SM890i | High-Powered Surface-Mount Speaker

Preliminary Technical Information for System Engineers

SOUNDTUBE ENTERTAINMENT

Preliminary Data: SM890i

Mounting hardware included

System Type	8-inch offset, surface-mount, ported, high power, (150-watt transformer for 25/70.7/100-volt or transformer bypass)
Impedance (nominal) [1]	8 ohms
Sensitivity dB @ 2.83 V/1 m	93.0 dB
Sensitivity dB @ 1 W/1 m [2]	93.0 dB
Frequency Response (- 3 dB) [3]	100 Hz - 22 kHz
Frequency Response (- 10 dB) [3]	63 Hz - 22 kHz
Max. Program Power [4]	300 W
Max. Continuous Power RMS [5]	150 W
Max. Power SPL @ 1 m [6]	115.0 dB
Coverage Angle (-6 dB @ 2 kHz)	110° vertical / 80° horizontal
Coverage Angle (-6 dB @ 10 kHz)	110° vertical / 80° horizontal
Coverage Angle (averaged 2-10 kHz)	110° vertical / 80° horizontal
Angle of Pointability	0 to 90° horizontal
Directivity Factor (Q)	5.0 (averaged 100 Hz - 10 kHz); 8.0 (2 kHz)
Directivity Index (DI)	5.0 dB (averaged 100 Hz - 10 kHz); 8.0 dB (2 kHz)
Tap Selector	Six-position rotary switch with transformer bypass
Transducer - Low-Frequency Driver	203 mm (8.00 in.) treated paper cone with treated cloth surround
Transducer - High-Frequency Driver	36 mm (1.42 in.) titanium compression driver with waveguide
Low-Frequency Voice Coil	34 mm (1.34 in.)
Crossover Frequency	2.5 kHz
Network Type - Low Pass	12 dB per octave, 2nd order
Network Type - High Pass	12 dB per octave, 2nd order
Enclosure Material	Injection-molded ABS, glass fiber reinforced
Grille	Powder-coated steel
Inputs	Four-pin, 5.08 mm Euroblock for individual or daisy chain connection
Colors	Black or white
Height	477.0 mm (18.78 in.)
Width	295.9 mm (11.65 in.)
Depth (including bracket)	390.4 mm (15.37 in.)
Weight	9.5 kg (21.0 lbs.)
Shipping Weight	10.9 kg (24.0 lbs.)
Packaging	One per box
Included accessories	Surface-mount bracket, safety cable, Euroblock connector, terminal weather boot and paint mask
Optional accessories	N/A
Regulatory - CE	Approved
Regulatory - UL	UL1480 (UEAY) listed
RoHS	Approved

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

Transformer Taps

70.7 V	Output	100 V	Output	25 V	Output
150 W	115.0 dB	150 W	115.0 dB	19 W	106.0 dB
75 W	112.0 dB	75 W	112.0 dB	10 W	103.0 dB
38 W	109.0 dB	38 W	109.0 dB	5 W	100.0 dB
19 W	106.0 dB	19 W	106.0 dB	3 W	98.0 dB
10 W	103.0 dB				

Key Features

- Patented BroadBeamHP® waveguide technology delivers a consistent dispersion pattern for maximum intelligibility and edge-to-edge coverage (up to 8 kHz, independently verified).
- One 8.00 inch (203 mm) treated fiber driver with an offset 1.42 inch (36 mm) compression horn configuration.
- Engineered with corrosion-resistant materials for indoor/outdoor applications.
- Proprietary tool-free rotatable 110° x 85° bayonet-mounted horn for tailored dispersion and throw.
- 150-watt low-insertion loss transformer and maximum output (115 dB max. SPL, 93 dB sensitivity) for short to medium throw, PA and sound reinforcement.
- Easy-access six-position tap switch for 25/70.7/100-volt applications with transformer bypass position.
- Powder-coated steel grille with tool-free locking system.
- Tool-free, low-profile Stealth™ bracket with an integrated internal wedge cam for stable and precise aiming from 0 to 90 degrees. Mounting hardware is constructed of die-cast aluminum.
- Included pre-mountable pole and surface mount bracket allows for quick and easy division of labor.
- UL 1480 (UEAY) listed.
- High-quality black or white paint finish, custom colors optional.
- Included accessories: Surface-mount bracket, safety cable, paint mask, Euroblock connector, terminal weather boot and paint mask.

Description

The SM890i is a premium high-SPL, high-efficiency surface-mount loudspeaker for distributed or 8 ohm systems. The SM890i incorporates a dedicated 8-inch treated fiber woofer and a high-power compression horn transducer with a BroadBeamHP® waveguide to deliver a consistent dispersion pattern and superb intelligibility for the foreground music, sound reinforcement and PA markets.

The SM890i uses a 150-watt low-insertion loss transformer and a six-position tap switch with a transformer bypass position. Mounting hardware includes SoundTube's proprietary tool-free, low profile Stealth™

bracket with an integrated internal wedge cam, which allows for stable and precise aiming from 0 to 90 degrees.

Corrosion-resistant materials, including powder-coated steel grille plus all-aluminum mounting hardware, make the SM890i ideal for indoor/outdoor use.

Applications

Engineered for applications requiring high SPL and maximum intelligibility, the SM890i delivers a smooth and even coverage pattern ideal for casinos, convention centers, gyms, nightclubs, aerobic rooms, airports, super stores, arenas, theme parks, transportation hubs, shipping centers and stadiums. For additional low-frequency response down to 41 Hz (-10 dB) the powered SM1001-P may be incorporated.

BroadBeamHP® Wide Dispersion Technology

BroadBeamHP® technology delivers a consistent dispersion pattern across the upper registers of the frequency spectrum and delivers maximum edge-to-edge coverage and intelligibility. For the SM890i, SoundTube's proprietary BroadBeamHP® technology incorporates a high-frequency compression driver with a 1-inch exit and an 8-inch treated fiber woofer. For installer convenience, the SM890i 110° x 85° compression horn can be rotated 90 degrees to tailor the speaker coverage to the venue.

Patented SoundTube Technologies

SoundTube Entertainment and MSE Audio Group constantly develop new technologies that enhance audio product performance. SoundTube Entertainment innovations are protected by multiple U.S. and international patents, which explicitly cover SoundTube dispersion, enclosure and dome technologies. MSE Audio Group 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.

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 are independently collected and verified by NWAA Labs (www.nwaalabs.com) using their proprietary MACH testing system. All data are collected and analyzed according to ASTM, ISO and AES standards using EASERA, TEF and MLSSA. Full balloon data including both phase and magnitude are compiled into a variety of formats including EASE 4.x, GLL and CLF.

Architectural Specifications

The loudspeaker shall consist of one 203 mm (8.0 in.) low-frequency transducer and one 36.0 mm (1.42 in.) compression driver. The system shall include a crossover network and a 150-watt low-insertion loss transformer installed in the enclosure. The low frequency voice coil diameter shall be 34 mm (1.34 in.).

Performance specifications for a typical production unit shall be as follows: Useable frequency response shall extend from 63 Hz – 22 kHz (-10 dB). Measured sensitivity (2.83 volt, 1 meter) shall be at least 93 dB. The speaker shall have a nominal impedance of 8 ohms. The speaker shall be available for 25-, 70.7- and 100-volt modes and shall include a six-position tap switch with a transformer bypass position. The frequency-dividing network shall have a crossover frequency of 2.5 kHz with slopes of 12 dB per octave (2nd order) for both low- and high-pass filters. Rated power capacity shall be at least 150 watts continuous (RMS) and conform to EIA-426B testing. Maximum continuous output at 1 meter shall be 115 dB.

The low-frequency transducer shall have a treated fiber cone with treated cloth surround. The high-frequency transducer shall be an offset compression driver with a proprietary 110° x 80° BroadBeamHP® waveguide. The high-frequency transducer shall be bayonet-mounted to allow the horn to be rotated 90 degrees to tailor the coverage pattern to the venue.

Installation for the speaker shall be by a tool-free, low profile bracket with an integrated internal wedge cam for stable and precise aiming from 0 to 90 degrees. Mounting hardware shall be constructed of die-cast aluminum.

The enclosure shall be constructed of injection-molded ABS with glass fiber reinforcement. The grille shall be powder-coated steel with a tool-free locking system. Overall dimensions including the mounting plate and bracket for the SM890i are 477.0 mm (18.78 in.) tall by 295.9 mm (11.65 in.) wide by 350.1 mm (13.78 in.) deep.

The system shall be the SM890i for both low- and high-impedance applications.

SoundTube Entertainment

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

Graphs and Plots

Frequency Response

N/A

Impedance/Phase

N/A

Vertical Beamwidth

N/A

Directivity Index (DI)

N/A

Polar Plots

Horizontal
Vertical

125 Hz

N/A

250 Hz

N/A

500 Hz

N/A

1,000 Hz

N/A

2,000 Hz

N/A

4,000 Hz

N/A

8,000 Hz

N/A

10,000 Hz

N/A

Mechanical Drawings