

HMS-15AC Cinema Surround Loudspeaker



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HMS-15AC Operating Instructions, PN 05.242.005.01 A2

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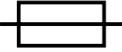
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IMPORTANT SAFETY INSTRUCTIONS

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
Gefährliche Spannungen: Stromschlaggefahr	Hinweis auf wichtige Punkte der Betriebsanleitung	Austauschbare Sicherung	Schutzerde	Heiße Oberfläche: nicht berühren
Pour indiquer les risques résultant de tensions dangereuses	Instructions d'utilisation importantes	Fusible remplaçable	Terre de protection	Surface chaude: ne pas toucher
Para indicar voltajes peligrosos	Instrucciones importantes de funcionamiento y/o Mantenimiento	Fusible reemplazable	Toma de tierra de protección	Superficie caliente: no tocar

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:** 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, Neutraleiter, 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.

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CHAPTER 1: INTRODUCTION

HOW TO USE THIS MANUAL

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

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



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



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



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

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

Meyer Sound Technical Support is available at:

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

HMS-15AC CINEMA SURROUND LOUDSPEAKER

The HMS-15AC cinema surround loudspeaker is optimized for use in cinemas, high-end private theaters, screening rooms, and other surround applications. Designed to complement Meyer Sound's Acheron™ screen channel loudspeakers, the self-powered HMS-15AC maintains a wide dynamic range, exceptional fidelity, and precise clarity during the most demanding of digital soundtracks. Boasting a wide frequency range and a generous linear peak SPL with very low distortion, the HMS-15AC delivers the full intensity and nuance of cinema surround channels to every listener without compromise.

The HMS cinema surround loudspeaker is available in five models: HMS-5, HMS-10, HMS-12, HMS-15, and HMS-15AC, ranging in size, weight, driver size, and power to accommodate a wide range of venues and applications. The proprietary long-excursion cone drivers and diaphragm compression drivers are driven by an onboard amplifier that includes an active crossover, driver protection circuitry, and correction filters for flat phase and frequency response. A constant-directivity horn provides uniform, full-range, consistent coverage.

These operating instructions are exclusively for the HMS-15AC, an AC-powered version of the HMS-15. For the other versions, which are all equipped with IntelligentDC technology, please see PN 05.198.005.01, available at meyersound.com/documents.

HMS-15AC HIGH-POWER CINEMA SURROUND LOUDSPEAKER

The HMS-15AC Intelligent AC™ power supply provides automatic voltage selection, EMI filtering, soft current turn-on, and surge suppression. It is optionally available with its own onboard RMS remote monitoring system module for comprehensive monitoring of loudspeaker parameters from a Mac® or Windows®-based computer.

The versatile HMS-15AC can be suspended or mounted on walls or ceilings at fixed or adjustable angles with the optional yoke, U-bracket or wall-mount brackets, allowing it to be deployed per the requirements of any surround application or immersive cinema format.

Meyer Sound's industry-leading self-powered technology not only delivers unparalleled and consistent audio fidelity but also simplifies installation, whether designing new rooms from scratch or adding surround channels to existing installations.

The HMS-15AC cabinet features a slightly textured black finish and an acoustically transparent, detachable, black cloth grille that blend smartly with any theater decor.

The HMS-15AC high-power cinema loudspeaker includes one 15-inch low-frequency, long-excursion cone driver, and one 3-inch diaphragm high-frequency compression driver on a symmetrical, constant-directivity 80° horizontal by 50° vertical horn. The loudspeaker is powered by a two-channel amplifier with an active crossover. The cabinet is constructed of premium multi-ply birch and includes 5.00 inch x 2.75 inch (127 mm x 70 mm) rear attachment points and side attachment points with 3/8-inch-16 threads for optional mounting hardware.



HMS-15AC High-Power Cinema Surround Loudspeaker (with Grille)

CHAPTER 2: HMS-15AC POWER REQUIREMENTS

The HMS-15AC loudspeaker combines advanced loudspeaker technology with equally advanced power capabilities. Understanding power distribution, voltage and current requirements, and electrical safety guidelines is critical for the safe operation of the HMS-15AC.

AC POWER DISTRIBUTION

All components in an audio system (self-powered loudspeakers, mixing consoles, and processors) must be properly connected to an AC power distribution system, ensuring that AC line polarity is preserved and that all grounding points are connected to a single node or common point using the same cable gauge (or larger) as the neutral and line cables.

CAUTION: Make sure the voltage received by the HMS-15AC loudspeaker remains within its 90–264 V AC operating range. In addition, the ground line must always be used for safety reasons and the line-to-ground voltage should never exceed 250 V AC (typically 120 V AC from line to ground).

CAUTION: Before applying AC power to any Meyer Sound self-powered loudspeaker, make sure that the voltage potential difference between the neutral and earth-ground lines is less than 5 V AC when using single-phase AC wiring.

NOTE: Improper grounding of connections between loudspeakers and the rest of the audio system may produce noise or hum, or cause serious damage to the input and output stages of the system's electronic components.

120 V AC, 3-Phase Wye System (Single Line)

Line-Neutral-Earth/Ground

Figure 1 illustrates a basic 120 V AC, 3-phase Wye distribution system with the loudspeaker load distributed across all three phases, with each loudspeaker connected

to a single line and common neutral and earth/ground lines. This system delivers 120 V AC to each loudspeaker.

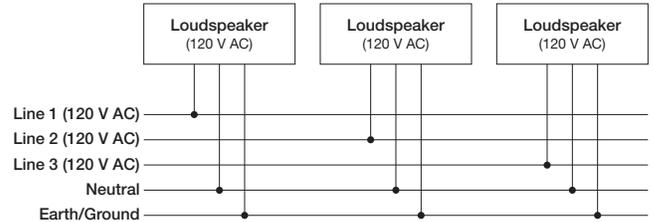


Figure 1: 120 V AC, 3-Phase Wye System (Single Line to Loudspeakers)

120 V AC, 3-Phase Wye System (Two Lines)

Line-Line-Earth/Ground

Figure 2 illustrates a 120 V AC, 3-phase Wye distribution system with each loudspeaker connected to two lines and a common earth/ground line. This configuration is possible because HMS-15AC tolerates elevated voltages from the ground line and does not require a neutral line. This system delivers 208 V AC to each loudspeaker.

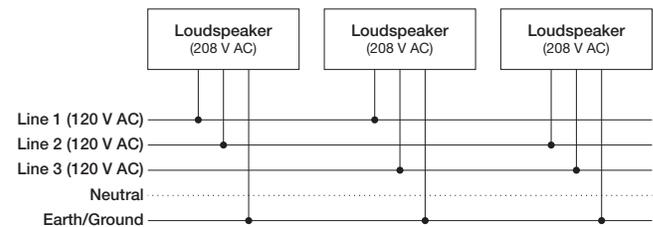


Figure 2: 120 V AC, 3-Phase Wye System (Two Lines to Loudspeakers)

TIP: The 120 V AC, 3-phase Wye system with two lines is recommended because it allows loudspeakers to draw less current than with single-line systems, thereby reducing voltage drop due to cable resistance. It also excludes the potential of varying ground to neutral voltages producing an audible hum.

230 V AC, 3-Phase Wye System (Single Line)

Line-Neutral-Earth/Ground

Figure 3 illustrates a basic 230 V AC, 3-phase Wye distribution system with the loudspeaker load distributed across all three phases, with each loudspeaker connected

to a single line and common neutral and earth/ground lines. This system delivers 230 V AC to each loudspeaker.

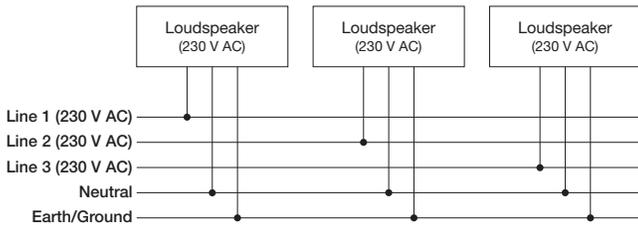


Figure 3: 230 V AC, 3-Phase Wye System (Single Line to Loudspeakers)

CAUTION: For 230 V AC, 3-phase Wye systems, never connect two lines to the AC input of HMS-15AC, as the resulting voltage would exceed the upper voltage limit (275 V AC) and will damage the loudspeaker.

AC CONNECTORS

The HMS-15AC user panel includes two powerCON 20 connectors (Figure 4), one for AC Input (blue) and one for AC Loop Output (gray).

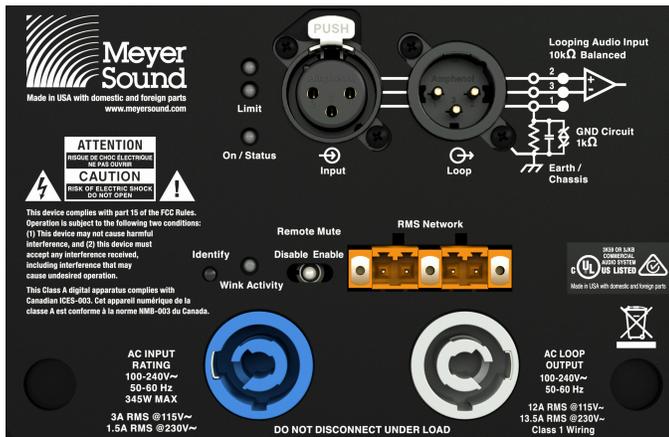


Figure 4: HMS-15AC User Panel (with RMS option)

AC Input (Blue)

The blue AC Input connector supplies power to the HMS-15AC. The 3-conductor powerCON 20 is rated at 20 A and uses a locking connector that prevents accidental disconnections. A 10-foot AC power cable, rated at 15 A, is included with each loudspeaker. If the included AC power cable is replaced, make sure to use a cable with the appropriate power plug (on the other end) for the region where the unit will be operated. HMS-15AC requires a

grounded outlet. To operate safely and effectively, it is extremely important that the entire system be properly grounded.

The AC Input connector also supplies power to any additional loudspeakers connected to the loudspeaker's gray Loop Output connector.

CAUTION: When looping AC power for loudspeakers, do not exceed the current capability of the AC Input connector (20 A) or the included AC power cable (15 A). Consider the total current draw for all loudspeakers on the circuit, including the first loudspeaker (Table 1).

AC Loop Output (Gray)

The gray AC Loop Output connector allows multiple HMS-15AC to be looped and powered from a single power source. The 3-conductor powerCON 20 is rated at 20 A and uses a locking connector that prevents accidental disconnections. For applications that require multiple HMS-15AC, connect the AC Loop Output of the first loudspeaker to the AC Input of the second loudspeaker, and so forth.

The maximum number of loudspeakers that can be looped from the AC Loop Output connector is determined by the voltage of the power source, the current draw of the looped loudspeakers, the circuit breaker rating, and the rating of the AC power cable connected to the first HMS-15AC loudspeaker (Table 1).

Table 1: Maximum HMS-15ACs that Can Be Looped with AC Power

Circuit Breaker/ Connector Rating	115 V AC	230 V AC	100 V AC
15 A	9 looped (10 total)	18 looped (19 total)	8 looped (9 total)
20 A	12 looped (13 total)	24 looped (25 total)	11 looped (12 total)

NOTE: Current draw for HMS-15AC is dynamic and fluctuates as operating levels change. The indicated number of loudspeakers that can be looped assumes that operating levels are normal and not such that loudspeakers are constantly limiting.

HMS-15AC ships with a gray powerCON 20 cable mount connector, rated at 20 A, for assembling AC looping cables. Assembled 1-meter AC looping cables (PN 28.115.032.03) are also available from Meyer Sound.

WIRING AC POWER CABLES

HMS-15AC ships with a gray powerCON 20 cable mount connector, rated at 20 A, for assembling AC looping cables (Figure 5). The pins on the powerCON 20 cable mount connector are labeled as follows:

- L (Line)
- N (Neutral)
- PE (Protective Earth or Ground)

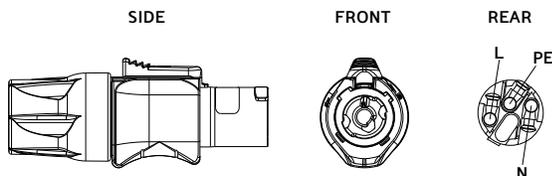


Figure 5: powerCON 20 Cable Mount Connector

How AC power cables are wired is determined by the type of AC power distribution system used (see “AC Power Distribution” on page 3). When wiring AC power cables for single-line systems, use one of the wiring schemes shown in Figure 6 and described in Table 2:

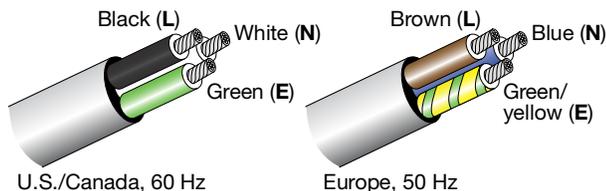


Figure 6: AC Wiring Scheme

Table 2: AC Wiring Scheme

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

CAUTION: When wiring AC power cables and distribution systems, it is important to preserve AC line polarity and connect the earth ground at both ends of the cable. HMS-15AC requires a grounded connection. Always use a grounded outlet and plug. It is extremely important that the system be properly grounded to operate safely and properly. Do not ground-lift the AC cable.

VOLTAGE REQUIREMENTS

HMS-15AC operates as intended when receiving AC voltage within the following range:

- 90–264 V AC, 50–60 Hz

If the voltage drops below 90 V, the loudspeaker uses stored power to continue operating temporarily; the loudspeaker powers off if the voltage does not return to its operating range.

If the voltage rises above 275 V, the power supply could become damaged.

CAUTION: The power source for HMS-15AC should always operate within the required operating range, at least a few volts from the upper and lower limits. This approach ensures that AC voltage variations from the service entry—or peak voltage drops due to cable runs—will not cause the loudspeaker’s amplifier to cycle on and off or cause damage to the power supply.

CURRENT REQUIREMENTS

Current draw for loudspeakers is dynamic and fluctuates as operating levels change. Because different cables and circuit breakers heat up at varying rates, it is important to understand the following types of current ratings and how they affect circuit breaker and cable specifications.

- **Idle Current** — The maximum rms current during idle periods.
- **Maximum Long-Term Continuous Current** — The maximum rms current during a period of at least 10 seconds. The maximum long-term continuous current is used to calculate temperature increases for cables and to ensure that the size and gauge of each cable conforms to electrical code standards. This current rating is also used to select appropriately rated, slow-reacting thermal breakers, which are recommended for loudspeaker power distribution. In addition, the maximum long-term continuous current can be used to calculate the AC looping capability for HMS-15AC loudspeakers.
- **Burst Current** — The maximum rms current during a period of around 1 second. The burst current is used as a rating for magnetic breakers. It is also used for calculating the peak voltage drop in long AC cable runs according to the following formula:

$V_{pk}(\text{drop}) = I_{pk} \times R$ (cable total)

- **Maximum Instantaneous Peak Current** — A rating for fast-reacting magnetic breakers.

Use the information in Table 3 to select the appropriate cable gauge and circuit breaker ratings for the system's operating voltage.

Table 3: HMS-15AC Current Draw

Current Draw	115 V AC	230 V AC	100 V AC
Idle	0.23 A rms	0.22 A rms	0.25 A rms
Maximum Long-Term Continuous	1.3 A rms	0.7 A rms	1.5 A rms
Burst	2.9 A rms	1.5 A rms	3.1 A rms
Maximum Instantaneous Peak	7.0 A peak	3.8 A peak	7.7 A peak

The minimum electrical service amperage required by a loudspeaker system is the sum of the maximum long-term continuous current for all loudspeakers. An additional 30 percent above the combined Maximum Long-Term Continuous amperages is recommended to prevent peak voltage drops at the service entry.



NOTE: For best performance, the AC cable voltage drop should not exceed 10 V (10 percent at 115 V and 5 percent at 230 V).

This approach ensures that the AC voltage variations from the service entry—or peak voltage drops due to longer cable runs—do not cause the amplifier to cycle on and off.

INTELLIGENT AC POWER SUPPLY

HMS-15AC's Intelligent AC™ power supply automatically selects the correct operating voltage (allowing the loudspeaker to be used internationally without manually setting voltage switches), eliminates high inrush currents with soft-start power up, suppresses high-voltage transients up to several kilovolts, filters common mode and differential mode radio frequencies (EMI), and sustains operation temporarily during low-voltage periods.

Powering on HMS-15AC

When powering on HMS-15AC, the following startup events take place over several seconds.

1. Audio output is muted.
2. Voltage is detected and the power supply mode is automatically adjusted as necessary.
3. The power supply ramps up.
4. On the user panel, the On/Status LED flashes multiple colors successively.
5. The Active/Status LED turns solid green, indicating the loudspeaker is unmuted and ready to output audio.

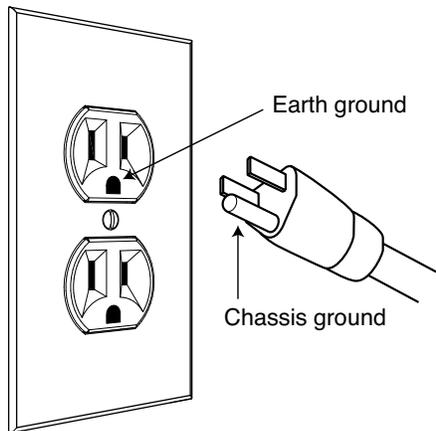


CAUTION: If the Active/Status LED does not turn solid green, or the HMS-15AC does not output audio after 10 seconds, remove AC power immediately and verify that the voltage is within the required range. If the problem persists, contact Meyer Sound Technical Support.

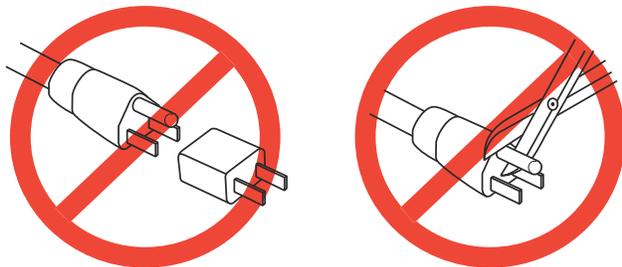
ELECTRICAL SAFETY GUIDELINES

Make sure to observe the following important electrical and safety guidelines.

- The powerCON 20 connector should not be engaged or disengaged when under load or energized. Either de-energize or disconnect the other end of the cable.
- HMS-15AC requires a grounded outlet. Always use a grounded outlet and plug.



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



- Do not exceed the current capability of the 20 A AC Input connector for the loudspeaker. When looping loudspeakers, consider the total current draw for all loudspeakers on the circuit, including the first loudspeaker.
- Make sure the AC power cable for the loudspeaker has the appropriate power plug (on the other end) for the area in which you will operate the loudspeaker. In addition, the AC power cable must be rated for the total current draw of all loudspeakers looped from the power source.
- Do not operate the unit if the power cable is frayed or broken.
- Keep all liquids away from HMS-15AC loudspeakers to avoid hazards from electrical shock.

CHAPTER 3: AMPLIFICATION AND AUDIO

HMS-15AC's drivers are powered by an efficient onboard two-channel amplifier that uses minimal AC power when idle. Internal signal processing includes a crossover, frequency and phase correction, and limiters that prevent driver overexcursion and regulate voice coil temperatures, ensuring maximum driver lifespan.

AUDIO CONNECTORS

HMS-15AC includes 3-pin XLR audio connectors for Input and Loop Output.



Figure 7: Audio Input and Loop Output Connectors

Audio Input Connector

The female XLR Input connector accepts a balanced audio signal with an input impedance of 10 kOhm. The connector uses the following wiring:

- **Pin 1** — 220 kOhm to chassis and earth ground (ESD clamped)
- **Pin 2** — Signal (+)
- **Pin 3** — Signal (-)
- **Case** — Earth (AC) ground and chassis

Pins 2 and 3 carry the input as a differential signal. Pin 1 is connected to earth through a 220 kOhm, 1000 pF, 15 V clamped network. This circuitry provides virtual ground lift for audio frequencies while allowing unwanted signals to bleed to ground. Make sure to use standard, balanced XLR audio cables with all three pins connected on both ends. Telescopic grounding is not recommended, and shorting an input connector pin to the case may cause a ground loop, resulting in hum.

 **CAUTION:** Make sure that audio cables for HMS-15AC loudspeakers in an array are wired correctly (Pin 1 to Pin 1, Pin 2 to Pin 2, and so forth)

to prevent the polarity from being reversed. If one or more loudspeakers in an array have reversed polarity, frequency response and coverage can be significantly degraded.

 **TIP:** If unwanted noise or hiss is produced by the loudspeaker, disconnect its input cable. If the noise stops, there is most likely nothing wrong with the loudspeaker. To locate the source of the noise, check the audio cable, source audio, and AC power.

Audio Loop Output Connector

The male XLR Loop connector allows multiple HMS-15AC loudspeakers to be looped from a single audio source. Connect the Loop Output of the first loudspeaker to the Input of the second, and so forth. The Loop Output connector is wired in parallel to the Input connector and transmits the unbuffered source signal even when the loudspeaker is powered off.

To avoid distortion when looping multiple HMS-15AC loudspeakers, make sure the source device can drive the total load impedance of the looped loudspeakers. In addition, the source device must be capable of delivering 20 dBV (10 V rms into 600 ohms) to yield the maximum peak SPL over the operating bandwidth of the loudspeaker.

To calculate the load impedance for the looped loudspeakers, divide 10 kOhms (the input impedance for a single HMS-15AC) by the number of looped loudspeakers. For example, the load impedance for 10 HMS-15AC loudspeakers is 1000 ohms (10 kOhms / 10). To drive this number of looped loudspeakers, the source device should have an output impedance of 100 ohms or less. This same rule applies when looping HMS-15AC loudspeakers with other self-powered Meyer Sound loudspeakers and subwoofers.

 **NOTE:** Most source devices are capable of driving loads no smaller than 10 times their output impedance.

 **TIP:** Meyer Sound's Galileo® GALAXY Network Platform is highly recommended for driving systems with multiple loudspeakers. In addition to maintaining signal integrity for long cable paths, GALAXY processors offer independent inputs and outputs and presets for optimizing HMS-15AC array performance and subsystem integration.

LIMITING

When source levels for HMS-15AC exceed optimum input levels for its drivers, limiting is engaged and is indicated by the two Limit LEDs on the user panel. The bottom LED indicates limiting for the low-frequency channel. The top LED indicates limiting for the high-frequency channel. When engaged, limiting not only protects the drivers, but also prevents signal peaks from causing excessive distortion in the amplifier's channels, thereby preserving headroom and maintaining smooth frequency responses at high levels. When source levels return to normal, below the limiter's threshold, limiting ceases.

HMS-15AC performs within its acoustical specifications at normal temperatures when the Limit LEDs are unlit, or if the LEDs are lit for two seconds or less and then turn off for at least one second. If an LED remains lit for longer than three seconds, the loudspeaker enters hard limiting where:

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

 **CAUTION:** The Limit LEDs indicate when a safe, optimum level is exceeded. If an HMS-15AC loudspeaker begins to limit before reaching the required SPL, consider adding more loudspeakers to the system.

ON/STATUS LED

During normal operation, when HMS-15AC is powered on, the On/Status LED is solid green. If the loudspeaker encounters a hardware fault, or the unit begins to overheat, the LED flashes red. In some instances, the loudspeaker will continue to output audio while the LED flashes red, though with a reduction in the limiter threshold and acoustic output to protect the loudspeaker.

If a loudspeaker is overheating (for RMS-equipped loudspeakers, this situation can be verified in Compass RMS), a reduction in SPL may be necessary. If after a reduction in SPL and an appropriate cooling period the On/Status LED continues to flash red (does not return to solid green), contact Meyer Sound Technical Support.

If the On/Status LED flashes red and the loudspeaker does not output audio, contact Meyer Sound Technical Support immediately.

 **CAUTION:** If an HMS-15AC loudspeaker system consistently overheats before reaching the desired SPL, consider adding more units to the system.

 **NOTE:** During startup, the On/Status LED flashes multiple colors successively. For more information about the power on sequence, see "Intelligent AC Power Supply" on page 6.

 **TIP:** When HMS-15AC is connected to an RMS network, the RMS software provides additional feedback on the loudspeaker's operating temperature. For more information, see "RMS Remote Monitoring System" on page 19.

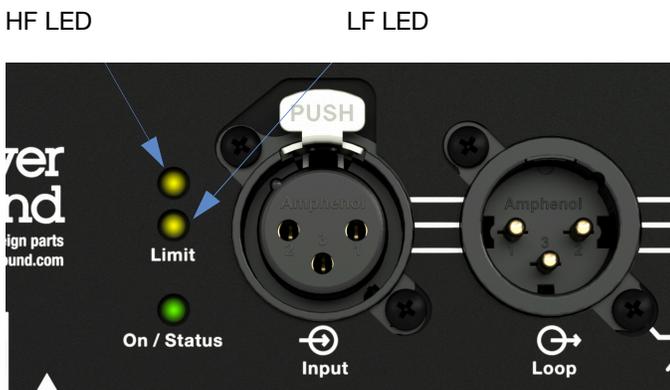


Figure 8: Limit and On/Status LEDs

Amplifier Cooling System

HMS-15AC's amplifier relies solely on natural convection for cooling from air flowing over its heat sink. The efficient design of the amplifier and heat sink profile keeps temperatures low, even when the unit is used at high ambient temperatures in tightly packed conditions, and when driven continuously at high output levels.

 **CAUTION:** The HMS-15AC heat sink can reach very high temperatures during extreme operation. Use utmost caution when approaching the top of the loudspeaker.

CHAPTER 4: HMS-15AC MOUNTING OPTIONS

IMPORTANT SAFETY CONSIDERATIONS!

When mounting Meyer Sound loudspeakers, the following precautions should always be observed:

- All Meyer Sound products must be used in accordance with local, state, federal, and industry regulations. It is the owner's and user's responsibility to evaluate the reliability of any rigging or mounting method for their application. Rigging should only be carried out by experienced professionals.
- Use mounting and rigging hardware that has been rated to meet or exceed the weight being hung.
- Make sure to attach mounting hardware to the building's structural components (studs or joists), and not just to the wall surface. Verify that the building's structure and the anchors used for the installation will safely support the total weight of the mounted loudspeakers.
- Use mounting hardware appropriate for the surface where the loudspeaker will be installed.
- Make sure bolts are tightened securely. Meyer Sound recommends using Loctite on bolt threads and safety cables.
- Inspect mounting and rigging hardware regularly. Immediately replace any worn or damaged components.

HMS-15AC MOUNTING OPTIONS

Table 4 list the mounting options available for HMS-15AC loudspeakers. All mounting options are rated for mounting a single HMS-15AC loudspeaker with a 7:1 safety factor. For more information, refer to the installation instructions included with the mounting hardware.

Table 4: HMS-15AC Mounting Options

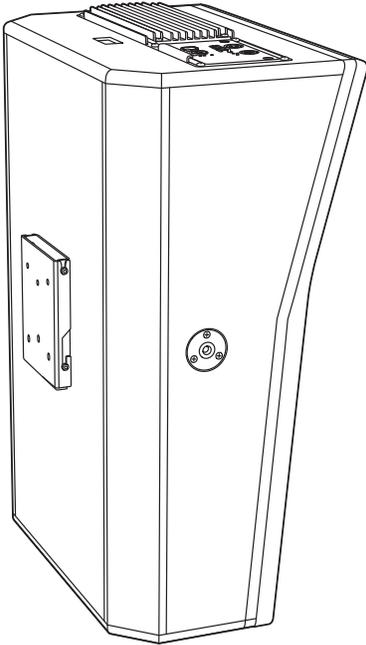
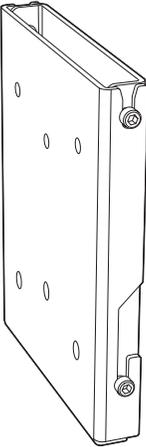
Model (Part Number)	Features	Maximum Uptilt/Downtilt	Weight	Rated for Overhead Mounting
FMB-HMS Fixed Mount Bracket (PN 40.198.040.01) 	Mounts HMS loudspeakers (all models) on walls at a fixed 0° angle. The fixed bracket mounts cabinets 0.87 inches [22.1 mm] from the wall. 	<ul style="list-style-type: none"> • HMS-5: 0° • HMS-10: 0° • HMS-12: 0° • HMS-15: 0° • HMS-15AC: 0° 	3.1 lbs [1.4 kg]	No

Table 4: HMS-15AC Mounting Options

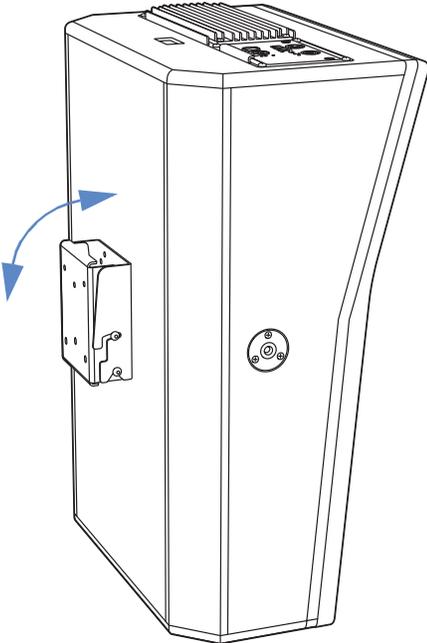
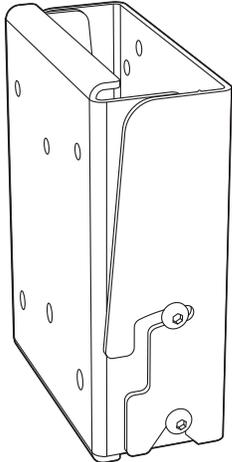
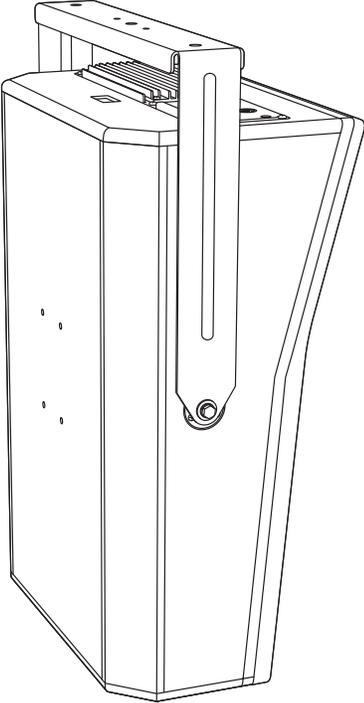
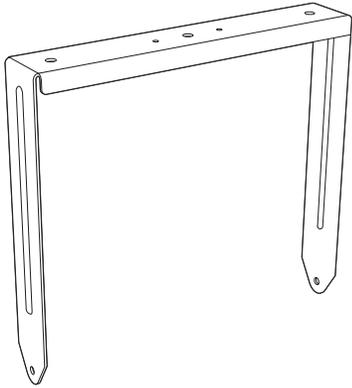
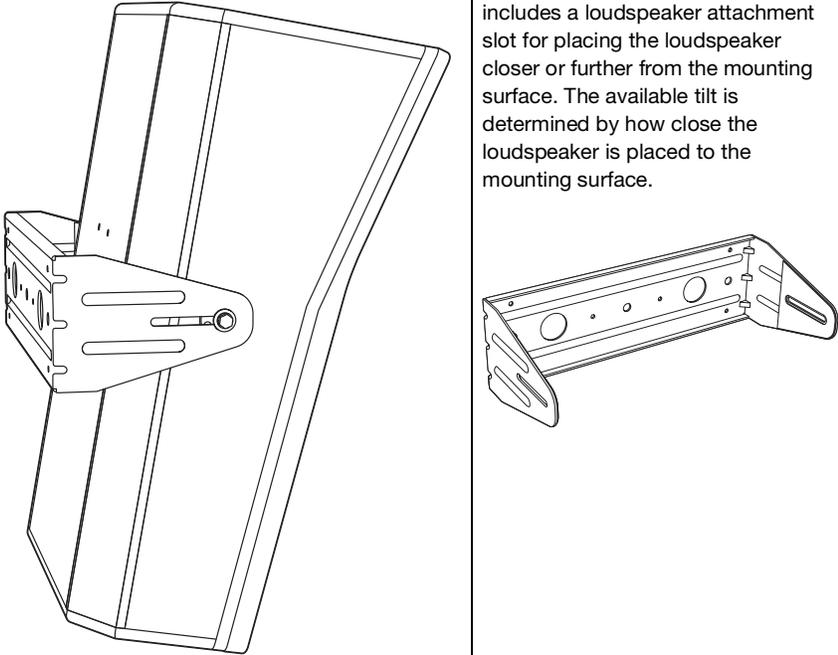
Model (Part Number)	Features	Maximum Uptilt/Downtilt	Weight	Rated for Overhead Mounting
<p>AMB-HMS Adjustable Mount Bracket (PN 40.198.041.01)</p> 	<p>Mounts HMS loudspeakers (all models) on walls with uptilt or downtilt. The available tilt depends on the HMS loudspeaker model mounted. When installed with no tilt, the bracket mounts cabinets 2.24 inches [56.9 mm] from the wall.</p> 	<ul style="list-style-type: none"> • HMS-5: +5°/-16° • HMS-10: +5°/-16° • HMS-12: +5°/-12° • HMS-15: +5°/-10° • HMS-15AC: +5°/-10° <p>Note: Wider downtilt may be possible depending on the building's structural components and mounting surface.</p>	<p>4.2 lb [1.9 kg]</p>	<p>No</p>
<p>MYA-HMS-15 Yoke (PN 40.242.035.01)</p> 	<p>Suspends HMS-15 and HMS-15AC loudspeakers with a full range of tilt (360°). The yoke can attach directly to ceilings or can accept "C" or "G" hanging clamps with standard 1/2-inch or 12 mm bolts.</p> 	<ul style="list-style-type: none"> • HMS-15: 360° • HMS-15AC: 360° 	<p>7.6 lb [3.4 kg]</p>	<p>Yes</p>

Table 4: HMS-15AC Mounting Options

Model (Part Number)	Features	Maximum Uptilt/Downtilt	Weight	Rated for Overhead Mounting
<p>MUB-HMS-15 U-Bracket (PN 40.242.025.01)</p> 	<p>Mounts HMS-15 and HMS-15AC loudspeakers on walls and ceilings with uptilt or downtilt. The U-bracket includes a loudspeaker attachment slot for placing the loudspeaker closer or further from the mounting surface. The available tilt is determined by how close the loudspeaker is placed to the mounting surface.</p>	<ul style="list-style-type: none"> • HMS-15: +16°/-13° • HMS-15AC: +16°/-13° <p>Note: Wider uptilt and downtilt may be possible depending on the building's structural components and mounting surface.</p>	<p>7.05 lb [3.2 kg]</p>	<p>Yes</p>

 **CAUTION:** When mounting HMS-15AC loudspeakers in soffits, allow at least 3 inches [76.2 mm] above the loudspeaker for the bracket to slide into place. The extra space is also required for ventilation for the loudspeaker's amplifier and heat sink.

 **NOTE:** When mounting HMS-15AC loudspeakers in soffits, allow sufficient space around the loudspeaker so its coverage pattern is unobstructed by the walls of the soffit.

CHAPTER 5: REMOVING THE HMS-15AC GRILLE FRAME

If a cinema installation requires it, HMS-15AC grille frames can be easily removed. For safety reasons, grille frames for the HMS-15AC include an L-bracket securing them to the bottom of the cabinet; it must be removed before the grille can be detached.

REMOVING THE HMS-15AC GRILLE FRAME

To remove the HMS-15AC grille frame:

1. Use a Phillips-head screwdriver to loosen the pan head screw on the bottom front of the cabinet securing the grille-frame's L-bracket. Slide the L-bracket forward to remove it. Set the L-bracket aside.

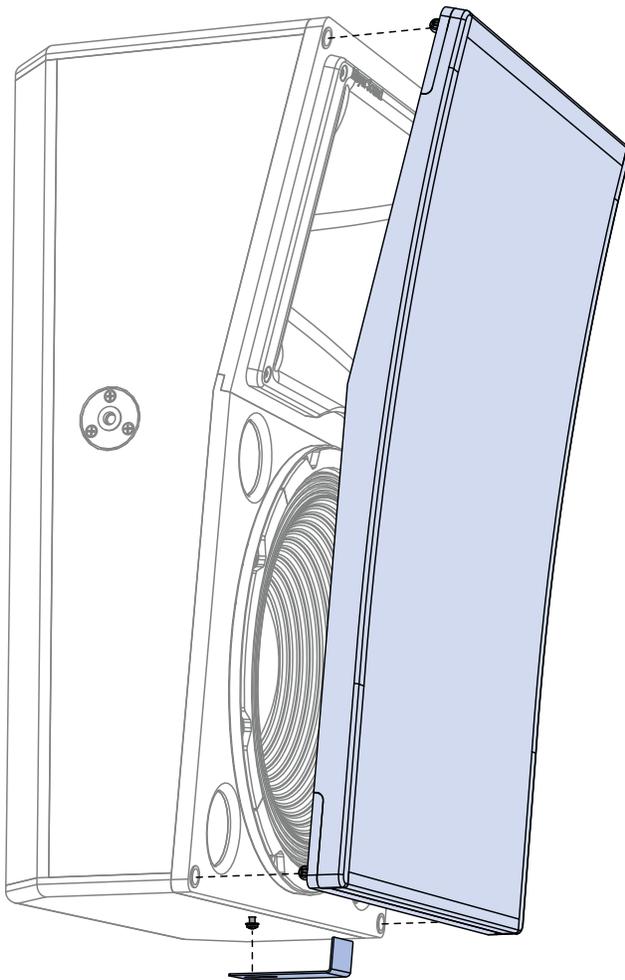


Figure 9: Removing the HMS-15AC Grille Frame

2. Re-tighten the pan head screw without the L-bracket installed.
3. Unsnap the corner tree-loks of the grille frame and remove the grille.



CAUTION: For installations that require grille frames, do not remove the L-brackets securing the HMS-15AC grille frames.

CHAPTER 6: RMS REMOTE MONITORING SYSTEM

HMS-15AC optionally includes an RMS remote monitoring system module, allowing the loudspeaker to be connected to an RMS network. RMS reports, in real time, the status and power usage of multiple Meyer Sound loudspeakers from a Mac or Windows-based computer. The RMsServer™ communicates with Meyer Sound loudspeakers equipped with RMS modules. RMsServer is a compact, Ethernet-based hardware unit with two FT-10 RMS data ports. RMsServer stores system configurations internally, eliminating most manual data entry. Systems can be monitored from a computer at front-of-house or backstage, or from a laptop anywhere within the venue over WiFi.

 **NOTE:** For the latest RMS system requirements, visit meyersound.com.

 **NOTE:** RMS does not control AC power.

COMPASS RMS SOFTWARE

Compass RMS™ software provides extensive system status and performance data for each loudspeaker, including amplifier voltage, limiting activity, power output, fan and driver status, as well as mute and solo capability. Loudspeakers are added to the RMS network and assigned a node name during a one-time discovery procedure. Once loudspeakers are identified on the RMS network, they appear in Compass RMS as icons that can be customized to suit your needs (Figure 10).



Figure 10: Compass RMS Window

Individual loudspeakers can be physically identified with the Wink option in RMS, which lights the Wink LED on the RMS module of that particular loudspeaker. Conversely, a loudspeaker can be identified in Compass RMS by pressing the Identify button on the loudspeaker's RMS module.

Loudspeaker icons can be arranged in Compass RMS and saved as pages to represent how the loudspeakers have been deployed in the system. Multiple pages can be saved and recalled for specific performances and venues.

RMS MODULE

The HMS-15AC RMS user panel (Figure 11) includes an Identify button, Remote Mute switch, Wink/Activity LED, and two Network connectors.

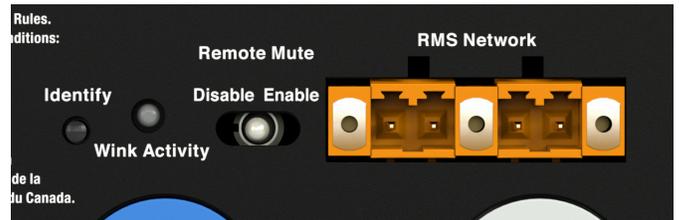


Figure 11: HMS-15AC RMS Module

 **NOTE:** The Identify button and Wink/Activity LED on the RMS user panel are used exclusively by RMS and have no effect on the acoustical or electrical activity of the loudspeaker.

Identify Button

The Identify button serves the following functions:

- If the loudspeaker has not yet been discovered on the RMS network (Wink/Activity LED not lit), press the Identify button to discover it.
- To remove the loudspeaker from the RMS network, press and hold the Identify button during startup (see "Resetting the RMS Module" on page 20).
- To *wink* a discovered loudspeaker, press the Identify button. The Wink LED on the loudspeaker icon in Compass RMS lights up and the Wink/Activity LED on the loudspeaker's RMS user panel turns solid green. Press the Identify button again to unwink the loudspeaker.



TIP: The loudspeaker can also be winked by clicking the Wink button on the loudspeaker icon in Compass RMS.

Wink/Activity LED (Green)

The green Wink/Activity LED indicates the status of the loudspeaker:

- During startup, the LED flashes green 10 times.
- If the loudspeaker has not yet been discovered on the RMS network, the LED is not lit after startup.
- If the loudspeaker has been successfully discovered on the RMS network, the LED flashes green continuously and flashes more rapidly with increased data activity.
- When the loudspeaker is winked, either by clicking the Wink button in Compass RMS or by pressing the Identify button on the RMS user panel, the LED is solid green. The LED remains solid green until the loudspeaker is unwinked.



TIP: The Wink function is useful for identifying the physical loudspeaker corresponding to a loudspeaker icon in Compass RMS.

Remote Mute Switch

The recessed Remote Mute switch on the HMS-15AC RMS module (Figure 12) determines whether Compass RMS can control muting and soloing of the loudspeaker. HMS-15AC ships from the factory with the switch enabled.

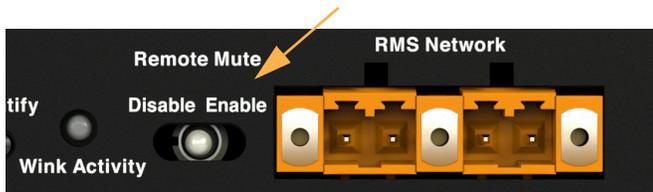


Figure 12: Remote Mute Switch

- **Disable:** When the Remote Mute switch is set to Disable (to the left), the loudspeaker cannot be muted or soloed from Compass RMS.
- **Enable:** When the Remote Mute switch is set to Enable (to the right), the loudspeaker can be muted and soloed from Compass RMS.



NOTE: Compass RMS has a preference that can be set to disable Mute and Solo functions, eliminating any possibility of accidentally muting loudspeakers.

RMS Network Connectors

The Weidmuller 2-conductor, locking connectors transfer data to and from the RMS network. Two connectors are provided to allow for easy connection of multiple (daisy-chained) loudspeakers on the network. Included with each RMS-equipped loudspeaker are RMS cable connectors and mounting blocks for constructing RMS cables. The mounting blocks allow the Weidmuller connectors to be securely attached to the RMS module with screws.

NEURON ID FOR RMS MODULE

Each RMS module has a unique 12-character Neuron ID (NID) that identifies the loudspeaker on the network. The NID is automatically detected by RMServer but can also be entered manually, if necessary, when configuring RMS systems in Compass RMS without loudspeakers present. The NID label is located on the RMS user panel near the orange Network connectors.

RESETTING THE RMS MODULE

The Identify button may be used to reset the HMS-15AC RMS module when powering on the loudspeaker. This action will cause the module to be removed from the RMS network.

To reset the RMS module:

1. Power down the loudspeaker.
2. Press and hold the Identify button.
3. While continuing to hold down the Identify button, power on the loudspeaker.
4. After the Wink/Status LED flashes on and off, release the Identify button. The RMS module is reset and the loudspeaker is removed from the RMS network.

CHAPTER 7: SYSTEM DESIGN AND INTEGRATION TOOLS

This chapter introduces MAPP, Meyer Sound's patented system design tool and the Galileo GALAXY Network Platform.

MAPP SYSTEM DESIGN TOOL

The MAPP System Design Tool (Figure 13) is a powerful, cross-platform application for accurately predicting the coverage pattern, frequency response, phase response, impulse response, and SPL capability of individual or arrayed Meyer Sound loudspeakers.

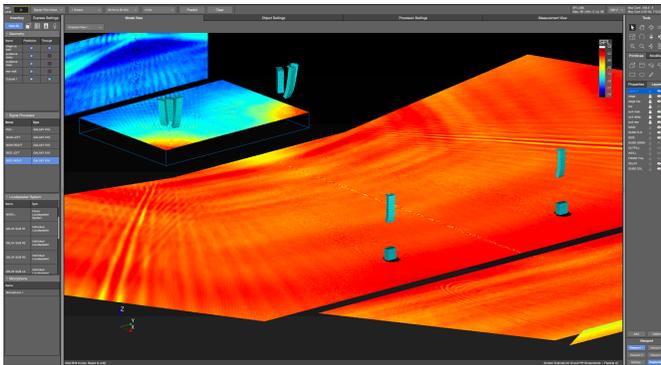


Figure 13: MAPP System Design Tool

Whether planning for fixed installations or for tours with multiple venues, use MAPP to accurately predict the appropriate loudspeaker deployment for each job, complete with coverage data, system delay and equalization settings, rigging information, and detailed design illustrations. MAPP's accurate, high-resolution predictions ensure that systems will perform as intended, thereby eliminating unexpected coverage problems and minimizing onsite adjustments.

The key to the accuracy of MAPP's predictions is Meyer Sound's exhaustive database of loudspeaker measurements. Performance predictions for each loudspeaker are based on 3-dimensional, 65,000+ 1/48th-octave-band measurements taken in the Meyer Sound anechoic chamber. The extraordinary consistency between Meyer Sound loudspeakers guarantees that predictions from MAPP will closely match their actual performance.

MAPP software allows for configuration of Meyer Sound loudspeaker systems and definition of the environment in which they operate, including air temperature, pressure, humidity, and the location of prediction surfaces. Importing both CAD (.DXF) and Sketchup (.SKP) files containing detailed venue information to act as an anchor model to the prediction surfaces and a visual aid to facilitate prediction data interpretation is also possible.



TIP: See meyersound.com for support and more information about MAPP.

MAPP Capabilities

With MAPP, the user can:

- Simulate different loudspeaker configurations to refine system designs and determine the best coverage for intended audience areas
- Model loudspeaker interactions to locate constructive and destructive interferences so that loudspeakers can be re-aimed and repositioned as necessary
- Place microphones anywhere in the Model View space and predict loudspeaker frequency response, phase response, and sound pressure levels at each microphone position
- Determine delay settings for fill loudspeakers using the Inverse Fast Fourier Transform and phase response feature
- Preview the results of signal processing to determine optimum settings for the best system response
- Automatically calculate load information for arrays to determine necessary minimum rigging capacity, front-to-back weight distribution, and center of gravity location
- Generate and export system images and system PDF reports for client presentations
- Synchronize GALAXY processor output channel settings in real time with virtual or real GALAXY units, allowing in-the-field changes to be predicted during system alignments.

GALILEO GALAXY NETWORK PLATFORM

The Galileo GALAXY Network Platform is a sophisticated loudspeaker management tool for controlling all Meyer Sound speaker types. The GALAXY loudspeaker

processor extends a high level of audio control in driving and aligning loudspeaker systems with multiple zones. It provides a powerful tool set for corrective equalization (EQ) and creative fine-tuning for a full range of applications from touring to cinema.

Users can readily program the GALAXY processor using Compass software running on a host computer or via the Compass Go application for the iPad. Connecting MAPP to the GALAXY processor will also allow the user to push output channel settings created in MAPP as a starting point. Compass Control Software includes custom-designed settings for each family of speakers, as well as to integrate families together. For example, the Product Integration feature matches the phase characteristics between Meyer speaker families to ensure the most coherent summation.

Processing tools for inputs and outputs include delay, parametric EQ and U-Shaping EQ. Output processing also includes polarity reversal, Low-Mid Beam Control (LMBC), atmospheric correction, and All Pass filters.

The built-in summing and delay matrices allow a user to easily assign gain and delay values, respectively, at each cross point. This capability greatly facilitates using one loudspeaker to satisfy multiple purposes.

Front panel controls let a user intuitively and quickly operate a GALAXY processor without a computer during live use.

The GALAXY 408, GALAXY 816 and GALAXY 816-AES3 processor versions have the same audio processing capability with different I/O. See www.meyersound.com to locate their datasheets for more information.

APPENDIX A: HMS-15AC SPECIFICATIONS

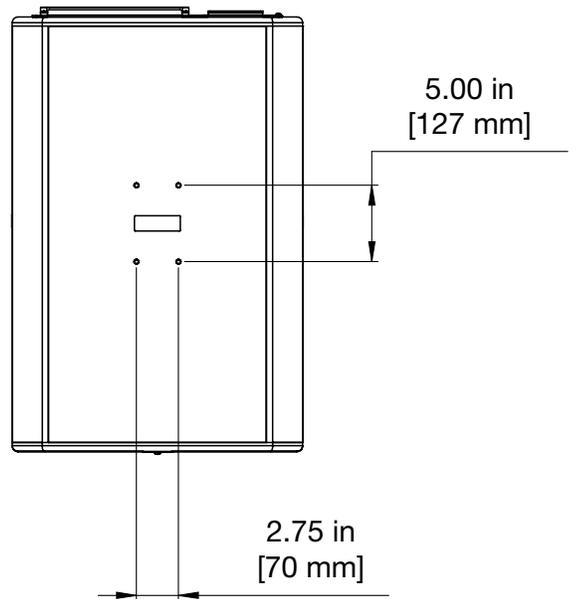
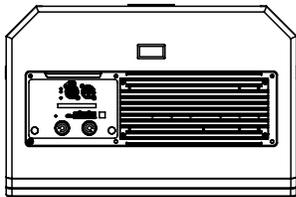
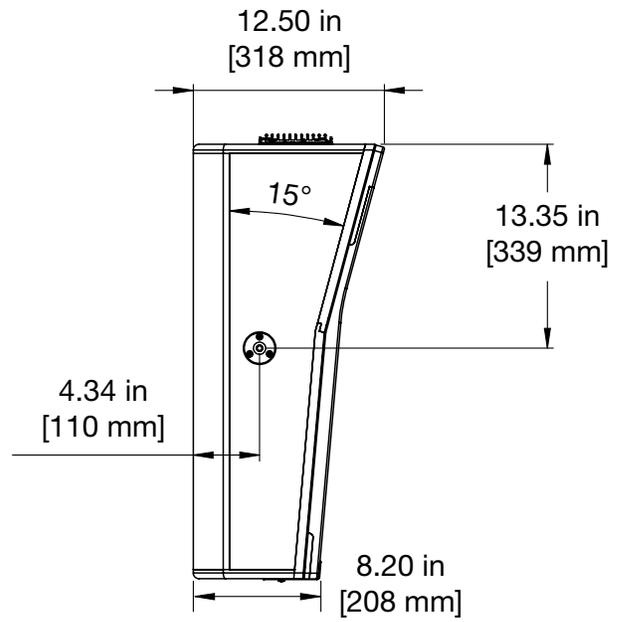
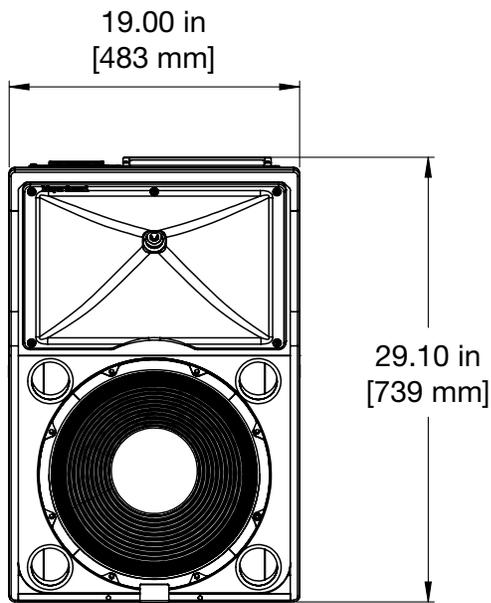
HMS-15AC Specifications

ACOUSTICAL	
Operating Frequency Range	50 Hz – 18 kHz Note: Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.
Frequency Response	54 Hz – 16 kHz ± 4 dB Note: Free field, measure with 1/3rd octave frequency resolution at 4 meters.
Phase Response	290 Hz – 18 kHz $\pm 45^\circ$
Linear Peak SPL	132 dB with crest factor >16 dB (M-noise) , 129.5 dB (Pink noise), 131.5 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 °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. The presence of a greater-than (>) symbol with regard to crest factor indicates it may be higher depending on EQ and boundary loading. 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	80° horizontal by 50° vertical
Crossover	680 Hz Note: At this frequency, the transducers produce equal sound pressure levels.
TRANSDUCERS	
Low Frequency	One 15-inch long-excursion cone driver; 2 ohms nominal impedance
High Frequency	One 3-inch diaphragm compression driver; 16 ohms nominal impedance
AUDIO INPUT	
Type	Differential, electronically balanced
Maximum Common Mode Range	± 15 V DC, clamped to earth for voltage transient protection
Connectors	XLR 3-pin female input with male loop output
Input Impedance	10 k Ω differential between pins 2 and 3
Wiring	Pin 1: Chassis/earth through 220 kW, 1000 pF, 15 V clamp network to provide virtual ground lift at audio frequencies Pin 2: Signal + Pin 3: Signal – Case: Earth ground and chassis
Nominal Input Sensitivity	6.0 dBV (2.0 V rms) continuous is typically the onset of limiting for noise and music
Input Level	Audio source must be capable of producing +20 dBV (10 V rms) into 600 ohms to produce the linear peak SPL over the operating bandwidth of the loudspeaker
AMPLIFIER	
Type	2-channel with active crossover
Total Output Power	1000 W Note: Peak power based on the maximum unclipped peak voltage the amplifier will produce into the nominal load impedance.
THD, IM TIM	<.02%
Cooling	Convection

HMS-15AC Specifications

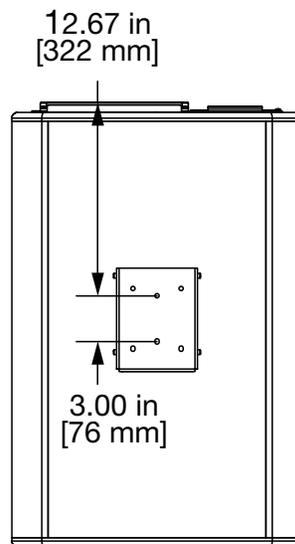
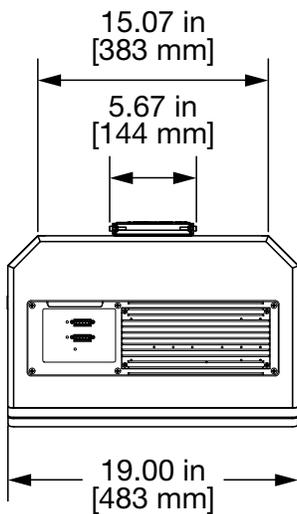
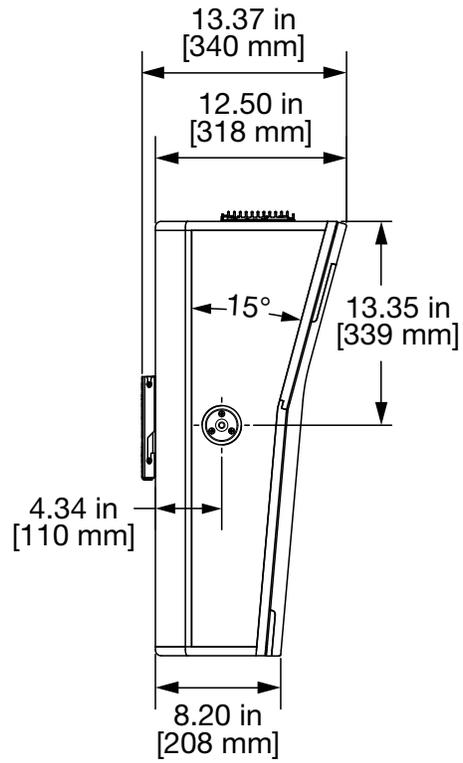
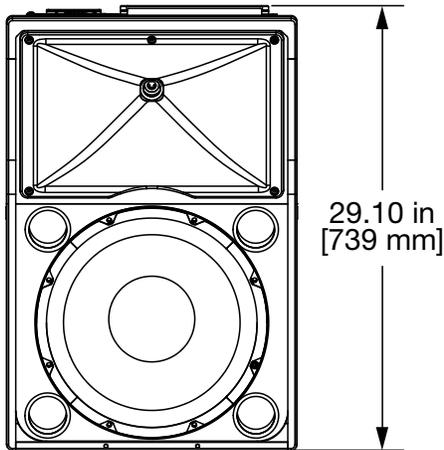
AC POWER	
Connectors	powerCON 20 input with loop output;
Automatic Voltage Selection	90–265 V AC, 50–60 Hz
Safety Agency Rated Operating Voltage	100–240 V AC, 50–60 Hz
Turn On/Turn Off Points	90 V AC turn-on, no turn-off; internal fuse protection above 265 V AC
CURRENT DRAW	
Idle Current	0.23 A rms at 115 V AC; 0.22 A rms at 230 V AC; 0.25 A rms at 100 V AC
Maximum Long-Term Continuous Current (> 10 sec)	1.3 A rms at 115 V AC; 0.7 A rms at 230 V AC; 1.5 A rms at 100 V AC
Burst Current (< 1 sec)	2.9 A rms at 115 V AC; 1.5 A rms at 230 V AC; 3.1 A rms at 100 V AC Note: AC power cabling must be of sufficient gauge so that under burst current rms conditions, cable transmission losses do not cause the loudspeaker's voltage to drop below the specified operating range.
Maximum Instantaneous Peak Current	7.0 A peak at 115 V AC; 3.8 A peak at 230 V AC; 7.7 A peak at 100 V AC
Inrush Current	< 20 A peak
RMS NETWORK (OPTIONAL)	
	Two-conductor twisted-pair network that reports all operating parameters of amplifiers to system operator's host computer.
PHYSICAL	
Dimensions	W: 19.00 in (483 mm) x H: 29.10 in (739 mm) X D: 12.50 in (318 mm)
Weight	64.0 lb (29 kg)
Enclosure	Premium multi-ply birch with slightly textured black finish
Grille Frame	Acoustically transparent, detachable, black cloth-covered frame
Rigging	Rear attachment points (5.00 inches x 2.75 inches, 127 mm x 70 mm); side attachment points with 3/8-inch-16 threads; optional accessories: AMB-HMS Adjustable Mount Bracket, FMB-HMS Fixed Mount Bracket, MYA-HMS15 Yoke, and MUB-HMS15 U-bracket.
ENVIRONMENTAL	
Operating Temperature	0° C to +45° C
Non Operating Temperature	–40° C to +75° C
Humidity	To 95% at 45° C (non-condensing)
Operating Altitude	To 5,000 m (16,404 ft)
Non Operating Altitude	To 12,000 m (39,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

HMS-15AC DIMENSIONS



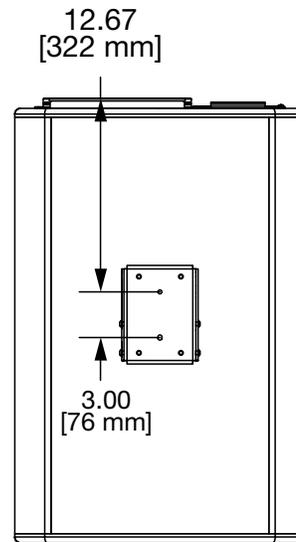
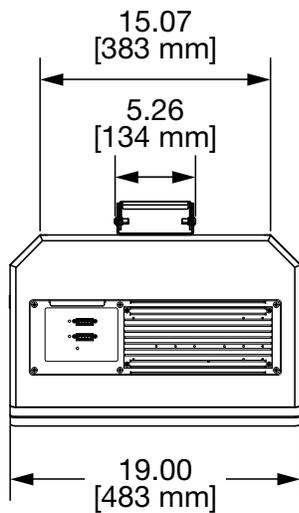
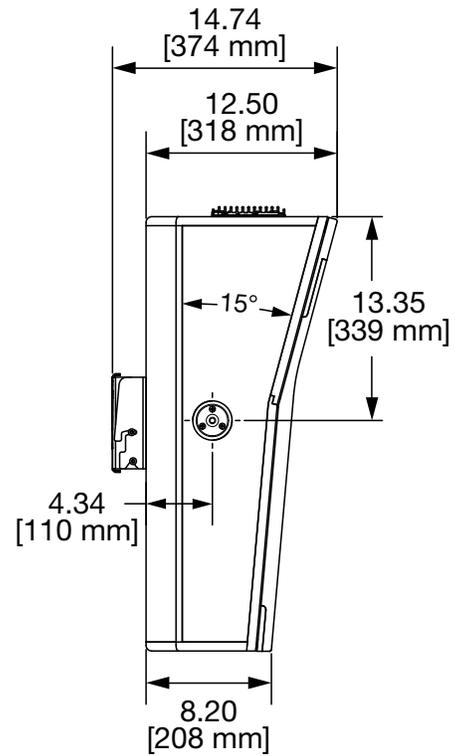
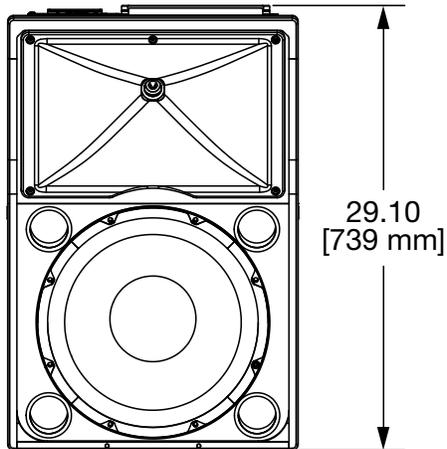
HMS-15AC DIMENSIONS WITH FMB-HMS FIXED MOUNT BRACKET

Self-weight: 3.1 lb [1.4 kg]
Load rating: 7:1
65 lb [29 kg]
(1 HMS-15 or HMS-15AC)



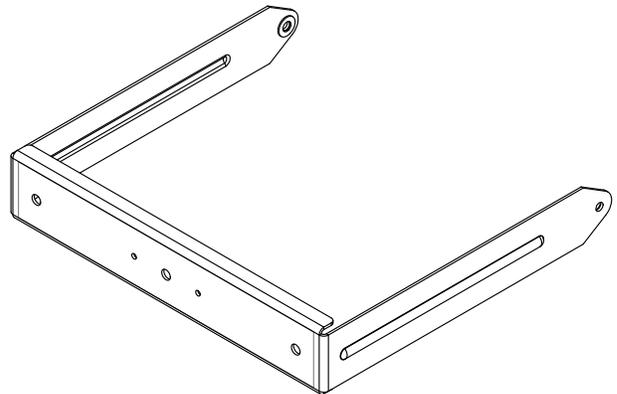
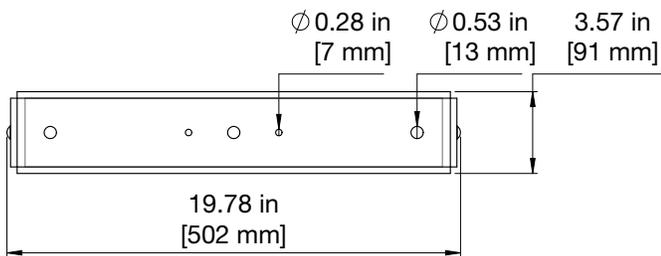
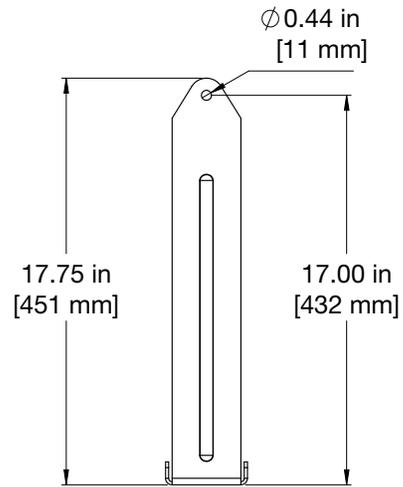
HMS-15AC DIMENSIONS WITH AMB-HMS ADJUSTABLE MOUNT BRACKET

Self-weight: 4.2 lb [1.9 kg]
 Load rating: 7:1
 65 lb [29 kg]
 (1 HMS-15 or HMS-15AC)



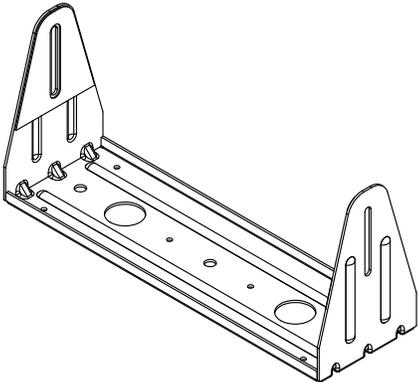
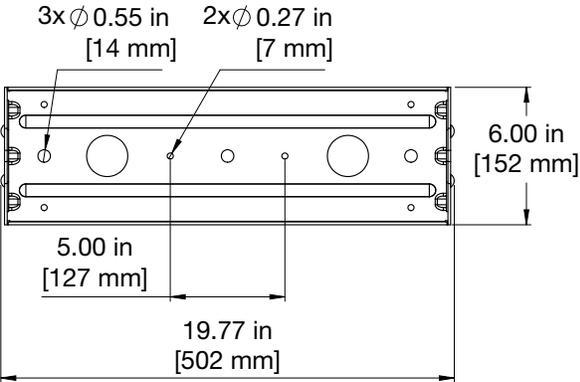
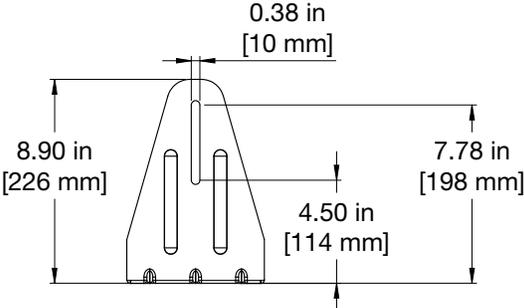
MYA-HMS-15 YOKE DIMENSIONS

Self-weight: 7.6 lb [3.4 kg]
Load rating: 7:1
70 lb [32 kg]
(1 HMS-15 or HMS-15AC)



MUB-HMS-15 DIMENSIONS

Self-weight: 7.05 lb [3.2 kg]
Load rating: 7:1
65 lb [29.5 kg]
(1 HMS-15 or HMS-15AC)











THINKING SOUND

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