Audio Note

DAC4.1x Balanced

DIGITAL TO ANALOGUE
CONVERTER

OWNER'S INFORMATION

Audio Note

CONTENTS

! IMPORTANT SAFETY INFORMATION !

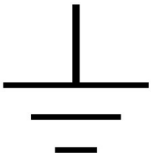
RISK OF SHOCK OR ELECTROCUTION! INTERNAL OPERATING VOLTAGES ARE LETHAL!

Do not remove top cover, unless specifically instructed to do so in the user manual.

This unit contains fuses and other safety components in accordance with BS60065 requirements.
In the event of failure, replacement fuse or safety component must be of the same part type and value.

SUCH REPLACEMENT MUST ONLY BE CARRIED OUT BY A QUALIFIED SERVICE TECHNICIAN.

Do not attempt to replace any fuses without first disconnecting the unit from the mains electricity supply.



This product must be earthed – ensure that the mains supply cable earth / ground is correctly connected.

This product generates high levels of heat. Adequate ventilation must be provided. Do not restrict airflow through any ventilation slots or place the unit on any surface that may restrict airflow.

Valve equipment operates at extremely high temperatures;
KEEP OUT OF THE REACH OF CHILDREN AND ANIMALS.

Do not store or operate this unit in areas of high humidity or in close proximity to water / moisture.

Do not expose or immerse the unit in liquid of any kind.

OTHER SAFETY PRECAUTIONS: -

Never touch the power cord with wet hands.

Always remove the power cord by grasping the plug, not the cable.

Never expose the unit to excessive heat or magnetism.

Never let an inexperienced person repair or reassemble the unit.

Never put anything, especially metal objects, inside the unit.

Never place excessive weight on the unit.

CE DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product is in conformity with the following standards or standardized documents:

BS EN 60065 in accordance with the regulations 73/23/EEC, 89/336/EEC (from 1 January 1997)

CE 94

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DISPOSAL

This product must not be disposed of as normal household waste. To prevent possible harm to the environment please separate the product from other waste to ensure that it can be recycled in an environmentally safe manner. Please contact your retailer or the appropriate local government office for collection facilities.

POWER REQUIREMENTS

Power requirements for electrical equipment vary depending on your geographical location. Please ensure that your unit meets the power requirements in your area. The power requirement for your unit is marked on the serial number plate, located on the rear panel.

If you are in doubt, please contact your dealer before plugging the unit into the mains supply.

INTRODUCTION

Thank you for purchasing this Audio Note (UK) product. With the correct care it should give you many years of pleasure and enjoyment.

Please take the time to read all of the information in this manual before connecting your new component to an electrical supply or your system, to ensure both your safety and satisfaction.

Please note that due to our desire to continually improve products, specifications are subject to change without notice. Therefore it is important to refer to the manual that is supplied with your product for the most accurate information; manuals downloaded from our website or obtained from other sources may no longer fully apply to your product.

If you have any questions regarding the information contained within this document or your new component, please feel free to contact us: -

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Audio Note

Audio Note (UK) Digital to Analogue Converters

Ever since its introduction, we at Audio Note have been highly critical of digital music reproduction. This dissatisfaction was the instigating force in our quest to make digital playback more dynamically realistic and less fatiguing. Although we cannot defeat the inherent limitations of the format and its recording engineers, we have elevated CD reproduction to a previously unattained level of quality and performance, and with the DAC 5, we proudly present our most radically advanced and iconoclastic digital circuit design so far.

To understand the path that led us to the development of our current range of Digital to Analogue Converters, it is worth looking back at our 'digital history'. Our first defining assault was made in 1992 when we introduced the DAC3, which, with its patented transformer / filter interface circuit, revolutionized CD play back. What we learnt from the experiments with the digital / analogue interface transformers and filters in the DAC3 was that there had to be more information available on the discs than previous believed. Digital filters and the associated over sampling had been broadly discussed, analyzed and criticized, but what no-one had done at this time was to remove them altogether, to see what their real effects on ultimate sound quality were. So, that is exactly what we decided to do, and the results were dramatic, to say the least.

The improvements this completely new circuit topology introduced resulted in a level of CD playback quality that was previously unimagined. To this day, we combine these purely analogue filters (dubbed 1x oversampling™ direct from disc™ technology) with the finest components and materials available, including transformer interfaces and the highest quality vacuum tube circuitry to produce a range of Digital to Analogue Converters that are both refreshingly lifelike and free from conventional digital restraints and mechanical artifacts.

DAC4.1x Balanced

Congratulations on your purchase of the Audio Note (UK) DAC4.1x Balanced Digital to Analogue converter.

It has been specifically engineered for sonic performance rather than technical specification, and fulfills all Audio Note (UK) Level Four criteria: -

Pure Class A operation
Zero negative feedback
Single Ended circuit topology
Valve rectification
Materials and component quality

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

Music is a time continuum from start to end which when broken is irreparably damaged, and no amount of clever manipulation can restore it to its original time / frequency / amplitude duration or relationship, regardless of what the theorists may tell you.

As a result, we have developed a way of excluding or bypassing all these corrective measures, to allow the conversion from digital to analogue to be done without any manipulation whatsoever. All we do is to reformat the data stream to allow the converter chip to be able to interpolate the incoming information correctly.

In other words, the Audio Note (UK) DAC4.1x Balanced has no over sampling, no jitter reduction, no noise shaping and no re-clocking. Having removed all of the digital filtering that is required for over sampling, all filtering is done in the analogue domain where it is easier to retain good, wide band phase-frequency and dynamically coherent behavior. It uses the highest grade Analogue Devices AD1865, 18Bit stereo converter chip solely because we found it to be the best sounding available (yes, even better than the 20Bit versions!).

The filter-interface coils / transformers are of the highest possible quality, using 80% nickel Super mu-metal cores. The air gaps in the two filter coils per channel are matched across the full frequency range to within 0.1dB of each other, using a specially designed program to supplement an Audio Precision System 2 test rig.

DAC4.1x Balanced continued…

The DAC4.1x Balanced features an upgraded version of the M6 Line preamplifier output stage, using the 5814a and 6463 double triode valves. This is coupled to an output transformer, wound with Audio Note (UK) copper wire on a High B C-core. With a 33:1 step-down ratio, this output transformer not only has exceptionally wide frequency response, but also just about the absolutely best dynamic transfer function possible. The analogue output has provisions for both unbalanced and balanced operation, using the best available quality RCA and XLR connectors.

To power this spectacularly revealing arrangement, we have incorporated a dual channel power supply with double choke filtering and vacuum tube rectification. This technique not only provides excellent isolation between the digital circuitry and power supply, but also provides well-isolated short and clean analogue signal paths. The digital power supply is an exceptionally low noise, shunt-type.

Internal component quality of this caliber has never before been seen, in either consumer or professional equipment. There is an abundance of Audio Note (UK) capacitors and Audio Note (UK) Tantalum film resistors throughout the circuit. Analogue stage filter inductors and internal wiring are all produced with our own Audio Note (UK) wire.

UNPACKING AND INSTALLATION

Please take care when unpacking your DAC4.1x Balanced. Choose a clean, clear location to unpack your unit. Be aware that the Pre Amplifier is very heavy; before attempting to unpack or lift the unit, check the weight and if necessary use more than one person so that it can be moved safely and easily.

We recommend that you retain and carefully store all of the original packing materials, in case transportation / shipping is required at a later date.

Select a suitable location for the unit. This should be a dry, dust free and level area, preferably shielded from direct sunlight and free from vibration. Also ensure that the location is stable and capable of carrying the weight of the unit.

A suitable mains power outlet must be close to the location; power cords must not be pulled or stretched tightly in an attempt to reach a wall socket. If the power cord will not easily reach the socket, choose a closer location!

Please ensure that adequate ventilation for the unit is provided, and that airflow through any ventilation slots in the unit is not restricted. We recommend a distance of at least 20cm free space is maintained above the unit. Please also remember that valve equipment operates at extremely high temperatures, so a position that is inaccessible to children or animals is essential.

CONNECTION

Special Note – Make sure that all connections are tight and clean. For best results use good quality audio interconnects. Although it is perfectly acceptable to use cables manufactured by other companies, for best results and performance, we recommend our own Audio Note (UK) range of interconnects and loudspeaker cables. For further information, please consult your nearest Audio Note (UK) dealer, or alternatively please feel free to contact us directly.

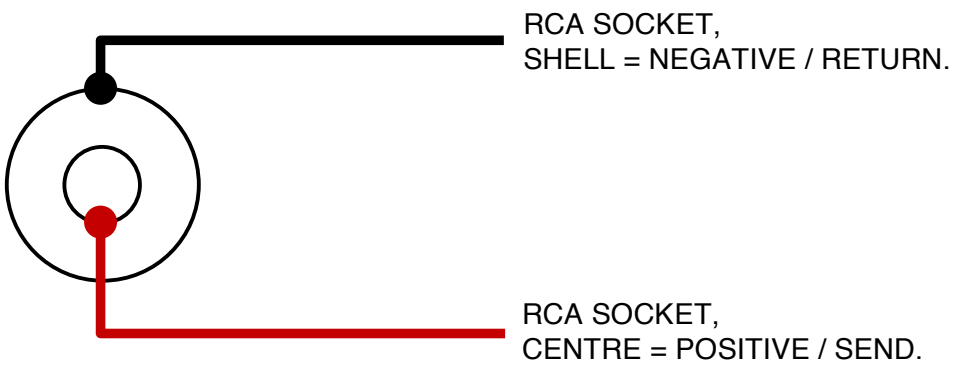
Inputs The DAC4.1x Balanced is equipped with two digital inputs, consisting of one single ended RCA socket, and one balanced XLR socket. Only connect one input, as it is not possible to use both inputs simultaneously.

Mains The DAC4.1x Balanced utilizes an IEC 320 mains inlet socket. Use the supplied mains cable to connect the unit to the local mains supply. The mains fuse is located in a separate fuse holder, situated below the mains inlet socket.

Ground Post A ground post is provided for connection to the ground terminal located on the following pre amplifier, or the preceding CD Transport. If, after all connections have been made, you experience any 'hum' problems, experiment with linking the ground posts / terminals with a short length of wire.

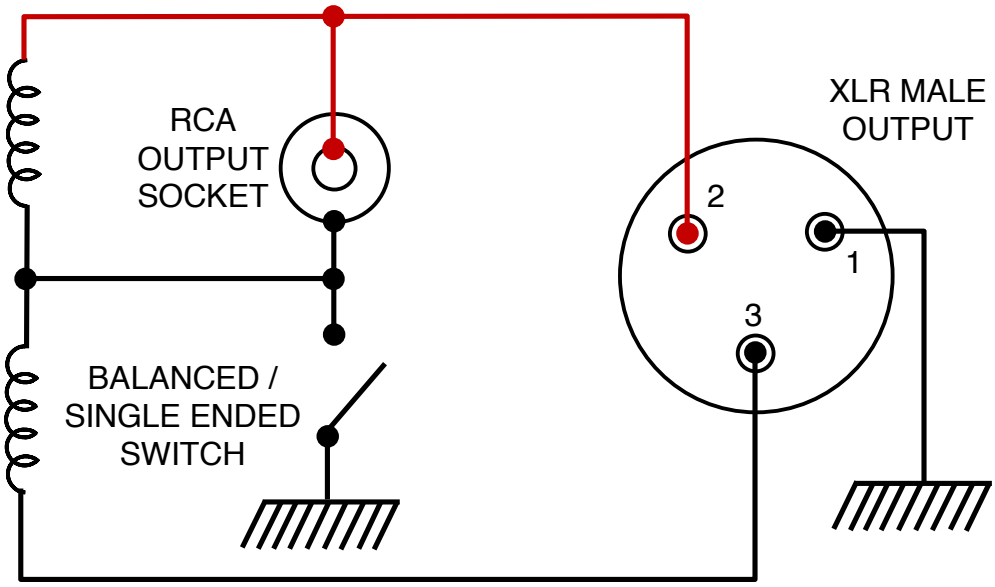
Outputs The DAC4.1x Balanced provides two unbalanced outputs, consisting of two pairs of colour coded RCA / Single Ended sockets. RED is for RIGHT channel connection, WHITE is for LEFT channel connection.
There is also a balanced output, consisting of a pair of 'male' XLR sockets (see 'Balanced' section, below).

RCA The two pairs of RCA / Single Ended outputs are identical, and are for connection to a pre amplifier or recording device.



CONNECTION continued…

Balanced The DAC4.1x Balanced is equipped with custom designed and manufactured output transformers, which utilize an improved output and grounding scheme to provide the best possible connection to the pre amplifier.
Below is a description of the various cable and connection options: -



The pin configuration for all Audio Note (UK)
XLR / BALANCED connections is as follows: -

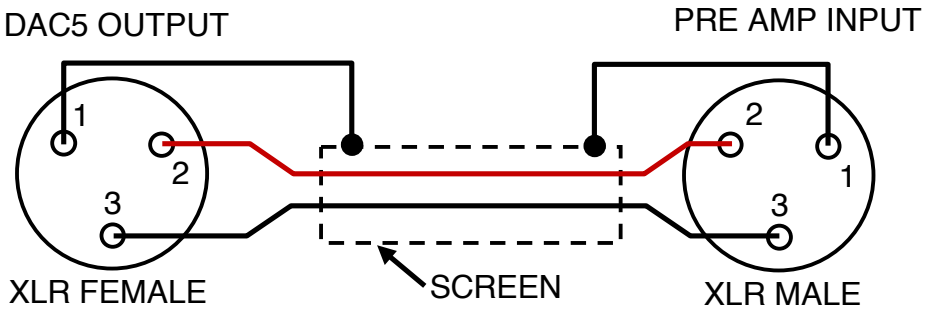
PIN 1	Ground / Shield
PIN 2	Positive / Send
PIN 3	Negative / Return

The balanced and single ended outputs cannot be used simultaneously; select the appropriate output using the toggle switch.

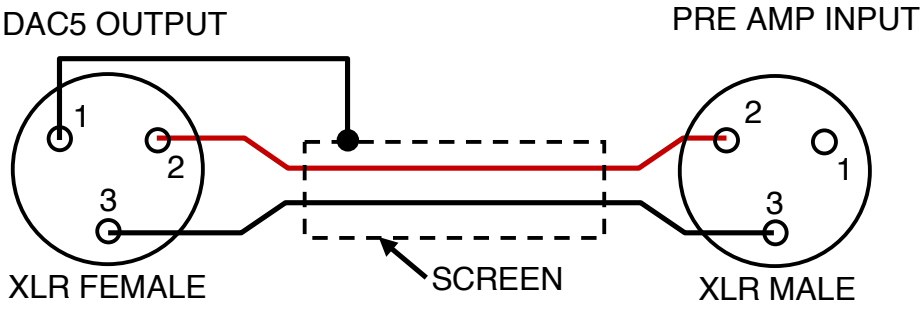
When using a pre amplifier with a true balanced input, the 'BALANCED / SINGLE ENDED' switch may be set in either position. When set to the 'BALANCED' position, the centre tap of the output transformer secondary is connected to the DAC4.1x Balanced's ground. When set in the 'SINGLE ENDED' (unbalanced) position, the secondary 'floats' in relation to the DAC4.1x Balanced's ground. This provides the option of either a low or high common mode impedance to ground at the DAC4.1x Balanced's output. Experiment with both positions to achieve the lowest background hum from the system.

CONNECTION continued…

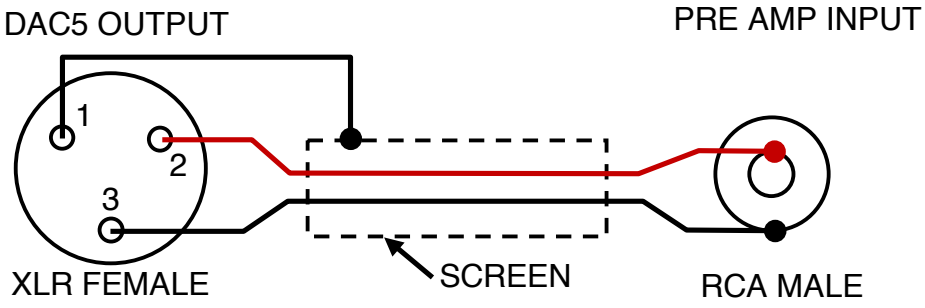
CABLE CONFIGURATION OPTIONS



CONVENTIONAL: SCREEN CONNECTED AT BOTH ENDS



SCREEN CONNECTED AT PREAMP END ONLY, TO ELIMINATE GROUND LOOPS



CABLE CONFIGURATION FOR XLR BALANCED OUTPUT TO RCA UNBALANCED INPUT

*When connecting the **XLR / BALANCED** outputs to a pre amplifier with an RCA / Single Ended input, the switch must be set to the **'SINGLE ENDED'** position.*

OPERATION

Once all the connections are completed and checked, ensure that the volume control on your preamplifier / integrated amplifier is at the minimum setting.

Ensure that the CD Transport connected to the DAC4.1x Balanced is switched ON. Source components should always be the **FIRST** components to be switched on and the **LAST** components to be switched off.

Ensure that all pre and power amplifiers connected to the DAC4.1x Balanced are switched OFF.

The above procedure minimizes the possibility of loud noises produced by components at switch on being passed to the loudspeakers and possibly causing damage.

Turn on the DAC4.1x Balanced by using the rocker switch located on the rear panel, above the mains inlet IEC socket. The red 'power on' indicator LED located on the front panel should now be illuminated.

Turn on your pre amplifier / power amplifier / integrated amplifier. If you are using a pre / power combination, always turn on the pre amplifier BEFORE the power amplifier(s).

The DAC4.1x Balanced is now ready for operation!

Bedding in

The DAC4.1x Balanced requires around 200 hours of initial use (called "bedding in") before the circuitry becomes stable and optimum performance is realized. As the device "beds in" the sound will become increasingly more smooth, detailed and open. A warm up time of approximately 30 minutes is required each time the device is switched on before optimum sonic performance is reached.

Cleaning

No special maintenance is required for the DAC4.1x Balanced. Use a soft, clean lint free cloth to remove any surface marks from the casework. For finger marks / grease, use a soft, clean lint free cloth, lightly moistened with a solution of warm water and mild detergent. Do not use any alcohol or solvent based cleaning products, as they may damage the finish.

ENSURE THAT THE DEVICE IS SWITCHED OFF AND DISCONNECTED FROM THE MAINS ELECTRICITY SUPPLY BEFORE UNDERTAKING ANY CLEANING.

Valve Life

The valves supplied with your DAC4.1x Balanced should provide approximately 5 years of operation. They are specially selected by us, and should only be replaced with valves of the same type and specification. Please consult your Audio Note (UK) dealer should your valves need replacing. Alternatively, feel free to contact us directly.

TECHNICAL SPECIFICATIONS

INPUT	RCA 75Ohms SPDif XLR 110 Ohms AES/EBU
OUTPUT IMPEDANCE	600 Ohms, Balanced or Single Ended
REFERENCE OUTPUT	3.2V RMS
CHANNEL BALANCE	Less than 0.2dB
TUBE COMPLIMENT	1 x 5814a 1 x 5687WB 1 x ECL82 1 x 6X5
FUSE RATING	1.25A anti-surge (110 / 120V supply) 500mA anti-surge (220 / 240V supply)
UNIT WEIGHT	22 KG
SHIPPING WEIGHT (ORIGINAL PACKAGING)	25 KG
UNIT DIMENSIONS	145mm (h) x 450mm (w) x 425mm (d)
SHIPPING DIMENSIONS (ORIGINAL PACKAGING)	245mm (h) x 550mm (w) x 525mm (d)
DIGITAL SYSTEM	18Bit Ananloue Devices AD1865N 44.1 / 48 / 96KHz input capability.
NOTE	Due to Audio Note (UK)'s ongoing research and development program, specifications are subject to change without notice.

WARRANTY INFORMATION

Audio Note (UK) warrants this product to be free from defects in materials and workmanship for two years from the original date of purchase from an appointed Audio Note (UK) dealer, and agrees to cover the cost of parts and associated labour required to correct such defects, subject to terms & conditions.

This Warranty is offered to the first purchaser only.

Any valves supplied with the unit are warranted for three months from the original date of purchase.

If the product fails in normal domestic use and during the Warranty period due to the above described faults or defects, Audio Note (UK) will, at its discretion, repair or replace the item free of charge within a reasonable time once it has been returned to Audio Note (UK) or an appointed Audio Note (UK) dealer or service engineer.

Audio Note (UK) is not liable for any shipping charges incurred whilst transporting the product to or from Audio Note (UK) or an appointed Audio Note (UK) dealer or service engineer, should the item require service or repair during or after the Warranty period.

If the product must be shipped, please use the original packaging materials and include a copy of the original sales receipt along with a note explaining, in as much detail as possible, the problems you are experiencing with the unit.

Only use a reputable Courier Service or Shipping Agent, and ensure that your product is insured during transit.

Any servicing, repairs or modifications not authorized by Audio Note (UK), or carried out by persons other than appointed Audio Note (UK) service engineers will invalidate any warranty.

This Warranty does NOT cover: -

Damage sustained whilst in the possession of a shipping agent, retailer or consumer and not caused as a direct result of defects in materials or workmanship.

Damage caused by normal wear and tear.

Damage or defects caused by abnormal or unreasonable use.

Damage caused by accident, acts of nature, misuse or neglect.

Damage caused by a failure to follow the operating and installation instructions supplied with the product.

Damage caused by improper or careless cleaning.

Audio Note (UK) reserves the right to refuse warranty for any component of which the serial number has been removed, defaced or tampered with.

CONTACT INFORMATION

If in the future your Audio Note (UK) product requires servicing, or if you require technical support or have any questions regarding this or any of our other products, please contact your local Audio Note (UK) dealer.

Alternatively, please feel free to contact us directly: -

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