

SLA-4

FOUR CHANNEL STUDIO LINEAR AMPLIFIER



USER'S GUIDE



IMPORTANT SAFETY INSTRUCTIONS – READ FIRST



This symbol, whenever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure. Voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read manual.

Read instructions: Retain these safety and operating instructions for future reference. Heed all warnings printed here and on the equipment. Follow operating instructions printed in this user guide.

Do not open: There are no user serviceable parts inside. Refer any service work to qualified technical personnel only.

Power sources: Only connect unit to mains power of type marked on rear panel. Power source must provide a good ground connection.

Power cord: Use the power cord with sealed mains plug appropriate for your local mains supply as provided with the equipment. If the provided plug does not fit into your outlet consult your service agent. Route the power cord so that it is not likely to be walked on, stretched or pinched by items placed upon or against.

Grounding: Do not defeat the grounding and polarization means of the power cord plug. Do not remove or tamper with the ground connection on the power cord.

Ventilation: Do not obstruct the ventilation slots or position the unit where the air required for ventilation is impeded. If the unit is to be operated in a rack, case or other furniture ensure that it is constructed to allow adequate ventilation.

Moisture: To reduce the risk of fire or electrical shock do not expose the unit to rain, moisture, or use in damp or wet conditions. Do not place a container of liquid on it, which may spill into any openings.

Heat: Do not locate the unit in a place close to excessive heat or direct sunlight, as this could be a fire hazard. Locate the unit away from any equipment, which produces heat such as: power supplies, power amplifiers and heaters.

Environment: Protect from excessive dirt, dust, heat, and vibration when operating and storing. Avoid tobacco ash, drink spillage and smoke, especially that associated with smoke machines.

Handling: To prevent damage to the controls and cosmetics avoid rough handling and excessive vibration. Protect the controls from damage during transit. Use adequate padding if you need to ship the unit. To avoid injury to yourself or damage to the equipment take care when lifting, moving or carrying the unit.

Servicing: Switch off equipment and unplug the power cord immediately if it is exposed to moisture, spilled liquid, objects fallen into opening, the power cord or plug becomes damaged during a lightning storm, or if smoke odor or noise is noted. Refer servicing to qualified technical personnel only.

Installation: Install the unit in accordance with the instruction printed in the user guide.

INTRODUCTION

Thank you for purchasing the ART SLA-4 Four Channel Studio Linear Amplifier and congratulations, you now own one of the most versatile linear audio amplifiers available. Offering a superb level of sound quality, the SLA-4's clean and powerful linear circuitry combined with a straightforward user interface quickly and easily delivers the power you need for a wide variety of project and professional studio environments, broadcast and installation applications.

Features:

- Extremely Low Noise, Discrete Linear Design
- 4 x 100 Watts/Ch @ 8 Ohms, 140 Watts/Ch @ 4 Ohms
- 2 x 200 Watts/Ch @ 16 Ohms, 280 Watts/Ch @ 8 Ohms (bridged)
- 2 x 100 Watts/Ch @ 8 Ohms & 1 x 280 Watts @ 8 Ohms (bridged)
- Toroidal Transformer
- 10 Hz to 40 kHz Frequency Response
- ¼" TRS, and Euroblock Balanced Inputs
- Detente Gain Knobs
- Multi-way Binding Post Outputs
- Low Profile 1U Rack-Mountable Design
- Thermal dependent Cooling System
- Perfect for Pro and Project Studio, Broadcast and Installation applications

INSTALLATION

The SLA-4 may be used in a wide variety of applications from project or professional studio environments to commercial sound installations. Self-contained in a steel and aluminum enclosure, the unit is designed for many years of use. For greater reliability, we recommend that you not place the unit directly under or on top of other sources of heat. It is important that any rack-mountable unit is properly ventilated, and the SLA-4 is no exception.

AC Power Hookup

The SLA-4 has an internal power supply designed to operate at 120 VAC @ 50 to 60 Hz. Units manufactured for use outside of North America have been modified to comply with the required electrical specifications.

Audio input Connections

Audio connections to the SLA-4 are balanced or unbalanced ¼" [Tip = Hot (+), Ring = Cold (-), Sleeve = (Ground)].

Euroblock connections: can be wired balance or unbalanced.
See diagram on page 11

SPEAKER LOAD SAFETY PRECAUTIONS

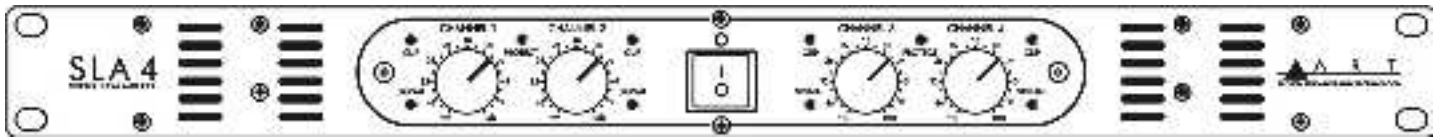
Warning:

For optimum performance and reliability, do not operate the amplifier with a speaker load of less than 4 Ohms per channel, or any combination of speakers that together are less than 4 Ohms.

Using one speaker per channel, it must be rated at 4 Ohms or greater. When using two speakers per channel, in parallel, they must each be rated at 8 Ohms, or greater.

When in bridge mode, the speaker load should be 8 Ohms, or greater.

CONTROLS & INDICATORS – FRONT PANEL



Power Switch

The Power Switch is located on the front of the unit, directly in the center. During initial installation, make sure the level controls for each channel are set to a low volume level before applying power.

Channel Level Controls

The dials for the four channel level controls are located to the left and right of the Power Switch. When set to zero (fully clockwise), the level is at maximum. The level is reduced as you turn the control counterclockwise. Full attenuation is at – infinity. The level controls are detented and calibrated in dB.

Signal indicator LED

This LED indicates that a signal is present. The LED will glow when the amplifiers output signal is within approximately 30dB of full scale.

Clip Indicator LED

This LED indicates that the power amp is near or at clipping. This LED comes on when the output signal from the amplifier begins to distort. If there is significant clipping, lower the input levels to reduce clipping, as well as the risk of damage to the speakers/monitors.

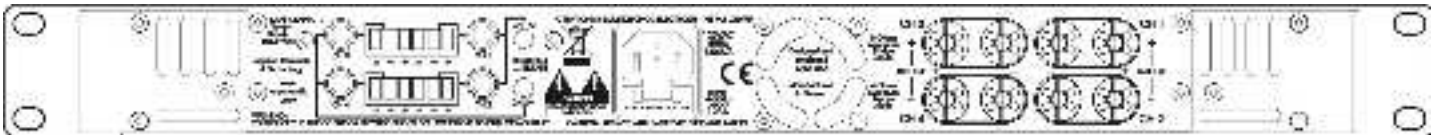
Protect indicator LED

This LED will glow when either or both of its the channels go into protect mode. In protect mode the output signal to the speakers will be muted (channel specific). If there is a fault condition at the speaker outputs (due to a severe load or short) the LED will light until the fault is removed.

Channels One and Two share a Protect LED, as do channels Three and Four on the SLA-4.

The Protect LEDs will also light during power up and down, to indicate that the signal is muted.

REAR PANEL CONNECTIONS



It is easy to interface the SLA-4 with a wide variety of equipment. All inputs and outputs are located on the rear panel. Standard 1/4" and Euroblock inputs and binding post outputs make patching simple.

Inputs

The SLA-4 has two styles of input connections: 1/4" TRS and Euroblock. Use these connections to connect the output signal from a mixer, preamplifier, crossover, or EQ to the amplifier. Balanced connections are recommended for cable runs longer than 20 feet. For cable runs under 20 feet, the unbalanced connections can be used.

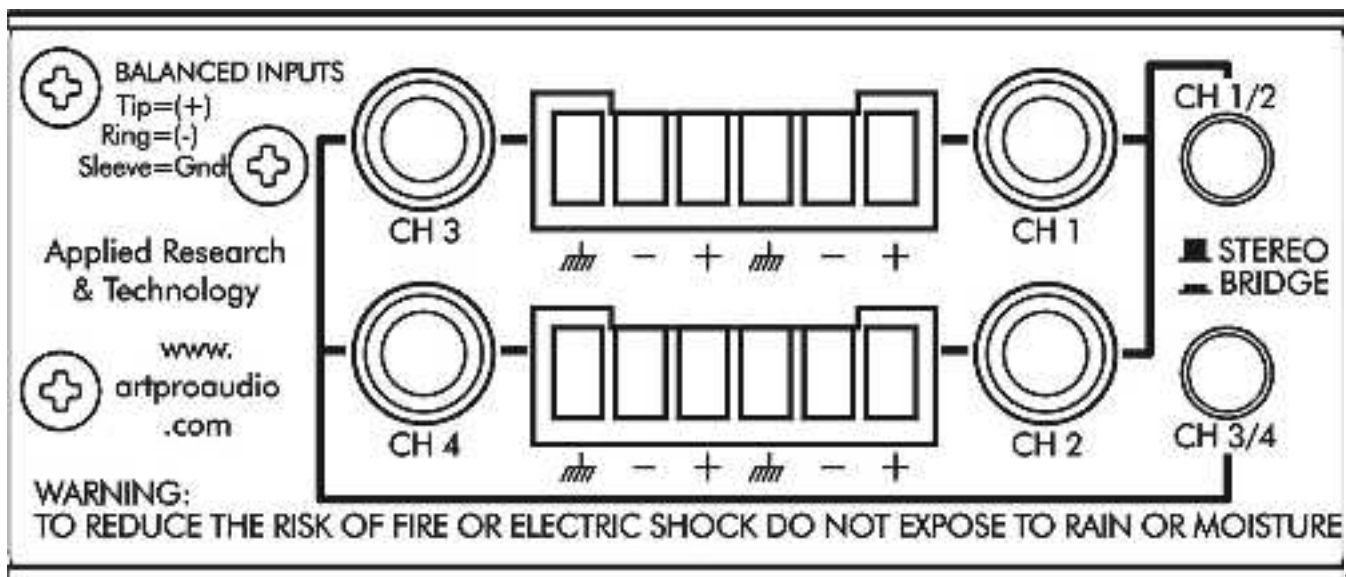
You may also use the two different types of input connections to jump a parallel connection to another amp. For example: connect a 1/4" cable to the input of channel one, and then connect from the Euroblock connections to another amplifier channel input.

1/4" Input jacks

The 1/4" Input jacks are wired as follows: Tip is positive, Ring is negative, and Sleeve is ground. This connection can be used for both balanced and unbalanced connections.

Euroblock Barrier Strips

Insert wires into the barrier strip, and then snug down with the setscrew. Each barrier strip can be removed for quick service without disconnecting the individual wires.



Stereo / Bridge Amp Mode Switches

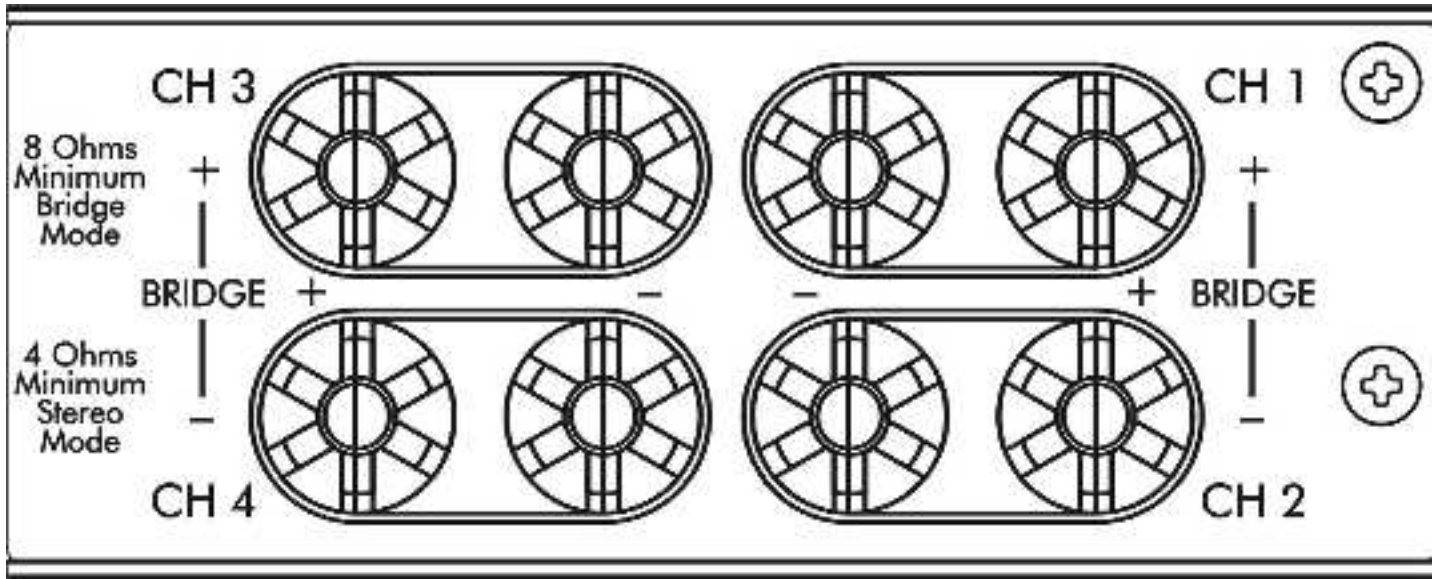
eo / Bridge Amp Mode Switches

The SLA-4 Amp Mode Switches allow you to choose between Stereo and Bridged Mono Modes. Two separate switches allow you to bridge channels 1 and 2, or channels 3 and 4, or both channel pairs. This maximizes flexibility by allowing the amp to be configured for best utilization in 2, 3, or 4 channel applications. Make sure that power is off and that your speakers are wired appropriately when changing the mode switches.

Output Binding Post

The SLA-4 Outputs are multi-connection jacks. You can use banana jacks, spade connectors or bare wire.

Bare Wire Connections – loosen the red and black caps on the binding posts (don't completely remove). Strip back the wire insulation $\frac{1}{2}$ ", then insert the bare wire into the hole on the side of the plastic assembly. Once it is in, screw the binding post cap down on the wire. Be sure that the wire connected to one post does NOT come in contact with that of another post.



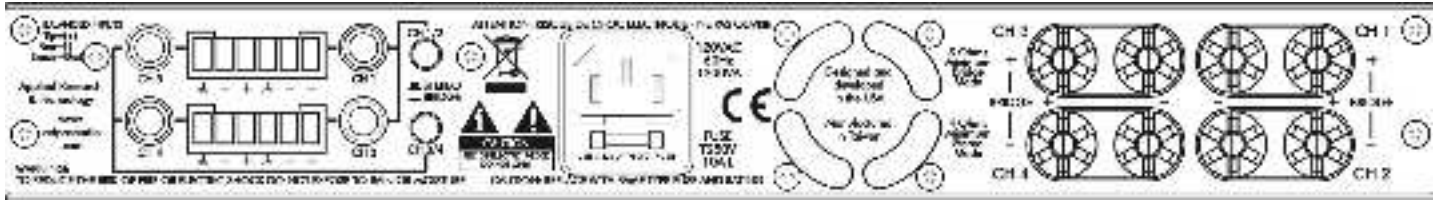
Spade Connector – Loosen the red and black caps on the binding posts (don't completely remove). Insert the spade connector into the binding post and tighten the caps down on the spade connector. Be sure that the connection to one post does NOT come in contact with another post.

Banana Plug – Insert the banana plugs into the caps of the binding posts. Be sure that the red and black caps on the binding posts are tightened down completely and that they are securely connected to avoid the possibility of the banana plugs popping out.

Cooling Fan

The SLA-4 features a cooling fan with thermal dependent fan assisted convection cooling. The fan speed is dependent upon the internal ambient temperature of the unit, and runs at two different levels.

Do not block the fan or constrict air circulation. Doing so may cause the amp to overheat and/or shutdown.



Fuse

The SLA-4 utilizes a (T10A 250v 20mm) 10 Amp fuse. Be sure to replace blown fuses with a fuse of equal rating only.

AC Power Input

The SLA-4 features an internal power supply. Plug the detachable cable into a standard wall outlet. Be sure that the supplied voltage matches that of the required voltage labeled on your amplifier. Never plug the amp into an outlet that does not match the required voltage of your amplifier. Serious damage could result.

OPERATION

Connect source audio material directly into each input channel and set the channel level controls to provide an appropriate level into each channel's speakers.

Normal Operation

For a typical four-channel setup, connect the source (mixer, eq, etc.) outputs into channels one thru four of the amplifier. Connect your speakers to the outputs on the rear of the amplifier. Be sure that your front level controls are turned down to their lowest level (full counter-clockwise). Turn the amp on, and then slowly turn the input level up. Use the front level controls to regulate the output volume. Be sure not to raise the volume past the clip level; however, an intermittent clip signal is acceptable.

Mono Bridge Operation

Be sure the amp is shut off. Press the appropriate Stereo/Bridge switch (on the back) to the "in" position. Connect an input signal to channel 1 (when bridging channels 1 and 2) or channel 3 (when bridging channels 3 and 4). Connect your speaker across the two appropriate red output-binding posts on the rear of the amplifier. Turn your equipment on – the amplifier should be the last piece you turn on (be sure its volume is turned down). Apply an input signal to your amplifier. Use channel 1 or channel 3 level controls to adjust your amplifier output level.

Protection

The SLA-4's output circuitry is fully protected from short circuits. An ultrasonic network decouples RF from the output and helps keep the amplifier stable with reactive loads.

The SLA-4's external heatsinks do most of the work in getting heat away from the amplifier, in normal operation. A rear mounted variable-speed fan provides extra cooling of the amplifiers internal circuitry as needed. Normally, at low to moderate signal levels, the fan runs at a low speed idle. If the internal temperature rises above a set level, then the fan switches to a higher speed to remove more heat from the inside. If, in the unlikely event the heatsinks should reach 194 degrees Fahrenheit, the amplifier will mute, until it cools down enough for safe operation. Make sure there is adequate ventilation around the heatsinks if you plan on rack mounting the SLA-4 in an enclosed space.

The SLA-4 is fully protected from shorts, opens, over-current, and over-voltage. A relay disconnects the outputs under any of these fault conditions and automatically returns to normal operation once the fault is removed.

The amplifier is stable into loads as low as 2 ohms (stereo mode), and 4 ohms (bridged mode) when used in a fixed or permanent installation. However, for continuous operation of all channels at mid to high signal levels, the amplifier should be operated with a minimum load of 4 ohms per channel in stereo mode and 8 ohms per channel in bridged mode, otherwise the overload and thermal protection circuitry may cycle the amplifier on and off as it protects itself.

WARRANTY INFORMATION

Limited Warranty

Applied Research and Technology will provide warranty and service for this unit in accordance with the following warrants:

Applied Research and Technology, (A R T) warrants to the original purchaser that this product and the components thereof will be free from defects in workmanship and materials for a period of **three** years from the date of purchase. Applied Research and Technology will, without charge, repair or replace, at its option, defective product or component parts upon prepaid delivery to the factory service department or authorized service center, accompanied by proof of purchase date in the form of a valid sales receipt.

Exclusions

This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. This warranty is void if the serial number is altered, defaced, or removed.

A R T reserves the right to make changes in design or make additions to or improvements upon this product without any obligation to install the same on products previously manufactured.

A R T shall not be liable for any consequential damages, including without limitation damages resulting from loss of use. Some states do not allow limitations of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights and you may have other rights, which vary, from state to state.

For units purchased outside the United States, an authorized distributor of Applied Research and Technology will provide service.

SERVICE

The following information is provided in the unlikely event that your unit requires service.

1. Be sure that the unit is the cause of the problem. Check to make sure the unit has the proper power supplied, all cables are connected correctly, and the cables themselves are in working condition. You may want to consult with your dealer for assistance in troubleshooting or testing your particular configuration.
2. Contact our Customer Service department via our website at: **<http://www.artproaudio.com>** and go to our "Resources" page and fill out our "Return Authorization Request" form. Your report will be submitted to our department for immediate evaluation.
3. If you are returning the unit for service, pack the unit in its original carton or a reasonable substitute. The original packaging may not be suitable as a shipping carton, so consider putting the packaged unit in another box for shipping. Print the RA number clearly on the outside of the shipping box.
4. Include, with your unit, a note with the RA number and your contact information including a daytime phone number, preferably attached to the top of the unit.

Fill in the following information for your reference:

Date of purchase:

Serial Number:

SLA-4 SPECIFICATIONS

Input Connections	1/4" TRS (balanced/unbalanced) Euroblock (balanced/unbalanced)
Output Connections	Multi-Way Binding Post
Input Impedance	44k ohms (balanced) 22k ohms (unbalanced)
Input Sensitivity	1V for full power output into 8 ohms
Output Power, 8 ohms	4 x 100Watts/Channel RMS
Output Power, 4 ohms	4 x 140Watts/Channel RMS
Bridged Output Power, 16 ohms	2 x 200Watts/Channel RMS
Bridged Output Power, 8 ohms	2 x 280Watts/Channel RMS
Stable into	2 ohms (stereo), short term 4 ohms (bridge), short term
CMRR	>60dB (typical @ 1kHz)
Frequency Response	10Hz to 40kHz, +/- .5dB
Hum and Noise	>100dB below clipping
Total Harmonic Distortion (THD)	<0.05% (typical)
Slew Rate	>20V/uS
Damping Factor	>100
Transformer Type	Toroidal
Power Requirements	100VAC 60Hz 1000 WATTS (max.) 120VAC 60Hz 1000 WATTS (max.) 220VAC 50Hz 1000 WATTS (max.) 230VAC 50Hz 1000 WATTS (max.) 240VAC 50Hz 1000 WATTS (max.) Export units configured for country of destination.
Dimensions (HWD)	1.75" x 19.0" x 13.5" 44.5mm x 482.6mm x 190.5mm
Weight	19.8 lbs., 9.0kg.

ART maintains a policy of constant product improvement. ART reserves the right to make changes in design or make additions to or improvements upon this product without any obligation to install the same on products previously manufactured. Therefore, specifications are subject to change without notice.



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