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 (±3dB)

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
PC029385 – Model 16EU white, 1 per box
PC029685 – Model 16EU black, 1 per box

Connectors
Model 16: 3-position barrier
Model 16EU: 3-position ceramic with thermal fuse

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

Dimensions
8.0 lb (3.6 kg)

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
• PC029930 – Model 16 Tile Bridge Recommended for use with tile ceilings (6 pack)
• PC029931 – 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
• Model 16 Retrofit Kit PC030096 – black, 1 per box
• Model 16 Pendant Mount Kit
• Model 16 Retrofit Kit

Enclosure Construction

• Model 16EU Speaker
• Model 16EU variant adds features for compliance to worldwide standards for combination systems.

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

Maximum Acoustic Output
96dB-SPL @ 1m (pink noise)
96dB-SPL @ 1m (IEC noise)

Dispersion (–6dB point, average, 1-4kHz)
170° conical

Long-Term Power Handling
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

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

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 96dBSPL from 80Hz to 16kHz, with measurements referenced to a full-bandwidth pink noise input at 1 meter at the loudspeaker’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.

Engineers’ and Architects’ Specifications

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

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

For more information visit http://pro.Bose.com

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