SOUNDTUBE

CM31-EZ

In-Ceiling Speaker

CM31-EZ PRODUCT SPECIFICATIONS

System Type	3” full-range, in-ceiling (10 W transformer for 25/70.7/100 V or transformer bypass position)
Impedance (Nominal) [1]	8 Ω
Sensitivity dB @ 2.83 V/1 M	85 dB
Sensitivity dB @ 1 W/1 M [2]	85 dB
Frequency Response (±3 dB) [3]	190 Hz - 14 kHz
Frequency Response (±10 dB) [3]	115 Hz - 22 kHz
Max. Program Power [4]	40 W
Max Continuous Power RMS [5]	20 W
Max. Power SPL @ 1 M [6]	98 dB
Coverage Angle (±6 dB @ 2 kHz)	175°
Coverage Angle (±6 dB @ 10 kHz)	45°
Coverage Angle (Averaged 2-10 kHz)	120°
Directivity Factor (Q)	4.5 (Averaged 100 Hz - 10 kHz) | 3.5 (2 kHz)
Directivity Index (DI)	5.3 dB (Averaged 100 Hz - 10 kHz) | 5.2 dB (2 kHz)
Tap Selector (Transformer Accessory Only)	Six-position rotary switch with transformer bypass position
Transducer: Full-Range Driver	76.1 mm (3”) polypropylene cone, butyl rubber surround
Low-Frequency Voice Coil	19 mm | 0.75”
Enclosure Material	ABS Baffle, steel backcan
Grille	Corrosion-resistant, powder-coated aluminum
Inputs	Hardwire leads
Backcan Diameter	139.7 mm | 5.5”
Backcan Height	88.9 mm | 3.5”
Visible Diameter	160 mm | 6.3”
Visible Height	15.2 mm | 0.6”
Weight	1.4 kg | 3.1 lbs
Packaging	One per box
Included Accessories	Tile bridge, conduit connector, paint mask, and wire nuts
Optional Accessories	Pre-construction bracket (AC-CM3-PCB)
IP-Rating	IP5X
Certifications	UL1480A, UL2043, CE, RoHS

[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

Description

The CM31-EZ is a premium full-range 3” in-ceiling speaker for applications requiring 8 Ω or distributed audio solutions. The CM31-EZ incorporates low profile grille with a total visible footprint of 6.3” 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 transformer bypass 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 and outdoor applications.

Features

- One 3” (76.2 mm) full-range high-extrusion, high-fidelity polypropylene driver with butyl rubber surround
- Weatherized components for indoor/outdoor applications
- Shallow 3.5” (88.9 mm) deep all-steel backcan with integrated driver and baffle configuration
- Ultra-compact design with a total visible footprint of less than 6.3” (160.6 mm) diameter
- Rapid installation, blind-mount, fixed-wing mounting mechanism with constant tension design affixing to wall thicknesses ranging from 0.1” (2.5 mm) to 1.5” (38.1 mm)
- Corrosion-resistant, powder-coated aluminum grille with snap fit attachment
- UL1480A and 2043 approved
- High-quality black or white paint finish
- Included accessories: tile bridge, conduit connector, paint mask, and wire nuts
- Optional accessories: pre-construction bracket (AC-CM3-PCB)

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Transformer Taps

70.7 V	Output	100 V	Output	25 V	Output
10 W	95 dB	10 W	95 dB	1.3 W	86 dB
5 W	92 dB	5 W	92 dB	0.7 W	83.5 dB
2.5 W	89 dB	2.5 W	89 dB	0.4 W	81 dB
1.3 W	86 dB	1.3 W	86 dB	0.2 W	78 dB
0.7 W	83.5 dB			0.1 W	75 dB

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.

Patented 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

SoundTube Entertainment strives to provide complete and effective technical information and data to dealers, engineers and designers. All data is 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 and Verification

All data for SoundTube speakers is independently collected from and verified by NWAA Labs (www.nwaalabs.com) using their proprietary MACH testing system. All data is 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") polypropylene cone with butyl rubber surround. The low-frequency voice coil diameter shall be 19 mm (0.75").

Performance specifications for a typical production unit shall be as follows: Usable frequency range shall extend from 115 Hz - 22 kHz (±10 dB). Measured sensitivity (2.83 V input, 1 meter) shall be at least 85 dB. The speaker shall have a nominal impedance of 8 Ω. The speaker shall be available for 25, 70.7, and 100 V modes and shall include a six-position tap switch with a transformer bypass 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 dB.

Installation for the speaker shall be two-screw, blind-mount, constant tension fixed-wing assembly and shall attach to ceiling thicknesses ranging from 2.5 mm (0.1") to 38.1 mm (1.5"). A secondary attachment point has been included on the back of the unit. 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 139.7 mm (5.5") in diameter by 88.9 mm (3.5") in height. The maximum visible dimensions shall be no more than 15.2 mm (0.6") in height by 160 mm (6.3") 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 both low- and high-impedance applications.

SoundTube®

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All SoundTube speakers come with a 5-year limited warranty and 3-year warranty on all electronics.

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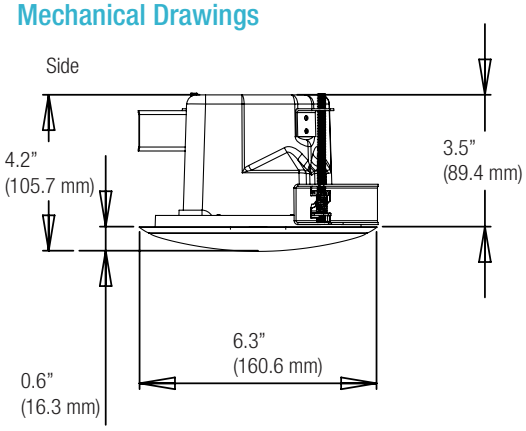
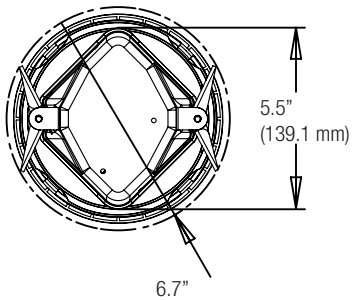
Mechanical Drawings

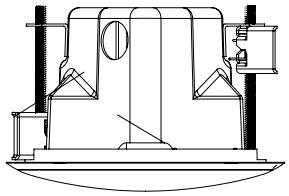
Side



Top



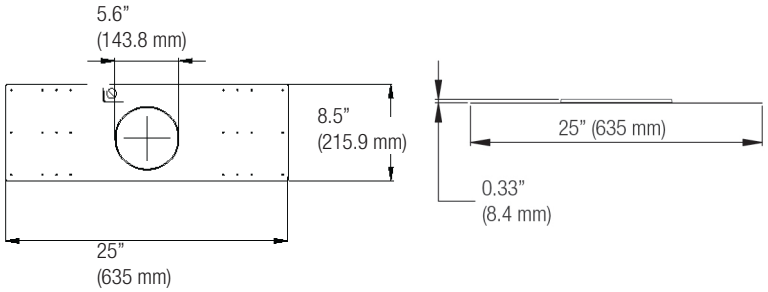
Minimum / Maximum Ceiling Thicknesses



Max: 1.5"
(38.1 mm)

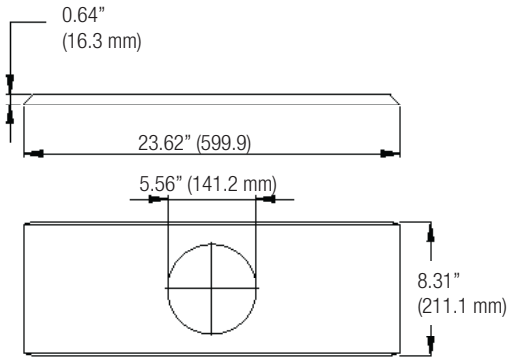
Min: 0.1"
(2.5 mm)

Optional Accessories



Pre-Construction Bracket
(AC-CM3-PCB)

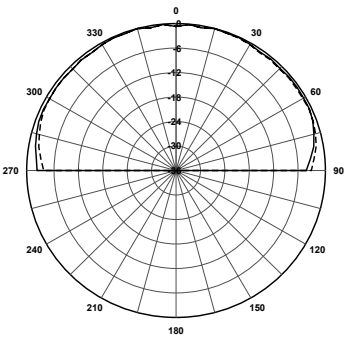
Included Accessories



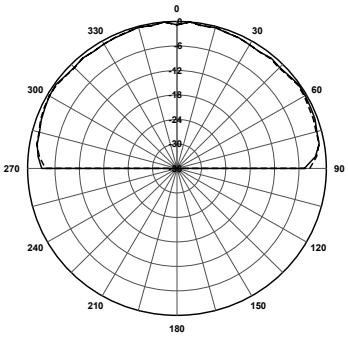
Tile Bridge

Plots

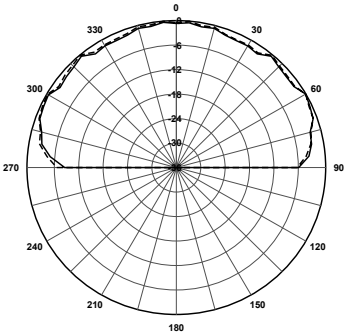
125 Hz



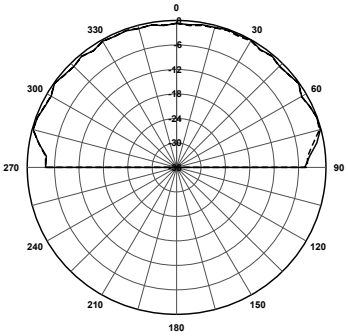
250 Hz



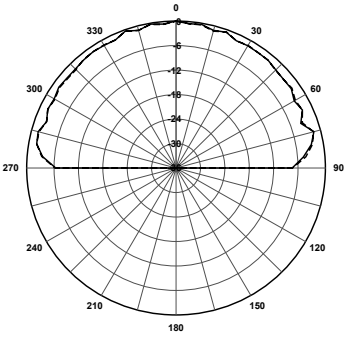
500 Hz



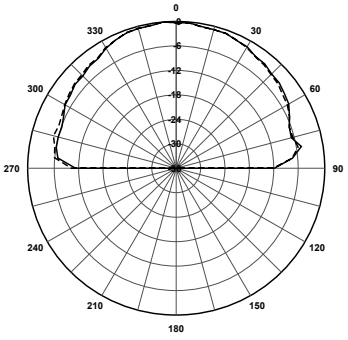
1,000 Hz



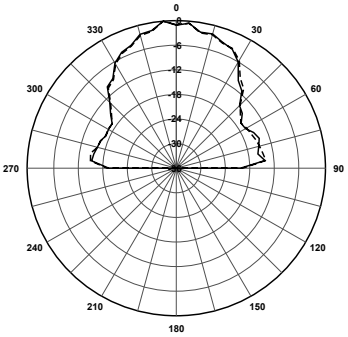
2,000 Hz



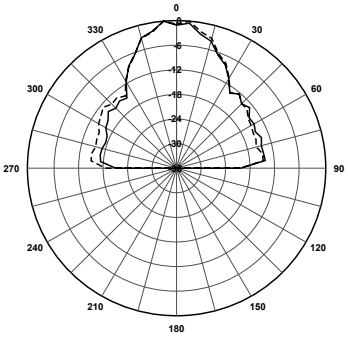
4,000 Hz



8,000 Hz



10,000 Hz



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

Horizontal
Vertical

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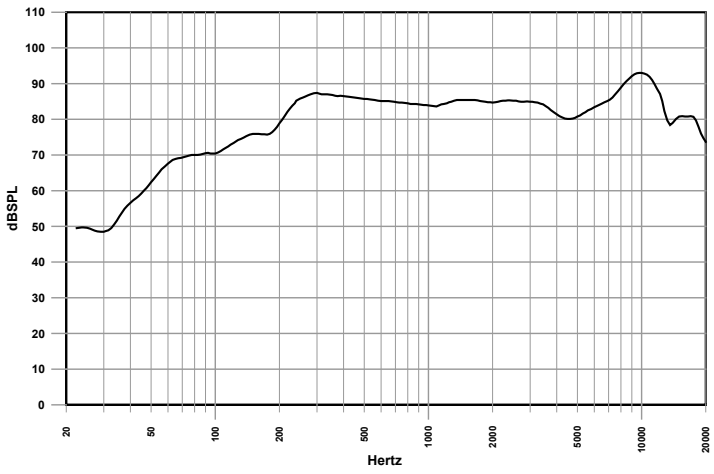
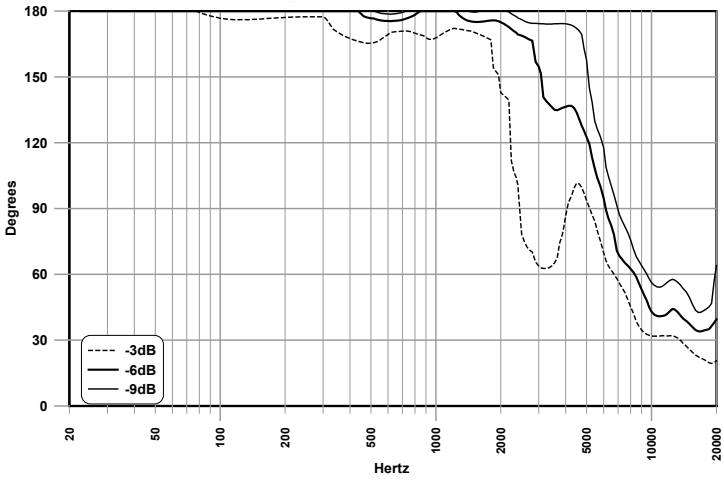
Graphs

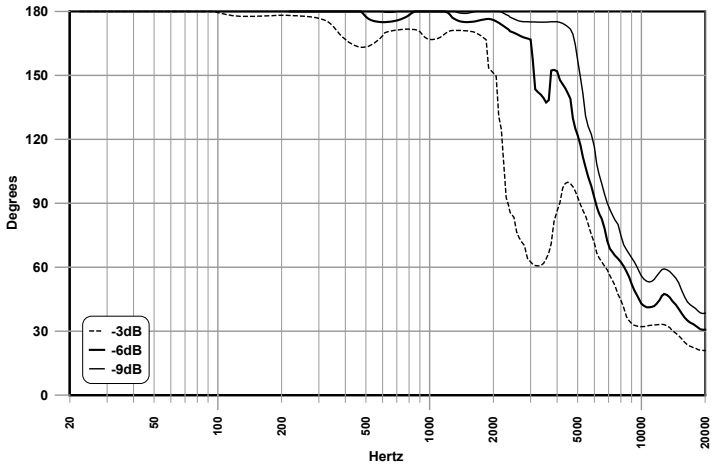
Frequency Response



Phase/Impedance Response



Vertical Bandwidth



Directivity Index (DI)