

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.



Descriptive Data

System Performance (Single Module)	
Frequency Response (-3 dB) ¹	75 Hz - 13 kHz
Frequency Range (-10 dB) ¹	58 Hz - 16 kHz
Calculated Maximum SPL @ 1m ²	109 dB
Input Power Rating (continuous/peak) ³	150W/600W ⁶
Axial Sensitivity (SPL/1W @ 1m) ⁴	87 dB
Nominal Horizontal Coverage (-6 dB)	160°
Nominal Vertical Coverage (-6 dB) ⁵	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.

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.

⁶150W for full-range music and speech applications. Speech-only applications (155 Hz to 12 kHz), power handling (continuous) at 300W/1200W.

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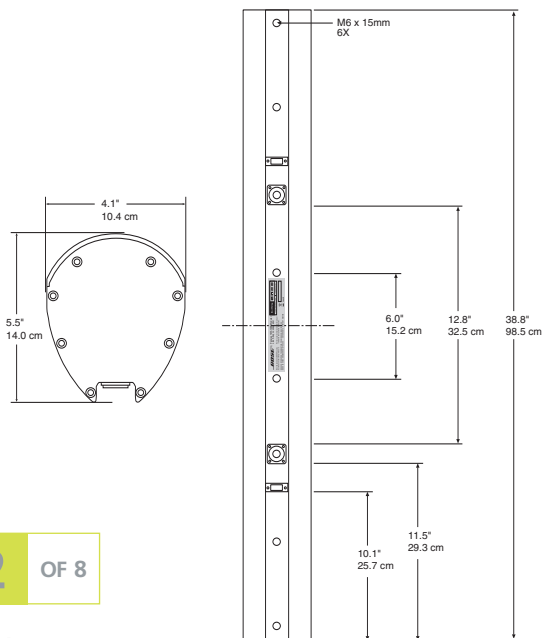
TECHNICAL DATA SHEET

Recommended Equalization

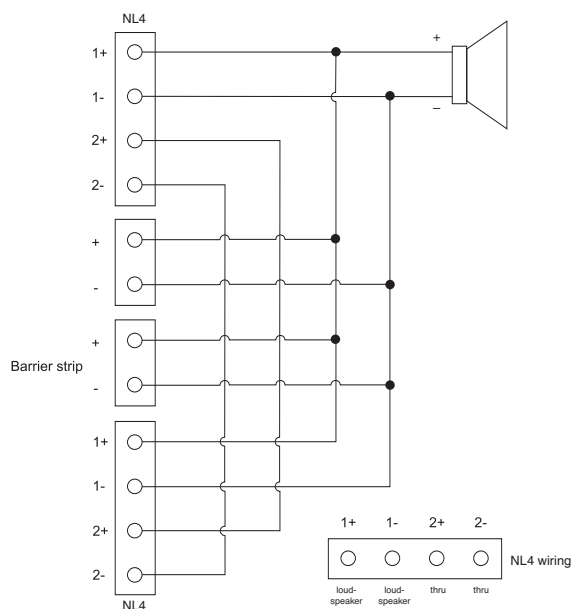
MA12EX Processor Settings					
Application		MA12EX Free Air	MA12EX Wall	MA12EX Stacked Free	MA12EX Stacked Wall
HPF	Freq. (Hz)	63.1	63.1	70	63.1
	Slope (dB/octave)	24	24	24	24
	Type	Butterworth	Butterworth	Butterworth	Butterworth
PEQ1	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	100	89.13	100	199.5
	Bandwidth	1.6	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

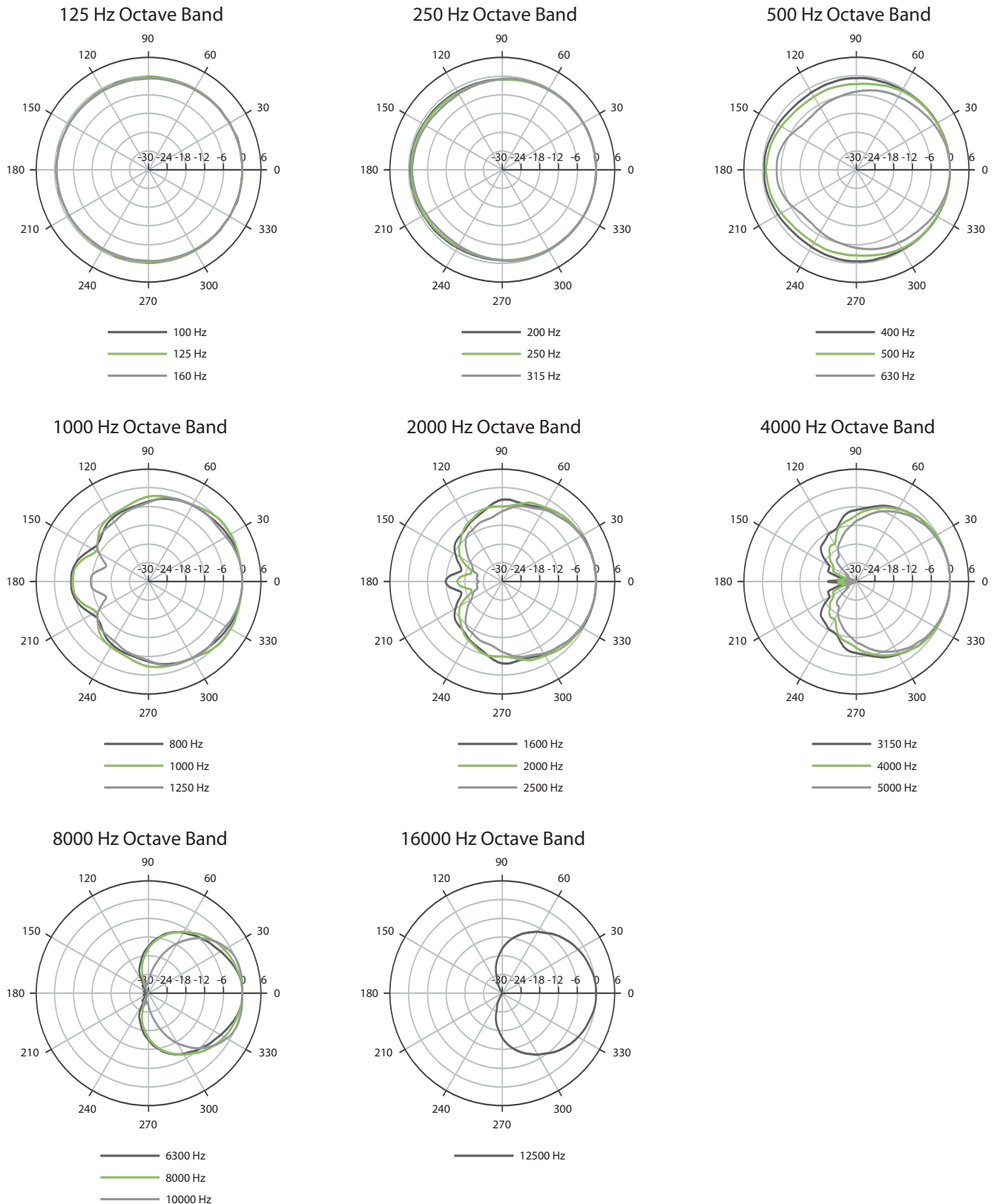


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Polar Plots 1/3 Octave Horizontal



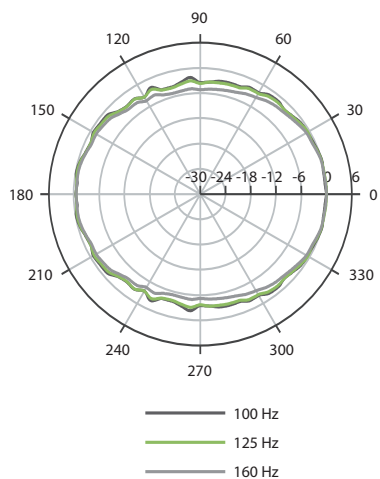
Panaray® MA12EX Modular Line Array Loudspeaker



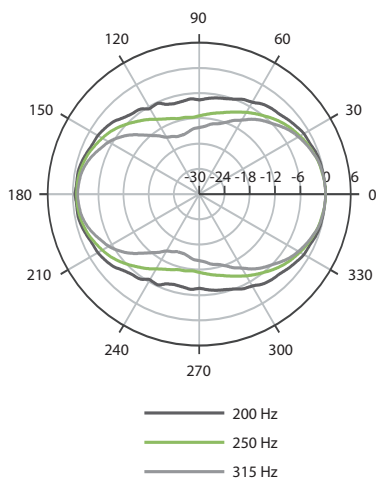
Polar Plots 1/3 Octave Vertical

TECHNICAL DATA SHEET

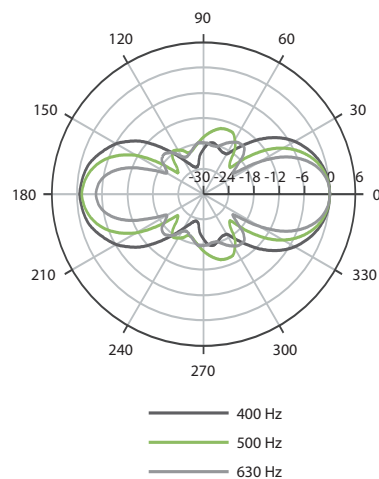
125 Hz Octave Band



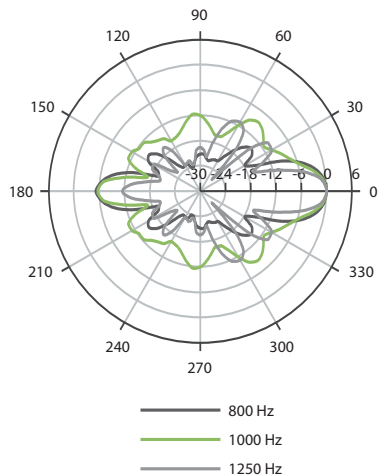
250 Hz Octave Band



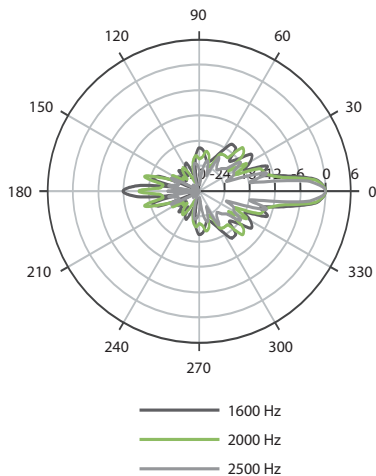
500 Hz Octave Band



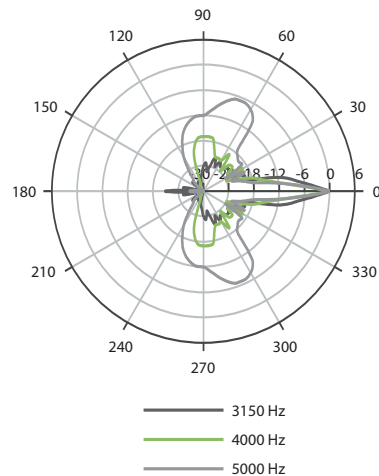
1000 Hz Octave Band



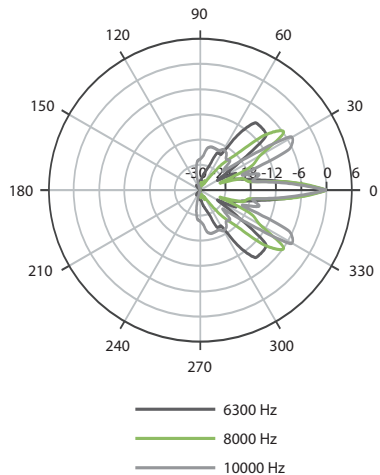
2000 Hz Octave Band



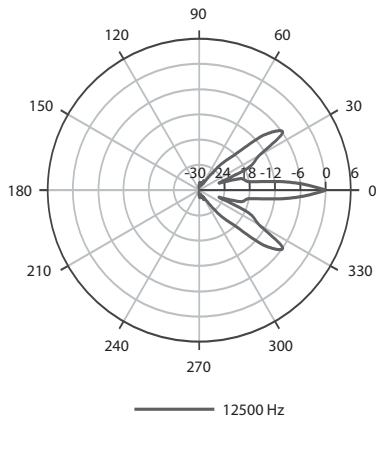
4000 Hz Octave Band



8000 Hz Octave Band



16000 Hz Octave Band

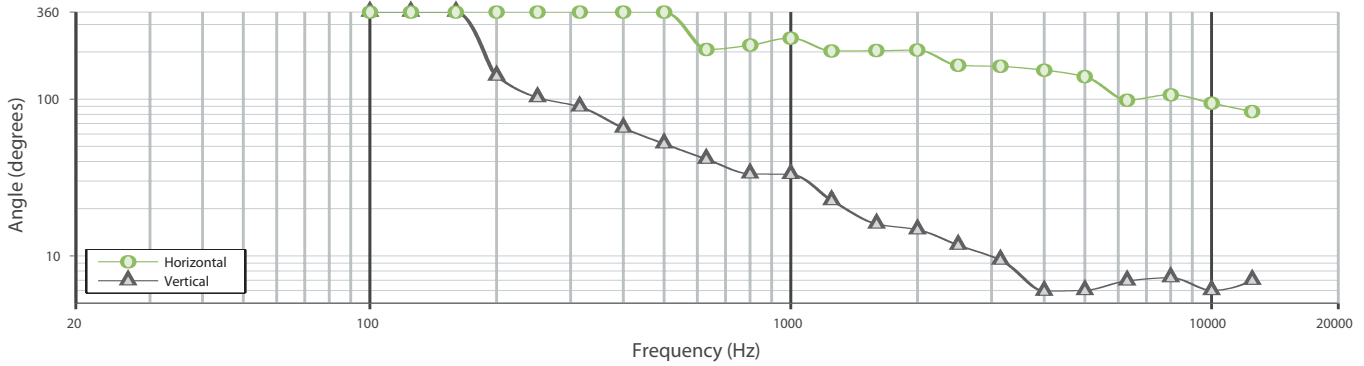


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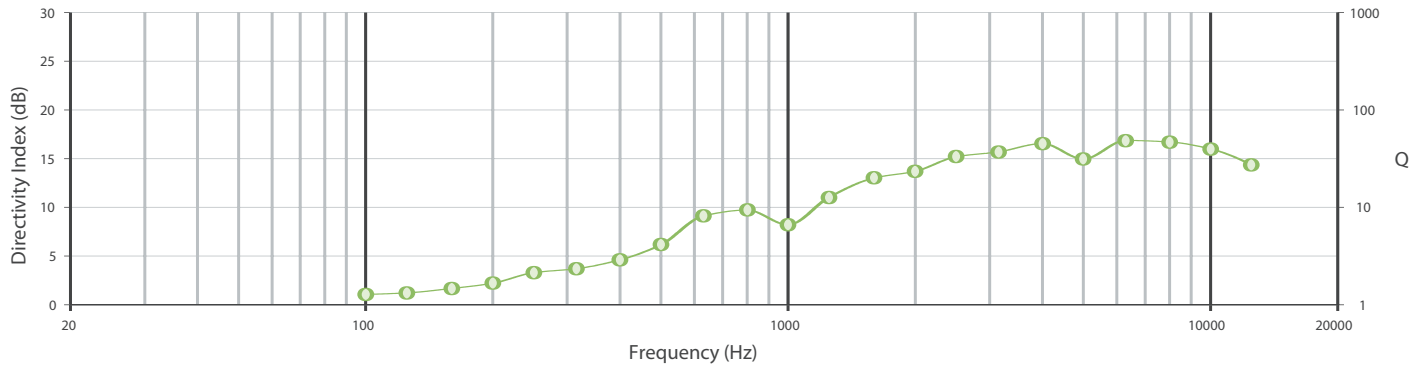


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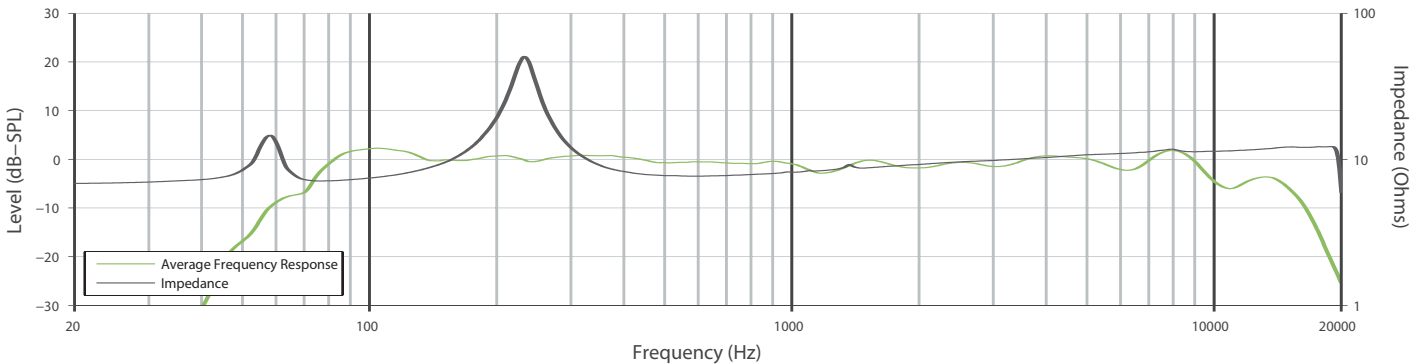
Beamwidth



Directivity Index and Q



Average Frequency Response and Impedance¹



¹ 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.

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

