

# OPERATING MANUAL

**PROFESSIONAL POWER**

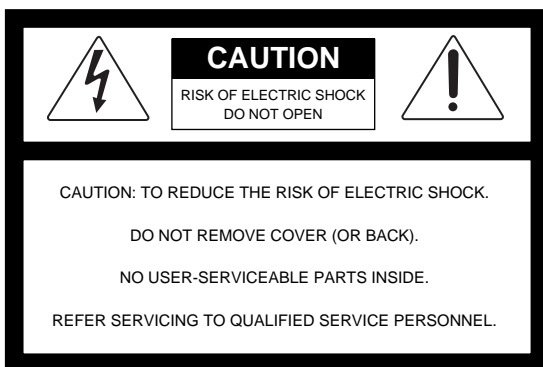
# **AMPLIFIER**

**S3000/4000**

**interM**

## UNPACKING AND INSTALLATION

Although it is neither complicated to install nor difficult to operate your Power Amplifier, a few minutes of your time is required to read this manual for a properly wired installation and becoming familiar with its many features and how to use them. Please take a great care in unpacking your set and do not discard the carton and other packing materials. They may be needed when moving your set and are required if it ever becomes necessary to return your set for service. Never place the unit near radiators, in front of heating vents, to direct sun light, in excessive humid or dusty location to avoid early damage and for your years of quality use. Connect your complementary components as illustrated in the following page.



### WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



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.



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

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.

Attentions: 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.

## FEATURES

### ■ HIGH PERFORMANCE POWER AMPLIFIER WITH SMPS SYSTEM

Adopting high efficient switching mode power supply, the amplifier is possessed of high power performance with reliability, and its weight is light.

### ■ DUAL MONORAL POWER SUPPLY

The amplifier is operated by independently power supply for each channel. If one channel is break down, another channel can be perform well.

### ■ REMOTE POWER ON/OFF CONTROL (STAND-BY)

### ■ HIGH EFFICIENCY CIRCUIT TYPE

High efficient 3-step(S4000) output circuit for lower AC current consumption and advanced thermal performance. (S3000:2-step output circuit)

### ■ VARIOUS LED INDICATORS

To confirm the operating status, LED display of Power, Stand-By, Signal, Level, Clip and Protection on front panel.

### ■ VARIOUS PROTECTION CIRCUITS

To insure stability against over current, over heating, output short, turn on/off delay, RF protection, clip-limiter, DC fault detection power supply shutdown circuitry is provided.

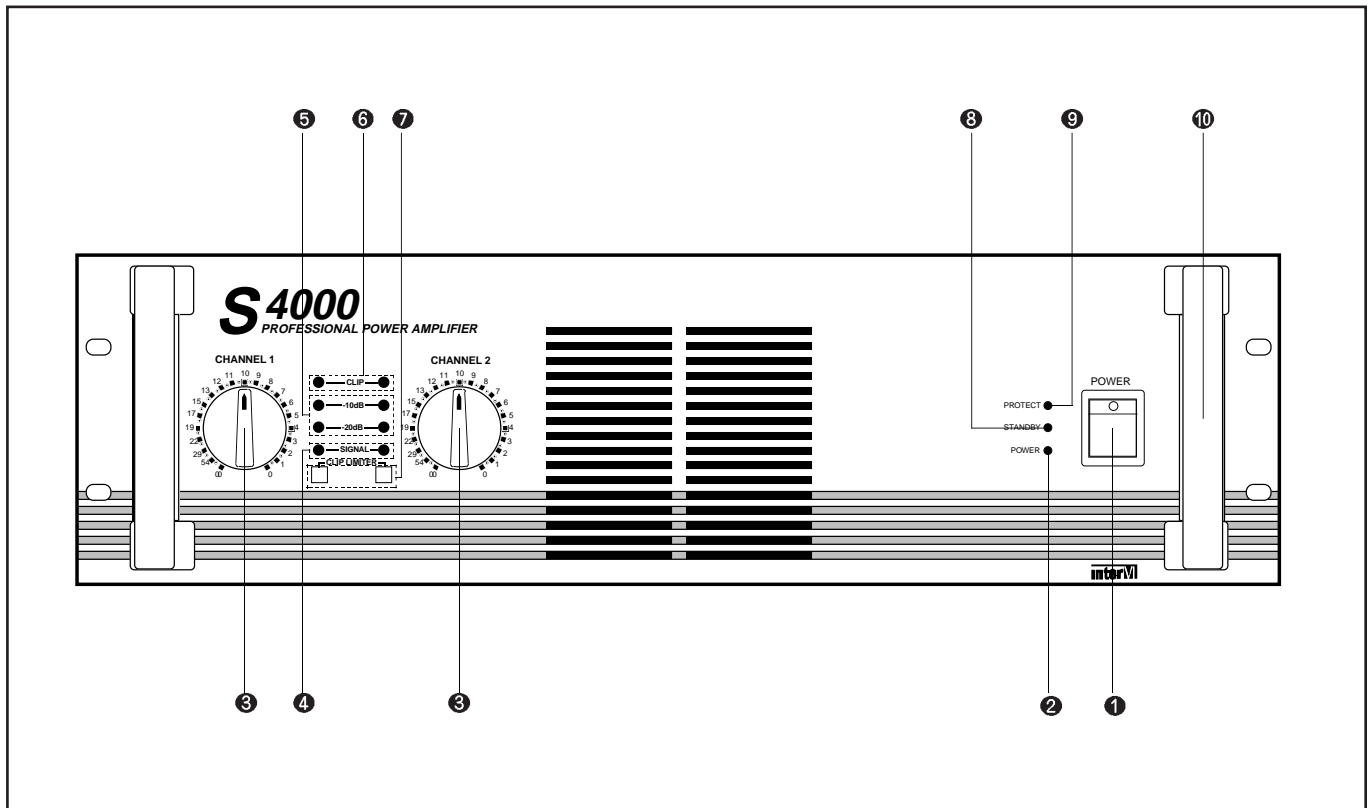
### ■ MODE SELECTOR SWITCH

Operating Modes are PARALLEL, STEREO and BRIDGED-MONO.

### ■ VARIABLE FAN COOLING METHOD

Continuously variable speed fan for silent operation (Air flow: from rear to front).

## FRONT PANEL CONTROLS



### 1. POWER SWITCH

Use this to power the amplifier on or off.

### 2. POWER INDICATOR

Power indicator is driven by power switch, and the LED turns on when the amplifier is powered ON.

### 3. LEVEL CONTROLS

Separate level controls allow you to adjust the input level of the arriving at the rear panel input connectors. At the fully counterclockwise position, the signal is infinitely attenuated. At the fully clockwise position, and signal is at unity gain. When 1Vrms of signal arrives at the input connectors and the channel input controls are set to their "MAX" position, the amplifier delivers full power output.

### 4. SIGNAL INDICATORS

The signal indicators turn on brightly when 1 watt signal level is present in the output.

### 5. OUTPUT LEVEL INDICATORS

The output level indicators turn on when amplifier has been turned on and has power. These LEDs turn on when -20dB and -10dB signal level below rated output power is present in the output.

## 6. CLIP-LIMITER INDICATORS

The clip-limiter indicators turn on when a distortion level above 1% THD is present in the output.

## 7. CLIP-LIMITER SWITCHES

Use this to prevent the amplifier from continuous clipping in each channel output.

## 8. STAND-BY INDICATOR

The stand-by indicator turns on when the stand-by switch (2p screw terminal) on rear panel turned on.

## 9 PROTECTION INDICATOR

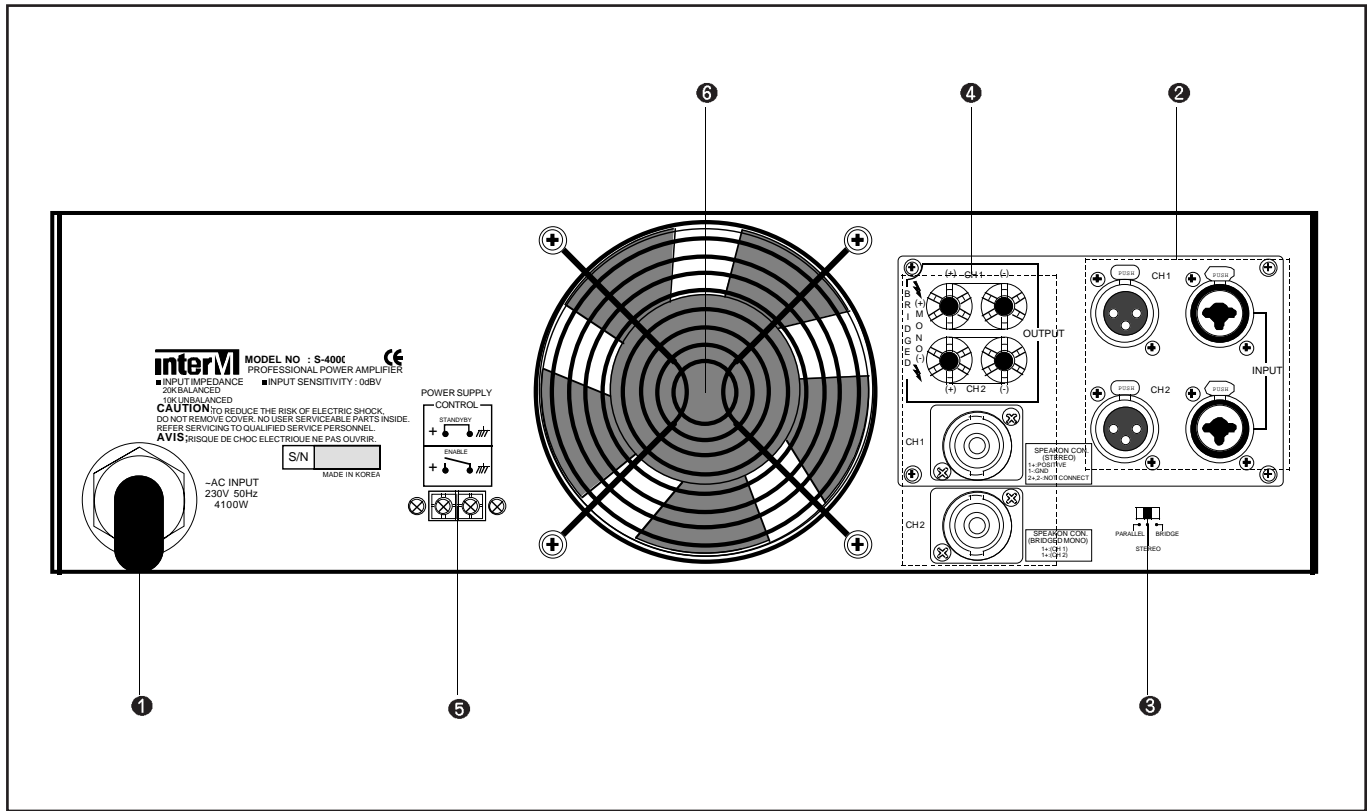
The protection indicator turns on when a protection circuit in the amplifier is operating by an abnormal condition as follows.

- \* Thermal protection .....When the heatsink and main switching power transformer temperature should climb above 100°C, protection circuit is operated.
- \* Full short protection .....The output circuit protects the output devices from short circuits and stressful loads.
- \* DC fault protection .....The outputs will mute if DC or excessive subsonic energy appears at them.
- \* RF protection .....The input circuits are isolated by 10KΩ resistors. An supersonic network decouples RF from the outputs and helps keep the amplifier stable with reactive loads.
- \* Turn on/off muting .....Turn on/off muting blocks transients from the amplifier or preceding devices from reaching the speakers. The turn on delay has been extended somewhat, and turn off muting.
- \* Clip limiting .....During normal operation, the clip limiter does not affect the audio signal and is, in fact, inaudible. It will allow brief clipping of peaks, activating only when continuous, hard limiting occurs. The clip limiter will then gradually reduce the audio signal (up to 10dB) to minimize clipping. When clipping ends, the clip limiter will deactivate and cease its gain reduction.
- \* Inrush current protection .....In rush current is limited by an NTC resistor (Negative Temperature Coefficient) which starts at a high resistance and then diminishes after turn on to avoid loss of power.

## 10. HANDLES

You can handle the amplifier easily by using these handles.

## REAR PANEL CONTROLS



### 1. AC INPUT

Plug this AC input cord into AC outlet.

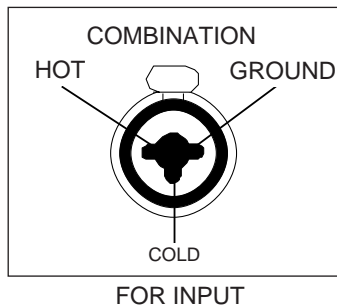
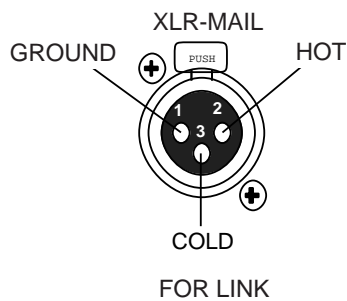
### 2. INPUT TERMINALS (CHANNEL 1, 2)

Input connectors are provided both balanced combination jacks.

Channel 1 input terminal is used in Bridge mode and parallel mode.

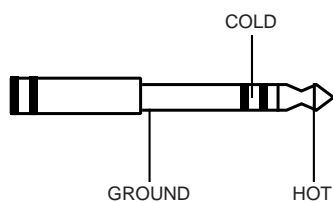
#### ● XLR-TYPE CONNECTION

They are wired pin 1-ground, pin 2-hot(+), and pin 3 cold(-)



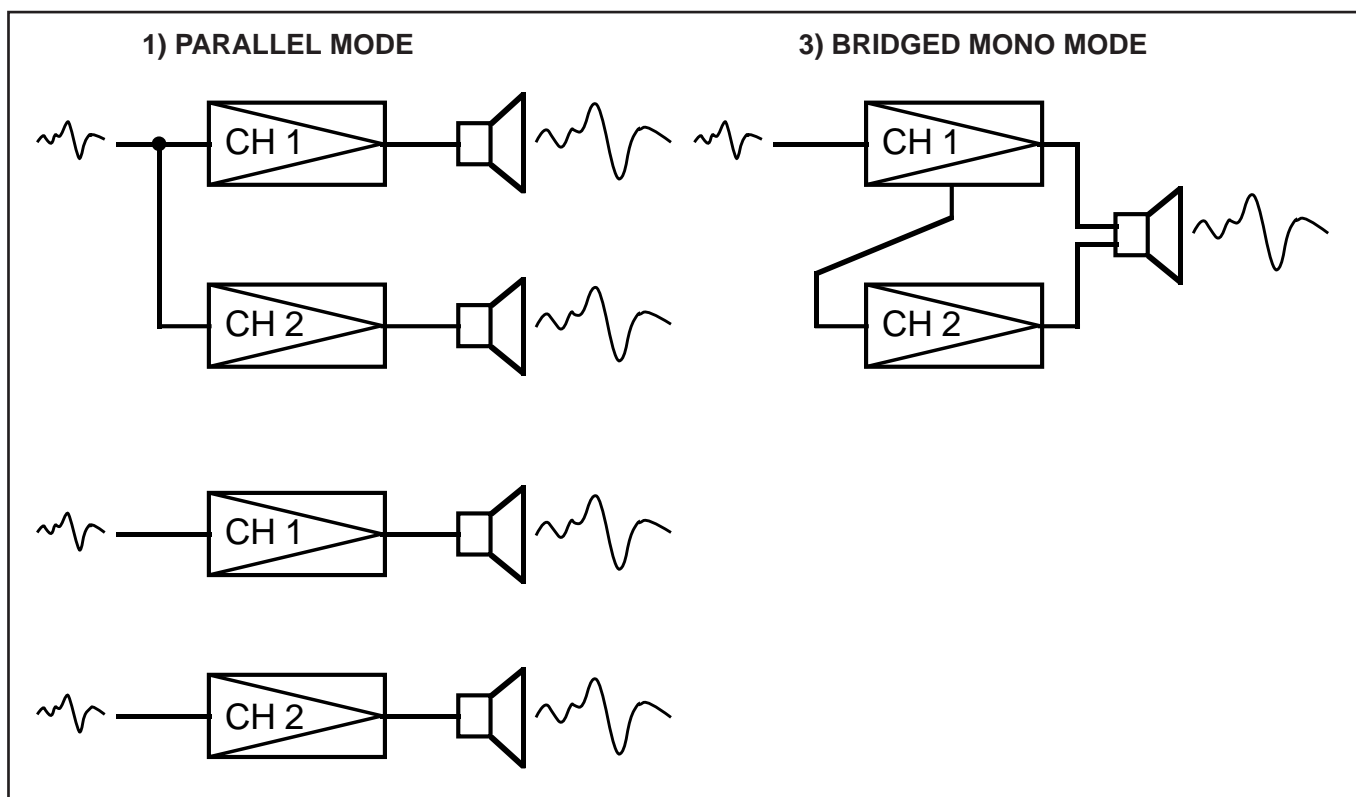
#### ● PHONE JACK

They are wired tip-hot(+), ring-cold(-), and sleeve-ground.



### 3. MODE SELECTOR

By the mode select switch, these amplifier can be used for stereo, input parallel and bridged mono function.

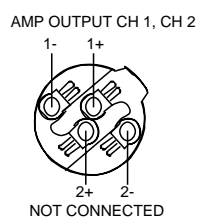
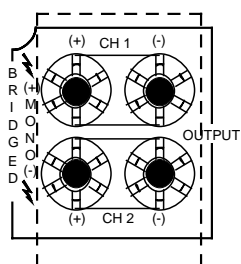


### 4. OUTPUT TERMINALS

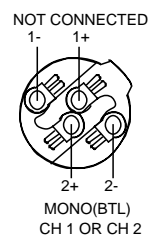
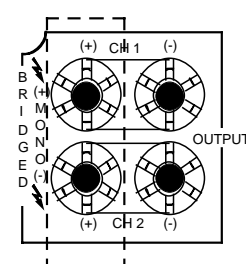
Output terminals are dual five-way binding posts and speaker connectors. Do not parallel the two outputs of each channel by connecting them (together, or parallel them) with any other amplifier output.

\*When speakers are connected through speaker, please make sure correct connection of each pin, and refer speaker pin number.

#### • STEREO MODE



#### • BRIDGED MODE



The minimum impedance for the connected speaker system is specified in "Speaker Impedance" on page 8.

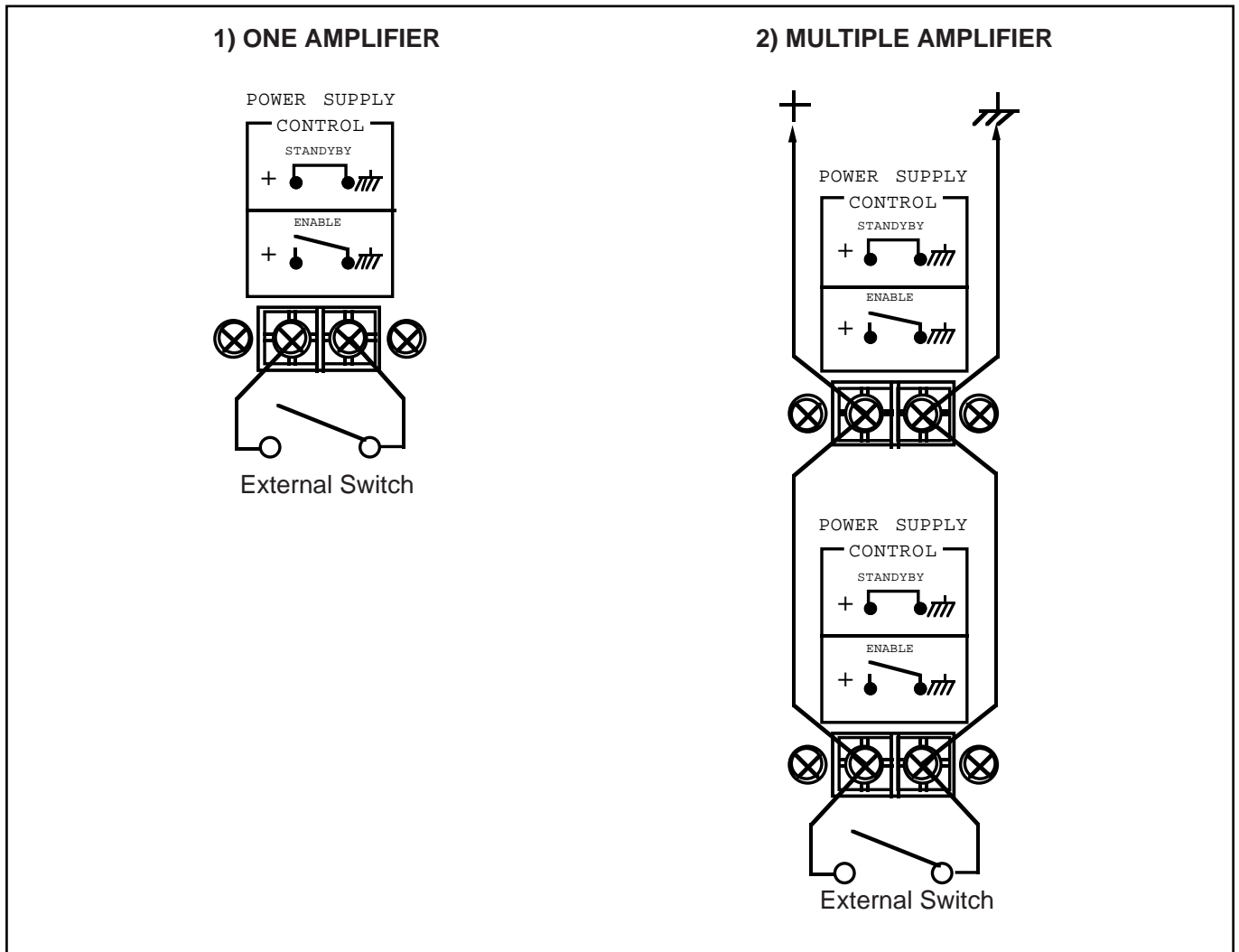
#### \*OUTPUT CONNECTORS(BINDING POST)

Use these to connect the amplifier to loudspeakers, wiring method is as follows.

- 1) Stereo mode:
  - RED (CH1&2) : HOT
  - BLACK (CH1&2) : COLD
- 2) Bridged mono mode:
  - RED (CH1) : HOT
  - BLACK (CH2) : COLD
  - BLACK (CH1&2) : USELESS TERMINAL

## 5. STAND-BY SWITCH

Use this to stand-by the amplifier for power supply control.



## 6. FAN

Continuously variable speed fan is operated by the thermal sensors on the main heatsink or the switching power transformer.



## STEREO MODE AND BRIDGED MONO MODE

### • STEREO MODE

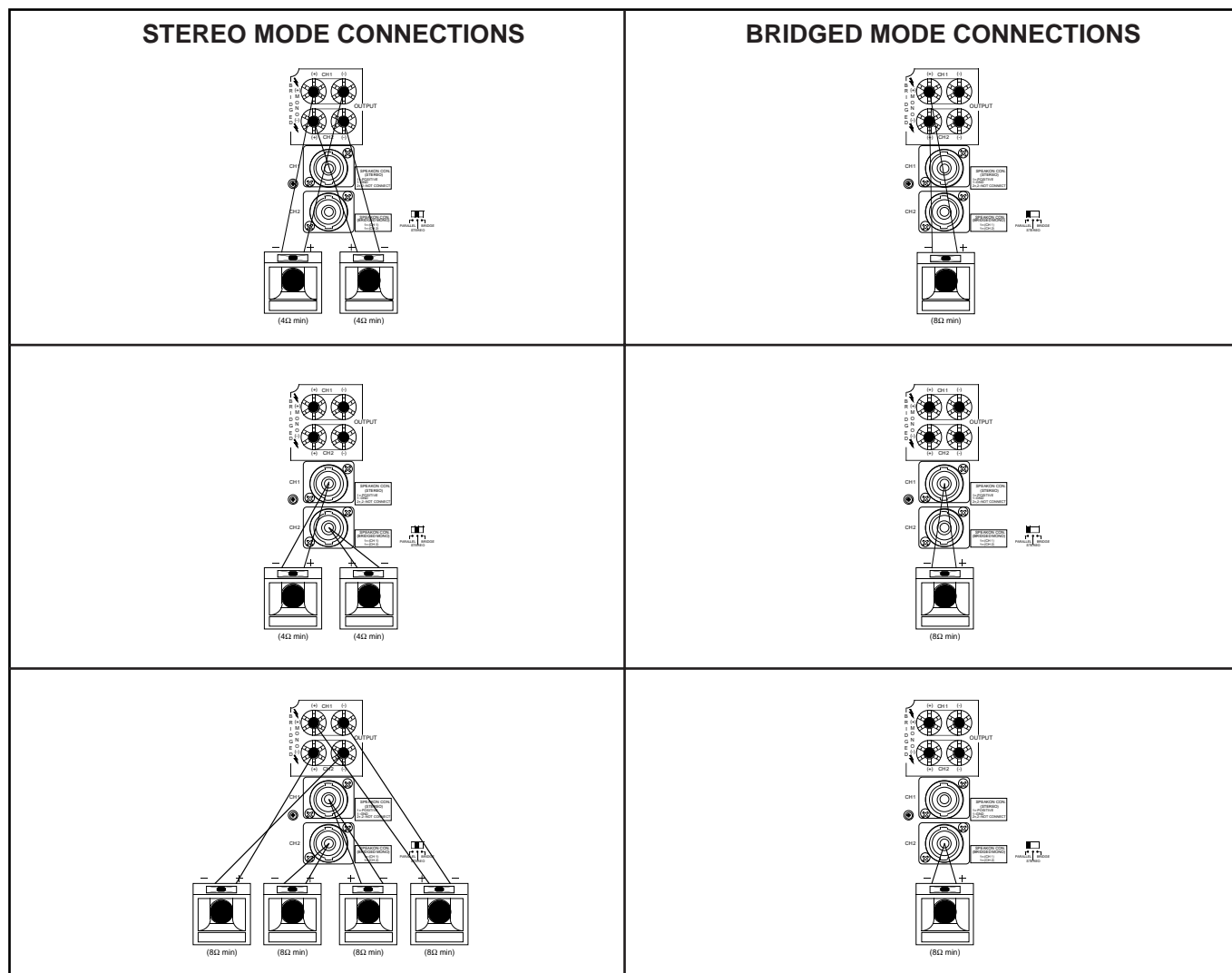
In this mode, channels 1 and 2 operate independently (typical stereo amplifier). Channel 1 input signal feeds channel 1 power amp, and channel 2 input signal feeds channel 2 power amp. In this mode, the minimum speaker impedance per channel is  $4\Omega$ .

### • BRIDGED MONO MODE

In this mode, channels 1 and 2 are bridged together and work as one mono amplifier. In this mode, the minimum speaker impedance is  $8\Omega$ .

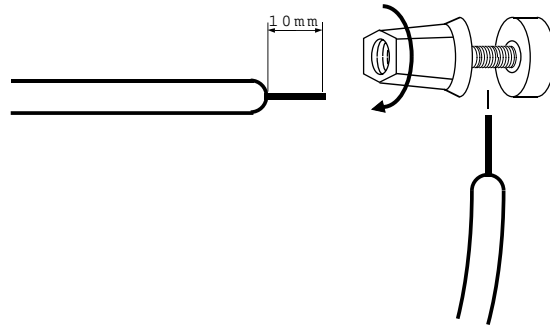
## SPEAKER IMPEDANCE AND CONNECTION

The series amplifier has three operating modes: Stereo, Bridged and Parallel and allows you to connect multiple speaker systems in parallel. Therefore, the minimum speaker impedance varies depending on the combination of these speakers. Be sure that the speaker impedance falls below the specified impedance. The figures below show the examples of connection in Stereo mode and Bridged mode, and speaker systems connected in parallel in Stereo mode, and the respective minimum impedance.

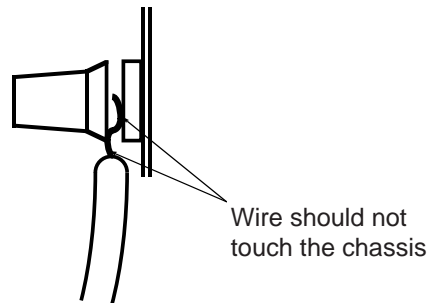


## CAUTION FOR SPEAKER CONNECTION AND INSTALLATION

1. Turn off the POWER switch.
2. After removing approx. 10mm of insulation from the ends of the speaker cables, pass the bare ends of the speaker wires through the holes in the corresponding speaker terminals and tighten the terminals to securely clamp the wires.  
Refer to page 6 for speaker polarity.



At the time make sure that the bare ends of the speaker cables do not extend from the terminals in such a way that they touch the chassis.



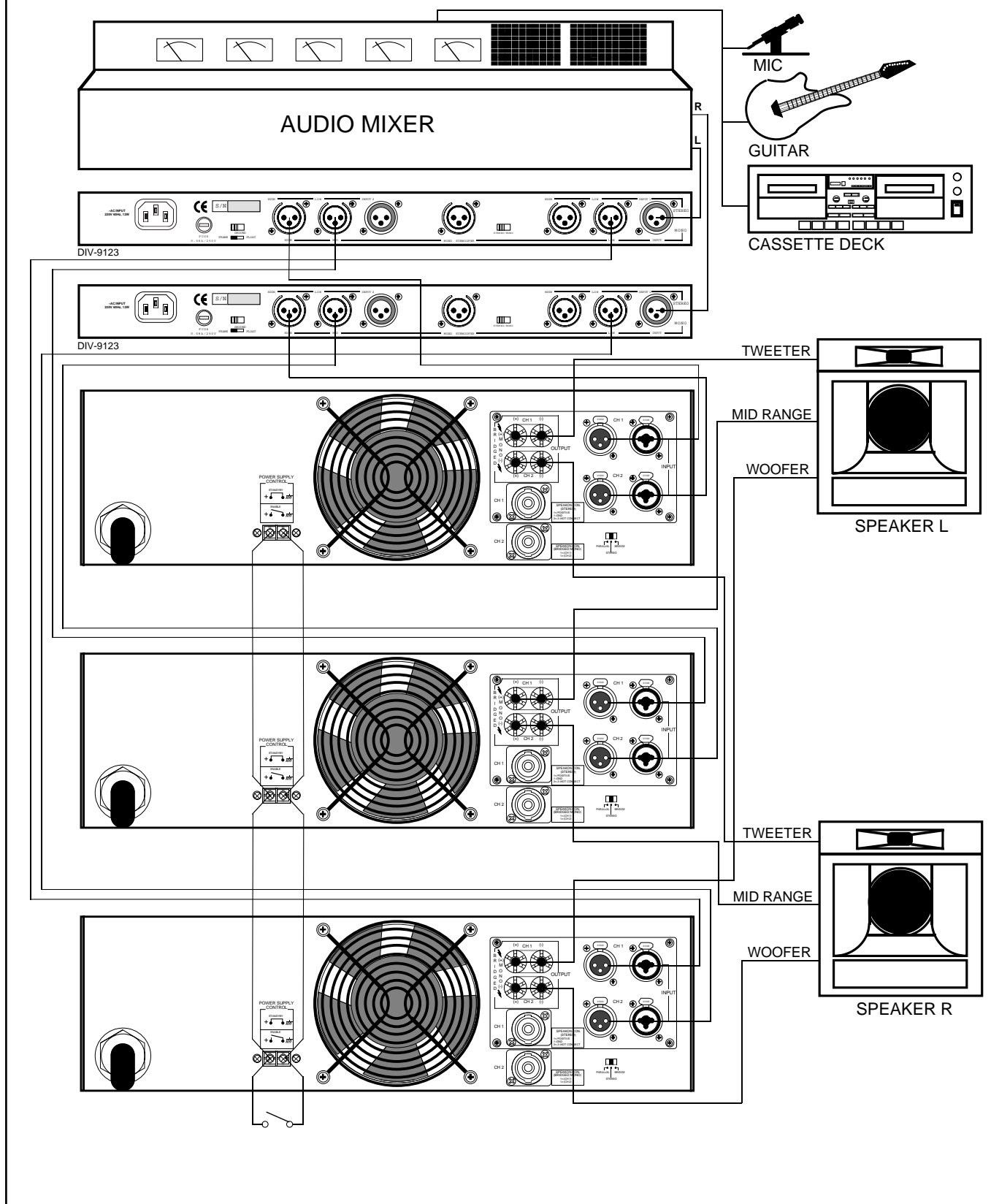
### 3. SPEAKER CABLE

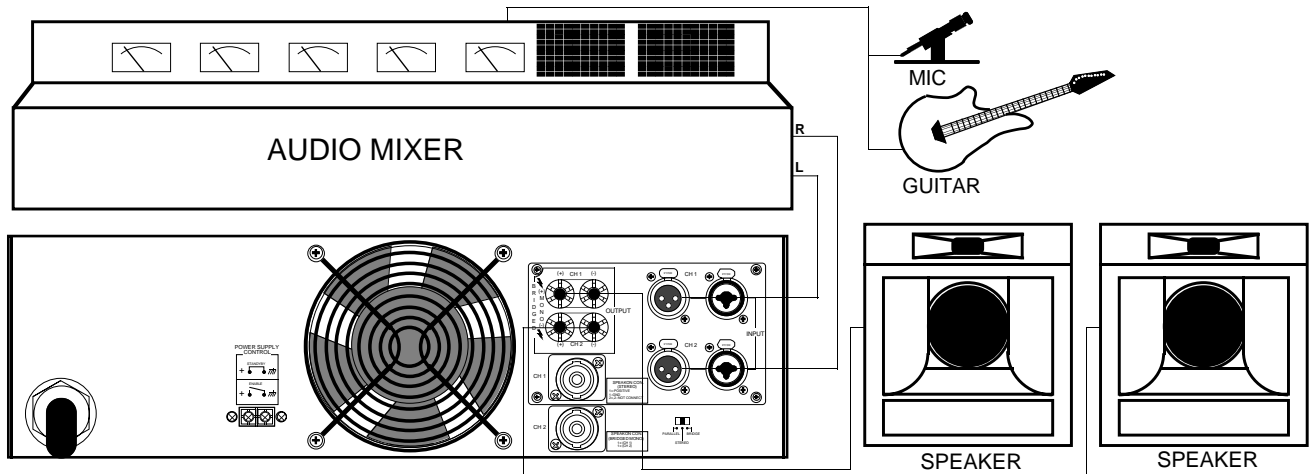
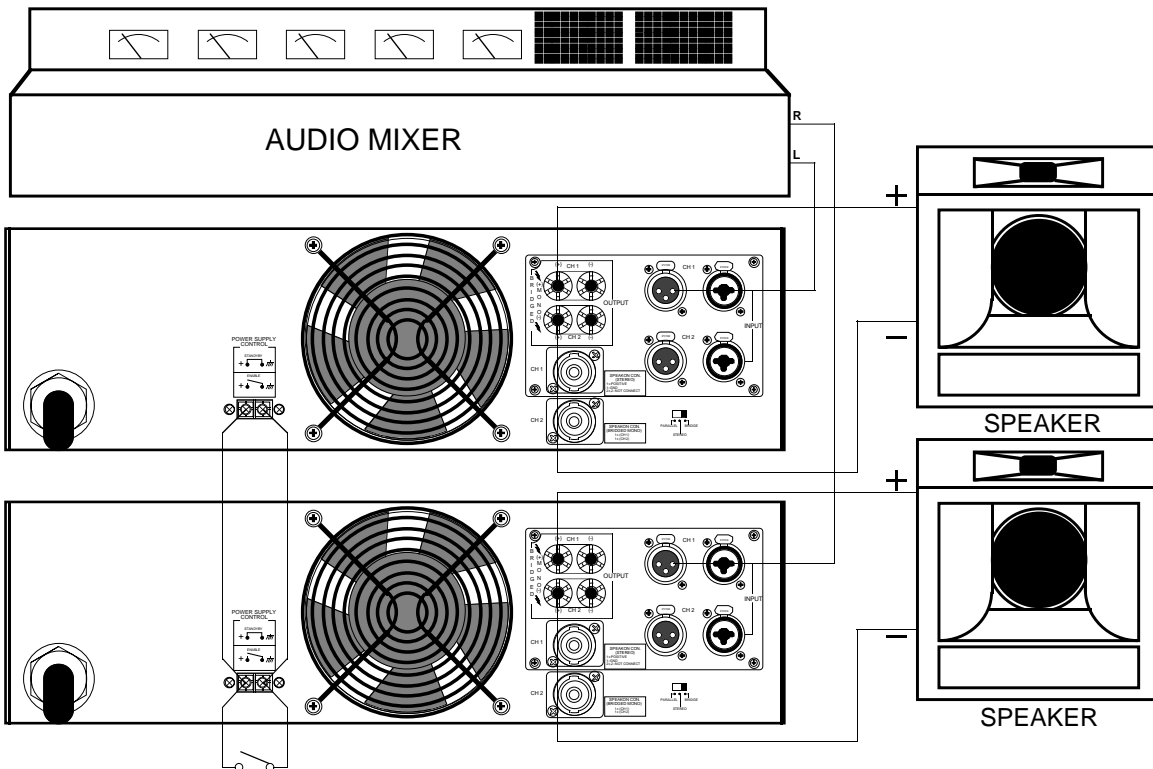
If you use a long speaker cable, use as thick a cable as possible to prevent deterioration of the damping factor or power loss inside the cable. Even the thickest cable can be used for the speaker terminal of this unit.

4. The amplifier are capable of hazardous output voltage. To avoid electrical shock when using the Binding Posts for speaker connections, do not touch exposed speaker wiring while the amplifier is operating.
5. To avoid damage to the amplifier mounting ears and/or rack rails, the amplifier must be supported at all four corners when used in portable racks.
6. AIR FLOW  
The amplifier intakes cool air through the rear panel and exhausts warm air out the front panel. When mounting amplifiers in a portable rack, make sure the rear panel is completely open for ventilation.
7. To reduce temperature of amplifier in rack, use to blank panel between the two amplifier.

# CONNECTIONS

## ■ 3 WAY CONNECTION



**CONNECTIONS****■ SINGLE AMP CONNECTION****■ BRIDGED MONO MODE CONNECTION**

## SPECIFICATIONS

### ■ ELECTRICAL

- Rated Output Power (1 KHz, 1 % THD)
  - 8Ω (per channel) .....S3000:750W, S4000:1000W
  - 4Ω (per channel) .....S3000:1200W, S4000:1600W
  - 2Ω (per channel) .....S3000:1500W, S4000:2000W
  - 8Ω (bridged mono) .....S3000:2100W, S4000:2800W
  - 4Ω (bridged mono) .....S3000:3000W, S4000:4000W
- Input Sensitivity .....1 Vrms
- T.H.D .....Less than 0.1%
- Frequency Response .....20Hz-20KHz,  $\pm 0.5$ dB
- S/N .....Less than -100dB
- Channel Separation .....Less than -80dB
- Damping Factor .....Greater than 500
- Indicators
  - Power LED .....Green
  - Stand-by LED .....Yellow
  - Protect LED .....Red
  - Signal LED .....Green
  - Level LED (-20dB) .....Yellow
  - Level LED (-10dB) .....Yellow
  - Clip LED .....Red
- Input Impedance .....10KΩ UNBAL  
20KΩ BAL
- Connectors
  - Input Connectors .....XLR Jack, Combination Jack
  - Output Connectors .....Speakon jack, Binding Post
- Protection Circuits .....Full short circuit, RF-Port,  
DC-fault, Thermal limiting/Muting,  
ON/OFF muting, Clip-limiter
- Power Supply System .....SMPS (Switching Mode Power Supply)
- Output Circuit .....2 step high efficient circuit(S3000)  
3 step high efficient circuit(S4000)
- Cooling Method .....Continuous variable speed fan, air flow from rear to front

### ■ GENERAL

- Power Source .....AC 110V~240V, 50/60Hz
- Power Consumption .....S3000:3400W, S4000:4100W
- Weight .....S3000:17Kg, S4000:18Kg
- Dimensions .....482(W)x132(H)x437(D)mm

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

**interM**

MADE IN KOREA