



## **DAC4.1x Balanced Signature**

### **Owner's Information**

The DAC4.1x Balanced Signature is a Level 4 digital to analogue converter, developed for the best possible sonic performance rather than technical specifications. To this end, the DAC incorporates thermionic valve technology to produce the most accurate sound possible and has been brought to maturity through a development process we call comparison by contrast, which is currently unique to Audio Note. The article from which this technique is based, named 'Audio Hell', is available from Audio Note by request.

Please read this manual carefully in order to obtain the best possible performance from your DAC. Audio Note wishes you many happy years of listening pleasure.

## ***Technology***

Extensive research into the fundamental properties of the data stream itself have shown beyond doubt that regardless of the theoretical and measurable advantages of the signal manipulation employed in all currently available digital products, such as higher over sampling, noise shaping, re-clocking or jitter reduction, the result is this: all these corrective measures greatly interfere with the critical time domain requirements of the signal.

Current theory is based on an assumption that music is similar to book keeping data which of course it is not. Music is a time continuum from beginning to end, which when broken is irreparably damaged and no amount of clever manipulation can ever restore it to its original time-frequency-amplitude duration or relationship, regardless of what the theorists may tell you.

The DAC uses the revolutionary and currently exclusive Audio Note digital technology dubbed 1x oversampling™ direct from disc™ circuit topology. The technology in essence dispenses with all the correction measures inherent in all other D/A converters and presents the digital signal directly to the converter after reformatting. In other words, all products in the Audio Note DAC range have no oversampling, no jitter reduction, no noise shaping and no re-clocking. Having removed all the digital filtering that is part of the oversampling, we have also dispensed with all filtering in the analogue domain to further retain good wide band phase-frequency and dynamically coherent behaviour. The end result being a reproduction more reminiscent of master tape in quality, with greater differentiation and contrast between different recordings.

Our converters all use a high grade selected Analogue Devices AD1865, 18Bit stereo converter chip because we found this chip to be the best sounding available (yes, even better than the 20Bit and 24Bit versions!). This is fully compatible with 16-bit 44.1kHz technology as well as 48kHz and can also be used with the 24-bit 96kHz DVD-A standard as the DAC chip will only lose resolution at the 20th, 22nd and 24th Bit, a truncation that mildly reduces the resolution. Tests have shown that this information loss is inaudible when compared to comparable methods used in digital technology, which involve either oversampling, up sampling or other digitally derived signal manipulations or “improvements”.

The DAC4.1x Balanced Signature features Black Gate filter capacitors, Audio Note copper foil signal capacitors and tantalum resistors everywhere, an ECC82, 6463 zero feedback output stage, an improved choke smoothed and 6X5, ECL82 valve rectified power supply, balanced outputs, HiB double c-core output transformers and improved I/V interface transformers.

## ***Unpacking & Installation***

Please take care when unpacking the DAC4.1x Balanced Signature. We recommend that you store the packing materials in case the unit requires shipping at a later date.

Next, select a suitable location for the unit, ensuring that adequate ventilation is provided (the valves generate a fair amount of heat). In the interest of safe, reliable operation, situate the DAC well away from dampness or direct sunshine.

Worthwhile sonic improvements may be obtained by locating the unit on a specifically designed audio component support system; we tend to prefer natural materials such as wood.

## **Connections**

Please ensure that the DAC4.1x Balanced Signature and any source equipment is switched off before making any connections.

*NOTE: It is important that all connections are firm, secure and airtight; any oxidation of the interconnects will result in loss of performance. Always use high quality interconnects; Audio Note interconnects are recommended, as they are manufactured to the same exacting standards as all of our products.*

## **Inputs**

The DAC4.1x Balanced Signature provides two digital inputs; a 75 Ω RCA unbalanced input and a 110 Ω XLR balanced input. Optical inputs are not provided as we have found optical transmission to sound far inferior to transmission via a standard coaxial cable.

Connect either the unbalanced or balanced input to your CD transport or other digital source and ensure the input selection switch is in the correct position.

## **Outputs**

The DAC4.1x Balanced Signature has one unbalanced analogue output. This consists of a stereo pair of RCA connectors, colour-coded red for right channel and white for left channel. Connect the output to a suitable pre-amplifier.

The DAC's balanced output option is provided by a pair of XLR connectors.

## **Ground Connection**

In the unlikely event that a ground loop occurs, a ground post is provided for connection to the ground post on your pre-amplifier. If you experience hum from the DAC4.1x Balanced Signature after all connections are made and the unit is working, then try out the following:

First, use a short piece of hook-up wire to electrically connect the ground post on the DAC to the ground post on the pre-amplifier, if this does not stop the hum try connecting the wire to the CD-transport if it has a ground post. If not, then put the bare wire to one of the chassis screws on the transport, if the hum persists, contact your dealer for advice.

## **Mains Power**

An IEC power connector is located on the back of the DAC. Use the supplied power cable to connect the DAC to the mains supply. Ensure the power is off at the switch when you do this.

## ***Using the DAC4.1x Balanced Signature***

Once all the connections are complete, turn on the digital source. Next turn on the DAC4.1x Balanced Signature by using the rocker switch located on the back panel above mains inlet socket. The red led on the front panel confirms that the unit is on.

The DAC will improve over time and will start to sound increasingly well balanced. This is because of the “bedding in” time taken by new electrical components inside the unit. Also, the DAC’s sound quality improves as the unit reaches its normal, stable operating temperature. Only a rear panel on/off switch is provided as the unit is designed for continuous operation. The DAC need not be switched off each time after use. It is interesting to note that continuous operation not only results in optimum sonic performance (since the unit is maintaining a constant operating temperature) but also causes less electrical stress and so extends component and valve life.

All our DACs have been designed to run into impedances of 100kOhms or greater. Many preamplifiers both active and passive have low input impedances. We do not recommend less than 50kOhms as this causes problems with bass roll off. If you are in any doubt consult your dealer. Audio Note offer a modification to customers who own pre-amplifiers with a low input impedance, which is fully refundable if at any time an Audio Note pre-amplifier is purchased as a replacement.

## ***Cleaning***

Cleaning the DAC4.1x Balanced Signature is best done with a soft brush - some photographic stores are able to provide suitable brushes. Alternatively, a soft cotton cloth may be used with a mild propriety cleaner for removing dirt build-up. Strong or alcohol based solvents may damage the finish of this product. Ensure the DAC is switched off and cold when cleaning. Do not wet the unit.

## ***Replacing and Upgrading the Valves***

Replacement NOS valves can be purchased from Audio Note when valves fail or should you wish to experiment with different types of valves. A list of valves and equivalents can be found at [www.audionote.co.uk](http://www.audionote.co.uk). Contact your dealer if you are unsure what valves you should use or how to install them.

Line stage valves should provide you with 5 years of continuous operation, rectifier valves should last much longer.

## **Warranty and Servicing**

Audio Note warrants that this product will be free from defects in materials and workmanship for one year from the original date of purchase from an appointed Audio Note dealer. The vacuum tubes are warranted for three months.

In the event that your Audio Note product requires servicing, please contact your Audio Note dealer. If the component needs to be shipped, please use the original packaging materials and include a copy of the sales purchase with a note, explaining, in as much detail as possible, the problems that your are experiencing with the unit.

Any modification not authorised by Audio Note will invalidate any warranty.

If you require technical support or have any questions, please direct them to your local Audio Note dealer or alternatively contact us directly at:

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## **Specifications**

<b>Weight</b>	16 kilograms
<b>Dimensions</b>	145(h) x 450 (w) x 425 (d) (mm)
<b>Fuse ratings</b>	1.25A anti-surge (110/120v supply) 500mA anti-surge (220/240V supply)
<b>Output impedance</b>	Less than 2K ohm
<b>Reference output</b>	3.0V RMS (approx.)
<b>Channel balance</b>	Less than 0.25dB
<b>Tube compliment</b>	1x ECC82, 1x 6463, 1x 6X5, 1x ECL82
<b>Digital system</b>	18 Bit 44.1/48/96KHz compatible Analog Devices AD1865
<b>Power consumption</b>	20 Watts

*NOTE: Due to Audio Note's ongoing research and development programme, specifications are due to change without notice.*

***This product complies with CE standards***