



The Meyer Sound UM-1C UltraMonitor™ is a compact, high-power biamplified loudspeaker designed specifically for stage monitor applications. It consists of a proprietary 12-inch low-frequency cone driver with a symmetrical 60-degree high-frequency horn and driver in a vented enclosure.

The UM-1C is designed to be operated as a system with the Meyer Sound M-1A Control Electronics Unit (one M-1A per channel). The M-1A comprises electronic crossover, Meyer Sound exclusive SpeakerSense™ driver protection circuitry, and amplitude and phase response alignment circuitry optimized for the loudspeaker.

Amplifier Requirements The UM-1C requires a professional quality two-channel power amplifier rated at 200-300 watts per channel continuous into 8 ohms. (If two UM-1Cs are to be operated in parallel from the amplifier, it should be capable of driving 4 ohms.) Use of amplifiers of lower power will not allow the full power and headroom of the UM-1C system to be realized (though this may be acceptable in applications where high pressure levels are not required).

Conversely, use of amplifiers rated at significantly more than 300 watts per channel may endanger the loudspeaker, and **is not recommended**.

For further information on power amplifiers, please refer to **Choosing a Power Amplifier**, a Meyer Sound Technical Note available from your dealer.

Connections The UM-1C is a biamplified system and **must** be used with the **M-1A Control Electronics Unit**. The M-1A functions as an active crossover, dividing the input signal into high and low frequency components.

The connection terminals of the low and high frequency drivers appear on a single Cannon P-type 4-pin connector located on the rear of the UM-1C cabinet. The pin assignments for this connector are:

Pin 1 — 12-inch driver, hot
Pin 2 — 12-inch driver, common
Pin 3 — horn driver, common
Pin 4 — horn driver, hot
(When the cabinet is fitted with a Cannon EP-5 connector, Pin 5 is unconnected.)

The minimum wire size for connections between the UM-1C and the power amplifier should be 14 gauge.

Note. If you are using standard Meyer Sound loudspeaker cables and adapters, simply connect the female end of the loudspeaker cable to the UM-1C, the male end of the cable to the Meyer Sound pigtail adapter, and the banana connectors of the adapter to your amplifier outputs. In making connections between the UM-1C and the amplifier, be sure to connect the 12-inch driver to the **Lo** channel, and the horn driver to the **Hi** channel.

The adapter banana plugs are color-coded as follows:

Red — Low frequency driver
Black — High frequency driver

For connections between the M-1A and the power amplifier, refer to the **M-1A Operating Instructions**.

Verifying System Polarity All Meyer Sound loudspeakers are thoroughly tested in all stages of manufacture and correct polarity of individual cabinets is assured. However, accidental polarity reversal is possible when there are multiple amplifier connections. A cabinet which is out of polarity with the rest of the system will cause severe cancellation, resulting in a noticeable decrease in SPL and possible component damage.

Because of the extensive signal processing circuitry of the M-1A Control Electronics Unit, the "phase-popper" type of speaker phase checkers cannot reliably be used to test for correct polarity of the low and high drivers of the UM-1C. However, because the UM-1C is phase corrected through crossover, any of the portable spectrum analyzers can be used, with a pink noise source, to test for driver polarity as follows:

1. Single cabinets.

First, verify polarity of the woofer by connecting a 9 volt battery at the end of the loudspeaker cable.

Cannon connector	Battery
Pin 1	+ terminal
Pin 2	– terminal

■ The woofer cone should move outward toward the listener. Connect the speaker cable to the amplifier.

■ Input the pink noise source to the M-1A and advance the M-1A input **Level** control to a convenient measuring level.

■ Standing in front of the loudspeaker, position the analyzer microphone directly between the horn and the 12-inch driver, at right angles to the cabinet face, and about 20 inches in front of the UM-1C.

■ If polarity of the horn driver is reversed, a trough will appear in the response curve, centered near 1600 Hz. If in doubt, reverse the polarity of the **Hi** amplifier output while you watch the analyzer display.

2. Multiple cabinets.

Each cabinet should first be tested as above.

■ Connect **one** loudspeaker and advance the pink noise to a convenient measuring level. Position the measuring microphone between two adjacent loudspeakers, and about six feet distant. Note the frequency response and overall level.

■ Leaving the first loudspeaker connected, connect the adjacent one and observe the analyzer display. The entire curve should jump up in level, indicating correct addition between the loudspeakers. If the loudspeakers are adjacent, a polarity reversal between them will show up as severe broadband cancellation. As the loudspeakers are moved apart, the cancellation will become less apparent at high frequencies. For this reason, polarity testing should be done with cabinets adjacent.



Placement of the UM-1C UltraMonitor

When the UM-1C is placed on the floor in its normal position (horn facing up towards the performer), there will be a boost in the low frequency response of the loudspeaker. This is caused by the loudspeaker coupling with the floor, and may be corrected at the M-1A Control Electronics Unit by switching in the Lo Cut filter on the Preset Panel. Please refer to the **M-1A Operating Instructions** for a complete description of its controls.

The UM-1C UltraMonitor is designed to be used as a stage monitor. However, its compact size and performance capabilities make it a practical side- or front-fill PA speaker. The 60-degree symmetrical coverage pattern of the high frequency horn is most effective in situations where narrow coverage angles are preferred.

Rigging

The UM-1C loudspeaker has four steel rigging brackets internally mounted as an integral part of the cabinet design and the cabinet is supplied with either aircraft pan fittings (ring or stud) or $\frac{3}{8}$ "-16 nut plates according to user preference. A flat plate is supplied when no rigging hardware is specified. All three plate types are held in place by six Phillips-head machine screws and can be interchanged at any time. The handles on the UM-1C cabinet are provided solely for moving and carrying the loudspeaker and are **not** to be used for rigging purposes.

The rigging hardware is so designed that a single point can support the normal load for the cabinet. In the case of the UM-1C, the recommended maximum load is 420 lbs (190 kg). Any of the individual rigging points is capable of supporting this load with an adequate safety margin. However, Meyer Sound strongly recommends that safety lines be run to the other points. If the structural integrity of any cabinet has been compromised by damage or negligence, then the safety of the rigging cannot be assured. **All rigging should be done by competent professionals.**

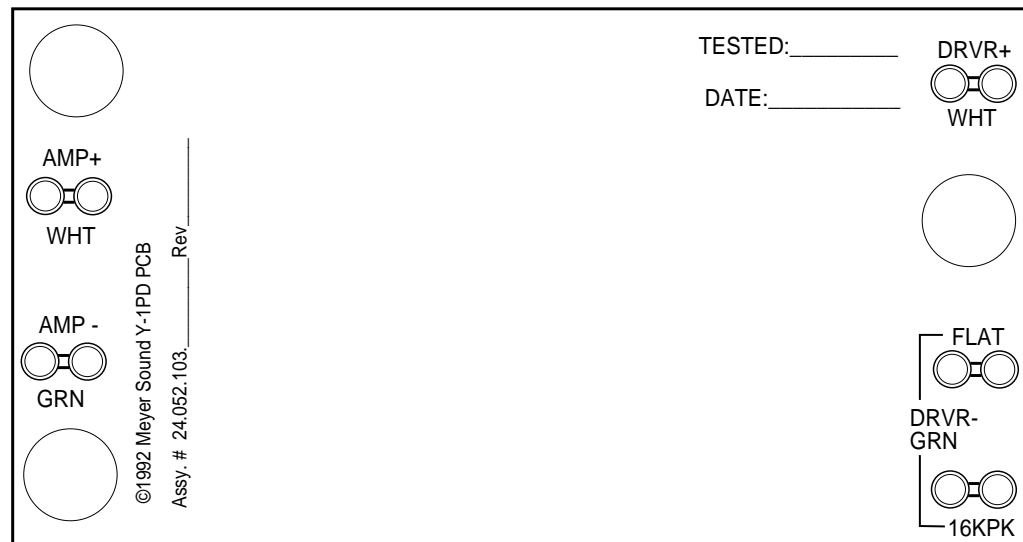
High Frequency Network

The UM-1C loudspeaker contains, mounted in the enclosure, a DC protection and response correction network for the high-frequency horn driver. The network is mounted directly behind the MS-12 low-frequency cone driver on the inside rear face of the cabinet, and is wired in series with the horn driver.

The circuit board is fitted with five terminals, two of which (labeled AMP- and AMP+) are wired to the Cannon EP-4 connector pins 3 and 4. The other terminals (labeled FLAT and 16KPK), provide two options for tailoring the system's response. With the high driver common (green) wire connected to the FLAT terminal, the UM-1C high-

frequency response is nominally flat to 20 kHz. When the common wire is connected to the 16KPK terminal, the UM-1C exhibits a peaked response in the 16 kHz region.

The UM-1C is shipped with the high driver common connected for flat response. Should you desire more high-frequency energy, simply remove the six bolts holding the MS-12 in place, pull the MS-12 up and out of the cabinet, and move the green wire from the FLAT terminal to the 16KPK terminal. Be careful not to disturb the other wires to the network board or Cannon connector. When replacing the MS-12, be certain to tighten the six bolts evenly.



UM-1C High-Frequency Network Circuit Board

Specifications

Acoustical - UM-1C/M1A System

Frequency Response ¹	70 Hz to 18 kHz \pm 4dB -6 dB at 55 Hz and 20 kHz	
Maximum SPL ² with amplifier rated at:	250W/8 ohms/ch	60W/8 ohms/ch
Continuous	125 dB	120 dB
Peak	132 dB	126 dB
HF Coverage Pattern	60 degrees symmetrical	

UM-1C Loudspeaker

Driver Complement		
Low Frequency Driver	MS-12	
High Frequency Driver	MS-1401B	
High Frequency Horn	60-degree constant-directivity 1600 Hz to 15 kHz	
HF Network	Y-1PD	
Function	DC blocking and damped band-elimination filter	
Enclosure	0.8 cu. ft. vented, multi-ply Finnish birch plywood	
Finish	Black textured	
Physical Dimensions	14" W x 14" H x 22 1/2" D	
Weight	61 lbs (27.7 kg)	
Protective Grill	perforated steel screen, vinyl damped, charcoal-grey foam covering	
Connector	Cannon EP-4 (male), EP-5 (male, Europe only)	
Rigging (optional)	Aircraft pan fittings, or 3/8"-16 or M10 x 1.5 nut plate	

Note 1:
Measured 1/2 meter
from center of cabinet
face, half-space condi-
tions, pink noise input,
network set to 16KPK,
smoothed to one-third
octave. Low frequency
response dependent on
load conditions.

Note 2:
Loudspeaker driven
with pink noise.

