

OPERATING INSTRUCTIONS

1100-LFC Low-Frequency Control Element



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

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: 1100-LFC Low-Frequency Control Element

Product Options: All

Conforms to the following Product Specifications:

Safety: EN 60065:2002+A12:2011
EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011

EMC: EN55103-1: 2009 emission¹
EN55103-2: 2009 immunity²

This device also complies with EN 55103-1 & -2 as noted below.

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:



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Issued December 3, 2012

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1100-LFC Operating Instructions, PN 05.220.005.01 A

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FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

This device complies with Part 15 of the FCC rules. 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.

INDUSTRY CANADA COMPLIANCE STATEMENT





This Class A digital apparatus complies with Canadian ICES-003.

AVIS DE CONFORMITÉ À LA RÉGLEMENTATION D'INDUSTRIE CANADA



Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this loudspeaker 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 loudspeaker. 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 loudspeaker. Handles are for carrying only.
 **CAUTION:** Rigging should only be done by experienced professionals.
13. Unplug this loudspeaker during lightning storms or when unused for long periods of time.
14. Disconnect the mains plug before disconnecting the power cord from the loudspeaker.
15. 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 1100-LFC loudspeakers. 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.mebersound.com.


Meyer Sound Technical Support is available at:

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

1100-LFC LOW-FREQUENCY CONTROL ELEMENT

The 1100-LFC low-frequency control element is a self-powered loudspeaker defined by its sonic linearity in reproducing low-frequency transients at high, continuous output levels with very low distortion. This ultralow distortion, coupled with exceptional headroom and optimized rigging options, makes the 1100-LFC a flexible tool for low-end directional applications for large-scale tours and installations.

To guarantee optimum performance, 1100-LFC systems must be designed with Meyer Sound's MAPP Online Pro® acoustical prediction software. The intuitive, cross-platform application accurately predicts directional patterns, frequency and impulse responses, and maximum peak SPL for 1100-LFC systems, ensuring that systems deliver the required coverage and SPL.

 **NOTE:** For information on using 1100-LFC with MAPP Online Pro, contact Meyer Sound Technical Support at techsupport@mebersound.com.



1100-LFC Low-Frequency Control Element

An optimally tuned, vented cabinet houses the 1100-LFC's two linear, high-excursion 18-inch cone drivers. The loudspeaker's 28 Hz to 100 Hz operating frequency range complements LEO-M™, MILO®, MICA®, JM-1P, and other Meyer Sound loudspeakers, allowing it to integrate seamlessly with line arrays and curvilinear arrays.

The unit's power amplifier operates at voltages from 208 to 235 V AC, at 50/60 Hz. TruPower® limiting ensures maximum driver protection, minimizing power compression while yielding high constant output under high continuous and peak power conditions. The amplifier, control electronics, and power supply are contained in a single field-replaceable module located on the rear of the cabinet.

Meyer Sound's RMS™ remote monitoring system comes standard with all 1100-LFCs and provides comprehensive monitoring of system parameters on a Windows®-based computer. Convenient XLR 5-pin connectors allow the use of composite cables carrying both RMS and balanced audio (XLR 3-pin audio connectors are optionally available).

Protective, plastic skids are included on the bottom of the 1100-LFC cabinet that securely align with the cabinet's top slots. Units can be stacked normally or reversed for cardioid configurations.

The optional MRK-1100 rigging kit, available as a factory-installed option or field upgrade, includes captive GuideALinks that allow the loudspeaker to be flown from the MTG-1100 top grid. The GuideALinks, located at the front and rear of the cabinet, are easily set with convenient, pinned handles and slots. The GuideALinks also accommodate reversed units for flown cardioid arrays. The MTG-1100 top grid can suspend line arrays comprised of up to 12 cabinets at a 7:1 safety factor, or up to 16 cabinets at a 5:1 safety factor.



MTG-1100 Top Grid with 1100-LFC Array

For touring and portable systems, the 1100-LFC can travel securely in stacks of three units with the optional MCF-1100 caster frame. Durable nylon covers, accommodating stacks of two or three units, are optionally available to ensure the 1100-LFC is completely road ready.



MCF-1100 Caster Frame with 1100-LFC Stack

The 1100-LFC cabinet is constructed of multi-ply hardwood and coated with a black-textured finish. A hex-stamped, steel grille with acoustical black mesh protects the unit's drivers. Other options include weather protection and custom color finishes for fixed installations and applications with specific cosmetic requirements.

CHAPTER 2: POWER REQUIREMENTS

The 1100-LFC loudspeaker 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 1100-LFC.

AC INPUT CONNECTOR

The 1100-LFC receives AC power from its 3-pole powerCON 32 locking connector. Located on the unit's rear panel, the connector is rated at 32 A and provides locking connections to avoid accidental disconnections.



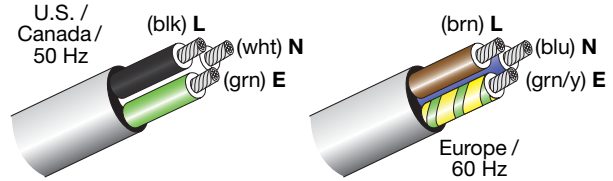
powerCON 32 AC Input Connector

The 1100-LFC ships with a powerCON 32 cable mount connector, also rated at 32 A, for assembling AC power cables. Make sure to use an AC power cable that is wired correctly (see “Wiring AC Power Cables” on page 11) and equipped with the appropriate power plug (on the other end) for the area in which you will operate the unit.

The 1100-LFC requires a grounded outlet. To operate safely and effectively, it is extremely important that the entire system be properly grounded.

WIRING AC POWER CABLES

When wiring AC power cables, use the following wiring scheme:



AC Cable Wiring Scheme

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

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 1100-LFC 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.

Supported Cable Gauges for powerCON 32

While the powerCON 32 connector supports cable gauges of 14–10 AWG (2.5–6.0 mm²), due to 1100-LFC's current draw, 10 AWG (6.0 mm²) should be used whenever possible.

1100-LFC VOLTAGE REQUIREMENTS

CAUTION: Due to its expanded power capabilities, the 1100-LFC was engineered to operate only at 220 V AC (208–235 V AC) to reduce current draw. Make sure to use AC power cables with sufficient gauge to operate with stable voltages during peaks and that the AC power source is capable of providing enough power.

The 1100-LFC operates safely and continuously when its AC voltage stays within 208–235 V AC at 50 or 60 Hz. The loudspeaker allows any combination of voltage to ground (neutral-line-ground or line-line-ground).

If the voltage drops below 208 V (brownout), the 1100-LFC 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 could become damaged.

CAUTION: To ensure that the 1100-LFC performs as specified, without interruption, and without damage to its power supply:

1. Its power source must operate within the required voltage window (208–235 V AC).
2. Its AC cable length and gauge must be such that peak voltage drops do not exceed 5 percent of its voltage.

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 220 V AC, 3-phase Wye distribution system with the loudspeaker load distributed across all three phases, with each loudspeaker connected to a single line and common neutral and earth ground lines. This system delivers 220 V AC to each loudspeaker.

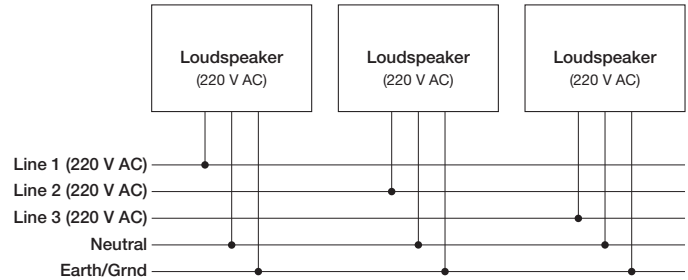


Figure 1: 220 V AC, 3-Phase Wye System (Single Line to Loudspeakers)

Because the 1100-LFC can tolerate elevated voltages from the ground line, and does not require a neutral line, it can also receive voltage from two of the three phases in a Wye system. Figure 2 illustrates a 120 V AC, 3-phase Wye distribution system with each loudspeaker connected to two lines and a common earth ground line. This system delivers 208 V AC to each loudspeaker.

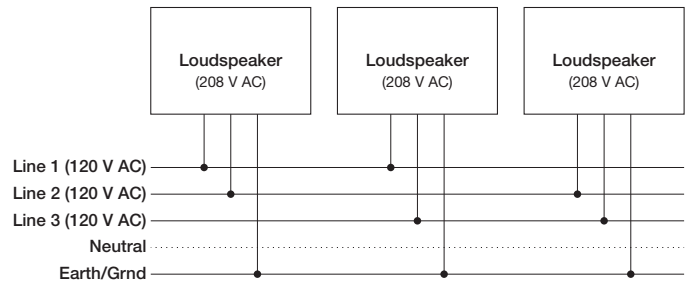


Figure 2: 120 V AC, 3-Phase Wye System (Two Lines to Loudspeakers)

CAUTION: Make sure the voltage received by the 1100-LFC remains within the loudspeaker’s 208–235 V AC operating window. In addition, the ground line must always be used for safety reasons and the line-to-ground voltage should never exceed 250 V AC (typically 120 V AC from line to ground).

1100-LFC CURRENT REQUIREMENTS

The current draw for the 1100-LFC 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, which are recommended for loudspeaker power distribution.
- **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: 1100-LFC Current Draw

Current Draw	230 V AC
Idle Current	0.6 A rms
Maximum Long-Term Continuous Current	10.5 A rms
Burst Current	18 A rms
Ultimate Short-Term Peak Current	53 A peak
Inrush Current	<30 A peak

The minimum electrical service amperage required by an 1100-LFC 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 5 percent of 230 V. Make sure that even with AC voltage drops that the AC voltage always remains within the operating windows.

POWERING UP THE 1100-LFC

The 1100-LFC's Intelligent AC™ power supply 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 1100-LFC, 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 loudspeaker is ready to output audio.



CAUTION: If the Active LED does not light up, or the 1100-LFC does not output audio after 10 seconds, remove AC power immediately and verify that the voltage is within the required range. If the problem persists, contact Meyer Sound Technical Support.



CAUTION: If either of the 1100-LFC'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.

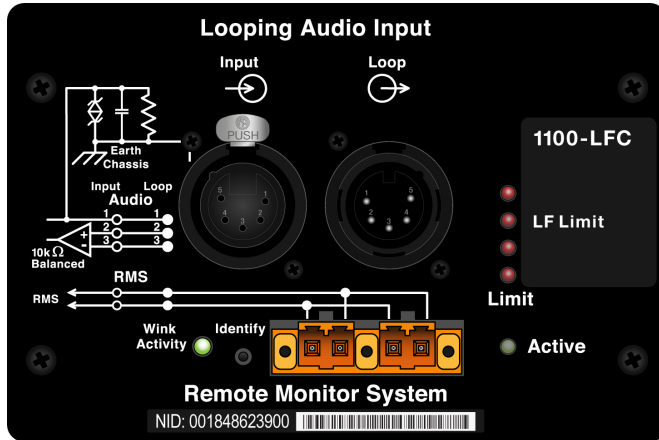
ELECTRICAL SAFETY GUIDELINES

Pay close attention to these important electrical and safety guidelines.

- The 1100-LFC 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.
- 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 1100-LFC loudspeakers to avoid hazards from electrical shock.
- Use the cable rings (see “Cable Rings” on page 16) located on rear of the 1100-LFC to reduce strain on the AC power cable (and audio cables). Do not use the cable rings for any other purpose.

CHAPTER 3: AMPLIFICATION AND AUDIO

The low-frequency drivers in the 1100-LFC are powered by a 2-channel proprietary Meyer Sound amplifier with bridged MOSFET output stages. The audio signal is processed with an electronic crossover, correction filters for phase and frequency responses, and driver protection circuitry. Each channel has peak and rms limiters that prevent driver over-excitation and regulate voice coil temperatures.

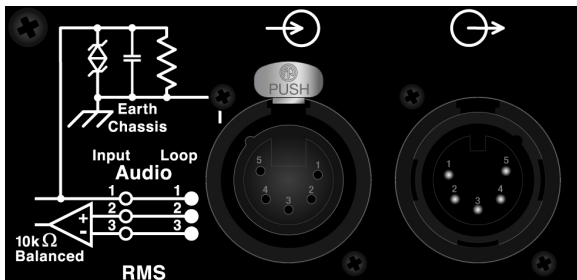


1100-LFC Rear Panel

The 1100-LFC rear panel includes Input and Loop output connectors for audio, Limit and Active LEDs, and RMS controls (see Chapter 5, “RMS Remote Monitoring System”).

AUDIO CONNECTORS

The 1100-LFC comes standard with XLR 5-pin connectors for audio Input and audio Loop output.




1100-LFC Audio Connectors, Input and Loop Output

Audio Input (XLR 5-Pin Female)

The audio Input is an XLR 5-pin female connector and accepts balanced audio signals 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 (-)
- **Pin 4** — RMS (polarity insensitive)
- **Pin 5** — RMS (polarity insensitive)
- **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 use audio cables have 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.

Audio Loop Output (XLR 5-Pin Male)

The audio Loop output is an XLR 5-pin male connector. It allows loudspeakers to be looped from a single audio source. For applications that require multiple 1100-LFCs, 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 1100-LFC is powered off.

To avoid distortion when looping multiple 1100-LFCs, 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 1100-LFC) by the number of looped loudspeakers. For example, the load impedance for 10 1100-LFC 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 1100-LFC loudspeakers with other self-powered Meyer Sound loudspeakers.



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.

OPTIONAL XLR 3-PIN AUDIO CONNECTORS

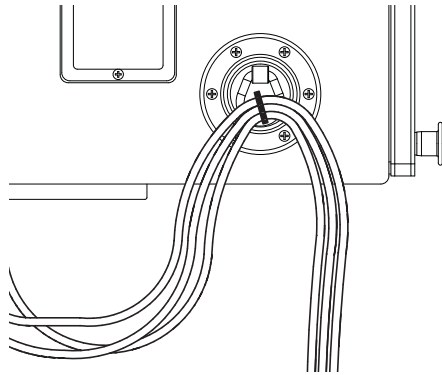
The 1100-LFC is optionally available with XLR 3-pin connectors for audio Input and audio Loop output. The connectors accept balanced audio signals with an input impedance of 10 kOhm and use the following wiring:

- **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.

CABLE RINGS

Two cable rings are provided on the rear of the 1100-LFC loudspeaker. The power and audio cables should be tied off to the rings to reduce strain on the cables and prevent damage to them during installation. The cable rings should not be used for any other purpose.



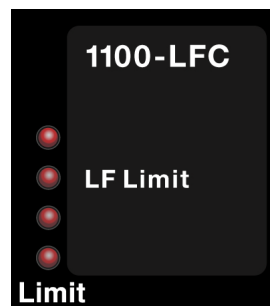
1100-LFC Cables Tied Off to Cable Ring



CAUTION: the 1100-LFC cable rings should only be used to reduce strain on cables. The cable rings should not be used for any other purpose.

TRUPOWER LIMITING


The 1100-LFC 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.



1100-LFC 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.


LF Limit LED


The two low-frequency drivers for the 1100-LFC 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 LF Limit LED lights.

When engaged, the limiter not only protects the drivers but also prevents 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 threshold, limiting ceases.

The 1100-LFC performs within its acoustical specifications at normal temperatures when the LF Limit LED is unlit, or when the LED is lit for 2 seconds or less and then turns off for at least 1 second. If the LED remains lit for longer than 3 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 LF Limit LED indicates when a safe, optimum level has been exceeded. If an 1100-LFC begins to limit before reaching the required SPL, consider adding more units to the system.

 **NOTE:** The 1100-LFC loudspeaker uses an optical limiter that adds no noise and has no effect on the signal when the limiter is not engaged and the LF Limit LED is not lit.


AMPLIFIER COOLING SYSTEM


The 1100-LFC uses forced-air cooling with six ultrahigh-speed fans (three primary, and three reserve) to prevent the amplifiers and power transformer from overheating. The fans draw air in through ducts on the rear of the cabinet, over the heat sinks, and out the rear of the cabinet. Because dust does not accumulate in the amplifier and power circuitry, their life spans are increased significantly.


 **CAUTION:** To keep the 1100-LFC from overheating, allow at least 6 inches behind the loudspeaker for proper ventilation.

1100-LFC Fans

	Primary Fans		Reserve Fans	
Type	Ultrahigh-speed		Ultrahigh-speed	
Number	3		3	
Location	1 for each heat sink (2); 1 for power transformer		1 for each heat sink (2); 1 for power transformer	
Fan speeds and heat sink temp.	<34° C	Half speed	<52° C	Off
	34° – 50° C	Ramps up	>52° C	Full speed
	50° – 84° C	Full speed	<44° C	Off
	>95° C	Audio muted, fans continue at full speed	>95° C	Audio muted, fans continue at full speed
	<86° C	Audio unmuted, fans continue at full speed	<86° C	Audio unmuted, fans continue at full speed

 **NOTE:** In the unlikely event that the 1100-LFC power transformer reaches a temperature of 127° C, the limiter threshold is reduced by 3 dB. When the temperature cools to 107° C, the limiter returns to its normal threshold.

 **CAUTION:** If an 1100-LFC consistently overheats before reaching the desired SPL, consider adding more units to the system.

 **TIP:** When the 1100-LFC is connected to an RMS network, the RMS software provides feedback on the loudspeaker’s operating temperature. For more information, see Chapter 5, “RMS Remote Monitoring System.”

CHAPTER 4: QUICKFLY RIGGING

The 1100-LFC loudspeaker is compatible with Meyer Sound's QuickFly® rigging system, a comprehensive collection of rigging, flying, and transport hardware.

This chapter provides an overview of QuickFly rigging options for the 1100-LFC. For complete information on the rigging hardware, including dimensions, weight, configuration, and load ratings, refer to the MTG-1100 Assembly Guide (PN 05.220.030.01) available at www.meyer-sound.com.

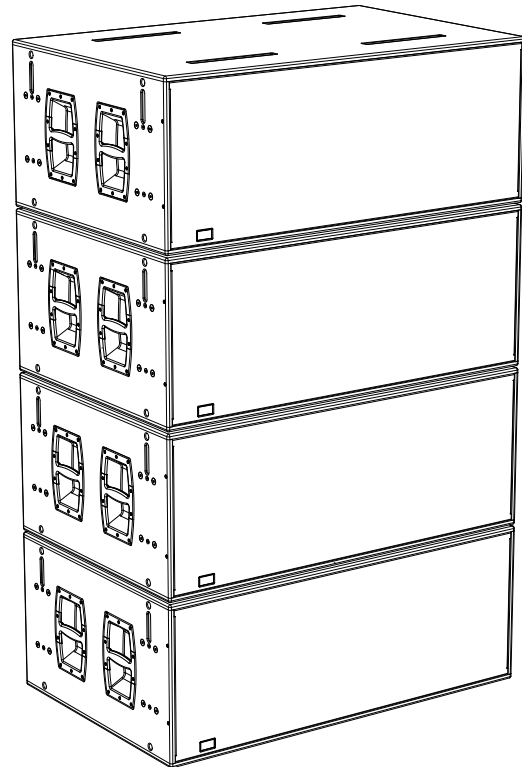
Important Safety Considerations!

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 rigging method for their application. Rigging should only be carried out by experienced professionals.
- Use mounting and rigging hardware that has been rated to meet or exceed the weight being hung.
- Make sure to attach mounting hardware to the building's structural components (studs or joists), and not just to the wall surface. Verify that the building's structure and the anchors used for the installation will safely support the total weight of the mounted loudspeakers.
- Use mounting hardware appropriate for the surface where the loudspeaker will be installed.
- Make sure bolts 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.


GROUNDSTACKING 1100-LFC LOUDSPEAKERS

1100-LFCs can be groundstacked up to four units high, with or without the MRK-1100 rigging kit. Protective, plastic skids are included on the bottom of the 1100-LFC cabinet that securely align with the slots on the cabinet top. Units can be stacked normally or reversed for cardioid configurations. When groundstacking 1100-LFCs, make sure the skids for each unit align with the slots in the cabinet tops.



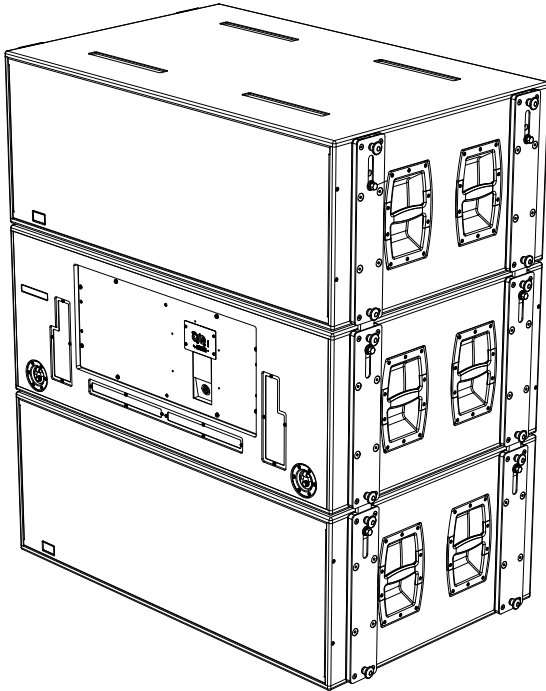
1100-LFC Groundstack

 **CAUTION:** As a safety precaution, to avoid tipping, a maximum of four cabinets is supported for groundstacked 1100-LFCs.

 **NOTE:** 1100-LFCs need not be equipped with the MRF-1100 rigging kit for secure groundstacking.

1100-LFC STACKED CARDIOID ARRAYS

The 1100-LFC can be configured in cardioid arrays to reduce output heard behind the loudspeakers. The loudspeaker’s linearity ensures that cardioid patterns behave accurately even at very high levels. Cardioid arrays are achieved by placing three units coplanar to each other (in either a groundstacked or flown array) with one unit facing the opposite direction. The output of the reversed loudspeaker cancels the output of the other loudspeakers normally present behind the units, while also increasing SPL directed forward.



1100-LFC Cardioid Array

NOTE: 1100-LFCs need not be equipped with the MRF-1100 rigging kit for groundstacked cardioid configurations.

NOTE: 1100-LFC cardioid arrays can also be flown with the MTG-1100 top grid. For more information, see Chapter 4, “MTG-1100 Top Grid.”

NOTE: To achieve an accurate cardioid pattern, MAPP Online Pro and the Galileo® loudspeaker management system are required. Use MAPP Online Pro to calculate the appropriate ratio of forward to rear facing loudspeakers, as well as the required Galileo parameter settings for polarity, delay, and gain. An infinite number of cardioid and directional configurations are possible and can be calculated and predicted with MAPP Online Pro. For more information, contact Meyer Sound Technical Support.

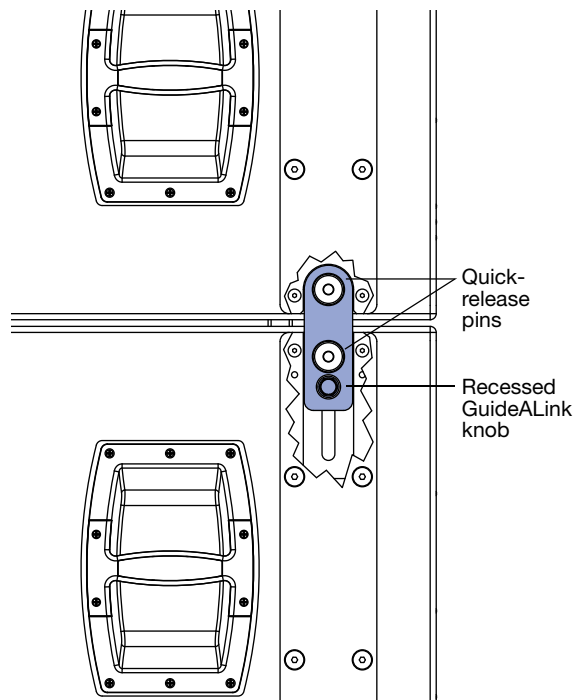
MRK-1100 RIGGING KIT

The optional MRK-1100 rigging kit allows the 1100-LFC to be flown from the MTG-1100 top grid. The rigging kit is available as a factory-installed option or as a field upgrade and uses rugged GuideALinks and intuitive quick-release pins to securely link adjacent loudspeakers in groundstacked and flown array configurations.

NOTE: For more information on the MRK-1100 rigging kit, including its kit contents, weight, and installation instructions, refer to the MTG-1100 Assembly Guide (PN 05.220.030.01) available at www.meyersound.com.

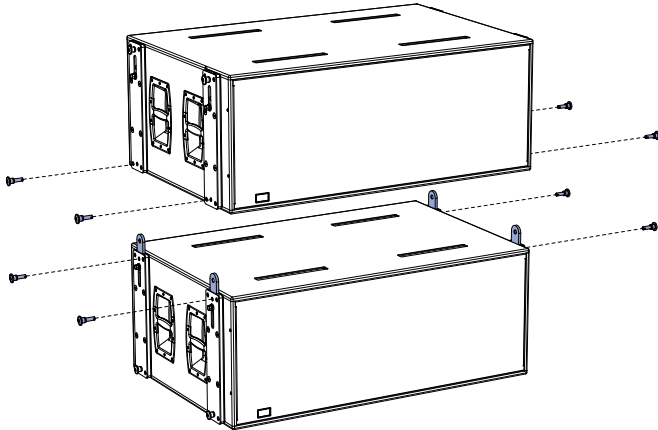
1100-LFC GuideALinks

When equipped with the MRK-1100 rigging kit, the 1100-LFC includes four captive GuideALinks that link to adjacent units in flown and groundstacked arrays. Located at the top corners of the cabinet, the GuideALinks extend up and into the link slots of the cabinet above it (or into the link slots of the MTG-1100 top grid). The links extend and retract with recessed knobs and are secured with quick-release pins. Cabinets can be easily linked once they are stacked, since the GuideALinks extend up and into the link slots of the cabinet above. GuideALinks also accommodate reversed units for cardioid arrays.



1100-LFCs with MRK-1100 Rigging Kit, GuideALinks Exposed

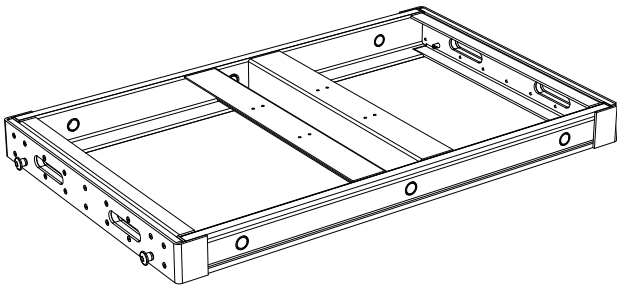
When linking 1100-LFCs, two quick-release pins are required for each GuideALink: one to secure the link in the bottom unit, and one to secure the link to the top (linked) unit. Eight 1/2 x 1.25-inch quick-release pins (blue) are included with the MRK-1100 rigging kit. Loudspeakers are linked at a fixed splay angle of 0 degrees.



1100-LFC with MRK-1100 Rigging Kit, Exploded View

MTG-1100 TOP GRID

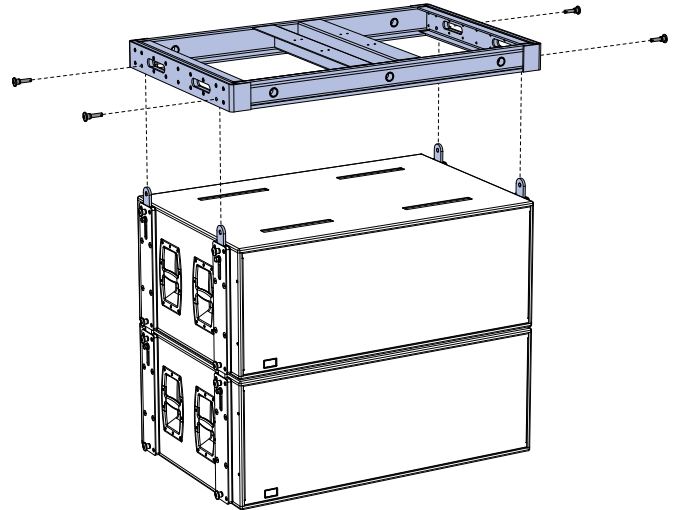
The optional MTG-1100 top grid flies 1100-LFC arrays of up to 12 cabinets at a 7:1 safety ratio, or up to 16 cabinets at a 5:1 safety ratio. The grid accommodates a variety of pickup configurations with six pickup points, three each on the front and rear of the grid. The grid also includes 0.28-inch, center attachment points that accommodate brackets and adapters for lasers and inclinometers.



MTG-1100 Top Grid

NOTE: For more information on the MTG-1100 top grid, including its kit contents, dimensions, weight, load ratings, and pickup configurations, refer to the MTG-1100 Assembly Guide (PN 05.220.030.01) available at www.meyersound.com.

The MTG-1100 is symmetrical and its front/rear orientation does not matter when attaching to the 1100-LFC. The grid has four bottom link slots, two on each side of the grid, that accept GuideALinks from the top cabinet in the array, which attaches at a fixed splay angle of 0 degrees. The grid includes four 1/2 x 1.50-inch quick-release pins (red) for securing the top cabinet.



MTG-1100 Top Grid with 1100-LFC, Exploded View

CAUTION: Always use the red quick-release pins included with the MTG-1100 top grid to secure the top cabinet to the grid. Do not use the blue quick-release pins included with 1100-LFC in the grid as they are shorter and will not lock in place.

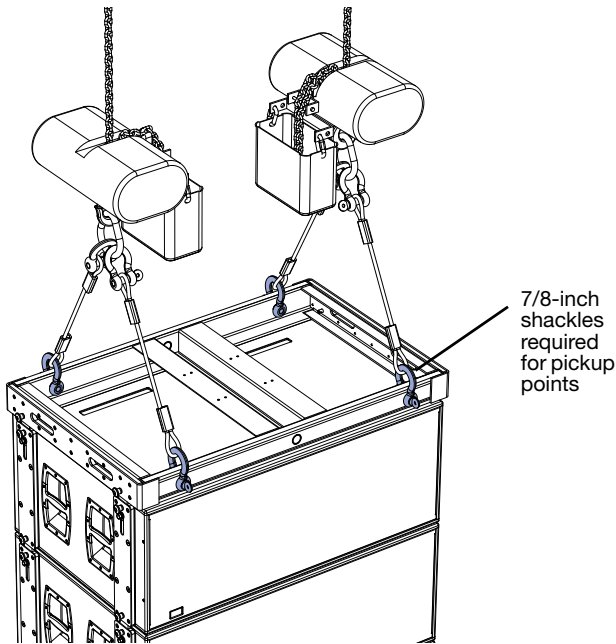
CAUTION: The MTG-1100 top grid requires 7/8-inch shackles for its pickup points.

TIP: The MTG-1100 top grid can travel installed on top of 1100-LFC stacks.

TIP: The MTG-1100 top grid includes 0.28-inch, center attachment points that accommodate brackets and adapters for lasers and inclinometers.

MTG-1100 Pickup Configurations

The MTG-1100 top grid accommodates a variety of pickup configurations with its six pickup points, three each on the front and rear of the grid. When possible, use the front and rear pickup points to change the tilt of the grid with the front and rear motors. You can also bridle between pickup points for greater stability, as compared to single front and rear pickup points.



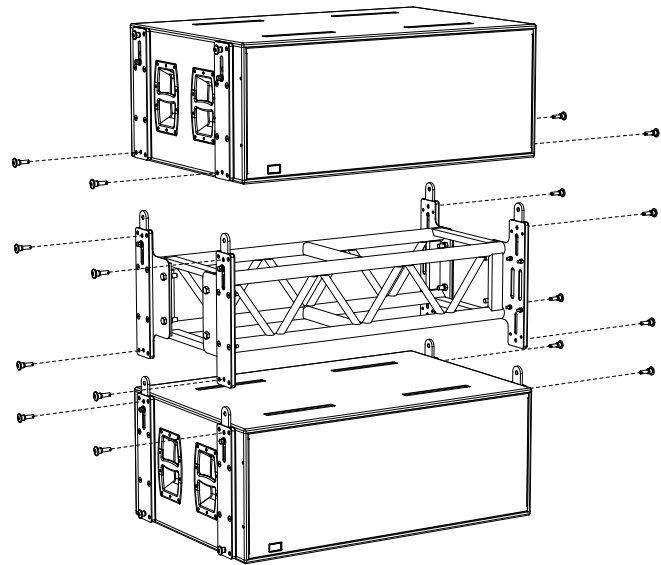
4 to 1 Corner Point Configuration (Left), 4 to 2 Corner Cross Point Configuration (Right)

CAUTION: Always use properly rated rigging hardware. The MTG-1100 top grid requires 7/8-inch shackles for its pickup points.

CAUTION: When using bridles between pickup points on the MTG-1100, the angle of the bridle at the apex should not be greater than 90 degrees to avoid increasing the load on the bridles and damaging the grid.

MAS-1100 ARRAY SPACER

The optional MAS-1100 array spacer can be placed between cabinets to lengthen 1100-LFC arrays, improving vertical directionality. Similar to an 1100-LFC equipped with the MRK-1100 rigging kit, the MAS-1100 array spacer includes four captive GuideALinks that extend up and into the link slots of the cabinet above. The links extend and retract with recessed knobs and are secured with the same 1/2 x 1.50-inch quick-release pins included with the 1100-LFC. The array spacer has four bottom slots, two on each side, that accept GuideALinks from the cabinet below.



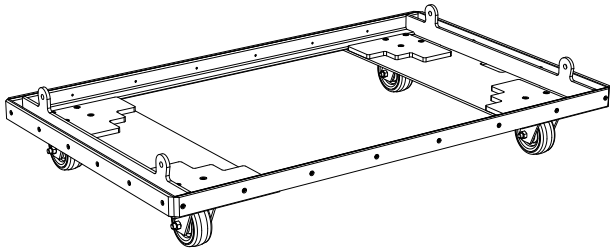
MAS-1100 Array Spacer with Two 1100-LFCs, Exploded View

The MAS-1100 array spacer is symmetrical and its front/rear orientation does not matter when attaching to 1100-LFCs. The array spacer attaches at a fixed splay angle of 0 degrees and accommodates reversed units for cardioid arrays.

NOTE: For more information on the MAS-1100 array spacer, including its kit contents, dimensions, and weight, refer to the MTG-1100 Assembly Guide (PN 05.220.030.01) available at www.meyer-sound.com.

MCF-1100 CASTER FRAME

The optional MCF-1100 caster frame safely supports up to three 1100-LFCs for transport, making it easy to assemble and disassemble arrays in blocks of three cabinets. The caster frame's sturdy construction allows it to be conveniently moved with forklifts. The MCF-1100 can also be used to support 1100-LFCs in groundstacked configurations.



MCF-1100 Caster Frame

1100-LFC cabinets need not be equipped with the MRF-1100 rigging kit for transport with the caster frame. The loudspeaker skirts will ensure that cabinets stack cleanly in the caster frame. However, to avoid tipping, straps (not included) should be used when transporting cabinets that have not been fitted with the MRK-1100 rigging kit (see Figure 3).

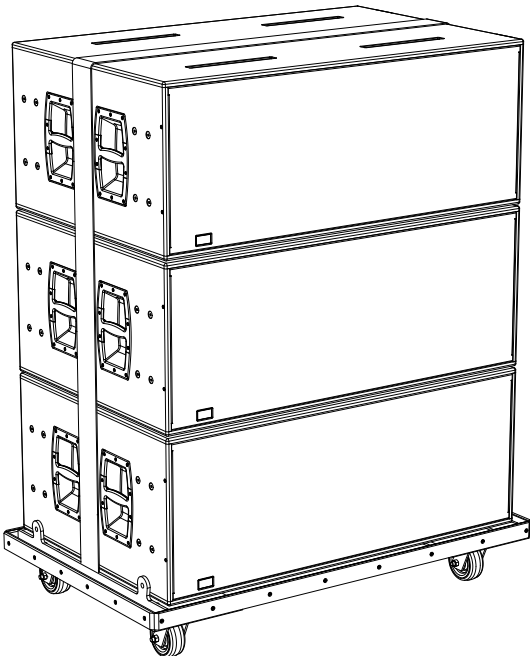


Figure 3: MCF-1100 Caster Frame with 1100-LFC Stack with Straps (Not Included)

1100-LFC cabinets equipped with the MRF-1100 rigging kit provide for more secure transport as the bottom cabinet can be linked and pinned to the caster frame (see Figure 4). Each of the three cabinets can be linked and pinned together as well.

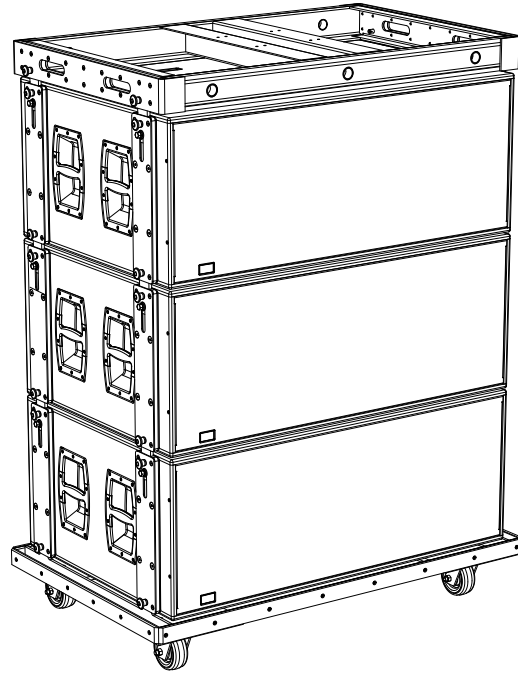





Figure 4: MCF-1100 Caster Frame with 1100-LFC Stack with Rigging Kits (MTG-1100 Top Grid on Top)

 **TIP:** The MTG-1100 top grid can travel installed on top of 1100-LFC stacks.

 **TIP:** Durable nylon covers are available for stacks of two or three units, ensuring the 1100-LFC is completely road ready.

 **NOTE:** For more information on the MCF-1100 caster frame, including dimensions, weight, and truck packing examples, refer to the MTG-1100 Assembly Guide (PN 05.220.030.01) available at www.meyersound.com.

Safety Guidelines for the MCF-1100 Caster Frame


- Do not stack more than three 1100-LFCs on the caster frame.
- Use straps when transporting 1100-LFCs that have not been fitted with the MRK-1100 rigging kit.


- Avoid moving stacks in the front-to-back direction of the 1100-LFCs (the long side); always move stacks sideways to avoid tipping.
- When lifting an 1100-LFC stack with a forklift, always keep the forks wide and close to the caster frame's wheels. Failing to do so may bend the caster frame or cause the stack to tip.
- When groundstacking 1100-LFCs with the caster frame, make sure that all four caster wheels are blocked to prevent the stack from rolling away.

CHAPTER 5: RMS REMOTE MONITORING SYSTEM

The 1100-LFC includes an RMS module that allows the loudspeaker to be connected to an RMS network. RMS provides 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.

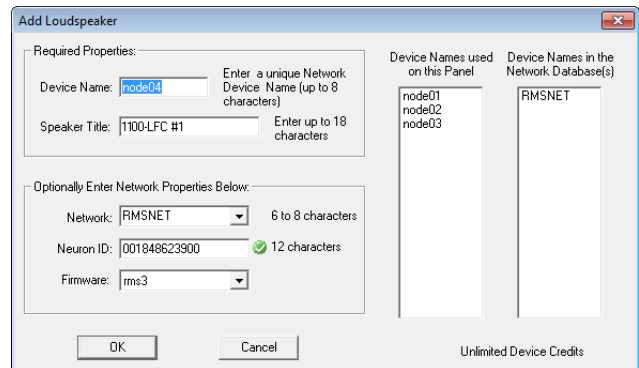
 **NOTE:** For the latest RMS system requirements, visit www.meyersound.com.

 **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.

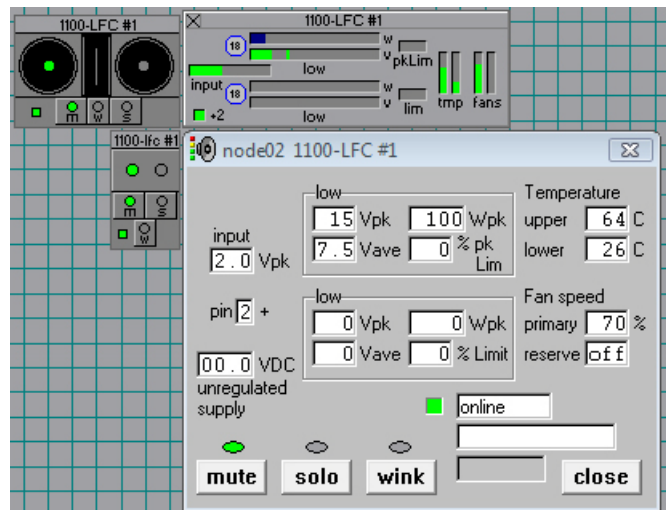
RMS SOFTWARE

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 Identify button.



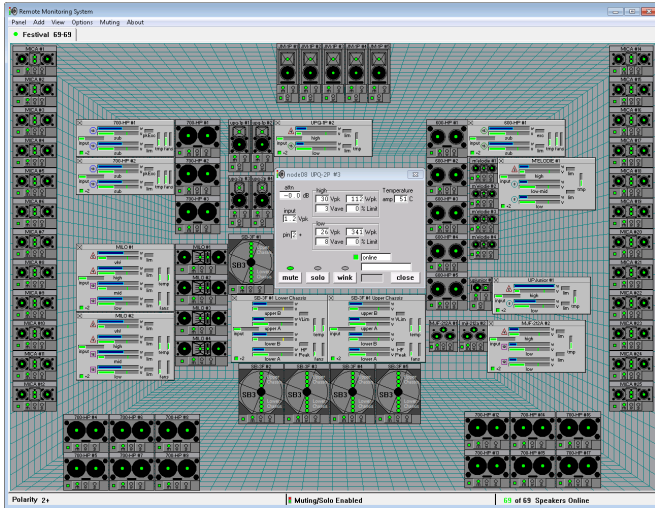
RMS Add Loudspeaker Dialog Box

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.



1100-LFC RMS Icons

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/Activity LED on the RMS user panel for that particular loudspeaker. Conversely, a loudspeaker can be identified in the RMS software by pressing the Identify button on the loudspeaker’s RMS user panel.



RMS User Panel

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

RMS MODULE

The 1100-LFC RMS user panel includes an Identify button, a Wink/Activity LED, and two Network connectors.

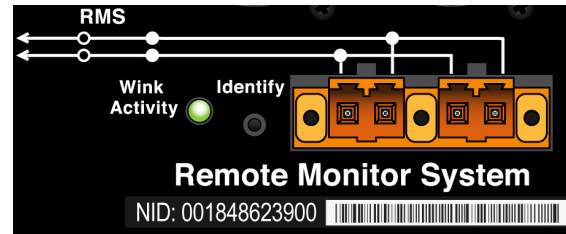


Figure 5: 1100-LFC RMS Module

NOTE: The Identify button and Wink/Activity LED on the 1100-LFC 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 commissioned (Wink/Activity LED not lit), press the Identify button to identify the loudspeaker on the RMS network and commission it.
- To decommission the loudspeaker, press and hold the Identify button during startup (see “Resetting the RMS Module” on page 27).
- To *wink* a commissioned loudspeaker, press the Identify button. The Wink LED on the loudspeaker icon in the RMS software 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 Wink function is useful for identifying the physical loudspeaker corresponding to a loudspeaker icon in the RMS software.

Wink/Activity LED (Green)

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

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



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



NOTE: The Wink/Activity LED on the RMS user panel is used exclusively by RMS and has no effect on the acoustical or electrical activity of the 1100-LFC loudspeaker.

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.

NEURON ID FOR RMS MODULE

Each 1100-LFC RMS module has a unique 12-character Neuron ID (NID) that identifies the loudspeaker on the network. When commissioning the loudspeaker, the NID must either be entered manually or retrieved from the loudspeaker by pressing its Identify button. The NID for the 1100-LFC RMS module is located on the user panel below the orange RMS Network connectors (see Figure 5 on page 26).

RESETTING THE RMS MODULE

You can use the Identify button to reset the 1100-LFC RMS module when powering up the loudspeaker. This will cause the module to be decommissioned from the network.

To reset the 1100-LFC RMS module:

1. Disconnect the loudspeaker's power cord.
2. Press and hold the Identify button.
3. While continuing to hold down the Identify button, reconnect the power cord.
4. After the Wink/Status LED blinks on and off, release the Identify button. The 1100-LFC RMS module is reset and the loudspeaker is decommissioned.

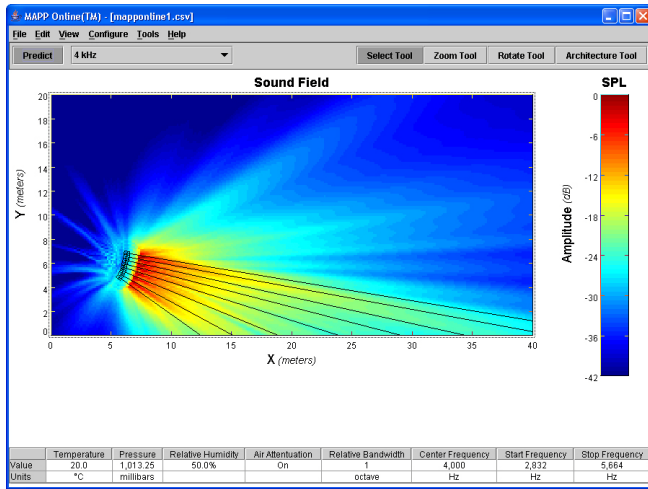
CHAPTER 6: SYSTEM DESIGN AND INTEGRATION TOOLS

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

MAPP ONLINE PRO

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

Residing on your local computer, the MAPP Online Pro 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.




MAPP Online Cinema

Whether planning for fixed installations or tours with multiple venues, sound system designers can use MAPP Online Pro 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 Online Pro'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 Pro'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 Pro will closely match their actual performance.

MAPP Online Pro 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 Pro client software.

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

MAPP Online Pro Applications

With MAPP Online Pro, you can:

- Simulate different loudspeaker configurations to refine system design and zero-in on the best coverage for intended audience areas
- 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 fill loudspeakers
- Try out virtual Galileo equalization to determine optimum real-world settings for the best system response
- Automatically calculate load information for arrays to determine rigging capacities, front-to-back weight distribution, and center of gravity
- Generate and export system images for client presentations

Using MAPP Online Pro

MAPP Online Pro 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 Pro

To use MAPP Online Pro, 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 Pro download location. On-screen instructions will guide you through the download and installation process.

The MAPP Online Pro 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 Pro session. The MAPP Online Pro database includes nearly all of the current Meyer Sound loudspeakers, subwoofers, and processors.



NOTE: For information on using 1100-LFC with MAPP Online Pro, contact Meyer Sound Technical Support at techsupport@meyersound.com.

SIM 3 MEASUREMENT SYSTEM

The SIM 3 audio analyzer is a high-resolution audio measurement system comprised of software, hardware, microphones, and accessory cables. 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 with a logarithmic frequency axis
- Determine and internally compensate for propagation delays using the SIM 3 Delay Finder

SIM 3 Applications

SIM 3's main 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

SIM 3 can also be used in the following applications:

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

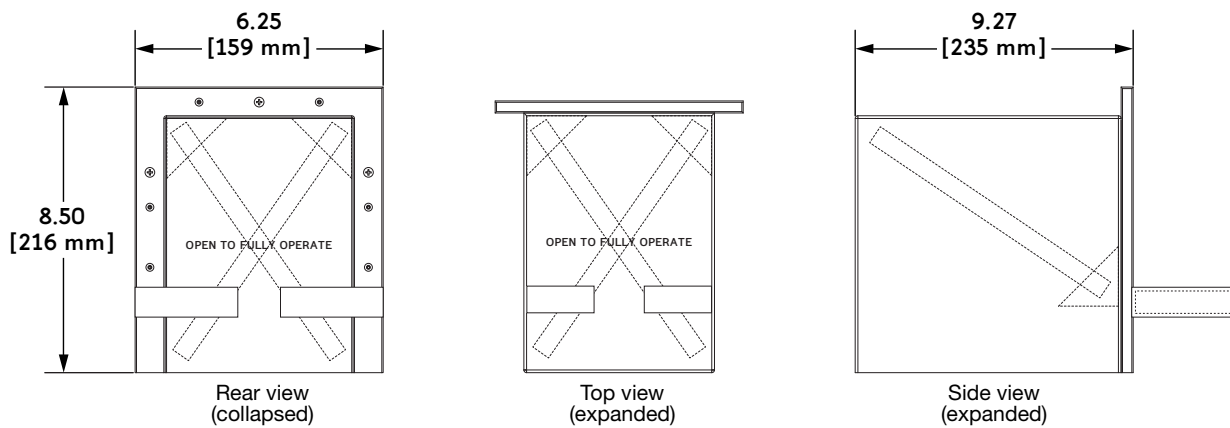
APPENDIX A: OPTIONAL WEATHER PROTECTION

The 1100-LFC is optionally available with weather protection for fixed, outdoor installations. Weather-protected units include a collapsible rain hood that protect's the loudspeaker's connectors from direct exposure to rainfall.

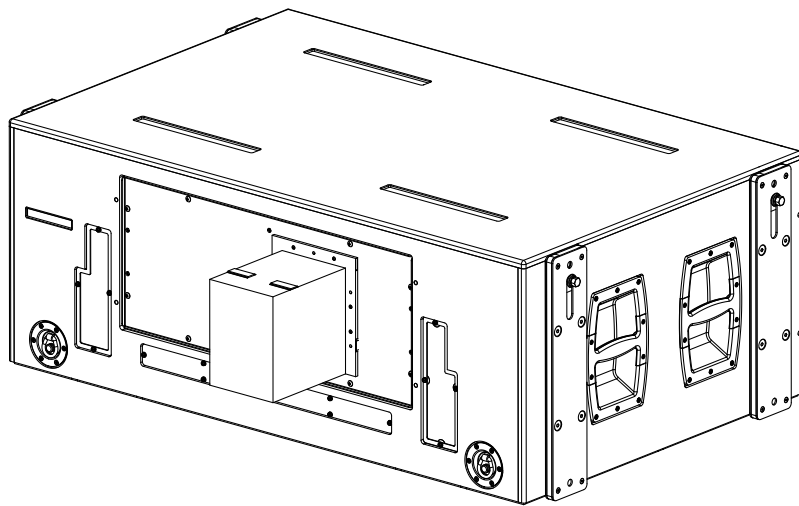
EXPANDING THE 1100-LFC RAIN HOOD

To expand the 1100-LFC rain hood:

1. Remove the rain hood's velcro straps.
2. Expand the rain hood's fabric fully upward and outward.
3. Reach inside the rain hood and free the two struts from the top corner pockets nearest the loudspeaker.



4. Fold the two struts downward and outward and insert them into the two side pockets.



1100-LFC with Rain Hood Expanded



NOTE: For the 1100-LFC dimensions with the rain hood expanded, see “1100-LFC Dimensions with Rain Hood” on page 36.

APPENDIX B: 1100-LFC SPECIFICATIONS

ACOUSTICAL	
Operating Frequency Range	28 Hz – 100 Hz Note: Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.
Frequency Response	30 Hz – 85 Hz ± 4 dB Note: Measured free field with 1/3 octave frequency resolution at 4 meters.
Phase Response	34 Hz to 82 Hz $\pm 30^\circ$
Coverage	Varies with number of units and configuration
TRANSDUCERS	
Low Frequency	Two 18" cone drivers
AUDIO INPUT	
Type	Differential, electronically balanced
Maximum Common Mode Range	± 15 V DC, clamped to earth for voltage transient protection
Connectors	XLR 5-pin female input with XLR 5-pin male loop output Note: XLR 3-pin connectors optionally available.
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 – Pin 4: RMS Pin 5: RMS Case: Earth ground and chassis
DC Blocking	Differential DC blocking up to the maximum common mode voltage
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	2-channel complementary MOSFET output stages (Class AB/H bridged)
Cooling	Three ultrahigh-speed primary fans, three ultrahigh-speed reserve fans
AC POWER	
Connectors	powerCON 32
Safety Agency Rated Operating Range	208–235 V AC; 50/60 Hz
Turn-on/Turn-off Points	165–264 V AC

Current Draw	
Idle Current	0.6 A rms (230 V AC)
Maximum Long-Term Continuous Current	10.5 A rms (230 V AC)
Burst Current	18 A rms (230 V AC)
Ultimate Short-Term Peak Current	53 A peak (230 V AC)
Inrush Current	<30 A peak (230 V AC)
PHYSICAL	
Enclosure	Multi-ply hardwood
Finish	Black textured
Protective Grille	Hex-stamped steel with black mesh screen
Rigging	Optional MRK-1100 rigging kit with captive GuideALinks for groundstacked, flown, and cardioid configurations; optional MTG-1100 top grid for flown arrays; optional MCF-1100 caster frame for transporting stacks of up to three units
Dimensions	52.60" w x 20.48" h x 33.00" d (1336 mm x 520 mm x 838 mm)
Dimensions with Rigging	54.65" w x 20.48" h x 33.00" d (1388 mm x 520 mm x 838 mm)
Weight	249 lbs (112.9 kg)
Weight with Rigging	285 lbs (129.3 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 6300 m (25,000 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)



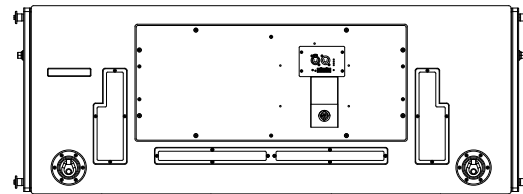
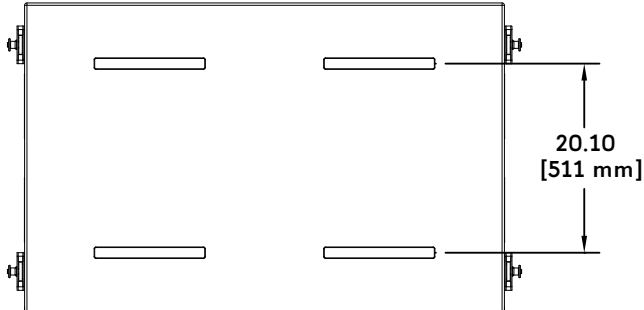
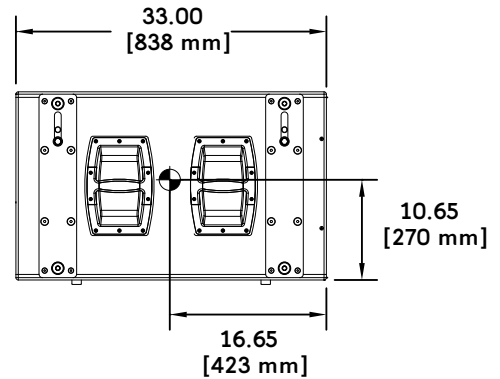
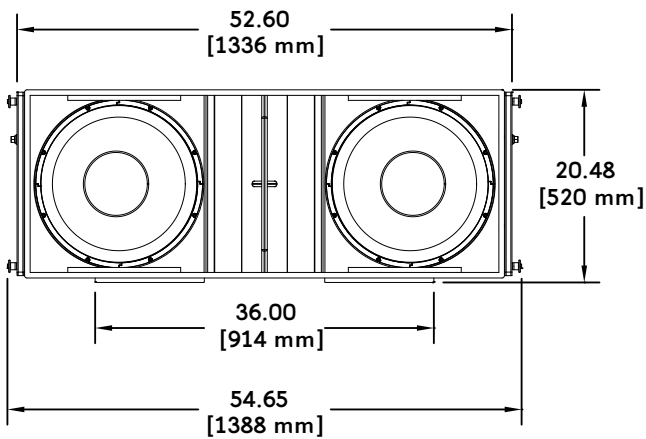
NOTE: For dimensions and weight for the MTG-1100 top grid, MAS-1100 array spacer, and MCF-1100 caster frame, refer to the MTG-1100 Assembly Guide (PN 05.220.030.01) available at www.meyersound.com.

1100-LFC COMPLIANCE



FCC Verified
Class A

1100-LFC DIMENSIONS

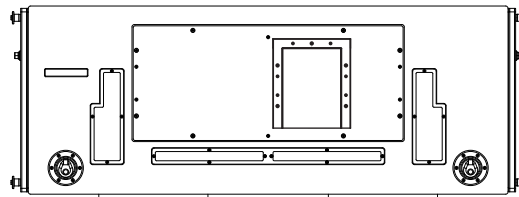
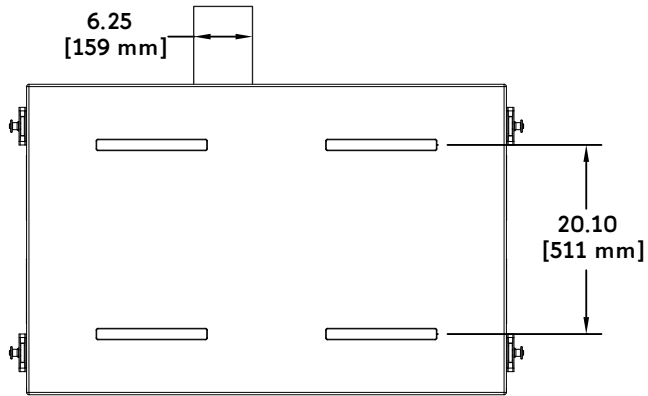
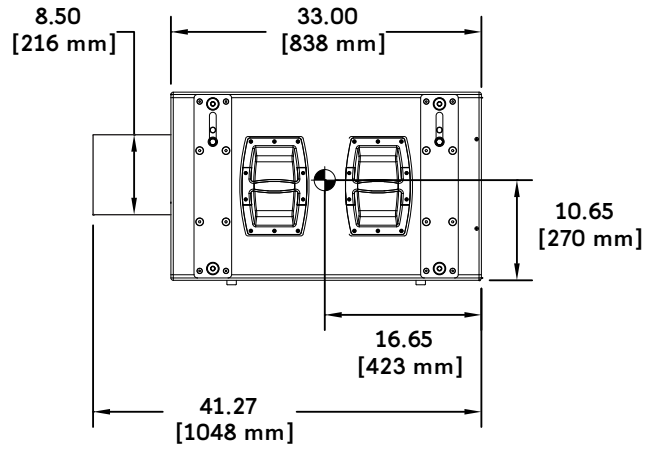
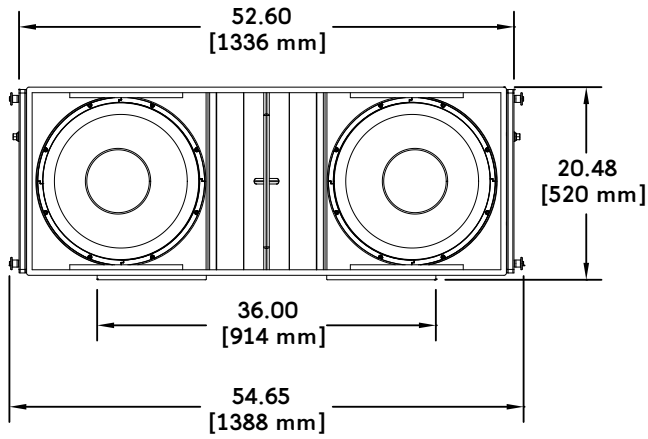


1100-LFC Dimensions



NOTE: For dimensions and weight for the MTG-1100 top grid, MAS-1100 array spacer, and MCF-1100 caster frame, refer to the MTG-1100 Assembly Guide (PN 05.220.030.01) available at www.meyersound.com.

1100-LFC Dimensions with Rain Hood



1100-LFC Dimensions with Rain Hood









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1100-LFC Operating Instructions, PN 05.220.005.01 A