

CM42-EZs-II In-Ceiling Speaker

Preliminary Technical Information



Preliminary Specifications: CM42-EZs-II-WH & CM42-EZs-II-BK

Tile bridge included

System Type	4-inch, coaxial, in-ceiling, sealed (20-watt transformer for 25/70.7/100-volt or transformer bypass)	
Impedance (nominal)	16 ohm	
Sensitivity dB @ 2.83 V/1 m	84.5 dB	
Sensitivity dB @ 1 W/1 m ¹	87.5 dB	
Sensitivity dB@ 1W/4m	74.2 dB	
Frequency Response (-3 dB) ²	160 Hz - 20 kHz	
Frequency Response (-10 dB) ²	125 Hz - 22 kHz	
Max. Program Power ³	40 W	
Max. Continuous Power RMS ⁴	20 W	
Max. Power SPL @ 1 m ⁵	100.5 dB	
Max. Power SPL @ 4 m ⁵	87.6 dB	
Coverage Angle Horizontal @-6dB	500Hz	179°
	1Khz	172°
	2Khz	161°
	4Khz	101°
Coverage Angle Vertical @-6dB	500Hz	178°
	1Khz	170°
	2Khz	160°
	4Khz	86°
Coverage Angle (Avg. 2 - 10 kHz)	100°	
Directivity Factor (Q)	4.3 (averaged 100 Hz - 10 kHz); 4.2 (2 kHz)	
Directivity Index (DI) dB	5.7 dB (averaged 100 Hz - 10 kHz); 6.2 dB (2 kHz)	
Tap Selector	Six-position rotary switch with transformer bypass position	
Transducer - Low-Frequency Driver	102 mm (4 in.) Treated fiber cone, cloth surround	
Transducer - High-Frequency Driver	19 mm (0.75 in.) Silk dome tweeter	
Low-Frequency Voice Coil	12.70 mm (0.50 in.)	
Crossover Frequency	5.0 kHz	
Network Type: Low-Pass	12dB per octave, 2nd order	
Network Type: High-Pass	6 dB per octave, 1st order	
Enclosure Alignment	Sealed	
Enclosure Material	Drawn steel backcan with ABS baffle	
Grille	Painted Steel	
Inputs	4 position ceramic terminal strip	
Colors	Black or white	
Backcan Diameter	146.8 mm (5.78 in.)	
Backcan Height	95.3 mm (3.75 in.)	
Visible Diameter	190.5 mm (7.50 in.)	
Visible Height	8.4 mm (0.33 in.)	
Mounting Hole Diameter	165.1 mm (6.50 in.)	
Min. / Max. Ceiling Thickness	0.0 mm (0.0 in.) – 24.6 mm (0.97 in.)	
Weight	1.8 kg (4.0 lb.)	
Shipping Weight	2.3 kg (5.0 lb.)	
Included Accessories	Tile bridge, UL-listed flex conduit clamp, paint shield, hole template, wire nuts	
Optional Accessories	Pre-construction bracket (AC-CM4-PCB); junction box (AC-CM-EZ-JBOX)	
Packaging	One per box	
Regulatory - UL	1480 (JEA) and 2043 approved	
Regulatory - CE	Approved	
	Approved	
	Transformer Taps	

1 1 W 1 m sensitivity determined using nominal impedance

2 Frequency response measured in half or full space as dictated by speaker mounting configuration

3 Max program power is 3 dB above max continuous power

4 Continuous power rating, EIA-426-B test

5 Max output based on max continuous power

6 Max useable SPL based on testing by NWA Labs

70.7 V Output	100 V Output	25 V Output
20 W 100.5 dB 125Ω	20 W 100.5 dB 250Ω	2.5 W 91.5 dB 125Ω
10 W 97.5 dB 250Ω	10 W 97.5 dB 500Ω	1.3 W 88.5 dB 250Ω
5 W 94.5 dB 500Ω	5 W 94.5 dB 1kΩ	0.7 W 85.5 dB 500Ω
2.5 W 91.5 dB 1kΩ	2.5 W 91.5 dB 2kΩ	0.4 W 82.5 dB 1kΩ
1.3 W 88.5 dB 2kΩ		0.2 W 79.5 dB 2kΩ

The specifications data was measured in an anechoic chamber, according to EN 54-24. Reference axis: Axis is on the center of speaker grille and perpendicular to the speaker grille. Reference plane: Plane is on the speaker grille and perpendicular to the reference axis. Horizontal plane: Plane is containing the reference axis and perpendicular to the reference plane.

EQ settings required for the EN54-24 specific installations

Model	EQ-1	BANDWIDTH	EQ-2	BANDWIDTH
CM42-EZs-II	-4dB @ 200Hz	1.0 Octave		

Key Features

- Engineered for applications with limited plenum space incorporating a Sound-Tube-specific shallow backcan with an installed depth of only 3.5 inches.
- One 4 inch (102 mm) treated fiber woofer with cloth surround and one 0.75 inch (19 mm) silk dome tweeter.
- Easy-access six-position tap switch for 25/70.7/100-volt and 16 ohm transformer bypass position allows for easy ordering, stocking and installation.
- Reduced amplification costs with maximum efficiency including 87.5 dB sensitivity and 16 ohm impedance.
- Ceramic input terminal accepts up to 10 gauge plenum rated signal wire and includes thermal fuse. Suitable for use in voice alarm applications subject to EU regulations EN60849 and BS5839-8.
- Superior voice intelligibility with an average coverage angle of 100° (2–10 kHz, independently verified).
- Cost-effective 16 ohm settings allows for the use of multiples of two, four, or six speakers in a system using a standard amplifier without a transformer.
- Incorporates a painted steel grille for lasting durability.
- Clamping allowance from 0.00 in. (0.0 mm) to 1.50 in. (38.1 mm).
- UL 1480 (JEA) and 2043, CE (EMC Directive 89/366/EEC, EN55020, EN55013) approved.
- High-quality black or white painted finish. Custom colors available (custom colors are not EN54-24 2008 certified).
- Included accessories: Tile bridge, UL-listed 0.5-inch flex conduit clamp, paint shield and two wire nuts.
- Optional accessories: Color-coded (orange) pre-construction bracket (AC-CM4-PCB), junction box (AC-CM-EZ-JBOX).

Description

The CM42-EZs-II is a 4-inch, coaxial, two-way, blind-mount, in-ceiling speaker which delivers true high efficiency and performance across the operating bandwidth. By incorporating a 4-inch treated-fiber driver with cloth surround in a sealed drawn steel backcan, this speaker delivers maximum frequency response (125 Hz – 22 kHz, - 10 dB) in a compact design.

The CM42-EZs-II features a ceramic input terminal that accepts up to 10 gauge



plenum rated signal wire and includes a thermal fuse for use in voice alarm applications subject to EU regulations EN60849 and BS5839-8.

Mounting hardware is included and features a constant-tension winged mounting system with a 21-gauge "full-metal" steel tile bridge ensuring rapid and secure installation in any sheet-rock or drop-tile application. For easy ordering, stocking and installation, this series includes a color-coded (orange) tile bridge, optional pre-construction bracket, and a six-position tap switch for 25-, 70.7- and 100-volt applications with transformer bypass position.

Applications

Developed specifically for the paging and background music applications where cost, quality and fit are paramount, the CM42-EZs-II is ideal for hotels, retail stores, restaurants, airports, churches (under eave), medical facilities or boardrooms. Indeed, the entire CM-EZ-II series is engineered for installations where high-efficiency and rapid installation are critical attributes. For applications requiring additional bass response, SoundTube's CM1001d-T subwoofer provides true low-end response down to 50 Hz.

Patented SoundTube Technologies

SoundTube Entertainment and the MSE Audio Group constantly develop new technologies that enhance audio product performance. SoundTube Entertainment innovations are protected by multiple U.S. and international patents, which explicitly cover SoundTube dome, enclosure and dispersion technologies. The MSE Audio Group actively defends its patents in order to protect SoundTube resellers and end-users.

Technical Data and Specification Tools

Technical Data

SoundTube Entertainment strives to provide complete and effective technical information and data to dealers, engineers and designers. All data are available from SoundTube Entertainment or at www.soundtube.com.

Technical data and downloads include:

EASE™ data – 3-D polar plots.

EASE™ Address – 2-D modeling for distributed systems

Autodesk® Revit® software

Tech Sheets – Technical information and architectural specs for system engineers

SoundTubeSPEC™ – Proprietary speaker placement software

Independent Data Acquisition and Verification

All data for SoundTube speakers are independently collected from and verified by NWAALabs (www.nwaalabs.com) using their proprietary MACH testing system. All data are collected and analyzed according to ASTM, ISO and AES standards using EASERA, TEF and MLSSA. Full balloon data including both phase and magnitude is compiled into a variety of formats including EASE 4.x, GLL and CLF.

Architectural Specifications

The loudspeaker shall consist of one 102 mm (4 in.) low-frequency transducer and one 19 mm (0.75 in.) high-frequency transducer with a frequency dividing network installed in a sealed enclosure. The low-frequency voice coil diameter shall be 13 mm (0.50 in.). The low-frequency transducer shall have a treated fiber cone material with cloth surround. The high-frequency transducer shall be constructed of silk material using a balanced-dome configuration.

Performance specifications of a typical production unit shall be as follows: Usable frequency range shall extend from 125 Hz - 22 kHz, -10 dB. The loudspeaker shall include a selectable 25/70.7/100-volt and 16 ohm transformer bypass position. The frequency-dividing network shall have a crossover frequency of 5.0 kHz. Rated power capacity of the components and network shall be at least 20 watts RMS and conform to EIA-426-B testing. Maximum continuous output at 1 meter shall be at least 100.5 dB SPL.

The backcan shall be constructed of galvanized steel with an ABS plastic baffle. The grille shall be constructed of painted steel. Shipped complete with UL-listed flex conduit clamp, color-coded tile bridge (to match color-coded backcan), grille, wire nuts, cut-out template and paint shield, the integrated

in-ceiling speaker is engineered for high performance and rapid installation in plenum spaces. The unit incorporates three additional attachment points for added security, or code satisfaction where required.

Installation for the speaker shall be by two-screw, blind-mount, constant-tension winged assembly with a clamping allowance from 0.00 mm (0.0 in.) to 38.1 mm (1.5 in.). The external wiring shall be via 4 position ceramic terminal strip accepting up to 12-gauge wire.

The maximum backcan dimension shall be no more than 146.8 mm (5.78 in.) in height by 95.3 mm (3.75 in.) in diameter. The maximum visible dimensions shall be no more than 8.4 mm (0.33 in.) in height by 190.5 mm (7.5 in.) in diameter. The unit is factory preset to the 20-watt setting in the 70.7-volt mode with a tap switch located on the front baffle.

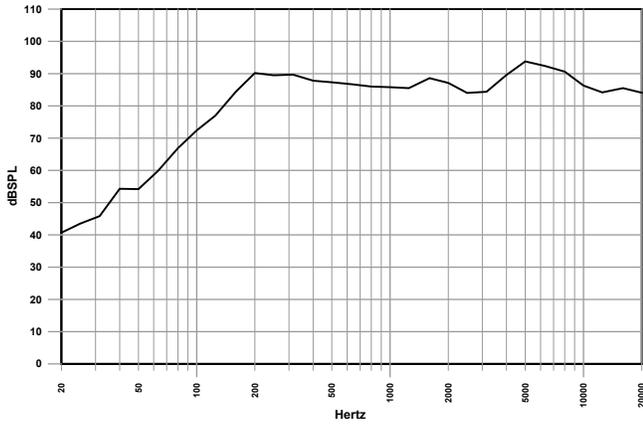
The system shall be the SoundTube CM42-EZs-II for both low- high-impedance applications.

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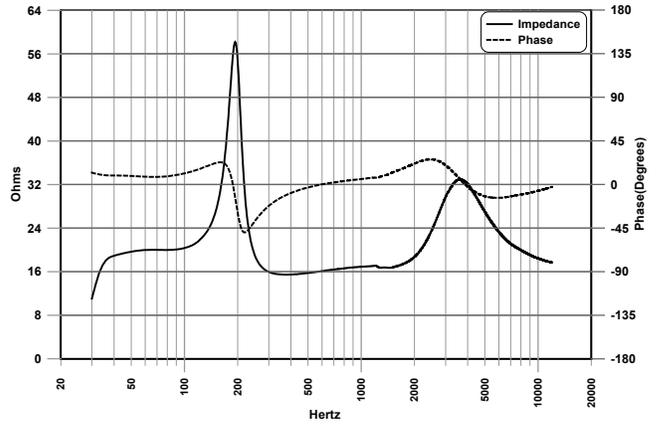
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All SoundTube products come with a 5-year limited warranty.

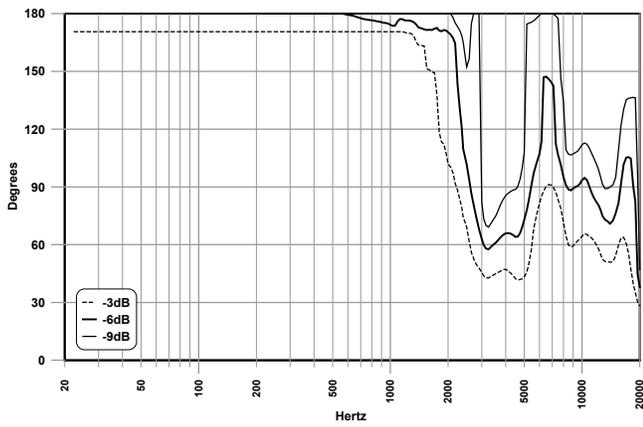
Frequency Response



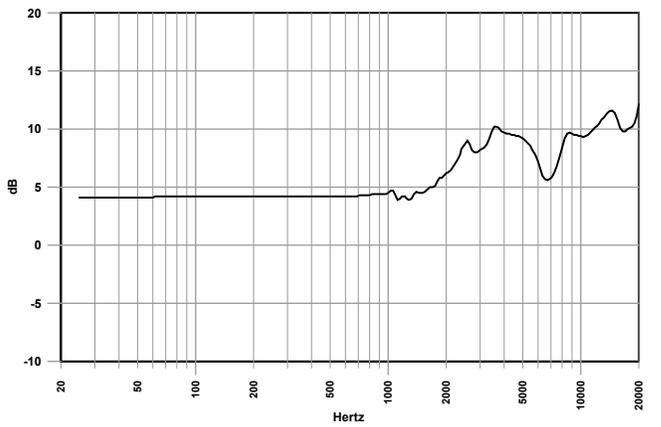
Phase/Impedance Reponse



Beamwidth

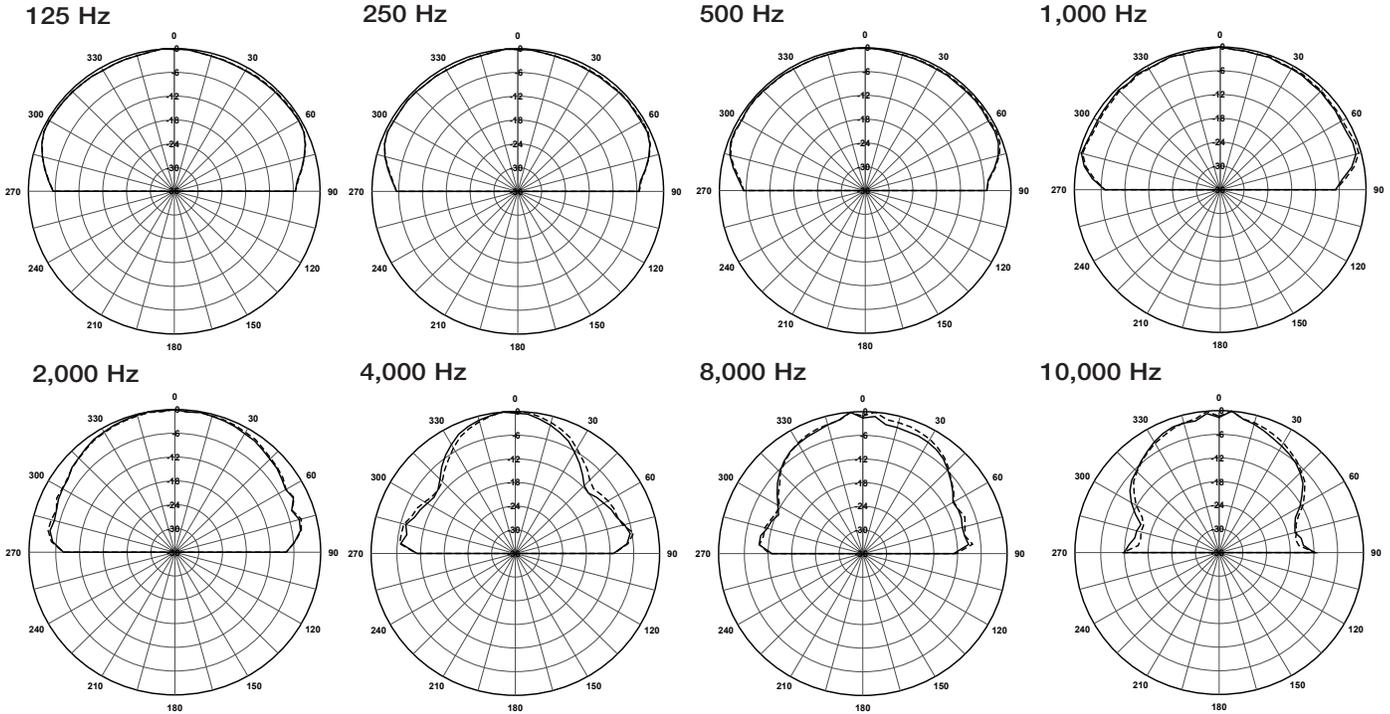
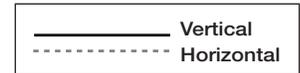


Directivity Index (DI)



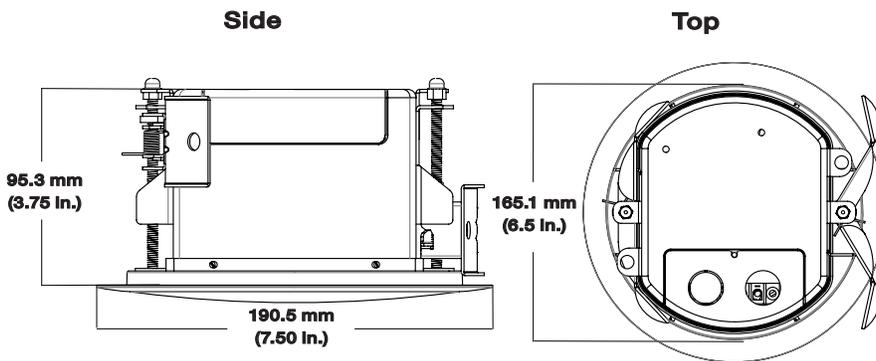


Polar Plots

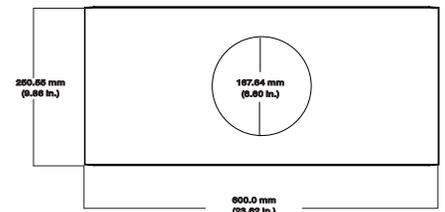


Technical data, EASE™ plots, SoundTube SPEC™ software and product downloads available at www.soundtube.com

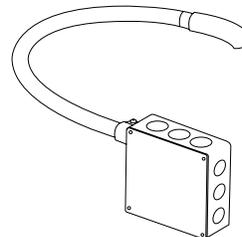
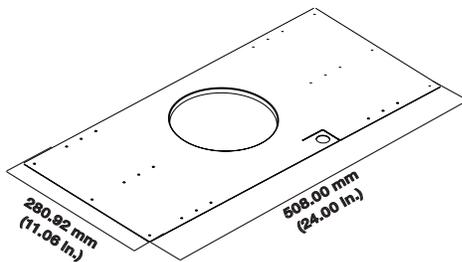
Mechanical Drawings



Included Accessories

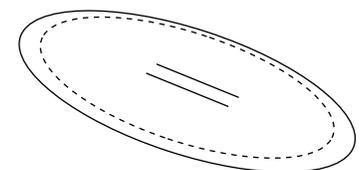


Optional Accessories



Junction Box (AC-CM-EZ-JBOX)

Tile Bridge



Hole Template

SoundTube Entertainment manufactures a complete line of speakers for:
Open-Ceiling • In-Ceiling • Surface-Mount • Outdoor • Sound-Focusing

All SoundTube products are designed and engineered in the USA.