

# SB-1 *Parabolic Sound Beam*

## FEATURES



Applies clear sound with high SPLs to precise audience locations at distances >300 ft



Consistent 8° beam width at 100 ft



Integrated control electronics and amplifiers



Two-channel 1240 W amplifiers (620 W/ channel)



TruPower™ Limiting (TPL)



Intelligent AC™ System



Compatible with the Remote Monitoring System™ (RMS)

*Superior  
engineering  
for the art  
and science  
of sound.*



**Meyer  
Sound**

Throughout the history of sound reinforcement, horns have been the primary tool used to focus and project sound over substantial distances. Since the SPL produced from a horn decreases approximately 6 dB for each doubling of distance, the SPL a horn can generate at large distances is extremely limited. Stacking and arraying horns can propagate sound waves that attenuate less than 6 dB per doubling of distance, but this type of wave can only be maintained up to about 100 ft. Previously developed parabolic devices projected sound waves of this type over larger distances but were not useful for sound reinforcement due to their limited frequency range and inconsistent beam width.

The Meyer SB-1 Parabolic Sound Beam is the first device that propagates sound waves that decrease as little as 3 dB SPL per doubling of distance for more than 300 ft, across a five-octave frequency range, with a consistent and narrow beam width. The SB-1 debuted at an indoor Japanese installation with a 40,000 person capacity that required accurate reproduction and high SPLs for even the furthest seats without the aid of delay towers.

Ten SB-1s (five per side), arrayed at 10° horizontal angles, were directed at small audience sectors. The SB-1s (with the entire sound system) produced 116 dB SPL at 420 ft



**PATENT PENDING**

using music as the measurement source. The SB-1's beam width increased only 2°, from 8° at 100 ft to 10° at 450 ft, with side lobes measured at 50 dB below the SPL within the beam width. The SB-1s produced a 12 dB higher signal-to-noise ratio, and 25 dB lower side lobes than a similar horn-based system previously employed in the same venue.

The SB-1s provided complete coverage with astonishing clarity to the most distant seating areas. Most impressively, the SB-1's high power and narrow coverage angle minimized reverberation and interactions between neighboring units, which simulated a unique feeling of proximity to the stage at large distances. The SB-1 was sensationally successful and received rave reviews in the

Japanese press.

The physical construction of the SB-1 consists of a fiberglass parabolic reflector dish with a bullet-shaped pod containing a 4" compression driver and an aspherical horn mounted over, and aimed at, the center of the dish. One 12" band-limited cone driver is embedded inside the center of the dish facing the pod to steer and focus the sound produced from the horn. The dish housing serves as the parabolic aiming mechanism and contains the amplification, signal processing, and control electronics for both drivers. The high frequency pod can be disassembled and packed for shipping inside the dish.

The SB-1's integrated electronics and MP-2 amplifier system utilizes the Intelligent AC power supply and the

TruPower limiting (TPL) system. The Intelligent AC supply auto-selects the correct operating voltage (facilitating international use), suppresses high voltage transients, provides soft-start power-up (eliminating high inrush current), and sustains operation during low-voltage periods. TPL is the first limiting system to account for varying speaker impedance by measuring current, in addition to voltage, to compute the instantaneous power dissipation. TPL improves performance before and during limiting by allowing the driver to produce its maximum SPL across its entire frequency range, and extends the lifetime of the drivers by controlling the temperature of the voice coil.

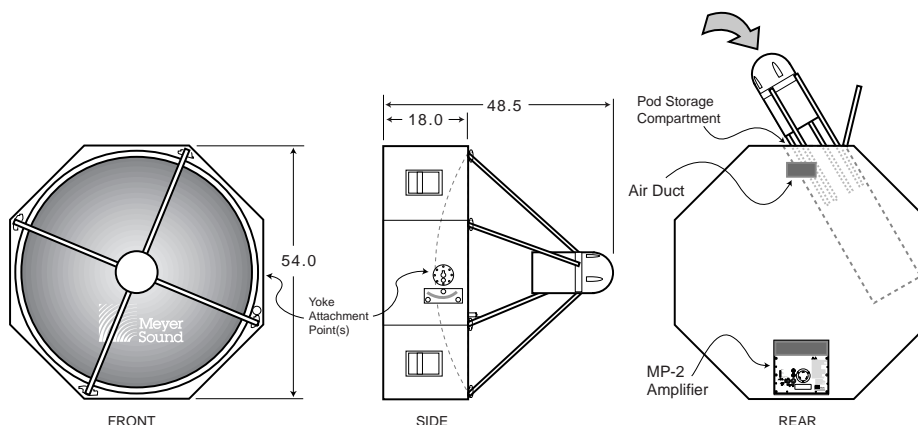
The SB-1 can be equipped to operate with the Remote Monitoring System (RMS) network and software application. RMS displays signal and power levels, driver and cooling fan status, limiter activity, and amplifier temperature for all speakers in the network on a Windows-based PC.

## SB-1 SPECIFICATIONS

<b>ACOUSTICAL<sup>1</sup></b>	<b>Frequency Response</b> $\pm 4$ dB 500 Hz – 15 kHz at 100 m <b>Maximum SPL</b> 110 dB @ 100m <b>Dynamic Range</b> >110 dB
<b>COVERAGE</b>	(-6dB points) $10^{\circ}$ H ; $10^{\circ}$ V
<b>TRANSDUCERS</b>	<b>low frequency</b> 12" diameter MS-12 cone (3" voice coil) <b>high frequency</b> 2" throat, 4" diaphragm MS-2001A compression driver <b>HF DC Protection</b> 20 mf capacitor
<b>AMPLIFIERS</b>	<b>type</b> Complementary power MOSFET output stages class AB/H <b>burst capability</b> 1240 Watts (620 Watts/channel) <b>THD, IM, TIM</b> < .02 %
<b>AUDIO INPUT</b>	<b>type</b> 10 k $\Omega$ impedance, electronically balanced <b>connector</b> XLR (A-3) male and female <b>nominal input level</b> +4 dBu (1.23 Vrms)
<b>AC POWER</b>	<b>Connector</b> 250V NEMA L6-20P (Twistlock) Plug <sup>3</sup> <b>Automatic voltage selection</b> 80-135 VAC and 160-250 VAC; 50/60 Hz <sup>4</sup> <b>Max.Continuous RMS Current (&gt;10 sec)</b> @115 V: 8A @230V: 4A @100V: 10A <b>Burst RMS Current (&lt;1 sec)</b> @115 V: 15A @230V: 8A @100V: 18A <b>Max Peak Current During Burst</b> @115 V: 22Apk @230V: 11Apk @100V: 25Apk <b>Soft-Current Turn-on</b> Inrush current <12A@115V
<b>PHYSICAL</b>	<b>dimensions</b> Height: 54.0"; Width: 54.0"; Depth: 48.5" <b>weight</b> SB-1: 293 lb (133 kg); SB-1 with yoke: 392 lb (178 kg) <b>finish/enclosure</b> black/fiberglass <b>rigging</b> Rigging yoke mounts a single SB-1; allows horizontal and vertical angle adjustments
<b>NOTES</b>	1. Measured at 5 m non-axis, free field conditions, pink noise input, in third-octave bands.

## PHYSICAL DIMENSIONS

ALL UNITS IN INCHES



**Meyer Sound Laboratories**  
has devoted itself to  
designing, manufacturing,  
and refining components  
that deliver superb sonic  
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designed and built to  
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across an extended range.



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**SB-1 - 04.049.047.01A**

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