

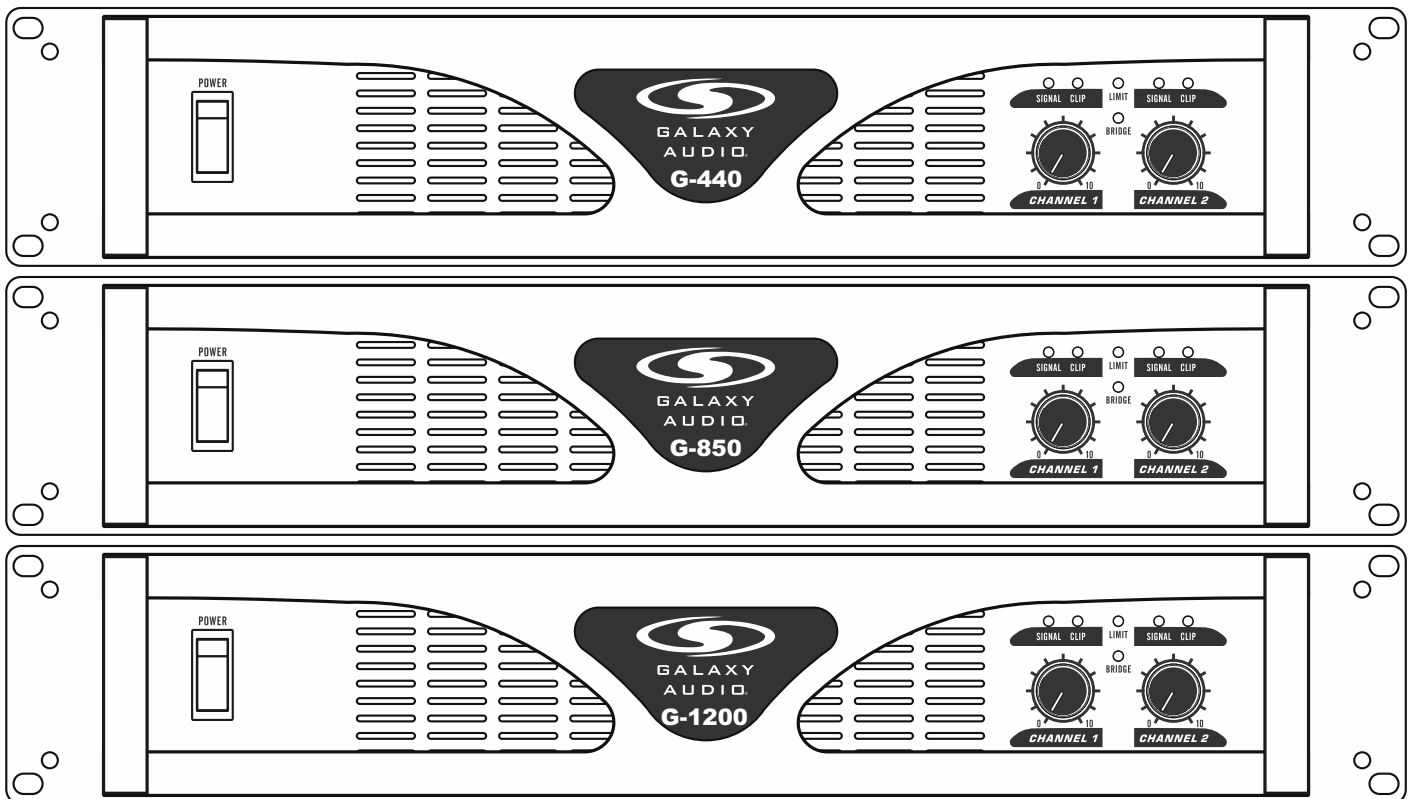
G-SERIES



USER'S MANUAL

G-SERIES AMPLIFIERS

G-440, G-850, G-1200



MAKERS OF THE ORIGINAL
HOT SPOT PERSONAL MONITOR



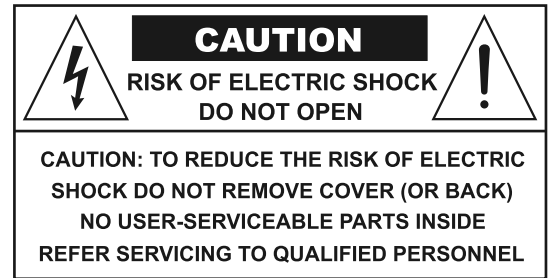
IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions before using the product.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any 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. This product, either alone or in combination with a mixer, headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
10. 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 are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. Use only with the 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.



S3125A

14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. 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.
16. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
17. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
18. The mains plug of the power supply cord shall remain readily operable.



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 product.

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

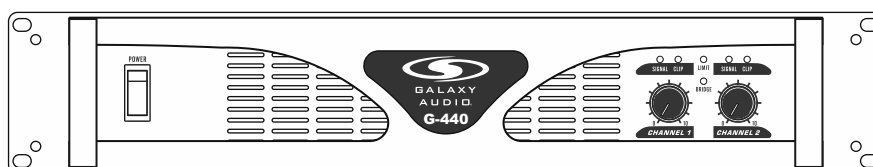
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Thank you for choosing the G-SERIES amplifiers!

The G-SERIES power amplifiers have been designed to provide great efficiency, dynamics and reliability at a very affordable price, for a variety of fixed and mobile audio applications.

The G-SERIES circuitry and selected components offer excellent sound quality and high fidelity audio reproduction. The compact design improves the price/performance ratio, while the rugged metal chassis guarantees maximum sturdiness. The G-SERIES amplifiers are available in three models.



G-440
2 x 210 watts @ 4 ohms

G-850
2 x 350 watts @ 4 ohms

G-1200
2 x 635 watts @ 4 ohms

The G-SERIES amplifiers are equipped with a highly visible LED display system, which provides precise information on signal status in any lighting condition. The connection system includes XLR and TRS 1/4" JACKS for audio input and twist-lock connectors for power outputs. Standard 19" rack mountable sturdy metal chassis makes installation easy while providing maximum protection.



ATTENTION !!!

The G-SERIES amplifiers generate high voltage on output.

To avoid the risk of electric shocks. **DO NOT TOUCH** any bare wires when the unit is switched on.

This manual contains important information for correct safe use, read it carefully before using your amplifier.

Connection to main power supply

Before connecting the amplifier to a power socket, always make certain that:

1. The electric system and power socket have adequate grounding compatible with the safety norms (if you are uncertain, consult specialized personnel);
2. The power supply voltage corresponds to that shown on the rear of the unit (an allowance of up to +/-10% is accepted);
3. The power cord is not damaged and has no bare wires;
4. The on/off switch is in the off position.

Make sure the amplifier is also off before disconnecting the power cord from the main power socket.

Switching on and off

In your sound reinforcement system, always switch on the amplifier after all the other equipment and always switch it off before anything else, if possible with the gain controls set at minimum: this will avoid annoying and sometimes dangerous signal peaks.

Installation and use

This amplifier generates high power, so install it in locations which ensure correct air circulation. Avoid long exposure to direct sunlight, sources of strong heat, powerful vibrations, very dusty or particularly damp surroundings or rain: this will prevent possible faulty operation, deterioration or even electric shocks and fires. The air for cooling the unit is forced in through the vents in the front panel and out through those on the rear panel, so make certain that there's sufficient space around the amplifier to allow adequate air circulation.

If racks or flight-cases are used, make sure that airflow is unobstructed: do not install the amplifier in racks or flight-cases with closed backs. Since part of the heat is dissipated via the metal bottom of the amplifier, it's advisable to install the amplifier with at least one rack unit space between them.

Audio connections

Remember to always connect and disconnect other units with the amplifier switched off. Always use good quality cables of the appropriate type, described in the "connection cables" chapter of this manual.

Take care of your connector cables, which are a frequent cause of problems. Check their condition frequently. Always grip them by the connector, avoid pulling them forcefully and coil them without forming knots or sharp bends: they'll last longer this way and be more reliable.

INSTRUCTIONS AND INSTALLATION

Preventing or identifying interference

First of all, check that the amplifier is installed in a place free from industrial or RF (radio frequency) interference. Avoid installing your equipment very near TV sets, mobile phones, etc., as these can cause noisy interference.

When connecting the other components of your sound system, watch out for "ground loops", which could cause hum and jeopardize the amplifier's excellent signal-to-noise and low distortion characteristics. The best way to avoid ground loops is to connect the electric ground of all the equipment to a single central point (the so-called "star" system).

Protection and maintenance

The amplifier is built in shock-resistant material. Nevertheless, protect it during transport with a flight-case to avoid the risk of any casual accidents. After long periods of use, particularly in dusty surroundings, accumulated dust may interfere with the unit's cooling. Without opening the amplifier and making certain it's disconnected from the mains supply, dust can be removed with a jet of compressed air, forcing it out through the chassis louvers. If the dust build-up is excessive, don't open the amplifier, as you could run the risk of serious electric shocks: contact Galaxy Audio. Any dust on the outside of the chassis should be removed using a dry soft cloth or brush. Never use alcohol, acetone or solvents of any kind.

The amplifier requires no further maintenance.

In the event of breakdown

All user-adjustable parts are external and easily accessible. Never open the amplifier: you could run the risk of serious electric shocks. In the event of breakdown, contact Galaxy Audio. 1 (316) 263-2852 or at service@galaxyaudio.com

Keep this user's manual for future consultation.

OHM'S LAW and the G-Series Amps

The SPEAKER OUTPUT jacks on the G-Series amps are designed to power up to two Core (or other brand) 8 ohm speakers, or up to four Hot Spot 16ohm speakers per channel. Most professional-type speakers (like the Core and Hot Spot) have two jacks which are wired in parallel (meaning the signal can travel into one jack and out of the other). Think of each speaker as a "load" added to the amplifier, the greater the number of speakers, the heavier the load. Adding too many speakers can overload the amplifier, causing it to overheat and distort. This will not only sound bad but it can damage the amplifier, the speakers, or both.

One easy way to determine the load on the amplifier is to use Ohm's law, which states: "The total impedance of N speakers in parallel is equal to the reciprocal of the sum of the reciprocals. In equation form:

Where Z1 is the impedance (or ohm rating) for the first speaker, Z2 is the impedance for the second, and so on for every speaker in the chain. This equation calculates the total impedance of the speaker system, which should **NOT** be lower than the minimum impedance rating of the amplifier.

$$Z(\text{Total}) = \frac{1}{\frac{1}{Z_1} + \frac{1}{Z_2} + \frac{1}{Z_3} + \frac{1}{Z_4} + \frac{1}{Z_N}}$$

The G-Series amps are rated for loads as low as 4 ohms per channel. Therefore, the total impedance of the speaker system must be greater than, or equal to, 4 ohms. Anything less will overload the amplifier. For one pair of speakers use the short form of the equation: the product of the two speakers divided by the sum of the two speakers is equal to the total impedance or the equivalent impedance of the speaker system.

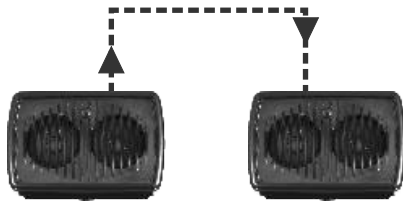
$$Z = \frac{Z_1 \times Z_2}{Z_1 + Z_2}$$

This equation may be used to calculate the equivalent impedance for additional speakers in two-speaker increments. Determine the impedance of the first two speakers, substitute Z total for Z, and include the next speaker. Repeat the process until all speakers have been included. The result should be the same as with the first method. A word of caution: polarity rules must be observed when connecting multiple speakers. Polarity will not affect the Z, but can affect the quality and volume of the sound. If you are having problems with any of these applications use Galaxy Audio's CRICKET Polarity and Continuity Test Set to check the polarity of your cables.

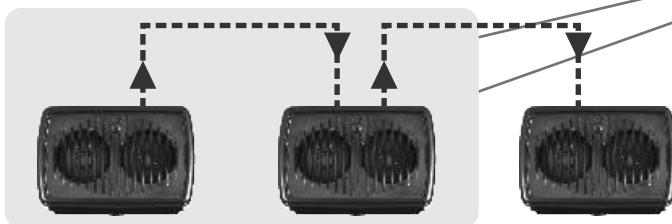
SOUND REINFORCEMENT BASICS

EXAMPLE 2 USING GALAXY HOT SPOTS:

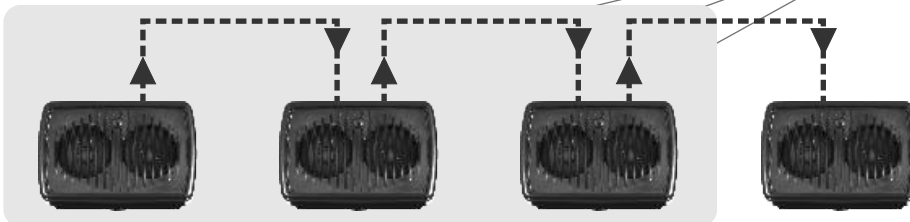
As long as all of the speakers have the same impedance rating, the equivalent impedance of the system is the rated impedance of one speaker divided by the number of equivalent speakers.



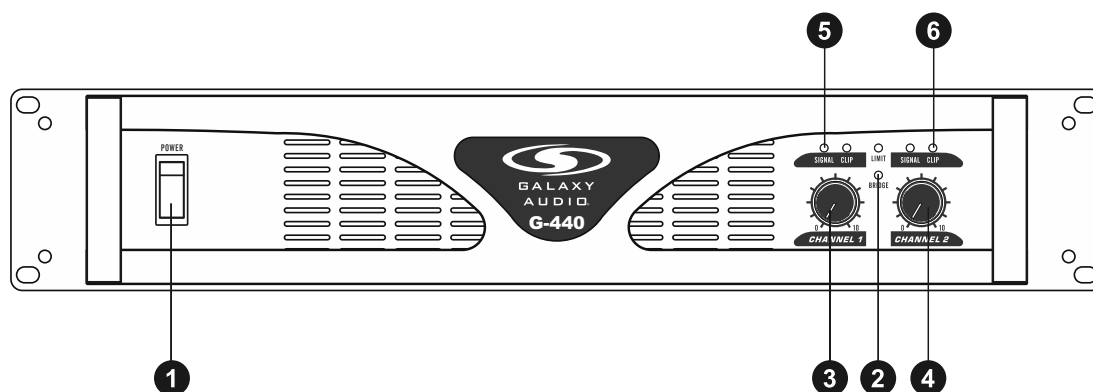
$$Z = \frac{16 \times 16}{16 + 16} = 8 \text{ Ohms for two HOT SPOTS}$$



$$Z = \frac{8 \times 16}{8 + 16} = 5.33 \text{ Ohms for three HOT SPOTS}$$



$$Z = \frac{5.33 \times 16}{5.33 + 16} = 4 \text{ Ohms (the total load)}$$



1 POWER ON/OFF

2 BRIDGE

LED for indicating the work mode of the amplifier. This LED will light when the bridge switch at rear panel on the bridge position.

3 4 INPUT ATTENUATORS

Input gain potentiometers, with 40 detented steps, attenuate the level of the external signal sent to the respective channels of the amplifier.

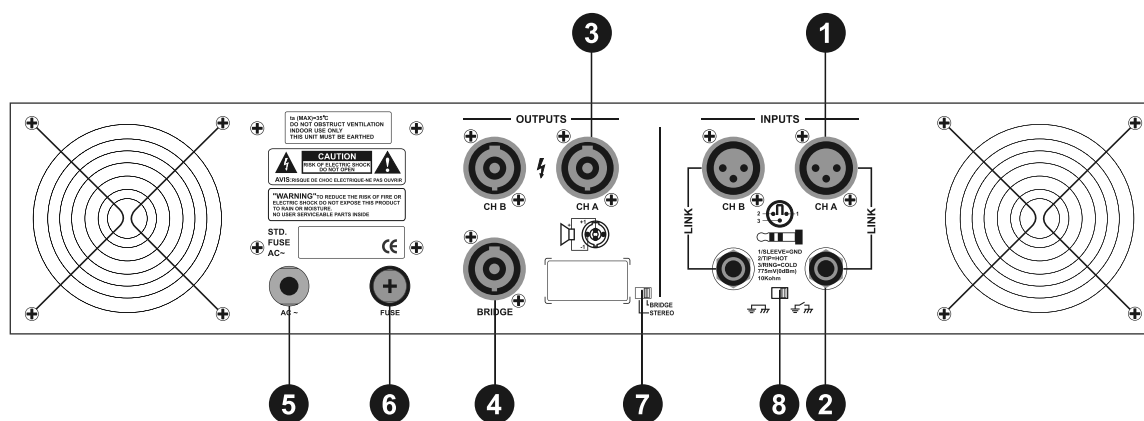
5 SIGNAL LEDs

Indicators of signals on output. If lit, indicate that the relative outputs of the amplifier channels are sending an audio signal.

6 CLIP LEDs

Amplifier CLIPPING indicators indicate the clipping of the amplifier, i.e. when the audio signal level exceeds the output capacity of the amplifier channel. When these LEDs flash reduce the input signal level.

REAR PANEL



1 INPUTS

Each channel has (1) balanced XLR and (1) balanced TRS ¼" input connector. These can receive balanced or unbalanced line level signals.

2 LINK

The XLR and TRS ¼" channel connectors are wired in parallel to facilitate daisy chaining of channels.

3 OUTPUTS

Twist-Lock connectors (minimum impedance 4ohm).

The Twist-Lock connectors are wired: PIN 1+ positive signal, PIN 1- negative signal.

4 BRIDGE OUTPUT

Twist-Lock connector (minimum impedance 8ohm). PIN 1+ power output signal positive PIN 1- power output signal negative

NOTE: to avoid possible damage to the loudspeaker enclosures, only connect enclosures or speaker systems compatible with the power load and impedance limits indicated for the amplifier (regarding this, consult the "Specifications" chapter for reference to your specific amplifier model). Use only stranded twisted pair minimum 18 gauge cables.

5 AC

Attached power cable

6 FUSE

Holder for fixing power fuse

Note: replaced with the same fuse or reference the manual.

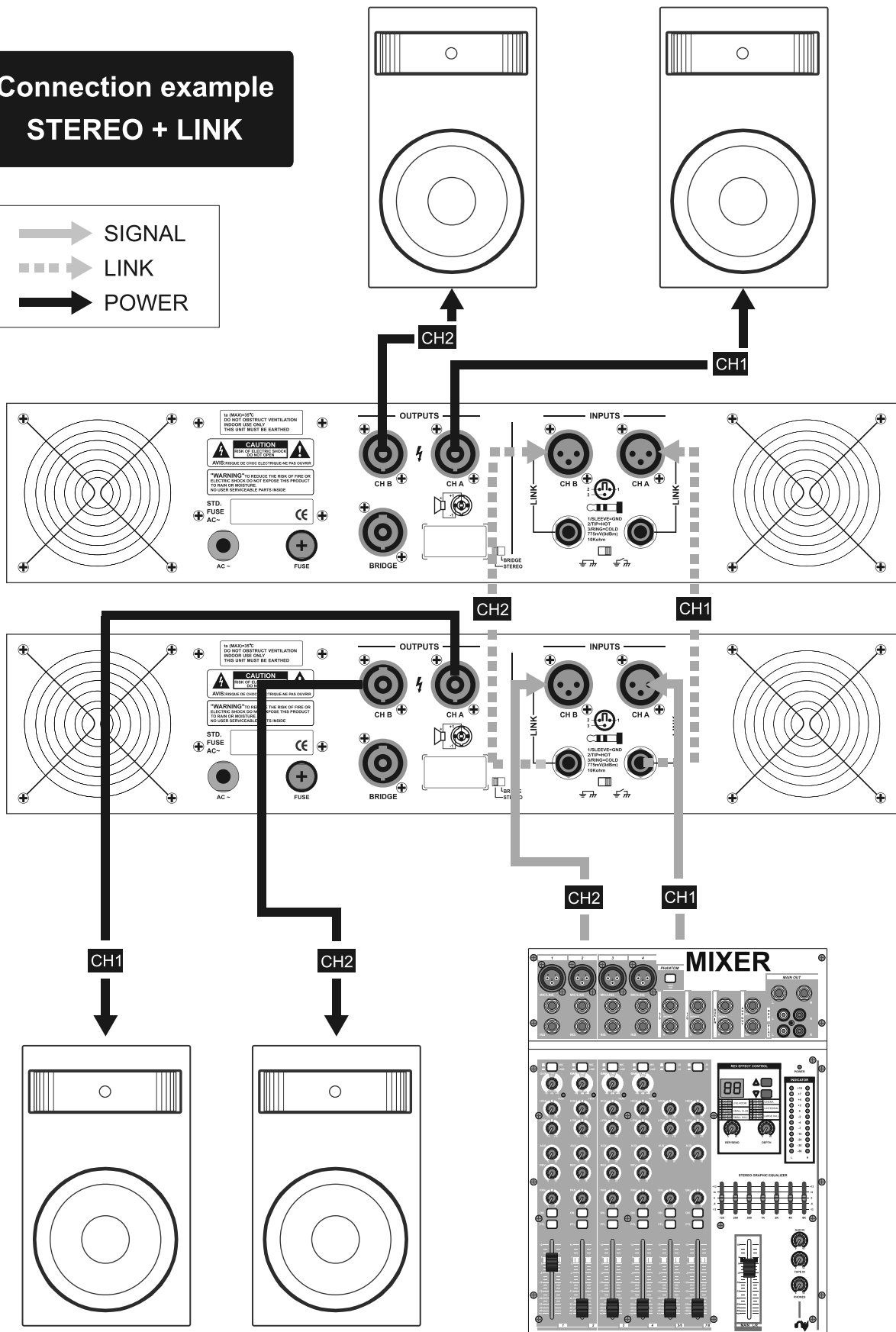
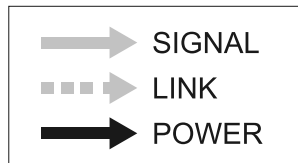
7 STEREO/BRIDGE

This slide switch is for selecting amplifier configuration. In the stereo position it has two independent channels. In the bridge position the channels are combined to form a single channel amplifier of greater power. In the bridge mode the minimum impedance load should be no less 8ohms.

8 GND switch

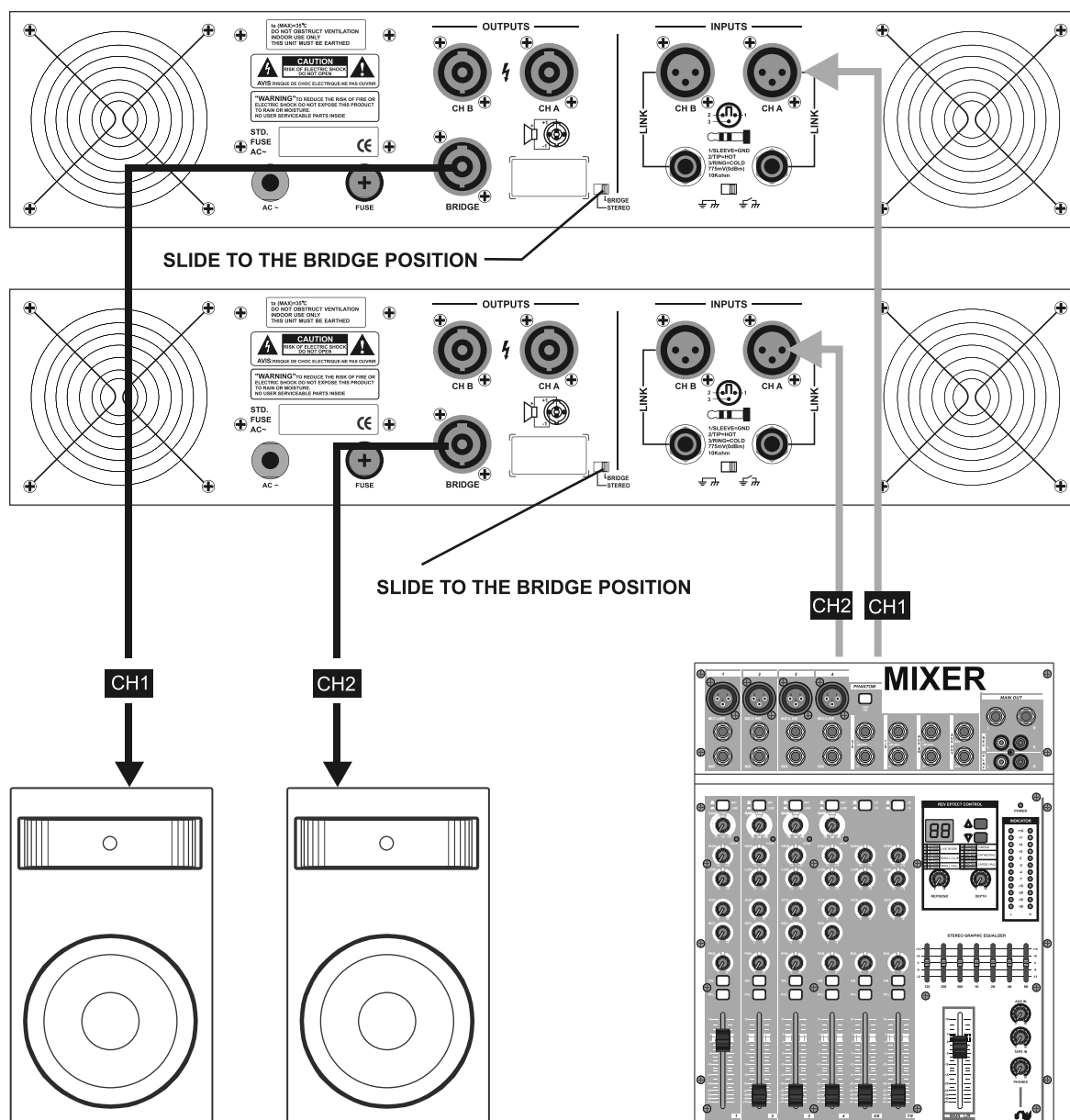
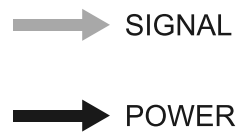
This slide switch is used for connecting the input Pin 1 to either circuit ground or chassis ground, this can be useful in eliminating ground loops between the amplifier and other active devices.

Connection example STEREO + LINK



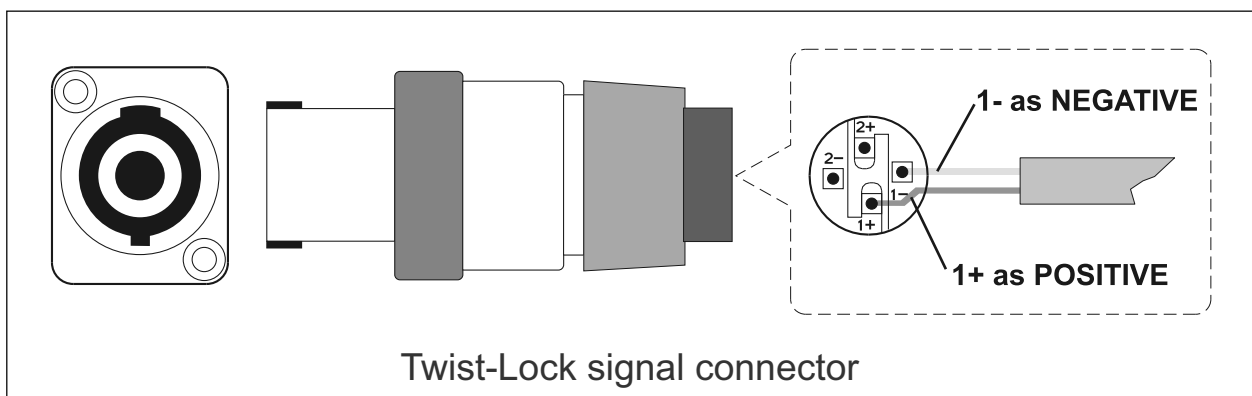
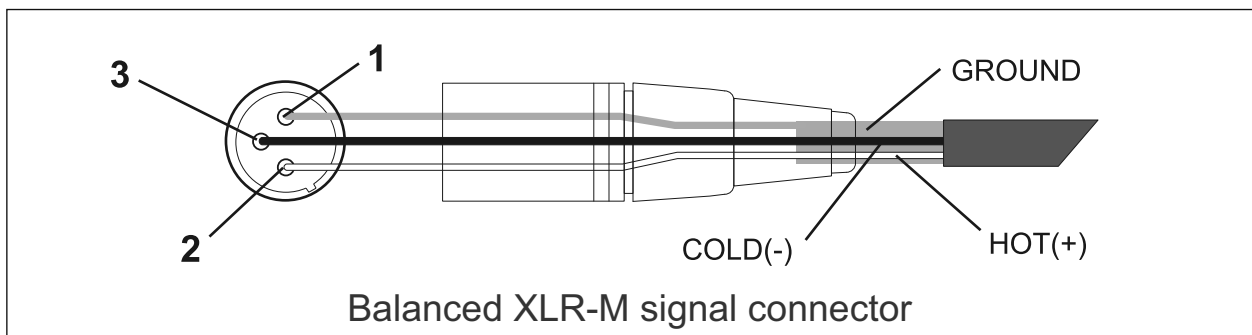
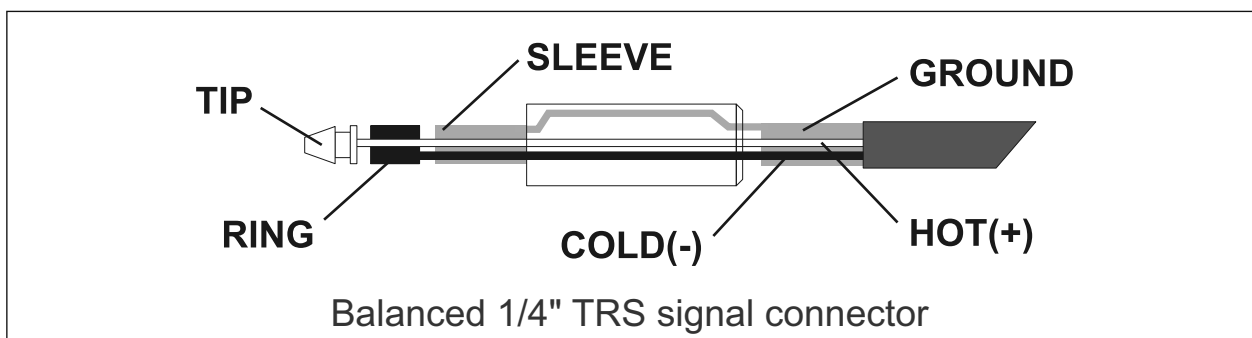
CONNECTION EXAMPLES

Connection example BRIDGE



The following diagrams show the wiring of the connectors that can be used with G-Series amplifiers. To connect the mixer outputs to the amplifiers inputs, make certain to always use balanced signal cables: the use of unbalanced cables could cause annoying hum and noise. To connect the amplifier to the loudspeaker enclosures always use stranded twisted pair cables. For 8 ohm loads use 18 gauge or larger cables, and for 4ohm loads use 14 gauge or larger. Keep runs as short as possible and use the largest gauge possible.

Take care of your connector cables, always gripping them by the plugs and avoid pulling them directly. Always use your cables carefully to avoid knots, kinks, and tight bends. Periodically check that your cables are in good condition, correctly wired and with clean contacts. The majority of audio problems are caused by the use of unsuitable or damaged cables.



SPECIFICATIONS

POWER SPECIFICATIONS		G-440	G-850	G-1200
Rated Power Output 1KHz, THD < 0.5%	8 ohm	2 x 145	2 x 240	2 x 400
	4 ohm	2 x 210	2 x 340	2 x 660
	Bridge 8 ohm	440	850	1200

ELECTRICAL SPECIFICATIONS		G-440	G-850	G-1200
Input Sensitivity		1.0 VRMS		
Input Impedance		10 Kohm (balanced)		
Frequency Response		-0.5dB (20-200000Hz)		
Voltage Gain		31dB	33dB	35dB
Slew Rate		22V/us		
Damping Factor		>400:1 @ 1KHz, 8 ohms		
Cross Talk		-82dB (1KHz)		
S/N Ratio		98dB		
Harmonic Distortion THD		<0.1% (20~20000Hz)		
Intermodulation Distortion		<0.1% (SMPTE method, 60Hz & 7KHz, 4:1 ratio)		

GENERAL SPECIFICATIONS		G-440	G-850	G-1200
Protections		Power transformer thermal protection Protections Short circuit protection Power on or off and DC output protections		
Controls		ON/OFF switch Input level control for each channel		
Indicators		Power on: 1 red LED Indicators Signal: 2 green LED, 2 red LED		
Connectors	IN OUT	1 XLR-F + 1 1/4" TRS in parallel for each channel Connectors 1 4-way Twist-Lock for each channel 1 4-way Twist-Lock for bridge output		
Power Supply		See label on Amplifier		
Dimensions (WxHxD)	Inches (mm)	19" x 3.48" x 13.1" (482 x 88.5 x 333)	19" x 3.48" x 17.13" (482 x 88.5 x 435)	19" x 3.48" x 18.25" (482 x 88.5 x 463)
Weight	Lbs (Kg)	28.66 lbs (13Kg)	36.38 lbs (16.5Kg)	49.6 lbs (22.5Kg)





MAKERS OF THE ORIGINAL
HOT SPOT PERSONAL MONITOR



www.galaxyaudio.com

G-SERIES AMPLIFIERS USER'S MANUAL

ONE YEAR LIMITED WARRANTY

WARRANTY Information can be viewed online at
<http://www.galaxyaudio.com/warranty.php>



www.galaxyaudio.com/warranty.php

1-800-369-7768 www.galaxyaudio.com

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