

SPECIFICATIONS

Frequency Response, Measured At 10 Feet on Axis, Swept 1/3-Octave, Half-space Anechoic Environment (see Figure 1; curve shown normalized for 1 Watt/1 Meter):

100-18,000 Hz

Low-Frequency 3-dB-Down Point: 100 Hz

Usable Low-Frequency Limit (10-dB-down point):

80 Hz

Half-Space Reference Efficiency: 2.8%

Long-Term Average Power Handling Capacity per EIA Standard RS-426A (see Power Handling Capacity Section):

200 Watts / 800 Watts (short term)
Maximum Woofer Acoustic Output:
5.7 Watts

Sound Pressure Level at 1 Meter, 1 Watt input, Anechoic Environment, Band-Limited Pink Noise Signal, 300 to 2.000 Hz:

99 dB

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

250-20,000 Hz Horizontal (see Figure 3):

110° ± 70°

5,000-20,000 Hz Vertical (see

Figure 3):

60° ± 30°

Directivity Factor R_e (Q), 800-16,000 Hz Median (see Figure 4):

12.4 (+29.2, -10.9)

Directivity Index D, 800-16,000 Hz Median (see Figure 4):

9.8 dB (+6.4 dB, -8.3 dB)

Distortion, 0.1 Full Power Input Second Harmonic,

100 Hz: 5.0% 1,000 Hz: <1% 10.000 Hz: <1%

Third Harmonic,

100 Hz: 1.0% 1,000 Hz: 5.0% 10.000 Hz: 1.0%

Distortion, 0.01 Full Power Input

Second Harmonic, 100 Hz: <1% 1,000 Hz: <1% 10,000 Hz: 1.0%

Third Harmonic,

100 Hz: <1% 1,000 Hz: 3.0% 10.000 Hz: <1%

Transducer Compliment:

12-inch Low-Frequency Driver, EVM® / FORCE® hybrid with a 2½-inch flat wire voice coil

11/₂-inch Super-Dome[™] highfrequency driver coupled to 5-inch Direktor[™]

Crossover Frequency:

1,200 Hz

Crossover Slope:

12 dB per octave

Impedance,

Nominal:

8 ohms

Minimum:

7.7 ohms Input Connectors:

One male XLR and one female XLR wired in parallel (allows paralleling of multiple speakers)

Pin Configuration:

Pin 1: Common

Pin 2: Hot

Pin 3: Hot

Enclosure Materials and Colors:

Sealed, one-piece molded black textured polyethylene enclosure.

Dimensions:

41.4 cm (16.3 in.) high, 45.7 cm (18.0 in.) wide, 39.1 cm (15.4 in.) deep

Net Weight:

13.4 kg (29.5 lb)

Shipping Weight:

15.5 kg (34.0 lb)

DESCRIPTION

The compact Electro-Voice EM-12CX is a 200-watt, two-way, medium-to-high efficiency, constant-directivity stage vocal monitor. Possible system orientations are at 35°, 45° and 50° to the floor. Its unique coaxial design provides wide-range response and exceptionally small size.

The enclosure is one-piece molded black textured polyethylene utilizing a special molding technique. This technique yields a wall thickness similar to wood cabinets, a rigid structure that is virtually indestructible and finish that is impervious to nearly all chemicals. The small size (1.25 cubic feet), lightweight (29 lb) and convenient molded-in handle at the cabinet's center of gravity make it ideal to carry or set-up.

The high-frequency section of the EM-12CX utilizes a beamwidth-stabilizing Direktor™ coupled to EV's exclusive highpower-capacity, wide-beamwidth Super-Dome™ high-frequency driver for the range 1,200 to 18,000 Hz. This combination is mounted coaxially on a specially designed die cast frame 12-inch lowfrequency driver.

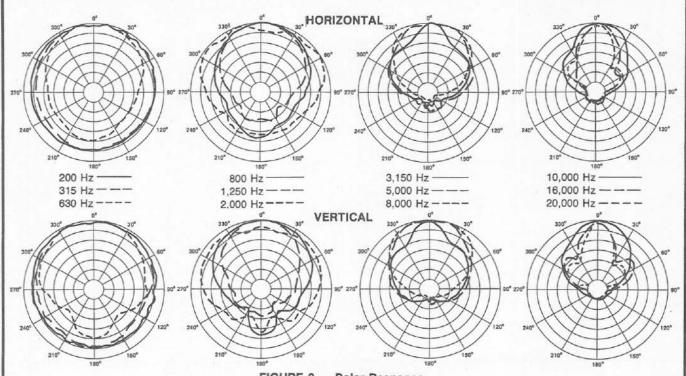


FIGURE 2 — Polar Response (1/3-octave pink noise 4 volts/10 feet)

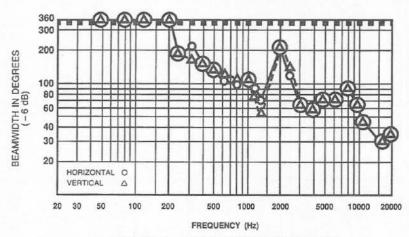


FIGURE 3 — Beamwidth vs. Frequency Whole Space (anechoic)

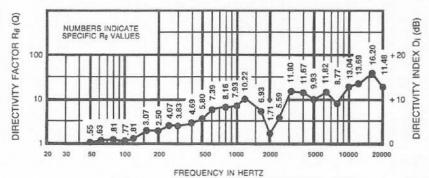


FIGURE 4 — Directivity vs. Frequency Whole Space (anechoic)

The bass section of the EM-12CX is a derivative of the EVM® and FORCE® loudspeaker families. It features a low-mass edge wound 2½-inch diameter voice coil with beryllium copper lead wires and coated with proprietary high temperature materials. The Kapton voice coil former and the pole-piece of the motor structure are vented for increased cooling capabilities under high power input conditions. The voice coil is driven by a nine pound magnetic structure mounted to a rigid, yet light-weight, eight-spoke die cast aluminum frame for further heat sinking.

THE PRO CIRCUIT

A self-resetting, high-frequency protection circuit is incorporated into the EM-12CX crossover network to prevent against accidental overdrive and improve system reliability. If the input power to the high-frequency section 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.

FREQUENCY RESPONSE

The combination of a 12-inch low-frequency driver, wide-bandwidth, Super-Dome™ high-frequency driver plus Direktor™ 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. The response is 1/3-octave averaged. No external equalization was used.

DIRECTIVITY

A unique feature of the EM-12CX is the constant-directivity dispersion provided by the Direktor™. The polar response of the system at selected 1/3-octave band-widths is shown in Figure 2. These polar responses were measured in an anechoic environment at 10 feet using 1/3-octave pink noise inputs. The frequencies selected are fully representative of the polar response of the system. Beamwidth of the system utilizing the complete 1/3-octave polar data is shown in Figure 3. R₈ (Q) and directivity index (D) are plotted in figure 4.

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 longterm 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 much less demanding peak value related 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 EM-12CX 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 1,200 Hz with a 3-dB-per-octave slope above 1,200 Hz. This shaped signal is sent to the power amplifier with a continuous power set at 200 watts into 7.6 ohms EIA equivalent impedance, (39.0 volts true RMS). Amplifier clipping sets peaks at 6 dB above the continuous power, or 800 watts peak (78.0 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

GRILLE REMOVAL

The grille assembly of the EM-12CX is fastened to the enclosure using four #8 x 1½-inch screws. The grille assembly can be quickly and easily removed by using a phillips screw driver, allowing access to the drivers or to rotate the grille so the orientation of the Electro-Voice logo can be changed.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The voice and music speaker system shall consist of a 12-inch coaxial speaker combination in a one-piece molded black textured polyethylene enclosure. It shall exhibit a 300-2,000 Hz frequency response with sensitivity of no less than 99 dB (1 W/1 M, 300-2,000 Hz band-limited pink noise). It will be determined capable of handling 200 watts of power by testing described in the revised EIA Standard RS-426A, and produce vertical and horizontal beamwidths (6-dbdown including angle) of 100°, deviating no more than 60° from this angle over the frequency range of 1,000-10,000 Hz. The speaker system shall be 41.4 cm (16.3 in.) high, 45.7 cm (18.0 in.) wide, 39.1 cm (15.4 in.) deep and weigh no more than 13.4 kg (29.5 lb).

The loudspeaker system shall be the Electro-Voice EM-12CX,

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 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 exclusiion 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 S.A. Keltenstrasse 5, CH-2563 Ipsach Switzerland, Phone: 032 51 68 33, Fax: 032 51 12 21. This warranty give you specific legal rights, and you may also have other rights which vary from state to state.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107.

Specifications subject to chage without notice.