

DACS

# HeadMaster

D-A Converter, Monitor Controller,  
Reference Headphone Amplifier



USER GUIDE

# HeadMaster

## *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 Headmaster will give you years of reliable service. If you have any suggestions or comments about this product please call, fax, write or e-mail us with your thoughts. Thank you.

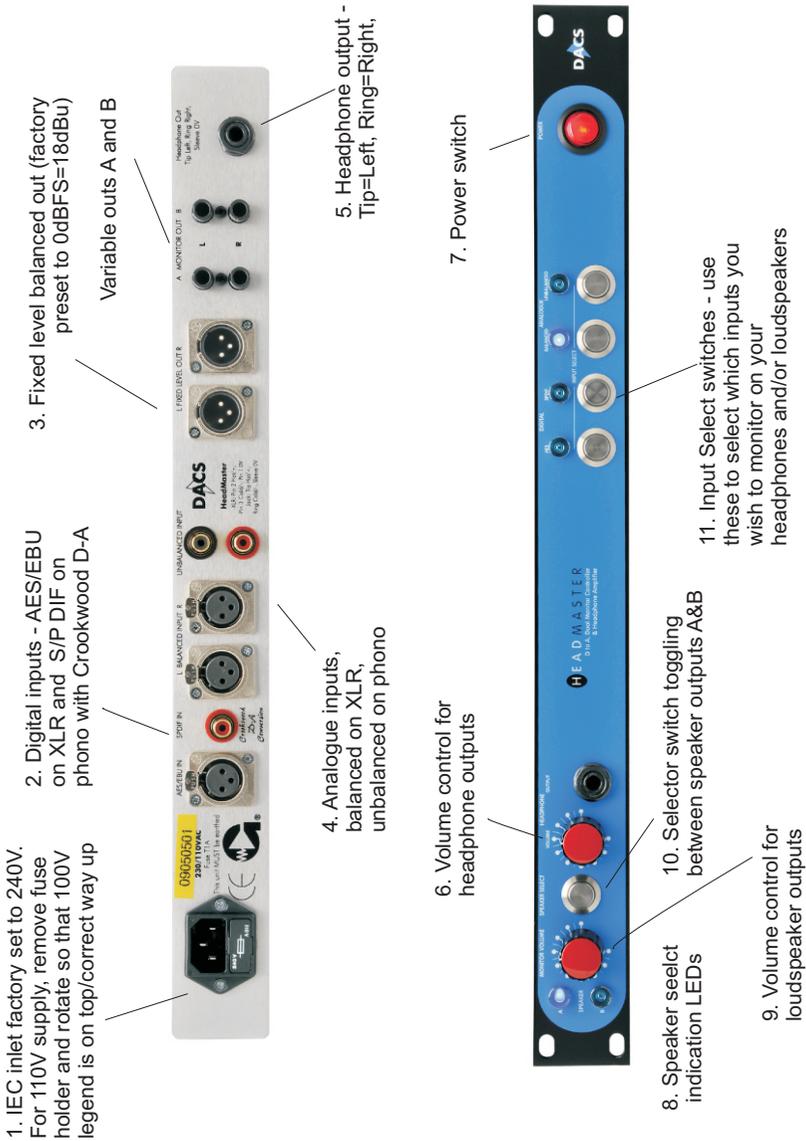
### **Introduction**

The **HeadMaster** is a reference quality all in one monitoring station with 4 selectable inputs (2 digital, 2 analogue), a variable output, switchable between two sets of loudspeakers, a headphone output, and in addition a fixed level output from the D-A converter.

The D-A converters are by Crookwood. They are a 192kHz 24bit converter. We use a technology that produces a jitter free output, regardless of the condition of the incoming signal. This also means that locking to different sample rates will be quick (flicking between the AES and SPDIF inputs) and the performance the same.

The analogue inputs use DACS proprietary *Clarity* circuitry. This means very low noise and low distortion, with immense detail and clarity, superb stereo imaging and stability. These inputs are balanced on XLR and unbalanced on phono. The inputs are selected on the front panel via stainless steel switches with an LED indicator.

This unit offers very high performance, with the Crookwood D-As performing in an exemplary fashion, and DACS' well respected analogue expertise creating some of the best sounding headphone outputs available, and pristine feeds to your studio monitors.



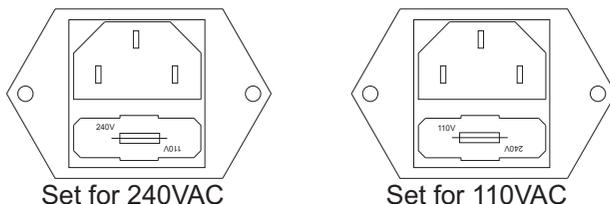
## Using the DACS Headmaster

### Installation

#### 1 Connecting the Power

The unit will accept 240 VAC and 110 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 Digital Inputs Connections

The AES/EBU input is on XLR. The S/P DIF input is on phono. The inputs both accept sample rates from 32kHz to 200kHz.

#### 3 Fixed Level Out and Variable Outs, Balanced

This fixed level signal is a direct out from the D-A converters. It is factory set to provide a signal level of +18dBu for a digital signal at 0dBFS. For unbalanced operation you must connect the output Pin 3 to Pin 1 OR connect the unbalanced screen to Pin 3 (optionally leaving the Screen terminal of the TRS jack unconnected).

If an analogue input is selected but there is an AES/EBU signal coming in to the unit, then this signal will appear on the fixed level output regardless of the analogue input selected. If there is an S/P DIF signal coming in it will not be sent to the fixed level output. However, if you wish the S/P DIF input to go to the fixed level output while an analogue input is active, then this can be achieved by pressing the S/P DIF and the analogue input simultaneously.

The variable outputs are intended to feed loudspeakers, and use two pairs of TRS jack sockets. If the destination is unbalanced, then the output must be connected either by using a two pole jack in the HeadMaster (or linking the Ring and Sleeve of a TRS jack) or by connecting the signal to the Tip of the TRS jack and the unbalanced screen to the Ring of the TRS jack (and optionally leaving the Screen terminal of the TRS jack unconnected).



In either case the level feeding the unbalanced input will be the same as the balanced signal level.

#### **4 Analogue Inputs**

There are two sets of analogue inputs: balanced on XLR and unbalanced on Phono. The maximum input level for the balanced inputs is around 28dBu, and for the unbalanced inputs is +11dBV.

#### **5 Headphone Output**

The headphone outputs are on three pole ¼” jack, tip=left, ring=right, sleeve=0V. The front and rear sockets 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 in a single cable, 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.

#### **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 be solved more easily.

#### **6 Volume Control for Headphone Outputs**

This knob controls the volume of the headphone outputs; since both front and back connections are in parallel it controls both outputs.

#### **7 Power Switch**

This switch illuminates when mains power is present. NB the switch is before the fuse so if the mains switch is illuminated and none of the LEDs light up, then it may be that the fuse is blown.



## **8 Speaker select indication LEDs**

These indicate which of the two pairs of balanced outputs, A or B, are selected

## **9 Speaker volume control**

This controls the volume of whichever speaker output is selected

## **10 Speaker selector switch**

This switch toggles between the two speaker outputs; active output is indicated by the speaker selection LEDs to the left of the speaker volume controls

## **11 Input select switches**

These four switches select the input that will appear at the various outputs from this device. The options are unbalanced analogue, balanced analogue, S/P DIF digital and AES/EBU digital.



## Specifications for Headmaster

For 1kHz sine in (into 150R)	Direct Out	Monitor Out	HP Out
THD + N AES @ -18dBFS	0.001330% @0dBu out	0.002700% @-16dBu out	0.003500% @+3dBu out
THD + N Balanced IP @ 0dBu	/	0.001300% @-9dBu out	0.003400% @+10dBu out
THD + N Unbalanced IP @ -10dBV	/	0.003700% @-16dBu out	0.004000% @+3dBu out
Maximum Input Balanced	>+28dBu		
Maximum Input Unbalanced	11dBV		

## 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



*Other Fine Hand Crafted Audio Products from DACS Ltd*  
**Clarity from DACS Ltd**  
**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 MicAmp2**, a two channel microphone pre-amplifier<sup>1</sup> (see also reviews in Sound on Sound and Studio Sound, both November 1997 viewable on our website). Our recently launched (Aug 2006) **Eightch**, an eight channel volume control, won the Pro Audio Review PAR Excellence award.

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 this 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 well into this century.

<sup>1</sup> We are proud to announce that the MicAmp won the Studio Sound Audio Industry Recognition Award in the Outboard Pre-amp category. This was voted for by registered readers of Studio Sound worldwide.