

# SPECIFICATIONS SP™ 4



**Frequency response, 1 meter on-axis, swept-sine in anechoic environment:**  
52 Hz to 17 kHz ( $\pm 3$  dB)

**Usable low frequency limit (-10 dB point):**  
45 Hz

**Power handling:**  
Full range:  
1,000 watts continuous  
2,000 watts program  
4,000 watts peak

Low frequency section:  
1,000 watts continuous  
2,000 watts program  
4,000 watts peak

High frequency section:  
60 watts continuous  
120 watts program  
240 watts peak

**Sound pressure level, 1 watt, 1 meter in anechoic environment:**  
Full range:  
100.0 dB SPL (2.83 V input)

Low frequency section:  
101 dB SPL (2.83 V input)

Mid/high frequency section:

107 dB SPL (2.83 V input)

**Maximum sound pressure level (1 meter):**

Full range:  
130 dB SPL continuous  
136 dB SPL peak  
Low frequency section:  
131 dB SPL continuous  
137 dB SPL peak  
Passive mid/high frequency section:  
129 dB SPL continuous  
135 dB SPL peak

**Radiation angle measured at -6 dB point of polar response:**  
90° horizontal by 40° vertical

The vertical main polar lobe is angled down 10° with respect to straight ahead being +10, -30°

**Transducer complement:**  
Low frequency section:  
2 x 15" woofer, vented  
Black Widow® 1508-8 HE SF

High frequency section:  
1 x .875" exit / 51 mm voice coil  
RX™ 22 compression driver on an asymmetrical Quadratic Throat CD horn

**Box tuning frequency:**  
Low frequency section: 58 Hz

**Crossover frequency (internal passive):**  
Low frequency – high frequency  
1,800 Hz

**Recommended Active Crossover Frequency Region and Slope:**  
Low Frequency – High Frequency:  
1,800 Hz at 12 dB/octave

**Time Offset:**  
Low frequency: 0.0 ms  
Mid/high frequency: 0.48 ms

**Impedance (Z):**  
Full range:  
Nominal: 4.0  $\Omega$   
Minimum: 3.4  $\Omega$

Low frequency:  
Nominal: 4.0  $\Omega$   
Minimum: 3.2  $\Omega$

Passive HF:  
Nominal: 8.0  $\Omega$   
Minimum: 5.4  $\Omega$

**Input connections:**  
Full range: two 1/4" phone jacks, one Neutrik® four-pin Speakon® jack & bi-amp capability provided via an internal wiring jumper

**Enclosure materials and finish:**  
Aspen hardwood plywood finished in Hammertex™ covering

**Mounting provisions:**  
This unit is not designed for overhead suspension

Built-in SA-1 stand-mount adapter and four large rubber feet on bottom for floor use

**Dimensions (H x W x D):**  
Front:  
50.63" x 20.55" x 23.00"  
1286 mm x 522 mm x 584 mm

Rear:  
50.63" x 12.63" x 23.00"  
1286 mm x 321 mm x 584 mm

**Net weight:**  
127 lbs. (56.6 kg)



## Features

- Quasi three-way, full-range sound reinforcement system
- RX™ 22 compression driver with ferrofluid cooling
- Two 15" BWX Black Widow® 4" VC woofer
- 2,000 watts program, 4,000 watts peak
- Patented Quadratic Throat Waveguide™ technology
- Asymmetrical horn aims the sound down 10° (at the audience, not over their heads)
- Sound Guard™ III tweeter protection
- Full-range inputs include a Neutrik® Speakon® four-pin jack and two 1/4" phone jacks
- Bi-amp capability via internal wiring jumper
- Trapezoidal aspen hardwood enclosure

## Description

The SP 4 is a quasi three-way speaker system comprised of two 15" Black Widow BWX SF series woofer with Kevlar® impregnated cones, and an RX 22 compression driver loaded onto a constant directivity Quadratic Throat Waveguide.

The SP 4 has a trapezoidal-shaped enclosure, which reduces the buildup of standing waves inside the enclosure to minimize mid-bass and midrange coloration. The enclosure is constructed of aspen hardwood plywood augmented with dual-layered top and bottom panels covered with heavy duty textured black Hammertex™ and reinforced with high-impact plastic corners. A full-length, wrap-around perforated steel grille protects the front of the enclosure.

The two-way system consists of the following driver components: two 15" Black Widow BWX SF series woofers with Kevlar impregnated cones and dust caps. The woofer section is capable of over 1,000 watts of continuous power handling (AES Std 2-1984). The high frequencies are handled by a 2" RX22 titanium diaphragm compression driver utilizing ferrofluid cooling. This superb driver is coupled

to a Quadratic Throat Constant directivity waveguide (U.S. Patent #6,059,069) to provide smooth, even response, low distortion and good high frequency dispersion. This horn has an asymmetrical vertical polar response, aiming the main energy lobe down 10 degrees so it is aimed at the audience instead of over their heads. This reduces ceiling reflections, ensuring greater clarity and gain before feedback. The RX22 driver features the Radialinear Planar Phase Correction System (U.S. Patent #6,064,745), which provides a smooth and extended high frequency response.

Full-range input connection to the system is made via two 1/4" phone jacks and a four-pin Neutrik in parallel, and bi-amping flexibility is provided via an internal jumper that can be accessed by unscrewing and removing the input cup. The internal passive crossover features the Peavey-exclusive Sound Guard protection circuit for the tweeter and an advanced topology crossover with high-performance components to provide high power handling and reliability. Sound Guard provides long- and medium-term driver overload protection without impairing musical transients or dynamics on either the midrange or the tweeter when the system is used full range or when it is bi-amped. The crossover provides driver roll-off and protection as well as driver EQ for the woofer and horn for a clean, clear and smooth response. High-quality, reliable crossover components include polypropylene capacitors and high-current inductors. The optimal integration of the crossover with the selected drivers results in a smooth frequency response from 52 Hz to 17 kHz.

Despite its compact dimensions, this system can produce very high sound levels and handle 2,000 watts program power, resulting in high articulation and long-term reliability.

## Frequency response

This measurement is useful in determining how accurately a given unit reproduces an input signal. The frequency response of the SP 4 is measured at a distance of 1 meter using a 1 watt (into the nominal impedance) swept-sine input signal. As shown in figure 1, the selected drivers in the SP 4 combine to give a smooth frequency response from 52 Hz to 17 kHz.

## Power handling

There are many different approaches to power handling ratings. Peavey rates this loudspeaker system's power handling using a full-range form of the AES Standard 2-1984. Using audio band 20 Hz to 20 kHz pink noise with peaks of four times the RMS level, this strenuous test signal assures the user that every portion of this system can withstand today's high technology music. This rating is contingent upon having a minimum of 3 dB amplifier headroom available.

## Harmonic distortion

Second and third harmonic distortions vs. frequency are plotted in figures 3 & 4 for two power levels. Ten percent (10%) of rated input power and either one percent (1%) of rated input power or 1 watt, whichever is greater. Distortion is read from the graph as the difference between the fundamental signal (frequency response) and the desired harmonic. As an example, a distortion curve that is down 40 dB from the fundamental is equivalent to 1% distortion.

## Mounting

This unit is not designed for overhead suspension. Four large rubber feet are included on the bottom for floor use.

# SPECIFICATIONS SP™ 4

## Architectural & engineering specifications

The loudspeaker system shall have an operating bandwidth of 52 Hz to 17 kHz. The nominal output level shall be 100.0 dB when measured at a distance of 1 meter with an input of 1 watt. The nominal impedance shall be 4.0 ohms. The maximum continuous power handling shall be 1,000 Watts, with maximum program power of 2,000 watts, peak power input of at

least 4,000 watts and a minimum amplifier headroom of 3 dB. The nominal radiation geometry shall be 90 degrees symmetrical about the center axis in the horizontal plane, and +10, -30 degrees about the center axis in the vertical plane. The outside dimensions shall be 50.63 inches high by 20.55 inches wide by 23.00 inches deep. The weight shall be 127 lbs. The loudspeaker system shall be a Peavey model SP™ 4.

## 3 + 2 Year Limited Warranty

**NOTE:** For details, refer to the warranty statement. Copies of this statement may be obtained by contacting Peavey Electronics Corporation, P.O. Box 2898, Meridian, Mississippi 39301-2898.

Amplitude Response (1W 1m On-Axis)

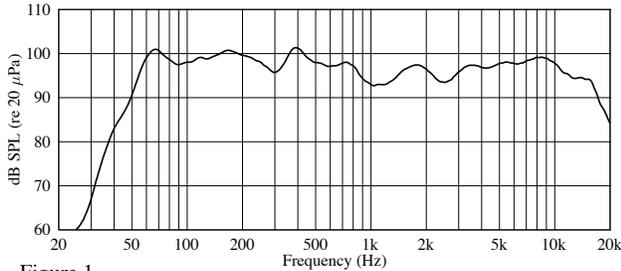


Figure 1

Harmonic Distortion : 1% Rated Power

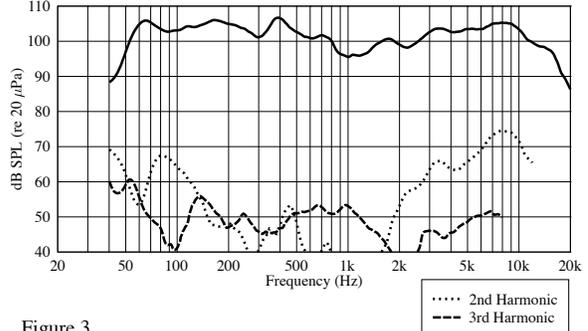


Figure 3

Impedance

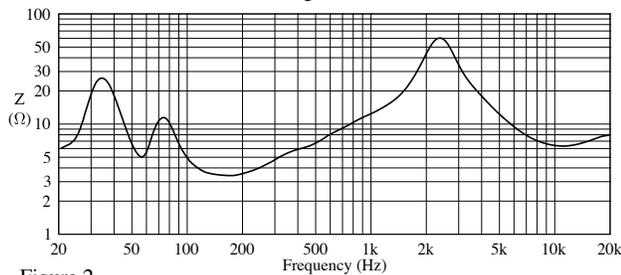


Figure 2

Harmonic Distortion : 10% Rated Power

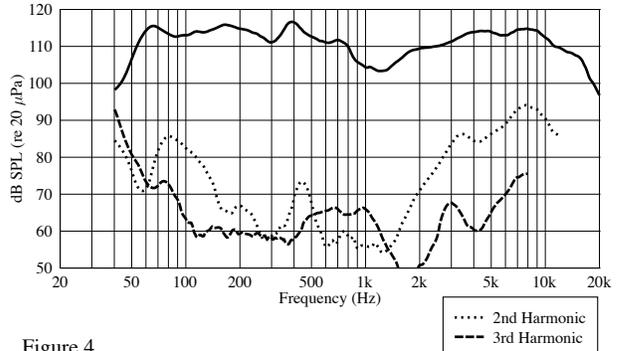
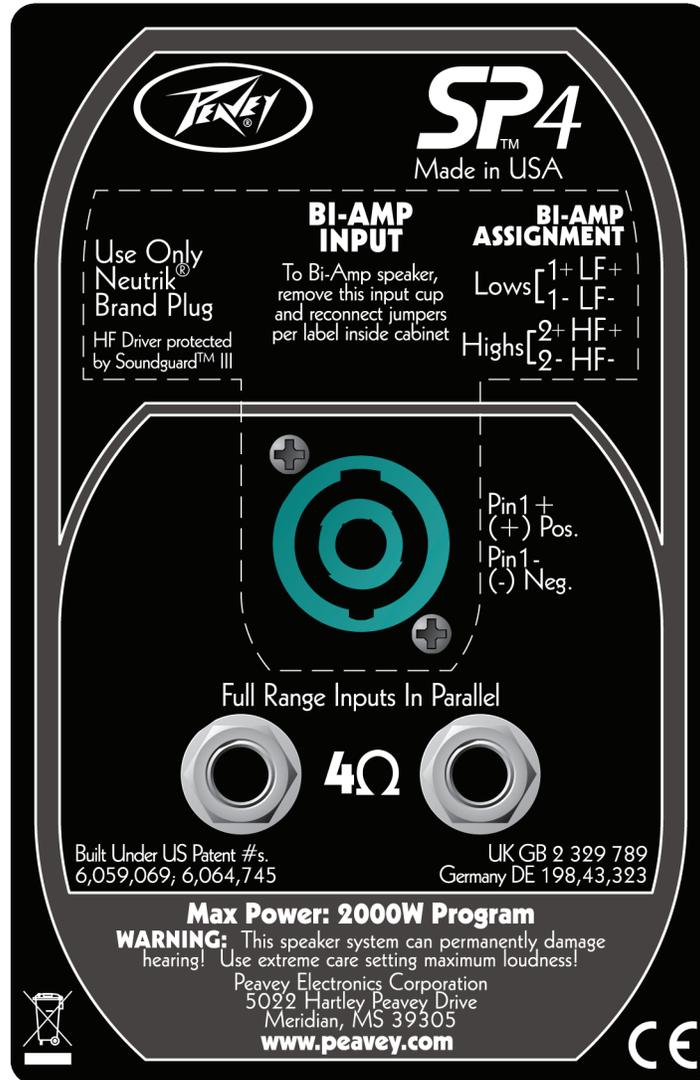


Figure 4

SP 4 Input Plate



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Features and specifications are subject to change without notice.

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