

Electro-Voice®
a gulton company

Sentry® VI Three-Way Professional Monitor System

SPECIFICATIONS

(High Frequency Slope control at 0 dB,
Environment control set for quarter
space)

Frequency Response, 1 Meter on Axis,
Swept One-Third Octave Random
Noise, Quarter-Space Anechoic
Environment

Normal Mode:
± 3 dB 40 to 18,000 Hz

Step-Down Mode with EQ:
± 3 dB 28 to 18,000 Hz

Total Acoustic Power Output vs.
Frequency, Quarter-Space Anechoic
Environment

Normal Mode:
± 3 dB 40 to 18,000 Hz

Step-Down Mode:
± 3 dB 28 to 18,000 Hz

Dispersion Angle Included by
6-dB-Down Points, Horizontal Plane,
Indicated Bands of Random Noise,
Anechoic Environment

500-1000 Hz Octave Bands:
170° ± 5°

2000-16,000 Hz Octave Bands:
115° ± 10°

16,000 Hz 1/3-Octave Band:
110°

Dispersion Angle Included by
6-dB-Down Points, Vertical Plane,
Indicated Bands of Random Noise,
Anechoic Environment

500-1000 Hz Octave Bands:
170° ± 15°

2000-8000 Hz Octave Bands:
90° ± 10°

Sound Pressure Level at 1 Meter, 1 Watt
into Nominal Impedance, 300-10,000
Hz Average, Anechoic Environment
97 dB

Long-Term Average Sound Pressure
Levels, with Instantaneous Peaks 10 dB
above Average, at Midband Frequencies
(100-3000 Hz), in Reverberant Field of
Typical Living Room (R = 200 square
ft), at Indicated Watts per Channel
Available

1.5 watts:
90 dB

4.7 watts:
95 dB

15 watts:
100 dB

47 watts:
105 dB

500 watts:
115 dB

Maximum Long-Term Average Sound
Pressure Levels, with Instantaneous
Peaks 10 dB above Average, at Indicated
Frequencies, in Reverberant Field of
Typical Living Room (R = 200 square
ft), with Maximum Long-Term Average
Power Applied

Midband (100-3000 Hz):
115 dB

10,000 Hz:
103 dB

Long-Term Average Power Capacity at 8
Ohms

28-6000 Hz:
50 watts minimum

6000-10,000 Hz:
50 watts, dropping to
10 watts at 10,000 Hz

20,000 Hz:
5 watts

Impedance

Nominal:
8 ohms

Minimum:
5 ohms

Short-Term Power Capacity (10 ms) at
8 Ohms

28-6000 Hz:
500 watts minimum

6000-10,000 Hz:
500 watts, dropping to
100 watts at 10,000 Hz

20,000 Hz:
50 watts

Quarter-Space Reference Efficiency
3.0%

Crossover Frequencies

Acoustic:
40 Hz

Electrical:
350 & 3000 Hz

Transducer Compliment

12-in dynamic woofer, downward facing
6-1/2-in vented midrange
neckless radial horn tweeter

Controls

High Frequency Slope (0 dB, -3 dB,
-6 dB, and -9 dB at 10,000 Hz) &
Environment (quarter space/half
space)

Bi-Amplification

A low-level, active crossover
(12-dB-per-octave minimum slope)
may be used in place of the integral
350 Hz crossover

Tweeter Protection

Integral TS-1 time-variable turn-off
circuit with indicator light

Dimensions

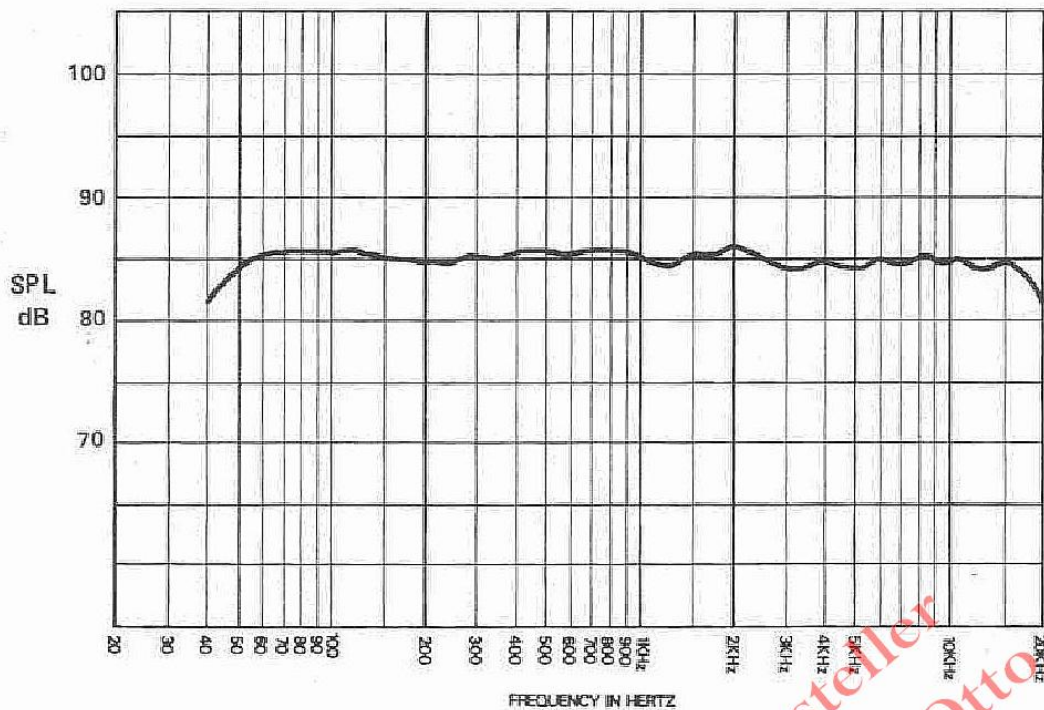
21-3/4 in wide X 32 in high X
15-1/2 in deep

Cabinet

Walnut veneer

Net Weight

114 lb



**FIGURE 1 —
Axial Frequency Response
(4 Volt/3 Meters)**
(1/4 Space Environment with Switch
in 1/4 Space Position, No Eq. High
Frequency Slope Control in 0 dB
position)

DESCRIPTION AND APPLICATIONS

The Electro-Voice Sentry® VI is one of a generation of monitor loudspeaker systems resulting from creative engineering and critical listening by Electro-Voice product engineers and product managers. The Sentry VI provides a unique combination of high conversion efficiency, high output ability, and high accuracy. The foundation of the Sentry VI is a computer-designed 12-inch woofer/enclosure system based on the vented enclosure analyses of A. N. Thiele and R. H. Small. The result of such optimized design is extended, low-distortion bass output in an enclosure of modest size. The Sentry VI woofer is downward firing, so that in many applications it can take advantage of a true "quarter-space" acoustic environment, with the woofer in intimate acoustic contact with two surfaces—like a floor and wall. Such an environment restricts woofer output to one-quarter of a sphere ("all space") and provides an increase in efficiency that is uniform with frequency, relative to speaker systems with conventional front-mounted woofers. Also, the true quarter-space environment eliminates

the response aberrations which can occur with front-mounted woofers, due to interference between the woofer's forward output and that which travels along the sides of the enclosure and is reflected by the wall behind the speaker.

For the 350 to 3000 Hz range, the Sentry VI employs a newly designed 6-1/2-inch cone midrange transducer which includes an integral vented enclosure. This system is, to our knowledge, the first midrange transducer to employ the vented enclosure technology of A. N. Thiele. In the lowest two octaves of midrange performance, a small motion of the cone energizes the vent, so that most of the acoustic output comes from the vent. This situation has a host of important advantages, achieved simultaneously and without compromise:

1. Efficiency and output ability approach that of a horn/driver combination, in a package of much smaller physical size,

without the sound-quality compromises of poorly designed horns.

2. The cone is small (since the lowest frequencies are radiated by the vent) so that dispersion is wide and uniform.
3. The woofer-to-midrange crossover frequency is extraordinarily low (350 Hz), far lower than most speaker systems (500 to 800 Hz) and out of the important frequency range where vocal energy is concentrated.

Above 3000 Hz, output is provided by the respected ST350A neckless radial horn tweeter, as employed in other Sentry systems. In combination with the vented midrange, the ST350A provides uniform dispersion over the Sentry VI's entire operating range. The result is identical sound quality on and off the speaker axis (up to 60 degrees off axis), stable, well-defined source positioning, and excellent front-to-back depth on recordings which incorporate natural room reverberation.

INTEGRAL TWEETER PROTECTION

The Sentry VI incorporates a TS1 Tweeter Protector. The tweeter is continuously monitored by a solid state full wave bridge rectifier. The rectifier drives a relay switch in the tweeter circuit which restricts power to the tweeter when the input exceeds a safe level. Operation is restored when levels are again safe.

When the Tweeter Protector is activated, a light bulb is switched into the tweeter signal path, and its glow is visible on the front of the enclosure. The resistance of the bulb cuts tweeter power to a safe level and the glowing of the bulb is positive indication of the TS1's operation. Because the tweeter is never completely off, the audible effect of the Tweeter Protector is small.

Tweeter power handling characteristics are such that their short-term power capacity (10 milliseconds or so) is about ten times the long-term average. This complements the nature of program material, since recordings usually have short-term peaks about 10 dB above the average levels. Although these peaks contribute little to perceived loudness (this is more directly related to the long-term average levels), peaks are necessary for high-accuracy reproduction. Most speaker protective devices do not deal effectively with the peak-to-average characteristics of music, but the TS1, tailored exactly for the nature of program material, is a significant exception. The time constant of its rectifier circuit has been chosen to pass large signals of short duration (less than 10 milliseconds) while interrupting longer signals at much lower input levels.

STEP-DOWN MODE WITH SEQ EQUALIZER

As normally supplied, the Sentry VI's low-frequency 3-dB-down point is 40 Hz, sufficient for many applications. By employing the accessory SEQ equalizer and retuning the enclosure to an appropriately lower frequency, the 3-dB-down point is reduced to 28 Hz. System performance is otherwise unaffected, except for a slight reduction in maximum output ability in the 40 to 80 Hz range (maximum output ability under 40 Hz is, of course, increased). Such extended low-frequency performance is virtually unprecedented, especially in high-output/high-efficiency transducers for professional use.

The SEQ equalizer is an active device with a mid-band gain of unity. It has two identical audio channels. The SEQ may be connected just ahead of the power amplifier or earlier in the amplification chain if similar levels and terminations exist (maximum mid-band drive is 7 volts RMS sine wave, input impedance is 100,000 ohms, and minimum load impedance is 8000 ohms; noise is 80 dB below 200 mV).

The Sentry VI enclosure is tuned to the proper lower frequency by partial covering of the low-frequency port. The port cover and mounting hardware are supplied with each Sentry VI; they are packed in a plastic bag fastened to the rear of the enclosure. Specific installation instructions follow:

1. Have port cover and hardware close at hand.
2. Place the speaker enclosure on its back (a carpeted or other flat surface will protect the painted finish).
3. Separate the black-painted enclosure base from the enclosure

by removing the four recessed retaining bolts. A 7/16-inch socket wrench is required. The base may be easily tilted down to rest on the floor or other working surface (do not place a strain on wires leading from the crossover into the speaker enclosure).

4. Install the port cover on the exposed port.
5. Re-install the base and right the speaker enclosure.

WARRANTY (Limited) —

Electro-Voice Sentry Loudspeakers and accessories are guaranteed for five years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not cover finish or appearance items or malfunction due to abuse or operation at other than specified conditions. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee.

For shipping address and instructions on return of Electro-Voice products for repair and locations of authorized service agencies, please write: Service Department, Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone: 616/695-6831) or 7473 Avenue 304, Visalia, CA 93277 (209/625-1330,-1).

Electro-Voice also maintains complete facilities for non-warranty service.

Specifications subject to change without notice.