

# Scarlatti DAC

Digital-to-Analogue Converter



Possesses the ability to unravel music like no other digital system – resulting in a performance that is simply stunning.

Scarlatti needs no introduction and since its launch has been the recipient of awards across the world for its extraordinary performance both in terms of objective measurements and the subjective musical experience it offers.

Scarlatti DAC uses state-of-the-art technology from *dCS* including the *dCS* Ring DAC™, Digital Processing Platform and Clocking System so that, as the hub of a digital audio system, an array of features guarantee amazing performance from any digital source.

The unique design of the legendary *dCS* Ring DAC™ combines exceptional linearity with very high speed operation enabling it to deliver true 24 bit performance even at low signal levels and the powerful digital processing platform of Scarlatti DAC is based around Field Programmable Gate Array (FPGA) chips, Digital Signal Processing (DSP) chips and a microcontroller system.

All of these run code developed and maintained in the UK by *dCS*.

The optimised DSP filters available to Scarlatti DAC owners will ensure you can extract every last nuance of musical detail by tuning the system to suit your personal preference.

Scarlatti DAC features standard AES3, SPDIF and SDIF-2 inputs in addition to the IEEE 1394 interface for DSD. The digital volume control allows direct connection to a power amplifier; there is no need for a preamplifier. Maximum output can be either two or six volts to suit different amp/speaker combinations.

The unit can be used in Master mode to provide a clock for the source or be locked to an external Word Clock signal generated by a *dCS* Master Clock – this produces a substantial performance improvement.

*dCS* were pioneers in the use of external clocks in digital audio systems and the multi-stage Phase-Locked-Loop (PLL) system used in Scarlatti DAC sets reference standards for accuracy and control of troublesome jitter from the incoming audio stream.

To realise the very best performance, Scarlatti DAC should be used with the matching Scarlatti Upsampler, Scarlatti CD/SACD Transport and Scarlatti Master Clock. Alternatively Scarlatti DAC can be used with any industry standard CD Transport, digital streamer or music server.

All of the Scarlatti products benefit from our ‘soft’ approach to programmable logic that allows new software to be loaded from a *dCS* update disc to add new features and adapt to changes in digital formats.

# Scarlatti DAC

Digital-to-Analogue Converter



## TECHNICAL SPECIFICATIONS

|                    |   |
|--------------------|---|
| Type               | Digital-to-Analogue Converter.  |
| Colour             | Silver or Black.  |
| Dimensions (WxDxH) | 465mm/18.3" x 405mm/16.0" x 75mm/3.0".<br>Allow extra depth for cable connectors.   |
| Weight             | 11.3kg/24.9lbs.   |
| Converter Type     | Proprietary <i>dCS</i> Ring DAC™ topology, oversampling to 5 bits at 2.822 or 3.07MS/s.   |
| Analogue Outputs   | Output Levels: 2V rms or 6V rms on all outputs for a full-scale input, set in the menu.<br>Balanced Outputs: 1 stereo pair on 2x 3-pin male XLR connectors (pin 2 = hot, pin 3 = cold)<br>These outputs are electronically balanced and floating, the signal balance ratio at 1kHz is better than 40dB.<br>Output impedance is 3Ω, maximum load is 600Ω (a 10kΩ load is recommended).<br>Unbalanced Outputs: 1 stereo pair on 2x RCA Phono connectors.<br>Output impedance is 52Ω, maximum load is 600Ω (a 10kΩ load is recommended).   |
| Digital Inputs     | IEEE 1394 interface on 2x 6-way connectors. The interface accepts <i>dCS</i> -encrypted DSD (1 bit data at 2.822MS/s).<br>2x AES/EBU on 3-pin female XLR connectors. Each will accept up to 24 bit PCM at 32, 44.1, 48, 88.2, 96, 176.4 & 192kS/s and DoP DSD over PCM) OR as a Dual AES pair, 24 bit PCM data at 88.2, 96, 176.4, 192, 352.8 & 384 kS/s or DoP or <i>dCS</i> -encrypted DSD.<br>3x SPDIF on 2x RCA Phono and 1x BNC connectors. Each will accept up to 24 bit PCM at 32, 44.1, 48, 88.2, 96, 176.4 & 192kS/s AND DOP (DSD over PCM).<br>1x SPDIF optical on a Toslink connector, will accept up to 24 bit PCM at 32, 44.1, 48, 88.2 & 96kS/s.<br>1x SDIF-2 interface on 2x BNC connectors, will accept up to 24 bit PCM at 32, 44.1, 48, 88.2 & 96kS/s or SDIF-2 DSD (auto-selected). If the unit is not in Master mode, this interface requires a compatible Word Clock input, locked to the data rate. |
| Word Clock I/O     | Word Clock input on 1x BNC connector. Accepts standard Word Clock at 32, 44.1, 48, 88.2, 96, 176.4 & 192kHz.<br>The data rate can be the same as the clock rate or an exact multiple (0.5x, 1x, 2x, 4x) of the clock rate.<br>Sensitive to TTL levels.<br>Word Clock output on 1x BNC connector. In Master mode, a TTL-compatible 44.1kHz Word Clock is available.  |
| Residual Noise     | Better than -110dB0 @ 20Hz-20kHz unweighted (6V Setting).   |
| Spurious Responses | Better than -100dB0 @ 20Hz-20kHz.   |
| Filters            | PCM mode: 4 filters give different trade-offs between the Nyquist image rejection and the phase response<br>2 extra filters are available at 44.1, 176.4kS/s and 192kS/s.<br>DSD mode: 4 filters progressively reduce out-of-audio band noise level (inherent in the 1 bit nature of DSD).  |
| Software Updates   | Loaded from CD.   |
| Local Control      | Nevo Q50™ programmable remote control is supplied with Scarlatti Transport, or RS232.   |
| Power Supply       | Factory set for 100, 115, 220 or 230V AC, 49-62Hz.  |
| Power Consumption  | 22 Watts typical/30 Watts maximum.  |

## KEY FEATURES

- Scarlatti DAC uses the proprietary *dCS* Ring DAC™, which has several detail improvements over earlier versions.
- The *dCS* Ring DAC™ is a discrete balanced design which does not use any off-the-shelf DAC chips commonly found in other manufacturers' products.
- Our proprietary Ring DAC and oversampling topology produces exceptional linearity across the dynamic range.
- All *dCS* products use a sophisticated multi-mode Phase-Locked-Loop (PLL), which significantly reduces clock jitter.
- Faster, 100% accurate DSPs (within the bounds of their resolution) give improved filters revealing yet more fine detail.
- Higher capacity FPGAs (Field Programmable Gate Arrays) give more logic capacity and increase the scope for additional features and enhancements.
- Improved power supplies give lower running temperature and increased tolerance to AC supply variations.
- Aerospace grade aluminum chassis and laminated acoustic damping panels, reduce magnetic effects and vibration.
- The Scarlatti range features a low-power LCD display that makes the user interface easier to read, keeps the power requirements down and minimises electrical noise.

## ABOUT *dCS*

Since 1987 *dCS* has been at the forefront of digital audio – creating world beating, life-enhancing products that are a unique synthesis of exact science and creative imagination. Each of our award winning product ranges sets the standard within its class for technical excellence and musical performance. As a result our digital playback systems are unrivalled in their ability to make great music.

All *dCS* products are designed and manufactured in the UK using only materials and components that are of the highest quality. A carefully judged balance of our unique heritage and world class engineering ensures there is a rich history of groundbreaking innovation inside every *dCS* system.

## CONTACT *dCS*

Data Conversion Systems Ltd

✉ Unit 1  
Buckingway Business Park  
Swavesey  
Cambridgeshire  
CB24 4AE  
UK

@ info@dcsLtd.co.uk

www.dcsLtd.co.uk

🐦 dCSonlythemusic

Copyright © 2012, Data Conversion Systems Limited. All rights reserved.  
*dCS*, *dCS* logo, Ring DAC and all other *dCS* product names are trademarks or registered trademarks of Data Conversion Systems Limited.  
Data Conversion Systems Limited disclaims any proprietary interest in trademarks and trade names other than its own.  
All specifications are subject to change and, whilst they are checked for accuracy, no liabilities can be accepted for errors or omissions.