

Revel[®] Concerta[™] M12
Loudspeaker
Owner's Manual





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DOCUMENTATION CONVENTIONS

This document contains general safety, installation, and operation instructions for the Revel Concerta M12 Loudspeaker. It is important to read this document before attempting to use this product. Pay particular attention to safety instructions.

WARNING Calls attention to a procedure, practice, condition, or the like that, if not correctly performed or adhered to, could result in injury or death.

CAUTION Calls attention to a procedure, practice, condition, or the like that, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.

Note Calls attention to information that is essential to highlight.

This owner's manual assumes that two M12s are included in the loudspeaker setup.

About the M12

Thank you for purchasing the Revel Concerta M12 Loudspeaker. A two-way monitor, the M12 delivers outstanding accuracy, low distortion and maximum output across the entire frequency range. The Concerta M12 is suitable for use in a bookshelf, built-in to a custom cabinet, or placed on a pedestal stand. Two proprietary transducers, a sophisticated filter network, and an acoustically inert cabinet allow the M12 to achieve acoustical precision and performance worthy of the most demanding home entertainment systems.

A two-way design, the M12 transducers effectively cover a wide frequency spectrum. A 6.5-inch (165mm) woofer delivers highly refined midrange frequencies and surprisingly extended low frequency response. A 1-inch (25mm) dome tweeter is mounted in a Controlled Acoustic Impedance waveguide which dramatically improves off-axis response. The tweeter accurately reproduces high frequencies well above audible levels.

Combining superior form and function, the M12 transducers feature a distinctive design that allows for smoother frequency response. The woofer cone and tweeter are constructed with Organic Ceramic Composite cone material to reduce distortion. The spiders are constructed with a high-strength Nomex/cotton blend with optimized geometry for increased linearity.

The M12 woofer features a ceramic motor system with magnetic shielding to prevent interference with CRT video monitors.

The woofer is built with a butyl rubber surround for large, linear excursion capabilities. The woofer also includes round copper wire voice coils wound on 1-inch (25.4mm) Kapton® bobbins which enable high power handling.

The tweeter dome is under-hung with copper-clad aluminum wire for low distortion. The tweeter's Neodymium magnet contains Ferrofluid® which helps to achieve high-power handling with reduced compression. Magnetic shielding prevents video monitor interference.

A high-order filter at 2.5kHz optimizes loudspeaker on-axis and off-axis response, helping to assure smooth response and timbral accuracy. Gold-plated binding posts accommodate heavy-gauge speaker cable. If desired, the M12 can be placed on a pedestal stand to optimize its performance.

The M12 cabinet is constructed with medium-density fiberboard (MDF) walls to reduce cabinet-induced colorations. Threaded inserts on the bottom of the cabinet accommodate screws for secure fastening to the optional pedestal stand.

Since 1996, Revel has stood at the forefront of loudspeaker design and performance. Backed by Harman International's extensive research and design facilities, the Revel Concerta Series Loudspeakers benefit from cutting-edge development tools. A multi-channel listening lab provides for double-blind listening tests. A laser interferometer enables detailed driver and cabinet analysis. Multiple large anechoic chambers provide for precise tests and measurements. Finite element analysis allows for advanced loudspeaker modeling. A stereo lithography apparatus provides tight tolerances.

Adding to the proud lineage of Revel's Ultima and Performa Series Loudspeakers, the Concerta M12 solidifies Revel's reputation as the leading designer and manufacturer of high-quality, high-performance loudspeakers.

HIGHLIGHTS

- Unsurpassed accuracy for a compact loudspeaker
- Proprietary 6.5-inch (165mm) woofer with Organic Ceramic Composite cone
- Proprietary 1-inch (25mm) tweeter with Organic Ceramic Composite dome
- High output with low distortion
- High-order filter network
- Gold-plated binding posts
- Magnetic shielding
- MDF cabinet walls
- Elegant cabinet design in vinyl finishes

PRODUCT REGISTRATION

Please register the M12 within 15 days of purchase. To do so, register online at www.revelspeakers.com or complete and return the included product registration card. Retain the original, dated sales receipt as proof of warranty coverage.

UNPACKING

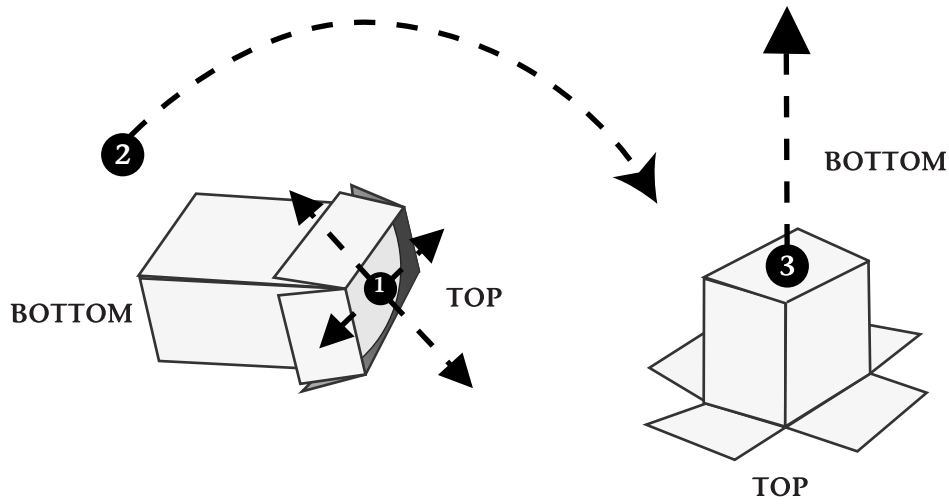
The M12 requires special care and handling during unpacking. Pay particular attention to the precautions that appear in this section and to other precautions that appear throughout this owner's manual.

When unpacking, save all packing materials for possible future shipping needs. Refer to the Obtaining Service section on page 14 for additional information.

To unpack the M12:

1. Fully open the top flaps of the packing carton as shown in Figure 1 (page 7).
2. Without allowing the top flaps to close, stand the packing carton upside-down as shown in Figure 1 (page 7).
3. Lift the packing carton off of the loudspeaker as shown in Figure 1 (page 7). Use caution to avoid damaging the loudspeaker cabinet. At this point, the loudspeaker will be upside-down.

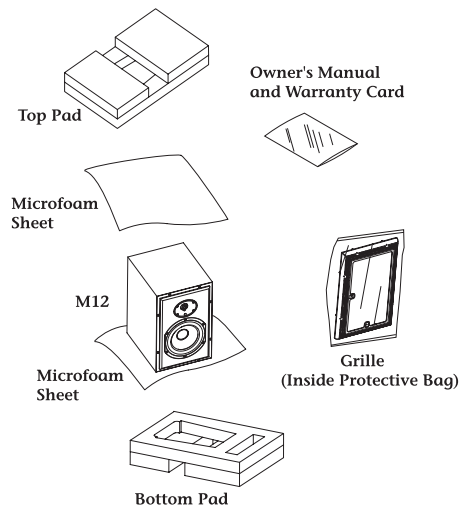
Figure 1: Unpacking the Carton



Unpacking (continued)

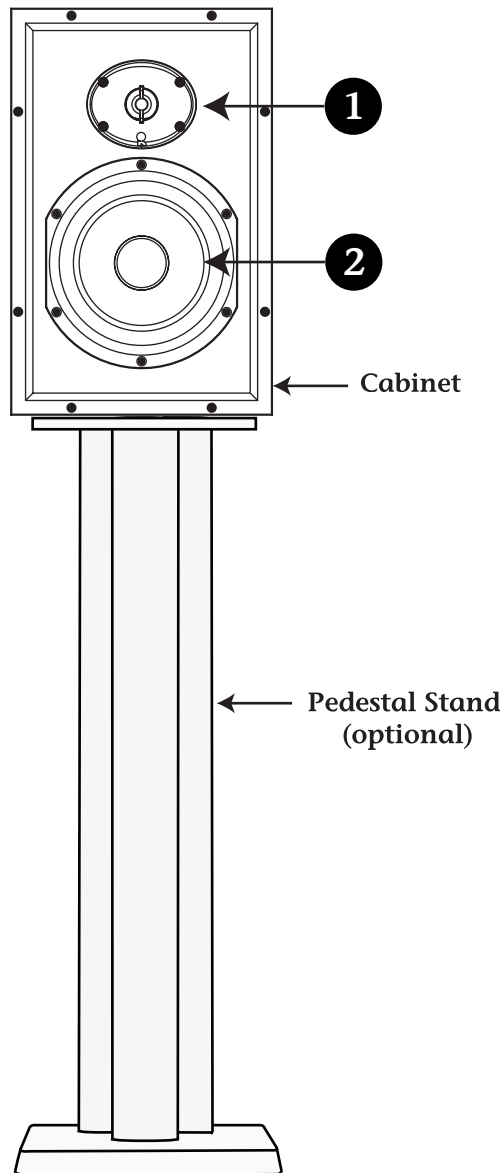
4. Remove the bottom pad and the microfoam sheet. These items are identified in Figure 2 (right).
5. Grasping the sides of the cabinet, place the M12 in the upright position.
6. Remove the Owner's Manual, Warranty Card, top pad and microfoam sheet.

Figure 2: Packing Materials



LOUDSPEAKER OVERVIEW

Figure 3: M12 Loudspeaker Front View



The numbers in Figure 3 (above) correspond with the numbered items in the Driver Complement section that begins in the next column.

DRIVER COMPLEMENT

The numbers in Figure 3 (left) correspond with the numbered items below.

1. Tweeter
2. Woofer

CABINET

Reduces cabinet-induced colorations with MDF walls and internal bracing. The cabinet's vinyl finish does not require routine maintenance. However, cabinet surfaces that have been marked with fingerprints, dust, or other dirt can be cleaned using a soft cloth.

CAUTION

To prevent cabinet damage, do not use a cloth made with steel wool or use metal polish to clean the cabinet. Do not use any cleaning products or polishes on the cabinet or grille.

Filter Network

Optimizes loudspeaker on-axis and off-axis response with high-order filter at 2.5kHz, helping to ensure smooth response and timbral accuracy. Gold-plated binding posts accommodate heavy speaker cables.

INPUT PANEL

The numbers in Figure 4 (below) correspond with the numbered items in this section.

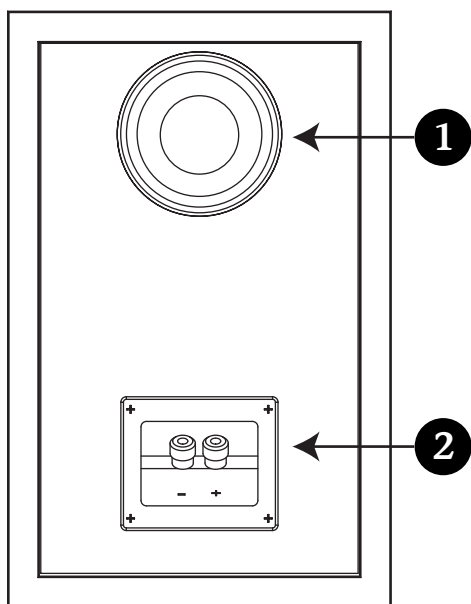
1. Woofer Port

Enhances low-frequency extension. Computer-optimized internal and external flares minimize distortion resulting from air turbulence.

2. Input Connectors

Provide input connections from the associated power amplifier(s). One “positive” and one “negative” gold-plated binding posts are available. Refer to the Making Connections section beginning on page 12 for additional information.

Figure 4: M12 Loudspeaker Rear View



The numbers in Figure 4 (above) correspond with the numbered items in the Input Panel section that begins below.

INSTALLATION CONSIDERATIONS

Loudspeaker fidelity depends on the following three factors:

1. Loudspeaker accuracy
2. Loudspeaker placement
3. Listening room acoustics

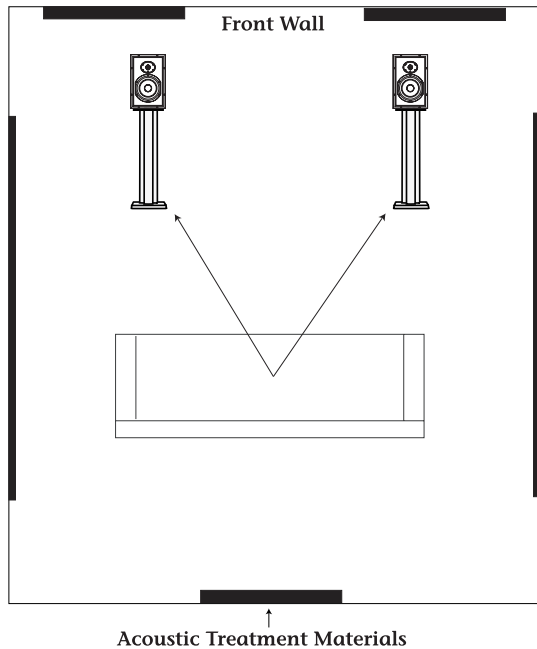
Advanced Revel design features allow the M12 to achieve exceptional acoustical precision. Experimenting with loudspeaker placement and listening room acoustics have the most significant impact on the M12 loudspeaker's performance.

LOUDSPEAKER PLACEMENT

The bulleted items that begin below indicate important loudspeaker placement considerations for the M12.

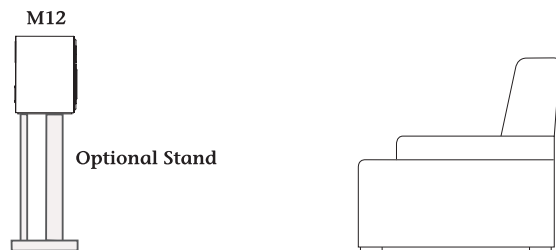
- Remove all obstructions between the M12 and the primary listening position. For instance, a coffee table between the M12 and the primary listening position will degrade stereo imaging and timbre. Placing the M12s near large objects may also cause unwanted reflections.
- For the best stereo imaging, place the M12s at equal distances from the primary listening position and in symmetry with the room as shown in Figure 5 (page 10).
- For optimal stereo imaging and timbre, point the M12s directly toward the primary listening position as shown in Figure 5 (page 10). The toe-in angle can be reduced to widen the soundstage, even to the point at which the M12s are pointing straight forward.

Figure 5: Loudspeaker Placement



- If desired, use a pair of Revel Performa 22 Pedestals to solidly mount the speakers at an ideal height for seated listeners, with the front of the M12 facing the listening position as shown in Figure 6 (below). The tweeter should be at approximately the same height as the listener's ears. The bottom of the M12 cabinet has threaded inserts to accommodate secure fastening to the stand.

Figure 6: Placement on Pedestal



Note

For pedestal assembly instructions, refer to the Revel Performa Pedestal 22 Assembly Instructions that are included with the pedestal stand.

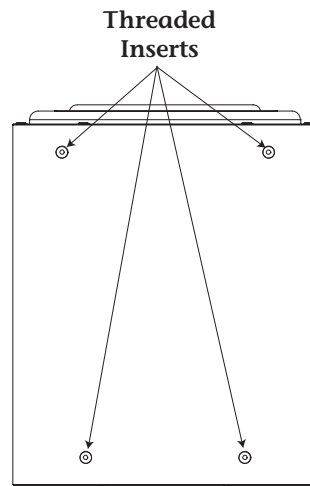
To attach to a pedestal stand:

1. Assemble the pedestal stand.
2. Place the M12 on its side on a soft towel or carpeted floor.
3. Locate the four threaded inserts on the bottom of the cabinet. These inserts are identified in Figure 7 (below).
4. Fasten the M12 to the pedestal stand with screws.
5. Make sure the four screws are evenly threaded to achieve a level balance.
6. When all screws have been tightened, stand the mounted M12 (and stand) in the upright position.

Note

The optional Revel Performa Pedestal 22 is available at authorized Revel dealers.

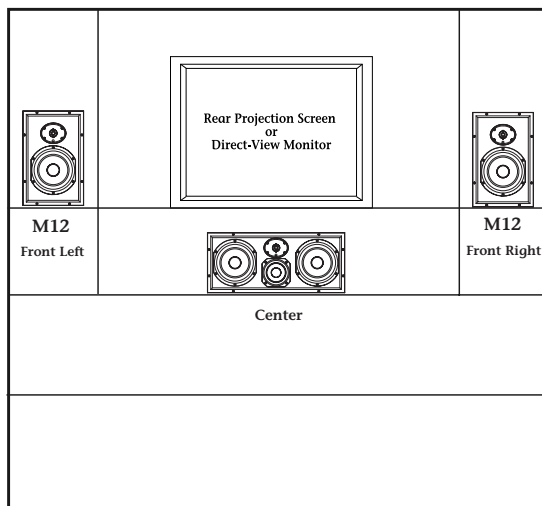
Figure 7: Threaded Inserts



Loudspeaker Placement *(continued)*

- Move the M12s farther from the front and side listening room walls to improve stereo imaging and the sense of spaciousness in the listening space.
- Move the M12s closer to the corners or walls of the listening room to increase bass response.
- The M12s can also be flush mounted in a bookcase or shelf as shown in Figure 8 (below).

Figure 8: Flush Mounted



CAUTION

Loudspeakers such as the M12, when placed on pedestal stands, have a high center of gravity, which may cause them to fall if tipped or improperly positioned. To avoid this, anchor the loudspeaker to the floor and/or wall using the same procedures and hardware used to anchor bookcases, wall units, and other furniture. Harman Specialty Group assumes no responsibility for improper selection and installation of hardware or for any personal injuries or product damages resulting from improper installation or a fallen loudspeaker.

LISTENING ROOM ACOUSTICS

Listening rooms have a profound impact on sound, particularly at lower frequencies. In fact, listening rooms can dominate sounds below about 400Hz. Ideally, listening rooms would include optimized dimensional ratios to minimize the effects of room resonances. But in reality, most listening rooms are not designed to enhance loudspeaker performance.

The interaction between loudspeakers and listening rooms is complex, depending on two important determinants that affect the loudspeaker and the listener.

1. Surfaces and other boundaries often cause large peaks and dips in low-frequency response. These peaks and dips often range 12dB or more.
2. Standing waves (also known as room modes or resonances) interact with both the loudspeaker and the listener, resulting in large frequency response errors.

Unfortunately, there is no simple solution that considers both factors. Even computer software programs that examine one or both factors may not calculate proper primary listening position or loudspeaker placement values.

Listening Room Acoustics *(continued)*

In most cases, proper selection of the primary listening position combined with proper placement of the loudspeaker can still result in superior performance at lower frequencies. The difference between superior and inferior results is often just a small adjustment of the primary listening position or loudspeaker placement. Contact an authorized Revel dealer for assistance.

Acoustic Treatment Materials

The M12 features a high-order filter at 2.5kHz that optimizes its on-axis and off-axis response, minimizing degradations that occur in overly “live” rooms. Placing minimal acoustic treatment materials at primary reflection points will reduce these distortions even further. Ideally, acoustic absorbers should be placed at the first reflection points on the front and side walls and either acoustic absorbers or diffusers should be placed at the first reflection point on the rear wall.

Because the listener’s eyes and ears are on the same plane, the “mirror method” is an accurate determinant of critical reflection points. This method can be used to determine reflection points for side walls, rear walls, front walls, and even the ceiling. Applying acoustic treatment materials to the side walls is most important, followed by the front wall, rear wall, and ceiling.

To determine reflection points using the mirror method:

1. Once the M12s have been placed, sit in the primary listening position.
2. Ask another person to slide a mirror along the listening room walls.

3. Note the locations at which the person sitting in the primary listening position can see either M12. Be sure to look for both M12s in the reflection on each room boundary. These are reflection points that require acoustic treatment materials.

If acoustic treatment materials are not available, hanging a rug over the reflection points will help to reduce degradation in overly “live” rooms. Carpeting the floor between the loudspeakers and the primary listening position and placing irregular surfaces such as bookcases at first reflection points will also help minimize strong reflections.

MAKING CONNECTIONS

The M12 features gold-plated binding posts that allow it to be configured for single-wired connections.

CAUTION

- **Never make or break connections unless all system components are powered off.**
-

Before making connections, note the following:

- Make all connections observing the proper polarity, positive-to-positive (+) and negative-to-negative (-). Connections that do not observe the proper polarity will cause poor stereo imaging and diminished bass response.
- Use high-quality loudspeaker cable with a maximum total loop resistance of 0.07ohms or less (for each wire run). Refer to the table (page 13) to determine the appropriate maximum wire gauge.

Making Connections *(continued)*

Maximum Wire Gauge

Gauge (AWG)	Length (Feet)	Length (Meters)
6	87	27
7	69	21
8	58	18
9	43	13
10	34	10
11	27	8
12	22	7
13	17	5
14	14	4
15	11	3
16	9	3
17	7	2
18	5	2

Note

High loop resistances that exceed 0.07ohms (for each wire run) will cause the filter network to mis-terminate, resulting in considerable degradation of sound quality.

- Review the owner's manuals for associated audio components to determine their connection procedures.
- If you have questions about the suitability of associated power amplifier components, contact an authorized Revel dealer for information.

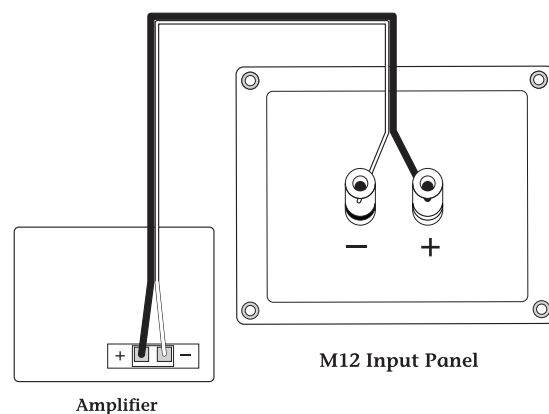
CONNECTIONS

Connections are made between one M12 input connector and one power amplifier output connector as shown in Figure 9 (below).

To make connections:

1. Connect one pair of loudspeaker wires to the M12 input connectors. Then, connect the same pair of loudspeaker wires to the desired power amplifier output connector.
2. Repeat step 1 to connect the second M12 to a separate power amplifier output connector.

Figure 9: Connections



OPTIMIZING PERFORMANCE

To optimize the M12 for best performance:

1. Begin playback of a familiar music or film source.
2. Listen from the primary listening position, increasing volume to a comfortable level.
3. Experiment with the M12 loudspeaker's placement to achieve the best overall tonal balance, image precision, and sense of spaciousness in the listening room. Refer to the Loudspeaker Placement section beginning on page 9 for additional information about loudspeaker placement.
4. Repeat these steps to optimize performance of the second M12.

LOUDSPEAKER VOLUME LEVELS

High-order filters include steep cut-offs to reduce potential damage from “out-of-band” frequencies. Combined with carefully selected transducers and filter network components, this approach helps the M12 to maintain its performance under extreme operating conditions.

However, all loudspeakers have limits when it comes to continuous playback. To extend these limits, avoid playback at volume levels that distort or strain sound.

CAUTION

To avoid damage, reduce volume level immediately if loudspeaker sound is not clean and clear.

OBTAINING SERVICE

To obtain warranty or non-warranty service, contact your authorized Revel dealer. Refer to the included Revel Warranty Card for warranty information.

SPECIFICATIONS

Specification	Value	Definition
Sensitivity	87dB SPL with 2.83V @ 1m (2 pi anechoic)	Indicates the amount of power the associated power amplifier must deliver to drive the loudspeaker at reasonable volume levels. Conservatively-rated specifications indicate moderate sensitivity, meaning that a massive power amplifier is not required to drive Revel loudspeakers to reasonable volume levels in large listening spaces.
Impedance	8Ω (nominal), 4.7Ω (minimum @ 2.8kHz)	Indicates whether the loudspeaker presents a “difficult” or “easy” load on the associated power amplifier. Combined with moderate phase angles, a minimal impedance specification of 4.7Ω allows a reasonably designed power amplifier to drive Revel loudspeakers.
Filter Network	Two-way, high-order @ 2.5kHz	Indicates the acoustical characteristics of the filter network. Steep filters indicate an optimized filter network that produces minimal acoustical interference, low distortion, and expansive dynamic range.
In-Room Response	±1.5dB from 65Hz to 15kHz	Indicates sound quality in context with other specifications. A breakthrough measurement, this specification closely correlates to sound quality in a single curve – a long-standing goal of loudspeaker engineers. In-room response is measured through the use of large anechoic chambers. The speaker’s response is measured every 10 degrees horizontally and vertically for a total of 72 response measurements. The in-room response curve is a prediction of how the speaker would measure in a typical room. Research and observation reveals that ubiquitous “on-axis” response curves cannot distinguish between two loudspeakers with radically different sound qualities.
Low-Frequency Extension	-10dB @ 41Hz, -6dB @ 48Hz, -3dB @ 53Hz	Indicates the low-frequency response of the loudspeaker. Studies have shown that the -10dB specification best correlates to controlled listening tests. At low frequencies, most loudspeaker and listening room combinations demonstrate significant “room gain,” which produces an increase in levels as frequencies decrease. Unlike the -3dB specification, the -10dB specification reflects the steepness of low-frequency roll-offs.
Height	13.78 inches (35cm) 39.22 inches (99.61cm) (including optional stand)	
Width	8.86 inches (22.5cm)	
Depth	10.88 inches (27.64cm) (not including grille) 11.64 inches (29.57cm) (including grille)	
Weight	19.20 pounds (8.71kg) (including grille)	

Specifications are subject to change without notice.

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