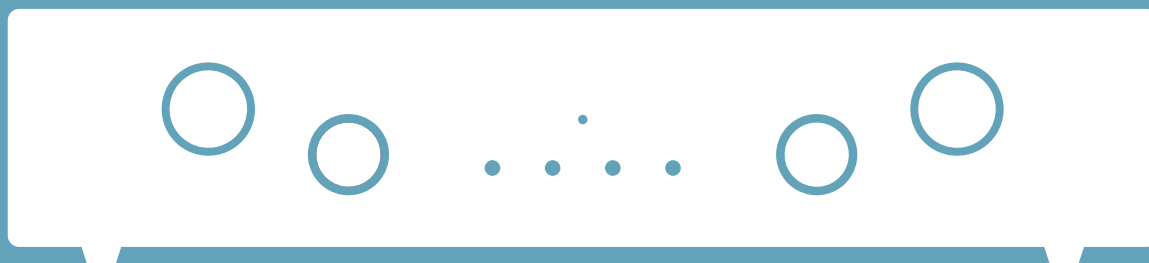




KA-1100
OWNER'S MANUAL



CONTENTS

Feature overview

Overview of the functionality of the subwoofer amplifier.

Connection and calibration

For a step-by-step guide for setting up the subwoofer amplifier.

Controls and features

Provides in-depth information on the functionality of the subwoofer amplifier.

Troubleshooting

If any problems are encountered with the amplifier refer to this section.

Specifications

Detailed specifications for the amplifier.



Disclaimer

Please read the important safety instructions on the back of this manual before you plug in your equipment.

Disclaimer
To the extent permissible by law:

1. All warranties, conditions, representations, promises and statements relating howsoever to this product whether express or implied and whether in contract or tort are excluded to the extent permitted by law; and
2. Our liability to you under a condition or warranty (if any) implied into this sale and purchase agreement relating to this subwoofer by the Trade Practices Act 1974 (as amended) or any other law (whether a law of Australia or any other country) other than a condition implied by Section 69 of the said Act is limited at our option to:
 - the replacement of the product; or
 - the supply of an equivalent product; or
 - the repair of the product.

If you do not accept the above conditions, return this product (in the original packaging) with proof of purchase for a full refund.

FEATURE OVERVIEW

Overview

The KA-1100 is a dual-mono Class D audio power amplifier with digital signal processing including fault and clipping protection. The KA-1100 comes pre-configured with custom DSP modes optimised to drive Krix passive subwoofers.

It features include low pass filters, high pass filters, soft limiting, signal phase inversion, signal sensing, trigger input, single input mode and limiting mode selection, over-current and over-temperature protection.

Signal processor

The KA-1100 incorporates a custom 24-bit signal processor board designed and developed by Krix to maximise the performance from your Krix subwoofer. It includes three user selectable modes that optimise high pass filter and limiter settings to suit Krix MX-5, MX-10, Cyclonix 11 and Cyclonix 12 subwoofers.

Limiter settings are specifically tailored to accurately amplify the input signal to full power without compression or loss of dynamics. If an input signal is applied beyond the subwoofer maximum capacity, soft limiting will minimise distortion and protect the loudspeaker drivers from damage. The KA-1100 features limit LEDs for each channel to indicate when the output is being limited, protecting the subwoofer.

ICEpower® amplification

The KA-1100 is based on a Class D amplifier module from ICE power®.

These amplifiers are a high efficiency design and therefore generate far less heat than conventional Class AB amplifiers. As such, fan cooling is not needed, minimising power consumption and making it completely silent when in operation.

A high-current, switch-mode power supply ensures full power can be delivered for sustained periods, producing maximum dynamics and impact from your subwoofers.

Protective front facia

The KA-1100 is supplied with a brushed aluminium front facia with magnetic attachment system. Installing the facia after a system is calibrated protects the controls and dials, while also providing a neat and clean appearance to your amplifier (figure 1).

Rack ears

Rack ears are included with the KA-1100 for rack installations (figure 1).

Balanced and unbalanced inputs

Two balanced XLR and two unbalanced RCA inputs ensure the KA-1100 can be connected to any receiver or processor. For sources with only a single subwoofer output the KA-1100 includes a single input function that allows a single input signal to be passed to both outputs.

Signal sensing or 12V trigger input

By default the KA-1100 will operate in signal sense mode and power on when an audio signal is detected. Alternately the 12V trigger input can be used to allow the amplifier to be switched on and off by external equipment.

Queries

If you have any queries regarding the KA-1100 setup procedure or any other Krix product, please contact your nearest Krix retailer.

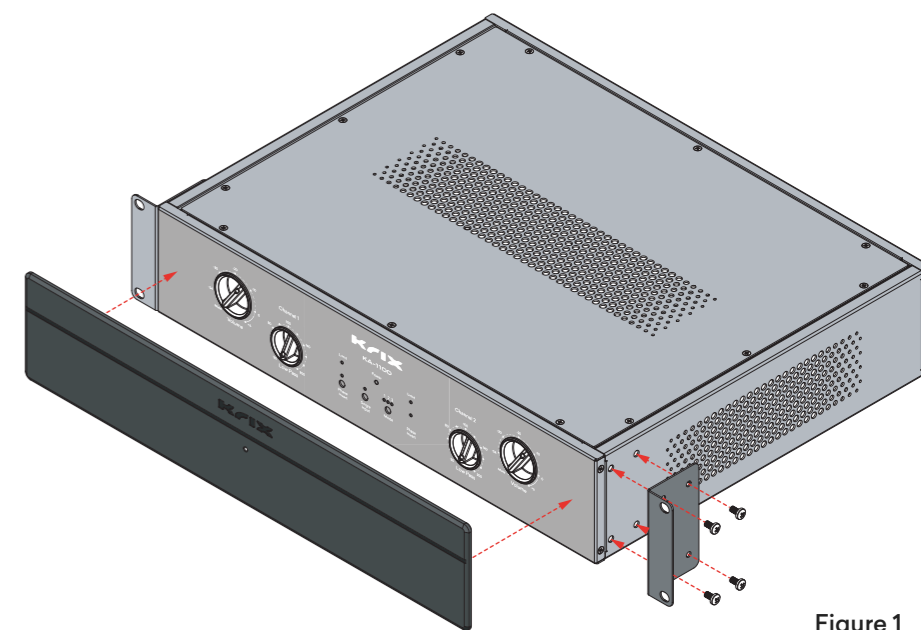


Figure 1

CONNECTION AND CALIBRATION

Connection and power on

⚠ Ensure the mains power switch is off and connect the mains power cord.

Connect the subwoofer(s) to the amplifier using speaker cable. Prepare the speaker cables by neatly stripping cable ends. Care should be taken to eliminate loose strands of wire that may present a short circuit hazard. Take care to assign the same cable colour or trace from the positive (+) connector on the amplifier to the positive (+) connector on the subwoofer (figure 2).

Connect the subwoofer pre-outs 1 and 2 on your AV receiver/processor to the respective inputs 1 and 2 on your KA-1100 subwoofer amplifier (figure 2). Most AV receivers support RCA (unbalanced) connections. Some AV processors support XLR (balanced) connections (figure 3). If your AV receiver has only one subwoofer pre-out, connect to input 1 (figure 3 single input).

Switch the mains power on. By default when a signal is sensed, the KA-1100 will automatically activate. The unit will revert to standby after 15 minutes of signal inactivity. Alternately, the switching from standby to active can be controlled by the 3.5mm trigger input (figure 6, and refer Trigger in, page 6)

Initial settings

Set volume to -10dB, default setting (figure 4)

Set subwoofer **low pass** to 200Hz (maximum setting) on both channels (figure 4). Use your AV receiver/processor's bass management controls to configure the desired crossover/low pass frequency, i.e. 80Hz.

Check **phase invert** light on both channels is off, this is the 0° or default phase setting. (figure 4).

If both inputs are connected check that the **single input** light is off (default).

OR If only one input is connected, activate the **single input** mode to output audio to both channels. (refer E. single input page 5).

Select **mode 1** for MX-5 subwoofers or Cyclonix 11 (figure 4).

OR Select **mode 2** for MX-10 subwoofers or Cyclonix 12.

⚠ **Incorrect mode setting may result in overdriving and damage of your speakers**

(For further details on mode settings, refer to page 5)

Calibration

Proceed to your AV receiver/processor's guided setup procedure. During this process you may be required to turn the volume of each channel up from -10dB (default) to obtain sufficient level from your subwoofers.

TIP To confirm two connected subwoofers are outputting audio correctly, you may wish to do some testing while playing pink noise or music. Turn the volume of channel 1 to mute (min) and back again, followed by channel 2 to mute (min) and back again. This will help ascertain both channels are connected and delivering sound correctly.

After running the AV receiver/processor's guided setup procedure, adjusting subwoofer level manually is often required to suit the listener preferences. It is recommended to adjust the subwoofer levels within the receiver/processor menus rather than using the KA-1100 amplifier front controls. Boosting or cutting the subwoofer level by up to 9dB is not uncommon to achieve the desired result. Adjusting lowpass settings in your AV receiver/processor may also be beneficial to control the bass frequency range sent to your KA-1100 amplifier and connected subwoofers.

When setup is complete, fit the magnetic front panel fascia to the KA-1100 (page 2, figure 1).

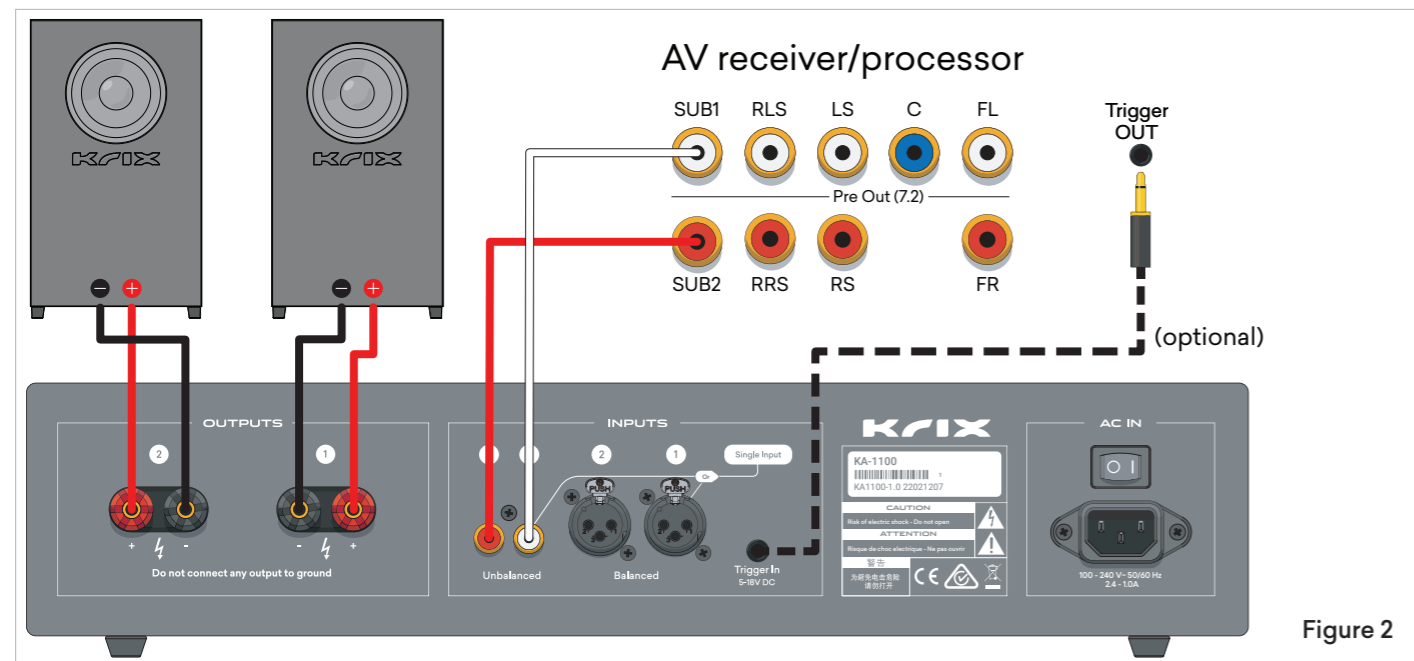


Figure 2

CONNECTION AND CALIBRATION

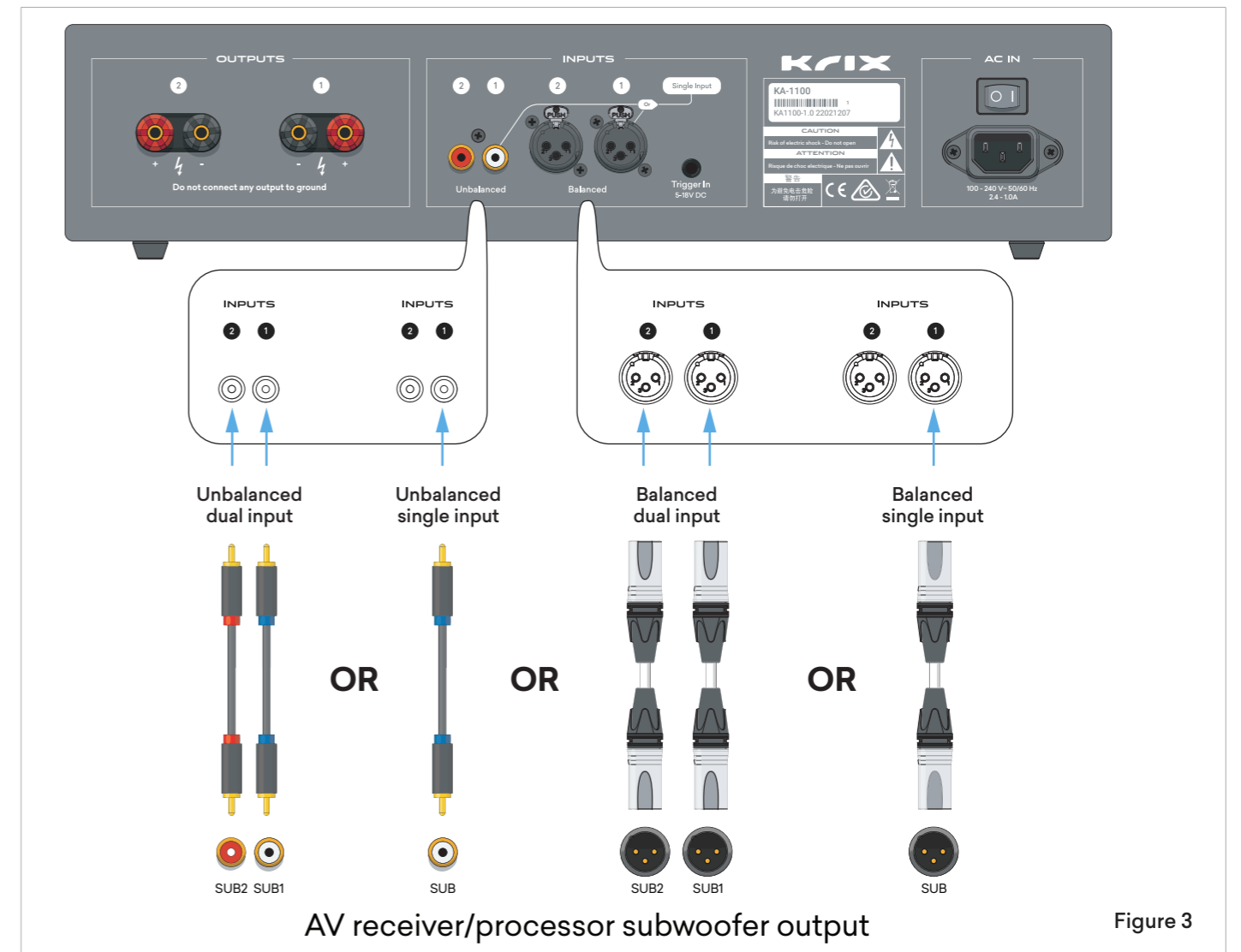


Figure 3

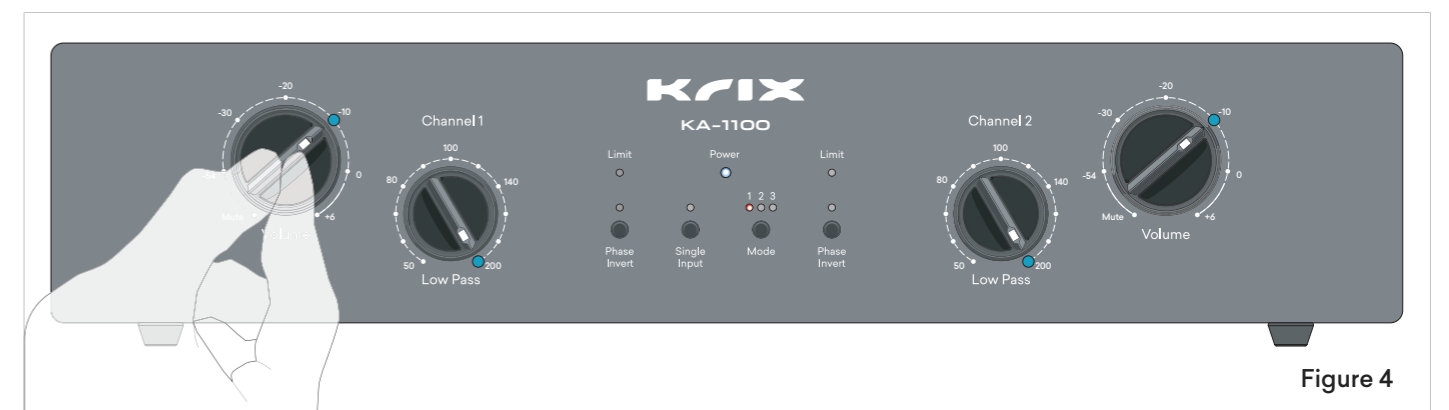


Figure 4

CONTROLS AND FEATURES

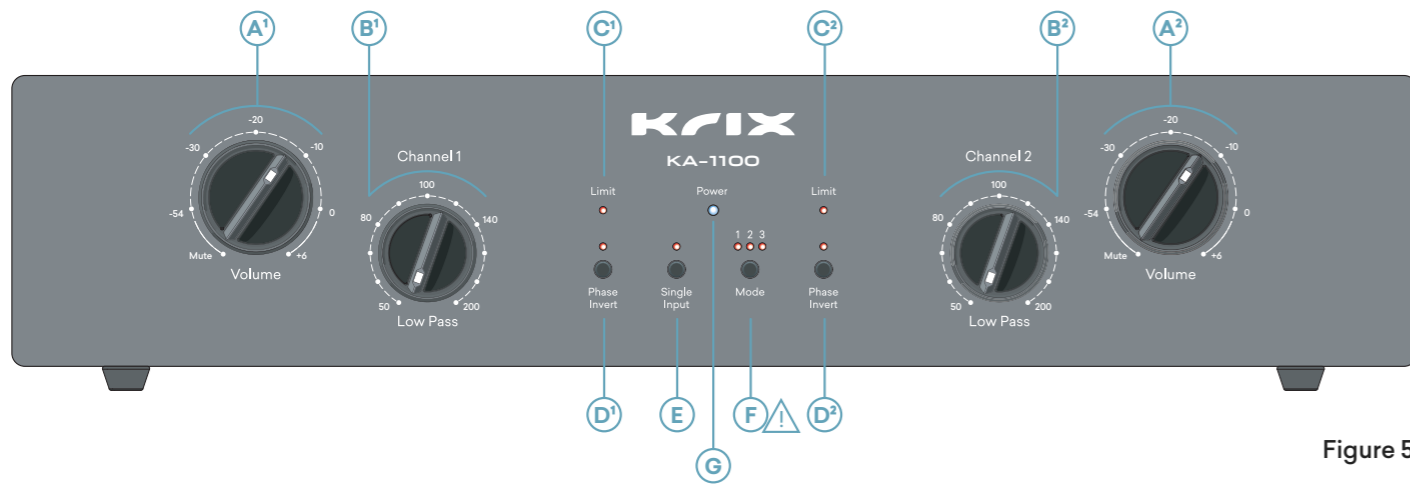


Figure 5

A. Volume or gain control with a range of mute to +6dB, default position is -10dB. Channels 1 and 2 are independently adjustable so that the level of both channels be matched identically or individually trimmed. The volume controls adjust in 2dB increments between -30 and 0dB. For fine tuning, it is recommended that you adjust your subwoofer level using your processor gain adjustment.

B. Low pass filter control has a range of 50 to 200Hz. By default the lowpass should be set to 200Hz to allow all low frequencies below 200Hz to be reproduced by the subwoofer(s). Then use the receiver's bass management controls to select the desired crossover frequency of the subwoofer(s).

C. Limit LEDs have a dual function to indicate output limiting and also input clipping. When the output limiters are working, the limit LEDs will flash (the amount of time that the LEDs stay illuminated is directly related to how much the limiter is working). Some limiting may be considered normal during standard operation, this means that the amplifier is protecting your subwoofers from damaging power levels. If the LEDs stay on for long periods of time you should reduce the volume.

If both limit lights flash in a distinctive alternating strobe pattern, the input signal to your subwoofer is too high. Refer to Troubleshooting on page 7 for details.

D. Phase invert buttons for each channel. When active, this will invert the signal phase by 180°. This should only be used if there are polarity issues with your speakers or room calibration issues. By default the phase invert should be off.

E. Single input mode is useful when you have a mono signal on channel 1 that needs to be sent to both channel outputs, such as a single subwoofer output from your receiver that needs to be routed to two subwoofers eg. Krix MX-5 and MX-10 systems (see figure 3 single input, page 4). When single input mode is active you must use input 1 only (input 2 is unused). Both volume and low pass controls remain independent for each output in single input mode.

F. Mode button will cycle through 3 different modes, the LED will indicate the current active mode. Use the table below to select the correct mode for your product.

WARNING To avoid damage to your subwoofer, ensure the correct mode is used. Selecting the incorrect mode can result in over driving and overheating of your subwoofers leading to permanent damage

G. Power LED has three normal states:

Red - Standby

Blue - On

Purple - Powering off

The unit may take up to 30 seconds to power off after the unit is switched off or mains power is lost. If the power LED is flashing, see Troubleshooting on page 7 for details.

Mode	Product	Description
1	MX-5, Cyclonix 11	Limits the output to 300W @ 4 Ohms with fixed high pass filters and variable low pass filters
2	MX-10, Cyclonix 12	Limits the output to 500W @ 4 Ohms with fixed high pass filters and variable low pass filters
3	General subwoofer use	Limits the output to 700W @ 4 Ohms with fixed high pass filters, low pass filters are bypassed (full range mode)

CONTROLS AND FEATURES

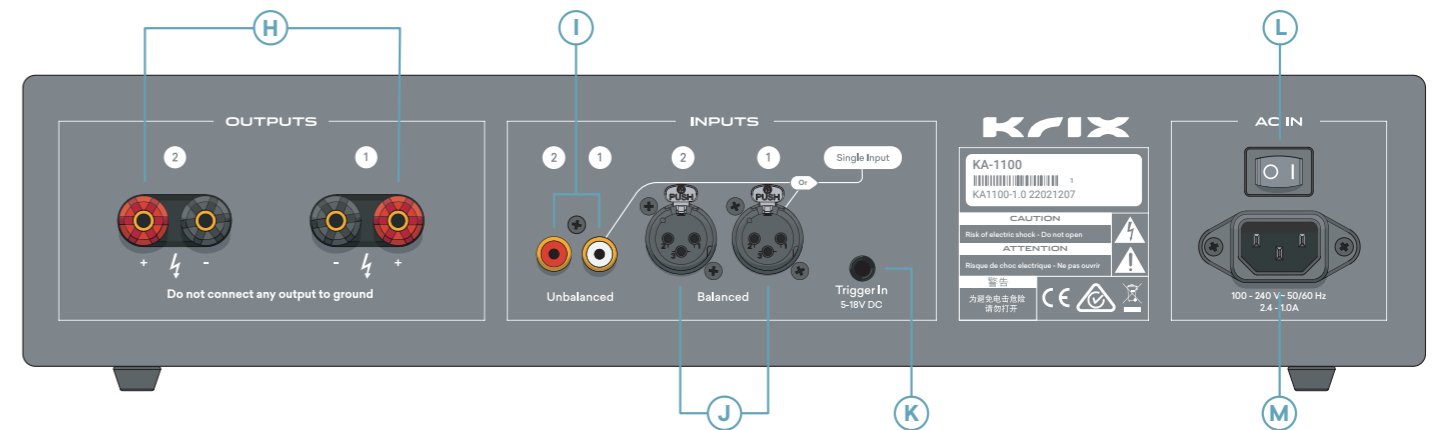


Figure 6

H. Output terminals for connecting to subwoofer. Connect the positive (red) to positive, and negative (black) to negative on your subwoofers (see figure 2 on page 3).

WARNING The speaker outputs are "dual hot" i.e. there is signal on both positive and negative terminals. This means that internally, the outputs are already in a "bridged" or BTL configuration and therefore the outputs cannot be bridged again. As the negative terminal is not connected to ground, please take care that positive or negative output terminals are not connected to chassis ground or earth.

I. Unbalanced RCA inputs, the most common connector type supported by AV receivers.

J. Balanced XLR inputs, found on high end AV receivers and processors. The balanced inputs are attenuated by -6dB in relation to the unbalanced inputs. **Please note:** balanced and unbalanced inputs should not be used concurrently. You should remove the balanced connector if using unbalanced inputs and vice versa.

K. Trigger in is via a 3.5mm jack. The jack and cable can be either mono or stereo. It is a DC logic signal and can accept any DC voltage in the range 5 - 18V. When the jack is inserted with no trigger voltage (trigger off) the unit will disable signal sensing and immediately enter standby and the power

LED will be red. When a trigger voltage is applied (trigger on), the amplifier will activate and the power LED will turn blue. When using the trigger in the unit switches off extra circuitry reducing the standby power consumption to the lowest level.

L. AC in mains power switch completely powers down the unit. You may wish to turn off your KA-1100 amplifier if the amplifier is not intended to be used for an extended period.

M. AC in IEC socket connect the IEC lead to AC input socket on the rear panel. The KA-1100 is universally compatible with all power sources within the range 100-240V 50/60Hz

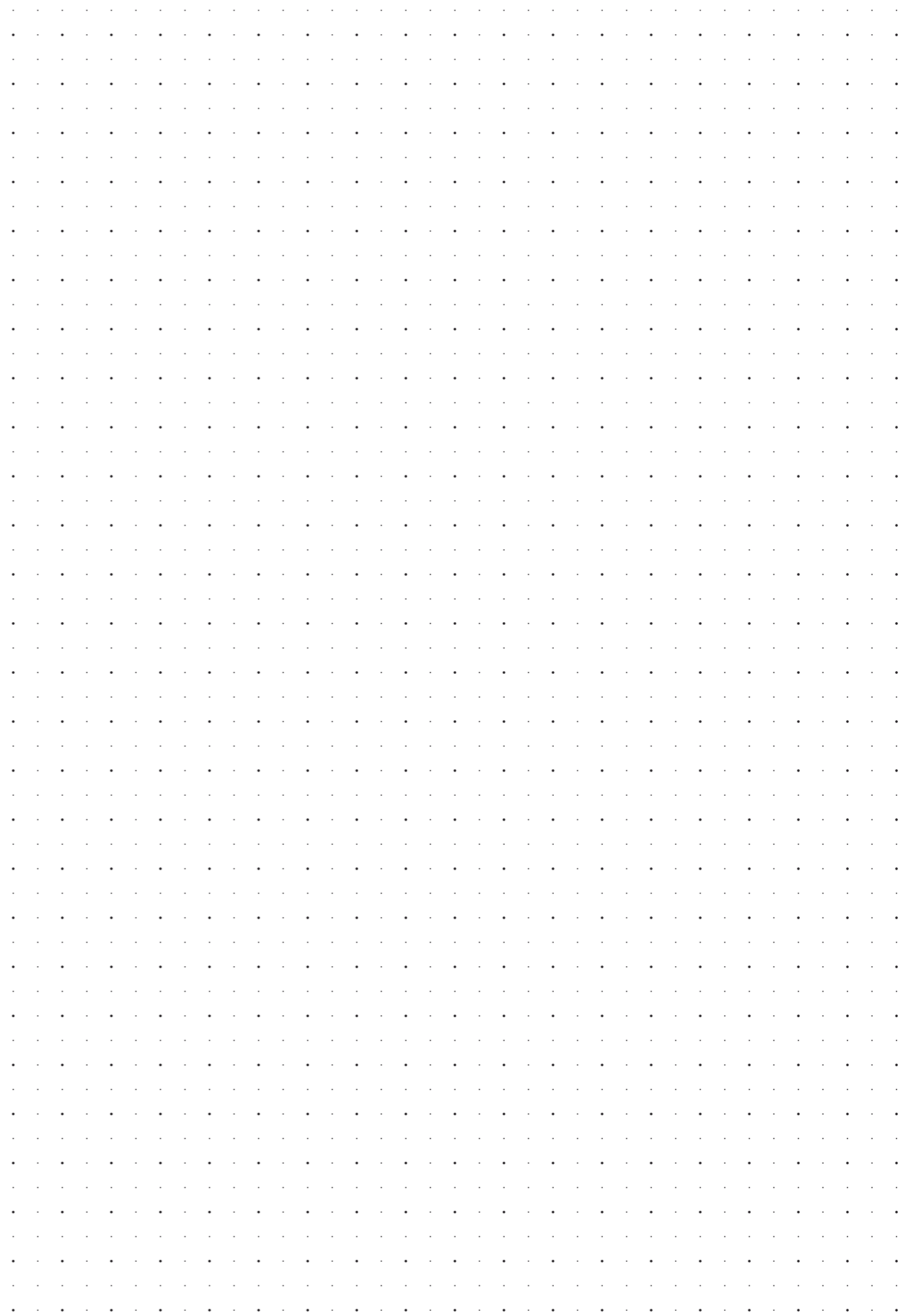
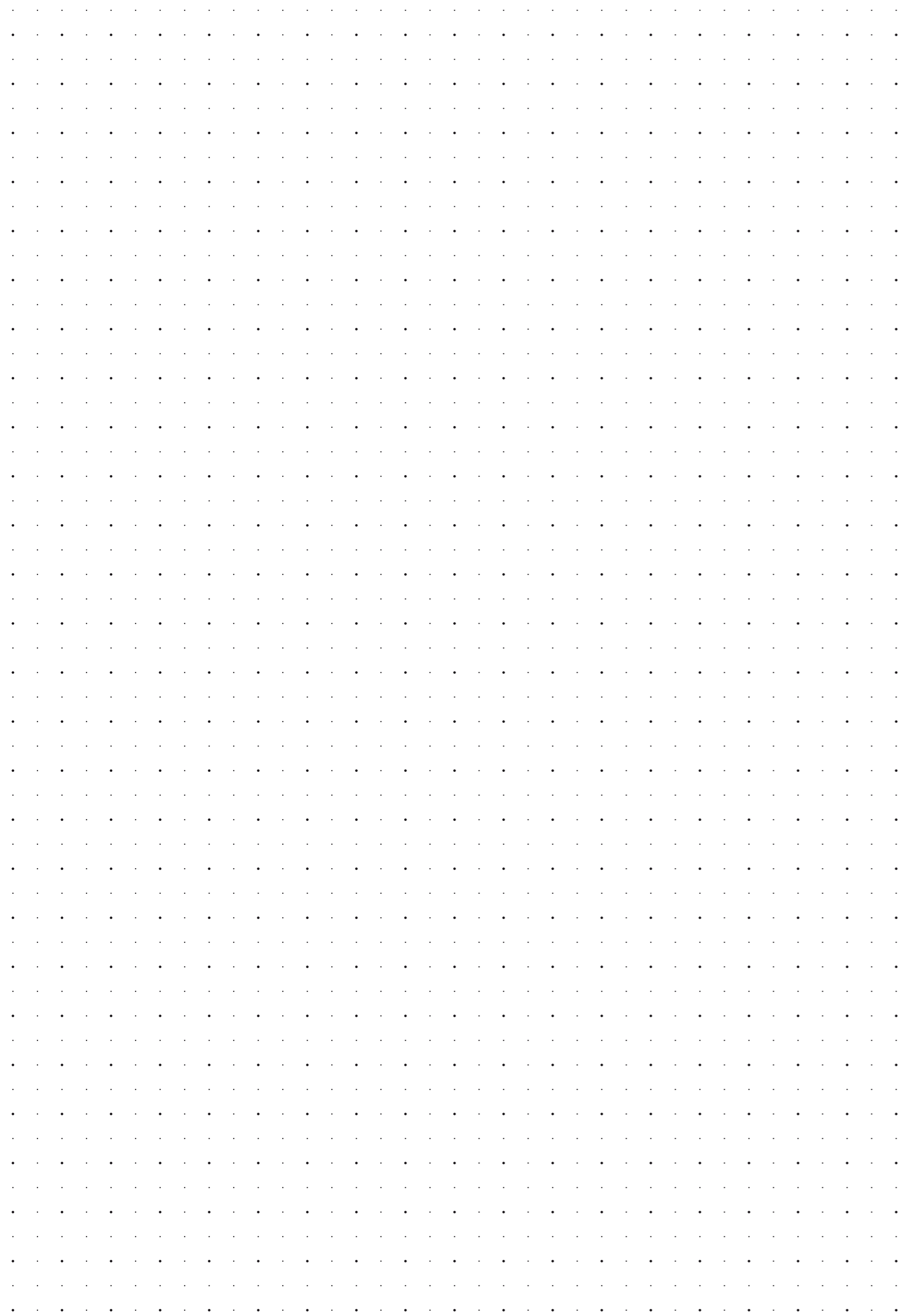
TROUBLE SHOOTING

Symptom	Cause	Treatment
Power LED flashing purple/red and the amplifier is disabled.	If the internal temperature at the PCB level should exceed 140°C, the KA-1100 will automatically shutdown until the unit cools down. The power LED will flash purple/red and the amplifier will be disabled until the LED stops flashing and the unit returns to normal operation.	Make sure the amplifier ventilation holes are not being obstructed. If problem persists, please contact Krix.
Power LED flashing purple/blue.	If the output current exceeds the maximum peak current of 30A, the KA-1100 will automatically shutdown briefly. The power LED will flash purple/blue until the fault has cleared.	Check your speaker cabling is not short circuiting the outputs. Additionally there may be a problem with your speakers short circuiting or presenting a very low impedance load.
Power LED will flash red/blue and amplifier turning itself on and off in 10 - 20 second intervals.	In the event of a short circuit at the speaker outputs, this will most likely trigger both protection modes and the power LED will flash red/blue. If the short circuit persists, the unit will switch on and off in 10 - 20 second intervals.	Immediately switch off the unit at the mains and check your wiring to remove the short circuit. If problem persists, please contact Krix.
Both limit leds flashing in an alternating strobing pattern.	Input signal is too high and is clipping the input to the signal processor of the KA-1100.	Turn down level on your receiver/processor (eg 6dB) and then turn up level on your KA-1100 amplifier (eg +6dB). This will produce the same output from your KA-1100 but avoid overpowering/clipping the input to the signal processor. If issue persists choose a lower listening level.
KA-1100 will not turn on.	Issue with the mains power source. Faulty KA-1100 unit.	Check your mains power source using another device. If problem persists please contact Krix.
No audio from the KA-1100.	Incorrect wiring. No audio from your audio source/receiver. Faulty KA-1100 unit.	Checking unit is wired correctly. Refer to connection and calibration on page 3. Refer to your receivers manual to determine subwoofer is set to on/active during movies and stereo listening. If problem persists please contact Krix.

SPECIFICATIONS

KA-1100

Product revision	1
Input power	
Mains input voltage	100 - 240V AC~ 50/60Hz
Mains input current	2.4 - 1.0A @ 1/8 output RMS power
Mains input power	150W @ 1/8 output RMS power
Idle power consumption (amplifier active no signal)	less than 30W
Idle power consumption (signal sense mode)	less than 15W
Standby power (trigger mode)	less than 0.5W
Output power	
Rated maximum	700W RMS per channel one channel driven @ 4 Ohms, 1% THD 550W RMS per channel both channels driven @ 4 Ohms, 1% THD
Mode 1 limit	300W RMS per channel @ 4Ohms
Mode 2 limit	500W RMS per channel @ 4Ohms
Mode 3 limit	700W RMS per channel @ 4Ohms
Maximum peak current (before shutdown)	30A
Maximum internal operating temperature (before shutdown)	140°C
Maximum working ambient temperature	40°C
Modes filters	
Mode 1, 2	Low pass filter 50 - 200Hz
Mode 3	Low pass filter bypass
All modes	High pass filter optimised for supported Krix subwoofers
Distortion	
THD+N	0.001% - 200W 4Ohms @ 100Hz
Voltage gain	
Gain with volume @ 0dB	32dB
Gain with volume @ +6dB	38dB
Voltage out @ rated maximum	53Vrms
Audio inputs	
Unbalanced	RCA connector
Balanced	XLR connector
	Unbalanced and balanced inputs should not be used simultaneously
Maximum input (unbalanced)	4.5Vrms (6.4V peak)
Maximum input (balanced)	9.0Vrms (12.7V peak)
Input sensitivity (unbalanced)	1.35Vrms @ 100Hz (0dB volume) for rated maximum output
Input sensitivity (balanced)	2.70Vrms @ 100Hz (0dB volume) for rated maximum output
Trigger input	
Input voltage range	5 - 18V DC



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BRH.O KA1100 01

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Please read these important safety instructions before you plug in this equipment.

Please retain these instructions for future reference.

This equipment is manufactured to a very high standard and it should give you many years of reliable service. To minimise the chance of any problems with this equipment, take note of the following:



This appliance is a Class I chassis earthed device. The external metal case is connected to the mains earth pin.

This equipment uses electricity at very high voltages. To avoid injury to persons, fire or damage to the unit:

- Do not expose to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the unit.
- Clean the unit with a dry cloth only – do not use solvents. Unplug the unit before cleaning.
- Only use with a power source that adheres to the mains voltage specified.
- Make sure the power cable is protected and remains free from defects.
- Never disconnect the ground prong on the mains plug.
- Ensure the plug or appliance connector remains accessible at all times.
- When removing the power plug from the power source, do not pull on the cord.
- Do not open the unit. Refer any service to qualified service personnel.
- Do not place any object or any part of your body into the unit.

This unit may get hot when it is being used. To avoid injury to persons, fire or damage to the unit:

- Do not put the unit near any heating source.
- Keep the unit out of direct sunlight.
- Make sure all ventilation openings remain clear.
- Do not cover unit with blankets or any other materials.
- Do not place unit against curtains or furnishings.

This equipment is delicate. To avoid damage to the unit:

- If it starts to make a distorted or unusual noise, turn the volume down.
- If problems persist, turn the unit off and have it checked by qualified service personnel.
- If you are not going to use the unit for an extended period, unplug it from the wall socket.
- If there is a storm with lightning, unplug it from the wall socket.
- Never force any switches or controls. If they are difficult to operate, have the unit checked by qualified service personnel.

Avoid damage to your hearing. You only have one set of ears!

All sound equipment is capable of damaging your hearing or the hearing of others. Exposing your hearing to high volume levels for extended periods of time will cause permanent hearing damage. Even short periods at extremely high levels will cause permanent hearing damage. Children's hearing is especially sensitive and extra care should be taken when exposing children to high volume levels. Hearing damage is cumulative and it may be too late when you find out that your hearing has been damaged. We recommend that you avoid long periods of exposure at excessive volume levels.