

# USW-1P Q&A



*The Meyer Sound Ultra Series™ USW-1P subwoofer is a compact, powered, high SPL system designed to extend the low frequency capabilities of sound reproduction systems. The USW-1P features a uniquely robust built-in power biamplifier that incorporates driver protection and optimized pole-zero response correction circuitry. The USW-1P can be fed a full-range signal, allowing for simple daisy-chain signal distribution, eliminating the need for external crossovers.*

*The USW-1P utilizes two proprietary 15-inch cone low frequency drivers in a vented cabinet with carrying handles and rigging points. The USW-1P was developed in Meyer Sound's anechoic test chamber by measuring coverage patterns using 1° angular resolution at 1/36 of an octave. The USW-1P extends the low range frequency response of a system down to 32 Hz at 130dB SPL.*



**PATENT PENDING**

#### **WHAT ARE THE INTENDED APPLICATIONS FOR THE USW-1P?**

The USW-1P was developed to extend the low frequency capabilities of the UPA-P and UM-P Powered UltraSeries™ product series. The powerful compact enclosure makes an ideal subwoofer for small to medium size PA systems, studio and musical instrument monitoring, and is unparalleled as a sub-harmonic component in theater and surround systems. The USW-1P was recently chosen by NASA to reproduce the sound of Space Shuttle launches.

#### **WHAT KIND OF POWER AMPLIFIER DOES THE USW-1P USE?**

The USW-1P's built-in electronics package features a new power biamplifier designed specifically for the Powered Ultra Series products. The powerful, lightweight amplifier adds only 10 pounds to the weight of the cabinet while supplying 350 watts per channel of burst capability. The electronics virtually eliminate ground loop problems at the input by employing a differential receiver with high common mode rejection. A path to ground for RF and Electrostatic discharge provides full EMI protection.

#### **WHAT ARE THE DIFFERENCES BETWEEN THE USW-1 AND THE USW-1P?**

The USW-1P implements several design improvements. The amplifier is optimized for the system, providing substantial power without endangering the drivers. This optimization extends the durability and reliability of the loudspeaker. In addition, the integrated design simplifies set-up and installation, eliminating the need for amplifier racks. The USW-1P also features a modular user panel which can be configured with the Remote Monitoring System™ (RMS) and any of three audio input modules.



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# USW-1P *Q&A continued*



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## WHAT ARE THE AUDIO INPUT MODULE OPTIONS FOR THE USW-1P?

There are three interchangeable audio input modules: the standard Looping Audio Input Module, the Summing Audio Input Module, and the Looping, Polarity, and attenuating Audio Input Module. Refer to figure 2 for drawings of each audio input module.

The Looping Audio Input Module is the default audio input module. It uses a balanced, female XLR connector for audio input and a male XLR loop connector to interconnect or “daisy-chain” multiple speakers using a single audio signal. This audio input module is hardwired “pin-2 hot” meaning that a positive voltage on pin 2 relative to pin 3 will produce a positive pressure wave at the front of the speaker.

The Summing Audio Input Module uses two balanced female XLR connectors. Applying a signal to one of the inputs results in a normal signal level. Applying a signal to both inputs results in a correctly summed mono signal with each input 6dB below the level of a single input. This is an effective method for distributing both sides of a stereo signal to a single USW-1P without requiring external level control.

The Looping, Polarity, and Attenuating Audio Input Module has a balanced female XLR audio input connector and a male XLR loop connector like the Looping Audio Input Module, but also features an input polarity switch and a level attenuator knob which operates between 0dB and -12 dB.

## HOW MANY SUBS DO I NEED PER UPA-P OR UM-P?

As a general rule, a single USW-1P will provide a balanced low end response when paired with two UPA-2Ps. For applications where very high sub-harmonic output is required, such as drum and bass monitoring, we recommend using a USW-1P with each UPA-P or UM-P. For more information on system design please contact the Meyer Sound Technical Support department.

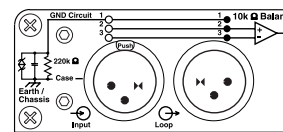
## IS THERE A NEED FOR A CROSSOVER FILTER BETWEEN THE USW-1P AND THE UPA-P OR THE UM-P?

No. The USW-1P has a built in crossover and is designed to accommodate a full range signal at its input, eliminating the need for external crossovers. This design greatly simplifies wiring configurations and reduces set-up time. A single full-range source output can be looped between UPA-Ps, UM-Ps, and USW-1Ps.

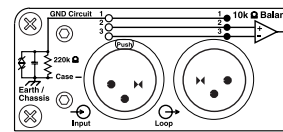
In addition, the newly designed crossover in the UM-P and UPA-P Series speakers is optimized specifically for integration with the USW-1P subwoofer, eliminating the need for a low-cut switch.

## HOW SHOULD I ARRANGE THE USW-1P IN RELATION TO UPA-Ps OR USW-1Ps?

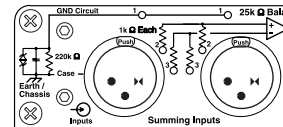
The USW-1P is a very versatile subwoofer which can be placed horizontally or vertically on the floor or hung from its rigging points. For near-field monitoring in conjunction with a UPA-P or UM-P, we recommend placing the subwoofer along one of its long sides against the floor with the UPA-P(s) or UM-P(s) sitting on top of the subwoofer with the drivers coplanar (physically aligned along a single plane).



Standard Looping Module

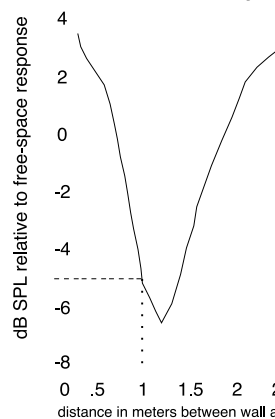


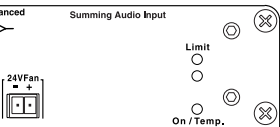
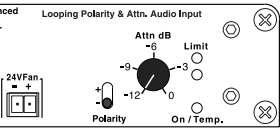
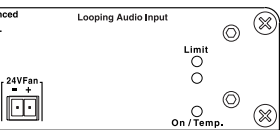
VC/Polarity Module



Summing Module

## Distance to Boundary vs





dB SPL below 125 Hz



2.5 3 3.5 4 4.5  
and acoustical center of speaker

### HOW WILL THE ROOM LOADING OF THE SUB EFFECT THE RESPONSE?

The placement of a USW-1P in a room or space is critically important to the response of the speaker system. A USW-1P hung in the air with no boundary conditions would not add any SPL from room loading. A USW-1P placed on the floor (half-space loading) will gain approximately 6 dB compared to its free field response. When placed on a floor and against the wall (quarter-space loading) a USW-1P will gain approximately 12 dB compared to its free field response. A USW-1P when placed in a corner (one-eighth-space loading) will gain approximately 18dB compared to its free field response.

In addition, the distance from a boundary also effects the response of a USW-1P. The graph below represents the change in dB SPL for frequencies under 125 Hz of a single USW-1P as it is moved away from a boundary. Distance, measured in meters, is based on the distance from the boundary behind the speaker to the acoustical center of the USW-1P. All dB SPL measurements are made with the microphone on axis to the speaker.

To better understand the distance to boundary graph, imagine a USW-1P with a wall behind it. As you move the USW-1P away from the wall, the graph shows how the response of the USW-1P will change. For example, if the USW-1P is placed 1 meter from the wall and is measured on axis to the speaker, a -5 dB SPL change will occur to frequencies below 125 Hz when compared to a free field (no boundary conditions) response.

### HOW MANY USW-1P CAN BE DAISY-CHAINED TOGETHER?

The input impedance of a single USW-1P is 10 kΩ. The maximum number of USW-1Ps that can be daisy chained together is dependent on total load impedance of the signal loop. For example, cascading 20 USW-1Ps produces a balanced input load of 500 Ω. If a 150Ω source is used, then the 500Ω load results in a 2.28dB loss. If you intend to loop more than 20 USW-1Ps make sure that the source equipment is capable of driving the total impedance load created by the circuit.

### CAN THE USW-1P SERIES BE USED COMPATIBLY WITH THE OTHER PRODUCTS FROM THE SELF POWERED SERIES?

Yes, USW-1P is fully compatible with all Meyer products. When using the USW-1P with products other than the UM-P or UPA-P consult the Meyer Sound Technical Support department for optimal configuration ideas or use the Meyer SIM System-II to determine the proper delay times and equalization of each loudspeaker.

### IS THE USW-1P WEATHER RESISTANT?

Weather resistant versions of all Powered Ultra-Series products are available; contact Meyer Sound for pricing and ordering details. Meyer Sound also offers an optional rain hood which protects the electronics and connectors from rain. Its use is strongly recommend in outdoor applications.

#### WHAT ARE THE POWER REQUIREMENTS FOR THE UM-P SERIES SPEAKERS?

The UM-P Series requires a three conductor (hot, neutral, earth) AC input. It's electronics package incorporates Meyer Sound's exclusive Intelligent AC™ circuitry which automatically adjusts for input mains voltages over the range of 80-264 VAC. Its AC current requirements for various nominal mains voltages and operating conditions are shown in the table below.

Intelligent AC affords the USW-1P significant benefits including international voltage compatibility and protection from accidental exposure to excessive voltage. The USW-1P also tolerates voltage surges, faults and brownouts. In situations where power is supplied from a delta-wye source, the electrician may pick up any two available legs (hot-neutral or hot-hot) to supply the unit and be assured that it will work properly. In addition, Intelligent AC suppresses high-voltage transients and provides a soft-start function to eliminate high inrush currents on power-up.

#### WHAT INTERNATIONAL SAFETY STANDARDS DOES THE USW-1P SATISFY?

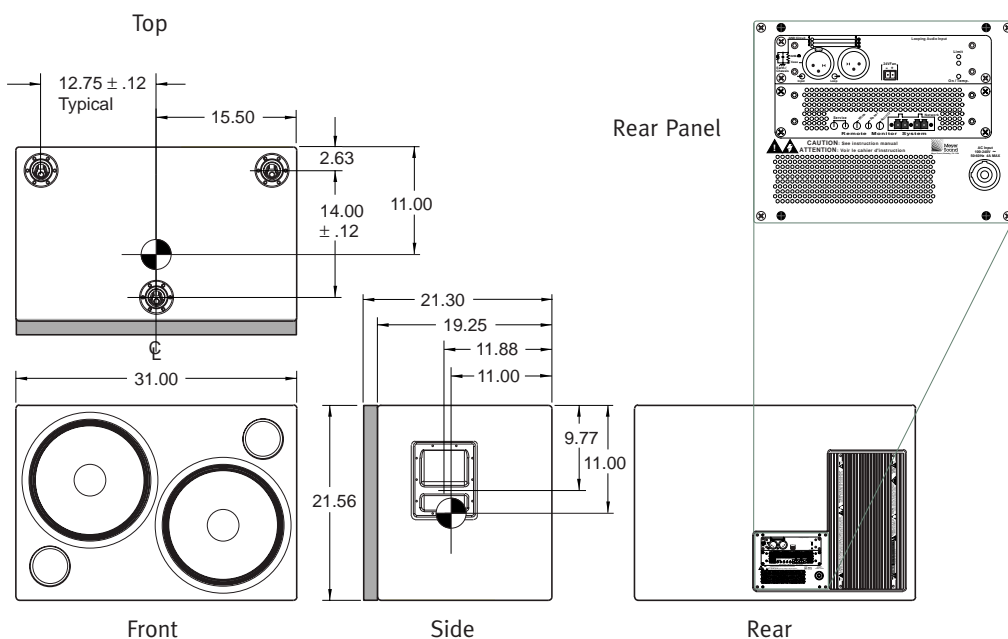
The USW-1P complies with UL, C-UL, IEC 65, and effectively all international standards. In addition, it meets the requirements of the European Union's new EN 55103-1 and EN 55103-2 Electromagnetic Compatibility Emissions and Immunity standards for professional-use audio apparatus. These strict new EU standards cover a comprehensive range of disturbance phenomena, including RF electromagnetic fields, magnetic fields, power supply harmonic currents, AC port voltage fluctuations and inrush currents.

Meyer Sound Laboratories has devoted itself to designing, manufacturing, and refining components that deliver superb sonic reproduction. Every part of every component is designed and built to exacting specifications and undergoes rigorous, comprehensive testing in the laboratories.

Research remains an integral, driving force behind all production. Meyer strives for sound quality that is predictable and neutral over an extended lifetime and across an extended range.

## USW-1P PHYSICAL DIMENSIONS

ALL UNITS IN INCHES



USW-1P - 01.078.073.01

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