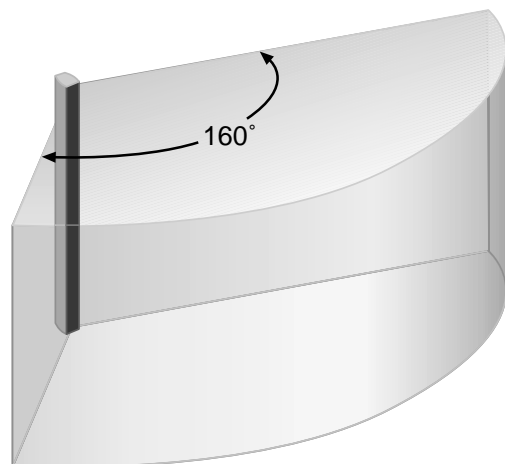




Representation of Dispersion



1 - 4kHz (-6dB point average)

BOSE

PANARAY®
MA12 Modular Line
Array Loudspeaker

General Description

The PANARAY MA12 modular line array is a 300W loudspeaker. As a line array element, this product is designed for use in singles and multiples in permanently-installed indoor applications.

The slim profile of the MA12 speaker provides an attractive design element to any installation. A new addition to the Bose® line of PANARAY loudspeakers, this product combines innovative design technology with Bose standards for acoustic quality and performance. The MA12 speaker offers the following features:

- One-way system for accurate voice and light music reproduction
 - Full-range system performance when combined with a Bose bass loudspeaker
 - Line array characteristics that put the sound where you want it:
 - Radiation is a band of sound at a constant height, to significantly reduce ceiling and floor reflections
 - Wide horizontal dispersion for broad coverage
 - Longer throw than conventional sources with less SPL variation. This means you will experience sound that is not too loud up front, and not too soft when you stand far away
 - Low sensitivity to microphone feedback
 - Slender, aesthetic styling in white or black
 - A full complement of brackets available for product installations
- MA12 loudspeaker modules are used with the PANARAY system digital controller or the Bose amplifiers in combination with the MA12 speaker plug-in EQ card. Active equalization assures smooth, accurate spectral response across the entire operating range of the module. Use of the PANARAY system digital controller or amplifier EQ card also allows for crossover of the MA12 speaker with a Bose bass loudspeaker.

Technical Information

Maximum Acoustic Output¹

113dB-SPL @ 1m

A single MA12 produces cylindrical waves above 2kHz. Please be careful extrapolating SPL's at greater distances as a true cylindrical source falls off at 3dB per doubling of distance and a conventional spherical source falls off at 6dB per doubling of distance (inverse square law).

Sensitivity²

88dB-SPL @ 1W, 1m

Frequency Range

155Hz to 12kHz (-3dB)

100Hz to 16kHz (-10dB)

Dispersion (-6dB point average, 1-4kHz)

Horizontal 160°

Vertical coverage is a band of constant height as shown above

Long-Term Power Handling³

300W continuous

Impedance

8Ω nominal

Mechanical Specifications

Dimensions:

5.1"D x 4.2"W x 38.7"H
(13 cm x 10.7 cm x 98.4 cm)

Weight: 20 lb (9 kg)

Available colors: White and black

Connectors: Two parallel-wired NL4 connectors and one two-position barrier strip

Enclosure construction: Aluminum

Loudspeaker Configuration

The Bose MA12 loudspeaker module can be used with the Bose M2150, 1600 and 1800 amplifiers. It is also compatible with industry standard amplifiers rated for 4 to 8Ω loads.

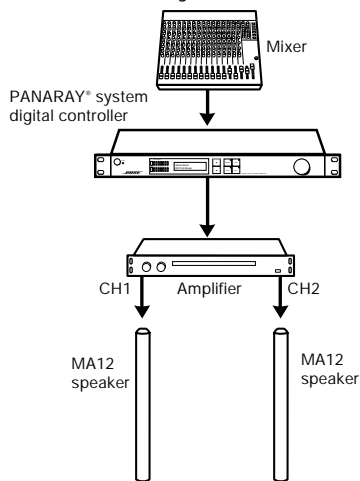
The MA12 loudspeaker is packaged one per carton.

¹Full bandwidth pink noise is applied to the MA12 speaker and amplified to a level at the loudspeaker terminals corresponding to the long-term rated power handling of the speaker. The average sound pressure level (dB-SPL) is measured at distances from the speaker in an anechoic environment.

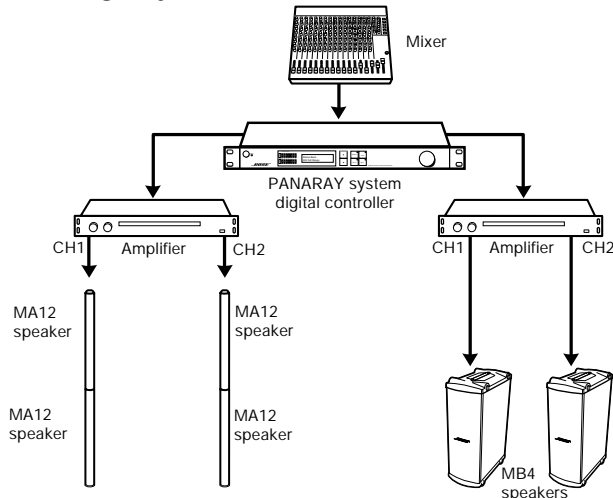
²Full bandwidth pink noise is applied to the MA12 speaker and amplified to a level at the loudspeaker terminals corresponding to 1 Watt as referenced to the nominal impedance. The average sound pressure level (dB-SPL) is measured at 1 meter from the speaker in an anechoic environment.

³Full bandwidth noise, meeting the IEC Standard #268-5 is applied to the MA12 speaker and amplified to a level at the loudspeaker terminals corresponding to the power handling of the loudspeaker. The loudspeaker must show no visible damage or measurable loss of performance after 100 hours of continuous testing.

Basic Voice System



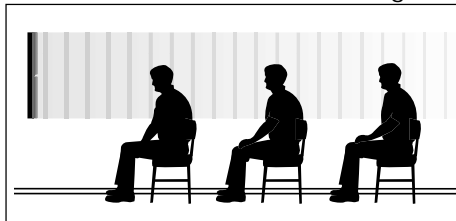
Expanded Full-Range System



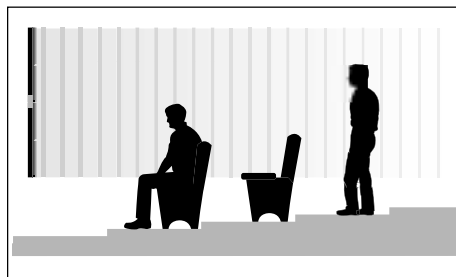
Installation

Installation and use instructions are included with the loudspeaker.

The MA12 modular line array speakers are designed to be wall or floor mounted at the listener's ear height.



MA12 speakers can be installed end-on-end to create a taller line array. The height of the line array must correspond to the ear height range of the listeners, in sitting and standing positions, in the installation venue.



Engineers' and Architects' Specifications

The MA12 speaker shall be a multiple driver, full-range system with matched active equalization as follows:

The transducer complement shall consist of twelve 2.2" (5.7 cm) full-range drivers mounted in a vertical line array. Each driver shall have a rated impedance of 3.2Ω and be 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 300W continuous pink noise, band-limited from 155Hz to 12kHz (-3dB).

The loudspeaker shall be provided with a ducted vent system, tuned at 100Hz. The input connector of the loudspeaker module shall consist of two parallel-wired Speakon® NL4 receptacles and one two-position barrier strip.

The enclosure of the MA12 speaker module shall be aluminum. Its outer dimensions shall be 5.1"D x 4.2"W x 38.7"H (13 cm x 10.7 cm x 98.4 cm). Its weight shall be 20 lb (9kg).

The loudspeaker system shall be supplied with a separate system controller, to be connected before the input(s) of the system power amplifier(s), or with an MA12 EQ card, to be installed in a Bose M2150, 1600 or 1800 amplifier.

The loudspeaker shall be the Bose PANARAY MA12 modular line array loudspeaker.

Panaray MA12 Accessories

The following accessories are available from Bose:

- PC028333 - WB-MA12 wall mount bracket (0°-10° pitch) - Black
- PC028334 - WB-MA12 wall mount bracket (0°-10° pitch) - White
- PC028673 - WBP-MA12 wall mount bracket (0°-10° pitch, +/- 90° yaw) - Black
- PC028674 - WBP-MA12 wall mount bracket (0°-10° pitch, +/- 90° yaw) - White
- PC028337 - CB-MA12 coupling bracket - Black
- PC028338 - CB-MA12 coupling bracket - White

- PC029229 - PSA-12 stand adapter - Black
- PC029388 - CVT-12 70V/100V Transformer - Black
- PC029389 - CVT-12 70V/100V Transformer - White

Panaray MA12 Speaker Data

For additional information on the MA12 including polar data please refer to the following documents:

- (1) Bose Panaray MA12 Modular Line Array: Technical Information
- (2) Bose Panaray MA12 Modular Line Array: Technical Foundation and Discussion

These documents can be downloaded from the Bose Professional Systems website at <http://pro.bose.com>.

Safety and Regulatory Compliance

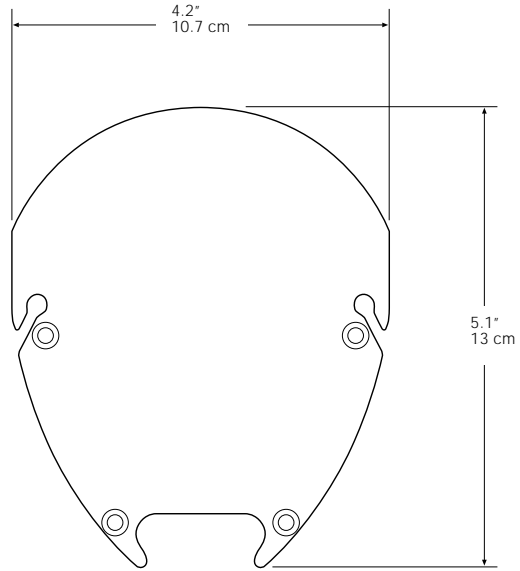
The Bose MA12 loudspeaker complies with ANSI/EIA 636, *Recommended Loudspeaker Safety Practices* and EMC Directive 89/336/EEC and Article 10 (1) of the Directive in compliance with EN50081-1, EN50082-1, as signified by the CE mark.

Warranty Information

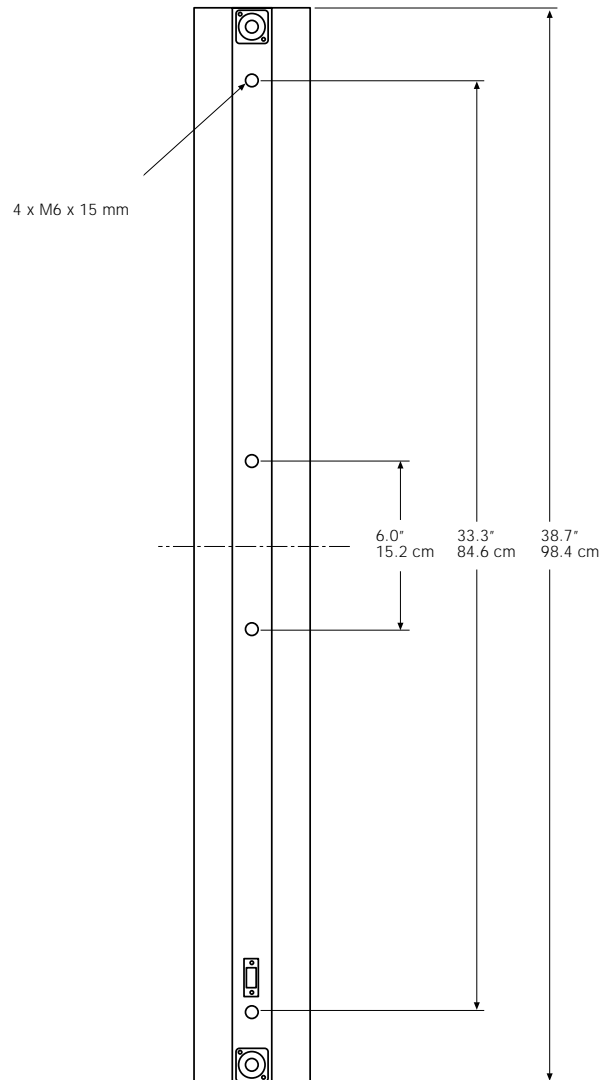
The Bose MA12 loudspeaker is covered by a 5-year, transferable limited warranty.

Dimensions

Top View



Rear View



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Better sound through research[®]

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