

SM590i

Surface-Mount Speaker

Preliminary Technical Information for System Engineers



SOUNDTUBE
ENTERTAINMENT



Specifications: SM590i

Mounting hardware included

System Type	5.25" Coax, open-ceiling, ported (33 Watt transformer for 25/70.7/100 Volt or voice coil / 8 Ohm direct)
Frequency Response (-3 dB) ¹	73 Hz - 22 kHz
Low Frequency (-10 dB) ¹	60 Hz - 20 kHz
Max. Program Power	160 Watts
Max. Continuous Power RMS ²	80 Watts
Max. SPL dB @ 1 M	109.5 dB
Sensitivity dB @ 1W/1M ³	90.5 dB
Impedance (nominal)	8 Ohm (nominal value)
Coverage Angle (-6 dB @ 2 kHz)	90° (average)
Coverage Angle (-6 dB @ 10 kHz)	90° (average)
Directivity Factor (Q)	5.58 (Averaged 100 Hz - 10 kHz); 9.12 @ 2 kHz
Directivity Index (DI)	5.90 dB (Averaged 100 Hz - 10 kHz); 9.6 dB @ 2 kHz
Tap Selector	6-Position rotary switch with voice coil direct (8 Ohm)

Transformer Taps

70.7 V	Output	100 V	Output	25 V	Output
33 W	105.5 dB	33 W	105.5 dB	5 W	97.5 dB
17 W	103.0 dB	17 W	103.0 dB	2.5 W	94.5 dB
9 W	100.0 dB	9 W	100.0 dB	1.3 W	91.5 dB
6 W	98.5 dB	6 W	98.5 dB	0.63 W	88.5 dB
3 W	95.5 dB				

Transducers	
Low Frequency Driver	1 x 133 mm (5.25 in) Polypropylene cone, butyl rubber surround
High Frequency Driver	25 mm (1.0 in) Convex aluminum horn-loaded tweeter
Low Frequency Voice Coil	25 mm (1.0 in)
Crossover Frequency	3 kHz
Network Type	
Low Pass	N/A
High Pass	12 dB per octave, 2nd order
Enclosure Material	Drawn aluminum backcan with ABS baffle
Motor Board	Cast aluminum
Grille	Iridite-plated steel with powder-coat finish
Inputs	4 Pin, 5 mm Euroblock for individual or daisy chain connection
Colors	Black or white
Length	305.1 mm / 12.01 in
Height	316.9 mm / 12.48 in
Width (including bracket)	216.6mm / 8.53 in
Weight	4.3 kG / 9.5 lbs
Shipping Weight	10 kG / 22.0 lbs (2 per box)
Accessories	
Included	Hanging hardware, Euroblock connector & terminal weather boot
Optional	U-Mount Bracket (AC-SM-UB5), Pole Mount Adaptor (AC-SM-PMA5), Bent Shaft (AC-SM-BS5)
Packaging	2 Per box, can ship as single

¹ Frequency response is measured in half space and includes a low-frequency peak > +3 dB.

² Continuous power rating, EIA-426-B test.

³ 2.83 Volts at a distance of 1 meter.

SoundTube continually develops new product innovations and improvements. Updates to existing products without prior notice are an example of SoundTube's drive for constant improvement.

Preliminary Technical Information

The information in this document reflects preliminary data. Items including polar plots, frequency, phase & impedance response graphs will be added when final data are available.

Key Features

- High-power output (109.5 dB) for longer throw and higher SPL requirements.
- BroadBeamHP® coverage pattern delivering high-SPL and a consistent 90° dispersion pattern up to 10 kHz (EASE™ documented).
- One 133 mm (5.25 in) polypropylene woofer and one 25 mm (1.0 in) horn-loaded convex aluminum dome tweeter mounted to a proprietary cast-aluminum HP5™ baffle & heat sink.
- 90.5 dB Average sensitivity offers high output capabilities and reduced amplification costs.
- Weatherized components for indoor/outdoor applications. Includes a tool-free SpeedLever™ captured ball mounting system for a fast & secure installation.
- Included accessories: Mounting hardware, Euroblock connector & terminal weather boot.
- Vertical and horizontal pivoting offer precision aiming for indoor & outdoor applications.
- Easy access 6-position selectable tap switch for 25, 70.7 & 100 Volt applications with voice coil/8 Ohm direct simplifies ordering and inventory tracking.
- Optional accessories: Pole-Mount Adaptor, Bent Shaft, U-Bracket.
- High quality black or white paint finish.

Description

The SM590i is a high-powered 5.25" 2-way horn-loaded loudspeaker in a ported surface-mount enclosure design. The SM590i incorporates a low-profile grille, proprietary HP5™ motor-board and 6-position tap switch with voice coil/8 Ohm direct. Hanging hardware is included and features a fast-action SpeedLever™ for easy and secure installation with a proprietary captured ball mounting system. Optional accessories include a pole mount adaptor, a bent shaft and a u-bracket.

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Frequency Response

N/A

Phase/Impedance Reponse

N/A

Beamwidth (-6dB)

N/A

Applications

Engineered for high-SPL and effective low-end response (60 Hz @ -10 dB), the SM590i delivers consistent high-performance music and paging for applications requiring longer throw or higher volume above the existing ambient noise level. The SM590i is ideal for surface-mount sound reinforcement/PA in applications with high ambient noise levels including casinos, warehouses, airports, transportation & shipping centers, schools, gyms, arenas and stadiums. For additional bass down to 40 Hz (-10 dB) the RS801i subwoofer may be used.

Patented SoundTube Technologies

SoundTube Entertainment is consistently developing new technologies that enhance audio product performance. SoundTube Entertainment innovations are protected by multiple U.S. and international patents, which explicitly cover SoundTube dome, enclosure, mounting and dispersion technologies. SoundTube Entertainment actively defends its patents in order to protect SoundTube resellers and end-users.

Directivity Index (DI)

N/A



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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.

Data Acquisition

All performance data acquired at SoundTube's Technical Measurement

Center (TMC) are analyzed using a variety of standard measurement techniques, including Measured Length Sequence (MLS) and Time Delay Spectrometry (TDS). Performance, development and data acquisition tools include: Gold Line TEF 20, CLIO, LMS, LEAP, and proprietary modeling software. EASE™ data are acquired through an automated TEF 20/Outline/EASE™ interface.

EASE™ Data – 3-D polar plots.

SoundTubeSPEC™ – Proprietary SoundTube speaker placement software.

Architectural Specifications

The loudspeaker shall consist of a 133 mm (5.25 in) low-frequency transducer and a 25 mm (1 in) high-frequency transducer with a frequency-dividing network installed in a ported enclosure. The low-frequency voice coil diameter shall be 25 mm (1 in).

Performance specifications of a typical production unit shall be as follows: Useable frequency response shall extend from 60 Hz – 22 kHz (-10 dB, half space, no external equalization). Measured

sensitivity (2.83 Volt input, 1 meter) shall be at least 90.5 dB. The speaker shall have a nominal impedance of 8 Ohms and shall be available for 25/70.7/100 Volt modes with voice coil/8 Ohm direct. The frequency-dividing network shall have a crossover frequency of 3 kHz with a slope of 12 dB per octave (second order) for the high-pass filter. Rated power capacity shall be at least 80 Watts continuous power (RMS), and conforms to EIA-426-B testing. Maximum continuous output at 1 meter shall be 109.5 dB.

The low-frequency transducer shall have a polypropylene cone with butyl rubber surround. The high-frequency transducer shall be constructed of aluminum material and incorporate a high-SPL 90° horn.

Installation for the SM590i shall be by proprietary & corrosion-resistant captured-ball mounting system. SoundTube's tool-free captured-ball mounting system incorporates a locking zinc alloy lever attaching to a cast-aluminum ball. For seismic and safety redundancy, a secondary aircraft cable shall be included and attached to the speaker chassis via ¼ - 20 bolt. The external wiring input connector shall be a 4-pin, 5 mm Euroblock for 8

Polar Plots

N/A

SM590i

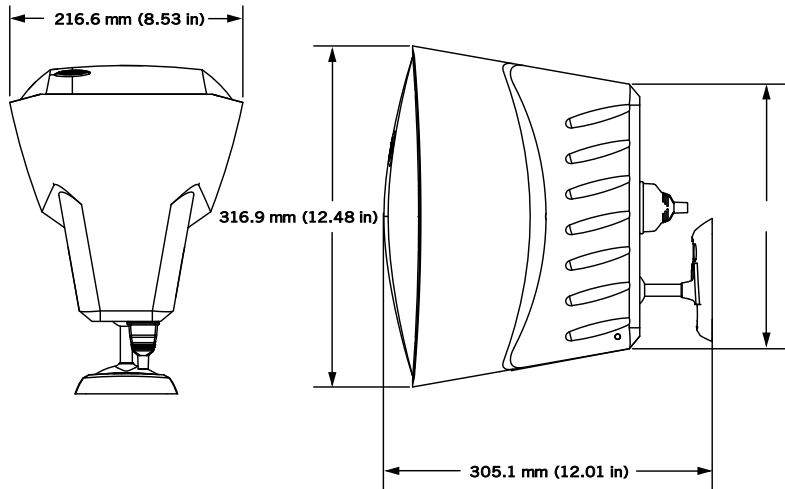
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Mechanical Drawings



Installation

Unlocked

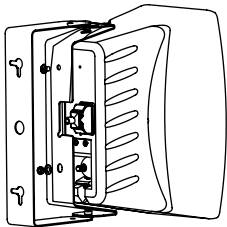


Locked

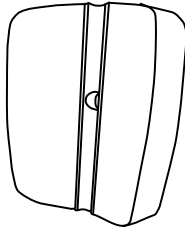


SoundTube's SM590i is a surface-mount speaker designed to mount to a wall, pole, ceiling or other rigid structure. Vertical & horizontal pivoting offer unlimited aiming for indoor & outdoor applications.

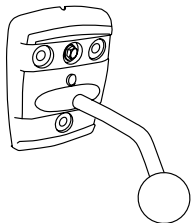
Optional Accessories



U-Mount Bracket (AC-SM-UB5)



Pole Mount Adaptor (AC-SM-PMA5)



Bent Shaft (AC-SM-BS5)

Ohm or distributed systems and shall accept from 10 – 22 gauge wire.

The system shall be for indoor/outdoor applications and shall have a weather-resistant terminal boot covering all wire connectors. The enclosure shall be constructed of injection-molded, glass-reinforced ABS. The grille shall be constructed of iridite-plated, powder-coated aluminum for lasting performance.

Overall cabinet dimensions shall be no more than 316.9 mm (12.48 in) in height by 216.6 mm (8.53 in) in width by 305.1 mm (12.01 in) in depth (including SM bracket). The SM590i shall include mounting hardware, Euroblock connector & terminal weather boot.

The system shall be the SoundTube SM590i with mounting hardware for both low & high impedance applications.

SoundTube Entertainment

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

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.