

## MLD9 MultiLoop™ Driver

The MLD9 is the new global benchmark for professional audio induction loop systems. The elegant, sturdy units feature the most compact design on the market, requiring only a single 19" rack mount.

The MLD9 provides the highest output available in any dual channel loop driver and is capable of driving a wide variety of multiple loop configurations from multiple simple loops to phase shifted array systems for the most challenging requirements. With an Ampetronic MultiLoop™ Low Loss design, the MLD9 will drive an area up to 3,300m<sup>2</sup>, or can be used to drive two perimeter looped areas of up to 1,300m<sup>2</sup> each. The MLD9 also features Class G technology which halves power consumption and heat dissipation.

Designed to provide optimum efficiency and ample current for standard compliant field strength, coupled with unmatched voltage headroom to ensure crystal clear sound reproduction without clipping or distortion at practical loads. MLD units are built to our exacting standards and are backed by our 5 year warranty.



### Features

- **Drives 2 output channels at 9.2A<sub>RMS</sub> each, featuring accurate and stable 90° phase shift**
- **High efficiency Class-G amplifier with low heat dissipation**
- **Up to 2 x 1,300m<sup>2</sup> Perimeter Loops area coverage**
- **Up to 3,300m<sup>2</sup> MultiLoop™ Low Loss area coverage**
- **Space saving 1U rack mount unit, the most space efficient loop driver available**
- **Front inlet & rear exhaust fan cooling for true rack mount integration**
- **Optimised for speech frequencies with unmatched intelligibility & capable of high quality musical reproduction**
- **AGC & Metal loss correction**
- **Active loop error monitoring & dual loop fault detection at start-up**
- **Tested to, and compliant with: IEC 62489-1 induction loop amplifier performance standard**

### Applications include

- **Classrooms & Conference facilities**
- **Stadia, Sports Halls, Cinemas & Theatres**
- **Courts Rooms, Airports & Railway Stations**

### MultiLoop™ Applications

The flexibility of Ampetronic MLD units allows each output channel to drive separate loops, or two drive two overlaid loop patterns, with or without the selectable phase shift between the two channels.

Two separate simple area loops (or perimeter loops) can be driven at the same phase or with 90° phase shift. This can be used to cover large areas with no metal losses, or multiple different areas in the same facility.

Two loop layouts can be driven configured as multiple loop segments with or without phase shift. Simple array, low loss array or low spill array designs can create different performance to optimise field strength over any area, and minimise loop 'spill' for adjacent systems or for confidentiality.

Contact Ampetronic for free advice on all loop applications, design tools and support are available to check the expected performance for your application. Most commonly used design types are low loss and low spill:

#### MultiLoop™ Loss Control Systems are used to:

- Compensate for high losses due to metal structures
- Drive large areas where perimeter loops cause too much variation

#### MultiLoop™ Low Spill Systems are used to:

- Perform the same tasks as Loss Control systems, also minimises 'spill' – confines signal to within 1.5m of looped area, suitable for adjacent rooms e.g. cinemas, classrooms, or confidential applications.

### Maximum area coverage for MLD9 MultiLoop™ systems (m<sup>2</sup>)

Loop Design	No Metal Loss*	Moderate Metal Loss**	High Metal Loss***
Loss Control	3,300	810	400
Low Spill	1,250	570	330
1:1 Perimeter Loop	2 x 1,000	max 5m width	n/a
3:1 Perimeter Loop	2 x 1,300	max 5m width	n/a

Typical scenarios are based on \*a building with no structural metal, \*\*a building with reinforced concrete (re-bar).

# MLD9 Product Information

## Equipment supplied as standard with the MLD9

- Handbook and installation instructions
- 197 x 252mm loop system present sign (deaf logo)
- Region specific mains cable
- Loop connector for each output
- Rack mount brackets
- Status Connector
- DC Connector

## MLD9 optional accessories

Ampetronic can supply a range of accessories to meet the specific needs of your installation:

**Input adaptors** A range of input adaptors and interface cables to accept most audio source inputs, see table below

**Installation Accessories**

- 18mm x 0.25mm copper tape
- PVC extrusion to protect copper tape
- Installation / warning tape to fix cable or tape to a floor

## Input adaptors

By using the appropriate input adaptor or preamplifier the MLD9 will accept multiple additional inputs or audio inputs from other sources:

Input type	Adaptor
100V line input	<b>ATT-UX</b> transformer
Low impedance speaker line Line Level	isolated attenuators
Unbalanced microphones	<b>MAT1</b> adaptor

## Standards compliance

This product is designed to form part of a system that can meet all of the requirements of the international loop performance standard IEC60118-4:2006, and the relevant parts of BS7594. To fully meet requirements of these standards, correct design, installation, commissioning and maintenance are required.

All specification data has been compiled in accordance with IEC62489-1, the international standard for audio frequency induction loop equipment. Specification data should only be compared with data compliant to this standard.

This product is CE market to all relevant safety and EMC standards, and is NRTL(ETL) approved for sale in North America.

For detailed information on approvals, standards compliance and how to interpret the technical parameters on Ampetronic datasheets, please visit the support section of our website [www.ampetronic.com](http://www.ampetronic.com) or contact [support@ampetronic.com](mailto:support@ampetronic.com).

## INPUTS

<b>Power</b>	220W 230V AC nominal, 45-65Hz [120V option available] Power switch & LED indicator (Hearing Loop logo) on front panel
<b>Input 1 &amp; 2 Programmable Microphone / Line</b>	XLR balanced input with programmable 15dB gain boost switchable between microphone and line on the rear panel. Microphone specification; 200 - 600Ω, sensitivity -55dBu. Selectable 12V phantom power on microphone only Line sensitivity; -30dBu Scredriver adjustable front panel recessed gain control
<b>Slave In</b>	6.35mm jack socket for linking more than one amplifier. Inserting plug disables other inputs

## OUTPUTS

<b>Loop Output Drive Voltage</b>	31.8V <sub>rms</sub> (45V <sub>pk</sub> ) at maximum output current per channel
<b>Loop Output Drive Current</b>	<ul style="list-style-type: none"> <li>• 9.2A<sub>rms</sub> (13A<sub>pk</sub>) up to 60 seconds continuous 1kHz sine wave peak &gt;13A per channel</li> <li>• Cont. pink noise 4.6A<sub>rms</sub> short term peaks &gt;19A per channel</li> <li>• Front panel recessed controls</li> <li>• Drive current indicated on two 6-LED displays in 3dB increments</li> </ul>
<b>Slave Out</b>	6.35mm jack socket to connect to other slave amplifiers
<b>Loop Connectors</b>	Neutrik NL4 Speakons (supplied) for each output
<b>Loop Monitor</b>	Provides access to monitor actual loop current via a 3.5mm stereo headphone connector on front panel Channel A on left, channel B on right
<b>Status</b>	A pair of isolated relay contacts to indicate system status; fault = open circuit: system O.K. = short circuit
<b>DC Output</b>	Resettable, fuse protected 12V 0.1A.

## AUDIO SYSTEM

<b>Frequency Response</b>	80Hz to 6.5kHz
<b>Distortion</b>	THD+N <0.2% 1kHz sine at full current
<b>Automatic Gain Control</b>	The AGC is optimised for speech. Dynamic range >36dB
<b>Metal Loss Correction</b>	Corrects system frequency response due to metal structures in a building. Gain constant at 1kHz, adjustable gain slope from 0 to 3dB per octave. This does not compensate for signal loss from metal structures which can be significant.
<b>Phase Shift</b>	User selectable at 0° or 90° between outputs

## ADDITIONAL FUNCTIONS

<b>Fault Monitoring</b>	Fault indicators on the front panel; <ul style="list-style-type: none"> <li>• Clipping – delivering over the rated voltage (per channel)</li> <li>• Temp – unit is too hot (temporarily mutes output signal)</li> <li>• Loop error – short circuit / open circuit error (per channel)</li> </ul>
<b>Status Contact</b>	A pair of relay contacts are provided for remote fault monitoring
<b>Cooling</b>	Twin variable speed fan cooled. Front inlet, rear exhaust.

## PHYSICAL

<b>Size</b>	Full width 1U 19" rack mount. Width 430mm Depth 330mm Height 44mm
<b>Mounting Options</b>	<ul style="list-style-type: none"> <li>• Freestanding</li> <li>• 1U 19" rack mount (brackets included)</li> </ul>
<b>Weight</b>	6.35kg
<b>Environment</b>	IP20 rated; 20 to 90% relative humidity; 0 to 35°C



# AMPETRONIC



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