

MARK IV CINEMA SYSTEMS

Electro-Voice
Theatre Sound Systems
Altec Lansing
Voice of the Theatre®

TS8-2 Theatre Surround System

SPECIFICATIONS

Usable Frequency Response, 10 Feet on Axis, Swept One-Third-Octave Pink Noise, Half-Space Anechoic Environment (Shaped to match ISO 2969 curve; see Figure 1):
40-20,000 Hz

Half-Space Reference Efficiency:
0.8%

**Power Handling Capacity at 8 Ohms (see Power Handling Capacity section),
Long Term:**
40 watts

Short Term:
160 watts

Recommended Amplifier Power:
80 watts

Long-Term Acoustic Output:
0.32 watts

Short-Term Acoustic Output:
1.28 watts

Sound Pressure Level at 1 Meter, 1 Watt Input, Anechoic Environment, Band-Limited Pink Noise Signal, 300 to 3,000 Hz:
89 dB

Dispersion Angle Included by 6-dB-Down Points on Polar Responses, Horizontal and Vertical Planes, Indicated One-Third-Octave Bands of Pink Noise,

500-6,300 Hz:
145°, ±30°

6,300-16,000 Hz:
112°, ±30°

Directivity Factor R_0 (Q), 500-16,000 Hz Median (see Figure 4):
5.4 (+3.8, -1.4)

Directivity Index D_i , 500-16,000 Hz Median

Transducer Complement:

8-inch woofer
1-inch soft-dome tweeter

Crossover Frequency:

1,800 Hz

Crossover Slope:

12 dB per octave

Impedance,

Nominal:
8 ohms

Minimum:
7.2 ohms

Input Connections:

Spring-loaded push type (will accommodate one conductor #10 AWG stranded or #9 AWG solid, or twisted pair of #16 AWG stranded or #15 AWG solid conductors)

Enclosure Material and Finish:

Black textured vinyl on particle board with black grille cloth

Mounting:

Hanging via ten ¼-20 threaded inserts (will accommodate Series 100 Omnimount)

Dimensions:

60.0 cm (23.6 in.) high
36.0 cm (14.2 in.) wide
22.6 cm (8.9 in.) deep

Net Weight:

10.9 kg (24 lb)

Shipping Weight:

11.8 kg (26 lb)

DESCRIPTION AND APPLICATION

The Electro-Voice TS8-2 is a two-way speaker system designed specifically for theatre surround applications. A compact

smooth frequency response, wide, uniform dispersion to the highest frequencies and high efficiency.

The TS8-2 utilizes an eight-inch woofer in a sealed box for reproduction of frequencies from 40 Hz to 1800 Hz and a one-inch soft-dome tweeter to cover the range from 1800 Hz to 20,000 Hz. Special attention was paid to the design of the crossover to achieve a seamless acoustic summation both on and off axis. The TS8-2 delivers an unusually wide and uniform coverage pattern, enabling an exceptionally even surround-sound field throughout the house. The overall frequency response is tailored to follow the recommended ISO 2969 standard curve for the response of motion-picture control rooms and indoor theatres. Additionally, the low-frequency response has been further adjusted to minimize the low-frequency boominess often encountered when multiple speakers are mounted along the wall of a theatre, eliminating, in most cases, the need for any active equalization.

The TS8-2 comes with a matte-black vinyl finish and a black cloth grille, and includes pre-mounted T-nuts for easy installation. The TS8-2 has a nominal impedance of 8 ohms and a well behaved impedance curve allowing safe paralleling of speakers.

FREQUENCY RESPONSE

The TS8-2 frequency response shown in Figure 1 measured on axis in the farfield in an anechoic environment using a swept one-

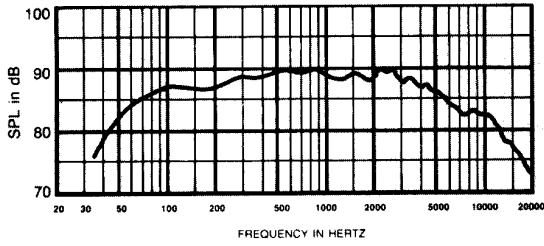


FIGURE 1 — Axial Frequency Response (1 watt at 1 meter)

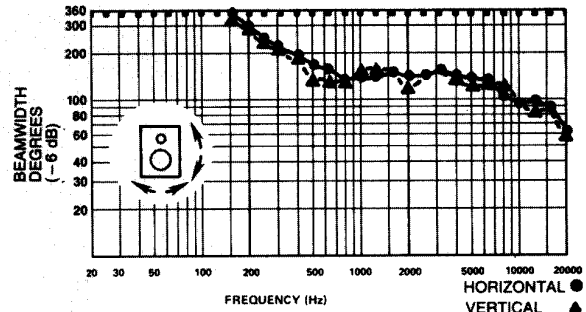


FIGURE 2 — Beamwidth vs. Frequency

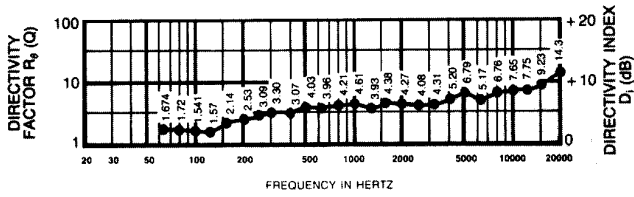


FIGURE 3 — Directivity Index vs. Frequency

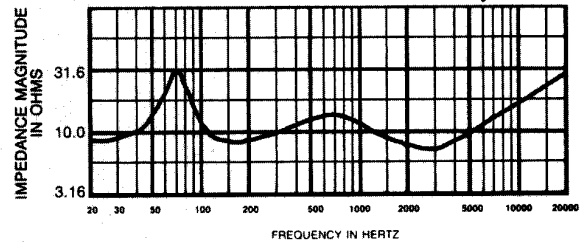


FIGURE 4 — Impedance vs. Frequency

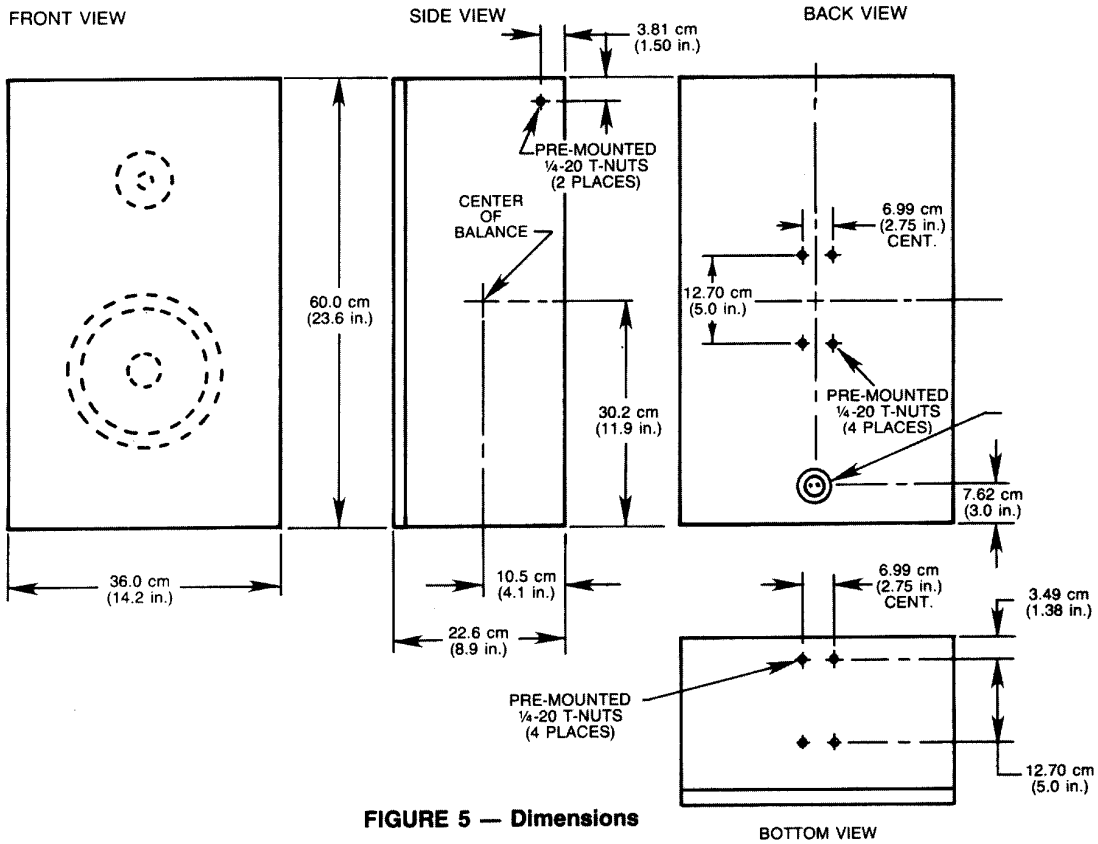


FIGURE 5 — Dimensions

inverse-square law. The TS8-2 frequency response follows the recommended ISO 2969 curve.

DIRECTIVITY

The polar response of the TS8-2 speaker system was measured in an anechoic environment at 20 feet using 1/3-octave pink noise inputs. Beamwidth of the system utilizing the complete 1/3-octave polar data is shown in Figure 2. R_{θ} (Q) and directivity index (D) are plotted in Figure 3.

CONNECTION

The TS8-2 is fitted with a pair of color-coded connectors mounted on the rear of the enclosure. Electrical connection is made by pushing down on the spring-loaded lever, inserting the wire in the elliptical slot and releasing the pressure. One conductor of #10 AWG stranded or #9 AWG solid, or a twisted pair of #16 AWG stranded or #15 solid conductors will fit.

The TS8-2 has a nominal impedance of 8 ohms and exhibits no dips below 7.2 ohms, as shown in Figure 4, allowing the paralleling of speakers with confidence of safe amplifier loads.

MOUNTING

Ten integral 1/4-20 propeller nuts are situated in the center of the back and the bottom of the TS8-2 enclosure, as shown in Figure 5, to accommodate the 100 Series Omnimount hardware. Additionally, two propeller nuts are positioned in the sides to allow hanging at a preset angle of 15 degrees. This mounting scheme provides the system designer maximum flexibility of installation. Cap plugs provide access to the nuts while maintaining an airtight cabinet seal when not used.

POWER HANDLING CAPACITY

To our knowledge, Electro-Voice was the first U.S. manufacturer to develop and publish a power test closely related to real-life conditions. First, we use a random noise input signal because it contains many frequencies simultaneously, just like real voice or instrument program. Second, our signal contains more energy at extremely high and low frequencies than typical actual program, adding an extra measure of reliability. Third, the test signal includes not only the overall "long-term average" or "continuous" level — which our ears interpret as loudness — but also short-duration peaks which are

many times higher than the average, just like actual program. The long-term average level stresses the speaker thermally (heat). The instantaneous peaks test mechanical reliability (cone and diaphragm excursion). Note that the sine wave test signals sometimes used have a much less demanding peak value relative to their average level. In actual use, long-term average levels exist from several seconds on up, but we apply the long-term average for several hours, adding another extra measure of reliability.

Specifically, the TS8-2 is designed to withstand the power test described in the revised EIA Standard RS-426A. The EIA test spectrum is applied for eight hours. To obtain the spectrum, the output of white noise generator (white noise is a particular type of random noise with equal energy per bandwidth in Hz) is fed to a shaping filter with 6-dB-per octave slopes below 40 Hz and above 318 Hz. When measured with the usual constant-percentage bandwidth analyzer (one-third-octave), this shaping filter produces a spectrum whose 3-dB-down points are at 100 Hz and 1200 Hz with a 3-dB-per octave slope above 1200 Hz. This shaped signal is sent to the power amplifier with the continuous power set at 40 watts into the 7.7 ohms EIA equivalent impedance, (17.6 volts true RMS). Amplifier clipping sets instantaneous peaks at 6 dB above the continuous power, or 16.0 watts peak (35.2 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

An amplifier with a nominal power rating of 80 watts is recommended for use with the TS8-2. Typical amplifiers of this rating are capable of delivering instantaneous peaks equivalent to those in the power testing described above. Care should be taken to avoid driving the amplifier into heavy "clipping" or distortion.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The loudspeaker system shall consist of a 200-millimeter (8.0-inch) woofer and a 25-millimeter (1.0-inch) tweeter. The woofer voice coil shall be 38 millimeters (1.5 inches) and the tweeter voice coil shall be 25 millimeters (1.0 inch). The system shall have a crossover point of 1800 Hz and have a

nominal impedance of 8 ohms. Usable frequency range shall extend from 40 Hz to 20 kHz, with the frequency response tapered to match the ISO-2969 standard curve for the electro-acoustic response of motion-picture control rooms and indoor theatres. Mid-band sensitivity shall be 89 dB for a one watt input at a distance of one meter. Long-term power capacity (8-hour) shall be 40 watts, based on the EIA RS-426A standard for full range loudspeaker systems.

The enclosure shall be 600 millimeters (23.6 inches) high, 360 millimeters (14.2 inches) wide and 226 millimeters (8.9 inches) deep. The system shall weight no more than 10.9 kilograms (24 pounds). The finish shall be black vinyl with a black fabric grille. The enclosure shall be equipped with pre-mounted T-nuts to accommodate the 100 Series Omnimount.

The system shall be the Electro-Voice TS8-2.

WARRANTY (Limited)

Electro-Voice Theatre Sound Systems 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 repair information and service locations, please write: Service Department, Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone 616/695-6831) or Electro-Voice, Inc., 3810 148th Avenue N.E., Redmond, WA 98052 (Phone 206/881-9555) or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (Phone 209/651-7777). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Specifications subject to change without notice.