

X-800C High-Power Cinema Subwoofer



***Keep these important operating instructions.
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DECLARATION OF CONFORMITY ACCORDING TO ISO/IEC GUIDE 22 AND EN 45014

Manufacturer's Name: Meyer Sound Laboratories Inc.

Manufacturer's Address: 2832 San Pablo Avenue
Berkeley, CA 94702-2204, USA

Declares that the product:

Product Names: X-800C High-Power Cinema Subwoofer

Product Options: All

Conforms to the following Product Specifications:

Safety: EN 60065:2002

EMC: EN55103-1: 1997 emission¹
EN55103-2: 1997 immunity²

This device also complies with EN 55103-1 & -2. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Supplementary Information: The product herewith complies with the requirements of the Low Voltage Directive (LVD) 2006/95/EC and the EMC Directive 2004/108/EC.

Signature:



Ms. Margie Garza
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Issued November 11, 2011

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X-800C Operating Instructions, PN 05.087.011.01 A

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SYMBOLS USED

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

			
Dangerous voltages: risk of electric shock	Important operating instructions	Frame or chassis	Protective earth ground
Pour indiquer les risques résultant de tensions dangereuses	Pour indiquer important instructions	Masse, châssis	Terre de protection
Warnung vor gefährlicher elektrischer Spannung	Wichtige Betriebsanweisung oder Gebrauchsanleitung	Rahmen oder Gehäuse	Masse Schutzleiter
Para indicar voltajes peligrosos	Instrucciones importantes de funcionamiento y/o mantenimiento	Armadura o chasis	Tierra proteccionista

IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
 - Keep these instructions.
 - Heed all warnings.
 - Follow all instructions.
 - Do not use this loudspeaker near water.
 - Clean only with dry cloth.
 - Do not block any ventilation openings. Install in accordance with Meyer Sound's installation instructions.
 - Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
 - 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.
 - Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the loudspeaker. The AC mains plug or appliance coupler shall remain readily accessible for operation.
 - Only use attachments/accessories specified by Meyer Sound.
 - Use only with the caster rails or rigging specified by Meyer Sound, or sold with the loudspeaker. Handles are for carrying only.
-  **CAUTION:** Rigging should only be done by experienced professionals.
- Unplug this loudspeaker during lightning storms or when unused for long periods of time.
 - Disconnect the mains plug before disconnecting the power cord from the loudspeaker.
 - Refer all servicing to qualified service personnel. Servicing is required when the loudspeaker 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 loudspeaker; rain or moisture has entered the loudspeaker; the loudspeaker has been dropped; or when for undetermined reasons the loudspeaker does not operate normally.
-  **CAUTION:** To reduce the risk of electric shock, do not expose this loudspeaker to rain or moisture. Do not install the loudspeaker in wet or humid locations without using weather protection equipment from Meyer Sound.

SAFETY SUMMARY

English

- To reduce the risk of electric shock, disconnect the loudspeaker from the AC mains before installing audio cable. Reconnect the power cord only after making all signal connections.
- Connect the loudspeaker 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 loudspeaker 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 loudspeaker. Do not put objects containing liquid on or near the unit.
- To reduce the risk of overheating the loudspeaker, avoid exposing it to direct sunlight. Do not install the unit near heat-emitting appliances, such as a room heater or stove.
- This loudspeaker contains potentially hazardous voltages. Do not attempt to disassemble the unit. The unit contains no user-serviceable parts. Repairs should be performed only by factory-trained service personnel.

Français

- Pour réduire le risque d'électrocution, débrancher la prise principale de l'haut-parleur, avant d'installer le câble d'interface allant à l'audio. Ne rebrancher le bloc d'alimentation qu'après avoir effectué toutes les connexions.
- Branchez l'haut-parleur dans une prise de courant à 3 dérivations (deux pôles et la terre). Cette prise doit être munie d'une protection adéquate (fusible ou coupe-circuit). Le branchement dans tout autre genre de prise pourrait entraîner un risque d'électrocution et peut constituer une infraction à la réglementation locale concernant les installations électriques.

- Ne pas installer l'haut-parleur dans un endroit où il y a de l'eau ou une humidité excessive.
- Ne pas laisser de l'eau ou tout objet pénétrer dans l'haut-parleur. Ne pas placer de récipients contenant un liquide sur cet appareil, ni à proximité de celui-ci.
- Pour éviter une surchauffe de l'haut-parleur, conserver-la à l'abri du soleil. Ne pas installer à proximité d'appareils dégageant de la chaleur tels que radiateurs ou appareils de chauffage.
- Ce haut-parleur contient des circuits haute tension présentant un danger. Ne jamais essayer de le démonter. Il n'y a aucun composant qui puisse être réparé par l'utilisateur. Toutes les réparations doivent être effectuées par du personnel qualifié et agréé par le constructeur.

Deutsch

- Um die Gefahr eines elektrischen Schlages auf ein Minimum zu reduzieren, den Lautsprecher vom Stromnetz trennen, bevor ggf. ein Audio-Schnittstellensignalkabel angeschlossen wird. Das Netzkabel erst nach Herstellung aller Signalverbindungen wieder einstecken.
- Der Lautsprecher an eine geerdete zweipolige Dreiphasen-Netzsteckdose anschließen. Die Steckdose muß mit einem geeigneten Abzweigschutz (Sicherung oder Leistungsschalter) verbunden sein. Der Anschluß der unterbrechungsfreien Stromversorgung an einen anderen Steckdosentyp kann zu Stromschlägen führen und gegen die örtlichen Vorschriften verstoßen.
- Der Lautsprecher nicht an einem Ort aufstellen, an dem sie mit Wasser oder übermäßig hoher Luftfeuchtigkeit in Berührung kommen könnte.
- Darauf achten, daß weder Wasser noch Fremdkörper in das Innere den Lautsprecher eindringen. Keine Objekte, die Flüssigkeit enthalten, auf oder neben die unterbrechungsfreie Stromversorgung stellen.

- Um ein Überhitzen dem Lautsprecher zu verhindern, das Gerät vor direkter Sonneneinstrahlung fernhalten und nicht in der Nähe von wärmeabstrahlenden
- Haushaltsgeräten (z.B. Heizgerät oder Herd) aufstellen.
- Im Inneren diesem Lautsprecher herrschen potentiell gefährliche Spannungen. Nicht versuchen, das Gerät zu öffnen. Es enthält keine vom Benutzer reparierbaren Teile. Reparaturen dürfen nur von ausgebildetem Kundendienstpersonal durchgeführt werden.

Español

- Para reducir el riesgo de descarga eléctrica, desconecte de la red de voltaje el altoparlante antes de instalar el cable de señal de audio. Vuelva a conectar la alimentación de voltaje una vez efectuadas todas las interconexiones de señalización de audio.
- Conecte el altoparlante a un tomacorriente bipolar y trifilar con neutro de puesta a tierra. El tomacorriente debe estar conectado a la protección de derivación apropiada (ya sea un fusible o un disyuntor). La conexión a cualquier otro tipo de tomacorriente puede constituir peligro de descarga eléctrica y violar los códigos eléctricos locales.
- No instale el altoparlante en lugares donde haya agua o humedad excesiva.
- No deje que en el altoparlante entre agua ni ningún objeto extraño. No ponga objetos con líquidos encima de la unidad ni cerca de ella.
- Para reducir el riesgo de sobrecalentamiento, no exponga la unidad a los rayos directos del sol ni la instale cerca de artefactos que emiten calor, como estufas o cocinas.
- Este altoparlante contiene niveles de voltaje peligrosos en potencia. No intente desarmar la unidad, pues no contiene piezas que puedan ser reparadas por el usuario. Las reparaciones deben efectuarse únicamente por parte del personal de mantenimiento capacitado en la fábrica.

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CHAPTER 1: INTRODUCTION

HOW TO USE THIS MANUAL

Make sure to read these operating instructions in their entirety before configuring a loudspeaker system with X-800C subwoofers. In particular, pay close attention to material related to safety issues.

As you read these operating 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, and could cause delays or other problems.

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

Meyer Sound Technical Support is available at:

- **Tel:** +1 510 486.1166
- **Tel:** +1 510 486.0657 (after hours support)
- **Web:** www.meyersound.com/support
- **Email:** techsupport@meyersound.com

X-800C CINEMA SUBWOOFER

The X-800C cinema subwoofer boosts low-frequency headroom in Meyer Sound EXP cinema installations. The linear, self-powered X-800C offers low-frequency output down to 20 Hz with clean, punchy transients, and provides excellent phase coherence for smooth transitions between screen channels and LFE channels.

The X-800C includes two Meyer Sound long-excursion, high-efficiency 18-inch drivers housed in an optimally tuned, vented cabinet. Output rolls off well below 250 Hz, avoiding any adverse comb filtering effects from the proximity of the dual drivers.



X-800C Cinema Subwoofer

The drivers are powered by a two-channel class AB/H amplifier with complementary MOSFET output stages. A total output of 1240 Watts (2480 Watts peak) ensures the system has ample headroom to accommodate the lowest frequencies of the most extreme digital soundtracks.

Each amplifier channel features TruPower® limiting to maximize loudspeaker reliability, minimize power compression, and extend component life. The Intelligent AC™ power supply affords automatic voltage selection, EMI filtering, soft current turn-on, and surge suppression.

A laser-trimmed differential input with high common-mode rejection enables long line-level signal runs with shielded, twisted-pair cable. As with all Meyer Sound self-powered loudspeakers, processing correction filters for flat phase and frequency responses.

Integration of the X-800C within Meyer Sound EXP cinema installations is easily achieved with MAPP Online Cinema, a powerful, cross-platform, Java-based application for accurately predicting the coverage pattern, frequency response, impulse response, and maximum SPL output of Meyer Sound cinema loudspeakers.



Meyer Sound EXP Cinema Loudspeakers: X-800C Subwoofer, Acheron Screen Channel Loudspeakers, and HMS-10 Surround Loudspeaker

Meyer Sound's optional RMS™ remote monitoring system provides comprehensive monitoring of system parameters on a Windows®-based computer.

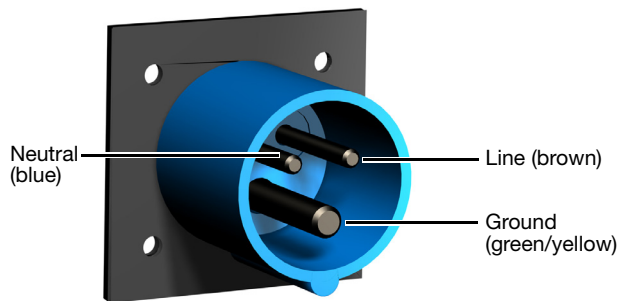
The X-800C cabinet is constructed of premium birch plywood and coated with a durable, low-gloss, black textured finish.

CHAPTER 2: POWER REQUIREMENTS

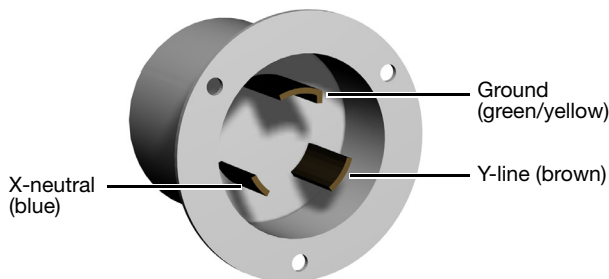
The X-800C subwoofer combines advanced loudspeaker technology with equally advanced power capabilities. Understanding power distribution, voltage and current requirements, and electrical safety guidelines is critical to the safe operation of the X-800C.

AC CONNECTOR

The X-800C AC connector supplies AC power to the unit and is located on its rear user panel. The X-800C can be equipped with either a NEMA L6-20 (twistlock) male inlet or IEC 309 male inlet.



NEMA L6-20 (Twistlock) Male Inlet



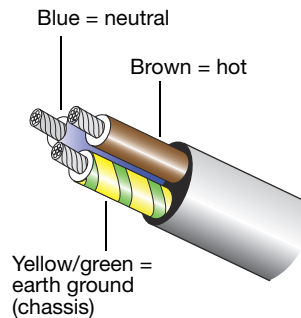
IEC 309 Male Inlet Connector

The X-800C requires a grounded outlet. To operate safely and effectively, it is extremely important that the entire system be properly grounded.

If you replace the included AC power cable, make sure to use a cable that is wired correctly and equipped with the appropriate power plug (on the other end) for the area in which you will operate the unit.

AC Connector Wiring

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



AC Cable Color Code

- 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.

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 X-800C 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, 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 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.

Figure 1 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.

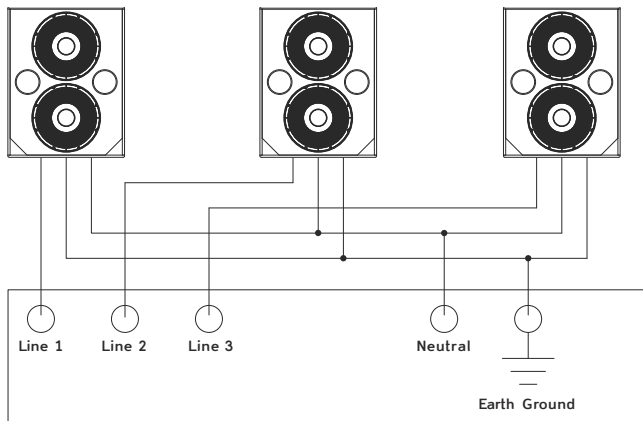


Figure 1: AC Power Distribution System

X-800C VOLTAGE REQUIREMENTS

The X-800C operates safely and continuously when the AC voltage stays within 85–134 V AC and 165–264 V AC at 50 or 60 Hz. The subwoofer allows any combination of voltage to GND (neutral-line-ground or line-line-ground).

If the voltage drops below 85 V (brownout), the X-800C uses stored power to continue operating temporarily; the subwoofer 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 could become damaged.



CAUTION: The power source for the X-800C should always operate within the required voltage range, at least a few volts from the upper and lower ranges. This will ensure 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.



TIP: Since the X-800C 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 X-800C's recommended operating windows (85–134 V AC and 165–264 V AC). 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).

X-800C CURRENT REQUIREMENTS

The current draw for the X-800C 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:


$$V_{pk}(\text{drop}) = I_{pk} \times R(\text{cable total})$$
- **Ultimate Short-Term Peak Current** — A rating for fast-reacting magnetic breakers.
- **Inrush Current** — The spike of initial current encountered when powering on.

You can use Table 1 as a guide for selecting cable gauges and circuit breaker ratings for the system's operating voltage.

Table 1: X-800C Current Draw

Current Draw	115 V AC	230 V AC	100 V AC
Idle Current	0.64 A rms	0.32 A rms	0.85 A rms
Maximum Long-Term Continuous Current	8 A rms	4 A rms	10 A rms
Burst Current	15 A rms	8 A rms	18 A rms
Ultimate Short-Term Peak Current	22 A peak	11 A peak	25 A peak
Inrush Current	<7 A peak	<7 A peak	10 A peak

The minimum electrical service amperage required by an X-800C subwoofer system is the sum of the Maximum Long-Term Continuous Current for each subwoofer. 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.


POWERING UP THE X-800C

When AC power is applied to the X-800C 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 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 X-800C, 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 primary fan turns on.
4. The power supply ramps up.
5. The green Active LED on the user panel lights up, indicating the subwoofer is ready to output audio.

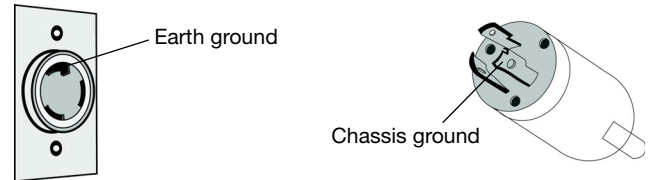
 **CAUTION:** If the Active LED does not light up, or the X-800C does not output audio after ten seconds, remove AC power immediately and verify that the voltage is within the required range. If the problem persists, contact Meyer Sound Technical Support.

 **CAUTION:** If either of the X-800C's circuit breakers trip (the white center buttons disengage), make sure to disconnect the AC power cable before resetting the breakers. If necessary, contact Meyer Sound for repair information.

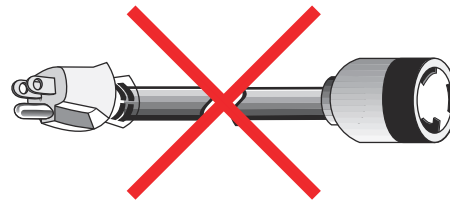
ELECTRICAL SAFETY GUIDELINES

Pay close attention to these important electrical and safety guidelines.

- The X-800C requires a grounded outlet. Always use a grounded outlet and plug.



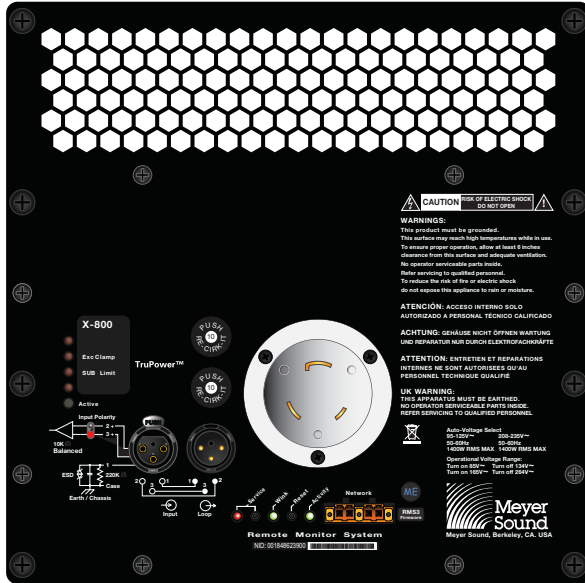
- Do not use a power cord adapter to drive the X-800C from a standard three-prong Edison outlet, since that connector is only rated for 15 A (NEMA 5–15R, 125 V AC maximum).



- 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.
- Do not operate the unit if the power cable is frayed or broken.
- Keep all liquids away from the X-800C to avoid hazards from electrical shock.

CHAPTER 3: AMPLIFICATION AND AUDIO

The low-frequency drivers in the X-800C are powered by a two-channel proprietary Meyer Sound amplifier with MOSFET output stages. The audio signal is processed with an electronic crossover, correction filters for phase and frequency response, and driver protection circuitry. Each channel has peak and rms limiters that prevent driver over-excursion and regulate the temperature of the voice coil.

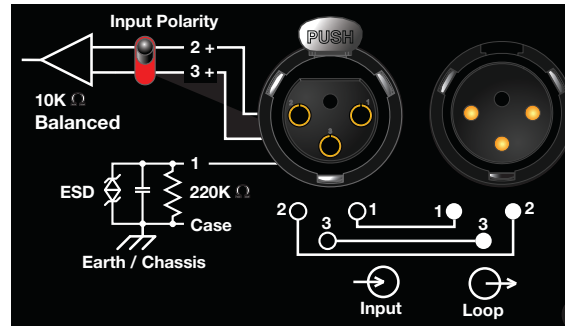


X-800C Rear Panel (with NEMA L6-20 AC Connector)

The X-800C rear panel includes audio connectors for Input and Loop output, as well as an Input Polarity switch. The X-800C is also available with an optional RMS module (see Chapter 4, “RMS Remote Monitoring System”).

AUDIO CONNECTORS

The X-800C include female XLR Input and male XLR Loop output connectors.




X-800C 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** — 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.

 **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 X-800C subwoofers to be looped from a single audio source. For applications that require multiple X-800Cs, 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 X-800C is powered off.

To avoid distortion when looping multiple X-800Cs, 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 X-800C) by the number of looped loudspeakers. For example, the load impedance for 10 X-800C 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 X-800C loudspeakers with other self-powered Meyer Sound loudspeakers and subwoofers.



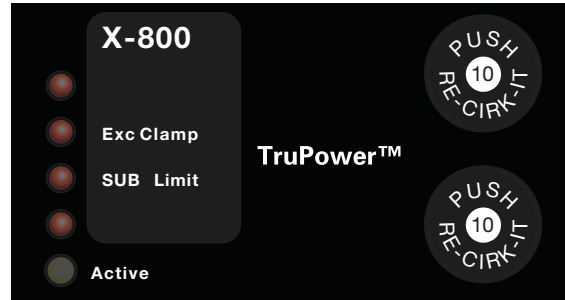
NOTE: Most source devices are capable of driving loads no smaller than 10 times their output impedance.



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

The X-800C employs Meyer Sound's advanced TruPower® limiting. Conventional limiters assume a constant loudspeaker impedance and set the limiting threshold by measuring voltage alone. This method is inaccurate because loudspeaker impedances change as frequency content in the source material changes, and as thermal values for the loudspeaker's voice coil and magnet vary. Consequently, conventional limiters often begin limiting prematurely, which reduces system headroom and dynamic range.



X-800C Limit LEDs

In contrast, TruPower limiting anticipates varying loudspeaker impedances by measuring both current and voltage to compute the actual power dissipation in the voice coil. This improves performance, both before and during limiting, by allowing the driver to produce the maximum SPL across its entire frequency range. TruPower limiting also eliminates power compression at high levels over lengthy periods, which helps regulate voice coil temperatures, thereby extending the life of the driver.



NOTE: Since TruPower limiting only reduces signal levels to keep voice coil temperatures under a safe margin, signal peaks remain unaffected.

Sub Limit LED

The two low-frequency drivers for the X-800C are powered by separate amplifier channels that are routed to a single limiter. When a safe power level is exceeded in either channel, limiting is engaged for both channels and the SUB Limit LED lights.

When engaged, the limiter not only protects the drivers but also prevent signal peaks from causing excessive distortion in the amplifier channels, thereby preserving headroom and maintaining smooth frequency responses at high levels. When levels returns to normal, below the limiter thresholds, limiting ceases.

The X-800C performs within its acoustical specifications at normal temperatures when the SUB Limit LED is unlit, or if the LED is lit for two seconds or less and then turns off for at least one second. If the 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 SUB Limit LEDs indicates when a safe, optimum level is exceeded. If an X-800C begins to limit before reaching the required SPL, consider adding more subwoofers to the system.

NOTE: The X-800C subwoofer uses an optical limiter that adds no noise and has no effect on the signal when the limiter is not engaged and the SUB Limit LED is not lit.

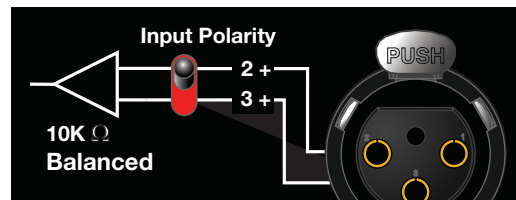
Excursion Clamp LED

The X-800C drivers are protected from over-excursion by an Excursion Clamping circuit, indicated by the Exc Clamp LED. The circuit does not have attack or release time constants and provides instantaneous braking for the drivers without the pumping effects commonly exhibited by compressors and limiters.

The Excursion Clamping circuit uses sophisticated filters to minimize the distortion normally caused by clamping and clipping. As the X-800C's input signal is increased beyond the clamping point, the output signal remains at a fixed level, protecting the drivers and minimizing negative sonic effects. The X-800C operates normally and safely when the Exc Clamp LED is on for no longer than two seconds, and off for at least one second.

INPUT POLARITY SWITCH

The X-800C includes an Input Polarity switch on its rear panel that toggles the polarity of the source signal. When the switch is in the UP position, pin 2 is hot relative to pin 3, resulting in a positive pressure wave when a positive signal is applied to pin 2. When the switch is in the DOWN position, pin 3 is hot relative to pin 2, resulting in a positive pressure wave when a positive signal is applied to pin 3.

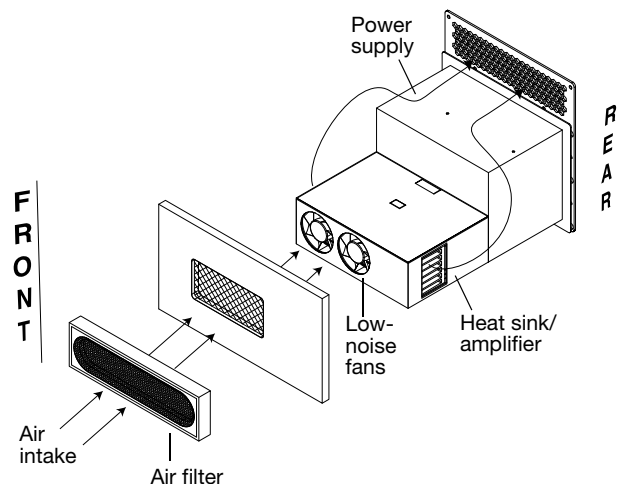


X-800C Input Polarity Switch

NOTE: The Input Polarity switch does not affect the signal coming from the Loop output connector. 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).

AMPLIFIER COOLING SYSTEM

The X-800C uses a forced-air cooling system with two fans (one variable-speed, ultra low-noise primary fan and one reserve fan) to prevent the amplifier module from overheating. The fans draw air in through ducts on the front of the cabinet, over the heat sink, and out the rear of the cabinet. Because dust does not accumulate in the amplifier circuitry, its life span is increased significantly.



Airflow for the X-800C



CAUTION: To keep the X-800C from getting too hot, allow for proper ventilation, 6 inches, behind the loudspeaker.

When the X-800C heat sink temperature is below 42° C, the variable-speed primary fan runs continuously at its slowest speed with an inaudible operating noise. The primary fan increases speed when the heat sink temperature reaches 42° C; the primary fan reaches full speed at 62° C and is barely audible near the cabinet, even without an audio signal. If the heat sink temperature reaches 74° C, the reserve fan turns on. The reserve fan turns on if:

- The primary fan has failed (check status immediately)
- High source levels are encountered for extended periods
- Dust has accumulated along the cooling path

The reserve fan turns off when the heat sink temperature lowers to 68° C.



NOTE: In the unlikely event that the reserve fan does not keep the X-800C heat sink temperature below 85° C, the unit automatically shuts down until AC power is removed and reapplied. If the X-800C shuts down again after cooling and re-applying AC power, contact Meyer Sound for repair information.

Dust and the Amplifier Module

Operating the X-800C in dusty environments, or for prolonged, intensive periods, may cause dust to accumulate along its airflow path, thereby preventing normal cooling. Under these circumstances, it may be necessary to periodically remove the air intake foam and use compressed air to clear the dust from the foam and air ducts.


In addition, if the amplifier gets unusually hot, you should remove the amplifier module and use compressed air to clear any dust from its heat sink.





CAUTION: Make sure to unplug the AC power from the X-800C before cleaning its amplifier.


CHAPTER 4: RMS REMOTE MONITORING SYSTEM

The X-800C is optionally available with the RMS remote monitoring system module, allowing it to be connected to an RMS network. RMS allows real-time monitoring of multiple Meyer Sound self-powered loudspeakers from a Windows-based computer. The RMS host computer communicates with Meyer Sound loudspeakers (equipped with RMS modules) via a simple twisted pair network, or an Ethernet network using an FT-10 to Ethernet adapter.

 **NOTE:** For the latest RMS system requirements, visit the Meyer Sound website (<http://www.meyersound.com>).

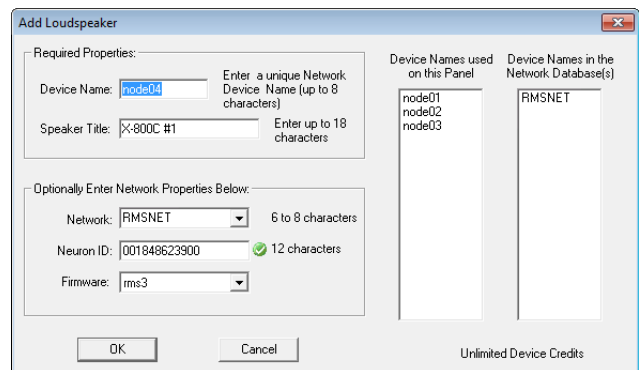
 **NOTE:** RMS-equipped loudspeakers include a Mute Jumper to enable the loudspeaker's mute and solo capability. Meyer Sound currently ships RMS-equipped loudspeakers with the Mute Jumper installed. These mute-enabled loudspeakers can be identified by the blue "ME" sticker on the face of the RMS module. Older RMS-equipped loudspeakers can easily be mute-enabled by installing the Mute Jumper. For more information, refer to the *RMS User Guide*.

 **NOTE:** The RMS software allows you to disable Mute and Solo functions to eliminate any possibility of accidentally muting loudspeakers. Mute and solo capability can also be disabled by removing the Mute Jumper from RMS modules. For more information, refer to the *RMS User Guide*.

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

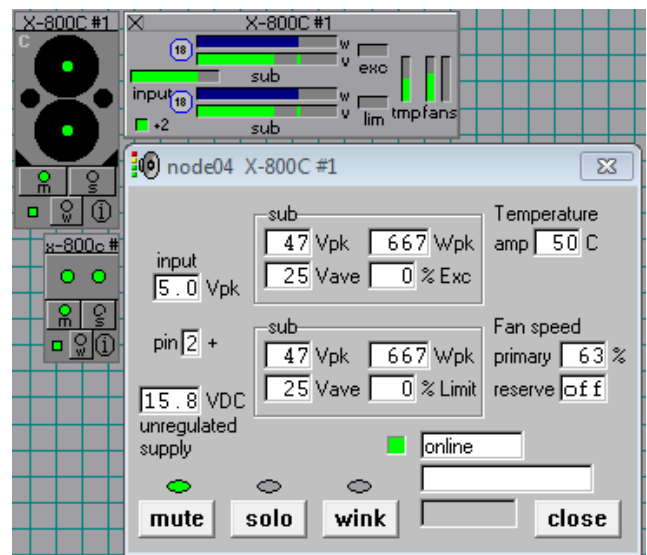
RMS SOFTWARE

The optional 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 commissioning procedure where the loudspeaker is identified by either entering its unique Neuron ID, or by pressing its Service button.



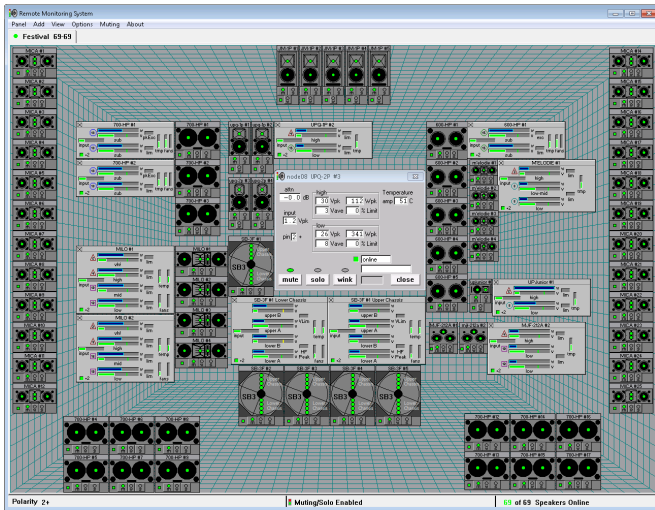
RMS Add Loudspeaker Dialog Box

Once loudspeakers are identified on the RMS network, they appear in the RMS software as icons and views; they are also automatically added to the RMS database on the host computer.



X-800C RMS Icons

The RMS software displays all loudspeakers on the network in a panel with icons, Meter views, and Text views that can be customized to suit your needs. Loudspeaker data is updated 2–5 times per second. Individual loudspeakers can be physically identified with the Wink option in RMS, which lights the Wink LED on the RMS module for that particular loudspeaker. Conversely, a loudspeaker can be identified in the RMS software by pressing the Service button on the loudspeaker's RMS module.



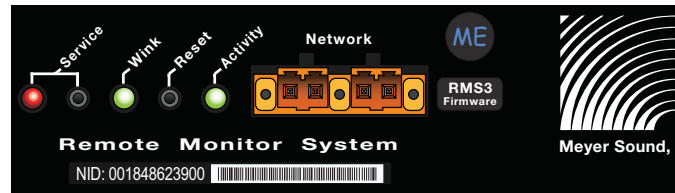
RMS User Panel

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

NOTE: When the X-800C heat sink reaches 85° C (185° F), the On/Temp LED turns red, while its loudspeaker icon in the RMS software turns yellow — indicating the loudspeaker is running hot, but still within safe operating limits. Make sure that the loudspeaker is properly ventilated.

RMS MODULE

The RMS user panel has three LEDs, two buttons, and two Network connectors.



RMS Module

NOTE: The LEDs and buttons on the RMS user panel are used exclusively by RMS and have no effect on the acoustical or electrical activity of the X-800C.

Service LED (Red)

The red Service LED provides the following feedback:

- When unlit, the loudspeaker is successfully connected to the network and commissioned.
- When blinking once every two seconds, the loudspeaker is connected to the network but not yet commissioned in the RMS software.
- When lit continuously, the loudspeaker's RMS hardware has failed and may indicate that the module has been damaged (contact Meyer Sound Technical Support).

Service Button

Pressing the Service button identifies the loudspeaker on the RMS network and notifies the RMS software that the loudspeaker is connected. You can simultaneously press the Reset and Service buttons to reset the RMS module and decommission the loudspeaker from the network (see "Resetting the RMS Module" on page 19).

Wink LED (Green)

The green Wink LED lights when a signal is sent from the RMS software by clicking the Wink button on the loudspeaker's icon or on its Text view. This is useful for identifying the physical loudspeaker corresponding to a loudspeaker icon in the RMS software.

Reset Button

Pressing the Reset button causes the RMS module's firmware to reboot; this will not affect whether the loudspeaker is commissioned (which is stored in flash memory). You can simultaneously press the Reset and Service buttons to reset the RMS module and decommission the loudspeaker from the network (see "Resetting the RMS Module" on page 19).

Activity LED (Green)

The green Activity LED flashes continuously when the loudspeaker has been successfully commissioned.

Network Connectors

The two Weidmuller 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 RMS blocks allow the cables to be securely attached to the RMS module with screws.

RESETTING THE RMS MODULE

You can use the Reset and Service buttons to reset the RMS module, which will cause the module to be decommissioned from the network.

To reset the RMS module:

1. Press and hold the Service button for 10 seconds.
2. While continuing to hold down the Service button, press and hold the Reset button for 5 seconds.
3. After releasing the Reset button, continue holding down the Service button for 5 seconds. The RMS module is reset and the loudspeaker is decommissioned. The RMS module's red Service LED blinks.

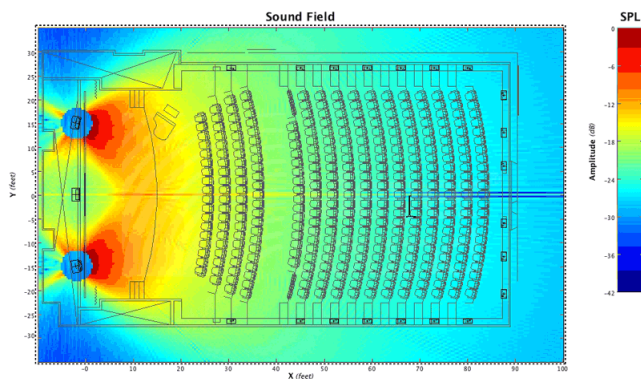
CHAPTER 5: SYSTEM DESIGN AND INTEGRATION TOOLS

Meyer Sound offers two comprehensive tools to assist with the acoustical and functional requirements of system design and optimization. This chapter introduces MAPP Online Cinema, Meyer Sound's patented online acoustical prediction tool, and SIM 3, a comprehensive system for measurement and analysis.

MAPP ONLINE CINEMA

MAPP Online Cinema is a powerful, cross-platform, Java-based application for accurately predicting the coverage pattern, frequency response, impulse response, and maximum SPL output of Meyer Sound cinema loudspeakers.

Residing on your local computer, the MAPP Online Cinema client lets you configure Meyer Sound loudspeaker systems and define the environment in which they will operate, including air temperature, pressure, humidity, and even the location and composition of walls. CAD (DXF) files containing detailed venue information can also be imported.



Air Attenuation On
Temperature = 68.0°F
Pressure = 1,013.25 mb
Relative Humidity = 50.0%

Relative Bandwidth = 1 octave
Center Frequency = 4,000 Hz
Start Frequency = 2,832 Hz
Stop Frequency = 5,643 Hz

MAPP Online Cinema

Sound system designers can use MAPP Online Cinema to accurately predict the appropriate loudspeaker deployment for each job, complete with coverage data, system delay and equalization settings, and detailed design illustrations. MAPP Online Cinema's accurate, high-resolution predictions ensure that systems will perform as expected, thereby eliminating unexpected coverage problems and minimizing on-site adjustments.

The key to the accuracy of MAPP Online Cinema's predictions is its exhaustive database of Meyer Sound loudspeaker measurements. Performance predictions for each loudspeaker are based on 360 1/48th-octave-band measurements taken with a SIM audio analyzer in the Meyer Sound anechoic chamber. The extraordinary consistency between Meyer Sound loudspeakers guarantees that predictions from MAPP Online Cinema will closely match their actual performance.

MAPP Online Cinema predictions are requested by the client software and sent via the Internet to the high-speed Meyer Sound servers where high-resolution (magnitude and phase) polar data is processed with sophisticated acoustical prediction algorithms. The resulting predictions are then returned to and displayed on the local computer running the MAPP Online Cinema client software.



TIP: Meyer Sound offers seminars and webinars on using MAPP Online Cinema. For more information, visit www.meyersound.com.

MAPP Online Cinema Applications

With MAPP Online Cinema, you can:

- Simulate different loudspeaker configurations to refine system design and zero-in on the best coverage for intended audience areas
- Simulate different screen types to evaluate their transparency and reflectivity
- Monitor loudspeaker interactions to locate destructive interferences so that loudspeakers can be re-aimed and repositioned as necessary
- Place microphones anywhere in the sound field and predict their frequency response, impulse response, and sound pressure
- Determine delay settings for surround loudspeakers
- Try out virtual Galileo equalization to determine optimum real-world settings for the best system response
- Generate and export system images for client presentations

Using MAPP Online Cinema

MAPP Online Cinema is compatible with the following operating systems:

- Windows
- Linux®
- Unix®
- Mac OS®

For information on which operating system versions are supported, visit www.meyersound.com.

Downloading and Installing MAPP Online Cinema

To use MAPP Online Cinema, you must register online at www.meyersound.com. After entering your registration information, an email will be sent to you with your user name, password, and the MAPP Online Cinema download location. On-screen instructions will guide you through the download and installation process.

The MAPP Online Cinema client software is regularly upgraded to add support for the latest Meyer Sound loudspeakers, as well as to add feature enhancements. Most upgrades are downloaded automatically when logging on to a MAPP Online Cinema session. The MAPP Online Cinema database includes all Meyer Sound EXP screen channel loudspeakers, surround loudspeakers, subwoofers, and processors.

SIM 3 MEASUREMENT SYSTEM

The SIM 3 audio analyzer is a high-resolution audio measurement system comprised of software, hardware, microphones, and accessory cables. The SIM 3 is optimized for measuring audio frequencies with resolutions up 1/48th of an octave, allowing you to apply precise corrections to balance system response using frequency and phase domain information.

Source Independent Measurement Technique

The SIM 3 audio analyzer implements Meyer Sound's source independent measurement technique, a dual-channel method that accommodates statistically unpredictable excitation signals. Any excitation signal within a desired frequency range can be used to obtain highly accurate measurements for acoustical or electronic systems. For example, concert halls and loudspeaker systems can be captured during a performance and used as a SIM 3 test signal, so you can:

- View measurement data as amplitude versus time (impulse response) or amplitude and phase versus frequency (frequency response)
- Utilize a single-channel spectrum mode
- View frequency domain data within a logarithmic frequency axis
- Determine and internally compensate for propagation delays using the SIM 3 Delay Finder

SIM 3 Applications

The SIM 3's primary applications are testing and aligning loudspeaker systems, which entails:

- Measuring propagation delays between subsystems to determine appropriate polarities and delay times
- Measuring variations in frequency response caused by the acoustical environment and the placement and interaction of loudspeakers to determine corrective equalization
- Optimizing subwoofer integrations
- Optimizing loudspeaker arrays

The SIM 3 is also versatile and accurate enough for the following applications:

- Microphone calibration and equalization
- Transducer evaluation and correction
- Echo detection and analysis
- Vibration analysis
- Architectural acoustics
- Underwater acoustics

CHAPTER 6: X-800C SPECIFICATIONS

X-800C Specifications

ACOUSTICAL	
Operating Frequency Range	20 Hz – 200 Hz Note: Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.
Frequency Response	23 Hz – 160 Hz ± 4 dB Note: Measured free field with 1/3 octave frequency resolution at 4 meters.
Phase Response	32 Hz to 175 Hz $\pm 30^\circ$
Maximum Peak SPL	136 dB Note: Measured with music, referred to 1 meter.
Dynamic Range	>110 dB
Coverage	360° for a single unit; varies with number of units and configuration
TRANSDUCERS	
Low Frequency	Two 18" cone drivers Nominal impedance: 8 Ω Voice coil size: 3" Power-handling capability: 600 W (AES) each Note: Power handling measured using AES standards: transducer driven continuously for two hours with a band limited noise signal having a 6 dB peak-average ratio.
AUDIO INPUT	
Type	Differential, electronically balanced
Maximum Common Mode Range	± 15 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 220 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
DC Blocking	None on input; DC blocked through signal processing
CMRR	>50 dB, typically 80 dB (50 Hz – 500 Hz)
RF Filter	Common mode: 425 kHz Differential mode: 142 kHz
TIM Filter	<80 kHz, integral to signal processing
Nominal Input Sensitivity	0 dBV (1.0 V rms, 1.4 V peak) 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, 14 V peak) into 600 Ω to produce the maximum peak SPL over the operating bandwidth of the loudspeaker
AMPLIFIER	
Type	Two-channel complementary MOSFET output stages (class AB/H)
Output Power	1240 W total (2 x 620 W) Note: Wattage rating based on the maximum unclipped burst sine-wave rms voltage the amplifier will produce into the nominal load impedance; both channels 70 V rms (100 V peak) into 8 ohms.

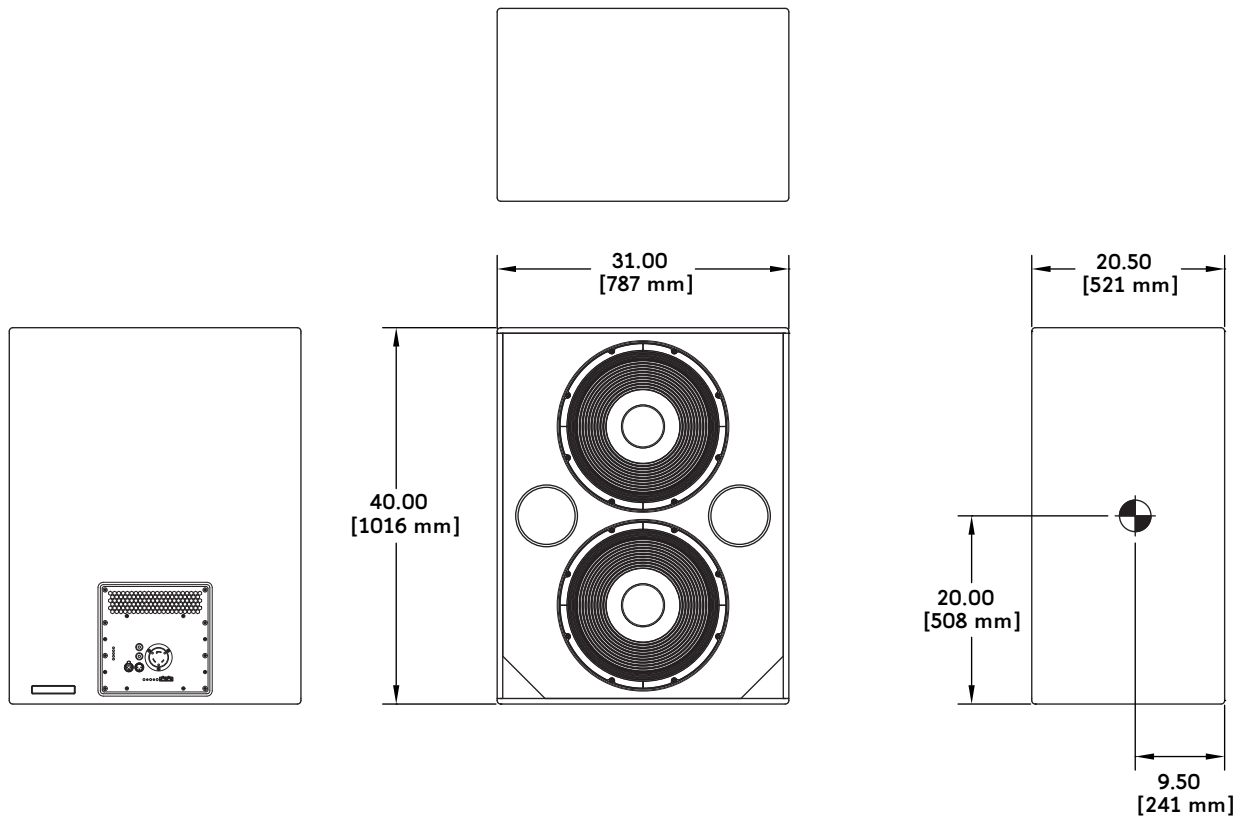
X-800C Specifications

THD, IM TIM	<.02%
Load Capacity	8 Ω minimum impedance each channel
Cooling	Forced air cooling, two internal fans (one ultrahigh-speed reserve fan)
AC POWER	
Connectors	250 V NEMA L6-20 inlet or IEC 309 male inlet
Automatic Voltage Selection	Automatic, two ranges, each with high-low voltage tap (uninterrupted)
Safety Agency Rated Operating Voltage	95–125 V AC; 208–235 V AC; 50/60 Hz
Turn-on/Turn-off Points	85–134 V AC; 165–264 V AC; 50/60 Hz
Current Draw	
Idle Current	0.64 A rms (115 V AC); 0.32 A rms (230 V AC); 0.85 A rms (100 V AC)
Maximum Long-Term Continuous Current	8 A rms (115 V AC); 4 A rms (230 V AC); 10 A rms (100 V AC)
Burst Current	15 A rms (115 V AC); 8 A rms (230 V AC); 18 A rms (100 V AC)
Ultimate Short-Term Peak Current	22 A peak (115 V AC); 11 A peak (230 V AC); 25 A peak (100 V AC)
Inrush Current	<7 A peak (115 V AC); <7 A peak (230 V AC); 10 A peak (100 V AC)
PHYSICAL	
Enclosure	Premium birch plywood
Finish	Low-gloss, black-textured finish
Dimensions	31" w x 40" h x 21" d (787 mm x 1016 mm x 533 mm)
Weight	221 lbs (100.24 kg)
ENVIRONMENTAL	
Operating Temperature	0° C to +45° C
Non Operating Temperature	<–40° C or >+75° C
Humidity	to 95% at 35° C
Operating Altitude	to 4600 m (15,000 ft)
Non Operating Altitude	to 95% at 35° C
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

X-800C COMPLIANCE



X-800C DIMENSIONS



X-800C Dimensions

thinking sound



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