H Series – Interior Design Speakers

◀ **H-1 and H-2 Speakers with 900MK2 EQ Modules**

The H Series Interior Design Speakers are the latest example of TOA's modern, innovative approach to commercial speaker design. The unique, stylish appearance and superb sound quality of the three new models, the H-1, H-2 and H-2WP, provide a welcome alternative to conventional wall- and ceiling-mount speakers.

Applications include speaker systems for houses of worship, hotels, offices, museums, restaurants, retail stores, residential spaces and many others. The H-2WP is a weather-proof version of the H-2 for outdoor wall-mount applications such as terraces, gardens, patios and swimming pools.

The H Series ***Minimum Reflection*** design significantly reduces sound wave reflections and the resulting sound coloration that occurs with conventional bracket-mounted "box" type speakers. Wall- or ceiling-mount installation is fast and easy using standard electrical gangboxes, and you can rotate and aim the loudspeaker components without altering the enclosure's external appearance.

Each H Series speaker has a paintable grille and features a high quality Ferrofluid-cooled dome tweeter, Neodymium woofer, 70.7/100 V matching transformer and removable terminal block.

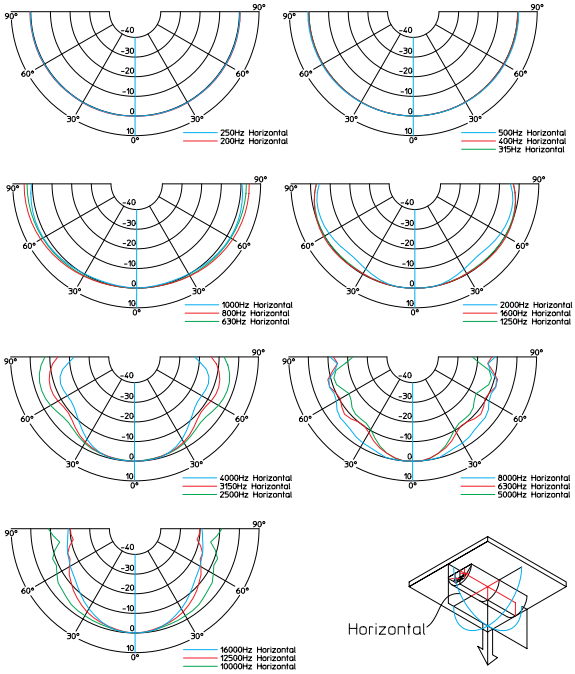
900MK2 Processor Modules are also available for convenient system equalization using the industry-standard TOA 900MK2 Series Mixer/Amplifiers.

FEATURES

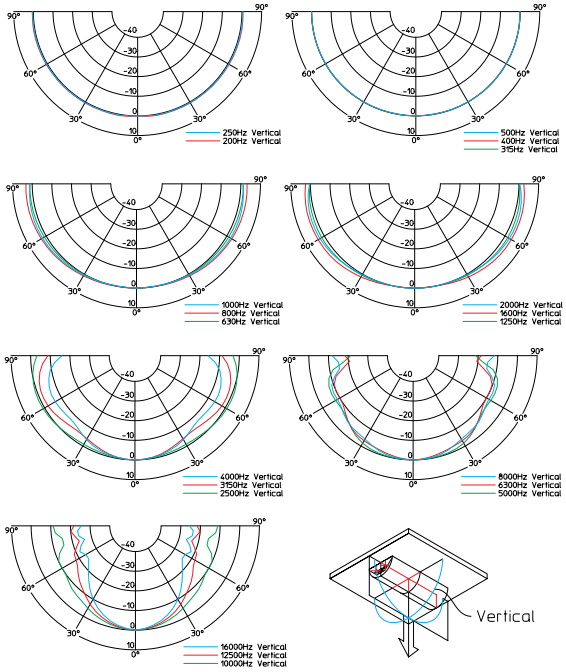
- **Sleek, Stylish Appearance** blends well with modern architecture for background/foreground music and paging systems.
- **Wide Variety of Applications** including wall- or ceiling-mount speaker systems for houses of worship, hotels, museums, offices, restaurants, retail stores and residential spaces.
- **Weather-Proof Version Available, Model H-2WP**, for outdoor applications such as terraces, gardens, patios and swimming pools.
- **Minimum Reflection Design** reduces sound wave reflections typical of conventional bracket-mounted "box" type speakers.
- **Loudspeaker Components Rotate** to allow flexible aiming without altering the enclosure's external appearance (H-1: ±45°, H-2: 360°, H-2WP: ±45°).
- **Two-Way, Sealed Enclosure with High-Quality Components**:
  - 1" balanced-dome tweeter, Ferrofluid-cooled
  - 3" x 2" cone woofer (H-1) or 4" cone woofer (H-2/H-2WP) with Neodymium magnets for improved low frequency response.
- **Built-In 70.7/100 V Matching Transformer** (12 W max.) for distributed speaker systems.
- **Protection Circuit** to prevent loudspeaker damage from excessive input.
- **Built-In Passive Crossover** with optimized filter slopes.
- **High Power Handling:** 90 W for the H-1 and 120 W for the H-2/H-2WP (Continuous Program).
- **Fast and Easy Installation**:
  - Using supplied brackets.
  - H-1 Also Mounts Directly to Drywall with supplied bracket (also available separately, model **HY-H1**).
- **Push-On Grilles with Paintable Finish** allow custom-matching to any environment.
- **Removable Terminal Block** accepts up to AWG #14 wire with loop-through terminations for distributed speaker systems.
- **Convenient System Equalization with 900MK2 Series Modules, E-04R (H-1) and E-05R (H-2/H-2WP)**. Equalization parameters for DACsys II or similar digital signal processors also available.
- **Fire-Rated ABS Enclosure (H-1/H-2)**.
- **Three Year Warranty**.

Polar Response – H-1

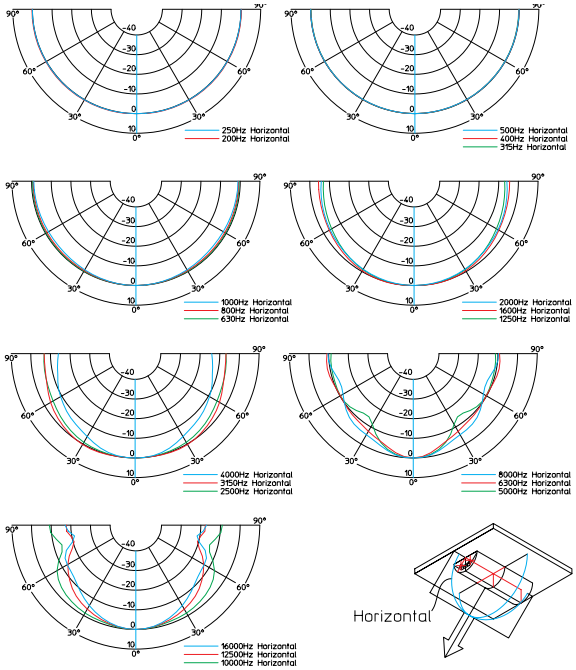
Horizontal (0°)



Vertical (0°)



Horizontal (-45°)



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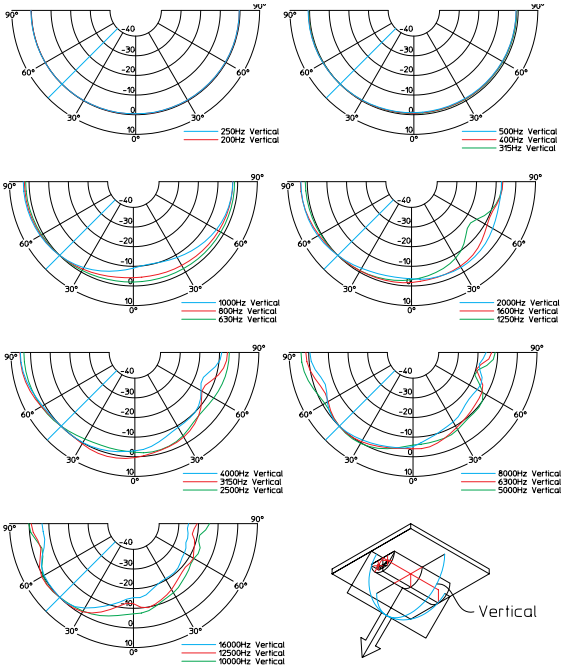
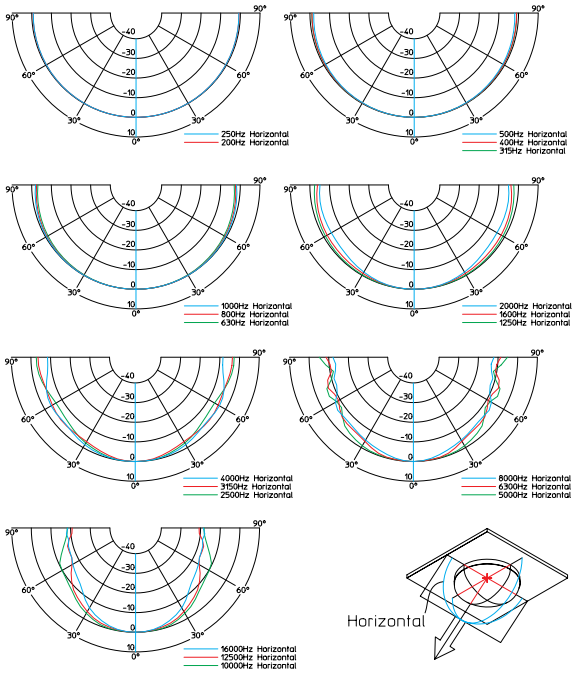
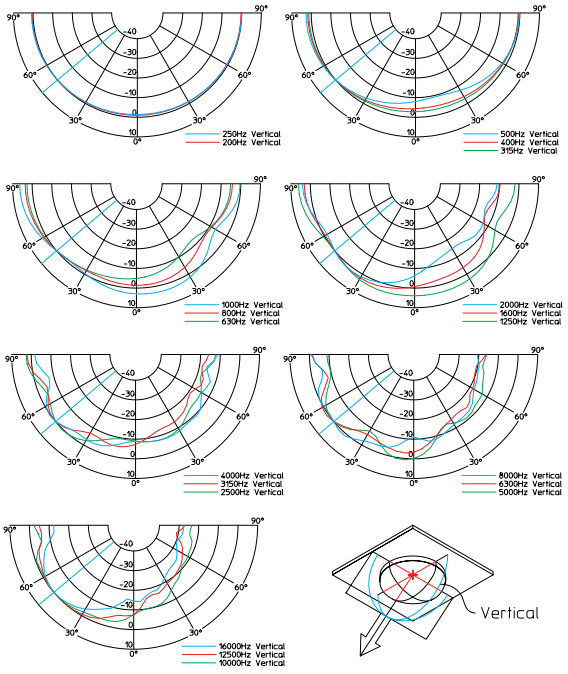


Polar Response – H-2/H-2WP

Horizontal

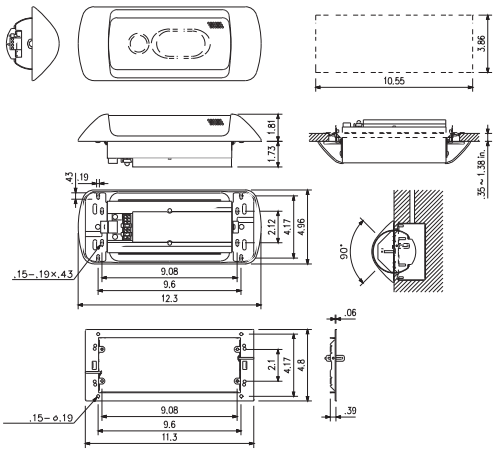


Vertical

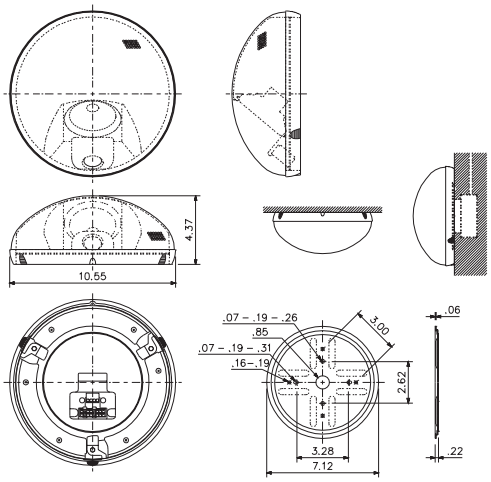


Dimensional Diagrams

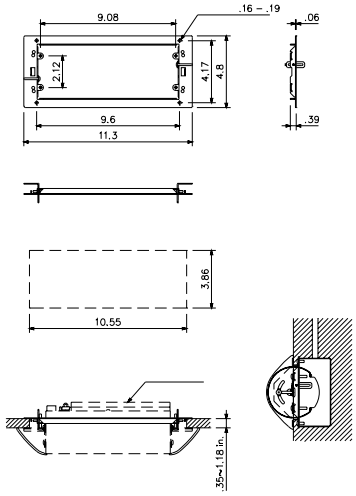
H-1



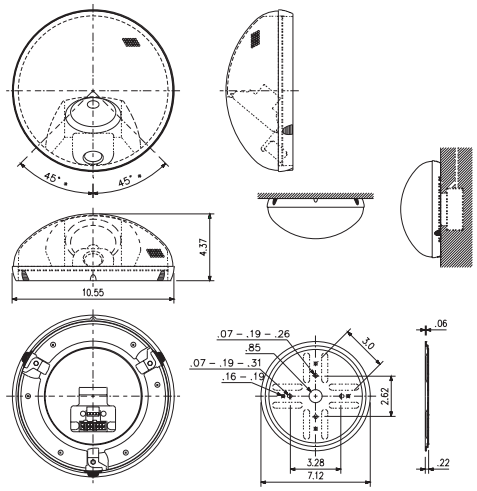
H-2



HY-H1



H-2WP

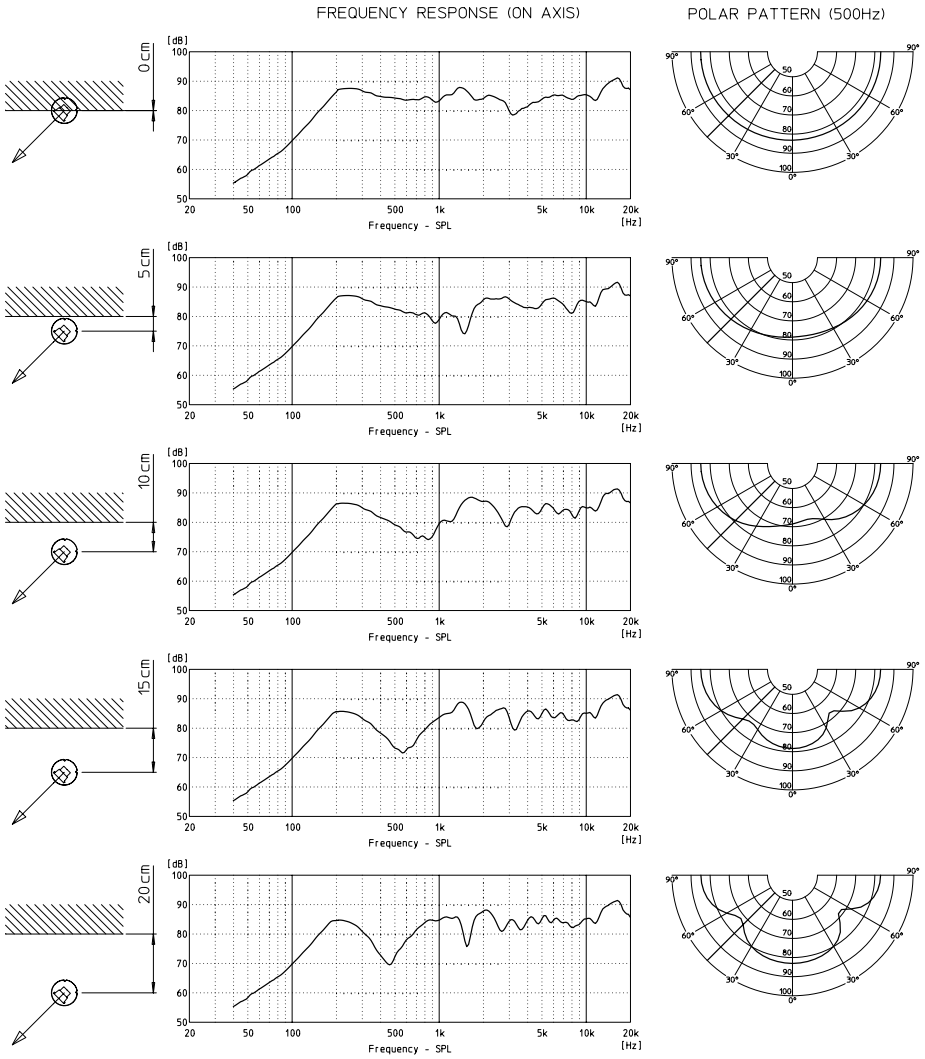


The H Series "Minimum Reflection" Advantage

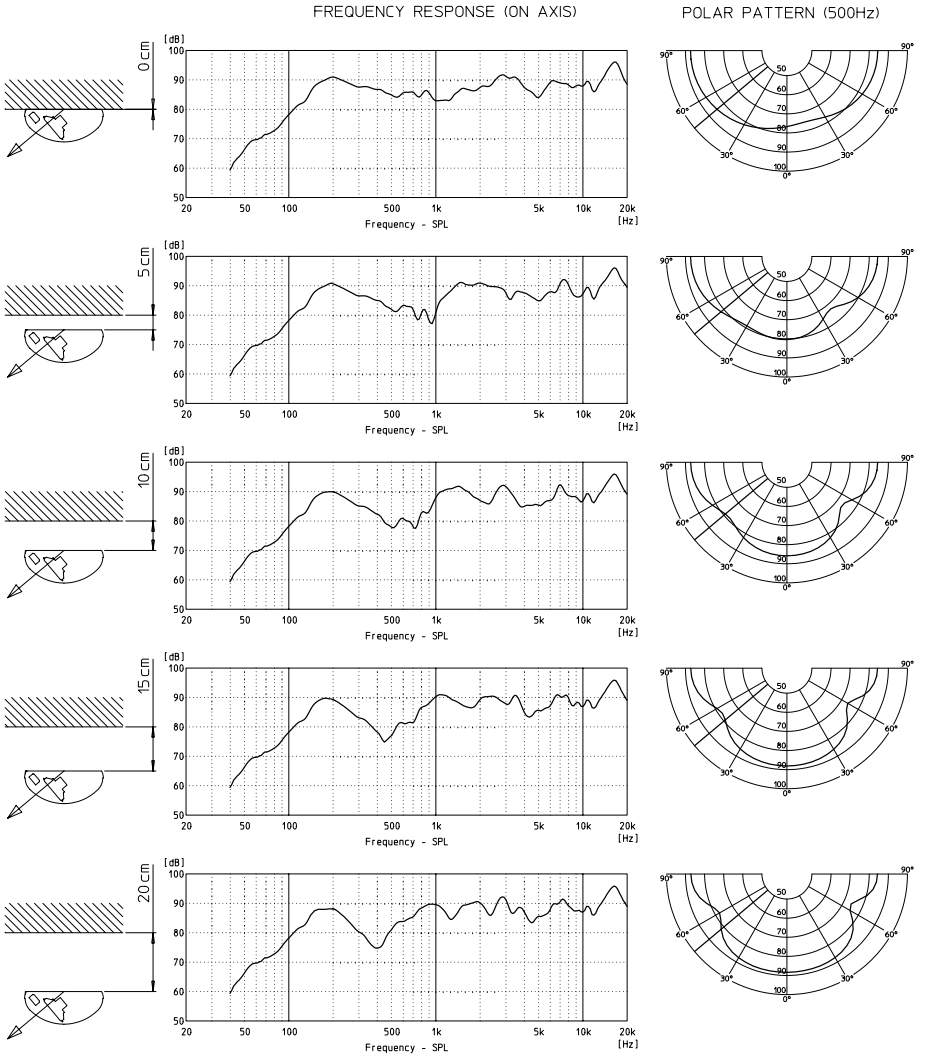
Semi-Flush vs. Bracket-Mounted Speakers

The measured data below graphically illustrates the significant frequency response degradation in the lower mid-range when mounting a speaker 5-20 cm (2-8 ") from a surface (typical with bracket-mounted speakers). Surface reflections combine out-of-phase with the direct sound and cause cancellations. The H Series semi-flush mounting (0 cm diagrams) minimizes the out-of-phase reflections by eliminating the distance between the enclosure and the mounting surface. See Frequency Response plots for H Series direct, reflected and summed response.

H-1

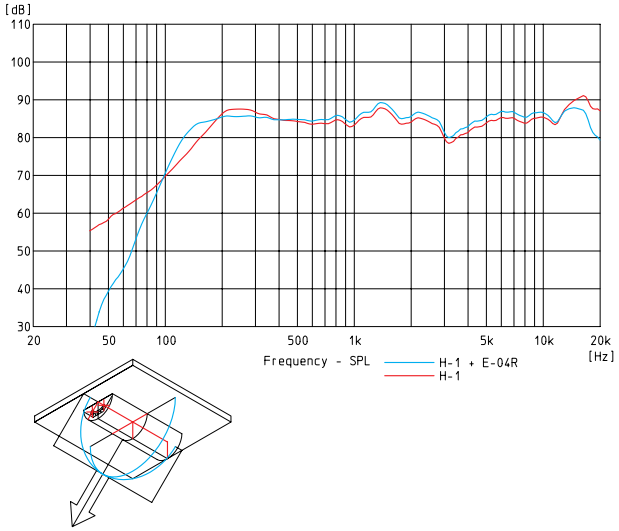


H-2/H-2WP

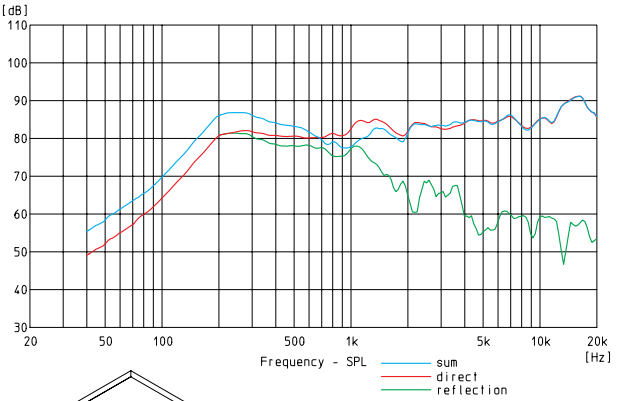


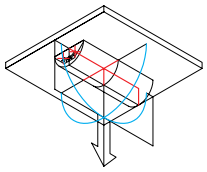
Frequency Response – H-1

E-04R Processor In/Out

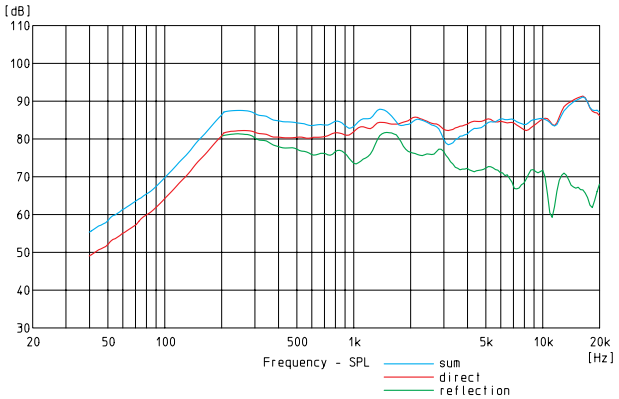


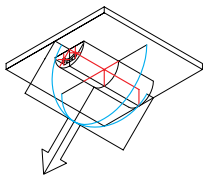
Direct, Reflected and Summed Response (0°)

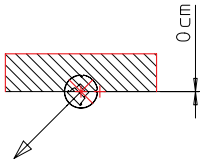




Direct, Reflected and Summed Response (-45°)

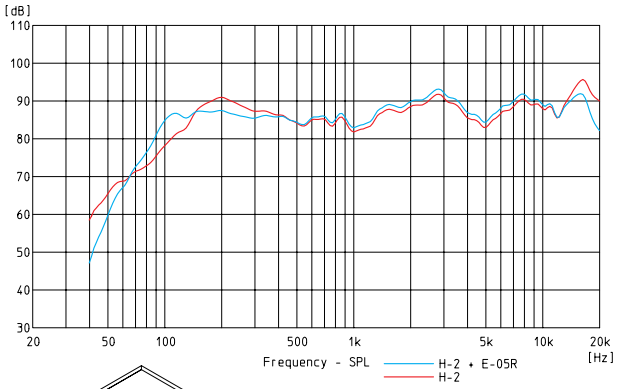


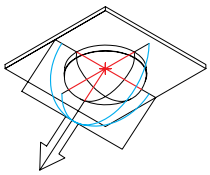




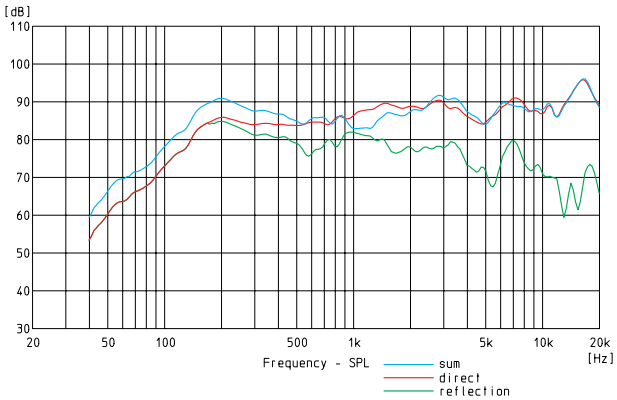
Frequency Response – H-2/H-2WP

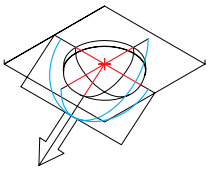
E-05R Processor In/Out

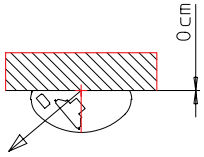




Direct, Reflected and Summed Response







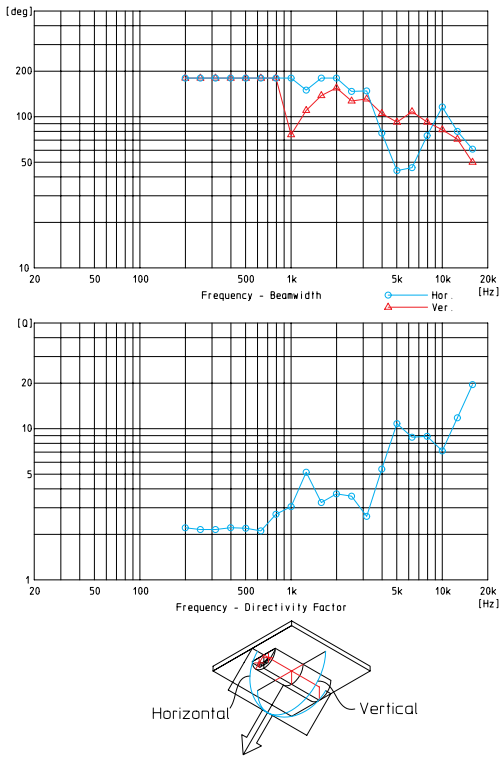
H SERIES SPECIFICATIONS

Enclosure Type	Sealed, two-way
Speaker Components	H-1: 3" x 2" cone woofer (Neodymium magnet) H-2/H-2WP: 4" cone woofer (Neodymium magnet) H-1/H-2/H-2WP: 1" balanced-dome tweeter (Ferrofluid-cooled)
Impedance	Direct: 4 Ω Transformer: 16 Ω 70.7 V line: 12 W (420 Ω), 6 W (830 Ω), 3 W (1.7k Ω), 1.5 W (3.3k Ω) 100 V line: 12 W (830 Ω), 6 W (1.7k Ω), 3 W (3.3k Ω)
Sensitivity *(1 W / 1 m, 1/2 space)*	H-1: 85 dB SPL / H-2/H-2WP: 88 dB SPL
Power Handling	
Continuous Program:	H-1: 90 W / H-2/H-2WP: 120 W (4 Ω)
Continuous Pink Noise, 24 Hrs:	H-1: 30 W / H-2/H-2WP: 40 W (4 Ω)
Transformer:	H-1/H-2/H-2WP: 12 W (16 Ω – 3.3k Ω)
Frequency Response	H-1: 120 to 20k Hz H-2/H-2WP: 100 to 20k Hz
Crossover Frequency	5k Hz
Material / Finish	
Trim Piece:	H-1: Fire-resistant ABS resin (UL94: V-0 grade), white
Adapter Panel:	H-1: Rolled steel plate
Grille:	H-1/H-2: Rolled Steel plate, white, paintable H-2WP: Stainless steel, white, paintable
Grille Frame:	H-2: Fire-resistant ABS resin (UL94: V-0 grade), white H-2WP: AES resin, white
Base Frame:	H-2: Rolled steel plate / H-2WP: Stainless steel
Input Connector	Removable terminal block with screw terminals, 2 pairs of (+)/(-) for input and loop-through terminations using AWG #14 – #24.
Accessories	H-1: Adapter panel (model HY-H1) (fits RACO #953 or equivalent), Cutout template, Mounting screws H-2/H-2WP: Base plate, Mounting screws Optional EQ modules: E-04R (H-1) / E-05R (H-2/H-2WP)
Dimensions *(W x H x D)*	H-1: 12.28" x 4.96" x 3.54" (312 mm x 126 mm x 90 mm) H-2/H-2WP: ϕ 10.55" x 4.37" (268 mm x 111 mm)
Weight	H-1: 3.31 lbs. (1.5 kg) (including adapter panel) H-2/H-2WP: 4.63 lbs. (2.1 kg) (including base frame)

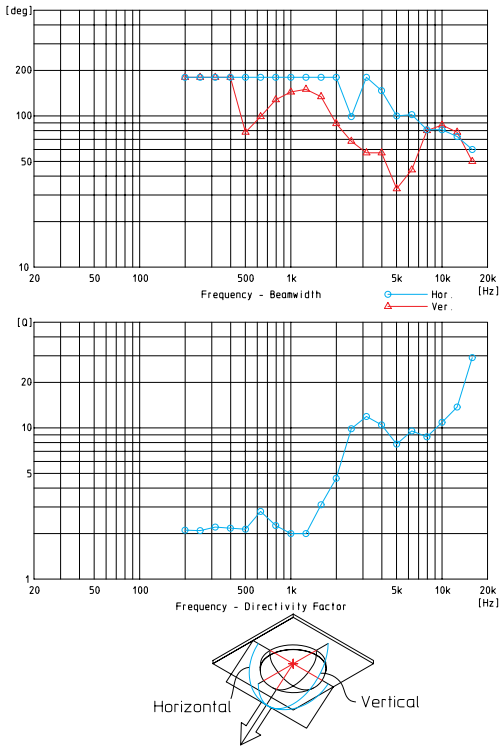
NOTE: All specifications are subject to change without notice.

Beamwidth and Directivity

H-1



H-2/H-2WP



Architect's & Engineer's Specifications

The loudspeaker shall be a two-way, sealed enclosure suitable for wall or ceiling mounting with an external appearance that is aesthetically pleasing and blends well with surrounding building architecture and fixtures. Loudspeakers requiring visible external mounting brackets shall not be acceptable.

The loudspeaker shall utilize high quality components. The high frequency component shall be a 1" balanced dome tweeter, Ferrofluid-cooled for high power handling, The low frequency component shall be a 3" x 2" (H-1) / 4" (H-2/H-2WP) cone woofer with Neodymium magnet for improved low frequency response. The speaker shall employ a high quality internal passive crossover circuit with optimized filter slopes and a crossover frequency of 5k Hz.

The loudspeaker shall have a smooth frequency response from 120 to 20k Hz (H-1) / 100 to 20k Hz (H-2/H-2WP). The output sound pressure level at a distance of 1 meter with 1 W of input power applied shall be 85 dB SPL (H-1) / 88 dB SPL (H-2/H-2WP). The rated power handling (Continuous Program) shall be 90W (H-1) / 120 W (H-2/H-2WP) (4 Ω) and 12 W with matching transformer (H-1/H-2/H-2WP).

The loudspeaker shall be compatible with low and high impedance speaker systems and shall include a built-in 70.7/100 V matching transformer with the following selectable tap settings: 12 W, 6 W, 3 W, 1.5 W (70.7 V) and 12 W, 6 W, 3 W (100 V). The speaker shall also have selectable impedance settings of 4 Ω and 16 Ω.

The loudspeaker shall include a removable terminal block connector, screw terminal type, with loop-through terminations and accept AWG #14 - #24.

An internal protection circuit shall prevent damage to components in an overload condition. Once activated, the circuit shall reduce the input signal and reset automatically after approximately thirty seconds once overload condition is removed.

The loudspeaker grille material shall be rolled steel plate (H-1/H-2) / stainless steel (H-2WP) with a paintable white finish. The loudspeaker trim piece (H-1) shall be constructed of fire-resistant ABS resin with a paintable white finish. The loudspeaker grille frame shall be fire-resistant ABS resin (H-1/H-2) / AES resin (H-2WP) with a paintable white finish.

The unit shall be compact and lightweight with dimensions of 12.28" W x 4.96" H x 3.54" D (312 mm x 126 mm x 90 mm) (H-1) / ϕ 10.55" x 4.37" H (268 mm x 111 mm) (H-2/H-2WP). The speaker shall weight 3.31 lbs. (1.5 kg) (H-1) / 4.63 lbs. (2.1 kg) (H-2/H-2WP).

The loudspeakers shall be the TOA H-1 / H-2 / H-2WP.

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