Dolby

Dolby Speaker System 131

Owner's Manual

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Notices

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Product model

THIS DOCUMENTATION APPLIES TO MODEL: CID1025 and MODEL: CID1029.

Limited warranty and warranty exclusions

THE LIMITED WARRANTY AND WARRANTY EXCLUSIONS MAY BE FOUND AT THE FOLLOWING URL: https://www.dolby.com/us/en/about/warranty-and-maintenance-policies.html

Contents

1

Important safety and regulatory information

Safety

INSTALLER ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR THE INSTALLATION OF THIS PRODUCT.

No information contained in this guide is intended as a warranty on the part of Dolby. Anyone using this information assumes all liability arising from its use. Product abuse, use of the product not in accordance with Dolby instructions, or use in an application for which the product has not been designed is not covered under any Dolby warranty, nor is Dolby liable for any loss or damage.

Installation must be performed by qualified, licensed, and insured installers, and installed in accordance with all laws, rules, and regulations applicable to the installation site. Failure to do so could result in serious personal injury or even death. Prior to installing this product, read and completely understand the installation instructions. You must read these instructions to prevent personal injury and property damage. Keep the installation instructions in an easily accessible location for future reference.

A licensed professional engineer must approve the placement and method of attachment to the building structure prior to the installation of the system.

All information presented herein is based upon materials and practices common to North America and may not directly apply to other countries because of differing material dimensions, specifications, and/or local regulations. Installers in other countries should consult with appropriate engineering and regulatory authorities for specific guidelines.

Any supplied rigging hardware is intended only for use with the specified loudspeaker(s). The installer assumes all risk of loss and/or injury arising out of the use of the supplied rigging hardware with any other loudspeaker. All other rigging is considered part of the venue and/or installer-supplied equipment and is not addressed in this guide. This guide is not a comprehensive source for rigging in general. Installer assumes all responsibility for ensuring that accepted rigging and safety practices are employed. Installer assumes all responsibility for the appropriate use of Dolby supplied rigging hardware and follows at a minimum all applicable laws, rules, and regulations in force for each venue.

Make sure that no water pipes, natural gas lines, electrical wire, or conduit are present where the speaker is to be installed. Cutting or drilling into water pipes, natural gas lines, electrical wire, or conduit could cause serious personal injury or property damage.

Dolby is not responsible for the application of its products for any purpose or the misuse of this information for any purpose. Furthermore, Dolby is not responsible for the abuse of its products caused by avoiding compliance with inspection and maintenance procedures or any other abuse.

BKT.FLR floor brackets are available (sold separately) to secure the entire speaker system to the auditorium mounting surface. Vibration from this type of speaker system is high and may cause cabinets to shift. Failure to secure the bottom speaker cabinet to the mounting surface may result in the entire system tipping or falling, which may cause damage or injury. Proper selection of mounting hardware is not included; proper assembly and installation of mounting hardware, including, but not limited to, selection of appropriate weight-bearing support and bracket use, are the exclusive responsibility of the installer. Dolby disclaims any liability, including damage or injury, for the use of mounting hardware supplied by any party other than Dolby. Any modification to the speaker system hardware provided by Dolby (for example, mounting by drilling holes into the speaker system) will render the product warranty null and void.

⚠ **Caution:** Use proper lifting techniques when working with heavy objects to avoid personal injury. **Always be careful when moving the CS136LF or the assembled Dolby Speaker System 131 and employ at least two people when attempting any relocation of the loudspeakers**.

No open flame sources should be placed on or near the apparatus. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.

Storage temperature: -4 to +140°F (-20 to +60°C). The products covered by this manual are not intended for use in high-moisture environments. Moisture can damage the product and cause corrosion of electrical contacts and metal parts. Avoid exposing the speakers to direct moisture. Keep speakers out of extended or intense direct sunlight. Premature product failure or serious personal injury could occur if this product is used outdoors or in wet indoor environments.

⚠ **Caution:** Vibration from this type of speaker system is high and may cause cabinets to shift. Failure to secure the bottom speaker cabinet to the building structure may result in the speaker system tipping or falling, which may cause damage or injury.

⚠ **High temperature warning:** Loudspeaker system may reach elevated temperatures during operation. **Always remove all drive signals and allow ample time for the system to cool down prior to handling.**

Hearing damage can occur by prolonged exposure to excessive sound pressure level (SPL); the loudspeaker is easily capable of generating SPL sufficient to cause permanent hearing damage to performers, production crew, or audience members. Caution should be taken to avoid prolonged exposure to SPL in excess of 90 dB.

This product is intended for indoor use only.

Clean the metal frame and chassis only with a dry cloth.

Do not block any ventilation openings. Install in accordance with the instructions as detailed in this manual and the Product Information document.

Do not install near any heat sources, such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

When a rolling cart is used, use caution when moving the cart/apparatus combination to avoid injury.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way.

This product may require installation in a restricted access location. Please refer to this manual and to the Product Information document.

Warning:

To reduce electric shock, do not expose the apparatus to dripping or splashing; no objects filled with liquids, such as mugs, shall be placed on the apparatus.

Caution:

Troubleshooting must be performed by a trained electrician. To reduce the risk of electric shock, do not attempt to service this equipment unless you are qualified to do so.

Caution:

This symbol that appears on the unit and/or instruction manual is intended to alert the user to the presence of important safety operating and maintenance instructions.

Warning:

This symbol that appears on the unit and/or instruction manual is intended to alert the user to the presence of uninsulated "dangerous" voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

High temperature warning:

This symbol that appears on the unit and/or the instruction manual is intended to alert the user that the item can be hot and that care must be taken accordingly.

EU environmental regulations/compliance and product disposal information

Restriction of Hazardous Substances Directive (RoHS): All Dolby products comply with the requirements of the EU RoHS Directive. This product is electronic equipment and should be disposed of in accordance with all applicable laws.

Do not dispose as household waste. Do not dispose of the product in a fire. Please dispose of this product by taking it to your local electronic waste collection point or recycling center. For information regarding where to recycle electronic equipment, contact your local dealer. For additional information regarding Waste Electrical and Electronic Equipment (WEEE) and product disposal go to http://www.dolby.com/us/en/about/environmental-commitment.html.

Russian environmental regulations and compliance

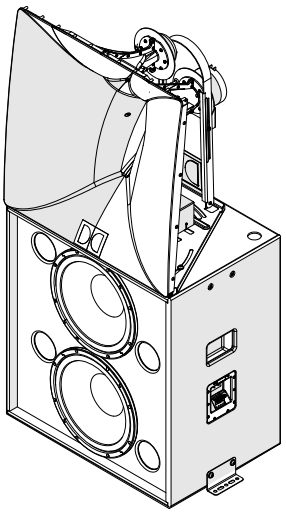
This product complies with Russian EAC RoHS requirements.

2

Introduction to Dolby Speaker System 131

The Dolby Speaker System 131 (also referred to as System 131 in this documentation) is designed to meet the needs of a high-performance screen speaker in a large Dolby Atmos or premium large format cinema. System 131 delivers consistent audio coverage and uniform volume shading for every seat in a venue of up to approximately 34 meters (111.5 feet) in depth. System 131 consists of one CS131MH loudspeaker for mid and high frequencies and one CS136LF loudspeaker for low and low/mid frequencies, providing greater intelligibility and enhanced low-frequency extension. With intuitive ergonomic design and features, System 131 enables quick, easy installation and service. Built on the foundation of the Dolby industry-leading system design and support philosophy, System 131 provides elevated premium large format performance and streamlines speaker integration.

Figure 1: Dolby Speaker System 131 full speaker stack



This chapter covers:

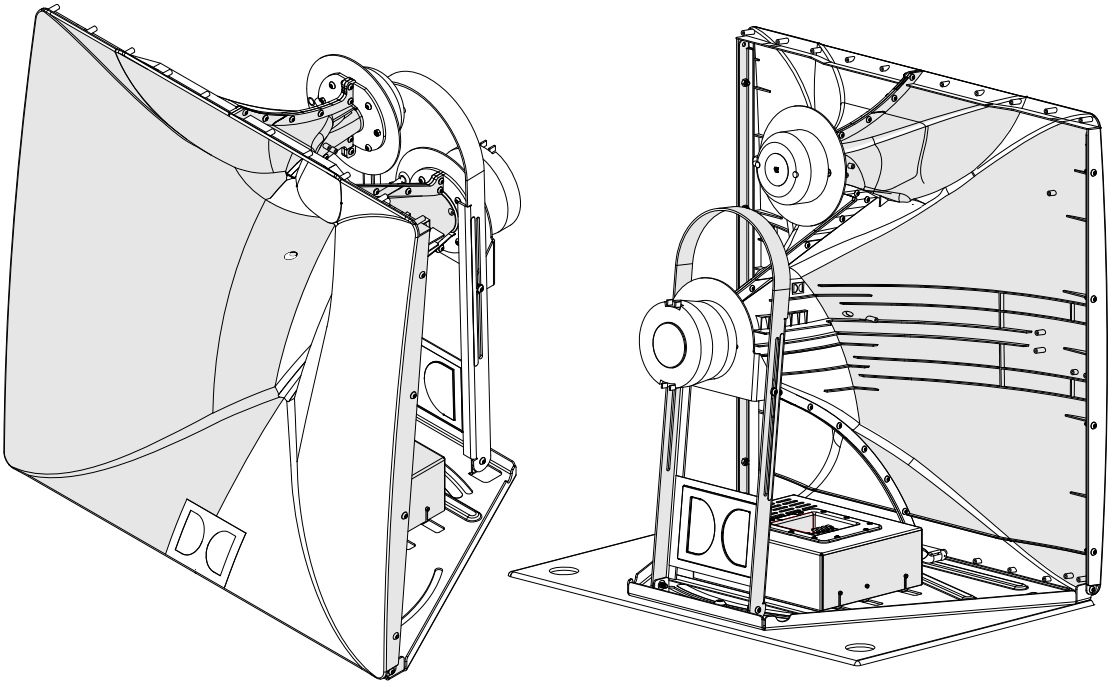
2.1 About this documentation

This documentation provides key features and benefits of System 131 and shows you how to install the system in a typical cinematic exhibition environment.

2.2 CS131MH key features and benefits

System 131 uses one CS131MH unit, which reproduces mid- and high-frequency audio using the Dolby patented dual-entrant waveguide (two drivers in the same horn structure) that enables close proximity of the mid- and high-frequency drivers in the vertical plane. This configuration yields improved pattern and amplitude control around the crossover frequency, yielding smoother full-frequency response coverage to all seats in the auditorium.

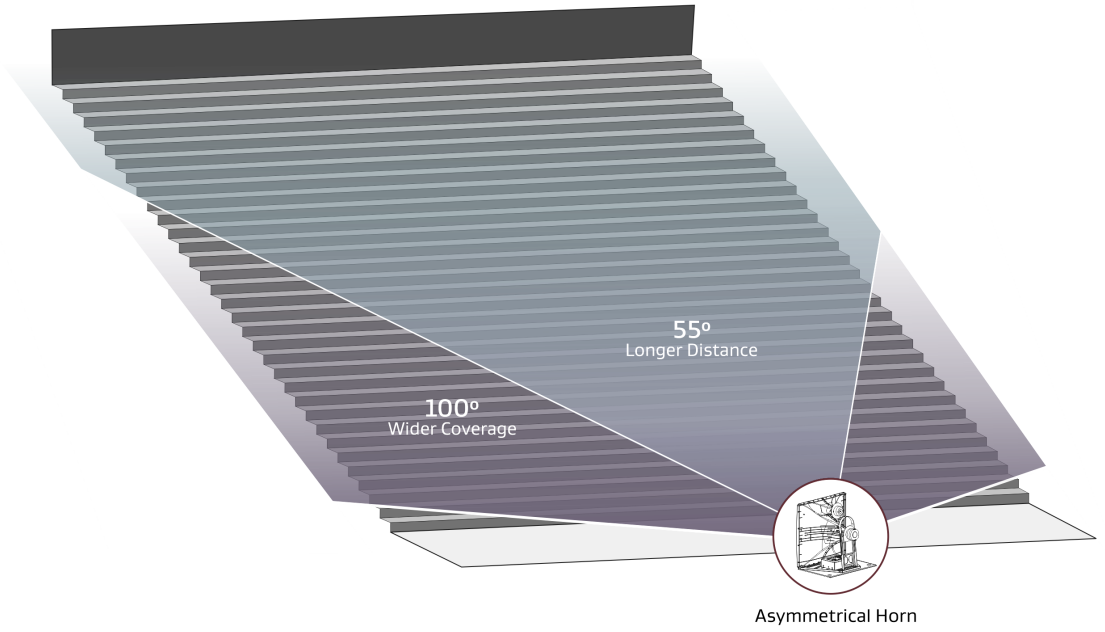
Figure 2: CS131MH front (left) and rear (right)



- A sculpted front horn enables closer placement of the horn to the screen (even when the horn is tilted forward), which minimizes interference from screen reflections while achieving downward angles to cover the entire audience.
- The high-frequency driver is a very low-distortion 51 mm high-temperature polymer dome driver with a frequency response up to 20 kHz.
- The mid-frequency driver is a unique high-performance composite diaphragm based compression driver providing high sensitivity and power handling while covering the entire primary vocal range (400 Hz to 4 kHz), greatly enhancing intelligibility, even in the largest auditoriums.
- The advanced input plate features a high-current, spring-loaded terminal block that enables quick installation without the need for spade lugs or a crimping tool.
- To easily select between the passive crossover or to directly amplify each driver, a unique flip-card circuit board enables simple electrical routing and tool-free configuration.
- The entire assembly mounts directly to the CS136LF unit and features independent horizontal and vertical aiming adjustments.
- A convenient aiming mechanism uses an installer-provided common laser pointer for accurate pointing of the mid-/high-frequency horn to achieve maximum coverage.
- The dual-entrant asymmetrical horn enables close transducer proximity in the vertical plane, which yields improved pattern and amplitude control around the crossover frequency.

- The unique asymmetrical mid-/high-frequency horn design provides long-distance coverage to the back of the cinema from the top of the horn, whereas the bottom of the horn provides wider coverage and volume shading for the audience closer to the screen. This provides greatly improved coverage for the entire auditorium in comparison to conventional horn designs.

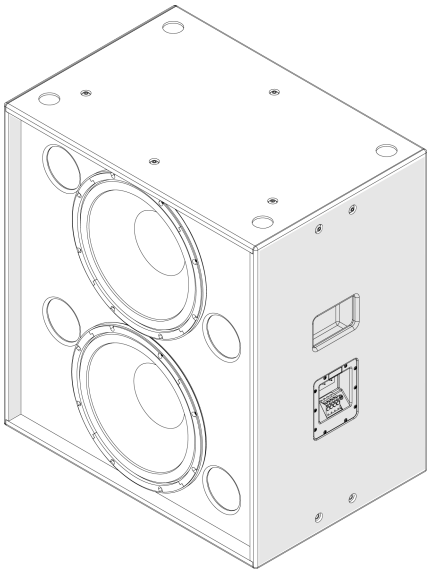
  Figure 3: Dolby asymmetrical horn coverage



2.3 CS136LF key features and benefits

System 131 utilizes one CS136LF unit to produce the low frequencies and low/mid frequencies.

Figure 4: CS136LF



- Contains two 15-inch woofers that can be driven in parallel, or driven individually to maximize available amplifier power.

- Each 15-inch driver is contained in an independent chamber within the cabinet, providing improved performance and reliability.
- On the CS136LF, the unique flip-card printed circuit board enables electrical routing for parallel wiring to each driver from a separate amplifier channel, or individual wiring to the amplifier channel on each driver. With the CS136LF flip card, you can select either biamplifier mode or single-amplifier mode.
- The close spacing of the woofers improves system vertical dispersion.
- Rubber feet on the bottom of the cabinet provide vibration control.
- Integrated handles on the sides of the speaker cabinet are positioned at the center of gravity to improve safety and comfort during handling and installation.
- The optional BKT.FLR floor bracket kit (available from Dolby) enables secure installation of the entire system to the building structure or a screen platform attached to the building structure. The kit includes two brackets.
- The CS136LF attachment points are provided for connecting to the auditorium mounting surface only; they are not intended for hanging or flying the speaker. Always be sure to adhere to local building codes in your region.
- The advanced input plate features a high-current, spring-loaded terminal block, which enables quick installation with no crimp tools or spade lugs needed, vastly simplifying installation.

2.4 Selecting the wire for the System 131

It is important that you select the correct wire gauge for the System 131.

Typically, no more than 0.5 dB (or 11%) of power should be lost in the cabling. The System 131 input plates accept an American Wire Gauge (AWG) of 18 AWG to 6 AWG (1 $mm^2$to 16 mm^2). Typically, we recommend a wire gauge of 16 AWG to 12 AWG (1.5 mm^2 to 4 mm^2).

Note: The input terminals are marked with indicators to show the polarity. Per International Electrotechnical Commission (IEC) standards, a positive voltage on the positive marked input results in the transducers moving outward (with the exception of the high-frequency channel in passive mode only, which will have a negative polarity). The CS131MH and CS136LF differ in the order of negative and positive terminations. You must verify the positive and negative markings for each respective product. Always tie the cable down to the available hardware to minimize any buzzing or pullouts. If possible, after wiring is completed, play sound through the speaker to identify any connection issues, buzzing, or rattling.

Related information

Connecting electrical components on page 20

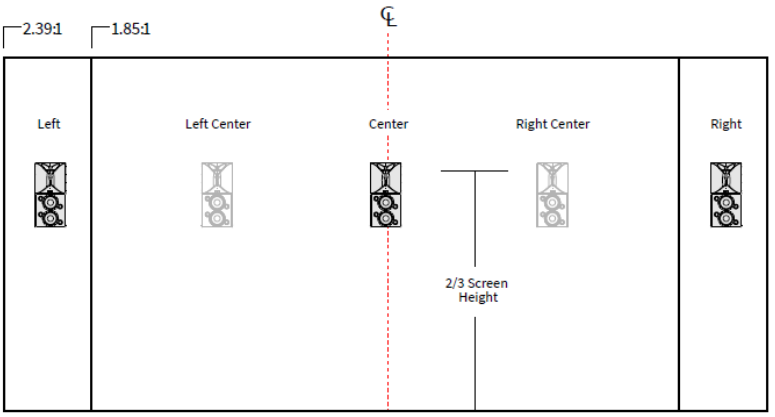
2.5 Installing System 131 in a typical auditorium

In a typical auditorium, System 131 is installed behind the screen, with the acoustic center of the speaker located two-thirds of the distance from the bottom of the screen.

The following figure shows the placement of the speaker behind the screen, as indicated in the Dolby Atmos Specifications. To position the speakers at the correct height, you should build a platform and attach it to the building structure.

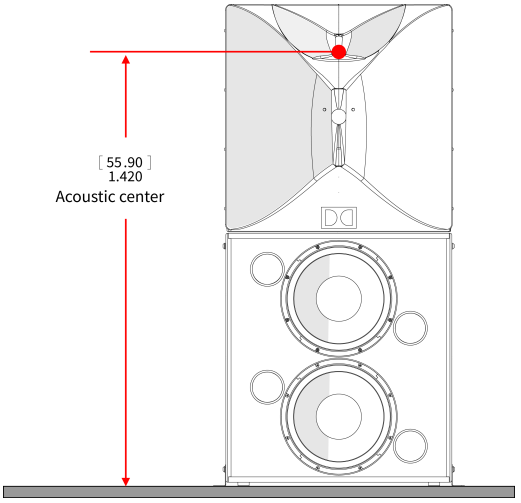
To improve localization and smooth pan-throughs, larger cinemas can benefit by adding left-center and right-center screen speakers.

Figure 5: Typical auditorium installation



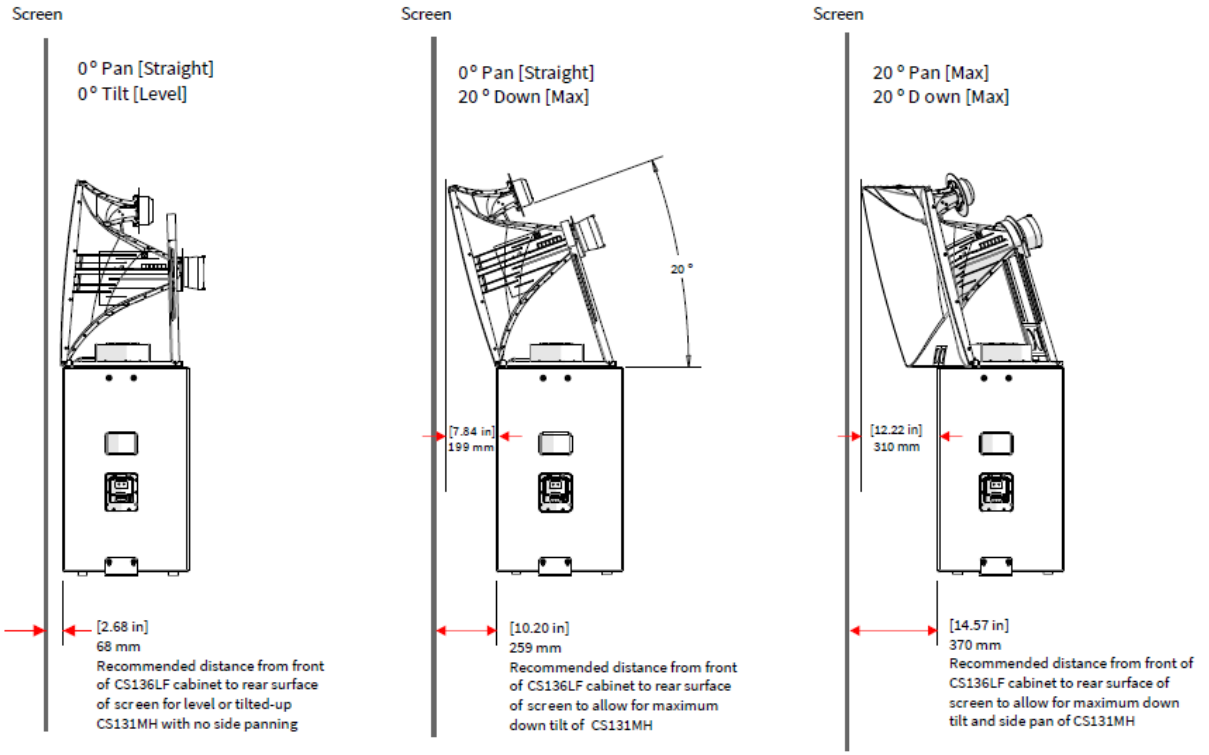
The following figure shows the exact placement of the System 131 acoustic center. The elevation of the platform (attached to the building structure) that secures the speaker should be located with the acoustic center of the horn positioned exactly two-thirds the distance from the bottom to the top of the screen. The acoustic center of the speaker is 1.420 meters (55.90 inches) above the platform.

Figure 6: System 131 acoustic center



System 131 is designed to be placed as close to the screen surface as possible with a minimum distance of 5-7 cm. This minimizes high-frequency reflections (screen loss) and reduces airflow disturbances on the screen surface. When aiming the system, the CS131MH alignment may require that the entire system be set back from the screen to accommodate proper tilting and aiming. If you are unsure of the angle needed for the CS131MH, it may be advisable to temporarily place the CS131MH onto the screen-frame platform that is attached to the building structure and perform a rough vertical and horizontal aiming, which can help you determine the placement of the entire system.

Figure 7: System 131 screen planes



.GLL format files for software simulation modeling

There are `.GLL` files for the CS131MH and CS136LF that you can use to simulate System 131 in acoustical simulation software. You can download the `.GLL` files at https//:www.dolby.com/us/en/professional/cinema/products/sys131.html. To run the `.GLL` files, use EASE or EASE Focus software. EASE Focus software is free and can be downloaded from https://focus.afmg.eu/index.php/fc-downloads-en.html.

Following are descriptions of the System 131 `.GLL` files:

- **CS136LF for Screen Channel System 131**

  To create the System 131 screen channel, the loudspeaker entry point into the simulation is at the bottom of the loudspeaker.

  For correct simulation, place the LF height entry point (z axis) at the platform height in the auditorium. To create System 131, the CS131MH mid/high loudspeaker must be located 1.42 meters (4.66 feet) above this same point for correct placement on top of the CS136LF.

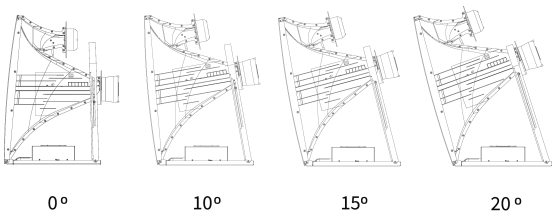
- **.CS131MH GLL**

  To finish creating the System 131 screen channel, add the CS131MH. The loudspeaker entry point into the simulation is at the acoustic center of the system.

  Place the height entry point (z axis) of the CS131MH at 1.42 meters (4.66 feet) above the height entry point of the CS136LF `.GLL`. The x and y axes should match the companion CS136LF.

The CS131MH .GLL files can then pan horizontally ±20 degrees, and tilt +15/-20 degrees, independent of the CS136LF, as it would in a typical configuration.

Figure 8: System 131 vertical down tilt



Related information

System 131 and system components specifications

2.6 Additional information

Additional information regarding System 131 is provided.

- System weight is approximately 96.2 kg (212 lb).
- System 131 is switchable between triamplifier mode or biamplifier mode. We recommend triamplifier mode for maximum performance.
- Amplifier selection is aided by additional data, as specified in the System 131 and system components specifications. (See the link at the end of this section.)
- The power-draw specification provides the actual power draw in watts at the rated Vrms in the design, instead of calculated power. This can aid in optimizing amplifier power budgets, as the measured power is almost always lower than calculated power (sometimes significantly).
- The maximum voltage peak specification is useful for selecting an amplifier that has a voltage rail at or above the rating for the loudspeaker maximum dynamic performance. Some amplifier companies provide this data in their respective technical data sheets (or provide the data by request).
- Wire gauge selection should always use industry-standard practice based on the loudspeaker rated ohms and cable length. Typical maximum acceptable power loss is 0.5 dB, or less than 11%.

2.7 Contacting Dolby

You can contact Dolby Cinema Solutions and Support using email or regional telephone numbers. You can also access documentation by visiting the Dolby customer portal.

Contact Dolby Cinema Solutions and Support

- Send an email to cinemasupport@dolby.com.
- Call:

  AMERICAS: +1-415-645-4900
  ASIA, CHINA, and PACIFIC RIM: +86-10-800-320-0128
  EMEA: +44-33-0808-7700
  JAPAN: +81-3-4520-9798

Access documentation

Visit https://customer.dolby.com.

Submit feedback about this documentation

Send an email to documentation@dolby.com.

3

Assembling System 131

Note: BKT.FLR floor brackets are available from Dolby (sold separately) to secure the speaker system to the building structure. When using the BKT.FLR brackets, the installer must supply the mounting hardware necessary to secure the speaker system to the building structure. The holes in the bracket are sized for M10 or 3/8-inch bolts.

Caution: Vibration from this type of speaker system is high and may cause cabinets to shift. Failure to secure the bottom speaker cabinet to the building structure may result in the system tipping or falling, which may cause damage or injury.

Caution: Dolby disclaims any liability, including damage or injury, for the use of mounting hardware, supports, and brackets not provided by Dolby. Any modification to the speaker system (for example, mounting by drilling holes into the speaker system) will render the product warranty null and void.

The following sections provide instructions on how to assemble and install System 131.

3.1 Assembling and installing System 131

Instructions are provided to set up a Dolby System 131 speaker system.

About this task

You need these parts and tools:

- Installer-provided 6 mm hex driver.
- Installer-provided 4 mm hex driver for vertical aiming.
- BKT.FLR brackets or angle brackets not supplied by Dolby (optional, but recommended). The two BKT.FLR brackets are available in a separate Dolby kit to secure the speaker stack to the auditorium building structure platform. When using the BKT.FLR brackets, you need screws, washers, and other components to attach the speaker stack to the platform that is attached to the building structure. The holes in the bracket are sized for M10 or 3/8-inch bolts. (To connect the bracket to the CS136LF, repurpose the speaker M10 bolts and use the washers included in the BKT.FLR package.)
- Installer-provided laser pointer to help with aiming the CS131MH.
- Installer-provided serviceable thread-locking compound (recommended).
- Installer-provided acoustic or nonhardening caulking (recommended).

To perform this task safely:

Caution: BKT.FLR floor brackets are available from Dolby (sold separately) to secure the entire speaker system to a platform that is attached to the building structure. Vibration from this type of speaker system is high and may cause the cabinets to shift. Failure to secure the bottom speaker cabinet to the platform attached to the building structure may result in the entire system tipping or falling, which may cause damage or injury. Proper selection of mounting hardware is not included; proper assembly and installation of mounting hardware, including, but not limited to, selection of appropriate weight bearing support and bracket use, are the exclusive responsibility of the installer. Dolby disclaims any liability, including damage or injury, for the selection of mounting hardware not manufactured by Dolby and previously approved in writing by Dolby, and/or bracket installation not installed by Dolby. Any modification to the speaker system hardware provided by Dolby (such as mounting by drilling holes into the speaker system) will render the product warranty null and void.

Securing the low-frequency cabinet

Procedure

1. Once you determine the proper placement of the system relative to the screen, secure System 131 to the building structure, using a platform on the screen frame. For this purpose, we recommend the use of the BKT.FLR brackets or equivalent brackets not. Check with local building codes, and always refer the installation to a qualified professional.
2. Remove the four M10 bolts from the sides of the CS136LF speaker cabinet, as shown in the following figure.
3. Reinstall these bolts with the BKT.FLR brackets (or equivalent), using the included M10 washers (packaged with BKT.FLR) or hardware not provided by Dolby, and then retighten. You must supply the bolts to secure the bracket to the mounting surface. We recommend using a serviceable thread-locking compound (for example, Loctite 243). We also recommend applying acoustic or other nonhardening caulking to the bottom side of the bracket to isolate vibration from the speaker to the platform that is attached to the building structure. Install all fasteners back into their threaded inserts to prevent air leaks.

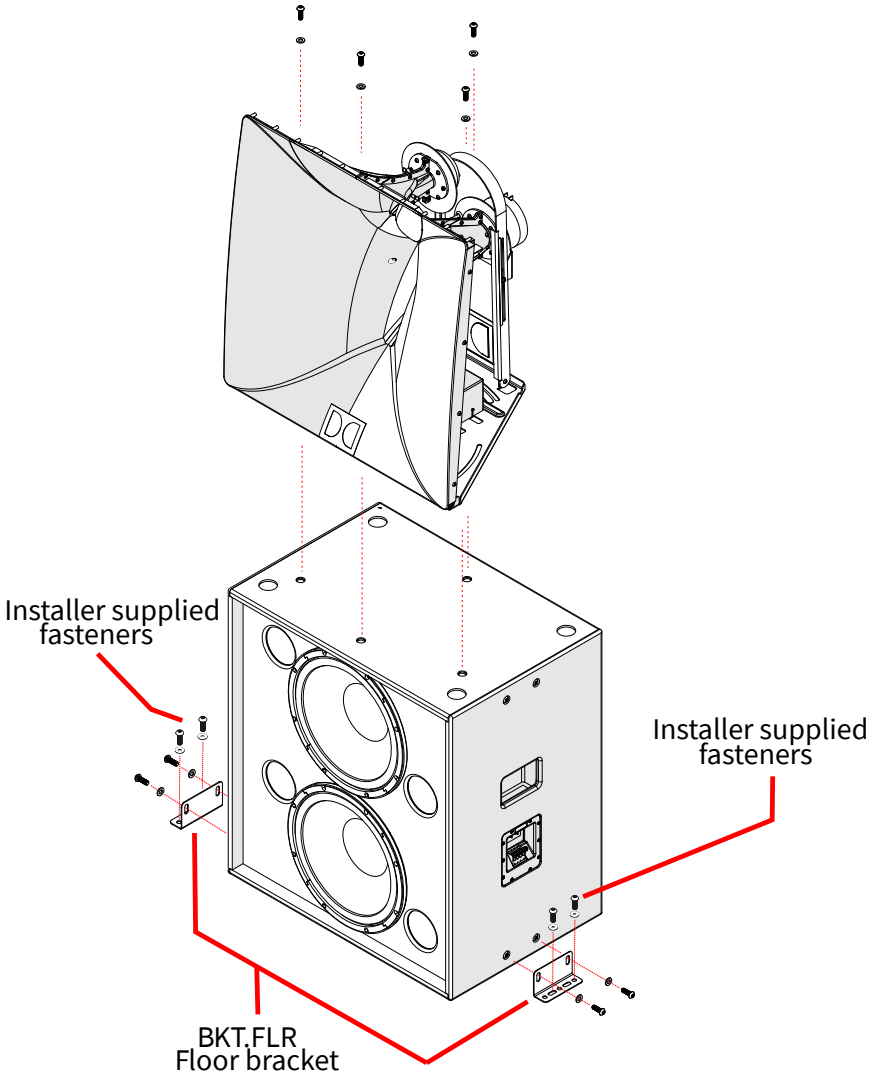
   Note: Proper selection and installation of mounting hardware is the exclusive responsibility of the installer. We recommend using M10 bolts and a serviceable thread-locking compound (for example, Loctite 243). We also recommend applying acoustic or other nonhardening caulking to the bottom side of the bracket to isolate speaker vibration from the building structure.

Caution: Vibration from this type of speaker system is high and may cause cabinets to shift. Failure to secure the bottom speaker cabinet to the building structure may result in the speaker system tipping or falling, which may cause damage or injury.

Caution: Dolby disclaims any liability, including damage or injury, for the use of mounting hardware, supports, and brackets not supplied by Dolby. Any modification to the speaker system (for example, mounting by drilling holes into the speaker system) will render the product warranty null and void.

Attention: The System 131 was designed to be placed as close to the screen as possible, within 5-7 cm. When aiming the system, angling of the CS136MH may require that the speaker system be set back from the screen to accommodate proper tilting and aiming

Figure 9: System 131



Installing the CS131MH onto the CS136LF low-frequency cabinet

1. Remove the four M10 bolts from the top CS136LF cabinet. Add four washers from the CS131MH hardware kit.

2. Place the CS131MH cabinet on top of the CS136LF cabinet, and then reinstall the four M10 bolts and washers through the bottom plate. We recommend a serviceable thread-locking compound (for example, Loctite 243). Do not fully tighten the bolts until aiming is completed.

Figure 10: Mount mid/high speaker to low-frequency cabinet

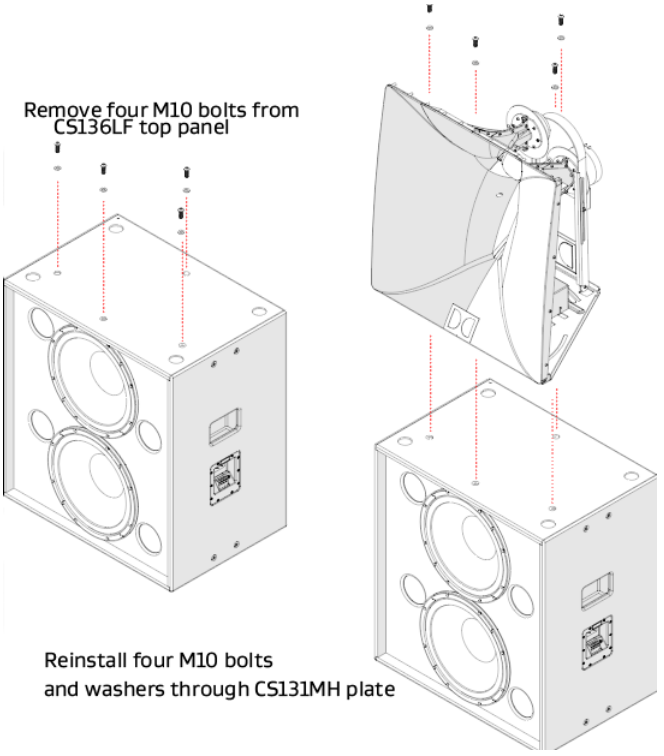
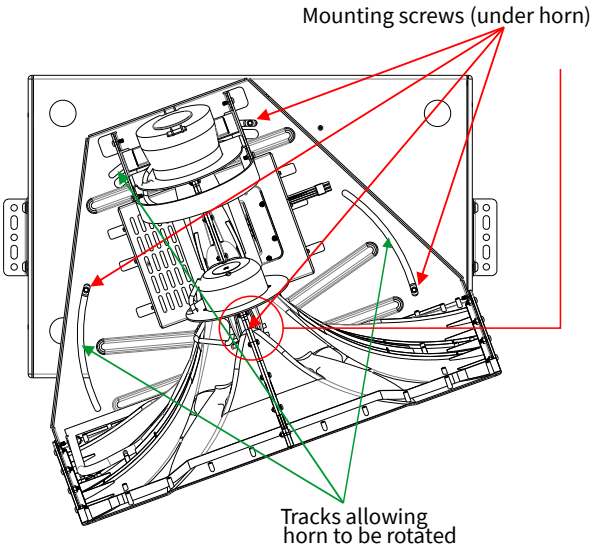


Figure 11: CS131MH overhead view



3.2 Aiming System 131

It is important to aim System 131 for precise sound distribution.

About this task

Illuminate a typical aiming point that is located two-thirds back and centered in the auditorium seating area using the laser-pointer placement shelf. To aim the system, you can use any type of laser pointer, as long as the beam shines through the hole in the CS131MH horn and the laser body is parallel to the shelf. We recommend a round laser pointer with a diameter between 12 mm (0.47 inches) and 21 mm (0.83 inches) or a square laser pointer with a 12-21 mm flat-to-flat dimension.

Figure 12: Aiming for the reference listening position overhead view

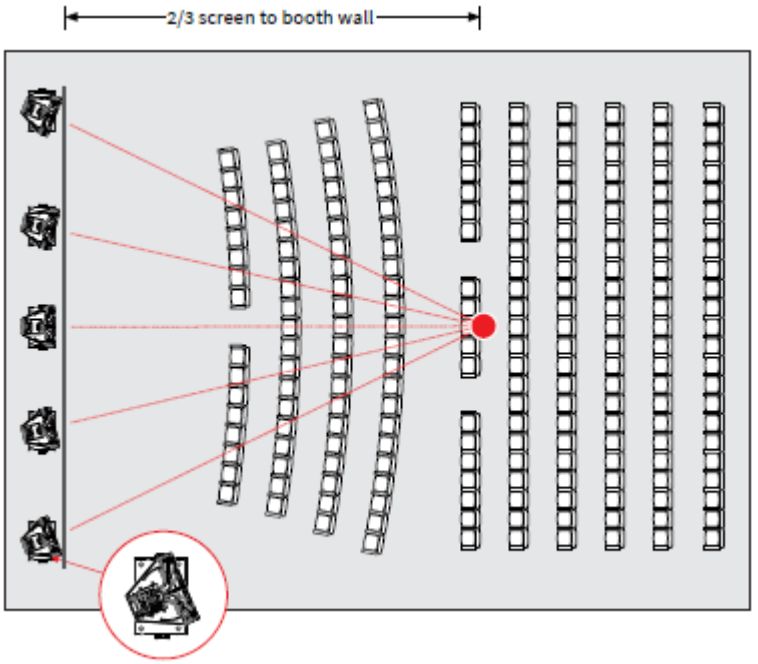
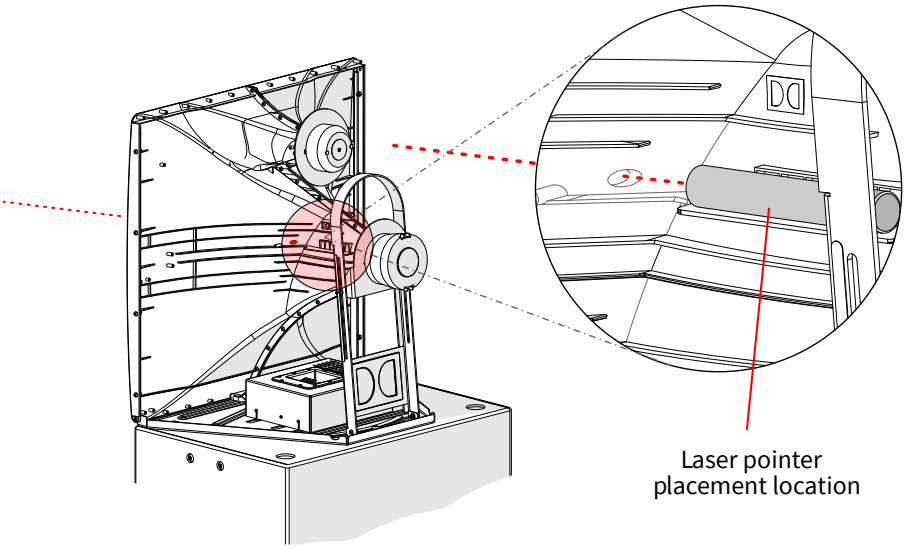


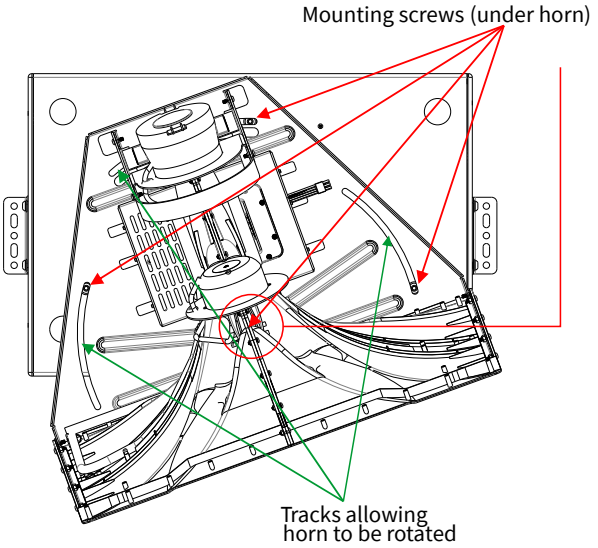
Figure 13: Placing the laser



Procedure

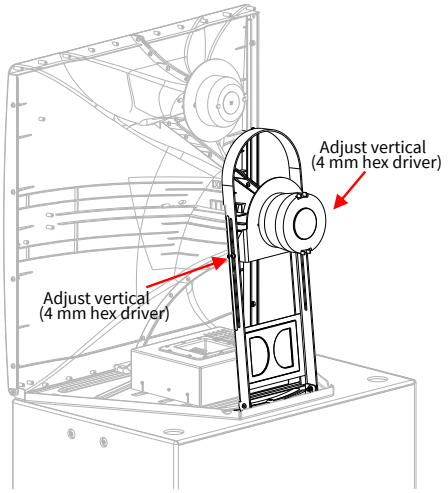
1. Once the System 131 is assembled, adjust the horizontal axis of the speaker by rotating the CS131MH on the cabinet. The angle adjustment range is ±20 degrees from the center, as shown on the provided decal stickers.

   Figure 14: Adjust the CS131MH horizontal axis



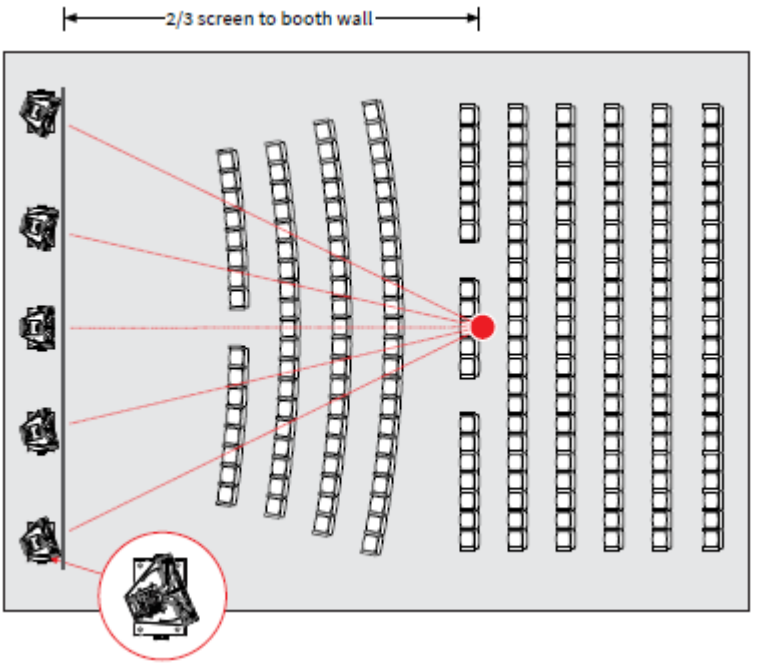
2. Tighten the bolts so that the horizontal adjustment is locked to 12 Nm (8.9 ft-lb, 106 in-lb).
3. Loosen the vertical angle adjustment points, as shown in the following figure, and tilt the horn down. The angle adjustment range is +15/-20 degrees.

   Figure 15: Loosen the vertical adjustment points



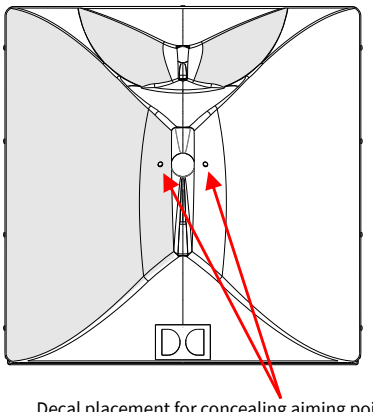
4. Tighten the vertical aiming screws and bottom-front pivot screws to 5.5 Nm (4.1 ft-lb, 49 in-lb) to lock in this angle.

Figure 16: Aiming for the reference listening position/overhead view)



5. After aiming is completed, you can use the provided decal stickers if you want to cover the two laser pointer openings. These decals are for aesthetic purposes only and do not affect system performance.

Figure 17: Hide two openings with decals



Decal placement for concealing aiming point aperture in midrange horn

3.3 Connecting electrical components

To be sure that the speakers work correctly, you must connect all electrical components properly.

Connecting audio

Required tool: Wire stripper

⚠ **Caution:** Turn off all amplifiers when connecting loudspeaker wiring.

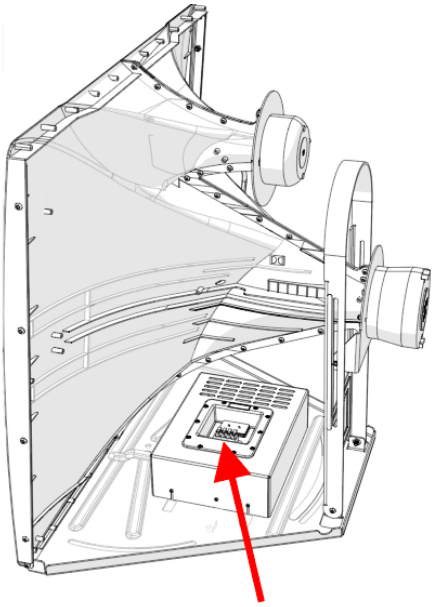
The System 131 connectors accept an American Wire Gauge (AWG) of 18 AWG to 6 AWG (1 $mm^2$to 16 mm^2). Typically, a wire gauge of 16 AWG to 12 AWG is recommended (1.5 $mm^2$to 4 mm^2).

Basic information is provided regarding System 131 input plates, choosing between the two modes of operation, and installing the wiring. Detailed information regarding speaker operating modes is also provided.

Connecting and configuring the CS131MH

At the base of the CS131MH, there is a small box that contains an input plate with wiring inputs, flip card, and a passive crossover, as shown in the following figure.

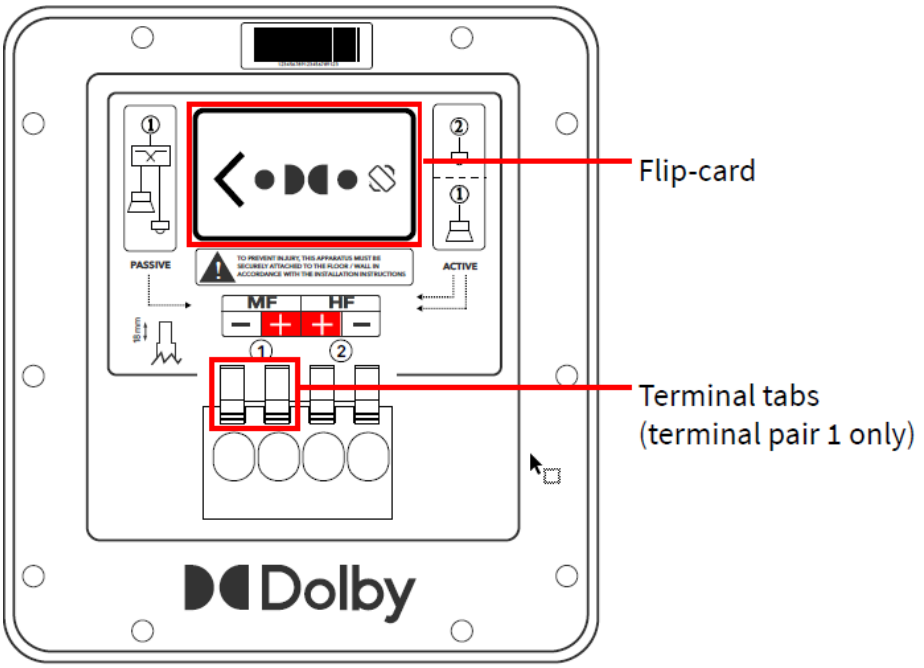
Figure 18: CS131MH input plate location



The CS131MH uses an advanced input plate with a flip card that determines whether the internal passive crossover is used. The flip card is a small circuit board that you can remove and reinstall in two configurations. The arrow on the flip card points to the current operation mode, as shown in the following figure. To remove the flip card, pull it straight out (rocking it a little if needed). Note that this input plate has a small driver icon to represent the high-frequency driver, and a larger driver icon for the mid-frequency driver, as shown in the following figure (figure 19).

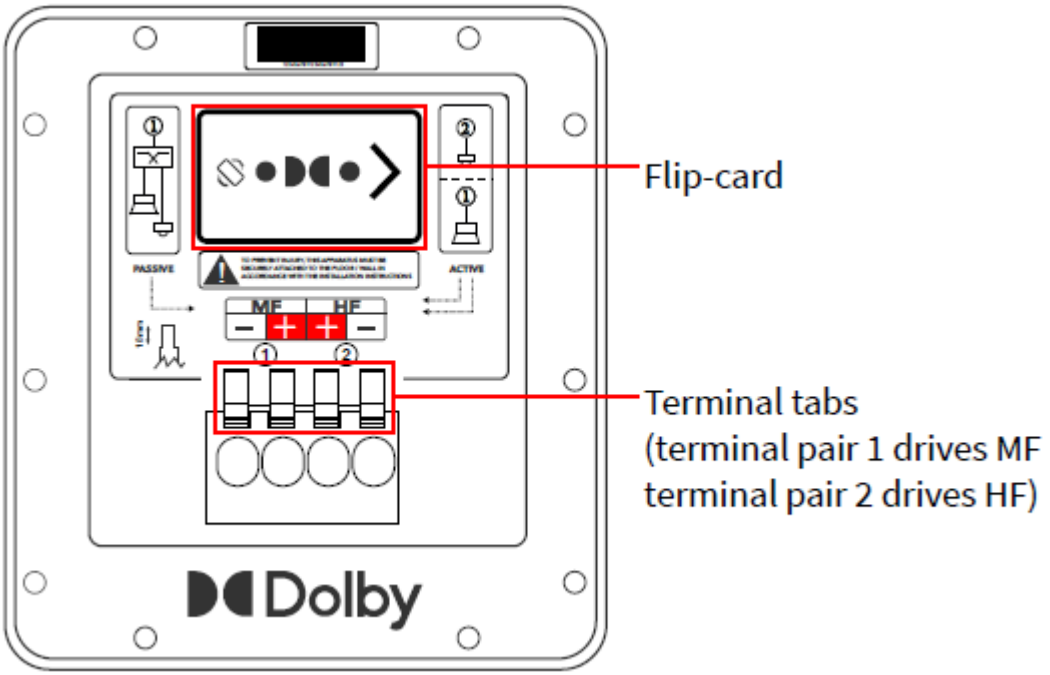
The flip-card arrow points to the type of speaker configuration. When pointing to the left, the passive crossover is engaged and you need to connect only the -/+ wires to position 1, as shown in the following figure. The crossover drives both the mid-frequency and high-frequency drivers from the same amplifier channel. For this type of configuration, you do not connect wires to position 2.

Figure 19: CS131MH input plate with flip card in passive mode



If you position the flip card so the arrow points to the right, the internal passive crossover is not used. In this configuration, connect wires to position 1 for the mid-frequency driver (the larger icon), and position 2 for the high-frequency driver (the smaller icon), as shown in the following figure.

Figure 20: CS131MH input plate with flip card in active mode



Note: The input terminals are marked with indicators to show their polarity. Per International Electrotechnical Commission (IEC) standards, a positive voltage on the positive marked input results in the transducers moving outward (with the exception of high frequency in passive mode only, which has a negative polarity). The CS131MH and CS136LF differ in the order of negative and positive terminations. You must verify the positive and negative markings for each respective product. Always tie the cable down to the available hardware to minimize any buzzing or pullouts. If possible, after wiring is completed, play sound through the speaker to identify any connection issues, buzzing, or rattling. Refer to the following figures.

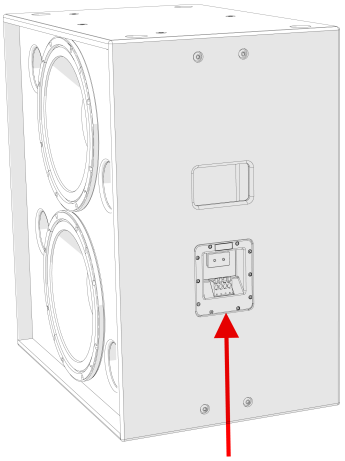
To install wires into the advanced input plate:

1. Strip back the wire insulation/sheath to 18 mm (0.71 inches).
2. Locate the orange terminal tab, and push it inward. This terminal tab is spring loaded, and pushing it inward opens the gap in the hole directly below the tab.
3. Insert the wire fully into the hole.
4. Release the terminal tab. The spring mount clamps the wire securely.
5. Inspect the terminal for any stray wire strands.

Connecting and configuring the CS136LF

The CS136LF input plate is mounted on the side of the speaker for easy access to the wiring and the flip card, as shown in the following figure.

Figure 21: CS136LF input plate location



The input plate contains a flip card that you can use to select the operation mode. To remove the flip card, pull it straight out (rocking it a little if needed). The flip-card orientation determines whether the drivers are operated in parallel or individually. If you turn the flip card so that the arrow points to the left, the wiring connection to position 1 powers both of the 15-inch drivers in parallel. If you turn the flip card so the arrow points to the right, each of the drivers is independent and must be powered individually by separate amplifier channels. This requires connections to both position 1 and position 2. (See the following two figures.)

Note that this input plate displays two LF (low-frequency) connections, and that their icons are the same size because the drivers are the same size. Icon 1 represents the top driver in the cabinet, and icon 2 represents the bottom driver in the cabinet. There is no crossover in the CS136LF.

Figure 22: CS136LF parallel operating mode

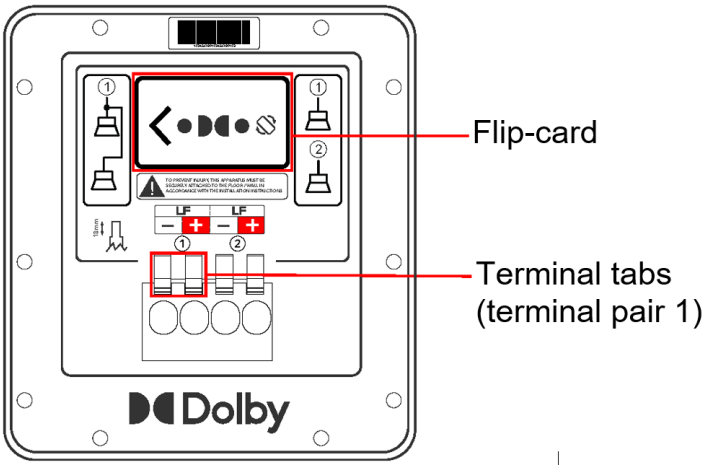
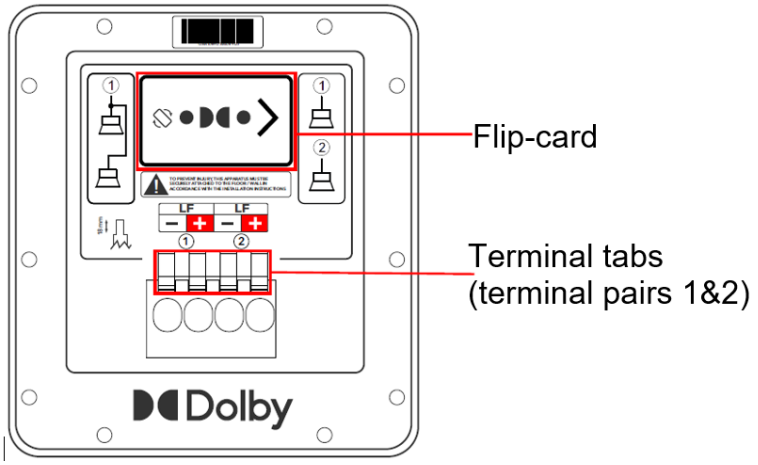


Figure 23: CS136LF independent operating mode



Note: The input terminals are marked with indicators to show their polarity. Per IEC standards, a positive voltage on the positive marked input results in the transducers moving outward (with the exception of high frequency in passive mode only, which has a negative polarity). The CS131MH and CS136LF differ in the order of negative and positive terminations. You must verify the positive and negative markings for each respective product. Always tie the cable down to the available hardware to minimize any buzzing or pullouts. If possible, after wiring is completed, play sound through the speaker to identify any connection issues, buzzing, or rattling. Refer to the following figures.

To install wires into the advanced input plate:

1. Strip back the wire insulation/sheath to 18 mm (0.71 inches).
2. Locate the orange terminal tab, and push it inward. This terminal tab is spring loaded, and pushing it inward opens the gap in the hole directly below the tab.
3. Insert the wire fully into the hole.
4. Release the terminal tab. The spring mount clamps the wire securely.
5. Inspect the terminal for any stray wire strands.

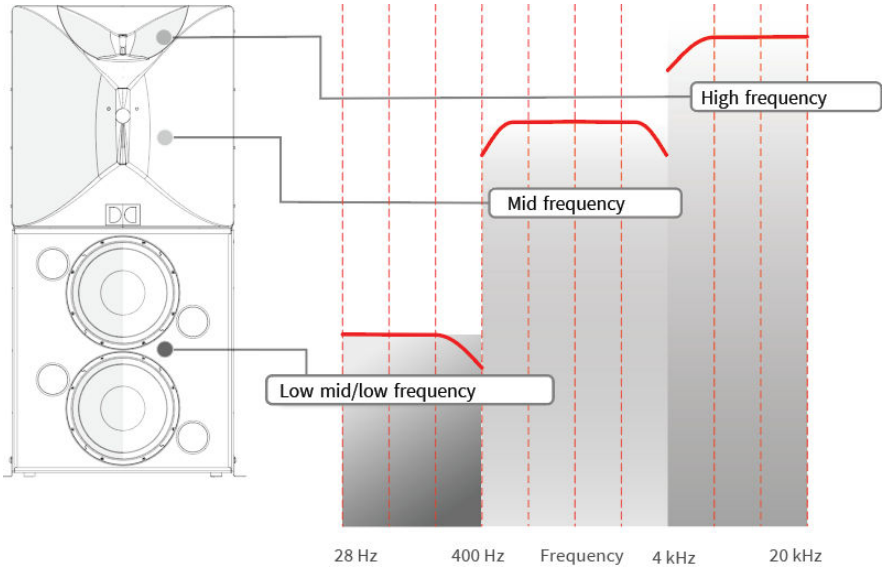
Configuring the speaker operating mode

You set the operating mode for each system component using its flip card. Remove the flip card by pulling it straight out and then reinsert it with the arrow pointing to the desired operation mode.

The CS131MH ships in biamplifier mode (triamplifier screen channel as a whole), which requires external amplifier processing for crossovers and gain settings. The CS136LF ships in parallel mode (single amplifier channel for both drivers). Refer to the following diagrams for the various operating mode configurations.

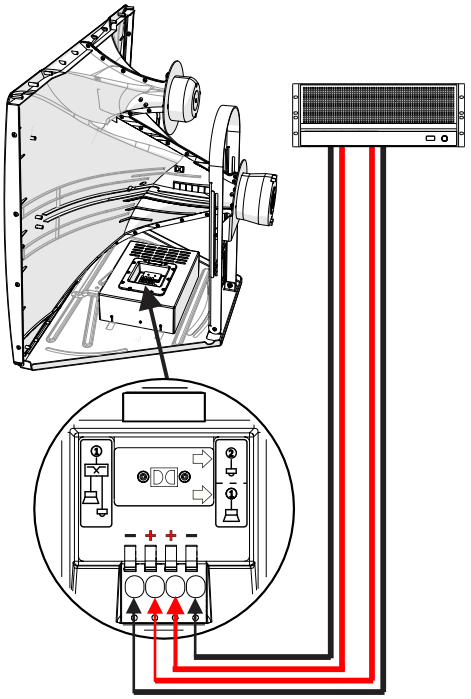
For the entire system, we recommend the triamplifier mode wiring configuration for maximum performance. In this mode, the CS131MH mid- and high-frequency drivers are processed and amplified independently. The CS136LF covers some mid frequencies in addition to low frequencies, as shown in the following figure.

Figure 24: System 131 triamplifier configuration



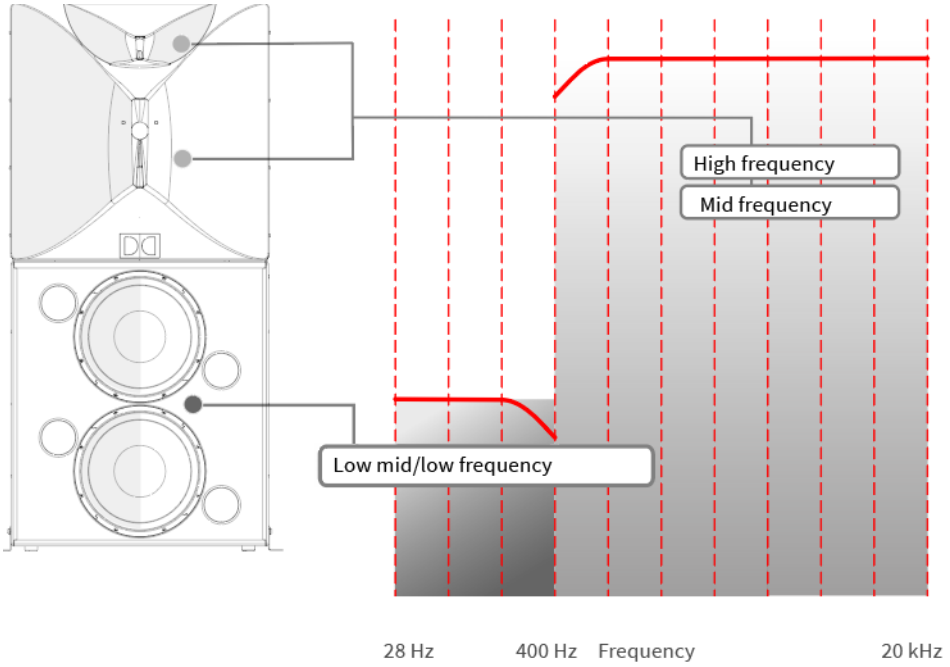
This CS131MH biamplifier configuration provides two 8 ohm loads that are driven by independent amplifier channels with independent DSP processing for each channel. The flip card is oriented to the right. Four wires are used to connect the CS131MH to the amplifier.

Figure 25: Mid/high biamplifier configuration



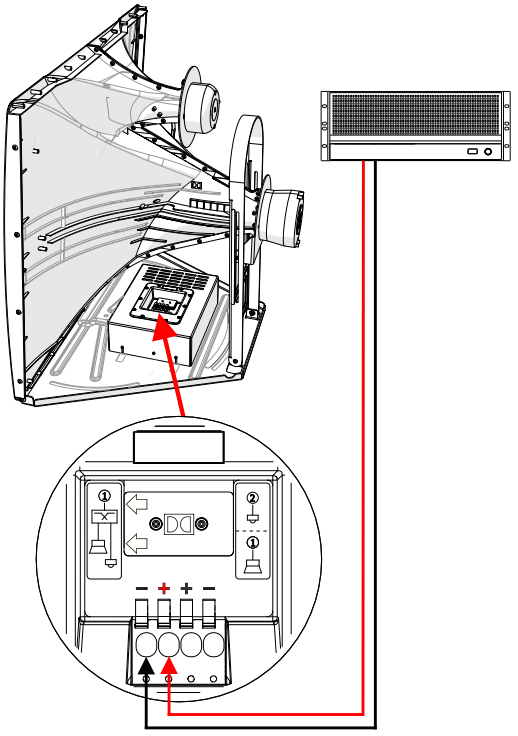
The biamplifier configuration connects to two channels of amplification.

Figure 26: System 131 biamplifier configuration



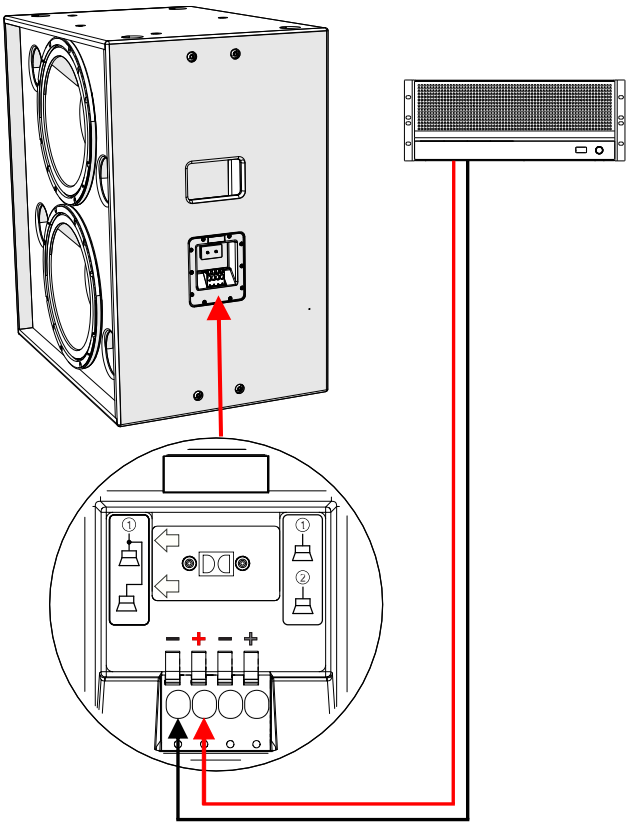
The mid/high passive configuration is an 8 ohm load to a single amplifier channel.

Figure 27: Mid/high passive configuration



The low-frequency parallel configuration is a 4 ohm load to a single amplifier channel

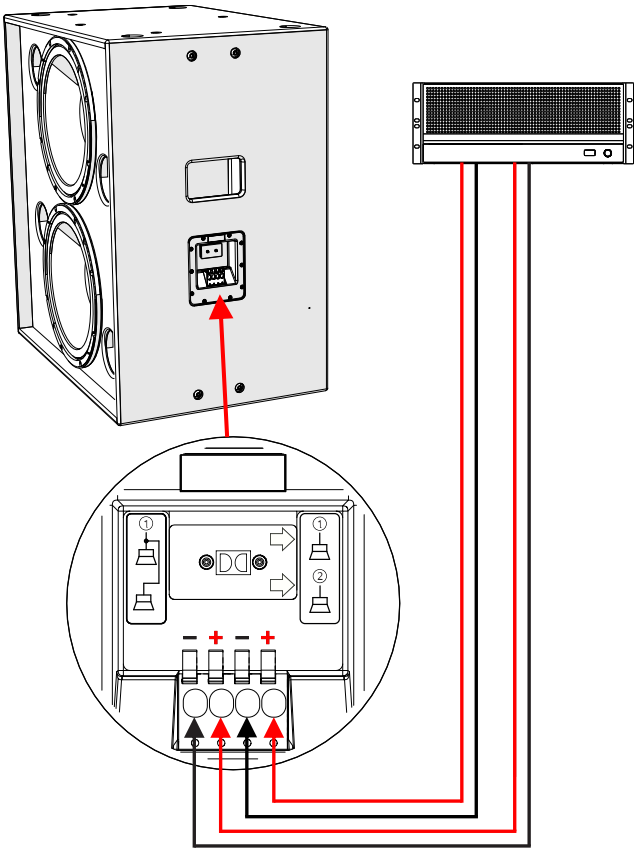
Figure 28: Low-frequency parallel-wiring configuration



The alternate low-frequency cabinet wiring configuration provides independent wiring of the two drivers for two 8-ohm loads that are driven by independent amplifier channels. You should use the same recommended processing for both channels. V_{rms} limiting remains the same as in parallel mode, as only the amplifier power requirement decreases by 50 percent for the respective amplifier channel.

In this configuration, you need to point the flip card to the right.

Figure 29: Low-frequency alternative cabinet configuration



4

Dolby Speaker System 131 and system components specifications

The specifications for Dolby Speaker System 131 and its system components are available.

The list below is an outline of this chapter:

4.1 Dolby Speaker System 131 specifications

These are the specifications for Dolby Speaker System 131.

Table 1: Dolby Speaker System 131 specifications

Specification	Technical data	Notes
Frequency range	31 Hz to 20 kHz	+3 dB/-6 dB in half-space conditions using required processing.
Usable low-frequency response	28 Hz	-10 dB in half-space conditions.
CS131MH coverage window (asymmetrical)	55 degrees top horizontal, 100 degrees bottom horizontal, 50 degrees vertical	Horizontal top and vertical -6 dB averaged to on-axis response. Horizontal bottom -9 dB averaged to on-axis response for near-field proximity compensation.
CS136LF coverage window	120 degrees horizontal, 80 degrees vertical	Horizontal and vertical -6 dB relative to on-axis response using CS136LF cabinet operating with required processing.
CS131MH passive mode rated impedance	8 ohms	
CS131MH biamplifier mode rated impedance	Mid frequency (MF) 8 ohms/ High frequency (HF) 8 ohms	
CS136LF rated impedance	4 ohms parallel mode/8 ohms independent mode	
CS131MH passive mode sensitivity @ 1 watt	103 dB	Measured with 12 dB crest IEC 60268-1 noise @ 2.83 V_{rms} in whole-space conditions with required highpass filter (HPF) and 48 dB bandwidth (BW) lowpass filter (LPF) at the rated system frequency range.
CS131MH biamplifier mode sensitivity @ 1 watt	MF 109 dB/HF 105 dB	Measured with 12 dB crest pink-noise @ 2.83 V_{rms} in whole-space conditions. MF used required HPF and LPF. HF used required HPF and 48 dB BW LPF at the rated system frequency range.
CS136LF sensitivity @ 1 watt	102 dB	Measured with 12 dB crest pink noise @ 2 V_{rms} in half-space conditions with required HPF and LPF.
CS131MH passive mode power handling	300 W @ 49 V_{rms}	12 dB crest IEC 60268-1 noise for two hours with required HPF, calculated power based on rated impedance.
CS131MH biamplifier mode power handling	MF 80 W @ 25.3 V_{rms} /HF 70 W @ 23.7 V_{rms}	12 dB crest pink noise for two hours with required HPF and LPF, based on AES2-2012 standard, calculated power based on rated impedance. MF used required HPF and LPF. HF used required HPF and 48 dB BW LPF at the rated system frequency range.

Table 1: Dolby Speaker System 131 specifications (continued)

Specification	Technical data	Notes
CS136LF power handling	1,400 watts @ 74.8 V_{rms}	12 dB crest pink noise for two hours with required HPF and LPF, based on AES2-2012 standard, calculated power based on rated impedance.
CS131MH passive mode maximum continuous SPL @ 1 meter	128 dB	Calculated from rated sensitivity and power.
CS131MH biamplifier mode maximum continuous SPL @ 1 meter	130 dB (MF 128 dB + HF 124 dB)	MF and HF calculated from rated sensitivity and power. Total SPL is a noncoherent summation.
CS136LF maximum continuous SPL @ 1 meter	133 dB	Calculated from rated sensitivity and power.
System 131 maximum summed continuous SPL @ 1 meter	134 dB	Calculated from rated sensitivity and power. Total SPL is a noncoherent summation. CS136LF reduced 1 dB for spectrum power balancing.
System 131 weight	96.2 kg (212 lb)	

4.2 CS131MH specifications

These are the specifications for the CS131MH.

Table 2: CS131MH specifications

Specification	Technical data	Notes
Frequency range	400 Hz to 20 kHz	+3 dB/-6 dB in whole-space conditions using required processing.
Coverage window (asymmetrical)	55 degrees top horizontal, 100 degrees bottom horizontal, 50 degrees vertical	Horizontal top and vertical -6 dB averaged to on-axis response. Horizontal bottom -9 dB averaged to on-axis response for near-field proximity compensation.
Passive mode rated impedance	8 ohms	
Biamplifier mode rated impedance	Mid frequency (MF) 8 ohm/High frequency (HF) 8 ohm	
Passive mode sensitivity @ 1 watt	103 dB	Measured with 12 dB crest IEC 60268-1 noise @ 2.83 V_{rms} in whole-space conditions with required highpass filter (HPF) and a 48 dB BW low pass filter (LPF) at the rated frequency range of the system.
Biamplifier mode sensitivity @ 1 watt	MF 109 dB/HF 105 dB	Measured with 12 dB crest pink noise @ 2.83 V_{rms} in whole-space conditions. MF used required HPF and LPF. HF used required HPF and a 48 dB BW LPF at the rated frequency range of the system.
Passive mode power handling	300 W @ 49 V_{rms}	12 dB crest IEC 60268-1 noise for two hours with required HPF; calculated power based on rated impedance.

Table 2: CS131MH specifications (continued)

Specification	Technical data	Notes
Passive mode power draw	123 W	Measured average power over five seconds at the rated V_{rms} using 12 dB crest IEC 60268-1 noise with required HPF and LPF. This measured power draw from the amplifier is useful for estimating amplifier sizing in overall system design.
Passive mode maximum voltage peak	98 Vpk	Measured Vpk over 100 hours using a Hann shaped sine-wave burst at the maximum excursion frequency of the system. This data is useful for setting peak stop limiters and amplifier selection.
Biamplifier mode power handling	MF 80 W @ 25.3 V_{rms} /HF 70 W @ 23.7 V_{rms}	12 dB crest pink noise for two hours using required HPF and LPF, based on AES2-2012 standard, calculated power based on rated impedance. Mid frequency (MF) used required HPF and LPF. HF used required HPF and a 48 dB BW LPF at the rated frequency range of the system.
Biamplifier mode power draw	MF 54 W/HF 50 W	Measured average power over five seconds at the rated V_{rms} using 12 dB crest pink noise with required HPF and LPF. This measured power draw from the amplifier is useful for estimating amplifier sizing in overall system design.
Biamplifier mode maximum voltage peak	MF 50.6 Vpk; high frequency 94.8 Vpk	Measured Vpk over 100 hours using a Hann shaped sine-wave burst at the maximum excursion frequency of the system. This data is useful for setting peak stop limiters and amplifier selection.
Passive mode maximum continuous SPL @ 1 meter	128 dB	Calculated from rated sensitivity and power.
Passive mode measured acoustic peak sound pressure level (SPL) @ 1 meter	140 dB	Measured peak SPL over five seconds at rated V_{rms} using 12 dB crest IEC noise with required HPF.
Biamplifier mode maximum continuous SPL @ 1 meter	130 dB (MF 128 dB + HF 124 dB)	MF and HF calculated from rated sensitivity and power. Total SPL is presented as a noncoherent summation.
Biamplifier mode measured acoustic peak SPL @ 1 meter	141 dB (MF 140 dB + HF 135 dB)	MF and HF measured peak SPL over five seconds at rated V_{rms} using 12 dB crest pink noise. MF used required HPF and LPF. HF used required HPF and a 48 dB BW LPF at the rated frequency range of the system. Total peak SPL is presented as a noncoherent summation.
CS131MH weight	23.5 kg (52 lb)	

4.3 CS136LF specifications

These are the specifications for the CS136LF.

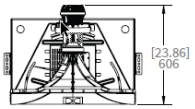
Table 3: CS136LF specifications

Specification	Technical data	Notes
Frequency range	31 Hz to 400 Hz	-6 dB in half-space conditions, high frequency determined by required processing.
Usable low-frequency response	28 Hz	-10 dB in half-space conditions
Coverage window	120 degrees horizontal, 80 degrees vertical	Horizontal and vertical -6 dB relative to on-axis response within rated frequency range.
Rated impedance	4 ohms parallel mode/8 ohms independent mode	
Sensitivity @ 1 watt	102 dB	Measured with 12 dB crest pink noise @ 2 V_{rms} in half-space conditions with required highpass filter (HPF) and lowpass filter (LPF).
Power handling	1,400 W @ 74.8 V_{rms}	12 dB crest pink noise for 2 hours with required HPF and LPF, based on AES2-2012 standard, calculated power based on rated impedance.
Power draw	1,070 W	Measured average power over five seconds at the rated V_{rms} using 12 dB crest pink-noise with required HPF and LPF. This measured power draw from the amplifier is useful for estimating amplifier sizing in overall system design.
Maximum voltage peak	149.6 Vpk	Measured Vpk over 100 hours using a Hann shaped sine-wave burst at the maximum excursion frequency of the system. This data is useful for setting peak stop limiters and amplifier selection.
Maximum continuous SPL @ 1 meter	133 dB	Calculated from rated sensitivity and power.
Measured acoustic peak SPL @ 1 meter	142 dB	Measured peak SPL over five seconds at rated V_{rms} using 12 dB crest pink noise with required HPF and LPF
CS136LF weight	72.7 kg (160 lb)	

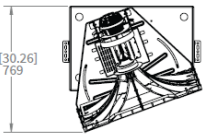
Note: These specifications provide typical values and do not represent absolute limits.

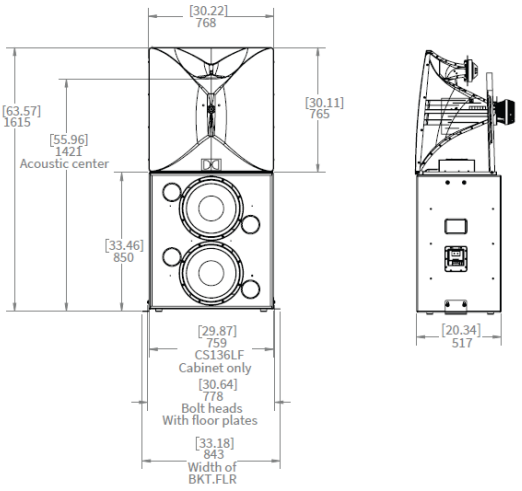
4.4 Dolby Speaker System dimensions

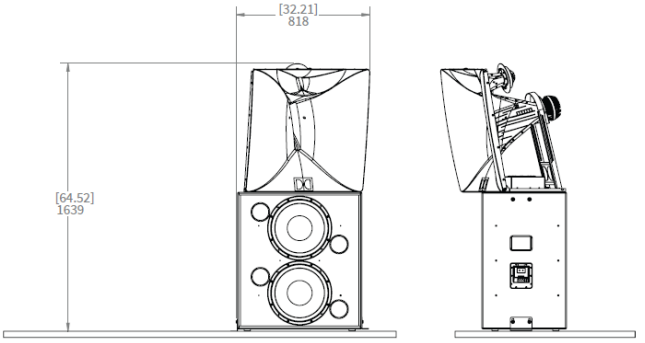
Straight and level



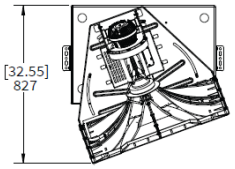
20 degrees right
15 degrees down

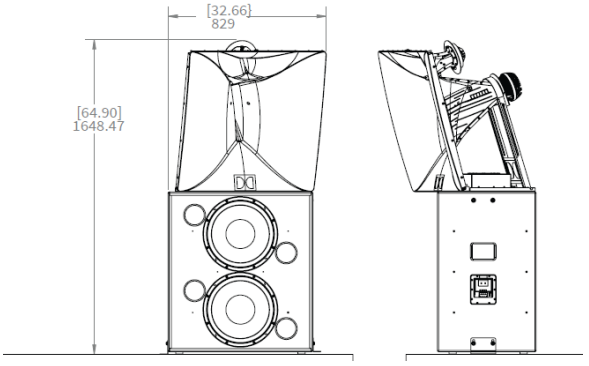






20 degrees right
20 degrees down





5

Dolby Speaker System 131 digital signal processing requirements

The tables in this chapter show the System 131 digital signal processing requirements for the different modes of operation.

The list below is an outline of this chapter:

5.1 System 131 triamplifier mode

There are a variety of System 131 triamplifier mode digital signal processing requirements.

Table 4: CS131MH High-frequency highpass and lowpass filtration, gain, and delay requirements

Highpass filter	Lowpass filter	Overall gain in dB	Polarity	Delay in ms
4 kHz 48 dB (8th-order) Linkwitz-Riley filter	None	-7 (-2 for Cinema preset)	Positive	0.854

Note: Overall gain is for an anechoic flat response, whereas room effects are visible in acoustic measurements. The alternative Cinema preset gain takes into account typical room and screen effects to more closely generate an acoustic measurement x-curve shape with less user adjustment required.

Table 5: CS131MH High-frequency parametric equalization requirements

EQ frequency	Constant Q		Constant bandwidth	EQ gain in dB
5.5 kHz	2.87 Q	0.5 bandwidth	0.63	-2
12.5 kHz	2.87 Q	0.5 bandwidth	0.75	+5
18.5 kHz	6 Q	0.24 bandwidth	0.36	+5

Note: There are two principal implementations for parametric EQ filters in DSP processors. You need to select either the Constant Q or Constant Bandwidth mode in your DSP user interface. The DSP UI may provide both Q or bandwidth settings, or it may show only bandwidth, with no option to input or show Q. To correctly match the intended performance of this Dolby product, confirm with your DSP manufacturer as to which implementation is used. The Dolby CP850 and Dolby CP950 cinema processors use constant-bandwidth parametric EQ filters.

Table 6: CS131MH High-frequency limiter requirements

RMS limiting in Vrms	Attack time in ms	Release time in ms	Peak stop in Vpk
23.7	0.3	4.8	94.8

Table 7: CS131MH mid-frequency highpass and lowpass filtration, gain, and delay requirements

Highpass filter	Lowpass filter	Overall gain in dB	Polarity	Delay in ms
400 Hz 48 dB (8th-order) Butterworth filter	3.8 kHz 48 dB (8th-order) Butterworth filter	-11 (-6 for Cinema preset)	Positive	None

Note: Overall gain is for an anechoic flat response, whereas room effects are visible in acoustic measurements. The alternative Cinema preset gain takes into account typical room and screen effects to more closely generate an acoustic measurement x-curve shape with less user adjustment required.

Table 8: CS131MH Mid-frequency parametric equalization requirements

EQ frequency	Constant Q		Constant bandwidth	EQ gain in dB
460 Hz	2.87 Q	0.5 bandwidth	0.75	-4.5
1.6 kHz	4 Q	0.36 bandwidth	0.55	-5
3.23 kHz	4 Q	0.36 bandwidth	0.5	+3

Note: There are two principal implementations for parametric EQ filters in DSP processors. You need to select either the Constant Q or Constant Bandwidth mode in your DSP user interface. The DSP UI may provide both Q or bandwidth settings, or it may show only bandwidth, with no option to input or show Q. To correctly match the intended performance of this Dolby product, confirm with your DSP manufacturer as to which implementation is used. The Dolby CP850 and Dolby CP950 cinema processors use constant-bandwidth parametric EQ filters.

Table 9: CS131MH mid-frequency limiter requirements

RMS limiting in Vrms	Attack time in ms	Release time in ms	Peak stop in Vpk
25.3	2	32	50.6

Table 10: CS136LF low-frequency highpass and lowpass filtration, gain, and delay requirements

Highpass filter	Lowpass filter	Overall gain in dB	Polarity	Delay in ms
29 Hz 24 dB (4th-order) Butterworth filter	400 Hz 48 dB (8th-order) Linkwitz-Riley filter	0 (0 for Cinema preset)	Positive	1

Note: Overall gain is for an anechoic flat response, whereas room effects are visible in acoustic measurements. The alternative Cinema preset gain takes into account typical room and screen effects to more closely generate an acoustic measurement x-curve shape with less user adjustment required.

Table 11: CS136LF parametric equalization requirements

EQ frequency	Constant Q		Constant bandwidth	EQ gain in dB
60 Hz	2.87 Q	0.5 bandwidth	0.7	+3
125 Hz	1.41 Q	1 bandwidth	1.4	-3
285 Hz	2.87 Q	0.5 bandwidth	0.8	-5

Note: There are two principal implementations for parametric EQ filters in DSP processors. You need to select either the Constant Q or Constant Bandwidth mode in your DSP user interface. The DSP UI may provide both Q or bandwidth settings, or it may show only bandwidth, with no option to input or show Q. To correctly match the intended performance of this Dolby product, confirm with your DSP manufacturer as to which implementation is used. The Dolby CP850 and Dolby CP950 cinema processors use constant-bandwidth parametric EQ filters.

Table 12: CS136LF limiter requirements

RMS limiting in Vrms	Attack time in ms	Release time in ms	Peak stop in Vpk
74.8	45	720	149.6

5.2 System 131 biamplifier mode

There are a variety of System 131 biamplifier mode digital signal processing requirements.

Table 13: CS131MH mid/highfrequency highpass and lowpass filtration, gain, and delay requirements

Highpass filter	Lowpass filter	Overall gain in dB	Polarity	Delay in ms
400 Hz 48 dB (8th-order) Linkwitz-Riley	None	-3.5 (+2.5 for Cinema preset)	Positive	None

Note: Overall gain is for an anechoic flat response, whereas room effects are visible in acoustic measurements. The alternative Cinema preset gain takes into account typical room and screen effects to more closely generate an acoustic measurement x-curve shape with less user adjustment required.

Table 14: CS131MH mid-/high-frequency parametric equalization requirements

EQ frequency	Constant Q		Constant bandwidth	EQ gain in dB
512 Hz	5 Q	0.29 bandwidth	0.5	-7
1.45 kHz	2.87 Q	0.5 bandwidth	0.69	-3
3 kHz	2.87 Q	0.5 bandwidth	0.66	+2
4 kHz	4 Q	0.36 bandwidth	0.46	+2
6.2 kHz	4 Q	0.36 bandwidth	0.46	-2

Note: There are two principal implementations for parametric EQ filters in DSP processors. You need to select either the Constant Q or Constant Bandwidth mode in your DSP user interface. The DSP UI may provide both Q or bandwidth settings, or it may show only bandwidth, with no option to input or show Q. To correctly match the intended performance of this Dolby product, confirm with your DSP manufacturer as to which implementation is used. The Dolby CP850 and CP950 cinema processors use constant-bandwidth parametric EQ filters.

Table 15: CS131MH mid-/high-frequency limiter requirements

RMS limiting in Vrms	Attack time in ms	Release time in ms	Peak stop in Vpk
49	2	32	98

Table 16: CS136LF highpass and lowpass filtration, gain, and delay requirements

Highpass filter	Lowpass filter	Overall gain in dB	Polarity	Delay in ms
29 Hz 24 dB (4th-order) Butterworth filter	400 Hz 48 dB (8th-order) Linkwitz-Riley filter	0 (0 for Cinema preset)	Positive	1

Note: Overall gain is for an anechoic flat response, whereas room effects are visible in acoustic measurements. The alternative Cinema preset gain takes into account typical room and screen effects to more closely generate an acoustic measurement x-curve shape with less user adjustment required.

Table 17: CS136LF parametric equalization requirements

EQ frequency	Constant Q		Constant bandwidth	EQ gain in dB
60 Hz	2.87 Q	0.5 bandwidth	0.7	+3
125 Hz	1.41 Q	1 bandwidth	1.4	-3
285 Hz	2.87 Q	0.5 bandwidth	0.8	-5

Note: There are two principal implementations for parametric EQ filters in DSP processors. You need to select either the Constant Q or Constant Bandwidth mode in your DSP user interface. The DSP UI may provide both Q or bandwidth settings, or it may show only bandwidth, with no option to input or show Q. To correctly match the intended performance of this Dolby product, confirm with your DSP manufacturer as to which implementation is used. The Dolby CP850 and Dolby CP950 cinema processors use constant-bandwidth parametric EQ filters.

Table 18: CS136LF limiter requirements

RMS limiting in Vrms	Attack time in ms	Release time in ms	Peak stop in Vpk
74.8	45	720	149.6

6

Setting system limiters

You can run the system limiters process with the required digital signal processing engaged.

About this task

We recommend that you set up the system gain structure with the amplifier channel volumes turned all the way up if the volume setting is easily accessible by any user, such as via a front-panel knob that is not behind a security panel. Disconnecting the loudspeakers from the amplifier during this process will most likely result in conservative settings. You can connect the loudspeakers to the amplifier during this process if caution is observed when increasing the stimulus level and confidence in the measuring setup is secured.

⚠ **Caution:** Loudspeaker damage as a result of exceeding the power handling specifications defined in Chapter 4 is not covered under the warranty. In addition, we recommend wearing hearing protection when setting up system limiters via the following procedure.

The CS131MH in passive mode must use IEC noise to set the limiter threshold. High-frequency driver damage can occur if pink noise is used.

To set up system limiters:

Procedure

1. Connect a wide-bandwidth multimeter with averaging to the amplifier output. A wide-bandwidth meter has a rated measuring bandwidth of at least 20 kHz with an averaging function that is more than five seconds (very important for low-frequency [LF] outputs).
2. Access the RMS limiter setting in the DSP and set it to the maximum value, such that no limiting should occur.
3. Set the attack and release times based on the highpass filter (HPF), according to the recommended digital signal processing settings for the loudspeaker being measured. If that data is not available, we recommend these settings:
   - HPF <30 Hz: Attack 45 ms, release 720 ms
   - HPF 30 Hz to 59 Hz: Attack 16 ms, release 256 ms
   - HPF 60 Hz to 99 Hz: Attack 8 ms, release 128 ms
   - HPF 100 Hz to 224 Hz: Attack 4 ms, release 65 ms
   - HPF 225 Hz to 449 Hz: Attack 2 ms, release 32 ms
   - HPF 450 Hz to 999 Hz: Attack 1 ms, release 16 ms
   - HPF 1 kHz to 1.99 kHz: Attack 0.5 ms, release 8 ms
   - HPF >2 kHz: Attack 0.3 ms, release 4.8 ms
4. Mute all outputs into the system, except for the output you are setting.
5. Play low-level pink noise into the amplifier channel and confirm that the expected loudspeaker is playing (if the loudspeaker is connected to the amplifier) and the multimeter is reading the voltage.
6. While monitoring the meter, slowly turn up the pink noise until the V_{rms} is at the published rating. For LF outputs, an average of at least five seconds at the same pink-noise level is required for the reading to stabilize. Typically, some amplifier clipping will occur. However, if the amplifier clipping light is almost solid, stop increasing the pink noise and leave it at a V_{rms} level below the published rating.
7. While pink noise is playing at the rated V_{rms} (or there is heavy amplifier clipping), turn down the threshold on the root mean square (RMS) limiter block until the measured V_{rms} goes down slightly.

8. Turn up the stimulus gain, and confirm that the V_{rms} does not increase beyond the rated V_{rms}. If it does, turn down the limiter threshold again until the V_{rms} is not above the loudspeaker rating when the stimulus is driven heavily.

   It is preferable and safe to measure each amplifier channel individually. However, to save time it is acceptable to copy the limiter settings to other channels that share identical loudspeaker models, identical amplifier models, and identical gain structure after the limiter in the signal path (including any amplifier front-panel volume controls). It is also acceptable to copy the limiter settings to identical channels if the auditorium equalization (EQ) and/or gain structure is different before the limiter in the signal path.

7

Documentation revision history

The documentation revision history lists the date, issue number, and description of all publications of the *Dolby Speaker System 131 Owner's Manual*.

Date	Issue	Description
1 January 2022	Issue 1	Initial release