

XEQ-1108

Cinema System Crossover/Equalizer

- **Passive, 1,100-Hz crossover for TS992 cinema stage system**
- **Easy installation—replaces input panel in top of TL15-1XS low-frequency system**
- **300-watt long-term-average power capacity (may be used with amplifier several times this rating)**
- **Built-in HF horn/driver EQ and HF/LF level matching for flat overall response**

Description

The Electro-Voice XEQ-1108 is a “dedicated” passive crossover/equalizer designed to be used with the TL15-1XS low-frequency loudspeaker system and the DH2As1 high-frequency driver, when mounted to the HP99 TransPlanar™ constant-directivity horn. The assembled system is the TS992 cinema stage system.

The XEQ-1108 combines a passive high-level frequency-dividing network with a high-frequency equalization circuit. This combination provides essentially flat overall frequency response for the TS992 two-way system (see Figures 1, 2 and 3). The equalization circuit is necessitated by the high-frequency response roll-off typical of any high-performance compression driver used with constant-directivity horns. The XEQ-1108 has a nominal crossover frequency of 1,100 Hz with 12-dB-per-octave attenuation on the low-frequency section and 18-dB-per-octave attenuation on the high-frequency section.

Excellent performance and reliability are achieved by using high-quality components. Air-core inductors are used throughout to avoid any harmonic or intermodulation distortion which otherwise can result from core

hysteresis and saturation. Components are securely fastened to a thick-trace military-grade linen epoxy printed circuit board. The entire crossover is mounted to a high-impact polystyrene input panel which includes two dual-contact barrier strips for input and output connections. High-current FASTON tab connectors make a reliable connection to the woofer inside the TL15-1XS cabinet.

The design concept of a “dedicated” or specialized crossover/equalizer has several advantages: Installation requires little time and avoids tedious, often confusing adjustments using switches, knobs and taps. Crossover/equalizer characteristics are preset for intelligible, musical, well-balanced sound such as required in all professional sound reinforcement and playback applications. The absence of switches and/or attenuators ensures a long, trouble-free life. Lastly, the simplicity of this construction provides a very cost-efficient unit by including only components which are utilized with the intended horn and driver combination.

Installation with TL15-1XS

Refer to Figures 4 & 5.

To mount the XEQ-1108, first remove the eight #8-15 screws securing the TL15-1XS input panel and withdraw the assembly plus

the two woofer wires (one black and one red) connected to it. Place the input panel on the top surface of the woofer cabinet with the wires facing upward. Disconnect the wires from the woofer by placing your hand through the hole where the input panel was before removal. Put the XEQ-1108 on the top of the woofer cabinet and connect the wires to the woofer through the input panel hole cutout. Be sure to connect the red and black wires to the corresponding red and black push pins on the woofer for correct system polarity. When the woofer is connected to the XEQ-1108, mount the crossover in the space previously occupied by the TL15-1XS input panel, making sure the woofer wires are completely inside the cabinet and not caught between the XEQ-1108 and the cabinet. Then connect the provided wires from the high-frequency barrier strip terminals to those of the DH2As1 driver, red for (+) and black for (-), using the wire supplied with the XEQ-1108. Lastly, connect the amplifier to the input barrier strip terminals on the XEQ-1108.

Installation with Other Cabinets

Cut an opening in the desired mounting surface in which to mount the XEQ-1108 crossover/equalizer. Appropriate cutout di-

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mensions are 133 mm (5.25 in.) x 165 mm (6.50 in.). If it is desired to have the panel flush mounted, add a 5-mm (0.19 in.) route centered on the above opening with the dimensions 167 mm (6.56 in.) x 198 mm (7.81 in.). Using the XEQ-1108 as a template, mark the locations of the mounting holes and drill pilot holes as marked. Attach woofer connection wires to desired woofer. NOTE: THE XEQ-1108 SHOULD ONLY BE USED WITH 8-OHM BASS SYSTEMS. Make certain there is sufficient crossover ventilation by not allowing fiberglass damping material to contact XEQ-1108 components. Other aspects of installation are the same as those for the TL15-1XS cabinet..

If it is desired to use the HF driver inside the cabinet, there are 0.205" FASTON tabs for this purpose. (See Figure 5.) These tabs are on the PC board and are in parallel with the HF output barrier strip terminals used in the standard TL15-1XS configuration.

When using the XEQ-1108 with other-than-recommended components, additional equalization will be necessary as the response has been tailored for the specific components used in the TS992.

Architects' and Engineers' Specifications

The crossover shall have a nominal crossover frequency of 1,100 Hz. The low-pass attenuation shall be 12 dB per octave, and the high-pass attenuation shall be 18 dB per octave. The nominal load impedance shall be 8 ohms for both the low-pass and high-pass sections. High-frequency equalization shall be provided for the Electro-Voice HP99 horn coupled to the Electro-Voice DH2As1 compression driver. Rated power handling capacity shall be at least 300 watts conform-

ing to EIA specification RS-426-A 1980.

The crossover shall be constructed on a linen printed circuit board mounted to a high-impact polystyrene input panel. Overall dimensions shall be 197 mm (7.75 in.) high by 165 mm (6.5 in.) wide by 89 mm (3.5 in.) deep. The high-level passive crossover/equalizer shall be the Electro-Voice XEQ-1108.

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) malfunction 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 Electro-Voice Service or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to Electro-Voice 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

received invoice. A list of authorized service representatives is available from Electro-Voice 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 warranty repair or service information, contact the service repair department at: 616/695-6831 or 800/685-2606.

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—TS992 Typical Anechoic Frequency Response using XEQ-1108 (4 v/10 ft, normalized to 1 watt/1 meter)

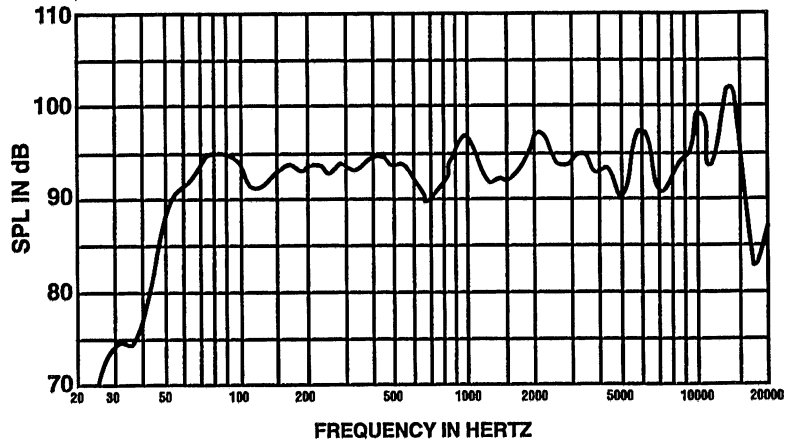


Figure 2—XEQ-1108 Crossover Schematic

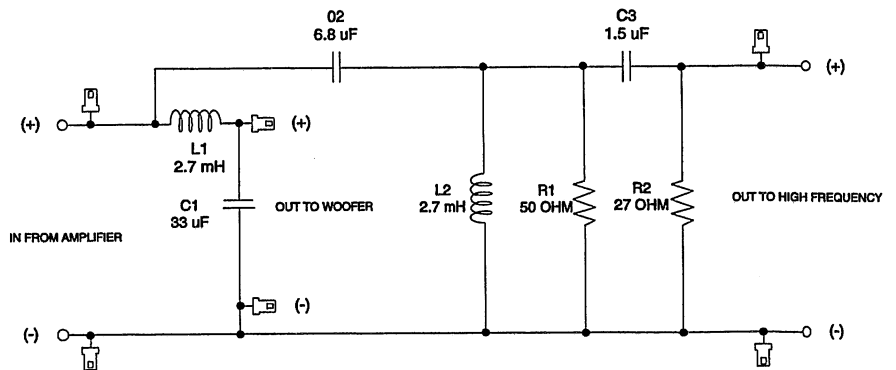
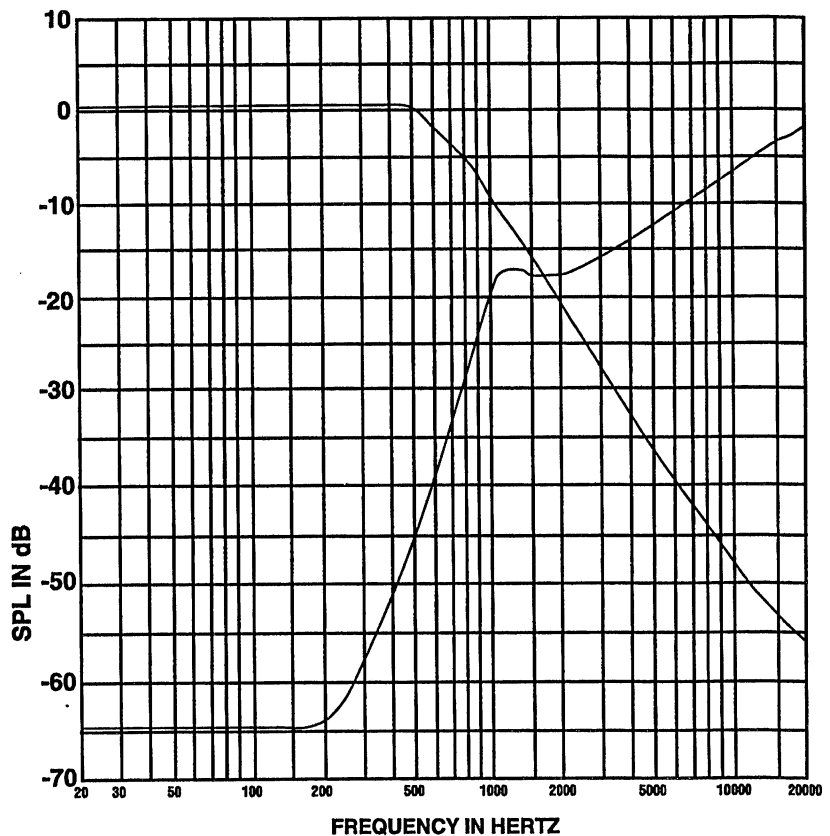


Figure 3—XEQ-1108 Voltage Transfer Function



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Figure 5—Physical layout of XEQ-1108

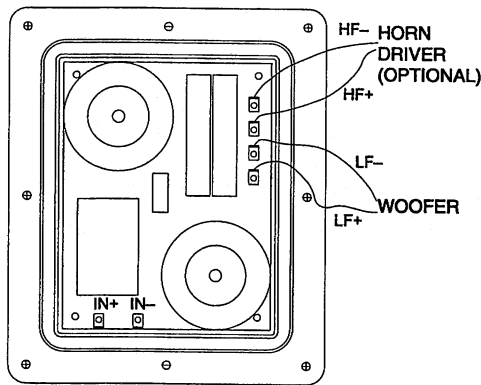
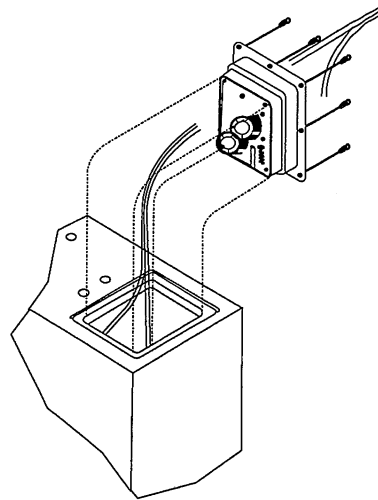


Figure 4—Installation of XEQ-1108 into TL15-1XS Cabinet



XEQ-1 108 Cinema System Crossover/Equalizer

Specifications

Crossover Frequency,

Nominal:

1,100 Hz

Load Impedance, Nominal,

Low Frequency:

8 ohms

High Frequency:

8 ohms

Attenuation Rate,

Low Frequency:

12 dB per octave

High Frequency:

18 dB per octave

Insertion Loss, Low-Frequency

Section:

0.7 dB typical

Long-Term Average Power-Handling Capacity per EIA RS-426-A 1980:

300 watts

Maximum Input Voltage:

200 watts peak

Circuit Type (see Figure 2):

Second-order for the low-frequency section and third-order for the high-frequency section in the crossover region; special equalization above crossover for constant-directivity-horn/driver compensation

Connectors:

0.205" FASTON tab connectors to low-frequency loudspeaker; screw-terminals on barrier strips to external high-frequency loudspeaker and from amplifier output; 0.205" FASTON tab connectors to internal high-frequency loudspeaker

Construction:

Military-grade linen epoxy circuit board rigidly mounted to a plastic input panel.

Maximum Wire Gauge, Barrier Strip Terminals:

10 AWG

Dimensions:

Height:

197 mm (7.75 in.)

Width:

165 mm (6.5 in.)

Depth:

89 mm (3.5 in.)

Net Weight:

1.2 kg (2.7 lb)

Shipping Weight:

1.6 kg (3.5 lb)

Electro-Voice®

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