

BOSE

FreeSpace® 102® Flush-Mount Loudspeaker

Description

The Bose® FreeSpace 102F commercial loudspeaker is engineered for true high-fidelity performance as part of a distributed sound system. It incorporates a Bose

4.5-inch HVC (Helical Voice Coil) full-range driver in a dual-ported enclosure.

The 102 flush-mount speaker can be installed in ceilings and standard studded walls. The actively equalized model requires use of the FreeSpace® system controller or 102 equalizer module, and features a factory-installed line transformer with 2, 4, 8, 16, and 25 Watt taps. The front panel of this version contains a level tap switch that is easy to adjust with a screwdriver. The passively equalized version (102F-XP, 4Ω) has no transformer, and features an internal passive equalization circuit; thus it does not require a 102 equalizer module or controller.

The 102 loudspeaker has a polyvinylchloride injection-molded enclosure and baffle. This provides a high level of reliability and ruggedness.

Grille and mounting accessories are available.

Safety Standards

The 102 flush-mount speaker is UL listed under UL standard 1480, complies with ANSI/EIA-636, and when properly installed complies with NFPA-72 and NFPA-70 (NEC). The speaker has a flammability rating of 94-5V.

Note: The 102F-XP speaker is not listed under UL 1480.

Warranty Information

The 102 flush-mount loudspeaker is covered by a 5-year, transferable limited warranty.



Sensitivity¹ Specifications

	Actively Equalized	Passively Equalized
Speech ²	89	83
Music ³	86	85

Flush-Mount Versions

Versions:	Description:
102F-72	70 volt, 25 watt
102F-XP	passive equalization, no transformer, 4Ω
102F-12	100 volt, 25 watt

¹ Sensitivity is measured according to the standard established by the International Electrotechnical Commission (IEC Publication #268-5, *Sound System Equipment, Part 5: Loudspeakers*, page 31). Special random noise spectra used other than pink noise are described below.

² Speech sensitivity is measured using pink noise shaped to an average speech spectrum as defined by the International Electrotechnical Commission (IEC Publication #268-16, *Sound System Equipment, Part 16: The objective rating of speech intelligibility in auditoria by the "RASTI" method*, page 19).

³ Music sensitivity is measured using pink noise shaped to an average music spectrum as defined by the International Electrotechnical Commission (IEC Publication #268-5, *Sound System Equipment, Part 5: Loudspeakers*, page 53).

Specifications

Frequency response:
80Hz – 16kHz with active equalization

Distortion:
<1% @ 10% rated power input

Driver:
Single, 4.5" (11.4 cm) Helical Voice Coil

Enclosure:
Dual port, bass reflex type
Material: PVC Vinyl compound

Volume:
200 in³

Port Resonance:
80Hz

Dispersion:
Avg. 1kHz to 4kHz, 6dB down point: 132°

On Axis Directivity (Q):
Avg. 1kHz to 4 kHz: 5

Temperature:
Minimum: -30°C
Maximum: 60°C

Dimensions: 11.75" (30cm)
dia. x 3.75" (9.5cm) depth
Grille diameter: 12" (31cm)

Weight:
5 lb (2.3 kg)

Packaging Configuration:
4 per carton, without grilles
Grilles may be purchased separately in singles or 8 per carton

Electrical Connections

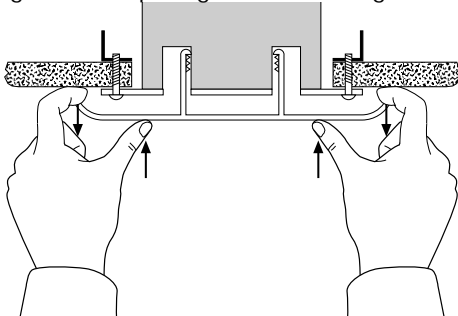
1. Loosen the wiring-well rear cover screws; swing the cover to one side.
2. Route the source wires through the appropriate entryway and secure with the supplied strain relief.
3. Using the supplied wire nuts, connect the positive source wire to the speaker's black lead.
4. Fit the leads into the portion of the well where the speaker leads emerge (not where the transformer and switch are located).
5. Reseat the wiring-well cover; tighten the cover screws.

Optional Grille Accessories

The 102® Flush-Mount Speaker Snap-On Grille

This durable, high-pressure injection-molded vinyl grille has a flat white exterior finish that can be painted. Its ratchet mechanism allows quick, secure installation with no tools or fastening hardware required. Grilles are packed as singles and 8 per carton.

1. To attach, push up and snap in place.
2. To remove, press at the center of the grille, while pulling down at its edges.



The 102 Flush-Mount Speaker Grille Adapter

This is used to adapt standard ceiling speaker grilles to fit the ratchet system of the 102 passive flush-mount speaker. Adapters are sold individually. Order part number 127589.

Use of Metal Backcans

The requirement for backcan use with loudspeakers in a commercial or public space is usually based on the local inspector's interpretation of applicable codes. The 102 flush-mount loudspeaker will fit into these standard backcans:

- Atlas/Soundolier models 95-8-7 and 96-8-7
- Lowell Manufacturing Co. models CP87 and XCP87-S (without torsion receptacles)

Note: The 102 flush-mount loudspeaker does not fit into tapered, stackable backcans.

Equalizer Module

The 102 equalizer module (102 EOM) provides a simple, cost-effective active equalization alternative to the FreeSpace® system controller. It is specifically designed to be used in commercial-type modular amplifiers that accept 6-pin edge-connector plug-in circuit boards, such as TOA 900 and Peavey MA amplifiers. It is intended to be used only with the actively equalized 102 flush-mount loudspeaker. The module provides system equalization for all inputs on the amplifier, and includes stereo (summed to mono) unbalanced audio inputs. The AUX input is muted whenever the amplifier muting bus is shorted to ground.

The 102 flush-mount equalizer module is not intended to replace the FreeSpace system controller. Both units provide the proper active equalization for Bose 102 loudspeakers. However, the FreeSpace system controller is a two-channel active equalizer with many additional features, such as Opti-voice® paging circuitry, sensitivity adjust, independent microphone equalization, and mic/line input and pre-amp. The 102 flush-mount equalizer module makes the use of the 102 loud-speaker system feasible in applications where the additional features of the FreeSpace system controller are not necessary.

Engineers' and Architects' Specifications

The loudspeaker shall be a single-driver, full-range system with matched, active equalization (except 102F-XP) as follows:

The transducer complement speaker shall consist of one (1) full-range Helical Voice Coil driver of 4½ in. (11.4 cm) diameter, mounted on the frontal-facet baffle assembly. The driver shall have a rated impedance of 2 ohms and be wired in parallel with a line voltage-matching (stepdown) transformer with level selector appropriate for various power output taps (except 102F-XP speaker) which are 2, 4, 8, 16, and 25 Watts.

The loudspeaker shall be provided with an annular ported vent system, tuned to 80Hz. The input connection shall consist of dual solid 18-gauge wires. The molded plastic enclosure shall incorporate a strain relief system for mounting either bare wire or conduit to the rear panel of the loudspeaker. The enclosure shall be constructed of PVC-type vinyl resin with a flammability rating of 94-5V. Outer dimensions shall be: 11¾ in. (30 cm) diameter by 3¾ in. (9.5 cm) depth. Weight shall be 5 lb (2.3 kg).

The loudspeaker sensitivity shall be 86dB SPL measured at 1 watt, 1 meter, and its operating bandwidth shall be 80Hz to 18kHz (±3dB). The nominal coverage angle shall be 150 degrees conical. The power handling capacity of the loudspeaker shall be 25 watts.

The loudspeaker shall be the Bose® 102® flush-mount loudspeaker.

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