CM31-EZ | In-Ceiling Speaker

Preliminary Technical Information for System Engineers

SOUNDTUBE ENTERTAINMENT

Preliminary Specifications: CM31-EZ

Tile bridge included

System Type	3 in full-range, in-ceiling (20 watt transformer for 25/70.7/100-volt or voice coil direct)
Impedance (nominal) [1]	8 ohm
Sensitivity dB @ 2.83 V/1 m	87.0 dB
Sensitivity dB @ 1 W/1 m [2]	87.0 dB
Frequency Response (- 3 dB) [3]	130 Hz - 22 kHz
Frequency Response (-10 dB) [3]	110 Hz - 22 kHz
Max. Program Power [4]	40 W
Max. Continuous Power RMS [5]	20 W
Max. Power SPL @ 1 m [6]	100.0 dB
Coverage Angle (-6 dB @ 2 kHz)	N/A
Coverage Angle (-6 dB @ 10 kHz)	N/A
Coverage Angle (averaged from 2 to 10 kHz)	N/A
Directivity Factor (Q)	N/A (averaged 100Hz - 10kHz), N/A (2kHz)
Directivity Index (DI) dB	N/A (averaged 100Hz - 10kHz), N/A (2kHz)
Tap Selector (transformer accessory only)	Six-position rotary switch or voice coil direct
Transducer - Full-Range Driver	76.1 mm (3.0 in) Polypropylene driver with butyl rubber surround
Enclosure Material	ABS baffle, steel backcan
Grille	Corrosion-resistant, powder-coated aluminum
Inputs	Hardwire lead
Colors	Black or white
Backcan Diameter	139.1 mm (5.5 in)
Backcan Height	89.4 mm (3.5 in)
Visible Height	16.3 mm (0.6 in)
Visible Diameter	160.6 mm (6.3 in)
Weight	N/A kg (N/A lbs.)
Shipping Weight	N/A kg (N/A lbs.)
Packaging	One per box
Included Accessories	Tile Bridge, conduit connector, paint mask and wire nuts
Optional Accessories	Pre-construction bracket (AC-CM3-PCB), 10 in powered subwoofer (SM1001p)
Regulatory - UL	UL 1480 and 2043 pending
Regulatory - CE	Approved

Transformer Taps

70.7 V	Output	100 V	Output	25 V	Output
20 W	100.0 dB	20 W	100.0 dB	5 W	94.0 dB
10 W	97.0 dB	10 W	97.0 dB	2.5 W	91.0 dB
5 W	94.0 dB	5 W	94.0 dB	1.25 W	88.0 dB
2.5 W	91.0 dB	2.5 W	91.0 dB	0.63 W	85.0 dB
1.25 W	88.0 dB			0.32 W	82.0 dB

[1] Impedance listed per IEC 60268-5 with a minimum less than 80% the nominal impedance

[2] 1 W 1 m sensitivity determined using nominal impedance

[3] Frequency response measured in half or full space as dictated by speaker mounting configuration

[4] Max program power is 3 dB above max continuous power

[5] Continuous power rating, EIA-426-B test

[6] Max output based on max continuous power

Preliminary Technical Information

- Ultra-compact design with a total visible footprint of less than 6.3 in diameter.
- 3 in full-range high-extrusion, high-fidelity polypropylene driver with butyl rubber surround.
- Corrosion-resistant, powder-coated aluminum grille with snap fit attachment.
- Shallow 3.75 in deep all-steel backcan with integrated driver and baffle configuration.
- Rapid installation, blind-mount, fixed-wing mounting mechanism with constant tension design affixing to wall thicknesses ranging from 2.5 mm (0.1 in) to 38.1 mm (1.5 in).
- Weatherized components for indoor/outdoor applications.
- Included accessories: Tile bridge.
- Optional accessories: Pre-construction bracket (AC-CM3-PCB) and 10-inch powered subwoofer (SM1001p).
- UL 1480 and 2043 pending.
- High quality black or white paint finish.

Description

The CM31-EZ is a premium full-range 3-inch in-ceiling speaker for applications requiring 8 ohm or distributed audio solutions. The CM31-EZ incorporates low profile grille with a total visible footprint of 6.3 in diameter and an integrated backcan and driver design for ultra compact in-ceiling installations. The in-ceiling speaker includes a six-position tap switch with a voice coil direct position. A tile bridge and mounting hardware are included and feature a fast and secure constant tension SpeedWing™ mounting system. The CM31-EZ incorporates weatherized components for indoor/outdoor applications.

Applications

Engineered for rapid installation and low profile mounting for smaller venues, the CM31-EZ is ideal for retail, restaurants, conference rooms, educational facilities or any setting where full-range intelligibility, low profile design and in-ceiling installation ease are paramount. For additional bass response down to 41 Hz (- 10 dB), the SM1001p powered 10-inch subwoofer may be incorporated.

Patented SoundTube Technologies

SoundTube Entertainment and the MSE Audio Group constantly develop new technologies which 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

Acquisition & Verification

All data for SoundTube speakers are independently collected from and verified by NWAA Labs (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 transducer shall consist of one full-range 76.2 mm (3.0 in) polypropylene cone with butyl rubber surround.

Performance specifications for a typical production unit shall be as follows: Useable frequency response shall extend from 110 Hz – 22 kHz (- 10 dB). Measured sensitivity (2.83 volt input, 1 meter) shall be at least 85.0 dB. The speaker shall have a nominal impedance of 8 ohms. The speaker shall be available for 25-, 70.7- and 100-volt modes and shall include a six-position tap switch with a voice coil direct position. Rated power capacity shall be at least 20 watts continuous (RMS) and conform to EIA-426-B. Maximum continuous power output at 1 meter shall be 98.0 dB.

Installation for the CM31-EZ shall be by two-screw, blind-mount, constant tension fixed-wing assembly and shall attach to ceiling thicknesses ranging from 2.5 mm (0.1 in) to 38.1 mm (1.5 in). The fixed wing assembly shall be constructed of steel. The external wiring shall be by hardwire lead and the speaker shall include a UL-listed conduit connector.

The maximum backcan dimensions shall be no more than 139.1 mm (5.5 in) in diameter by 89.4 mm (3.5 in) in height. The maximum visible dimension shall be no more than 16.3 mm (0.6 in) in height by 160.6 mm (6.3 in) in diameter.

The system shall be for indoor/outdoor applications.

The enclosure shall be constructed of steel. The grille shall be constructed of powder-coated aluminum for lasting performance and affix to the speaker baffle via snap fit.

The system shall be the CM31-EZ for low- or high-impedance applications.

SoundTube Entertainment

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

Graphs and Plots

Frequency Response

Phase/Impedance Response

Vertical Beamwidth (-6 dB)

Directivity Index (DI)

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Polar Plots

——— Horizontal
- - - - - - - Vertical

125 Hz

250 Hz

500 Hz

1,000 Hz

2,000 Hz

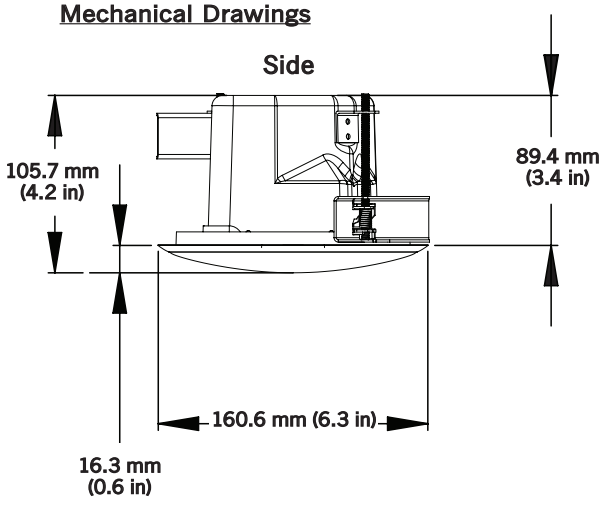
4,000 Hz

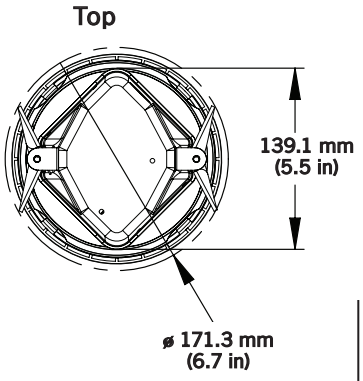
8,000 Hz

10,000 Hz

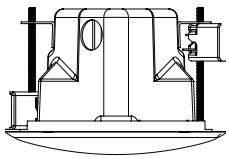
Technical data, EASE™ plots, SoundTubeSPEC™ software and product downloads available at **www.soundtube.com**

Mechanical Drawings





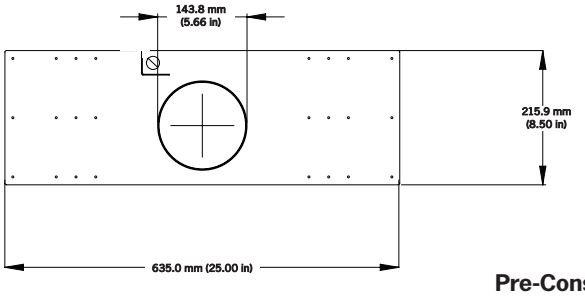
Minimum/Maximum Ceiling Thickness



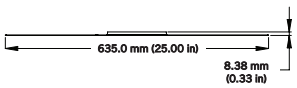
Min. 2.5 mm (0.1 in)

Max. 38.1 mm (1.5 in)

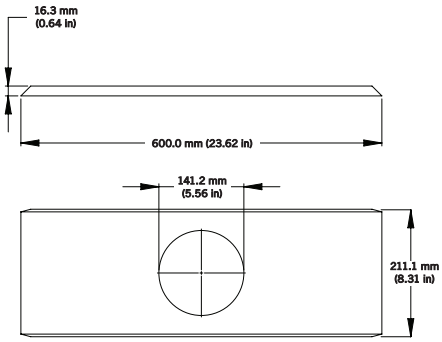
Optional Accessories



Pre-Construction Bracket (AC-CM3-PCB)



Included Accessories



Tile Bridge

SoundTube Entertainment manufactures a complete line of speakers for:

Open-Ceiling • In-Ceiling • Surface-Mount • Outdoor • Sound-Focusing