



# HEADLITE 3

FOUR CHANNEL HEADPHONE AMPLIFIER



**USER GUIDE**



# HEADLITE 3

## *Instructions for use and installation*

### **Welcome**

At DACS we are very pleased that you have chosen to purchase one of our products. We take pride in our work and are sure that this **HEADLITE 3** will give you years of exemplary service. If you have any suggestions or comments about this product please call, fax, write or e-mail us with your thoughts. Thank you.

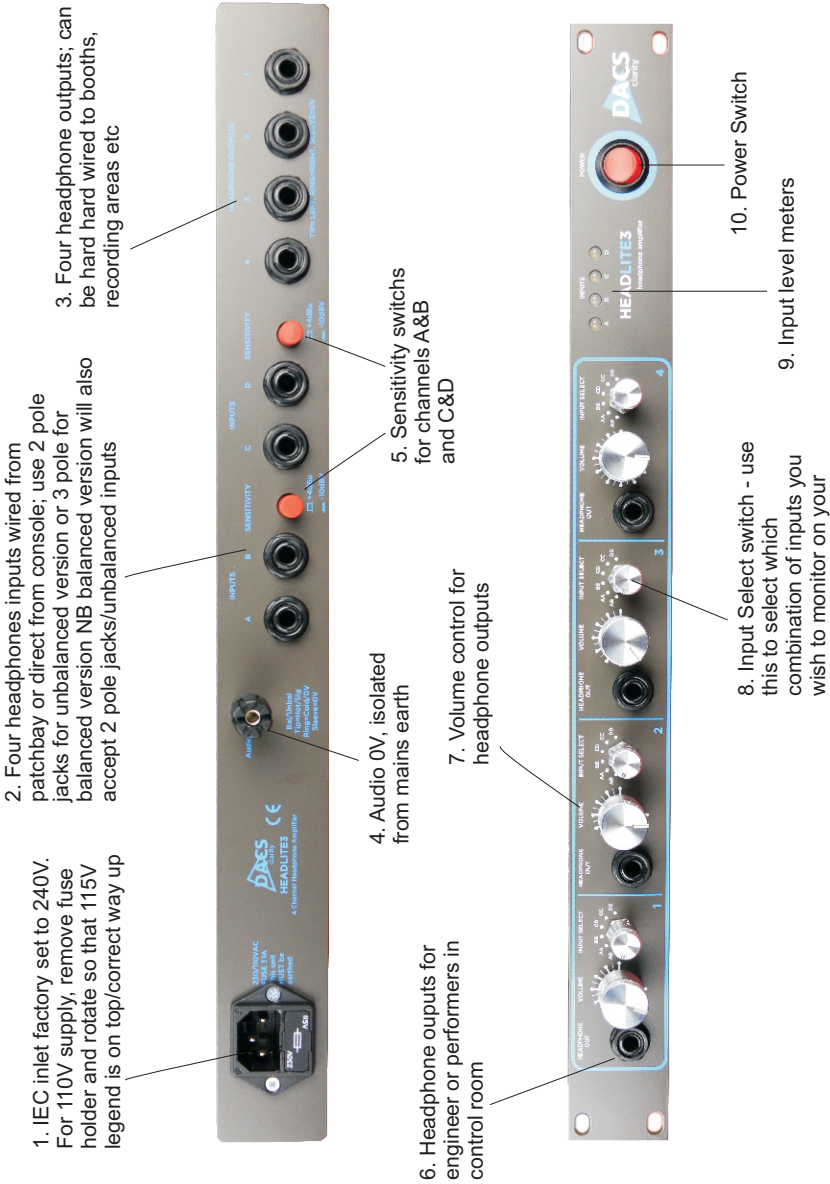
### **Introduction**

**HEADLITE 3** is a four input, four output headphone amplifier, with a six position self cleaning monitor select switch for each amplifier. It is designed to be as flexible as possible without introducing needless complexities. Its THAT Ingenius® balanced input ensures very low distortion, transformer like rejection of interference, and very good frequency response. The inputs are on three pole jack sockets, and will also accept unbalanced signals on 2 pole jacks.

Its outputs are capable of driving virtually all headphones; we know of none it has problems with. The outputs are also designed to drive down long lines to cubicles with little or no loss of quality. The unit is compatible with -10dBV and +4dBu inputs (see page 5 - "2 & 5 Inputs").

For users who require each output to feed multiple headphones, we offer the Power modification, which significantly increases the power output. The Power modification is not fitted as standard but can be fitted to one, two, three or all four channels of **HEADLITE 3**. It is a plug in transistor amplifier with built-in limiting (soft clip) to help protect low impedance headphones from burn out. It will allow a number of high impedance headphones to be powered from the same output without a loss of signal level at the headphones; we've used up to 6 pairs of 400 Ohm headphones on one output and experienced no level drop.

Power modifications can be retrofitted any time after purchase. Please speak to your retailer or direct to us for details.





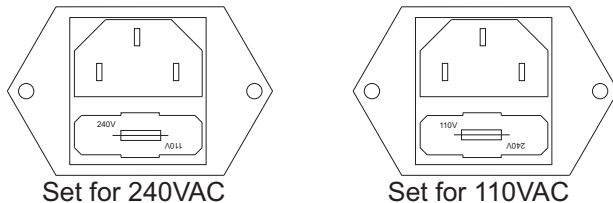
## Using the DACS HeadLite2

### Installation

#### 1 Connecting the Power

The unit will accept 240 VAC and 110/115 VAC mains supplies. The IEC inlet's fuse holder is used as a selector as shown in Fig 2. The factory setting is for 240 VAC.

*Figure 2*



#### 2 & 5 Inputs Connections

Inputs A, B, C and D are on three pole ¼" jack sockets, tip=+/Hot, ring=-/Cold and sleeve=0V). Unbalanced signals may be used on two pole jacks. The input impedance is 10k ohms.

If no connector is plugged in, the inputs are shorted to 0V via the switch connections on the jacks. If the inputs are connected to a patchbay, it is advisable, if possible, to normalise them. Do this at the patch bay. If they are not normalised and are left floating, they may be prone to pick up interference, taxis or the radio over long lines between the unit and the patchbay.

#### Levels

The input buffer's sensitivity can be adjusted for +4dBu or -10dBV operation using the switches. Note: Channel A & B sensitivity are selected by one switch and Channel C & D sensitivity by the other. It is not possible to select different sensitivities for each one of the paired channels.

#### Protection

In the case of accidental patching of phantom power in OB applications we have included overvoltage protection on the inputs so 48V cannot damage the input stage.

**Remember that for headphone feeds, the screen must be connected at both ends of the cable.**



### 3 & 6 Outputs Connections

The headphone outputs are on three pole ¼” jack, tip=left, ring=right, sleeve=0V. The front and rear outputs for each headphone amplifier are connected in parallel. The output circuitry is designed to drive down long lines with minimal high frequency loss. If you are sending headphones signals down long lines using screened twin conductor cable (such as foil screened twin, FST), we would recommend using two separate cables if you can. This would reduce any *possible* cross-talk between the left and right channels. There are installations we know of where left and right are sent down the two conductors of FST, and all reports have been good.

If two or more pairs of headphones are to be driven by an output, they should be of the same type and impedance. If they are different (eg. low and high impedance), power sharing will not be even. One will be too quiet, and to achieve the required level in that pair, the other pair will overload.

### 4 Earthing

The signal 0V is separate from the mains earth. This separation allows unbalanced operation with a large measure of immunity to hum problems, since the amplifier is not referenced to or connected to any earth other than the signal source. The mains earth is connected to the case of the device. If you wish to connect the signal earth to the mains earth or a technical earth, this may be done by running a wire from the earth tag. **This connection should only be made by qualified personnel, if it is necessary. If in doubt please call us.**

### 5 Sensitivity Switches

On the rear panel, there are sensitivity switches for channels A&B and C&D. This allows user selection of sensitivity as an operational control, rather than having to be set with internal links.

### 7 Volume Control

The HEADPHONE VOLUME control adjusts the signal level going to the amplifier. This control allows independent volume control of each amplifier’s output.





## 8 Input Select switch

With up to four inputs connected to the unit, decide which headphone amplifier output you wish to use. To select the input(s) you wish to listen to, rotate the selector switch to the appropriate point: AB means inputs A and B on the Left and Right output channel respectively; AA means input A on both Left and Right, etc. Plug your headphones in and adjust the volume to an acceptable level.



## 9 Input Meters

These tri colour LED meters indicate the level on the 4 busses feeding the headphone amplifiers. They are calibrated as follows:

Green starts to glow at -24dB and is fully on at -8dBu to 0dBu

Orange starts at 0dBu and is fully on at +10dBu to +16dBu

Red starts at +16dBu and is fully on over +18dBu

For optimum performance operate HEADLITE 3 at 0dBu to +16dBu.

## 10 Power

This switches the power on and off, and is illuminated when AC mains is present. The switch is connected before the fuse, so if the switch is illuminated and the unit does not work, the fuse may be blown. The unit comes with a spare fuse in the fuse carrier (T1A).

Clarity HEADLITE 3 is fitted with the ultra quiet regulated linear power supply as used in the DACs Clarity MicAmp.



## Levels

The amplifier section can deliver up to 0.5W RMS per channel and has a fixed gain of 20dB. The volume potentiometer varies the input level to the amplifier stage. Too high an input level here will reduce the useful control over the output volume, since it will have to be set very low to ensure that the output does not clip. To adjust this level see below - 2 & 8 Inputs.

### Note on the problems of Loudness and Headphones

Our amplifier cannot do the impossible! We can only make headphones as loud as they are capable of being. Beyond that they distort and clip, which is very bad for your ears, short and long term. The problem usually is not so much that the headphones are not loud enough; it is more that the sounds **outside** are too loud and are breaking through into your ears. Approached from this direction the problem can perhaps be solved more easily.

### Specifications for DACS' Clarity HEADLITE 3

Noise floor:	<-90dBu (110dB below peak)
Dynamic range:	>114dB
THD+N 20Hz to 22kHz, +10dBu into 600R	<.00045%
Frequency response:	5Hz to 40kHz $\pm$ .5dB
CMRR	>84dB 50Hz to 20kHz
Slew rate:	Greater than required for 40kHz
Settling time to 0.1%: this will depend on the load to a great extent, but very good	
Max phase rotation (inter channel phase difference):	100Hz .01 deg, 1kHz .03 deg, 10kHz .36 deg, 20kHz .72 deg
Crosstalk:	<-90dB
Power output	>200mW/ch into 600R

### Compliance to European Standards

This unit complies with the following standard (see Declaration of Conformity):

- Radiated Emissions to Specification EN50081-1
- Conducted Emissions to Specification EN50081-1
- Electro Static Discharge to Specification EN50082-1
- Fast Burst Transients to Specification EN50082-1



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*Other Fine Hand Crafted Audio Products from DACS*  
**Clarity from DACS**  
**A new philosophy, a new range of devices**

**DACS'** range of high performance studio and stage devices embody our philosophy. We believe in simplicity, but above all else, Clarity; sonic Clarity and functional Clarity. The range includes the **DACS Clarity MicAmp2**, a two channel microphone amplifier (see also reviews on our website) and the **DACS Clarity HeadMaster**, a stereo monitor controller.

For many years **DACS** have manufactured custom equipment for professionals the world over using a number of our own high performance audio *building block* circuits. The performance of these circuits has been honed over the years out in the field, and developed through fulfilling the changing professional requirements of their many customers in widely divergent sectors of the industry.

**DACS** have crystallised these years of experience to bring you this range of elegantly simple high performance units, all hand made throughout. Where they benefit performance we use expensive components and time consuming processes, but do not spend prodigiously on 'cosmetics'. Though we are bucking the trend towards *downsizing* work-forces and automating manufacturing processes, these units are very competitively priced. This is achieved by a combination of good design, good organisation, low overheads, and the use of standard housings and other components where possible.

These visually striking, well engineered devices will last well into the 21st century achieving levels of performance that digital technology, and much analogue technology, aspires to today.

YOU are what make your studio world class.  
Our equipment is designed to help you continue to produce fine music.