

Variants

PDA101S For TV lounges etc.
Specification as PDA101L but the microphone is replaced by a SCART lead
30metres of 0.5mm² loop cable supplied.

PDA101C For ticket counters
Specification as PDA101L but loop cable replaced by easily installed TxBI loop pad
PDA101M microphone supplied.

Specification

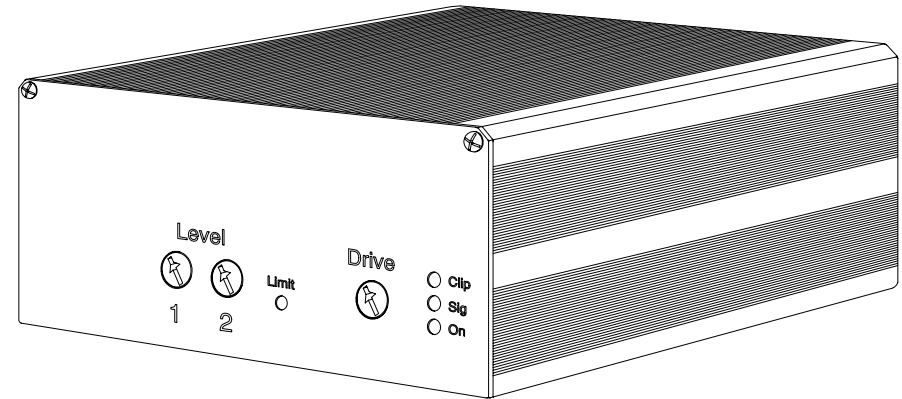
Inputs	Two 3.5mm Mono Jack socket
Microphone	Impedance 1 KW Sensitivity -92 dB to -43 dB Phantom 2.5 V on tip, max current 0.25mA
Line	Impedance 47 KW Sensitivity -30 dB to -12 dB
Performance	Dynamic range >75 dB Noise <-72 dB
Input level control	Switchable between mic and line for each input Microphone adjustable -∞ to -56dB Line adjustable
Bandwidth	40 Hz to 15 KHz, 0 dB line input -52 dB mic input 40 Hz to 8 KHz, -24 dB line input -77 dB mic input
Output Drive current	Max 3.12 A Peak Max 1.42 A RMS 1 KHz
Loop coverage	50m ² max. - must use 0.5mm ² cable or TxBI counter loop pad
Loop impedance	0.2W to 1.2W
Power requirements	Mains voltage 230V AC ± 20% Consumption < 20VA 2m mains lead and fused plug provided
Fuses	Plug top 3A Internal mains fuse 250mA 20mm (HRC)
Dimensions	Width 110mm Height 52mm Length 133mm Weight 785g Packed weight 1640g

No responsibility can be accepted by the manufacturers or distributors of this product for any misinterpretation of an instruction or guidance note or for the compliance of the system as a whole. These instructions are general and cannot be considered to cover every aspect of an installation. The manufacturer's policy is one of continuous improvement and we reserve the right to make changes to product specifications at our discretion and without prior notice. E&OE.

Operation Instruction Manual

PDA101L & Variants

Audio frequency induction loop amplifiers



Features

- 50m² maximum coverage
- Wall mountable case
- 2 x 3.5 mm inputs switchable between line and mic as required
- Automatic compressor / expander
- Input adjustable
- Loop current adjustable to suit room conditions
- Uses up to 30 metres of 0.5mm² cable only (supplied)

See page 8 for features of variants

Technical Description

The PDA101 is a true constant current induction loop amplifier and is designed to cover up to an absolute maximum of 50m² (7.07m x 7.07m).

A gain of 52 dB is applied to the microphone signal and a gain of 0dB to the line input. The signals are mixed using the front panel controls and then fed into the compander. This ensures that very low level or high level sources can be used without pre-amplification or attenuation. The compander maintains the output level within a 45dB window.

Unpacking

Upon receipt of the amplifier shipment, please inspect for any damage incurred in transit. If damage is found, please notify your local representative and the transport company immediately. State date, nature of damage and whether any damage was noticed on the shipping container prior to unpacking. Please give the waybill number of the shipping order.

The unit should not be placed in areas;

1. with poor ventilation
2. exposed to direct sunlight
3. with high ambient temperature or adjacent to heat generating equipment
4. with high humidity or dust levels
5. susceptible to vibration

AC power operation

For normal AC operation, plug the AC power supply cord in a wall outlet of 230 V specified voltage. The unit complies with BS415.

AC power cord

The power cord supplied with the unit has a moulded plug. If it is necessary to remove the plug at any time, it must be replaced with a plug top meeting BS1363A, or equivalent, fitted with a 3 Amp fuse. The wires in the mains lead supplied with the unit are coloured in accordance with the following code.

Green and Yellow	Earth
Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this unit may not correspond with the coloured markings identifying the terminals in your plug, please connect as follows.

Wire	Plug terminal
Green & Yellow	'E' mark 'EARTH' symbol mark 'GREEN' mark 'GREEN AND YELLOW' mark
Blue	'N' mark 'BLACK' mark 'BLUE' mark
Brown	'L' mark 'RED' mark 'BROWN' mark

Caution

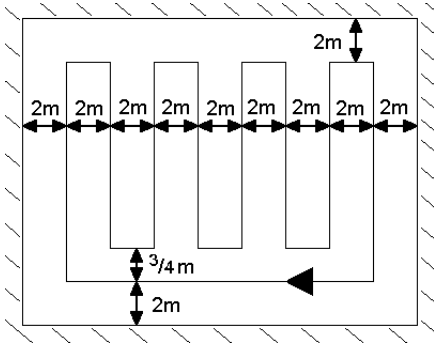
To prevent electric shock do not remove the cover

Intentionally Blank

Intentionally Blank

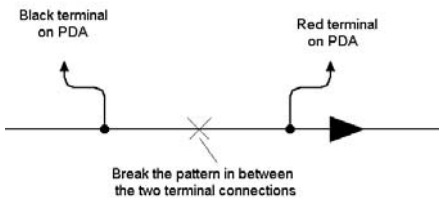
Loop patterns

A loop pattern laid on the floor is a low cost method to reduce over-spill by providing more even field strength compared to the usual single turn of cable laid around the room's perimeter. The basic pattern looks like the diagram below:



Each pattern should be considered as a many pronged fork. The pattern should be spaced approx. 2m from nearest wall / next pattern, prongs of the fork should be spaced approx. 2m apart and should be approx. 2m wide, prongs should extend to approx. 3/4m of base of fork.

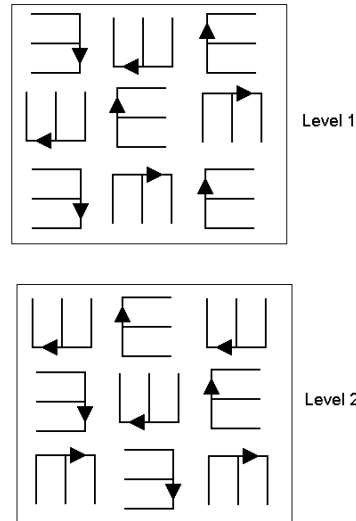
Assume the cable is being run around the edge of a room for cable diameter calculations, as the pattern restricts the amount of power which can be fed into the loop. The large black arrow shows clockwise direction of loop. Break into pattern at any point to connect PDA unit.



Loop patterns

Large areas and multiple rooms

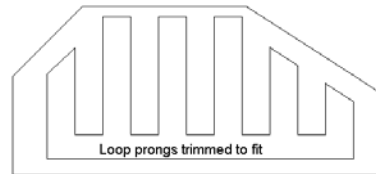
Use several loop patterns, each pattern must be connected to a separate loop amplifier. When laying out patterns, ensure each is 90 degrees out of phase with its neighbours as per the following diagrams which show a two storey building:



Note. For a two storey building the *same* loop position on different floors is also 90 degrees out of phase.

Non-rectangular rooms

Layout as per a basic pattern and step back the prongs to the shape of the room.



Installation

Read this manual thoroughly before starting installation, the following procedure should be used.

1. Install the loop (see page 6)
2. Before connecting a loop to the amplifier use, a multimeter to check the loop is not shorted to ground at any point, (it will almost certainly damage the amplifier if it is). Remove approximately 6mm of the outer insulation from the cable. Connect the loop to the amplifier by inserting a terminal screwdriver into the small rectangular hole above the cable insertion hole, this will open the insertion hole and allow the cable to be pushed into the connector. Remove the terminal screwdriver and the connector will close gripping the cable. Ensure the connector is gripping the conductor in the cable and not the insulation.
3. Connect music or speech input signal to the amplifier. The peak line level of this signal should be approximately 1V.
4. Set the DIP switches as required.
5. Ensure input levels controls and drive control are fully anti-clockwise.
6. Connect mains lead to the amplifier and ensure the power LED (green) lights.
7. Increase the input level controls until the red 'limit' LED is just flashing. If you are using both inputs the level controls act as a simple mixer.
8. Adjust the drive control until the red clip LED just lights during periods of high signal level (when the limit led just lights).
9. Using an induction loop receiver (eg SigNET Rxti2 or a field strength meter), listen to the signal inside the loop. It is also advisable to check the system with a field strength meter. Please note that the orientation of the field strength meter may influence the reading.

Mains Hum

Background hum can sometimes be heard when testing an installation especially when testing with an induction loop receiver. This is not caused by the loop system and will NOT normally be heard by hearing aid users, due to built in filtering in most hearing aids. The source of mains hum is most likely to be (50 Hz) mains wiring, particularly in old buildings where Live and Neutral cables may take different routes, thus creating an induction loop radiating at 50Hz. If the client complains of mains hum simply switch off the amplifier to prove that the source is unrelated.

Input connections

Two input connectors are standard 3.5mm mono jack sockets. Both are mic or line selectable dependant upon the DIP switch positions, use the following chart or see the back of the unit which has the switch positions next to the switches.

Switch	Off	On
1	Line	Microphone
2	Phantom Off	Phantom ON
3	Line	Microphone
4	Phantom Off	Phantom ON

Phantom power is supplied - 2.5V, 0.25mA maximum.

Output connections

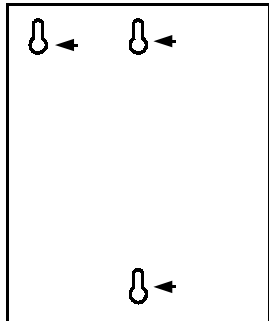
Loop output

The output is via two Screwless vertical PCB terminals. Connection is made by way of tails. To allow cables to be inserted, slide a terminal screwdriver into the rectangular hole directly above the cable entry hole to be used, when cable has been inserted remove the screwdriver which allows the connector to close and grip the conductor.

WARNING: The PDA amplifiers are capable of producing short term peaks of twice their rated current.

Wall mounting

The PDA101 can be wall mounted, using No 8 japanned woodscrews (provided) on 100 mm centres vertical or 45 mm centres horizontal, using the holes marked on the diagram below. Care **must** be taken when attaching unit to screw heads to ensure that screw heads do not damage the printed circuit board.



Loop cables

Cable selection

Only 0.5mm² cable, as supplied, should be used. If other cable types are used it will be necessary to adjust the drive current as appropriate.

Use of a tri-rated cable is recommended. This is cable with a tougher than usual jacket, the reason being; damage will occur to the amplifier if at any point the loop is grounded.

Loop cable should ideally be laid at floor level but in certain circumstances this may not be possible. Any large amounts of metal (eg steel meshed reinforced concrete floors) will absorb some of the signal strength, in this case the cable may have to be mounted in the walls.

Aluminium (suspended ceilings) being paramagnetic should also be avoided, mounting a loop above an aluminium suspended ceiling will probably result in almost no coverage, turning up the output of an amplifier would just make matters worse as it will just stress the output stage (and minutely warm the aluminium) resulting in a definite shortening of the life-span of the amplifier.

Speaker positioning

If a speaker is placed near or beside a loop cable the cross-over in the speaker may pick up the loop signal, so try to keep speakers and loop cables as far apart as possible. Normally this does not show up in use because loop and speaker have the same programme material, only where the loop has a different signal to the speakers (e.g. stage talk back systems) will this become an issue.

Feeder Cables

When connecting an amplifier to a loop some distance away use a heavy gauge twisted pair (2.5mm²). This will have a negligible impedance, as such the amplifier will not drive against it and the power will be fed into the loop where it can do useful work.

Test loops

We always recommend the laying of a test loop, there is no such thing as a standard installation and sometimes only a test loop will uncover problematic areas.

Loop cables

Feedback

Long lengths of unbalanced signal cable may cause feedback when placed inside the loop. Keep connecting audio leads as short as possible.

Problems may occur when using standard dynamic microphones. The coil inside may act as a receiver and cause feedback. It is advisable to use condenser microphones. These may require phantom powering, available on both microphone inputs.

Other sources of feedback are coils in other equipment that is linked to the induction loop system, for example guitar pickups.

Loop cable class

A loop cable is classed as a 2A cable under IEEE 16th Edition wiring regulations. As such it must be sited a minimum of 600mm away from telephone, mains and control cables.