" (57mm) high-excursion, weather-resistant drivers mounted in an Articulated Array® loudspeaker design. Each driver shall have a rated impedance of 5Ω and wired in series/parallel, resulting in a composite nominal impedance of 8Ω.

The nominal horizontal beamwidth of the loudspeaker shall be 160°, and the vertical coverage is a band of constant height. The power handling capacity of the loudspeaker shall be 150W continuous pink noise, band-limited from 75 Hz to 13 kHz (-3 dB).

The loudspeaker shall be provided with a ducted vent system, tuned at 75 Hz. The input connector of the loudspeaker module shall consist of two parallel-wired Speakon® NL4 receptacles and two two-conductor barrier strips.

The enclosure of the MA12EX speaker module shall be aluminum. Its outer dimensions shall be 38.8" H x 4.1" W x 5.5" D (986mm x 104mm x 140mm). Its weight shall be 20.8lbs.

The loudspeaker shall be the Bose® Panaray® MA12EX modular line array loudspeaker.

## Safety and Regulatory Compliance

The MA12EX loudspeaker complies with ANSI/EIA-636 *Recommended Loudspeaker Safety Practices*.

## Rigging

MA12EX loudspeakers can be mounted as a single element or stacked in multiples to achieve line array performance. Bose MA12EX loudspeaker mounting brackets are available and tested for use with single-, double- and triple-stack MA12EX loudspeaker installations. For installations of four or more MA12EX 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](http://pro.bose.com).

# Panaray® MA12EX Modular Line Array Loudspeaker



## Product Codes

### Loudspeaker

MA12EX Loudspeaker Black	PC 317302-0100
MA12EX Loudspeaker White	PC 317302-0200

### Accessories

CB-MA12EX Coupling Bracket Black	PC 317088-0100
CB-MA12EX Coupling Bracket White	PC 317088-0200
CVT-MA12EX Transformer 70V/100V Black	PC 315338-0100
CVT-MA12EX Transformer 70V/100V White	PC 315338-0200
WB-MA12/MA12EX Pitch Only Bracket Black	PC 318418-0100
WB-MA12/MA12EX Pitch Only Bracket White	PC 318418-0200
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

MA12EX Grille Black	PC 317423-010S
MA12EX Grille White	PC 317423-020S
Bose Logo Black	PC 317418-010S
Bose Logo White	PC 317418-020S
2.25" (57mm) driver	PC 318828-000S
Endcap Black	PC 317414-010S
Endcap White	PC 317414-020S

