



DAC 60
DIGITAL ANALOG
CONVERTOR

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INTRODUCTION

- 1 Congratulations on selecting a Creek digital component for your music system. The **DAC 60 Digital Analog Converter** is a high performance product designed to realise the full potential of your hi-fi system and all types of music programme.

- 3 The Creek **DAC 60** has been designed using carefully selected components in a unique circuit configuration. Particular attention has been paid to power supply design and rigid, anti-vibration construction. The **DAC 60** is capable of the finest sound quality and, used wisely, will give many years of trouble-free, listening enjoyment. Before using your Converter please read this owner's guide to ensure that you gain maximum benefit from your ownership of this fine product.

This booklet provides basic installation procedures and answers the questions most frequently asked by Creek users. We hope you will find it includes the information you require but, should you have any further questions, please contact your supplying dealer who will assist you.

Important

Each Creek **DAC 60** is manufactured and tested to the highest standards to ensure both absolute consistency of performance and complete reliability. This ensures that your Converter will achieve precisely the same level of performance as our own laboratory reference units.

Please enter the model and serial number on the registration card then complete and return it to Creek Audio Systems. We strongly suggest that you store the complete packaging set for possible future use.

MAINS CONNECTION AND FUSING

Carefully unpack your **DAC 60**. Do not throw the box and packing away — in the unlikely event you may need to return your **DAC 60** for service, the specially designed packaging will help prevent damage in transit.

The **DAC 60** is supplied with a 2-metre length of mains cable. This has an IEC moulded socket at one end. At the other end there is a moulded mains plug of the appropriate type for the country of use. If the plug fitted to the end of your mains lead is not correct, contact your dealer for advice.

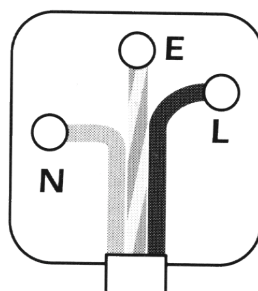
The DAC 60 is internally set to operate on the local mains supply. Before connecting, check that this setting, specified on the rear panel, is appropriate for your supply.

An anti-surge fuse is fitted internally. It is not normal for this fuse to blow. This will normally indicate a failure of the equipment, requiring a return to your supplying dealer, Creek, or the main importer for service. However, this fuse may blow in certain mains over-voltage situations. A replacement fuse is supplied for replacement by suitably qualified personnel.

NOTE FOR THE UK:

As the colours of the wires in the mains lead of this amplifier may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol or coloured green or green-and-yellow.



WARNING THIS APPLIANCE MUST BE EARTHED

The wires in the mains lead are coloured in accordance with the following code:

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

If a 13 amp (BS1363) plug is used a 3 amp fuse must be fitted, or if any other type of plug is used a 5 amp fuse must be fitted either in the plug or adaptor or at the distribution board.

THE TECHNOLOGY

The Creek Audio Systems **DAC 60** builds on the circuit design principles of the successful Creek CD 60 player, with the introduction of surface mounting and mechanical component damping. The **DAC 60** is designed to operate with any quality CD player having a standard electrical digital output. It is however ideally suited for use with the Creek CD 60.

Jitter-free recovery of the system clock from the incoming digital signal is vital to sound quality. For this reason a high speed communications receiver is used in the **DAC 60** to convert the low voltage input to fast, clean digital data. A high quality format convertor chip then recovers clock and data signals buried in the data stream, locking the **DAC 60** to the source (44.1 kHz for CD, 48 kHz for DAT).

The **DAC 60** uses the very latest Colinear™ conversion technology from Burr Brown in its select grade PCM63-K DAC chips. Each 20 bit device (one per channel) uses twin convertors in complementary design. This has the effect of moving the 'zero crossover glitch energy': a form of crossover distortion which occurs when the digital signal goes from zero to negative, away from the zero point where it can have a disproportionate effect on low level signals. This ultra low distortion and noise device realises the full potential of 20-bit performance, shown by superb detailing and imagery.

The **DAC 60** uses a 20-bit output, 8x oversampling filter device matching the performance of the advanced DAC chips.

As befits a Creek Audio Systems product, the **DAC 60** incorporates features designed to improve sound quality. In the power supply a substantial audio grade toroidal

transformer has independent windings for both the digital and the analog output stages. Two stage regulation of the power ensures low noise local supplies with the maximum rejection of undesirable supply artifacts. Each integrated circuit has its own supply decoupling, using an audio grade copper legged capacitor in parallel with a mechanically damped surface mount capacitor. The high frequency performance of the chip capacitor combined with the low self inductance inherent in both capacitors results in a superior local supply, integral to low distortion and cross-talk figures.

The use of surface mount devices—metal film resistors, supply decoupling capacitors and IC operation amplifiers—is extensive. Surface mount technology allows greater layout flexibility, reduced size and lower ferrous metal content. The overall effect is to minimise cross-talk, distortion and susceptibility, which means improved music performance.

During extensive design listening tests it was decided to change the DAC output filter. In the analog stage from a conventional active stage to a more elegant and musical first order passive filter, using a high quality polypropylene capacitor. The output buffer stage uses a low noise and distortion audio op amp; dc coupled for improved performance, with an offset nulling servo feedback loop.

An electrical output relay was chosen rather than transistor switches to eliminate noise and provide the best possible output signal. Output muting is achieved by shunting the output to ground using a silver/gold contact relay. This operates during power up and power down and when no digital lock is found (i.e. when a digital source is disconnected or switched off).

SETTING UP

Thank you for buying the Creek Audio Systems **DAC 60** Digital Analog Converter. To best enjoy this Converter you should read this **Owner's Handbook** carefully. If you find a feature is not fully explained your dealer can help clarify matters, alternatively telephone or write to our Technical Department.

Connect the mains lead socket to the mains input connector. Check the power is on at the wall socket and press the power key on the front panel. The single green LED will light up. This LED will show red if the digital connection has not been made.

Positioning

The **DAC 60** can be used free standing or racked with other equipment. It should never be used close to any source of heat or strong, persistent light. Nor should it be used where it would block necessary ventilation of another product—over the heat sinks or ventilator slots of a power amplifier for instance.

The sound quality of the **DAC 60** can be enhanced by appropriate positioning. The Converter should sound best when resting on small blobs of Blu-Tack™ (or any similar malleable semi-permanent adhesive) on a rigid shelf or similar surface—an equipment table for instance.

The **DAC 60** has three phono (RCA) sockets on the rear panel. The input and outputs, shown in the diagram on the inside back cover, are detailed as follows:

Digital Input

This single input is for connection to other digital audio equipment. This socket takes the raw digital data from a connected CD player. A single length of high quality phono cable should be used. Do not connect this input to the conventional analogue outputs of any other piece of hi-fi equipment (cassette recorder or amplifier).

Audio Output

Left and right channel stereo outputs. Make certain that the left output on the **DAC 60** is connected to the left CD input on your amplifier, and similarly the right output to right input. If there is no CD input a spare Auxiliary (Aux) or tuner input will work equally well. Under no circumstance should the signal from the **DAC 60** be connected to a phono sensitivity input either mc or mm or damage could result to the amplifier.

Cables

A quality 50cm digital interconnect is supplied with the **DAC 60**. Higher quality, and often higher priced, cables are available to enhance the sound of your CD system.

The **DAC 60** is capable of exceptional fidelity. The quality of connecting cables—both the single digital and twin audio cables—can influence sound quality for both good and ill. Cable quality is determined by a complex interaction of materials choice and characteristics, design and construction. Your dealer will advise. You may wish to audition a choice of suitable cables before purchasing.

WARRANTY

This equipment has been produced and tested with care and precision. It is built to give first-class service.

If within two years from the date of purchase the equipment proves to be defective for any reason other than accident, misuse, neglect, unauthorised modification or fair wear and tear, we will repair any such defect or, at our option, replace it without charge for labour, parts or return carriage.

This warranty, which is applicable in the United Kingdom only, is given in addition to the customer's statutory rights, does not attempt to exclude any of those rights and is transferable to subsequent owners who acquire the equipment within the warranty period. The warranty period will, however, expire completely two years from the date of the original purchase.

All service and product enquiries arising in countries other than the United Kingdom should be addressed to the local Creek importers, agents or distributors who, at their own discretion, may extend warranty protection to the countries they serve.

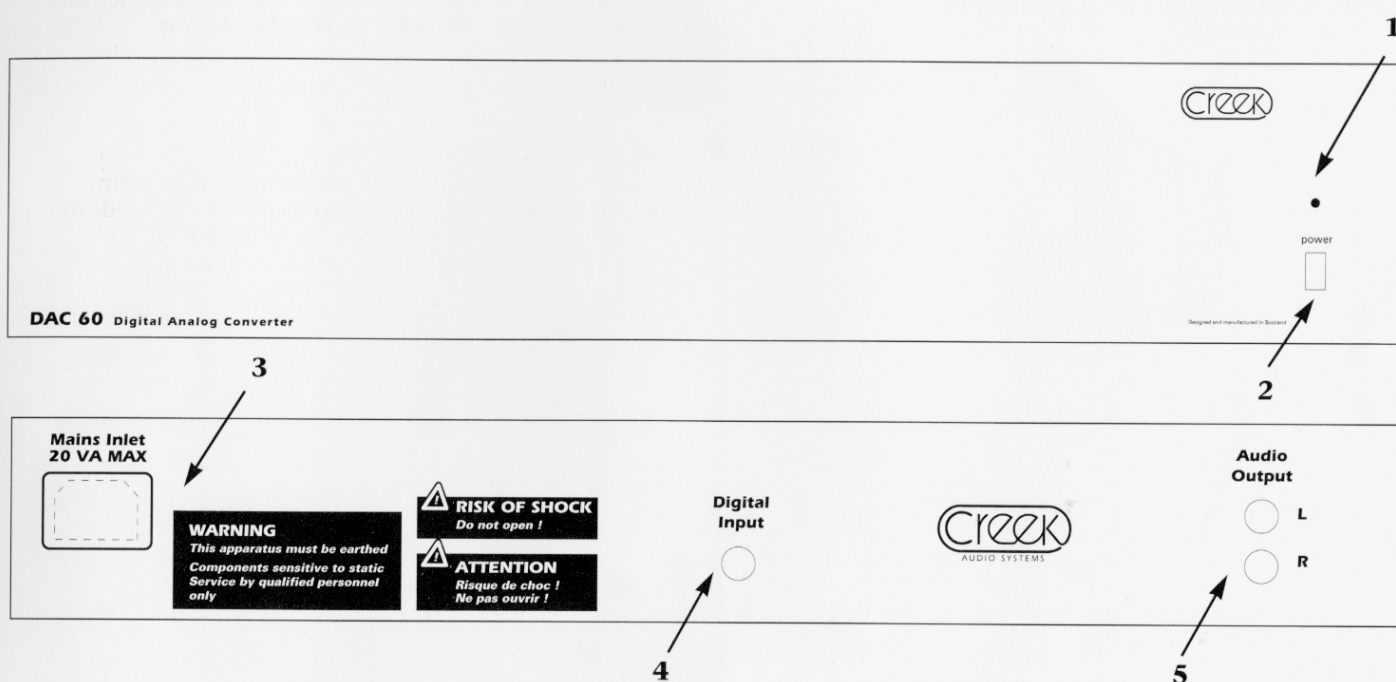
If there is no Creek representative in your country, service enquiries should be forwarded to the address shown on the back cover.

Please complete and return the enclosed registration document. Completing and returning the warranty registration card does not limit your legal rights.

SPECIFICATIONS

System	20-bit x8 oversampling, Colinear™ DAC
Frequency response	2 Hz – 20 kHz ± 0.2 dB
Channel matching	across Audio band ± 0.1 dB
Separation at 1kHz	-117 dB
THD plus noise vs level	-85 dB (at 0 dB)
Dynamic range	>96 dB
SNR (A weighted) without emphasis with emphasis	-127 dB -131 dB
Size: (H x W x D)	90 x 420 x 290 mm (3.54 x 16.54 x 11.42 in)
Weight	4.75 kg (10.47 lb)

LAYOUT



1. Power/Digital Lock indicator
2. Power On/Off
3. IEC mains connector
4. Digital input
5. L/R Audio outputs