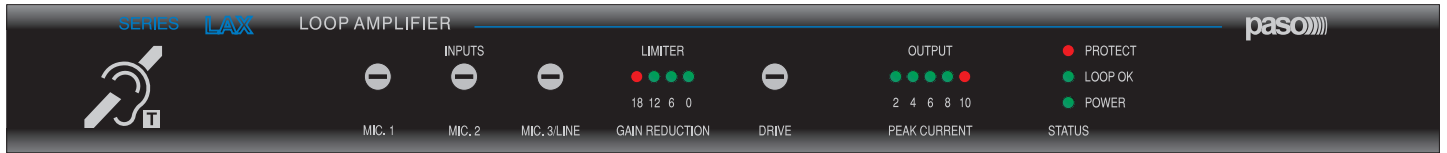


Loop amplifiers

Instructions for use

LAX200
LAX450
LAX800



FEATURES

- Up to 800m² coverage
- 3 Inputs on XLR
- Phantom Power, Power Indication
- Current Mode Output
- Loop Monitoring
- Soft Start
- Compressor
- Compression Meter
- Full Protection System
- Protected Mixer & Drive Controls
- High Peak Current Capability

DESCRIPTION

The **LAX200**, **LAX450** & **LAX800** form the professional range of PASO audio frequency induction loop (AFILS) amplifiers and are designed to provide studio quality sound in an AFILS system. The amplifiers have 3 inputs on XLR; 2 dedicated microphones and one microphone or line selectable using a rear panel switch. User selectable Phantom Powering is available for the microphone inputs, enabled via a rear panel switch. The inputs are individually mixed before passing to the compressor limiter, which prevents loop overload whilst compensating for varying microphone usage. All controls are recessed to prevent unauthorised access. Indication is provided for compression level, output current, loop status and power supply. A loop current monitor socket is provided to allow headphones to be used to monitor the actual loop current. An audio output (post compressor) is provided for recording, with a slave audio in to allow cascading. A loop OK voltage is available to illuminate a sign showing correct loop operation. The units are all 1u (44.5mm) high and a 19" rack mounting kit is available.

CHOOSING THE RIGHT UNIT

All in order to remove the 'magic' from loop amplifier specification, PASO recommends loop amplifiers are specified thus; by maximum square area and by length if the shortest side. These areas relate to loops fitted at skirting board or ceiling (2.4 m) height and provide even loop coverage. For example, the LAX200 will cover a square room 12.25 m per side (150 m²), however the same amplifier will also cover a rectangular room 10 m by 20 m (200 m²). In this example the LAX200 is rated at 150 m² square area and 10 m for the shortest side. The shortest side rating is valid for distances up to twice the shortest side, for example the LAX800 is rated at 20 m shortest side, to the other side of the rectangle can be a maximum of 40 m (giving a coverage of 800 m²). If the loop is above 2.4 m in height, then 20% should be subtracted from the shortest length for every additional metre in height the loop is (to a maximum of 4 m). These values do not take into account additional losses present in some building constructions, if you are in any doubt always lay a temporary loop. It is always wise to allow 20% spare capacity when specifying a loop amplifier, just to cover the unknown element.

Amplifier	Square Area	Shortest Side	Maximum Area
LAX200	150 m ²	10m	200 m ²
LAX450	300 m ²	15m	450 m ²
LAX800	450 m ²	20m	800 m ²

POWER SUPPLY

This equipment is designed for use with a mains voltage of 230 V ± 10% 50/60 Hz. The loop amplifier is supplied with its own power-supply cable, which is equipped with an earthing wire. The earth terminal of the mains plug should never be removed under any circumstances. Connect the mains plug of the amplifier to the power mains using the cable included in the supply. Make sure that the power outlet is equipped with a connection to earth in accordance with the law.

SAFETY NOTES

The replacement of fuses must be carried out by specialized personnel only: when the cover is removed, parts liable to cause electric shocks are exposed. Before removing the cover, always make sure that the power cord has been disconnected. In the event that liquid is accidentally spilt onto the equipment, disconnect the mains plug immediately and contact the nearest PASO Service Centre.

INSTALLATION

Installation is simplicity itself, the unit should be sited in a convenient place, ideally as close to the area to be covered as possible, the loop cable (a single turn loop of between 1 mm [LAX200], 1.5 mm [LAX450] or 2.5 mm [LAX800] CSA cable) is installed securely (see note 1) and the microphone(s) are located as close to the area(s) where the sound is to be picked up from (see note 2). Mains power can now be applied using the IEC cable supplied this cable has a moulded plug fitted, which can be removed if direct wiring to a fused spur is required, the spur should be fused at 5A. The input mixer controls can now be adjusted so that the gain reduction meter moves to 12 dB on loud speech. The output drive control can now be adjusted to give the correct field strength in the area to be covered. This is best done with a loop field strength meter during installation, or a loop listening device (good practice is to supply a loop listening device to all installations to allow the responsible person to test the loop periodically and record correct operation in a log booklet). *Please note: The vent holes are not to be covered, if possible leave at least a 30 mm gap at the top and back of the unit. This will allow airflow through the unit.*

Notes

1. If there is any doubt about the construction of the building, it is always best to lay a temporary loop in the approximate position the final loop will occupy, this will determine the operation of the loop. Many new buildings contain aluminium in lost screed flooring, loops placed on the floor near this aluminium will fail to operate satisfactorily.
2. Microphone cables must be run separately from the loop cable, under no circumstances should the cables be tied together for any distance, this will cause magnetic feedback and the unit will not perform correctly. Good practice is to twist the loop feeder cable together between the start and end of the loop and the amplifier.

LOOP OUTPUT FUSES (INTERNAL)

These fuses only blow in extreme cases, if you need to replace them ensure mains supply is disconnected. Loop Fuses F1 + F2 should be rated as follows:

- LAX200 3.15A (F)
- LAX450 5A (F)
- LAX800 6.3A (F)

If the fuses fail again check the installation or return the unit for servicing.

INPUT CONNECTIONS

3 input connections are on standard 3 pin XLR, 2 inputs are MIC, the third input is mic/line switchable via the blue button on the back of the unit marked mic/line input. For line operation (input 3 only) the blue button is depressed.

- **Line Input** (Blue button depressed input 3 only).

Do not connect Pin1 to the shield of the XLR, as this will cause earth loops and hum.

<u>Unbalanced</u>	<u>Balanced</u>
Pin 1 Ground	Pin 1 Ground
Pin 2 Signal	Pin 2 Hot
Pin 3 Link to pin 1	Pin 3 Cold

- **Mic Input** (1,2 and with Blue button raised for input 3).

<u>Balanced</u>
Pin 1 Ground
Pin 2 Hot
Pin 3 Cold

- **Phantom Power**

Phantom power can be supplied to all mic inputs on pins 2 & 3 (12 V, 5 mA). For phantom power to be enabled the red button must be depressed.

- **Loop OK**

This provides 12 V (2 way connector on back of loop amplifier marked Loop OK Indicator). The 12 V will only be present when a signal is running through the loop. Loop OK LED on the front of the unit will light when a signal is running through the loop. If the loop cable is disconnected or the inputs are disconnected there will be no 12 V supply to the Loop OK connector and the LED will distinguish.

TECHNICAL SPECIFICATIONS

Audio inputs	2 off microphone, 1 MIC/Line selectable		
Type	XLR		
Phantom	Selectable, 15 V 2 mA		
Sensitivity	-50 dB (microphone) -10 dB (line)		
Mains input	230 V ± 10% 50/60 Hz		
Power	<u>LAX200</u>	<u>LAX450</u>	<u>LAX800</u>
	100 VA max	180 VA Max	300 VA Max
Internal fuse	2 off 2A (T)	2 off 3.15A (T)	2 off 5A (T)

Indications & Controls

Led indicators	4 off gain reduction, 5 off loop current, power, loop integrity and protection operating
User Controls	3x input mixer and current Drive
Protection	Recessed screwdriver adjust only

Audio Processing

Compressor	Variable Ratio 1:1 to 20:1
Attack	10 ms
Release	Automatic from 500 ms to 1500 ms
Dynamic Range	> 60 dB
THD	< 0.25%

Output Stage

Type	Current Mode		
Loop impedance	0.1 Ω to 1 Ω		
	<u>LAX200</u>	<u>LAX450</u>	<u>LAX800</u>
Peak Current	> 9A peak	> 12A peak	> 15A peak
125 ms Burst	> 6A peak	> 8A peak	> 10A peak
RMS Current @1kHz	2A	3A	4A
Protection	DC, Thermal, Short-circuit, Soft Start		

Dimensions

Free standing	(432) x 44.5 x 165 mm (485mm with rack kit)
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ACCESSORIES

• LARX01	Loop test receiver
• LAFSM01	Loop field strength meter
• LAL01	Loop present stickers
• LACL10	Loop feeder cable
• LACF01	Feeder cable



Important information for correct disposal of the product in accordance with EC Directive 2002/96/EC This product must not be disposed of as urban waste at the end of its working life. It must be taken to a special waste collection centre licensed by the local authorities or to a dealer providing this service. Separate disposal of electric and/or electronic equipment (WEEE) will avoid possible negative consequences for the environment and for health resulting from inappropriate disposal, and will enable the constituent materials to be recovered, with significant savings in energy and resources. As a reminder of the need to dispose of this equipment separately, the product is marked with a crossed-out wheeled dustbin.

Warranty This product is warranted to be free from defects in raw materials and assembly. The warranty period is governed by the applicable provisions of law. Paso will repair the product covered by this warranty free of charge if it is faulty, provided the defect has occurred during normal use. The warranty does not cover products that are improperly used or installed, mechanically damaged or damaged by liquids or the weather. If the product is found to be faulty, it must be sent to Paso free of charges for shipment and return. This warranty does not include any others, either explicit or implicit, and does not cover consequential damage to property or personal injury. For further information concerning the warranty contact your local PASO distributor.

This product is in keeping with the relevant European Community Directives.

Note
PASO will not accept any liability for damage to property and/or persons arising out of incorrect use of the equipment or of procedures that do not comply with the instructions provided in this booklet. PASO S.p.A. strive to improve their products continuously, and therefore reserve the right to make changes to the drawings and technical specifications at any time and without notice.