

Model: ES-4T

4" in-ceiling Dual Cone Speaker System

Description:

The ES-4T speaker system produces excellent intelligibility for speech and full-frequency response for music, making it ideal for retail, commercial, industrial, institutional and residential applications. This self-contained, recessed, in-ceiling speaker system with 4" dual cone, full range driver has a high-frequency whizzer cone to provide the kind of crisp, high frequency response that would typically only be produced by a coaxial speaker design. The ported enclosure is tuned for extended low-frequency response. And the speaker's wide dispersion can actually reduce the number of speakers required to produce even coverage in distributed speaker systems. Built-in reversible mounting dogs aid fast installation, while allowing the speaker to be mounted in drywall, wood, tile or almost any type of ceiling with thickness up to 2.25" (57mm).

Features:

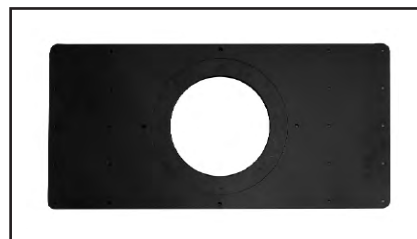
- 4" dual cone, full range driver
- Low-profile front baffle formed from UV-rated high-impact plastic
- Durable 20-ga. zinc-plated steel enclosure
- Built-in reversible mounting dogs for fast installation
- Mount in drywall, wood, tile, or almost any type of ceiling with thickness up to 2.25" (57mm).
- Ported enclosure tuned for extended bass response
- Tap selector switch mounted behind grille for internal 16W transformer. Tap selections for 25V, 70V or 100V speaker systems and 8 ohm transformer bypass position.
- Removable (four-pin) Phoenix-style connector with two terminals for input to speaker, and two parallel terminals for output to next speaker in string.
- Mounting C-ring and two support rails prevent sagging when installed in lay-in tile ceilings.
- White, press-fit, fine-mesh grille with scrim
- Grille pull tool
- Template to assist in cutting mounting holes
- Plastic shield to protect speaker when painting
- Third party listings:
 - UL1480 fifth edition general signaling (USA)
 - UL2043 suitable for use in return air plenum space
 - CSA C22.2 No. 205-M1983 general signaling (Canada)
- Sold in pairs

Optional: (order separately)

- **ES-4-RIB:** Rough-in bridge for new construction (drywall or plaster ceiling) before finished ceiling is installed.



The UL Listed ES-4T includes a 4" dual cone driver, transformer, enclosure, fine-mesh grille with scrim and grille-pull tool, support rails, C-ring, plastic paint shield, and template to assist in cutting mounting holes.

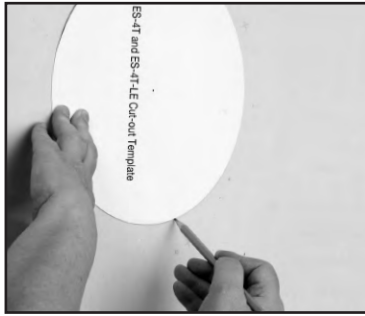


ES-4-RIB: optional rough-in bridge (order separately).

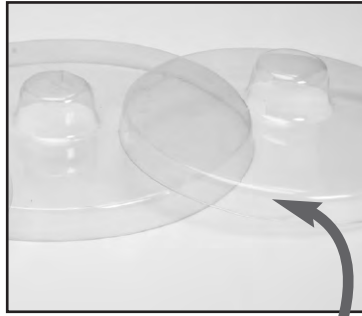
Model No.	Description	Speaker	Transformer	Grille	Enclosure	C-ring	Rails	Net Weight
ES-4T*	UL Listed in-ceiling speaker system	4" coaxial	16W	press-fit	ported / steel	1	2	4.1 lbs. each
ES-4-RIB	Rough-in bridge							

* Sold in pairs

Easy Install Features:



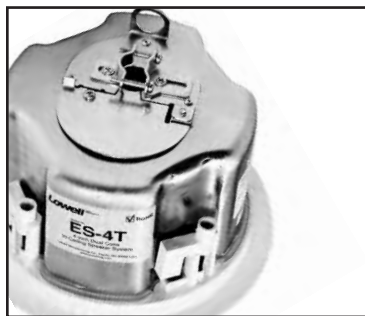
Use the paper template to mark the ceiling or wall for cut-outs.



Includes plastic shield to protect the speaker should you need to paint the enclosure.



Support rails and C-ring distribute speaker weight to avoid sagging ceiling tiles.



Use dog ears to speed installation in almost any type of ceiling.



Front tap selector switch is protected behind the grille.



Press the fine-mesh grille into position.



The ES-4T blends beautifully with acoustic tile ceilings.

Performance Specifications:

Power Handling: 25W RMS (at 8 ohms) measured per EIA Standard RS-426B

Sensitivity: 85.7 dB log average SPL (at 8 ohms) @ 1W/1M over the frequency response range, measured in half-space.

Maximum SPL: 99.7 dB (calculated based on power rating and measured 8 ohm sensitivity).

Impedance: 8 ohms (nominal), 7.3 ohms @ 342 Hz (minimum).

Frequency Response: 108Hz – 20kHz ± 6dB

Dispersion Angle: 135° conical @ 2kHz octave (-6dB)

Transformer Taps: 100V (16, 8, 4, 2W)
70V (16, 8, 4, 2, 1W)
25V (2, 1, .5, .25, .13W)

Mechanical:

Input Terminals: 4-conductor removable Phoenix-style connector.

Net Weight (speaker & grille): 4.1 lbs. (1.9kg)

Shipping Weight (pair): 14.6 lbs. (6.6kg)

Mounting Accessories:

C-ring: One included with each speaker

Tile Support Rails: Two included with each speaker

Rough-in Bridge: Optional rough-in bridge for new construction (drywall or plaster ceiling) before the finished ceiling is installed. Order Model No. ES-4-RIB separately.

Physical — Full range speaker:

Speaker Cone: Specially formulated polypropylene

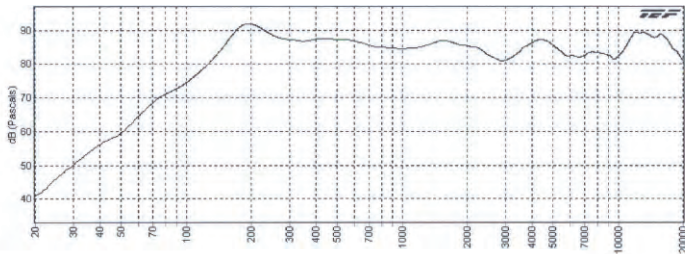
Whizzer Cone: PEI

Surround: Rubber

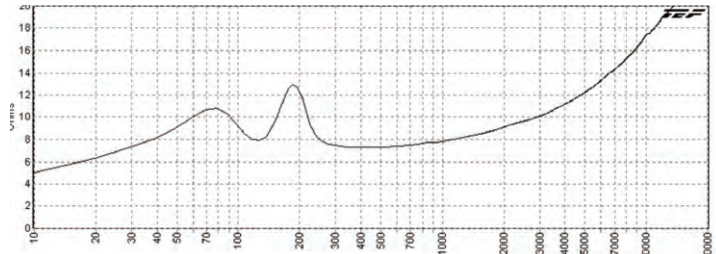
Magnet Weight: 7.35 oz. (208.4g)

Voice Coil diameter: 0.8" (20.38 mm)

SPL vs. Frequency
1W/1M

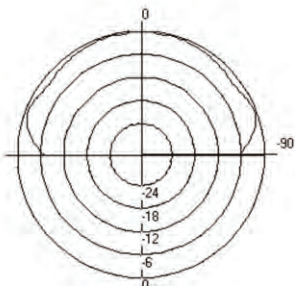


Impedance

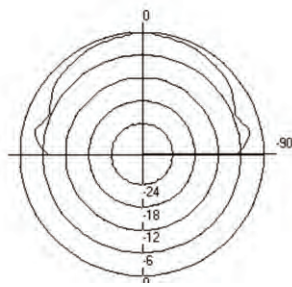


Impedance reading expected from a typical 1kHz impedance meter is 8 ohms with the selector switch in the 8 ohm position.

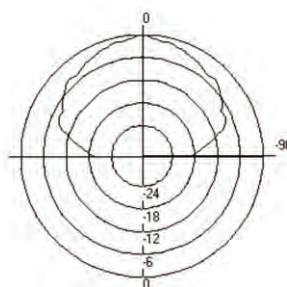
Polar Data 180°
Half space mounting



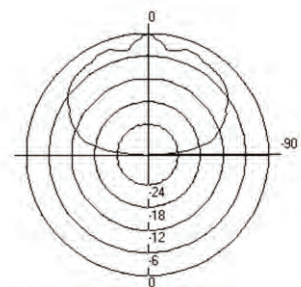
1000Hz octave



2000Hz octave

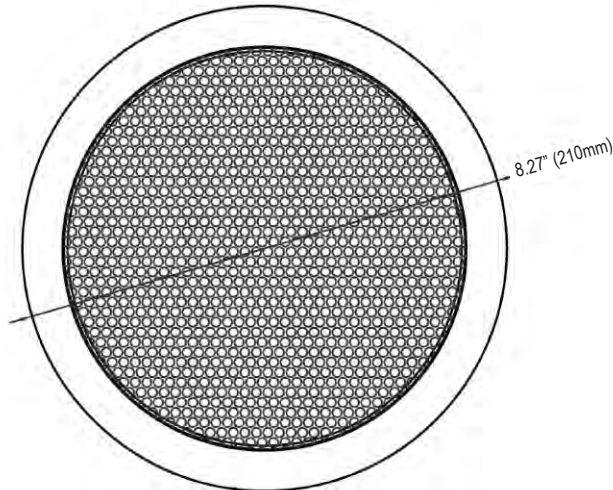


4000Hz octave

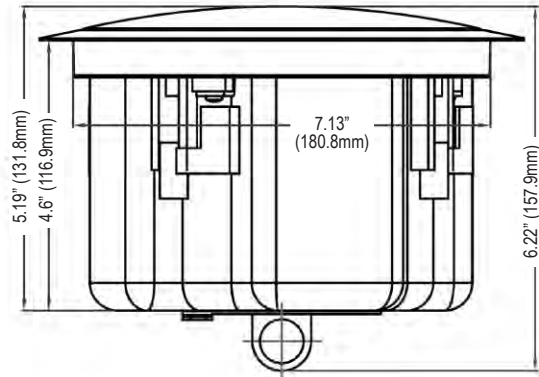


8000Hz octave

Dimensions:



Cut-out is 7.25" (18.415 cm)



Test Methodology:

ES-series speaker systems are thoroughly tested to provide specifiers and contractors with solid, accurate data. Test equipment includes the GoldLine TEF-20 analyzer.

- **Power Handling:** specification is based on E.I.A. Standard RS-426B.
- **Frequency Response:** describes the usable response range defined by a ± 6 dB window, which is useful in predictive engineering calculations.
- **Sensitivity:** is a computer calculation of the log average sound pressure level (SPL) over the entire engineering bandwidth as given in the Frequency Response (± 6 dB).
- **Maximum SPL:** is calculated based on the Power Handling and the measured log average Sensitivity where Maximum SPL = (Sensitivity @ 1W1M) + 10 log (Power Handling).
- **Dispersion Angle:** is defined as the angle of coverage that is no more than 6dB down from the on-axis value averaged over the 2kHz octave band. Since speech intelligibility is dependent upon the 2kHz octave, this specification is useful in designing voice reinforcement and music systems that provide even coverage and intelligibility. The polar plots illustrate how the system performs when hung in free space (360°), or in half-space (180°) in the case of a recessed speaker.

A&E Specifications:

The loudspeaker shall be the ES-4T. The system shall have a high performance 4" dual cone loudspeaker, ported bass reflex enclosure, and press-to fit grille for recessed ceiling installation. The frequency response for the system shall be 108Hz – 20kHz ± 6 dB. The sensitivity for the system shall be 85.7 dB log average @ 1watt/1M over the frequency response range, measured in half-space.

The 4" loudspeaker shall be constructed of a polypropylene cone, with rubber surround and a PEI whizzer cone. The magnet weight shall be a minimum of 7.35 oz. (208.4g) and the voice coil diameter shall be 0.8" (20.38mm). The transformer shall include primary taps for 100V (16, 8, 4, 2 watt), 70V (16, 8, 4, 2, 1 watt), and 25V (2, 1, .5, .25, .13 watt) with a selector switch mounted on the front under the grille that will include an 8 ohm transformer bypass position.

The speaker system shall include a 20 gauge zinc plated drawn steel enclosure with an internal volume of 113 cubic inches. A rear access cable or flexible conduit entrance strain relief shall be provided with a termination cavity that encloses a 4-pin "Phoenix"-style connector. The connector shall include 2 terminals for input to the speaker and 2 parallel terminals for output to the next speaker in the string. A seismic restraint ring tie-point shall be provided on the rear of the enclosure for use when required by building codes or local ordinances. The speaker system shall be equipped with four dog-mount ears that allow it to be mounted in a ceiling with a maximum thickness of up to 2.25". A template shall be provided to assist with cutting mounting holes.