



MTD108a

**PASSIVE
COAXIAL
LOUDSPEAKER**

APPLICATIONS

The L-ACOUSTICS® MTD108a and its accompanying analog controller provide a highly versatile system that is designed for distributed sound reinforcement. Intended for medium-scale touring, sub-hire or fixed installation, the MTD108a features extremely compact dimensions and highly flexible packaging while benefiting from the economy, packaging and "plug and play" ease of use afforded by its companion MTD108LLCa stereo line level analog controller.

The MTD108a is a passive 2-way loudspeaker enclosure containing a 1" exit compression driver that is loaded by the 8" loudspeaker in a coaxial configuration. Advantages of the coaxial approach include: single point source radiation and excellent phase response, total wavefront coherency at all frequencies and axi-symmetrical directivity that produces identical horizontal and vertical coverage. Coaxial design also provides LF/HF superimposed dispersion characteristics that are free of polar lobing effects typical of traditional horn and woofer combinations. The end result is natural, studio monitor level sound quality, ideal for proximity use and perfectly matching semi-reverberant environments.

The MTD108a is designed for distributed sound reinforcement in theatre, corporate, restaurant, retail, club, or television applications. Examples of distributed systems include delay rings for large-scale installations, surround effects channels for theatre or multimedia, distributed reinforcement for sports venues and delays for speech reinforcement. The compact format of the MTD108a also allows for visually-discrete installation in front fill or underbalcony applications.

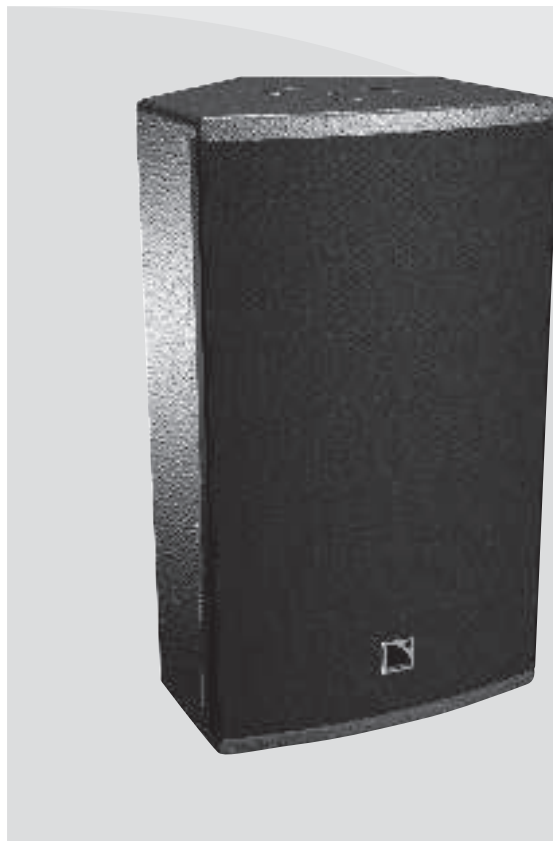
Due to its compact, wedge-shaped format, axi-symmetrical directivity and full range passive design, the MTD108a is equally useful as a cost-effective, low profile, high-efficiency floor monitor. Dual trapezoidal construction allows the MTD108a to be used for either short- or long-throw monitoring and with additional subwoofers such as the SB115, SB118 or SB218, the MTD108a is suitable for drum monitoring applications.

Sonic quality was an important design criterion for the MTD108a and its frequency response is exceptionally flat, providing superb fidelity and optimum speech intelligibility. Given this fidelity and its dynamic response, the MTD108a is effective in situations that are typically unaccustomed to sound reinforcement, in particular, for classical music and opera where high quality sound reinforcement is essential.

The L-ACOUSTICS MTD108LLCa is a dedicated stereo analog controller that provides optimum processing and sense return protection for the MTD108a. Front panel design allows the controller to function as a patch panel, providing an ergonomic, cost-effective solution for amplifier rack packaging.

A pole mount socket is included as standard and the MTD108a is Omnimount-ready. An adjustable U-bracket is available as an optional rigging accessory for ceiling, wall, scaffold or truss mounting.

L-ACOUSTICS PROFESSIONAL SOUND SYSTEM



- ▶ **Passive two-way enclosure (8" LF, 1" HF)**
- ▶ **High power coaxial driver assembly**
- ▶ **Point source radiation (100° conical directivity)**
- ▶ **Flexible format for distributed sound reinforcement**
- ▶ **Wedge-shaped for floor monitor use**
- ▶ **Suitable for medium-power FOH applications**
- ▶ **Designed for fixed installation and touring**
- ▶ **Compact, rugged construction, flexible rigging**
- ▶ **Analog processor control with sense return protection**

SPECIFICATIONS

L-ACOUSTICS specifications are based on measurement procedures which produce unbiased results and allow for realistic performance prediction and simulation. Some of these specifications will appear very conservative when compared with other manufacturer's specifications. All measurements are conducted under free field conditions and scaled to a 1 m reference distance unless otherwise indicated.

Frequency Response

Frequency Response	85 - 20k Hz (± 3 dB) (LLC FRONT position)
Usable Bandwidth	65 - 20k Hz (- 10 dB)

Sensitivity¹

(2.83 Vrms @ 1m)	94 dB SPL	85 - 20k Hz
------------------	-----------	-------------

Power Rating²

(Long Term)	45 Vrms	250 Wrms	1000 Wpeak
-------------	---------	----------	------------

Amplification*³

(Recommended)
500 W

Impedance

(Nominal)
8 ohms

*Amplifiers must have 32 dB gain in order for MTD108LLCa sense return protection to function properly

Nominal Directivity (-6dB)³

Axi-symmetric	100° (± 15°)
---------------	--------------

System Output⁴

One enclosure	SPL		
	116 dB (cont)	122 dB (peak)	FRONT mode
	117 dB (cont)	123 dB (peak)	X-OVER mode

FRONT LLC setting provides a 3 dB low frequency contour under freefield conditions

X-OVER LLC setting applies a 125 Hz high pass filter

Components

LF 1 x 8" weather resistant loudspeaker (2" voice coil)

HF 1 x 1" exit compression driver (titanium diaphragm, coaxial assembly)

¹ Sensitivity is the average SPL measured over the component's rated bandwidth

² Power rating displays the long term RMS voltage handling using pink noise with a 6 dB crest factor over the component's rated bandwidth

³ Directivity is averaged over the 1-10 kHz range

⁴ System output gives the unweighted SPL output of the system referenced to 1 m

Enclosure

- Height 421 mm 16.6 in
- Width 250 mm 9.8 in
- Depth 242 mm 9.5 in
- Trap Angle: 22.5° or 45° with respect to vertical
- Weight (net) 10.5 kg 23.1 lbs
- Shipping Weight 11.5 kg 25.3 lbs
- Shipping Dims 490 x 330 x 310 mm 19.3 x 13.0 x 12.2 in
- Connectors: 2x 4-pin Neutrik Speakon
- Material: 15 and 18 mm Baltic birch plywood
- Finish : Maroon-gray™
- Grill : Black epoxy perforated steel with acoustically transparent, technically-advanced grille cloth
- Rigging : Integral flying hardware and pole mount support

Additional Equipment

- L-ACOUSTICS MTD108LLCa analog controller
- L-ACOUSTICS SB115, SB118, SB218 subwoofers
- L-ACOUSTICS LA 15a or LA 17a power amplifier

ARCHITECT SPECIFICATIONS

The enclosure shall be a passive, two-way, coaxial full range loudspeaker containing one direct radiating, bass reflex-loaded 8-inch low frequency transducer and one 1.0 inch exit, 1.4 inch voice coil diameter, titanium alloy diaphragm, neodymium magnet, compression driver. As a full range system, the frequency response shall be 85 Hz to 20 kHz with less than +/- 3 dB variation and the usable bandwidth shall be 65 Hz to 20 kHz (-10 dB).

The cone body of the low frequency component shall provide pattern control loading of the compression driver and yield a 100-degree conical dispersion pattern that is axi-symmetrical. The passive filter employed in the enclosure shall provide a 2 kHz crossover between low and high frequency components. Long term power handling shall be 250 Wrms at a nominal 8 ohm impedance. Connection to the loudspeaker shall be made via two parallel 4-pin Neutrik Speakon connectors.

The enclosure shall have a truncated wedge shape with a curved front profile. Dimensions shall be 42.1 cm (16.6 in) high, 25.0 cm (9.8 in) wide by 24.2 cm (9.5 in) deep. When used on either of its rear sides, the front baffle of the enclosure shall be oriented at either 22.5° or 45° angles with respect to vertical, allowing the enclosure to be used as a floor monitor. Enclosure weight shall be 10.5 kg (23.1 lbs). Cabinet construction shall consist of 15 mm (0.6 in) and 18 mm (0.7 in) Baltic birch plywood with joints that are sealed, screwed and rabbeted. The finish shall be maroon gray, high resiliency paint. The front of the enclosure shall be protected by a black powder-coated, 1.5 mm (0.06 in) thick steel grill that is covered with acoustically-transparent, highly-resistant, technically-advanced grille cloth.

The loudspeaker shall have a 35 mm (1.38 in) diameter pole mount socket mounted on the bottom side and a recessed plate on the top side for rigging the enclosure in conjunction with an adjustable U-bracket assembly. Four threaded inserts shall be available on the rear side for attachment of an optional Omnimount bracket.

The enclosure shall be used with a stereo analog controller that monitors power amplifier outputs and employs sense return processing to provide thermal protection and cone excursion limiting for the loudspeaker components. The analog controller shall provide band limiting and corrective component equalization with three settings that are designed for front-of-house, floor monitor or two-way operation with subwoofers. The analog controller shall perform signal summation of the two input signal channels and provide a line level output signal with selectable band limiting and equalization for use of the enclosure in conjunction with three different subwoofer types.

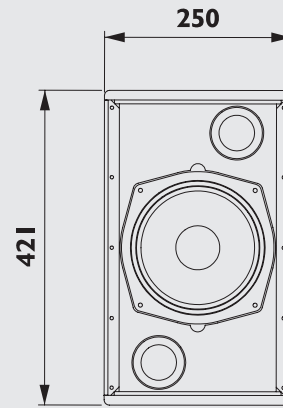
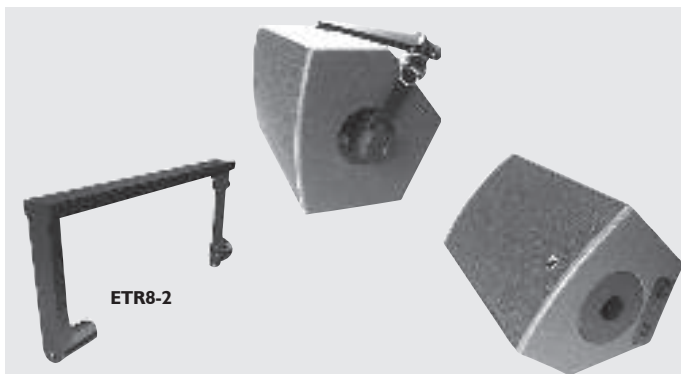
The loudspeaker system shall be the L-ACOUSTICS MTD108a.

The analog loudspeaker controller shall be the L-ACOUSTICS MTD108LLCa.

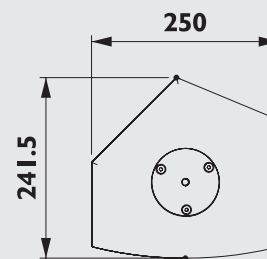
The subwoofer system shall be the L-ACOUSTICS SBI15, SBI18 or SB218.

ACCESSORIES

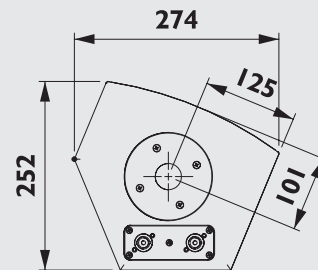
ETR8-2: Adjustable U bracket for wall, scaffold or truss mounting of the MTD108a. One end of the ETR8-2 mates with the integral pole mount socket of the MTD108a then the pivoting swing arm is attached to the enclosure via the tilt adjustment knob, allowing for continuous rotation of the loudspeaker within the U bracket



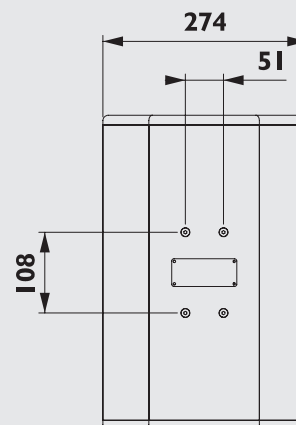
FRONT



TOP



BOTTOM



REAR

SCALE 1:10

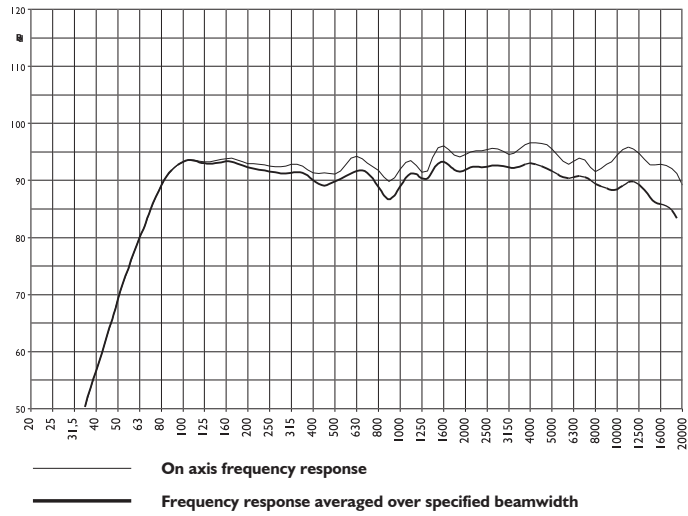
(Dimensions in mm)



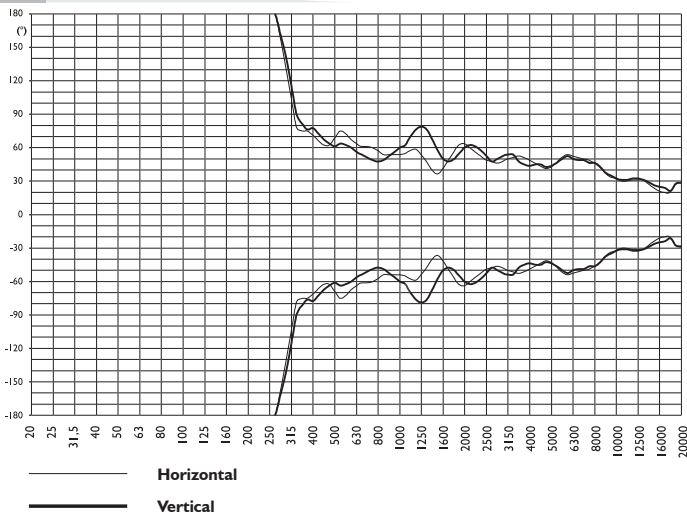
MTD108a

PERFORMANCE
DATA

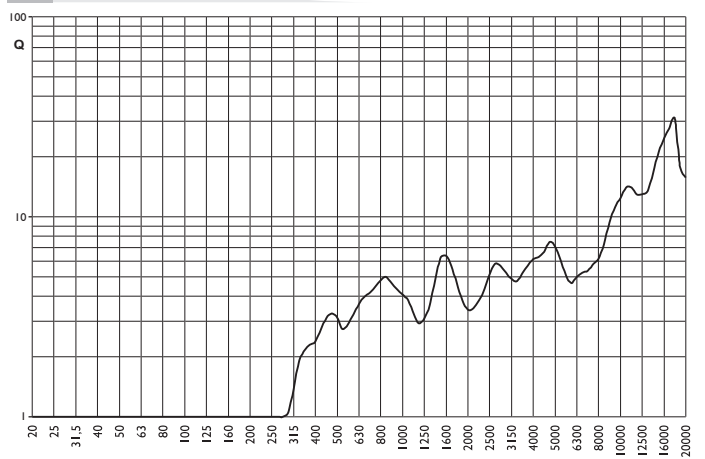
FREQUENCY RESPONSE



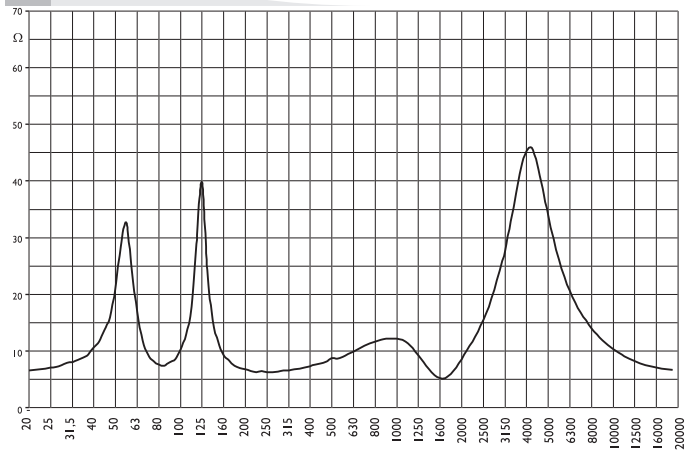
BEAMWIDTH (-6dB)



DIRECTIVITY FACTOR Q



IMPEDANCE





MTD108LLCa

**ANALOG
CONTROLLER**

DESCRIPTION

The MTD108LLCa line level controller is an analog signal processing unit that optimizes the performance of the MTD108a. The stereo controller accepts two signal inputs and provides two processed outputs for the respective input channels. The main functions of the MTD108LLCa controller are as follows:

- Bandpass filtering and equalization (3 modes, selectable)
- Sense Return processing for thermal protection of speaker components and cone excursion limiting (voltage and frequency dependent)
- Mono input summation for subwoofer or center fill drive
- Crossover filtering, equalization for subwoofer drive

Three different equalization/bandpass filtering modes tailor the frequency response of the MTD108a for different applications. In MONITOR mode, high pass filtering is set at 80 Hz with a 12 dB/octave slope in order to provide an equalization contour suitable for speech reinforcement or floor monitor applications. In FRONT mode, a 50 Hz high pass filter is employed and low frequency shelving equalization provides a contour more suitable for full bandwidth music applications. In X-OVER mode, a 125 Hz high pass filter is applied and there is no low frequency shelf since the MTD108a is intended to be used with subwoofers.

When the second front panel switch is set to SUB mode, the mono output on the rear of the controller provides a summed output of the two signal inputs with low pass filtering set at 125 Hz and equalization optimized for the SB115 subwoofer (equalization for the SB118 or SB218 are selectable via internal jumpers). Alternatively, the summed MONO signal output can be used to feed a power amplifier allotted to a central fullrange fill loudspeaker (SUM mode).

In terms of connection, two input signals (Ch 1, 2) are applied to the line input XLR connectors on the front panel of the MTD108LLCa. Rear panel XLR line outputs (Ch 1, 2) are connected to the power amplifier inputs with the amplifier outputs then connected to the Controller "Sense Return" input. Speaker connector (Ch 1 = 1+/-, Ch 2 = 2+/-). Since the amplifier is connected in a loop, LLC sense return protection circuitry can monitor the signal applied to the loudspeakers and provide thermal protection of speaker components plus voltage- and frequency-dependent cone excursion limiting provided that the power amplifier has a gain of 32 dB. The front panel of the MTD108LLCa is then used as a patch panel with Ch 1, 2 loudspeakers connected via the two 4-pin Speakon connectors provided.

SPECIFICATIONS

Technical

Inputs	Electronically balanced 10 kΩ input (pin 2 hot)
Outputs	Electronically balanced 50 Ω output (pin 2 hot)
Input Headroom	+20 dBV
Nominal Gain at 200 Hz	0 dB (unity gain)
Signal to Noise	> 84 dB
Dynamic Range	> 104 dB
THD	<0.01% (20 to 20k Hz @ 0 dBV)
Bandpass/Equalization Filters	3 modes: MONITOR = 80 Hz (BW12 HP) FRONT = 50 Hz (LR24 HP+EQ) XOVER = 125 Hz (HP) Low-pass: 20 kHz
Subwoofer:	40 Hz LR 24 HPF + EQ (for SB115) 125 Hz LR 24 LPF
Speaker Protection	RMS limiter & peak limiter

Front & Rear Panel

Indicators	Signal: green LED for each section Control: yellow LED for each section
Front Panel Controls	AC power, MODE select, SUB/SUM select
Rear Panel Control	IN PHASE/OUT PHASE (MONO output polarity)
Front Panel Connectors	Channel 1, 2 XLR inputs, parallel loopthrough Loudspeaker: 2x 4-pin Neutrik speakon
Rear Panel Connectors	Sense Return: 4-pin Neutrik speakon MONO, Channel 1, 2 XLR line outputs
Power Requirement	100 V - 240 V 50/60 Hz
Power Consumption	15 W
Physical	
Finish	Black anodized front panel, white serigraphy
Net Dimensions	483 x 44 x 305 mm 19 x 1.75 x 12.0 in
Net Weight	3.75 kg 8.3 lbs
Shipping : Weight	4.8 kg 10.6 lbs
Dimensions	505 x 80 x 415 mm 19.9 x 3.1 x 16.3 in



Specifications subject to change without notice

Specs MTD108a 0506

www.l-acoustics.com

Parc de la Fontaine de Jouvence • 91462 Marcoussis Cedex • France • Ph:+33 (0) 1 69 63 69 63 • Fax: +33 (0) 1 69 63 69 64 • info@l-acoustics.com