Ashby-5C and Ashby-8C

Ceiling Loudspeakers with IntelligentDC

Keep these important operating instructions.
Check www.meyersound.com for updates.

Ashby Loudspeaker Operating Instructions
PN 05.260.005.01 C2

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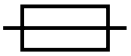
IMPORTANT SAFETY INSTRUCTIONS

These symbols indicate important safety or operating features in this booklet and on the frame or chassis:

SYMBOLS USED

					
Dangerous voltages: risk of electric shock	**Important operating instructions**	**Replaceable Fuse**	**Protective earth ground**	**Hot surface: do not touch**	**Electronic instructions for use: instruction location in QR code** 
Gefährliche Spannungen: Stromschlaggefahr	**Hinweis auf wichtige Punkte der Betriebsanleitung**	**Austauschbare Sicherung**	**Schutzerde**	**Heiße Oberfläche: nicht berühren**	**Elektronische Gebrauchsanweisung: anweisungsort im QR-Code**
Pour indiquer les risques résultant de tensions dangereuses	**Instructions d'utilisation importantes**	**Fusible remplaçable**	**Terre de protection**	**Surface chaude: ne pas toucher**	**Mode d'emploi électronique: emplacement des instructions dans le code QR**
Para indicar voltajes peligrosos	**Instrucciones importantes de funcionamiento y/o Mantenimiento**	**Fusible reemplazable**	**Toma de tierra de protección**	**Superficie caliente: no tocar**	**Instrucciones de uso electrónicas: ubicación de instrucciones en el código QR**

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with Meyer Sound's installation instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
9. Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. The AC mains plug or appliance coupler shall remain readily accessible for operation.
11. Only use attachments/accessories specified by Meyer Sound.
12. Use only with the caster rails or rigging specified by Meyer Sound, or sold with the apparatus. Handles are for carrying only.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. If equipped with an external fuse holder, the replaceable fuse is the only user-serviceable item. When replacing the fuse, only use the same type and the same value.
15. Refer all other servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug has been damaged; liquid has been spilled or objects have fallen into the apparatus; rain or moisture has entered the apparatus; the apparatus has been dropped; or when for undetermined reasons the apparatus does not operate normally.

WARNING: For Meyer Sound IntelligentDC Power Supply models MPS-488HP and MPS-482HP, the external wiring connected to the output terminals of the units require installation by an Instructed person or the use of ready-made leads or cords.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not install the apparatus in wet or humid locations without using weather protection equipment from Meyer Sound.

WARNING: Class I apparatus shall be connected to a mains socket outlet with a protective earthing connection.

CAUTION: Disconnect the mains plug before disconnecting the power cord from the loudspeaker.

English

- To reduce the risk of electric shock, disconnect the apparatus from the AC mains before installing audio cable. Reconnect the power cord only after making all signal connections.
- Connect the apparatus to a two-pole, three-wire grounding mains receptacle. The receptacle must be connected to a fuse or circuit breaker. Connection to any other type of receptacle poses a shock hazard and may violate local electrical codes.
- Do not install the apparatus in wet or humid locations without using weather protection equipment from Meyer Sound.
- Do not allow water or any foreign object to get inside the apparatus. Do not put objects containing liquid on or near the unit.
- To reduce the risk of overheating the apparatus, avoid exposing it to direct sunlight. Do not install the unit near heat-emitting appliances, such as a room heater or stove.
- If equipped with an external fuse holder, the replaceable fuse is the only item that can be serviced by the user. When replacing the fuse, only use the same type and value.
- This apparatus contains potentially hazardous voltages. Do not attempt to disassemble the unit. The only user-serviceable part is the fuse. All other repairs should be performed only by factory-trained service personnel.

Deutsch

- Zur Minimierung der Gefahr eines elektrischen Schlages trennen Sie das Produkt vor dem Anschluss von Audio-und/oder Steuerleitungen vom Stromnetz. Das Netzkabel darf erst nach Herstellung aller Signalverbindungen wieder eingesteckt werden.
- Das Produkt an eine vorschriftsgemäss installierte dreipolige Netzsteckdose (Phase, Neutralleiter, Schutzleiter) anschließen. Die Steckdose muss vorschriftsgemäß mit einer Sicherung oder einem Leitungsschutzschalter abgesichert sein. Das Anschließen des Produkts an eine anders ausgeführte Stromversorgung kann gegen Vorschriften verstossen und zu Stromunfällen führen.
- Das Produkt nicht an einem Ort aufstellen, an dem es direkter Wassereinwirkung oder übermäßig hoher Luftfeuchtigkeit ausgesetzt werden könnte, solange es sich nicht um ein Produkt handelt, dass mit der Meyer Sound Weather Protection Option ausgestattet ist.
- Vermeiden Sie das Eindringen von Wasser oder Fremdkörpern in das Innere des Produkts. Stellen Sie keine Objekte, die Flüssigkeit enthalten, auf oder neben dem Produkt ab.
- Um ein Überhitzen des Produkts zu verhindern, halten Sie das Gerät von direkter Sonneneinstrahlung fern und stellen Sie es nicht in der Nähe von wärmeabstrahlenden Geräten (z.B. Heizgerät oder Herd) auf.
- Bei Ausstattung mit einem externen Sicherungshalter ist die austauschbare Sicherung das einzige Gerät, das vom Benutzer gewartet werden kann. Verwenden Sie beim Austausch der Sicherung nur den gleichen Typ und Wert.
- Dieses Gerät enthält möglicherweise gefährliche Spannungen. Versuchen Sie nicht, das Gerät zu zerlegen. Der einzige vom Benutzer zu wartende Teil ist die Sicherung. Alle anderen Reparaturen dürfen nur von im Werk geschultem Servicepersonal ausgeführt werden.

Français

- Pour éviter tout risque d’électrocution, débranchez l’enceinte de la prise secteur avant de mettre en place le câble audio.Ne rebranchez le cordon secteur qu’après avoir procédé à toutes les connexions de signal audio.
- Brancher l'appareil sur une prise secteur à trois fils et deux pôles avec mise à la terre. La prise doit être reliée à un fusible ou à un disjoncteur. Le branchement à tout autre type de prise présente un risque de choc électrique et peut enfreindre les codes locaux de l'électricité.
- N’installez pas l’enceinte dans des endroits humides ou en présence d’eau sans utiliser d’équipements de protection adéquats fournis par Meyer Sound.
- Ne laissez pas d’eau ou d’objet étranger, quel qu’il soit, pénétrer à l’intérieur de l’enceinte. Ne posez pas d’objet contenant du liquide sur ou à proximité de l’enceinte.
- Pour réduire les risques de surchauffe, évitez d’exposer directement l’enceinte aux rayons du soleil. Ne l’installez pas à proximité de sources de chaleur, radiateur ou four par exemple.

- S'il est équipé d'un porte-fusible externe, le fusible remplaçable est le seul élément qui peut être réparé par l'utilisateur. Lors du remplacement du fusible, n'utilisez que le même type et la même valeur.
- Cet appareil contient des tensions potentiellement dangereuses. N'essayez pas de démonter l'appareil.Le fusible est la seule pièce réparable par l'utilisateur. Toutes les autres réparations doivent être effectuées uniquement par du personnel de maintenance formé en usine.

Español

- Para reducir el riesgo de descarga eléctrica, desconecte el aparato de la red eléctrica antes de instalar el cable de audio. Vuelva a conectar el cable de alimentación sólo después de realizar todas las conexiones de señal.
- Conecte el aparato a una toma de corriente de tres hilos y dos polos con conexión a tierra. El receptáculo debe estar conectado a un fusible o disyuntor. La conexión a cualquier otro tipo de receptáculo representa un riesgo de descarga eléctrica y puede violar los códigos eléctricos locales.
- No instale el aparato en lugares húmedos o mojados sin usar el equipo de protección contra intemperie de Meyer Sound.
- No permita que penetre agua u otros objetos extraños en el interior del aparato. No coloque objetos que contengan líquido sobre o cerca de la unidad.
- Para reducir el riesgo de sobrecalentamiento del aparato, evite exponerlo a la luz solar directa. No instale la unidad cerca de aparatos que emitan calor, como un calefactor o una estufa.
- Si está equipado con un portafusibles externo, el fusible reemplazable es el único elemento que puede ser reparado por el usuario. Cuando reemplace el fusible, use solamente el mismo tipo y valor.
- Este aparato contiene voltajes potencialmente peligrosos. No intente desmontar la unidad. La única pieza que el usuario puede reparar es el fusible. Todas las demás reparaciones deben ser realizadas únicamente por personal de servicio capacitado de fábrica.

CONTENTS

INTRODUCTION TO THE ASHBY LOUDSPEAKER

HOW TO USE THIS MANUAL

Please read these instructions in their entirety before configuring a Meyer Sound product or 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.

Information and specifications are subject to change. Updates and supplementary information are available at:

- meyersound.com/products
- meyersound.com/documents.

Meyer Sound Technical Support is available at:

- +1 510 486.1166
  (Monday through Friday 9:00 am to 5:00 pm PST)
- +1 510 486.0657
  (after hours support)
- meyersound.com/support.

THE ASHBY LOUDSPEAKER

The Ashby self-powered, ceiling-mount, installation loudspeakers provide wide-coverage and low distortion, even at high sound levels, for applications that require accurate music reproduction and intelligible voice. The Ashby loudspeakers offer sonic performance beyond other in-ceiling loudspeakers of comparable size.

The Ashby-5C and Ashby-8C loudspeakers are engineered to the same award-winning standards as all of Meyer Sound's IntelligentDC loudspeakers. With their on-board amplification and sophisticated signal processing, they exhibit the flat frequency and phase responses for which Meyer Sound loudspeakers are known.

The Ashby loudspeakers receive DC power and balanced audio from a single Phoenix™ 5-pin male connector. Using IntelligentDC to power the units from an external source has several advantages:

- Eliminates the need to use conduit (Class 2 wiring).
- Allows longer, lighter-gauge cable runs.
- Preserves the advantages of self-powered systems with even more flexible installation options.

Housed in integrated metal back-cans to meet commercial fire codes, the Ashby loudspeaker can be flush-mounted in the ceilings using a discrete low-profile grille that blends into any decor.

All Ashby drivers are designed and manufactured at Meyer Sound's factory in Berkeley, California. The Ashby 0.75-inch metal dome tweeter is concentrically mounted in an innovative configuration that maximizes the surface of the waveguides. Their incredibly smooth and consistent 100° coverage lets you use fewer loudspeakers to cover a larger area, which reduces system cost while maintaining the highest sound quality.

The Ashby-5C and Ashby-8C include 5-inch and 8-inch cone drivers, respectively. The Ashby-8C is ideally suited for applications that require a deeper low-end and higher SPL.

The Ashby loudspeakers require an external Meyer Sound MPS IntelligentDC Power Supply. These rack units distribute DC power and balanced audio to Ashby loudspeakers or other Meyer Sound IntelligentDC loudspeakers. Composite multi-conductor cables (e.g., Belden® 1502) can deliver both DC power and balanced audio. Some versions, such as the MPS-488HP, can also connect to Meyer Sound's RMS remote monitoring system.

Ashby loudspeakers can be installed in a variety of ceiling environments using Meyer Sound accessories:

- **C-Ring with Bridge Kit:** Used for suspended ceilings, the C-ring better distributes the clamping force of the loudspeaker's four mounting clamps while the bridges help support the weight of the loudspeaker and provide additional safety in case the tile breaks. In addition, the C-ring can be used independently on brittle ceiling surfaces.
- **New Construction Bracket**: This bracket can be fastened to the ceiling and acts as a template for ceiling cutout, ensuring a neat installation.
- **Ashby Pendant**: Allows Ashby loudspeakers to hang from ceilings where a flush-mount is not practical. These elegant pendant enclosures utilize a minimalistic design typically used in pendant lighting to blend discreetly into the environment.

The equipment was also evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces.

CONNECTING ASHBY LOUDSPEAKERS

ASHBY POWER AND INPUT PANEL

The Ashby-5C and Ashby-8C loudspeakers require a Meyer Sound MPS IntelligentDC Power Supply to function properly. The MPS-488HP, for example, can power up to 24 Ashby-5C (3 per channel) or 16 Ashby-8C (2 per channel).

Ashby loudspeakers receive DC power (-, +) and balanced audio (+, -, shield) from a Phoenix 5-pin male input connector. The pins are clearly labeled on the Ashby Power and Input panel shown below.

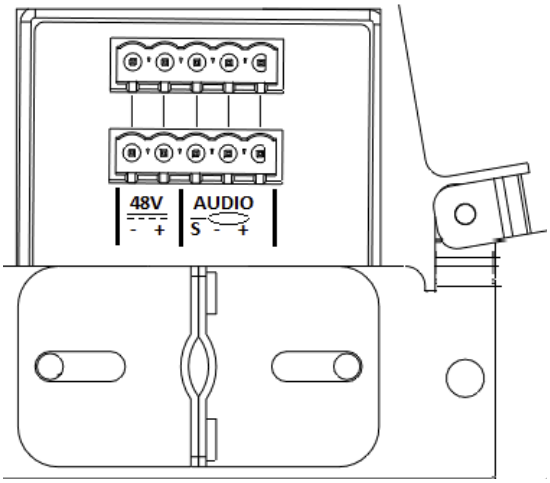


Figure 1: Ashby Power and Input panel

Looping

Ashby loudspeakers can be looped using the connectors on the Ashby Power and Input panel. The table below shows the maximum number of loudspeakers that can be looped from one channel of an MPS Power Supply to function properly and meet compliance requirements.

Model	Maximum Number
Ashby-5C	3 (2 looped)
Ashby-8C	2 (1 looped)
Mixed	1 Ashby 8C 1 Ashby 5C

Loudspeaker Attenuator Knob

All Ashby loudspeakers powered by a single channel of an MPS Power Supply receive the same DC voltage and the same audio signal. To set loudspeakers to different levels, use the Loudspeaker Attenuation knob (on Ashby loudspeakers equipped with this feature).

The Loudspeaker Attenuator knob (shown below) is located on the front bezel. Possible values are: 1, 2, 3, 6, 10, and 20 dB.

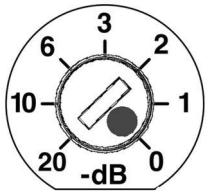


Figure 2: Loudspeaker Attenuator

CABLE SPECIFICATION

Each loudspeaker ships with two Phoenix 5-pin, male cable-mount connectors for loudspeaker cable assembly (see “Assembling Phoenix-to-Phoenix Loudspeaker Cables” on page 17).

A single composite cable (e.g., Belden 1502) can route DC power and balanced audio to the Ashby loudspeakers (see “Belden 1502 Cable” on page 5).

It is extremely important to connect each pin correctly. Maintain proper polarity (- to -, + to +) or system performance will degrade and possibly damage can occur to the loudspeaker (see Appendix B, “Assembling Phoenix-to-Phoenix Loudspeaker Cables”).

> ⚠ **CAUTION:** Connect the 48 VDC directly (and only) from the external power supply to the 48 VDC pins on the loudspeaker connector.

Current Draw

DC current draw for Ashby loudspeakers is dynamic and fluctuates with changing operating levels. As the cable length increases between an Ashby loudspeaker and its external power supply, so does the resistance, which can eventually cause a voltage drop at the loudspeaker. This can compromise amplifier performance, peak SPL, and frequency response. The next section shows how to select the right cable gauge for each loudspeaker.

Cable Length and Gauge

The maximum cable length depends on the type and number of loudspeakers looped and the gauge of the cable. Table 1 shows the maximum cable length for Ashby loudspeakers using 18 AWG cable with only 1 dB of peak SPL loss.

CAUTION: The minimum cable gauge and type of wire must conform with national and regional electrical and building codes where loudspeakers are installed. The maximum number of loudspeakers shown in Table 1 results in a maximum 3 second average power within Class 2 wiring limits in most countries.

Using 18 AWG wire, a single Ashby-5C loudspeaker can use up to 450 ft of cable (300 ft for Ashby-8C) from the MPS Power Supply and lose no more than 1 dB of peak SPL. Unlike 70 V line-distributed loudspeakers, Ashby loudspeakers do not suffer gain loss with the long 18 AWG cables.

Table 1: Maximum cable length using 18 AWG cable

Model	Number of loud-speakers	Maximum Cable Length (ft)
Ashby-5C	1	450
	2	225
	3	150
Ashby-8C	1	300
	2	150

Table 2 shows the maximum cable runs for a single channel of an MPS Power Supply powering up to 3 Ashby-5C or two Ashby-8C with different wire gauges. Table 3 shows the same information for European cable gauges.

Table 2: Maximum cable length for different numbers of Ashby loudspeakers using four different gauge wires (AWG)

		Maximum Cable Length (ft)			
Model	Number of Loud-speakers	12 AWG 0.0016 (Ω/ft)	14 AWG 0.00253 (Ω/ft)	16 AWG 0.00402 (Ω/ft)	18AWG 0.00636 (Ω/ft)
Ashby-5C	1	1800	1125	700	450
	2	900	550	350	225
	3	600	375	237	150
Ashby-8C	1	1200	750	475	300
	2*	600	375	237	150

*Also applies to one Ashby-8C with one looped Ashby-5C

NOTE: Some high frequency loss can occur from long analog audio cables. For lengths greater than 500 ft (indicated by the gray background in the maximum cable length tables), Meyer Sound recommends using low capacitance shielded audio cable or AES Digital audio cable. Discuss expected high frequency loss with the cable manufacturer to determine acceptability.

Table 3: Maximum cable length for different numbers of Ashby loudspeakers using four different gauge wires (m)

		Maximum Cable Length (m)			
Model	Number of Loud-speakers	2.5 mm2 0.0052 (Ω/m)	1.5 mm2 0.01076 (Ω/m)	1.0 mm2 0.02087 (Ω/m)	0.75 mm2 0.03307 (Ω/m)
Ashby-5C	1	480	260	135	80
	2	240	130	70	40
	3	160	87	45	27
Ashby-8C	1	320	175	90	55
	2*	160	87	45	27

*Also applies to one Ashby-8C with one looped Ashby-5C

NOTE: Some high frequency loss can occur from long analog audio cables. For lengths greater than 150 m (indicated by the gray background in the maximum cable length tables), Meyer Sound recommends using low capacitance shielded audio cable or AES Digital audio cable. Discuss expected high frequency loss with the cable manufacturer to determine acceptability.

The maximum total cable resistance between one Ashby-5C loudspeaker and its external power supply is 6 Ω, and 4 Ω for one Ashby-8C.

When using the maximum number of loudspeakers per channel (3 Ashby-5C or 2 Ashby-8C), it should not exceed 2 Ω.

Calculating the Maximum Cable Length

The maximum cable length for an Ashby loudspeaker can be calculated using the formulas shown below. The Wire Resistance Per Foot (WRPF) is the resistance (in Ω) for one foot of individual wire of the chosen gauge. Enter the WRPF in the equations below to determine maximum cable length. The equations compensate for round trip length.

For 18 AWG, WRPF = 0.006385 Ω/ft

Ashby-5C: Maximum length (ft) = 3 Ω/ (WRPF x # of Ashby-5C)

Ashby-8C: Maximum length (ft) = 2 Ω/ (WRPF x # of Ashby-8C)

To calculate the maximum length in meters, substitute the **Wire Resistance per Meter** for the selected wire gauge.

Belden 1502 Cable

The Belden 1502 multiconductor cable is an effective, convenient way to connect an Ashby loudspeaker system. DC power and balanced audio use dedicated conductors in a single cable jacket. Table 4 shows the wiring conventions.

- The thicker red and black wires (18 AWG) are for DC power.
- The blue, white, and shield drain wires for audio.

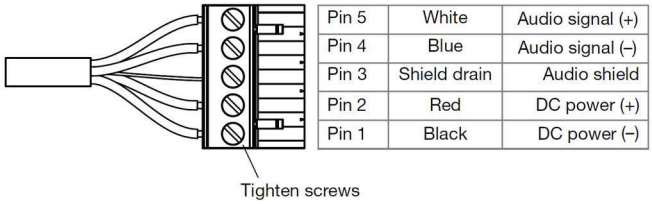


Figure 3: Belden 1502 multiconductor cable

Table 4: Ashby loudspeaker cables with Belden 1502

Wire	Signal	Gauge (AWG)
Black	DC power (–)	18
Red	DC power (+)	18
Shield drain	Audio shield	24
Blue	Audio signal (–)	22
White	Audio signal (+)	22

Using Separate Cables for DC Power and Audio

If your installation does not allow using Belden 1502 multiconductor cable, or requires cable runs longer than 150 ft, use separate cables for DC power and balanced audio (see “Cable Length and Gauge” on page 4). Use a high-quality, balanced cable for audio. Attach the separate cables to the Phoenix connector as shown in Figure 4.

Note the orientation of the connector while assembling the cable. This view shows the screws facing you.

⚠ **CAUTION:** It is very important to verify and measure the cabling before applying power.

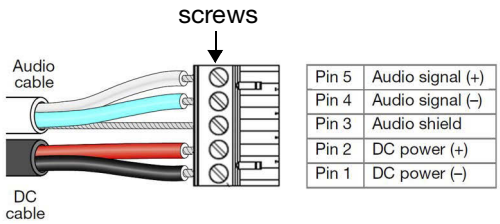


Figure 4: Separate Cables for DC Power and Balanced Audio

ON/STATUS LED

The LED on the Ashby connector panel is primarily intended for use at the factory and before installation, because it cannot be seen when a loudspeaker is installed.

⚠ **CAUTION:** Avoid “hot plugging” by inserting the Phoenix connector into the Ashby loudspeaker with live 48 V present (MPS Power Supply powered ON).

The MPS Power Supply can supply basic information about Voltage and Load Current on its front panel LEDs. The Voltage and Load Current LEDs verify whether each channel output has voltage and whether the connected loudspeakers are receiving DC power and audio.

For more information, refer to the specific MPS Power Supply Operating Instructions for your power supply model.

If you require more information about the status of the loudspeakers connected to the MPS Power Supply, Meyer Sound recommends using RMS (Remote Monitoring System), available on some MPS Power Supply models.

The **On/Status** LED on the Ashby connector panel indicates the loudspeaker's operational status with three colors:

- Normal: Green
- Limiting: Yellow
- Clipping: Red

Normal

When powering on the Ashby loudspeaker, the **On/Status** LED indicates the following startup events:

1. Multiple colors flash during its power-on sequence.
2. When it turns solid green, the power-on sequence has completed and the loudspeaker is ready.

Limiting

The **On/Status** LED turns yellow to indicate limiting. When engaged, the limiter protects the loudspeaker's drivers and prevents signal peaks from causing excessive amplifier distortion, thereby preserving headroom and maintaining a smooth frequency response at high levels.

When source levels return to normal, below the limiter threshold, the LED turns green and limiting ceases.

The Ashby performs within its acoustical specifications when the LED is green, or when limiting is not continuous.

If limiting activity is continuous, the loudspeaker is near its operating limits where:

- Increasing the input level has no effect.
- Distortion increases due to clipping and nonlinear driver operation.
- The drivers are subjected to excessive heat and excursion, which compromises their life span and may eventually damage them over time.

CAUTION: The **On/Status** LED turns yellow when the loudspeaker's signal rises about 2 dB above the limiting threshold, indicating that a safe, optimum level has been exceeded.

Clipping

The **On/Status** LED lights red when the loudspeaker's input stage clips, causing the amplifier to overload. Reduce the source level to avoid distortion and overloading the amplifier.

OPERATING TEMPERATURE AND AMPLIFIER COOLING

Ashby loudspeakers rely solely on natural convection to cool their enclosures. Efficient amplifier design keeps temperatures low even when operated in high ambient temperatures and driven continuously at high output levels.

CONNECTING AND POWERING ASHBY LOUDSPEAKERS

To connect Ashby loudspeakers to the MPS Power Supply and start the system:

1. Power off the MPS Power Supply.
2. Use balanced XLR cables to connect audio sources from a mixer or audio processor to the MPS channel inputs.
3. Use the MPS Link switches to route channel inputs to the desired channel outputs.

   See the MPS Operating Instructions for your specific model for information about the MPS Link switches.
4. Connect Ashby loudspeakers to the MPS channel outputs.

   CAUTION: Do not connect more than three Ashby-5C or two Ashby-8C on one channel of an MPS Power Supply.
5. Power on the MPS Power Supply and monitor the LEDs on the front panel to verify connections.
6. Enable output from the audio sources connected to the MPS Power Supply.

TIP: For complete information about using an MPS IntelligentDC Power Supply, see the MPS Operating Instructions for your power supply model.

RMS EXAMPLE: CONFIGURING THE MPS-488HP IN THE CONTROL SOFTWARE

To configure the MPS-488HP in the Control Software:

1. Power on the MPS-488HP and RMServer(s).
2. Connect Compass and RMServer to the same local area network (LAN).
3. In Compass, click the **RMServer > Inventory** tab.
4. In the **Device** list, right-click the MPS-488HP powering the Ashby loudspeakers and choose **Edit Loudspeaker Inventory**.
5. In the **Edit Loudspeaker Inventory** dialog box, click in the **Product** column and select the Ashby loudspeaker model connected to each MPS-488HP channel output.

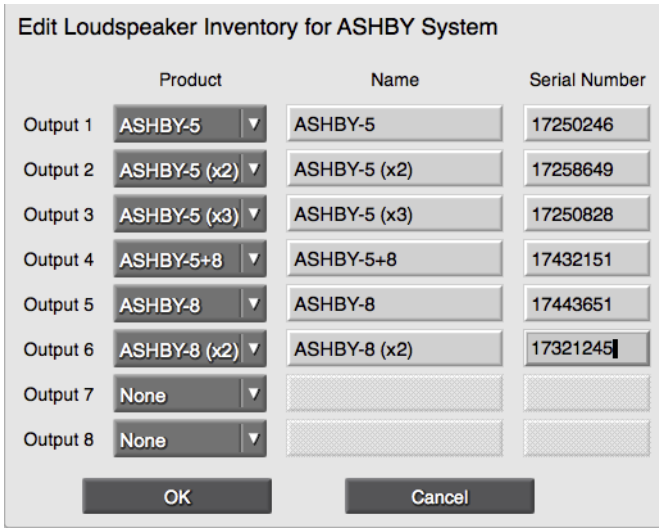


Figure 5: Edit Loudspeaker Inventory dialog in Compass

6. Enter a name and the number of loudspeakers looped on each channel.
7. Click **OK** to save and upload the MPS-488HP loudspeaker inventory.

   Once the MPS-488HP is added to an RMS page, the device container can display channel labels with simple device status or a full meter bar display along with a detailed text view showing voltage and current draw for the connected Ashby loudspeakers.

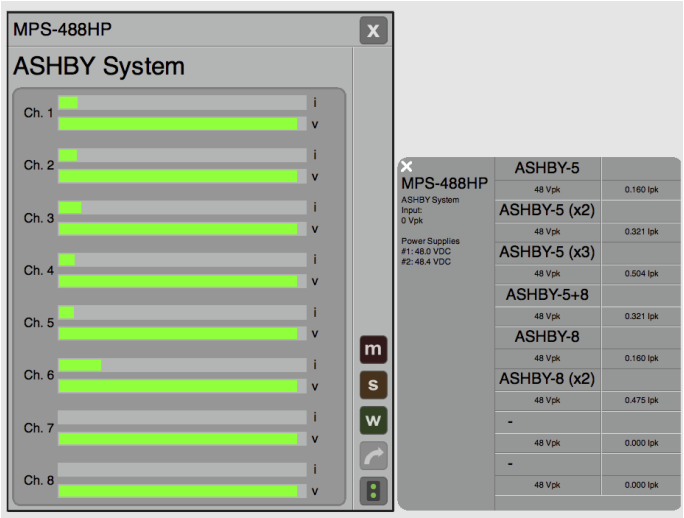


Figure 6: Voltage and current draw for connected loudspeakers in Compass

CAUTION: Disconnect the mains plug or power off the MPS-488HP before disconnecting its power cord.

INSTALLING ASHBY LOUDSPEAKERS

This chapter provides procedures to install Ashby loudspeakers into ceilings, pendants, and suspended ceilings.

MEYER SOUND ACCESSORIES

Meyer Sound provides several accessories to install Ashby loudspeakers.

Tile C-Ring and Bridge Kit

The Tile C-Ring distributes the clamping force of the loudspeaker mounting clamps and is highly recommended on brittle ceiling surfaces. It can be used with or without the bridges (see below).

Use the following part numbers to order Tile C-Ring kits:

Ashby-8C Tile C-Ring: PN 40.260.130.01

Ashby-5C Tile C-Ring: PN 40.261.130.01

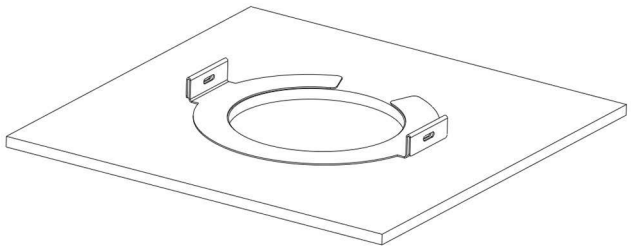


Figure 7: Using a C-ring to reinforce a brittle ceiling

The **Tile C-Ring with Bridge Kit** is used for suspended ceilings. The C-ring distributes the clamping force of the loudspeaker's four mounting clamps and the bridges support and distribute the weight of the loudspeaker.

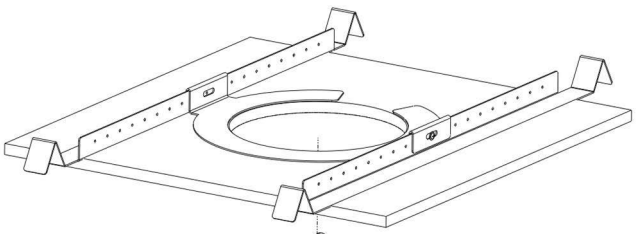


Figure 8: The C-Ring with Bridge Kit

Use the following part numbers to order C-Ring with Bridge Kits:

Ashby-8C Tile C-Ring with Bridge Kit: PN 40.260.131.01

Ashby-5C Tile C-Ring with Bridge Kit: PN 40.261.131.01

New Construction Bracket

This bracket can be fastened to the ceiling and acts as a template for ceiling cutout, ensuring a neat installation. The bracket fastens to the ceiling using #10 screws.

Use the following part numbers to order new construction bracket kits:

Ashby-8C New Construction Bracket: PN 40.260.140.01

Ashby-5C New Construction Bracket: PN 40.261.140.01

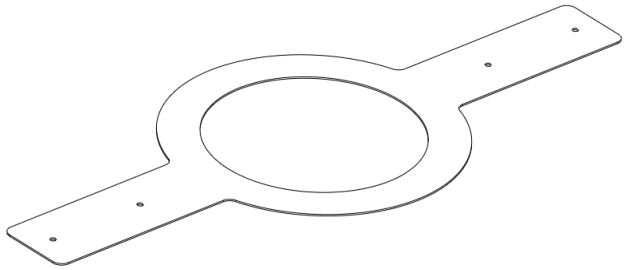


Figure 9: New construction bracket

Meyer Sound Pendant

The Meyer Sound pendant allows Ashby loudspeakers to hang from ceilings where a flush-mount is not practical. These elegant pendant enclosures utilize a minimalistic design typically used in pendant lighting to blend discreetly into the environment.

The pendant holds an Ashby loudspeaker inside without requiring extra hardware using the same grille as a ceiling mounted Ashby to maintain a consistent appearance.

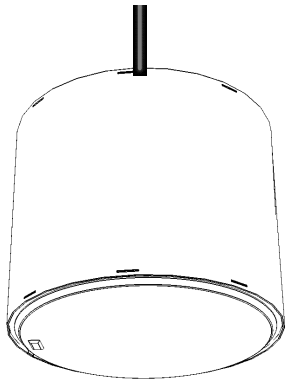


Figure 10: Ashby Pendant

The pendant includes a top cover to hide the back of the loudspeaker and wiring connectors making them perfect for installations where they may be viewed from above. The top cover includes:

- Holes with protection grommets for cables;
- A center hole for a threaded rod;
- Three tabs for steel wires (not included) for a single hang point. The tabs must be bent up before use.

The Ashby-5C and Ashby-8C have separate pendant models. See “” on page 21.

Use the following part numbers to order Ashby pendant kits:

Ashby-8C Pendant: PN 40.260.030.01

Ashby-5C Pendant: PN 40.261.030.01

WIRING THE LOUDSPEAKER

The loudspeaker provides a strain relief fitting for bare wires, 1/2-in flexible metal conduit, or 1/2-in 14 NPSM threaded conduit adapters.

For installations using bare wires or flexible conduit:

1. Prepare the wires.
2. For bare wires or conduit without a threaded conduit adapter, open the wiring cover, loosen the L-bracket screws, and remove the clamping screws.

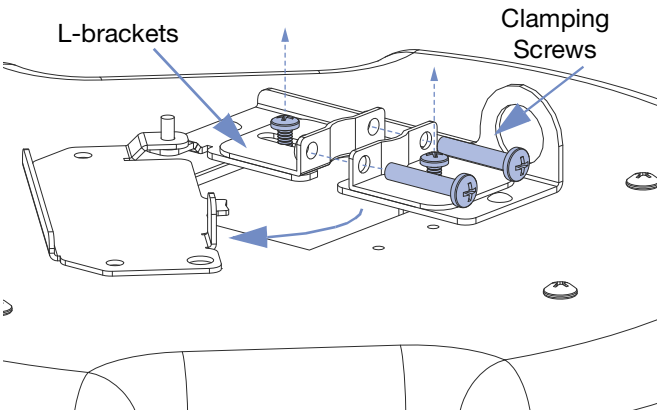


Figure 11: Removing clamping screws

3. Insert the cable or 1/2-in flexible metal conduit into the input or looping connector and feed the wires through the L-bracket opening.
4. Close and latch the wiring cover, and clamp the wire or conduit with the L-brackets. Tighten the L-bracket and clamping screws.

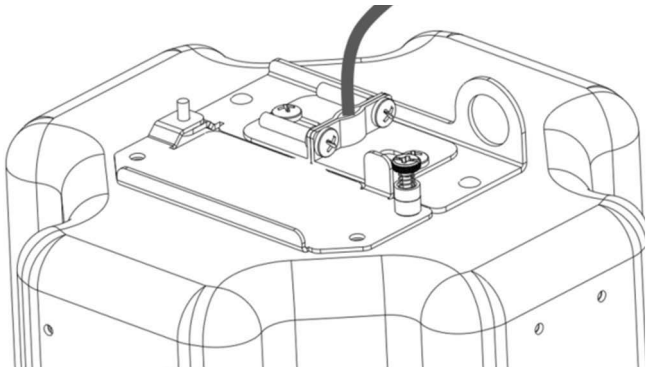


Figure 12: Clamping the wire

For installations using a threaded conduit adapter:

1. Open the wiring cover and completely remove the L bracket screws, L brackets, and clamping screws.
2. Install the threaded adapter, insert the conduit, and connect the wires.
3. Close and latch the wiring cover.

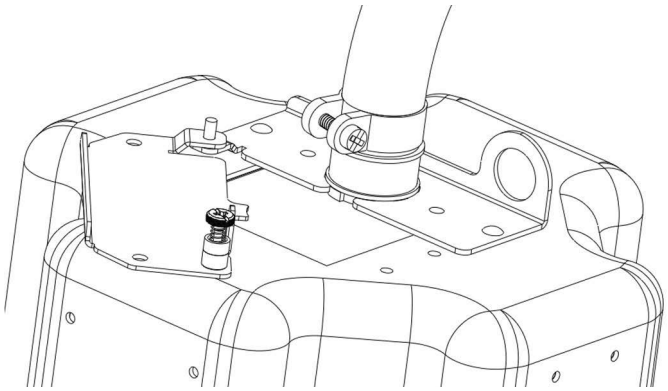


Figure 13: Clamping a conduit

INSTALLING INTO A STANDARD CEILING

1. Locate the desired position of the loudspeaker and mark its center on the ceiling.
2. Use the template provided with the loudspeaker to align the hole in the center of the template with the mark.
3. Trace the perimeter of the template with a pencil.
4. Cut along the traced circle on the ceiling and remove the cutout disc.

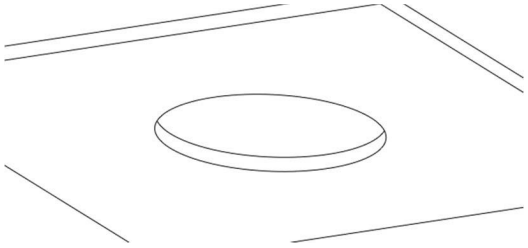


Figure 14: Cutting a hole in the ceiling with template provided

5. Install the loudspeaker into the ceiling and hold flush to the ceiling.

   Make sure the loudspeaker's clamps are flush with the loudspeaker to allow it to pass freely into the ceiling.

   NOTE: if desired or required, a safety lanyard can be attached to the loudspeaker with a carabiner before inserting the loudspeaker into the ceiling (see below).

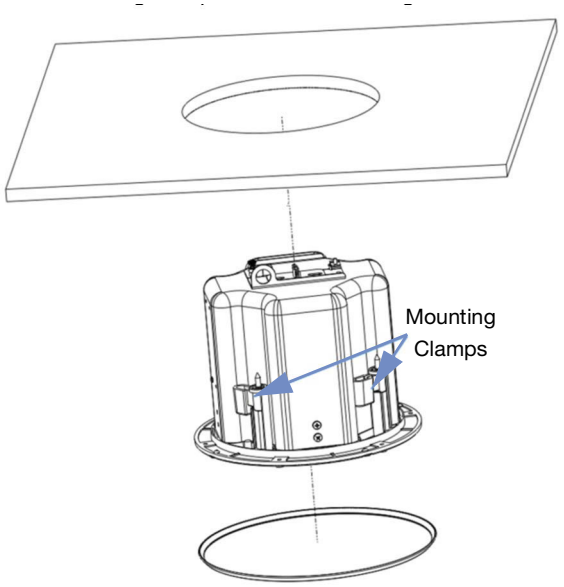


Figure 15: Inserting the loudspeaker into the ceiling

6. Use a #2 Phillips screwdriver to torque the four screws to hold the loudspeaker in place.

   CAUTION: Do not over tighten! If using a powered screwdriver, set the torque to 0.8 N-m (7 in-lbs). if the screwdriver torques out, slowly increment the torque setting until the mounting clamps begin to move.

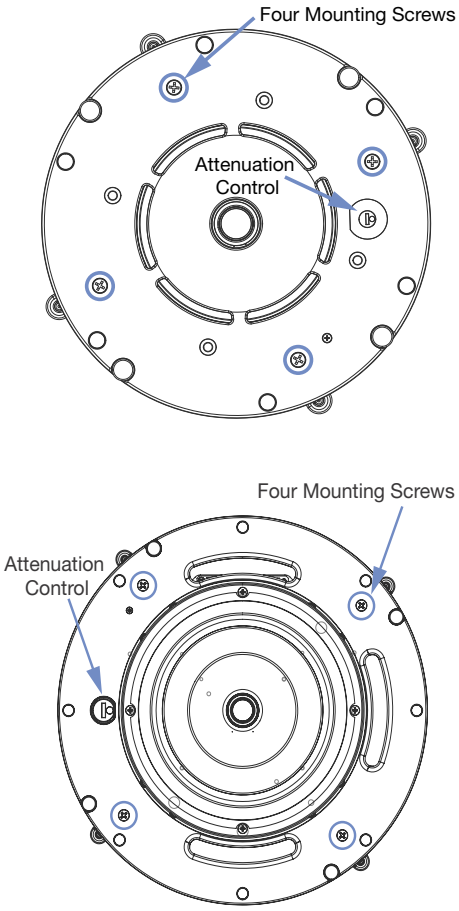


Figure 16: Ashby-5C (top) and Ashby-8C (bottom) loudspeaker mounting clamp screws and Attenuation Selector

7. Before placing the grille frame on the loudspeaker, choose an attenuation setting (if the loudspeaker has this feature).

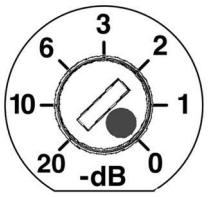


Figure 17: Attenuation Selector

8. Place the loudspeaker grille on the installed loudspeaker.

   Make sure to line up the grille with the magnets on the loudspeaker.

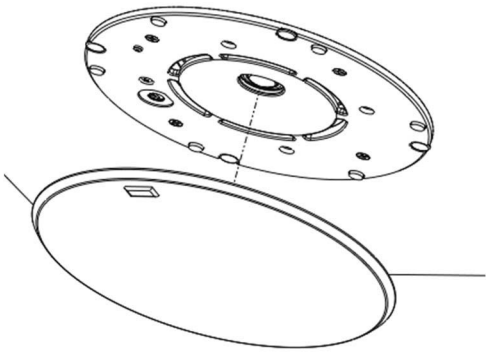


Figure 18: Placing the loudspeaker grille on the loudspeaker

INSTALLING INTO A SUSPENDED CEILING

1. Assemble the C-ring with tile bridge in the ceiling.
2. Slide the C-ring on the tile bridge until it is centered with the hole.

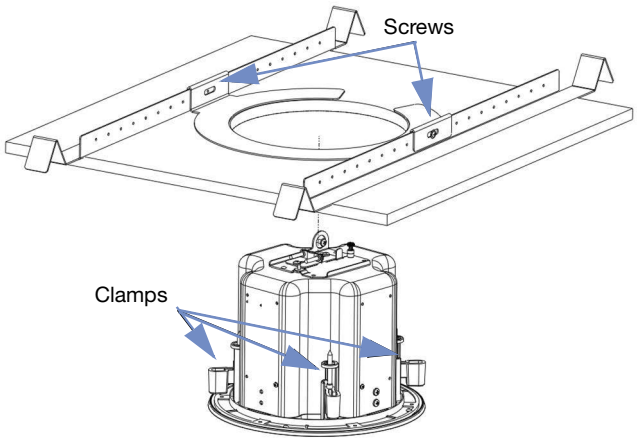


Figure 19: Installing the loudspeaker into the C-ring with Bridge Kit

3. Install washers and #6 sheet metal screws (included) into the C-ring and tighten into place.
4. Install the loudspeaker by tightening the screws on the bezel of the loudspeaker to clamp it to the C-ring (see Figure 16 on page 11 to locate the clamping screws).

NOTE: The tile bridge acts as a fail-safe in case the tile gets damaged, so it may not contact the railings.

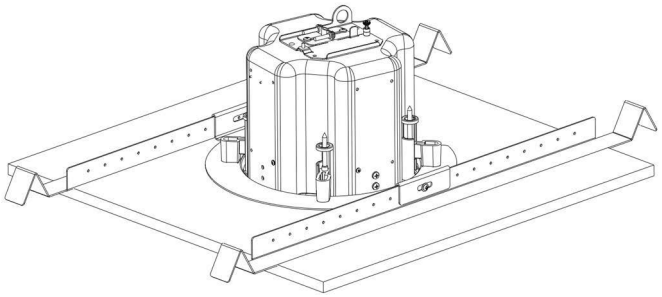


Figure 20: Installing the loudspeaker into a bridge in the ceiling

Safety Lanyard

Some construction codes require a secondary support system. Ashby loudspeakers have a built-in attachment point for a load-rated carabiner with lanyard (neither included) to safely support the weight of the loudspeaker.

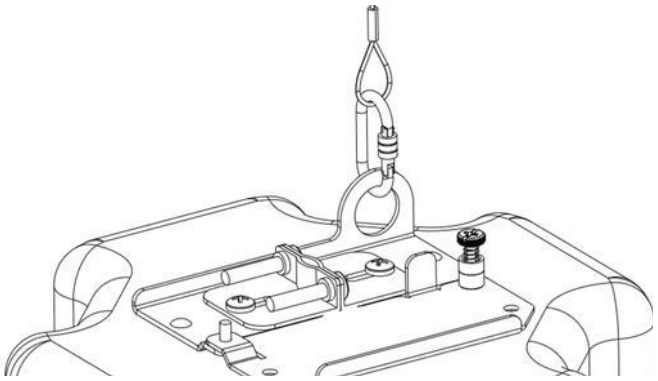


Figure 21: Attaching a safety lanyard for secondary support

INSTALLING INTO A HIGH CEILING WITH THE PENDANT

The pendant is designed to replicate flush-mounted ceiling installations, utilizing the four integrated clamps, and thus do not require extra hardware.

To install the loudspeaker in a pendant:

1. Remove the loudspeaker grille and make sure that the clamps are away from the front of the bezel and locked in the open position.
2. Attach the supplied lanyard using the supplied hardware onto the loudspeaker to act as a secondary support.

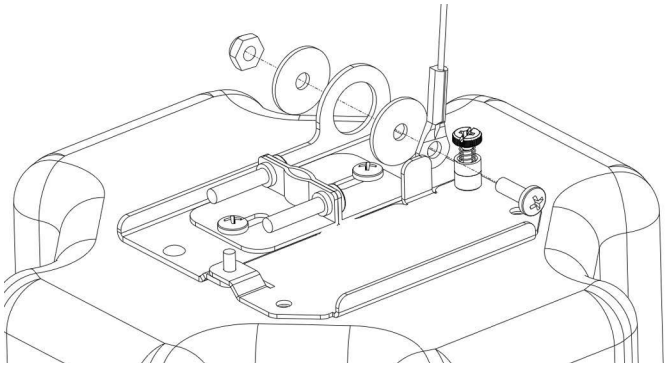


Figure 22: Attaching a safety lanyard

3. Insert wires through the grommets and attach them to the Ashby connector panel.

   See Appendix D, “” to see where these items are located.
4. Slide the lanyard through one of the holes.
5. Insert the Ashby loudspeaker inside the pendant and rotate the four Phillips head screws clockwise to engage the loudspeaker clamps to the pendant.

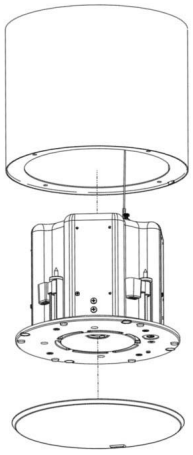


Figure 23: Installing an Ashby loudspeaker into a Meyer Sound pendant

6. Lock the loudspeaker securely into place by tightening the mounts until the loudspeaker is flat against the pendant.

   ⚠ **CAUTION:** Do not over tighten! If using a powered screwdriver, set the torque to 0.8 N-m (7 in-lbs). if the screwdriver torques out, slowly increment the torque setting until the mounting clamps begin to move.
7. Attach the lanyard to a secondary support point.
8. Before placing the grille frame, choose an attenuation setting, if the loudspeaker has this feature (see Figure 17).
9. Place the loudspeaker grille on the installed loudspeaker.

   Make sure to line up the grille with the magnets on the loudspeaker.

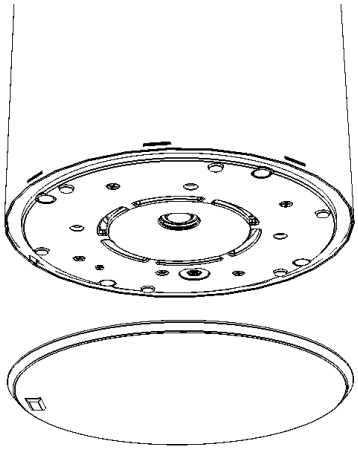


Figure 24: Fitting the grille frame onto an Ashby loudspeaker in a pendant

Equalization for Pendant Installation

Ashby-8C and Ashby-5C are optimized for ceiling mounting (infinite baffle) and require some filters to achieve flat response when mounted in a pendant or free-air. These filters simulate the infinite baffle effect of the ceiling.

The simplest solution is to use a minimum-phase U-Shaping filter found in GALAXY processors.The filter is a low frequency shelf with a 580 Hz breakpoint and 6 dB/octave slope. The gain is +6 dB for the Ashby-8C and +8 dB for the Ashby-5C.

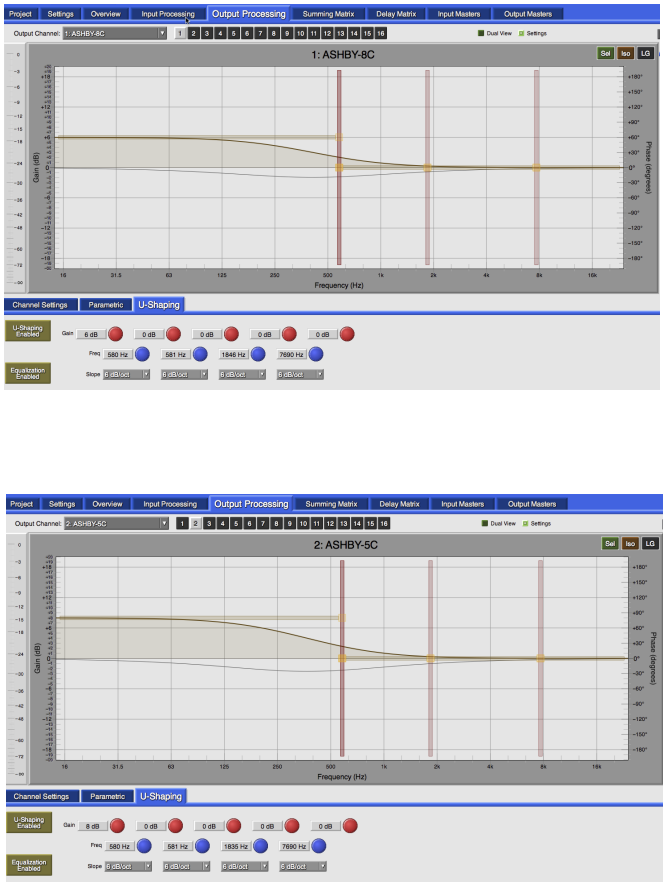


Figure 25: Filter settings Ashby-8C (top) and Ashby-5C (bottom)

ASHBY ACCESSORIES

The following Ashby accessories are available from Meyer Sound.

Ashby Accessories

Part Number	Accessory	Notes
40.260.030.01	Ashby-8C Pendant	
40.260.061.01	Ashby-8C Grille Frame Replacement (White)	
40.260.061.02	Ashby-8C Grille Frame Replacement (Black)	
40.260.130.01	Ashby-8C Tile C-Ring	
40.260.131.01	Ashby-8C Tile C-Ring with Bridge kit	
40.260.140.01	Ashby-8C New construction bracket	
40.261.030.01	Ashby-5C Pendant	
40.261.060.01	Ashby-5C Grille Frame Replacement (White)	
40.261.060.02	Ashby-5C Grille Frame Replacement (Black)	
40.261.130.01	Ashby-5C Tile C-Ring	
40.261.131.01	Ashby-5C Tile C-Ring with Bridge kit	
40.261.140.01	Ashby-5C New construction bracket	
484.065	Phoenix 5-pin female cable mount connector	Connects to MPS-488HPp channel output connectors and Ashby Input connectors
524.014	Bulk cable, no connectors (regular)	500-ft spool, black
524.015	Bulk cable, no connectors (plenum)	500-ft spool, white

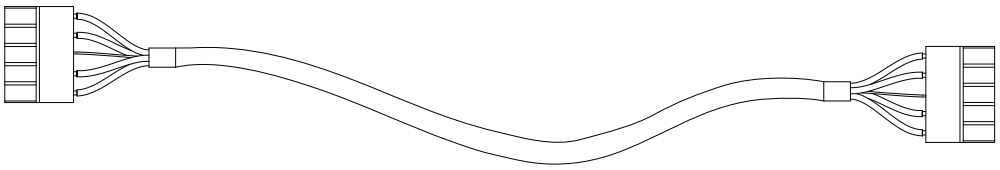
NOTE: Bulk cables use Belden 1502R (regular) or Belden 1502P (plenum) cable. Belden 1502 is a composite cable comprised of two 18 AWG wires for DC power, two 22 AWG wires for balanced audio, and one 24 AWG wire for audio shield. This single cable delivers DC power and balanced audio to loudspeakers at cable runs of up to 150 feet with only 1 dB of loss in peak SPL. Longer cable runs are possible using heavier gauges for DC power and separate cables for balanced audio. For more information, see “Using Separate Cables for DC Power and Audio” on page 5.

ASSEMBLING LOUDSPEAKER CABLES

⚠ **CAUTION:** When wiring loudspeaker cables, it is extremely important that each pin be wired correctly. Make sure that the 48 V DC from the external power supply is wired directly (and only) to the 48 V DC pins on the loudspeaker connector, and that the polarity is observed (negative to negative, positive to positive) to avoid damage to the loudspeaker. In addition, make sure that audio pins are wired correctly; polarity reversals for audio signals affect system performance.

ASSEMBLING PHOENIX-TO-PHOENIX LOUDSPEAKER CABLES

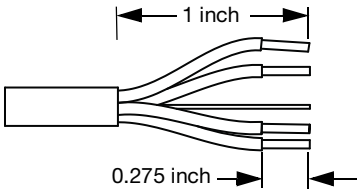
When connecting loudspeakers and power supplies equipped with Phoenix connectors, a Phoenix 5-pin female to Phoenix 5-pin female cable is required. The following procedure documents how to assemble this cable.



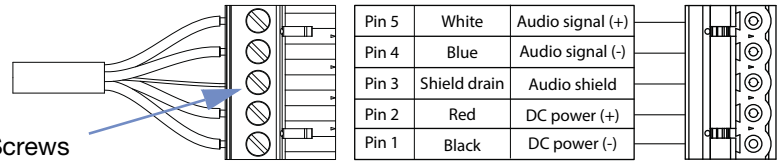
Assembled Phoenix-to-Phoenix Cable

To assemble a Phoenix-to-Phoenix cable:

1. If the cable has not yet been stripped, strip one end of the cable. Strip the outer shielding by 1 inch and then strip the black, red, blue, and white wires by 0.275 inch.



2. Insert the five exposed conductors into the five cable holes in a Phoenix 5-pin female cable mount connector. Use the following wiring scheme.



Pin 5	White	Audio signal (+)
Pin 4	Blue	Audio signal (-)
Pin 3	Shield drain	Audio shield
Pin 2	Red	DC power (+)
Pin 1	Black	DC power (-)

Pin Destinations for Phoenix 5-Pin Female Cable Mount Connector

3. Secure the conductors by tightening the five screws in the Phoenix cable mount connector. Screws should be torqued to 0.5–0.6 Nm (4.4–5.3 in-lbs).

⚠ **CAUTION:** Screws should not be tightened while the connector rests in a mating plug. Doing so will damage the contacts. During assembly, the Phoenix connector should only be held in place externally.

4. Repeat the previous steps and attach the other end of the cable to another Phoenix 5-pin female cable mount connector.
5. Verify the wiring polarity is correct for both cable ends.

ASHBY SPECIFICATIONS

ASHBY ACOUSTICAL, ELECTRICAL, AND PHYSICAL SPECIFICATIONS

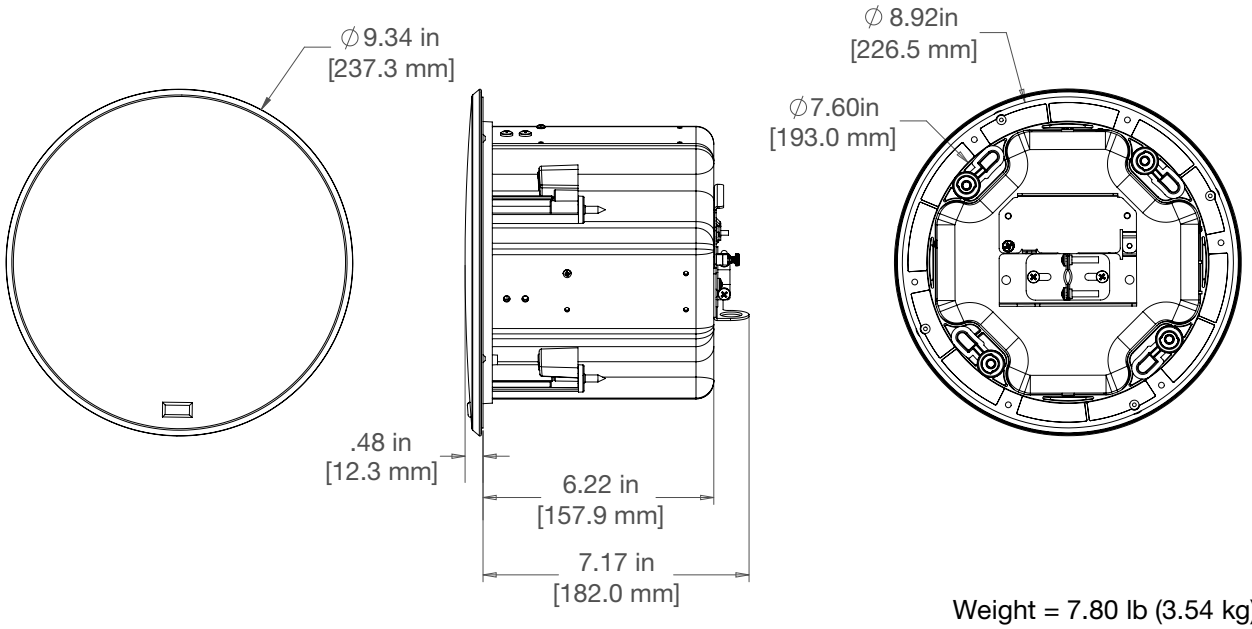
	ASHBY-5	ASHBY-8C
ACOUSTICAL		
Operating Frequency Range	100 Hz – 18 kHz	60 Hz – 18 kHz
	Note: Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.	
Frequency Response	110 Hz – 16 kHz ± 4 dB	67 Hz – 16 kHz ± 4 dB
	Note: Half-space loading, measured with 1/3 octave frequency resolution at 4 m.	
Phase Response	290 Hz – 16 kHz ± 45°	190 Hz – 16 kHz ± 45°
Linear Peak SPL	**112 dB with 19 dB crest factor (M-noise)**, 104.5 dB (Pink Noise), 107.5 dB (B-noise)	**114.0 dB with 19 dB crest factor (M-noise)** 106.5 dB (Pink Noise), 109 dB (B-noise)
	Note: Linear Peak SPL is measured in free-field at 4 m referred to 1 m. Loudspeaker SPL compression measured with M-noise at the onset of limiting, 2-hour duration, and 50-degree C ambient temperature is < 2 dB. **M-noise** is a full bandwidth (10 Hz–22.5 kHz) test signal developed by Meyer Sound to better measure the loudspeaker's music performance. It has a constant instantaneous peak level in octave bands, a crest factor that increases with frequency, and a full bandwidth Peak to RMS ratio of 18 dB. **Pink noise** is a full bandwidth test signal with Peak to RMS ratio of 12.5 dB. **B-noise** is a Meyer Sound test signal used to ensure measurements reflect system behavior when reproducing the most common input spectrum, and to verify there is still headroom over pink noise.	
COVERAGE		
	100° conical	
TRANSDUCERS		
Low Frequency	One 5-inch cone driver	One 8-inch cone driver
High Frequency	One 0.75-in tweeter mounted concentrically in waveguide in front of low frequency driver	
AUDIO INPUT		
Type	Differential, electronically balanced	
Connectors	Two 5-pin male Phoenix (one input and a hardwired loop output)	
Input Impedance	10 kΩ differential between Audio (+) and Audio (-)	
Wiring	Pin 1: DC Power (-) Pin 2: DC Power (+) Pin 3: Audio Shield, Chassis/earth Pin 4: Audio (-) Pin 5: Audio (+)	
Nominal Input Sensitivity	-2.5 dBV (0.25 V rms) continuous average is typically the onset of limiting for noise and music where pink noise has 12 dB peak-to-RMS ratio	
Input Level	Audio source must be capable of producing +16 dBV (6.3 V rms) into 600 Ω to produce maximum peak SPL over the operating bandwidth of the loudspeaker	

AMPLIFIER		
Type	High-efficiency, Class D	
Total Output Power	440 W peak **Note:** Peak power based on the maximum unclipped peak voltage the amplifier will produce into the nominal load impedance.	
THD, IM TIM	< 0.02%	
Cooling	Natural convection through metal enclosure	
DC POWER		
Connectors	Two Phoenix 5-pin male provide power and audio connection (see Wiring above)	
Safety Agency Rated Operating Voltage	48 V DC (Meyer Sound MPS-488HP or MPS-482HP Power Supply required) (NEC Class 2 Wiring approved) **Note**: Tolerates voltage drops up to 30 percent due to long cable runs. Normal operating conditions with recommended cable gauge, length, and number of loudspeakers assures peak SPL to remain within 2 dB of maximum SPL specification.	
Current Draw		
Idle Current	0.16 A average	0.16 A average
Maximum Long-Term Continuous Current (> 10 sec)	0.32 A average	0.78 A average
Maximum Instantaneous Peak Current	1.70 A peak	3.10 A peak
PHYSICAL		
LED	Displays loudspeaker status	
Outside Dimensions	8.92 in (226.5 mm) diameter; 7.17 in (182 mm) depth: front of ceiling surface to built-in safety attachment ring	12.64 in (321.0 mm) diameter; 8.87 in (225.3 mm) depth: front of ceiling surface to built-in safety attachment ring
Cutout Diameter Range	7.70 – 7.95 in (195.5 – 201.9 mm)	11.42 – 11.83 in (290.0 – 300.4 mm)
Weight	7.8 lb (3.53 kg)	13.8 lb (6.26 kg)
Enclosure	Zinc-plated steel-back can and UL 94 V-0 rated baffle	
Grille	Perforated steel 9.34 in (237.3 mm) in diameter	Perforated steel 12.97 in (329.2 mm) in diameter
Mounting Options	C-Ring with bridge kit, new construction bracket, and pendant mount	
COMPLIANCE		
Safety Agency Certification	Standard for audio, video and similar electronic apparatus: • UL 60065, CSA C22.2 NO. 60065-03 (AMD 2), IEC 60065, IEC 62368-1 • Fire Rated to UL Standard 2043, Product and Accessories Installed in Air-Handling Spaces	
EMC Certification	CE and FCC Part 15 Emission Class B emission limits applied.	

MAXIMUM CABLE LENGTH (FEET)				
Number of Speakers	12 AWG	14 AWG	16 AWG	18 AWG
1 Ashby-5C	1800	1125	700	450
2 Ashby-5C	900	550	350	225
3 Ashby-5C	600	375	237	150
1 Ashby-8C	1200	750	475	300
2 Ashby-8C	600	375	237	150
1 Ashby-8C and 1 Ashby-5C looped	600	375	237	150
	Note: Some high frequency loss can occur from long analog audio cables. For lengths greater than 500 ft (indicated by the gray background in the maximum cable length tables), Meyer Sound recommends using low capacitance shielded audio cable or AES Digital audio cable. Discuss expected high frequency loss with the cable manufacturer to determine acceptability.			
MAXIMUM CABLE LENGTH (METERS)				
Number of Speakers	2.5 mm^2	1.5 mm^2	1.0 mm^2	0.75 mm^2
1 Ashby-5C	480	260	135	80
2 Ashby-5C	240	130	70	40
3 Ashby-5C	160	87	45	27
1 Ashby-8C	320	175	90	55
2 Ashby-8C	160	87	45	27
1 Ashby-8C and 1 Ashby-5C looped	160	87	45	27
	Note: Some high frequency loss can occur from long analog audio cables. For lengths greater than 150 m (indicated by the gray background in the maximum cable length tables), Meyer Sound recommends using low capacitance shielded audio cable or AES Digital audio cable. Discuss expected high frequency loss with the cable manufacturer to determine acceptability.			

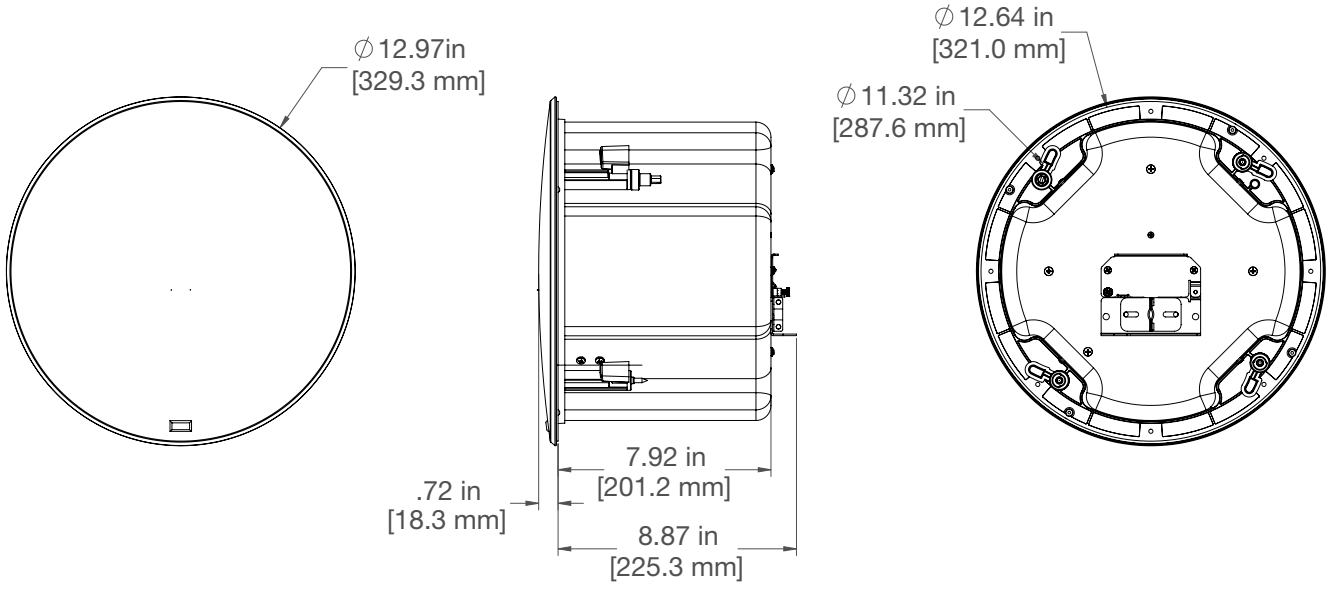
ASHBY LOUDSPEAKER DIMENSIONS

ASHBY-5C



Weight = 7.80 lb (3.54 kg)

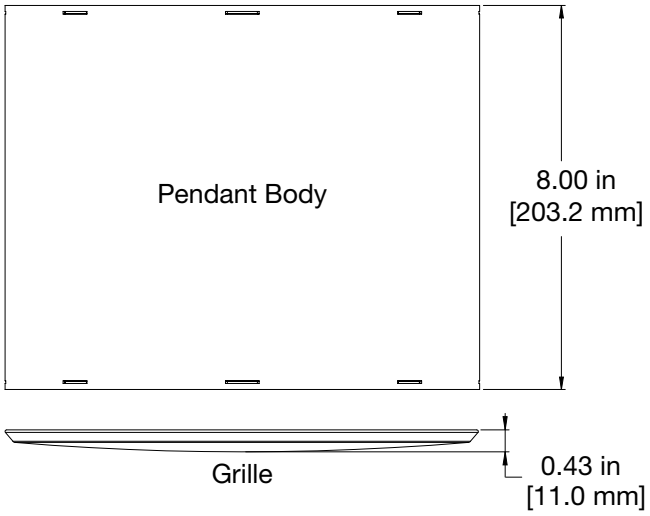
ASHBY-8C

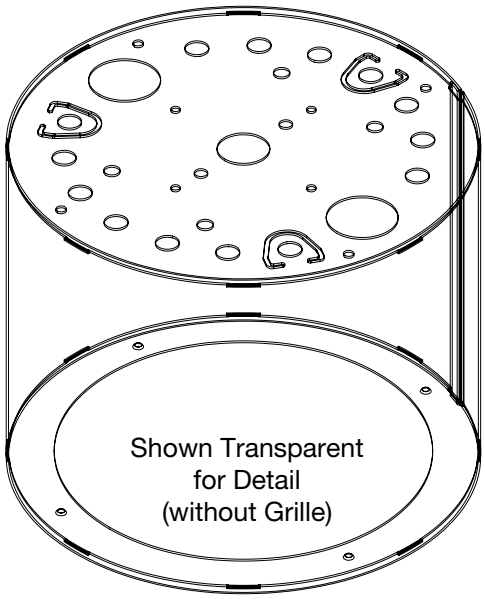


Weight = 13.80 lb (6.26 kg)

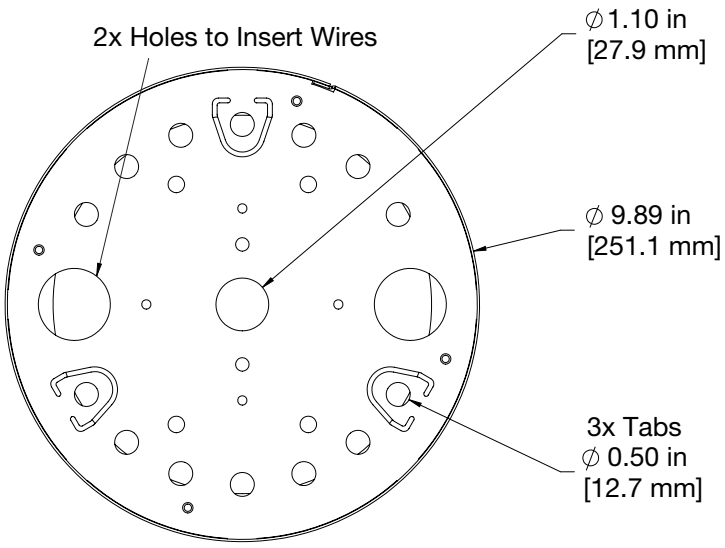
ASHBY PENDANT DIMENSIONS

ASHBY-5C

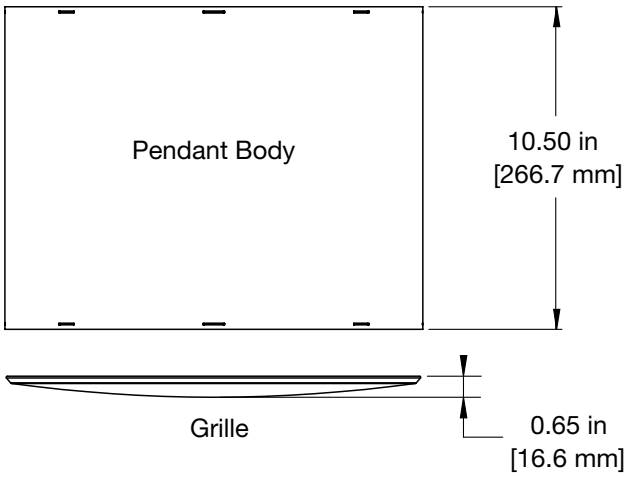


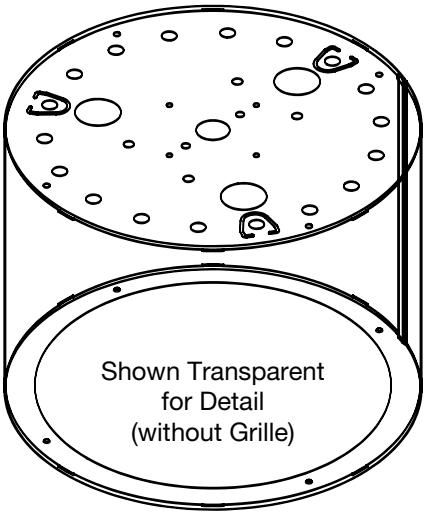


Weight = 4.5 lb [2.04 kg]

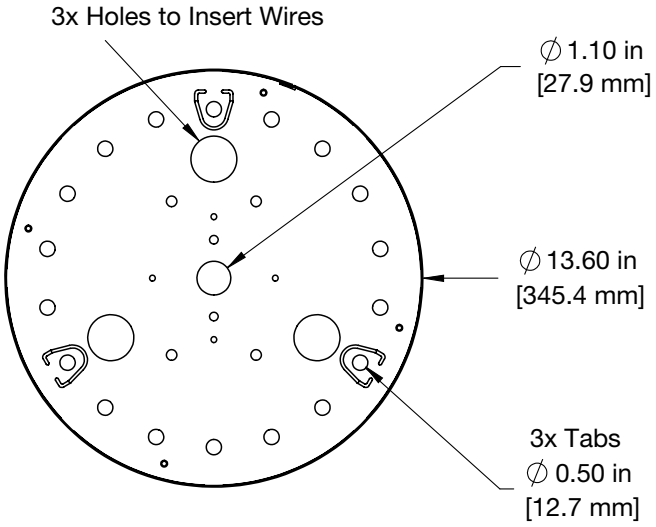


ASHBY-8C





Weight = 8.0 lb [3.63 kg]



Meyer Sound Laboratories, Incorporated
2832 San Pablo Avenue
Berkeley, CA 94702
+1 510 486.1166
www.meyersound.com

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