



KLR-Series Amplifiers

KLR 2000, KLR 3200, KLR 4000, KLR 5000

Operator Manual



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This manual uses a *Perpetual Table Of Contents*. Each page has a copy of the manual's contents in a gray box just like this one. The section you are in will always be bold with the other sections "grayed out." The feature allows you to jump directly to another section without having to return to a Table Of Contents page.

Important Safety Instructions Consignes de sécurité à lire attentivement

This power amplifier can produce dangerous output voltage, power and sound pressure levels. In order to minimize the risk of injury, damage, or hearing loss, please read the entire owner's manual.

Cet amplificateur de puissance peut produire un voltage et une pression acoustique qui pourrait être dangereuse ou pourrait même causer des problèmes ou perte d'acuité auditive. Consultez le manuel d'instruction et observez les consignes.



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 instructions in the literature accompanying the device.

Le symbole de la flèche dans un triangle équilatéral symbolisant la foudre est prévu pour sensibiliser l'utilisateur à la présence de tension de voltage non isolée à l'intérieur de l'appareil. Elle pourrait constituer un danger de risque de décharge électrique pour les utilisateurs. Le point d'exclamation dans le triangle équilatéral alerte l'utilisateur de la présence de consignes qu'il doit d'abord consulter avant d'utiliser l'appareil.

1. Read these instructions.
 2. Keep these instructions.
 3. Heed all warnings.
 4. Follow all instructions.
 5. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
 6. Do not use this apparatus near water.
 7. Clean only with dry cloth.
 8. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
 9. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
 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.
 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.
1. Lisez ces instructions.
 2. Conservez ces instructions.
 3. Observez les avertissements.
 4. Suivez ces instructions.
 5. Pour réduire le risque de feu ou la décharge électrique, ne pas exposer cet appareil pour pleuvoir ou l'humidité. Ne pas utiliser l'appareil près de l'eau.
 7. Le nettoyer à l'aide d'un tissu sec.
 8. Ne pas bloquer les ouvertures de ventilation, installer selon les consignes du fabricant.
 9. Eloigner des sources de chaleur tel: radiateurs, fourneaux ou autres appareils qui produisent de la chaleur.
 10. Ne pas modifier ou amputer le système de la mise à terre. Une prise avec mise à terre comprend deux lames dont une plus large ainsi qu'une mise à terre: ne pas la couper ou la modifier. Si la prise murale n'accepte pas la fiche, consulter un électricien pour qu'il remplace la prise défectueuse.
 11. Protéger le cordon de secteur contre tous bris ou pincement qui pourraient l'endommager, soit à la fiche murale ou à l'appareil.
 12. N'employer que les accessoires recommandés par le fabricant.
 13. N'utiliser qu'avec les systèmes de fixation, chariots, trépied ou autres, approuvés par le fabricant ou vendus avec l'appareil.
 14. Débrancher l'appareil lors des orages électriques ou si inutilisé pendant une longue période de temps.
 15. Un entretien effectué par un centre de service accrédité est exigé si l'appareil a été endommagé de quelque façon: si il a été exposé à la pluie, l'humidité ou s'il ne fonctionne pas normalement ou qu'il a été échappé.

Introduction

Congratulations on your purchase of an Ashly KLR-Series amplifier. The KLR-Series is made up of powerful, high-efficiency, lightweight amplifiers incorporating the latest technologies. We are confident that you will be pleased with the high performance, superb sound quality, reliability, and more.

About Ashly

Ashly Audio was founded in 1974 by a group of recording engineers, concert sound professionals, and electronics designers. The first products were elaborate custom consoles for friends and associates, but business quickly spread to new clients and the business grew. The philosophy we established from the very beginning holds true today: to offer only the highest quality audio tools at an affordable cost to the professional user – ensuring reliability and long life. More than thirty years later, Ashly remains committed to these principles.

FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in both a commercial and residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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The KLR Series

KLR-Series amplifiers are high-efficiency, lightweight high power amplifiers incorporating the latest amplifier technologies.

The series provides a power range of 1000 to 2500 watts per channel at 2 ohms (20Hz-20kHz, 1% THD). The KLR series is available in 2 channel versions at four power points. All models will drive 2, 4, or 8 ohm loads.

*The KLR 3200 can also be used as a two channel 70V distributed output amplifier providing up to 800W per channel. For 70V applications, Ashly recommends setting the amplifier's HiPass filter switch to 50Hz (see page 5).

KLR-Series Power Ratings (per channel)					
Model	Stereo				Mono Bridged
	70V	8Ω	4Ω	2Ω	4Ω
KLR 2000	X	350W	600W	1000W	2000W
KLR 3200*	800W	650W	1100W	1600W	3200W
KLR 4000	X	850W	1400W	2000W	4000W
KLR 5000	X	1000W	1700W	2500W	5000W

- Inputs are via 3-pin Euroblock, XLR, and ¼" TRS connectors.
- Switch mode power supply provides high efficiency and low weight
- Output connectors are four pin Speakon type.
- Rear panel switches include: Gain and Operation Mode, Limiter, and HPF.
- Forced air cooled (front panel intake, rear panel exhaust)
- Front panel indicators for output level, clip/protect, and power on/off
- Gain selectable switch for both channels
- Removable dust filters on front panel
- Rack ears for permanent installation in a standard 2RU 19"(rack mount width) enclosure

Protection

KLR-Series Amplifiers come standard with several protection circuits:

- ✓ **Output over-current protection**
- ✓ **DC output protection**
- ✓ **Chassis internal temperature monitoring**
- ✓ **Inrush limiting**
- ✓ **Mains circuit breaker (*Mains fuse used in KLR-5000*)**

WARNING: Do not remove the mains connector ground.

Physical Description

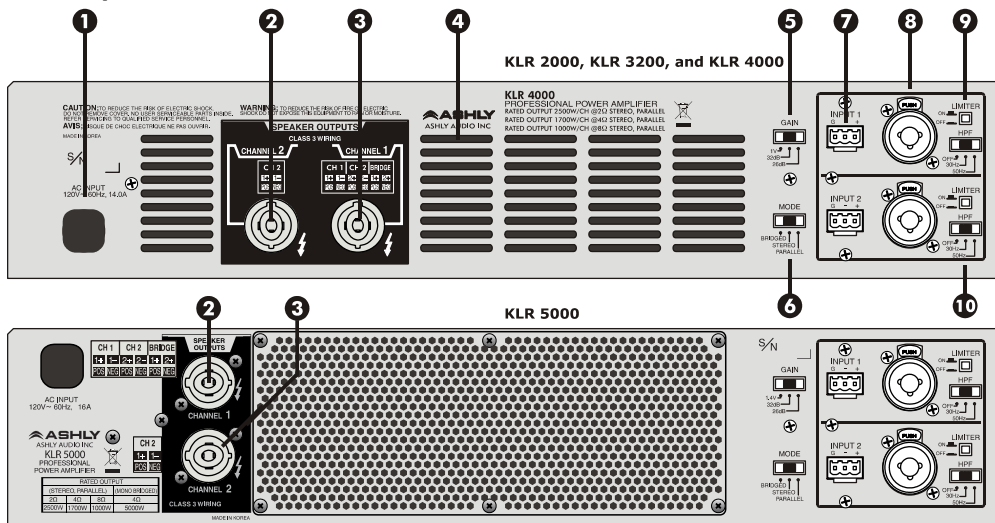
Each model in the KLR-Series is 2RU. The model number is indicated on the left side of the front panel

Amplifier Front Panel



1. Mounting Holes – For rack mounting.
2. Air Inflow Vents – Cool air enters here.
3. Channel Attenuators – These knobs adjust the attenuation of the input signal of each channel from ∞ to 0.
4. Signal, Clip, and Protect LEDs – Indicates output level of -30, -20, -10dB, Clip, and amplifier protect.
5. Power Switch and LED – Switches the unit on or off. The KLR 2000, KLR 3200, and KLR 4000 use a switch with a built in mains circuit-breaker. The KLR 5000 uses a non-breaker switch and an internal mains fuse instead.
6. Rack Handles – Handles on newer models can be removed using a 3mm hex wrench.

Amplifier Rear Panel (Note: KLR 5000 rear panel has different feature locations)



1. AC Cord – For connection to the AC mains
2. CH 1, CH 2, Bridged Output Connector – This connector provides the amplifier's Channel 1, channel 1 and 2, or bridged output.
3. CH 2 Output Connector – This connector provides the amplifier's Channel 2 output.
4. Air Outflow Vents – Warm air exits here.
5. Gain Switch – The Gain switch sets the gain for both channels. Gain selections vary between models. Check specifications for each model.
6. Mode Switch – This switch selects the amplifier's operating mode (Bridge, Stereo, or Parallel Mono).
7. 3-Pin Euroblock Input Connectors – These connectors are used for balanced or unbalanced input signals. For parallel mode or bridged mode, use INPUT 1 only.
8. Combination XLR, 1/4" TRS Input Connectors – These connectors are used for balanced or unbalanced input signals, and are wired in parallel with the Euroblock connector.
9. Limiter Switch – This switch engages the limiter. There is a separate limiter for each channel.
10. HPF Switch – This switch selects the input HiPass filter to 30Hz, 50Hz, or Off.

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Installation

KLR-Series amplifiers are designed for use in both fixed and mobile sound systems. Each amplifier is shipped (unless otherwise specified) with the following factory settings:

Front panel:	Rear panel:
On/Off Switch = Off Attenuators = ∞	High Pass Filter(s) = Off Gain Selector = Max Gain Position Mode Selector = Stereo Limiter Switch = Off

Before connecting to mains power, make sure that the switches are set to the configuration needed for your particular application. Always switch the amplifier off before making any changes to the settings. Failure to do so could result in damage to the unit or other components in your system. **CAUTION:** When mounting or connecting the amplifier, always disconnect it from the mains. Use four screws and washers when mounting the amplifier to the front rack rails. Rear support is also recommended, especially for mobile or touring use. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

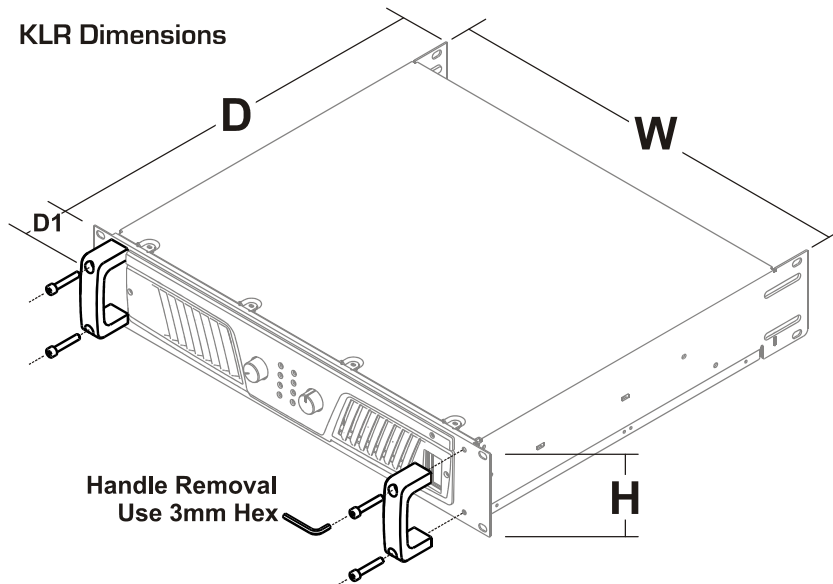
Requirements

KLR-Series amplifiers have specific physical, electrical and signal requirements for proper operation. These requirements will vary depending on your specific application, setup, and the settings on the amplifier. When setting up and testing your system, please take special care to double check all connections and settings. Please refer to the specifications section of this manual for specific input, output and other figures.

Installation Density

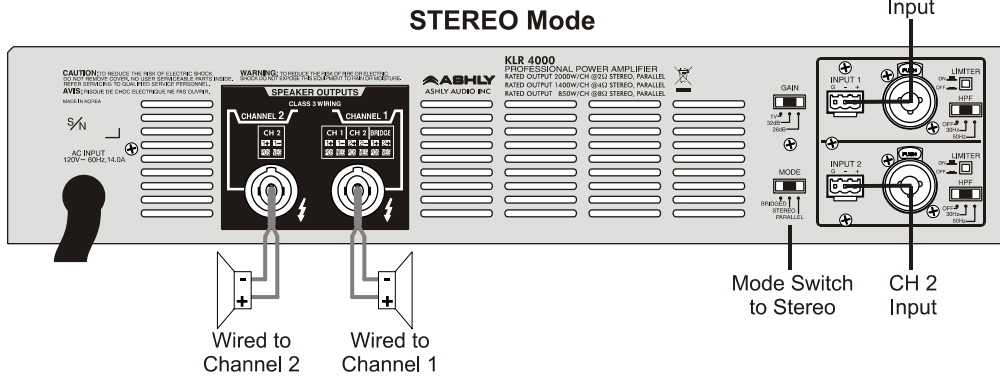
KLR-Series amplifiers produce substantial power output from a small chassis. When driven at the higher-end of their potential, they do produce heat that must be dissipated. In cases where multiple KLR amplifiers are mounted together (or a single KLR with other equipment), it is recommended that a 1RU space is left between units to allow for proper air circulation. If the amplifier overheats, it will go into ‘thermal’ protect mode to prevent damage to itself and any connected components and speakers.

KLR Dimensions

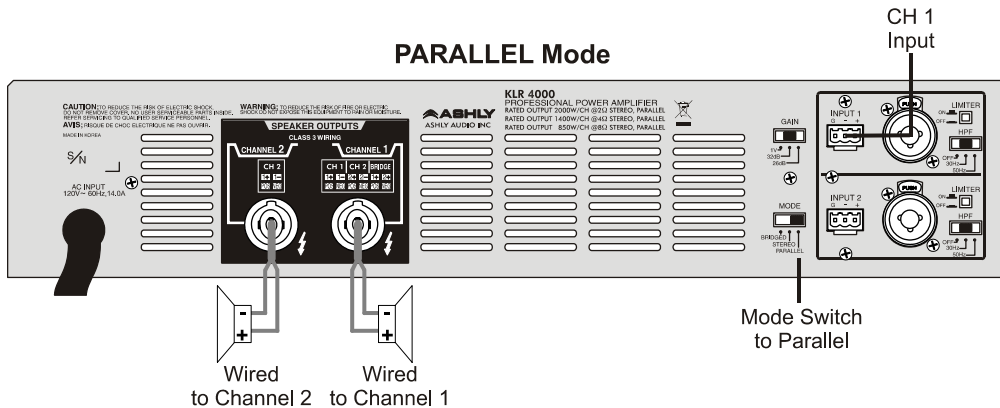


H = 3.47" (88.1mm)
W = 17.6" (447mm)
D = 16.0" (406mm)
D1 = 1.5" (38.1mm)

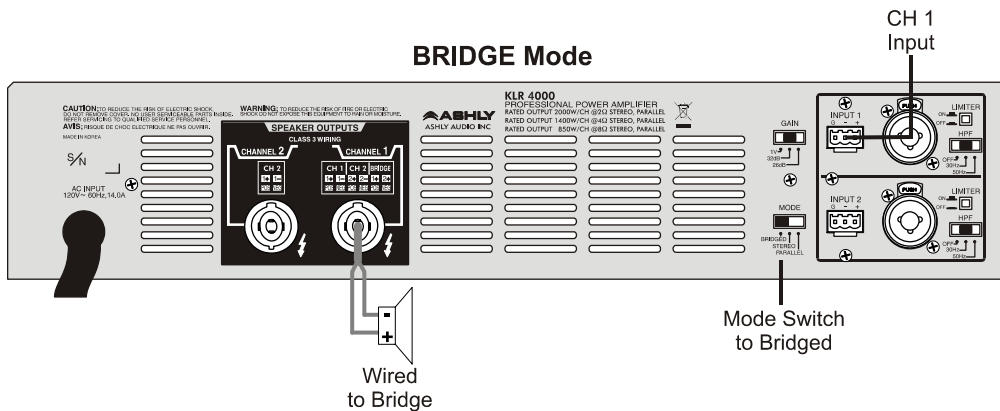
Typical Applications (Note: KLR 5000 not shown – see page 5)



The most common use of a KLR-Series amplifier is a 2-channel source driving 2 speaker channels. In this illustration, the amplifier is receiving a stereo signal and is driving two stereo speakers. The amplifier is in STEREO mode.



Another use of a KLR-Series amplifier is a single channel source driving both speaker channels. In this illustration, the amplifier is receiving a signal and is driving both channel speakers with the same signal. The amplifier is in PARALLEL mode.



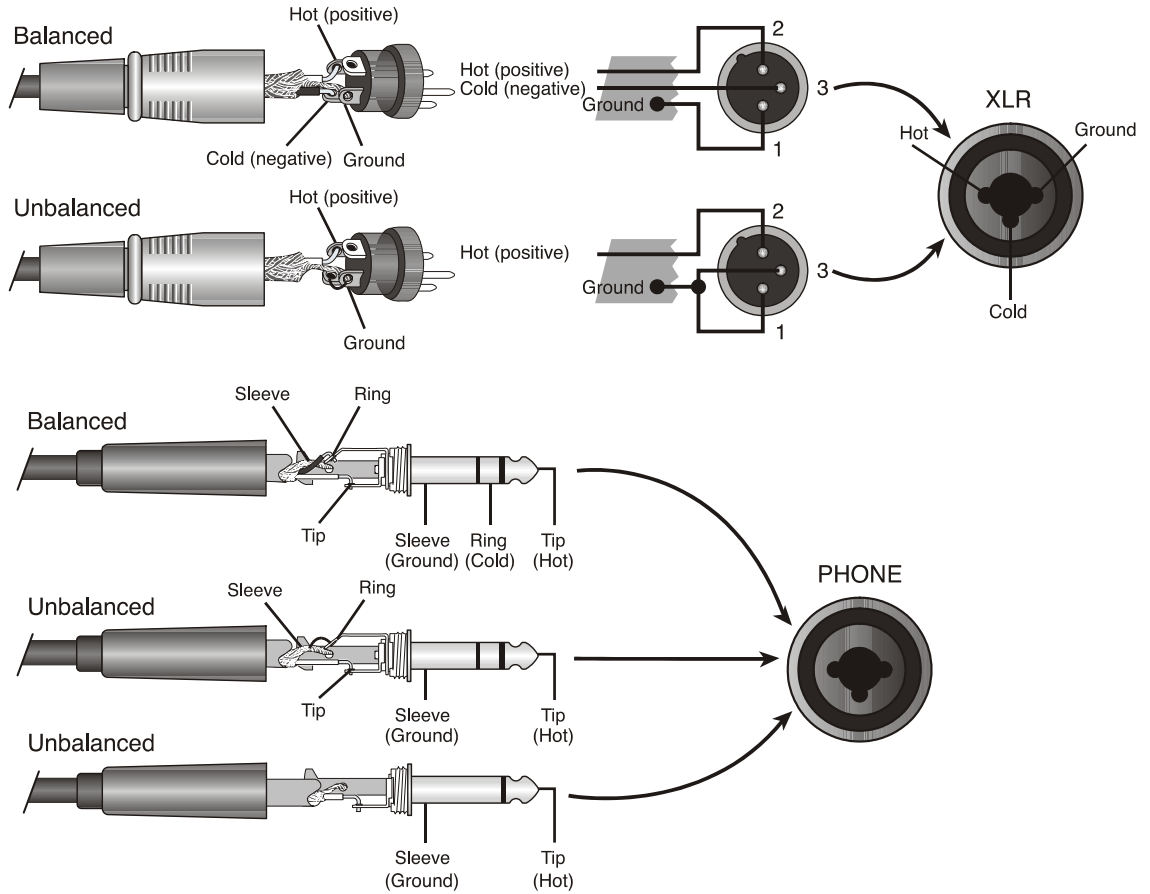
KLR-Series amplifiers are well suited to BRIDGED operation to drive a speaker load such as a subwoofer. This illustration shows a KLR driving a signal in BRIDGED mode. Note the special wiring to the channel 1 connector for Bridge mode. Minimum Bridged load impedance is 4Ω (2Ω per channel).

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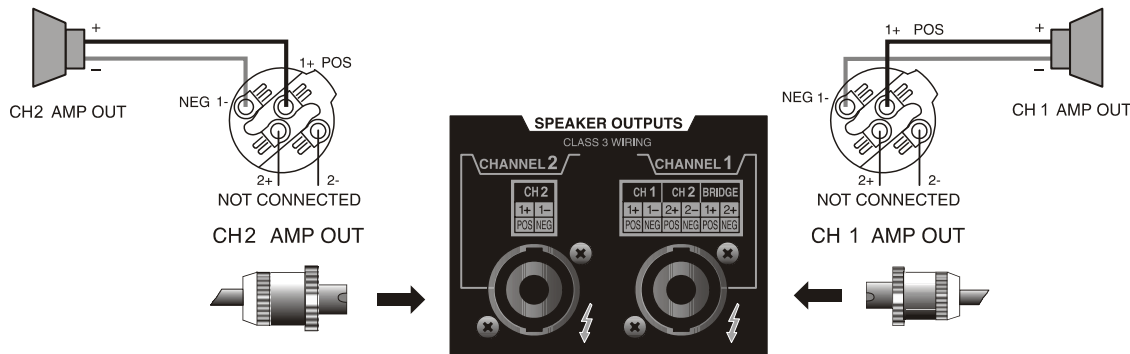
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Connectors & Polarity

KLR-Series amplifiers utilize three types of professional audio connectors. For the inputs, 3-pin Euroblock connectors are utilized with their polarity clearly marked on the amplifier's rear panel, and combination XLR and 1/4" phone jack are all wired in parallel. Outputs are four pin Speakon type connectors. The polarity for these connections is marked on the unit's chassis. Note that polarity changes when the unit is operated in BRIDGED mode. Be sure to read the Operation section of this manual for important information on the operating modes.

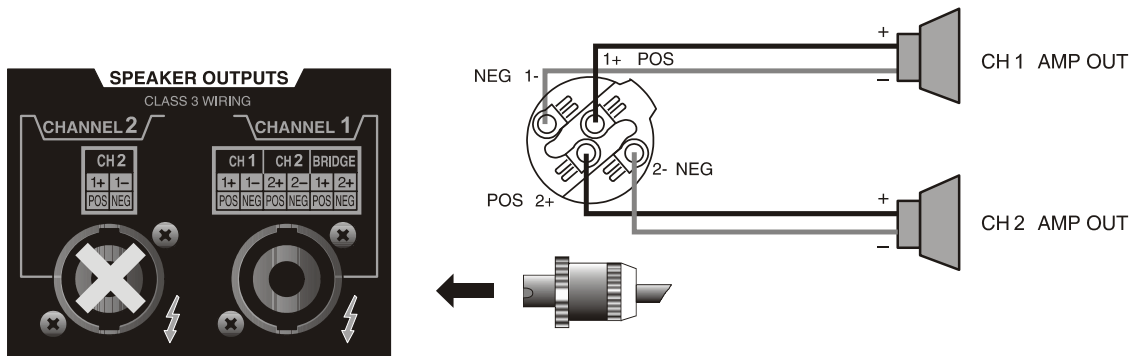


Speaker Connections *(Note: KLR 5000 speaker outputs not shown – see page 5)*



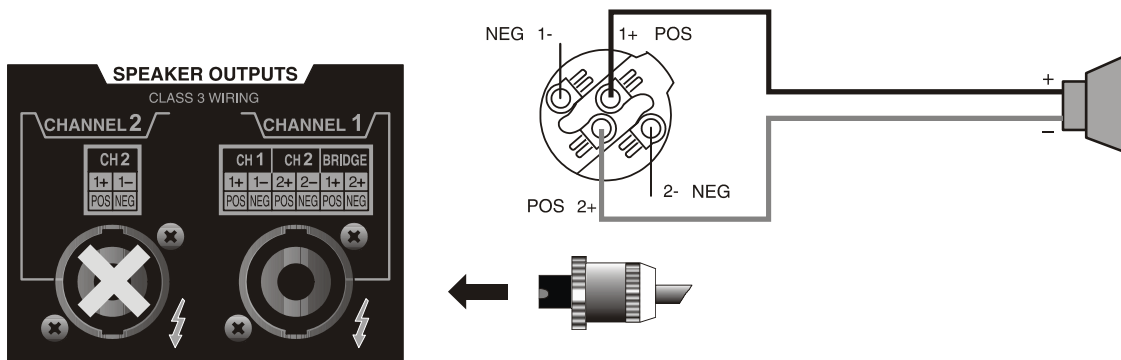
Stereo Speaker Wiring

In this mode, the amplifier’s channels operate fully independent of each other. Each signal enters the unit and is amplified separately and wired using different connectors.



Stereo Speaker Wiring Using Single 4-Conductor Speaker Cable

In this mode, the amplifier’s channels still operate independent of each other. Each signal is amplified separately, however both channels are wired using the Channel 1 connector.



Bridged (Mono) Mode

In this mode, a single input is connected to channel 1 and is connected to the two output channels that have been “Bridged” together using the Channel 1 connector. Minimum Bridged load impedance is 4Ω.

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Troubleshooting

Situation	Indication	Action
No Sound	Signal LED not lit Clip LEDs not lit	Check AC plug. Confirm that AC outlet works by plugging in another device.
	Signal LED not lit	Make sure the signal source is operating and try another cable. Check position of Volume Pots.
	Signal LEDs responding to signal level	Check the speaker wiring for breaks. Try another speaker and cable.
	Protect LED is lit	Overheating will cause protective muting. Check for proper ventilation.
No Channel Separation	No Channel Separation	Check the mode indicators on the back panel and make sure the mode selector on the rear panel is in the stereo position. Make sure other equipment in the signal path such as mixers and preamps are set for stereo, not mono
Distorted Sound	Power LED is lit	A faulty speaker or a loose connection could cause this. Check the wiring and try another speaker.
	Signal LEDs responding to signal level	The signal source might be clipping. Keep the volume pots at least halfway up so that the source does not have to be overdriven.
	Clip LEDs not lit	Keep the volume pots at least halfway up and try changing input sensitivity with the gain selector on the rear.
Hiss	Hiss	Unplug the amplifier input to confirm that the hiss is coming from the source or from a device upstream. Erratic or popping noises indicate an electronic fault in the offending unit. To keep the noise floor low, operate the primary signal source at full level, without clipping. Avoid boosting the signal further between the source and the amplifier.
Squeals and Feedback	Squeals and Feedback	Microphone feedback should be eliminated with mixer controls. If noise continues to build up with no microphone gain, there is a serious fault in the signal processors or cables. Working in succession from the signal source towards the amplifier and check each device in the signal path by reducing its gain or by unplugging it.

Specification Table

	<i>KLR 2000</i>	<i>KLR 3200</i>	<i>KLR 4000</i>	<i>KLR 5000</i>
Power Output Per Channel				
Stereo Mode, both channels driven				
8Ω, 20Hz - 20kHz, 1% THD	350W	650W	850W	1000W
4Ω, 20Hz - 20kHz, 1% THD	600W	1100W	1400W	1700W
2Ω, 20Hz - 20kHz, 1% THD	1000W	1600W	2000W	2500W
70V Output, 20Hz - 20kHz, 1% THD, per channel	X	800W	X	X
Bridged Mono Mode				
4Ω, 20 Hz - 20 kHz, 1% THD	2000W	3200W	4000W	5000W
Line Current Draw* (all channels driven @4Ω)				
Idle (120VAC 60Hz) *	0.99A	0.92A	1.05A	1.14A
1/8 th Power Pink Noise (120VAC 60Hz) *	9.7A	11.4A	14.0A	17.5A
1/3 Power Sine Wave (120VAC 60Hz) *	14.9A	16.6A	19.8A	24.7A
Thermal Dissipation (all channels driven @4Ω)				
Idle (BTU/hr)	164	136	171	215
1/8 th Power Pink Noise (BTU/hr)	1876	2063	2489	3111
1/3 Power Sine Wave (BTU/hr)	2880	3001	3516	4395
Input Gain Switch	1V, 26dB, 20dB	1V, 32dB, 26dB	1V, 32dB, 26dB	1.4V, 32B, 26dB
Signal to Noise Ratio (20Hz-20kHz, rated power @ 8Ω unweighted)	>108 dB	>109 dB	>109 dB	>110 dB
Output Circuitry:	Class AB	2 Step Class H	2 Step Class H	2 Step Class H
Frequency Response 1W @ 8Ω 20Hz-20kHz (-3dB down point)			+/- 0.3dB 5Hz – 70kHz	
Damping Factor – 100Hz @ rated power @8Ω			> 380	
THD 20Hz-20kHz, 10dB below rated output @4Ω			<0.05%	
Input Impedance			12 kΩ, balanced	
HPF (30Hz, 50Hz, Off)			12dB/Oct	
Amplifier Protection	Output Overcurrent, DC Output, Chassis Temperature, Mains Breaker (KLR-5000 uses Internal Mains Fuse Instead of Breaker)			
Cooling	Variable Speed Fan, Front to Rear Air Flow			
Front Panel Indicators	Prot/Clip, Signal, Power			
Attenuators	Per channel: front panel			
Input Connectors, each channel	3- Pin Euroblock, XLR, ¼" TRS Phone Jack			
Output connectors, each channel	Four pin Speakon type			
Operating Temperature/Humidity	Temperature: -10C - +40C / Humidity: 0% - 90%			
Power Cable Connector	3-Prong NEMA 5-15 (5-20 for KLR-5000)			
Dimensions	19" x 3.5" x 16" (482mm x 88mm x 407mm)			
Weight	24 lbs (10.9kg)	26.4 lbs (12kg)	26.7 lbs (12.1kg)	28.2 lbs (12.8kg)

* For 230VAC 50Hz models, divide Line Current Draw values by 2.

All Specifications Subject to Change or Improvement Without Notice.

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Ashly Audio Inc. LIMITED WARRANTY (USA ONLY)

(Other countries please contact your respective distributor or dealer.)

For units purchased in the USA, warranty service for this unit shall be provided by ASHLY AUDIO, INC. in accordance with the following warranty statement.

ASHLY AUDIO, INC. warrants to the owner of this product that it will be free from defects in workmanship and materials for a period of FIVE years from the original-date-of-purchase. ASHLY AUDIO INC. will without charge, repair or replace at its discretion, any defective product or component parts upon prepaid delivery of the product to the ASHLY AUDIO, INC. factory service department, accompanied with a proof of original-date-of-purchase in the form of a valid sales receipt. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

EXCLUSIONS: This warranty does not apply in the event of misuse, neglect, or as a result of unauthorized alterations or repairs made to the product. This warranty is void if the serial number is altered, defaced, or removed. ASHLY AUDIO, INC. reserves the right to make changes in design, or make additions to, or improvements upon, this product without any obligation to install the same on products previously manufactured.

Any implied warranties, which may arise under the operation of state law, shall be effective only for FIVE years from the original-date-of-purchase of the product. ASHLY AUDIO, INC. shall be obligated to only correct defects in the product itself. ASHLY AUDIO, INC. is not liable for any damage or injury, which may result from, or be incidental to, or a consequence of, such defects. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion, or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

OBTAINING WARRANTY SERVICE:

For warranty service in the United States, please follow this procedure:

1) Return the product to ASHLY AUDIO, INC. freight prepaid, with a written statement describing the defect and application that the product is used in. ASHLY AUDIO, INC. will examine the product and perform any necessary service, including replacement of defective parts, at no further cost to you.

2) Ship your product to:

ASHLY AUDIO, INC.

Attention: Service Department

847 Holt Road

Webster, NY 14580-9103