

UPL-1 & UPL-2 High Definition Reinforcement Loudspeakers

Operating Instructions

The Meyer Sound UPL-1 and UPL-2 are self-contained, high-definition, powered loudspeakers suitable for a wide variety of high quality sound reinforcement applications. The UPL-1 and UPL-2 incorporate line-level control electronics mounted within a rear panel chassis, including:

- dual power amplifiers for biamplification
- an active balanced input circuit with switchable sensitivity (+4 dBu or -10 dBV)
- an active crossover utilizing optimized pole-zero filter combinations to achieve acoustical transparency and linear phase
- independent protection circuits for each loudspeaker driver



The UPL-1 and UPL-2 are two-way systems comprising a 10-inch cone low-frequency driver and 1-inch high-frequency driver housed in a vented cabinet. Both drivers are of a proprietary design, and are individually selected for maximum linearity. The high-frequency horn driver employs a titanium dome and silk suspension in a patented, low distortion design (US patent number 4,152,552). It is coupled to a 90° by 40° modified radial horn in the UPL-1, and to a 60° aspherical waveguide in the UPL-2.

Aligned to closely approximate true point source radiators within their coverage area, the UPL-1 and UPL-2 feature tightly controlled time delay response with minimal deviation from linear phase across the full frequency range of their operation. Each unit is individually factory-calibrated to ensure a free-field frequency response that is flat within ± 2 dB from 50 Hz to 18 kHz. The UPL-1 and UPL-2 each deliver 124 dB peak SPL (1 meter) with >100 dB dynamic range.



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

Amplifiers and Driver Protection

Independent power biamplifiers maximize system headroom, efficiency and damping while minimizing distortion. The low frequency amplifier delivers 200 watts burst output power, while the high frequency amplifier provides 100 watts. Both employ complementary power MOSFET output stages operating class A at moderate listening levels (<90 dB SPL), and class AB at high levels.

The driver protection circuits employ thermo-predictive limiters and soft peak clamps to guard against damage from excessive amplifier power and ensure graceful overload characteristics.

Power and Fuses

The UPL-1 and UPL-2 accept AC voltages from 90 to 260 VAC, at 50 or 60 Hz, in four ranges. Select the range that is closest to the local mains voltage. Do not switch among AC voltage ranges with the power cable connected to an outlet. The UPL-1 and UPL-2 require a grounded outlet. Never cut the earth ground pin or “float” the mains ground.

Always set the voltage selector switch before connecting and operating the unit.

The unit is protected by a fast-acting fuse in the voltage selector switch. If the fuse blows, check the line voltage and voltage switch setting. Always replace the fuse with the same type and rating.

Connections

The UPL-1 and UPL-2 present a 10k ohm input impedance at a three-pin XLR-type receptacle wired as follows:

- Pin 1 — Audio common
- Pin 2 — Signal low (-)
- Pin 3 — Signal high (+)
- Case — Earth (AC) ground

Shorting any input connector pin to the case may form a ground loop and cause hum. Standard audio cables with XLR-type connectors may be used for balanced signal sources. Unbalanced sources will require an in-line adapter.

Where multiple UPL-1's or UPL-2's are driven from a single source, it is best to “mult” at the source output and run individual shielded cables to each of the loudspeaker inputs.

Be certain that the source equipment is capable of driving the total load impedance presented by the paralleled loudspeaker input circuits. For example, since the input impedance is 10k ohms, a source output that can drive 600 ohms will handle a maximum of 16 UPL-1's or UPL-2's in parallel (625 ohms total load impedance). If any of the paralleled loudspeakers loses power, however, it may cause distortion in some, or all, of the others.

The best solution for driving multiple units from one source is to use individual, isolated outputs. This can be accomplished, for example, by assigning one channel of a CP-10 Complementary Phase Parametric Equalizer to each loudspeaker and branching the source output to the CP-10 inputs. The system may then be aligned using SIM® System II.

Sensitivity Switch

For professional balanced equipment, use the +4 dBu setting. For semiprofessional and consumer unbalanced equipment, use the -10 dBV setting. Driving the UPL-1 or UPL-2 from a +4 dBu source with the switch set to -10 dBV will result in increased noise.

Note that the -10 dBV setting is *more sensitive*

(designed for *lower* signal levels) than the +4 dBu setting:

- +4 dBu position:
1.23 VRMS = 114 dB SPL
 - -10 dBV position:
0.316 VRMS = 114 dB SPL
-

Signal / Overload Indicator

In normal operation, the rear-panel LED will glow green. At high listening levels, the LED may flash red on program peaks. This indicates the onset of overload, where the loudspeaker protection limiters are activated.

If the LED is continuously red for an extended period (8 hours or longer), thermal damage may result.



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Installation

The UPL-1 and UPL-2 are aligned for flat frequency response in free field (no adjacent boundary surfaces). Placing either unit next to a wall or floor will cause the low frequencies to be exaggerated, requiring equalization to correct. Always allow at least 6 inches clearance behind the speaker for cooling airflow.

The UPL-1 and UPL-2 are fitted with four $\frac{3}{8}$ "-16 nut plates, two each on the enclosure top and bottom. These may be used to attach the enclosures to cables for hanging, or to a suitable support plate for mounting on a loudspeaker stand. Each rigging nut plate is designed to support the weight of a single cabinet.

Note. The UPL-1 and UPL-2 are not weather-resistant, and should not be installed outdoors where they may be exposed to the elements. To protect from hazard of shock and component failure, avoid rain or liquid spilled on the amplifier chassis.

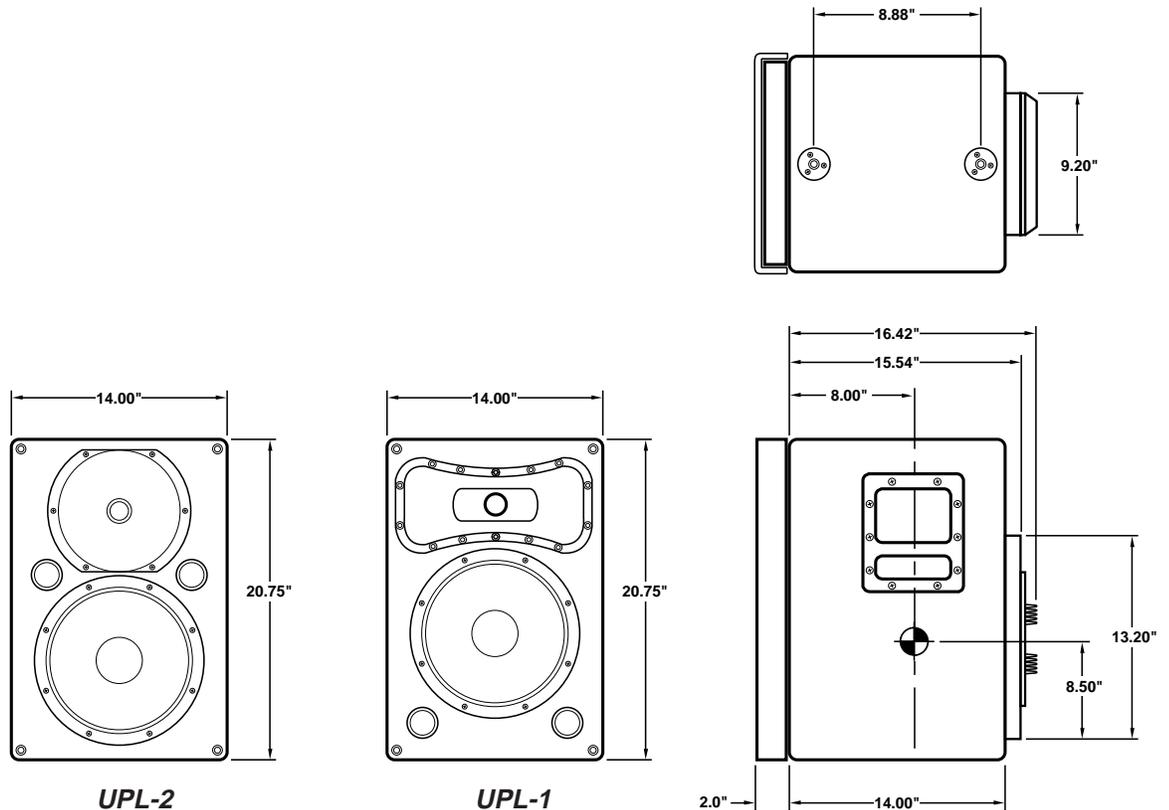
To avoid accidental disconnections, the UPL-1 and UPL-2 cabinets are fitted with four tie-wrap anchors located at the four corners of the rear-mounted amplifier chassis. Power and signal input cables may be secured by inserting a plastic locking tie-wrap through any of these anchors, wrapping it around the cable(s) and locking it in place.

Calibration Port

The calibration port is for factory use only. Do not apply external voltages to any of the connector pins.

The UPL-1 and UPL-2 are not user-serviceable. Refer service to an authorized Meyer Sound Service Center or to Meyer Sound.

Physical Dimensions



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Specifications

Acoustical

Frequency Response¹

± 2 dB from 50 Hz to 18 kHz²

-3 dB at 32 Hz and 20 kHz

+60°, -0° from 120 Hz to 18 kHz

124 dB peak @ 1 meter

> 100 dB

Phase Response¹

Maximum SPL

Signal-to-Noise Ratio

Coverage Angle

UPL-1

UPL-2

90° horizontal by 40° vertical

60° horizontal and vertical

Electrical

Input Type

Nominal Input Level

Amplifier Type

Power Output

Low Frequency

High Frequency

THD, IM, TIM

Crossover

Electronically balanced, 10k ohms impedance

Accepts either +4 dBu or -10 dBV, switchable

Complementary power MOSFET output stages

200 watts burst capability

100 watts burst capability

< .02 %

Optimized pole-zero filter combinations to complement transducer response and to achieve acoustical transparency and flat phase³

Voltage selector switch for 100/120/220/240 VAC, 50 or 60 Hz (accepts voltages from 90 to 260 VAC), 175 W maximum

Power

Physical

Input Connector

Power Inlet

Driver Complement

Low Frequency

High Frequency

Enclosure

Finish

Dimensions

XLR (A-3) female

3-pin IEC male receptacle

10" diameter cone (2" voice coil)

1" titanium dome horn driver (1" voice coil)⁴

1.6 cu. ft. vented, multi-ply Finnish birch

Black textured

14" W x 20 3/4" H x 14" D (+ 2 1/2" additional depth for amplifier chassis and 2" for grill frame with foam)

70 lbs (32 kg)

Perforated metal screen, grey foam covering

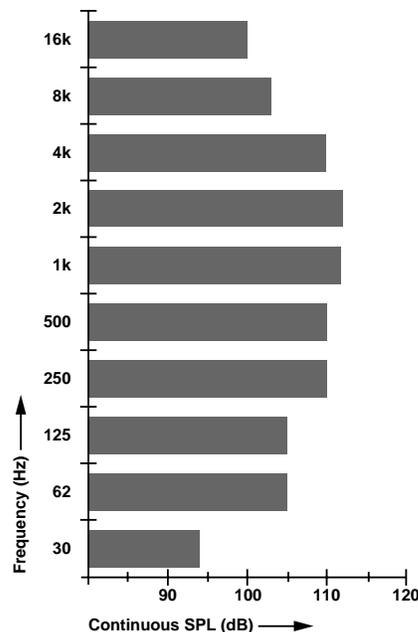
3/8"-16 nut plates, top and bottom

Notes:

1. Subject to room loading. Specified for 8 feet actual distance between loud-speaker cabinet and a single boundary surface, measured with one-third octave frequency resolution in fixed ISO bands.
2. Specified with grill removed. Response tolerance ± 3 dB with grill screen and foam in place.
3. U.S. patent #5,185,801 (additional patent pending).
4. U.S. patent #4,152,552.

Unless otherwise specified, all acoustical measurements are performed at 1 meter from front baffle on high-frequency horn axis. Acoustical decibels are specified re 20 μ Pa.

Maximum Continuous SPL by Frequency



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2832 San Pablo Avenue
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