



NISSINDO

Professional Power Amplifier

MA-1200

MA-1400

MA-1600

Operating Instructions



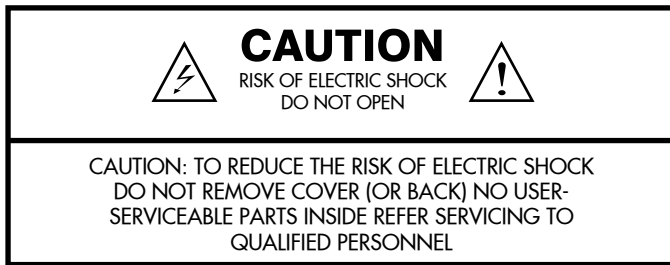
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Please write your serial number here for future reference (i.e., insurance claims, techsupport, return authorization, etc.):

Purchased at:

Date of purchase:



SAFETY INSTRUCTIONS

1. Read Instructions: All the safety and operation instructions should be read before this Nissindo product is operated.

2. Retain Instructions: The safety and operating instructions should be kept for future reference.

3. Warnings: All warnings on this Nissindo product in these operating instructions should be followed.

4. Follow Instructions: All operating and other instructions should be followed carefully.

5. Water and Moisture: This Nissindo product should not be used near water, for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, swamp or salivating St. Bernard dog, etc.

6. Cleaning: Clean only with a dry cloth.

7. Ventilation: This Nissindo product should be situated so that its location or position does not interfere with its proper ventilation. For example, the Component should not be situated on a bed, sofa, rug, or similar surface that may block any ventilation openings, or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through ventilation openings.

8. Heat: This Nissindo product should be stay away from heat sources such as radiators, or other devices producing heat.

9. Power Sources: This Nissindo product should be connected to a power supply only of the type described in these operation instructions or as marked on this Nissindo product.

10. Power Cord Protection: Power supply cords should be routed so that they are not likely to be walked upon or pinched by items placed upon or

against them. Please pay particular attention to cords at plugs, convenience receptacles, and the point where they exit this Nissindo product.

11. Object and Liquid Entry: Care should be taken so that objects do not fall on, or liquids are not spilled into this Nissindo product.

12. Damage Requiring Service: This Nissindo product should be serviced only by qualified service personnel when:

- A. The power-supply cord or the plug has been damaged; or
- B. Objects have fallen, or liquid has spilled into this Nissindo product; or
- C. This Nissindo product has been exposed to rain; or
- D. This Nissindo product does not appear to operate normally or exhibits a marked change in performance; or
- E. This Nissindo product has been dropped, or its chassis damaged.

13. Servicing: The user should not attempt to service this Nissindo product beyond those means described in this operating manual. All other servicing should be referred to the Nissindo Service Department.

14. 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.

15. Grounding or Polarization: Precautions should be taken so that the grounding or polarization means of this Nissindo product is not defeated.

16. Power Precaution: Unplug this Nissindo product during lightning storms or when unused for long periods of time. Note that this Nissindo product is not completely disconnected from the AC mains service when the power switch is in the OFF position.

17. This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

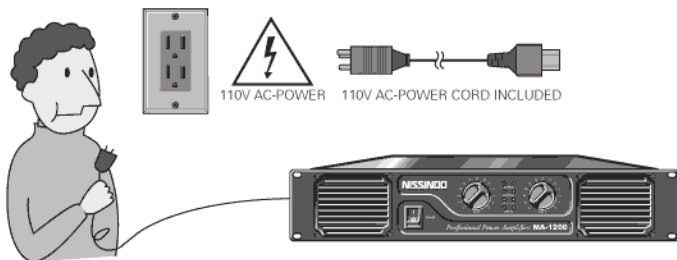
18. Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will loss some hearing if exposed to sufficiently intense noise for a period of time. The U.S.

Government's Occupational Safety and Health Administration (OSHA) have specified the permissible noise level exposures shown in the following chart.

According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels use hearing protectors while the equipment is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating the equipment in order to prevent a permanent hearing loss if exposure is in excess of the limits set forth here.

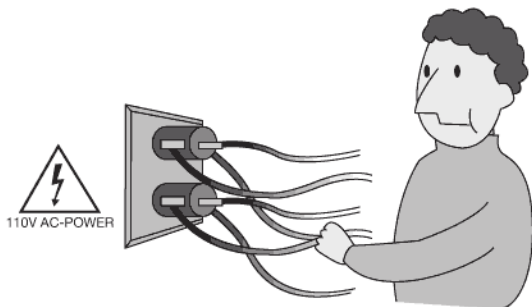
AC-Power Sources

This set should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of electrical power supplied to your home, consult your dealer or local power company. For those sets designed to operate from battery power, or other sources, refer to the operating instructions.



Overloading

Do not overload wall outlets, extension cords or convenience receptacles beyond their capacity, since this can result in fire or electric shock.



An appliance and cart combination should be move with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.

Accessories

Do not place the set on an unstable cart, stand, tripod, bracket, or table. The set may fall, causing serious injury to a child or an adult, and serious damage to the set. Use only a cart stand tripod, bracket, or table recommended by the manufacturer.



For the set with a three-wire grounding type ac plug:

This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to have a suitable outlet installed. Do not defeat the safety purpose of the grounding plug.

Duration Per Day In Hours	Sound Level dBA, Slow Response	Typical Example
8	90	Duo in small club
6	92	
4	95	Subway Train
3	97	
2	100	Very loud classical music
1.5	102	
1	105	Patrice screaming at Ron about deadlines
0.5	110	
0.25 or less	115	Loudest parts at a rock concert

WARNING- To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

INTRODUCTION

THE MA SERIES POWER AMPLIFIERS

PowerWave™ technology and a refined audio structure combine studio-quality performance with touring-quality portability. These fan-cooled, 2-channel, 2-RU, amps provide unprecedented power in a strong, compact chassis.

Connectors on all models include: An input barrier strip for permanent installations, combo XLR and 1/4" phone jack connector, THRU/LOW out and HIGH out 1/4" jacks, binding posts and four-conductor Speakon connectors. An additional four-conductor Speakon connector allows BRIDGE mode output.

Using proven technology gained through years of amplifier design, the MA Series amplifiers from MA Series feature the patented Turbo-MA cooling system, which aligns the amps' massive heat sinks to provide maximum, even cooling. This extends the life of power transistors by maintaining both lower and uniform temperatures.

The Nissindo Engineered of MA Series amplifiers feature two-way crossovers and subsonic (low-cut) filter for each channel. The crossover frequencies are fixed at 150 Hz and cut at 40 Hz to prevent low-end rumble.

Another patented technology found in the MA Series power amps is DDT or Distortion Detection Technique. This system virtually eliminates power amp distortion, both protecting the speakers and maximizing usable power.

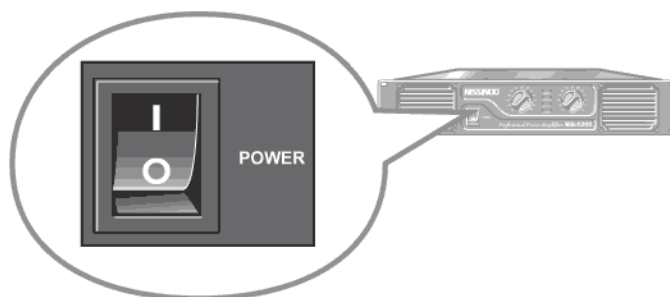
FEATURES

- Independent, user-defeatable clip limiters.
- Fully selectable low-frequency filtering; choice of 30 or 50 Hz roll-off.
- Stereo (dual-channel), parallel-input, or bridged mono operating modes.
- Balanced inputs, both XLR and 1/4" (6.3mm) TRS.
- Binding post and Meutrik Speakon™ outputs.
- Detented gain controls.
- Front panel LED indicators for power, signal, -20 and -10 dB, clip/protect, parallel inputs, and bridged mono mode.
- Nissindo's exclusive high-performance PowerWave™ switching technology power supply.

AC POWER SWITCH

Before applying power, check all connections and turn down the gain controls. The "soft start" sequence starts with the POWER indicator LED at half brightness. A couple seconds later the fan starts and the amplifier cycles through one second of protective muting, indicated by the CLIP LEDs glowing bright red. The POWER indicator then changes to full brightness and the amplifier is ready.

The power cord has a big beefy cord built in. Plug the power cord into a 3-prong outlet that is capable of delivering 110~120V at 15 amps.



LED INDICATORS

At full brightness, the blue POWER LED indicates that the amplifier is operating. Half brightness means the amplifier is in its startup sequence.

The yellow BRIDGE LED indicates the amp is in bridged mono mode.

The white PROTECT LED indicates may light, putting the amplifier into PROTECT mode.

The red CLIP LED indicator flashes during overload (clipping). A bright, steady glow indicates protective muting.

The green SIGNAL LED indicates the Signal Input switches are set.



SPECIFICATIONS

MODEL	MA-1200	MA-1400	MA-1600
OUTPUT POWER in watts			
20 Hz~20 kHz @ 0.03% THD 8Ω per channel	425	550	700
20 Hz~20 kHz @ 0.05% THD 4Ω per channel	700	900	1100
EIA: 1kHz @ 1% THD 8Ω per channel	475	625	800
4Ω per channel	825	1050	1250
2Ω per channel	1200	1500	1700
Bridge Mono:			
16Ω, 20 Hz~20 kHz, 0.1% THD	850	1100	1400
8Ω, 20 Hz~20 kHz, 0.1% THD	1500	2000	2200
4Ω, 1kHz, 0.1% THD	2400	3000	3400
DYNAMIC HEADROOM	2 dB @ 4Ω	2 dB @ 4Ω	2 dB @ 4Ω
DISTORTION SMPTE-IM	< 0.02%	< 0.02%	< 0.02%
FREQUENCY RESPONSE (at 10 dB below rated output power)	20 Hz~20 kHz, ±0.15 dB -3 dB points: 5 Hz and 100 kHz		
DAMPING FACTOR	>500 @ 8Ω	>500 @ 8Ω	>500 @ 8Ω
NOISE (unweighted 20 Hz~20 kHz, below rated output)	108 dB	107 dB	107 dB
VOLTAGE GAIN	40x (32 dB)	40x (32 dB)	40x (32 dB)
INPUT SENSITIVITY, V RMS full rated power @ 8Ω full rated power @ 4Ω	1.5v (+5.5 dBu) 1.3v (+4.6 dBu)	1.7v (+6.8 dBu) 1.5v (+5.7 dBu)	1.9v (+7.7 dBu) 1.7v (+6.6 dBu)
INPUT IMPEDANCE	6 KΩ unbalanced 12 KΩ balanced	6 KΩ unbalanced 12 KΩ balanced	6 KΩ unbalanced 12 KΩ balanced
CONTROLS	Front: AC switch, channel 1 and 2 gain knobs with 11 detents Rear: 10-position DIP switch		

Model	Power, 8Ω/ch 20 Hz-20 kHz, 0.03% THD	Power, 4Ω/ch 20 Hz-20 kHz, 0.05% THD	Power, 2Ω/ch 1 kHz, 1% THD
MA-1200	425 W	700 W	1200 W
MA-1400	550 W	900 W	1500 W
MA-1600	700 W	1100 W	1700 W

SPECIFICATIONS

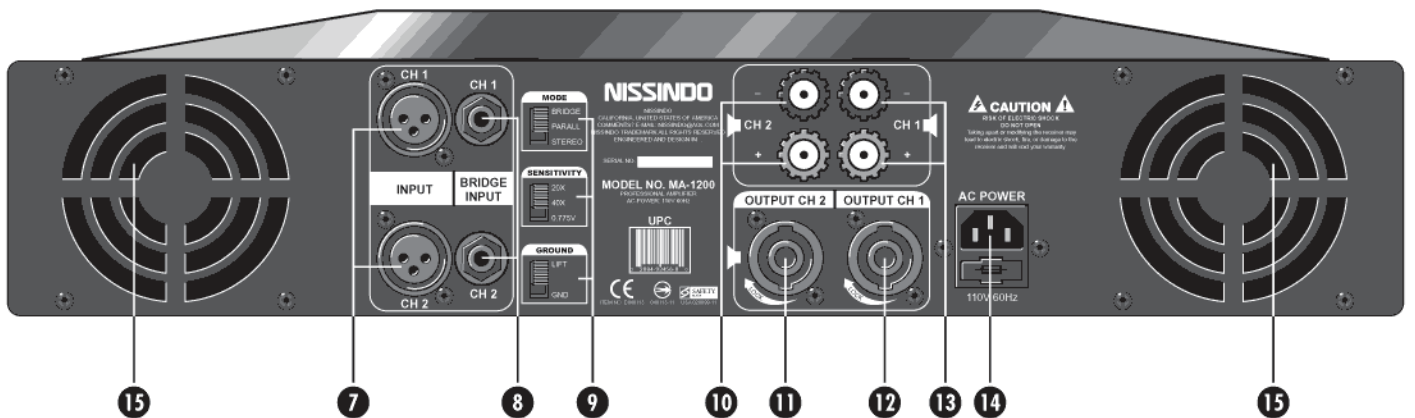
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INDICATORS	POWER: Green LED PARALLEL: Yellow LED BRIDGED: Yellow LED CLIP: RED LED, 1 per channel -10 dB: Green LED, 1 per channel -20dB: Green LED, 1 per channel SIGNAL: Green LED, 1 per channel																						
CONNECTORS	Input: XLR and 1/4" (6.3 mm) TRS, tip and pin 2 positive Output: "Touch-Proof" binding posts and Meutrik Speakon™																						
COOLING	Continuously variable speed fan, back-to-front air flow																						
AMPLIFIER PROTECTION	Full short circuit, open circuit, thermal, ultrasonic, and RF protection Stable into reactive or mismatched loads																						
LOAD PROTECTION	Turn-on/turn-off muting, DC-fault power supply shutdown, clip limiting																						
OUTPUT CIRCUIT TYPE	H: Class AB complementary linear output with Class H 2-step high efficiency circuit																						
DIMENSIONS (WxDxH)	20-1/2x21x6-7/10 (inch)																						
WEIGHT	45 lbs	53 lbs	54.6 lbs																				
SHIPPING WEIGHT	48 lbs	56 lbs	57.6 lbs																				
POWER REQUIREMENTS	Available for 120 or 220~240 VAC, 50/60 Hz																						
POWER CONSUMPTION @ 120 VAC <i>(both channels driven)</i> Multiply currents by 0.5 for 230V units	<table border="1"> <thead> <tr> <th></th> <th>Typical¹</th> <th>Full²</th> <th>Max³</th> </tr> </thead> <tbody> <tr> <td>Idle</td> <td colspan="3">0.9 A</td> </tr> <tr> <td>8Ω</td> <td>5.0 A</td> <td>8.4 A</td> <td>15.8 A</td> </tr> <tr> <td>4Ω</td> <td>7.9 A</td> <td>13.5 A</td> <td>26 A</td> </tr> <tr> <td>2Ω</td> <td>11.8 A</td> <td>22 A*</td> <td>42 A*</td> </tr> </tbody> </table>				Typical ¹	Full ²	Max ³	Idle	0.9 A			8Ω	5.0 A	8.4 A	15.8 A	4Ω	7.9 A	13.5 A	26 A	2Ω	11.8 A	22 A*	42 A*
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POWER CONSUMPTION NOTES	<ol style="list-style-type: none"> ¹ 1/8 power with pink noise represents typical program with occasional clipping. ² 1/3 power with pink noise represents severe program with heavy clipping. ³ Continuous sine wave at 1% clipping. <p>* Thermal or overcurrent cutback limits duration.</p>																						

NAMES AND FUNCTIONS OF FRONT PANEL COMPONENTS



- 1** POWER SWITCH
- 2** GAIN CONTROL, channel 1
- 3** CLIP AND PROTECT INDICATOR LEDS
Channel 1 and 2
- 4** BRIDGE AND PROTECT INDICATOR LEDS
Channel 1 and 2
- 5** GAIN CONTROL, channel 2
- 6** COOLING VENTS

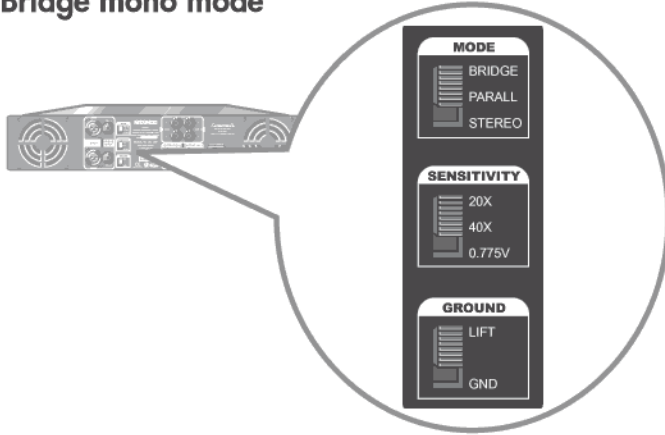
NAMES AND FUNCTIONS OF REAR PANEL COMPONENTS



- 7** XLR INPUTS
Channel 1 and 2
- 8** BRIDGE 1/4 INPUTS
Channel 1 and 2
- 9** CONFIGURATION SWITCH
- 10** BINDING POST OUTPUTS
Channel 2
- 11** SPEAKON OUTPUT
Channel 2
- 12** SPEAKON OUTPUT
Channel 2
- 13** BINDING POST OUTPUTS
Channel 1
- 14** AC POWER
- 15** COOLING AIR INLET VENTS

SPECIAL FEATURE DESCRIPTIONS

Bridge mono mode



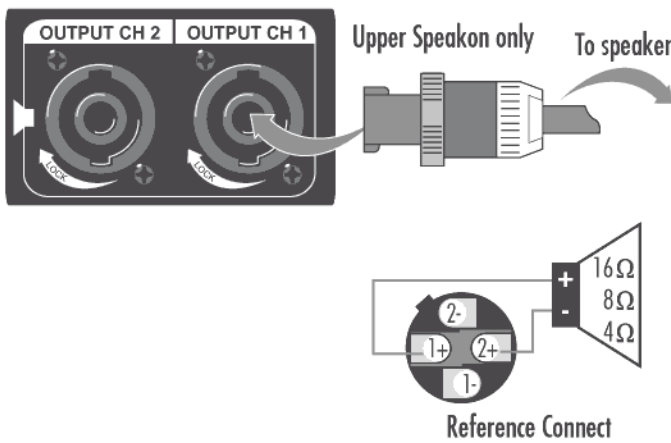
WHAT IT IS

Bridged mono mode combines the power of both amp channels into one speaker, resulting in twice the voltage swing, four times the peak power, and approximately three times the sustained power of a single channel. This mode uses Channel 1's input, gain control, input filter, and clip limiter; Channel 2's have no effect.

The BRIDGE LED on the front panel indicates when the amp is in bridged mono mode.

WHEN TO USE IT (OR NOT)

Use bridged mono to deliver the power of both channels to a single 8- or 4-ohm load. Set switch position 7 to "BRIDGE MONO ON." Use Channel 1's inputs, and connect the speaker as shown.



BRIDGED-MONO PRECAUTIONS:

This mode puts a high demand on the amplifier and speaker, Excessive clipping may cause protective

muting or speaker damage. Be sure the speaker has a sufficient power rating.

Output voltages greater than 100 volts rms are available between the amplifier's bridged terminals. NEC CLASS 3 wiring methods, as specified in accordance with national and local codes, must be used to connect the speaker.

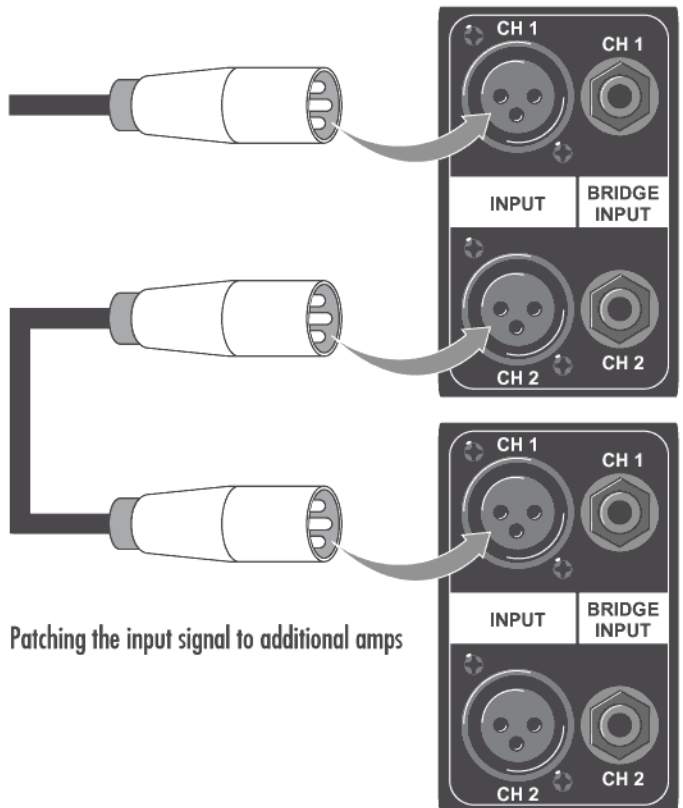
Parallel input mode

WHAT IT IS

The "Parallel Input" switches let you operate the amplifier in parallel mode, delivering the same signal to both channels without using a Y-cable. Each channel drivers its own speaker load, with independent gain, filtering, and clip limiting.

Set switch positions 4, 5, and 6 "ON" to couple the inputs together. Turn the switches off for stereo, bi-amping, or other 2-channel modes. The yellow PARALLEL LED indicator on the front panel warns you when the switches are set to parallel.

With the inputs in parallel, you can use the other set of input connectors to carry the signal to other amps. This is often called a "daisy-chain."



WHEN TO USE IT

Parallel the inputs when driving two speakers with one input signal (parallel mode) while keeping separate control of both channels' gain, filtering, and limiting. Use them in bridged mono mode to patch the signal to additional amplifiers through the extra input jacks.

NOTE: If you are using a balanced signal, use only balanced patch cables; even one unbalanced cable will unbalance the entire signal chain, possibly causing hum.

NOTE: Turn off the "parallel Inputs" switches when feeding the amp two separate signals.

What are the differences among Stereo, Parallel Input, and Bridge Mono modes?

STEREO MODE

This is the "normal" way of using the amplifier, in which each channel is fully independent. Separate signals connect at the inputs, the gain knobs control their respective channels, and separate speakers connect to each output.

Examples

- * Two-channel (stereo) playback.
- * Two independent mono signals, such as main and monitor mixes.
- * Bi-amped operation, with the low frequencies in Channel 1 and the highs in Channel 2.

PARALLEL INPUT MODE

This mode is just like Stereo mode, except that the inputs for Channel 1 and Channel 2 are internally connected together. A signal into any input jack will therefore drive both channels directly. Each channel's gain control still functions as usual, and each channel feeds its own speaker load.

You can patch the input signal on to additional amplifiers by using any of the remaining input jacks.

Example

- * One mono signal driving both channels, with independent gain control each speaker system.

BRIDGE MONO MODE

This mode combines the full power capabilities of both channels into a single speaker system. The amplifier internally re-configures so that both channels operate as a unit. This delivers double the output voltage, resulting in four times the peak power and three times the sustained power into a single 8- or 4-ohm speaker load. The bridge Mono mode section on page 11 describes the special speaker connection used.

Examples

- * Driving a single 8-ohm speaker with the combined 4-ohm power of both channels.
- * Driving a single 4-ohm speaker with the combined 2-ohm power of both channels.

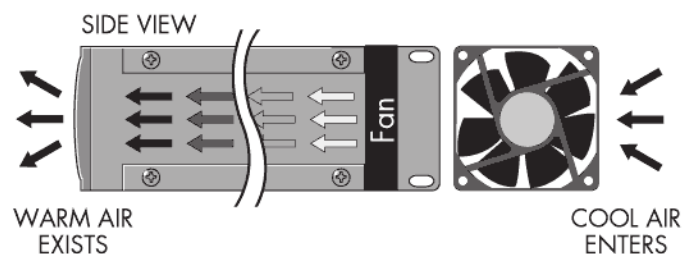
Precautions

- * Bridge Mono mode makes it possible to drive thousands of watts into a single speaker. AC current consumption will usually be higher. Avoid excessive signal level, and make sure the wiring and speaker can handle the power.
- * If the load is less than 4 ohms, or prolonged overloads occur, the amplifier will probably mute for several seconds during peaks.
- * Do not use 2-ohm loads.

Fan cooling

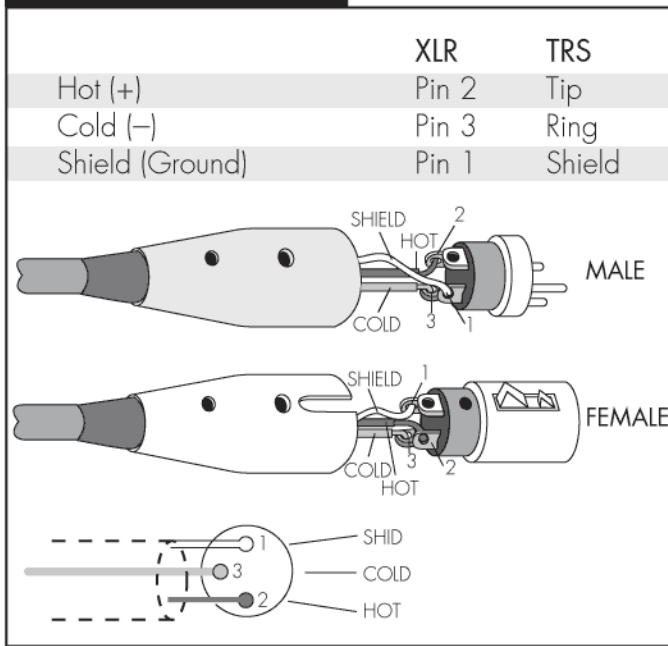
The fan speed varies automatically to maintain safe internal temperatures. Keep the front and rear cents clear to allow full air flow.

Hot air exhausts out the front of the amp so it does not heat the interior of the rack. Make sure that plenty of cool air can enter the rack, especially if there are other units which exhaust hot air into it.

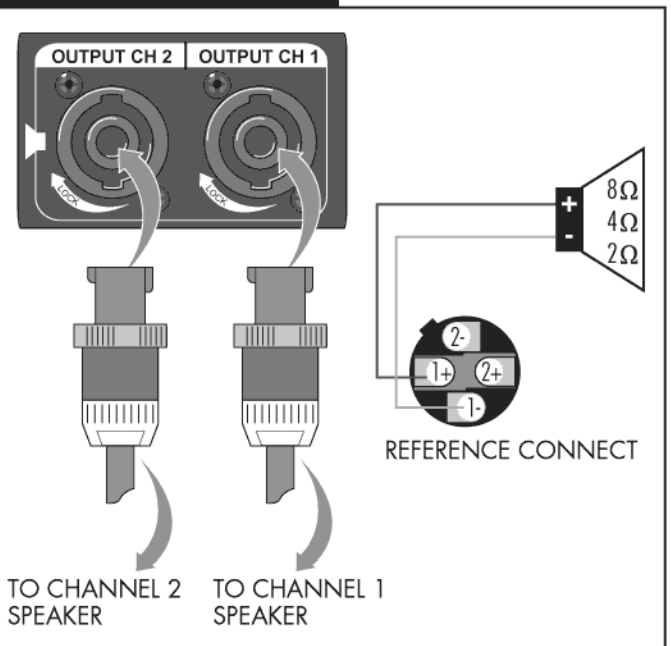


CONNECTOR INFORMATION

BALANCE XLR CONNECTORS



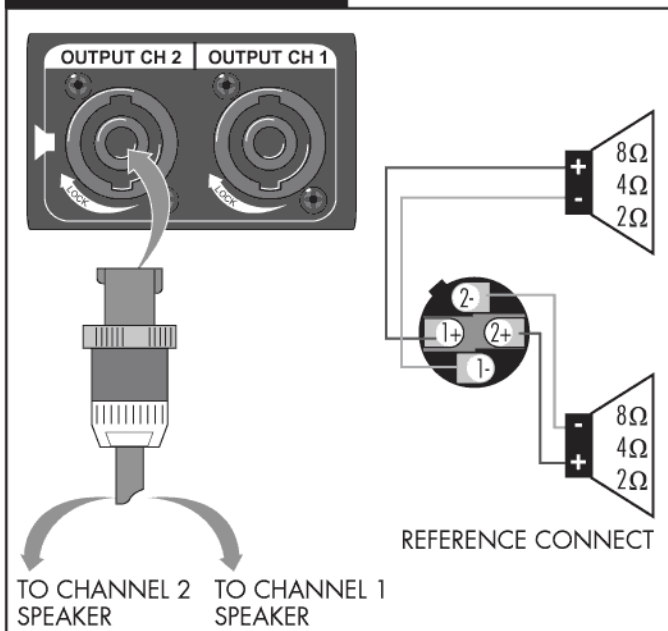
SPEAKON CONNECTORS



Speakon Outputs

The Speakon connector is designed specially for high-power speaker connections. It locks in place, prevents shock hazard, and assures the correct polarity.

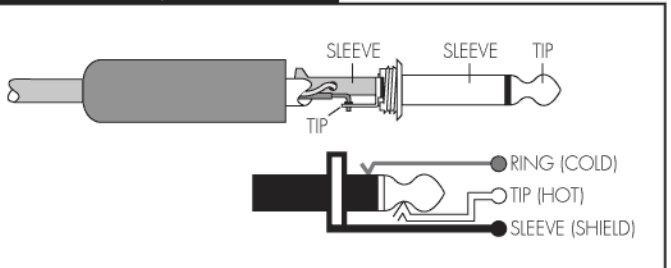
SPEAKON Y CONNECTORS



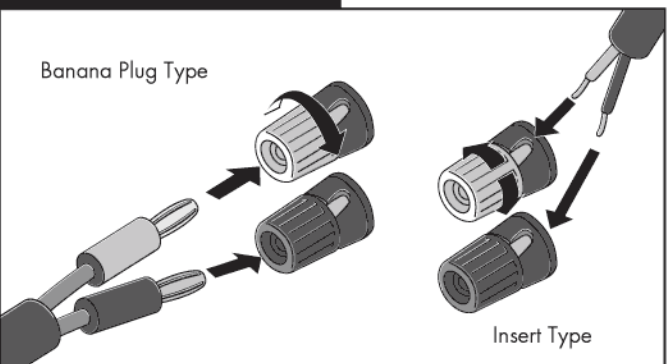
Speakon Outputs

The upper Speakon jack has both Channel 1 and Channel 2 outputs, so it is especially useful for parallel, bi-amp, or bridged mono operation. The other Speakon carries only Channel 2's output. See the illustrations at above.

UNBALANCE 1/4 TRS PLUG

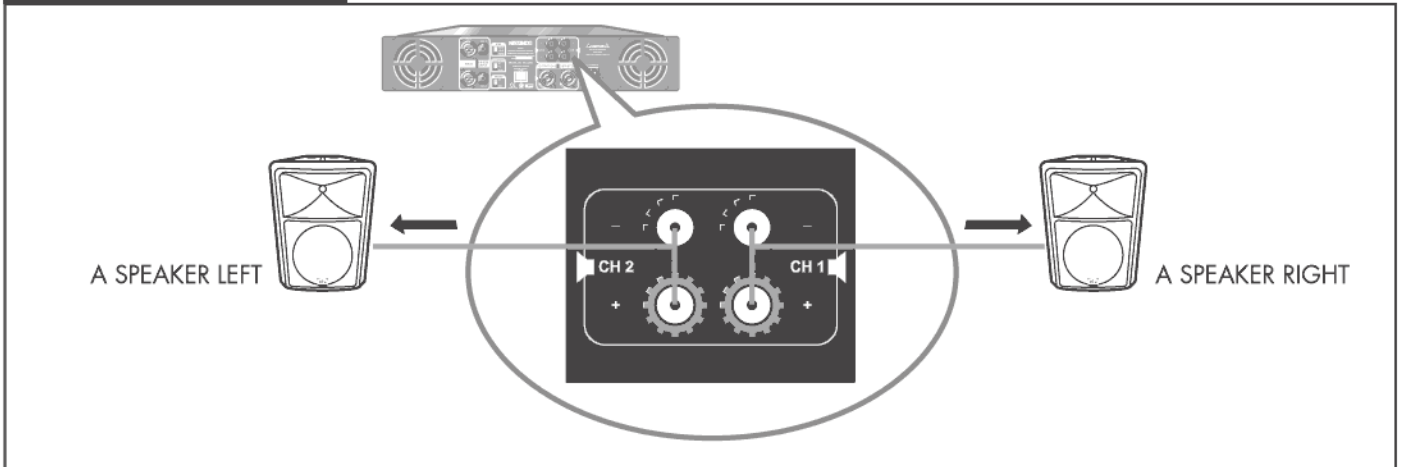


INSERT SPEAKER CONNECTOR



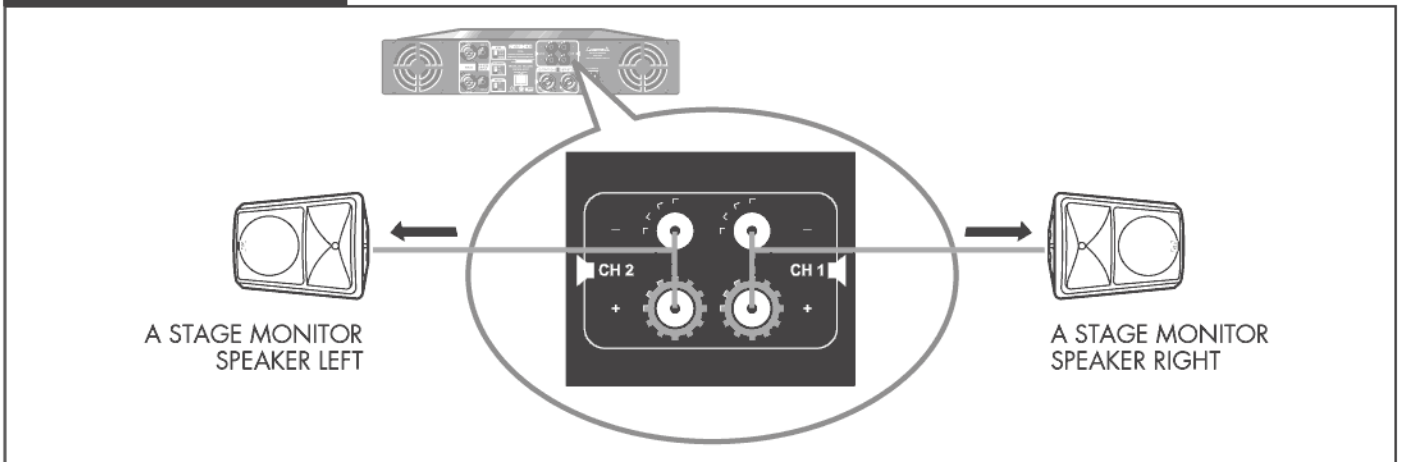
HOW TO CONNECT MAIN SPEAKERS

DIAGRAM 1



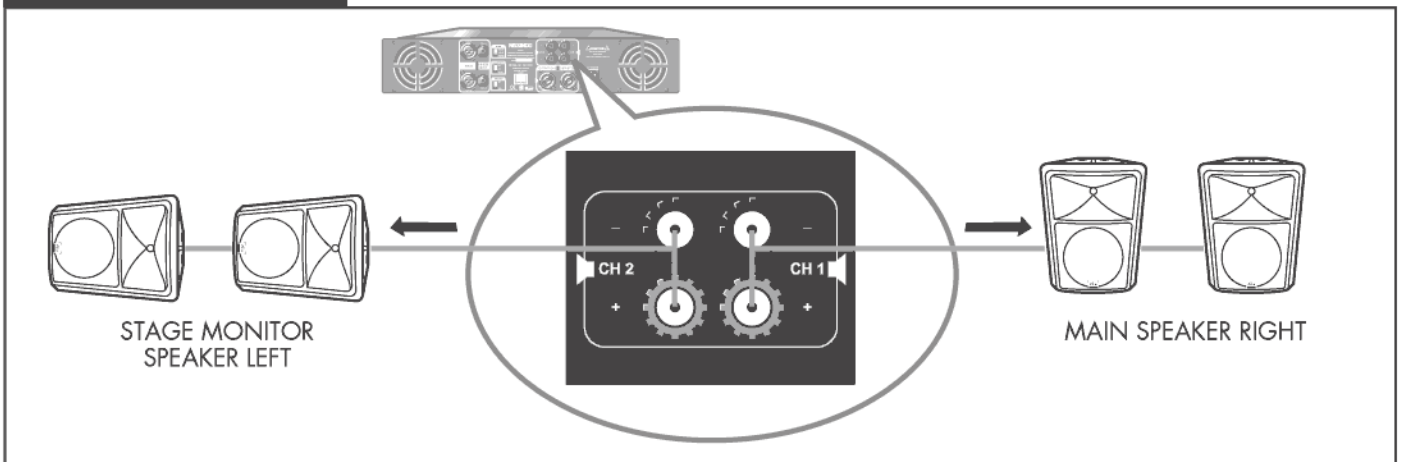
HOW TO CONNECT STAGE MONITOR SPEAKERS

DIAGRAM 2



HOW TO CONNECT MAIN SPEAKERS & STAGE MONITOR SPEAKERS WITH ONE AMPLIFIER

DIAGRAM 3



TROUBLESHOOTING

Problem: no sound

INDICATION: POWER INDICATOR NOT LIT

Check the AC Plug.

Confirm that the AC outlet works by plugging in another device. If too many amplifiers are used on one outlet, the building's circuit breaker may trip and shut off power.

An overload in bridged mono mode may cause the amplifier to click off for three seconds, indicated by the half-bright POWER LED, followed by a normal restart cycle check the load impedance (4 ohms minimum), or reduce signal level. CLIP LEDs glowing bright red indicate a thermal shutdown.

An amplifier which keeps shutting off may have a serious internal fault. Turn it off, remove AC power, and have the amplifier serviced by a qualified technician.

INDICATION: SIGNAL LED NOT LIT

If the blue POWER indicator LED is at full brightness and the fan is running, yet the signal LEDs indicate no signal, check the input. Make sure the signal source is operating and try another input cable. Connect the source to another channel or amplifier to confirm its operation.

INDICATION: SIGNAL LED's RESPONDING TO SIGNAL LEVEL

If the green SIGNAL indicator is lighting normally, the fault is somewhere between the amp and the speaker. Check the speaker wiring for breaks. Try another speaker and cable.

INDICATION: CLIP LED's BRIGHT AND STEADY

The amplifier is in protective muting.

One second of muting is normal when the amp is turned on or off.

Overheating will cause protective muting. The fan will

be running at full speed and the chassis will be hot to the touch; sound should resume within a minute as the amplifier cooling to a safe operating temperature. Check for proper ventilation. If the fan isn't running at all, the amplifier requires servicing.

INDICATION: CLIP LED FLASHING

If the red CLIP indicator flashes when signal is applied, the amplifier output may be shorted. Check the speaker wiring for stray strands or breaks in the insulation.

Problem: distorted

INDICATION: CLIP LED FLASHING

If the red CLIP indicator flashes before all three signal indicators do, the load impedance is abnormally low or shorted. Unplug each speaker one-by-one at the amplifier. If the red CLIP LED goes out when you disconnect a cable, that cable or speaker is shorted. Try another cable and speaker to locate the fault.

Problem: no channel separation

Check the white PROTECT LEDs or yellow BRIDGE MONO LEDs on the front panel, which indicate the switch settings on the back of the amplifier. Neither should be lit in dual-channel, bi-amp, or stereo use where different signals go to each channel. Make sure the "Parallel Input" and "Bridge Mode" switches are OFF.

Make sure other equipment in the signal path, such as mixers, preamps, etc., are set for stereo, not mono.

Problem: hum

The PowerWave supply eliminates internal hum fields, but AC transformers in other devices may cause hum. Move cabling and signal sources to identify "hot spots" in the system. Cables with faulty shielding are a frequent entry point for hum.

Problem: hiss

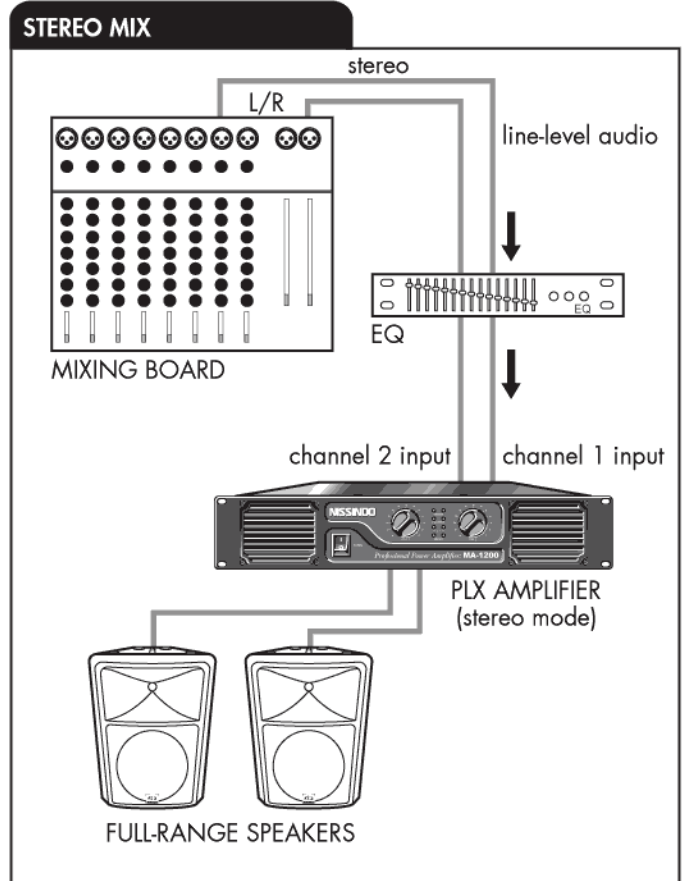
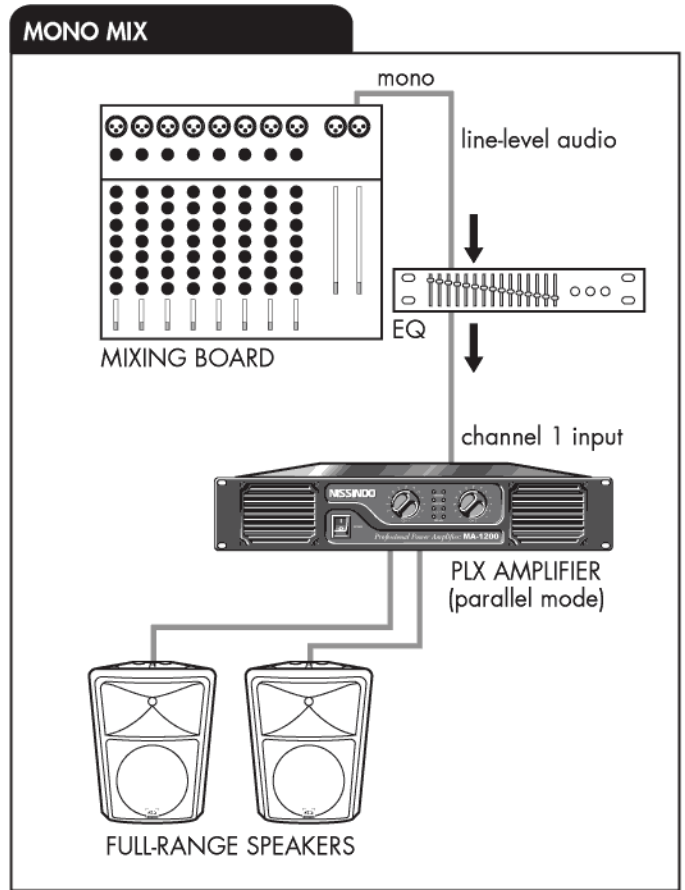
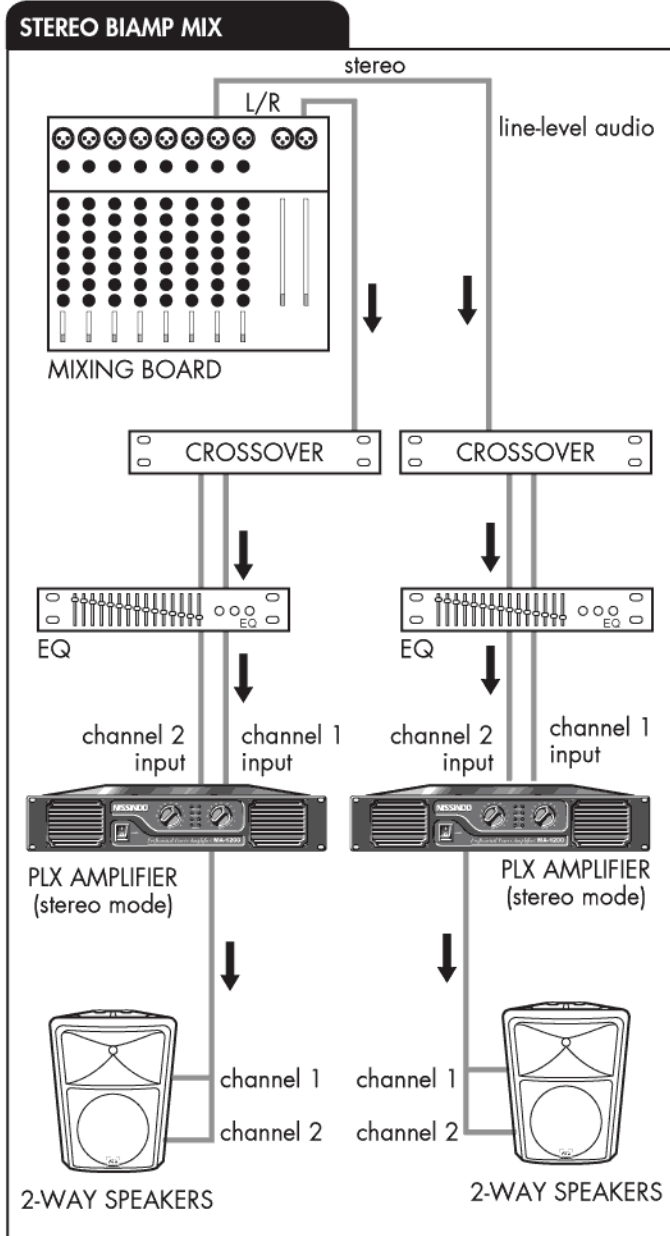
Unplug the amplifier input to confirm that the hiss is coming from the source or a device upstream; erratic or popping noises indicate an electronic fault in the offending unit.

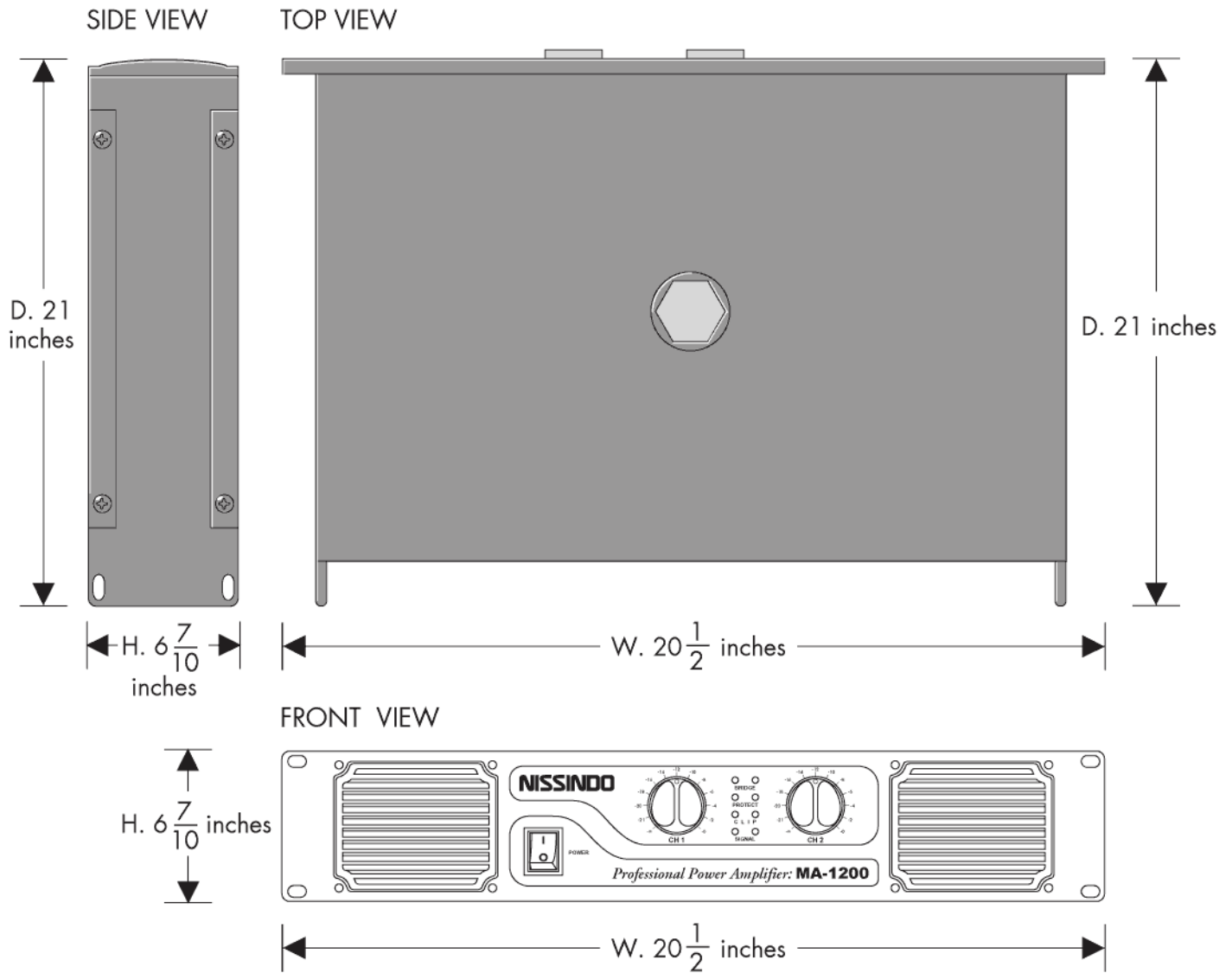
To keep the normal noise floor low, operate the primary signal source at full level, without clipping, and avoid boosting the signal further between the source and the amplifier.

Problem: squeals and feedback

Microphone feedback should be controlled with mixer controls. If noise continues to build up with zero mic gain, there is a serious fault in the signal processors or cables. Working in succession from the signal source towards the amplifier, check each device in the signal path by reducing its gain or unplugging it.

APPLICATIONS AND DIAGRAMS ILLUSTRATION





PHYSICAL


Model	MA-1200	MA-1400	MA-1600
Height	$6\frac{7}{10}$ inches	$6\frac{7}{10}$ inches	$6\frac{7}{10}$ inches
Width	$20\frac{1}{2}$ inches	$20\frac{1}{2}$ inches	$20\frac{1}{2}$ inches
Depth	21 inches	21 inches	21 inches
Net Weight	45 LBs	53 LBs	54.6 LBs
Shipping Weight	48 LBs	56 LBs	57.6 LBs



Thank you for purchasing this unit. To make full and effective use of this unit, please read this Owner's Manual carefully before operating it.

After reading, retain this booklet together with the Warranty Card for future use in case of defections or other troubles.

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