



CM400i PRODUCT SPECIFICATIONS

System Type	4" coaxial, in-ceiling, ported (20 W transformer for 25, 70.7, 100 V or transformer bypass)
Impedance (Nominal) ¹	4 Ω
Impedance (Min)	3.3 Ω
Sensitivity dB @ 2.83 V / 1 M	90 dB
Sensitivity dB @ 1 W / 1 M ²	87 dB
Frequency Response (± 3 dB) ³	90 Hz - 22 kHz
Frequency Response (± 10 dB) ³	75 Hz - 22 kHz
Max. Program Power ⁴	40 W
Max. Continuous Power RMS ⁵	20 W
Max. Power SPL @ 1 M ⁶	100 dB
Coverage Angle (±6 dB @ 2 kHz)	100°
Coverage Angle (±6 dB @ 10 kHz)	65°
Coverage Angle (Averaged 2-10 kHz)	95°
Directivity Factor (Q)	4.6 (Avg. 100 Hz - 10 kHz) 4.3 (2 kHz)
Directivity Index (DI)	5.6 dB (Avg. 100 Hz - 10 kHz) 6.3 dB (2 kHz)
Tap Selector	Five-position rotary switch with transformer bypass
Transducer: Low-Frequency Driver	102 mm (4") polypropylene cone, butyl rubber surround
Transducer: High-Frequency Driver	25.4 mm (1") convex aluminum tweeter
Low-Frequency Voice Coil	19 mm 0.75"
Crossover Frequency	1.8 kHz
Network Type: Low Pass	12 dB per octave, 2nd order
Network Type: High Pass	12 dB per octave, 2nd order
Enclosure Material	Drawn steel backcan with ABS baffle
Grille	Powder-coated steel with integrated ABS bezel
Inputs	4-pin, 5.08 mm Euroblock for individual or daisy chain connection
Backcan Diameter	153.7 mm 6.05"
Backcan Height	166.4 mm 6.55"
Visible Diameter	207 mm 8.1"
Visible Height	11.9 mm 0.5"
Min. / Max. Ceiling Thickness	0.6 mm 0.025" - 47.5 mm 1.87"
Mounting Hole Diameter	167.6 mm 6.6"
Weight	2.5 kg 5.5 lbs
Included Accessories	Tile bridge, Euroblock connector, and UL cover plate
Optional Accessories	Pre-construction bracket (AC-CM4-PCB), junction box (AC-CMi-JBOX)
Certifications	CE, RoHS, UL1480A, UL2043

Description

The CM400i is a 4", two-way, blind-mount in-ceiling speaker that delivers effective low-end response (75 Hz, ±10 dB) and optimal off-axis performance (2-10 kHz, independently verified). The CM400i speaker design incorporates a low-profile grille and five-position tap switch with a transformer bypass position. Mounting hardware is included and features a fast and secure constant-tension fixed-wing mounting system.

Features

- One 4" (102 mm) polypropylene woofer and one 1" (25.4 mm) convex aluminum tweeter with FerroFluid cooling
- Rapid installation blind-mount, fixed-wing mounting mechanism with constant tension design affixing to ceiling thicknesses ranging from 0.025" (0.6 mm) to 1.87" (47.5 mm)
- Easy access five-position selectable tap switch for 25, 70.7, and 100 V applications with transformer bypass position
- Separate tool-free magnetic grille and bezel assembly for ease of install and in-field painting
- Powder-coated steel grille for lasting durability
- 90 dB average sensitivity offers high-output capabilities and reduced amplification costs
- UL1480A and UL2043 approved
- High-quality black or white paint finish. Custom paint colors optional
- Included accessories: color-coded (orange) tile bridge, Euroblock connector, and UL cover plate
- Optional accessories: color-coded (orange) pre-construction bracket (AC-CM4-PCB) and junction box (AC-CMi-JBOX)

¹ Impedance listed per IEC 60268-5

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

Transformer Taps

70.7 V	Output	100 V	Output	25 V	Output
20 W	100 dB	20 W	100 dB	2.5 W	91 dB
10 W	97 dB	10 W	97 dB	1.3 W	88 dB
5 W	94 dB	5 W	94 dB	0.63 W	85 dB
2.5 W	91 dB			0.31 W	82 dB

Applications

Designed for in-ceiling background to mid-level SPL applications, the CM400i is ideal for music and paging in courthouses, schools, retail stores, grocery, restaurants, hospitals, hotels, casinos, museums, conference rooms and churches. For applications where additional bass is required, SoundTube's CM1001d-T subwoofer provides additional low-end response down to 41 Hz (± 10 dB).

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

Independent Data Acquisition and Verification

All data for SoundTube speakers is independently collected from and verified by NWAALabs (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 shall consist of a 102 mm (4") low-frequency transducer

and a 25.4 mm (1") high-frequency transducer with a crossover network installed in the enclosure. The low-frequency voice coil diameter shall be 19 mm (0.75").

Performance specifications of a typical production unit shall be as follows: Usable frequency response shall extend from 75 Hz - 22 kHz (± 10 dB, half space). Measured sensitivity (2.83 V, 1 M) shall be at least 90 dB. The speaker shall have a nominal impedance of 4 Ω and be available for 25, 70.7, and 100 V modes with transformer bypass position. The frequency dividing network shall have a crossover frequency of 1.8 kHz with slopes of 12 dB per octave (2nd order) for both low- and high-pass filters. Rated power capacity shall be at least 20 watts continuous (RMS) and conform to EIA-426-B testing. Calculated maximum continuous output at 1 meter shall be 100 dB. The low-frequency transducer shall have a polypropylene cone with rubber surround. The high-frequency transducer shall be constructed of aluminum.

Installation for the speaker shall be by two-screw, blind-mount, constant tension fixed-wing mounting system and shall attach to ceiling thicknesses ranging from 0.6 mm (0.025") to 47.5 mm (1.87"). The fixed-wing assembly shall be constructed of zinc-plated steel. A secondary attachment point has been included on the back of the unit. The external wiring input connector shall be a 4-pin, 5.08 mm Euroblock for 4 Ω or distributed systems and shall accept from 10 - 22-gauge wire.

The maximum backcan dimensions shall be no more than 166.4 mm (6.55") in height by 153.7 mm (6.05") in diameter. The maximum visible dimensions shall be no more than 11.9 mm (0.5") in height by 207 mm (8.15") in diameter. The backcan shall be constructed of steel.

The grille can be constructed of an ABS bezel and powder-coated steel for lasting performance in the elements. The affixed grille and bezel shall be mounted in the speaker enclosure (backcan) via neodymium magnets and include a tool-free safety restraint. For in-field painting, a paint mask is included.

The speaker has an optional color-coded pre-construction bracket that shall be compatible with an optional junction box. An 18-gauge wire whip, Euroblock connector and UL cover plate shall be included with the junction box. The maximum dimensions of the pre-construction bracket shall be no more than 635 mm (25") in length by 381 mm (15") in width and 128 mm (5") (includes affixed junction box) in thickness with a 167.6 mm (6") cutout for speaker mounting.

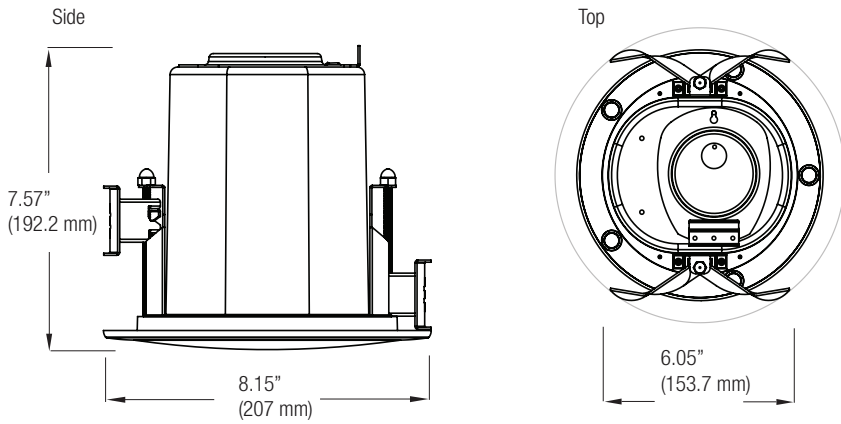
The system shall be the SoundTube CM400i for both low- and high-impedance applications.

SoundTube®

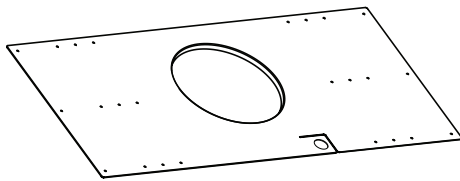
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All SoundTube speakers come with a 5-year limited warranty and 3-year warranty on all electronics.

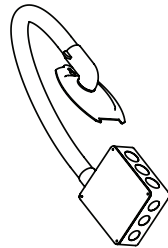
Mechanical Drawings



Optional Accessories

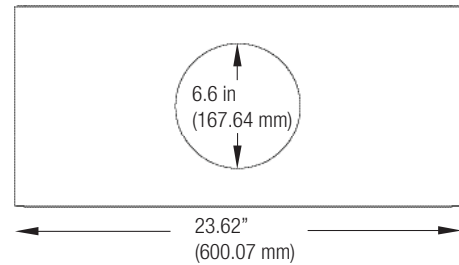


Pre-Construction Bracket
(AC-CM4-PCB)



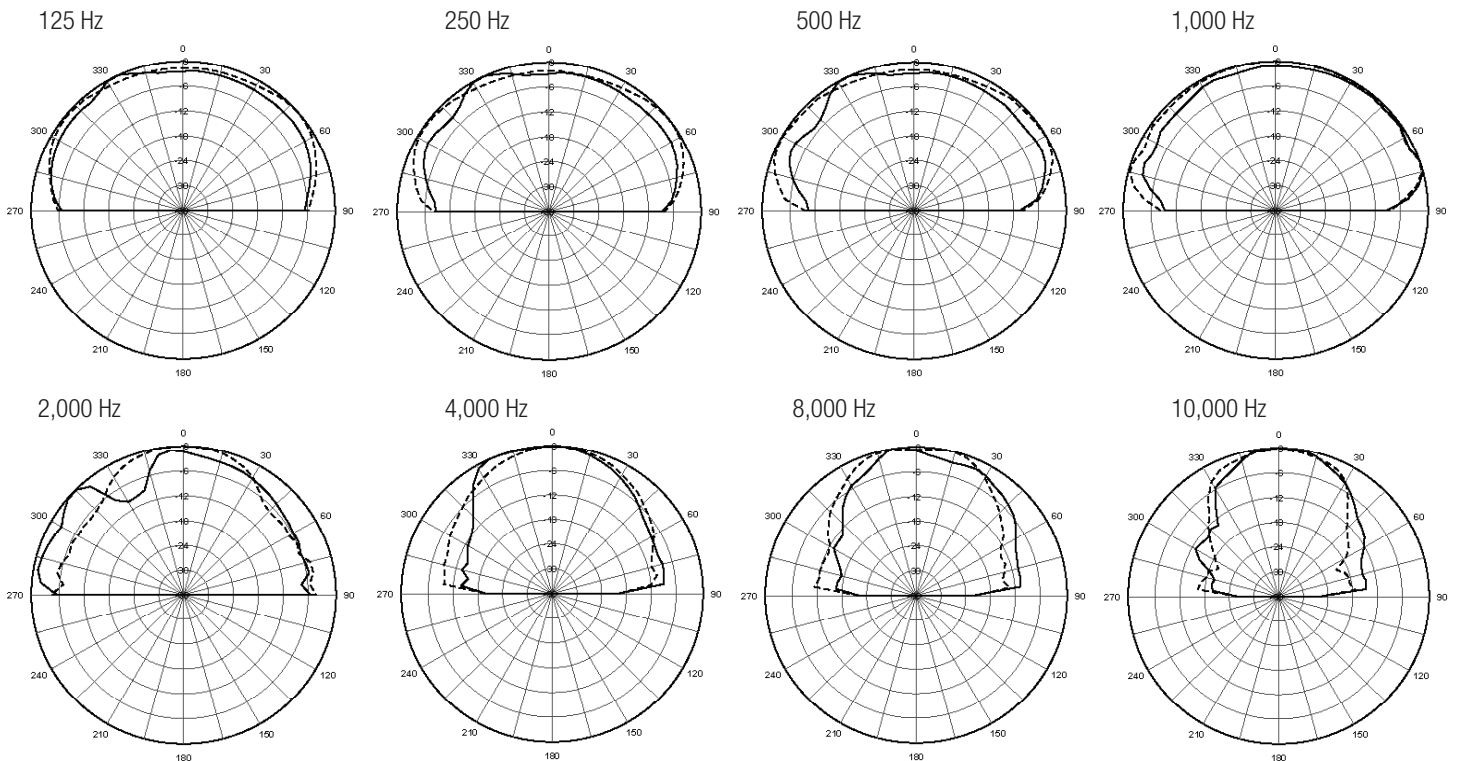
Junction Box
(AC-CMi-JBOX)

Included Accessories



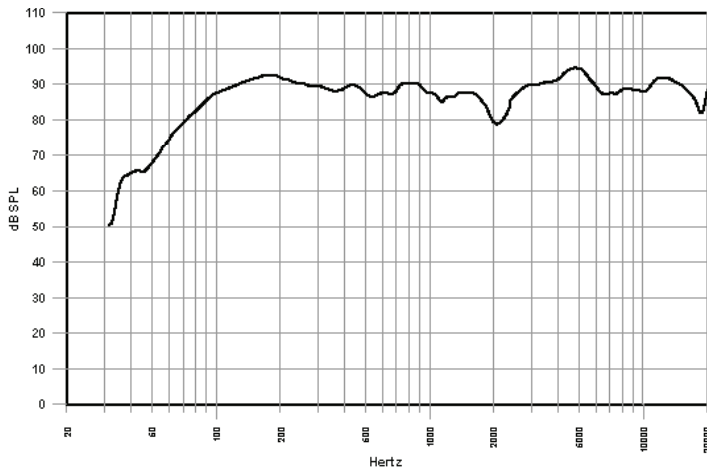
Tile Bridge

Plots

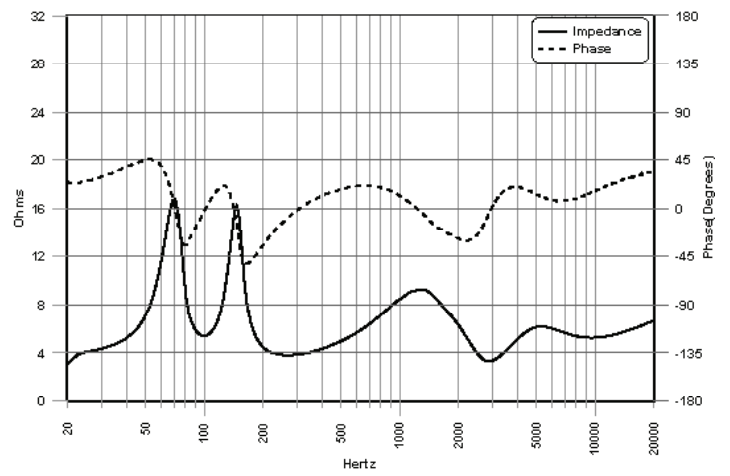


Graphs

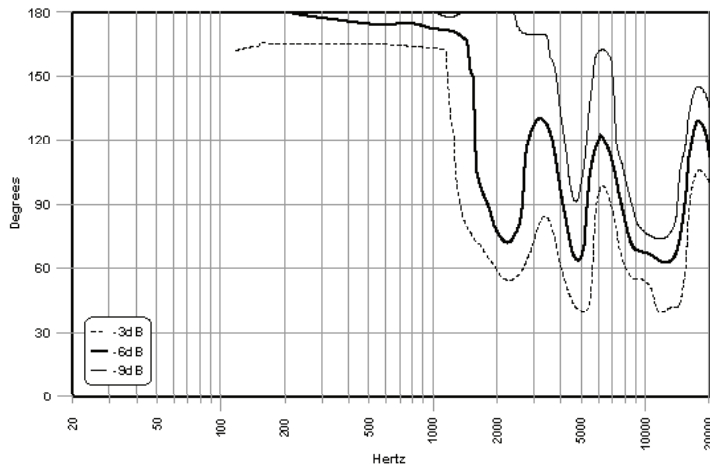
Frequency Response



Phase/Impedance Response



Vertical Beamwidth (± 6 dB)



Directivity Index (DI)

