

*Signature Series*

Maximum Resilience Broadcast Audio



*HA6+*

## **Six Stereo Headphone Amplifier**

Six stereo headphone amps with stereo aux input

*User Guide*

### **GlenSound**

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Thank you for choosing a new GlenSound product.

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Information contained in this manual is subject to change without notice, if in doubt please contact us for the latest product information.

If you need any help with the product then we can be contacted at:

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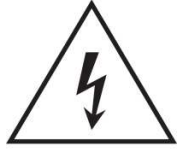
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## IMPORTANT SAFETY INSTRUCTIONS



This symbol is intended to warn that dangerous voltages within the product are present and constitute a risk of electric shock.

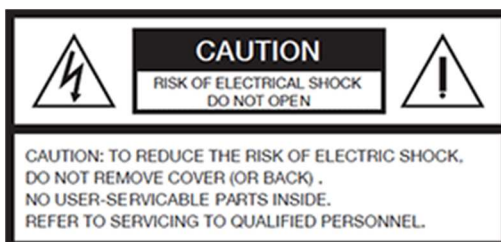


This symbol is intended to highlight that there are important operating & maintenance instructions in the literature accompanying this unit.

- 1) Read these instructions
- 2) Keep these instructions
- 3) Heed all warnings
- 4) Follow all instructions
- 5) Do not use this apparatus near water
- 6) Clean only with a dry cloth
- 7) Do not block any ventilation openings. Install in accordance with manufacturer's instructions
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- 9) Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has 2 blades with one wider than the other. A grounding type plug has 2 blades and third grounding prong. The wider blade or the 3<sup>rd</sup> 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
- 10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus
- 11) Only use attachments/ accessories specified/ supplied by the manufacturer



- 12) 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
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped
- 15) Do not attempt to modify this product. Doing so could result in personal injury and/ or product failure



### **WARNING:**

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



### **IMPORTANT: MAINS PLUG WIRING INSTRUCTIONS**

This Signature unit is supplied with a moulded mains plug fitted to the AC mains lead.

Mains wiring colours/ connections:

The Green/ Yellow or Green wire must be connected to the terminal in the plug marked 'E' or with the Earth Symbol.

The Blue or Black wire must be connected to the terminal in the plug marked 'N' (Neutral).

The Red or Brown wire must be connected to the terminal in the plug marked 'L' (Live).




### **THIS UNIT IS FITTED WITH AN INTERNAL MAINS FUSE.**

The fuse is located internally between the Live terminal of the IEC plug and the Live input of the power supply. The fuse should only be changed by a qualified service engineer. If replacing the fuse care should be taken to fit a correctly rated replacement. The fuse rating can be found in the technical specifications page of this handbook.



### **THIS UNIT MUST BE EARTHED**



This equipment manufactured by GlenSound Electronics Ltd of Brooks Place  
Maidstone Kent ME14 1HE is  marked and conforms to:

Low Voltage Directive: EN60065

Emissions: EN55103.1

Immunity: EN55103.2

## **WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT REGULATIONS 2006 (WEEE)**

GlenSound Electronics Ltd is registered for business to business sales of WEEE in  
the UK our registration number is:

WEE/JJ0074UR

## **RoHS2 DIRECTIVE**

EC directive 2011/65/EU restricts the use of the hazardous substances listed below  
in electrical and electronic equipment.

This product conforms to the above directive and for this purposes, the maximum  
concentration values of the restricted substances by weight in homogenous  
materials are:

Lead	0.1%
Mercury	0.1%
Hexavalent Chromium	0.1%
Polybrominated Biphenyls	0.1%
Polybrominated Diphenyl Ethers	0.1%
Cadmium	0.01%

## **PRODUCT WARRANTY:**

All equipment is fully tested before dispatch and carefully designed to provide you with trouble free use for many years.

We have a policy of supporting products for as long as possible and guarantee to be able to support your product for a minimum of 10 years.

For a period of one year after the goods have been despatched the Company will guarantee the goods against any defect developing after proper use providing such defects arise solely from faulty materials or workmanship and that the Customer shall return the goods to the Company's works or their local dealer.

All non-wear parts are guaranteed for 2 years after despatch and any defect developing after proper use from faulty materials or workmanship will be repaired under this warranty providing the Customer returns the goods to the Company's works or their local dealer.



## **HA6+ Headphone Amplifier**

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Description

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## **OVERVIEW**

The Signature HA6+ is a broadcast specification, six way headphone amplifier, designed to operate in a mono or a stereo mode.

The HA6+ has 2 x XLR inputs that are used as the primary programme audio input, and 2 x XLR inputs that are used for the secondary aux audio input. These can be stereo, or, if a mono input, can be switched to appear on both sides of the headphones. There are left and right primary input gain controls on the rear panel, and they are on recessed screw terminals.

On the front panel there is a source control for each headphone output that allows a mix between the programme and aux input. Full left is programme only, full right is aux only, and anywhere in between is a variable mix.

Each of the six headphone amplifiers has its own volume level pot. There is also a master volume pot that controls the overall level of all amplifiers. This can be defeated via a rear panel dip switch.

Each of the six headphone outputs are available via front panel 6.35mm jack sockets, and in parallel on rear panel XLR connectors.

Rear panel inputs and outputs are electronically balanced on XLRs and can accommodate unbalanced connections if required.

Power is provided by an internal switch mode power supply, with a wide input range. There is also an input for external 12v DC power. The 12v DC input can be connected to the optional Signature PS1 external DC Master Power Station, for situations where a redundant power supply is desirable.

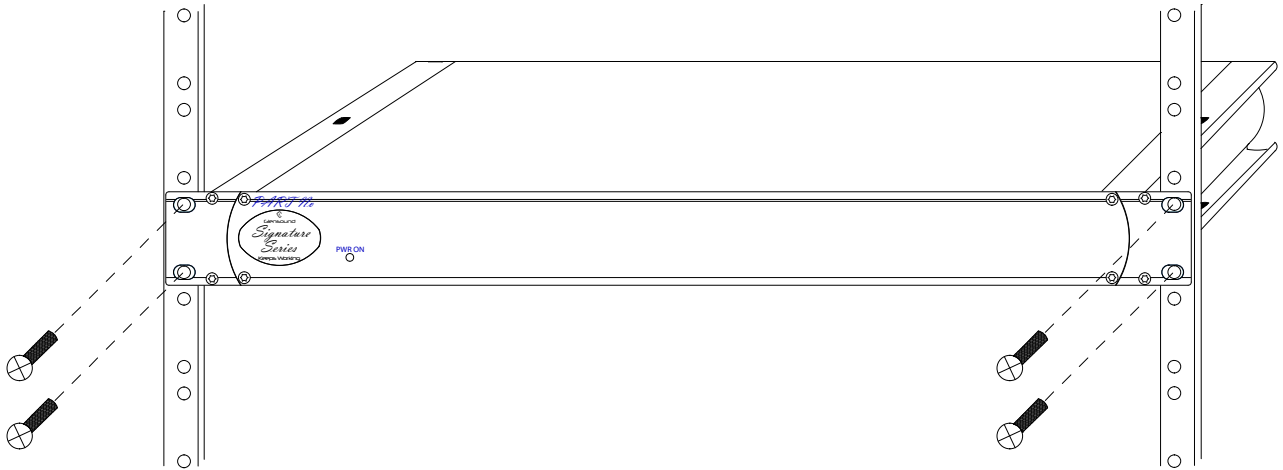
A bright front panel LED indicates that the unit is operational.



## **PHYSICAL INSTALLATION**

The GlenSound Signature Series have been designed to be highly versatile for installation and can be installed in 19" racks with either their front or rear panels facing the front of the rack. They can also be mounted underneath desks or work tops and can be either permanently mounted or stood (using the supplied feet) on top of desks or worktops.

### **INSTALLING SIGNATURE SERIES IN A 19" RACK**



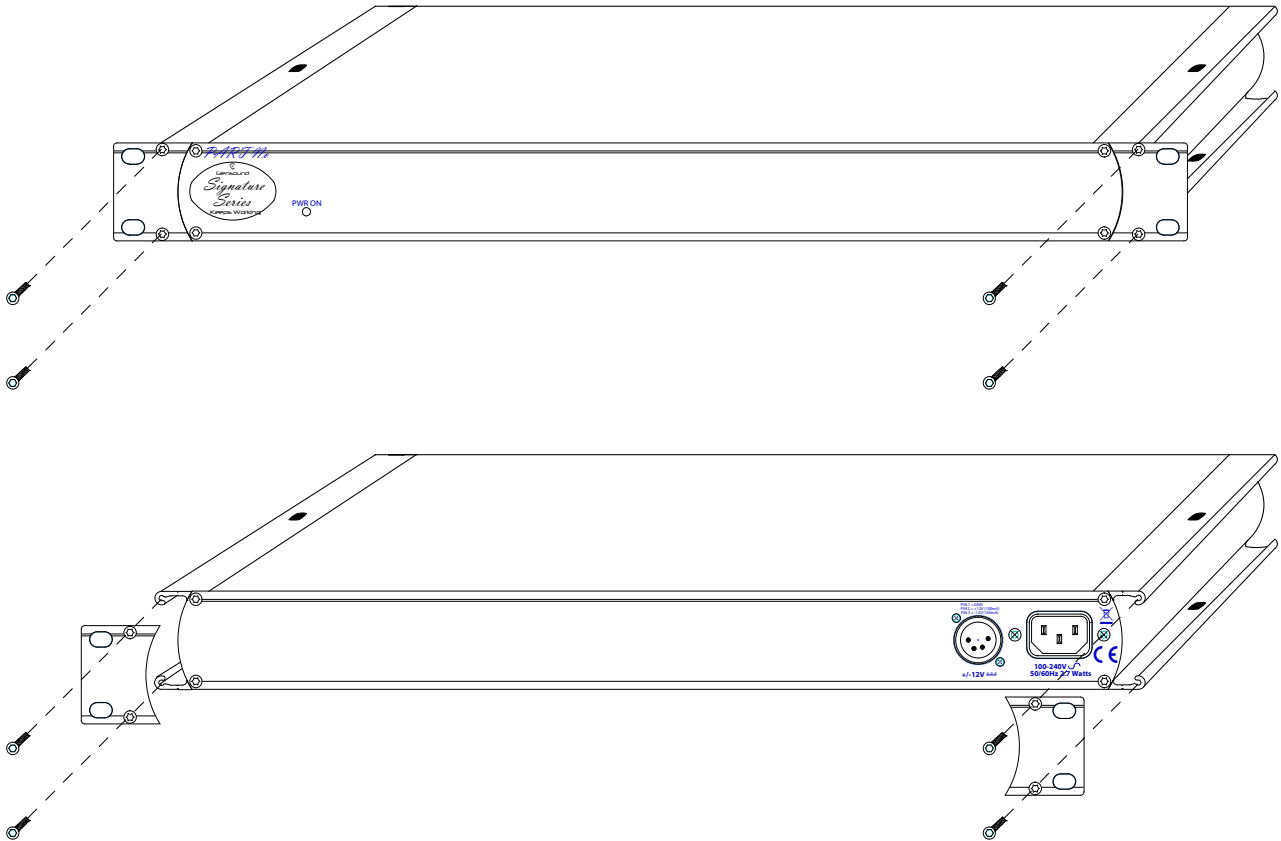
Firmly hold the signature subrack within the 19" rack and locate in 1RU of space. Use the supplied 6mm rack screws to securely attach the unit to the rack.

### **INSTALLING ADHESIVE FEET FOR NON PERMANENT TABLE TOP MOUNTING**



Remove the front rack ears (if they are not required), turn the unit upside down and attach the supplied 4 adhesive feet as per the above drawing.

## **SWAPPING RACK EARS TO ALLOW THE REAR TO BE INSTALLED AT THE FRONT OF A RACK**

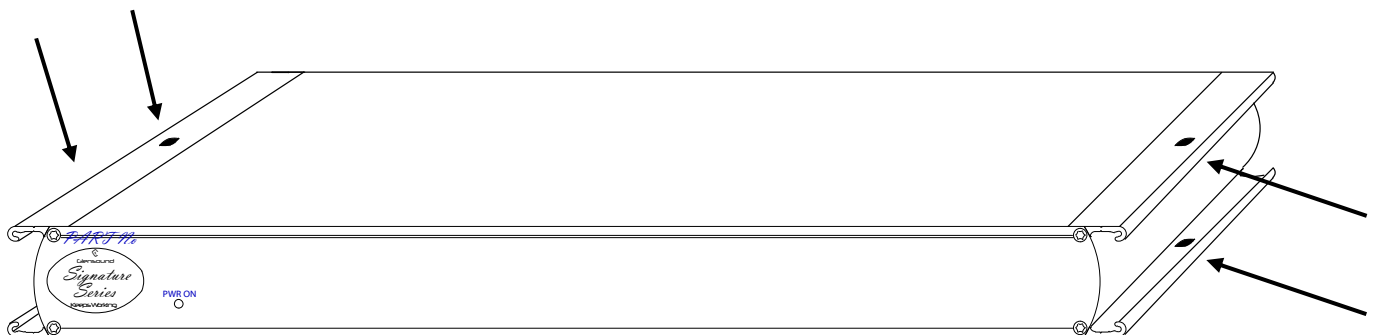


First remove the 4 silver button head screws that fix the rack ears onto the front of the unit as shown in the top picture above.

Remove the rack ears and turn the unit around for access to its back panel.

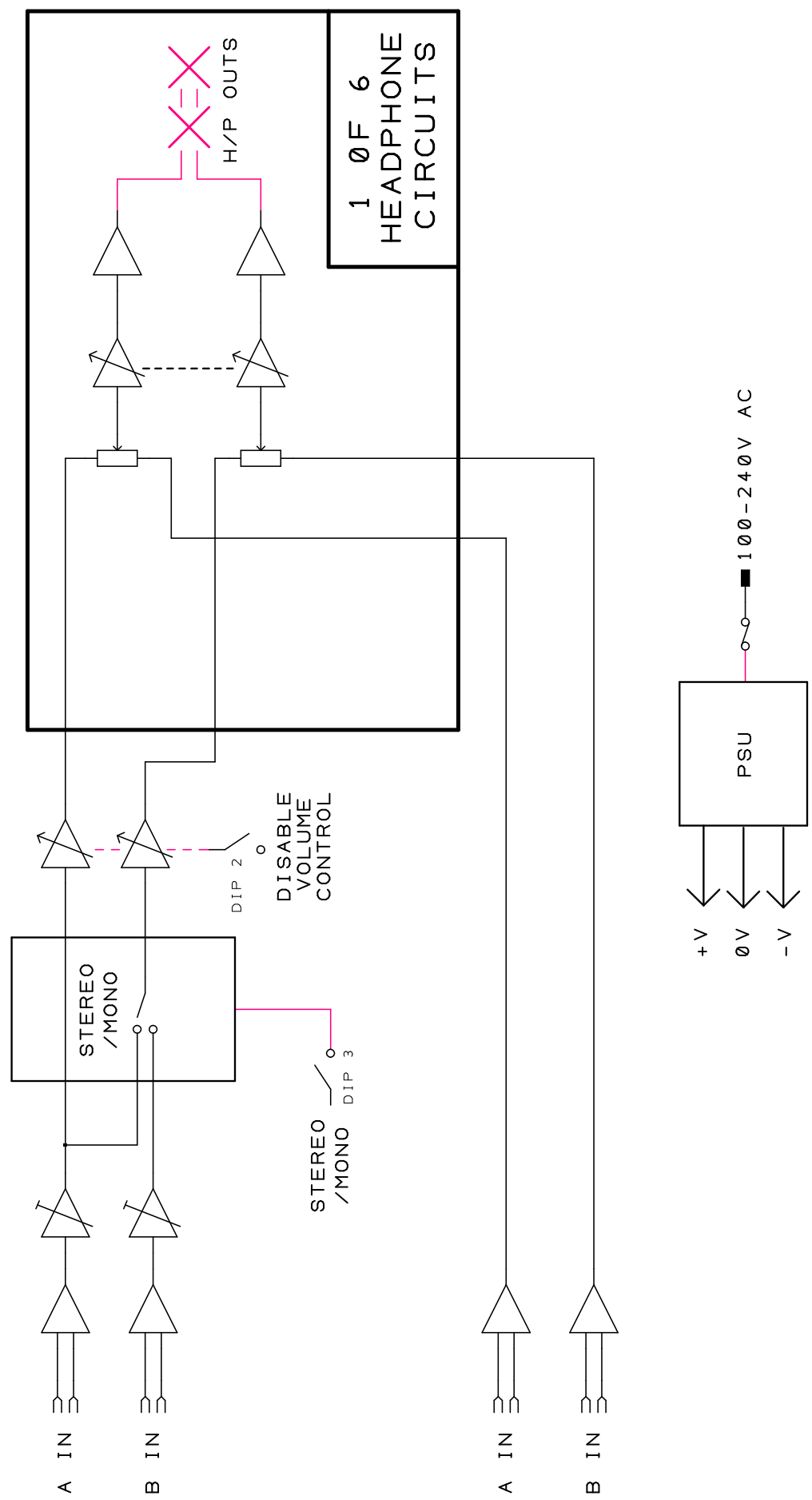
Re-fit the 2 rack ears using the same 4 silver button head screws that were removed from the front as per the bottom picture above.

## **USING THE MOUNTING HOLES FOR PERMANENTLY ATTACHING THE UNIT ABOVE OR BELOW A WORKTOP/ DESK**



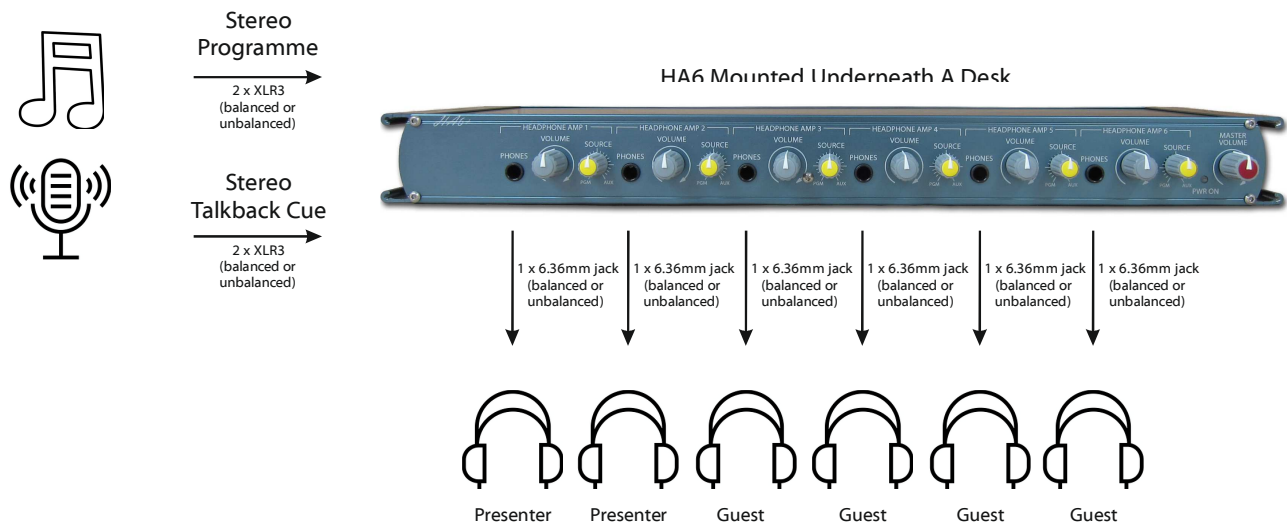
Use either the top or bottom mounting holes as indicated above to use suitable screws to attach the signature unit to a worktop or bench. **\*\*PLEASE ENSURE THAT YOU USE SUITABLE FIXINGS\*\***

**AUDIO BLOCK DIAGRAM**



## EXAMPLES OF USE

### 1. Radio Studio Co-host & Guest Monitoring



Many broadcast mixers do not have as many headphone outputs as required. In this example the HA6+ is being used to provide extra headphone connections to co-presenters and a guests.

The HA6+ is mounted underneath a desk using the flush mounting side wings. This allows the users access to the level controls and front panel connections.

The main stereo programme comes from the broadcast mixer and connects into the HA6+ via 2 x XLR connections.

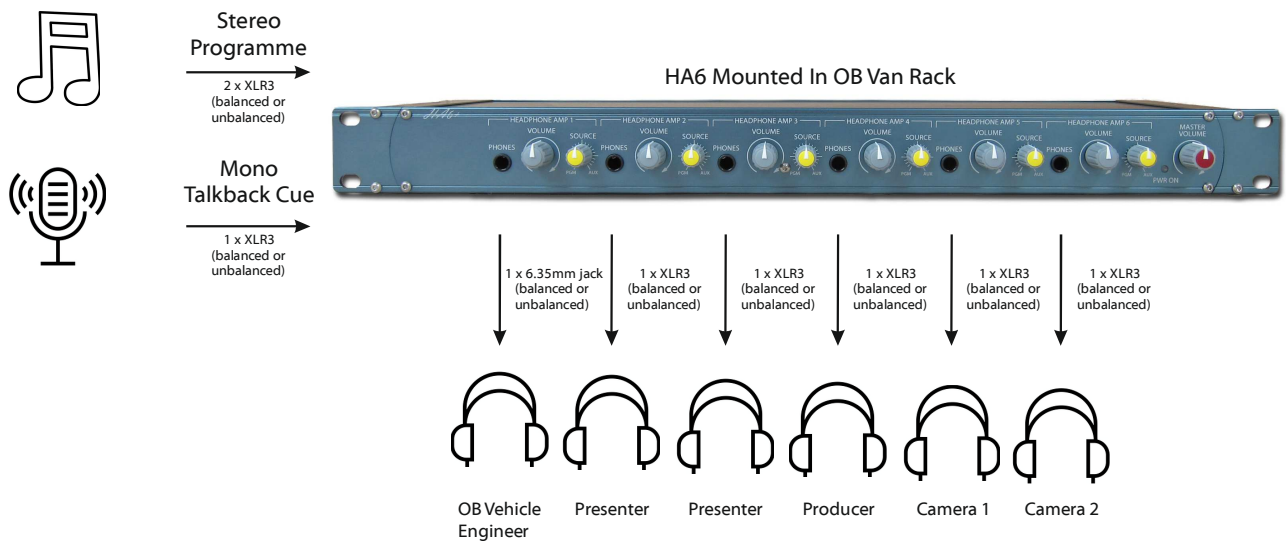
The stereo talkback cue feed from the broadcast mixer connects into the HA6+ via 2 x XLR connections.

All of the HA6+ users are in the main studio on a guests table. They connect their headphones into the front of the HA6+ and have separate level controls so they can now monitor the programme audio.

As the presenters are part of the radio station, they will also want to have access to the secondary talkback cue input so they can hear comments from an engineer or desk operator in the control room. They can adjust their rotary source control on the front panel so they can also hear this talkback cue.

The guests would have their headphone mix control turned full left, so that they would only hear the stereo programme audio.

## 2. Outside Broadcast Vehicle Headphone Monitoring



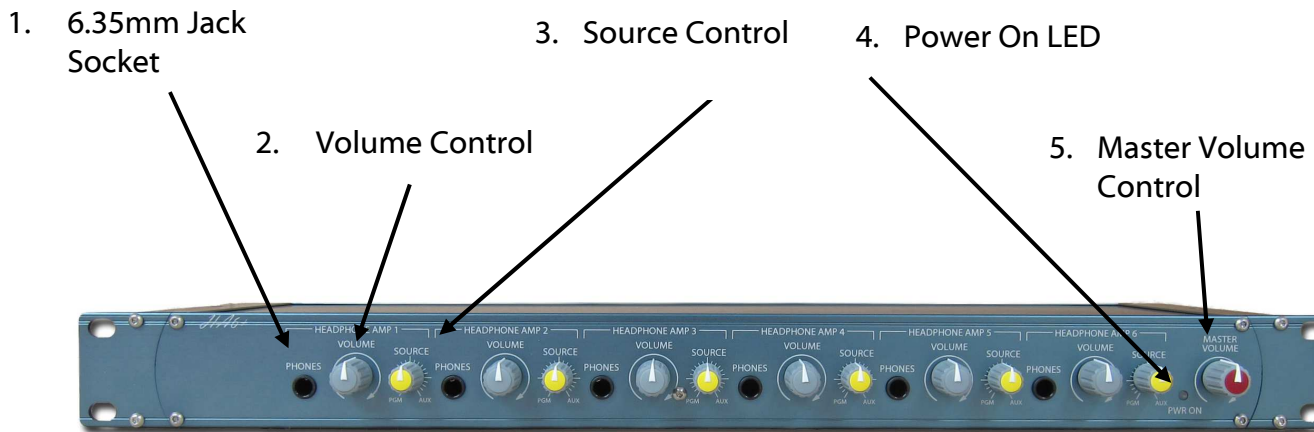
A small outside broadcast vehicle will often have to provide headphone monitoring for several different types of users.

In this example, the HA6+ is in the OB vehicle. The local engineer can plug in to the front of the HA6+. He can also provide headphone monitoring for 2 presenters, a producer, and 2 cameramen.

The engineer and the cameramen can set their source controls so that they mostly hear the talkback cue audio, with just a low level of the programme audio in the background for confidence.

The presenters have mostly the programme audio, with just a low level of talkback audio, and the producer can have a balanced mix between the programme and talkback audio.

## **FRONT PANEL USER CONTROLS & CONNECTIONS**



### **NOTE:**

As there are 6 identical sets of controls for the 6 headphone amplifiers only 1 set of the controls are described below.

### **1. 6.35mm Jack Socket**

This is the output of the headphone amplifier presented on a standard 6.35mm (1/4") TRS (tip Ring Sleeve) jack socket. It is in parallel with the rear panel XLR output. Although the HA6+ is a stereo headphone amplifier mono earpieces/ single ear headphones with mono jacks can safely be used.

### **2. Volume Control**

This rotary potentiometer adjusts the overall audio level (volume) to the connected headphones of the associated channel. Turning it clockwise increases the level and anti-clockwise decreases the level.

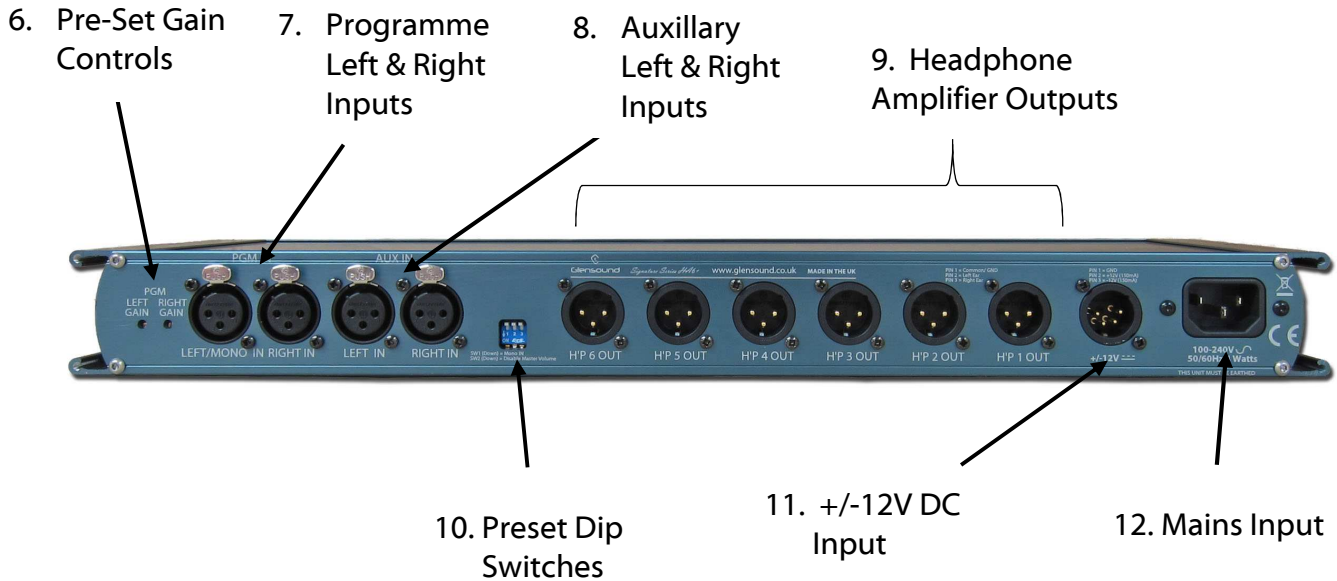
### **4. Power On LED**

This bright blue LED indicates that power is present and the HA2+ is functioning

### **5. Master Volume Control**

The master volume control adjusts the output levels of all the headphone amplifiers. A rear panel dip switch can disable this control for installations where it is deemed unnecessary.

## **REAR PANEL CONNECTIONS**



### **6. Pre-Set Gain Controls**

These pre-set multi-turn potentiometers adjust the input level of the programme input. 1 control adjusts the left input level and the other the right input level. They provide both gain and loss to the incoming level and can be used to boost a low level input (such as a domestic unbalanced) and reduce a high input.

### **7. Stereo Programme Audio Inputs**

These standard 3 pin XLRs provide electronically balanced stereo line level audio inputs to the headphone amps left & right audio channels. They can be wired unbalanced if required.

If the preset dip switch has been set to 'mono', then the left input will be sent to both the left and right channels of the headphone amplifiers and the right input will not be used.

### **8. Stereo Auxillary Audio Inputs**

These standard 3 pin XLRs provide electronically balanced stereo line level audio inputs to the headphone amps left & right audio channels. They can be wired unbalanced if required.

### **9. Headphone Amplifier Outputs**

These 6 off 3 pin male XLR are stereo headphone outputs of the 6 headphone amplifiers. Each output is in parallel with the front panel 6.35mm jack.

## **10. Preset DIP Switches**

Only 2 of these 3 dip switches are used. When looking from the rear the left hand switch (the one closest to the input XLRs) sets the audio input between mono and stereo, whereby if the switch is in the up position the HA6+ accepts a stereo audio input and if the switch is in the down position it accepts a mono audio input.

The middle switch enables/ disables the front panel master volume control. Whereby if the middle switch is in the up position the master volume control works and adjusting it adjusts the output levels of all the headphone amplifiers, and if the middle switch is in the down position then the front panel master volume control can still be turned but has no effect on the output level of the headphone amplifiers.

## **11. +/-12VDC Input**

This DC input can be used to power the HA6+ from an external DC source (such as the Signature PS1). If both a DC input and a Mains input are present then the 2 power sources will provide redundancy and if one fails the other will automatically take over.

## **12. Mains Input**

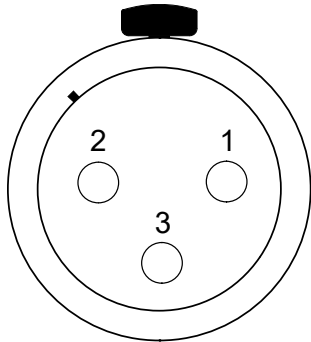
This wide voltage range mains input (100 – 240 VAC) can be used to power the HA6+. If both a Mains & DC input are present then the 2 power sources will provide redundancy and if one fails the other will automatically take over.





## WIRING INFORMATION

### 1. Standard wiring info



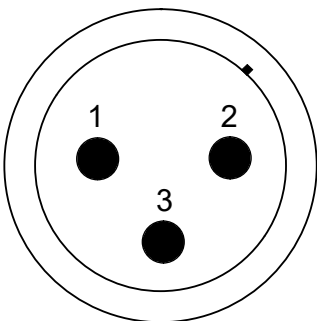
XLR SOCKET (FEMALE)

### STANDARD XLR AUDIO PINOUTS:

**1: Ground/ Earth**

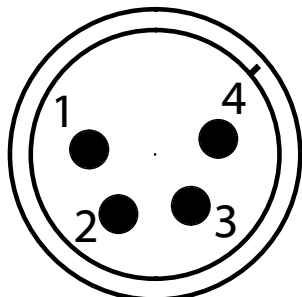
**2: INPHASE/ POSITIVE/ MIC +**

**3: MATE/ NEGATIVE/ MIC -**



XLR PLUG (MALE)

### EXTERNAL DC INPUT:



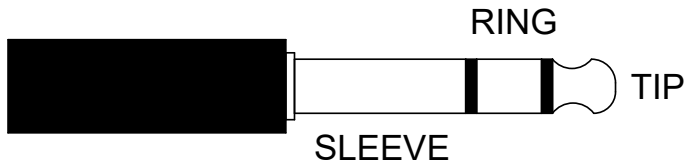
4 PIN XLR PLUG (MALE)

**PIN 1: GND**

**PIN 2: +12V**

**PIN 3: -12V**

## STANDARD HEADPHONE WIRING:



**TIP: A/ LEFT Ear**

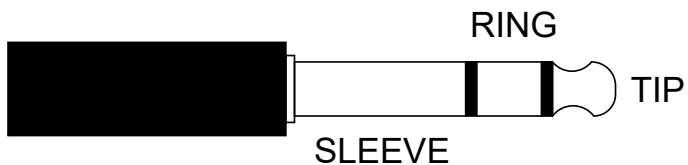
**RING: B/ RIGHT Ear**

**SLEEVE: Common/ Earth**

### HEADPHONE WIRING NOTE:

The *Signature Series* range of products feature sophisticated headphone amplifiers whose stereo outputs can be connected directly to mono headphone jacks without damaging the headphone internal amplifiers.

## BALANCED CUE INPUT WIRING:



**TIP: In Phase**

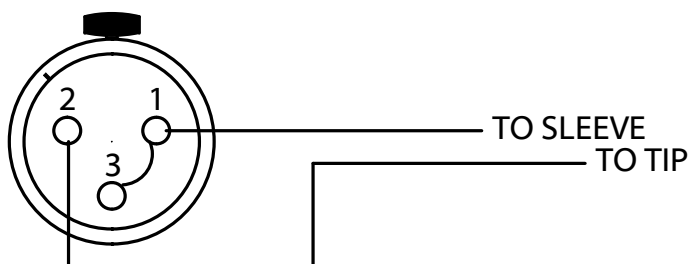
**RING: Mate**

**SLEEVE: Common/ Earth**

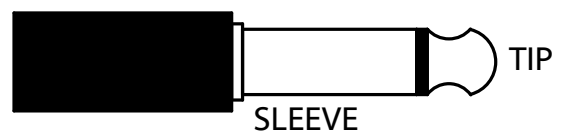
## 2. Connecting to unbalanced devices

The input & output circuits of the *Signature Series* can be connected to unbalanced (domestic style) devices. The wiring diagrams below show a mono jack plug as the unbalanced end of the cable but this of course could easily be a different type of connector such as an RCA Phono or 'D' type connector.

### BALANCED INPUT ON SIGNATURE UNIT



### UNBALANCED OUTPUT OF EXTERNAL DEVICE





## SPECIFICATION

### AUDIO INPUTS

#### Maximum Input Level

+24dBu

#### Input Impedance

30k ohm

#### Programme Input Type

Sophisticated electronically balanced  
(can be wired unbalanced)

#### Programme Input Circuit

Stereo or mono (via rear panel switch)

#### Programme Input Connectors

2 x Neutrik 3 pin XLR sockets

#### Cue Input Type

Sophisticated electronically balanced  
(can be wired unbalanced)

#### Cue Input Circuit

Stereo

#### Cue Input Connectors

2 x Neutrik 3 pin XLR sockets

#### Coarse Gain Range

20 dB on programme input only

#### Front Panel Volume Pots Gain Range

75dB (-65dB to +10dB)

#### Front Panel Source Control Range

70dB (-70dB to 0dBu)

### HEADPHONE OUTPUTS

#### Output Type

Sophisticated electronically balanced. They can accept mono or stereo jacks, with automatic level correction for low or high impedance headphones

#### Output Connectors

Front panel Neutrik A-gauge TRS 6.35mm (1/4") jack socket in parallel with rear panel Neutrik 3 pin XLR plug

#### Frequency Response

-2.0dB 20Hz, -0.5dB 20kHz

#### Maximum Output Level

+19dBu/67.07mW into 600 ohms and  
+8dBu/6.2mW into 32 ohms

#### Distortion

<0.02% THD @ 100Hz & 0.005% @ 10kHz  
Reference to +8dBu output

#### Noise

>-82.3dB @ line up unweighted  
RMS (22Hz to 22kHz)

#### Headphone Impedance

32 - 1000 Ohms

#### Crosstalk

Programme to Aux Input 1k tone @ line up  
-72dBu

### POWER

#### Mains Input

Filtered IEC, 100 to 240VAC  
47 - 63Hz

#### AC Consumption

4 Watts @ 230VAC

#### DC Input

4 Pin Neutrik XLR plug +/- 12V

#### DC Consumption

+12V=150mA, -12V=150mA

#### Internal Mains Fuse

20mm 1A Anti Surge

### PHYSICAL

#### Size

445 x 123 x 44mm (LxDxH) no rack ears  
482mm 19" (1RU) with rack ears

#### Weight

1.26kg

#### Mechanics

All aluminium construction, anodized and laser etched

#### Shipping Carton

Rugged export quality cardboard carton  
610 x 420 x 130mm LxDxH

#### Shipping Weight

2.7kg