ILD14 HANDBOOK

Handbook Contents

- Safety
- Overview
- Quick Start
- Installation
- Troubleshooting
- Technical Specification
- Warranty
- Declaration Of Conformity
- Accessories

Box Contents

1 x ILD14 Amplifier
1 x Earth crimp terminal
1 x Spiral mains cable wrap
1 x 2 hole sealing insert
1 x 4 hole sealing insert
1 x T200mAL fuse for 115V ONLY

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. WARNING THIS APPARATUS MUST BE EARTHED. (AC Version only)

5. The ILD14 is designed to be permanently connected apparatus and must be installed with all applicable installation regulations. A readily accessible disconnect device shall be incorporated in the building installation power wiring.

6. Mount the ILD14 with the wiring entering from the bottom of the unit if possible. Failure of, or incorrect seating of any of the cable glands, may allow liquid or moisture to enter the unit.

7. Refer all servicing and installation to qualified personnel.

8. The amplifier generates some heat during normal operation and needs adequate ventilation. It should not be fitted in a fully enclosed space.

9. Ensure the mains power cable is properly secured and insulated by using the spiral wrap supplied. Ensure earth is connected to chassis (AC Version only) see installation.

10. Fit the correct sealing insert in each gland according to the type of wire used, 2 wire, 4 wire or round section. Where all three inputs are used and the Status output, you will need to use a multicore type cable consisting of multiple twisted pairs having a round outer profile.

INTRODUCTION

The ILD14 has been designed as a high quality stand alone induction loop driver suitable for use with low level systems in transport environments, car parks, help points, speech security barriers, information points & interactive exhibits. It is intended to be used in harsh environments, being waterproof and fire safe.

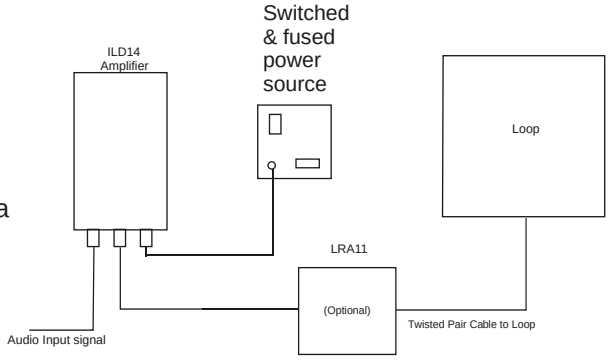
The ILD14 has three inputs that allow connection to a 100V line system and two line inputs. One line input can be specified as a microphone input at no extra cost by special order. A loop monitor function provides unit status during operation. The ILD14 is available in either 230/115V AC or 12VDC.

Connections are via vibration proof cage clamp terminals which are quick and easy to connect. The ILD14 will cover an area up to 40m^2.

Also available is the LRA11 (Loop ratio adapter) which may be used in specialised design applications.

GETTING IT ALL TO WORK - THE BASICS

The ILD14 is very easy to use. All you need is a power source, a signal source and a loop wire (Consult Ampetronic for loop design details)

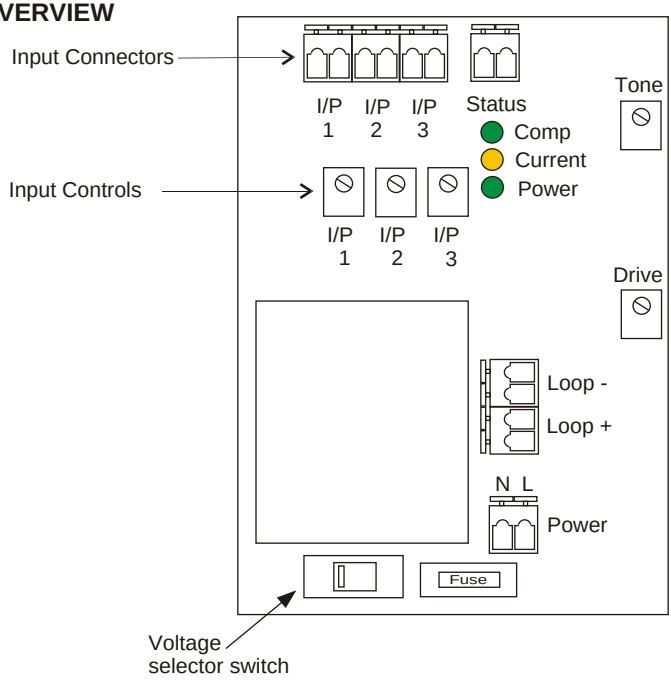


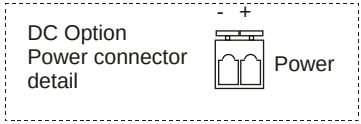
QUICK START

For those who have a good appreciation of loop systems, the following is a very quick guide to setting up the amplifier:

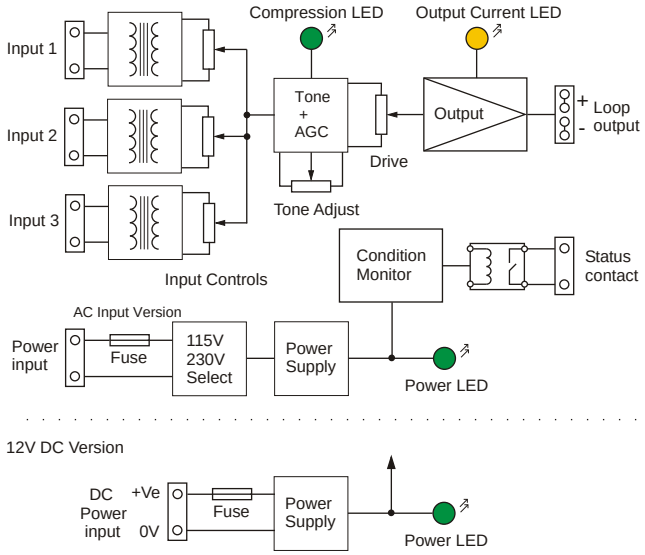
1. Turn all controls fully anti-clockwise.
2. Connect loop cable.
3. Connect signal input(s).
4. Connect power. See point 9 in Safety Section.
5. Switch on - Check green LED illuminates to show power OK.
6. Increase the INPUT control until the green compression LED begins to light with a normal signal.
7. Adjust each INPUT level in turn. Repeat step 6 for *each* input used.
8. Adjust the DRIVE control until the amber Loop Current LED lights at peaks in the input signal NOTE: Once the DRIVE control is set, do not re-adjust it.
9. Monitor the output and adjust the Tone control for best sound quality.

OVERVIEW

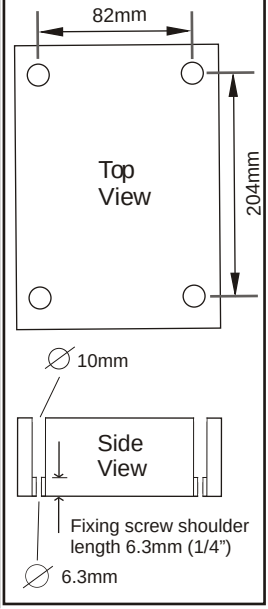




Block Diagram



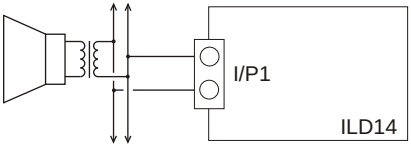
Mounting Details



Inputs

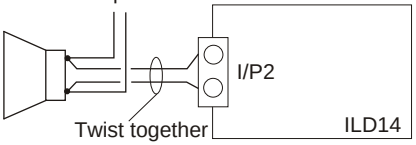
Input 1

100V speaker line



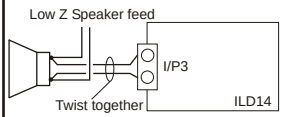
Input 2

Low Z Speaker feed

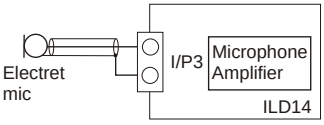


Input 3

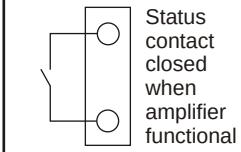
Input 3 Normal

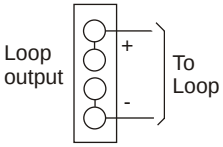


Input 3 Factory Fitted Option



Outputs





4 Terminal output to allow for "Star Quad Cabling"

INSTALLATION

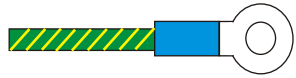
Location

The amplifier is designed to be mounted in harsh environments and is fully waterproof and fire safe. Ideally, mount the unit vertically with the cables exiting from the bottom. Ensure adequate ventilation as the amplifier will get warm during normal operation.

Tools

Other than general small electrical handtools you will need 17mm and 19mm combination spanners, a pair of crimping pliers to connect the safety earth bonding tag to the incoming mains lead. Ampetronic recommends a ratchet crimper for this.

Fit crimp to incoming mains earth wire and fix securely to case



Cable Glands.

The ILD14 is supplied with three cable glands - one for each: input power, input/control signals & loop output. The sealing insert can clamp over the range of 5mm - 9mm diameter. Cables with a circular cross-section should be used, for example 3-core AC input with conductor size 0.5 to 1.5mm^2.

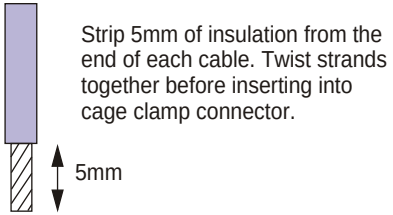
Sealing inserts are provided for twisted-pair connections, so as to ensure correct IP-rated sealing of the unit for the signal inputs or loop output. Use of the 2-wire or 4-wire insert will requires the removal of the standard single cable insert.
The two-wire sealing insert is 2 x 4.5mm maximum cable diameter.
The four-wire sealing insert is 4 x 3.5mm maximum cable diameter.

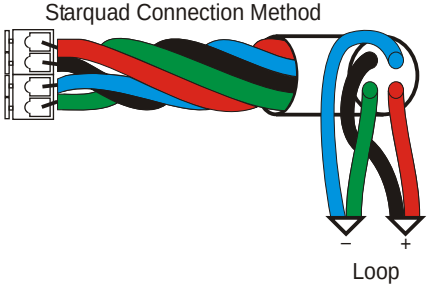
Operation

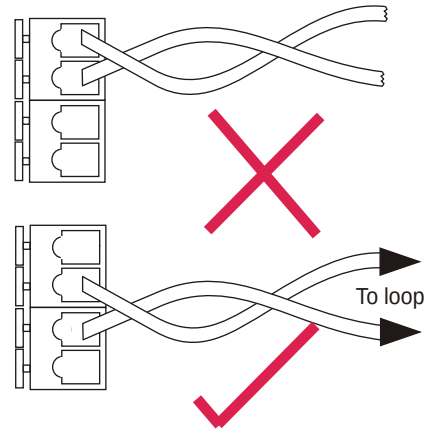
The ILD14 is normally supplied as a 115V / 230V AC input. A 12V DC input version is available. Make sure you have the right voltage supply and selection before switching on the supply

1. Turn all controls fully anti-clockwise.
2. Connect the loop cable ends to the loop output connector as shown. Make sure that the feed cable (the section of loop wire between the amplifier and the loop) is tightly twisted and less than 20m in length. Longer lengths of feed cable introduce loss and so provision has been made to use four core cable wired in a “starquad” configuration to overcome this limitation. Opposite wires are connected together as shown in the drawing. Just before connecting the loop into the amplifier, test the loop resistance. It must measure between the limits given in theTechnical Specification.
3. Connect the input signal(s) to the appropriate inputs. 100V line input to circuit 1, other inputs to circuits 2 and 3 as appropriate. You may use any input singly or in any combination. Keep the input cables and output cables separated.
4. Connect the ILD14 to the power source. See point 9 in Safety Section.
5. Switch on and check the power LED illuminates.
6. Select one input. Turn up the associated Gain control until the green Compression LED begins to illuminate.
7. Turn the Drive control clockwise until the Loop Current LED lights at peaks in the input signal. Once set, there is no need to adjust the Drive control again.

8. Repeat item 6 for each input used. When adjusting each input, make sure that the signal(s) are removed from the other inputs. This ensures that all signals are set to equivalent loudness and drive the compressor properly.
9. Monitor the output using an induction loop tester or headphone receiver (such as the ILR3) for adequate volume. Adjust the Tone control for best sound quality.
10 Connect the Status contact to an external signaling / monitoring system if required. Do not exceed the switching capacity.







TROUBLESHOOTING

No Power:
Check fuse and replace with correct rating if blown. Check correct voltage setting of voltage selector switch 230V/115V.
DC version only: Check fuse and replace with correct rating if blown. Check correct orientation of DC power supply cables.

No compression:
Check input connections.
Check that there is sufficient signal level for the required input; i.e. 100V Line level, 10V (22dBu) minimum signal is required for I/P1.
Speaker levels will be insufficient to drive I/P1.
Check that for speaker inputs the drive level is sufficient; i.e >78mV (-20dBu).

No Drive current:
Check loop output connections: check that one wire is connected to the + output and the other wire to - output.
Check loop cable for open circuit.

No Status:
Check for correct supply voltage. 12V DC version must not be less than 12V for correct operation. AC version: supplies must not be below 207/103V.

Accessories

Loop Ratio Adapter (LRA11). Weight 1.32 kg.
Allows connection to specialised high current loops e.g. as used in help points.

N.B Contact Ampetronic technical dept.in order to discuss your requirements.

TECHNICAL SPECIFICATIONS

Power Supply (AC):

Nominal Supply Voltage:230V 45-65Hz
Fuse:T100mA L
Supply current (Max):83mA
Supply Current (Quiescent):70mA

Nominal Supply Voltage:115V 45-65Hz
Fuse:T200mA L
Supply current (Max):166mA
Supply Current (Quiescent):140mA

Power Supply (DC):

Nominal Supply Voltage:15V
Range:12V - 18V
Fuse:T1.6A L
Supply Current (max):1A
Supply Current (Quiescent):65mA

Inputs:

Transformer isolated (1500Vac minimum) floating input.

Input 1 (100v Line PA):

Input Impedance:120kΩ
Sensitivity:+22dBu ($10V_{rms}$) for full output
Overload:>+47dBu ($170V_{rms}$)

Input 2 (Low-Z speaker):

Input Impedance: 4kΩ
Sensitivity: -20dBu ($78mV_{rms}$) for full output
Overload:>+19dBu ($6.8V_{rms}$)

Input 3 As input 2 but with mic option (factory fitted):

Mic Option:
Input Impedance: 8kΩ
Sensitivity:<-60dBu ($1mV_{rms}$) for full output
Overload:>-10dBu ($245mV_{rms}$)
Suitable for electret type microphones (8Vdc bias voltage).

Compression (AGC):

40dB dynamic range
Compression controlled by adjusting input level

Loop Design:

Depends on application.
See Application notes or consult Ampetronic

Outputs:

Current: >3A peak into 1Ω
Voltage: >4.5V peak
Loop Resistance: 0.3Ω to 1Ω resistive or 1.5Ω max impedance reactive @ 1.6kHz
Connection: Cage clamp vibration proof. push to connect.
Status: Isolated contact (>1500V isolation), closed when amplifier functional.
Contact rating 1.25A @ 24Vdc, 0.4A @ 125Vac
Silver alloy contacts.

Frequency Response:

80Hz - 5kHz ± 1.5dB at low level measured as loop current with no metal loss correction.

Tone (Metal Loss Correction):

0 dB to 4dB / Octave boost.
Fully anticlockwise - flat response.

Environmental:

Ambient temperature:-30°C to + 75°C
IP rating: IP65 external use.
Fire rated enclosure.

Physical: Weight: 1.97kg
Length: 220mm
Width: 120mm
Height:85mm

Standards:

Meets Relevant CE, EMC and safety standards.
EN 60065 safety requirements
IEC 60118-4 AFILS

Please contact Ampetronic if you need further assistance.

WARRANTY

This product carries a five year parts and labour warranty which could be invalidated if these instructions are not followed correctly, or if the unit is misused in any way.

The five year warranty is dated from the time the equipment leaves Ampetronic and NOT when it is installed.

DECLARATION OF CONFORMITY

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

Declares that the product:

Description: Induction Loop Driver
Type name: ILD14

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

Directive 89/336/EEC
EMC: EN55103-1 : 1997 Emission
EN55103-2 : 1997 Immunity
Directive 73/23/EEC
Safety: EN60065: 2002

Date June 16th 2005
Leon Pieters
Technical Director,
Ampetronic Ltd.