

## The High-Q

### Long-Throw, High-Frequency Projector

- Driver protected by PRO™ circuit for long life
- Resonant Drive™ technology for extended highs
- Unique coverage pattern. Ideal for real life rooms
- Integral 1 3/8-in. stand mount for versatile mounting
- Professional-grade compression driver with titanium diaphragm for smooth response
- Polyethylene molded enclosure
- Universal input connector (1/4-in. phone jack)
- Built-in crossover

#### Description

The High-Q by Electro-Voice is a horn, driver and crossover combination that allows low-“Q” loudspeaker systems to be used more effectively in acoustically tough environments such as large bars, halls and in the open air. The concept of “Q” is simple. The higher the Q of a system the more sound goes where you point it. Typical stage systems have horns that have horizontal coverage of 90° and a vertical coverage of 40°. The directivity factor (a measurement of Q) for such a system is 10. This is a good compromise for most short-throw conditions where only a few loudspeaker systems are present to cover the audience. At longer throws and in more reverberant spaces, the low-Q systems lose their intelligibility and clarity. The High-Q has a directivity factor in excess of 20 and can be used to improve the audience coverage at longer distances and in awkward positions without the audience, at shorter distances, being adversely affected. The High-Q is simple to use and install. Point it at the audience, plug it in (see connections section) and play. The High-Q’s built-in crossover runs in parallel to the existing system’s crossover and separates the audio signal, correctly, between the two. Multiple

sound sources covering the same area and frequency band are, in general, not desirable. The High-Q is designed to be easily pointed towards areas not covered by the main PA such as balconies or the back of a large auditorium. The High-Q transmits the frequencies that contain a large proportion of the intelligibility to the designated area in the room. The other frequencies, such as bass, are transmitted via the main PA to “fill in” the sound. The heart of the High-Q is the one-inch-throat, wide-bandwidth, titanium-diaphragm compression driver. It uses a unique, convex-drive Time Path™ phasing plug structure (US Patent #4,425,604) for smooth, extended high-frequency performance. The voice coil is coupled to the diaphragm with EV’s exclusive Resonant Drive™ technology. This increases and smooths the high-frequency response and reduces the amount of equalization required. The driver output extends to 25,000 Hz. This far exceeds most systems on the market and means the High-Q can be used to enhance the high-frequency response of lesser systems.

Electro-Voice’s self-resetting PRO™ circuit is built into the crossover network to guard the compression driver from damaging signals. If the input power to the driver exceeds

the driver rating, the PRO™ circuit is activated automatically reducing the power to the driver by 6 dB. The PRO™ circuit will remain in operation until the power is reduced to a safe level.

Electro-Voice invented the concept of constant directivity in the 1970’s. Over the years, this concept has been refined and optimized. The unique 55° x 35° CD-horn geometry has been chosen to maximize the effectiveness of the High-Q. The 55° allows two Qubes to cover most rooms horizontally, while the 35° reduces wasted sound from being directed toward the ceiling or toward the audience close to the main PA. The vocals sound natural but will “cut through” in reverberant and noisy rooms. The molded black plastic enclosure is acoustically damped and very rugged. The integral 1-3/8-in. stand mount allows the High-Q to be used with industry standard stands such as the EV 100BK.

The 3,500-Hz crossover frequency has been selected to allow for noncritical matching to the main PA and to make sure that the High-Q is always “in control.” As the frequency declines, the wavelength increases and approaches the dimensions of the horn. At this frequency, the High-Q can no longer control the signal and it “spills over” where

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it is not needed. The system impedance is also high at this crossover frequency so the combined impedance with the High-Q is not a "bad" load on the amplifier. It also naturally splits the signal between the main PA driver and the High-Q.

The High-Q is versatile and can be used in many circumstances such as bars, clubs and outdoors. It can also be used to great benefit in venues such as churches and school gymnasiums. In almost all cases, the High-Q will be used to augment an existing system.

## Frequency Response

Figure 1 illustrates the response of the High-Q in an anechoic environment. The response was measured with a swept sine-wave input at 10 feet, using a 4-volt input. The response has been averaged and corrected for 1 watt at 1 meter. The built-in crossover was in place.

## Directivity

The High-Q's unique coverage pattern is illustrated in Figure 2. The polar response is smooth and uniform throughout its operating range. The polar response was measured in an anechoic environment at 20 feet using one-third-octave pink-noise input. The frequencies selected are fully representative of the polar response of the High-Q. Beamwidth is shown in Figure 3. Directivity factor ( $R_0$ ) and directivity index ( $D_i$ ) are shown in Figure 4.

## Connections

The High-Q is equipped with the industry standard 1/4-in. phone jack. In a typical situation, the High-Q would be connected via the "out" connector on the main PA system, see Figure 5. This is sometimes known as "daisy chaining." Because of the complex nature of crossovers and driver impedances, it is recommended that only one the High-Q be used per main PA system, with no further daisy chaining. Although it is unlikely that damage could result, it is certainly possible that there may be some unexpected sonic problems.

## Power-Handling Capacity

The power handling of the High-Q is difficult to define because it can be used to improve many different speaker systems of differing sensitivities and power handling. If the High-Q is used with a single system, it is unlikely that it will be the first device to fail. If excessive levels are detected, the PRO™ circuit will kick in and protect the driver. The High-Q has been tested with systems rated at 300 watts and below with good success.

## Architects' and Engineers' Specifications

The horn and driver combination shall consist of a one-inch compression driver with a pure titanium diaphragm coupled to a constant-directivity horn and enclosure made of black polyethylene. The enclosure shall have an integral stand mount suitable for a 1-3/8-in. stand. The coverage angle shall be 55° x 35°. The built-in crossover shall have a slope of 12-dB per octave at 3,500 Hz. Sensitivity will be 103 dB at 1 meter with 2.83 volts. Input connections shall be via 1/4-in. phone jack. Dimensions shall be 220 mm (8.7 in.) high x 253 mm (10.0 in.) wide x 353 mm (14.0 in.) long. Net weight shall be 5 kg (11 lb). The horn and driver combination shall be the High-Q.

## Uniform Limited Warranty

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) mal-

function resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than Mark IV Audio Service or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to Mark IV Audio Service or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from Mark IV Audio Service at 600 Cecil Street, Buchanan, MI 49107 (800/234/6831 or FAX 616/695/4743). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

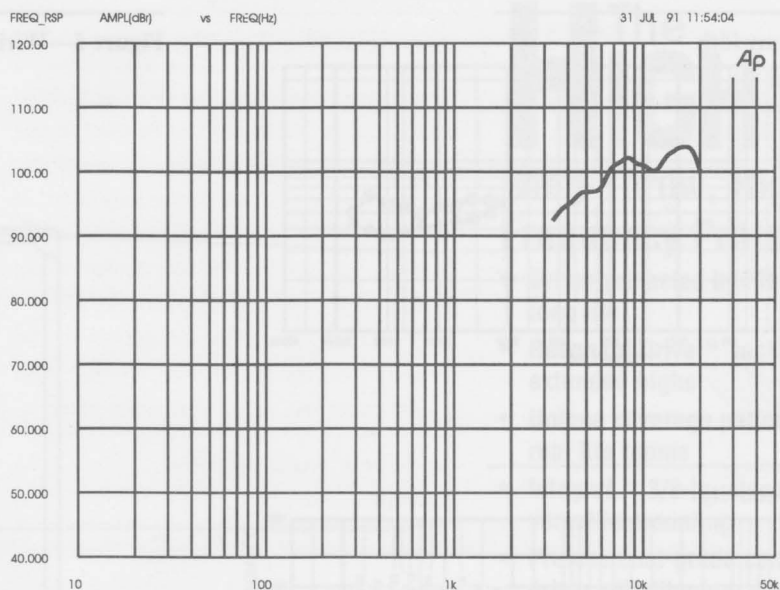
**Electro-Voice Speakers and Speaker Systems** are guaranteed against malfunction due to defects in materials or workmanship for a period of five (5) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. Electro-Voice active electronics associated with the speaker systems are guaranteed for three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

**For technical assistance,** contact Technical Support at 800/234-6831 or 616/695-6831, M-F, 8:00 a.m. to 5:00 p.m. Eastern Standard time.

Specifications subject to change without notice.

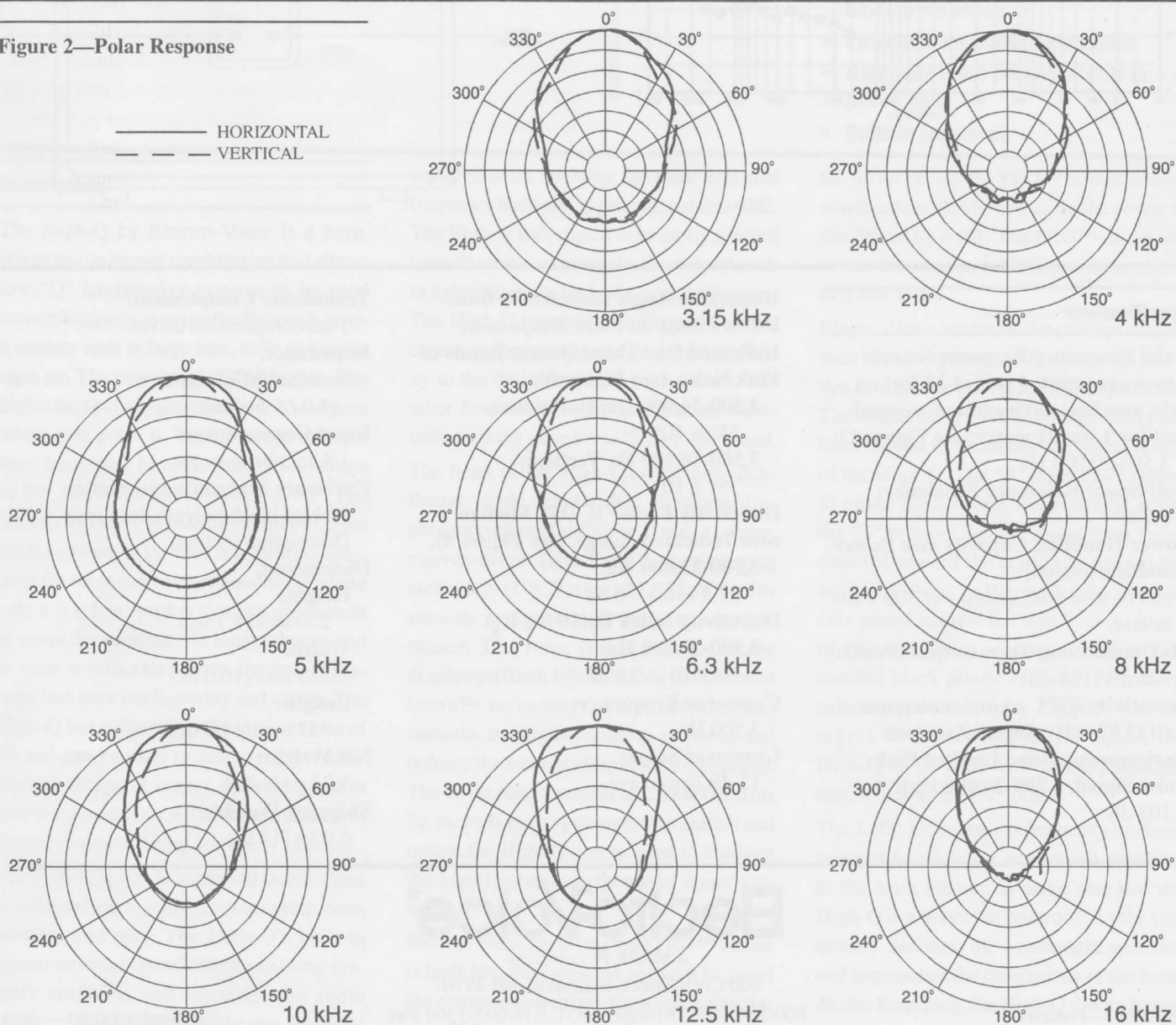
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**Figure 1—Frequency Response (1 watt at 1 meter)**



**Figure 2—Polar Response**

— HORIZONTAL  
- - - VERTICAL



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Figure 3—Beamwidth

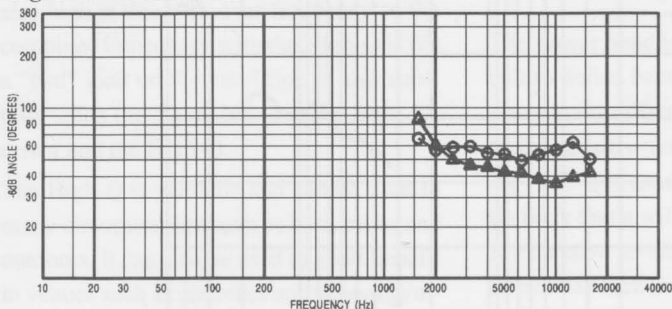


Figure 5—Wiring Diagram

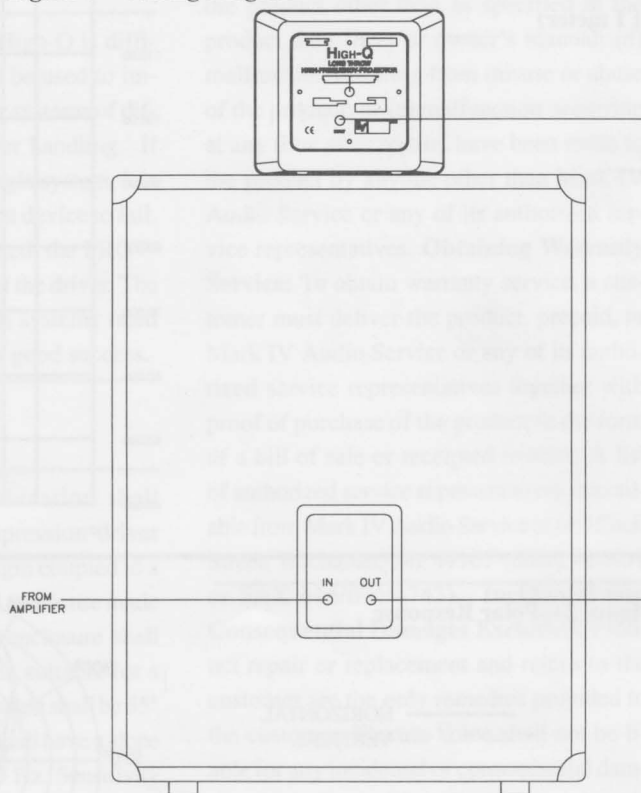
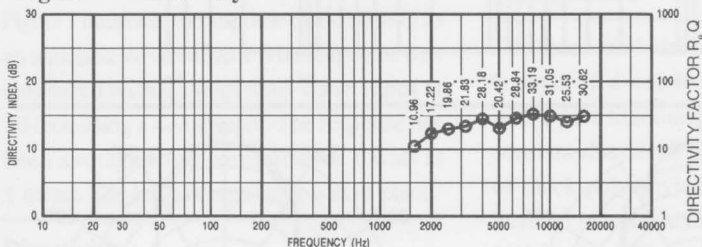


Figure 4—Directivity



## Specifications

**Axial Frequency Response** (swept sine-wave input, 4 volt at 10 feet on axis, anechoic environment, normalized for 1 watt/1 meter; see Figure 1):  
3,500-20,000 Hz

**Half-Space Reference Efficiency:**  
5.7%

**Power-Handling Capacity** (see Power-Handling section):  
can be used with systems of 300 watts or less.

**Maximum Long-Term output (Peak):**  
128 dB (134 dB)

**Sensitivity** (SPL at one meter, one watt (2.83 volts) Input, Anechoic Environment, Band Limited Pink-Noise Signal, 3,500-20,000 Hz):  
103 dB

**Dispersion Angle Included by 6-dB-Down Points on Polar Responses, Indicated One Third Octave Bands of Pink Noise, (see Figure 3),**

**3,500-16,000 Hz, Horizontal:**

$55^\circ \pm 10^\circ$

**3,500-16,000 Hz Vertical:**

$35^\circ \pm 10^\circ$

**Directivity Factor  $R_0(Q)$ , Median over Indicated Range, (see Figure 4),**

**3,500-22,000 Hz:**

27.5 (+6.1, -5.5)

**Directivity Index  $D_i$  (10 log  $R_0$ )**

**3,500-20,000 Hz:**

14.5 dB (+0.8 dB, -1.1 dB)

**Crossover Frequency:**

3,500 Hz

**Crossover Slope:**

12 dB per octave

**Transducer Complement:**

1-in. compression driver

**Impedance,**

**Nominal/Minimum:**

8.0 / 5.5 ohms

**Input Connections:**

1/4-in. phone jacks

**Enclosure Materials and Finish:**

molded black polyethylene (see Description section).

**Dimensions,**

**Height:**

220 mm (8.7 in.)

**Width:**

253 mm (10.0 in.)

**Length:**

353 mm (14.0 in.)

**Net Weight:**

5.0 kg (11 lb)

**Shipping Weight:**

6.0 kg (13 lb)

# Electro-Voice®

a MARK IV company

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