2-Way Ceiling Monitor

SP400C

The SP400C is a complete two-way bass-reflex flush-mount loudspeaker assembly designed for fixed installations into typical ceiling plenum spaces. Employing a unique HF waveguide design based on our HR824 studio monitors, the SP400C delivers superior dispersion and pattern control over conventional coaxial designs. The waveguide integrates the HF driver with a 6.5" LF driver optimized for smooth frequency response and seamless transition through the crossover point. The result is extraordinary acoustic performance not generally associated with a commercial ceiling speaker in this price range.

The SP400C is supplied fully assembled, complete with a sealed zinc-coated steel backcan and cam-style installation clamps. The metal enclosure includes a recessed Euroblock input connector with detachable mating plug, concealed behind a hinged metal cover plate. A welded tab is provided for seismic restraint. Two steel T-Bar support channels are provided to facilitate installation to a standard tile ceiling. Also supplied is a steel split C-ring, which serves to disperse the clamping pressure of the mounting cams.

The SP400C is supplied with an integral 70/100V line transformer rated to a maximum of 30 watts. Power is adjustable by means of a recessed rotary switch on the front bezel, and allows selection of 30, 15, 7.5 and 3.7 watt taps. A second recessed rotary switch is provided to engage a 16-Ohm tap for use with low-impedance amplifiers, or a 150 Hz high-pass filter, allowing the SP400C to be used as either a full-range speaker for stand-alone applications or as a satellite speaker when used with the SP800S subwoofer.

The speaker assembly is shipped with a detachable plastic cover fitted over the transducers inside the bezel. This protective cover protects the drivers from damage during installation and also serves as a paint cover, allowing convenient spray painting to match interior décor. A powder-coated perforated steel grille is supplied, and easily installed once the desired Tap Selector and Full-Range/High-Pass switches have been set.

The entire assembly is fully tested at the time of manufacture and is warranted to be free from defects in materials and workmanship for a period of five years from the date of purchase. The speaker is designed for use in ceiling plenum spaces and meets UL 1480 and UL 2034 regulations governing signaling devices and plenum applications.

Features

- **Proprietary waveguide design to improve high-frequency dispersion**
- **Ported design for extended low-frequency response**
- **1-inch soft-dome tweeter with neodymium magnetic motor structure**
- **6.5-inch low-frequency woofer**
- **Built-in 70/100V transformer with multiple taps**
- **Transformer bypass for low-impedance operation (16 ohms)**
- **True 2-way crossover**
- **Built-in switchable high-pass filter**
- **Complete assembly for quick installation**
- **UL/cUL/CE listed**

Applications

- Business Music Systems
- Restaurants and Bars
- Hotels
- Convention Centers
- Recreational Facilities
- Churches
- Airports

SP400C 2-Way Ceiling Monitor

SP400C Technical Specifications

System Acoustic

Frequency range:	70 Hz–22 kHz (–10 dB)
Frequency response:	89 Hz–20 kHz (–3 dB)
Sensitivity:	92 dB
Crossover Point:	2000 Hz
Power Handling:	120 watts peak 60 watts program 30 watts long term
Maximum SPL:	107 dB
Transformer Taps	
70 V:	3.75 W, 7.5 W, 15 W, 30 W
100 V:	7.5 W, 15 W, 30 W
Operation in High-Pass Mode	
Frequency Response:	150 Hz–20 kHz (–3 dB)
Operation in Low-Impedance Mode	
Frequency Response:	89 Hz–20 kHz (–3 dB)
Control Features	
Front-mounted Rotary Switch:	Full Range (70/100 Volt Systems) High Pass (70/100 Volt Systems) Full Range (16 Ohm) (Low-Impedance Systems)
Front-mounted Rotary Switch:	Secondary Tap Positions

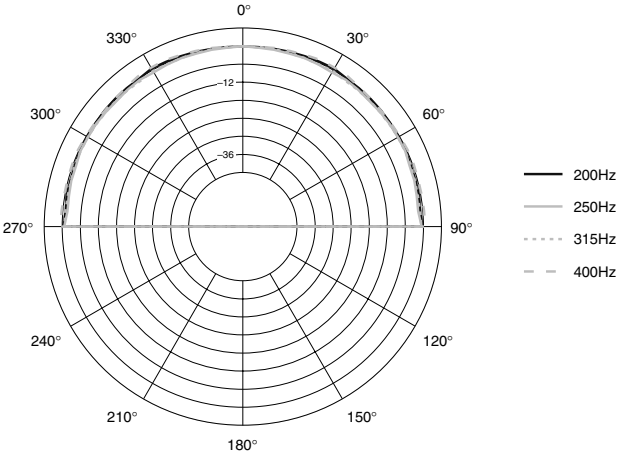
Transducers

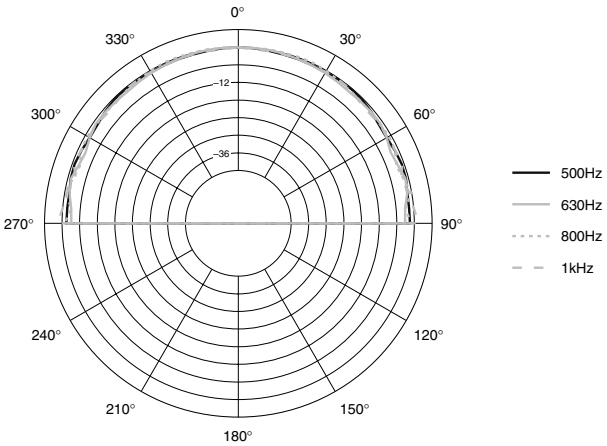
Low Frequency	
Number of Drivers:	1
Woofer Size:	6.5 in. (165 mm)
Diaphragm Material:	Polypropylene
Magnet Type:	Ferrite
High Frequency	
Diaphragm Size:	1.0" (25 mm)
Diaphragm Material:	Damped Cloth
Magnet Type:	Neodymium Dome
Waveguide Design	
Horizontal Coverage:	110° 1 kHz to 6 kHz avg.
Vertical Coverage:	110° 1 kHz to 6 kHz avg.
Type:	Exponential
Mouth Size:	3.75" x 3.75" (95 mm x 95 mm)
Throat Size:	1.0" (25 mm)

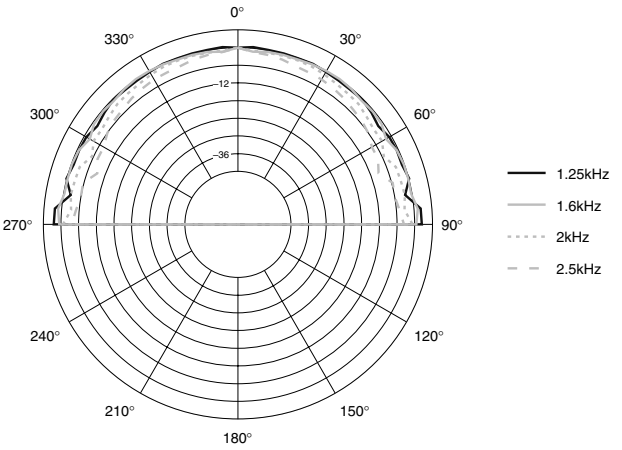
Physical

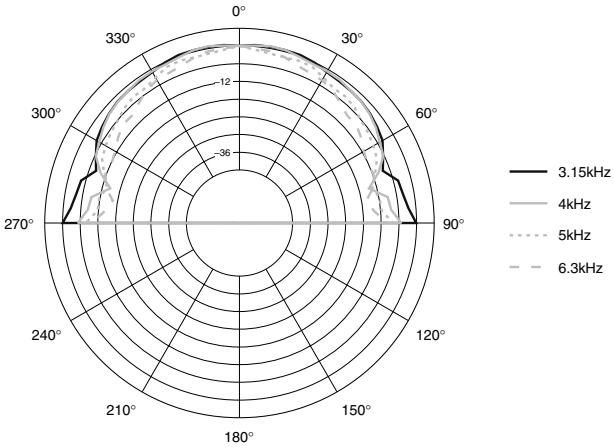
Construction Features	
Basic Design:	2-way, front loaded
Bezel Material:	UL94V-0 rated material
Rear Enclosure Material:	Steel
Grille:	Perforated metal with weather-resistant coating
Safety Features	
Rear-hanging Ring:	Rear safety loop located at rear of enclosure for attachment of load bearing safety strap
Safety Agency Rating	
UL1480:	General Signaling Fire Standard
UL2043:	Fire Tests for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-handling Spaces
Inputs/Outputs:	Removable locking connector with screw-down terminals. 2 input terminals and 2 loop-thru output terminals
Dimensions	
Diameter x Height:	11.8 x 6.6 in. (300 x 168 mm)
Front of Ceiling Tile to Back of Back Can:	5.6 in. (142 mm)
Cutout Size:	10.8 in. (274 mm)
Net Weight:	7.9 lbs. (3.6 kg)
Included Accessories:	Grille, Support Rails, C-Ring, Removable Locking Connector, Cut-out Template, Paint Shield

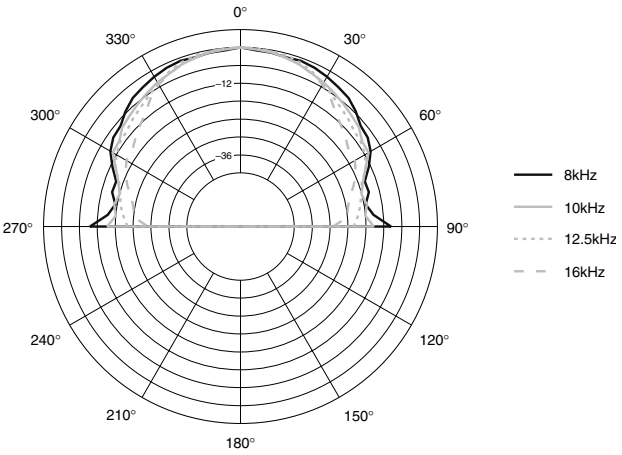
SP400C Horizontal Polars



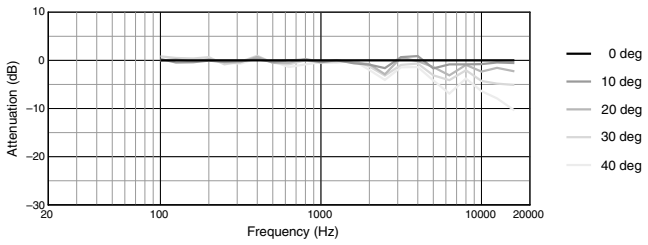








SP400C Horizontal Off-Axis Frequency Response



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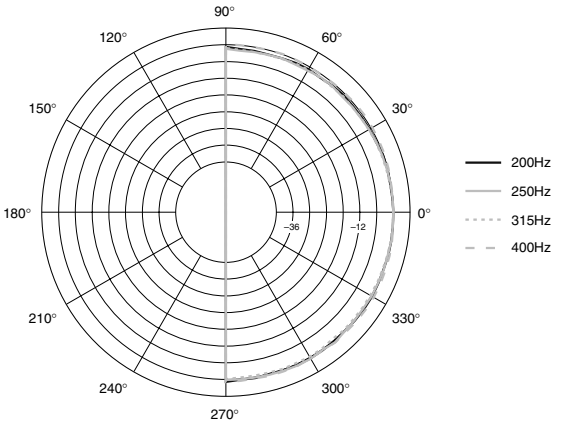
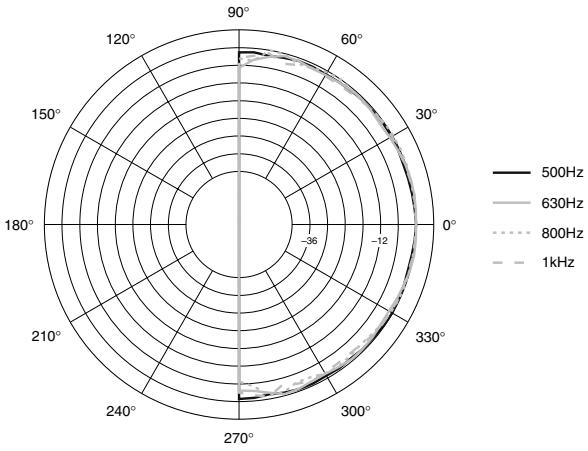
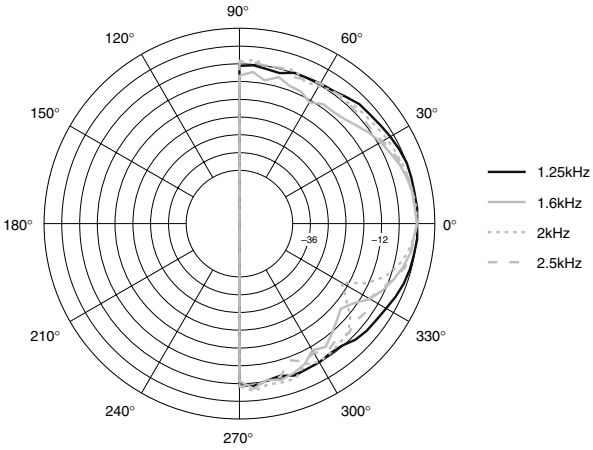
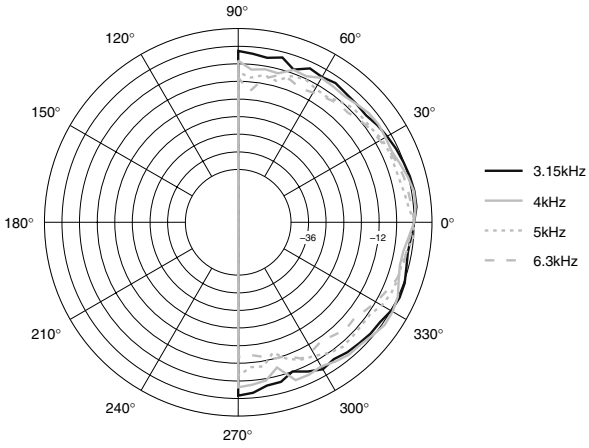
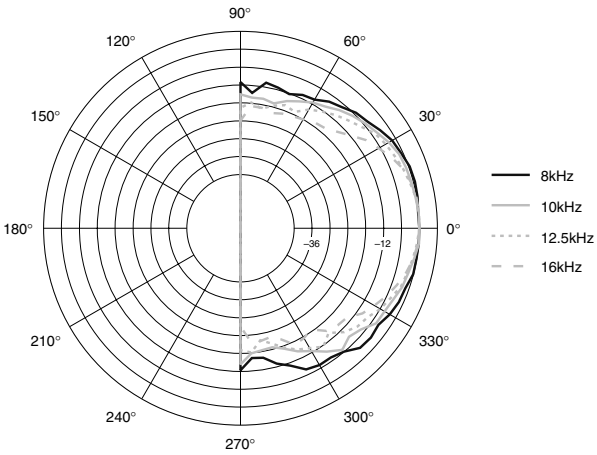
SP400C Vertical Polars



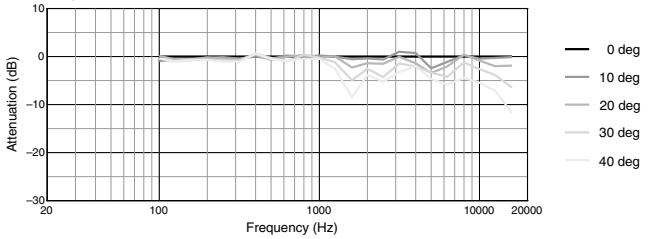




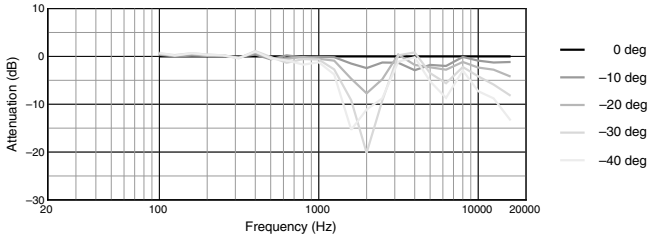




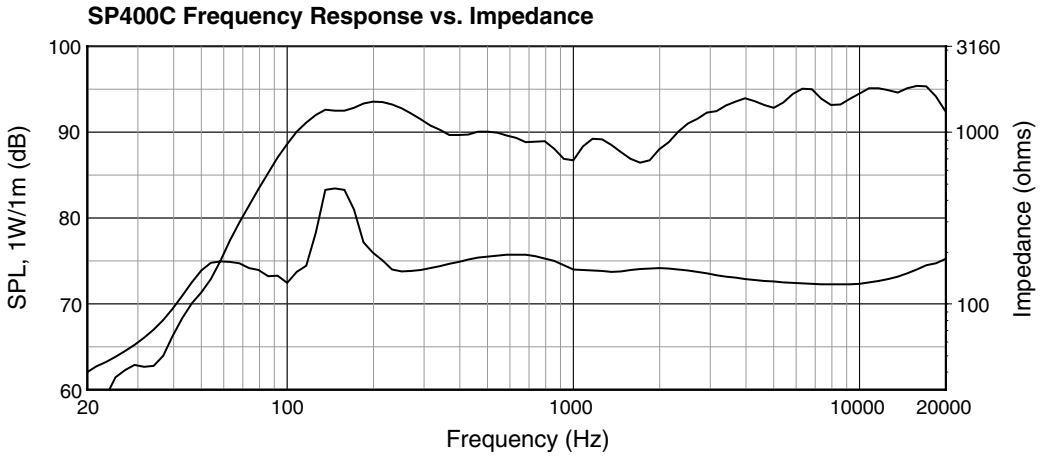
SP400C Vertical Off-Axis Frequency Response (UP)

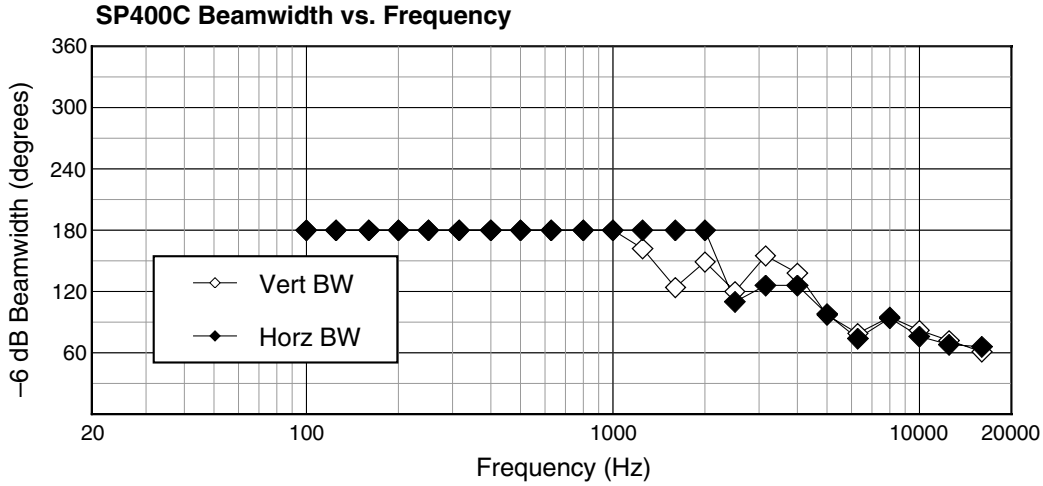


SP400C Vertical Off-Axis Frequency Response (DOWN)

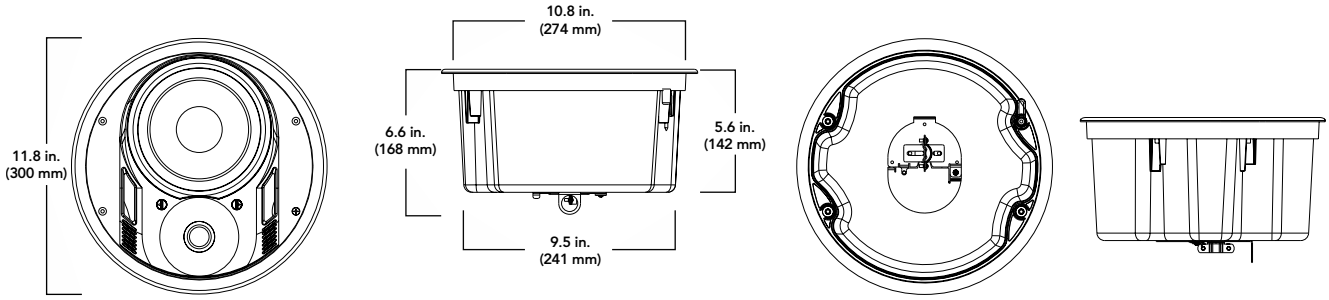


SP400C Frequency Response





SP400C Dimensions



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SP400C 2-Way Ceiling Monitor

SP400C Architects' and Engineers' Specifications

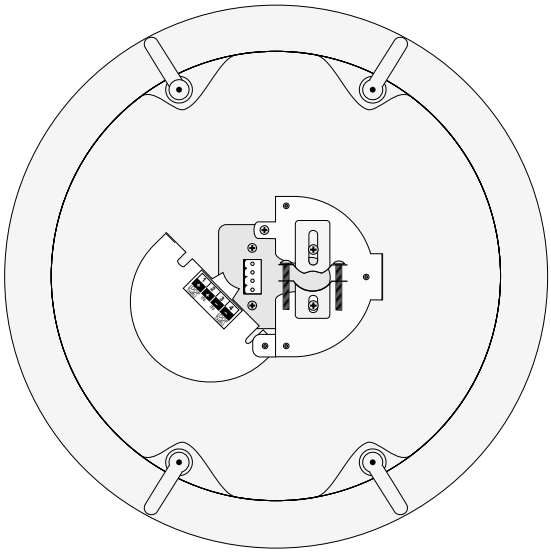
The two-way, full-range loudspeaker system shall incorporate one 6.5-inch low-frequency (LF) transducer and a 1-inch, damped soft-dome high-frequency (HF) transducer. The HF driver shall be mounted on an exponential waveguide providing high-frequency pattern control beyond 10 kHz. The LF and HF drivers shall be mounted in a vented, combination injection-molded bezel and steel enclosure tuned for optimum low-frequency response.

The system shall have a nominal coverage pattern of 110° at 8 kHz and 130° at 1 kHz. System frequency response shall vary no more than ±3 dB from 89 Hz to 20 kHz measured on-axis.

The speaker system shall be used in 70-volt or 100-volt distributed audio systems in full-range or high-pass mode. A front-mounted rotary switch allows use of the speaker system in applications where it is desirable to use the device above 150 Hz only. A third mode of operation shall allow for use of the system in full-range mode in low-impedance applications.

The speaker system shall be designed for use in either acoustic ceilings or drywall-based walls or ceilings with the use of the included mounting hardware or additional accessories. The front of the loudspeaker shall be covered with a powder-coated, weather-resistant perforated steel grille. The assembly shall be UL and CE certified (UL1480 and UL2043).

The two-way full-range loudspeaker system shall be a Mackie Designs SP400C.



Electronic files for this product available at: www.mackie.com/installedsound

This Specification Sheet	SP400C_SS.PDF
Architects' and Engineers' Specifications	SP400C_AE.TXT
Instruction Manual	SP400C_IM.PDF

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Part No. 0002617 Rev. A1 4/02