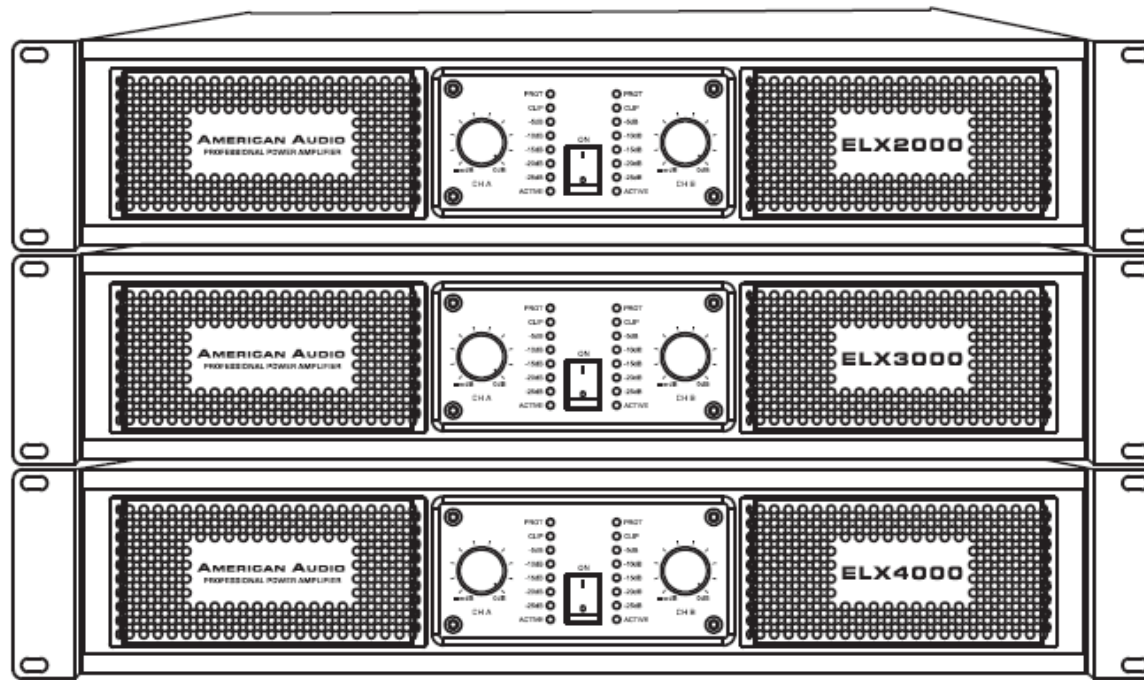


User Guide and Reference Manual

ELX Series

Professional Power Amplifier



Please Note: All specifications and improvements to and in the design of this unit and this manual are subject to change at any time without any prior written or published noticed.

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2. SAFETY PRECAUTIONS



This symbol is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION!

Risk of the electrical shock - DO NOT OPEN!

To reduce the risk of electrical shock, do not remove cover.

No user serviceable parts inside. Refer all servicing to qualified service personnel.

WARNING!

To prevent electrical shock or fire hazard, do not expose this amplifier to rain or moisture. Before using this amplifier, read the user manual for further warnings.



CAUTION

Do not open - Risk of Electric Shock



CAUTION!

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER.

THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER ALL SERVICE TO YOUR AUTHORIZED AMERICAN AUDIO® DEALER.



The lightning flash with an arrow triangular symbol is intended to alert the user to the presence of non-insulated “dangerous voltage” within the products enclosure, and may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point triangular symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the user manual accompanying the amplifier.



- FOR OPTIMUM PERFORMANCE AND RELIABILITY DO NOT PRESENT THE AMPLIFIER WITH A SPEAKER LOAD OF LESS THAN 2 OHMS OR ANY COMBINATION OF SPEAKERS THAT TOGETHER ARE LESS THAN 2 OHMS!
- USING ONE SPEAKER, IT MUST BE RATED AT 4 OR MORE OHMS. USING ONE SPEAKER IN STEREO MODE THE SPEAKER MUST BE RATED AT LEAST 2 OHMS. IF THE AMP IS IN BRIDGE MODE THEN ONE SPEAKER HAS TO BE AT LEAST 4 OHMS.
- USING TWO SPEAKERS, THEY MUST RATED EACH AT 4 OR MORE OHMS.
- USING THREE SPEAKERS, THEY MUST BE RATED EACH AT 8 OR MORE OHMS.

3. IMPORTANT PRECAUTIONS

- To reduce the risk of electrical shock or fire, do not expose this unit rain or moisture.
- Do not spill water or other liquids into or on to your unit.
- Do not attempt to operate this unit if the power cord has been frayed or broken.
- Do not attempt to remove or break off the ground prong from the electrical cord. This prong is used to reduce the risk of electrical shock and fire in case of an internal short.
- Disconnect main power before making any type of connection.
- Do not remove the cover under any conditions. There are no user serviceable parts.
- Never plug this unit in to a dimmer pack.
- Always be sure to mount this unit in an area that will allow proper ventilation. Allow about 6" (15cm) between this device and a wall.
- Do not attempt to operate this unit, if it becomes damaged.
- This unit is intended for indoor use, use of this product out-doors voids all warranties.
- During long periods of non-use, disconnect the unit's main power.
- Always mount this unit in a safe and stable manner.
- Power cords should be routed so they are not likely to be walked on, pinched by items placed upon or against them.
- Cleaning - The outside of the unit should be wiped down with a soft cloth and mild cleaner when needed.

- Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
- The amplifier should be serviced by qualified service personnel when:
 - The power-supply cord or the plug has been damaged.
 - Objects have fallen on, or liquid has been spilled into the unit.
 - The appliance has been exposed to rain or water.
 - The unit does not appear to operate normally or exhibits a marked change in performance.

4. INTRODUCTION

Congratulations and thank you for purchasing this American Audio® ELX Series amplifier! This amplifier is a representation of American Audio's continuing commitment to produce the best and highest quality products all at an affordable price. Please read and understand this manual completely before attempting to operate your new amplifier. This booklet contains important information concerning the proper and safe operation of your new amplifier.

4.1 UNPACKING

Every ELX Series amplifier has been thoroughly tested and has been shipped in perfect operating condition.

Carefully check the shipping carton for damage that may have occurred during shipping. If the carton appears to be damaged, carefully inspect your unit for any damage and be sure all accessories necessary to operate the unit has arrived intact. In the event damage has been found or parts are missing, please contact our toll free customer support number for further instructions. Please do not return the amplifier to your dealer without contacting customer support first.

4.2 INSTALLATION

This amplifier is designed to mount into a standard 19" rack.

The front panel provides four holes used to screw the unit into a rack. The unit also provides a way to rear mount the unit into a rack for added security. Rear mounting the unit is especially recommended for this amplifier if the unit is mounted into a mobile rack.

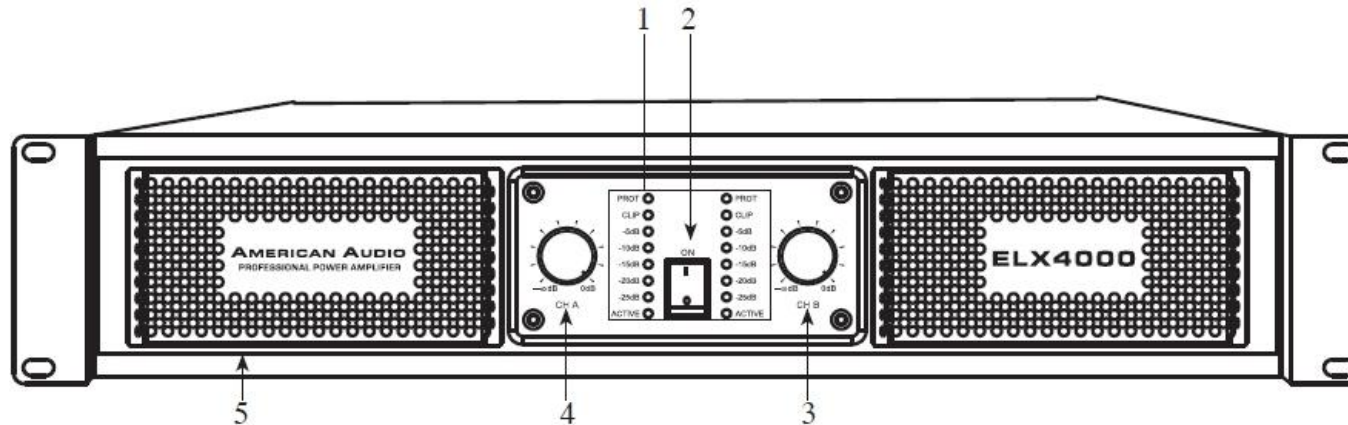
4.3 CUSTOMER SUPPORT

American Audio® provides a toll free customer support line, to provide set up help and to answer any question should you encounter problems during your set up or initial operation. You may also visit us on the web at www.americanaudio.us for any comments or suggestions. For service related issue please contact American Audio®.

Service Hours are Monday through Friday 08:30 to 17:00 GMT+1.

- Voice: 0031 45 546 85 30
- Fax: 0031 45 546 85 99
- E-mail: service@adjgroup.com

5. FRONT PANEL ELX SERIES



(1) Indicator LEDs

- **Channel Protect Indicator** – The yellow Protect LED will begin to glow when the channel goes into *Protect Mode*. When the channel goes into *Protect Mode*, all output for that channel will turn off. This is to protect any speakers connected to the channel.
- **Channel Clip Indicator** – This red LED will begin to flash when channel one begins to overload (clip). At this point channel one will begin to distort. Under heavy clipping activity lower the channel one gain control to reduce the risk of damage to your speakers and amplifier. This LED may glow when the unit has been turned off, this is normal.
- **Channel Signal Indicators** – These green LEDs will glow according to the average signal output.
- **Active Indicators** – These green LEDs will glow when the amp is switched on.

(2) Power Switch – This switch is used to control the units' main power.

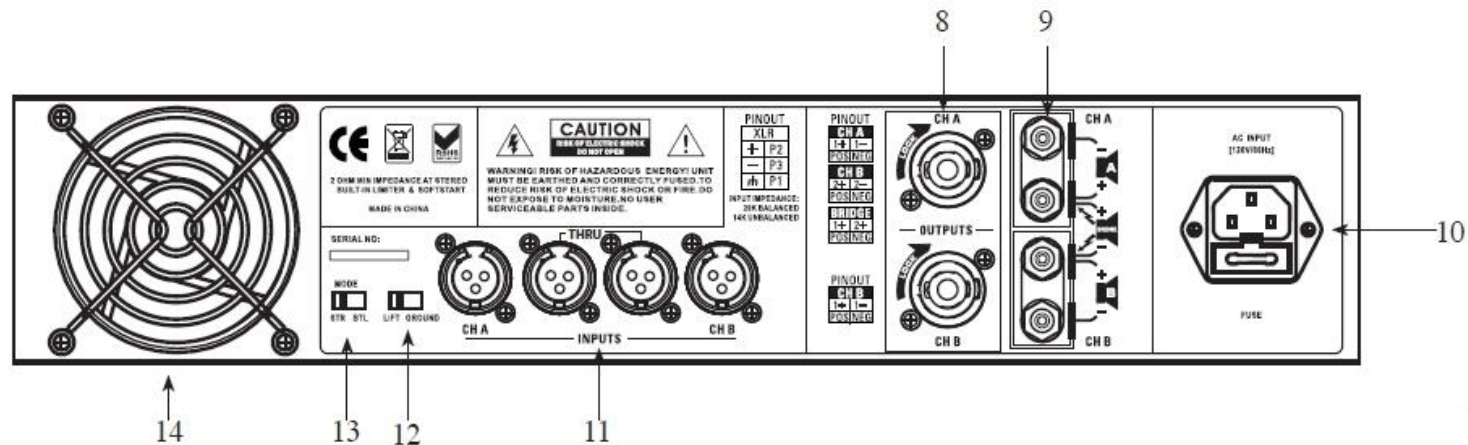
NOTE: *The amp must always be turned on last in an audio set up, and turned off first in an audio set up. Before powering down the Amp, turn the gain controls to the lowest position.*

(3) Channel B Gain Control – This rotary knob is used to control the output signal of channel two. Turning the knob in a clockwise direction will increase signal output. Before powering down the Amp, turn the gain control to the lowest position.

(6) Channel A Gain Control – This rotary knob is used to control the output signal of channel one. Turning the knob in a clockwise direction will increase signal output. This gain control is also used when the Amp is in *Bridge Mode*. Before powering down the Amp, turn the gain control to the lowest position.

(7) Air Inlet – These air inlets draw in air from the outside to help cool down the amp as it is running. Do not place anything in front or obstruct these inlets. Keep these air inlets clean for maximum air flow.

6. REAR PANEL



(8) Channels A & B Speakon Outputs – Optional speaker output connections.

Use pins 1+ and 1- of this 4-pole Speakon connector to connect to your speakers' Speakon input jack.

(9) Channel A & B Output Jack/5 way Binding Post – Connect to your speakers' input jack.

Red is positive signal and *Black* is negative signal. When using Bridge Mode, use Channels A & B.

(10) AC Cord – Plug this cable into a standard wall outlet. Check that the voltage in your area matches the amplifiers required voltage.

- **Fuse Holder** – This housing stores a 12 amp protective fuse. Never defeat the fuse, the fuse is designed to protect the electronics in the event of severe power fluctuations. Always be sure to replace the fuse with an exact match as the one being replaced, unless otherwise told to do so by an authorized American Audio® service technician.

(11) Channel A & B XLR Inputs – Channel A & B 3-pin XLR balanced input jack. See chapter 7 (Set Up) for more details.

- **Channel A & B XLR THRU Inputs** – These inputs are parallel outputs of the inputs used to link multiple amps.

(12) Ground Lift Switch – This switch allows the ground signal or chassis ground to be separated in case of a ground conflict. For the safety of the amp, it is recommended to keep the switch in the GND FLOATING position. In case of a ground conflict please set the switch to GND LIFT.

(13) Mode Switch – This switch controls the amplifiers' operating mode. The amplifier can operate in two different modes; *Mono Bridge* or *Stereo*. The amplifier is shipped in *Stereo Mode*.

(16) Air Vents – These vents allow hot air to exit the amp. Do not place anything in front or obstruct these vents.

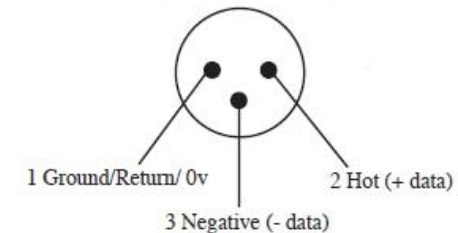
7. SET UP

7.1 INPUTS

The ELX Series amplifier allows you to use two types of input connector per a channel, a XLR jack for balanced connections and a 1/4" female jack that will accept balanced and unbalanced connectors. Use these connections to connect the output signal from a mixer, cross-over or EQ to your XLT Series amplifier.

A balanced connection is recommended for cable runs longer than 20ft. When constructing your own XLR cables follow the pin configuration described below for proper connections.

Male XLR Pin Configuration: US ITT Standard



7.2 OUTPUTS

Binding Post – Connect your speakers to the binding post outputs on the rear of the amplifier. The speaker wire may be connected by bare wire (directly connected, usually for permanent connections). Connections are made to Channels A and B outputs for *Stereo Mode* or across the red terminals of Channels A and B for *Mono Bridge Mode*.

Important Notice: *Although a speaker will operate with the positive and negative leads plugged into either terminal on the amplifier binding post, be sure to plug the negative lead into the black terminal and positive lead into the red terminal. Ensuring proper polarity will avoid speakers being out of phase that can cause a loss of bass response.*

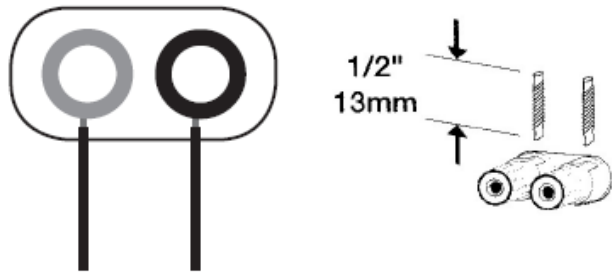
7.3 BARE WIRE CONNECTIONS

When connecting your speakers to the amplifier using bare wire:

- Unscrew the red and black caps on the binding post, be sure not to completely remove or unscrew the red and black caps.

- Strip back the wire insulation 1/2" (13mm).
- Insert the bare wire into the hole that was revealed by unscrewing the binding post cap. After inserting the wire into the binding post hole, screw the binding post cap down on the wire.

Important: To reduce the risk of shock or damage to your amplifier, be sure that the wire connected to one binding post does not come in contact with that of another.



Typical speaker output using bare wire.

Insert bare wire into the binding post and tighten.

7.4 MONO BRIDGE CONNECTIONS

Mono Bridge operation connections will follow the above descriptions however, when operating in *Mono Bridge* operation the speaker connections will run between the two positive (red) leads. Use channel two positive output terminal for the negative connection and the channel one positive output terminal for the positive connection.

7.5 STEREO CONNECTIONS (USING THE NEUTRIK SPEAKON OUTPUT CONNECTORS)

Recent regulatory requirements in Europe have outlawed the use of the dual banana plug and forced amp users to terminate their speaker cables with spade lugs or bare wire ends. This is not advantageous to most users that want to reconfigure their systems or quickly change out an amp.

The Neutrik Speakon® connector provides the most convenient solution to this problem, eliminating the need for spade plugs or bare wire end cables.

Major speaker manufacturers have been using Speakon connectors on their products for years, so chances are you are ready to use the Speakon connection. With Speakon connectors, you can connect straight from the amplifier to the speaker. The Speakon connector used on this amplifier meets all known safety regulations. Once wired correctly, the connector cannot be plugged in backwards, causing the type of inverted polarity situations that have become common with banana hookups.

This connection will provide a safe, secure and reliable method of connecting your speakers to your new amplifier. You can purchase the Speakon® NL4FC connectors from your local audio dealer.

7.5.1 SPEAKON ASSEMBLY

You will need a pair of Neutrik Speakon® NL4FC connectors.

You will also need high-quality two or four conductor speaker cable, a pair of needle-nosed pliers and a 1.5-mm Allen key to assemble the Speakon connectors to your speaker wire. To assemble the Neutrik Speakon NL4FC connector, complete the following steps:

1. Strip back 3/4-inch of the cable casing. Strip off 1/4-inch from the end of each of the conductors down to bare wire, and insert the brass fittings.

See *Figure 8*.

Figure 8



- Slide the cable tension clip (D) and the Speakon coupler (E) through the cable end.

See *Figure 9*.

- Insert each wire with the brass fittings into the top of appropriate slot of the connector insert (B) as shown in *Figures 9 and 10*. Use a 1.5-mm Allen key to tighten the connection.

See *Figure 10*.

- Be sure to properly match the positive (+) and negative (-) leads of each wire.

See *Figure 11*.

- Slide the connector insert (B) into the connector housing (A), making sure that the large notch on the outer edge of the insert lines up with the large groove on the inside of the connector housing. The insert should slide easily through the housing and out the other side until it extends approximately 3/4-inch from the end of the housing.
- Slide the cable tension clip (D) along the cable and insert into the housing (A), making sure that the large notch lines up with the large groove on the inside of the connector housing (A). The cable tension clip (D) should slide easily into the housing until only 3/8-inch of the cable tension clip (D) extend from the back end of the connector.

Figure 9

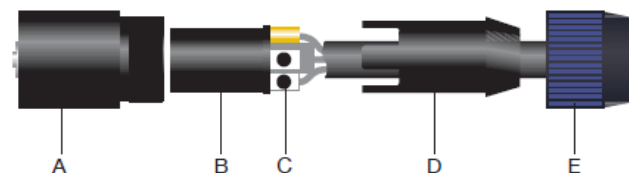


Figure 10

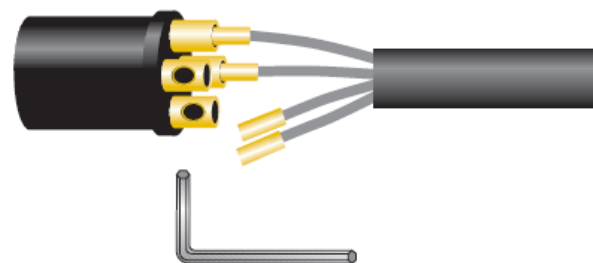
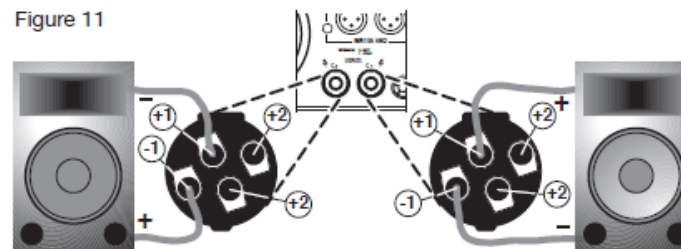


Figure 11



7. Slide the coupler (E) along the cable and screw it onto the end of the housing (A). Before tightening, you may want to test the connector to make sure it has been assembled properly.

7.6 OPERATING MODES

Always configure your amplifier operating mode before beginning operation. If you want to change it during performance, you must decrease the gain controls to their lowest levels to protect the speakers from any popping noise.

7.6.1 STEREO OPERATION

Chapter 7.9 Typical Stereo Output Connections) details an example of a typical stereo set-up.

- Connect your inputs into channels one and two of the amplifier.
- Connect your speakers to the outputs on the rear of the amplifier. Be sure that your front gain controls are turned down to their lowest level (full counter-clockwise).
- Turn your amp on.
- Turn your input source level up. Use your front gain controls to regulate the output volume. Be sure not to raise the volume to the clip level; however an intermittent clip signal is acceptable.

7.6.2 MONO BRIDGE OPERATION

Chapter 7.10 Typical Mono Bridge Setup details a mono bridge set-up.

- Be sure your amplifier and all other audio equipment is powered down.
- Flip the Stereo/Bridge switch to the Bridge position.

- Connect an input signal to channel one.
- Connect your speaker across the red output binding post on the rear of your amplifier.
- Turn your equipment on (your amplifier should always be the last item you turn on).
- Apply an input source signal to your amplifier.
- Turn channel two gain up. Use the channel one gain to regulate your amplifier output.

Caution! *The voltage across the output terminals of a bridged ELX Series amplifier may equal or exceed 100 volts RMS and may be as high as 130 volts. Use fully insulated CLASS ONE wiring, and the load must be rated for up to 2500 watts (@4 ohms)*

7.7 PROTECTION

7.7.1 THERMAL PROTECTION

If the amplifiers operating temperature runs over 105°C (221°F), the amplifier will go into thermal protection to prevent damage from overheating. The *Protect Indicator LED* located on the front of the amp will light up, and the output signal will be muted. The fans will start to run at max speed to allow the amp to return to a safe operating temperature. To prevent amplifier overheating, make sure your input signal is not clipping (Red LED indicator located at the front), and that you are not overdriving the amp. Make sure not to block the airflow input and output vents and always use the amp in an environment that is no higher than 30°C (86°F). Never use a speaker load that exceeds power or impedance ratings.

7.7.2 CLIP LIMITER

When the input signal overloads, the *Clip LEDs* will indicate a signal overload, at this time, the master volume should be lowered to reduce distortion. If the input gain level is not reduced, the built-in limiter will activate. During signal overload, the limiter will reduce the input audio signal enough to minimize the amount of clipping. A limiter takes the gain of an overloading signal and reduces it; the reduction in gain reduces distortion that can cause damage to your speakers and amplifier. During normal operation below clipping and momentary clips on peaks, the limiter does not affect the audio signal and is inaudible. It will allow brief clipping of peaks and will only activate when continuous, hard clipping occurs. During excessive clipping the limiter will reduce the audio signal enough to minimize the amount of clipping. When the input signal decreases enough that clipping ends, the limiter will deactivate and cease its gain reduction. The limiter has a fixed threshold and cannot be adjusted.

Note: *If the input signal is clipping or exceeds linearity working range of input circuit, then the Clip Limiter will not work.*

7.7.3 SHORT CIRCUIT PROTECTION

The ELX Series amplifiers all come with built-in *Short Circuit Protection*. If a short circuit is detected on the output signal, the *Clip* and *Protect Indicator LEDs* will both glow. This protection makes the output transistors work at a safe range and there will be no output from the amp. The amp will recover after 10 seconds after the terms of the short circuit have been removed.

7.7.4 AC LOCAL POWER PROTECTION

If the AC power voltage is lower than 70% of the required voltage, the power supply will turn off automatically until the power voltage is normal.

Note: *The correct AC main voltage is listed above the Power Cord input. Connecting to the wrong voltage is dangerous and may damage the amplifier. Always be sure the source voltage for your area matches the required voltage for your amplifier.*

7.7.5 DC PROTECTION

If the output signal has a larger DC voltage ($\approx 2.6V$), in order to protect the speaker, the DC protection circuit will startup. When the DC protection circuit starts up, the *Protection Indicator LED* will glow and the amp will go mute.

Safe Power Levels at Different Output Loads:

8-Ohm Loads: The amplifier can operate at practically any power level without risk of overheating. However, if it is pushed hard enough to continually light the *Clip Indicator*, the amplifier's average output power can reach 150 watts.

4-Ohm Loads: If the *Clip Indicator* flashes occasionally, the amplifier is approaching its maximum long-term power capacity. If it is lit about half the time, the amplifier channel will probably go into thermal protection within a few minutes.

7.8 AMPLIFIER FEATURES

7.8.1 LINK

Link will allow the user to daisy-chain one amplifiers' signal input into another amplifier. Plug the signal source outputs into the first amplifiers' input, patch from the amplifiers' LINK jacks to the next amplifiers' input, and so on, daisy-chaining as many amplifiers as there is no excessive level loss.

7.8.2 OPERATING VOLTAGE (AC MAINS)

The correct AC main voltage is listed above the *Power Cord* input. Connecting to the wrong voltage is dangerous and may damage the amplifier.

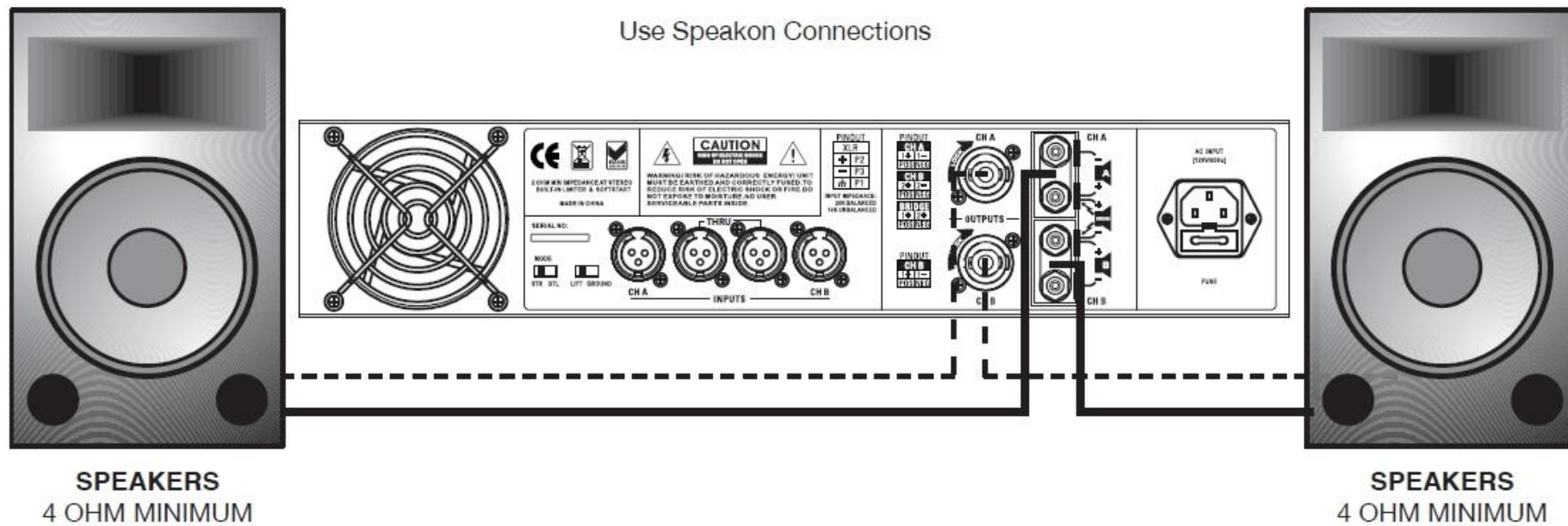
7.8.3 GAIN CONTROLS

The gain controls are located on the front panel and are calibrated in 2dB of attenuation from full gain. It is best to adjust the amplifier so no “hissing” is heard from speakers with no music being played, this will ensure the lowest possible distortion during normal operation.

7.8.4 LED INDICATORS

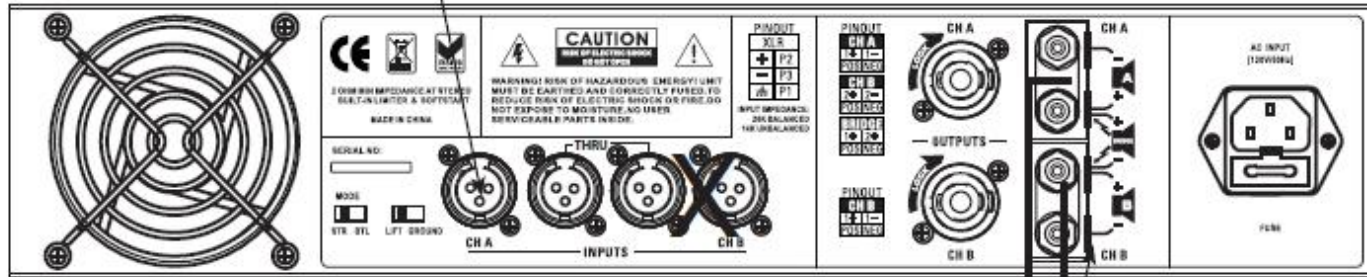
Each channel has eight LEDs. The bottom LED is the channel power indicator. The next five LEDs indicate signal level activity; one red LED indicates signal clipping and the other red LED indicates protection mode for shorts/overload.

7.9 TYPICAL STEREO OUTPUT CONNECTIONS



7.10 TYPICAL MONO BRIDGE SETUP

Use Channel 1 Input Only



Set the Operation Mode switch to Bridge (BTL)

Use the two positive binding post terminals (red) for speaker output.

SPEAKERS
8 OHM MINIMUM



8. ROHS – A CONTRIBUTION TO THE CONSERVATION OF ENVIRONMENT

The European Union has adopted a directive on the restriction/prohibition of the use of hazardous substances. This directive, referred to as ROHS, is a frequently discussed topic in the electronic industry.

It restricts, among other things, six materials: Lead (Pb), Mercury (Hg), Hexavalent Chromium (CR VI), Cadmium (Cd), Polybrominated Biphenyls as flame retardant (PBB), Polybrominated Diphenyl, also a flame retardant (PBDE). The directive applies to nearly all electronic and electrical devices whose mode of operation involves electric or electromagnetic fields – in short: each kind of electronics we have around us in our households or at work.

As manufacturers of products of the brands of AMERICAN AUDIO®, AMERICAN DJ®, ELATION Professional and ACCLAIM Lighting, we are obligated to comply with the ROHS directive. Therefore, as early as two years prior to the directive coming into force, we started our search for alternative environmentally friendly materials and manufacturing processes.

Well before the ROHS directive took effect, all of our products were manufactured meeting the standards of the European Union. With regular audits and material tests we can still assure that the components we use are always ROHS-compliant and that the manufacturing process, as far as the state of technology allows, is environmentally friendly.

The ROHS directive is an important step to the protection of our environment. We, as manufactures, feel obligated to make our contribution in this respect.

9. WEEE – WASTE OF ELECTRICAL AND ELECTRONIC EQUIPMENT

Every year thousands of tons of electronic components, which are harmful to the environment, end up at the waste disposals around the world. To ensure the best possible disposal or recovery of electronic components, the European Union has adopted the WEEE directive.

The WEEE-system (Waste of Electrical and Electronic Equipment) can be compared with the system of the “Green Spot”, which has been in use for several years. The manufactures have to make their contribution to the utilization of waste at the time they release the product. Money resources obtained by doing so will be applied to develop a common system of waste management. Thereby we can ensure professional and environmentally friendly scraping and recycling program.

As manufactures, we are part of the German system of EAR and we make our contribution towards it.

(Registration in Germany: DE41027552)

That means that products of AMERICAN DJ® and AMERICAN AUDIO® can be left in the collection points free of charge and they will be used in the recycling program. Products of ELATION Professional, which are used only by professionals, shall be handled by us. Please send Elation products directly to us at the end of their lifetime so that we can professionally dispose of them.

Like the above ROHS, the WEEE directive is an important contribution to the environment protection and we are glad to help to clean the environment with this disposal system.

We are happy to answer any of your inquiries and welcome your suggestions at: info@americandj.eu

10. ELX SERIES SPECS

Power supply: AC 100V, 50/60Hz (Japan)
 AC 110V, 60Hz (Colombia)
 AC 120V, 60Hz (U.S.A. and Canada)
 AC 127V, 60Hz (Mexico) AC 220V, 50Hz (Chile and Argentina)
 AC 220V, 60Hz (Philippines and Korea)
 AC 230V, 50Hz (Europe, New Zealand, South Africa and Singapore)
 AC 240V, 50Hz (Australia and U.K.)

Model:	ELX 4000
Output Power:	2 x 260W RMS per Channel @ 8 Ohms, 1KHz, 1% THD 2 x 400W RMS per Channel @ 4 Ohms, 1kHz, 1% THD 800W RMS @ 8 Ohms, 1kHz, 1% THD (Bridge Mode, Mono)
Total Harmonic Distortion (THD):	Less than 0.1% (20Hz - 20kHz @ 8 Ohms)
Frequency Response:	20Hz to 20KHz +1.0dB
Slew Rate:	20V Per μ sec
Damping Factor (f=1 KHz at 8 Ω):	> 150
S/N Ratio:	> 95dB

Crosstalk @ rated: power output 8 Ω at 1 kHz)	> 65dB
Impedance:	20K Ohms Balanced
Dimensions (LxWxH):	19" x 13.75" x 3.5" 483 x 345 x 88mm (2 Rack Mount Spaces)
Weight:	27lbs. / 12kg

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