



## Preliminary Specifications: SM31-EZ-(T)

System Type	3 inch full-range, surface-mount, 8 ohm with optional 20-watt transformer for 25/70.7/100-volt applications
Impedance (nominal) <sup>1</sup>	8 ohm
Sensitivity dB @ 2.83 V/1 m	87.0 dB
Sensitivity dB @ 1 W/1 m <sup>2</sup>	87.0 dB
Frequency Response (-3 dB) <sup>3</sup>	130 Hz - 22 kHz
Frequency Response (-10 dB) <sup>3</sup>	110 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)	N/A
Coverage Angle (-6 dB @ 10 kHz)	N/A
Coverage Angle (averaged from 2 to 10 kHz)	N/A
Directivity Factor (Q)	N/A (averaged 100Hz - 10kHz), N/A (2kHz)
Directivity Index (DI) dB	N/A (averaged 100Hz - 10kHz), N/A (2kHz)
Tap Selector (transformer accessory only)	Five-position rotary switch or voice coil direct
Transducer - Full-Range Driver	76.1 mm (3.0 in) Polypropylene driver with butyl rubber surround
Enclosure Material	ABS
Grille	Corrosion-resistant, powder-coated aluminum
Inputs	Screw terminal
Colors	Black or white
Height	101.6 mm (4 in)
Width	101.6 mm (4 in)
Depth (including mounting bracket)	88.9 mm (3.5 in)
Weight	N/A kg (N/A lbs.)
Shipping Weight	N/A kg (N/A lbs.)
Packaging	One per box
Included Accessories	N/A
Optional Accessories	20-watt transformer (AC-SM31-XFMR), 10 inch powered subwoofer (SM1001p)
Regulatory - UL	UL 1480 pending
Regulatory - CE	Approved

### Transformer Taps

	70.7 V Output		100 V Output		25 V Output	
<sup>1</sup> Impedance listed per IEC 60268-5 with a minimum less than 80% the nominal impedance	20 W	100.0 dB	20 W	100.0 dB	5 W	94.0 dB
<sup>2</sup> 1 W 1 m sensitivity determined using nominal impedance	10 W	97.0 dB	10 W	97.0 dB	2.5 W	91.0 dB
<sup>3</sup> Frequency response measured in half or full space as dictated by speaker mounting configuration	5 W	94.0 dB	5 W	94.0 dB	1.25 W	88.0 dB
<sup>4</sup> Max program power is 3 dB above max continuous power	2.5 W	91.0 dB	2.5 W	91.0 dB	0.63 W	85.0 dB
<sup>5</sup> Continuous power rating, EIA-426-B test	1.25 W	88.0 dB			0.32 W	82.0 dB
<sup>6</sup> Max output based on max continuous power						

## Preliminary Technical Information

- Ultra-low profile ZeroReflection™ ABS enclosure (4 inch diameter by 3.5 inch deep, including mounting plate).
- Three-inch full-range high-extrusion, high-fidelity polypropylene driver with butyl rubber surround.
- Corrosion-resistant, powder-coated aluminum grille with pressure fit attachment
- Theft- and corrosion-resistant mounting mechanism with an indexed swivel-joint for precision aiming up to 173° in any direction.
- Optional accessories: 20-watt four-position transformer (AC-31-XFMR), 10 inch powered subwoofer (SM1001p).
- Weatherized components for indoor/outdoor applications.
- UL 1480 approval pending.
- High quality black or white paint finish.

## Description

The SM31-EZ-(T) is a premium full-range 3.0 inch surface-mount speaker for applications requiring 8 ohm or distributed audio solutions. The SM31-EZ-(T) incorporates a proprietary attachment with indexed swivel-joint for complete hemispherical aiming. Incorporated into an ultra-compact micro-module, the SM31-EZ-(T) overall dimensions are smaller than a four inch sphere. The SM31-EZ-T is available for distributed audio applications and includes a 20-watt, five-position transformer. The SM31-EZ-(T) incorporates weatherized components for indoor/outdoor applications.

## Applications

Engineered for rapid installation and low profile mounting for smaller venues, the SM31-EZ-(T) is ideal for retail, restaurants, conference rooms, educational facilities or any setting where full-range intelligibility, low profile design and installation ease are paramount. For additional bass response down to 41 Hz (-10 dB), the SM1001p powered 10-inch subwoofer may be incorporated.



### Patented SoundTube 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

#### 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).

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

#### Acquisition and Verification

All data for SoundTube speakers are independently collected from and verified by NWA Labs ([www.nwaalabs.com](http://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 is compiled into a variety of formats including EASE 4.x, GLL and CLF.

### Architectural Specifications

The loudspeaker transducer shall consist of one full-range 76.2 mm (3.0 in) polypropylene cone with butyl rubber surround.

Performance specifications for a typical production unit shall be as follows: Useable frequency response shall extend from 110 Hz – 22 kHz (-10 dB). Measured sensitivity (2.83 volt input, 1 meter) shall be at least 85.0 dB. The speaker shall have a nominal impedance of 8 ohms, with an optional 20-watt transformer (AC-SM31-XFMR) for distributed systems. The optional transformer shall have a four-position tap switch for 25-, 70.7- and 100-volt applications. Rated power capacity shall be at least 20 watts continuous (RMS) and conform to EIA-426-B. Maximum continuous power output at 1 meter shall be 98 dB.

Surface-mount installation for the SM31-EZ-(T) is designed to mount to wall, ceiling or other rigid structure. Vertical and horizontal pivoting offer unlimited aiming for indoor and outdoor applications. Installation for the SM31-EZ-(T) shall be by proprietary and corrosion-resistant ball mount with an indexed swivel-joint for precision aiming and secure lock-out.

External wiring shall be by low-profile screw terminal and shall accept from 10 – 22-gauge wire.

The system shall be for indoor/outdoor applications.

The enclosure shall be constructed of injection-molded, ABS. The grille shall be constructed of powder-coated aluminum for lasting performance and affix to the speaker baffle via pressure fit.

Overall cabinet dimensions shall be no more than 101.6 mm (4.0 in) in height by 101.6 mm (4.0 in) in width by 88.9 mm (3.5 in) in depth including the mounting bracket.

The system shall be the SM31-EZ for low-impedance applications or the SM31-EZ-T for high-impedance applications.

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



## Graphs and Plots

Frequency Response

Phase/Impedance Response

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Vertical Beamwidth (-6 dB)

Directivity Index (DI)

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**Polar Plots**

———— Horizontal  
----- Vertical

125 Hz

250 Hz

500 Hz

1,000 Hz

2,000 Hz

4,000 Hz

8,000 Hz

10,000 Hz

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

**Mechanical Drawings**

