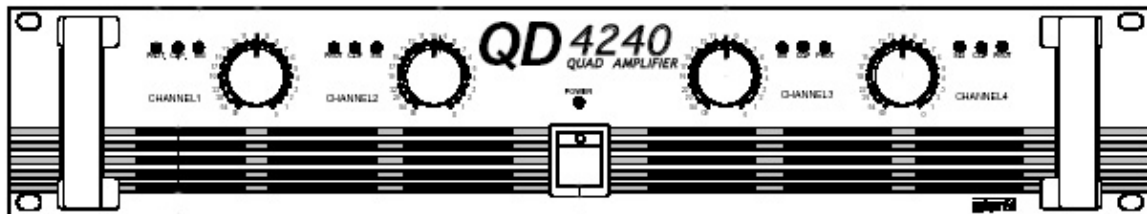


# Operating Manual

## QD-4240/QD-4480 Quad Power Amplifier



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**interM**

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## Welcome

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### **A personal welcome to you from the management and employees of Inter-M**

Thank you for purchasing this fine Inter-M product. All of us here at Inter-M are dedicated to providing you with the highest quality products and the best value.

We sincerely trust this product will provide you with years of satisfactory service, but if anything is not to your complete satisfaction, we will endeavor to make things right.

Welcome to Inter-M, and thank you for becoming a part of our worldwide extended family!

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## Unpacking

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Although your QD-4240/QD-4480 is neither complicated nor difficult to operate, we recommend you take a few minutes to read this brief manual and familiarize yourself with the important information regarding product features, setup and operation.

As with most electronic devices, we strongly recommend you retain the original packaging. In the unlikely event the product must be returned for servicing, the original packaging (or reasonable equivalent) is required.

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## Warnings

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### **Environment**

Never place this product in an environment that could alter its performance or reduce its service life. Such environments are usually characterized by high levels of heat, dust, moisture, or vibration.

### **Safety**

1. Read these instructions carefully.
2. Follow all instructions.
3. Keep all warnings.
4. Do not operate this apparatus near water.
5. Clean only with a damp cloth.
6. Do not block any of the ventilation openings.
7. Install only in accordance with the instructions in this manual.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (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 is 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 it is attached to the apparatus.
11. Use only the attachments/accessories specified.
12. Use only with a cart, stand, tripod, bracket, or table specified, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid overturning.
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.

 <p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>	 <p>This symbol 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.</p>
<p><b>WARNING</b></p> <p>To prevent fire or shock hazard, do not expose the unit to rain or moisture.</p>	 <p>This symbol is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.</p>
<p>Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.</p>	
<p>Attention: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.</p>	
<p>*Do not install this equipment in a confined space such as a book case or similar unit. *The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus. *Worded: "WARNING FOR YOUR PROTECTION PLEASE READ THE FOLLOWING-WATER AND MOISTURE: Unit should not be used near water(e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings."</p>	

## Operation

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Make certain that speakers and input sources are properly connected before switching on.

Keep volume levels at minimum gain before switching on.

**NOTE:** The system's operation is delayed by approximately three seconds after pressing the AC Mains power switch. This is due to the built-in protection circuitry, designed to protect speakers and other system components.

## **QD-4240/QD-4480 Quad Power Amplifier**

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### **Features**

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#### **Four Channel Amplifier**

- Four channels in a single chassis.

#### **Advanced Protection Circuitry**

- Thermal overload protection, DC detection circuitry and power-on delay help protect your amplifier and system components.

#### **Bridged Mono Operation**

- Can operate in monaural mode for high-power and performance.

#### **Slim Design, Compact Size**

- Streamlined design fits in a compact 2RU space.

### **Suggested Applications**

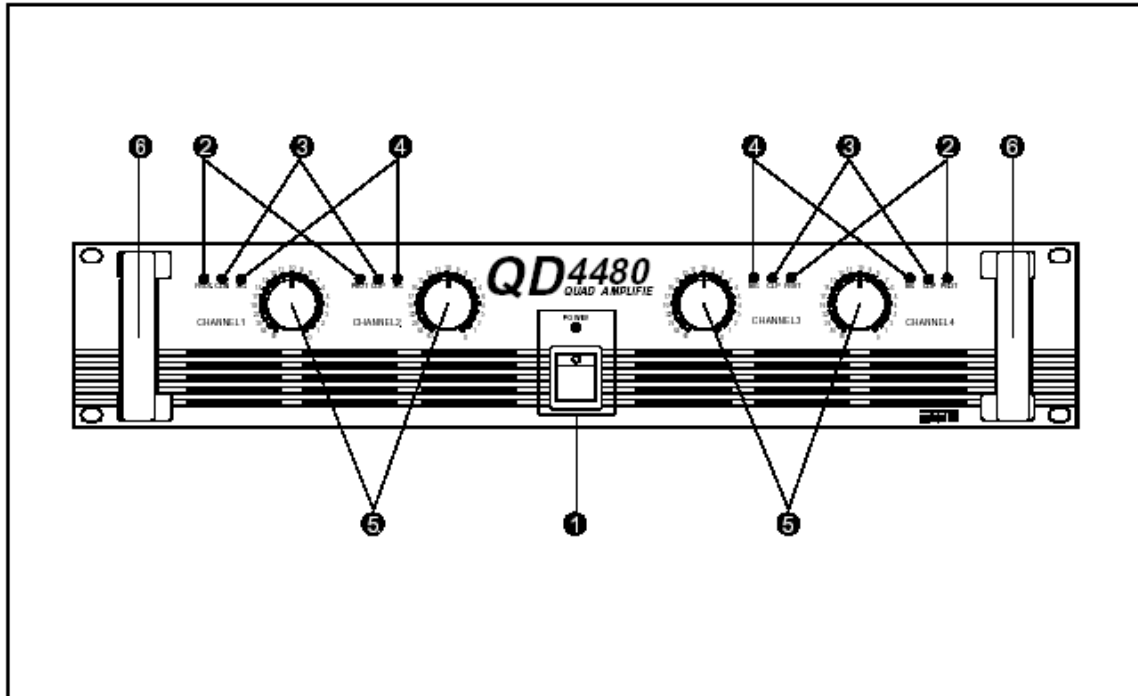
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- Home Theater/Multimedia
- Surround-Sound Playback or Mixing
- Stereo System with Subwoofer
- Distributed Sound Installations

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## Front Panel Controls

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### 1. Power Switch

This switch switches the unit on, as indicated by the Power LED directly above the switch.

### 2. Protection Indicator

This LED indicates the state of the amplifier's protection circuitry. When the Protection LED is on (illuminated), the protection circuitry is active, indicating that the unit is not operating normally. This is typically due to overheating or power limiting. Please check the Input and Output condition of the amplifier.

### 3. Clip Indicators

These LEDs light when the channel's level reaches approximately 0.5%, indicating excessive input levels. When the Clip Indicators glow steadily, reduce the input to the amplifier.

### 4. Signal Indicators

These LEDs light when the channel's level exceeds approximately 2Vrms, indicating the presence of audio signal input to the amplifier channel.

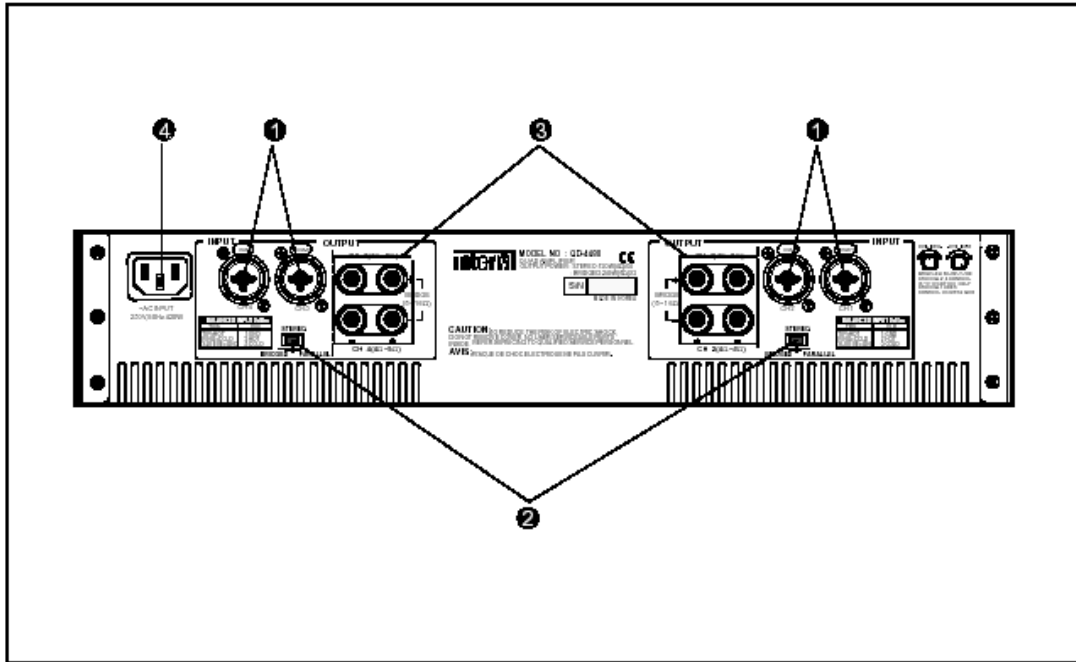
### 5. Input Attenuators

These are 21-step detented input signal attenuators, used to increase or decrease the input level to the amplifier.

### 6. Handles

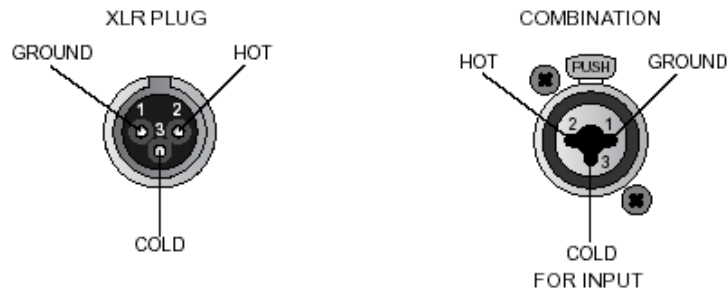
Heavy-duty handles are provided to easily carry or position the amplifier.

## Rear Panel Controls

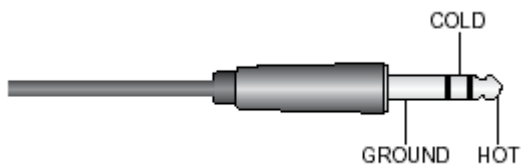


### 1. Audio Inputs 1-4

Balanced input connectors are provided on hybrid XLR/TRS jacks. The XLR connectors are wired with Pin 1 as Ground, Pin 2 as hot (+) and Pin 3 as cold (-), as shown below.



The TRS connectors are wired as Tip as hot (+), Ring as cold (-), and sleeve as ground, as shown below.



**2. Mode Selector**

Use this switch to select the amplifier's mode of operation.

**STEREO MODE:**

In this mode, each channel operates independently, with channels 1 and 2 operating as a stereo pair, and channels 3 and 4 operating as a second stereo pair. In this mode the minimum speaker impedance is 4Ω.

**BRIDGED MODE:**

In this mode, all four channels are bridged together and function as a single mono amplifier. In this mode the minimum speaker impedance is 8Ω. (Note that in this mode the volume controls for channels 2 and 4 are inactive.)

**PARALLEL MODE:**

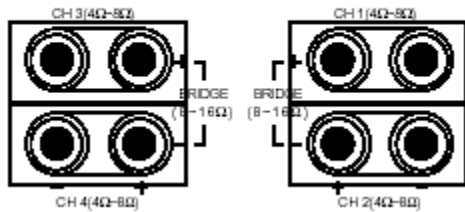
In this mode, channels 1 and 2 operate as two separate mono amplifiers. In this mode the minimum speaker impedance is 4Ω. (Note that in this mode the volume controls for channels 3 and 4 operate identically to the volume controls for channels 1 and 2.)

**3. Speaker Output Terminals**

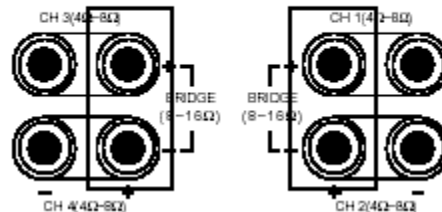
These five-way binding posts are used to connect speakers to the unit. Do not connect the two outputs of a single channel by connecting them together, or in parallel with any other amplifier.

Speakers may be connected in Stereo or Bridged Mono mode. Pleaser refer to the illustrations below.

• **STEREO MODE**



• **BRIDGED MODE**



**4. AC Connector**

Connect the supplied standard AC input cable here.

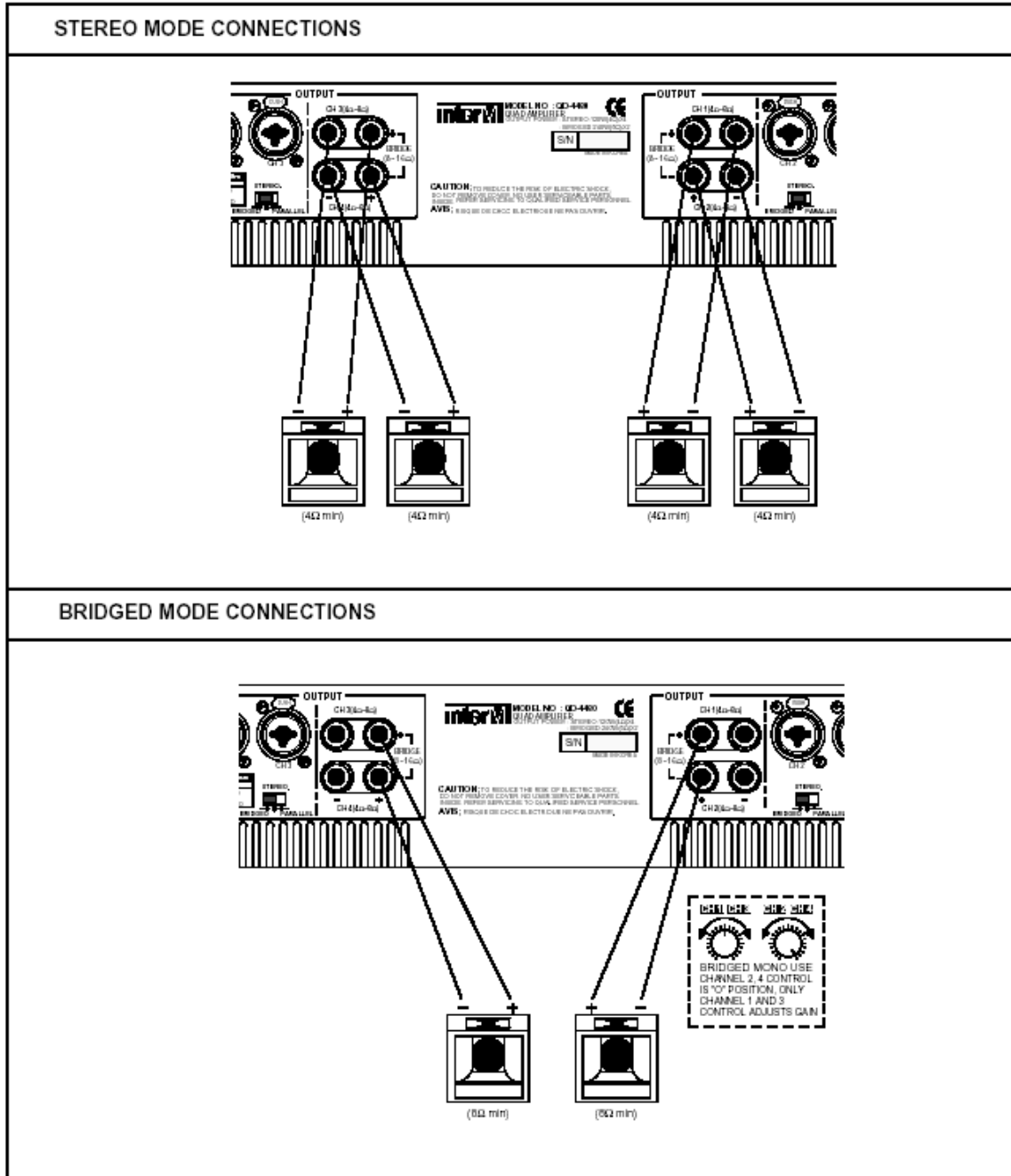
**A Note About Ventillation**

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The fan vents provide hot air flow out of the unit. It is important to keep them free of obstructions, to prevent the unit from overheating. It is also important to operate the unit in a dust-free environment.

## Speaker Connections

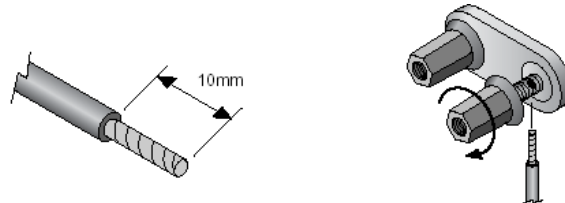
The QD-4240/4480 has three operational modes (Stereo/Parallel/Bridged), and speakers may be connected in parallel. The impedance varies depending on the selected mode, and caution should be used to make sure the impedance is not less than the recommended impedance.



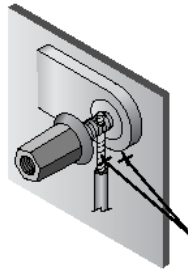
## Speaker Connection Procedures

Always switch the power off before connecting speakers.

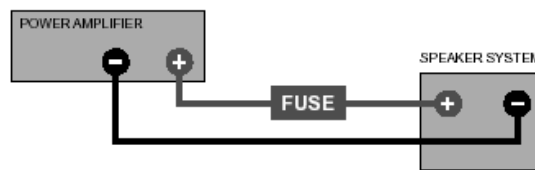
After removing approximately 10mm (1/4-inch) of insulation from the ends of the speaker cables, twist the strands tightly and pass the bare ends through the holes in the terminals, tightening the terminals to secure the wires.



Make certain the wires do not protrude from the terminals and touch the amplifier's chassis, or an adjacent terminal.



The QD-4240/4480 is capable of very high output levels. Be certain to use a speaker system that can accept high input levels. If the input capacity of your speaker system is less than the amplifier's rated output, you may protect your speakers by connecting a fuse between amplifier and speaker, as shown below:



Use the following formula to determine the needed fuse rating:

$$P_0 = I^2 R \rightarrow I = \sqrt{\frac{P_0}{R}}$$

$P_0$  (W) = Speaker's input capacity (RMS)

$R$  ( $\Omega$ ) = Speaker's nominal impedance

$I$  = Required fuse rating.

For example: if the speaker's input capacity is 100W, with 8 $\Omega$  impedance,

$$I = \sqrt{\frac{100}{8}} = 3.5$$

The required fuse rating is 3.5A.

## Speaker Cable

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Always use the heaviest-duty (lowest gauge) speaker cable available. The terminals can accommodate very thick speaker cable.

## Maintaining Proper Polarity

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It is very important to wire your speaker connectors consistently at each end of each cable, in order to maintain proper polarity. All quality cables are manufactured with clear markings to identify the different conductors – normally by color-coding, printed markings, or textured ribbing on the cable's jacket material. Always make certain to correctly wire your connections so that tip is connected to tip, and sleeve to sleeve. Failing to do so will cause your speakers to operate out of phase, resulting in significantly reduced low-frequency output from your system.

## Rack Mounting Your Amplifier

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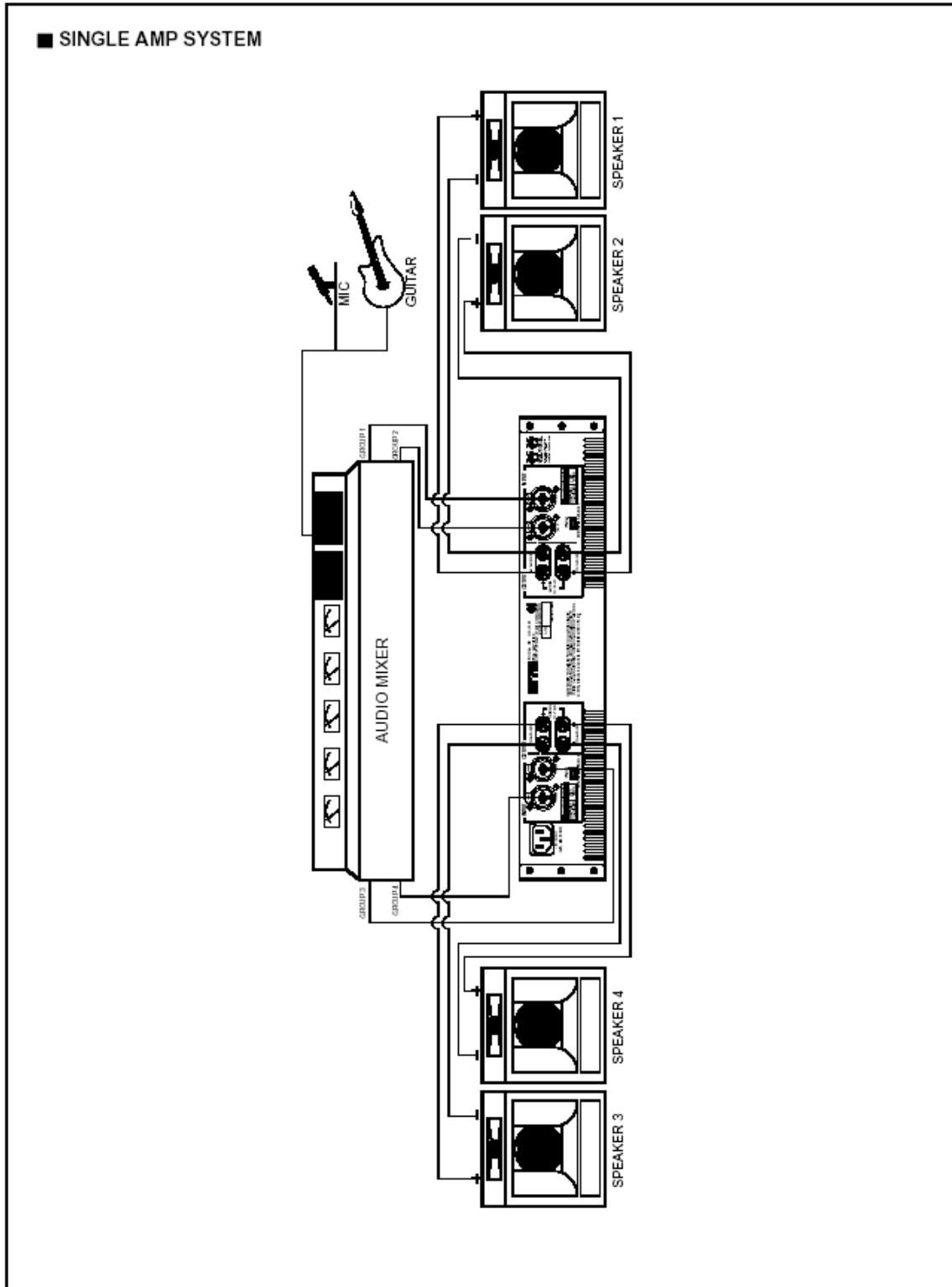
The QD-4240/4480 intakes cool air through the front panel and exhausts warm air through the rear panel. When mounting in a portable equipment rack, maintain adequate ventilation by making certain the front and rear panels are not obstructed.



## Troubleshooting

Indicator	Probable Cause	Solution	Protection Circuit
Clip Indicator lit	There is a short at a speaker terminal, amplifier terminal or speaker wire.	Locate and repair the cause of the short.	The PC limiter circuit operates, disconnecting the amplifier from the speakers.
	Excessive amplifier load.	Use a speaker system with an impedance of at least 4Ω (Stereo mode) or 8Ω (Bridged mode).	
Protection Indicator lit	The thermal temperature, measured at the heat sink, has exceeded 100 degrees Celsius	Check the amplifier for adequate ventilation. Take steps to improve the airflow conditions.	The thermal protection circuit operates, shutting the unit off.
	DC voltage of ±2V or greater was generated in the amplifier's output circuitry.	Consult your dealer.	The relay operates to protect the speaker system.

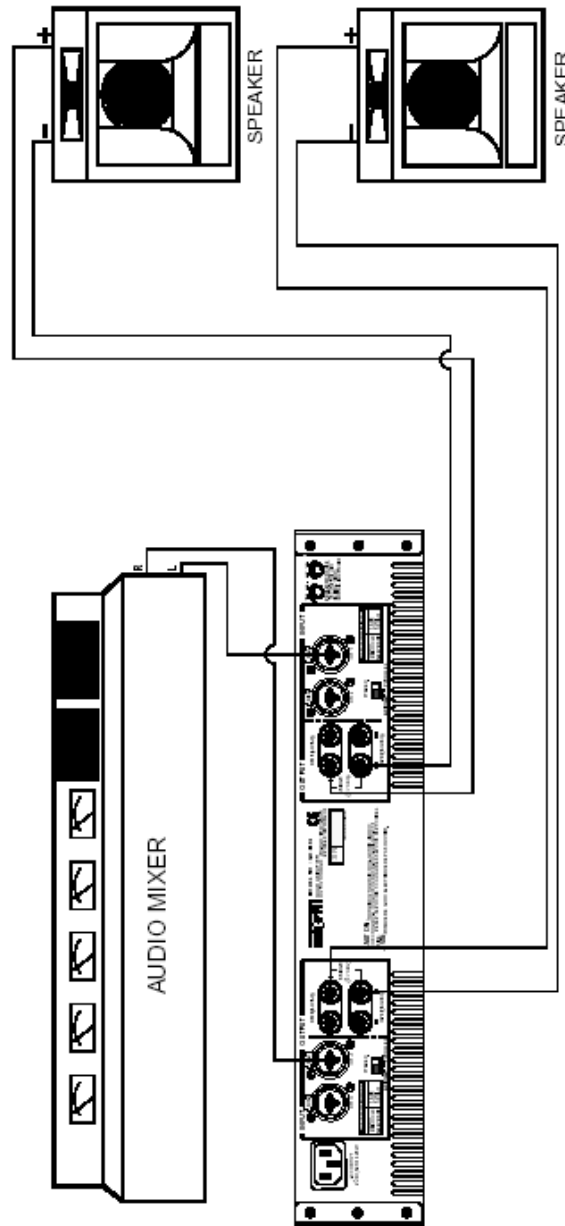
# Applications



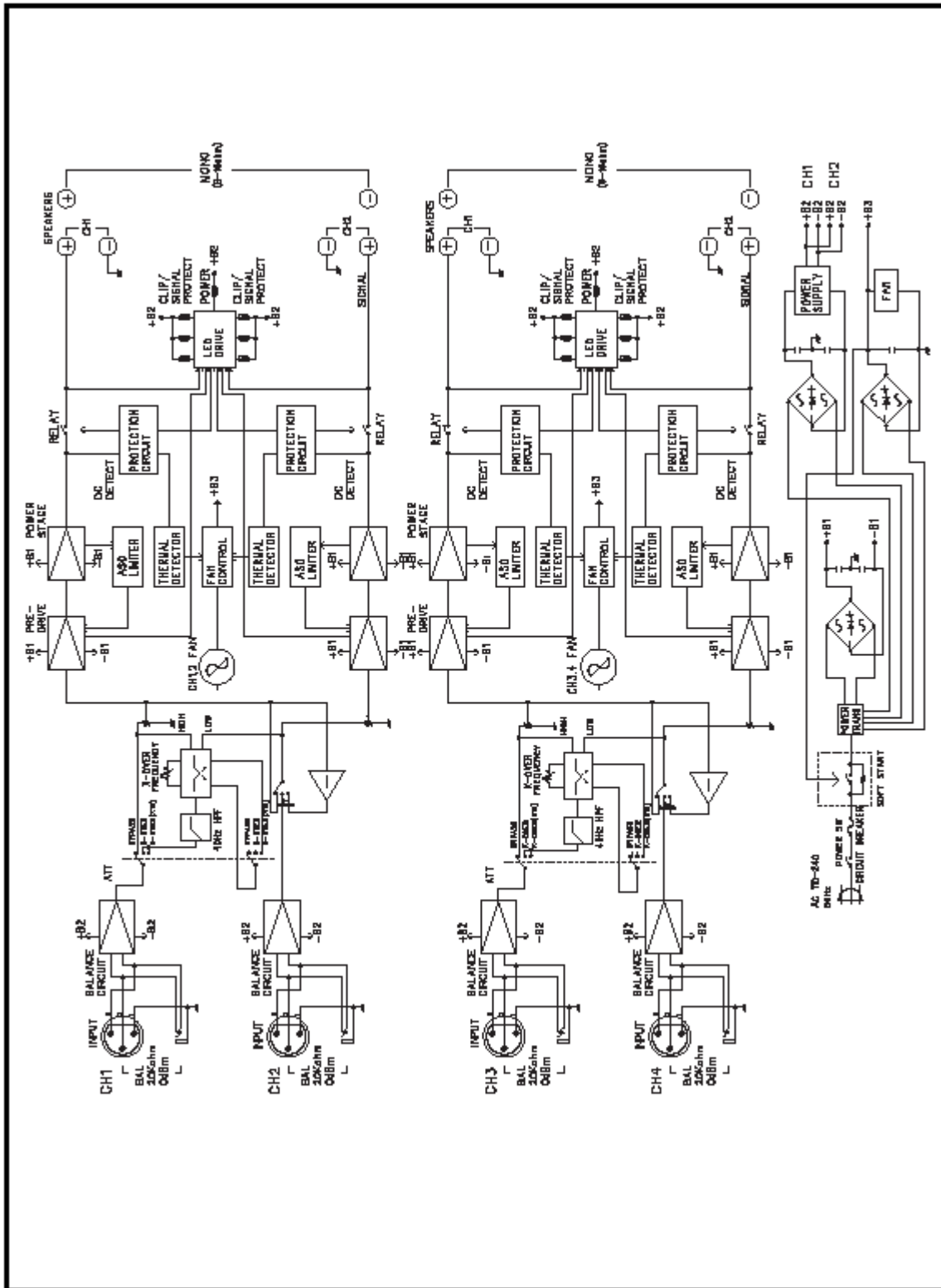
## Applications

### ■ BRIDGED MONO OPERATION

1. Set mode selector to bridged mono.
2. Set the Channel 2 and 4 VR to maximum (0) position.
3. Connect a mono input signal to channel one input jack.
4. Connect the speaker load to the two red terminals of each channel, please confirm the (+) terminal of speaker to channel one and the (-) terminal to channel two.
5. Do not use the black terminals of each channel.
6. Please notice to connect the speaker impedance 8ohm or above.



# Block Diagram



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## Specifications

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### ELECTRICAL

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<b>Rated Output (RMS)</b>	
<b>Quad at 8Ω/1kHz</b>	QD-4240: 40W / QD-4480: 80W
<b>Quad at 4Ω/1kHz</b>	QD-4240: 60W / QD-4480: 120W
<b>Bridged Mono at 8Ω/1kHz</b>	QD-4240: 120W / QD-4480: 240W
<b>Frequency Response (± 0.5dB)</b>	20Hz-50kHz
<b>Input Sensitivity/Impedance</b>	0.775Vrms
<b>T.H.D+N</b>	
<b>Quad at 8Ω/1kHz</b>	<0.05%
<b>Quad at 4Ω/1kHz</b>	<0.07%
<b>Bridged Mono at 8Ω/1kHz</b>	<0.07%
<b>S/N</b>	105dB
<b>Channel Separation (8Ω/1kHz)</b>	>80dB

### GENERAL

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<b>Power Source</b>	AC 110V-240V, 50/60Hz,
<b>Power Consumption</b>	QD-4240: 300W / QD-4480: 420W
<b>Weight</b>	QD-4240: 11.5kg (25.3lbs) QD-4480: 15.5kg (34.2lbs)
<b>Dimensions</b>	482(W) x 88(H) x 369(D) mm 19(W) x 3.5(H) x 14.5(D) in.

*Specifications and design subject to change without notice for improvements.*



Inter-M, Ltd. (Korea) began operations in 1983.

Since then, Inter-M has grown to become one of the largest manufacturers of professional audio and commercial sound electronics equipment in the world.

Inter-M has gained worldwide recognition for its own branded products, as well as private label manufacturing of electronics sold under other names (OEM).

The company is no longer just a Korean company, but rather a global company that is truly international in scope, with factories and offices in Korea and China, and sales and marketing operations located in Japan, Europe, and the U.S.A.

With more than 850 employees around the globe, Inter-M is well-poised for further growth and expansion.

**INTER-M AMERICAS, INC.**

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