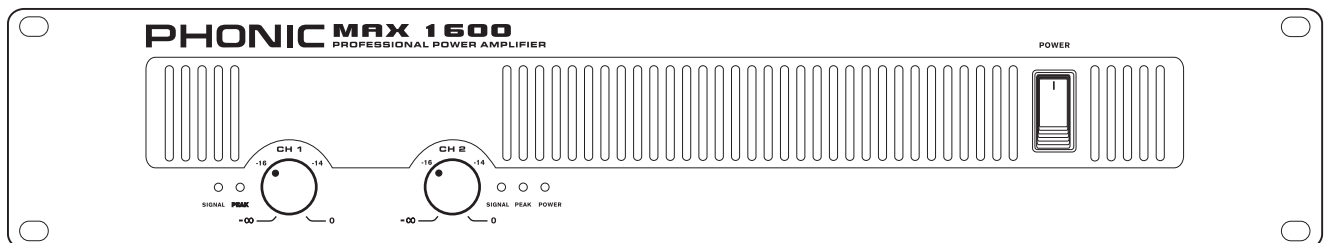


PHONIC

MAX 1000

MAX 1600

POWER AMPLIFIER



MAX 1600

English

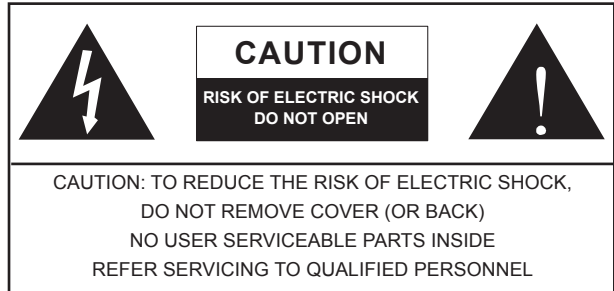
User's Manual

IMPORTANT SAFETY INSTRUCTIONS

The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus. The MAINS plug is used as the disconnect device, the disconnect device shall remain readily operable.

Warning: the user shall not place this apparatus in the confined area during the operation so that the mains switch can be easily accessible.

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.



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.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature 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 1000

MAX 1600

POWER AMPLIFIER

USER'S MANUAL

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INTRODUCTION

Congratulations on your purchase of a fantastic MAX series power amplifier from Phonic. 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 power amps are always able to perform. 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 900 Watts of power in a 2U footprint
- Output: 300W for MAX 1000, 450W for MAX 1600, both at 4 ohms
- High current toroidal transformer allowing high power output with low noise and low distortion
- Balanced 1/4" TRS and XLR inputs for maximum flexibility
- Grounding / Floating switch to avoid grounding loop
- 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

INSTALLATION

MOUNTING THE UNIT

Designed to fit into a standard 19-inch rack, this unit only takes up 2 units of rack space. Secure the 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).

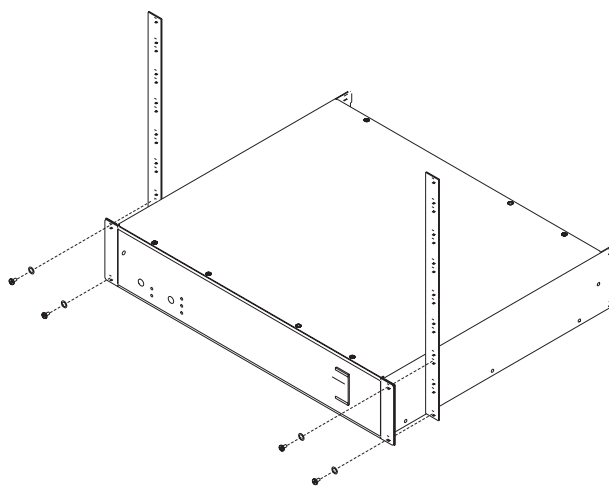


Figure 1 Rack Mount

PLEASE NOTE

- 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). Please ensure your device is properly grounded. Under no circumstances should the ground pin be removed from the AC power cable.
- Before turning on the power, make sure the gain controls are turned all the way down to prevent other equipment from harm.
- Check your cables regularly and label each end clearly for easy identification.
- Always turn the power off 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.

GETTING STARTED

The following steps will help you set up your amplifier, and get the levels just right.

1. Ensure that you turn the amplifier's power switch is off and that the AC power connector is disconnected.
2. Turn down both level controls.
3. Decide which operating mode is best for your purposes: Stereo, Parallel or Bridge.

Stereo mode is the most common operation mode of amplifiers, where input channel 1 is sent directly through to output channel 1. Similarly, input channel 2 is sent directly through to output channel 2.

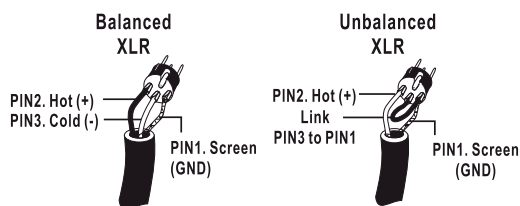
In **Parallel mode**, users are able to utilize a mono signal from input channel 1 and send the signal through both output channels 1 and 2. These outputs are controlled with their own individual level controls.

Bridge mode takes the signals from input channel 1 and sends it through a single output. The output power of the both channels is combined when in bridge mode. The signal is output through either output channel 1's speakon connection, or through the binding post connections on channels 1 (+) and 2 (-).

4. Set the Stereo / Parallel / Bridge switch according to your selection.
5. Make connections from your mixer main output to your MAX amplifier's inputs using balanced XLR cables. Remember that when using Parallel mode, you need only connect a signal source to input channel 1.

Balanced XLR inputs are wired as follows:

Pin 1 = Ground; Pin 2 = Hot (+); Pin 3 = Cold (-)



6. Connect speaker cables to the speakon or binding post speaker outputs.

When in Parallel and Stereo mode, the binding post connectors are wired as follows:

red = hot (+ speaker terminal)

black = cold (- speaker terminal)

When in Parallel or Stereo mode, the Speakon connectors are wired as follows:

1+ = hot (+ speaker terminal)

1- = cold (- speaker terminal)



When in Bridge mode, the binding post connectors are wired as follows:

Channel 1 red post = hot (+ speaker terminal)

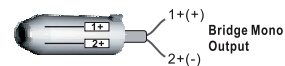
Channel 2 red post = cold (- speaker terminal)

Do not use the black terminals.

When in Bridge mode, the Speakon connectors are wired as follows:

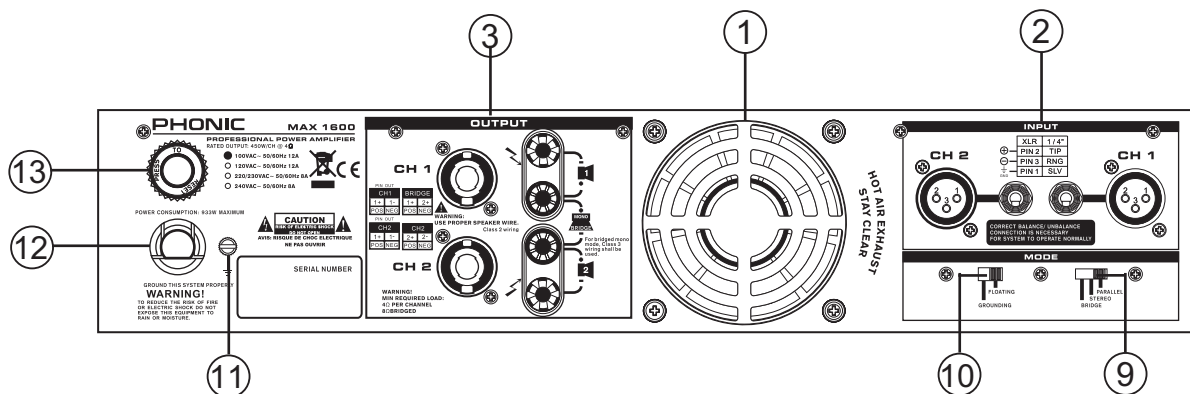
1+ = hot (+ speaker terminal)

2+ = cold (- speaker terminal)



NOTE: When in Bridge mode, ensure that only the channel 1 Speakon connector is used.

7. Plug all of your system's various components into suitable AC power outlets, making sure that they are grounded and able to deliver the appropriate amount of current.
8. Ensure that your signal source is powered up and delivering a signal to the MAX amp.
9. Turn the MAX's power switch on. You should be greeted by an illuminated POWER LED.
10. Turn up both of the MAX's level controls slowly. The SIGNAL light should come on if any signal is present. The more you turn the level control up, the louder the music should get. If the CLIP LED comes on, turn down either the corresponding level control or your signal source until the CLIP LED lights up only occasionally, or just below the point where it may flash.



PRODUCT OVERVIEW

REAR PANEL

1. HEAT VENTILATION

This unit comes with variable speed fan that auto-adjusts fan speed depending on the temperature of the machine during operation. Be sure not to obstruct the heat vents in any way. This will ensure the amplifier is always properly ventilated.

CONNECTIONS

2. INPUT

Connect your source to either the XLR or 1/4" TRS jack, which are commonly used for both mobile and installation set-ups. They provide a good combination of ease of connection and resistance to corrosion. The XLR inputs should be wired as shown in figure 2.

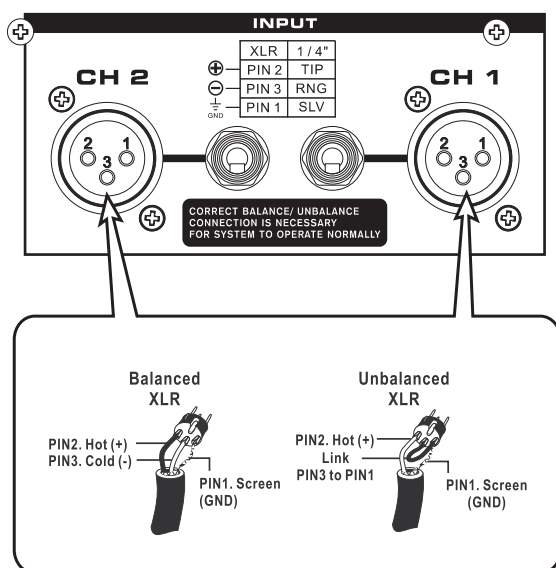
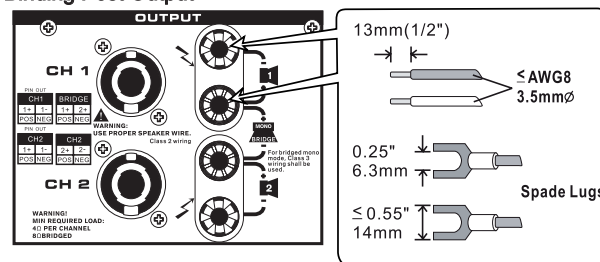


Figure 2 Input Wiring

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 4 ohm, while 8 ohm is the minimum for BRIDGE MONO (see Figure 3).

Binding Post Output



Speakon Output

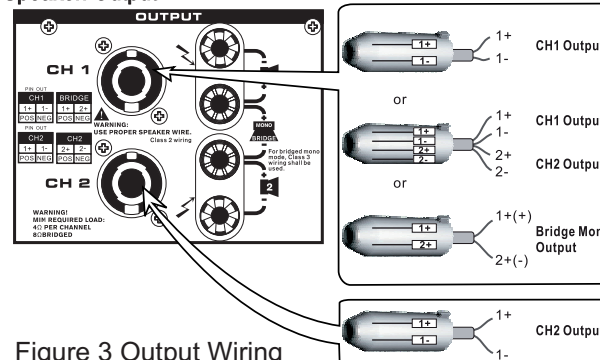
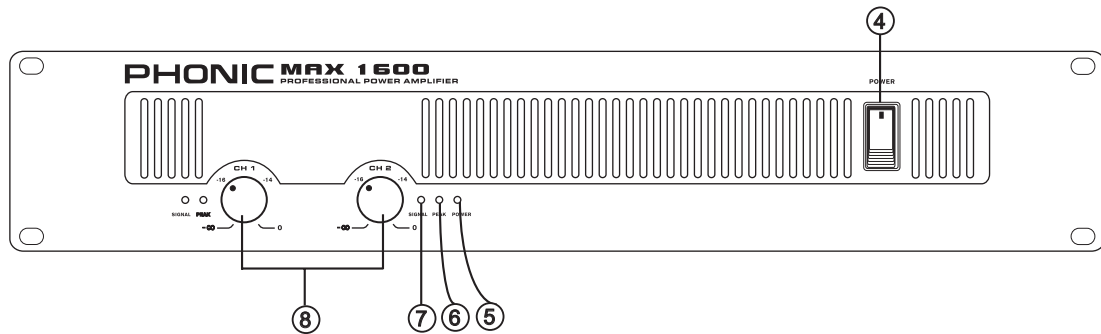


Figure 3 Output Wiring



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 a POWER ON / OFF MUTING feature. In general, the power amplifier should be the last piece of audio equipment to be powered on, and the first 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 continuously.

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. See the OPERATING MODES section of this manual for more details.

10. GROUNDING/FLOATING SWITCH

This switch allows the circuit and chassis grounds to be separated in case of a ground conflict. In normal use the switch should be in the Ground On position. Lifting the ground (Floating position) may resolve the ground conflict, but means that circuit grounding will depend on other connected components. Deficiencies in other components' grounding will affect the sound and a serious electric fault with the amplifier could damage other components in the system.

11. 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.

12. POWER CORD

This cord draws electricity from power outlet. Near by you will find an indicator that tells you what voltage your unit operates in. Check the AC voltage of your unit before connecting the power plug to the outlet and ensure that the AC requirements of your MAX amplifier are the same as those used in your country.

13. RESET SWITCH

Push this button to reset the unit in the unlikely event that it locks up.

OPERATING MODES

PARALLEL

When set 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. 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 share the same output level (see Figure 4).

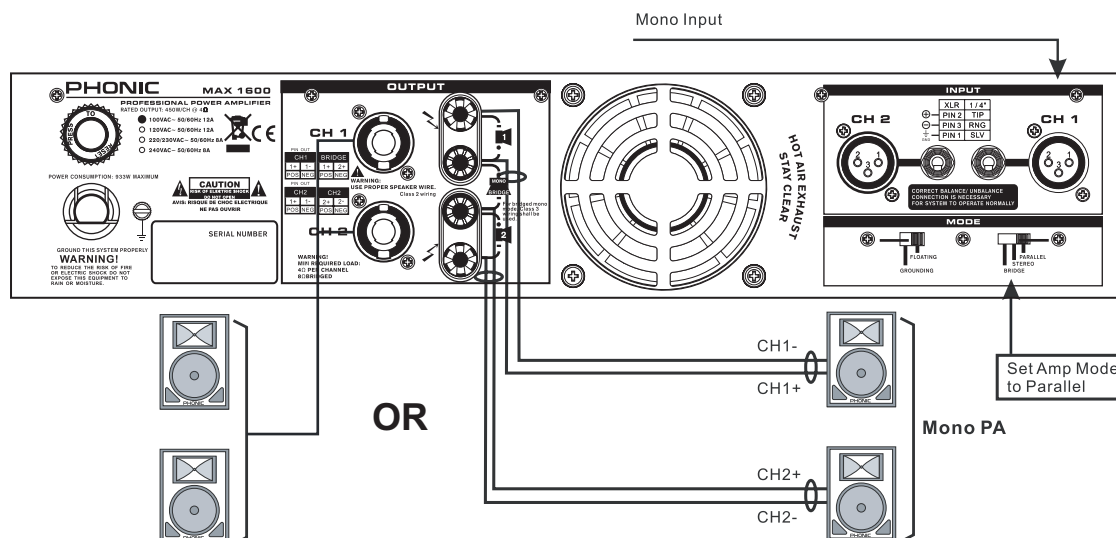


Figure 4 PARALLEL MODE

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 can be used for driving low frequencies, while the other is used for driving high frequencies.

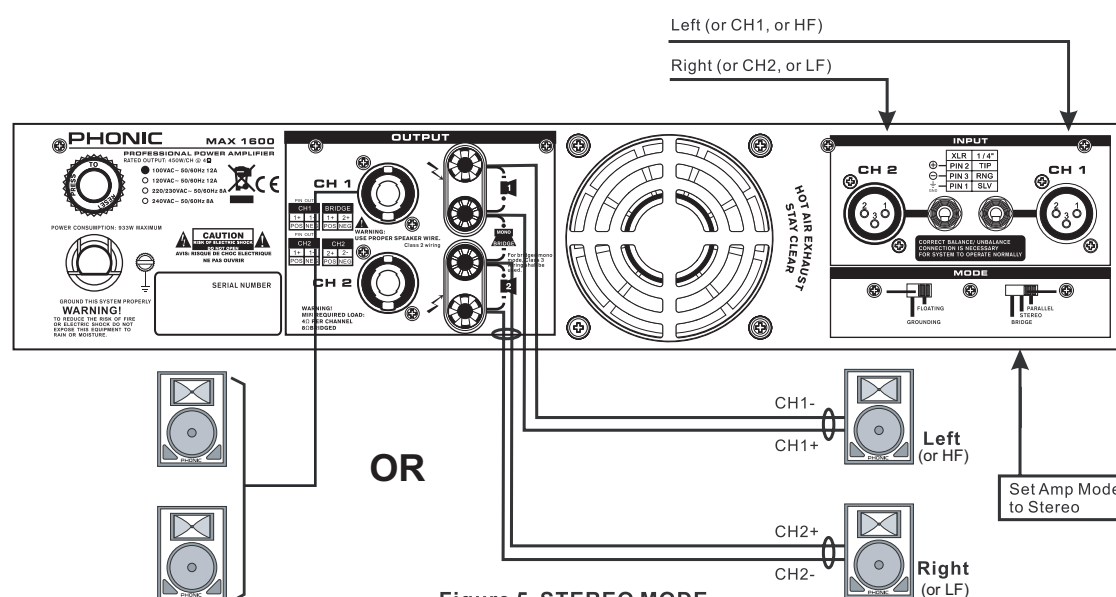


Figure 5 STEREO MODE

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 the higher wattage this mode offers.

Remember, the minimum impedance requirement is 4 ohm.

When using bridge mono mode, ensure only Channel 1 input is in use. When using speakon connectors, 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.

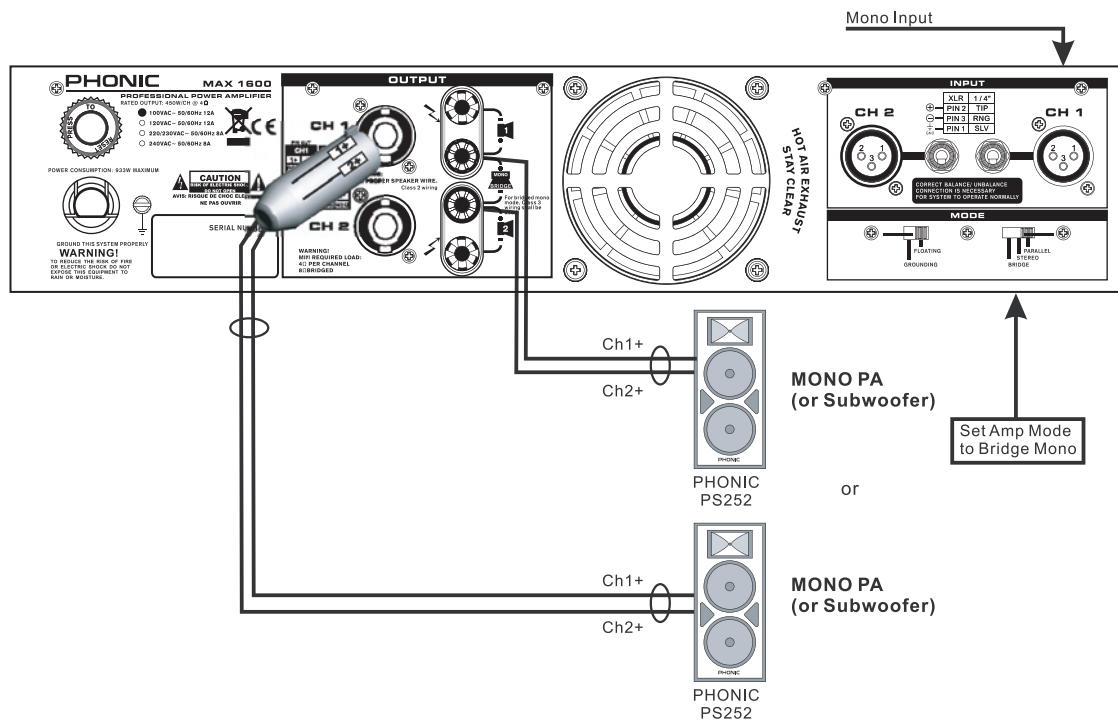


Figure 6 BRIDGE MONO MODE

PROTECTION

The unit comes with many circuitry protection features that protecting it and the 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 operating under bridge mono mode. The unit comes with a variable speed fan that auto-adjusts the fan speed depending on the temperature of the machine. However, if for some reason the unit can not effectively vent out excessive heat, this feature will protect the unit from over-heating by shutting the unit down.

OUTPUT DC OFFSET: When a direct current enters the connection between the power amplifier and speakers, it will negatively affect the speakers by causing the drivers and cones to work under stressful conditions. This feature ensures this does not happen by cutting off the output current to the speakers when such a situation occurs.

POWER ON / OFF MUTING: There is a two to three second delay before the unit sends out any signal. During this short delay, the entire system will be muted ensuring no signal affects your signal.

SUBSONIC: Frequencies below 10Hz contain high level of energy that can be harmful and stressful to many speakers. Since the normal human listening range is between 20 Hz and 20 kHz, this unit comes with a feature that helps filter out any frequency that is below 10 Hz to protect your speakers.

RF PROTECTION: Radio waves are everywhere. This feature prevents radio frequency interference from affect your signal by filtering out signals above 200 kHz. This ensures that radio program signals do not entering the unit.

AC POWER CONSIDERATIONS

The voltage level of the MAX amplifier will depend on your region. Ensure that the local voltage levels are identical by those required by your amplifier before attempting to connect it to an AC outlet. This is particularly important if you intend to take the amplifier overseas.

Users are advised that they do not remove the ground pin on the MAX amplifier's AC connector under any circumstances.

As the amount of power that the MAX amplifier consumes can differ greatly depending on the program material being amplified, it's important that a stiff supply of AC power is available for the unit. The more power available to the unit, the better the output will sound; particularly in low frequency peaks. If you have more than one amplifier sharing a single AC outlet, turning them on at the same time should be avoided at all costs. Turning them on in sequential order will help prevent tripping any circuit breakers.

INPUT WIRING

For balanced signals, users should use 3-conductor shielded cable with XLR connectors on either end. For unbalanced signals, 2-conductor shielded cable with XLR connectors on either end can be used instead. Balanced cables should be wired according to Audio Engineering Society standards.

XLR? The name of this kind of connector is derived from an X connector from Cannon. These are the large, round connectors that contain three small pins that are arranged in a triangular shape.

Hot (+) – Pin 2

Cold (–) – Pin 3

Shield (Gnd) – Pin 1

OUTPUT WIRING

We recommend users use stranded, heavy gauge wire for connecting to the binding post outputs of the MAX amplifier. As the distance between the amplifier and the speaker increases, it's important that the gauge of the cable decreases. Speaker wire has resistance, so the longer the cables are run the more this resistance affects the signal. The lower the gauge, the thicker the wire, and the less resistance the cable will offer. This ensures that the power lost through speaker wires is less than half a decibel.

Cable Length	Load	Wire Gauge
< 25 ft.	4Ω	16
	8Ω	18
25 – 40 ft.	4Ω	14
	8Ω	18
40 – 60 ft.	4Ω	12
	8Ω	16
60 – 100 ft.	4Ω	10
	8Ω	14
100 – 150 ft.	4Ω	8
	8Ω	12

Using Binding Posts in Stereo/Parallel Mode

Either single or double banana plugs can be used when using binding post outputs. Users may also opt to use spade lugs or bare wires. To use bare wires, unscrew the binding posts to reveal the holes on the side of the metal conductors within. Insert the stripped wire and refasten the binding posts. Ensure that no strands of wire are loose from the connection.

When using binding posts, the red post is positive, the black post is negative (and they are labeled as such). Connecting a speaker's connections the wrong way around will cause a signal's polarity to be messed around and will have quite undesirable results.

Using Speakon Connections in Stereo or Parallel Mode

When wiring Speakon cables for stereo or parallel mode operation, do so as follows:

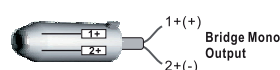


Using Binding Posts in Bridge Mode

When using Binding Posts under bridge mode, connect the positive (+) side of the speaker to the Channel 1 red binding post and the negative (-) side of the speaker to the Channel 2 red binding post.

Using Speakon Connections in Bridge Mode

When wiring Speakon cables for bridge mode operation, do so as follows:



TROUBLESHOOTING

No Power

- Perhaps the most obvious question, but is it plugged in?
- Is the AC outlet that the MAX amp is connected to active? Test it with a lamp.
- Is the power switched on?
- Is the power LED illuminated? If not, make sure that the unit is plugged in, turned on and the AC outlet is live. If it is illuminated, check the “No Sound” section below.
- Failing all of this, the most likely cause is the fuse inside the amplifier’s power supply has blown. As users cannot service this part, please contact your country’s distributor for assistance. You can find their details on www.phonic.com/where.

No Sound

- Have you turned up the level controls? If not, turn them up slowly to see if you can hear anything.
- Is your source material turned up and active? Ensure that the level of the mixer (or whichever device is connected to your amplifier’s inputs) is high enough to produce a signal. The signal LED on the front panel should give you some idea of whether this is so.
- Check the temperature of the unit by putting a hand nearby. If there is no heat, you’re fine. If you can feel obvious heat emitting from the unit, it’s possible that the thermal protection function has kicked it. You may need to turn the unit off and wait for it to cool down before it can function as normal.
- Ensure your speakers to make sure they are working correctly. If your speakers have fuses, check if they’ve blown.

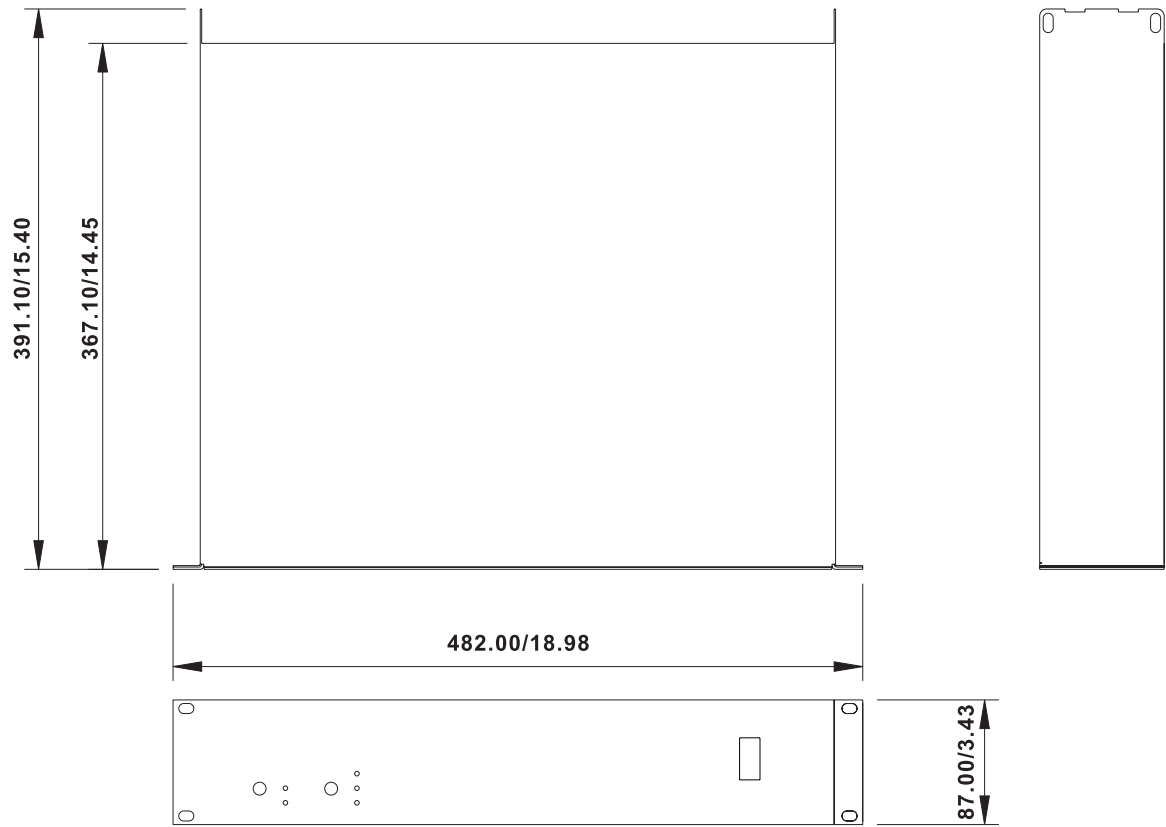
Poor sound

- Is the signal loud and distorted? If so, turn down the level of the source signal.
- Is the clip LED flashing quickly or staying constantly on? If so, try reducing the Amplifier’s level controls.
- Ensure that the input connectors are pushed firmly into the jack. Make sure your speakers are connected correctly.
- Try connecting a set of headphones into your signal source to see how the signal sounds there. If you’re getting the same result, then the problem is your source rather than the amplifier.

SPECIFICATIONS

	MAX 1000	MAX 1600
Stereo Mode (driving both channels)	Continuous Average Output Power Per Channel	
8Ω EIA 1kHz 0.1%THD	200W	280W
4Ω EIA 1kHz 0.1%THD	300W	450W
Bridge Mono Mode	Continuous Average Output Power	
8Ω EIA 1kHz 0.1%THD	600W	900W
All Models		
Output Circuitry	Class H	
Input Sensitivity @ 8Ω	1.23V (+4dBu)	
Distortion (SMPTE-IM)	<0.01%	
Noise (unweighted 20 Hz - 20 kHz below rated output)	100dB	
Damping Factor	>300 @ 8Ω	
Frequency Response	20 Hz-20KHz, +0/-1dB; -3dB points: 5Hz-50KHz	
Input Impedance	20 kΩ balanced, 10 kΩ unbalanced	
Cooling	Continuous variable-speed fan, front-to-rear air flow	
Connectors (each channel)	Input: XLR and 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 21 detents	
Rear Panel	Slide switches: Operation mode: Parallel, Bridge, Stereo; Grounding/Floating; Current-Break reset button	
Protection Circuitry	Short circuit, thermal, subsonic, RF protection, output DC offset, power on/off muting	
Power Consumption	600W	900W
Power Requirement (depends on region)	100~120VAC, 220~240VAC, 50/60Hz	
Dimensions (WxHxD)	482.6 x 88 x 415mm (19" x 3.46" x 15.9")	482.6 x 88 x 415mm (19" x 3.46" x 15.9")
Weight	14.6 kg (32.2 lbs)	14.6 kg (32.2 lbs)

DIMENSIONS



* All measurements are shown in mm/inches.

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

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 <http://www.phonic.com/where/>.

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/warranty/>.

CUSTOMER SERVICE AND TECHNICAL SUPPORT

We encourage you to visit our online help at <http://www.phonic.com/support/>. 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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