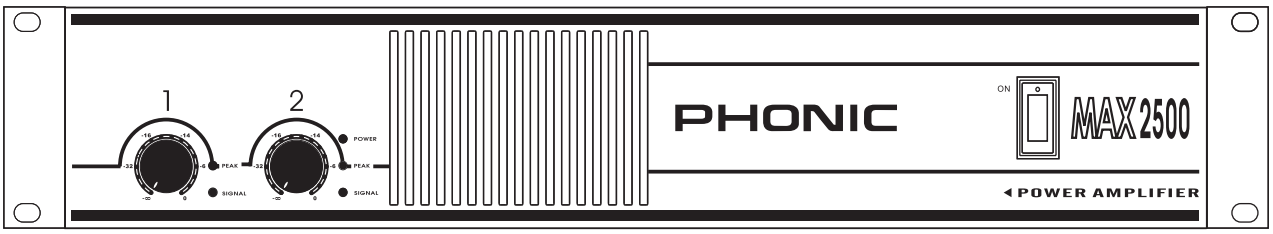
PHONIC

# MAX 860
# MAX 1500
# MAX 2500

## POWER AMPLIFIER




MAX 2500

ENGLISH

User's Manual

# IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions before operating this apparatus.
2. Keep these instructions for future reference.
3. Heed all warnings to ensure safe operation.
4. Follow all instructions provided in this document.
5. Do not use this apparatus near water or in locations where condensation may occur.
6. Clean only with dry cloth. Do not use aerosol or liquid cleaners. Unplug this apparatus before cleaning.
7. Do not block any of the 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 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 plug, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with a 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 lighting 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.


CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL

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.

exclamation point within an equilateral triangle is nded to alert the user to the presence of important rating and maintenance (servicing) instructions in the ature accompanying the appliance.

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

**CAUTION:** Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.

## MAX 860/1500

"Class 2 wiring" for all other terminals provided the audio output power exceeds 10W per channel under normal operating conditions or the apparatus is intended to be installed or interconnected in the field by a skilled person.

## MAX 2500

"Class 3 wiring" for terminals with a measured open-circuit voltage exceeding 120Vrms but not exceed 300 vrms when delivering non-clipped output power.

PHONIC

POWER AMPLIFIER

# MAX SERIES

# MAX860/1500/2500

USER'S MANUAL

## CONTENTS



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## INTRODUCTION

Thank you for purchasing a Max series power amplifier. Based on years of experience in designing and manufacturing professional audio equipment, we at PHONIC designed this power amplifier for those who need an extremely powerful, reliable and sturdy amplifier with a small footprint. Taking advantage of its huge heat sink as well as its variable speed fan that auto-adjusts fan speed depending on the temperature of the machine during operation, Max series power amplifier can only promise to perform at its best. Its professional quality output and its sturdy case design make this unit great for various locations like churches, concert tours, stages, disco, pubs, or any place that requires amplifier installation.

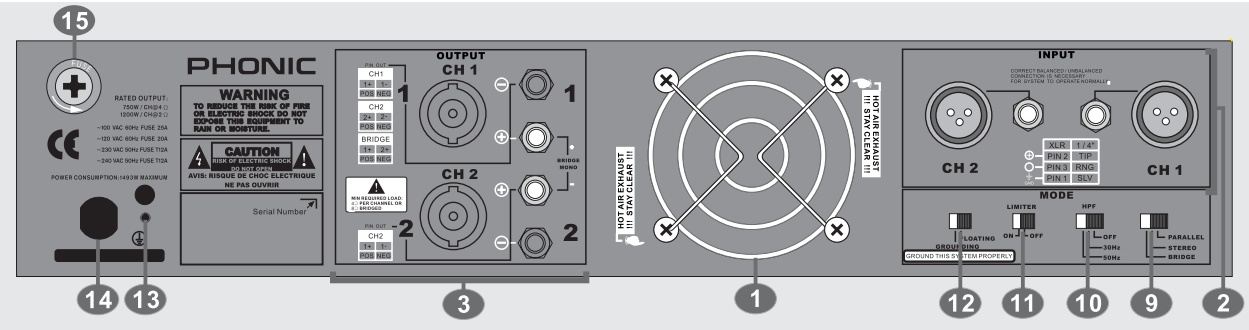
This unit is designed with great care and great attention to details, so please read this manual carefully. Look after it and keep it in a safe place for future reference.

## FEATURES

- Up to 2200 Watts with only 2U footprint
- Output: 300W for Max 860, 450W for Max 1500 and 750W for Max 2500 at 4ohms
- High current toroidal transformer allowing high power output with low noise and low distortion
- Built in limiter with a button allowing user to disable limiter's function
- Selectable high pass filter at 30Hz or 50Hz for reducing distortion and protecting speakers
- Balanced XLR and Phone Jack inputs
- Binding post and speakon outputs
- Front mounted gain controls for easy access
- Signal and Peak LED indicators to monitor performance
- Protection: short circuit, thermal, subsonic, RF protection, output DC offset, power on/off muting

## GETTING STARTED

- Check the AC voltage before connecting the power plug to the outlet. Make sure the AC power supply shares the same voltage used in your country (For example, while some countries use 100V, others use 120V, 230V, or 240V). Proper grounding prevents user from experiencing electrical shock.
- Before turning on the power, make sure gains are turned down to prevent other equipment from harm.
- Check your cables regularly and label each end clearly for easy identification.
- Always turn off the power before connecting to and disconnecting from the unit.
- NEVER use solvents to clean the unit. Clean it with a soft and damp or dry cloth.




# INSTALLATION

## MOUNTING THE UNIT

Designed to fit into a standard 19-inch rack, this unit only takes up 2 units of rack space. Secure this unit with 4 rack-mount screws and cup washers. In general, power amplifiers usually are heavier than any other audio equipment, so when installing this unit onto a rack, begin placing it from the bottom of the rack. Leave 1-rack space between power amplifiers and other devices to guarantee better cooling (See Figure 1).

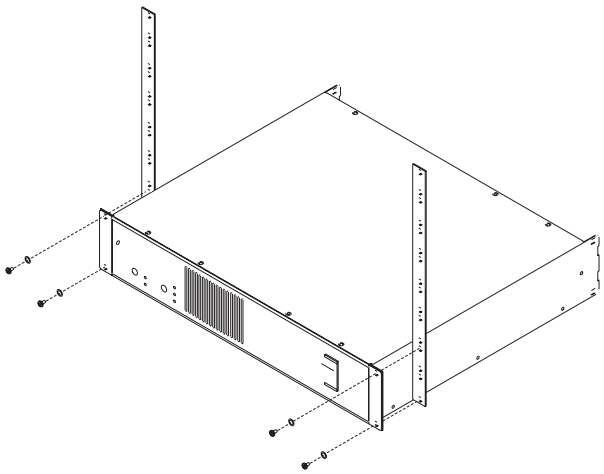
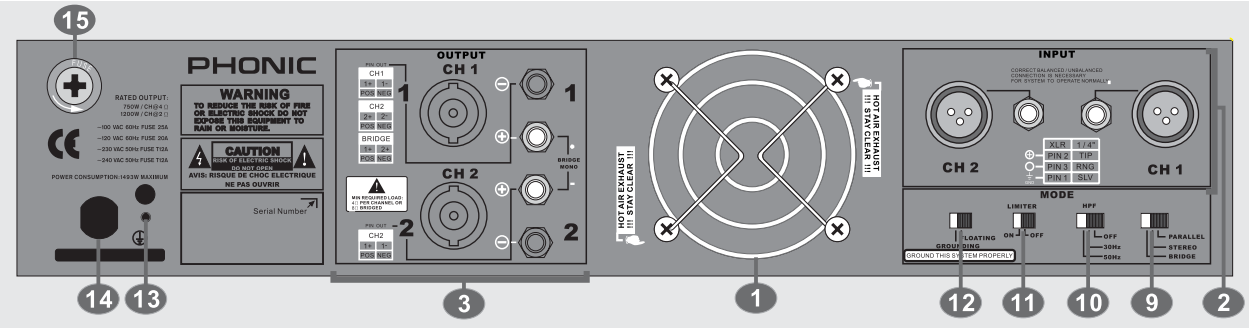


**Figure 1 Rack Mount**

## 1 HEAT VENTILATION

This unit comes with variable speed fan that auto-adjusts fan speed depending on the temperature of the machine during operation.

**!!! DO NOT OBSTRUCT IN ANY WAY, AS TO ENSURE THE POWER AMPLIFIER IS PROPERLY VENTILATED !!!**




## CONNECTIONS

### 2 INPUT

With balanced XLR and TRS 1/4" input jacks, you could use either XLR or TRS line input jack for connection. These input jacks accept balanced as well as unbalanced input. When sending unbalanced signal, the Ring and the Sleeve of the TRS jack must be connected, the 3rd pin and the 1st pin of the XLR connector should be connected as well, or simply use a TS phone jack for making the connection (See Figure 2).

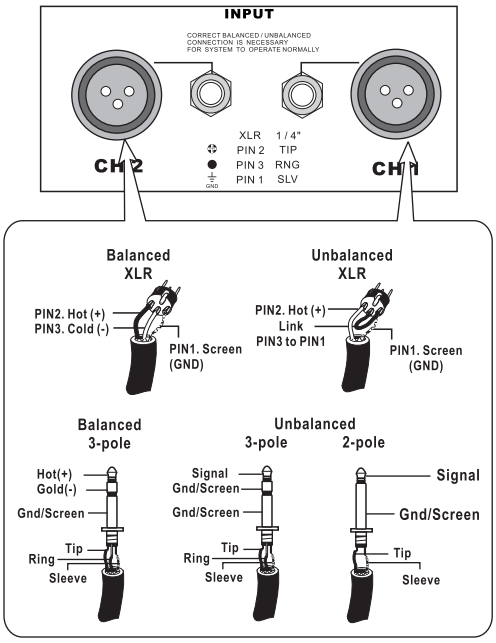



Figure 2 Input Wiring

### 3 OUTPUT

Binding posts and speakon connectors make up the unit's output section. Loudspeakers can easily be connected using banana plugs, spade lugs, bare wires or speakon connector. More people prefer using speakon than other connectors because it's the least likely to be disconnected by accident or cause electrical shock. Because speakon comes with four wires inside, you can connect to two speakers with only one channel output. Be careful when making connections since improper connecting could cause the unit to short circuit. The minimum impedance setting for STEREO and PARALLEL operation is 2ohm, while 4ohm is the minimum setting for BRIDGE MONO (See Figure 3).

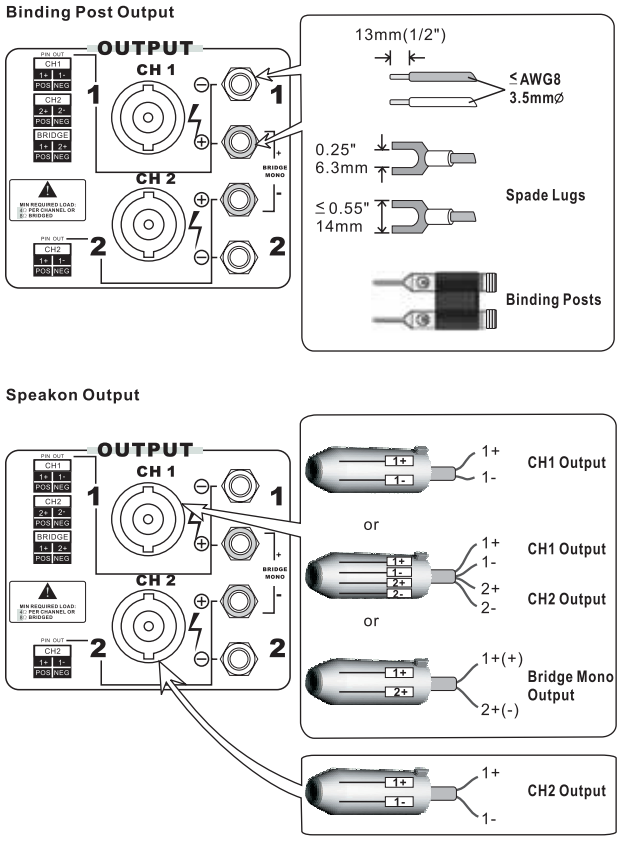
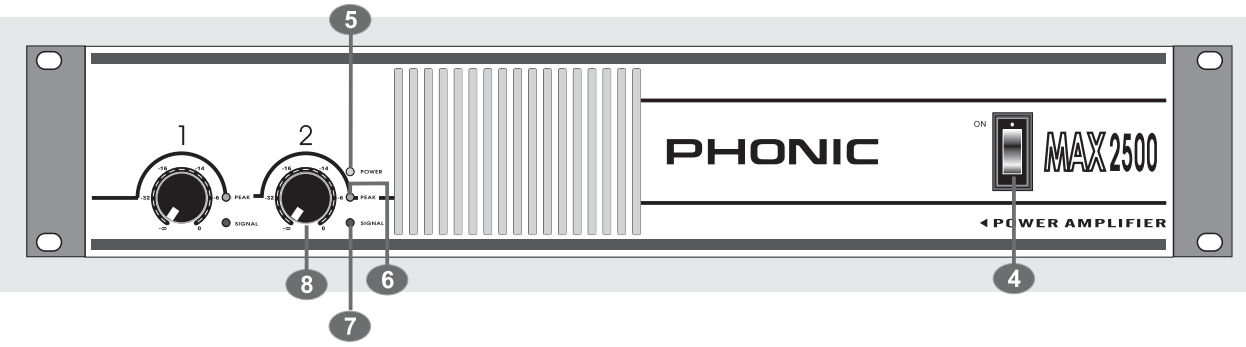



Figure 3 Output Wiiring




# OPERATION

## FRONT PANEL

### 4 POWER SWITCH

This switch turns the power of the unit on. Remember to turn the gain controls down before turning power on or off, even though it comes with POWER ON / OFF MUTING feature. In general, power amplifier should be the last audio equipment to be powered on, and the last to be powered off, in a PA system.

### 5 POWER LED

This blue LED comes on when power is on.

### 6 PEAK LED

When the input signal level becomes too high, causing input signal to loss definition and to distort, this red LED comes on. When this happens, turn the gain control down until the PEAK LED no longer comes on or remains on continously.

### 7 SIGNAL LED

Every channel comes with a signal LED, allowing user to monitor signal level. A minimum level of -30dBu is required for the LED to go on.

### 8 GAIN CONTROLS

These two rotary knobs control the signal level of the input. Center detented control allows precise volume setting. Slowly turn the knob clockwise to increase input level, but make sure that PEAK LED does not remain on or blink constantly.

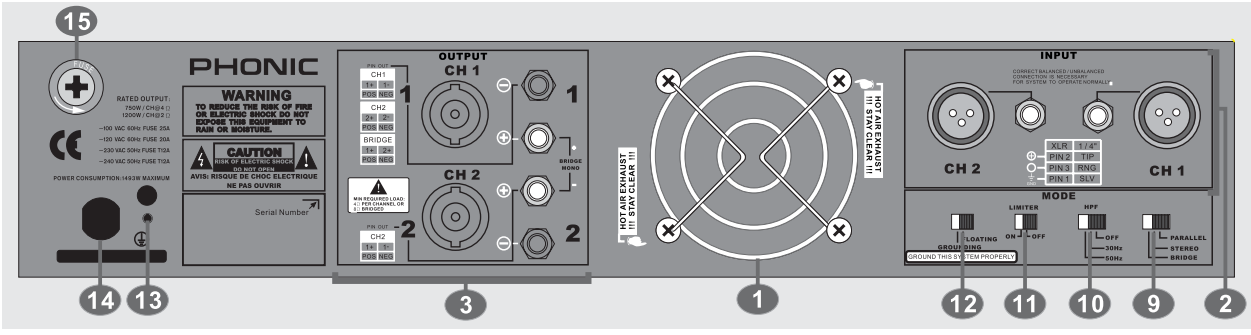
## REAR PANEL

### 9 PARALLEL / STEREO / BRIDGE MONO OPERATION MODE

There are three operation modes for different use. To avoid damaging your PA system, remember to turn the power off before switching from one mode to the other.

### PARALLEL

Switch to PARALLEL mode, the input signal of Channel 2 parallels the input signal of Channel 1, so only one input jack is needed for the signal source. While Channel 1 input is being used for source, Channel 2 input can be used to extend the source signal to other audio equipment, for example, another power amplifier. Even though the input signal of both channels parallels each other, the output level of each channel is determined by its own independent gain controls. So the two channels sharing the same signal do not



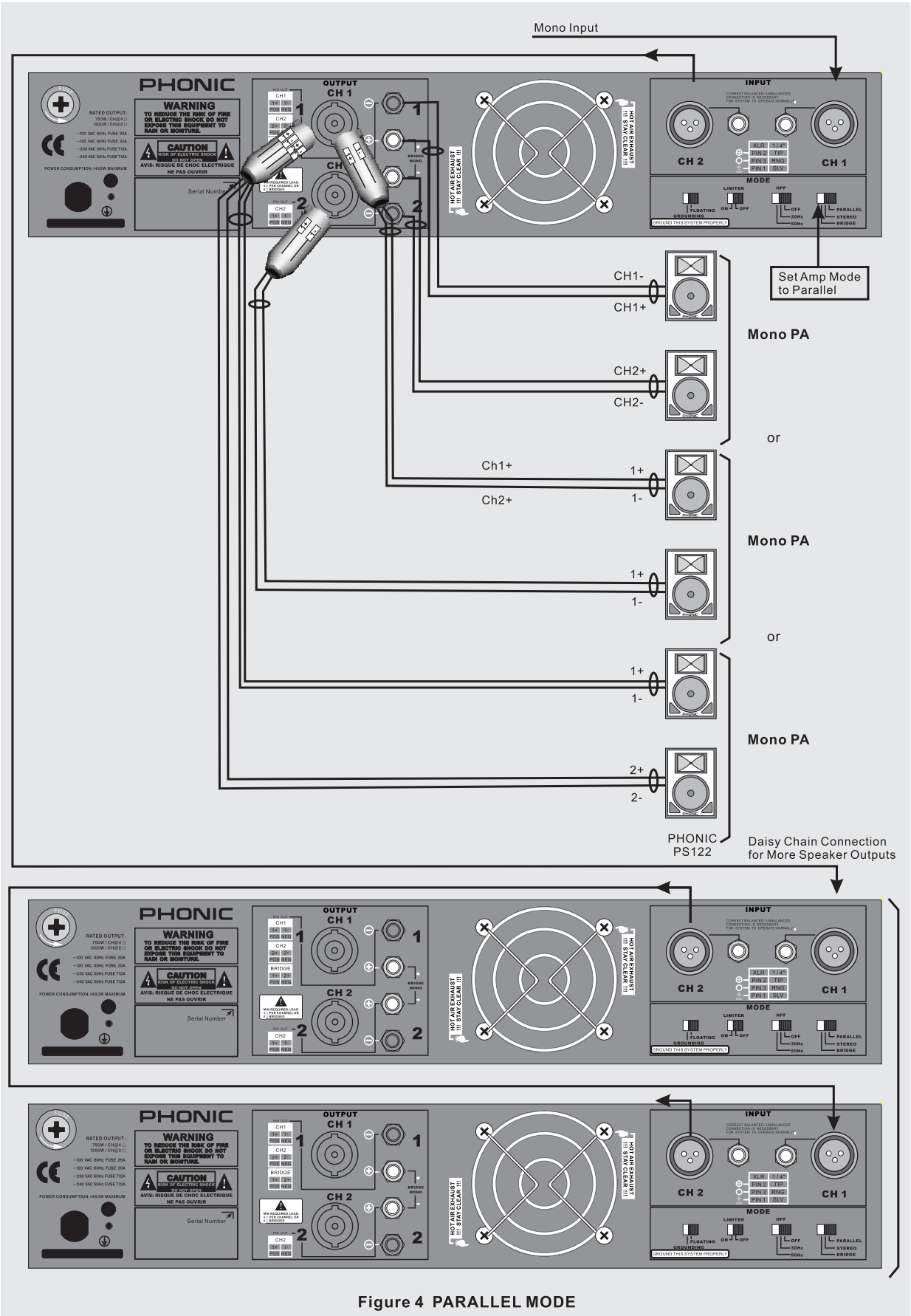



Figure 4 PARALLEL MODE

**STEREO**

STEREO mode is the most frequently used mode among the three. Each channel is independent of the other, carrying its own input signal, with its own gain control. Stereo mode comes in left and right channels (See Figure 5).

A) When one channel is assigned for left channel, make sure the other channel is assigned for the right.

B) User can use the unit for mono output, with one as main and the other as monitor.

C) This power amplifier can also be used for bi-amplification. One channel for driving low frequencies while the other for driving high frequencies.

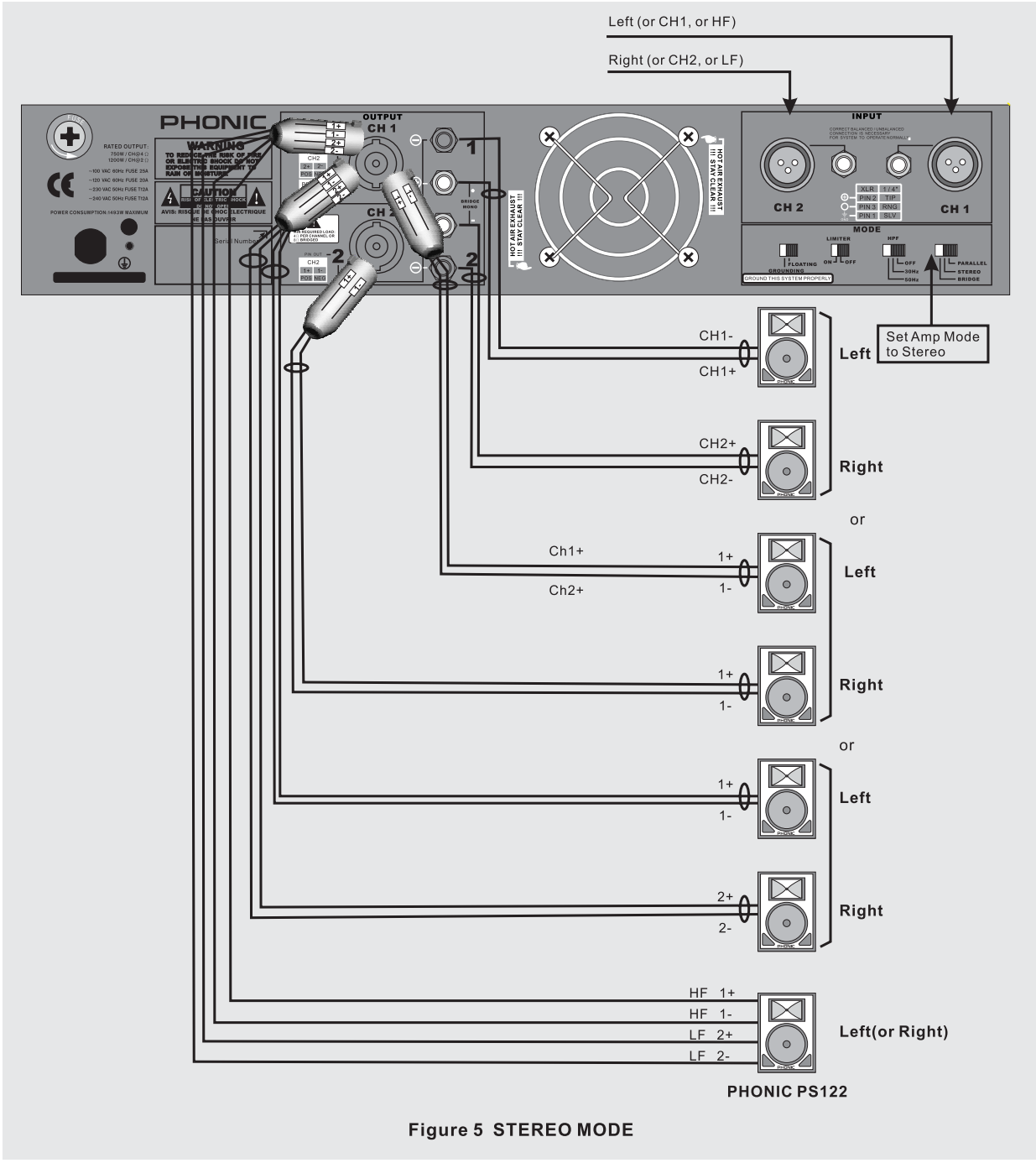



**Figure 5 STEREO MODE**

## BRIDGE MONO

This mode is for those who need high level output. It combines the power of both channels to produce the maximum amount of power the unit can handle. Make sure your speaker can handle higher wattage this mode offers. Remember, the minimum impedance requirement is 8 ohms. When bridge mono, make sure only Channel 1 input is in use. When using speakon, treat PIN 1+ as the "+" and PIN 2+ as the "-"; when using binding posts, treat Channel 1 + as the "+" and Channel 2 + as the "-". Do not use Channel 2's speakon output in this mode. When bridge mono, the gain control of Channel 1 controls the total level output (See Figure 6).

**WARNING**: Bridge mono operation produces higher current output than the other two operations, thus make sure the gain is set at the proper level and speakers being used can handle the wattage amplifier produce. Proper attention to wiring is greatly needed to prevent experiencing electric shock.

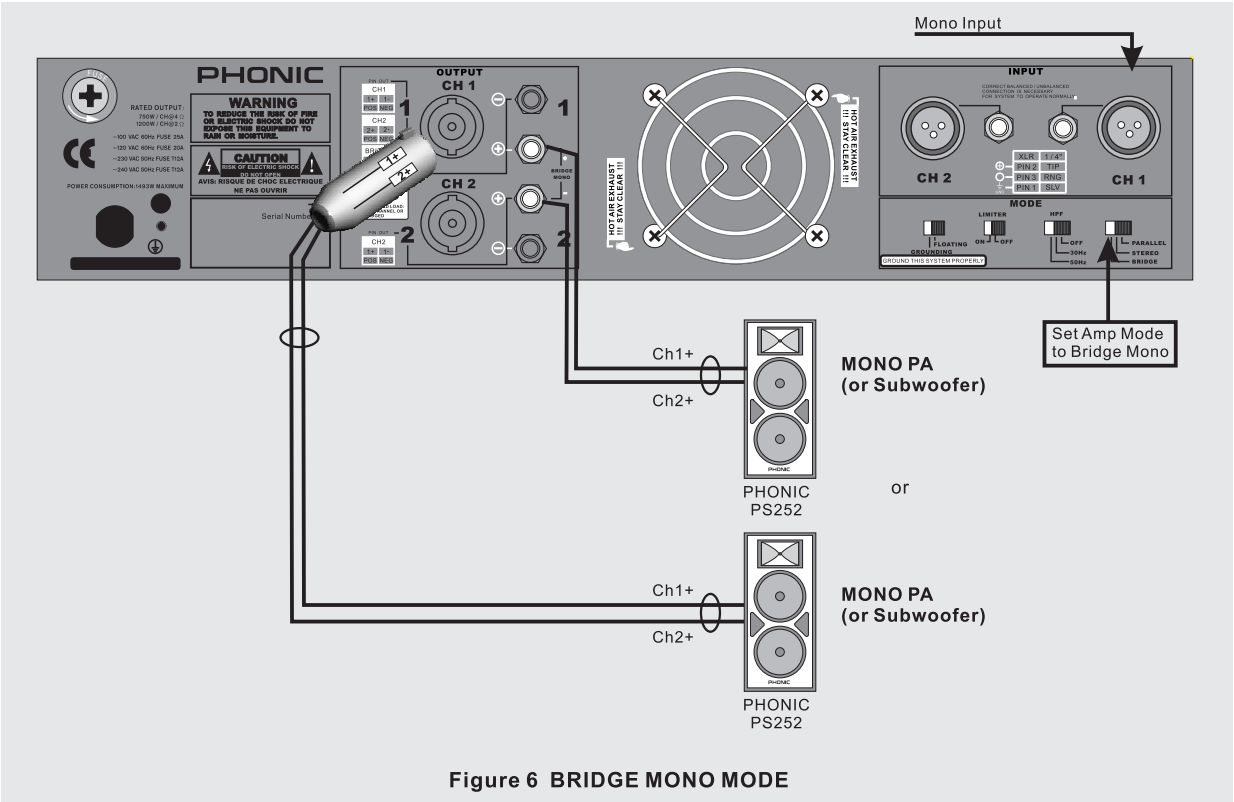
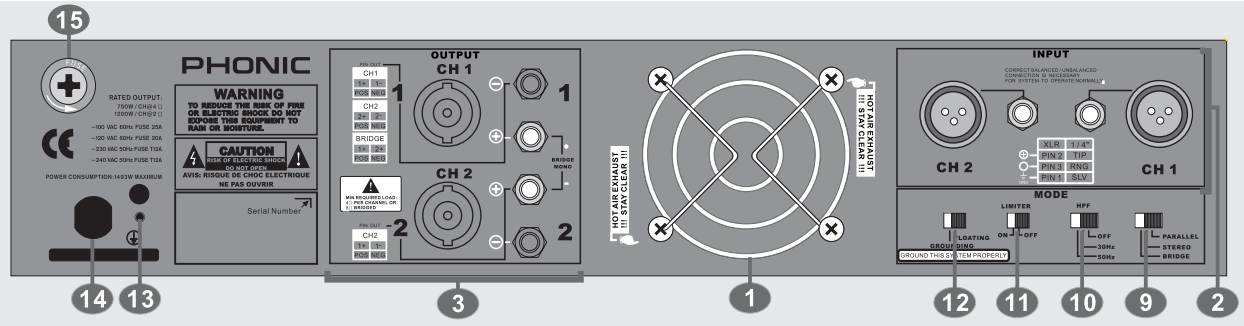



**Figure 6 BRIDGE MONO MODE**




### 10 HIGH PASS FILTER

With this filter, any frequency below 30Hz or 50 Hz is left out, not reproduced by the amplifier. This way, speakers less efficient and effective in reproducing low frequencies can be protected. This also allows such speakers to perform better.

### 11 LIMITER ON/OFF

This switch turns on or off the built-in limiter. When the input signal level becomes too high, causing amplifier to loss definition and to distort. Limiter helps prevent signal from losing definition and becoming distorted by automatically decrease signal level for guaranting maximum dynamic range.

### 12 GROUNDING – FLOATING SWITCH

This switch allows user to choose between circuit or chassis grounding for resolving any grounding conflict. Under normal use and for safty, such switch should be in the “grounding on” position. When grounding loop and hum occur, try switching to “floating.” When the hum is gone, it means the common ground is on the other equipment.

### 13 CHASSIS GROUNDING CONNECTING POINT

To avoid the possibility of ground loop, this unit comes with chassis grounding point allowing it to be connected to other units for sharing a common grounding.

### 14 POWER CORD

This cord draws electricity from power outlet. Near by it, there is an indicator that tells you what voltage your unit operates in. Check the AC voltage before connecting the power plug to the outlet. Make sure the AC requirement shares the same voltage used in your country (For example, while some countries use 100V and 120V, others use 230V and 240V).

### 15 FUSE

This small compartment holds the device's fuse. If a fuse for some reason needs to be replaced, simply unscrew the fuse cover and replace with another suitable fuse. Please observe the table below to find the correct fuse for your device.

| Voltage | Fuse Type |
|---|---|
| ~100 VAC 60Hz | 25A |
| ~120 VAC 60Hz | 25A |
| ~230 VAC 50Hz | 15A |
| ~240 VAC 50Hz | 15A |

## PROTECTIONS

The unit comes with many circuitry protection features for preventing it and speakers it's connected to from harm.

**SHORT CIRCUIT**: When speakers short circuit, this feature protects the amplifier by cutting off the output current to the speakers.

**THERMAL**: Heat is created during high level output – especially when during bridge operation. The unit comes with variable speed fan that auto-adjusts speed depending on the temperature of the machine during operation. However, for some reason the unit could not effectively vent out excessive heat, this feature would protect the unit from over-heating by shutting its power off.

**OUTPUT DC OFFSET**: When direct current enters to the connection between the power amplifier and speakers, it hurts the speakers by causing drivers and cones to work under stress. This feature prevents this from happening by cutting off the output current to the speakers when such situation happens.

**POWER ON / OFF MUTING**: There is a two to three second delay before the unit sends out any signal. During this 2-3 seconds, the system will be on mute, no signal exist this unit.

**SUBSONIC**: Frequencies below 10Hz contain high level of energy that can be harmful and stressful for many speakers. Since normal human listening range from 20Hz to 20KHz, this unit comes with a feature that helps filter out any frequency that is below 10Hz to prevent speakers from harm.

**RF PROTECTION**: Radio Frequency is everywhere. This feature prevents radio frequency interference by filtering out frequency signal that's above 200KHz. This help prevent radio program signals from entering this unit.

# DIMENSIONS

**The entire MAX series share the same dimensions.**

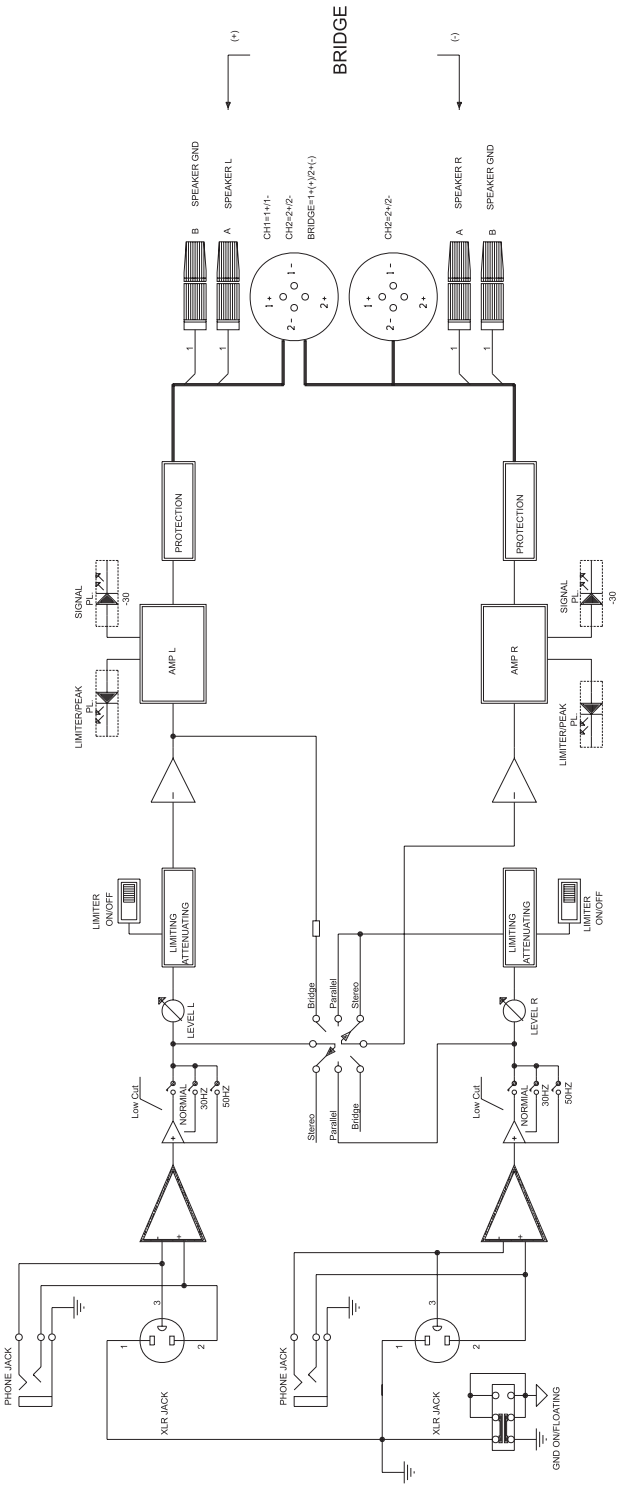

Measurements are shown in mm/inch.

# SPECIFICATIONS

| MAX SPECIFICATIONS | MAX-860 | MAX-1500 | MAX-2500 |
|---|---|---|---|
| Stereo Mode (driving both channels) | Continuous Average Output Power Per Channel | | |
| 8Ω EIA 1kHz 0.1%THD | 200W | 280W | 500W |
| 4Ω EIA 1kHz 0.1%THD | 300W | 450W | 750W |
| Bridge Mono Mode | Continuous Average Output Power | | |
| 8Ω EIA 1kHz 0.1%THD | 600W | 900W | 1500W |
| **All Models** | | | |
| Output Circuitry | Class H | | |
| Input sensitivity @ 8Ω | 1.23V (+4dBu) | 1.23V (+4dBu) | 1.23V (+4dBu) |
| Distortion(SMPTE-IM) | <0.01% | | <0.02% |
| Noise (unweighted 20Hz-20KHz below rated output) | 100dB | | |
| Damping Factor | >300 @ 8Ω | | |
| Frequency Response | 20 Hz-20KHz, +0/-1dB; -3dB points: 5Hz-50KHz | | |
| Input Impedance | 20 K Ω balanced, 10 K Ω unbalanced | | |
| Cooling | Continous variable-speed fan, front-to-rear air flow | | |
| Connectors (each channel) | Input: XLR & 1/4” TRS; Output: Speakon and binding posts | | |
| Indicators | Power: Blue LED; SIGNAL: Green LED; PEAK: Red LED, | | |
| Controls | | | |
| Front panel | CH1 & CH2 GAIN knobs with 41 detents | | |
| Rear panel | Slide switches: Limiter On/Off; Operation mode: Parallel, Stereo, Bridge Mono; Grounding / Floating; Selectable low cut filter at 30Hz and 50Hz | | |
| Protection Circuitry | Short circuit, thermal, subsonic, RF protection, Output DC offset, Power on/off muting | | |
| Power Comsuption | 600W | 900W | 1400W |
| Power Requirement (depends on region) | 100~120VAC, 220~240VAC, 50/60Hz | 100~120VAC, 220~240VAC, 50/60Hz | 100~120VAC, 220~240VAC, 50/60Hz |
| Dimensions (WxHxD) | 482.6 x 88 x 415 mm (19” x 3.46” x 15.9”) | | |
| Weight | 13.2 kg (29.1 lbs) | 14.6 kg (32.2 lbs) | 16.5 kg (36.4 lbs) |

All specifications are subject to change without notice.

# SYSTEM BLOCK DIAGRAM



## TO PURCHASE ADDITIONAL PHONIC GEAR AND ACCESSORIES

To purchase Phonic gear and optional accessories, contact any authorized Phonic distributor. For a list of Phonic distributors please visit our website at www.phonic.com and click on Get Gear. You may also contact Phonic directly and we will assist you in locating a distributor near you.

## SERVICE AND REPAIR

Phonic has over 100 service centers worldwide. For replacement parts, service and repairs please contact the Phonic distributor in your country. Phonic does not release service manuals to consumers, and advice users to not attempt any self repairs, as doing so voids all warranties. You can locate a dealer near you at www.phonic.com.

## WARRANTY INFORMATION

Phonic stands behind every product we make with a no-hassles warranty. Warranty coverage may be extended, depending on your region. Phonic Corporation warrants this product for a minimum of one year from the original date of purchase against defects in material and workmanship under use as instructed by the user's manual. Phonic, at its option, shall repair or replace the defective unit covered by this warranty. Please retain the dated sales receipt as evidence of the date of purchase. You will need it for any warranty service. No returns or repairs will be accepted without a proper RMA number (return merchandise authorization). In order to keep this warranty in effect, the product must have been handled and used as prescribed in the instructions accompanying this warranty. Any tempering of the product or attempts of self repair voids all warranty. This warranty does not cover any damage due to accident, misuse, abuse, or negligence. This warranty is valid only if the product was purchased new from an authorized Phonic dealer/distributor. For complete warranty policy information, please visit http://www.phonic.com.

## CUSTOMER SERVICE AND TECHNICAL SUPPORT

We encourage you to visit our online help at http://www.phonic.com/help/. There you can find answers to frequently asked questions, tech tips, driver downloads, returns instruction and other helpful information. We make every effort to answer your questions within one business day.

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