

ECS 12-2

Two-Way Stage System

- Two-Way compact system with trapezoidal enclosure.
- EVM-12 S Pro Line 12 inch woofer.
- Titanium diaphragm high-frequency driver.
- 300 W power handling capacity.

SPECIFICATIONS

Frequency Response, 10 Feet on Axis, Anechoic Environment, ± 3 dB:

75–20,000 Hz

Low-Frequency -3 dB Point:

75 Hz

Usable Low-Frequency Limit, -10 dB Point:

60 Hz

Half Space Reference Efficiency:

5.9%

Long Term Average Power Handling Capacity:

300 Watts

Maximum Woofer Acoustic Output:

17.7 Watts

Sound Pressure Level at 1 meter, 1 Watt Input, Anechoic Environment:

101.5 dB

Dispersion Angle nominal, Horizontal and Vertical:

500–5000 Hz

110 \times 60°

Transducer Complement:

High-Frequency:

HT94 Horn

DH2010 Driver

Low-Frequency:

EVM-12S Pro Line

Box Tuning Frequency:

70 Hz

Crossover Frequency:

1,600 Hz

Crossover Slope:

12-dB-per-octave

Input Connections:

Two Parallel Speakon Connectors

Impedance:

Nominal:

8 Ohms

Minimum:

6.0 Ohms

Material:

Enclosure:

Black carpet covered Road

Wood™

Grill:

Black metal grill, removable

Optional Accessories:

Model 100 BK Speaker Stand

ECS15-1 Sub woofer system

Dimensions:

65.0 cm (25.6 in) high

47.0 cm (18.5 in) wide

39.0 cm (15.4 in) deep

Net Weight:

28.0 kg

Shipping Weight:

31.0 kg

DESCRIPTION

The Electro-Voice ECS 12-2 is a 300-watt, two-way, high-efficiency constant-directivity stage system. A stand socket for 1 $\frac{3}{8}$ -inch diameter stands is provided. The system combines professional-quality components, arranged in a time-coherent vertical array, with an unusually durable Thiele-Small-aligned vented enclosure. The result is clear and articulate high-quality sound.

Combining professional quality components in an unusually small trapezoidal enclosure the ECS 12-2 is the ideal choice for many demanding applications.

The enclosure is constructed of Road-Wood™, a structural material made of layered and selectively oriented hardwood strands strongly bonded together with phenolic resins. This high-strength shell (U.S. Patent # 4,624,338) is covered with densely woven, abuse-resistant black carpeting.

The high-frequency section of the ECS 12-2 utilizes a 90° \times 40° constant-directivity horn driven by a one-inch-throat, wide-bandwidth, titanium diaphragm driver. This driver uses a unique convex-drive Time Path™ phasing plug structure (U.S. Patent # 4,525,604) for smooth and extended high-frequency performance. The voice coil is coupled to the diaphragm with EV's exclusive Resonant Drive™ technology (patent pending). This increases and smooths the high-frequency response and reduces the amount of internal equalization required for flat frequency response.

A self-resetting, high-frequency protection circuit has been added to the ECS 12-2 to prevent against accidental overdrive and improve system reliability. If the input power to the high-frequency driver exceeds the nominal rating, the protection circuit is activated and reduces the power delivered to the driver by 6 dB. The system will remain in this mode of operation until the input power is reduced to a safe level.

The bass section of the ECS 12-2 is designed using Thiele-Small parameters for efficient performance to below 75 Hz. The 12-inch woofer is an EVM-12S Pro-Line unit featuring beryllium copper lead wires, a low-mass edgewound voice coil and high-temperature materials. The part of the magnetic structure

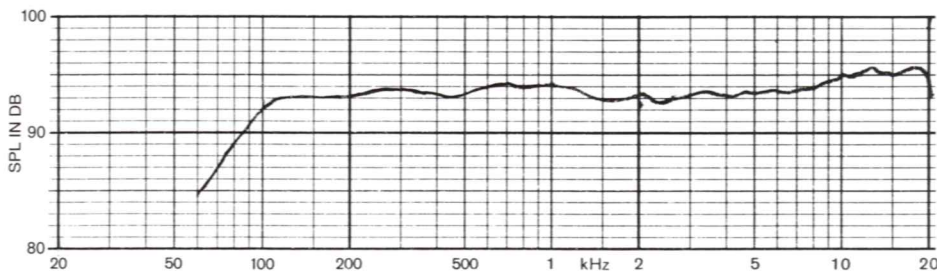


FIGURE 1 – Axial Frequency Response

adjacent to the coil is insulated using the exclusive EV PROTEF™ process (U.S. Patent # 4,547,632). The coil is driven by a massive (16 lb) magnetic structure.

CONSTANT-DIRECTIVITY SPEAKER SYSTEM

The crossover frequency and speaker component geometries have been selected so that the directional characteristics of the woofer and constant-directivity horn match at the crossover frequency (approximately 90° circular coverage patterns for each) to create a special system type – the constant-directivity system. At higher frequencies the horizontal coverage pattern remains constant and the vertical pattern smoothly transitions to a 40° to 50° angle above 5,000 Hz. Response within the 90° × 40° coverage angle is uniform, which means dependable audience coverage without «hot spots» or dead zones at certain frequencies. The 90° × 40° dispersion characteristic also helps avoid early reflections from nearby floor or side wall surfaces which could degrade performance. The controlled directivity of the high- and low-frequency transducers also eliminates response irregularities caused by diffraction off nearby enclosure edges and, in combination with an essentially flat on-axis frequency response, produces a total acoustic power output that is uniform with frequency.

ENCLOSURE CONSTRUCTION

The ECS 12-2 enclosure utilizes a structural material that combines the strength of high-quality plywood with the density and acoustic damping of particle board without brittleness. Road-Wood™ uses the same principle of crossbanding veneers, as in plywood, in order to achieve its very high rigidity. A tough liquid-phenolic resin is blended with long, narrow strands of hardwood. Alternate layers are perpendicularly bonded under intense heat and pressure to form panels of superior uniformity. Unlike many grades of plywood Road-Wood is dimensionally stable, water-resistant and free from voids.

A combination of dado cut joints, tough adhesives, and proper bracing ensure a sonically dead enclosure free from panel resonances.

The densely-woven, industrial-grade, abuse-resistant carpeting provides a finish that is both attractive and highly durable. A solidly

constructed, one piece, removable metal grill protects the front of the system. Firmly secured rubber feet and recessed handles complete the picture and ensure that the ECS 12-2 speaker system is ideally suited to a long and reliable life «on the road».

FREQUENCY RESPONSE

The combination of 12-inch woofer, wide-bandwidth, high-frequency driver and an equalized crossover results in the wide and smooth overall response shown in Figure 1. This response was measured at 10 feet, using a 4-volt input in an anechoic chamber, and was measured using a swept 1/3-octave. No external equalization was used.

CONNECTIONS

The ECS 12-2 is equipped with Neutrik Speakon™ NL4MPR connectors. Two connectors are installed in parallel allowing additional ECS 12-2's to be installed. One mating Speakon™ connector NL4FC is supplied with each system. These connectors are locking, self-polarizing and capable of 30 amps rms continuously. Additional connectors and cables can be purchased from your dealer.

GRILLE REMOVAL

The grille assembly of the ECS 12-2 is fastened to the enclosure using four sturdy dual-lock fasteners. The grille assembly can be removed quickly and easily, allowing access to the drivers, by firmly pulling on the two black polyester ribbon loops provided.

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 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 ECS 12-2 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 a 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 300 watts into the 6.4 ohms EIA equivalent impedance, (43.8 volts true RMS). Amplifier clipping sets instantaneous peaks at 6 dB above the continuous power, or 1200 watts peak (87.6 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

WARRANTY (Limited)

Electro-Voice Speakers and Speaker Systems (excluding active electronics) 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 extend to finish, appearance items, burned coils, or malfunction due to abuse or operation under other than specified conditions, including cone and/or coil damage resulting from improperly designed enclosures, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee. A list of authorized warranty service agencies is available from Electro-Voice, Inc.

600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); and/or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777).

In Europe
Mark IV Audio AG, Keltenstrasse 5
CH-2563 Ipsach, Switzerland

In Germany
Mark IV Audio
Hirschberger Ring 45
D-94302 Straubing

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

Specifications subject to change without notice.



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