

USW-112XP Loudspeaker



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USW-112XP Operating Instructions, PN 05.298.105.01 A2

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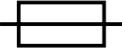
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IMPORTANT SAFETY INSTRUCTIONS

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

SYMBOLS USED

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

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

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

 **WARNING:** Class I apparatus shall be connected to a mains socket outlet with a protective earthing connection.

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

English

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

Deutsch

- Zur Minimierung der Gefahr eines elektrischen Schlages trennen Sie das Produkt vor dem Anschluss von Audio- und/oder Steuerleitungen vom Stromnetz. Das Netzkabel darf erst nach Herstellung aller Signalverbindungen wieder eingesteckt werden.
- Das Produkt an eine vorschriftsgemäss installierte dreipolige Netzsteckdose (Phase, Neutraleiter, Schutzleiter) anschließen. Die Steckdose muss vorschriftsgemäß mit einer Sicherung oder einem Leitungsschutzschalter abgesichert sein. Das Anschließen des Produkts an eine anders ausgeführte Stromversorgung kann gegen Vorschriften verstossen und zu Stromunfällen führen.
- Das Produkt nicht an einem Ort aufstellen, an dem es direkter Wassereinwirkung oder übermäßig hoher Luftfeuchtigkeit ausgesetzt werden könnte, solange es sich nicht um ein Produkt handelt, dass mit der Meyer Sound Weather Protection Option ausgestattet ist.
- Vermeiden Sie das Eindringen von Wasser oder Fremdkörpern in das Innere des Produkts. Stellen Sie keine Objekte, die Flüssigkeit enthalten, auf oder neben dem Produkt ab.
- Um ein Überhitzen des Produkts zu verhindern, halten Sie das Gerät von direkter Sonneneinstrahlung fern und stellen Sie es nicht in der Nähe von wärmeabstrahlenden Geräten (z.B. Heizgerät oder Herd) auf.

- Bei Ausstattung mit einem externen Sicherungshalter ist die austauschbare Sicherung das einzige Gerät, das vom Benutzer gewartet werden kann. Verwenden Sie beim Austausch der Sicherung nur den gleichen Typ und Wert.
- Dieses Gerät enthält möglicherweise gefährliche Spannungen. Versuchen Sie nicht, das Gerät zu zerlegen. Der einzige vom Benutzer zu wartende Teil ist die Sicherung. Alle anderen Reparaturen dürfen nur von im Werk geschultem Servicepersonal ausgeführt werden.

Français

- Pour éviter tout risque d'électrocution, débranchez l'enceinte de la prise secteur avant de mettre en place le câble audio. Ne rebranchez le cordon secteur qu'après avoir procédé à toutes les connexions de signal audio
- Brancher l'appareil sur une prise secteur à trois fils et deux pôles avec mise à la terre. La prise doit être reliée à un fusible ou à un disjoncteur. Le branchement à tout autre type de prise présente un risque de choc électrique et peut enfreindre les codes locaux de l'électricité.
- N'installez pas l'enceinte dans des endroits humides ou en présence d'eau sans utiliser d'équipements de protection adéquats fournis par Meyer Sound.
- Ne laissez pas d'eau ou d'objet étranger, quel qu'il soit, pénétrer à l'intérieur de l'enceinte. Ne posez pas d'objet contenant du liquide sur ou à proximité de l'enceinte.
- Pour réduire les risques de surchauffe, évitez d'exposer directement l'enceinte aux rayons du soleil. Ne l'installez pas à proximité de sources de chaleur, radiateur ou four par exemple.
- S'il est équipé d'un porte-fusible externe, le fusible remplaçable est le seul élément qui peut être réparé par l'utilisateur. Lors du remplacement du fusible, n'utilisez que le même type et la même valeur.
- Cet appareil contient des tensions potentiellement dangereuses. N'essayez pas de démonter l'appareil. Le fusible est la seule pièce réparable par l'utilisateur. Toutes les autres réparations doivent être effectuées uniquement par du personnel de maintenance formé en usine.

Español

- Para reducir el riesgo de descarga eléctrica, desconecte el aparato de la red eléctrica antes de instalar el cable de audio. Vuelva a conectar el cable de alimentación sólo después de realizar todas las conexiones de señal.
- Conecte el aparato a una toma de corriente de tres hilos y dos polos con conexión a tierra. El receptáculo debe estar conectado a un fusible o disyuntor. La conexión a cualquier otro tipo de receptáculo representa un riesgo de descarga eléctrica y puede violar los códigos eléctricos locales.

- No instale el aparato en lugares húmedos o mojados sin usar el equipo de protección contra intemperie de Meyer Sound.
- No permita que penetre agua u otros objetos extraños en el interior del aparato. No coloque objetos que contengan líquido sobre o cerca de la unidad.
- Para reducir el riesgo de sobrecalentamiento del aparato, evite exponerlo a la luz solar directa. No instale la unidad cerca de aparatos que emitan calor, como un calefactor o una estufa
- Si está equipado con un portafusibles externo, el fusible reemplazable es el único elemento que puede ser reparado por el usuario. Cuando reemplace el fusible, use solamente el mismo tipo y valor.
- Este aparato contiene voltajes potencialmente peligrosos. No intente desmontar la unidad. La única pieza que el usuario puede reparar es el fusible. Todas las demás reparaciones deben ser realizadas únicamente por personal de servicio capacitado de fábrica.

CONTENTS

Important Safety Instructions	iii
Symbols Used	iii
Chapter 1: Introduction	1
How to Use This Manual	1
The USW-112XP Loudspeaker	1
Chapter 2: USW-112XP Loudspeaker	5
USW-112XP Input Connector	5
USW-112XP LED	6
USW-112XP Current Draw and Cable Requirements	7
Wiring USW-112XP Loudspeaker Cables with Belden 1502 Cable (or Equivalent)	7
Long Cable Runs with Separate Cable for DC Power and Audio	8
Chapter 3: Powering USW-112XP Loudspeakers	9
Connecting to an External Meyer Sound Power Supply	9
Chapter 4: QuickFly Rigging	11
USW-112XP Rigging Optional Accessories	11
Rigging Points	12
MUB-USW-112 U-Bracket	12
Using the USW-112XP Pole Mount	14
Chapter 5: System Design and Integration Tools	15
MAPP System Design Tool	15
Galileo GALAXY Network Platform	16
Appendix A: Meyer Sound Weather Protection	17
Weather Protection Components	18
Installation Practices	18
IP Ratings	19
Appendix B: Rain Hood	21
Rain Hood Installation	22
Permissible Orientations	22
Appendix C: Assembling Phoenix Loudspeaker Cables	25
Appendix D: USW-112XP Specifications	27
USW-112XP Acoustical, Electrical, and Physical Specifications	27
USW-112XP Loudspeaker Dimensions	29
USW-112XP Rain Hood Dimensions	30
MUB-USW-112 Dimensions	31

CHAPTER 1: INTRODUCTION

HOW TO USE THIS MANUAL

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

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



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



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



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

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

Meyer Sound Technical Support is available at:

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

THE USW-112XP LOUDSPEAKER

The USW-112XP compact narrow subwoofer further extends the USW family. With its great power-to-size ratio, it provides big bass sound for very tight spaces. Its compact rectangular enclosure and slanted connector panel enable flush-mounting of the cabinet against wall surfaces, reducing required installation depth to 12 inches, including connectors.

The USW-112XP is ideal for installations requiring high performance and versatility along with an appealing, discreet aesthetic appearance. Designed to be the ideal companion to Meyer Sound's ULTRA-X20XP, it also complements the low frequencies in other Meyer Sound loudspeakers, such as the UP-4slim and those in the UPM family.

The USW-112XP has an operating frequency range of 35–140 Hz with a linear peak SPL of 119.5 dB. The bass reflex cabinet employs a low-velocity port design based on the Meyer Sound USW-210P subwoofer for high efficiency and low port distortion.



USW-112XP with Front Grille Removed

The cabinet houses a Class D power amplifier with signal processing including correction filters for phase and frequency response, and driver protection circuitry.

The USW-112XP model with IntelligentDC technology suits applications where AC distribution is a limiting factor. The USW-112XP receives DC power and balanced audio from a Meyer Sound [MPS power supply](#) using a single composite cable and connector.

The RMS™ remote monitoring system is available through the MPS-488HPp power supply and provides comprehensive, real-time information about loudspeaker parameters from a Mac® or Windows®-based computer running Compass® control software via the RMServer interface.

Meyer Sound constructs the USW-112XP cabinet from premium birch plywood coated with a durable black-textured finish and includes a powder-coated, round-perforated steel grille to protect the drivers. Weather protection and custom color finishes for specific cosmetic requirements are available options.

With its versatile shape, the USW-112XP can be placed on the ground in a horizontal or vertical position to accommodate installation requirements and includes an integral 35 mm pole mount receptacle with M20 threads for added stability.

The USW-112XP comes standard with M8 mounting points at the top and bottom for use with the optional U-bracket that enables wall, ceiling, or truss mounting.



USW-112XP with MUB-USW-112 in Ceiling Mount Position



USW-112XP in Horizontal Position to Show the 35 mm Pole Mount



USW-112XP with MUB-USW-112 in Vertical Wall Mount Position



USW-112XP with Eye Bolt



ULTRA-X20XP Pole Mounted on the USW-112XP using MPK-POLE and PAS-M8 Adapter Sleeve

CHAPTER 2: USW-112XP LOUDSPEAKER

The USW-112XP requires an external Meyer Sound [MPS 48 V DC power supply](#). Using an external power supply eliminates the need for wiring conduits while still preserving the advantages of a self-powered loudspeaker system. The unit's onboard amplifier and signal-processing circuits are designed to store DC power and tolerate voltage drops, thereby accommodating long, light-gauge cable runs.



Figure 1: USW-112XP Rear View

USW-112XP INPUT CONNECTOR

The USW-112XP loudspeaker uses a Phoenix 5-pin male connector to receive DC power and balanced audio. The input connector's five pins, two for DC power (-, +) and three for balanced audio (shield/ground, -, +), are clearly labeled on the USW-112XP rear panel (Figure 2).



Figure 2: USW-112XP Rear Panel with Phoenix 5-pin Male Connector

CAUTION: When wiring USW-112XP loudspeaker cables, it is extremely important that each pin be wired correctly. Make sure the 48 V DC from the external power supply is wired directly (and only) to the 48 V DC pins on the USW-112XP loudspeaker connector, and that the polarity is observed (- to -, + to +) to avoid damaging the loudspeaker. Make sure to wire the audio pins correctly or system performance will be compromised.

NOTE: Also see the IntelligentDC Products Wiring Verification Installation Instructions (PN 17.902.040.01) available at meyersound.com/documents.

USW-112XP LED

The USW-112XP uses the three-color LED on its rear panel to indicate the loudspeaker's status.



Figure 3: USW-112XP LED - Limit and Status Indicator

Power On (Green)

When powering up the USW-112XP loudspeaker, the following startup events occur and are indicated by the LED:

1. The LED flashes all colors during power-up.
2. After a few seconds, the LED lights solid green, indicating the loudspeaker is ready to reproduce audio.

CAUTION: If the power-up sequence leaves the LED flashing multiple colors or solid red, and it does not produce audio, the loudspeaker has encountered an error and may need to be serviced. Contact Meyer Sound Technical Support.

CAUTION: If the power-up sequence leaves the LED solid red and the loudspeaker outputs audio, its voltage may have dropped below 25 V DC. Cease operation immediately and verify its power supply and cabling.

Limiting (Yellow)

The USW-112XP LED illuminates yellow when the loudspeaker's signal rises 2 dB above the limiting threshold, indicating that a safe, optimal level has been exceeded. When limiting is engaged, gain is reduced. The limiter protects the driver and prevents signal peaks from causing excessive distortion in the amplifier, thereby preserving headroom and maintaining a smooth frequency response at high levels. When source levels return to normal below the limiter's threshold, the LED turns green and limiting ceases.

The USW-112XP performs within its acoustical specifications at normal temperatures when the USW-112XP LED is green, or when limiting is not continuous. During continuous limiting, the loudspeaker is nearing its operational limits, resulting in the following effects:

- Increasing the input level has no effect.
- Distortion increases due to clipping and nonlinear driver operation.
- The driver is subjected to excessive heat and excursion, which compromises its life span and may eventually damage it.

CAUTION: If the USW-112XP loudspeakers in a system begin to limit before reaching the desired SPL, Meyer Sound recommends adding more loudspeakers to the system to achieve the desired SPL without exposing them to the hazardous conditions listed above.

Clipping (Red)

The USW-112XP LED turns red when the loudspeaker's input stage clips, causing the amplifier to overload. The source level must be reduced.

CAUTION: If the USW-112XP LED turns solid red and the loudspeaker continues to output audio, though at reduced levels, the loudspeaker's voltage may have dropped below 25 V DC. Cease operation immediately and verify its power supply and cabling.

USW-112XP CURRENT DRAW AND CABLE REQUIREMENTS

The current draw for the USW-112XP is dynamic and fluctuates as operating levels change. The cabling between the USW-112XP and its external power supply adds resistance and hence causes a voltage drop at the loudspeaker. Because lower DC voltages compromise amplifier performance (peak SPL), and in some cases frequency response, use short cables to minimize the cable resistance. For long cable runs, use a large cable gauge for DC power and a separate balanced audio cable for audio. For more information, see “Long Cable Runs with Separate Cable for DC Power and Audio” on page 8.

Cable Lengths and Cable Gauges

Cable lengths up to 150 feet between the USW-112XP and its external power supply are supported with only 1 dB of peak SPL loss using 18 AWG wire. Longer cable lengths are possible with heavier gauge wires (see Table 1 and Table 2).

Table 1: USW-112XP Loudspeaker Cable Lengths (AWG)

Cable Gauge	Resistance (Ω /ft)	Approximate Max. Length
12 AWG	0.0016	600 ft
14 AWG	0.00253	375 ft
16 AWG	0.00402	237 ft
18 AWG	0.00636	150 ft
20 AWG	0.01008	87 ft

Table 2: USW-112XP Loudspeaker Cable Lengths (European)

Cable Gauge	Resistance (Ω /m)	Approximate Max. Length
2.50 mm ²	0.0052	157 m
1.50 mm ²	0.01076	87 m
1.00 mm ²	0.02087	45 m
0.75 mm ²	0.03307	27 m



NOTE: The total cable resistance between the USW-112XP and its external power supply should not exceed 2 Ω .

Calculating the Maximum Cable Length

The maximum cable length for a USW-112XP can be calculated with the following formula:

$$\text{maximum length} = 2 \Omega / (2 * \text{cable resistance in } \Omega/\text{ft})$$

For example, the maximum length of an 18 AWG cable with a resistance of 0.00636 Ω /ft is 157.2 feet [$2 / (2 * 0.00636)$].

WIRING USW-112XP LOUDSPEAKER CABLES WITH BELDEN 1502 CABLE (OR EQUIVALENT)

The most convenient method of wiring USW-112XP loudspeaker cables is with a multiconductor cable such as Belden 1502, which has dedicated conductors for DC power and balanced audio in a single jacket. When wiring USW-112XP loudspeaker cables with Belden 1502, use the conventions illustrated in Figure 4 and described in Table 3.

The thicker red and black wires (18 AWG) are for DC power. Cables can be up to 150 ft with just 1 dB of peak SPL loss.

The blue, white, and shield drain wires (shielded together) are for audio.

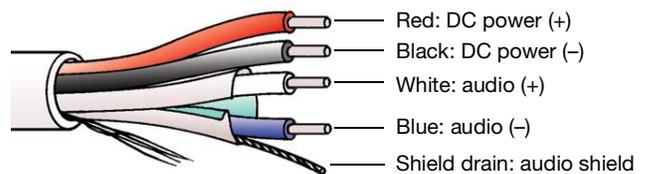


Figure 4: Belden 1502 Composite Cable

Table 3: Wiring USW-112XP Loudspeaker Cables with Belden 1502

Wire	Signal	Gauge
Red	DC power (+)	18 AWG
Black	DC power (-)	18 AWG
White	Balanced audio (+)	22 AWG
Blue	Balanced audio (-)	22 AWG
Shield drain	Balanced audio, (shield)	24 AWG



CAUTION: Make sure the 48 V DC from the external power supply is wired directly (and only) to the 48 V DC pins on the USW-112XP loudspeaker connector, and that the polarity is observed (- to -, + to +) to avoid damaging the loudspeaker. Make sure to wire the audio pins correctly or system performance will be compromised.

LONG CABLE RUNS WITH SEPARATE CABLE FOR DC POWER AND AUDIO

For installations where Belden 1502 is not feasible, or for installations that require cable runs longer than 150 ft, separate cables for DC power and balanced audio may be used: a large-gauge cable for DC and a high-quality, balanced audio cable for audio. The separate cables attach to the Phoenix connector at the loudspeaker as shown in Figure 5 and Figure 6. DC power cable runs longer than 150 ft require cable gauges larger than 18 AWG; see “Cable Lengths and Cable Gauges” on page 7.

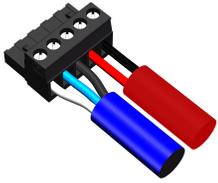


Figure 5: Phoenix Connector with Separate Power and Audio Cables

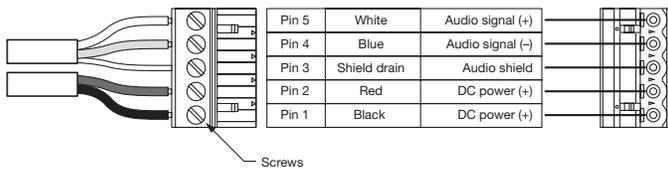


Figure 6: Separate Cables for DC Power and Balanced Audio

CHAPTER 3: POWERING USW-112XP LOUDSPEAKERS

CONNECTING TO AN EXTERNAL MEYER SOUND POWER SUPPLY

USW-112XP loudspeakers require an external Meyer Sound IntelligentDC power supply. The MPS-488HP is a 19-inch (1RU) unit that distributes DC power and balanced audio to USW-112XP speakers or other Meyer Sound IntelligentDC loudspeakers. Composite multi-conductor cables (e.g., Belden® 1502) can deliver both DC power and balanced audio. The MPS-488HP can connect to Meyer Sound's RMS remote monitoring system. The MPS-488HP receives eight channels of balanced audio from its XLR female Channel Inputs. It routes the audio, along with 48 V of DC power, to its eight Channel Outputs. The MPS-488HP can drive up to eight USW-112XP loudspeakers.

The MPS-482HP is a 1RU, half-rack-width unit with two input channels and two output channels that is ideal for applications requiring a small channel count.



TIP: See meyersound.com/product/mps for more details about Meyer Sound IntelligentDC power supplies.

Cable lengths up to 150 feet for DC power are possible when using 18-AWG wire, with just 1 dB of loss in peak SPL. Longer cable runs are possible for moderate applications that do not drive the loudspeakers to maximum output, or for installations with heavier gauge wires. The use of composite multiconductor cables (such as Belden 1502 or equivalent) allows a single cable to carry both DC power and balanced audio to the USW-112XPs.

To connect USW-112XP loudspeakers to an MPS-488HP:

1. Power off the MPS-488HP.
2. Use balanced XLR cables to connect audio sources from a mixer or processor to the MPS-488HP Channel Inputs.
3. Use the MPS-488HP Link switches to route Channel Inputs to the desired Channel Outputs.



TIP: See the MPS-488HP Operating Instructions, PN 05.205.005.01) available at meyersound.com/documents for complete information.

4. Connect the USW-112XP loudspeakers to the MPS-488HP Channel Outputs (Figure 7).

Use composite cables (such as Belden 1502 or equivalent) wired for both DC power and balanced audio and outfitted with the appropriate connectors.

To connect USW-112XP loudspeakers to the MPS-488HP, use Phoenix 5-pin male to Phoenix 5-pin female cables.

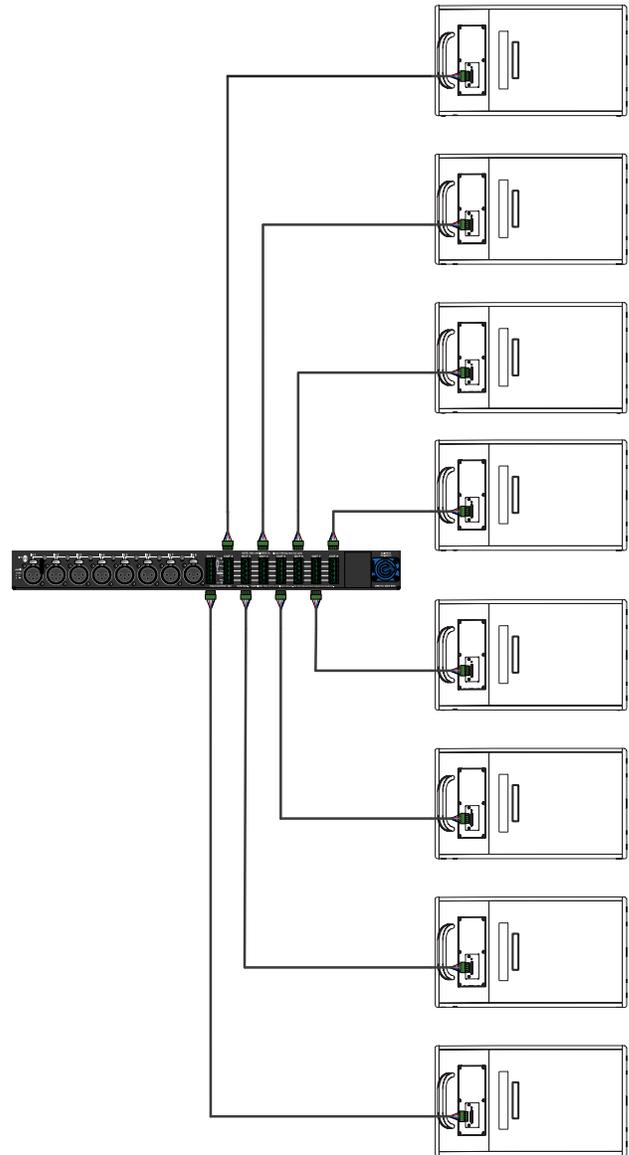


Figure 7: MPS-488HP with Eight USW-112XP Loudspeakers



TIP: It is possible to use a two-conductor cable for DC power and a three-conductor cable for balanced audio with both cables attached to a single Phoenix connector on each end. This approach supports use of a larger gauge DC cable,

which allows longer cable runs (see “Long Cable Runs with Separate Cable for DC Power and Audio” on page 8).



CAUTION: Make sure USW-112XP loudspeaker cables are wired correctly. For details about assembling loudspeaker cables, see Appendix C, “Phoenix Cable Assembly.”

5. Power on the MPS-488HP and monitor the LEDs on the front panel to verify connections. For information about the MPS-488HP LEDs, refer to the MPS-488HP Operating Instructions.
6. Check the LEDs on the USW-112XP rear panels and verify they are green (ready to reproduce audio).
7. Enable output from the audio sources (from the mixer or processor) connected to the MPS-488HP.



NOTE: Connecting to an MPS-482HP power supply is similar. Refer to the MPS-482HP Operating Instructions (PN 05.285.005.01) available at meyersound.com/documents for complete information. The 48 V IntelligentDC Wiring diagram (PN 05.084.115.01) and the IntelligentDC Products Wiring Verification Installation Instructions (PN 17.902.040.01) are also available at the above URL.

CHAPTER 4: QUICKFLY RIGGING

The USW-112XP loudspeaker is compatible with Meyer Sound’s QuickFly system, a comprehensive collection of custom-designed rigging, flying, and mounting options. Comprised of rugged, reliable, and easy-to-configure components, QuickFly enables deploying of USW-112XP loudspeakers at precise angles.

Important Safety Considerations!

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

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



CAUTION: When pole-mounting an ULTRA-X20XP onto a USW-112XP, to keep it stable, do not lift the ULTRA-X20XP higher than 44 inches from the top of the USW-112XP. This limit is due to the small footprint and light weight of the USW-112XP.

USW-112XP RIGGING OPTIONAL ACCESSORIES

Meyer Sound offers two rigging options for the USW-112XP (Table 4). For self-weight, rigging loads and dimensional information, please see Appendix D, “USW-112XP Specifications.”

Table 4: USW-112XP Rigging Options

Model	Features
MUB-USW-112 U-Bracket Kit (PN 40.298.050.01)	The MUB-USW-112 U-Bracket allows a single USW-112XP loudspeaker to be mounted to a wall (in either vertical or horizontal orientations), to the ceiling, from a truss, or onto the floor. The kit includes two M8 bolts/washers and two M8 knobs/washers.
MPK-POLE-35MM-M20 Adjustable Pole Mount Kit (PN 40.010.973.01)	Adjustable length 927–1524 mm (36.5–60 in) pole with assisted lift. Lower shaft fits 35 mm cups or use the removable M20 threaded lug for added stability. Additional 35 mm to 38 mm (1.5 in) adapter included for 38 mm mounts. Upper shaft includes a PAS-M8 Adapter Sleeve to fit loudspeakers with M8 rigging nuts and a PAS-M20 Adapter Sleeve to fit loudspeakers with 35 mm and M20 internal pole mounts.

RIGGING POINTS

The top and bottom faces of the USW-112XP cabinet each include a high-strength, corrosion-resistant stainless steel point that provides an M8 x 1.25 threaded hole for easy connection to QuickFly rigging and third-party mounting options.

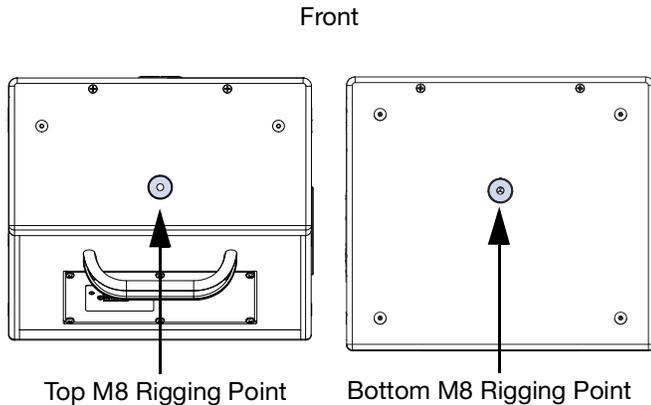


Figure 8: USW-112XP Rigging Points

The USW-112XP also includes an integral 35 mm pole mount receptacle on one side with M20 threads for added stability.

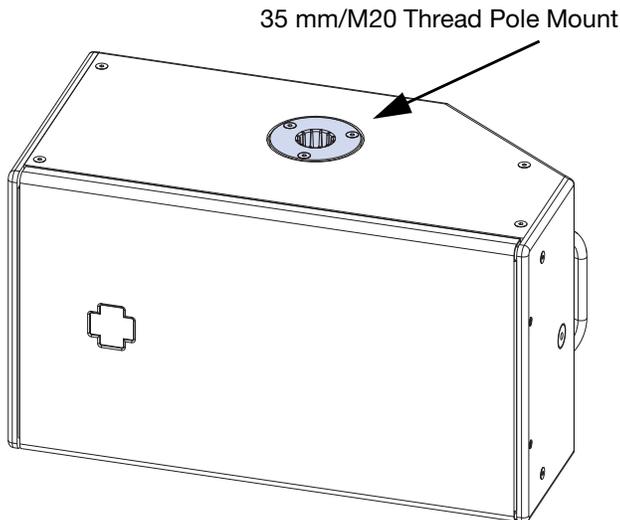


Figure 9: USW-112XP Integral Pole Mount

MUB-USW-112 U-BRACKET

The MUB-USW-112 U-Bracket (PN 40.298.050.01) allows a single USW-112XP loudspeaker to be mounted to a wall in either vertical or horizontal orientations, to the ceiling, onto the floor, or from a truss. The MUB-USW-112 kit includes two M8 bolts/washers and two M8 knobs/washers. The bolts are recommended for fixed installations.

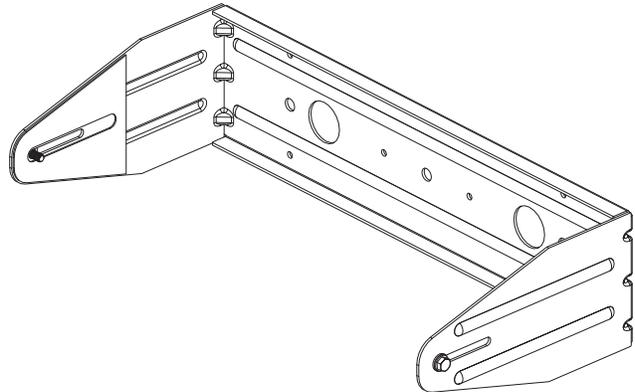


Figure 10: MUB-USW-112 U-Bracket

MUB-USW-112 U-Bracket Load Ratings

One USW-112XP or USW-112P can be safely mounted with the MUB-USW-112 U-bracket at a 5:1 safety factor.

When mounting a USW-112XP with the U-bracket, the U-bracket must be secured to the mounting surface with one of the configurations shown in Table 5 (for hole locations, see Figure 11 on page 13).

Table 5: Mounting Hole Configurations

Hole	Safety Factor
1/2-inch center hole	5:1
Two 1/2-inch outer holes	5:1
All four 1/4-inch corner holes	5:1
Two 1/4-inch center holes	Not rated for mounting. These holes are for pole-mounting the MUB-USW-112 using a pole-mount adapter.

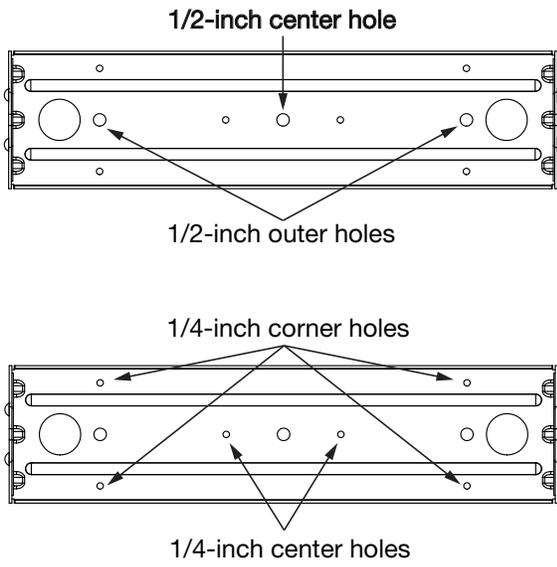


Figure 11: Mounting Hole Locations

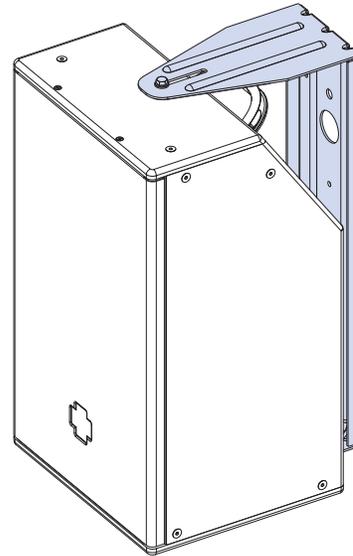


Figure 13: MUB-USW-112 Wall Mount, Vertical

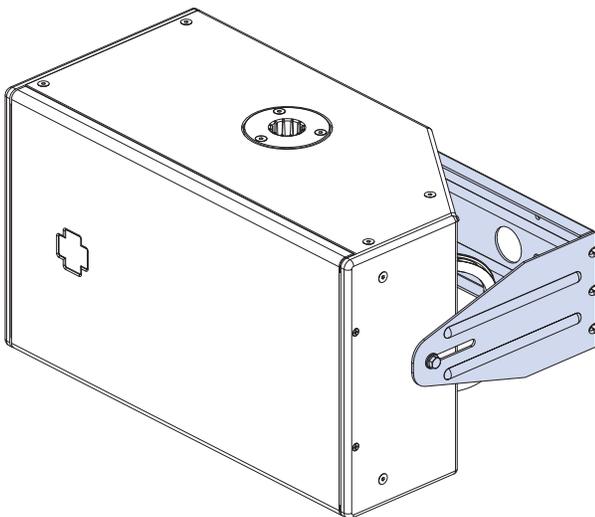


Figure 12: MUB-USW-112 Wall Mount, Horizontal

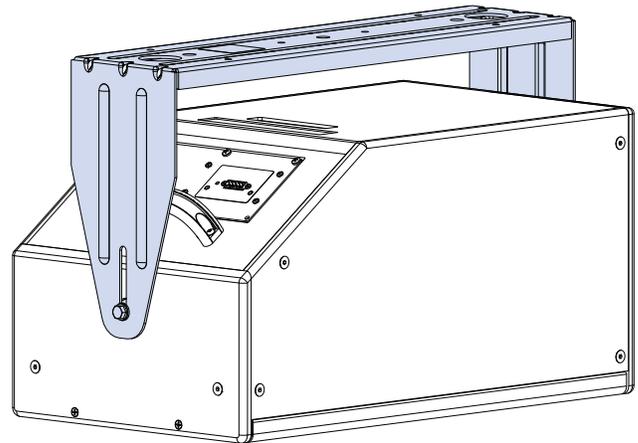


Figure 14: MUB-USW-112 Ceiling Mount

USING THE USW-112XP POLE MOUNT

The MPK-POLE-35MM-M20 (PN 40.010.973.01) provides an easy and efficient way to mount a loudspeaker (such as the ULTRA-X20XP) on top of the USW-112XP. It features a lift assist that provides approximately 40 lb of internal gas cylinder pneumatic lift.

The MPK-POLE-35MM-M20 features all steel shafts that telescope from 36.5–60 inches and employs a secure knob to hold it in a specific position. The lower end is 35 mm in diameter and has an M20 threaded lug to stabilize and make the connection to the USW-112XP pole mount more secure. The upper shaft includes the removable PAS-M8 Adapter Sleeve that fits the ULTRA-X20/22/23 M8 rigging point and a PAS-M20 Adapter Sleeve that fits internal 35 mm and M20 pole mount receptacles is available for other pole applications.

CAUTION: Due to the small footprint and light weight of the USW-112XP, to keep it stable, avoid extending the pole to the maximum height. Do not lift the ULTRA-X20XP higher than 44 inches from the top of the USW-112XP.

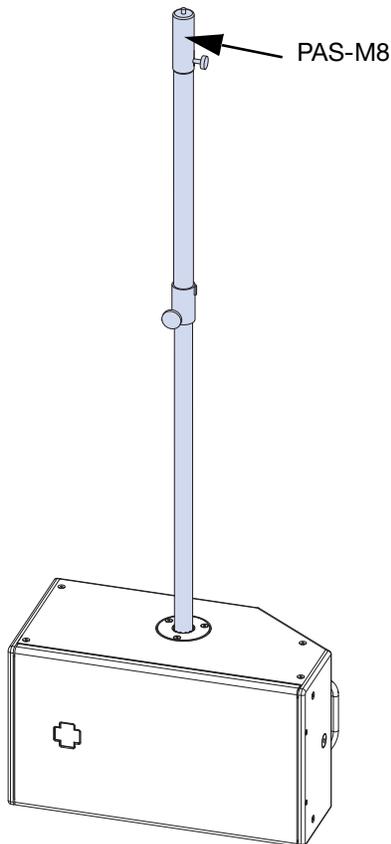


Figure 15: MPK-POLE with PAS-M8 in USW-112XP Pole Mount

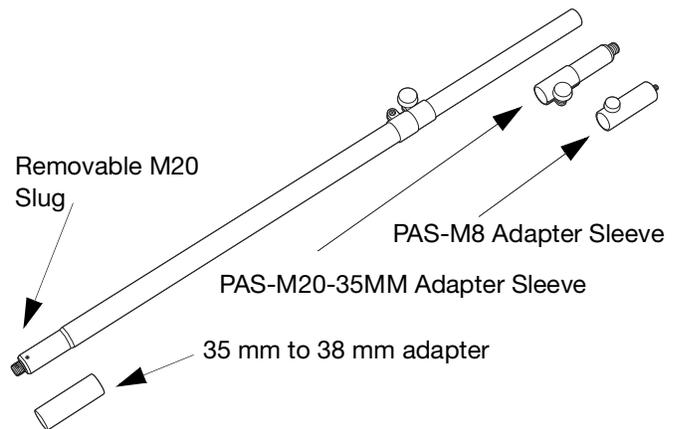


Figure 16: MPK-POLE kit

CHAPTER 5: SYSTEM DESIGN AND INTEGRATION TOOLS

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

MAPP SYSTEM DESIGN TOOL

The MAPP System Design Tool (Figure 17) is a powerful, cross-platform application for accurately predicting the coverage pattern, frequency response, phase response, impulse response, and SPL capability of individual or arrayed Meyer Sound loudspeakers.

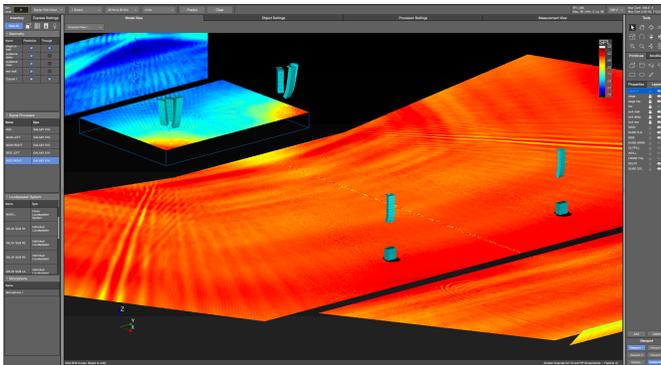


Figure 17: MAPP System Design Tool

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

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

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



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

MAPP Capabilities

With MAPP, the user can:

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

GALILEO GALAXY NETWORK PLATFORM

The Galileo GALAXY Network Platform is a sophisticated loudspeaker management tool for controlling all Meyer Sound speaker types. The GALAXY loudspeaker processor extends a high level of audio control in driving and aligning loudspeaker systems with multiple zones. It provides a powerful tool set for corrective equalization (EQ) and creative fine-tuning for a full range of applications from touring to cinema.

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

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

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

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

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

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 Definition Chart" Section on page 19.

WEATHER PROTECTION COMPONENTS

Standard Weather Protection

Meyer Sound designs toward an IP rating of IPX4 (see “IP Ratings Definition Chart” on page 19) 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 6 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 6: 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 HOOD

A weather-protected version of the USW-112XP is available with an included rain hood kit that safeguards the Phoenix connectors from the elements in fixed outdoor installations. The rain hood is made of durable, high-impact, black polycarbonate (Figure 18 and Figure 19). The weather-protected USW-112XP can be mounted vertically or horizontally. (For restrictions, see “Permissible Orientations” beginning on page 22.) Rain hood installation instructions begin on page 22.



Figure 18: Weather-Protected USW-112XP with Rain Hood Attached

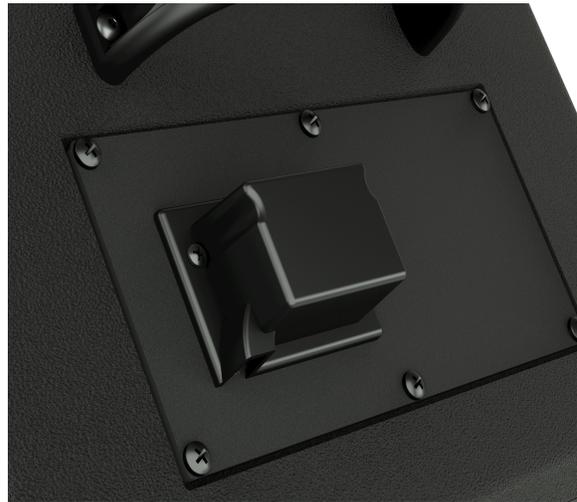


Figure 19: Close-up view of USW-112XP with Rain Hood



NOTE: Weather-protected USW-112XP loudspeakers using the rain hood are rated IP56 for protection against solid objects and water intrusion. See “Meyer Sound Weather Protection” on page 17 for details.

RAIN HOOD INSTALLATION

To install the USW-112XP rain hood:

1. Attach the audio/power source Phoenix cable connector to the loudspeaker (not shown).
2. Secure the rain hood to the user panel with the two 6-32 x 0.38-inch pan head screws provided (Figure 20). The recommended torque value for rain hood screws is 8 in-lbs (0.9 N·m).

 **NOTE:** The rain hood comes with the gasket attached (Figure 21).

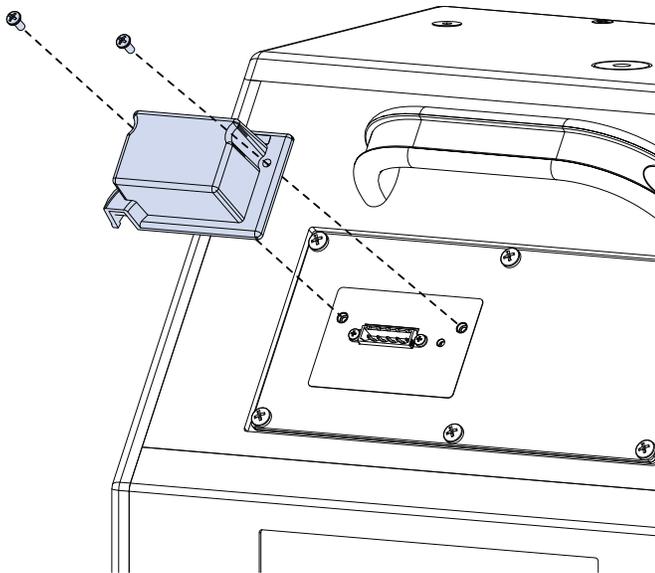


Figure 20: USW-112XP with Rain Hood Assembly

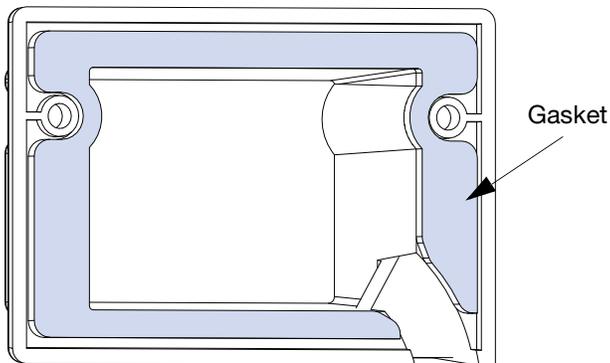


Figure 21: Rain Hood with Gasket Attached

PERMISSIBLE ORIENTATIONS

 **CAUTION:** When mounting the loudspeaker, ensure that the cables will exit from the bottom of the loudspeaker when the rain hood is installed. There is only one permissible vertical orientation (handle on top, Figure 22) and one permissible horizontal (handle to the left when viewing it from the rear, Figure 23).

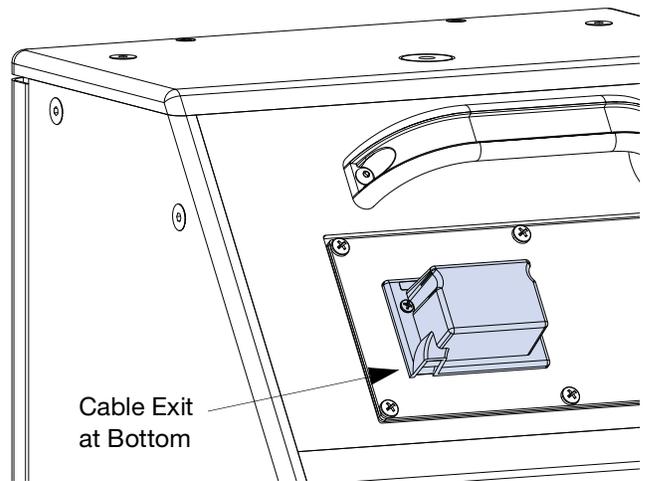


Figure 22: Only Permissible Vertical Orientation

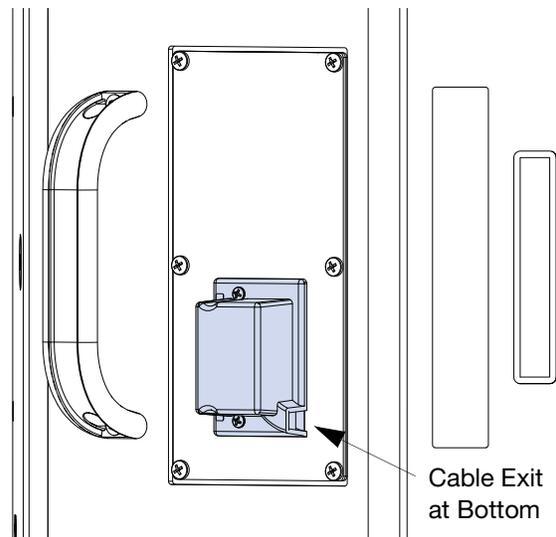


Figure 23: Only Permissible Horizontal Orientation

Downtilt and Uptilt

CAUTION: The weather-protected USW-112XP loudspeaker must be mounted with a 0° tilt, or preferably with a slight downtilt with the cables exiting from the bottom. This angle shields the driver from the elements and does not allow water to accumulate in the cabinet. Do not tilt the cabinet up, as the drivers and cabinet will accumulate water. (Figure 25 and Figure 24).

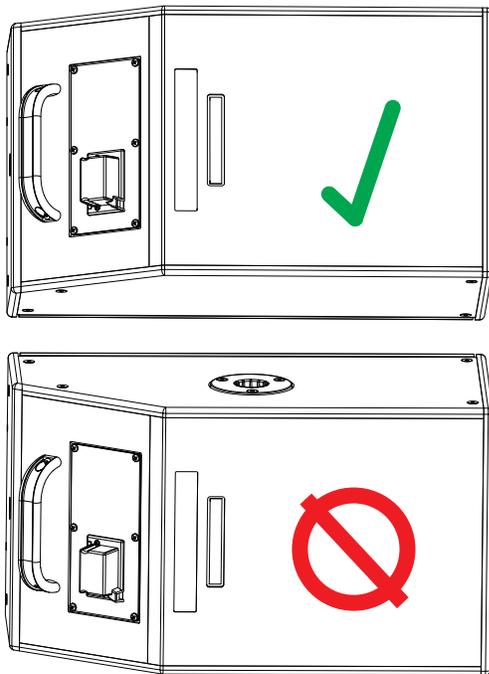


Figure 24: Downtilt Permissible (top); Uptilt **NOT** Permissible (bottom)

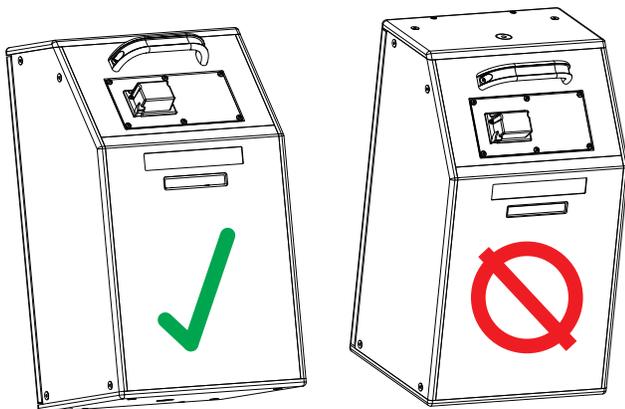


Figure 25: Downtilt Permissible (left); Uptilt **NOT** Permissible (right)

Horizontal Tilt

CAUTION: If tilting the loudspeaker from 0° horizontal, ensure that the horizontal tilt leaves the port below the electronics, so that water does not enter from the port and accumulate in the cabinet (Figure 26).

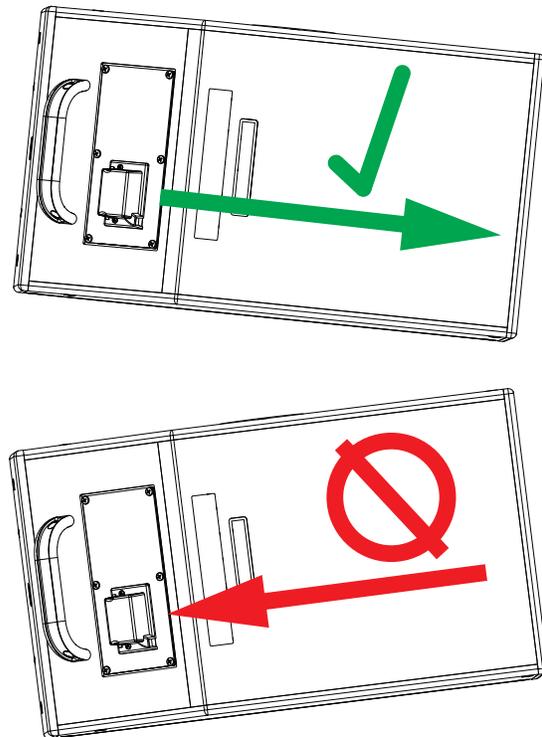


Figure 26: Horizontal Tilt-Away from Electronics Permissible (top); Horizontal Tilt-Toward Electronics **NOT** Permissible (bottom)

APPENDIX C: ASSEMBLING PHOENIX LOUDSPEAKER CABLES

CAUTION: When wiring loudspeaker cables, it is extremely important that each pin be wired correctly. Make sure that the 48 V DC from the external power supply is wired directly (and only) to the 48 V DC pins on the loudspeaker connector, and that the polarity is observed (negative to negative, positive to positive) to avoid damage to the loudspeaker. In addition, make sure that audio pins are wired correctly; polarity reversals for audio signals affect system performance.

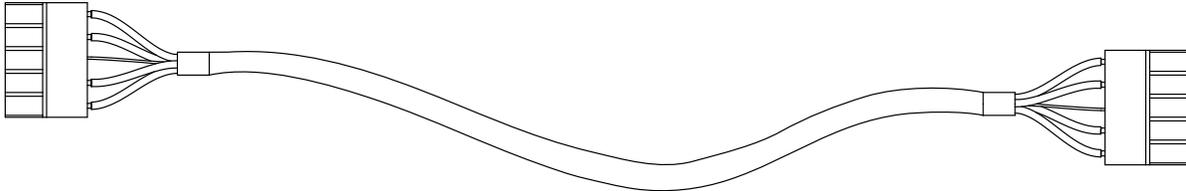


Figure 27: Assembled Phoenix-to-Phoenix Cable

To assemble a Phoenix-to-Phoenix cable:

1. If the cable has not yet been stripped, strip one end of the cable. Strip the outer shielding by 1 inch and then strip the black, red, blue, and white wires by 0.275 inch (Figure 28).

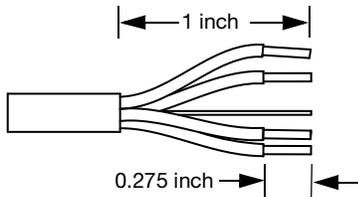


Figure 28: Stripping Cable Shielding and Wires

2. Insert the five exposed conductors into the five cable holes in a Phoenix 5-pin female cable mount connector. Use the wiring scheme shown in Figure 29.



Figure 29: Pin Destinations for Phoenix 5-Pin Female Cable Mount Connector

3. Secure the conductors by tightening the five screws in the Phoenix cable mount connector. Screws should be torqued to 0.5–0.6 Nm (4.4–5.3 In-Lbs).

CAUTION: Screws should not be tightened while the connector rests in a mating plug. Doing so will damage the contacts. During assembly, the Phoenix connector should only be held in place externally.

4. Repeat the previous steps and attach the other end of the cable to another Phoenix 5-pin female cable mount connector.
5. Verify the wiring polarity is correct for both cable ends.

APPENDIX D: USW-112XP SPECIFICATIONS

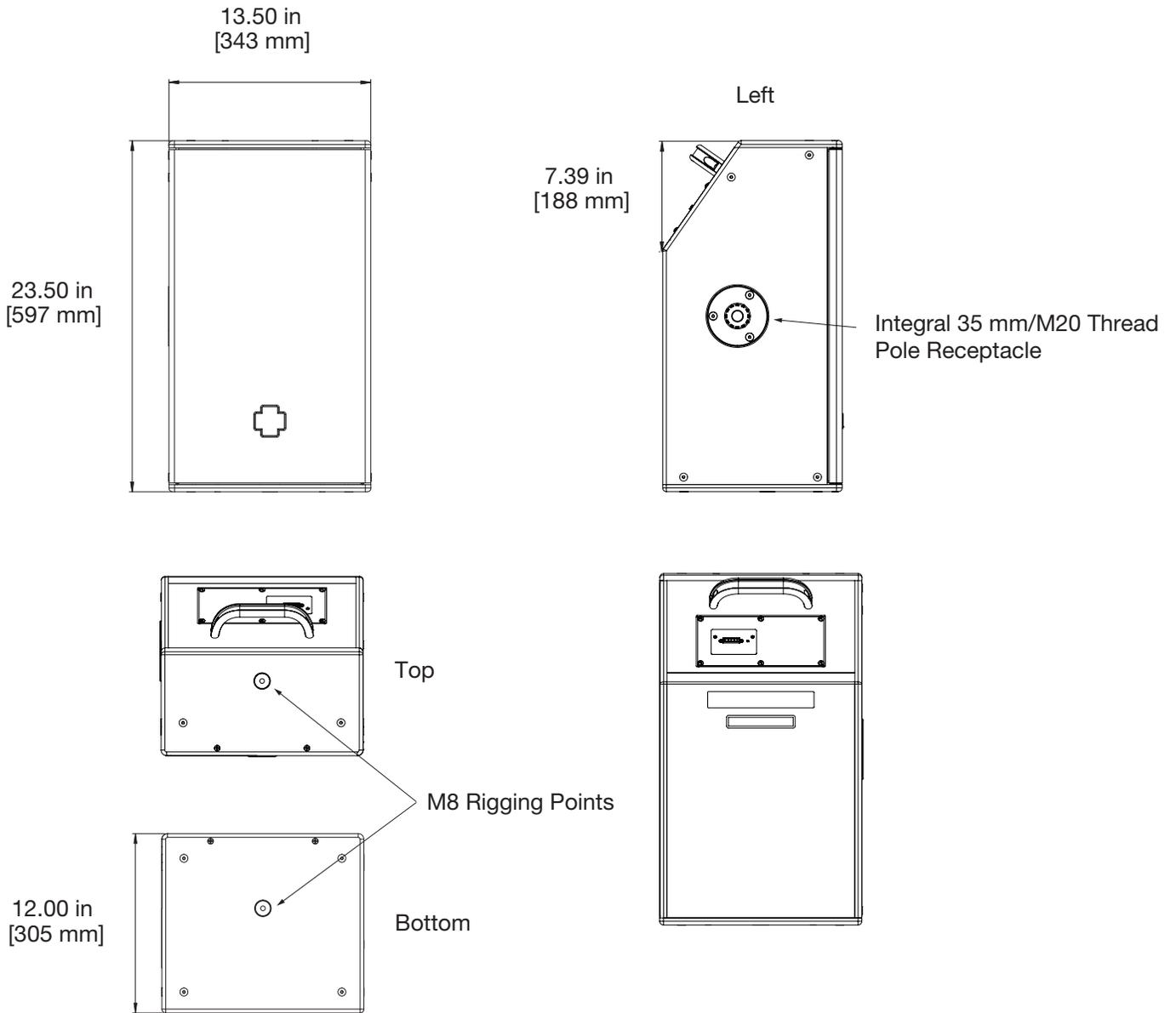
USW-112XP ACOUSTICAL, ELECTRICAL, AND PHYSICAL SPECIFICATIONS

ACOUSTICAL	
Operating Frequency Range	35 Hz – 140 Hz Note: Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.
Frequency Response	36 Hz – 125 Hz ± 4 dB Note: Measured in half-space with 1/3 octave frequency resolution at 4 meters.
Phase Response	45 Hz – 120 Hz $\pm 30^\circ$
Linear Peak SPL	119.5 dB with > 10 dB crest factor (M-noise) , 119.5 dB (Pink Noise), 121.5 dB (B-noise) Note: Linear Peak SPL is measured in half-space at 4 m referred to 1 m. Loudspeaker SPL compression measured with M-noise at the onset of limiting, 2-hour duration, and 50 °C ambient temperature is < 2 dB. M-noise is a full bandwidth (10 Hz–22.5 kHz) test signal developed by Meyer Sound to better measure the loudspeaker's music performance. It has a constant instantaneous peak level in octave bands, a crest factor that increases with frequency, and a full bandwidth Peak to RMS ratio of 18 dB. The presence of a greater-than (>) symbol with regard to crest factor indicates it may be higher depending on EQ and boundary loading. Pink noise is a full bandwidth test signal with Peak to RMS ratio of 12.5 dB. B-noise is a Meyer Sound test signal used to ensure measurements reflect system behavior when reproducing the most common input spectrum, and to verify there is still headroom over pink noise.
TRANSDUCERS	
Low Frequency	One 12-inch cone driver; 3 Ω nominal impedance
AUDIO INPUT	
Type	Differential, electronically balanced
Maximum Common Mode Range	± 15 V DC, clamped to earth for voltage transient protection
Connector	Phoenix 5-pin male
Input Impedance	10 k Ω differential between pins 2 and 3
Wiring	Pin 1: DC Power (-) Pin 2: DC Power (+) Pin 3: Audio Shield, chassis/earth through 1 k Ω , 1000 pF, 15 V clamped network to provide virtual ground lift at audio frequencies. Pin 4: Audio (-) Pin 5: Audio (+)
Nominal Input Sensitivity	0 dBV (1 V rms) continuous average 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 maximum peak SPL over the operating bandwidth of the loudspeaker

AMPLIFIER	
Type	Open-loop, Class D
Total Output Power	600 W peak Note: Peak power based on the maximum unclipped peak voltage the amplifier will produce into the nominal load impedance.
THD, IM TIM	<.02%
Cooling	Convection
DC POWER	
Connectors	Phoenix 5-pin male provides power and audio connection (see Wiring above)
Safety Agency Rated Operating Voltage	48 V DC (Meyer Sound IntelligentDC External Power Supply Required) Note: Tolerates voltage drops up to 30% due to long cable runs. Normal operating conditions with recommended cable gauge and length assures peak SPL remains within 2 dB of max SPL specification.
RMS NETWORK (OPTIONAL)	
	RMS Network capability optionally provided through the MPS-488HPp power supply.
PHYSICAL	
Dimensions	W: 13.5 in (343 mm) x H: 23.5 in (597 mm) x D: 12 in (305 mm)
Weight	43 lb (19.5 kg)
Enclosure	Premium multi-ply birch with slightly textured black finish
Protective Grille	Powder-coated, round perforated steel
Rigging	Two integrated M8 threaded points; 35 mm Pole Mount with M20 thread; optional U-bracket for wall, ceiling, or truss mounting.
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)
IP Rating	IP56 Note: IP Rating for weather-protected units with rain hood properly attached. See “Rain Hood” on page 21 for details about the rain hood. See “Meyer Sound Weather Protection” on page 17 for details about IP ratings.

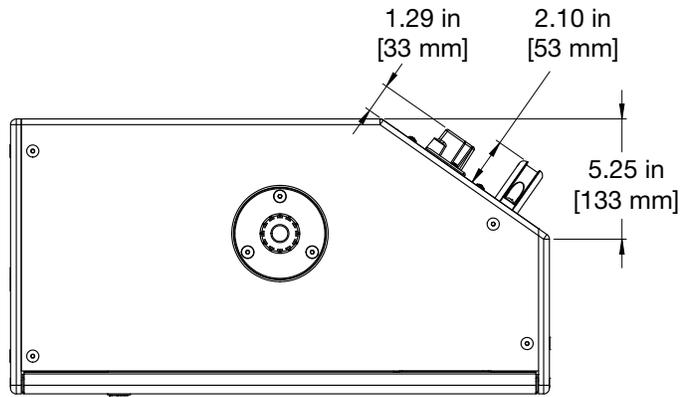
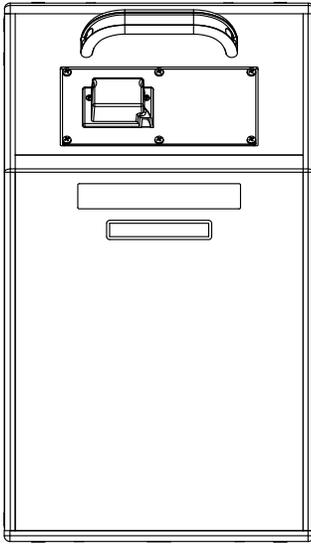


USW-112XP LOUDSPEAKER DIMENSIONS



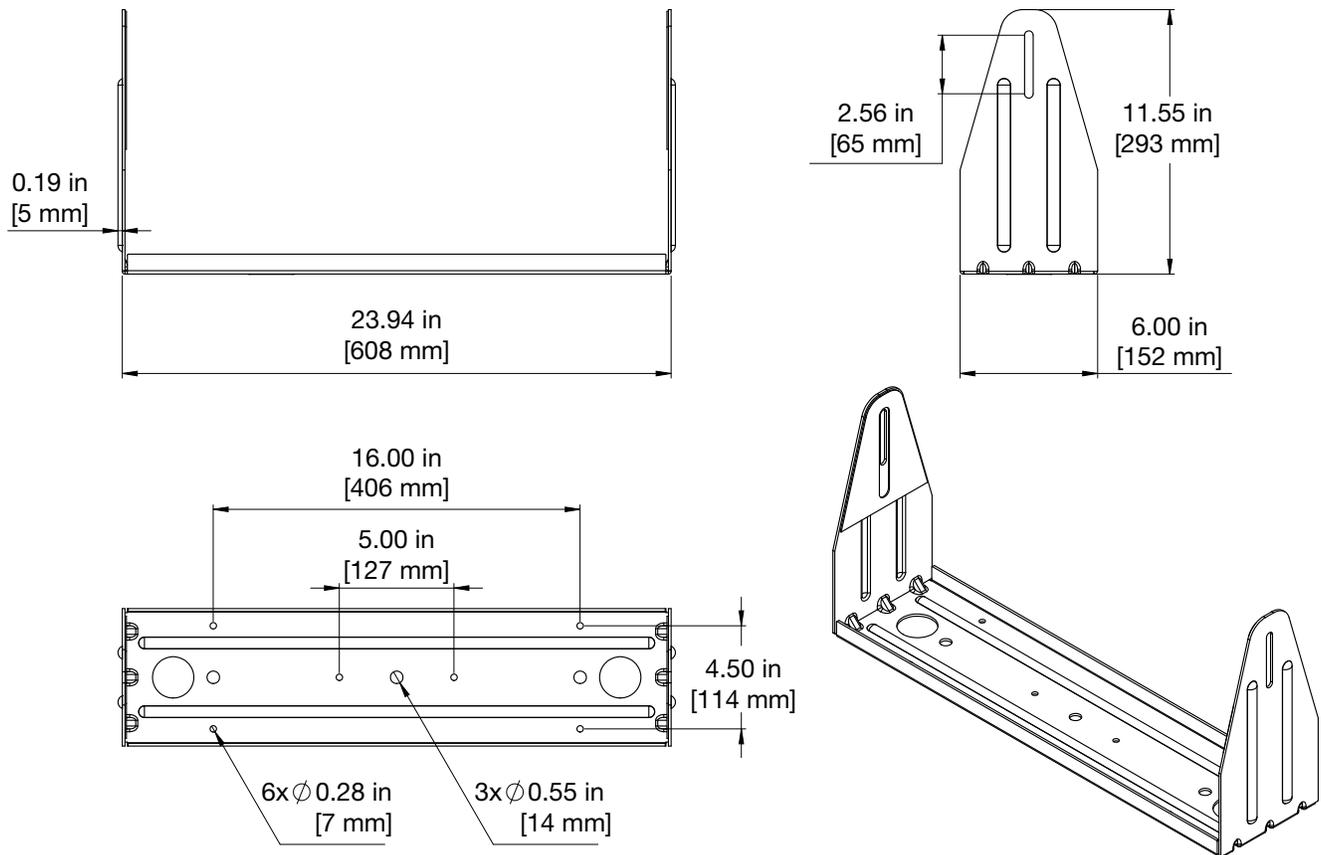
USW-112XP RAIN HOOD DIMENSIONS

The USW-112XP rain hood is smaller in height than the handle and does not protrude beyond the slanted user panel area.



MUB-USW-112 DIMENSIONS

Self-weight: 10 lb [4.5 kg]
Load rating 5:1: 45 lb [20.4 kg]
(1 USW-112P or USW-112XP)











THINKING SOUND

Meyer Sound Laboratories, Incorporated.
2832 San Pablo Avenue
Berkeley, CA 94702

meyersound.com
T: +1 510 486.1166

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