

LINA™ Compact Linear Line Array Loudspeaker



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LINA Operating Instructions, PN 05.270.005.01 B



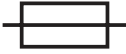


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IMPORTANT SAFETY INSTRUCTIONS

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

SYMBOLS USED

				
Dangerous voltages: risk of electric shock	Important operating instructions	Replaceable Fuse	Protective earth ground	Hot surface: do not touch
Gefährliche Spannungen: Stromschlaggefahr	Hinweis auf wichtige Punkte der Betriebsanleitung	Austauschbare Sicherung	Schutzerde	Heiße Oberfläche: nicht berühren
Pour indiquer les risques résultant de tensions dangereuses	Instructions d'utilisation importantes	Fusible remplaçable	Terre de protection	Surface chaude: ne pas toucher
Para indicar voltajes peligrosos	Instrucciones importantes de funcionamiento y/o Mantenimiento	Fusible reemplazable	Toma de tierra de protección	Superficie caliente: no tocar

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



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

PowerCON Use



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

English

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

Deutsch

- Zur Minimierung der Gefahr eines elektrischen Schlages trennen Sie das Produkt vor dem Anschluss von Audio- und/oder Steuerleitungen vom Stromnetz. Das Netzkabel darf erst nach Herstellung aller Signalverbindungen wieder eingesteckt werden.
- Das Produkt an eine vorschriftsgemäss installierte dreipolige Netzsteckdose (Phase, Neutraleiter, Schutzleiter) anschließen. Die Steckdose muss vorschriftsgemäss mit einer Sicherung oder einem Leitungsschutzschalter abgesichert sein. Das

Anschließen des Produkts an eine anders ausgeführte Stromversorgung kann gegen Vorschriften verstossen und zu Stromunfällen führen.

- Das Produkt nicht an einem Ort aufstellen, an dem es direkter Wassereinwirkung oder übermäßig hoher Luftfeuchtigkeit ausgesetzt werden könnte, solange es sich nicht um ein Produkt handelt, dass mit der Meyer Sound Weather Protection Option ausgestattet ist.
- Vermeiden Sie das Eindringen von Wasser oder Fremdkörpern in das Innere des Produkts. Stellen Sie keine Objekte, die Flüssigkeit enthalten, auf oder neben dem Produkt ab.
- Um ein Überhitzen des Produkts zu verhindern, halten Sie das Gerät von direkter Sonneneinstrahlung fern und stellen Sie es nicht in der Nähe von wärmeabstrahlenden Geräten (z.B. Heizgerät oder Herd) auf.
- Bei Ausstattung mit einem externen Sicherungshalter ist die austauschbare Sicherung das einzige Gerät, das vom Benutzer gewartet werden kann. Verwenden Sie beim Austausch der Sicherung nur den gleichen Typ und Wert.
- Dieses Gerät enthält möglicherweise gefährliche Spannungen. Versuchen Sie nicht, das Gerät zu zerlegen. Der einzige vom Benutzer zu wartende Teil ist die Sicherung, falls vorhanden. Alle anderen Reparaturen dürfen nur von im Werk geschultem Servicepersonal ausgeführt werden.

Français

- Pour éviter tout risque d'électrocution, débranchez l'enceinte de la prise secteur avant de mettre en place le câble audio. Ne rebranchez le cordon secteur qu'après avoir procédé à toutes les connexions de signal audio.
- Branchez l'enceinte sur une prise murale à deux fiches et trois conducteurs avec terre. Cette prise doit être reliée à une ligne électrique protégée par un fusible ou un court-circuit. Utiliser une prise murale de type différent crée des risques d'électrocution, et peut enfreindre des réglementations électriques locales.
- N'installez pas l'enceinte dans des endroits humides ou en présence d'eau sans utiliser d'équipements de protection adéquats fournis par Meyer Sound.
- Ne laissez pas d'eau ou d'objet étranger, quel qu'il soit, pénétrer à l'intérieur de l'enceinte. Ne posez pas d'objet contenant du liquide sur ou à proximité de l'enceinte.

- Pour réduire les risques de surchauffe, évitez d'exposer directement l'enceinte aux rayons du soleil. Ne l'installez pas à proximité de sources de chaleur, radiateur ou four par exemple.
- S'il est équipé d'un porte-fusible externe, le fusible remplaçable est le seul élément qui peut être réparé par l'utilisateur. Lors du remplacement du fusible, n'utilisez que le même type et la même valeur.
- Cet appareil contient des tensions potentiellement dangereuses. N'essayez pas de démonter l'appareil. La seule pièce pouvant être réparée par l'utilisateur est le fusible, s'il en est équipé. Toutes les autres réparations doivent être effectuées uniquement par du personnel de maintenance formé en usine.

Todas las demás reparaciones deben ser realizadas únicamente por personal de servicio capacitado de fábrica.

Español

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

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CHAPTER 1: INTRODUCTION

HOW TO USE THIS MANUAL

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

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



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



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



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

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

LINA COMPACT LINEAR LINE ARRAY LOUD-SPEAKER

The LINA compact linear line array loudspeaker (Figure 1) excels in array performance while providing exceptional high frequency headroom, phase coherence, and consistent coverage. Its light weight and small size are ideal for venues that require a low-profile, high-power, curvilinear array system with exceptional fidelity, such as small theaters, theme parks, houses of worship, and audio-visual systems.



Figure 1: LINA Compact Linear Line Array Loudspeaker

LINA is also ideally suited for front-fill and under-balcony applications that must attain precise high-frequency vertical coverage with a single loudspeaker or short array. In addition to standalone implementations, LINA can also be used in a LEOPARD system as a supplemental fill loudspeaker.

LINA evolves from the highly successful MINA loudspeaker. Meyer Sound optimized LINA using the state-of-the-art technology that made the LEO™ family an award-winning product line: self-powered design, linear response, and precise directional control. Like LEOPARD, LINA loudspeakers offer Native Mode, which yields excellent system performance right out of the box with minimal external processing.

LINA features an innovative, highly efficient class D amplifier that reproduces any sound source with linearity over a wide dynamic range, from speech and classical music to rock and EDM. LINA faithfully reproduces audio with tremendous power, superior intelligibility, and extremely low distortion.

For low-frequency extension, LINA pairs with Meyer Sound's 750-LFC low-frequency control element, which can be flown in a LINA array without transition hardware. Like LINA, the 750-LFC is efficient and versatile, with an excellent power-to-size ratio. Applications that require more low-frequency headroom can use Meyer Sound's 900-LFC, which also integrates with LINA systems.

LINA includes Meyer Sound's QuickFly® rigging with captive GuideALinks™, which are compatible with MINA (same external dimensions) and can create splay angles from 1 to 11 degrees. Rigging options are shared with MINA and include the MG-MINA/LINA/750-LFC Multipurpose Grid (Figure 2), the MCF-MINA/LINA Caster Frame (Figure 3), the MYA-MINA/LINA Yoke and the MUB-MINA/LINA U-Bracket.

Entire LINA family systems should be designed with Meyer Sound's MAPP prediction software, which effectively predicts system SPL and coverage requirements. Using the Meyer Sound MDM-832 distribution module to route AC power, balanced audio, and RMS™ to multiple LINA loudspeakers makes configuring a system much easier and faster.



Figure 2: MG-MINA/LINA/750-LFC Multipurpose Grid with Mixed Array



Figure 3: MCF-MINA/LINA Caster Frame with LINA Stack

NATIVE MODE

LINA and 750-LFC loudspeakers are optimized for use in certain flown and groundstacked configurations without any array compensation or other signal processing. This capability, called *Native mode*, allows LINA/750-LFC systems to be deployed quickly with excellent results, without equalization, tuning, or use of presets.

To use LINA and 750-LFC loudspeakers in Native mode, send an identical, unmodified signal to each element in the array. Looping the same unprocessed source signal through all array elements is the simplest approach.

The following coplanar configurations can be used in Native mode (without any signal processing):

- Flown mixed arrays of LINAs and 750-LFCs (Figure 4)
- Flown separate arrays of LINAs and 750-LFCs (Figure 5)
- Mixed groundstacks of LINAs and 750-LFCs (Figure 6)

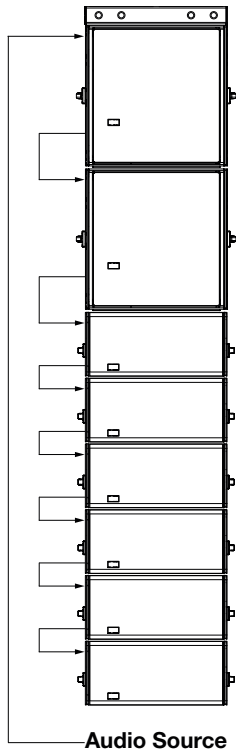


Figure 4: Flown Mixed Array

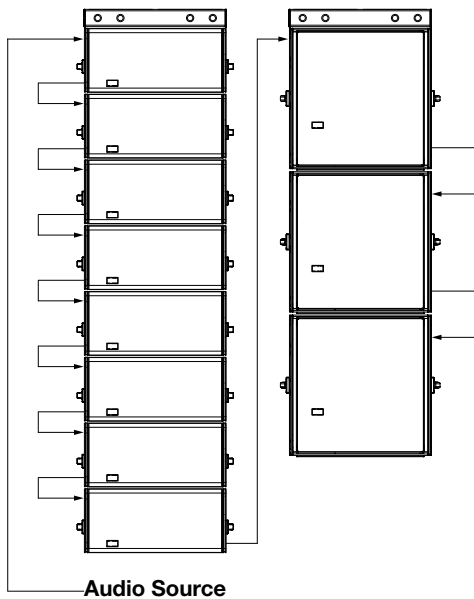


Figure 5: Flown Separate Arrays

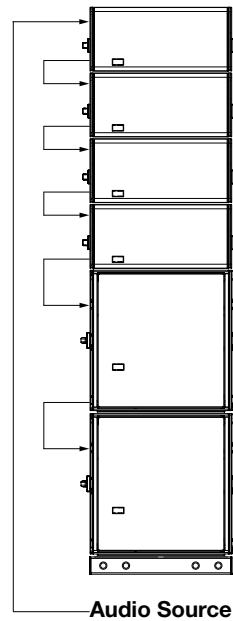


Figure 6: Mixed Groundstack

NOTE: Native mode should not be used with more advanced configurations, such as those where 750-LFCs and LINAs are not coplanar, or those requiring delay offsets to align subsystems or to create directional low-frequency control. These systems require additional processing.

NOTE: For Native mode to work properly, the source signal must be correctly configured with the appropriate gain structure.

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.

CHAPTER 2: POWER REQUIREMENTS

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

AC POWER DISTRIBUTION

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

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

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

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

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

Line-Neutral-Earth/Ground

Figure 7 illustrates a basic 120 V AC, 3-phase Wye distribution system with the loudspeaker load distributed across all three phases, with each loudspeaker connected to a single line and common neutral and earth/ground lines. This system delivers 120 V AC to each loudspeaker.

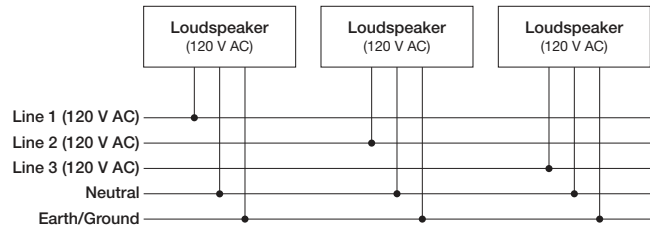


Figure 7: 120 V AC, 3-Phase Wye System (Single Line to Loudspeakers)

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

Line-Line-Earth/Ground

Figure 8 illustrates a 120 V AC, 3-phase Wye distribution system with each loudspeaker connected to two lines and a common earth/ground line. This configuration is possible because LINA tolerates elevated voltages from the ground line and does not require a neutral line. This system delivers 208 V AC to each loudspeaker.

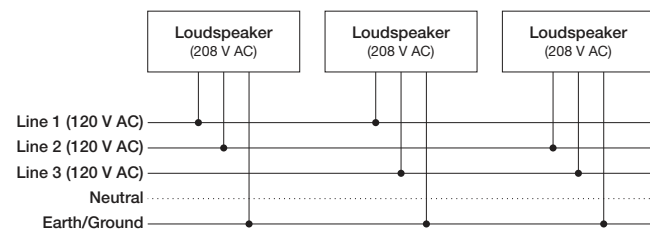


Figure 8: 120 V AC, 3-Phase Wye System (Two Lines to Loudspeakers)

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

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

Line-Neutral-Earth/Ground

Figure 9 illustrates a basic 230 V AC, 3-phase Wye distribution system with the loudspeaker load distributed across all three phases, with each loudspeaker connected to a single line and common neutral and earth/ground lines. This system delivers 230 V AC to each loudspeaker.

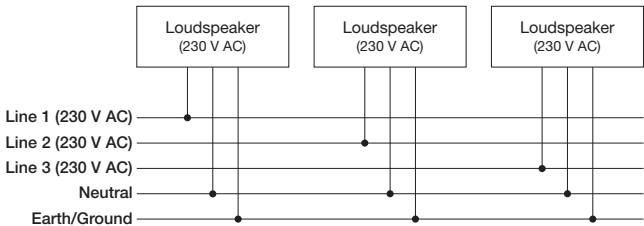


Figure 9: 230 V AC, 3-Phase Wye System (Single Line to Loudspeakers)

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

AC CONNECTORS

The LINA user panel includes two powerCON 20 connectors (Figure 10), one for AC Input (blue) and one for AC Loop Output (gray).

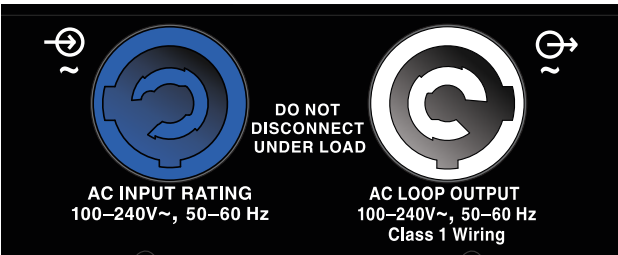


Figure 10: AC Input (Left) and AC Loop Output (Right) Connectors

AC Input (Blue)

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

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

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

AC Loop Output (Gray)

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

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

Table 1: Maximum LINAs that Can Be Looped with AC Power

Circuit Breaker/ Connector Rating	115 V AC	230 V AC	100 V AC
15 A	5 looped (6 total)	11 looped (12 total)	4 looped (5 total)
20 A	7 looped (8 total)	16 looped (17 total)	6 looped (7 total)

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

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

WIRING AC POWER CABLES

LINA ships with a gray powerCON 20 cable mount connector, rated at 20 A, for assembling AC looping cables (Figure 11). The pins on the powerCON 20 cable mount connector are labeled as follows:

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

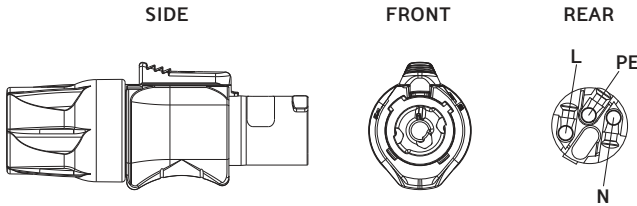


Figure 11: powerCON 20 Cable Mount Connector

How AC power cables are wired is determined by the type of AC power distribution system used (see “AC Power Distribution” on page 13). When wiring AC power cables for single-line systems, use one of the wiring schemes shown in Figure 12 and described in Table 2:

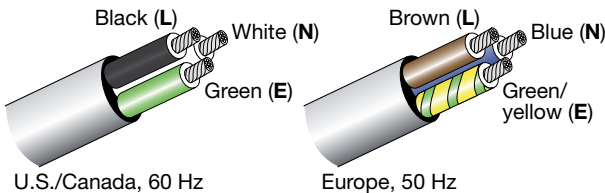


Figure 12: AC Wiring Scheme

Table 2: AC Wiring Scheme

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

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

VOLTAGE REQUIREMENTS

LINA operates as intended when receiving AC voltage within the following range:

- 90–264 V AC, 50–60 Hz

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

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

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

CURRENT REQUIREMENTS

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

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

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

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

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

Table 3: LINA Current Draw

Current Draw	115 V AC	230 V AC	100 V AC
Idle	0.25 A rms	0.25 A rms	0.29 A rms
Maximum Long-Term Continuous	2.3 A rms	1.16 A rms	2.8 A rms
Burst	3.9 A rms	1.7 A rms	4.5 A rms
Maximum Instantaneous Peak	8.8 A peak	4.0 A peak	9.2 A peak

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



NOTE: For best performance, the AC cable voltage drop should not exceed 10 V (10 percent at 115 V and 5 percent at 230 V). This approach ensures that the AC voltage variations from the service entry—or peak voltage drops due to longer cable runs—do not cause the amplifier to cycle on and off.

INTELLIGENT AC POWER SUPPLY

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

Powering on LINA

When powering on LINA, the following startup events take place over several seconds.

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

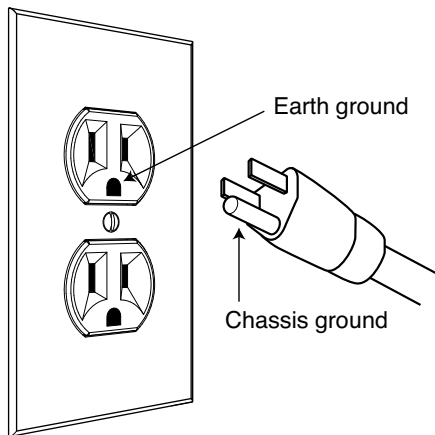


CAUTION: If the Active/Status LED does not turn solid green, or LINA does not output audio after 10 seconds, remove AC power immediately and verify that the voltage is within the required range. If the problem persists, contact Meyer Sound Technical Support.

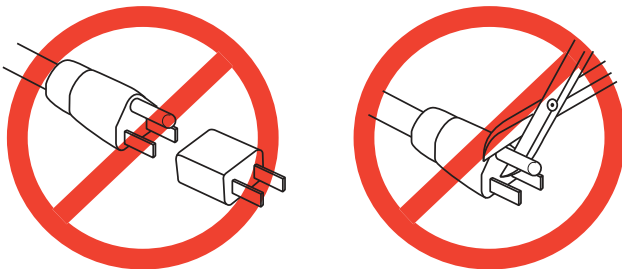
ELECTRICAL SAFETY GUIDELINES

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

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



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



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

CHAPTER 3: AMPLIFICATION AND AUDIO CONNECTORS

LINA's drivers are powered by a proprietary 3-channel, open-loop, class D amplifier. The audio signal is processed with electronic crossover, and correction filters for flat phase and frequency responses, and by driver protection circuitry. Each channel has peak and rms limiters that prevent driver over-excitation and regulate voice coil temperatures.

The LINA user panel (Figure 13) includes Input and Loop output connectors for audio, Limit and On/Status LEDs, and RMS connectors and controls (see Chapter 5, "RMS Remote Monitoring System").

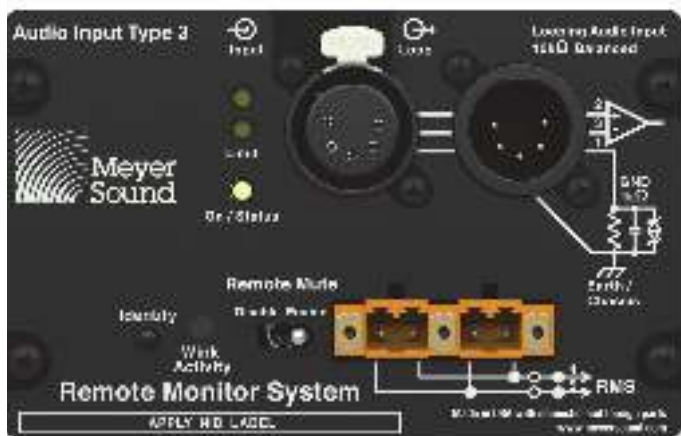


Figure 13: LINA User Panel

AUDIO CONNECTORS

LINA is available with XLR 5-pin (Figure 14) or 3-pin connectors (Figure 15) for audio Input and audio Loop output. XLR 5-pin connectors accommodate both balanced audio and RMS signals.



Figure 14: XLR 5-Pin Audio Connectors, Input and Loop Output



Figure 15: XLR 3-Pin Audio Connectors, Input and Loop Output

Audio Input (XLR 3-Pin or 5-Pin Female)

The XLR 3-pin or 5-pin female Input connector accepts balanced audio signals with an input impedance of 10 kΩ. The connector uses the following wiring scheme:

- **Pin 1** — 1 kΩ 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



NOTE: Pins 4 and 5 (RMS) are included only with XLR 5-pin connectors.

Pins 2 and 3 carry the input as a differential signal. Pin 1 is connected to earth through a 1 k Ω , 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 balanced XLR audio cables with pins 1–3 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 the loudspeaker produces unwanted noise or hiss, 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 source audio, AC power, and electrical ground.



TIP: Audio outputs from Meyer Sound's loudspeaker GALAXY Network Platform have an output impedance of 50 ohms. Each output can drive up to 20 Meyer Sound (10 k Ω) loudspeakers without distortion.



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.

Audio Loop Output (XLR 3-Pin or 5-Pin Male)

The XLR 3-pin or 5-pin male Loop output connector allows multiple loudspeakers to be looped from a single audio source. The Loop output connector uses the same wiring scheme as the Input connector (see “Audio Input (XLR 3-Pin or 5-Pin Female)” on page 19). For applications that require multiple LINAs, connect the Loop output of the first loudspeaker to the Input of the second loudspeaker, and so forth.



NOTE: 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.

Calculating Load Impedance for Looped Audio Signals

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

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



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

TRUPOWER LIMITING

LINA employs Meyer Sound's advanced TruPower® limiting. Conventional limiters assume a constant driver impedance and set the limiting threshold by measuring voltage alone. This method is inaccurate because driver 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.

In contrast, TruPower limiting anticipates varying driver impedances by measuring both current and voltage to compute the actual power dissipation in the voice coil. This approach improves performance, both before and during limiting, by allowing the driver to produce the maximum SPL across its entire frequency range, while also retaining signal peaks. 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.

HF and LF Limit LEDs

The low- and high-frequency drivers for LINA are powered by separate amplifier channels, which have limiters. Limiting activity is indicated with two Limit LEDs on the user panel. The Limit LEDs (Figure 16) indicates limiting for the high-frequency channel and/or the low-frequency channels.




Figure 16: LINA Limit LEDs

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


LINA performs within its acoustical specifications at normal temperatures when the Limit LEDs are unlit, or when the LEDs are lit for 2 seconds or less and then turn off for at least 1 second. If the LEDs remain 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
- Drivers are subjected to excessive heat and excursion, thereby compromising their lifespan

 **CAUTION:** The Limit LEDs indicate when a safe, optimum level is exceeded. If a LINA loudspeaker system begins to limit before reaching the desired SPL, consider adding more units to the system.

AMPLIFIER COOLING SYSTEM

LINA is convection cooled. The amplifier's heat sink provides natural convection cooling from the air flowing near its fins.

 **CAUTION:** To keep LINA from overheating, allow at least 6 in behind the loudspeaker for proper ventilation.


 **CAUTION:** LINA's heat sink can reach temperatures up to 80° C (176° F) during extreme operation. Wait 15 minutes for the unit to cool before touching.


ACTIVE/STATUS LED


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

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

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

 **CAUTION:** If a LINA loudspeaker system consistently overheats before reaching the desired SPL, consider adding more units to the system.

 **NOTE:** During startup, the Active/Status LED flashes multiple colors successively. For more information about the power on sequence, see "Intelligent AC Power Supply" on page 16.

 **TIP:** When LINA is connected to an RMS network, the Compass RMS software provides additional feedback about the loudspeaker's hardware status and operating temperature. For more information, see Chapter 5, "RMS Remote Monitoring System."

CHAPTER 4: QUICKFLY RIGGING

IMPORTANT SAFETY CONSIDERATIONS!

When installing Meyer Sound loudspeakers and subwoofers, the following precautions should always be observed:

- All Meyer Sound products must be used in accordance with local, state, federal, and industry regulations. It is the owner's and user's responsibility to evaluate the reliability of any 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 (roof truss), and not just to the wall surface.
- Make sure bolts and eyebolts are tightened securely. Meyer Sound recommends using Loctite® on all threaded fasteners.
- Inspect mounting and rigging hardware regularly. Immediately replace any worn or damaged components.

RIGGING OPTIONS

Table 4 summarizes the available rigging options for LINA. For complete information on rigging hardware, including dimensions, weight, configuration, and load ratings, refer to the MG-MINA/LINA/750 Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

Table 4: LINA Rigging Options

Model	Weight	Features	Required Quick-Release Pins	Required Shackles
MG-MINA/LINA/750-LFC multipurpose grid kit (PN 40.207.101.01)	39 lb (17.7 kg)	With some restrictions, flies up to 16 LINA cabinets at a 5:1 safety factor and BGV C1 with some angle restrictions (additional load ratings are possible—use MAPP to verify load ratings); supports mixed arrays of LINAs and 750-LFCs without transition hardware; accommodates a variety of pickup configurations with four corner and 11 center pickup points; can also be used for groundstacking.	0.25 in x 0.90 in (black button), PN 134.036, qty 8 included	5/8-inch or 3/4-inch
MG-MINA/LINA/750-LFC multipurpose grid kit with GLK (PN 40.207.101.02)	39 lb (17.7 kg)	With some restrictions, flies up to 16 LINA cabinets at a 5:1 safety factor and BGV C1 with some angle restrictions (additional load ratings are possible—use MAPP to verify load ratings); supports mixed arrays of LINAs and 750-LFCs without transition hardware; accommodates a variety of pickup configurations with four corner and 11 center pickup points; can also be used for groundstacking; includes MG-MINA to 750-LFC Grid Link.	0.25 in x 0.90 in (black button), PN 134.036, qty 8 included	5/8-inch or 3/4-inch
MYA-MINA/LINA Yoke kit (PN 40.207.104.01)	12.9 lb (5.85 kg)	Suspends arrays of up to three LINA cabinets from a single point and pole-mounts up to two cabinets on top of a 750-LFC (pole-mount adapter not included). The yoke includes two bracketing options: the MPA-2 for attaching to two cabinets, and the MPA-3 for attaching to one or three cabinets.	—	—
MUB-MINA/LINA U-Bracket kit (PN 40.207.030.01)	5.8 lb (2.63 kg)	Mounts up to five LINA cabinets for front-fill or under-balcony coverage with up to 20 degrees of tilt. Pole-mounts up to two cabinets (pole-mount adapter not included).	—	—
PBF-LINA pull-back frame kit (PN 40.271.080.01)	4 lb (1.8 kg)	Attaches to bottom of LINA arrays (to the bottom cabinet) and provides pull-back for extreme array downtilt.	0.25 in x 0.90 in (black button), PN 134.036, qty 2 included	1/2-inch

Table 4: LINA Rigging Options

MVP motor Vee plate kit (PN 40.215.184.01)	20 lb (9.1 kg)	Fine tunes the horizontal aim of arrays; compatible with MTG-LEO-M, MTG-LYON, MTG-1100, and MG-LINA/750 grids.	—	3/4-inch or 7/8-inch
MCF-MINA/LINA caster frame kit (PN 40.207.102.01)	28 lb (12.7 kg)	Safely transports up to five LINA cabinets, making it easy to assemble and disassemble arrays in blocks of five cabinets.	0.25 in x 0.90 in (black button), PN 134.036, qty 4 included	—

LINA GUIDEALINKS

Each LINA loudspeaker is equipped with four captive GuideALinks that link to adjacent units in flown and groundstacked arrays. Located at the bottom corners of the end frames, the GuideALinks extend and retract with knobs and are secured with quick-release pins (Figure 17).

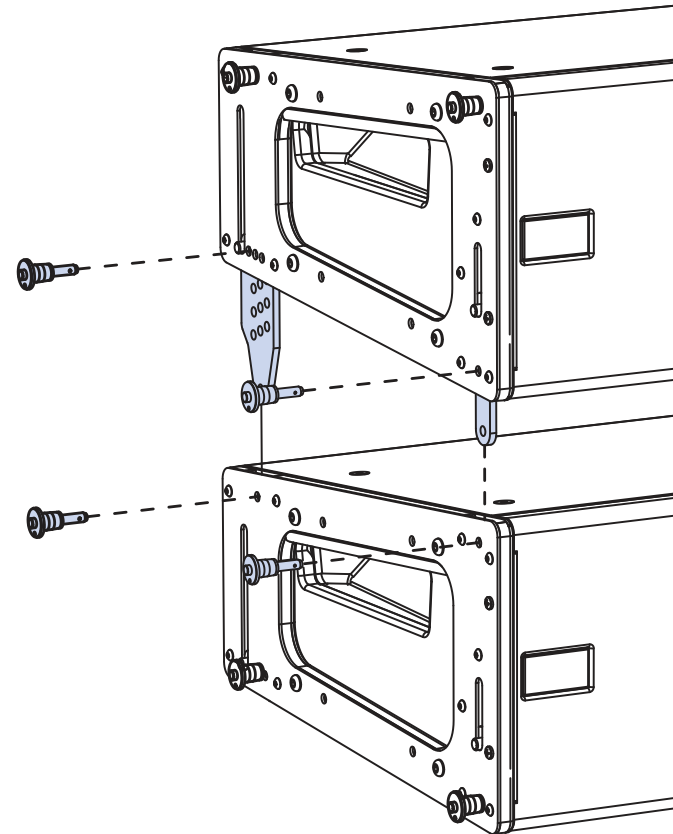



Figure 17: LINA GuideALinks with Quick-Release Pins

 When linking LINAs, two quick-release pins are required for each GuideALink: one to secure the position of the link in the top unit, and one to secure the link to the linked bottom unit. Eight (0.25 in x 0.53 in) quick-release pins are included with each LINA.



CAUTION: Make sure to secure the LINA GuideALinks with the included quick-release pins. GuideALink knobs are for extending and retracting the links and should not be used to support the weight of the loudspeaker (without using the pins) when fully extended.

Front GuideALinks

The front GuideALinks (Figure 18) act as a pivot point between linked LINAs, with the splay angle between the units determined by the rear GuideALink positions. When stowing front GuideALinks, the knob is positioned at the top of the slot.

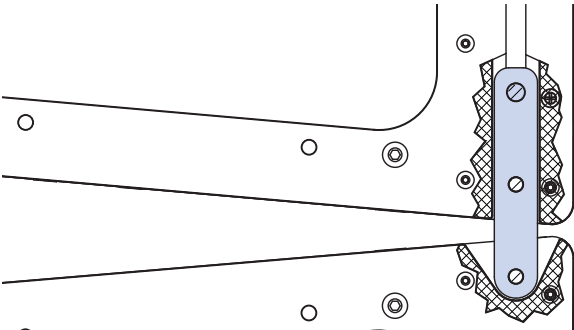


Figure 18: Front GuideALinks

Rear GuideALinks

The rear GuideALinks (Figure 19) permit splay angles between linked LINAs at 0.0°, 0.5°, and 1–11° (1° increments). The rear GuideALink includes three rows of holes corresponding to the available splay angles (Figure 21) that are secured in one of three pinning positions at the bottom of the unit.

The label in the lower left corner of the end frame (Figure 20) shows the splay angle for the GuideALink position. With the knob at the bottom, the splay angle is 0°. As the knob is moved up, the angle increases up to 11° (Figure 21). To stow the link, the knob is moved all the way to the top of the slot.

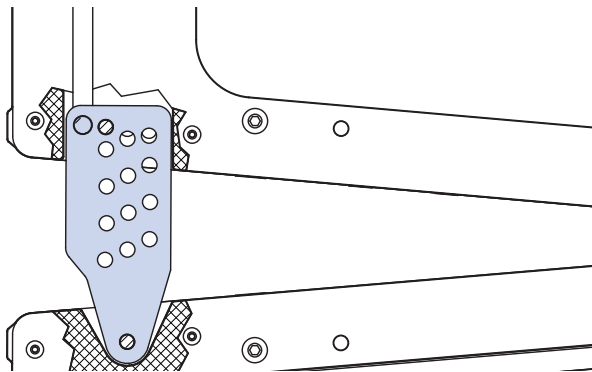


Figure 19: Rear GuideALinks

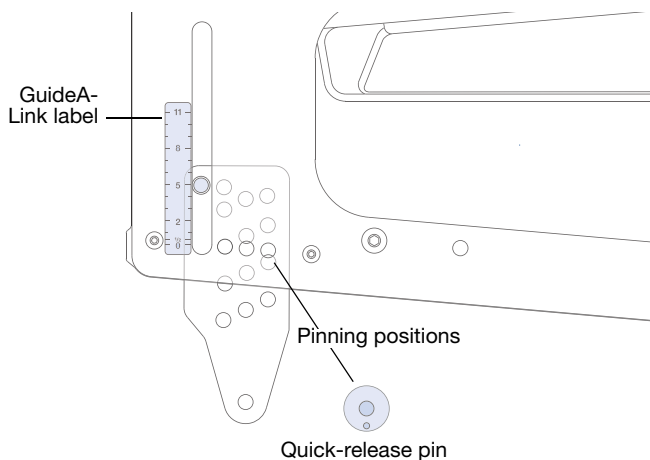


Figure 20: Rear GuideALink Label and Pinning Positions

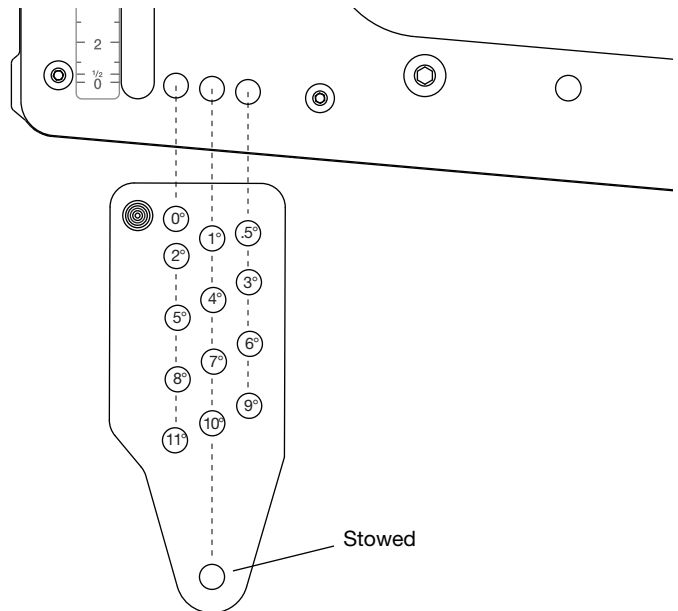


Figure 21: Rear GuideALink, Splay Angles for Linked LINAs




NOTE: The splay angles listed on the GuideALink label are for relative angles between the linked units. For example, setting the GuideALink to “5” yields a 5° downtilt of the lower unit relative to the upper unit. How the loudspeakers relate to the floor, stage, and seating angles in the venue depends on the orientation of the MG-MINA/LINA/750-LFC grid, the angles of the loudspeakers in the array above them, whether they are flown or ground-stacked, and other factors. Use MAPP system design software to determine the optimum splay angles for loudspeakers and coverage pattern of the array.




NOTE: To achieve optimal acoustical performance for LINA arrays, use the appropriate number of units and splay angles to meet the coverage requirements of the venue. Utilize MAPP to verify designs and rigging configurations.

MG-MINA/LINA/750-LFC GRID

The MG-MINA/LINA/750-LFC grid (Figure 22) flies LINA arrays of up to 16 cabinets at a 5:1 safety ratio. The grid, which can also be used for groundstacking arrays, accommodates a variety of pickup configurations with four side pickup points and 11 center pickup points.

 **NOTE:** Additional load ratings are possible. Use MAPP to verify load ratings.

 **NOTE:** For complete information about configuration and load ratings for the MG-MINA/LINA/750-LFC grid, as well as other LINA rigging accessories, refer to the MG-LINA/750-LFC Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

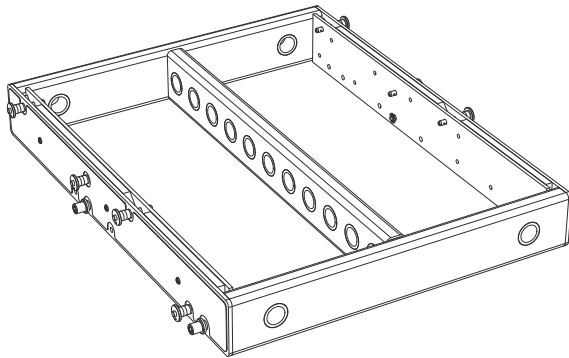




Figure 22: MG-MINA/LINA/750-LFC Grid

The MG-MINA/LINA/750-LFC grid has four captive links, two per side, that attach to the top LINA in flown arrays. The configuration of the links and orientation of the grid (for either maximum uptilt or maximum downtilt) determine the angle of the attached LINA. The grid links are easily stowed for transport and groundstacked configurations.

The MG-MINA/LINA/750-LFC grid includes eight (0.25 in x 0.90 in) quick-release pins: four for securing the four grid links, and four for securing LINA groundstacks to the top of the grid.

 **CAUTION:** Always use the quick-release pins included with the MG-MINA/LINA/750-LFC grid to secure its links, as well as to secure groundstacked LINAs to the grid. Do not use the quick-release pins included with LINA in the grid as they are shorter and will not lock in place.

 **TIP:** The MG-MINA/LINA/750-LFC grid can travel installed on top of LINA stacks.

MG-MINA/LINA/750-LFC Grid Orientations for Flown Configurations

The orientation of the MG-MINA/LINA/750-LFC grid determines the maximum downtilt and maximum uptilt for flown arrays.

MG-MINA/LINA/750 Oriented for Maximum Array Downtilt

When the MG-MINA/LINA/750-LFC grid is oriented with the links toward the front of the flown loudspeakers, the grid provides maximum downtilt for the flown array (when tilting the grid). The label on the MG-MINA/LINA/750-LFC shows this configuration as “Maximum Downtilt.”

With the maximum downtilt orientation, the LINA at the top of the array can be attached to the grid at 0° and -5° downtilt (Figure 23).

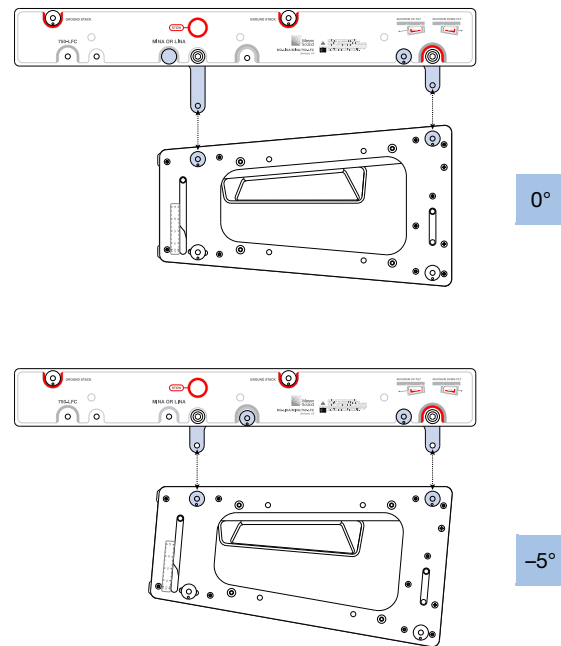



Figure 23: MG-MINA/LINA/750-LFC Grid, Maximum Downtilt Orientation, 0° and -5°

 **TIP:** The tilt for the MG-MINA/LINA/750 and the array hung below it can be further tilted by using chain motors, or differing lengths of steel or SpanSets.

MG-MINA/LINA/750-LFC Oriented for Maximum Array Uptilt

When the MG-MINA/LINA/750-LFC grid is oriented with the links toward the rear of the flown loudspeakers, the grid provides maximum uptilt for the flown array (when tilting the grid). The label on the MG-MINA/LINA/750-LFC shows this configuration as “Maximum Uptilt.”

With the maximum uptilt orientation, the LINA at the top of the array can be attached to the grid at -5° and -10° downtilt (Figure 24).

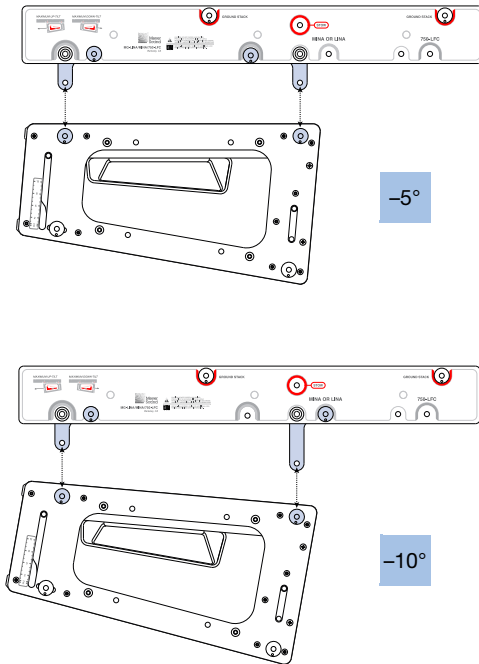


Figure 24: MG-MINA/LINA/750-LFC Grid, Maximum Uptilt Orientation, -5° and -10°

MAPP System Design Tool Prediction Examples

Meyer Sound recommends using the MAPP System Design Tool to determine appropriate grid orientations. For example, Figure 25 illustrates the MAPP software display when checking the COG (purple line extending upward) for maximum array uptilt and in Figure 26, for maximum downtilt.

The COG line is also useful when suspending the grid from a single center pickup point. Determine the appropriate point to use by observing which one of the 11 pickup points the COG line intersects.

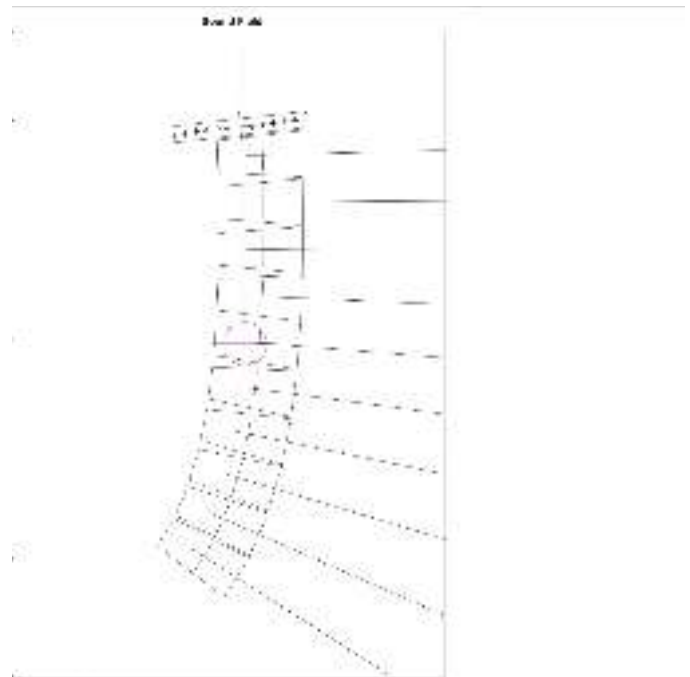


Figure 25: MAPP COG Maximum Uptilt

TIP: The tilt for the MG-MINA/LINA/750-LFC and the array hung below it can be further tilted by using chain motors, or differing lengths of steel or SpanSets.

TIP: Use the MAPP System Design Tool’s prediction software to help determine the grid orientation that most appropriately balances the rigging load for a given application. It provides information such as the array COG (center of gravity) marker and front and rear rigging load weights.

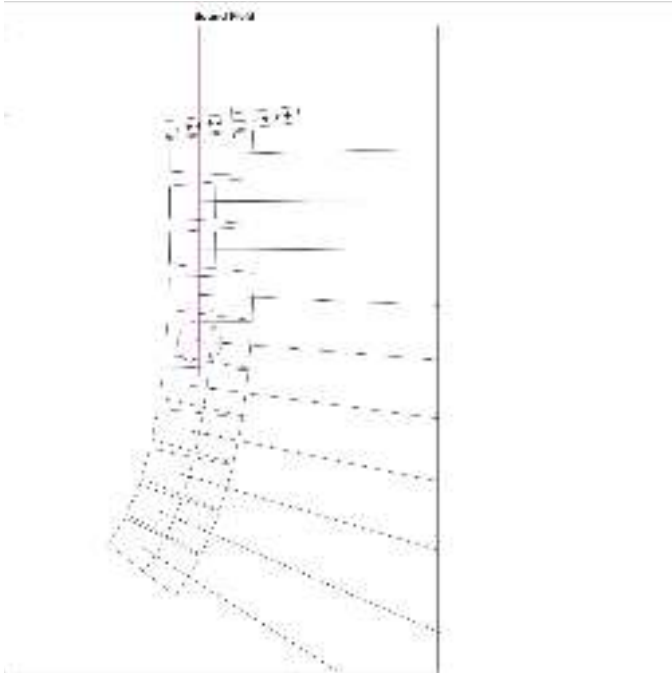


Figure 26: MAPP COG Maximum Downtilt

The MAPP software also provides weight distribution information. Use the grid orientation that has the least difference between the Front and Rear Rigging Loads calculated in the Flown Loudspeaker System Properties window (Figure 27).



Figure 27: Balanced Rear and Front Rigging Loads.

Groundstacking LINAs with the MG-MINA/LINA/750-LFC

The MG-MINA/LINA/750-LFC grid can also be used for groundstacking up to six LINAs. When used for groundstacking, the grid should be oriented so the center of gravity for the stacked loudspeakers is near the center of the grid. The LINA at the bottom of the stack attaches directly to the grid with its GuideALinks and is secured with the quick-release pins included with the grid (Figure 28). The configuration of the GuideALinks (Figure 29) for the attached LINA determines its tilt, which can be from $+6^{\circ}$ (uptilt) to -5° (downtilt).

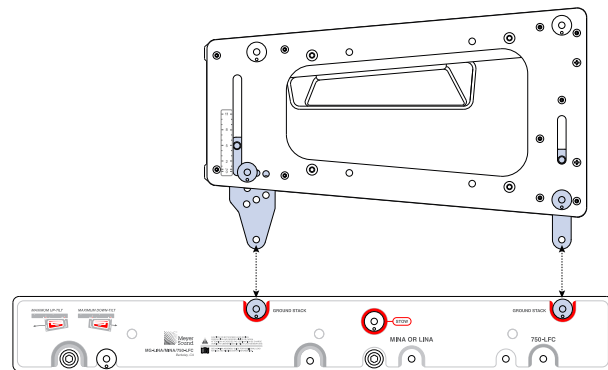


Figure 28: MG-MINA/LINA/750-LFC Grid with Groundstacked LINA

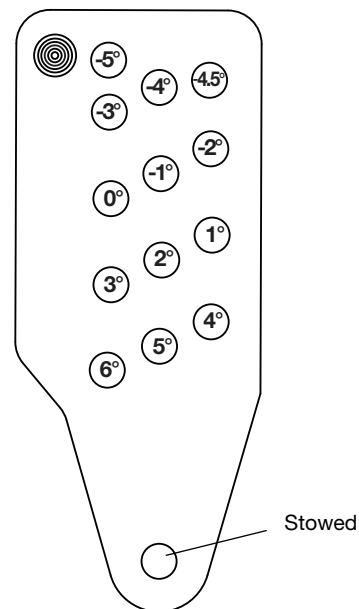



Figure 29: LINA Rear GuideALink, Angles for Groundstacked Units

 **CAUTION:** To secure groundstacked arrays, particularly in outdoor situations, use tie downs or weights with the grid and/or a safety system on the array.

MYA-MINA/LINA MOUNTING YOKE

The MYA-MINA/LINA mounting yoke flies up to three LINA loudspeakers from a single hanging point using a C-clamp or equivalent (Figure 30), or pole-mounts up to two LINA loudspeakers with a third-party pole-mount adapter (see “Pole-Mounting LINAs with the MYA-MINA/LINA” on page 30). For flown applications, the yoke supports up to 30° of uptilt and severe downtilts of up to 90°. For flying larger arrays, the MG-MINA/LINA/750-LFC grid is recommended; for smaller profile applications, the MUB-MINA/LINA U-bracket is recommended.

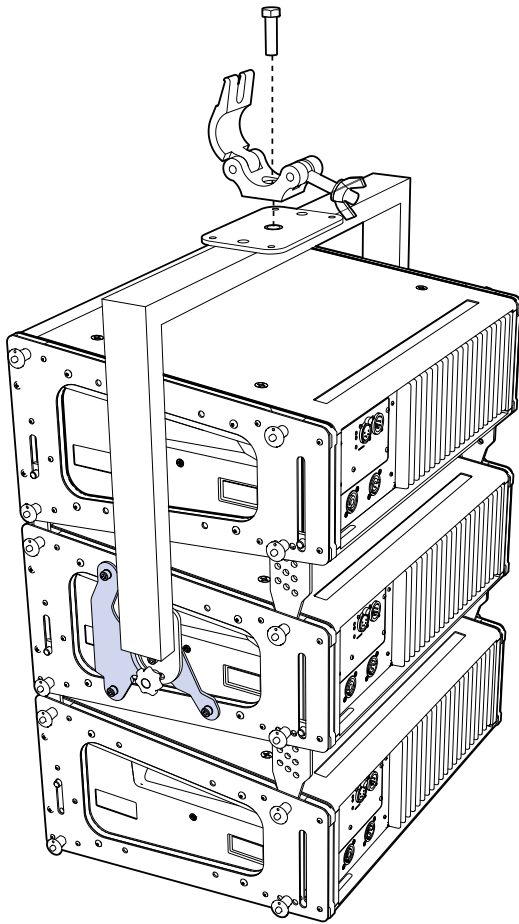


Figure 30: MYA-MINA/LINA with MPA-3 Adapter, Three LINAs, and third-party clamp



CAUTION: The MYA-MINA/LINA’s mounting bracket at the top of the yoke has one 1/2-inch center hole that is rated for flown applications. The smaller two center holes and four corner holes should only be used for attaching to pole-mount adapters.



NOTE: For complete information about configuration and load ratings for the MYA-MINA/LINA, as well as for other rigging accessories, refer to the MG-MINA/LINA/750-LFC Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

MYA-MINA/LINA Bracket Options

The yoke includes two bracketing options: the MPA-2 for attaching to two cabinets (Figure 31 and Figure 34), and the MPA-3 (Figure 30, Figure 32 and Figure 33) for attaching to one or three cabinets. The bracket options allow the yoke to attach near the center of gravity for the loudspeakers. The brackets bolt directly to the LINA end frames with the M6 bolts and washers included with the yoke kit. For attaching to the yoke, the brackets include a center/pivot hole and three pinning holes to yield a wide range of uptilt and downtilt angles for the loudspeakers.

MPA-2 Bracket

When suspending two LINA cabinets with the MYA-MINA/LINA mounting yoke, use the MPA-2 bracket and attach it to the bottom cabinet (Figure 31).

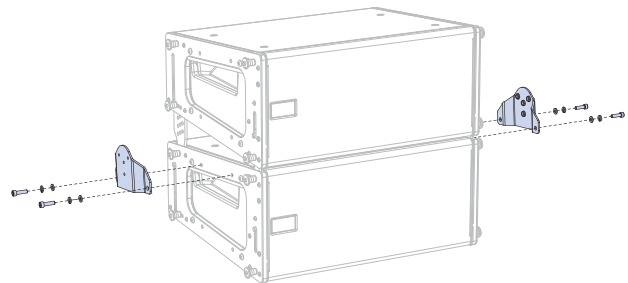


Figure 31: MPA-2 bracket

MPA-3 Bracket

When suspending one or three LINA cabinets with the MYA-MINA/LINA mounting yoke, use the MPA-3 bracket (Figure 32). When suspending three cabinets, attach the bracket to the center cabinet (Figure 33).

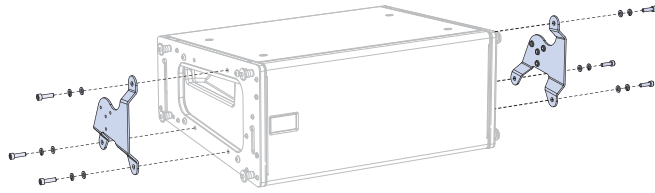


Figure 32: MPA-3 bracket

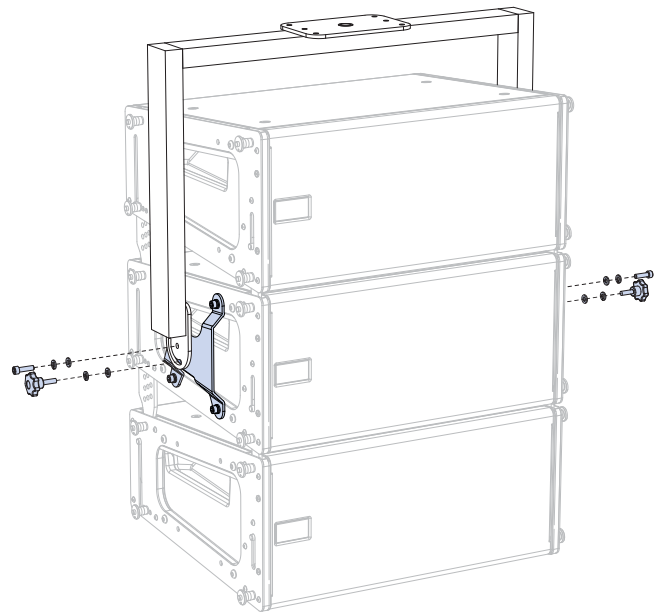


Figure 33: Flown MYA-MINA/LINA with MPA-3 bracket and Three LINAs

Pole-Mounting LINAs with the MYA-MINA/LINA

Up to two LINA loudspeakers can be pole-mounted with the MYA-MINA/LINA mounting yoke. For pole-mounting two LINA loudspeakers, use the MPA-2 bracket (Figure 34). For pole-mount applications, the yoke supports up to 30° of downtilt and severe uptilts of up to 90°. When pole-mounting LINAs with the yoke, the optional 35 mm pole stand adapter is required (PN 40.010.971.01).

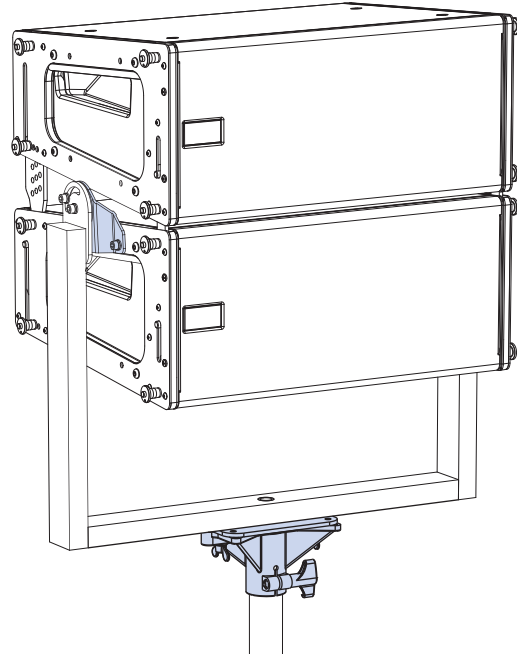



Figure 34: Pole-Mounted MYA-MINA/LINA with MPA-2 bracket and Two LINA loudspeakers with optional 35 mm pole stand adapter

CAUTION: When mounting the MYA-MINA/LINA on a pole, make sure the pole and pole-mount adapter have been rated to support the full weight of the yoke and loudspeakers. Observe all safety precautions specified by the pole and pole-mount adapter manufacturer.

MUB-MINA/LINA U-BRACKET

The MUB-MINA/LINA U-bracket was primarily designed for aiming a single LINA loudspeaker in floor- and ceiling-mount configurations (Figure 35). However, the U-bracket is strong enough to fly arrays of up to five cabinets, or stack up to two cabinets in floor- and pole-mount configurations. With the U-bracket, up to two LINA loudspeakers can also be flown from trusses using C-clamps or the equivalent. For flying and groundstacking larger arrays, the MG-MINA/LINA/750-LFC grid is recommended; for applications requiring continuous adjustability or greater downtilt and uptilt angles, the MYA-MINA/LINA mounting yoke is recommended.

 **NOTE:** For complete information about configuration and load ratings for the MUB-MINA/LINA, as well as for other rigging accessories, refer to the MG-MINA/LINA/750-LFC Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

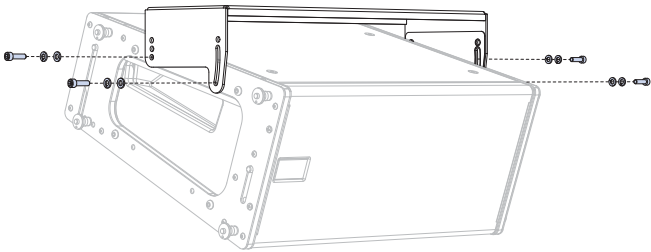




Figure 35: Ceiling-Mounted MUB-MINA/LINA with One LINA

The MUB-MINA/LINA U-bracket's mounting holes and mounting slot provide maximum flexibility for the loudspeaker's uptilt and downtilt. For flown applications, the MUB-MINA/LINA can be oriented for either maximum downtilt (with the slot near the front of the loudspeakers) or maximum uptilt (with the slot near the rear of the loudspeakers).

- For a single flown cabinet, the MUB-MINA/LINA supports continuous angles of 0° to -20° in the maximum downtilt orientation, and angles of +10° to -10° in the maximum uptilt orientation.
- For multiple flown cabinets, the MUB-MINA/LINA supports fixed angles of +10°, 0°, -5°, -10° and -20° (with either orientation).

 **NOTE:** For multiple flown cabinets, the MUB-MINA/LINA slot is not recommended for variable adjustments, because the angle could change over time due to the weight of the cabinets.

 **NOTE:** For illustrations showing which MUB-MINA/LINA mounting holes and slot configurations to use to achieve specific angles, refer to the MG-MINA/LINA/750-LFC Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

Floor- and Pole-Mounting LINAs with the MUB-MINA/LINA

Up to two LINA loudspeakers can be floor- or pole-mounted with the MUB-MINA/LINA U-bracket (Figure 36). When pole-mounting LINAs with the U-bracket, the optional 35 mm pole stand adapter is required (PN 40.010.971.01). For floor- and pole-mounted applications, the MUB-MINA/LINA can be oriented for either maximum downtilt (with the slot near the rear of the loudspeakers) or maximum uptilt (with the slot near the front of the loudspeakers).

- For a single floor- or pole-mounted cabinet, the MUB-MINA/LINA supports continuous angles from +10 to -10° in the maximum downtilt orientation, and angles of 0 to +20° in the maximum uptilt orientation.
- For multiple floor- or pole-mounted cabinets, the MUB-MINA/LINA supports fixed angles of 0, +5, and +10° (with either orientation).

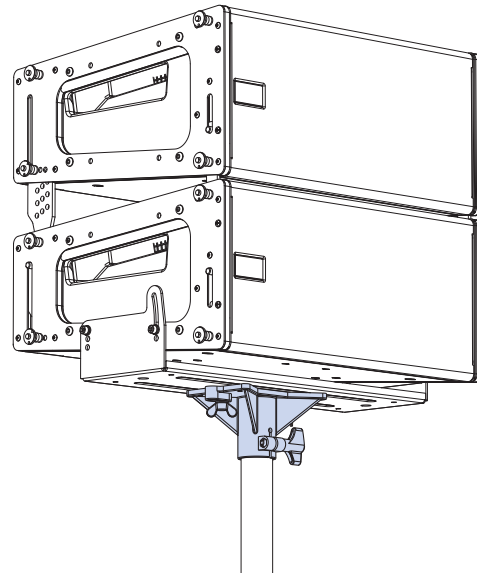




Figure 36: Pole-Mounted MUB-MINA/LINA/750 with Two LINA loudspeakers using the 35 mm pole stand adapter

 **CAUTION:** When mounting the MUB-MINA/LINA on a pole, make sure the pole and pole stand adapter have been rated to support the full

weight of the U-bracket and loudspeakers. Observe all safety precautions specified by the pole and pole-mount adapter manufacturer.

 **NOTE:** For illustrations showing which MUB-MINA/LINA mounting holes and slot configurations to use to achieve specific angles, refer to the MG-MINA/LINA/750-LFC Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

PBF-LINA PULLBACK FRAME

For applications requiring extreme array downtilt that is not possible with adjustments to the motors attached to the grid, the optional PBF-LINA pull-back frame can be attached to the bottom cabinet in LINA arrays and pulled by a separate motor. The pull-back frame is secured to the bottom cabinet with the quick-release pins (0.25 in x 0.53 in, black button, PN 134.039) included with LINA. The PBF-LINA pull-back frame requires 1/2-inch shackles for its two pickup points.

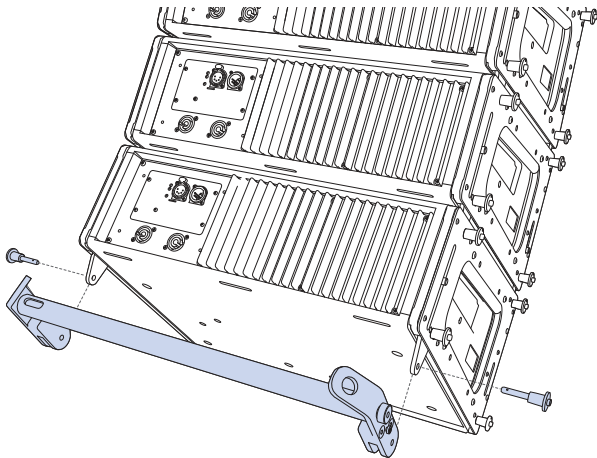



Figure 37: PBF-LINA Pull-Back Frame Attached to Bottom LINA, Exploded View

 **NOTE:** For complete information about the PBF-LINA, as well as for other rigging accessories, refer to the MG-MINA/LINA/750-LFC Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

MVP Motor Vee Plate

The optional MVP motor Vee plate fine-tunes the horizontal aim of LINA and 750-LFC arrays ± 16 degrees. The bottom of the Vee plate attaches to the MG-MINA/LINA/750-LFC grid's front-most or rear-most point on the center pickup bar, while the top corners of the Vee plate attach to two motors, which, when adjusted, affect the horizontal rotation of the grid. The Vee plate's attachment points require 3/4-inch or 7/8-inch shackles. The Vee plate should always be placed on the grid side (front or rear) with the lower load value.

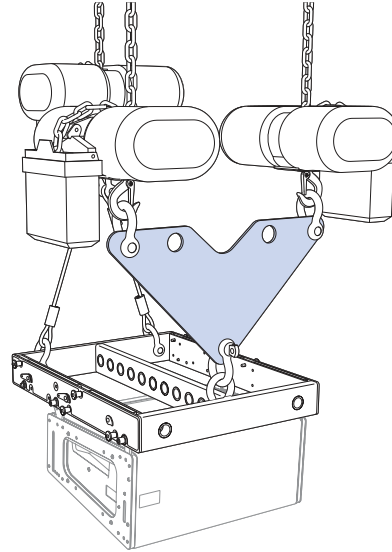





Figure 38: MVP Motor Vee Plate Attached to MG-MINA/LINA/750-LFC Grid

 **CAUTION:** Always use properly rated rigging hardware. The MVP motor Vee plate requires 3/4-inch or 7/8-inch shackles for its attachment points.

 **CAUTION:** Use MAPP to determine the weight distribution between the front and rear of the grid. Use the point(s) carrying the lesser weight to attach the MVP motor Vee plate.

 **NOTE:** The MVP motor Vee plate is compatible with any Meyer Sound grid with front and rear center pickup points.

MCF-MINA/LINA CASTER FRAME

The MCF-MINA/LINA caster frame (Figure 39) safely supports up to five LINAs (Figure 40) for transport and groundstacking, making it easy to assemble or disassemble arrays. The caster frame's sturdy construction allows it be conveniently moved with forklifts.



NOTE: For complete information on the MCF-MINA/LINA, as well as for other rigging accessories, refer to the MG-MINA/LINA/750-LFC Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

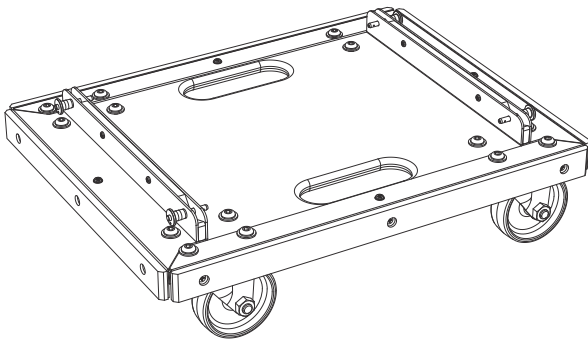


Figure 39: MCF-MINA/LINA Caster Frame

The LINA at the bottom of the stack attaches securely to the caster frame with its GuideALinks and is secured with the four (1/4 by 0.90-inch) quick-release pins included with the caster frame. The configuration of the GuideALinks for the attached LINA determines its tilt, which can be from +6° (up tilt) to -5° (down tilt).



CAUTION: Always use the quick-release pins included with the MCF-MINA/LINA caster frame to secure groundstacked LINAs to the grid. Do not use the quick-release pins included with LINA in the frame as they are shorter and will not lock in place.

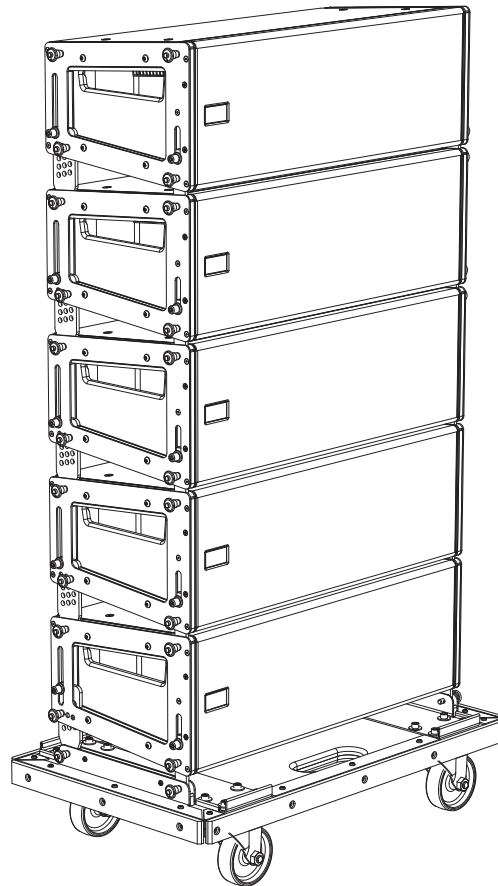


Figure 40: MCF-MINA/LINA Caster Frame with LINA Stack



TIP: The MG-MINA/LINA/750-LFC grid can travel installed on top of LINA stacks.



TIP: Durable nylon covers, sized for stacks of 3, 4, and 5 units, are available to ensure the LINA is completely road ready.

Safety Guidelines for the MCF-MINA/LINA Caster Frame

- Do not stack more than five LINAs.
- Avoid moving stacks in the front-to-back direction (Figure 41) of the LINAs (the long side); always move stacks sideways to avoid tipping.

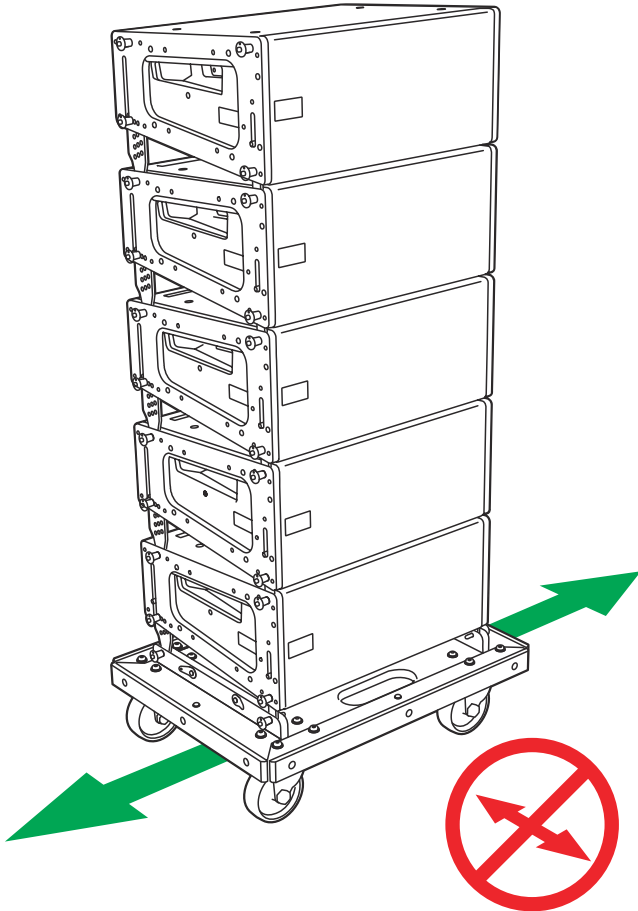




Figure 41: Avoid Moving Stacks in Front-to-Back Direction

- When transporting a non-curved LINA stack with 0° splay angles, configure the rear GuideALinks for the bottom LINA so it is attached to the caster frame at 0° (using the 5° hole in the LINA GuideALinks).
- When transporting a curved LINA stack with wide splay angles, configure the rear GuideALinks for the bottom LINA so it is attached to the caster frame at -5° (using the 0° hole in the LINA GuideALinks), to compensate for the stack's center of gravity.
- When groundstacking LINAs 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

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

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

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

COMPASS RMS SOFTWARE

Compass RMS™ software provides extensive system status and performance data for each loudspeaker, including amplifier voltage, limiting activity, power output, fan and driver status, as well as mute and solo capability. Loudspeakers are added to the RMS network and assigned a node name during a one-time discovery procedure. Once loudspeakers are identified on the RMS network, they appear in Compass RMS as icons that can be customized to suit your needs (Figure 42).

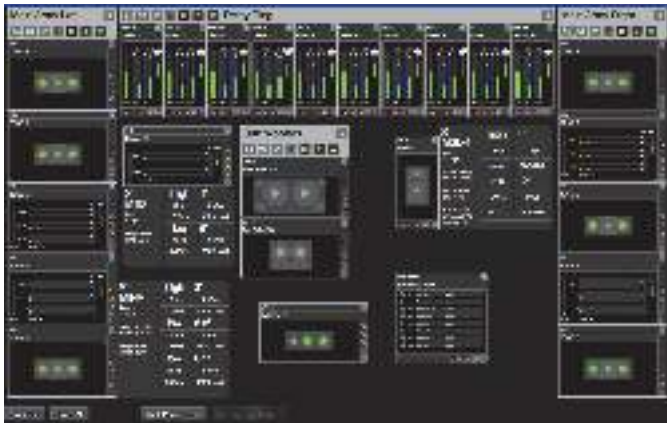


Figure 42: Compass RMS Window

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


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

RMS MODULE

The LINA RMS user panel (Figure 43) includes an Identify button, Remote Mute switch, Wink/Activity LED, and two Network connectors.




Figure 43: LINA RMS Module

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

Identify Button

The Identify button serves the following functions:

- If the loudspeaker has not yet been discovered on the RMS network (Wink/Activity LED not lit), press the Identify button to discover it.
- To remove the loudspeaker from the RMS network, press and hold the Identify button during startup (see “Resetting the RMS Module” on page 36).
- To *wink* a discovered loudspeaker, press the Identify button. The Wink LED on the loudspeaker icon in Compass RMS lights up and the Wink/Activity LED on the loudspeaker's RMS user panel turns solid green. Press the Identify button again to unwink the loudspeaker.

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

Wink/Activity LED (Green)

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

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



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

Remote Mute Switch

The recessed Remote Mute switch on the LINA RMS module (Figure 44) determines whether Compass RMS can control muting and soloing of the loudspeaker. LINA ships from the factory with the switch enabled.

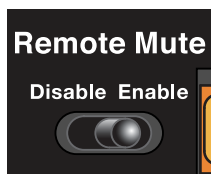


Figure 44: Remote Mute Switch

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



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

RMS Network Connectors

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

NEURON ID FOR RMS MODULE

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

RESETTING THE RMS MODULE

You can use the Identify button to reset the LINA RMS module when powering on the loudspeaker. This action will cause the module to be removed from the RMS network.

To reset the RMS module:

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

CHAPTER 6: SYSTEM DESIGN AND INTEGRATION TOOLS

This chapter introduces MAPP, Meyer Sound's patented system design tool, and SIM, a comprehensive system for measurement and analysis.

MAPP SYSTEM DESIGN TOOL

The MAPP System Design Tool (Figure 45) is a powerful, cross-platform application for accurately predicting the coverage pattern, frequency response, phase response, impulse response, and SPL capability of single or arrayed Meyer Sound loudspeakers.

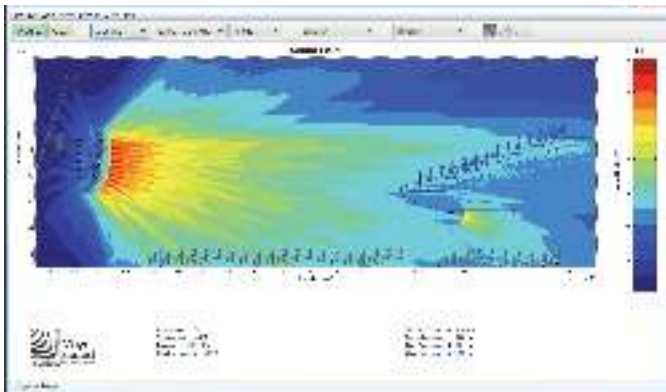


Figure 45: MAPP System Design Tool

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

The key to the accuracy of MAPP's predictions is Meyer Sound's exhaustive database of loudspeaker measurements. Performance predictions for each loudspeaker are based on 720 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 will closely match their actual performance.

MAPP client software lets you configure Meyer Sound loudspeaker systems and define the environment in which they operate, including air temperature, pressure, humidity, and even the location and composition of surfaces. You can also import CAD (.DXF) files containing detailed venue information to act as a visual aid.

MAPP prediction requests are sent by the client software to Meyer Sound servers, where complex, high-resolution (magnitude and phase) polar data is processed with sophisticated acoustical prediction algorithms. The resulting predictions are then displayed in the MAPP client software.



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

MAPP Capabilities

With MAPP, you can:

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

SIM MEASUREMENT SYSTEM

The SIM audio analyzer is a high-resolution audio measurement system comprising software, hardware, microphones, and accessory cables. SIM presents measured audio frequencies at a resolution of 48 points per octave, where the 48 points per octave are arranged in even frequency increments in each octave group, equal to the total frequencies in that octave divided by 48. This resolution allows application of precise corrections to balance system response using frequency and phase domain information.

Source Independent Measurement Technique

The SIM audio analyzer implements Meyer Sound's source independent measurement technique. This dual-channel method makes analysis of statistically unpredictable excitation signals possible. Any excitation signal, within the desired frequency range, can be used to obtain highly accurate measurements for acoustical or electronic systems.

For example, during a performance, both the input signal and the measured output of the loudspeaker system can be analyzed by SIM and the results can be used to:

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

SIM Applications

SIM's main applications are testing and aligning loudspeaker systems, which entails:

- Measuring propagation delays between subsystems to determine appropriate delay times
- Verifying correct polarity
- Measuring and comparing phase responses of subsystems
- 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 can also be used in the following applications:

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

APPENDIX A: MEYER SOUND WEATHER PROTECTION

The Weather Protection option from Meyer Sound is intended to increase the useful life of Meyer Sound loudspeakers when they are installed outdoors and exposed to different and often harsh weather conditions. Our Weather Protection includes a penetrating treatment to raw wood, use of special primers, and plating on all steel parts used (or alternatively, the use of stainless steel hardware). Weather Protection is designed to prevent malfunctions caused by harsh operating environments and slows the accelerated wear and tear that occurs in outdoor environments.

When Is Weather Protection Advisable?

Weather Protection is strongly recommended for all permanent outdoor installations where loudspeakers are directly exposed to the elements. This includes desert and semi-arid climates, where protection against dust and sand is important, and where infrequent rainstorms can contribute to deterioration of loudspeaker components.

Weather Protection is also recommended when the loudspeakers are sheltered from direct exposure to precipitation but are nevertheless exposed to prolonged high humidity, fog or mist. Examples would be installations on covered outdoor terraces or pavilions.

Weather Protection is further advisable for portable or touring systems when any significant outdoor use is anticipated. Even though standard procedures may call for using external protective measures, these are often not implemented in time to prevent moisture intrusions that could lead to premature performance degradation of the loudspeaker.

Climate Variation and Owner Maintenance

The wear and tear on a loudspeaker will vary significantly with different climatic conditions. For example, a weather-protected loudspeaker installed in a sunlight-exposed location on an ocean pier will experience much harsher conditions than a loudspeaker in a similar installation that is shaded by trees and exposed only to rainfall. The constant exposure to direct UV radiation and salt air environment will cause a loudspeaker to wear more quickly than one with partial UV shielding and exposed only to freshwater moisture.

Wear can eventually affect the performance of the loudspeaker. It also affects aesthetics. For example, in salt

air environments, the exterior grille can quickly show signs of oxidation, causing unsightly discoloration.


Apart from selecting suitable weather protection, the progress of wear and tear on the loudspeaker can be slowed by a regular schedule of inspection and cleaning. This maintenance is particularly necessary in harsh environments. Inspection and cleaning should include routine removal of any visible oxidation or environmental particulates, as these can accelerate metal corrosion or decay of the cabinet. If installed loudspeakers are not in use for an extended period, exterior protection or temporary removal and storage of the loudspeakers should be considered.

Benefits of Weather Protection

There are several benefits to selecting the Meyer Sound Weather Protection option:

Functionality - Weather Protection prolongs the service life of the loudspeaker by preventing premature degradation of internal components.

Safety - Weather Protection lessens the chance of electrical malfunctions or structural failures.

 **WARNING:** IT IS THE RESPONSIBILITY OF PURCHASERS/USERS/OPERATORS TO SELECT WEATHER PROTECTION WHEN APPROPRIATE FOR THEIR USE AND TO PERIODICALLY INSPECT THEIR LOUDSPEAKER INSTALLATIONS FOR ANY DETERIORATION THAT MAY LEAD TO SAFETY CONCERNS.

Aesthetics - Weather Protection slows wear and tear on the exterior of the loudspeaker in harsh conditions. Early signs of wear and tear on the exterior of the loudspeaker indicate over-exposure to the elements.

Standards Compliance - Weather Protection helps in meeting IP ratings for loudspeakers. IP ratings are an internationally recognized standard often used in installations involving our products. A further explanation of IP ratings is given in the "IP Ratings" Section on page 41.

WEATHER PROTECTION COMPONENTS

Standard Weather Protection

Meyer Sound designs toward an IP rating of IPX4 (see “IP Ratings” on page 41) for Standard Weather Protection, which includes the following components:

- Wood treatment—Prior to cabinet manufacturing, the raw wood receives a special treatment that penetrates and stabilizes the wood fibers to withstand a wide range of temperatures and exposure to extreme humidity.
- Cabinet finishing—The assembled cabinets receive a highly impervious finish that includes a sealing primer and a finishing topcoat. The coatings are applied on both surfaces, with one coat on the interior and two on the exterior. The final step is a two-part modified acrylic urethane similar to that used in military applications.
- Driver treatment—All cone drivers are coated with a water-resistant sealant.
- Exterior protection—Grille frames are coated to resist corrosion, and all components that mount to the cabinet use custom gaskets and stainless steel fasteners.
- Removable rain hood—The rain hood is designed to shield connectors even in wind-driven rain.

If in doubt about an installation method, contact Meyer Sound Technical Support for assistance.

Always discuss the environmental conditions of your Meyer Sound installation with your Sales Manager, and verify the availability of Weather Protection for your selected loudspeaker models. The Sales Manager, together with Technical Support, will verify the appropriate level of weather protection for the loudspeakers and related rigging hardware.

INSTALLATION PRACTICES

Meyer Sound assumes normal and accepted installation practices are used when installing Meyer Sound Loudspeakers outdoors. Deviation from such practices may cause weather protection to be ineffective and void the warranty for the loudspeaker.

Examples of unacceptable and acceptable installation practices include:

- Loudspeakers installed outdoors should not face upward.
- Loudspeakers with a rain hood should be installed in such a way that the rain hood opening is not facing any direction but down.
- Meyer Sound-supplied rigging components should not be modified (for example, by drilling additional holes in a MUB for mounting to a wall). When an installer/integrator modifies a Meyer Sound supplied rigging component to support their installation method, it is considered compromised and out of warranty.
- All loudspeaker cabling must be installed with a “drip-loop” or equivalent method to ensure that rain/water is NOT wicked toward the loudspeaker.

IP RATINGS

IP stands for “Ingress Protection.” The current format for expressing an IP rating is a 2-digit code. The first digit of an IP rating represents protection from solid objects. The second digit of an IP rating represents protection from water or moisture. Table 5 provides a chart of IP ratings and the corresponding definitions of the rating.



NOTE: IP ratings only apply to the “ENCLOSURE.” A loudspeaker is considered an enclosure and as such we can apply an IP rating to it. Rigging hardware is not an enclosure and therefore IP ratings do not apply. Also, cable and cable-mount connectors used to connect to the loudspeaker are NOT part of the enclosure and therefore not part of the IP rating. Only the chassis-mounted part of the connector is considered part of the enclosure.

Table 5: IP Ratings Definition Chart

First Digit (Protection against solid objects)	Definition	Second Digit (Protection against liquids)	Definition
X	Characteristic numeral is not required to be specified.	X	Characteristic numeral is not required to be specified.
0	No protection	0	No protection
1	Protected against solid objects over 50mm.	1	Protected against vertically falling drops of water.
2	Protected against solid objects over 12 mm.	2	Protected against direct sprays up to 15° from the vertical.
3	Protected against solid objects over 2.5mm.	3	Protected against direct sprays up to 60° from the vertical
4	Protected against solid objects over 1 mm.	4	Protected against direct sprays from all directions. Limited ingress permitted
5	Protected against dust. Limited ingress permitted.	5	Protected against low-pressure jets of water from all directions. Limited ingress permitted.
6	Totally protected against dust.	6	Protected against strong jets of water from all directions. Limited ingress permitted.
		7	Protected against the effect of temporary immersion between 15cm and 1m.
		8	Protected against the effect of long-term submersion of 1m or more.

APPENDIX B: RAIN HOODS

Weather-protected LINAs include a rain hood for indoor/outdoor touring and sheltered outdoor installations. Meyer Sound offers three rain hood models: A fixed rigid rain hood for permanent installations, a collapsible hood for portable applications, and an Ultra Weather Protection rain hood that has improved corrosion resistance (see Appendix C, “ULTRA Weather Protection Version” and Appendix D, “LINA UW Rain Hood and Shield Attachment”). Please specify the desired rain hood when ordering.

RIGID RAIN HOOD

The LINA rigid removable rain hood is easily attached and removed with the included four screws (Figure 46).

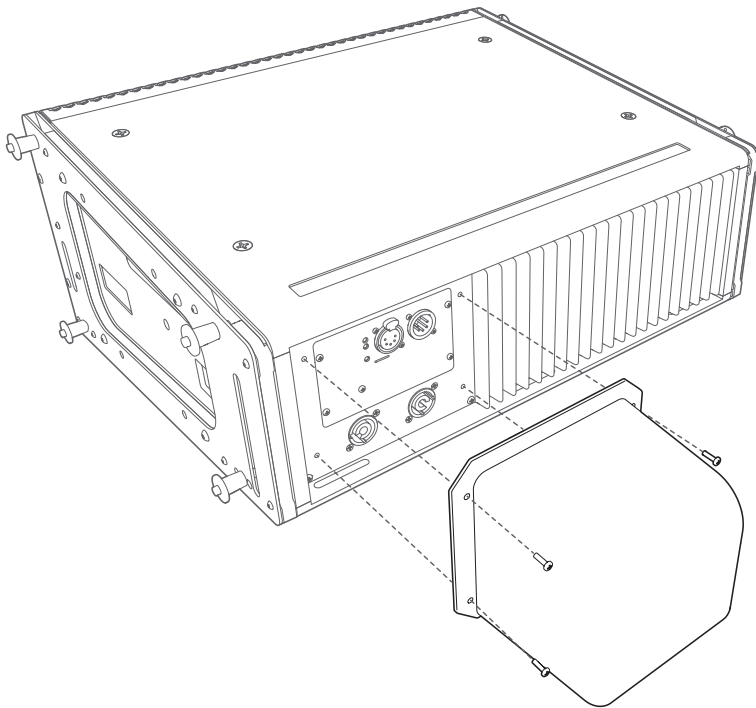


Figure 46: LINA with rigid rain hood

To attach the LINA rigid rain hood:

1. Attach any required cables to the LINA loudspeaker.
2. Attach the rain hood to the user panel, and secure it to the center of the panel with its four 6-32 screws.
3. Make sure to tighten the screws to create a good seal against the user panel. The recommended torque value for rainhood screws is 10–12 in-lbs (1.1-1.4 N·m).



CAUTION: There is only one proper loudspeaker orientation once the rainhood is installed. See Figure 46.



CAUTION: The weather-protected LINA must be mounted with a 0° tilt, or preferably with a slight down-tilt. This angle shields the driver from the elements and does not allow water to accumulate. Do not tilt the cabinet up, as the drivers and cabinet will accumulate water.



NOTE: Weather-protected units using the rigid rainhood are rated IPX4 for water intrusion.

COLLAPSIBLE RAIN HOOD

The LINA collapsible rain hood is installed on the unit when shipped. Four screws secure its frame permanently (Figure 47).

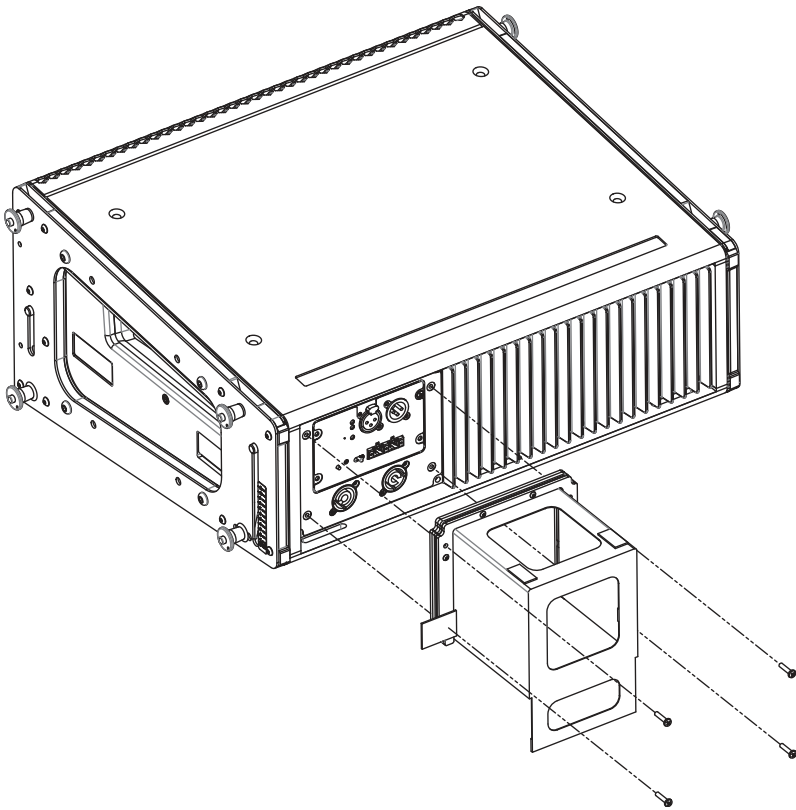


Figure 47: LINA with collapsible rain hood

To use the LINA collapsible rain hood:

1. Detach the Velcro straps and extend the rain hood.
2. Extend the lower flap for splash protection.
3. Attach any required cables to the LINA.

The clear windows let you easily locate the connectors on the user panel.

4. To stow the rain hood, reverse the steps.



CAUTION: There is only one proper loudspeaker orientation once the rainhood is installed. See Figure 47.



CAUTION: The weather-protected LINA must be mounted with a 0° tilt, or preferably with a slight down-tilt. This angle shields the driver from the elements and does not allow water to accumulate. Do not tilt the cabinet up, as the drivers and cabinet will accumulate water.

APPENDIX C: ULTRA WEATHER PROTECTION VERSION

Ultra Weather Protection is recommended for applications where loudspeakers will experience exposure to a salt air environment or chemicals, that have no sheltering from corrosive spray or UV exposure, and that cannot be covered or removed during their service life. Examples would include cruise ship exterior areas, ocean-side visitor attractions, swimming pool areas, and themed attractions with wind-carried water spray.

For installations in extremely harsh environments, Meyer Sound offers an Ultra Weather Protection option for the LINA loudspeaker, which includes all of the components of standard Weather Protection, plus the following:

- Extended cabinet finishing with extra thick proprietary coatings
- Special printed circuit board treatments
- Improved corrosion-resistant coatings and materials on select metallic components

Table 6 provides a list of user-accessible hardware component differences for LINA loudspeakers that are ultra weather protected.

Table 6: LINA Ultra Weather Protection Version Part Differences

LINA Part/LINA Accessory	Current Part	UW LINA Part Replacement	Comment
MG-MINA/LINA/750-LFC Multipurpose Grid	MG-MINA/LINA/750-LFC Multipurpose grid (PN 40.207.101.01)	MG-LINA/750-LFC Multipurpose Grid, black (PN 40.207.101.06) or MG-LINA/750-LFC Multipurpose Grid, white (PN 40.207.101.05)	
MG-MINA/LINA/750-LFC Grid to Loudspeaker Fasteners	Grid quick-release pins (with lanyard) 0.25 in x 0.90 in PN 134.036, qty 8	UW bolts, PN 101.629, qty 8 UW nylock nuts, PN 109.059, qty 8	The shoulder bolts and nuts replace the longer quick-release pins (with lanyard) used for both hanging arrays and groundstacking
LINA Loudspeaker to Loudspeaker Fasteners	Loudspeaker quick-release pins 0.25 in x 0.53 in PN 134.039, qty 8	UW lock pins, 0.25 in x 0.53 in PN 134.133, qty 8	
LINA Loudspeaker Part	Rear GuideALink	—	For ultra weatherized versions of the LINA, the 11° Splay Angle position of the Rear GuideALink (see “Rear GuideALinks” on page 14) is not available.

APPENDIX D: LINA UW RAIN HOOD AND SHIELD ATTACHMENT

PARTS LIST

The Ultra Weather Protection LINA Rain Hood includes the following parts:

- LINA Rain Hood with attached gasket (PN 45.268.035.03)
- LINA UW Rain Hood Shield (PN 64.268.129.01)
- 4 pan head Phillips 6-32 x 0.5-inch stainless-steel screws (PN 101.031)

ULTRA WEATHER PROTECT RAIN HOOD AND UW SHIELD INSTALLATION

The LINA rigid removable rain hood plus UW rain hood shield are easily attached and removed with the included four screws (Figure 48).

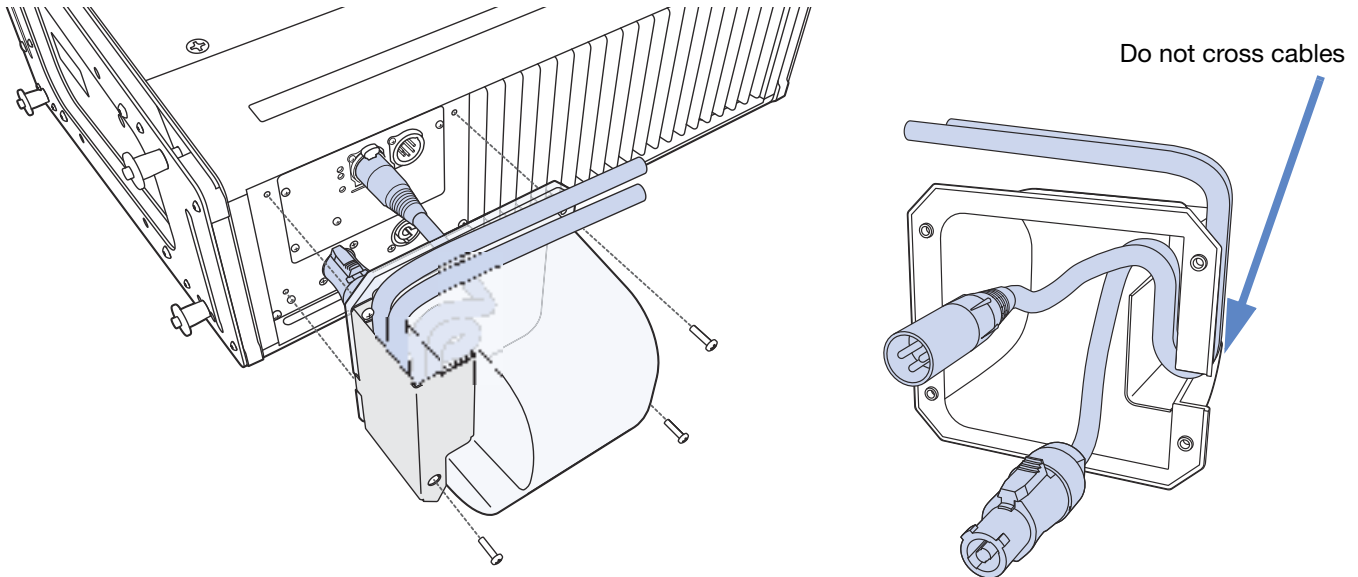


Figure 48: LINA with Rain Hood and UW Shield (left) and Inside Rain Hood view of Cable Routing over Inner Wall (right)

1. Attach any required cables to the LINA loudspeaker.
2. Carefully route the cables, so that they wrap over and down the inner rain hood wall (see Figure 48, right), and exit through the slot.
3. Attach the rain hood to the user panel and loosely secure it to the center of the panel with its four 6-32 x 0.5-inch screws.
4. Engage 2-3 threads on the upper- and lower-left screws. The cables should exit to the left when viewing from the rear of the loudspeaker. Do not cross the cables at the rain hood opening (see Figure 49, right).
5. Route the cables up and over the top of the rain hood between the shield and the rain hood. Do not cross the cables (see Figure 49, left).
6. Angle the shield and hook the slots in the L-shaped UW shield over both upper- and lower-left screws (when facing the rear of the loudspeaker, see Figure 49, right).

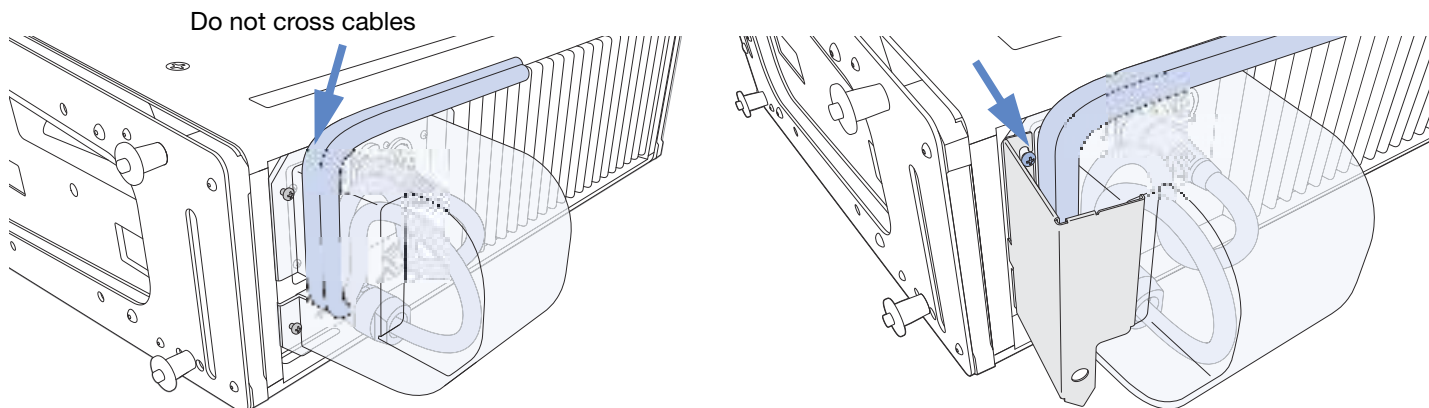


Figure 49: Routing Cables over Rain Hood (left) and Hooking Shield over Securing Screws (right)

7. Tighten the upper and lower screws on the left side of the rain hood (Figure 50). The recommended torque value for all four screws is 10–12 in-lbs (1.1–1.4 N·m).

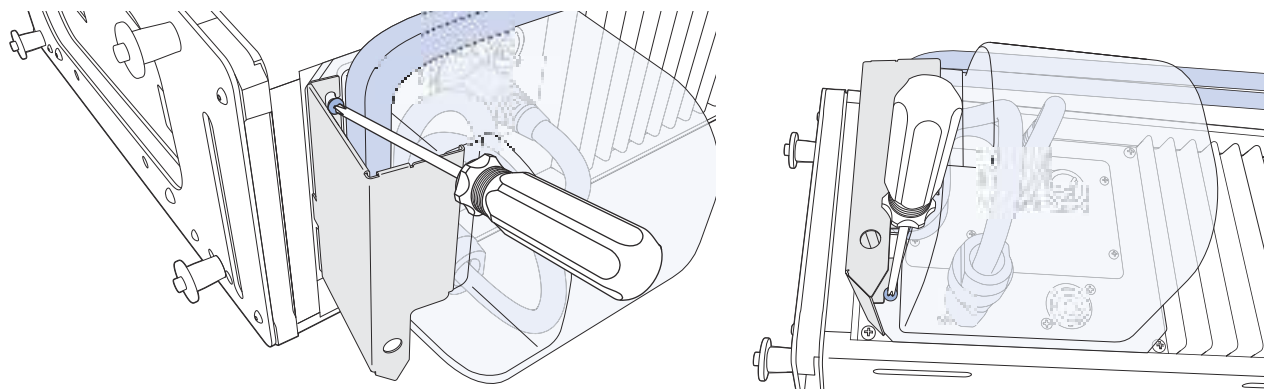


Figure 50: Tightening Screws on Left Side of Rain Hood

8. Push the shield toward the rain hood until its edge clicks into place over the rain hood lip (Figure 51).

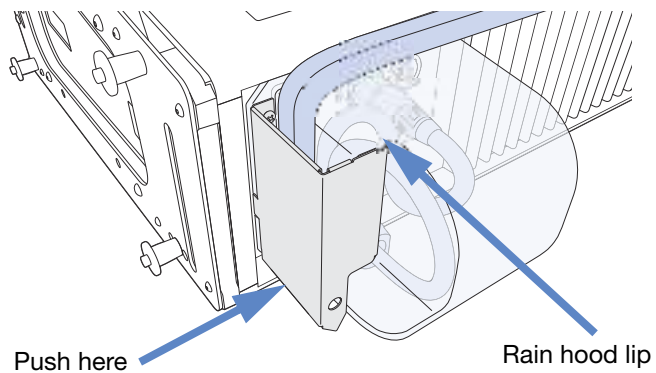


Figure 51: Pushing Shield Toward Rain Hood

9. Tighten the upper and lower screws on the right side of the rain hood (Figure 52).

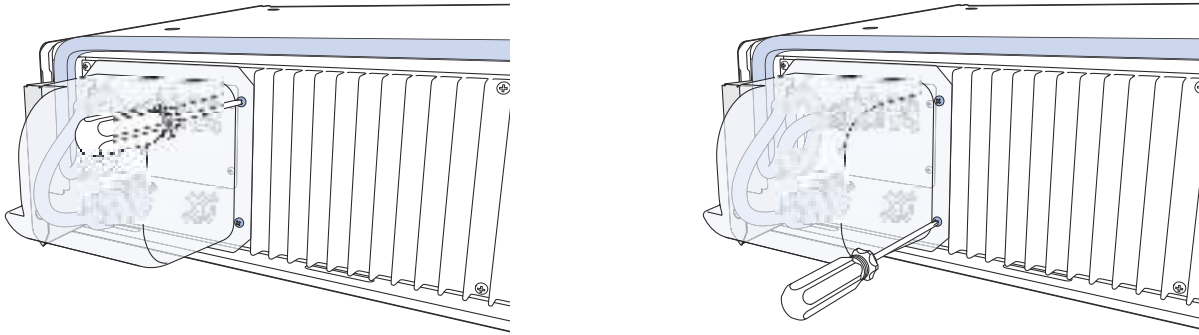


Figure 52: Tightening Screws on Right Side of Rain Hood

10. To remove the rain hood, reverse the steps.



CAUTION: Make sure cables are not crossed either at the rain hood opening or between the shield and the rain hood.



CAUTION: Make sure to tighten the screws to the recommended torque value of 10–12 in-lbs (1.1–1.4 N-m) in order to create a good seal against the user panel.



CAUTION: There is only one proper loudspeaker orientation once the rainhood is installed. See Figure 48.



CAUTION: The weather-protected LINA must be mounted with a 0° tilt, or preferably with a slight down-tilt. This angle shields the driver from the elements and does not allow water to accumulate. Do not tilt the cabinet up, as the drivers and cabinet will accumulate water.




NOTE: Ultra Weather Protected units using the rigid rainhood and shield are rated IPX4 for water intrusion.

APPENDIX E: SPECIFICATIONS

LINA loudspeaker system predictions for coverage and SPL are available in Meyer Sound's MAPP System Design Tool, which can be found on the Meyer Sound website: <http://www.meyersound.com>.

ACOUSTICAL	
Operating Frequency Range	65 Hz – 18 kHz Note: Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.
Phase Response	100 Hz – 18 kHz $\pm 45^\circ$
Linear Peak SPL	132 dB with 19 dB crest factor (M-noise) , 128 dB (Pink-noise), 130 dB (B-noise) Linear Peak SPL is measured in free-field at 4 m, referred to 1 m. Loudspeaker SPL compression, measured with M-noise at the onset of limiting, 2-hr duration, and 50° C ambient temperature, is <2 dB. M-noise is a full bandwidth, (10 Hz–22.5 kHz) test signal developed by Meyer Sound to better measure the loudspeaker's music performance. It has a constant instantaneous peak level in octave bands, a crest factor that increases with frequency, and a full bandwidth peak-to-RMS ratio of 18 dB. Pink-noise is a full bandwidth test signal with peak-to-RMS ratio of 12.5 dB. B-noise is a Meyer Sound test signal used to ensure measurements reflect system behavior when reproducing the most common input spectrum, and to verify there is still headroom over pink noise.
COVERAGE	
Horizontal Coverage	100°
Vertical Coverage	Varies, depending on array length and configuration
TRANSDUCERS	
Low Frequency	Two 6.5-inch long-excursion cone drivers; 4 Ω nominal impedance
High Frequency	One 3-inch diaphragm compression driver coupled to a constant-directivity horn through a patented REM® manifold; 8 Ω nominal impedance
AUDIO INPUT	
Type	Differential, electronically balanced
Maximum Common Mode Range	± 15 V DC, clamped to earth for voltage transient protection
Connectors	XLR 3-pin female input with male loop output Optional XLR 5-pin connector accommodates both balanced audio and RMS signals
Input Impedance	10 k Ω differential between pins 2 and 3
Wiring	Pin 1: Chassis/earth through 1 k Ω , 1000 pF, 15 V clamped 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 Note: Pins 4 and 5 (included only with XLR 5-pin connector) are for balanced audio and RMS signals.
Nominal Input Sensitivity	0 dBV (1.0 V rms) continuous is typically the onset of limiting for noise and music.
Input Level	Audio source must be capable of producing +20 dBV (10 V rms) into 600 Ω to produce the maximum peak SPL over the operating bandwidth of the loudspeaker.

AMPLIFIER			
Type	3-channel, Class-D		
Total Output Power	1950 W peak Note: Peak power is based on the maximum unclipped peak voltage the amplifier will produce into the nominal load impedance.		
THD, IM, TIM	<0.02%		
Cooling	Convection		
AC POWER			
Connector	powerCON 20 input with loop output		
Automatic Voltage Selection	90–265 V AC, 50–60 Hz		
Safety Rated Voltage Range	100–240 V AC, 50–60 Hz		
Turn-on and Turn-off Points	90 V AC turn-on, no turn-off; internal fuse-protection above 265 V AC		
Current Draw	115 V	230 V	100 V
Idle Current	0.25 A rms	0.25 A rms	0.29 A rms
Maximum Long-Term Continuous Current (>10 s)	2.3 A rms	1.16 A rms	2.8 A rms
Burst Current (< 1 s)	3.9 A rms	1.7 A rms	4.5 A rms
	Note: AC power cabling must be of sufficient gauge so that under burst current rms conditions, cable transmission losses do not cause the loudspeaker's voltage to drop below the specified operating range.		
Maximum Instantaneous Peak Current	8.8 A peak	4.0 A peak	9.2 A peak
Inrush Current	<20.0 A peak		
RMS NETWORK (OPTIONAL)			
	Reports all amplifier operating parameters to system operator's host computer via two-conductor twisted-pair network.		
PHYSICAL			
Dimensions	W: 20.27 in (515 mm)	H: 8.38 in (213 mm)	D: 15.32 in (389 mm)
Weight	43 lb (19.5 kg)		
Enclosure	Premium multi-ply birch, slightly textured black finish		
Protective Grille	Powder-coated, hex-stamped steel with acoustical black mesh		
Rigging	End frames with captive GuideALinks secured with 0.25 in x 0.53 in quick release pins that allow 0° to 11° splay angles. M6 attachment points for optional MYA-MINA/LINA Mounting Yoke and MUB-MINA/LINA U-bracket.		
ENVIRONMENTAL			
Operating Temperature	0 °C to +45 °C		
Non Operating Temperature	–40 °C to +75 °C		
Humidity	To 95% at 45 °C (non-condensing)		
Operating Altitude	To 5,000 m (16,404 ft)		
Non Operating Altitude	To 12,000 m (39,000 ft)		
Shock	30 g 11 msec half-sine on each of 6 sides		
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)		

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

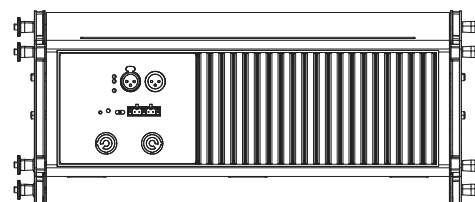
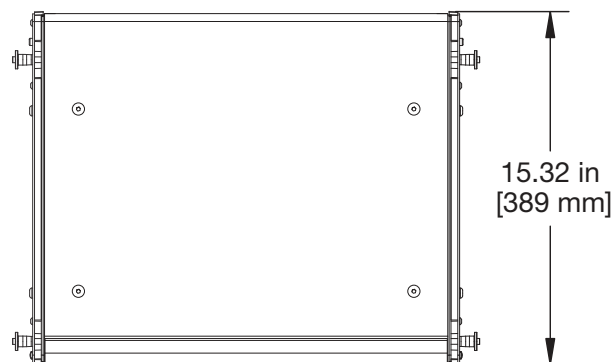
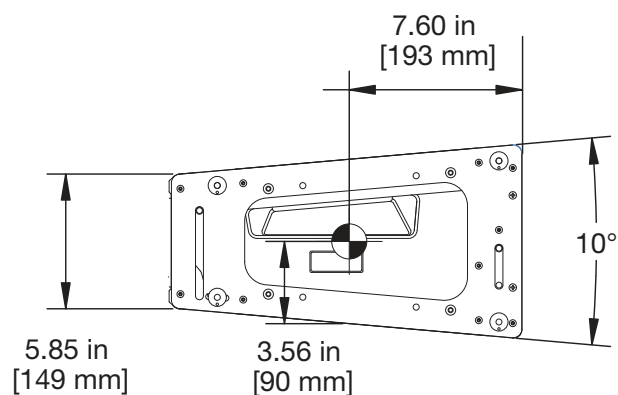
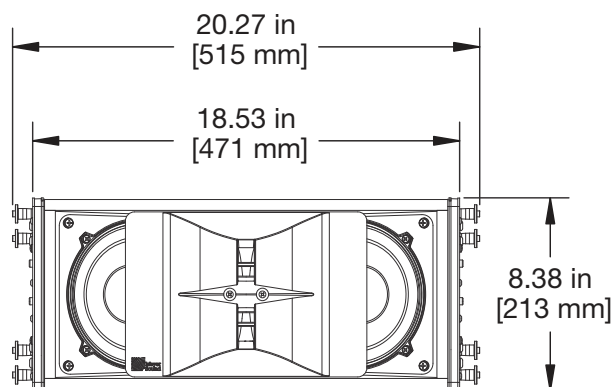
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

EN 55032 (CISPR 32) Statement

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

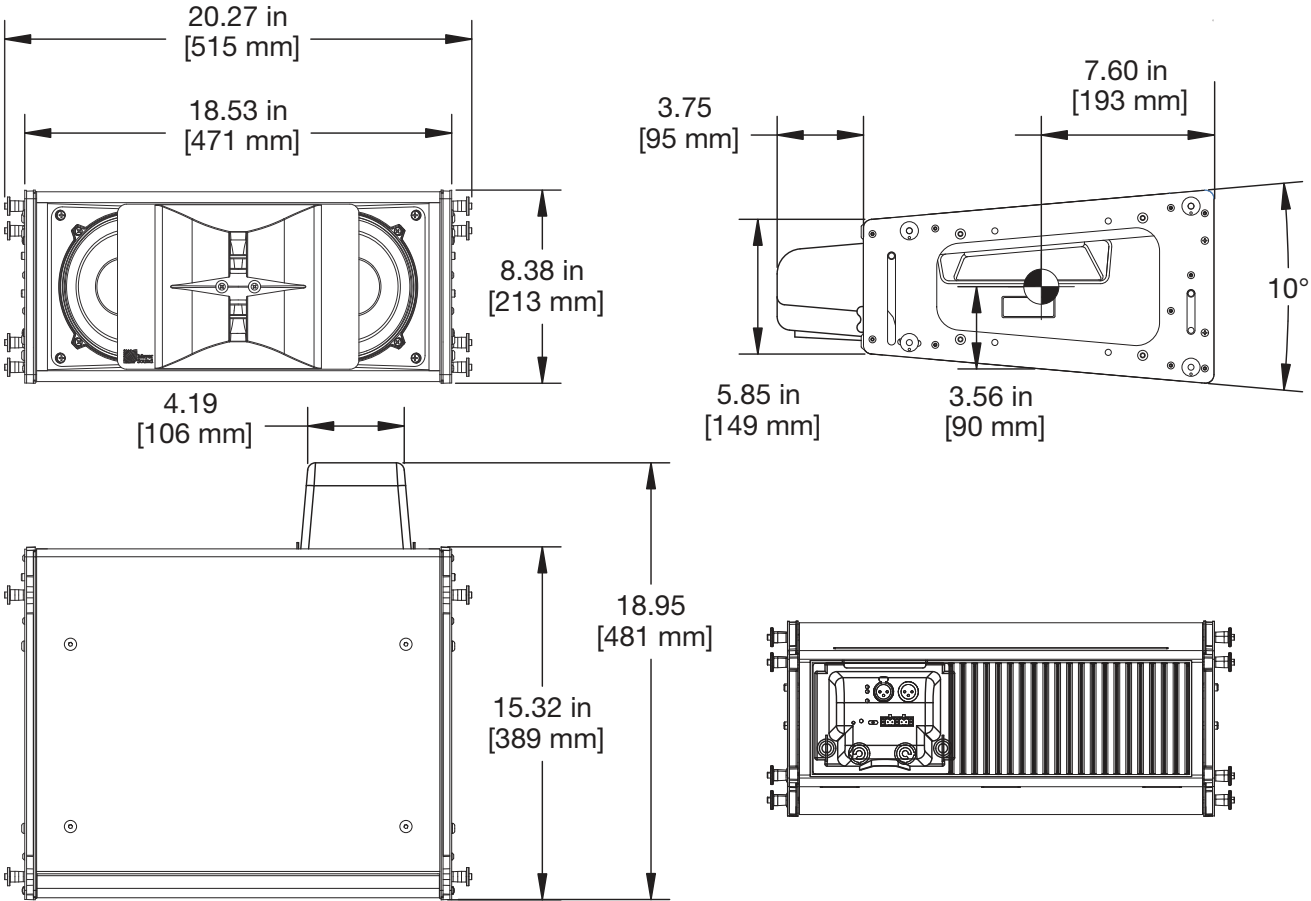
APPENDIX F: DIMENSIONS

LINA DIMENSIONS



For dimensions of the MG-MINA/LINA/750-LFC top grid and MCF-MINA/LINA/750 caster frame, refer to the MG-MINA/LINA/750-LFC Grid and Accessories Assembly Guide (PN 05.207.101.02) available at www.meyersound.com.

LINA DIMENSIONS WITH RAIN HOOD





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LINA Operating Instructions
PN 05.270.005.01 B