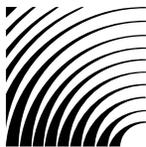


# UMS-1P *Self-Powered Subwoofer*

## OPERATING INSTRUCTIONS



*Superior  
engineering  
for the art  
and science  
of sound.*



**Meyer  
Sound**

*Keep these important operating instructions.*

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# SYMBOLS USED

THESE SYMBOLS INDICATE IMPORTANT SAFETY OR OPERATING FEATURES IN THIS BOOKLET AND ON THE CHASSIS.



Dangerous voltages: risk of electric shock	Important operating instructions	Frame or chassis	Protective earth ground
Pour indiquer les risques résultant de tensions dangereuses	Pour indiquer important instruc- tions	Masse, châssis	Terre de protection
Zu die gefahren von gefährliche spanning zeigen	Zu wichtige betriebs- anweisung und unter- haltsanweisung zeigen	Rahmen oder chassis	Die schutzerde
Para indicar azares provengo de peligroso voltajes	Para indicar importante funcionar y mantenimiento instrucciones	Armadura o chassis	Tierra proteccionista

# DECLARATION OF CONFORMITY ACCORDING TO ISO/IEC GUIDE AND EN 45014

The Manufacturer:  
**MEYER SOUND LABORATORIES, INC.**  
 2832 San Pablo Avenue  
 Berkeley, California 94702-2204, USA

## ENVIRONMENTAL SPECIFICATIONS FOR MEYER SOUND ELECTRONICS PRODUCTS:

**Operating Temperature** 0° to + 45°  
**Nonoperating Temperature** <-40°C or > +75°C  
**Humidity** to 95% at 35°C  
**Operating Altitude** to 4600 m (15,000 ft)  
**Nonoperating Altitude** to 6300 m (25,000 ft)  
**Shock** 30g 11 msec half-sine on each  
 of 6 sides  
**Vibration** 10Hz to 55Hz (0.010m  
 peak-to-peak excursion)

Declares that the product:  
**UMS-1P**

Conforms to the following Product Specifications  
 Safety: EN60065: 1994  
 EMC: EN55103-1 emission<sup>1</sup>  
 EN55103-2 immunity<sup>2</sup>

This device complies with the requirements of the Low Voltage Directive 73 / 23 / EEC and the EMC Directive 89 / 336 / EEC.

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

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



Made by Meyer Sound Laboratories  
 Berkeley, California USA  
 European Offices:  
 Meyer Sound Lab. GmbH  
 Carl Zeiss Strasse 13  
 56751 Polch, Germany



Office of Quality Manager  
 Berkeley, California USA August 31, 2000



## SAFETY SUMMARY



### ENGLISH

- To reduce the risk of electric shock, disconnect the loudspeaker from the AC mains before installing audio cable. Reconnect the power cord only after making all signal connections.
- Connect the loudspeaker to a two-pole, three wire grounding mains receptacle. The receptacle must be connected to a fuse or circuit breaker. Connection to any other type of receptacle poses a shock hazard and may violate local electrical codes.
- Do not install the loudspeaker in wet or humid locations without using weather protection equipment from Meyer Sound.
- Do not allow water or any foreign object to get inside the loudspeaker. Do not put objects containing liquid on, or near, the unit.
- To reduce the risk of overheating the loudspeaker, avoid exposing it to direct sunlight. Do not install the unit near heat-emitting appliances, such as a room heater or stove.
- This loudspeaker contains potentially hazardous voltages. Do not attempt to disassemble the unit. The unit contains no user-serviceable parts. Repairs should be performed only by factory-trained service personnel.

### FRANÇAIS

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

endroit où il y a de l'eau ou une humidité excessive.

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

### DEUTSCH

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

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

### ESPAÑOL

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

## UMS-1P: INTRODUCTION AND TECHNICAL ADVANTAGES

Thank you for purchasing the Meyer Sound UMS-1P: a compact, self-powered subwoofer system that provides powerful low frequency extension in applications where both audio quality and cabinet size are critical considerations.

Although designed principally as a low-end companion for Meyer Sound's UPM-1P reinforcement loudspeaker, the UMS-1P is equally adaptable-for use in conjunction with other Meyer Sound loudspeaker models such as HD-1, HM-1/1S, and UPA-1P/2P.

The UMS-1P's bass reflex cabinet houses dual MS-410, 10-inch cone drivers, active signal processing (including Meyer Sound's proprietary phase correction circuits) and a two-channel power amplifier with total maximum burst power of 400W. Performance is exemplary in every respect, with higher acoustic power out-

put and lower distortion than normally expected from such a compact cabinet. The UMS-1P is conservatively rated at a continuous output of 108dB SPL (127dB peak) within its operating range of 25-200Hz.

As with all Meyer Sound self-powered loudspeaker systems, the UMS-1P offers superior performance and improved reliability when compared to conventional separate speaker and amplifier combinations. Because amplifiers and control electronics are precisely matched to the dynamic characteristics of the drivers, self-powered systems are inherently capable of producing more power with a flatter response and significantly lower distortion. The self-powered concept also simplifies installation, eliminates external amplifier racks and drive processing, and avoids the losses intro-

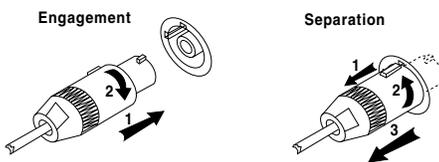
duced by long speaker cable runs or 70/100V distributed schemes.

The UMS-1P's internal amplifier employs Meyer Sound's complementary output stage MOSFET design, with separate amplifier channels dedicated to each driver. Driver protection limiting and AC transient suppression on the power supply ensure system reliability, while dual locking PowerCon connectors facilitate AC looping. A separate optional module integrates the UMS-1P into Meyer Sound's PC-based RMS monitoring and control network system.

The UMS-1P's durable cabinet is constructed from birch plywood and covered with a hardened, textured black finish. A pole-mount (for supporting a UPM-1P or other Meyer Sound product) is integral to the cabinet.

## AC POWER

The UMS-1P uses a PowerCon 3-pole AC mains system with locking connectors that prevent inadvertent disconnection. It also has a looping feature, discussed below, which allows multiple UMS-1Ps to be daisy-chained. The blue connector serves as the power input; the gray connector is used in looping units together. The unit must, of course, have the correct power plug for the AC power in the area in which it will be used.



The power supply suppresses high voltage transients up to several kilovolts and also filters EMI (radio frequencies and noise present) on the incoming AC voltage.

The UMS-1P can withstand continuous voltages up to 264V and allows any combination of voltage to GND (i.e. Neutral-Line-GND, Line-Line-GND). Continuous voltages higher than 264V may damage the unit.

### Voltage Requirements

Two versions of the UMS-1P are available: a switchable 115/230V and a non-switch-able 100V-only version.

The 100V version will operate properly when receiving between 87-113V. On the switchable version, the voltage switch must be checked and set at either 115V or 230V. When set to 115V, the UMS-1P will operate properly when the AC remains within the range of 105-130V. If set to 230V, the unit operates safely and without audio discontinuity within the range of 210-260V. Operating outside these ranges or with the voltage switch set improperly could damage the unit.

After applying AC power, the system is muted while the circuitry charges up and stabilizes. After two seconds, the **On/Temp.** LED on the user panel illuminates green, the system unmutes and is ready to pass audio signals. If the **On/Temp.** LED does not illuminate or the system does not respond to audio input after ten seconds, consult the Trouble-shooting section.

The UMS-1P's power supply uses stored energy to continue functioning for about 10 AC cycles if the voltage decreases below 100V or 200V (a condition known as brownout), depending on the setting. The precise length of time the unit functions during brownout depends on the operating level and how low the voltage drops. The unit turns off if the voltage does not increase above the minimum for 1 to 5 seconds. If the UMS-1P shuts down due to brownout, the power supply automatically turns on if the voltage returns to the normal operating range. If the UMS-1P does not turn back on after ten seconds, consult the Troubleshooting section.

**Note:** We recommend that the supply be operated at least a few volts away from the upper and lower bounds of the operating range to avoid possible shutdown.

### Current Requirements

Each UMS-1P requires approximately 3A RMS max @115V for proper operation. This allows up to five UMS-1Ps to be powered from one 15A breaker.

When power is applied to the UMS-1P, there is a current inrush of approximately 12 Apk (at 115V) for approximately 20 milliseconds. Take this into account when selecting the electrical service and circuit breakers use dto power the UMS-1P.

The UMS-1P presents a dynamic load to the AC mains which causes the amount of current to fluctuate between quiet and loud operating levels. Since different types of cables and circuit breakers heat up and trip at varying rates, it is essential to understand the types of current ratings and how they correspond to circuit breaker and cable specifications.

The **maximum continuous RMS current** is the maximum RMS current over a duration of at least 10 seconds. It is used to calculate the temperature increase in cables, which is used to select cables that conform to electrical code standards. It is also used to select the rating for slow-reacting thermal breakers.

The **maximum burst RMS current** is the maximum RMS current over a one second duration. It is used to select the rating for most magnetic breakers.

The **maximum instantaneous peak current during burst** is used to select the rating for fast-reacting magnetic breakers and to calculate the peak voltage drop in long AC cables according to the formula

$$V_{pkdrop} = I_{pk} \times R_{total\ cable}$$

## THE MODULAR REAR PANEL

The rear panel of the UMS-1P has two slots for processor modules. The top slot contains the Audio Input and Control Module; the bottom slot contains the optional Remote Monitoring System™ (RMS) Module. A blank plate covers the bottom slot if RMS is not installed.

### Audio Input

There are two interchangeable Audio Input and Control Modules with optimized connectors and controls for different applications.

Use the table below as a guide to select cables and circuit breakers with appropriate ratings for your operating voltage.

**UMS-1P Current Ratings**

	115V	230V	100V
Idle RMS	.13A	.065A	.15A
Max. Continuous RMS	1A	.5A	1.2A
Max. Burst RMS	1.3A	.65A	1.5A
Max Peak During Burst	2.9A	2A	3.3A

To determine the minimum total service power required by a system comprised of UMS-1Ps and/or other Meyer Sound self-powered loudspeaker systems, add their maximum continuous RMS currents together. We recommend allowing an additional 30% above the minimum amperage to prevent peak voltage drops at the service entry and nuisance tripping.

### Looping

The internal electronics package of the UMS-1P makes use of an unswitched, direct connection. The blue connector serves as the power input; to loop an additional unit, simply attach a cable from the grey connector of the first loudspeaker system to the blue connector of the second, and so on.

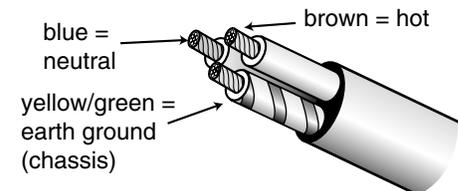
### Fuses

Always replace a fuse with one of the same rating and type. The UMS-1P uses a quick-acting 3.15A, 250V low breaking capacity fuse. The same fuse is used for all settings on the UPM-1P, i.e., the

3.15A fuse is used whether the product is set for 100V, 115V, or 230V. If a fuse should ever trip, contact your local Meyer Sound Service Center or the Service Department at the Meyer Sound production facility.

### Power Connector Wiring

Use the following AC cable wiring diagram to create international or special-purpose power connectors:



**AC cable color code**

If the colors referred to in the diagram don't correspond to the terminals in your plug, use the following guidelines:

- Connect the blue wire to the terminal marked with an N or colored black.
- Connect the brown wire to the terminal marked with an L or colored red.
- Connect the green and yellow wire to the terminal marked with an E or  $\oplus$  or colored green or green and yellow.

### Safety Issues

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

Keep all liquids away from the UMS-1P to avoid hazards from electrical shock.

Do not operate the unit with worn or frayed cables; replace them immediately.

Each module uses a three-pin, female XLR audio input connector with a 10kΩ balanced input impedance wired with the following convention:

- Pin 1 -220 kΩ to chassis and earth ground (ESD clamped)
- Pin 2 -Signal
- Pin 3 -Signal
- Case -Earth (AC) ground and chassis

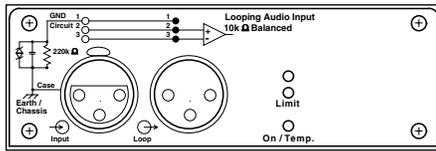
Pins 2 and 3 carry the input as a differential signal. Use standard audio cables

with XLR connectors for balanced signal sources. A single audio source can drive multiple UMS-1Ps with a paralleled input loop, creating an unbuffered hardwired loop connection, with negligible loss in signal level. For example, since the input impedance of one UMS-1P is 10kΩ, looping 10 UMS-1Ps produces a balanced input impedance of 1kΩ. With a 100Ω audio source, the 500Ω load results in only a .8 dB loss.

For drawings of the modules see page 11.

## Looping Audio Input Module

This standard module uses a balanced, female XLR connector for audio input and a male XLR loop connector to interconnect multiple loudspeakers. The audio input connector is hardwired with pin 2 hot to comply with audio industry standards. The loop connector, wired in parallel to the audio input, transmits the input signal even if the UMS-1P is turned off for any reason.



**Looping Audio Input Module**

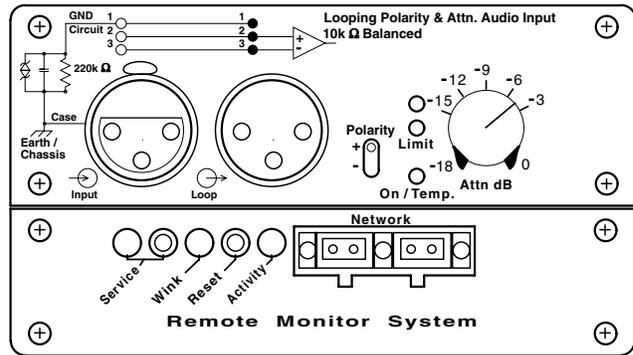
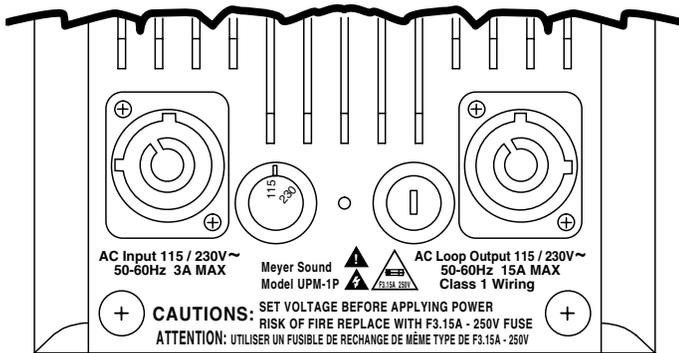
## Looping, Polarity, and Attenuating Audio Input Module

This module has a balanced, female XLR audio input connector, a male XLR loop connector, an input polarity switch, and a level attenuator knob. The input polarity switch offers a convenient method of reversing the phase of the loudspeaker. When the input polarity switch is in the up (+) position, pin 2 is hot relative to pin 3, resulting in a positive pressure wave when a positive signal is applied to pin 2. When the switch is down (-), pin 3 is hot relative to pin 2, resulting in a positive pressure wave when a positive signal is applied to pin 3. The level attenuator knob operates between 0 dB (no level attenuation) in a fully clockwise position to -18dB in a fully counterclockwise position.

## Remote Monitoring System

The UMS-1P can be equipped to operate with the Remote Monitoring System (RMS) network and software application. RMS displays signal and power levels, driver status, limiter activity, the state of the polarity switch, attenuator level, and amplifier temperature for all loudspeakers in the network on a Windows-based PC. RMS can also be configured to enable loudspeaker muting. RMS is an excellent field diagnostic tool that removes the guesswork from troubleshooting during a performance.

All Meyer Sound loudspeakers with RMS can be integrated on the same network. Installing an RMS module requires only a Phillips screwdriver. Contact Meyer Sound for more information about RMS.



**User Panel with RMS option and Polarity and Attenuating Audio Input Module**

## AMPLIFICATION, LIMITING, AND COOLING SYSTEMS

### Amplification and Limiting

Each of the MS-410 drivers in the UMS-1P is powered by one channel of a proprietary Meyer Sound amplifier utilizing complementary power MOSFET output stages (class AB, bridged, 225 Wrms/ch burst). The UMS-1P employs two separate methods of limiting: Excursion Limiting which protects the drivers from over excursion and Sub Channel Limiting which prevents the drivers from damage due to thermal overload.

Limiter activity for the Excursion and Sub channel is indicated by two yellow

Limit LEDs on the rear panel (the EXC. Limit LED is above the SUB Limit LED). See page 11 for a diagram of the user panel.

The UMS-1P performs within its acoustical specifications and operates at a normal temperature if the limit LEDs are on for no longer than two seconds, and off for at least one second. If either LED remains on for longer than three seconds, that channel will operate with these characteristics:

- Increasing the input level will not increase the volume.

- The system distorts due to clipping and nonlinear driver operation.

While the UMS-1P limiters fully protect the system under overload conditions and exhibit smooth sonic characteristics; we recommend that you do not intentionally drive the UMS-1P into continuous limiting to attain compression effects.

For applications where large amounts of compression are required, we recommend using an outboard compressor/limiter for greater control of limit and compressor effects.

## Amplifier Cooling System

The UMS-1P's amplifier employs a natural convection cooling system. Always allow for proper ventilation when using the loudspeaker in tightly packed conditions.

If the temperature of the heatsink reaches 85°C (185°F), the On/Temp. LED on the rear panel turns from green (On) to red (Temp.) and the limiter threshold is lowered to a safe level to prevent the system from overheating. Under high

temperature conditions the output level is reduced 6 dB. When the heatsink temperature decreases to 75°C (167°F), the On/Temp. LED changes from red to green and the limiter threshold returns to normal.



You must have **4"** of clearance between the UMS-1P and any wall surfaces for proper convection cooling.



The heatsink can reach temperatures of up to 185°F (85°C) during normal operation. Use caution to avoid injury due to the tremendous heat.

## APPLICATIONS

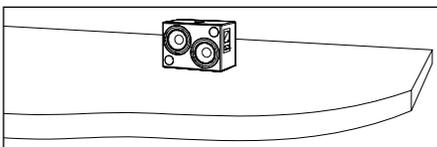
### Introductory Concepts

The UMS-1P is used to extend the low frequency response of a sound system, complementing systems in a wide variety of applications in sound reinforcement as well as music playback and monitoring. Though it can be used with all Meyer Sound products, it is the ideal compliment to the UPM-1P self-powered loudspeaker. Using the UMS-1P in a full-range system is fairly straightforward but the following concepts are important to consider before installing a system.

### Room Loading

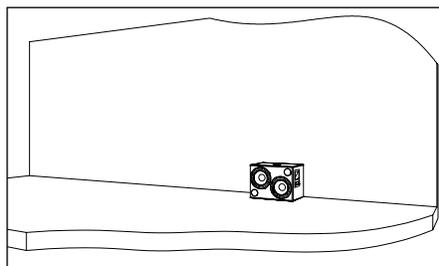
The placement of the UMS-1P in a room or a space is critically important to the response of the loudspeaker system. The subwoofer's placement in the room working with the geometric shape of the space will affect a loudspeaker's frequency response due to the longer wavelengths of these lower bands interacting with the walls, ceiling, and floor.

A UMS-1P or any subwoofer hung in the air with no boundary conditions would not add any additional SPL from room loading, while a UMS-1P placed on a floor (half-space loading) will gain approximately 6 dB compared to its free field response.



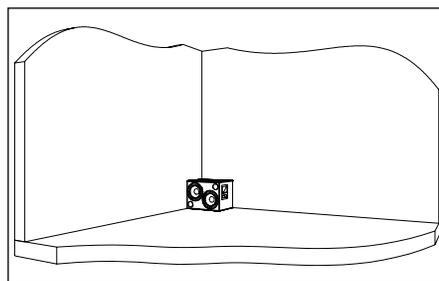
**6 dB low frequency gain compared to free field.**

A UMS-1P placed on a floor and against a wall (quarter-space loading) will gain approximately 12 dB compared to its free field response.



**12 dB low frequency gain compared to free field.**

A UMS-1P placed on the floor in a corner (one-eighth space loading) will gain approximately 18 dB compared to its free field response.

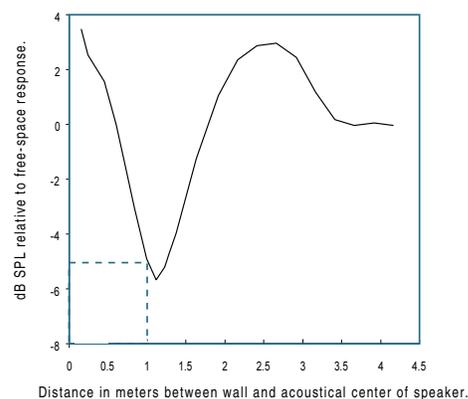


**18 dB low frequency gain compared to free field.**

### SPL vs. Distance to Boundary

As we have seen in the previous illustrations, the placement of a UMS-1P on a floor or against a boundary significantly changes the low frequency response when compared to free field measurement of the same loudspeaker.

The following graph represents the approximate change in dB SPL for frequencies under 125Hz of a single UMS-1P as it is moved away from a boundary. Some frequencies will be aided by this rear reflection, while others will have opposing phase, resulting in an approximate attenuation. The distance is based on the distance in meters from the wall behind the loudspeaker to the acoustical center of the UMS-1P. All dB SPL measurements are made with the microphone on axis to the loudspeaker.



**Distance to Boundary vs. dB SPL below 125**

To better understand the graph above, imagine a UMS-1P with a wall behind it. As you move the UMS-1P away from the wall the graph above shows how the response of the loudspeaker will change. For example, if the UMS-1P is placed 1 meter from a wall and is measured on axis to the loudspeaker, you will see a -5 dB change in the low frequency as illustrated by the dotted lines on the graph.

## Polarity

With the UMS-1P in close-proximity to, and coplanar with, the UPM-1P or other Meyer Sound loudspeakers, all units should be set to the same polarity. Separating the subwoofers from the main cabinets in a loudspeaker system by more than 5 feet may require polarity reversal or a delay line to compensate for the propagation delay between

the loudspeakers and the measurement position.

## Measurement and Correction Tools

It is recommended that even the most carefully assembled sound systems be analyzed with precise measurement tools. We recommend using the Meyer Sound **SIM® System II Sound Analyzer**

and **CP-10 Parametric Equalizer** to:

- choose, place, and array loudspeakers;
- measure propagation delays between loudspeakers to set the correct polarity and delay times;
- measure and equalize variations in frequency response caused by the acoustical environment and the placement and interaction of loudspeakers.

## SUBWOOFER LEVEL CONTROL

### The VX-1:

The VX-1 is an ideal control option for loudspeaker systems incorporating the UMS-1P. The VX-1 is a stereo virtual crossover which allows the user to adjust the gain, switch between stereo and mono distribution of two inputs and make shelving EQ adjustments to the left and right sides of the system.

### Separate Feeds:

One simple method of attenuating the UMS-1P is to feed separate signals to the subwoofer(s) and to the main loud-

speaker(s). With independent control of the main outputs and sub levels, their relative proportions can be adjusted.

### The Looping, Polarity, and Attenuating Audio Input Module:

This optional module, described on page 6 of this manual, allows for level control on the user panel of the UMS-1P.

### UMS-1P with the UPM-1P for Music Monitoring and Listening Purposes

Because of the flatter phase and frequency response of our UltraSeries products, (similar to the HD Series studio monitors) the teaming of a UMS-1P with two (in stereo) or more UPM-1Ps (such as 5.1 surround sound applications) can be a great choice for high definition music monitoring. The wider coverage pattern also helps give listeners better imaging in stereo and 5.1 playback without the over-localization which can plague the near field with a narrower horn loaded product.

## VERIFYING DRIVER POLARITY

Incorrect driver polarity impairs system performance and may damage the drivers. All Meyer Sound loudspeakers are shipped with the drivers in correct alignment.

### Polarity In Adjacent Loudspeaker Systems

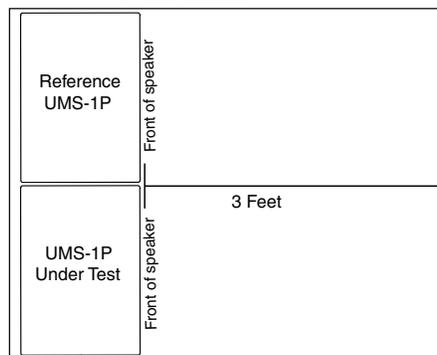
Use the following test procedure to verify the polarity between two UMS-1Ps.

1. Establish a reference UMS-1P, a loudspeaker that has not been tampered with or damaged. Mark this loudspeaker as the reference.
2. Place the UMS-1P you want to test next to the reference UMS-1P.
3. Place a measurement microphone 3 feet from the loudspeakers on the axis between the loudspeakers. See the drawing on this page.
4. Connect a signal source to the reference loudspeaker and note the frequency response and overall level.
5. Apply the same signal to the UMS-1P under test with the first loudspeaker still connected.

dB SPL increase in amplitude. Broadband cancellation (decreased overall level) indicates polarity reversal between cabinets. A 2 to 3 dB SPL increase may indicate that one of the drivers in the UMS-1P under test is out of phase, in this case, proceed to the next section.



Since polarity reversal causes excessive driver excursion at high source levels, use moderate levels when conducting these tests.



Use the following test procedure to verify polarity between drivers in the same loudspeaker:

1. Place the reference UMS-1P and the UMS-1P under test side to side so that the drivers are facing the same direction.
2. Place a measurement microphone 3 feet from the loudspeakers on the axis between the loudspeakers.
3. Connect a full range signal to the reference UMS-1P loudspeaker and note the frequency response and sound pressure level.
4. Compare the reference and test UMS-1P results one at a time. A significant decrease in energy from 40 to 100Hz in the UMS-1P under test indicates a driver reversal. Contact Meyer Sound Technical Support for information on Service Center or field correction.
5. If the reference and UMS-1P under test have similar responses, then there is no internal polarity error within the loudspeaker.

### Polarity within a UMS-1P

If the driver or circuit wiring has been removed or disassembled it is essential to check the polarity between drivers and between adjacent loudspeakers.

The polarity is correct if the frequency response remains constant with a 5 to 6

## TROUBLESHOOTING

This section suggests several possible solutions to problems encountered by UMS-1P users, and is not intended to be a comprehensive troubleshooting guide. Please contact Meyer Sound for additional information and documentation.

### **THE ON/TEMP. LED DOES NOT ILLUMINATE AND THERE IS NO AUDIO.**

1. Make sure the AC power cable is the correct type for the regional voltage and that it is securely connected to the AC inlet, then unplug and reconnect the AC cable.
2. Check that the voltage selector switch is set properly. If you need to operate in the 100V range, be sure you are using the 100V version of the UMS-1P.
3. Use an AC voltmeter to verify that the AC voltage is within the ranges 95-105V, 110-130V, or 220-240V.

### **THE ON/TEMP. LED IS ILLUMINATED BUT THERE IS NO SOUND.**

1. Verify that the audio source (mixer, EQ, delay) is sending a valid signal.
2. Make sure the XLR cable is securely fastened to the XLR audio input connector.
3. Verify that the XLR cable is functioning by substituting another cable or by using the cable in question in a working system.
4. Send the audio signal to another loudspeaker to insure signal presence and that the level is within the proper range. Turn the source level down before reconnecting the audio input

and increase the level slowly to avoid a sudden blast of sound.

5. If possible, monitor the audio source with headphones.

### **Hum or noise is produced by the loudspeaker.**

1. Disconnect the audio input. If the noise persists, the problem is within the UMS-1P. In this case return the unit to the factory or nearest authorized service center. If the hum ceases, the noise originates somewhere earlier in the signal path.
2. Make sure the XLR cable is securely fastened to the XLR audio input connector.
3. Send the audio signal to another loudspeaker to insure signal presence and that the level is within the proper range. Turn the source level down before reconnecting the audio input and increase the level slowly to avoid a sudden blast of sound.
4. Hum or noise can be produced by a ground loop. Since the UMS-1P is effectively ground-lifted, the loop must be broken elsewhere in the system.
5. If possible, monitor the audio source with headphones.

### **The audio produced by the loudspeaker is distorted or compressed but the limit light is not illuminated.**

1. Make sure the XLR cable is securely fastened to the XLR audio input connector.

2. Send the audio signal to another loudspeaker to insure that the level is within the proper range. Turn the source level down before reconnecting the audio input and increase the level slowly to avoid a sudden blast of sound.
3. Monitor the audio source with headphones.

### **The audio produced by the loudspeaker is highly compressed and the limit light is constantly red.**

1. Turn down the level of the input signal to the loudspeaker system.

### **There is sound but it does not seem to be at full power and the On/Temp. LED is red.**

This occurs in conditions where the heatsink temperature reaches 85°C (185°F), indicating that the amplifier is thermally overloaded. The limiter threshold has dropped to a safe level, so the audio level is reduced.

1. Make sure there is enough clearance above, below, and behind the unit.
2. Make sure there is sufficient air flow around the unit.
3. Avoid exposing the heatsink to direct sunlight if the ambient temperature is high.

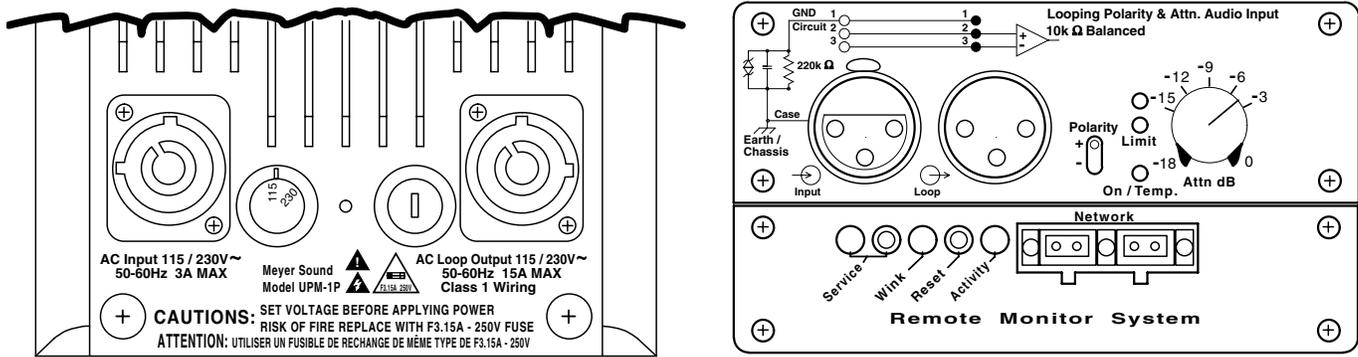
See the Amplification, Limiting, and Cooling System section on page 6 and 7 for a complete discussion of the cooling system.

## UMS-1P SPECIFICATIONS

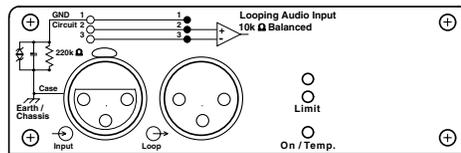
<b>ACOUSTICAL<sup>1</sup></b> (EACH LOUDSPEAKER)	<b>Operating Frequency Range</b> 25 - 200Hz <b>Frequency Response<sup>2</sup></b> ±3 dB 29 - 110Hz <b>Phase Response<sup>2</sup></b> ± 60° 32 - 110Hz <b>Maximum Continuous SPL<sup>4</sup></b> 108 dB <b>Maximum peak SPL<sup>3</sup></b> 127 dB <b>Maximum short term RMS SPL (&lt;3 sec)</b> 116 dB
<b>COVERAGE<sup>1</sup></b>	(-6 dB) 360° H; 180° V
<b>TRANSDUCERS</b>	<b>Sub Frequency</b> (2) MS-410 10-inch cone drivers
<b>STANDARD AUDIO INPUT MODULE</b>	<b>Type</b> Differential balanced input circuit <b>Connector</b> Female XLR; male XLR loop <b>Impedance</b> 10 k differential blaanced (between pins 2 and 3) <b>XLR Wiring</b> Pin 1: chassis; Pin 2: + signal; Pin 3: - signal <b>RF Filter</b> Common Mode: 425kHz low-pass; Differential Mode: 142kHz low-pass <b>Common Mode Rejection Ratio</b> >50dB (50Hz); typically 60dB >65db (1kHz); typically 75dB <b>TIM Filter</b> 80kHz
<b>AMPLIFIERS</b>	<b>Type</b> Complementary MOSFET output stages (class AB/bridged) <b>Burst Capability</b> 225 Wrms / channel <b>THD, IM, TIM</b> <.02%
<b>AC POWER</b>	<b>Connector</b> PowerCon locking AC connector with looping output <b>Voltage Selection</b> 105-130 VAC; 208-260 VAC; 47-63Hz (90-105V available) <b>Power</b> 400 Watts, 1 second burst <b>Max Continuous RMS Current (&gt;10 sec)</b> @115V: 1A @230V: .5A @100V: 1.2A <b>Burst RMS Current (&lt;1 sec)</b> @115V: 1.3A @230V: .65A @100V: 1.5A <b>Max Peak Current During Burst</b> @115V: 2.9Apk @230V: 2Apk @100V: 3.3Apk
<b>PHYSICAL</b>	<b>Dimensions</b> Height: 16.35"; Width: 22.75"; Depth: 17.50" (16" w/out grill) (415 mm H x 578mm x 445mm D) <b>Weight</b> 83 lbs (37.65 kg); shipping: 94 lbs (42.72 kg) <b>Enclosure</b> 0.2 cu. ft. vented, multi-ply birch <b>Finish</b> Black textured (other options available) <b>Protective Grill</b> Hex-stamped metal screen frame, charcoal-grey foam covering
<b>NOTES</b>	1. Measurements taken at 1 meter on-axis, in half space (ground plane) loaded environment, unless otherwise stated. 2. 1/24th octave frequency resolution 3. Pink noise burst signal exitation. 4. Continuous pink noise exitation.

# REAR PANEL AND OPTIONAL MODULES

Rear panel and optional modules are described on page 5 and 6 of this document



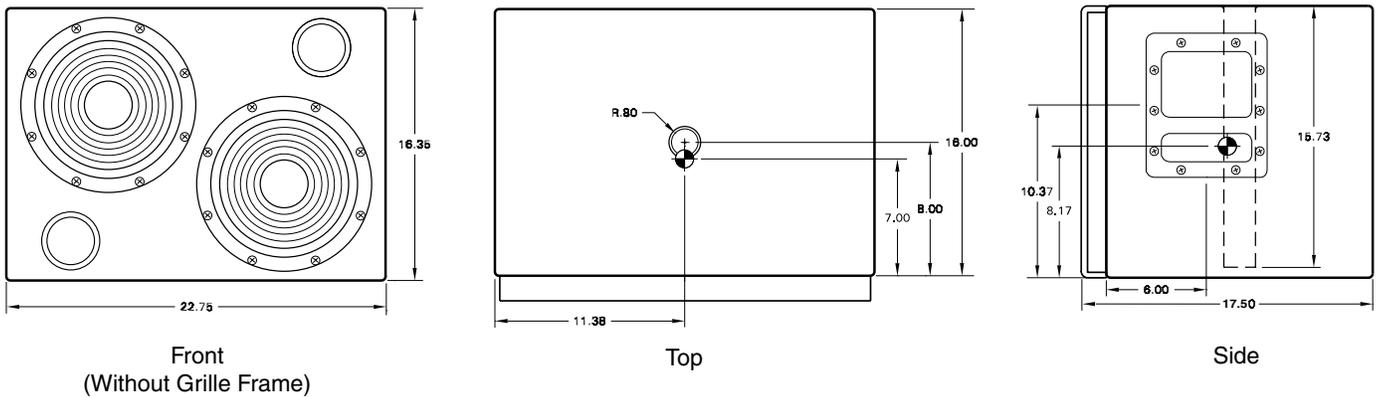
*User Panel with RMS option and Polarity and Attenuating Audio Input Module*



*Looping Audio Input Module*

# PHYSICAL DIMENSIONS

All units in inches



UL and CSA compliance is pending. Call Meyer Sound for current status.



## CONTACT INFORMATION

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