

HD-1 High Definition Audio Monitor



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HD-1 Operating Instructions, PN 05.550.026.01 B

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CHAPTER 1: INTRODUCTION

HOW TO USE THIS MANUAL

Make sure to read these instructions in their entirety before configuring a Meyer Sound loudspeaker system. In particular, pay close attention to material related to safety issues.

As you read these instructions, you will encounter the following icons for notes, tips, and cautions:



NOTE: A note identifies an important or useful piece of information relating to the topic under discussion.



TIP: A tip offers a helpful tip relevant to the topic at hand.



CAUTION: A caution gives notice that an action may have serious consequences and could cause harm to equipment or personnel, or could cause delays or other problems.

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HD-1 MONITOR

The HD-1 high definition audio monitor is a self-powered loudspeaker designed for ultra-precise near-field monitoring. Optimized to approximate a point-source radiator, the HD-1 yields exceptionally broad directivity with a generous sweet spot. Its patented circuitry minimizes time delay response and deviations from linear phase.



HD-1 High Definition Audio Monitor

The HD-1 incorporates a 2-channel power amplifier and a sophisticated active crossover with optimized pole-zero filters for acoustical transparency and a flat frequency response. The power amplifier features complementary MOSFET output stages and operates at class A at low to moderate levels (less than 90 dB SPL) and class AB at high levels.

The HD-1 delivers a high peak SPL with a dynamic range of over 100 dB, with extremely low distortion. Its free-field frequency response is flat (within ± 1 dB) from 40 Hz to 20 kHz, with each unit being individually calibrated at Meyer Sound's Berkeley, California factory. The HD-1 has an active, balanced input that is switchable between a +4 dBu and -10 dBV nominal operating level.

The HD-1's transducers include a low-frequency 8-inch cone driver and a high-frequency 1-inch soft dome tweeter. The low-frequency driver's ample magnet and 2-inch voice coil yield high efficiency with rapid heat dissipation. The tweeter employs a silk-infused dome that affords smooth frequency response while minimizing breakup and coloration. The proprietary drivers are housed in a vented cabinet and individually tested for maximum linearity and low distortion.

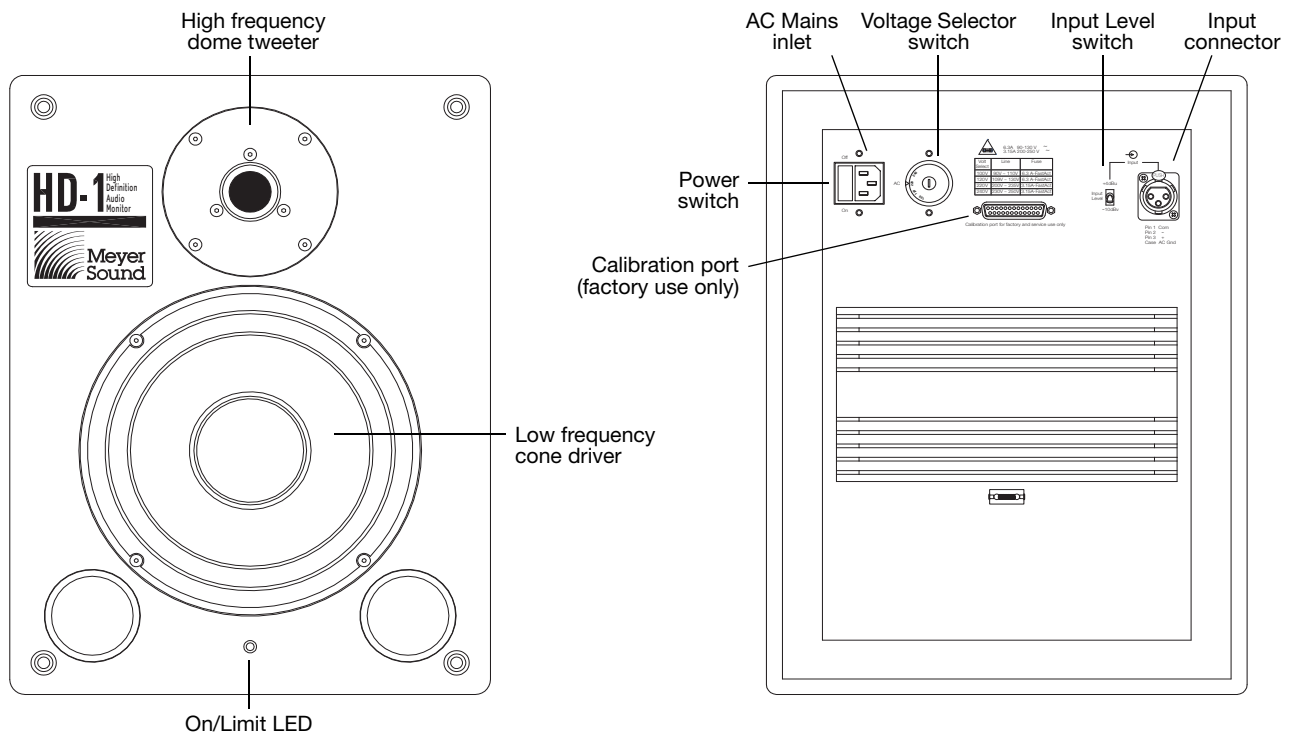
OBTAINING SERVICE

The HD-1 monitor is protected by Meyer Sound's Limited 3-Year Warranty. For complete information regarding terms and conditions, refer to the printed warranty statement packed with the system.

To obtain service:

1. Contact your Meyer Sound dealer or contact Meyer Sound Customer Service.
2. If you are calling Meyer Sound, have the HD-1 serial number handy and be prepared to describe the problem clearly and completely.
3. If the problem cannot be resolved over the phone, you must return the unit for service. You will be assigned an RA (Return Authorization) number for job tracking. Refer to this number on shipping materials and in all correspondence concerning the repair. Shipping charges are the responsibility of the purchaser.

CHAPTER 2: HD-1 SETUP



HD-1 High Definition Audio Monitor, Front and Rear Panel

AC POWER

The HD-1's Voltage Selector switch, fuse, AC Mains inlet, and power switch are located on its rear panel.

Voltage Selector

The HD-1 accepts AC voltages from 90 to 250 V AC at 50 to 60 Hz in four ranges (100, 120, 220, or 240 Hz), as determined by the Voltage Selector switch. The HD-1 ships in the following configurations:

- UL, Voltage Selector set to 120 V, 6.3 A fuse installed
- CE, Voltage Selector set to 220 V, 3.15 A fuse installed

CAUTION: Before plugging in the HD-1's AC power cable, make sure to set the Voltage Selector switch to the range appropriate for the local AC mains voltage.

CAUTION: Do not adjust the Voltage Selector switch while the AC power cable is plugged in to an outlet.

Fuse

The HD-1 is protected by a fast-acting fuse in the Voltage Selector switch. In the unlikely event that the fuse blows, check the line voltage and Voltage Selector setting. Always replace the fuse with one of the same type and rating. For more information, see Table 1 on page 13.

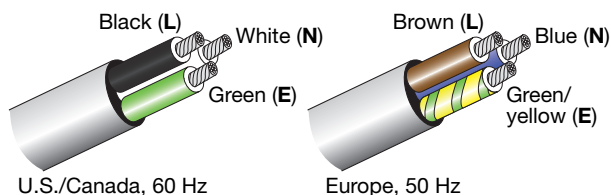
AC Power Cable

The HD-1 ships with a shielded, three-wire AC power cable. The HD-1 must be connected to a grounded (three-prong) outlet. To operate safely and effectively, it is extremely important that the unit be properly grounded. If possible, connect both HD-1s to the same outlet.

CAUTION: Set the Voltage Selector switch to the local AC voltage range before plugging in the AC power cable.

AC Power Cable Wiring

When wiring international or special-purpose AC power cables, use the following wiring scheme:



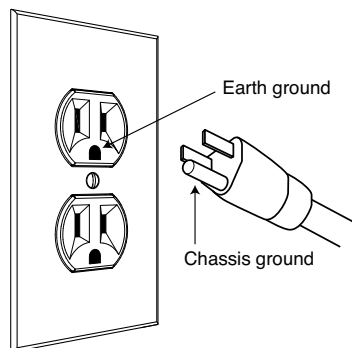
AC Wiring Scheme

Wire Color		Attach to the Following Terminal
U.S. / Canada 60 Hz	European 50 Hz	
Black	Brown	Hot or live (L)
White	Blue	Neutral (N)
Green	Green and Yellow	Protective earth / ground (E or PE)

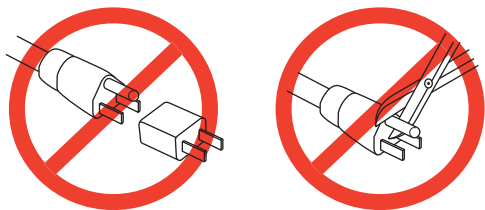
Electrical Safety Guidelines

Pay close attention to these important electrical and safety guidelines.

- The HD-1 requires a grounded outlet. Always use a grounded outlet and plug.



- Do not use a ground-lifting adapter or cut the AC power cable ground pin.



- Make sure the AC power cable for the loudspeaker has the appropriate power plug for the area in which you will operate the loudspeaker.
- Do not operate the unit if the power cable is frayed or broken.
- The AC power connector must not be engaged or disengaged when under load or live.
- Keep all liquids away from the HD-1 to avoid hazards from electrical shock.

INPUT CONNECTOR

The HD-1 receives audio from its XLR 3-pin female Input connector, which uses the following wiring:

- **Pin 1** — Audio common
- **Pin 2** — Signal (–)
- **Pin 3** — Signal (+)
- **Case** — Earth (AC) ground

The Input connector accepts 10 kOhm balanced audio signals. Make sure to use standard XLR audio cables, with all three pins connected on both ends, for balanced audio signals. Unbalanced audio signals require an inline adapter.



CAUTION: Shorting an Input connector pin to the case may cause a ground loop, resulting in hum.



NOTE: Meyer Sound offers an optional RCA male to XLR 3-pin male audio cable for connecting to source devices with RCA outputs.

INPUT LEVEL

The Input Level switch determines the input sensitivity for source signals connected to the HD-1's Input connector. The Input Level can be set to:

- **+4 dBu** (1.23 V rms = 114 dB SPL rms): Select this option for balanced audio signals, usually from professional audio equipment.
- **–10 dBV** (0.32 V rms = 114 dB SPL rms): Select this option for unbalanced audio signals, usually from consumer or semi-professional audio equipment.



NOTE: Setting the Input Level to –10 dBV when receiving a +4 dBu source signal will result in increased noise.

TURN-ON SEQUENCE

When powering up the HD-1s and their source device, use the following sequence:

1. Set the volume for the source device to minimum.
2. Turn on the source device.
3. Turn on the HD-1s. The power switch is located on the rear panel next to the AC Mains inlet. The On/Limit LED on the front panels light up.
4. Adjust the volume for the source device as necessary.

ON/LIMIT LED

Under normal operation, the front panel On/Limit LED is green. At higher listening levels, the LED may flash red during program peaks, indicating the onset of overloading, where the unit's limiters engage. If the LED turns red and stays red, reduce the source level. If the LED stays solid red for extended periods, thermal damage may result.

The HD-1 performs within its acoustical specifications at normal temperatures when the On/Limit LED is green, or if the LED turns red for two seconds or less and then returns to green for at least one second. If the LED remains red for longer than three seconds, the HD-1 enters hard limiting where:

- Increases to the input level have no effect.
- Distortion increases due to clipping and nonlinear driver operation.
- The drivers are subjected to excessive heat and excursion, which will compromise their lifespan and may eventually lead to damage over time.

CALIBRATION PORT

The HD-1 Calibration port is for factory use only. Do not apply external voltages to any connector pins for this port.

CHAPTER 3: HD-1 PLACEMENT

The HD-1 is designed for *near field* operation. The best listening distance is between 3 and 8 feet from the front of the monitor. The HD-1 is aligned for a flat frequency response in free field (no adjacent boundary surfaces). If possible, place the monitors at least 3 feet from any nearby walls or corners. Placing the monitors next to a wall or on the floor will cause low frequencies to be exaggerated. All nearby surfaces (such as mixing consoles) should be angled to minimize reflections toward the listener.

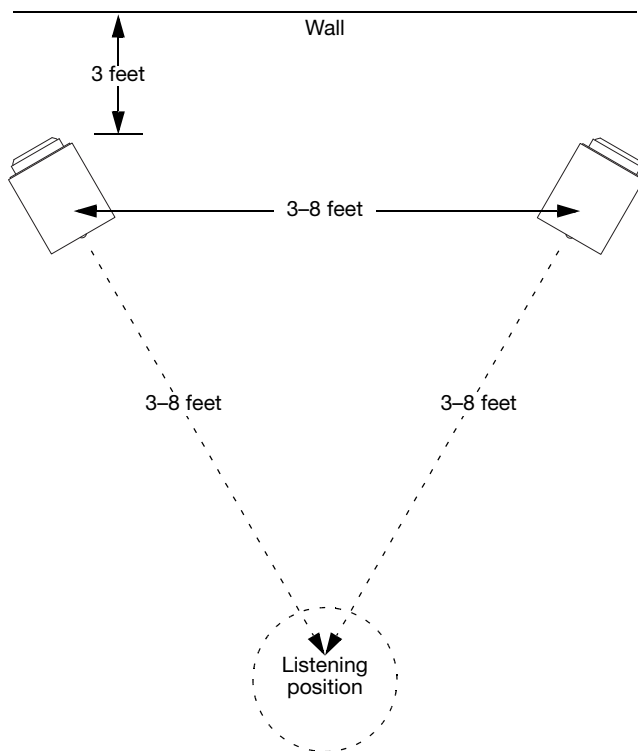


Figure 1: Optimum Stereo Placement for HD-1

To obtain the best stereo performance, place the HD-1s as shown in Figure 1, with the two monitors forming an equilateral triangle with the listening position.

The HD-1 is calibrated so that the best sound quality is obtained on the tweeter axis or slightly above. Adjust the height of the monitors so that the listening position lies as shown in Figure 2.

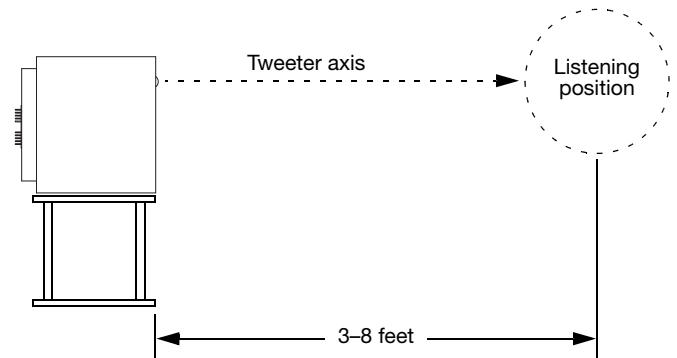
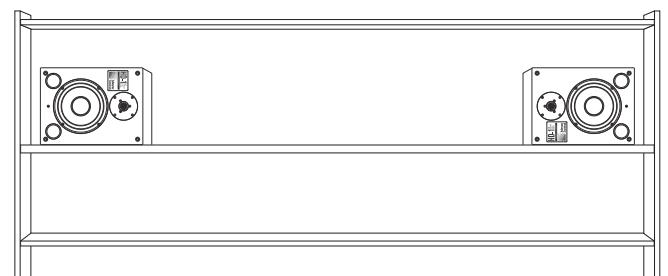


Figure 2: HD-1 Listening Position on Tweeter Axis

When using loudspeaker stands, which are recommended, make sure the stands can safely support the weight of the monitor (51 lbs). For recording studios, the monitors can be placed on the bridge of mixing boards; make sure the bridge can support the weight of the monitors.

You can also place HD-1s on a shelf or soffit. When doing so, make sure the shelf can support the weight of the monitors. Place the monitors near the ends of the shelf, where the support is strongest, with the tweeters oriented in and the front flush with the shelf edge. Leave at least 6 inches of space above and behind the monitors to allow for proper ventilation.



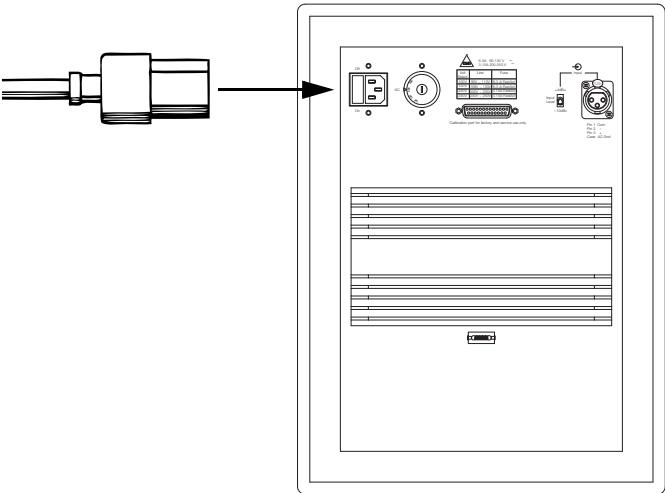
HD-1 Placement on Shelf

CAUTION: Always allow at least 6 inches clearance above and behind the HD-1 to allow for proper ventilation.

CAUTION: When handling the HD-1, avoid touching or pressing the dome tweeter. If the dome becomes dented, the unit should be returned for testing and calibration, even if the dome pops back into position.

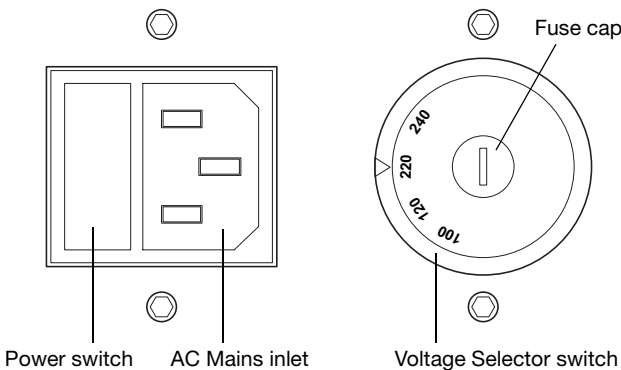
APPENDIX A: AC POWER REFERENCE

The HD-1 monitor is equipped with an international standard IEC 320 AC Mains inlet. This convenient receptacle accepts a variety of power cable types to accommodate mains outlets around the world.



IEC 320 Connector

The HD-1 must have the correct power cable, voltage setting, and fuse for the AC power source in your area. To avoid electrical shock and damage, use only a cable specified by Meyer Sound, or an equivalent cable that satisfies the requirements of the local safety testing agency.



HD-1 Rear Panel

CAUTION: To avoid damage to the HD-1, check the rear panel Voltage Selector switch and fuse before plugging in the unit and applying power. Set the Selector Switch to the local AC voltage and, if necessary, replace the fuse with one that is rated for your area. Always unplug the HD-1 power plug before adjusting the Voltage Selector switch.

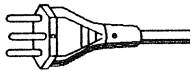
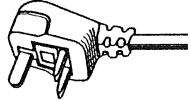
HD-1 AC POWER RATINGS

Table 1 lists the AC power connector, voltage setting, and fuse rating to use with the HD-1 in each country.

Table 1: Worldwide AC Power Ratings

Country	Connector	Voltage Setting	Fuse Rating
Australia, New Zealand, Fiji, Papua New Guinea, People's Republic of China		240 V	3.15 A
Germany, Austria, Norway, Sweden, Finland, Netherlands, Belgium, France, Portugal, Spain		220 V	3.15 A
Denmark		220 V	3.15 A
Note: To avoid risk of shock, the Continental Europe plug (previous entry) should <i>not</i> be used in Denmark.			
India, Ghana, Kenya, Nigeria, Kuwait, Qatar, Hong Kong, other parts of Asia and the Far East		220 V	3.15 A
Israel		220 V	3.15 A
Italy, parts of North Africa		220 V	3.15 A
Note: Several types of plugs are used in Italy; the one shown here is the official standard.			
Japan		100 V	6.3 A
Note: Earth ground not provided. Use a ground adapter with the grounding strap attached to the outlet's center screw.			
United States, Canada, Mexico and Central America, parts of Korea, Taiwan, west coast of South America		120 V	6.3 A

Table 1: Worldwide AC Power Ratings

Country	Connector	Voltage Setting	Fuse Rating
Switzerland		220 V	3.15 A
United Kingdom, Ireland		220 V	3.15 A

REPLACING THE HD-1 FUSE

In the unlikely event that the HD-1 fuse blows, you can easily replace it. The HD-1 requires a 5 x 20 mm quick-acting fuse that conforms to IEC 127/II, SEV 1064, DIN 41661, and BS 4265. The fuse must also be UL, VDE, SEMCO, and BEAB approved.

The following fuses are available from Meyer Sound:

- Time Lag Fuse, 3.15 A, 250 V, 5 x 20 mm
- Time Lag Fuse, 6.30 A, 250 V, 5 x 20 mm



CAUTION: Always replace the HD-1 fuse with one that is rated for your area. For more information, see Table 1 on page 13.

To replace the HD-1 fuse:

1. Insert a flat-blade screwdriver in the fuse cap and gently turn counterclockwise. The fuse is released from its socket.
2. Insert the replacement fuse.
3. Insert a flat-blade screwdriver in the fuse cap and gently turn clockwise to tighten it.

APPENDIX B: TROUBLESHOOTING

Table 2: HD-1 Troubleshooting

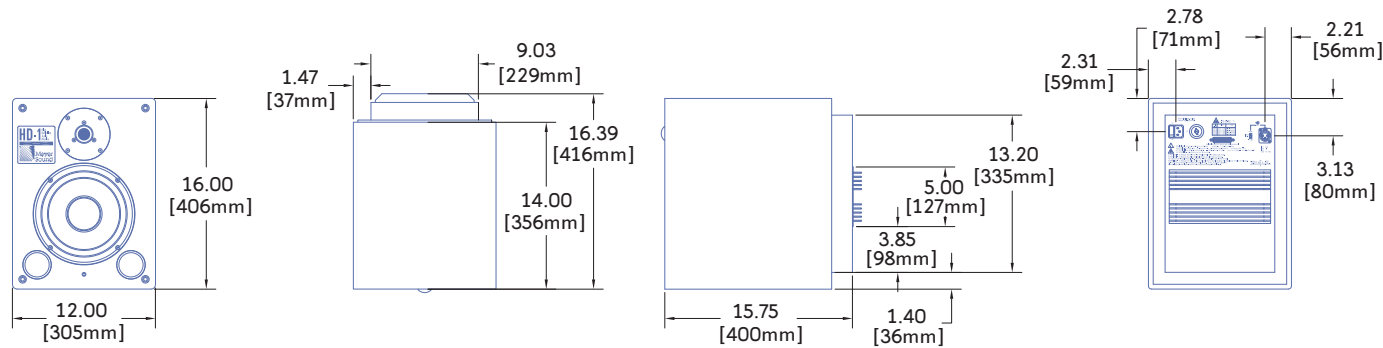
Problem	Symptoms	Possible Cause	Action
No sound	Power switch on but switch not lit	Bad AC connection	Check AC outlet and power cable.
	Power switch on and lit but LED not lit	Blown fuse	Replace fuse. Check Voltage Selector switch and AC line.
	Power switch on and lit, LED lit	Signal source disconnected	Check input cables, connections, and source signal.
Distorted sound with hum		Voltage Selector switch incorrectly set	Power down the HD-1 and check the Voltage Selector switch setting and AC voltage output.
	Voltage Selector switch correct	Power brownout	Power down the HD-1 and check the AC voltage output. If low, contact the power company.
Low sound levels		Source signal level too low	Increase source device output.
		Input Level switch incorrectly set	Set Input Level switch to -10 dBV.
Hiss		Input Level switch incorrectly set	Check Input Level switch and source device output.
	Input Level switch correctly set	Program material	Stop playback. If hiss disappears, check program material.
	Program material okay	Source device malfunction	Unplug HD-1 Input connector. If hiss disappears, check source device.
Distorted or intermittent sound		Bad input connection	Check input cables and connections.
	Input cables and connections okay	Source device malfunction	Try another source device. If problem stops, replace or repair bad source device.

APPENDIX C: HD-1 SPECIFICATIONS

ACOUSTICAL	
Frequency Response	32 Hz – 22 kHz Note: Subject to room loading. Specified for 8 feet actual distance between HD-1 cabinet and a single boundary surface.
Free Field	32 Hz – 22 kHz at –3 dB 40 Hz – 20 kHz ± 1 dB Note: 1/3-octave resolution.
Maximum Peak SPL	125 dB peak (120 dB at 1 meter)
Signal to Noise Ratio	>110 dB (noise floor 20 dBA @ 1 meter)
Coverage	60 degrees symmetrical
Crossover	Optimized pole-zero filters to complement transducer response and to achieve acoustical transparency and flat phase
Note: Unless otherwise specified, all acoustical measurements are performed at 1/2 meter from front baffle on tweeter axis. Acoustical decibels are specified re 20 μ Pa.	
TRANSDUCERS	
Low Frequency	One 8-inch cone driver
High Frequency	One 1-inch dome tweeter
AUDIO INPUT	
Type	10 kOhm impedance, electronically balanced
Connector	XLR 3-pin female
Nominal Input Level	+4 dBu or –10 dBV, switchable
AMPLIFIER	
Type	2-channel complementary MOSFET output stages (class A at low to moderate levels; class AB at high levels)
Output Power	225 W (low frequency, 150 W; high frequency, 75 W) Note: Amplifier wattage rating based on the maximum unclipped burst sine-wave rms voltage that the amplifier will produce for at least 0.5 seconds into the nominal load impedance.
THD, IM TIM	<.02%
AC POWER	
Connector	3-pin IEC male receptacle
Voltage Selection	Selector switch for 100, 120, 220, and 240 V AC; 50–60 Hz
Safety Rated Voltage Range	90–250 V AC, 50–60 Hz Note: Safety agency rated voltage range under normal operating conditions.
Current Draw	
Idle	0.40 A rms (120 V AC); 0.23 A rms (220 V AC); 0.47 A rms (100 V AC)
Maximum Long-Term Continuous	1.15 A rms (120 V AC); 0.62 A rms (220 V AC); 1.32 A rms (100 V AC)
Burst	1.82 A rms (120 V AC); 0.99 A rms (220 V AC); 2.16 A rms (100 V AC)
Maximum Instantaneous Peak	5.60 A peak (120 V AC); 3.20 A peak (220 V AC); 6.05 A peak (100 V AC)

PHYSICAL	
Enclosure	Oak veneer
Finish	Smooth medium-gloss black
Dimensions	12.00 inches W x 16.00 inches H x 16.39 inches D (+ 0.5 inches for HF dome clearance) (305 mm x 406 mm x 416 mm)
Weight	51 lbs (23.1 kg)
ENVIRONMENTAL	
Operating Temperature	0° C to +45° C
Non Operating Temperature	−40° C to +75° C
Humidity	To 95% at 45° C (non-condensing)
Operating Altitude	To 5,000 m (16,404 ft)
Non Operating Altitude	To 12,000 m (39,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

HD-1 DIMENSIONS



HD-1 Dimensions

COMPLIANCE





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