AMPETRONIC

Datasheet

HLS-DM1 Compact Class D Hearing Loop Driver

The Hearing Loop System Driver Module is an advanced Induction Loop driver for use in smaller area local applications. The unit is designed to be integrated into communication systems such as elevators, intercoms, help points and kiosk systems etc. It is backed by Ampetronic's 5-year warranty and free technical support.

The HLS-DM1 uses efficient class D current drive technology to reduce power consumption and heat output. It is the only small area induction loop driver capable of reliably driving most practical local area loops to meet the IEC60118-4 Standard even where available power or allowable heat is limited, e.g. connecting to equipment that uses a PoE supply or in plastic enclosures.

The transformer isolated balanced input allows simple connection to all intercoms, help points and kiosk systems, making the HLS-DM1 the obvious choice for any quality intercom system.

HLS-DM1 Shown at actual 1:1 scale (90.5x72x9mm)

Features

- **Compact & lightweight**
  Ideal for low profile OEM integrations
- **Low power consumption & simple integration**
- **Area coverage of up to 56m^2**
  Two turn perimeter loop @ 1:1 ratio
- **Localised area loops**
  Counters, walls, panels etc
- **Low lifetime cost**
  Excellent reliability, 5 year warranty & free technical support
- **Power supply**
  12-24V DC
- **Transformer isolated input**
- **Mic Input**
- **Metal loss correction**
- **Unrivalled intelligibility**

Applications include:

- **Intercom systems for most environments:**
  - Lifts / elevators
  - Help & information points
  - Refuge points
  - Door entry systems
  - Car parks & toll booths
  - Security barriers & drive throughs
- **Information points & kiosks**
- **Interactive exhibits**

Small area perimeter loop applications

For small areas a loop can be placed in the floor or ceiling where it is practical. This application is particularly suited to installation on elevator ceilings and use of flat copper tape under carpets. Installation of loop wire in concrete screed is possible with correctly specified cable/insulation.

- Small floor / ceiling loop
  (minimum 0.8m square)
  This is the preferred method, where viable.
- Elevator ceiling loop
  (maximum 1.6 x 2.4m square)
  Requires careful design due to the inherent metal loss within the structure.

Figure 1: Elevators

Localised vertical loop applications

For local loops at general intercoms, information points, drive-throughs and small interactive exhibits, there are a number of solutions depending upon installation practicality.

- Small vertical loop surrounding the intercom recessed into wall / brickwork (right)
- Small vertical loop below intercom, in panel or on wall
  Produces a more varying field strength but may be easier to install
- Smaller loop inside intercom case (see figure 2)
  Greatest field strength variation but may be only practical option
  Often not viable if enclosure is mild steel or aluminium

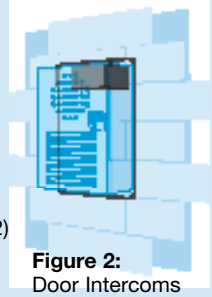


Figure 2: Door Intercoms

In all cases, the number of loop turns and wire type depends on the loop size and your application - contact Ampetronic for advice.

Perimeter Loops Area Coverage

The HLS-DM1 can be used to cover a small area using a two-turn perimeter loop* at floor level for seated and standing use.

Room aspect ratio	1:1	2:1	3:1
Maximum area m^2	56	50	48

* Wire must be 1.5mm^2 for optimum audio performance in maximum areas shown - see handbook for maximum area with each wire size. Contact Ampetronic for further advice or if best choice is unclear.

HLS-DM1 Product Information

Power supply and consumption

- 12-24V DC: Typical local DC supply inside equipment where another supply is already present.

Whilst the HLS-DM1 draws less than 2.9W @ 12V DC with typical signals, you should still check that any existing supply has enough spare capacity.

Standards Compliance

Safety, EMC

The HLS-DM1 is CE marked to indicate compliance with relevant product safety and EMC standards.

Loop Performance

The HLS-DM1 will allow an Audio Frequency Induction Loop system that meets the requirements of IEC 60118-4 to be created, if the system is specified, installed and commissioned in an appropriate manner, including observing Ampetronic instructions.

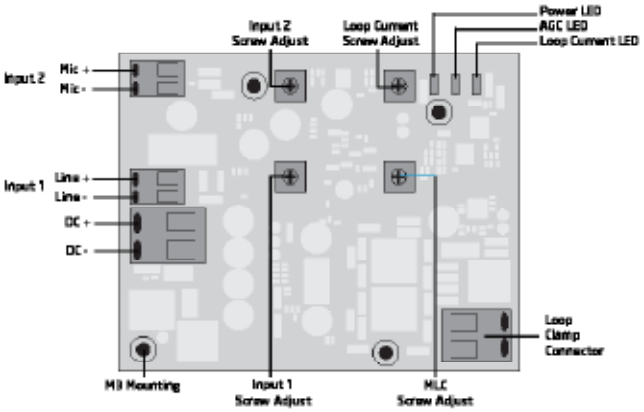
Datasheet & Specifications

All information specified on this datasheet has been complied in accordance with the IEC 62489-1: 2010+A1:2014 Standard and reflects actual performance in realistic applications.

Installation Advice:

Group connections to input 1/2 with DC power cabling. Keep the loop feed cable separate from other connections.

When mounting the unit leave clearance above and below the board to meet relevant safety Standards. Mount using 4 x M3 machine screws (with spacers if required) or insulated adhesive pad(s) on the reverse side of the board.



INPUTS

Power Supply	**Standard format: 12V DC**	
	Connector:	Wago 2061 cage clamp for 0.5 - 1.5mm² solid core or untinned fine stranded wire.
	Nominal voltage:	12-24V DC
	Min/Max Voltage:	8-30V DC
	Fuse:	1.5A PTC
	Power Consumption:	2.88W (240mA) continuous pink noise
	(12V DC supply)	9.2W (765mA) continuous sine
		<0.6W (<50mA) quiescent
		0.17W (14mA) quiescent Power Save
		14.4W (1200mA) max short term peak
	Indication:	LED on PCB
Input 1	Connector:	Wago 2060 cage clamp for 0.2 - 0.75mm² solid core or untinned fine stranded wire
Line Level	Rated source impedance:	1.8kΩ differential,
(Lo Z speaker)	Input isolation:	1500V
	Rated source EMF (sensitivity):	-16dBu for full output
	Overload:	>+22dBu
	SnR:	>90dB
	Adjustment:	Level control, per channel
Input 2	Connector:	As Input 1
Mic Level	Rated source impedance:	10kΩ
(unbalanced electret)	Bias:	12V through 11kΩ
	Rated source EMF:	-55dBu
	Overload:	-23dBu
	SnR:	>90dB
	Adjustment:	Level control, per channel

OUTPUTS

Loop Output	Connector:	Wago 2061 cage clamp for 0.5 - 1.5mm² solid core or untinned fine stranded wire.
	Compliance voltage:	$4.2V_{RMS}$ ($6V_{pk}$)
	Max output current (sine):	$3A_{RMS}$
	Rated temperature limited output current (pink):	$1.5A_{RMS}$
	Rated time for delivery:	1min
	Rated THD:	<1%
	Output Impedance:	>9Ω
	Current Adjustment:	Full range
	Current Indication:	LED indicates $>1A_{RMS}$
Loop Impedance	0.3Ω to 1Ω, 1.3Ω reactive at 1.6kHz	
	Rated Load:	80uH, 0.5R

AUDIO SYSTEM

Freq. Response	100Hz to 5kHz ±1.5dB relative to 1kHz at low level, measured as loop current with no metal loss correction.	
Compression (AGC)	Time constants optimised for speech	
	Dynamic range:	>36dB
	Control:	by adjusting input level/gain
	Indication:	LED on PCB
Metal Loss Correction	0dB to 3dB / octave boost	
	Adjustable	

PHYSICAL

Dimensions	**Power Option:**	**12V DC**
	Width	72mm
	Length	90.5mm
	Height	9mm + mounting clearance
Weight	44g	
Environment	IP00: (PCB for integration) <90% relative humidity, -30 to 75 ℃ Heat dissipation <3W maximum, normally less	

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