

TS992E

Behind Screen Theatre Stage System

- Only 254 mm (10 in.) deep overall—more room for seats
- For use in small to medium sized rooms—up to 1,274 m³ (45,000 ft³) with stage-to-last-row distances up to 12 m (40 ft)*
- Digital Dynamics Capable™—DH2T compression driver and DL15MT 15-in. woofer are highly resistant to long-term mechanical fatigue
- Wideband response—30-20,000 Hz
- 90° x 90° coverage pattern appropriate for smaller rooms
- Horn driver mounting bracket allows ±30° of horizontal aiming and +10°/-15° of vertical aiming
- Two piece preassembled construction allows for quick and easy installation

Description and Application

The TS992E is a Digital Dynamics Capable™ theatre stage systems, using a passive crossover. The TS992E is designed for absolute minimum depth—only 254 mm (10 in.) deep—but with performance as close as possible to the large-format, THX®-approved TS9040D-LX. Electro-Voice has combined its expertise in constant-directivity horns, high-frequency compression drivers and low-frequency reproducers to produce a stage system with superior performance in all areas: uniform dispersion to the highest frequencies, high efficiency, high power-handling capacity and wide, smooth frequency response.

The TS992E features a single ultrahigh-reliability, high-output 381-mm(15-in.) DL15MT woofer, with continuous power capacity of 400 watts. The DL15MT is crossed over at 1,150 Hz where its coverage pattern is a perfect match to that of the HP99C compact 90° x 90° horn to which a DH2T medium-format “short nose” compression driver is mounted. The unique, 90° vertical coverage angle of the HP99C horn provides more uniform coverage at the front of small rooms.

All components of the TS992E are black finished to eliminate any light reflections back through the screen. The high-frequency horn is matte black and the black textured finish of the low-frequency system is of low reflectivity. The TS992E is mechanically designed with only two pre-assembled units for easy installation, including convenient system connection and horn aiming (see Mounting the HPK992E section).

The TS992E provides high performance for all film-sound formats in small to medium size rooms of up to 1,274 m³ (45,000 ft³) in volume and stage-to-last-row distances of up to 12 m (40 ft).

Frequency Response

Figure 1 shows TS992E frequency response with (see Crossover and Basic Equalization section). The measurement was made with a swept sine-wave signal, 4 volts at 500 Hz, in an anechoic (echoless) environment. The microphone was at a distance of 3.0 m (10 ft), on an axis at the lower edge of the high-frequency horn.

Crossover Equalization

The TS992E is equipped with the Electro-Voice XEQ-1108. This passive crossover

provides all the necessary filtering and equalization for smooth efficient operation. Figure 2 shows system impedance with the XEQ-1108 crossover.

Architects and Engineers Specifications

The TS992E shall consist of two parts, a HPK992E pre-assembled Hi-frequency unit and a TL15-1ESX, Low-frequency speaker system with preinstall 1100 Hz crossover for single channel amplified operation.

HPK992E High-Pack shall consist of one HP99C compact 90° x 90° horn and DH2T medium format compression driver. The horn and compression driver are supported on a black adjustable bracket for greater adjustability and easy installation. TL15-1ESX low frequency speaker shall have one DL15MT 15-inch (36.10 cm) loudspeaker. The HPK992E pre-assembled unit will feature a single 1-inch (2.53 cm) high frequency compression driver mounted to a 90° x 90° coverage pattern horn. The horn and compression driver shall be on attached to a black painted steel adjustable bracket mounted on a black (MDF) mounting board allowing for quick installation if the High-Pack and will allow for a smooth vertical +/-12° and Horizontal +/- 30° adjustments. The TS992E and system shall meet the following criteria: Power handling shall be 400 watts of bandwidth pink noise with 6 dB SPL crest factor. Frequency response shall be smooth

TS992E Passive Theatre Stage System

and uniformly usable from 30 Hz to 20 kHz. Pressure sensitivity shall be 94 dB SPL when measured at one meter on axis with one watt of pink noise. The LF Loudspeakers shall be enclosed in a vented 3/4" black texture painted pine ply-wood enclosure.

The TL15-1ESX loudspeaker system shall be a low-frequency bass-reflex design one 381 mm (15 in.) woofers shall be front mounted in a 198.2-liter (7 ft³) enclosure. The woofer to be an Electro-Voice DL15MT will provide high impact bass response from 40-500 Hz, with a long term noise power capacity of 400 watts each, per EIA RS-426-A 1980. With a dispersion of 110° +/- 12° at 40 - 500 Hz. Shall include an XEQ-1108 crossover/equalizer for single channel amplified operation.

The systems will meet the following criteria: axial frequency response from 30 to 2,000 Hz; sensitivity of 100 dB at 1 watt/ 1 meter; an impedance of 8 ohms nominal; the system shall be capable of producing long-term average power levels 60 watts HF, 400 watts LF and short-term peaks of 200 watts HF, 16,000 watts LF.

The black texture painted pine plywood enclosure, shall contain fire resistant sound-absorbing material. The system connections shall be #10 screw terminals on barrier strip located on the low-frequency enclosure.

The system dimensions shall be 128.9 cm (50.75 in.) high, 68.1 cm (26.81 in.) wide, and 25.4 cm (10.0 in.) deep. Net weight shall be 63.1 Kg (139 lb.)

Suspending the TS992E System

The TS992E is designed for typical cinema stage (behind -the screen) applications where space is a minimum and the sub woofers are mounted on the stage floor. (see Figure 5)

The TS992E is not designed to be self-suspending from above, and if suspended, must be supported and hung in a way which does not depend on the structure of the TS992E itself support.

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 receipted 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.

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 Time.

Specifications subject to change without notice.

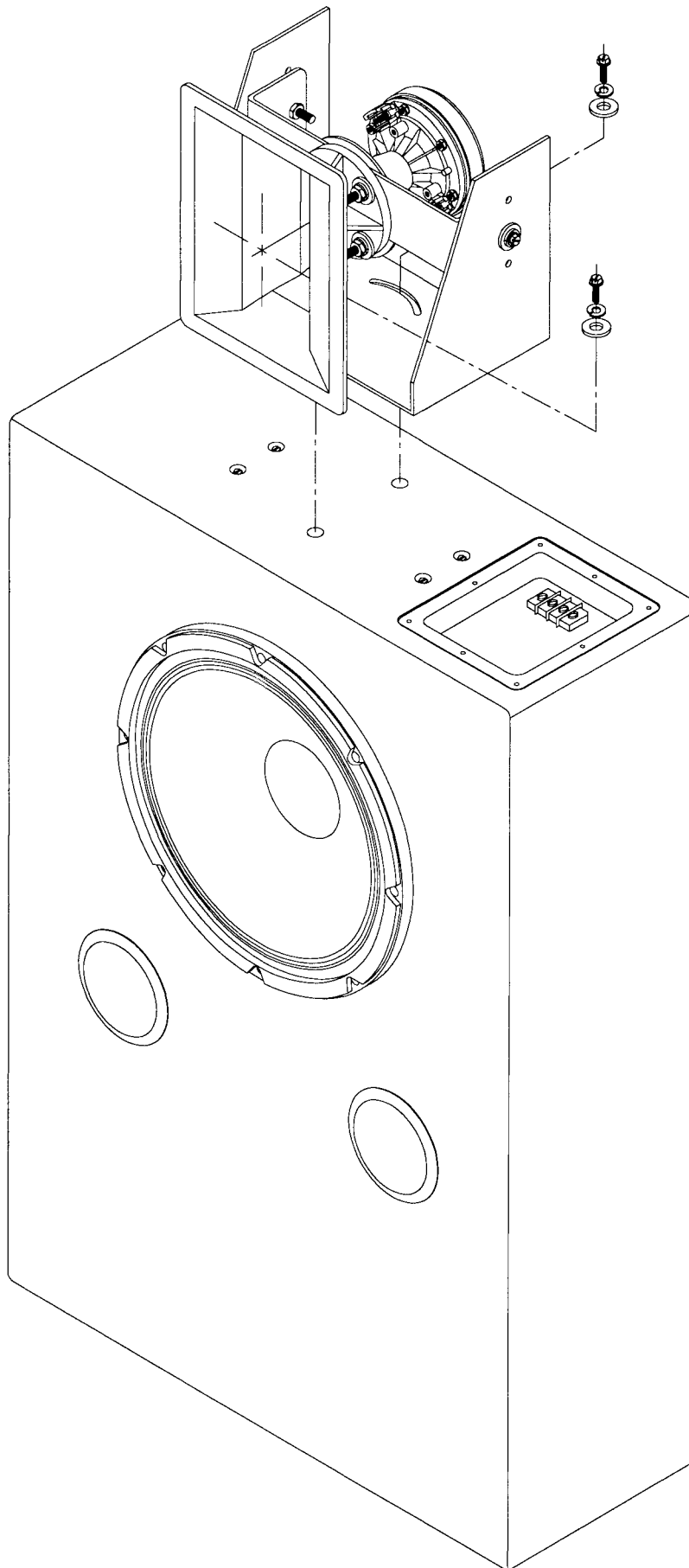
TS992E Passive Theatre Stage System

Figures 5 —Mounting the TS992E

Mounting HPK992E to the TL15-1ESX

Refer to Figure 5 for the following steps.

1. Remove the two center most screws on top of the TL15-1ESX, that are the closest and farthest from the front of the enclosure.
2. Remove the 2 Washers and 2 lock washers from the enclosed hardware package and assemble 2 screw lockwasher and washer assemblies.
3. Place the HPK992E on top of the TL15-1ESX, and align the crescent shaped slots in the HPK992E bracket and the top of the enclosure with the vacant holes on the Low-frequency enclosure. Insert the two of the screw-washer assemblies previously assembled in the aligned position, making sure the horn baffle is parallel to the TL15-1ESX's top and even to its face. Tighten the two screws until HPK992E is secured to the TL15-1ESX.
4. Vertical adjustments are made by loosening the two securing screws either side of the High frequency horn/driver-mounting bracket. Rotate the horn and driver assembly to the desired angle. (Note that reassignment of the vertical pivot points may have to be changed) When the desired vertical angle is made, tighten the the screws, fully compressing the lock washers, to ensure a stable horn position, and prevent rotation due to vibration.
5. Horizontal adjustments are made by loosening the two securing screws at the mounting bracket base. Rotate the horn and driver assembly to the desired angle.



TS992E Passive Theatre Stage System

TS992E Passive Theatre Stage System

Specifications**

Usable Frequency Response

(see Figures 1):

30-20,000 Hz

Low-Frequency 3-dB-Down Point:

38 Hz

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

30 Hz

Recommended Crossover Frequency: (see Crossover and Basic System Equalization section)

Sound Pressure Level at 1 Meter, 1 Watt Input,

LF (100- to 800-Hz average):

94 dB TS992E

LF (65- to 125-Hz average):

94 dB TS992E

HF (800- to 5,000-Hz average):

93 dB TS992E

Power Capacity Average Power-Handling Capacity,

Low Frequency (per EIA RS-426-A 1980):

600 watts

High Frequency (per AES2-1984/

ANSI S4.26-1984):

60 watts

Dispersion, Horizontal and Vertical:

90°

Distortion, 0.1 Full Power (see Figure 3)

Second Harmonic,

100 Hz: -30dB, 3.2%

1,000 Hz: -35dB, 1.8%

10,000 Hz: -13dB, 22.4%

Third Harmonic,

100 Hz: -40dB, 1.0%

1,000 Hz: -40dB, 1.0%

10,000 Hz: -20dB, 10%

Nominal Directivity:

Horizontal: 90°

Vertical: 90°

Nominal Impedance, HF and LF:

(see Figure 2)

8 ohms

Components:

Pre-assembled HPK992E, consisting of a DH2T compression driver, HP99C horn, and an adjustable horn/driver-mounting bracket.

A TL15-1ESX low-frequency system with a single DL15MT woofer and an XEQ 1108 crossover/equalizer.

Finishes:

Matte black HF horn, black driver and mounting bracket, and black textured-painted LF system

Overall System Dimensions, Assembled (see Figure 4),

Height (approximate):

1,290 mm (51 in.)

Width:

680 mm (26.8 in.)

Depth:

254 mm (10 in.)

Net Weight (total):

HPK992E 9.75 kg (21.5 lb)

TL15-1ESX 40.8 kg (94.2 lb)

Shipping Weight (total):

HPK992E 11.6 kg (26.5 lb)

TL15-1ESX 40.8 kg (90.1 lb)

Shipping Carton Dimensions:

HPK992E 12.75"L x 14.75"W x 14.5"H

TL15-1ESX 43"L x 12"W x 29"H

Notes on Measurement Conditions

1. Band-limited pink noise signal, one watt calculated using E^2/Z_{min} 3.16-meter measurement distance referred to one meter.

2. On-axis, one watt calculated using E^2/Z_{min} 3.16-meter measurement distance referred to one meter, low frequencies corrected for anechoic-chamber error.

3. This system rating is patterned after the ANSI/EIA RS-426-A method where the test

signal is pink noise with a 6-dB crest factor over the bandwidth of the system, with the power calculated using $E^2/R_E \times 1.15$, for 8 hours.

4. This measurement made under the same conditions are pressure sensitivity, and takes into account any power-compression effects due to nonlinearities in the system.

5. The distortion at any given frequency may be found by graphically taking the

difference between the fundamental and the harmonic, and adding the number of decibels which the harmonic has been raised on the graph and apply the formula: percent distortion = $100 \times 10^{(-\text{difference in dB}/20)}$

** Additional information is contained on the individual component engineering data sheets.

*** This rating facilitates competitive comparisons. Continuous program power is twice the two-hour sine-wave power capacity at minimum impedance.

Electro-Voice®

600 Cecil Street, Buchanan, MI 49107

616/695-6831, 616/695-1304 Fax