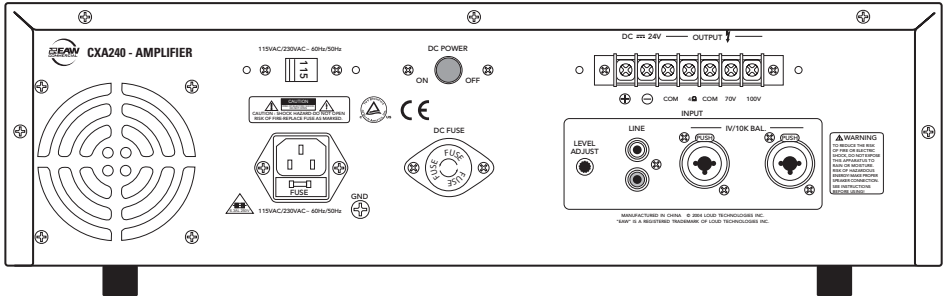


INSTRUCTION MANUAL



CXA240

Power Amplifier



CAUTION AVIS

RISK OF ELECTRIC SHOCK • DO NOT OPEN
 RISQUE DE CHOC ELECTRIQUE
 NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK
 DO NOT REMOVE COVER (OR BACK)
 NO USER-SERVICEABLE PARTS INSIDE
 REFER SERVICING TO QUALIFIED PERSONNEL
 ATTENTION: POUR EVITER LES RISQUES DE CHOC
 ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. AUCUN
 ENTRETIEN DE PIECES INTERIEURES PAR L'USAGER. CONFIER
 L'ENTRETIEN AU PERSONNEL QUALIFIE.
 AVIS: POUR EVITER LES RISQUES D'INCENDIE OU
 D'ELECTROCUTION, N'EXPOSEZ PAS CET ARTICLE
 A LA PLUIE OU A L'HUMIDITE



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'électrocution.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

1. 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 manufacturer'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. This apparatus must be connected to a mains socket outlet with a protective earthing connection (the third grounding prong).
16. This apparatus has been equipped with an all-pole, rocker-style AC mains power switch. This switch is located on the front panel and should remain readily accessible to the user.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

WARNING: The 70 V and 100 V output terminals are potentially HAZARDOUS and any external wiring connected to these terminals requires installation by an INSTRUCTED PERSON or the use of ready-made leads or cords.

WARNING: This equipment has been designed to be installed by qualified professionals only! There are many factors to be considered when installing professional sound reinforcement systems, including mechanical and electrical considerations, as well as acoustic coverage and performance. EAW Commercial strongly recommends that this equipment be installed only by a professional sound installer or contractor.

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2. INTRODUCTION

The CXA240 is designed for continuous duty in speech, music, paging and sound reinforcement applications in churches, schools, offices, arenas, hotel meeting rooms, convention centers, recreation facilities and other venues demanding high performance, flexible features, and rugged dependability.

The CXA240 has a 240 watt power amplifier, with an internal output transformer. The outputs are screw terminals that accept bare wire or spade terminals.

There are four inputs: two unbalanced RCA, and two combination inputs, capable of accepting balanced XLR, 1/4" TRS, or unbalanced 1/4" TS connections from line-level sources. A rear panel level control allows adjustment of the input signals.

Output modes include 4 Ω low impedance, and 70 V and 100 V constant voltage. The smart output stage is fully protected against permanent damage caused by overloading, shorts, and extreme temperatures.

The CXA240 operates on either 115 or 230 VAC, 50/60Hz, determined by a rear panel voltage select switch, and is supplied by a detachable IEC power cord.

A rear panel terminal strip connection is provided for connecting an external 24 VDC backup battery, with a rear panel DC power switch.

The front panel provides a meter that indicates output signal strength, ranging from -20 dB to 0 dB and clipping.

Three status LEDs on the front panel show when the amplifier has a signal present, when the amplifier is in protection mode, and when the peak output is reached.

The front panel incorporates holes for rack mounting, and it will take up three rack spaces. There are two handles fitted on the front panel.

KEY FEATURES

- Two balanced/unbalanced XLR/TRS combination inputs
- Two RCA unbalanced inputs
- Adjustable rear panel level control
- 240 watt rms power output
- Fan cooled
- 4-ohm low-impedance screw-terminal outputs
- 70 V and 100 V constant voltage screw-terminal outputs
- Discrete component high-power amplifier
- Switchable 24 VDC Backup Power Input
- 3 RU Rack-Mounting
- Front panel handles

APPLICATIONS

- Foreground/Background Music Systems
- Sound Reinforcement Systems
- Paging Systems
- Continuous-Duty Applications

3. FRONT PANEL FEATURES

1. LED INDICATORS

PROT

This LED is on when the amplifier is in protection mode. This can occur if the volume is too high for long periods, or if heavy loads, a speaker defect, or poor ventilation cause the amplifier to overheat. If this light comes on, turn down your input signal to avoid over-working the amplifier, and check your speakers and wiring for defects. Check that the amplifier is also receiving good ventilation.

SIGNAL

This LED is on when an input signal is present.

PEAK

This LED comes on when the input signal is high and the maximum output is reached. Turn down the input signal if this LED comes on often.

2. LED METER

This meter shows the signal output level.

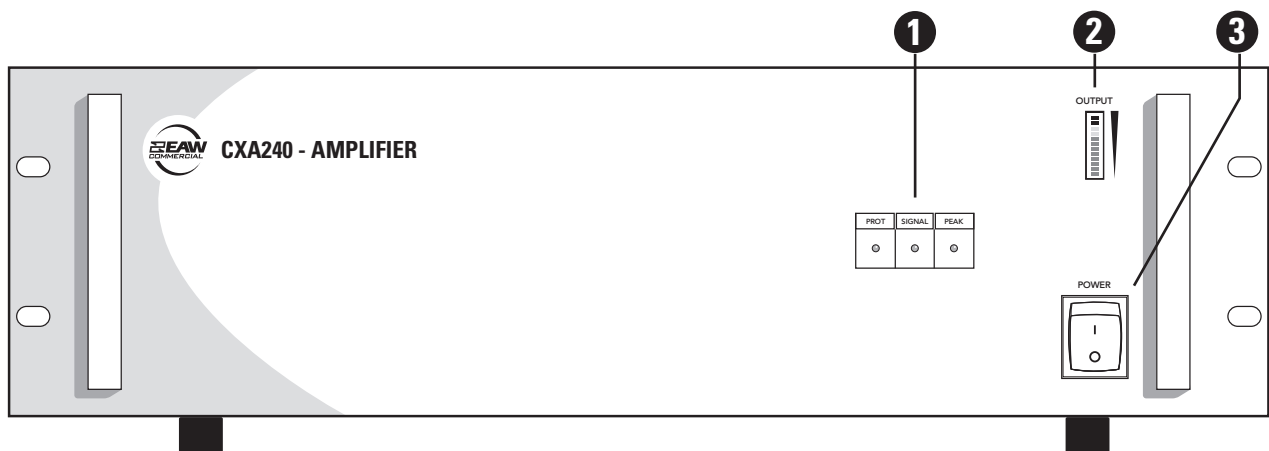
The lower eight LEDs represent the area between -20 dB and 0 dB. Adjust the volume to keep your output within these levels.

Turn down the volume level so the top two LEDs do not light, otherwise the outgoing signal will clip and distort.

3. POWER


Use this rocker switch to turn the unit on or off. This connects/disconnects the AC power to the AC power transformer.

The amplifier is on when the top of the switch is pressed in. It is off when the bottom of the switch is pressed in.




4. REAR PANEL FEATURES

4. COOLING FAN


 These vents should not be obstructed, or this may cause overheating.

5. VOLTAGE CONVERSION

The unit can be configured to operate at 115 VAC or 230 VAC.


 Be sure this switch is set to the correct position for the AC power supply being used, before plugging in the power cord. The switch can be moved with a small flat screwdriver, once the protective cover is removed. Replace the cover afterwards.

6. IEC AC INPUT

 The supplied power cord connects here. Check that the voltage setting of the VOLTAGE CONVERSION (5) switch is the same as your local AC Mains voltage before plugging in the power cord. Make sure that your local AC Mains is capable of supplying adequate current, and has a protective earthing connection.

7. AC FUSE

The fuse resides inside a little cover just below the AC input.

 Make sure that the power cord is unplugged before removing the AC fuse. When you are sure that all is safe, pry off the fuse cover with a flat screwdriver, taking care not to damage the cover or fuse. Replace the fuse only with the same type and rating as marked on your unit.

8. GROUND (EARTH) SCREW

The chassis connects to ground via the AC ground, and normally does not need any extra ground connection. Connections, if required, should be made by experienced, qualified electricians.


9. DC POWER SWITCH

If this switch is pressed in, the unit will automatically switch to external DC battery power whenever (or if-ever) your local AC power fails. You will need to connect an external 24-volt battery to the DC battery terminals (11).

If the switch is out, the battery will not power up the unit.


10. DC FUSE

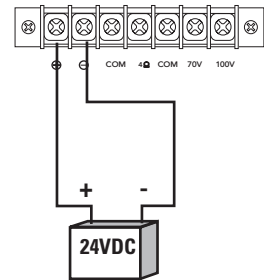
The DC fuse resides inside this fuseholder. The fuse offers protection to the DC rail supply to the power amplifier.

 Make sure that the AC supply is turned off before removing the fuse. When you are sure that all is safe, press in the fuse cover and turn it counter-clockwise. Replace the fuse only with the same type and rating as marked on your unit.


11. DC BATTERY TERMINALS

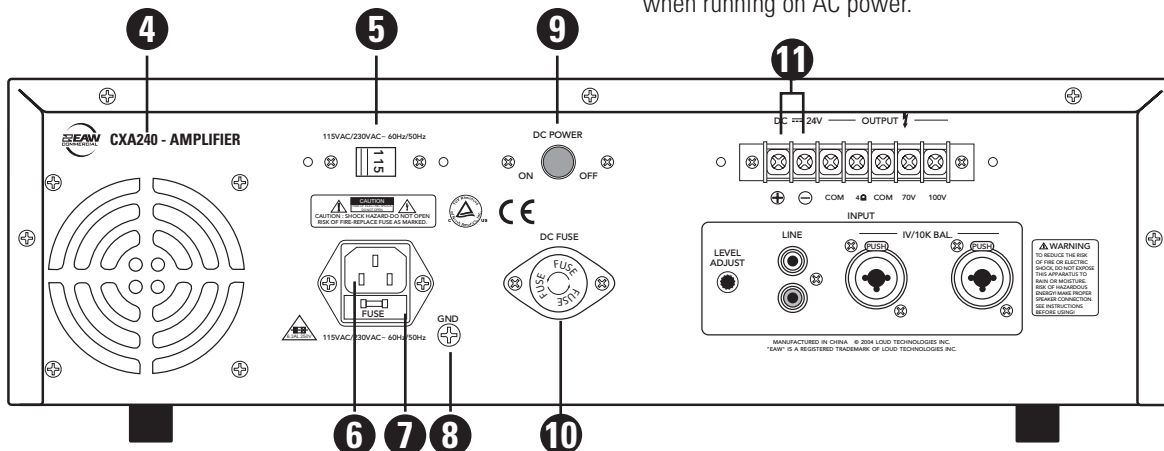
These two screw terminals are used to connect an optional external 24 VDC battery.

 Make absolutely sure the positive post of your battery goes to the positive terminal, and the negative post connects to the negative terminal. To minimize the voltage drop across the wires and prevent overheating, use at least 14 AWG wire.



The unit can be powered using a 24 VDC power supply (if the rear panel DC POWER SWITCH is pressed in). This serves as a backup supply in case of an AC power failure. The unit seamlessly switches to the backup supply if there's a power loss, allowing safety instructions and emergency communications to continue. When both AC power and 24 VDC power are connected, the AC power is used and no current is drawn from the DC supply.

 **Note:** The unit will not charge the battery, so you should have a dedicated charging system. Note also, that when running on DC power, the output is lower than when running on AC power.



OUTPUT TERMINALS (12 and 13):

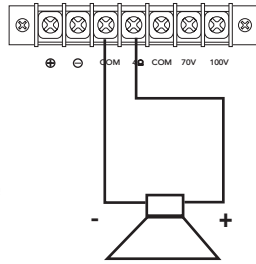
This terminal block is normally covered by a protective cover. Remove the two screws and the cover while making or undoing connections. Securely refit the cover when you have finished making the connections.

The five output terminals are labeled COM, 4 Ω, COM, 70 V, and 100 V.

12. LOW IMPEDANCE

To connect a speaker directly, connect the COM terminal to the negative post of your speaker, and connect the 4 Ω terminal to the positive post.

! Make sure that your average speaker impedance is not less than 4 Ω, as this may overload the amplifier.



The speaker output connectors are screw terminals. Use 16 or 18 gauge wire for connecting the amplifier outputs to the speakers. Strip the wire back about 3/8" inch, loosen the screw enough to loop the wire around the shaft of the screw (clockwise), and tighten down the screw with a screwdriver.

13. CONSTANT VOLTAGE

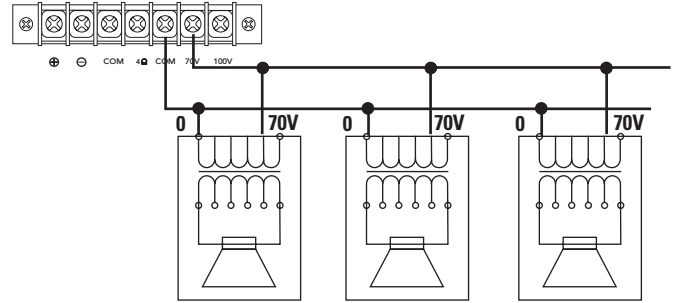
If you are using a constant-voltage distributed speaker system, connect either the 70 V, or 100 V output terminal to the "+" side of the speaker system, and connect the "COM" output terminal to the "-" side of the speaker system.

! Each speaker must be equipped with a line transformer with an input voltage equal to that of the line (70 V or 100 V).

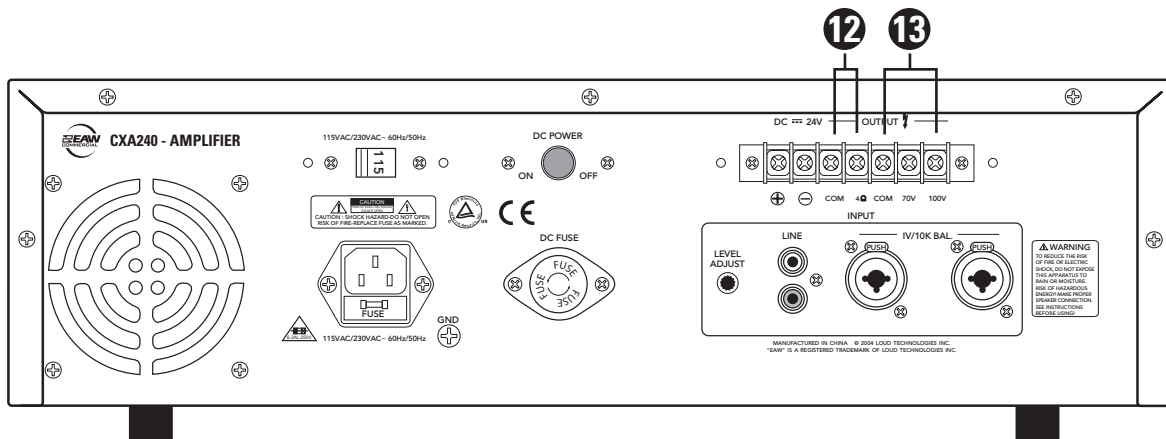
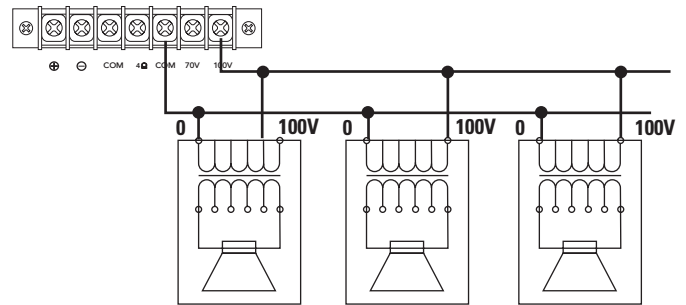
! Make sure that the sum of the power capacities of the speakers does not exceed 90% of the amplifier's rated output power (216 W).

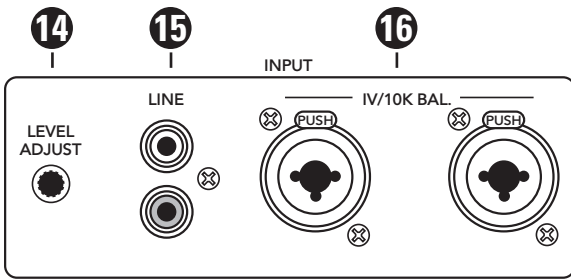
! **CAUTION:** To prevent the risk of electric shock, never touch the bare wires coming from the OUTPUT TERMINALS of the amplifier when it is switched on. When the connections have been made, insulate the 70 V and 100 V terminals of the amplifier using the protective cover supplied.

COM and 70 V are used to connect 70 V speakers.
Use Class I wiring:



COM and 100V are used to connect 100V speakers
Use Class I wiring:





14. LEVEL ADJUSTMENT

This control allows you to adjust the input signal level.

15. RCA INPUTS

These unbalanced RCA inputs allow you to connect audio sources, such as tuner, CD player, DVD audio, tape deck etc. They accept line-level input signals, and are summed to mono. This input is suitable for connecting most common line-level sources. Use high-quality, two-conductor shielded cable for the connections.

16. COMBINATION INPUTS

These inputs allow you to connect balanced XLR plugs or 1/4" TRS or TS plugs from line-level sources. The two inputs are summed to mono.

Use balanced connections where possible (instead of RCA unbalanced connections), as these offer better rejection of noise.

Use high-quality, three-conductor shielded cable for balanced connections. The better the shield, the better the audio signal is protected from induced EMI and RFI.

5. THERMAL CONSIDERATIONS

The power amplifier within the unit is fan cooled. Heat is drawn away from the amplifier heatsink by the fan and exhausted through the cooling vents in the top cover.



When installing, be sure to allow sufficient air space around the top and rear of the amplifier to allow adequate cooling for the heatsink. Leave at least one rack space above and below, and at least 6 inches behind the chassis to allow proper ventilation.

If the amplifier should overheat, a thermal switch turns off the power amplifier, allowing the heatsink to cool down. Once the amplifier has cooled to a safe operating temperature, the thermal switch resets and reactivates the amplifier. If this should occur, identify the cause of the problem and take corrective action. For example:

- Provide better ventilation
- Install a fan in the rack to move more air
- Make sure the amplifier is not overloaded with too low of a load impedance or by a short circuit on the speaker line

RACK MOUNTING

The front panel has rack mount holes provided to allow the unit to be fitted within a standard 19" rack.

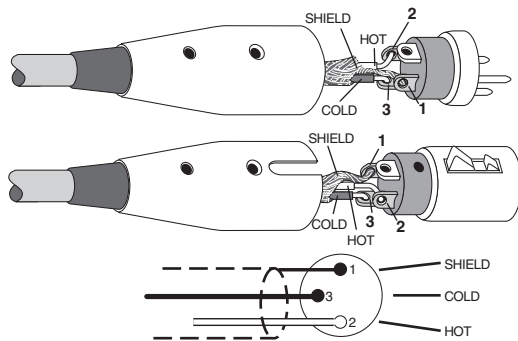
The unit still needs to be supported underneath, due to the weight of the power and output transformers.

6. CONNECTIONS

Here are some common audio connectors and their internal wiring.

XLR Connectors

XLR connectors are commonly wired as follows (according to standards specified by the Audio Engineering Society):

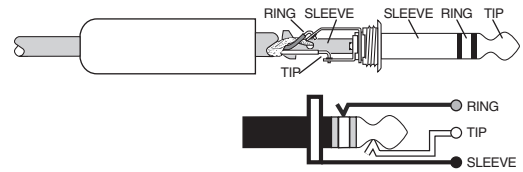


XLR Balanced Wiring

- Pin 1 = Shield
- Pin 2 = Hot (+)
- Pin 3 = Cold (-)

1/4" TRS Phone Plugs and Jacks

"TRS" stands for Tip-Ring-Sleeve, the three connections available on a stereo 1/4" or balanced phone jack or plug. TRS jacks and plugs are used for balanced signals and stereo headphones.

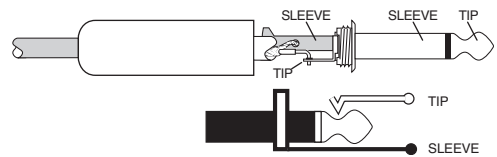


1/4" TRS Balanced wiring

- Sleeve = Shield
- Tip = Hot (+)
- Ring = Cold (-)

1/4" TS Phone Plugs and Jacks

"TS" stands for Tip-Sleeve (famous Olympic hurdler), the two connections available on a mono 1/4" phone jack or plug. They are used for unbalanced signals.



1/4" TS Unbalanced Wiring

- Sleeve = Shield
- Tip = Hot (+)

RCA Plugs and Jacks

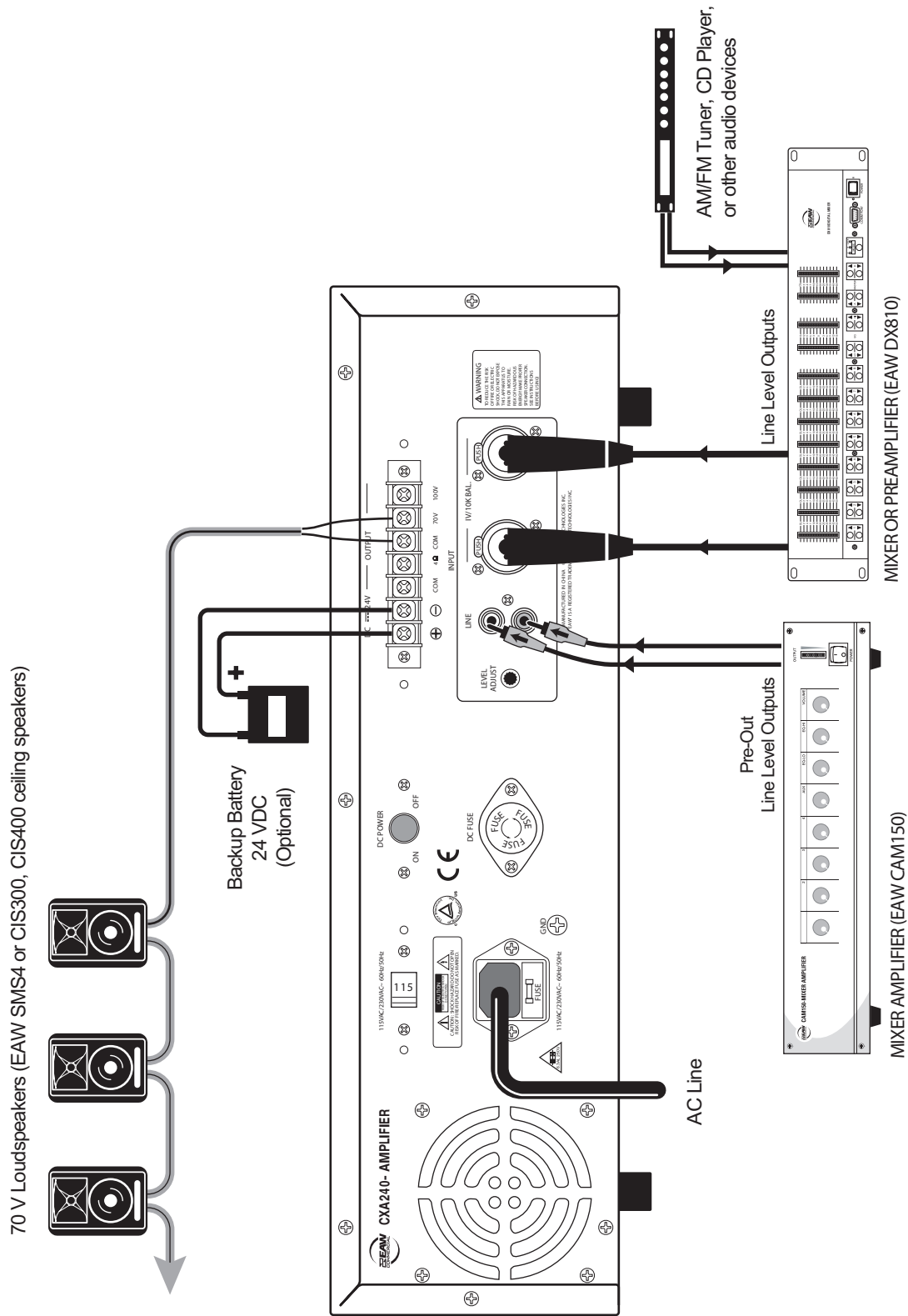
RCA-type plugs (also known as phono plugs) and jacks are often used in home stereo and video equipment and in many other applications. They are unbalanced and electrically equivalent to a 1/4" TS phone plug.



RCA Unbalanced Wiring

- Sleeve = Shield
- Tip = Hot (+)

7. TYPICAL HOOKUP DIAGRAM



8. SPECIFICATIONS

Performance

Amplifier Power:	240 W, nominal, 330 W peak
Frequency Response:	50 Hz–18 kHz \pm 3 dB
Distortion:	< 1 % THD at 1 kHz nominal power
Noise:	>70 dB

Audio Inputs

Input Type:	Two balanced/unbalanced combination 1/4-inch TRS/TS and XLR connectors Two unbalanced RCA inputs
Input Sensitivity:	1 V, (1.4 V for RCA)
Impedance:	10 k Ω
Input Level Adjustment:	-12 dB to 0 dB (1 V)

Audio Outputs

Number of Channels:	One
Low Impedance:	4 Ω
Constant Voltage:	70 V, 100 V screw-terminal connectors (20.4 Ω , 41.8 Ω)

Controls

Front Panel:	Power switch
Rear Panel:	Main Level Control, 24 VDC on/off switch

AC Power

Power supply:	115/230 VAC (\pm 5%), 50/60 Hz 24 VDC (battery)
Power Consumption:	486 W

Physical

Dimensions (HxWxD):	6.1 in/156 mm x 19.0 in/483 mm x 14.5 in/368 mm (Including Feet)
Weight:	34.1 lb/15.5 kg

Warranty

5 years, parts and labor

DISCLAIMER

EAW Commercial continually engages in research related to product improvement, new materials, and production methods. Design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current EAW Commercial product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated.

“EAW Commercial” is a trademark of LOUD Technologies Inc. All other brand names mentioned are trademarks or registered trademarks of their respective holders, and are hereby acknowledged.

9. SERVICE INFORMATION

In the event that your CXA240 should require servicing, please follow these instructions:

1. Call EAW Commercial Tech Support at 1-888-337-7404, 7 am to 5 pm PST (Monday-Friday), to verify the problem and obtain a Return Authorization (RA) Number. Be sure to have the serial number of the unit when you call. You must have a Return Authorization Number in order to obtain warranty service at the factory or at an authorized service center. You can also email EAW Commercial Tech Support at: support@eawcommercial.com
2. Pack the unit in its original packaging. THIS IS VERY IMPORTANT. EAW Commercial is not responsible for any damage that occurs during shipping due to non-conventional packaging. Original packaging helps to minimize the possibility of shipping damage.
3. Include a legible note stating your name, (no P.O. boxes), daytime phone number, Return Authorization Number, and a detailed description of the problem, including how we can duplicate it.
4. Write the Return Authorization Number in BIG BOLD PRINT on the top of the box.
5. Tech Support will tell you where to ship the unit when you call for an RA Number. We suggest insurance for all forms of cartage.

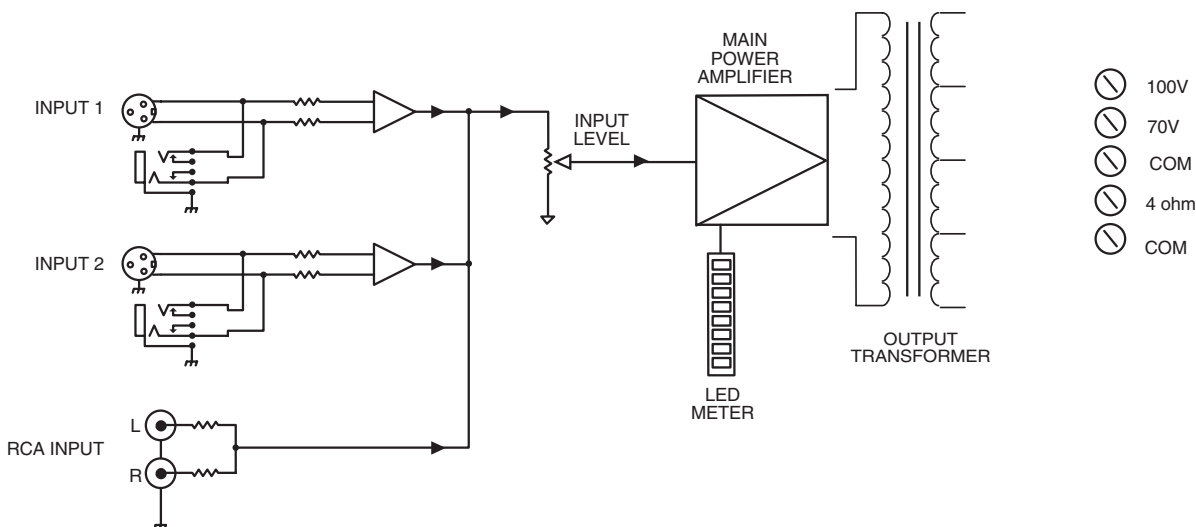
10. EAW COMMERCIAL WARRANTY

Warranty: LOUD Technologies Inc. requires its authorized EAW Commercial distributors to abide by the following warranty terms for all EAW Commercial brand products (all dates are from the date of delivery from an Authorized EAW Commercial Distributor to the end user/installation site): Loudspeakers – 5 years; Active Electronics – 5 years; Accessories – 2 years.

What Is Covered: Defects in workmanship and materials and against malfunctions. EAW Commercial distributors must remedy all such defects and malfunctions without charge for parts or labor if the warranty applies. Final determination of warranty coverage lies solely with each authorized EAW Commercial distributor.

What Is Not Covered: This warranty does not extend to damage or malfunctions resulting from, but not limited to, shipment, improper installation, misuse, neglect, abuse, normal wear, accident, or to any product on which the serial number has been modified or removed. Exterior defects in or damage to the exterior appearance are specifically excluded from this warranty. EAW Commercial distributors shall not be liable for incidental or consequential damages resulting from the use of EAW Commercial products. Repairs and/or modifications by other than an Authorized EAW Commercial Distributor automatically voids this warranty.

CXA240 BLOCK DIAGRAM





EAW Commercial A LOUD Technologies Inc. Company

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