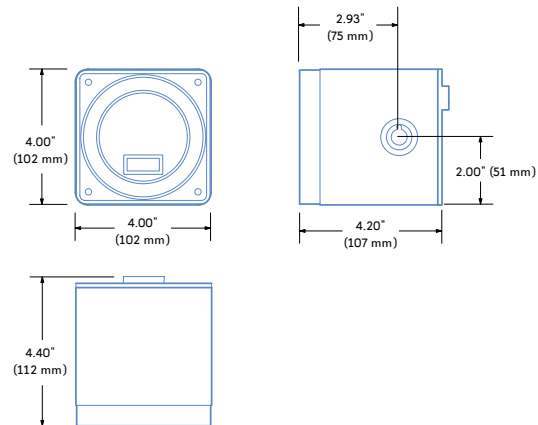




MM-4 : Miniature Wide-Range Loudspeaker



Dimensions	4.00" h x 4.00" w x 4.20" d excluding connector (102 mm x 102 mm x 107 mm)
Weight	3 lbs 14 oz (1.76 kg)
Enclosure	Extruded aluminum
Finish	Black anodized; custom color available
Protective Grille	Perforated metal screen
Mounting	Two 3/8"-16 threaded side inserts; see below for a description of mounting accessories

The MM-4 loudspeaker is a very compact, wide-range loudspeaker for high quality distributed system applications. Unlike conventional low power 70-volt transformer based systems, the MM-4 connects directly to the amplifier and is capable of producing high sound pressure levels while dramatically reducing distortion and easing installation requirements.

The MM-4 comprises a single 4-inch cone driver with a 16-ohm voice coil mounted in a sealed enclosure. The MM-4 draws 150 watts peak from the line, and produces 112.5 dB peak SPL. Typically, with four MM-4s connected in parallel on the line, the system requires a direct drive power amplifier capable of 600 watts continuous output (49 volts rms) into 4 ohms.

The MM-4CEU is specifically designed and required for use in an MM-4 loudspeaker

system. This two-channel, single rack space unit provides frequency and phase response correction circuitry tailored to the MM-4 loudspeaker. In conjunction with professional grade amplifiers, the MM-4CEU must be used to protect your MM-4 loudspeakers against damaging overload conditions, while ensuring that they meet their published specifications. Through a SpeakerSense™ connection to the power amplifier output, the MM-4 CEU continuously monitors the power applied to the drivers, activating integral peak and RMS limiters to protect against over-excursion and overheating, respectively.

The required MM-4CEU incorporates Meyer Sound's MultiSense™ circuit to drive several amplifiers, monitor two amplifier channels and activate its protection circuits based on the system branch with the highest signal level. MultiSense allows the levels of individual zones

to be adjusted using the power amplifier's attenuators. Typically, each channel of the MM-4CEU can drive 12 or more amplifier channels depending on the input impedance of the amplifier.

The MM-4 enclosure's black anodized extruded aluminum acts as a sink to dissipate heat from the driver voice coil. It can be ordered custom-painted to match décor, and is fitted with a perforated steel grille.

Two connector versions are available: the sealed EN3 connector for outdoor installations, and a Phoenix-style keyed connector for use indoors. A MUB-MM4 U-bracket is available for mounting that affixes to the cabinet with two 3/8"-16 screws and is drilled to fit an OmniMount® bracket. An optional MMFA-MM4 flush mount assembly is available for ceiling or wall mount applications.

FEATURES & BENEFITS

- Extremely compact enclosure
- Wide-range frequency response
- Ultra-low distortion
- Transformerless, wide-bandwidth signal distribution
- Amazing SPL/size ratio

- Color matching available
- Low distortion maximizes intelligibility
- Effortlessly reproduces music as well as speech
- Flexible mounting options ease installation
- Weather-resistant version available for outdoor installations

APPLICATIONS

- Space-sensitive fill for theatres
- Easily concealed for on-stage effects
- High-quality distributed systems, paging and music
- Background music systems in restaurants and clubs
- Exhibit audio for museum displays
- High-quality corporate boardroom installations

MM-4 SPECIFICATIONS

ACOUSTICAL (MM-4CEU REQUIRED)¹		Operating Frequency Range² Frequency Response³ Phase Response Maximum Peak SPL⁴ Maximum Continuous SPL⁵	120 Hz – 18 kHz 160 Hz – 16 kHz ±4 dB 700 Hz – 17 kHz ±45° 112.5 dB 100 dB
COVERAGE		Horizontal Vertical	80° (3 kHz – 14 kHz ±10°); 120° (below 2 kHz) 80° (3 kHz – 14 kHz ±10°); 120° (below 2 kHz)
TRANSDUCER			One 4" cone driver Nominal impedance: 16 Ω Voice coil size: 0.75" Power-handling capability: 100 W (AES) ⁶
MM-4CEU CONTROL ELECTRONICS UNIT (REQUIRED)			
AUDIO INPUT		Type Maximum Common Mode Range Connector(s) Input Impedance Wiring DC Blocking CMRR RF Filter Input Level	Differential, electronically balanced; RF and transient protected ±15 V DC, clamped to earth for voltage transient protection Two female XLR, one for each input channel 10 kΩ differential between pins 2 and 3 Pin 1: Chassis/earth through 11 kΩ, 1000 pF, 15 V clamp network to provide virtual ground lift at audio frequencies; Pin 2: Signal +; Pin 3: Signal -; Case: Earth ground and chassis None >60 dB, typically 80 dB (50 Hz – 1 kHz) Common mode 850 kHz; differential mode 370 kHz Maximum input voltage 25 V peak-peak (+21 dBu sine wave)
AUDIO OUTPUT		Type Out Voltage Connectors Output Impedance Wiring	Active push-pull, electronically balanced, capable of driving 600 Ω load; RF and transient protected Maximum 50 V peak-peak (+27 dBu sine wave) Two male XLR, one for each output channel 200 Ω differential between pins 2 and 3 Pin 1: Chassis/earth; Pin 2: Signal +; Pin 3: Signal -
AUDIO PERFORMANCE		Hum and Noise Dynamic Range THD Response Accuracy	<-90 dBV (A-weighted) >115 dB <0.01%, typically <.002% <0.25 dB (20–20 kHz)
AC POWER		Connector Voltage Selection UL/CE Rated Voltage Current Draw	IEC 320 Switch selectable on rear panel 90 – 130 V AC; 180 – 260 V AC; 50/60 Hz 0.160 A max (rear panel T 160 mA fuse protected)
PHYSICAL		LED Indicators Controls SpeakerSense Connectors⁷ Physical Dimensions Weight Finish	Sense Threshold/Gain Detect: (2) Red/Green LEDs, one per channel; RMS Limiters: (2) Yellow LEDs, one per channel; Peak Limiters: (2) Yellow LEDs, one per channel; Power: (1) Green LED Front panel: (2) Rotary input attenuators, one per channel; (2) Recessed low cut filter switches, one per channel; (1) AC power latching push switch Rear Panel: (1) AC voltage selector, recessed; (1) T250V fuse and holder MultiSense, (4) dual banana, two per channel 19.00" w x 1.75" h x 7.75" d standard rack mount (482 mm x 44 mm x 197 mm) 8 lbs, 4 oz (3.74 kg) Black, powder coated

NOTES:

- To realize the MM-4's full capabilities, an MM-4CEU must be used. The amplifier driving the loudspeakers should be capable of 49 volts RMS at the rated load impedance, and provide a voltage gain between 10 and 30 dB (20 dB for optimal S/N ratio and protection). The power rating of the amplifier should be as follows: 1 MM-4/ch (16 Ω) 150 W; 2 MM-4/ch (8 Ω) 300 W; 4 MM-4/ch (4 Ω) 600 W; 8 MM-4/ch (2 Ω) 1200 W
- Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.
- Free field, measured with one-third octave frequency resolution at 4 meters.
- Measured with pink noise at 1 meter.
- Measured at 1 meter, driven continuously for two hours with pink noise signal having a 12.5 dB peak-average ratio.
- Power handling is measured under AES standard conditions: transducer driven continuously for two hours with band-limited noise signal having a 6 dB peak-average ratio. Aluminum enclosure dissipates heat generated by driver.
- When using multiple sense lines, all lines must be in same electrical polarity.

Made by Meyer Sound Laboratories
 Berkeley, California, USA
 European Office:
 Meyer Sound Lab. GmbH
 Carl-Heinrich-Strasse 12
 50773 Plohn, Germany




3K99 OR 3IK9
 COMMERCIAL
 AUDIO SYSTEM
 MM-4CEU



MM-4CEU

MM-4 - 04.091.033.01 C

Copyright © 2007
 Meyer Sound Laboratories Inc.
 All rights reserved

MEYER SOUND LABORATORIES INC.
 2832 San Pablo Avenue
 Berkeley, CA 94702

T: +1 510 486.1166
 F: +1 510 486.8356

info@meyersound.com
 www.meyersound.com

ARCHITECT SPECIFICATIONS

The loudspeaker system shall consist of a single 4-inch (102 mm) diameter cone transducer with a 100 watt (AES), 16-ohm, long-excursion voice coil with air-cooled ceramic magnet structure and mounted in a sealed aluminum enclosure that provides heat sinking for the transducer's voice coil. The aluminum enclosure shall have exterior dimensions of 40-inch (102 mm) wide by 4-inch (102 mm) high by 4.2-inch (107 mm) deep (including the grille but excluding the connector) and it shall weigh 3 lbs 14 oz (1.76 kg). The loudspeaker system shall produce continuous SPL of 100 dB at 1 meter with peak output of 112.5 dB at 1 meter from 160 Hz to 16 kHz when used with the required Meyer Sound MM-4CEU control electronics unit and a third-party audio power amplifier. The power amplifier shall be a professional grade, direct drive (transformerless output) power amplifier determined to be capable of stable long term output of 49 volts rms (70 volts peak) at the rated load impedance. The loudspeaker system shall be weather resistant and suitable for sheltered outdoor applications by

virtue of an aluminum enclosure, special sealants, watertight connector and chemically treated transducer cone. The loudspeaker enclosure shall be fitted with a 3/8-inch threaded insert on two of the four sides to facilitate installation and shall have a removable back plate for driver servicing, secured with four Phillips screws.

The loudspeaker shall be the Meyer Sound MM-4 miniature wide-range loudspeaker.

The control electronics unit (CEU) shall be a single rack space processor providing two separate channels with required frequency response optimization filters, phase alignment and required protection limiters specifically designed for the MM-4 loudspeaker system. The CEU shall provide RMS and peak limiting to the audio signal feeding the power amplifier when activated by a driver protection circuit that senses the power amplifier output. The sensing circuit shall allow each channel of the CEU to drive several power amplifier channels

and to sense two power amplifier outputs at one time such that the highest level (voltage) branch of an MM-4 distributed loudspeaker system will not exceed the power handling of the drivers and will actuate system protection circuits. A recessed front-panel low cut boundary EQ filter switch shall be provided for each channel to allow frequency compensation to be applied when an optional subwoofer loudspeaker is employed or for architectural/acoustic boundary conditions. Each channel of the CEU shall provide a rotary input attenuator, low-cut filter toggle switch and three LED indicators for signal level and sense threshold, for the RMS limiter and for the peak limiter. An on-board regulated power supply shall be included with externally accessible fuse and all electrical parts shall be of the highest quality.

The control electronics unit (CEU) shall be the Meyer Sound MM-4CEU.