

Acheron® Designer Screen Channel Loudspeaker



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Acheron Designer Operating Instructions, PN 05.211.005.01 B3

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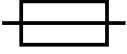




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IMPORTANT SAFETY INSTRUCTIONS


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	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.

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INTRODUCTION

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.

ACHERON DESIGNER SCREEN CHANNEL LOUDSPEAKER

At the heart of Meyer Sound's EXP line of cinema products are the Acheron® high-performance screen channel loudspeakers. The Acheron Designer is the most compact of the Acheron models, making it an excellent choice for sound design suites, screening rooms, private theaters, and small commercial theaters. Optimized for installation behind perforated screens, the Acheron Designer combines the advantages of self-powered technology and innovative horn design to deliver exceptional, precise coverage for the left, center, and right screen channels for cinema.



Acheron Designer (without Optional Grille Frame)

The Acheron Designer uses the same patent-pending horn technology and high-frequency compression driver as the other Acheron models, delivering the same 38 Hz to 17 kHz frequency response. This consistency of fidelity between Acheron models ensures that soundtracks monitored with the Acheron Designer translate accurately when played back in larger rooms with the Acheron 100, Acheron 80, Acheron Studio, or other calibrated cinema system.

Specifically designed for cinema, the Acheron horn features a very soft roll-off beyond its 80-degree horizontal by 50-degree vertical coverage pattern. The extremely well-behaved horn ensures an accurate acoustic crossover and consistent vertical coverage pattern through the critical crossover range between the low- and high-frequency drivers. The optimized crossover point places most of the dialog in the horn, which is ideal for cinema applications.

Designed and manufactured at Meyer Sound's headquarters in Berkeley, California, the Acheron Designer's drivers include one 12-inch low-frequency cone driver, housed in an optimally tuned, ported enclosure, and one high-frequency 4-inch diaphragm compression driver. The drivers yield uncompromising quality and are powered by sophisticated onboard amplification. The self-powered design ensures consistent results and simplifies installations in both new and existing rooms.



Acheron Designer with Recessed Heat Sink

A proprietary two-channel, Class-D amplifier powers each driver channel independently. Onboard processing includes driver protection circuitry, an electronic crossover, and correction filters, ensuring flat frequency and phase responses. The rear-mounted, recessed heat sink yields efficient convection cooling, and allows the unit to be placed flat against walls, when necessary.

The optional RMS™ remote monitoring system provides comprehensive monitoring of system parameters on a Windows®-based computer.

The Acheron Designer enclosure is constructed of premium birch plywood and coated with a low-gloss, black-textured finish. The cabinet bottom is fitted with two threaded M6 attachment points for the optional MYA-Acheron Designer cradle-style yoke, allowing the unit to be suspended from a single hanging point.



Acheron Designer with Optional MYA-Acheron Designer Yoke

An optional, black cloth grille frame update kit is available for installations where the Acheron Designer is not placed behind a screen.



Acheron Designer with Optional Grille Frame

POWER REQUIREMENTS

The Acheron Designer combines advanced loudspeaker technology with equally advanced power capabilities. Understanding power distribution, voltage and current requirements, and electrical safety guidelines is critical to the safe operation of the Acheron Designer.

AC CONNECTORS

The Acheron Designer user panel includes 3-pole, PowerCon AC connectors (Figure 1).

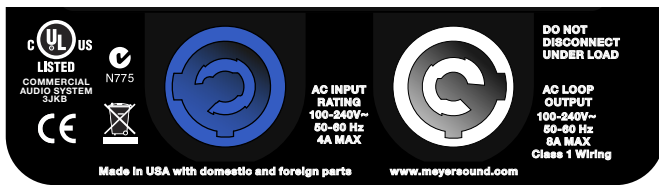


Figure 1: AC Input (Left) and AC Loop Output (Right) Connectors

AC Input Connector (Blue)

The blue AC Input connector supplies power to the Acheron Designer loudspeaker. The connector is rated at 20 amps and uses a PowerCon3 AC mains locking connector that prevents accidental disconnections. A 10-foot AC power cable, rated at 15 amps, is included with each Acheron Designer. If you replace the included AC power cable, make sure to use a cable with the appropriate power plug (on the other end) for the region in which you will operate the unit.

The AC Input connector also supplies power to any additional loudspeakers connected to the Acheron Designer's gray Loop Output connector. Each Acheron Designer loudspeaker requires approximately 3.24 A rms maximum at 115 V AC and 1.74 A rms maximum at 230 V AC for proper operation.

CAUTION: When using the included AC power cable, do not loop more than three additional Acheron Designers from the AC Loop Output connector at 115 V (four total for the circuit), and not more than seven at 230 V (eight total for the circuit).

AC Loop Output Connector (Gray)

The gray AC Loop Output connector allows multiple Acheron Designers to be looped and powered from a single power source. Connect the AC Loop Output of the first Acheron Designer to the AC Input of the second unit, and so forth. The AC Loop Output uses a PowerCon3 AC mains locking connector that prevents accidental disconnections.

The maximum number of loudspeakers that can be looped from the 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 Acheron Designer.

NOTE: The Acheron Designer current draw is dynamic and fluctuates as operating levels change. The numbers in Table 1 assume that operating levels are normal and not such that the loudspeakers are constantly limiting.

Table 1: Maximum Number of Looped Acheron Designers

Circuit Breaker/ Connector Rating	115 V AC	230 V AC	100 V AC
15 amps	3 looped (4 total)	7 looped (8 total)	2 looped (3 total)
20 amps	5 looped (6 total)	10 looped (11 total)	3 looped (4 total)

Each Acheron Designer ships with one AC looping connector for making AC looping cables. Assembled AC looping cables are available from Meyer Sound.

CAUTION: Do not exceed the current capability of the 20-amp Input connector for the Acheron Designer. When looping loudspeakers, consider the total current draw for all loudspeakers on the circuit, *including* the first loudspeaker.

WIRING FOR AC CONNECTIONS

The Acheron Designer requires a grounded outlet. To operate safely and effectively, it is extremely important that the entire system be properly grounded.

When wiring international or special-purpose AC power cables and connectors, use the following wiring scheme (Figure 2):

- Connect the blue wire to the black terminal, or the terminal marked with an N.
- Connect the brown wire to the red terminal, or the terminal marked with an L.
- Connect the yellow and green wire to the green (or green and yellow) terminal, or the terminal marked with an E.

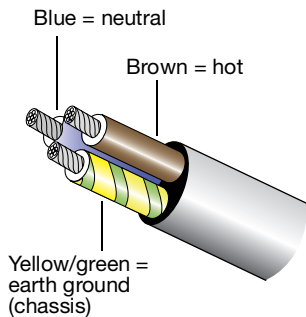


Figure 2: AC Cable Wiring Scheme

CAUTION: When creating AC power cables and distribution systems, it is important to preserve AC line polarity and connect the earth ground on both ends of the cable. The Acheron Designer 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.

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 to ensure 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 as the neutral and line cables.

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.

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.

Figure 3 illustrates a basic three-phase AC distribution system with the loudspeaker load distributed across the three phases. All loudspeakers are connected to common neutral and earth-ground lines.

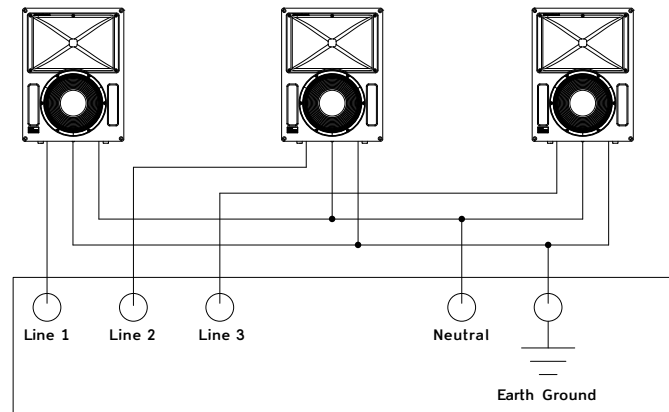


Figure 3: AC Power Distribution System


ACHERON DESIGNER VOLTAGE REQUIREMENTS


The Acheron Designer operates safely and continuously when the AC voltage stays within 100–264 V AC at 50 or 60 Hz. The loudspeaker can withstand continuous voltages up to 275 volts and allows any combination of voltage to GND (neutral-line-ground or line-line-ground).


If the voltage drops below 90 V (brownout), the unit uses stored power to continue operating temporarily; the loudspeaker shuts down if the voltage does not rise above the low boundary before the stored power is used.

If the voltage rises above 275 V, the power supply immediately shuts off to prevent damage to the unit.

If the Acheron Designer shuts down due to either low or high voltage, its power supply automatically powers up again after three seconds, so long as the voltage has returned to its normal operating window. If the Acheron Designer does not power up after 10 seconds, remove AC power immediately and contact Meyer Sound Technical Support.

 **CAUTION:** The power source for the Acheron Designer should always operate within the required voltage range, at least a few volts from the upper and lower ranges. This 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.

 **NOTE:** When voltage fluctuates within the Acheron Designer's operating range, automatic tap selection stabilizes the operating voltage. This tap selection is instantaneous with no audible artifacts.


 **TIP:** Since the Acheron Designer does not require a dedicated neutral line, and it can tolerate elevated voltages from the ground line, it can be connected to line-line terminals in 120 V, 3-phase Wye systems. This results in 208 V AC between lines (nominal) and therefore draws less current than when using 120 V AC (line-neutral). Make sure that the voltage remains within the Acheron Designer's recommended operating window (100-264 V AC). The ground line must always be used for safety reasons and the line-to-ground voltage should never exceed 264 V AC (typically 120 V AC from line-to-ground).

POWERING UP THE ACHERON DESIGNER

When AC power is applied to the Acheron Designer, its Intelligent AC™ power supply automatically selects the correct operating voltage, allowing it to be used internationally without manually setting voltage switches. In addition, Intelligent AC provides soft-start power up, eliminating high inrush currents; 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.

When powering up the Acheron Designer, 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. The power supply ramps up.
3. During the power up sequence, the three-color On/Status LED flashes all three colors.
4. After the power up sequence and system check have completed, the ON/Status LED turns solid green, indicating the loudspeaker is ready to reproduce audio.

 **CAUTION:** If the On/Status LED does not turn green, or the Acheron Designer does not output audio after ten seconds, remove AC power immediately and verify that the voltage is within the required range. If the problem persists, contact Meyer Sound Technical Support.

ACHERON DESIGNER CURRENT REQUIREMENTS

The Acheron Designer current draw is dynamic and fluctuates as operating levels change. Since 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, to ensure that cable sizes and gauges conform to electrical code standards. The current rating is also used as a rating for slow-reacting thermal breakers.

- **Burst Current** — The maximum rms current during a period of around one 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:

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

The Burst Current can also be used to calculate the AC looping capability of Acheron Designer.


- **Maximum Instantaneous Peak Current** — A rating for fast-reacting magnetic breakers.
- **Inrush Current** — The spike of initial current encountered when powering on.

You can use Table 2 as a guideline for selecting cable gauge and circuit breaker ratings for the system’s operating voltage.

Table 2: Acheron Designer Current Draw

Current Draw	115 V AC	230 V AC	100 V AC
Idle Current	0.23 A rms	0.19 A rms	0.24 A rms
Maximum Long-Term Continuous Current	1.58 A rms	0.83 A rms	1.78 A rms
Burst Current	3.1 A rms	1.4 A rms	3.6 A rms
Maximum Instantaneous Peak Current	12.0 A peak	8.0 A peak	12.4 A peak
Inrush Current	25 A peak	54 A peak	20 A peak

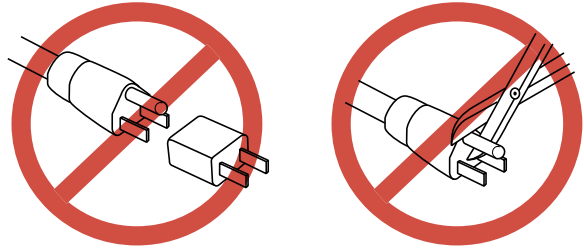
The minimum electrical service amperage required by an Acheron Designer loudspeaker system is the sum of the Maximum Long-Term Continuous Current for each loudspeaker. An additional 30 percent above the minimum amperage is recommended to prevent peak voltage drops at the service entry.

 **NOTE:** For best performance, the AC cable voltage drop should not exceed 10 V, or 10 percent at 115 V and 5 percent at 230 V. Make sure that even with AC voltage drops that the AC voltage always remains within the operating windows.

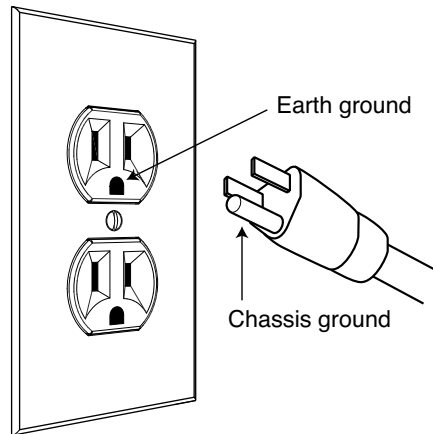
ELECTRICAL SAFETY GUIDELINES

Pay close attention to these important electrical and safety guidelines.

- The Acheron Designer 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-amp 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 its power cable is frayed or broken.
- Keep all liquids away from the Acheron Designer to avoid hazards from electrical shock.

AMPLIFICATION AND AUDIO

The Acheron Designer’s low- and high-frequency drivers are powered by an extremely efficient onboard two-channel, Class-D amplifier that uses minimal AC power when idle. Internal signal processing includes a complex crossover, frequency and phase correction, and limiters that prevent driver overexcursion and regulate voice coil temperatures, ensuring maximum driver lifespan.

The Acheron Designer rear panel includes a slot for the optional RMS module (Figure 4), used for connecting to the RMS remote monitoring system (see Chapter 5, “RMS Remote Monitoring System”).

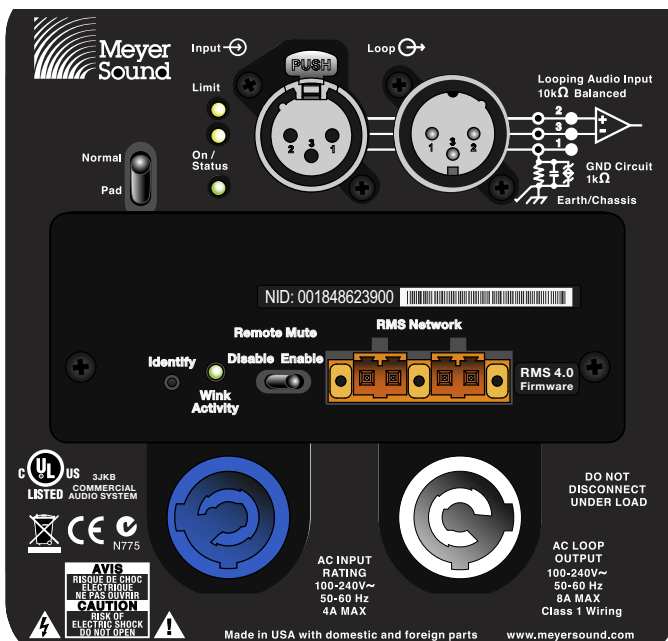


Figure 4: Acheron Designer Rear Panel with Optional RMS Module

AUDIO CONNECTORS

The Acheron Designer includes female XLR Input and male XLR Loop output connectors.

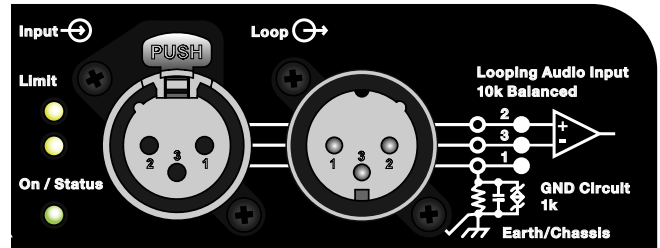


Figure 5: Acheron Designer Audio Connectors, Input and Loop Output

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** – 1 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 1 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.

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.

Loop Output Connector

The male XLR Loop output connector allows multiple Acheron Designers to be looped from a single audio source. For applications that require multiple Acheron Designers, connect the Loop output of the first unit to the Input of the second, and so forth.

NOTE: The order in which loudspeakers are connected when looping audio signals is unimportant. The Loop connector is wired in parallel to the Input connector and transmits the unbuffered source signal even when the Acheron Designer is powered off.

To avoid distortion when looping multiple Acheron Designers, 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 approximately 20 dBV (10 V rms into 600 ohms) to yield the maximum peak SPL over the entire operating bandwidth of the loudspeakers. Most professional audio equipment can transmit these source levels.

To calculate the load impedance for the looped loudspeakers, divide 10 kOhms (the input impedance for a single Acheron Designer) by the number of looped loudspeakers. For example, the load impedance for 10 Acheron Designer 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 Acheron Designer 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.

CAUTION: Make sure that all cabling for looped loudspeakers is 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 a system have reversed polarity, frequency response and coverage will be significantly degraded.

LIMITING

When source levels for the Acheron Designer exceed optimum input levels for its drivers, limiting is engaged and is indicated by the two Limit LEDs on the rear panel (Figure 6). 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.

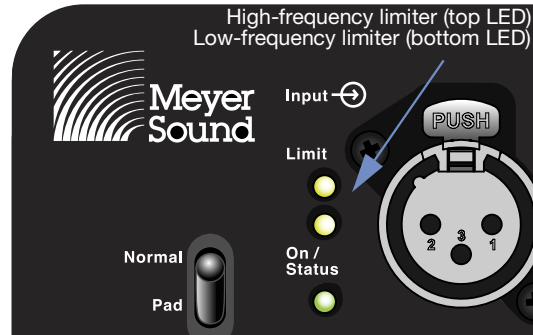


Figure 6: Limit LEDs and Normal/Pad switch

The Acheron Designer 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.

NOTE: The Acheron Designer uses digital limiters that add no noise and have no effect on the signal when the limiters are not engaged and the Limit LEDs are not lit.

NORMAL/PAD SWITCH

When the Normal/Pad switch (see Figure 4 and Figure 6) is set to Pad, a -7.5 dB input pad reduces upstream noise when the loudspeaker is in close proximity to the listener.

ON/STATUS LED

During normal operation, the Acheron Designer's On/Status LED is green. If the loudspeaker's internal temperature reaches 75° C (167° F), the LED turns solid yellow and the loudspeaker's gain is reduced by 3 dB. Though the Acheron Designer will continue to operate normally with the lower gain, when the On/Status LED is yellow, this is an indication that the loudspeaker is reaching its maximum heat dissipation and a reduction in SPL is recommended. When the loudspeaker's internal temperature cools to 60° C (140° F), the amplifier returns to normal operation.

CAUTION: If the loudspeaker's internal temperature reaches 125° C (257° F), gain is reduced by 6 dB to avoid damage to the loudspeaker.

TIP: When the Acheron Designer is connected to an RMS network, the RMS software provides additional feedback on the loudspeaker's operating temperature. For more information, see Chapter 5, "RMS Remote Monitoring System."

Amplifier Cooling System

The Acheron Designer's amplifier relies solely on natural convection for cooling from air flowing over its heat sink. The rear-mounted, recessed heat sink yields efficient cooling and allows the unit to be placed flat against walls, when necessary. The amplifier and heat sink keep temperatures low, even when the unit is used at high ambient temperatures, and when driven continuously at high output levels.

CAUTION: The Acheron Designer's heat sink can reach temperatures of up to 85° C (185° F) during extreme operation. Use extreme caution when approaching the rear of the loudspeaker.

Heat Sink Ventilation Requirements

When installing the Acheron Designer flush against walls, or when mounting them in soffits or baffle walls, make sure to allow plenty of ventilation above the loudspeaker.

- When installing the Acheron Designer in a soffit with the loudspeaker flush against the back of the soffit (see Figure 7), allow at least 6 inches above the loudspeaker for ventilation.

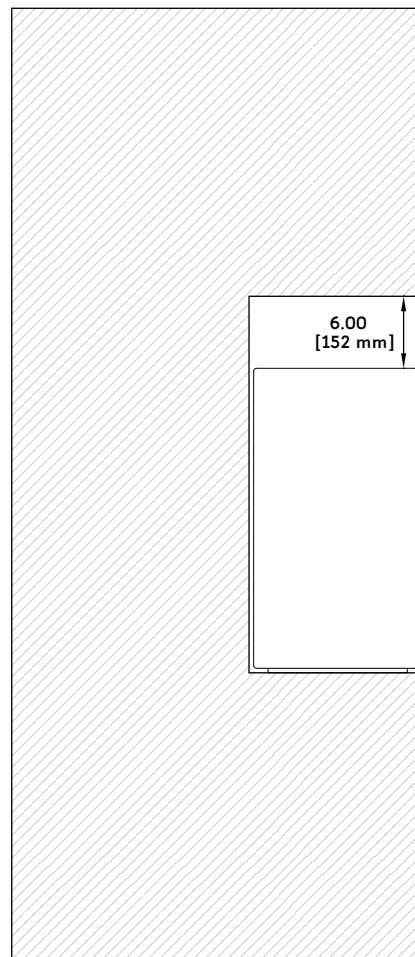


Figure 7: Acheron Designer Mounted in Soffit, Flush Against Back of Soffit with 6" of Ventilation Above Loudspeaker

- When installing the Acheron Designer in a soffit with the loudspeaker 1 inch from the back of the soffit (see Figure 8), allow at least 3 inches above the loudspeaker for ventilation.

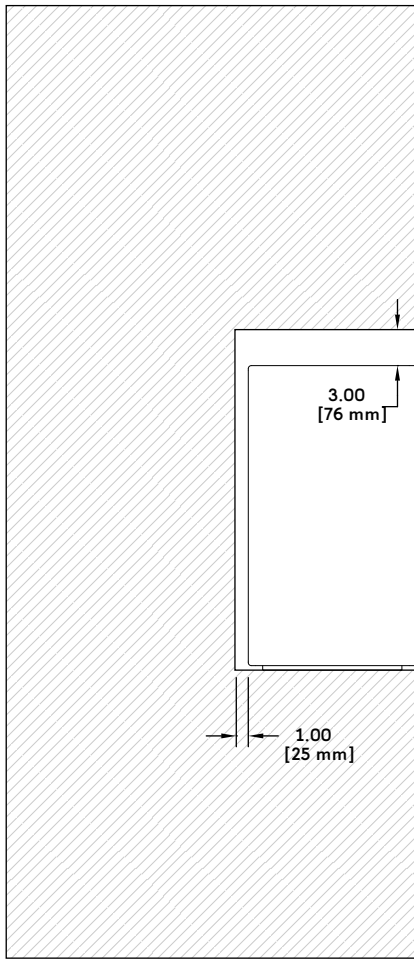


Figure 8: Acheron Designer Mounted in Soffit, 1" Behind and 3" Above Loudspeaker for Ventilation

- When installing the Acheron Designer in a baffle wall with no opening in the front of the wall for ventilation (see Figure 9), allow for plenty of ventilation above the loudspeaker within the baffle wall.

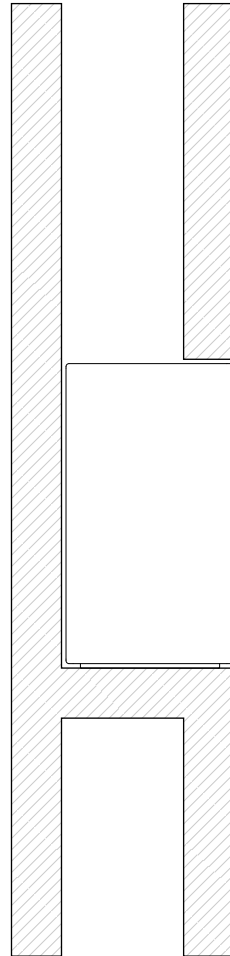


Figure 9: Acheron Designer Mounted in Baffle Wall with Open Ventilation Above Loudspeaker

RIGGING

Important Safety Considerations!

When installing Meyer Sound loudspeakers and subwoofers, 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 mounting and rigging method for their application. Mounting and 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 and eyebolts are tightened securely. Meyer Sound recommends using Loctite® on eyebolt threads and safety cables.
- Inspect mounting and rigging hardware regularly. Immediately replace any worn or damaged components.

MYA-ACHERON DESIGNER CRADLE-STYLE YOKE

The Acheron Designer includes M6 threaded attachment points on the cabinet bottom (Figure 10) for the optional MYA-Acheron Designer cradle-style yoke (Figure 11 on page 12), allowing the unit to be suspended from a single hanging point.

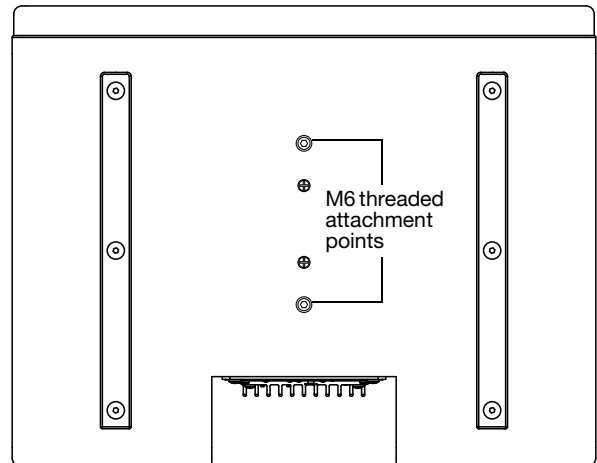


Figure 10: Acheron Designer Cabinet Bottom, M6 Threaded Attachment Points

The yoke's cradle can be pivoted to install the loudspeaker with downtilt or uptilt. A "C" or "G" hanging clamp and steel safety cable (not included) are required to suspend the yoke.

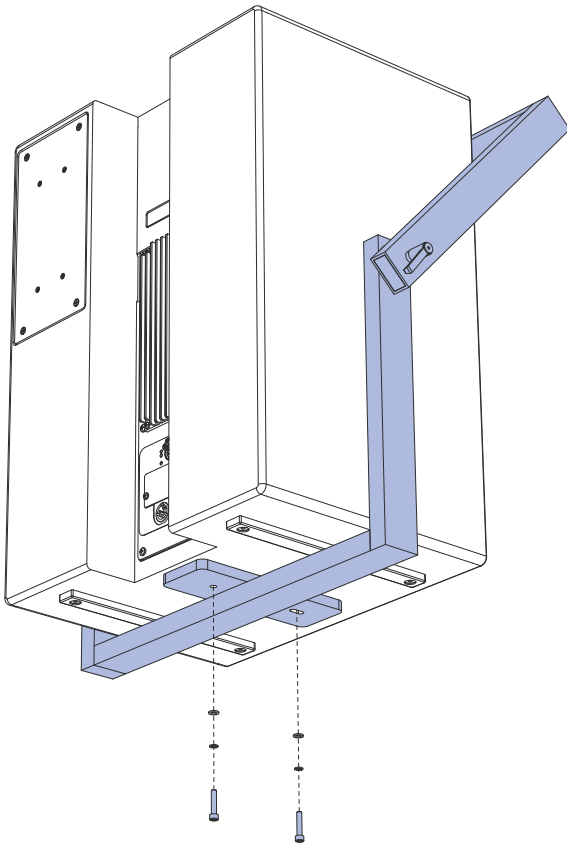





Figure 11: MYA-DES Cradle-Style Yoke, Bottom View


 **CAUTION:** The MYA-Acheron Designer mounting yoke is rated for a maximum downtilt of 45 degrees.


 **NOTE:** The top bar of the MYA-Acheron Designer yoke accommodates hanging clamps with standard 1/2- inch or 12 mm bolts.

 **NOTE:** For Acheron Designer dimensions and weight with the MYA-Acheron Designer yoke, refer to Appendix A, “Acheron Designer Specifications.”

RMS REMOTE MONITORING SYSTEM

Acheron Designer 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 12).



Figure 12: 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 Acheron Designer RMS user panel (Figure 13) includes an Identify button, Remote Mute switch, Wink/Activity LED, and two Network connectors.

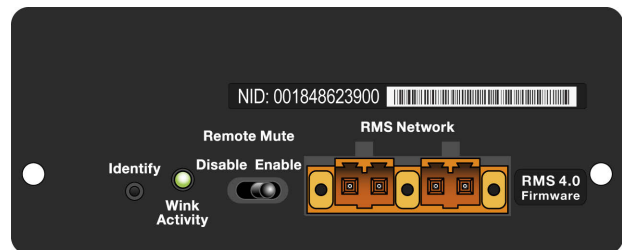




Figure 13: Acheron Designer RMS Module

 **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 14).
- 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 Acheron Designer RMS module (Figure 14) determines whether Compass RMS can control muting and soloing of the loudspeaker. Acheron Designer ships from the factory with the switch enabled.



Figure 14: 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 Acheron Designer 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.

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 15) 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.

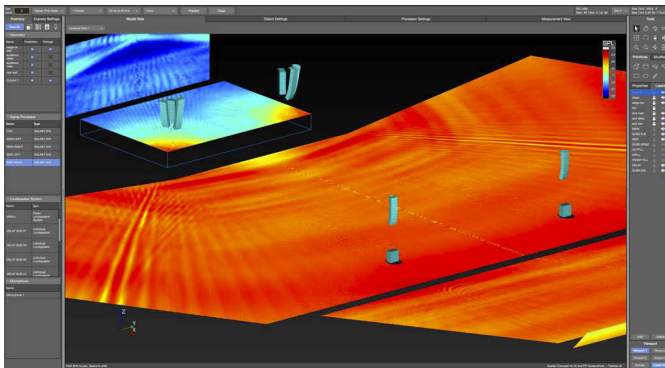


Figure 15: MAPP System Design Tool

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.

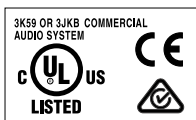
The GALAXY 408, GALAXY 816 and GALAXY 816-AES3 processor versions have the same audio processing capability with different I/O. See meyersound.com to locate their datasheets for more information.

ACHERON DESIGNER SPECIFICATIONS

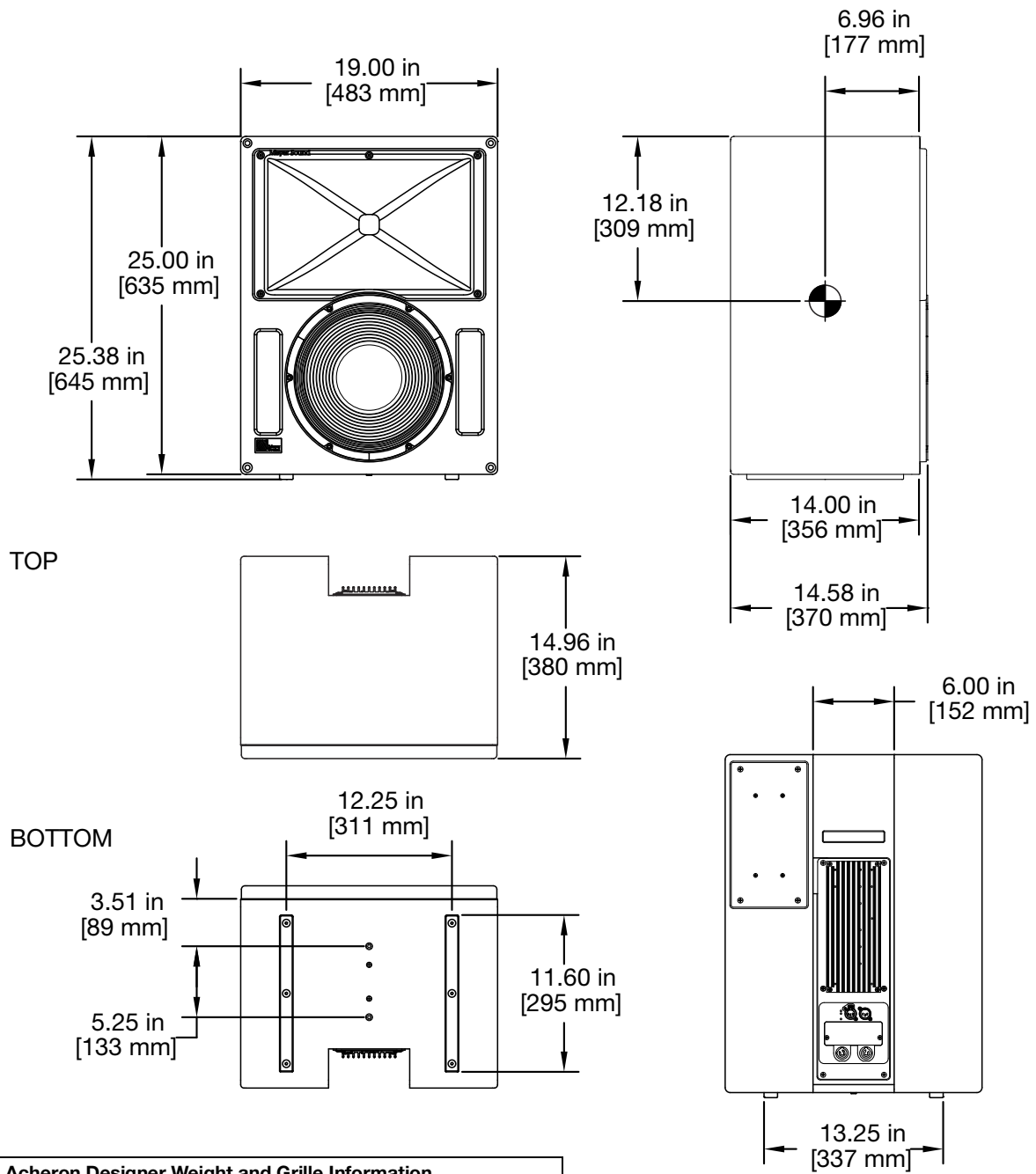
ACOUSTICAL	
Operating Frequency Range	37 Hz – 18 kHz Note: Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.
Frequency Response	38 Hz – 17 kHz ± 4 dB Note: Measured free field with 1/3 octave frequency resolution at 4 meters.
Phase Response	230 Hz to 17 kHz $\pm 30^\circ$
Linear Peak SPL	128 dB with 18 dB crest factor (M-noise) , 125.5 dB (Pink noise), 129 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. 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, both transducers produce equal sound pressure levels.
TRANSDUCERS	
Low Frequency	One 12-inch cone driver; 2 Ω nominal impedance
High Frequency	One 4-inch compression driver; 8 Ω nominal impedance
AUDIO INPUT	
Type	Differential, electronically balanced
Maximum Common Mode Range	± 5 V DC, clamped to earth for voltage transient protection
Connectors	Female XLR input with male XLR loop output
Input Impedance	10 k Ω differential between pins 2 and 3
Wiring	Pin 1: Chassis/earth through 1 k Ω 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	10 dBV (3.2 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 Ω to produce the maximum peak SPL over the operating bandwidth of the loudspeaker
AMPLIFIER	
Type	Two-channel, Class-D
Total Output Power	1400 W peak Note: Peak power output based on the maximum unclipped peak voltage the amplifier will produce into the nominal load impedance.
THD, IM TIM	<.02%
Cooling	Convection, with recessed heat sink

AC POWER	
Connectors	PowerCon 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 (115 V AC); 0.19 A rms (230 V AC); 0.24 A rms (100 V AC)
Maximum Long-Term Continuous Current (> 10 sec)	1.58 A rms (115 V AC); 0.83 A rms (230 V AC); 1.78 A rms (100 V AC)
Burst Current (< 1 sec)	3.1 A peak (115 V AC); 1.4 A peak (230 V AC); 3.6 A peak (100 V AC) Note: AC power cabling must be of sufficient gauge so that under burst current rms conditions, cable transmission losses do not drop below the loudspeaker's specified operating voltage range.
Maximum Instantaneous Peak Current	12.0 A peak (115 V AC); 8.0 A peak (230 V AC); 12.4 A peak (100 V AC)
Inrush Current	25 A peak (115 V AC); 54 A peak (230 V AC); 20 A peak (100 V AC)
PHYSICAL	
Enclosure	Premium birch plywood
Finish	Low gloss, black textured
Protective Grille (Optional)	Attachment points on cabinet front corners for optional grille frame with black cloth Note: Weight for grille frame is 2.0 lb (0.9 kg).
Rigging (Optional)	Two threaded M6 attachment points on cabinet bottom for optional MYA-Acheron Designer cradle-style yoke Note: Weight for MYA-Acheron Designer Yoke is 28.5 lb (12.9 kg).
Dimensions	W: 19.00 in (483 mm) x H: 25.38 in (645 mm) x D: 14.96 in (380 mm) without optional grille frame
Weight	Weight 76.0 lb (34.5 kg) without optional grille frame
ENVIRONMENTAL	
Operating Temperature	0° C to +45° C
Non Operating Temperature	–40° C to +75° C
Humidity	to 95% at 35° C
Operating Altitude	to 4600 m (15,000 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)

ACHERON DESIGNER COMPLIANCE

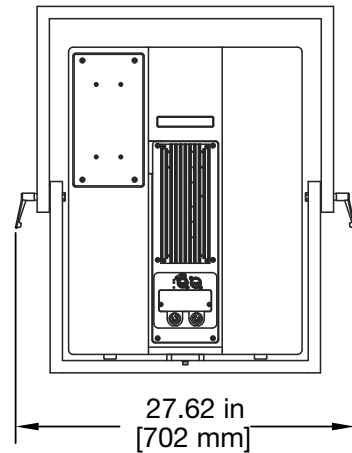
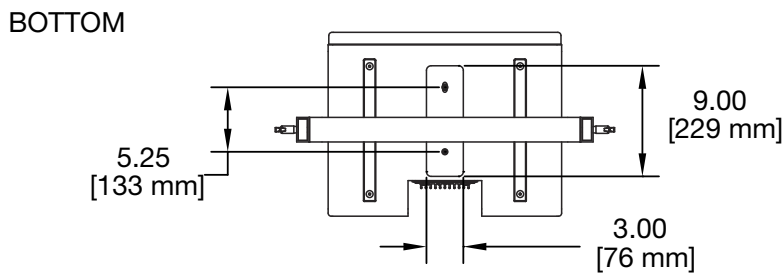
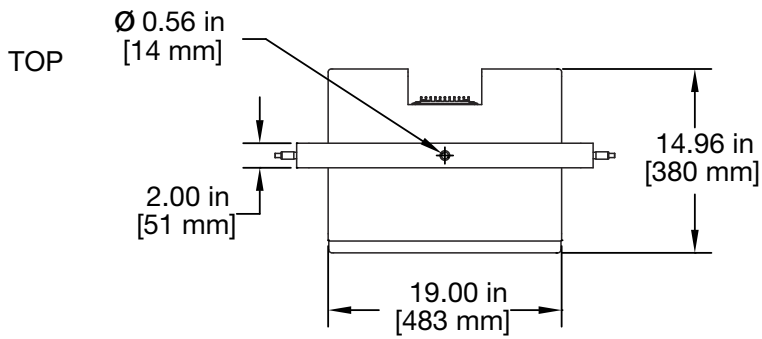
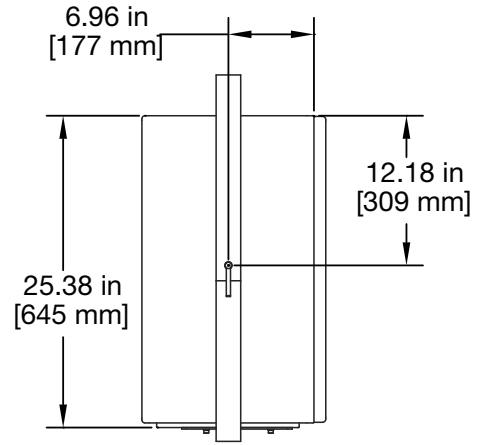
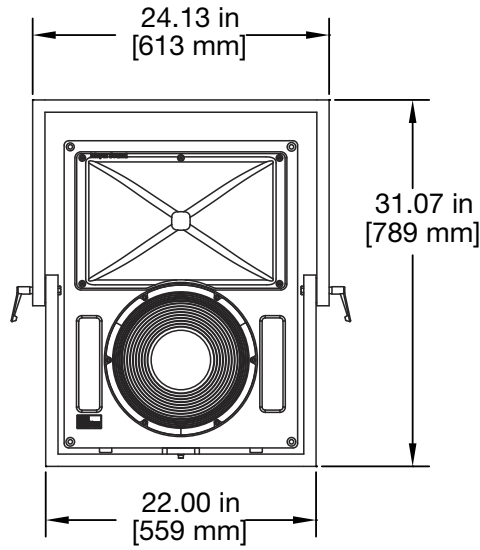


ACHERON DESIGNER DIMENSIONS



Acheron Designer Weight and Grille Information	
Weight without Grille Frame	76.0 lb (34.5 kg)
Weight with Grille Frame	78.0 lb (35.4 kg)

ACHERON DESIGNER DIMENSIONS WITH MYA-ACHERON DESIGNER CRADLE-STYLE YOKE



Acheron Designer Weight and Yoke Information	
Weight without MYA-Acheron Designer Yoke	76.0 lb (34.5 kg)
Weight with MYA-Acheron Designer Yoke	104.5 lb (47.4 kg)
MYA-Acheron Designer Self Weight	28.5 lb (12.9 kg)
MYA-Acheron Designer Yoke Load Rating	7:1, 90 lb [40.8 kg] (1 Acheron Designer)





THINKING SOUND

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Acheron Designer Operating Instructions PN 05.211.005.01 B3