



**PURERESONANCEAUDIO<sup>®</sup>**

**DA2240 DUAL-IMPEDANCE AMPLIFIER**

# **INSTALLATION AND OPERATION MANUAL**




Caution: Please read this manual carefully before operating.  
Damage caused by misuse is not covered by the warranty.


# SAFETY PRECAUTIONS

- Be sure to read the instructions in this section carefully before use.
- Be sure to follow the instructions in this manual as safety symbols and message conventions are considered very important precautions.
- We also recommend you keep this instruction manual handy for future reference.

## SAFETY SYMBOLS AND MESSAGE CONVENTIONS

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety risks.

 **WARNING!** Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

 **CAUTION!** Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

 **WARNING!**

## WHEN INSTALLING THE UNIT

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, bend, damage or modify the power cord. Also, avoid using the power cord near heating appliances and never place heavy objects (including the unit itself) on the power cord as this could result in fire or electric shock.
- Be sure to replace the unit's terminal cover after connection is complete. Because high voltage is applied to the speaker terminals, never touch these terminals to avoid electric shock.
- Make sure the equipment is grounded to the safety ground (earth) terminal to avoid electric shock. Never ground to a gas line as this could lead to a catastrophic disaster.
- Do not install or place the device in an unstable place such as a wobbly table or sloped surface. Otherwise, the device may fall and cause personal injury and/or property damage.

## WHEN THE UNIT IS IN USE

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  - If you detect smoke or a strange smell coming from the unit
  - If water or any metallic object gets into the unit
  - If the unit falls, or the unit case breaks
  - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  - If it is malfunctioning (no tone sounds)
- To prevent a fire or electric shock, never open or remove the unit case as there are high voltage components inside the unit. Refer all servicing to your nearest dealer.

- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit.
- Do not insert or drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.

## **CAUTION!**

### **WHEN INSTALLING THE UNIT**

- Never plug in or remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- Do not block the ventilation slots in the unit's cover. Doing so may cause heat to build up inside the unit and result in fire.
- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.

### **WHEN THE UNIT IS IN USE**

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.
- Make sure that the volume control is set to the minimum position before the power is switched on. Loud noise produced at high volume when the power is switched on can impair hearing.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Contact your dealer as to the cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire or damage to the unit may result.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

An all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.

#### **PLEASE NOTE:**

Due to product upgrades, some of the features and specification in this user manual may or may not match the actual functions of the unit.

# DESCRIPTION

The Pure Resonance Audio DA2240 is a powerful 2-channel Class-D dual-impedance amplifier with a built-in high-efficiency switching power supply. Each 240W (at 70-volt and 4 ohms) channel has an independent 70V and 4-16Ω switch offering more flexibility in various commercial applications. This high-performance power amplifier is housed in a standard 1U 19" lightweight chassis with a slim acrylic panel design. The DA2240 features short-circuit, overload, and overheating protection and a Phoenix terminal to remotely monitor the equipment's operating status. Cooling fans provide heat dissipation to maintain a safe operating temperature even in extremely harsh working environments, greatly extending the equipment's life span.

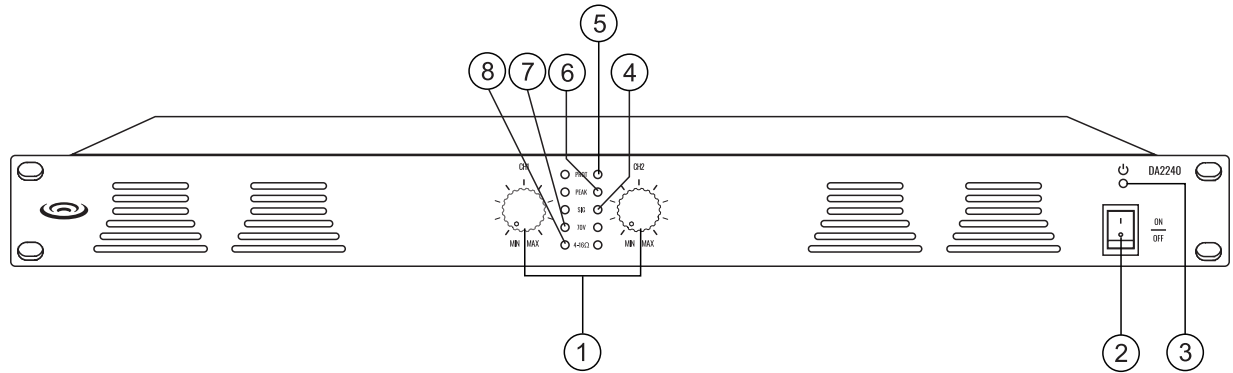
# FEATURES

- High-performance Class-D dual-impedance amplifying circuit
- 85% efficiency with low power loss and heat output
- 2 x 240W (at 70-volt and 4 ohms) with 4-16Ω and 70V output switches
- 1 channel phoenix terminal for remote monitoring
- Standard 1U 19-inch industrial chassis
- High temperature, overload, and short circuit protection

# SPECIFICATIONS

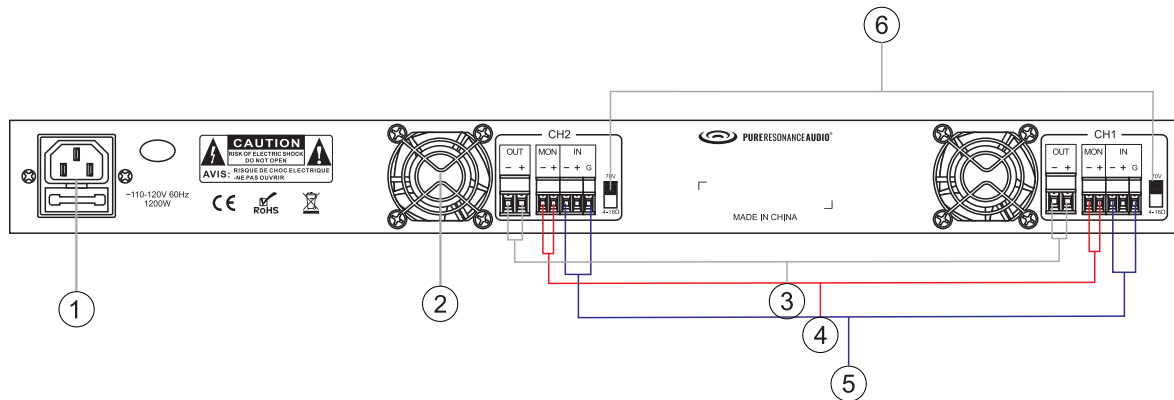
Rated Power	2 x 240W
Speaker Outputs	70V / 4~16Ω
Input Sensitivity	±385mV/20kΩ, balanced input
Frequency Response	80Hz~16kHz (+1 dB, -3 dB)
S/N Ratio	≥95 dB
THD	≤0.1% (at 1kHz, 1/3 rated power)
Monitoring	Remote power and fault indication monitoring
Indicator Light	Signal, peak clipping, protection, and power supply
Protection	High temperature, overload, short-circuit
Cooling	Fan-forced cooling
Power Consumption	600W
Power Supply	~110-120V 60Hz
Dimensions (H x W x D)	1.73" (44 mm) x 19.05" (484 mm) x 12.4" (315 mm)
Weight	10.36 lbs (4.7 kg)

# FRONT PANEL



- 1. Volume Knobs (CH1 & CH2)** - The volume knob controls the input power of the amplifier (the adjustment range is -30 dB to +40 dB). When the knob is rotated clockwise, the volume will be gradually increased. When rotated counter-clockwise, the output level will decrease.
- 2. Power Switch** - Switch up, power on, switch down, power off
- 3. Power Indicator Light** - When the amplifier is turned on, the power indicator light turns on to indicate that the amplifier is in a working state. When the power is turned off, the power indicator light goes off.
- 4. SIG (Signal Indicator Light)** - When there is an audio signal input, the signal indicator lights up. As the volume knob is turned clockwise, the brightness changes representing the level of the audio signal.
- 5. PROT (Protection Mode Indicator Light)** - This indicator lights up when the amplifier is in protection mode. If the speaker wire is short-circuited or the sum of the connected speaker power is more than 1.5 times the rated power, it will engage the circuit protection and disconnect the amplifier output, and the protection indicator light will turn on (the signal indicator is only used to indicate the input of an audio signal. In the protection mode, the signal indicator light still lights up according to the input signal sensitivity). The protection mode indicator light is off when the machine is working normally.
- 6. PEAK (Signal Peak Indicator Light)** - When the indicator light is on, the machine has reached the peak of the rated power output. To avoid distortion or clipping, the volume knob should be appropriately adjusted to reduce the volume.
- 7. 70V:** 70V mode status indicator light
- 8. 4~16Ω:** Low impedance 4~16Ω mode status indicator light

# REAR PANEL



- 1. Power Supply** - AC power input is connected to the power outlet. Please check whether the operating voltage is consistent with the marked voltage
- 2. Cooling Port/Fans** - The cooling port and fan allow for heat dissipation. Please keep good ventilation to avoid overheating
- 3. 70V/4~16Ω Speaker Output Terminals** - can be used for both 70V or 4~16Ω speakers.  
(In 70V mode, the sum of the total power of all speakers should not be more than 80% of the amplifier's rated power)
- 4. Remote Monitoring Terminals** - can be used to verify the status of the amplifier remotely via an external device
- 5. Balanced Signal Input Terminals** - The input sensitivity of this product is set to 0 dB (0.775V) by default
- 6. Impedance Selectors** - Switch buttons for 70V and 4~16Ω mode

## OPERATION

### VOLUME CONTROL

The volume depends on the speaker's performance, position, and other factors. Avoid using the amplifier in the status of high volume for long periods.

### CHOICE OF THE AUDIO SOURCE

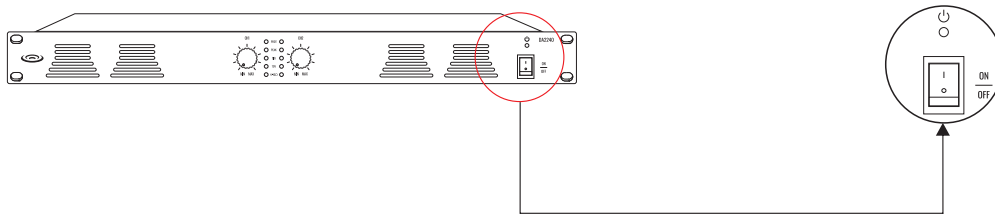
For optimal performance, use a balanced signal. Input sensitivity is set to 0 dB (0.775V).

### CONNECTION METHOD

Make sure all connections are secure before powering on the amplifier. Loose connections may result in poor sound quality and/or damage to the equipment. Be sure to confirm the impedance settings before using the amplifier. Select 70V or 4~16Ω by using the switch on the back of the unit.

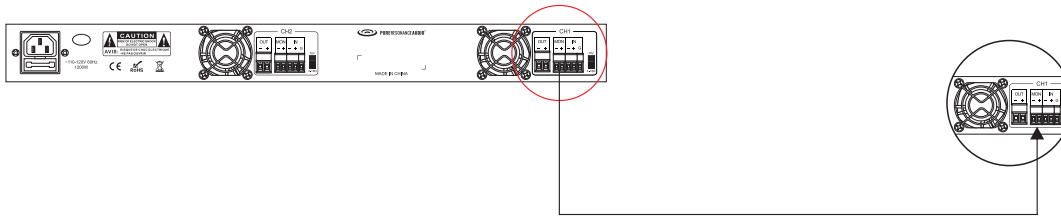
### KEY OPERATION ON THE PANEL

After installing the balanced audio source signal in the rear panel, turn on the power switch. When the device is powered on, the power, protection and impedance indicator lights light up simultaneously. After about 3 seconds, the lights will turn off. The built-in protective relay of the amplifier is then closed, and the output stage and output connections are normal. After the device enters the working state, the local power-on process of the device is completed. At this point, it has completed the basic operation of the device. Adjust the volume knobs to select the appropriate volume.



To turn off, press the power button, and the power indicator light goes out after the device shuts down. The process of shutting down the device is complete.

## REMOTE MONITORING



## INPUT AND OUTPUT WIRING

Connect your audio source wiring to the channel 1 (CH1) input terminal. Once the input wiring is connected to the input terminal, connect the speakers to the CH1 output terminal. To wire channel 2 (CH2), follow the same steps as CH1 but use the CH2 input and output terminals.

## FUNCTION OPERATION OF THE PANEL

To increase the sound level, slowly turn the master volume knob clockwise. To decrease the sound level, turn the volume knob counterclockwise.

## INDICATOR INSTRUCTION OF THE PANEL

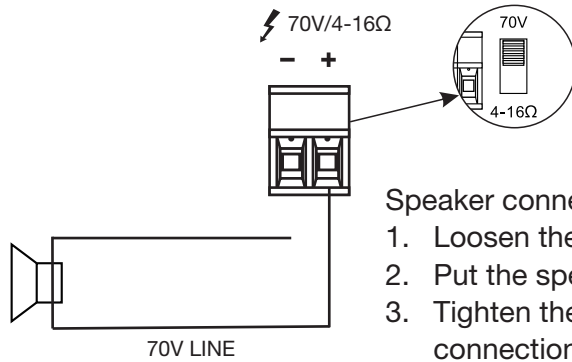
- **"POWER" Blue Power Indicator Light** - If the indicator light is on, the amplifier is powered on. If the power indicator light is off, the amplifier is powered off.
- **"SIG" Green Signal Indicator Light** - The signal indicator light will appear green when the audio source is connected to the input terminals and the volume knob is turned up. The more the volume knob is turned up, the brighter the signal indicator light will become, providing a visual reference for how high the audio signal is.
- **"PEAK" Orange Topping Indicator Light** - The peak indicator light will shine orange when the maximum power limitation has been reached. The amplifier should not be run in this status for long periods as it may permanently damage the amplifier.
- **"PROT" Red Protection Indicator Light** - When the amplifier detects a short circuit, overloading, overheating, or fault, the indicator light will shine red, and there will be no output until the problem is corrected.

### ATTENTION:

Under overloading conditions or in an unventilated environment, the amplifier will get overheated. If the amplifier operates in such a state for a long time, to protect the amplifier and speaker, it will automatically trigger the thermal protection circuit and cut off the output or power of the amplifier. After the temperature inside lowers to normal, it will recover automatically.

# CONNECTIONS

## SPEAKER CONNECTIONS



Speaker connection:

1. Loosen the pressure screw.
2. Put the speaker cable under the wire clamp pad.
3. Tighten the pressure screw and make sure the connection is good.

### PLEASE NOTE:

The 70V output must be connected in parallel with constant voltage speakers with built-in 70-volt transformers. The input voltage is marked on the back. If connected to low-impedance speakers, they may be damaged.



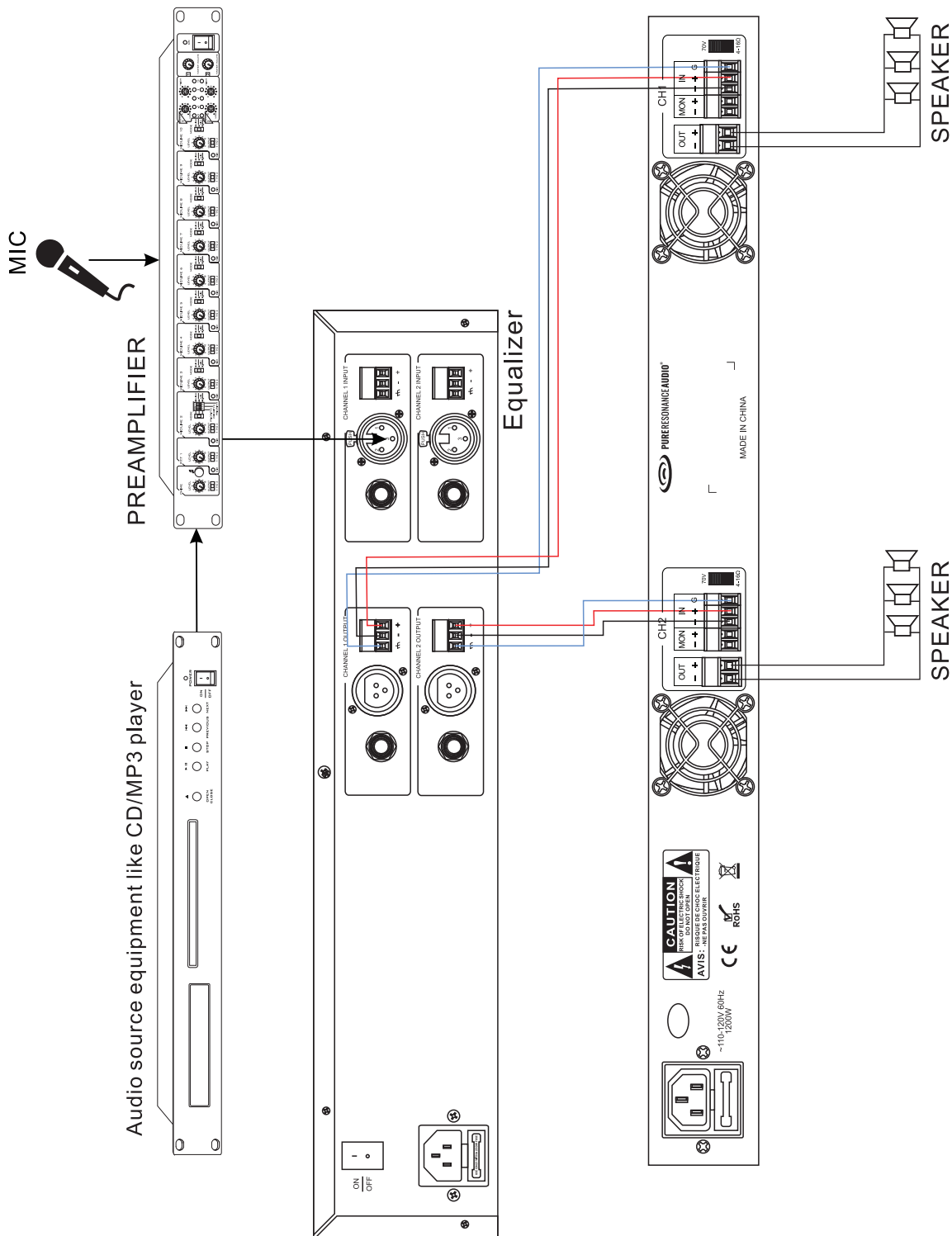
When using the device, please do not directly touch the 70V speaker output interface of the exposed metal parts in the rear panel to avoid electrical shock.

### ATTENTION:

- Connect the cable with the speaker, then with the amplifier
- Speaker Selection: Constant voltage 70V speaker
- Please use black and red wire for the speaker line, and connect the black wire to the speaker terminal; the red wire connects with the speaker "70V" marked at the back, and the other end connects with the "70V" terminal in the rear panel.
- Avoid operating the amplifier in a full-power state for a long time
- Do not connect the two speaker wires by short circuit way to avoid damaging the equipment



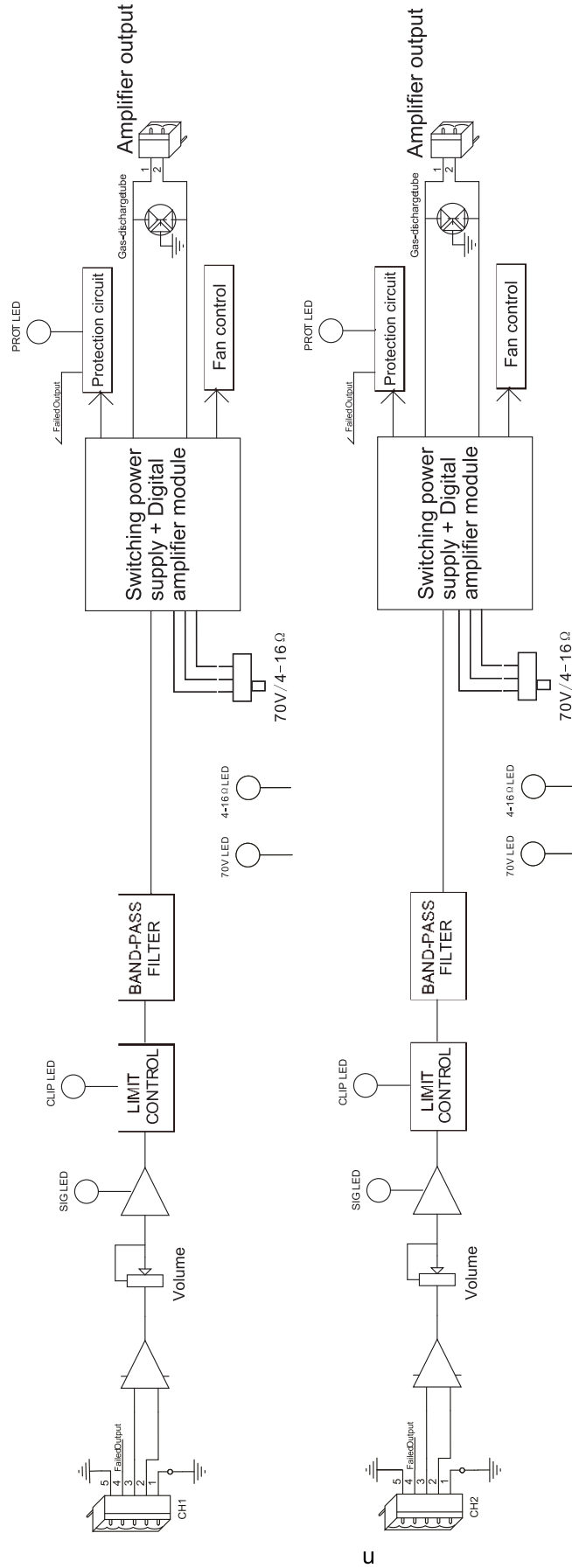
# REAR PANEL CONNECTIONS



- 1: COLD-
- 2: HOT+
- 3: GND

When connecting, put the red cable to the “+” terminal at the host, the white to the “-” terminal, and the shielded wire to the GND terminal. The same connection to the output terminal of the per-audio source processor.

# BLOCK DIAGRAM



# SERVICE

Ensure the problem is not related to operator error, or system devices that are external to this unit. Information provided in the troubleshooting portion of this manual may help with this process. Once it is certain that the problem is related to the product contact your warranty provider as described in the warranty section of this manual.

## LIMITED WARRANTY

PRO ACOUSTICS, LLC. ("PRO ACOUSTICS") warrants this product to the original purchaser to be free from defects in materials and workmanship (subject to the terms set forth below), for the following periods from the date of purchase.

### **THIS WARRANTY COVERS THE LISTED PRODUCTS AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR THE FOLLOWING PERIOD**

<b>Warranty Terms</b>	
Speakers	2 Years
Amplifiers & Electronics	1 Year
Microphones	1 Year
Accessories	1 Year

PRO ACOUSTICS will repair or replace (at PRO ACOUSTICS's option) this product or any defective parts (excluding electronics and amplifiers) in this product.

Your authorized PRO ACOUSTICS dealer will inspect the product and, if your dealer is not equipped to perform the repair of your PRO ACOUSTICS product, they will replace your product or return it to PRO ACOUSTICS for repair, at their discretion. Proof of purchase in the form of a bill of sale or receipted invoice, which is evidence that this product is within the warranty period, must be presented to obtain warranty service.

This warranty is invalid if the factory applied serial number has been altered or removed from this product. This warranty is invalid if this product was not purchased from a PRO ACOUSTICS authorized dealer. Cosmetic damage or damage due to the accident, acts of God, misuse, abuse, negligence, commercial use, or modification of, or to any part of, the product are not covered in this warranty. This warranty does not cover damage due to improper operation, maintenance or installation, or attempted repair by anyone other than PRO ACOUSTICS or a PRO ACOUSTICS dealer which is authorized to do PRO ACOUSTICS warranty work. Any unauthorized repairs will void this warranty.

This warranty does not cover products sold as is.

REPAIRS OR REPLACEMENTS AS PROVIDED UNDER THIS WARRANTY ARE THE EXCLUSIVE REMEDY OF THE CONSUMER/PURCHASER. PRO ACOUSTICS U.S.A. SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY LAW, THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES WHATSOEVER, INCLUDING BUT NOT LIMITED TO, THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PRACTICAL PURPOSE.

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