

## CLS2

The Ampetronic CLS2 is the second unit in a series of induction loop drivers aimed at the demands of the electrical and audio-visual contractor.

Designed for simple discreet installation, the CLS2 is the most capable driver in its class. The amplifier is very compact, yet the most powerful unit available designed specifically for wall mounting. All connections and controls are secured behind a tamper resistant, hinged, detachable cover. Combined with its small size, the range of mounting and cabling options ensure that installation is convenient and tidy in any environment. Input options are extensive, with four independent inputs for balanced microphone, balanced and unbalanced line, low impedance and 100V - line speaker systems, plus priority alarm, doorbell or telephone connections.

Backed by Ampetronic's standard 5 year warranty and comprehensive support services, the CLS2 is truly fit and forget.



## Features

- **Quick and simple to install**
- **Area coverage to >400m<sup>2</sup>**
- **Highest power loop driver in class**
- **4 independent configurable inputs**
- **Wall mounted**
- **Metal Loss Correction**
- **5 Year warranty**
- **Cabling and controls behind tamper resistant cover**
- **2 Priority alarm inputs**
- **Free Technical support**

## Applications include

- **Community Centres**
- **Board rooms**
- **Churches**
- **Interview rooms**
- **Meeting rooms**
- **Classrooms**

### Perimeter Loops – Area Coverage (maximum)

Room aspect ratio	1:1	2:1	3:1
Maximum area m <sup>2</sup>	250	310	400

For any Induction Loop System, area coverage is dependent on several factors. Please check these assumptions and contact Ampetronic for advice if required:

- Loop must be 1-2m above or below the receiver height
- There should be no metal structures in the plane of the loop
- Sufficient voltage to drive the loop – check the cable table below

### Maximum Cable Length

The CLS2 is designed for SINGLE TURN loops for optimum audio quality:

- Loops with DC resistance from 0.2Ω
- Impedance up to a maximum of 1.3Ω

Maximum cable length is dependent on cable type and on the application:

Cable type	Maximum Total Cable Length (m)	
	Normal use	Transient speech
1.0mm <sup>2</sup> copper	49	57
2.5mm <sup>2</sup> copper	67	85
4.0mm <sup>2</sup> copper	70	91
1.8mm <sup>2</sup> flat copper tape	87	101

# CLS2 Product Information

The CLS2 enclosure is designed for simple, permanent installation, with secure lid protecting connections and controls, while leaving operation indicators visible. The case is designed to make access simple, and to ensure the amplifier can be installed in the most constrained spaces.

## Mounting

Designed for vertical panel mounting using 4 screws (6 holes provided). Template for screw placements provided. The CLS2 is compact enough to fit on a 1U rack tray with feet removed.

## Enclosure access

Hinged lid, secured by 2 Phillips PH2 screws. Lid can be removed completely, if required for ease of access, or if there is no room to hinge the lid forwards.

## Cable routing

Knock-outs (diameter 20mm) are provided for routing cables into the enclosure. 2 on the top edge, 4 on the rear face, 4 on the bottom edge, providing excellent installation flexibility.

## Cable connections

All input cable connections are made with screw terminals mounted on one side of the PCB. Mains power connections are made to a chassis mounted screw terminal block. Loop connection is made to a screw terminal pair mounted on the PCB. Cable connections are illustrated on a detailed label on the case interior.

## Indicators

3 LED indicators are visible with the case open or closed:

- AGC (Amber) LED lit when input signal is activating the automatic gain control
- Current (Green) LED lit when current is running in the loop
- Power (Green) LED lit when the unit has power

## Controls

Five controls are located to be accessed only with the lid open, all screwdriver adjustable.

- Level controls for inputs 1, 2, 3 and 4
- Metal loss correction
- Loop drive current



## INPUTS

<b>Input 1</b>	Input 1 Balanced Mic, balanced or unbalanced line Input impedance 10k $\Omega$ per side Min level (MIC / Line) -73dBu / -31dBu Max level (MIC / Line) -37dBu / +5dBu Phantom voltage MIC only +12V
<b>Input 2</b>	As Input 1 mic level Balanced mic Input impedance 10k $\Omega$ per side Min level -73dBu Max level -37dBu Phantom voltage +12V
<b>Input 3</b>	Balanced or unbalanced line, expansion port Input impedance 1M $\Omega$ per channel Min level -33dBu Max level +3dBu
<b>Input 4</b>	Isolated 100V line or low impedance mono or stereo speaker Input impedance 100V Line / spkr 120k $\Omega$ / 7.8k $\Omega$ Min level 100V Line / spkr +14dBu / -9dBu Max level 100V Line / spkr >+47dBu / >+27dBu
<b>Alert 1</b>	When energised, turns down the other inputs and produces a 520Hz square wave tone on the loop. Min / max input voltage 5V- 24V ac/dc
<b>Alert 2</b>	A pair of contacts which when shorted turns down the other inputs and produce a pulsed 520Hz square wave tone on the loop.
<b>AC power input supply</b>	230V 30Ws 45-65Hz 120V option available (ETL Approved) Connected via chassis mounted screw terminal block
<b>Input fuse</b>	230V version - T250mA / 120V version - T500mA

## OUTPUTS

<b>Drive voltage</b>	>7.1V <sub>rms</sub> - 10.0V <sub>pk</sub>
<b>Drive Current</b>	Continuous 1kHz sine wave >4.9A <sub>rms</sub> 7.0A <sub>pk</sub> Short term peaks >7A RMS 10A <sub>pk</sub>
<b>Minimum Loop Resistance</b>	0.2 $\Omega$
<b>Maximum Loop Impedance</b>	1.3 $\Omega$

## AUDIO SYSTEM

<b>Frequency Response</b>	80Hz to 6.3kHz $\pm$ 3dB
<b>Distortion</b>	THD+N <0.5% 1kHz sine at 2.33A <sub>rms</sub>
<b>Automatic Gain Control</b>	(AGC) Optimised for speech. Dynamic range >36dB
<b>Metal loss correction</b>	(MLC) 0 to 3dB per octave frequency correction (1kHz remains constant). Control mounted on PCB.

## PHYSICAL

<b>Cooling</b>	Natural convection
<b>Environment</b>	IP20, -10°C to +40°C
<b>Dimensions</b>	W, H, D: 200mm, 200mm, 44mm
<b>Weight</b>	1.8kg
<b>Mounting</b>	Wall mounting, secured by 4 screws

### Standards Compliance

The CLS2 is CE marked to all relevant safety and EMC standards, including EN60065 and EN55103. Safe operation is subject to correct installation. Using the CLS2, an Audio Frequency Induction Loop system that meets the requirements of IEC 60118-4 can be created, if the system is specified, installed and commissioned in an appropriate manner, including observing Ampetronic instructions.

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