CLD1 INSTALLATION HANDBOOK

Handbook Contents

- Safety
- Introduction
- Quick Start
- Installation
- Operation
- Troubleshooting
- Technical Specification
- Warranty
- Declaration Of Conformity

Box Contents

1 x CLD1
1 x AC to12V_{DC} power adapter
1 x A6 Induction loop logo
1 x 'CLD1 Installation Handbook''
1 x Loop coil and fixings
1 x Microphone option (if requested)

This symbol is used to alert the user to important operating or maintenance instructions.
The Lightning bolt triangle is used to alert the user to the risk of electric shock.

SAFETY

1. It is important to read these instructions, and to follow them.

2. Keep this instruction manual in an accessible place.

3. Do not install this equipment near any heat sources such as radiators, heating vents or other apparatus that produces heat.

4. Refer all servicing to qualified personnel.

   WARNING: Disconnect power before servicing or replacing fuse.

5. The amplifier generates some heat during normal operation and needs adequate ventilation.

   WARNING: Do not install the apparatus in a fully enclosed space.

6. No objects filled with liquids, such as vases, shall be placed on the apparatus.

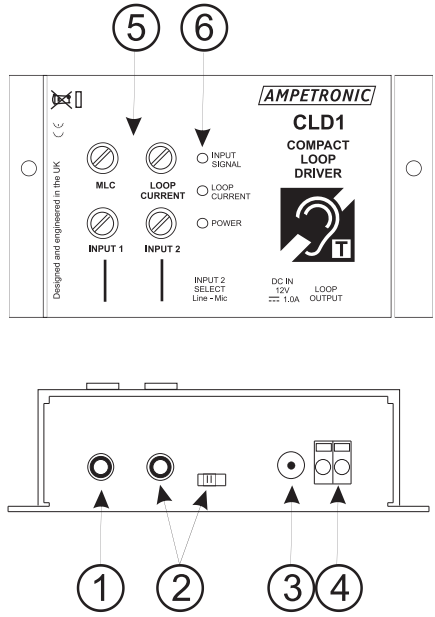
   WARNING: Do not expose to dripping or splashing.

7. Clean only with a dry cloth.

INTRODUCTION

The CLD1 Compact Loop Driver has been designed as a high quality stand-alone induction loop driver for ticket counters, banks or other point of sales systems.

The unit is designed to drive the standard multi-turn loop coil (if supplied), or a small area perimeter loop up to an area of 40m². Consult designing induction loops handbook for more details.



The CLD1 features include:

① Microphone input - for use with unbalanced electret microphones.

② Selectable microphone or unbalanced line level input. (Mic' mode as above)

③ 12V_{DC} input - suitable AC power adapter supplied.

④ Loop output with spring clamp connections.

⑤ Individual level controls for each signal input, MLC (Metal Loss Correction) style tone control and loop output.

⑥ Separate indication of power, input signal and loop current for easy set up.

QUICK START

1. Fit CLD1 to a panel or wall under the counter, away from contact by the system user. Ensure the cables are positioned such that they are not vulnerable to damage and are unlikely to be snagged or disconnected from the unit.
2. Fit either the loop coil (provided) or perimeter loop:

   • Unfold the loop coil and fit vertically inside the front panel of the counter using the adhesive fixings provided. The top of the loop coil should ideally be at a height of 800mm above the floor.

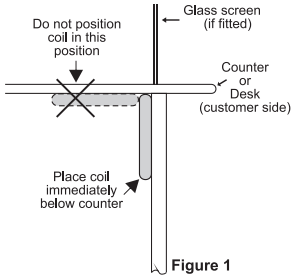


Figure 1

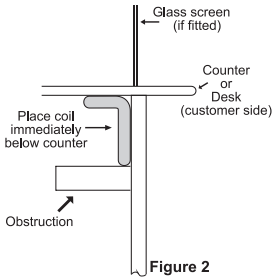


Figure 2

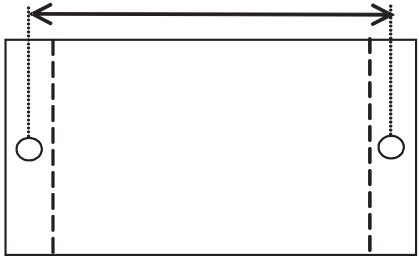
   • If a perimeter loop is to be used, the feed wires to the amplifier should be twisted together. See 'Designing Induction Loops handbook' for details.

3. Connect the loop wires to 'LOOP OUTPUT' terminals. Polarity is not important. To insert the wire, open the spring clamps using a lever action with a small flat bladed screwdriver.
4. Connect signal to 'INPUTS 1 and 2' as required *(see:* ***Connection details****)*.
5. Position 'INPUT 2 SELECT' slide switch for Line or Mic as required.
6. Using a small flat bladed screwdriver, turn 'INPUT 1', 'INPUT 2', 'MLC' and 'LOOP CURRENT' controls fully anticlockwise (minimum).
7. Connect 12V_{DC} adapter to 'DC IN' socket on the unit. Connect adapter to AC supply.
8. Switch on external AC power: Check green 'POWER' LED illuminates.
9. Apply input signal (e.g. by speaking into mic') and increase corresponding 'INPUT 1 or 2' control until the green 'INPUT SIGNAL' LED begins to light.
10. Repeat item 9 for the second input (if used). *Only apply one audio signal at a time when setting up the system.*
11. Adjust the 'LOOP CURRENT' control until the yellow 'LOOP CURRENT' LED lights at peaks in the input signal.
12. Test the performance of the system using a loop receiver or field strength meter and adjust 'MLC' & 'LOOP CURRENT' to achieve acceptable performance.

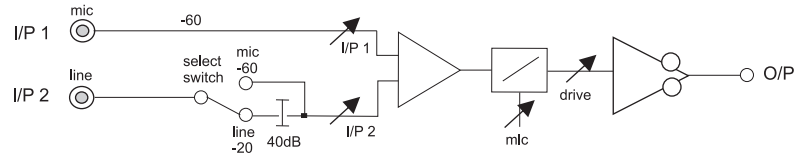
Note: Once the 'LOOP CURRENT' control is set, do not adjust it again.

MOUNTING DETAILS

Fixing hole centres 117mm apart



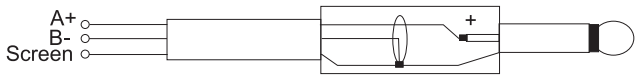
BLOCK DIAGRAM



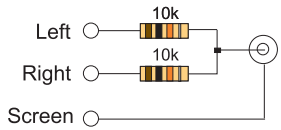
CONNECTION (LINE LEVEL INPUT)

Balanced Input

Connect screen and -ve signal lead together

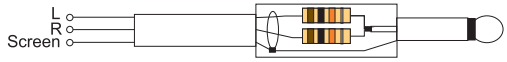


Stereo Source



Keep all wires very short

Ideally fit the two 10k, ¼W, summing resistors within the body of the jack plug



INSTALLATION

Tools

You will require the following:

- Small flat bladed screwdriver
- Screws, fixings and appropriate tools for mounting CLD1 on wall etc.

Location

The amplifier should be mounted where:

- It is in close proximity to the loop.
- it is protected from drips or sprays of water.
- it is not vulnerable to mechanical damage.
- the controls can be accessed during set-up.
- the cables will not be inadvertently caught or pulled out from the unit.
- any heat generated during normal operation can escape.
- The induction loop itself is a critical to correct system performance, either:
- Unfold the loop coil and fit vertically inside the front panel of the counter using the adhesive fixings provided. The top of the loop coil should ideally be at a height of 800mm above the floor. See diagram in Quick start.
- To cover a larger area, a perimeter loop using 0.5mm^2 to 1.5mm^2 cross-section wire or equivalent. Return the feed to the amplifier with a twisted pair. Refer to 'Designing Induction Loops handbook' for details.

Please consult Ampetronic if you need more advice about the loop design.

Connections

LOOP: Connect the loop cable to the 'LOOP OUTPUT' socket.

1. Open the spring clamp terminal - insert a flat bladed screwdriver into the small slot above the hole.
2. Insert the wire (remove 7mm of insulation from end).
3. Remove the screwdriver - clamping the wire in place.

INPUTS: Both inputs are 3.5mm two pole (mono) jack sockets. They will not interface directly to any stereo signal source. Connect inputs as shown in the connection details.

INPUT 1 Unbalanced electret microphone only.

INPUT 2 Microphone as INPUT 1, or Line level input. *Note: Set the 'INPUT 2 SELECT' switch to the appropriate position for the type of signal source used.*

DC POWER: The 'DC IN' socket accepts 12V_{DC}. Connect the 12V_{DC} power supply provided to a convenient AC power socket.

OPERATION

1. Using the small flat bladed screwdriver, ensure that 'INPUT 1', 'INPUT 2', 'MLC' and 'LOOP CURRENT' controls are fully anti-clockwise (minimum).
2. Switch on external AC power supply. Check green 'POWER' LED on CLD1 illuminates.
3. Apply input signal and increase corresponding 'INPUT 1 or 2' control until the green 'INPUT SIGNAL' LED begins to light.
4. Repeat item 3 for the second input (if used). *Only apply one audio signal at a time when setting up the system.*
5. Adjust the 'LOOP CURRENT' control until the yellow 'LOOP CURRENT' LED lights at peaks in the input signal.
6. Listen to the audio signal using an induction loop tester or headphone receiver (such as the ILR3) whilst standing in the area covered by the loop. Check that adequate volume is received (volume control at mid-position on the ILR3).
7. Adjust the 'MLC' control for best sound quality.

TROUBLESHOOTING

For correct operation, with input signal(s), you should have the following LEDs illuminated:

'POWER' (Green)

'INPUT SIGNAL' (Green) only whilst audio signal is applied to an input

'LOOP CURRENT' (Yellow) only at peaks of audio signal

Power LED not illuminated

No $12V_{DC}$ power to unit -	Check cable has not been unintentionally disconnected.
No external AC power -	Check cable has not been unintentionally disconnected. Ensure external AC power supply is switched ON.
Internal Fuse Blown -	Disconnect from supply and fit a correctly rated replacement. See **SAFETY** clause 4.

INPUT SIGNAL LED not illuminated at any time

No inputs connected -	Connect an input as described in **INSTALLATION.**
'INPUT' control too low -	Adjust control as appropriate see: **OPERATION.**
Input signal level too low -	Check that signal level is the correct level for the chosen input see: **TECHNICAL SPECIFICATIONS**

'LOOP CURRENT' LED not illuminated (even at peaks of signal)

Loop not connected or open circuit - Check loop continuity using a resistance meter.

'INPUT SIGNAL' LED not illuminated - See above.

'LOOP CURRENT' control too low - Adjust control as appropriate see: **OPERATION.**

Low or no field received in the loop area

If 'LOOP CURRENT' LED is illuminated, but no field is received in the loop area, either:

the loop is installed in the wrong place, or

there is a short circuit between the ends of the feed cable.

If 'LOOP CURRENT LED is illuminated, but there is only a very low or dull field strength.

there is significant metal in the desk / counter near the loop consult Ampetronic.

If 'LOOP CURRENT' LED is not illuminated - See above.

TECHNICAL SPECIFICATIONS

CLD1 Power Supply:

Supply range:	12-15V_{DC}
Nominal voltage:	12V_{DC}
Fuse:	T 1.6A L

Supply currents (with nominal voltage):

Nominal (pink noise):	600mA
Quiescent:	55mA
Maximum:	1.0A

'DC IN' terminal:
Centre positive (+) concentric socket.
Ø = 5.5mm/2.1mm.

12V_{DC} Power Adaptor Supply (AC):

Refer to markings on unit supplied.
Must be capable of delivering 1.0A from 12V_{DC} output.

Audio signal inputs:

2-pole 3.5mm Jack sockets

INPUT 1:

Input Impedance:	8.5kΩ
Sensitivity:	-60dBu (775uV_{rms})
Overload:	-13dBu (173mV_{rms})

Microphone cables must be <= 3m

INPUT 2:

Line - Mic mode selectable with switch.

'Mic' mode: same as Input 1

'Line' mode:

Input Impedance:	820kΩ
Sensitivity:	-20dBu (77.5mV_{rms})
Overload:	+20dBu (7.75V_{rms})

Note: This input is not isolated.

Compression (AGC):

40dB dynamic range
Controlled by adjusting input level.
Attack and decay time constants optimized for speech.

Loop Design:

Standard loop coil (supplied) or perimeter loop. See 'Designing Induction Loops Handbook' for details.
Consult Ampetronic for advice.

Loop Output:

Current: >2.4A_{RMS} or 3.4A_{pk} @ 1kHz
Voltage: >3.2V_{RMS} or 4.5V_{pk} @ 1kHz
Loop Resistance: 0.3Ω to 1.0Ω
Loop Impedance: 1.3Ω max @ 1.6kHz.
Spring terminal connections accept stranded or single core wire.
Acceptable wire gauge:
CSA: 0.5 to 1.5mm^2
AWG: 22 to 16.

Frequency Response:

80Hz - 5.0kHz ∀ 1.5dB, at low level measured as loop current with no MLC.

MLC (Metal Loss Correction):

0dB to 4dB per octave boost.
Fully anticlockwise - flat response.

Environmental:

Ambient temperature: -20°C to +50°C
IP rating: Ip20.

Physical:

Weight:	280g
Width:	127mm
Height:	35mm
Depth:	75mm

Standards:

Meets relevant CE, EMC and safety standards.
IEC 60118-4 AFILS

Please contact Ampetronic if you need further assistance.

WARRANTY

This product carries a five year parts and labour warranty from date of shipment from Ampetronic. To qualify for the five year warranty, the product must be registered at www.ampetronic.com (products/warranty), without which the warranty will be valid for two years only.
The warranty could be invalidated if the instructions in this handbook are not followed correctly, or if the unit is misused in any way.

Note: The power adapter supplied with this product is only covered by the manufacturers warranty period.

DECLARATION OF CONFORMITY

Manufacturer: Ampetronic Ltd.,
Northern Road,
Newark,
Nottinghamshire.
NG24 2ET
United Kingdom.

Declares that the product:

Description: Induction Loop Driver
Type name: CLD1

Conforms to the following Directive(s) and Norm(s):

Directive 2004/108/EC
EMC: EN55103-1 : 2009 Emission
EN55103-2 : 2009 Immunity

Directive 2006/95/EC
Safety: EN 60065:2002:+A12:2011

Directive 2011/65/EU RoHS

Date: December 2012
J.R. Pieters
Managing Director
Ampetronic Ltd.