



BOSE®

FreeSpace® Model 16 Model 16EU Loudspeaker

General Description

The Bose® FreeSpace Model 16 loudspeaker is a high-performance, ceiling-mounted loudspeaker for music and speech reproduction in a wide range of business applications, including retail, restaurant and hospitality locations. This 16-watt, passive loudspeaker can be flush mounted above the ceiling, installed in plenum spaces or pendant mounted in open ceilings. The Model 16 also meets U.S. standards for combination music and evacuation systems, and the Model 16EU variant adds features for compliance to worldwide standards for combination systems.

The FreeSpace Model 16 loudspeaker offers the following features:

- 16W operation with any 70V, 100V, or low impedance amplifier output
- Its versatile configuration allows installation in a solid or tile ceiling, or pendant mounting in an open ceiling:
 - Patented PC/ABS enclosure provides durability with less weight
 - Easy ceiling installation with an integral bracket system
 - Simple and elegant pendant mounting with an optional kit
 - Plenum rating for use in air handling spaces
 - Availability in black or white, paintable with latex or oil-based paints
- Tap setting adjustment with switch under grille
- Passive speaker design requiring no external equalization from a controller or amplifier card
- Full reproduction of voice and music over a wide dispersion area
- Aesthetic styling for elegant installations
- Combine with a FreeSpace 3 Series II Acoustimass® module for deeper bass response

Technical Information

Frequency Range

80Hz to 16kHz (± 3 dB)

Model 16 Speaker

70V: 1W, 2W, 4W, 8W, 16W

100V: 2W, 4W, 8W, 16W

8 ohm: 16W

PC029383 – Model 16 white, 1 per box

PC029384 – Model 16 black, 1 per box

Model 16EU Speaker

70V: 1W, 2W, 4W, 8W, 16W

100V: 2W, 4W, 8W, 16W

8 ohm: 16W

Ceramic connector and thermal fuse for European regulatory combination systems.

PC029385 – Model 16EU white, 1 per box

PC029685 – Model 16EU black, 1 per box

Sensitivity¹

84dB-SPL @ 1W, 1m (pink noise)

Maximum Acoustic Output²

96dB-SPL @ 1m (pink noise)

96dB-SPL @ 1m (IEC³ noise)

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

170° conical

Long-Term Power Handling⁴

16W continuous

Mechanical Specifications

Dimensions

- Outer flange diameter: 9.4 in (23.9 cm)
- Ceiling hole diameter: 8.0 in (20.3 cm)
- Height to top of housing: 6.25 in (15.9 cm)

Weight

4.0 lb (1.81 kg)

Connectors

Model 16: 3-position barrier

Model 16EU: 3-position ceramic with thermal fuse

Mounting Hardware Included

Integral quick-install mounting features

Additional Mounting Points

- Tab for seismic chain or safety cable
- 3 features at the top of housing for self-tapping screws or eye bolts for pendant mounting

Enclosure Construction

PC/ABS rated at UL94 5VA

Packaging

One unit per carton

Optional Accessories

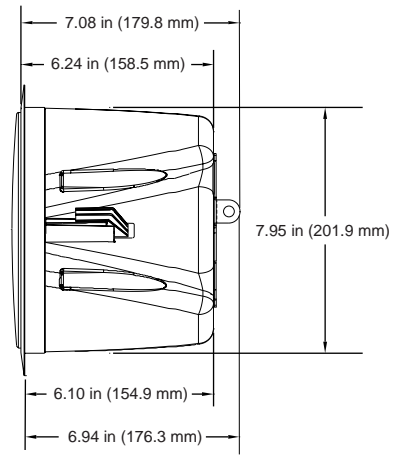
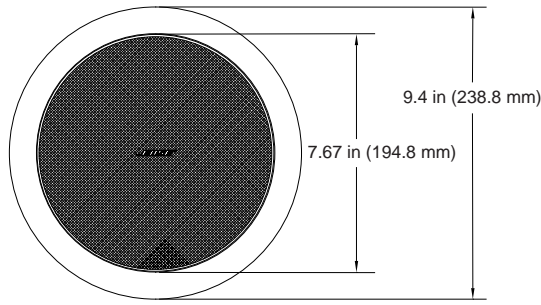
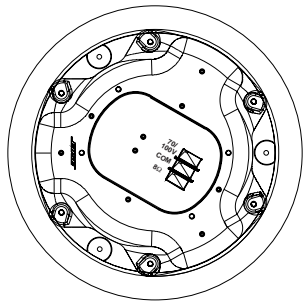
- PC029830 – Model 16 Tile Bridge
Recommended for use with tile ceilings (6 pack)
- PC029831 – Model 16 Rough-in Pan
Used for flush mounting in hard ceilings or walls (6 pack)
- Model 16 Pendant Mount Kit
PC030095 – white, 1 per box
PC030094 – black, 1 per box
Offers a suspension cable, eye screws for cable installation, and a cosmetic cover for the speaker
- PC030096 – Model 16 Retrofit Kit
Provides a trim ring and anchor extensions for flush mounting the speaker in an existing hole from 8 inches to 12 inches in diameter, white (6 pack)
- PC026323 – 8/32 Junction Box
May be used with the rough-in pan or tile bridge for pre-wiring and meeting local building codes (6 pack)
- PC031144 – PC-16 The Model 16 plenum cover fits over the back of the speaker to comply with codes for air-handling spaces (6-pack)

¹Full bandwidth pink noise is applied 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.

²Full bandwidth pink noise is applied 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 1 meter from the speaker in an anechoic environment.

³Full bandwidth pink noise, meeting Electrotechnical Commission (IEC) Standard #268-5, with a spectrum corresponding to average program material.

⁴Full bandwidth noise, meeting the IEC Standard #268-5 is applied 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.



Installation

Product installation instructions are included with the loudspeaker.

A full complement of accessories are available from Bose® for ease and versatility of installation. For mounting in a tile ceiling, the optional tile bridge is recommended. A rough-in pan is available for flush mounting in hard ceilings or walls. The Bose 8/32 junction box may be used with this rough-in pan for pre-wiring and meeting local building codes. For pendant mounting in an open ceiling, the pendant mount kit offers a suspension cable, eye screws for cable installation, and a cosmetic cover for the speaker. The Model 16 retrofit kit provides a trim ring and anchor extensions for flush mounting of the speaker in an existing hole from 8 inches (20.3 cm) to 12 inches (30.5 cm) in diameter.

The Model 16 plenum cover allows the Model 16 loudspeaker to meet codes for installing in air-handling spaces.

Loudspeaker Configuration

The FreeSpace® Model 16 loudspeaker can be part of a distributed sound system when used in conjunction with a 70V or 100V input from any amplifier. Transformer tap settings available:

1W, 2W, 4W, 8W, 16W @ 70V;
2W, 4W, 8W, 16W @ 100V

The Model 16 can be used as an 8-ohm, 16W loudspeaker by connecting the low-impedance output of any amplifier to the designated input terminals. The Model 16EU has the same attributes as the Model 16 with the addition of a ceramic input connector and thermal fuse to meet worldwide specifications for combination music and fire evacuation systems.

Engineers' and Architects' Specifications

The loudspeaker is a 16-Watt, ported loudspeaker system utilizing one 2.25" (5.7 cm) full-range driver for installation where the grille surface is normally flush with the ceiling surface and the enclosed volume protrudes above the ceiling. The loudspeaker may also be pendant mounted in an open space using three molded mounting points on the top surface of the housing.

The loudspeaker is intended for direct connection to an unequalized high- or low-impedance amplifier source.

The driver shall have a rated impedance of 6 ohms and shall be wired in parallel with a line voltage matching (step-down) transformer with a level selector appropriate for various output taps.

The loudspeaker input connections allow for direct connection to low impedance amplifier sources and bypass of the transformer.

All exposed cosmetic surfaces of the loudspeaker shall be paintable and the acoustically transparent grille component shall be formed of expanded metal mesh.

The loudspeaker shall have a single-ported vent system, with a maximum acoustic output of 96dB-SPL from 80Hz to 16kHz, with measurements referenced to a full-bandwidth pink noise input at 1 meter at the loud-speaker's rated power. The input connection shall consist of a three-position barrier connector.

Power settings available shall be: 1W, 2W, 4W, 8W, 16W @ 70V; 2W, 4W, 8W, 16W @ 100V; and 16W @ 8 ohm (when referenced to IEC noise for 100 hours). The nominal dispersion shall be 170° conical at -6dB.

The loudspeakers shall be the Bose FreeSpace Model 16 and Model 16EU.

Warranty Information

The Bose FreeSpace Model 16 and Model 16EU loudspeakers are covered by a 5-year transferable limited warranty.

Safety and Regulatory Compliance

The Model 16 has passed extensive testing and complies with the following specifications and uses:

UL1480 listed:

- Fire Protective Signaling Use – UL Category UUMW, File Number S 3241

Air handling spaces (ceiling plenums):

- UL-2043 when used with the PC-16 plenum cover
- NFPA-70 National Electric Code 1999, Article 300-22 (c)
- NFPA-90-A-1996 Installation of Air Conditioning and Ventilation Systems, Section 2-3.10.1(a), Exception 3

EMC Directive 89/336/EEC and Article 10 (1) of the directive, EN50081-1 and EN50082-1 as signified by the CE mark.

The input connectors are rated as "touch-proof" as per IEC60065.

The Model 16EU has also been designed to the requirements defined in the following European regulatory specifications for combination systems:

- British Standard Code of Practice BS 5839, Part 8

For more information visit
<http://pro.bose.com>

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