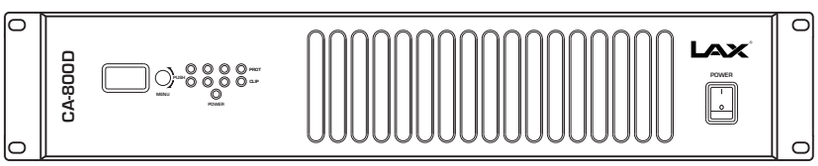
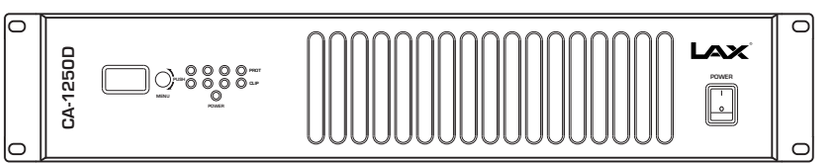
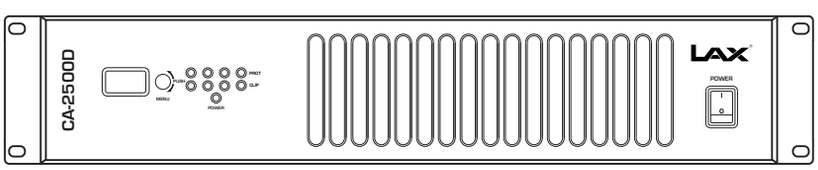
CA-D Series User Manual



CA-800D



CA-1250D



CA-2500D

* This manual does not include all of the details of design, production, or variations of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance.

* The information provided in this manual was deemed accurate as of the publication date. However, updates to this information may have occurred. To obtain the latest version of this manual, please visit our website at www.lax.co.in

Copyright © POPE Professional Acoustics Limited. All Rights Reserved.

Thank you for choosing **LAX** CA-D Series quad channel professional power amplifier and it's driven by ARM based 32 bit floating point DSP with AES67 digital networking. You purchased one of the finest and refined quad channel amplifier on the market today. This unit was developed using the expertise of professional sound engineers and working musicians. You will find that your new **LAX** CA-D Series amplifier has superior performance and greater flexibility than any other amplifiers. Please read this manual carefully to get the most out of your new unit.

Features

Offering top power, superior performance and full professional operating features in a roadworthy compact chassis, the CA-D Series are perfect for even the most demanding sound reinforcement installation and touring applications.

The operating instruction in this manual are same for all the CA-D Series professional power amplifiers. The operation and functions of these units are the same, except as noted.

- **Full operating features:** Volume controls, balanced XLR inputs and outputs, AES67 quad channel-input / outputs, Independent clip limiters and compressor, speakon outputs.
- **Full safety / reliability features:** The CA-800D, CA-1250D & CA-2500D amplifiers are having two variable speed fans for cooling, soft start turn on, noise-free on-off, independent DC and thermal overload protection on each channel, short circuit and speaker protection, built-in current limiter.

- Class - D Technology
- AES67 Digital Inputs / Outputs
- FIR Filter Output
- Analog 4 in / 4 out configuration
- Sampling rate 48 kHz - 32 bit floating
- Up to 254 devices in one network
- 24 bit AD/DA converters
- 20 Presets
- Ethernet Connectivity
- 2U rack Design
- Supplied with SoundNet® Ultra® Networking GUI

For Your Records

Date of Purchase _____

Dealer' s Name _____

City _____

State _____

Zip _____

Model _____

Serial _____

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacture's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.



12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
15. Use the mains plug to disconnect the apparatus from the mains.
16. WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.



17. DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT.
18. THE MAINS PLUS OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.



TO PREVENT ELECTRIC SHOCK DO NOT REMOVE TOP OR BOTTOM COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE. THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

WATCH FOR THESE SYMBOLS:



The lightning bolt triangle is used to alert the user to the risk of electric shock.



The exclamation point triangle is used to alert the user to important operating or maintenance instructions.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



IMPORTANT



CA-D Series amplifier require NEC Class 2 output wiring

MAGNETIC FIELD

CAUTION! Do not locate sensitive high-gain equipment such as preamplifiers or tape decks directly above or below the unit. Because this amplifier has a high power density, it has a strong magnetic field which can induce hum into unshielded devices that are located nearby. The field is strongest just above and below the unit.

If an equipment rack is used, we recommend locating the amplifier(s) in the bottom of the rack and the preamplifier or other sensitive equipment at the top.

FCC COMPLIANCE NOTICE

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced technician for help.

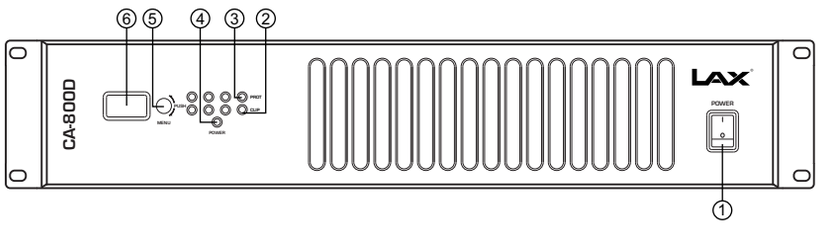
Get Started

UNPACKING
Carefully open the shipping carton and check if there is any noticeable damage. Every **LAX** CA-D Series amplifiers are completely tested and inspected before leaving the factory and should arrive in perfect condition. If you find any damage, notify the shipping company immediately. Be sure to save the carton and all packing materials for carrier inspection.

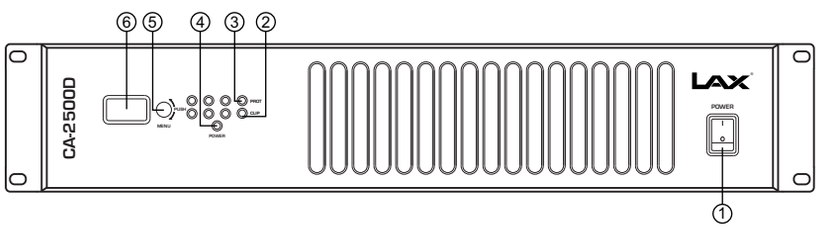
RACK MOUNTING
The **CA-D** Series amplifiers are designed for standard 19" rack mounting.

CONTENTS
Operation manual

Front Panel



CA-800D



CA-2500D

1. POWER SWITCH

To turn the unit's power ON or OFF, press the upper or lower portion of this button. Before turning on the amplifier, check all connections and turn down the level controls. A momentary muting is normal when turning the amplifier on or off.

(Caution: Always turn on your power amplifier last, after all your other connected equipment and always turn off your power amplifier before your other connected equipment.)

2. CLIP LED INDICATORS

The CLIP LEDs will illuminate if the power amplifier's outputs are above 0dB. Occasional blinking of the CLIP LEDs are acceptable, but if they remain on more than intermittently, you should turn down the volume level controls or reduce the output level of the preceding component to avoid audible distortion.

3. PROTECT LED INDICATORS

These LEDs illuminate if the power amplifiers output connection is shorted, the load impedance is too low or if there is an internal malfunction. When either of these LEDs ON, turn OFF the power and check the output's connection to verify that it is correct, then turn ON the power again.

4. POWER LED INDICATOR

This LED illuminate to confirm the presence of the power.

5. JOG WHEEL

Turn clockwise or anti clockwise to select the menu or modify the values and push into confirm.

5A. MENU

Press in and rotate the Jog Wheel clockwise or anti-clockwise to select the below options. Push the Jog Wheel in and confirm the option. If you turn the Jog Wheel without press in, you can modify the 4 channel's volume levels.

Press the Menu and push to Enter for

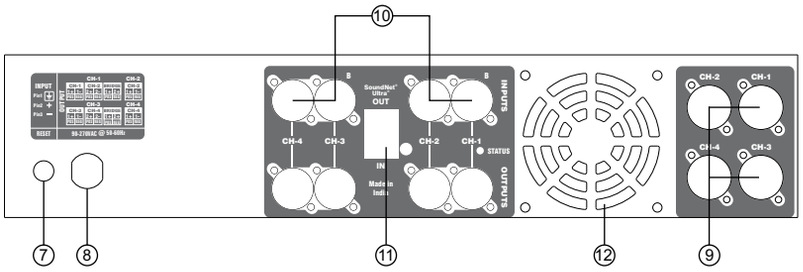
(a) Volume
(b) Signal Source
(c) Device IP Address
(d) Load Preset
(e) System Information

If you wish to modify the above parameters, rotate the Jog Wheel clockwise or anti-clockwise to set and Push the Jog Wheel into confirm.

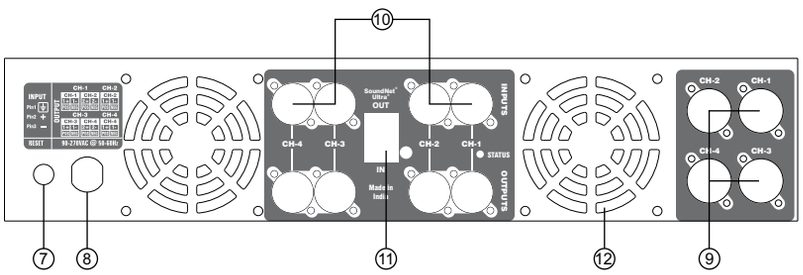
6. DISPLAY

The OLED display will show you the DSP volume levels and the parameters.

Rear Panel



CA-800D



CA-2500D

7. BREAKER

If the AC circuit breaker continuously tripped off, shut off the unit and let it serviced by qualified service personnel.

8. POWER

The power cord is used to connect the AC power source to your power amplifier. This amplifier will work from 90 to 270V AC @ 50-60Hz.

(CAUTION : Always operate the unit with the AC ground wire connected to the electrical system's ground)

9. QUAD CHANNEL AMPLIFIER OUTPUT

Amplifier output can take from speakon connector. Output connections are described in the Connections section on page 5, 6 & 7 of this manual.

10. BALANCED INPUT / OUTPUT CONNECTORS (XLR)

The XLR connector is compatible with balanced inputs. Since the XLR connector is internally wired in parallel, you can parallel this unit with another amplifier by using the XLR to output the signal to the input connectors of the other amplifier. Balanced connections are recommended as they are less prone to AC hum. For long cable runs a source output impedance of less than 600 ohms is needed to avoid signal loss. For 4 Channel operation, use the inputs for CH-1, CH-2, CH-3 & CH-4. For parallel operation, use only CH-1 and CH-3 input.

1**1. RJ45 ETHERNET PORT**

Using the RJ45 connector to connect the PC with DSP using supplied SoundNet® Ultra GUI to control. Also you can transport the AES67 audio signals via Ethernet connector.

12. VENTILATION SLOTS

The fan speed is varied automatically to maintain the proper internal operating temperature. The user should not block the ventilation slots.

Connections

The following instructions describe the most common ways to install your amplifier into a sound system.

1. Turn off the amplifier's power switch before making any connections.
2. The CA-D Series amplifiers maybe operated in stereo, parallel and bridged modes. Refer to the following wiring diagrams for the speaker connections you wish to make.

Note: **LAX** will not take liability for damaged speakers resulting from improper wiring, careless amplifier use or over powering.

Inputs & Outputs

XLR Signal:
Pin 1 Ground (Screen)
Pin 2 + (Hot)
Pin 3 - (Cold)

Amplifier Outputs

Output 1 Speakon:
CH 1 1+,1-
CH 2 2+,2-

Output 2 Speakon:
CH 2 1+,1-

Output 3 Speakon:
CH 3 1+,1-
CH 4 2+,2-

Output 4 Speakon:
CH 4 1+,1-

Power Amp Protection Systems

Clip Limiter: If the power amp is over driven and the limiter is set to on the clip detection triggers the attack release circuit. The attack release circuit delivers the control voltage for the gain reduction.

SOA Protection: Whenever the power transistors leave their safe operation area, the SOA protection will either switch back the current rail of the respective channel or limit the maximum load current in the power transistors.

DC Protection: Each output of the power amp is constantly monitored for persistent DC voltage levels. If the 3 V thresholds are exceeded at any of the outputs, the corresponding channel will be muted. If DC was only applied for a short moment, the amplifier will release mute and work as normal. If DC is applied for longer periods or several short times the amplifier will switch to standby mode. Switch off the amplifier, wait until all indicator LEDs extinguish and switch the amplifier on again.

Over Current Protection: Over current is permanently controlled in the output stage. In case of excessive loading the maximum output current of the amplifiers is automatically limited. This improves reliability without degrading sound quality when driving complex loads. The main SMPS (Switched Mode Power Supply) transformer current of your CA-D Series Amplifier is continuously monitored. If over current occurs the main SMPS immediately stops working. Should there be an internal failure this feature prevents other parts from being damaged.

Thermal Protection: There are sensors in each amplifier module in order to ascertain temperature data. If the temperature more than 85°C is detected at the heat sinks, the input signal on that channel is reduced proportionally to prevent further heating of the amplifier. If the temperature exceeds approximately 100 °C, the main SMPS is switched off (safety shut-off).

Mains Low / Over Voltage Detection: Mains Low / Over Voltage Detection is always operative. When the mains voltage lower 90 V or exceeds 270 V the amplifier will switch off. When the mains voltage returns to nominal value a soft start occurs.

Fuse Protection: The fuse protection circuit prevents amplifier shut-down (e.g. by a blown mains fuse or a triggered circuit breaker) during extremely hard use with all channels working at very high output power. Without intelligent mains current monitoring and control this could easily happen as the rated output power is several times higher than the capabilities of the standard mains supply. In order to prevent any shutdown in extreme situations the amplitude of the input signals will be reduced which will in return also reduce the mains current draw.

Fans: The variable speed fans mounted in your CA-D Series Amplifier operate permanently, but as long as the temperature remains below 40°C, they run at their slowest speed and can hardly be heard. The highest detected temperature from any amplifier channel controls the speed of the fans. Above 40°C the speed is increased until it reaches its maximum value.

Filter Cleaning: The air intake on the front of your CA-D Series Amplifier is fitted with a removable filter system. If the filter becomes clogged, the unit will not cool as efficiently as it should and may result in reduced output levels.

WARNING: Turn off the amplifier before removing the front frame. To clean or replace the filter just slightly unscrew the fixing screw completely removing it from the front frame. Then shift the front frame slightly, then you should be able to remove the frame from the amplifier completely (pull gently to avoid any bending of the front frame).

NOTE / IMPORTANT: The LAX CA-D Series uses a bridged power amplifier output stage. This implies that the signal - loudspeaker outputs are not (and must never be) directly connected to the electrical ground (earth) or chassis of the amplifier. Please make sure to always attach the loudspeakers only between the signal '+' and the signal '-' outputs of the same channel on the SPEAKON connectors.

Wiring to the output connectors must conform to NEC Class 2 safety standards or its equivalent that meets all national and local electric codes. For reasons of safety and performance, only use high-quality fully insulated speaker cables of stranded copper wire. Use the largest wire size and make sure that the cables are no longer than necessary.

NOTE: Any damage to the loudspeaker or amplifier due to wrong cabling will not be covered by warranty.

Power Output

Ratings (RMS @ 1% THD @ 230VAC)

Model	Total Channels	4Ω Per Channel	8Ω Per Channel	4Ω Bridged	8Ω Bridged	70/100V
CA-800D	4	800W	400W	2*2500W	2*1600W	2*1600W
CA-1250D	4	1250W	1250W	-	-	4*800W
CA-2500D	4	2500W	1600W	-	-	4*1600W

Specifications

THD	< 0.05 % (20 Hz - 20 kHz, 8 Ω load, 3 dB below rated power)
Signal-to-Noise Ratio	> 120 dB (A-weighted, 20 Hz - 20 kHz, 8 Ω load)
Frequency Response	20 Hz - 20 kHz ± 0.25 dB / 20 Hz - 20 kHz ± 0.15 dB (8 Ω load, 1 dB below rated power)
Output Circuitry	Class D - full bandwidth PWM modulator with ultra low distortion
Input impedance	15 kΩ balanced
Damping Factor	> 2000 (8 Ω load, 1 kHz and below)
Digital Signal Processor	
In/Out	4 In / 4 Out
DSP	32 bit / 48kHz DSP
Filters	FIR / IIR, Gain, Compressor, Limiter, Delay, EQ, Crossover
Analog Signal	Balanced Input / Output,
Digital Signal	AES67
Connectors	XLR male / female and Ethernet
Control	Ethernet - SoundNet® Ultra® Networking
Preset	20
	For more specifications about DSP, check the DSP-4040 product catalogue.
Connectors and Switches	
Input connectors (per ch)	3-pin XLR, electronically balanced
Output connectors (per ch)	3-pin XLR, electronically balanced
Amplifier Output	4 Pin Speakon 1: +1-1 CH-1, +2-2 CH-2, 4 Pin Speakon 2: +1-1 CH-2,
	4 Pin Speakon 3: +1-1 CH-3, +2-2 CH-4, 4 Pin Speakon 4: +1-1 CH-4
Power on/off	on front-panel switch
Cooling	Fans, front-to-rear airflow
Front-panel indicators	
Display	OLED Display
Per channel	Signal / Clip LED / Protect LED
Safety	
	Input limiter, short circuit protection, DC protection of output, under & over voltage protection,
Protection Circuits	SOA protection, intelligent mains fuse protection, power stage overload protection,
	temperature protection for transformer.
Power	
Type	Universal & regulated switch mode power supply with Power Factor Correction
Operating voltage	Universal Mains, 90-270V AC @ 50-60Hz
Mains	Power Cord

Model	CA-800D	CA-1250D	CA-2500D
Amplifier Dimension (W x D x H)	482 mm x 485 mm x 88 mm	482 mm x 550 mm x 88 mm	
Packing Dimension (W x D x H)	535 mm x 555 mm x 195 mm	535 mm x 615 mm x 195 mm	
Size	2U		
Net Weight	9.60 kg	13.80 kg	14.22 kg
Gross Weight	11.10 kg	15.70 kg	16.30 kg

Warranty Statement

POPE Professional Equipment's Limited Warranty

POPE Professional warrants its products to be free from defective material and/or workmanship and will replace defective parts and repair malfunctioning products under this warranty when the defect occurs under normal installation and use - provided the unit is returned to our factory, one of our authorized service stations or an authorized POPE Professional International Distributor via pre-paid transportation with a copy of proof of purchase (i.e., sales invoice or receipt).

This warranty provides that the examination of the return product must indicate, in our judgment, a manufacturing defect. This warranty does not extend to any product which has been subjected to misuse, neglect, accident, improper installation, or where the date code has been removed or defaced.

POPE Professional shall not be liable for incidental and/or consequential damages. This warranty gives you specific legal rights. The warranty on POPE Professional products is NOT VALID if the products have been purchased from an unauthorized dealer / online e-tailer, or if the original factory serial number has been removed, defaced, or replaced in any way. Damage to, or loss of any software or data residing on the product is not covered. When providing repair or replacement service, POPE Professional will use reasonable efforts to reinstall the product's original software configuration and subsequent update releases, but will not provide any recovery or transfer of software or data contained on the serviced unit not originally included in the product.

Customers may have additional rights, which vary from state to state or from country to country. In the event that a provision of this limited warranty is void, prohibited or superseded by local laws, the remaining provisions shall remain in effect.

The warranty on POPE Professional Amplifiers, Digital Signal Processors and loudspeaker products (except for enclosures) remains in effect for one year from the date of the first consumer purchase.

The POPE Professional limited warranty is valid for a period of one year from date of first consumer purchase. The POPE Professional is having right to change the warranty policy at any time without prior notice.

* Conditions Apply.

Frequently Asked Questions (Warranty)

- **What is warranty on POPE Professional?**

  POPE Professional warrants its products to be free from defective material and / or workmanship for a period of 12 months and will replace defective parts and repair malfunctioning products under this warranty when the defect occurs under normal installation and use - provided the unit is returned to our factory, one of our authorized service stations or an authorized POPE Professional International Distributor via pre-paid transportation with a copy of proof of purchase (i.e., sales invoice or receipt).

- **What does the POPE Professional warranty cover?**

  This warranty provides that the examination of the return product must indicate, in our judgment, a manufacturing defect. This warranty does not extend to any product which has been subjected to misuse, neglect, accident, improper installation, or where the date code has been removed or defaced. POPE Professional shall not be liable for incidental and/or consequential damages. This warranty gives you specific legal rights.

Copyright © POPE Professional Acoustics Limited. All Rights Reserved.

The warranty on POPE Professional products is NOT VALID if the products have been purchased from an unauthorized dealer / online e-tailer, or if the original factory serial number has been removed, defaced, or replaced in any way. Damage to, or loss of any software or data residing on the product is not covered. When providing repair or replacement service, POPE Professional will use reasonable efforts to reinstall the product's original software configuration and subsequent update releases, but will not provide any recovery or transfer of software or data contained on the serviced unit not originally included in the product.

- **Who pays for what?**

  POPE Professional will pay all labor and material expenses for all repairs covered by the warranty. The customer is responsible for transporting the product for repair or arranging for its transportation and for payment of any initial shipping charges. Customer has to bare the return shipping charges even if the product is covered under warranty.

- **How do I obtain warranty service?**

  If your POPE Professional product ever needs service you may choose from one of the following service options: We recommend you to ship your product to one of our authorized service stations or an authorized POPE Professional International Distributor via pre-paid transportation with a copy of proof of purchase (i.e., sales invoice or receipt). The product must be in original packing, including any anti-static and foam wrapping should be used on all returned product. Should the original product packing not be available, then adequate packing should be used taking into account the method of shipment and the ESD (Electrostatic Discharge) sensitivity of the returned product. Failure to comply with these terms may leave the warranty void.

  While return it to our authorized service stations be sure to include the following information with your product:

  - Product model and serial number
  - Contact name
  - Telephone, fax number and Email ID.
  - A copy of the bill of sale or proof or purchase or warranty card
  - RMA (Return Material Authorization)
  - Detailed information as to the product failure
  - Return shipping address

- **Do I need a RMA (Return Material Authorization) product to the factory for repairs?**

  Yes. A RMA (Return Material Authorization) is required and will be filled online at www.pope-pro.com under support or request a RMA form from your primary POPE customer contact or write an email to service@pope-pro.com. After receive the material along with RMA form, the customer service executive will generate an unique identity number for each RMA form and sent to the customer via e-mail and will be easy to track the customer and service details. Customer has to include the RMA form on the packing slip along with the warranty card on the outside of the box.

- **What happens once POPE Professional receives the product for repair?**

  A quality responsible engineer will determine if the product is in warranty or out of warranty after careful examination of the product. An email will be sent out within Ten (10) working days of receiving the product(s) and the RMA form(s).

  - If the issue is covered by warranty, POPE will return the repaired product as soon as possible.
  - If the issue is not covered by warranty, POPE will offer advice for correct application and use of the product(s). POPE may offer to repair the product(s) after discussing the costs and expenses with the customer.

- **Is the POPE Professional warranty transferable?**

  No, The POPE Professional warranty is non transferable.

  This warranty does not cover:

  Damage or problems caused by storm, fire, flood, vandalism, misuse, negligence, Act of God, earthquake, war, vermin, foreign matter entering the equipment (eg: dirt and moister) or any other outside agency.

  Repair exclusion:

  POPE Professional can no longer service products 10 years or older. The unit will be rejected at POPE Professional if any of these products are sent for repair.

- **Discontinued POPE Professional Products Qualifying for the End-of-Life (EOL) Program**

  Products in the list below may be serviced one last time, and on a “best effort” basis. Replacement parts or components may have limited availability. Repair may not be possible if damage is severe. Before submitting the RMA form, please review our EOL (End-of-Life) Rebate Program

  - PE Series (All Models)
  - PS Series (All Models)
  - SW Series (All Models)
  - TH Series (All Models)

  Note: Authorized POPE Professional Service Centers may still be able to repair discontinued amplifiers at their own discretion.

- **End-of-Life Product Rebate Program**

  POPE Professional is offering 2000 - 5000 Rupees (depending on the model) rebate to customers who replace a discontinued product (see list for qualifying models) with a current model.

  - PE Series (All Models)
  - PS Series (All Models)
  - SW Series (All Models)
  - TH Series (All Models)
  - CA Series (All Models)
  - PM Series (All Models)
  - E Series (All Models)

  The details and conditions of the rebate are as follows:

  - Customers must return the discontinued product and purchase the replacement product from an authorized POPE Professional retailer.
  - Customers must provide proof of purchase including serial number, place of purchase, and a copy of the purchase receipt.
  - Customers must complete the Rebate Request Form completely and acknowledge the program terms with their written signature.
  - Customers must submit their Rebate Request 10 days prior to purchase of new equipment.
  - Offer may be discontinued at any time at POPE Professional's discretion.

  * Conditions apply.

Notes

Contact us:

POPE Professional Acoustics Limited

Corporate Office: # 89, Rajiv Gandhi Nagar Phase - 1, 80 Feet Road,
B.R. Layout, Sowripalayam, Coimbatore - 641 028, Tamil Nadu, India.
Ph: + 91 422 4273559
Customer Care: + 91 9944 222 444
Website: www.pope-pro.com
E Mail: info@pope-pro.com

- The information on the products contained within is correct at the time of printing. We would recommend you to check our website, www.lax.co.in for any updates not contained in this publication.
- The manufacturer reserves the right to vary specifications, including color, with or without notice and at such times in such manner as they see fit.
- All the pictures contained in this catalogue are the property to POPE Professional Acoustics Ltd.