



### Specifications: CM400i

### Tile bridge included

System Type	4" Coax, in-ceiling, ported (20 Watt transformer for 25/70.7/100 Volt or 4 Ohm direct)
Impedance (nominal) <sup>1</sup>	4 ohm
Sensitivity dB @ 2.83V/1M	90.0 dB
Sensitivity dB @ 1W/1M <sup>2</sup>	87.0 dB
Frequency Response (-3 dB) <sup>3</sup>	90 Hz - 22 kHz
Frequency Response (-10 dB) <sup>3</sup>	75 Hz - 22 kHz
Max. Program Power <sup>4</sup>	40 w
Max. Continuous Power RMS <sup>5</sup>	20 w
Max. Power SPL @ 1 M <sup>6</sup>	100.0 dB
Coverage Angle (-6 dB @ 2 kHz)	100 °
Coverage Angle (-6 dB @ 10 kHz)	65 °
Coverage Angle (Avg. 2 - 10 kHz)	95 °
Directivity Factor (Q)	
(@ 2kHz, Averaged 100Hz - 10kHz)	4.6 (Avg. 100 Hz - 10 kHz) / 4.3 (2 kHz)
Directivity Index (DI) dB	
(@ 2kHz, Averaged 100Hz - 10kHz)	5.6dB / 6.3dB
<b>Transducers</b>	
Low Frequency Driver	102mm (4 in) Polypropylene cone, butyl rubber surround
Low Frequency Driver	25mm (1 in) Convex aluminum tweeter
Low Frequency Voice Coil	19.0 mm / 0.75 in
Crossover Frequency	1.8 kHz
<b>Network Type</b>	
Low Pass	12dB per octave, 2nd order
High Pass	12dB per octave, 2nd order
Enclosure Material	Drawn steel backcan with ABS baffle
Grille	Powder coated steel with integrated ABS bezel
Inputs	4 Pin, 5 mm Euroblock for individual or daisy chain connection
Colors	Black or white
Backcan Diameter	6.05 in / 153.7 mm
Backcan Height	6.55 in / 166.4 mm
Visible Diameter	8.15 in / 207.0 mm
Visible Height	0.47 in / 11.9 mm
Min. Ceiling Thickness	0.025 in / .6 mm
Max. Ceiling Thickness	1.87 in / 47.5 mm
Weight	5.5 lb / 2.5 kg
Shipping Weight	7.5 lb / 3.4 kg
<b>Accessories</b>	
Included	Tile bridge, Euroblock connector & UL cover plate
Optional	Pre-construction Bracket, AC-CM4-PCB, Junction Box, AC-CMi-JBOX
Packaging	1 per box
Regulatory - CE	Approved
Regulatory - UL	UL 1408 & 2043 Pending
	Tap Selector - 5-Position rotary switch with 4 ohm direct

<sup>1</sup> Impedance listed per IEC 60268-5

<sup>2</sup> 1w/1m sensitivity determined using nominal impedance

<sup>3</sup> Frequency response measured in half or full space as dictated by speaker mounting configuration

<sup>4</sup> Max program power is 3 dB above max continuous power

<sup>5</sup> Continuous power rating, EIA-426-B test

<sup>5</sup> Max output based on max continuous power

<sup>6</sup> Max useable SPL based on testing by NWA Labs

70.7 V Output		100 V Output		25 V Output	
20 w	100.0 dB	20 w	100.0 dB	2.5 w	91.0 dB
10 w	97.0 dB	10 w	97.0 dB	1.3 w	88.0 dB
5 w	94.0 dB	5 w	94.0 dB	0.63 w	85.0 dB
2.5 w	91.0 dB			0.31 w	82.0 dB

### Key Features

- One 102 mm (4.0 in) polypropylene woofer and one 25 mm (1.0 in) convex aluminum tweeter with FerroFluid™ cooling.
- Rapid installation blind-mount, fixed-wing mounting mechanism with constant tension design affixing to ceiling thicknesses ranging from 0.6 mm (0.025 in) to 47.5 mm (1.87 in).
- Separate tool-free magnetic grille & bezel assembly for ease of install & in-field painting.
- Powder-coated steel grille for lasting durability.
- Easy access 5-position selectable tap switch for 25, 70.7 and 100 Volt applications with voice coil/4 Ohm direct simplifies ordering & inventory tracking.
- 90 dB average sensitivity offers high-output capabilities & reduced amplification costs.
- UL 1480 & 2043, CE (EMC Directive 89/366/EEC, EN55020, EN55013) approval pending.
- Included accessories: Color-coded (orange) tile bridge, paint mask, Euroblock connector & UL cover plate.
- Optional accessories: Color-coded (orange) pre-construction bracket (AC-CM4-PCB) and Junction Box (AC-CM-JBOX).
- High-quality black or white paint finish. Custom paint colors optional.

### Description

The CM400i is a 4" 2-way blind-mount in-ceiling speaker that delivers effective low-end response (75 Hz, -10 dB) and optimal off-axis performance (up to 10 kHz, EASE™ documented). The CM400i speaker design incorporates a low-profile grille and 5-position tap switch with voice coil/4 Ohm direct. Mounting hardware is included & features a fast & secure constant-tension fixed-wing mounting system.

### Applications

Designed for in-ceiling background to mid-level SPL applications, the CM400i is ideal for music & paging in courthouses, schools, retail stores, grocery, restaurants, hospitals, hotels, casinos, museums, conference rooms & churches. For applications where additional bass is required, SoundTube's CM1001d 10" subwoofer provides additional low-end response down to 41 Hz (-10 dB).



### Patented SoundTube Technologies

SoundTube Entertainment is constantly developing new technologies that enhance audio product performance. SoundTube Entertainment innovations are protected by multiple U.S. & international patents, which explicitly cover SoundTube dome, enclosure and dispersion technologies. SoundTube Entertainment 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](http://www.soundtube.com) and includes EASE™ Data – 3-D polar plots and SoundTubeSPEC™ – Proprietary SoundTube speaker placement software.

#### Independent Data Acquisition and Verification

All data for SoundTube speakers is independently collected from and verified by NWAALabs ([www.nwaalabs.com](http://www.nwaalabs.com)) using their proprietary MACH testing system. All data are collected and analysed 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 in) low-frequency transducer and a 25 mm (1.0 in) high-frequency transducer with a crossover network installed in the enclosure. The low-frequency voice coil diameter shall be 19 mm (0.75 in). The low-frequency transducer shall have a polypropylene cone with rubber surround. The high-frequency transducer shall be constructed of aluminum.

Performance specifications of a typical production unit shall be as follows: Useable frequency response shall extend from 75 Hz – 22 kHz (-10 dB, half space, no external equalization). Measured sensitivity (2.83 Volt, 1 meter) shall be at least 90 dB. The speaker shall have a nominal impedance of 4 Ohms and be available for 25, 70.7 & 100 Volt modes with voice coil/4 Ohm direct. 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 & high pass filters. Rated power capacity shall be at least 20 Watts continuous power (RMS) and conform to EIA-426-B testing. Maximum continuous output at 1 meter shall be 100 dB.

Installation for the CM400i shall be by 2-screw, blind-mount, constant tension fixed-wing mounting system and shall attach to ceiling thicknesses ranging from 0.6 mm (0.025 in) to 47.5 mm (1.87 in). The fixed-wing assembly shall be constructed of zinc-plated steel. The external wiring input connector shall be a 4-pin, 5 mm Euroblock for 4 Ohm for 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) in height by 153.7 mm (6.05 in) in diameter. The maximum visible dimensions shall be no more than 11.9 mm (0.47 in) in height by 207.0 mm (8.15 in) in diameter. The backcan shall be constructed of steel.

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

The CM400i 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 (25.0 in) in length by 381 mm (15.0 in) in width and 128 mm (5.0 in) (includes affixed junction box) in thickness with a 167.6 mm (6.0 in) cutout for speaker mounting.

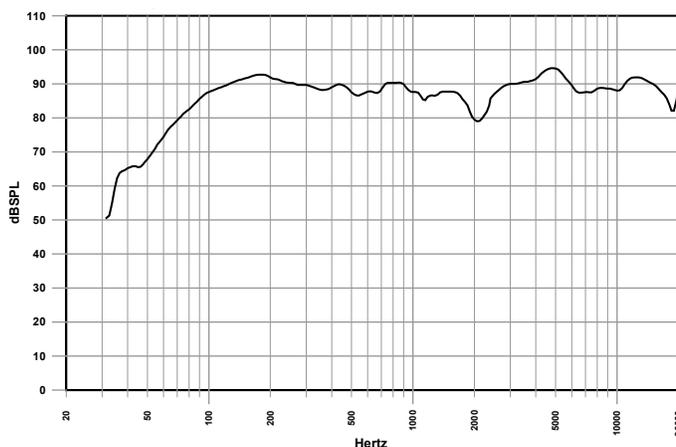
The system shall be the SoundTube CM400i for both low & high impedance applications.

### SoundTube Entertainment

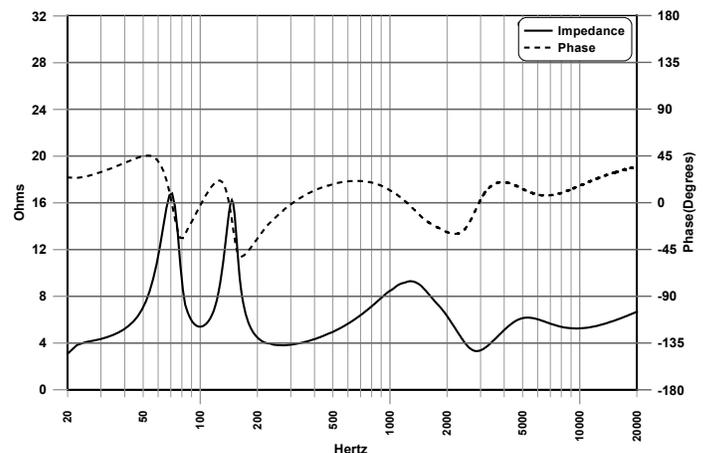
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### Graphs and Plots

#### Frequency Response

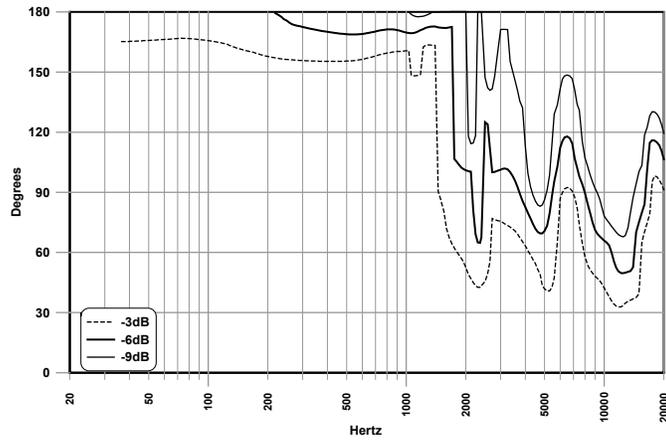


#### Phase/Impedance Response

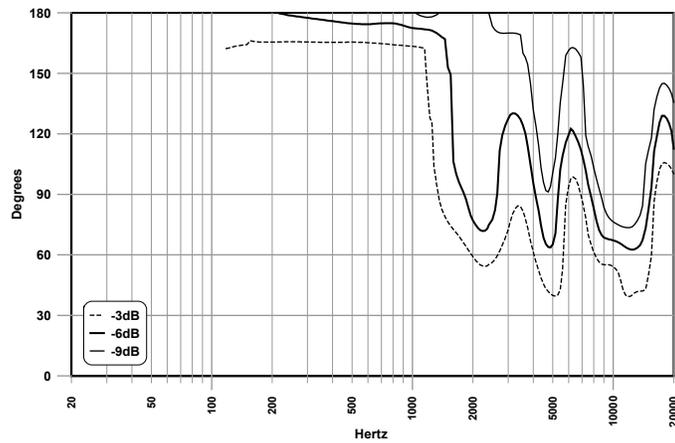




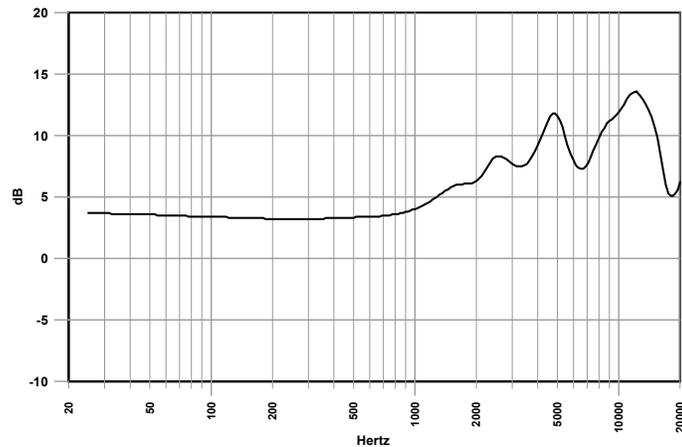
**Horizontal Beamwidth (-6 dB)**



**Vertical Beamwidth (-6 dB)**



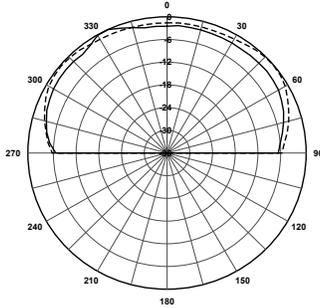
**Directivity Index (DI)**



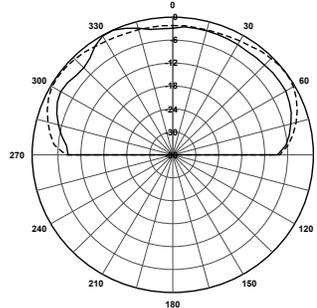
**Polar Plots**

— Horizontal  
 - - - Vertical

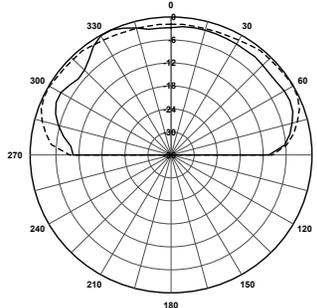
**125 Hz**



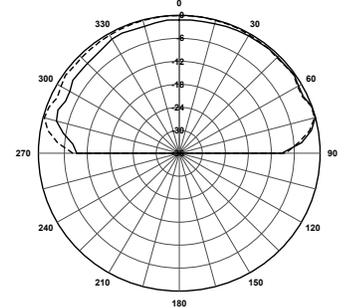
**250 Hz**



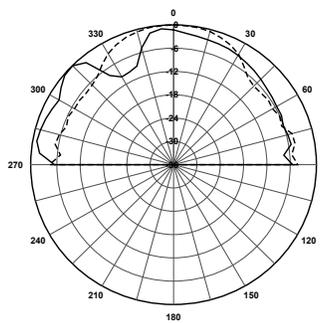
**500 Hz**



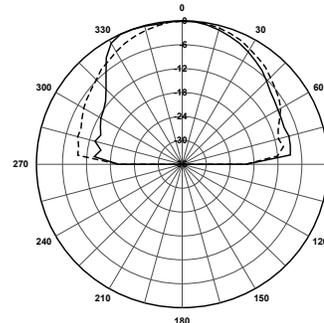
**1000 Hz**



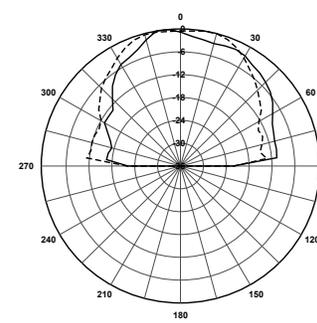
**2000 Hz**



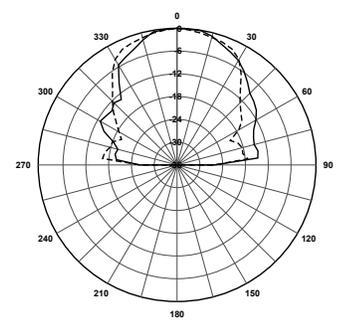
**4000 Hz**



**8000 Hz**



**10,000 Hz**

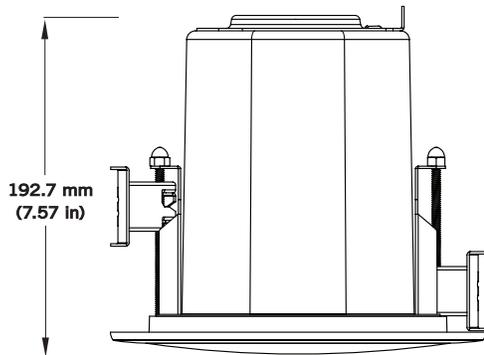


Technical data, EASE™ plots, SoundTubeSPEC™ software & product downloads available at [www.soundtube.com](http://www.soundtube.com)

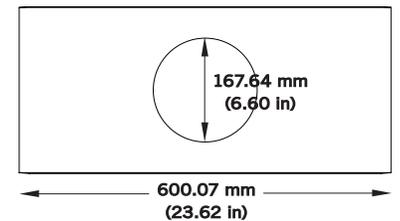
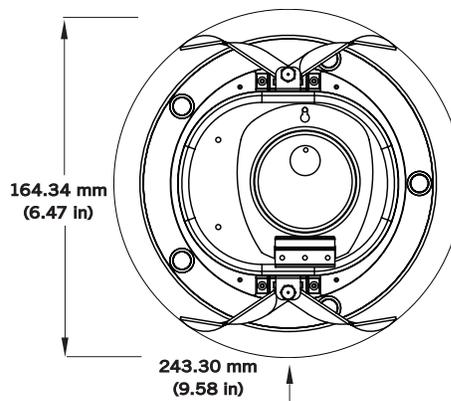
**Mechanical Drawings**

**Included Accessories**

**Side**

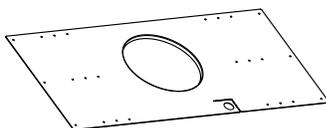


**Top**

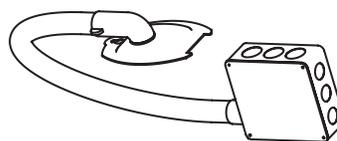


**Tile Bridge (AC-CM4-TB)**

**Optional Accessories**



**Pre-Construction Bracket (AC-CM4-PCB)**



**Junction Box (AC-CMi-JBOX)**

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.