

dCS Verdi La Scala
Upsampling SACD Transport

User Manual
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¹ *dCS* is Data Conversion Systems Ltd. Company registered in England No. 2072115.

PRODUCT OVERVIEW

The *dCS Verdi La Scala* Upsampling SACD Transport is a logical development of the critically acclaimed *dCS Verdi*.

La Scala plays SACD or Hybrid discs and outputs the DSD data onto an IEEE 1394 bus, ready for conversion to wide-band, high quality audio by a *dCS Elgar Plus* or a 1394-equipped *dCS Delius*².

La Scala also plays standard CDs and the CD layer of Hybrid discs, upsampling the data to DSD internally, without the need for a separate upsampler. This is ideal for audiophiles who do not use other digital audio sources, as the equipment set-up is much simpler.

DSD (Direct Stream Digital) is single bit data, sampled at 2.822MS/s. This data format increases the available audio band-width to well over 100kHz, well in excess of the 20kHz available from a standard CD system. The extra band-width sharpens the transient response and improves the phase response, resulting in a more natural sound and more precise stereo imaging.

CD data at 16 bits / 44.1kS/s is always available from the AES interface (XLR connector), three SPDIF interfaces (RCA, BNC and Toslink optical) and an SDIF-2 interface. When playing SACD, the data is down-sampled to provide these outputs.

La Scala features a Wordclock Input, allowing the transport to be synchronised to a Master Clock or a *dCS* DAC running in master mode. This arrangement reduces system jitter – a major source of sound degradation in digital audio systems.

In common with all *dCS* converters, *La Scala* is based on our flexible digital audio platform which makes extensive use of software configurable chips – FPGA's and DSP's. This allows the internal software to be updated from time to time, either from a *dCS* CD or from a PC, adding extra features and facilities to your system with a minimum of fuss.

Laser Radiation Hazard

dCS Verdi La Scala is a Class 1 Laser Product, it complies with U.S. FDA 21CFR subchapter J. The U.S. FDA Accession number is 0211117. In normal use, there is no risk of exposure to laser radiation.

IMPORTANT!

The metal top cover must only be removed by authorised service personnel. The cover protects the user from indirect exposure to visible and invisible laser radiation, as well as risk of electric shock.

² To comply with the licence arrangements for SACD, this data is encrypted in the *Verdi La Scala* and is decrypted in the receiving unit.

GIUSEPPE VERDI (1813 –1901)

The *dCS Verdi* is named after Giuseppe Verdi, the 19th century Italian composer. He was born in the village of Roncole in the province of Parma on October 10th, 1813. From an early age he showed a strong interest in music and commenced his formal musical studies at the age of 7, tutored by the organist in his village church.

When he was 10, Verdi moved to the nearby town of Busseto, where he attended the music school run by Ferdinando Provesi. In Busseto he made the acquaintance of Antonio Barezzi, a local merchant and passionate music lover. Barezzi provided Verdi with financial assistance during the remainder of his musical studies and many years later in 1836, Verdi married Barezzi's daughter, Margherita.

In 1832 he applied to study at the prestigious Milan Conservatory, but was turned down. Instead, he studied in Milan under the private tuition of Vincenzo Lavingna, a composer and former harpsichordist at the La Scala theatre. During his stay in Milan, Verdi spent a great deal of time attending the theatre and this almost certainly accounts for his work being heavily biased towards opera.

On Provesi's death in 1833, Verdi returned to Busseto with the aim of taking over his position as head of the town's music school. However, this was delayed until 1836 by political squabbling between the clergy and his supporters in the local Philharmonia.

In 1838, Verdi moved to Milan where the following year he presented his first opera, **Oberto, conte di San Bonifacio** at the La Scala theatre, where it was received to moderate acclaim.

1840 must have been the worst year of his life. First his two children and then his wife died in quick succession. His misery was further compounded when his second opera, **Un Giorno di Regno**, closed after only one performance. At this point Verdi seriously considered giving up composing altogether. At the insistence of Bartolomeo Merelli, the impresario of the La Scala theatre, Verdi read a libretto written by Solera. The biblical themes deeply moved him and motivated him to write his second opera, **Nabucco**, which was hailed as a triumph when it was performed for the first time at La Scala in 1842. **Nabucco** firmly established Verdi as one of the leading Italian composers of the day.

Verdi then commenced a period of prodigious creativity. Between 1843 and 1858 he wrote a total of 20 operas. Of these, 3 are especially of note and are still regularly performed: **Rigoletto** - written in 1851, **Il trovatore** and **La traviata** - both written in 1853.

In 1859 he married his second wife, the soprano Giuseppina Strepponi, whom he had known since 1842 when she sang the female lead in **Nabucco** at La Scala.

Verdi's works often contained strong political themes. This interest in politics was carried over to his private life and, in 1861, he was elected as a deputy to the first Italian parliament.

His success had made him a wealthy as well as famous man. He used his considerable fortune to progressively increase the size of his farm holdings in Parma. By 1900, these had become the largest revenue producer in the province.

He continued to compose, albeit at a slower pace. In 1873 he wrote his **Requiem Mass**, which was dedicated to the memory of the poet Alessandro Manzoni, though its origins go back to a work he first composed as a homage to Rossini.

The most notable operas of his latter years are: **Aida** – written in 1871, **Otello** - written in 1887 and **Falstaff** - written in 1893. The last two were based on plays by Shakespeare and are widely regarded as masterpieces. His last major work, the **Four Sacred Pieces (Ave Maria, Stabat Mater, Te Deum and Laudi alla Vergine)**, was written in 1898, a year after the death of his second wife Giuseppina.

Giuseppe Verdi died on January 27th 1901. In accordance with his wishes, he was given a simple funeral, without singing or music. The following month, he was entombed in a state ceremony with his second wife, at the rest home for musicians that he had helped to set up many years before, to care for singers and instrumentalists who had fallen on hard times in their old age. The procession was accompanied by members of Verdi's family, members of the Italian Royal family, members of Parliament, foreign diplomats and leading composers including Puccini, Mascagni and Leoncavallo. Arturo Toscanini lead tens of thousands of mourners with the choruses of La Scala, in the singing of **Va, pensiero** from **Nabucco**.

Recommended recordings

Requiem

Philadelphia Orchestra conducted by Eugene Ormandy.
Sony SACD SS00707

Rigoletto

English National Opera
CHAN 3030

Otello

English National Opera conducted by Mark Elder
CHAN 3068(2)

Otello

Chicago Symphony Orchestra conducted by Sir George Solti
London 422 670-2

Il Trovatore

Berliner Philharmoniker conducted by Herbert von Karajan
EMI CMS7 69311/2

La Traviata

e Coro del Maggio Musicale, Florence conducted by Zubin Meta
Philips 438 238-2

Macbeth

Choir and Orchestra of the German Opera Berlin conducted by Giuseppe Sinopoli
Philips 412 133-2

Four Sacred Pieces and Requiem

Monteverdi Choir and Orchestre Revolutionnaire et Romantique conducted by John Eliot Gardener
Philips 442 142-2

CONTENTS

Product Overview	3
Laser Radiation Hazard	3
Giuseppe Verdi (1813 –1901).....	4
Recommended recordings	5
Contents	6
About this Manual	9
What does the coloured text mean?	9
About Sample Rates	9
Step-by-Step Guide	10
Preliminaries	10
Step 1 – Connecting the System	11
Connecting the 1394 Interface	11
Connecting the DAC Outputs	12
Connecting a PCM Output	12
Step 2 – Playing a Disc	13
Step 3 – Track Selection	14
Programming a Track Sequence	14
Playing all Tracks in a Random Order	14
Step 4 – Setting a Repeat Sequence	15
Repeating the Whole Disc	15
Repeating a Track	15
Repeating Part of a Track	15
Cancelling Repeat Mode	15
Other Settings	15
Typical Applications.....	16
Using a DAC in Master Mode	16
The Software – The Menu	18
Using the Menu	19
Opening the Menu	19
Types of Menu Page	19
Closing the Menu	19
Menu Sequence	20
SACD/CD – Selecting the layer on a hybrid disc	20
Transmit – Activating the 1394 Outputs	20
1394 ID – 1394 Source Identification	20
Bright x - Display Brightness	21
TimeOut – Menu Time Out Setting	21
Ch.Check - Channel Check Test	21
Ph.Check - Phase Check Test	22
Burn In - Burn-In Signal Generation	22
Test - Display Test	23
Issue – Software Issue State	23
Temp – Unit Internal Temperature	23
Serial – Unit Serial Number	23
Contact - Contact information	23
FavLayer – Favourite Layer on a Hybrid Disc	24
SessTime – Session Time Out Setting	24
Easy Play – Automatic Source Selection	24
CDUpdate – Software Update By CD	25
Factory – Restoring Factory Defaults	27
The Hardware – Controls and Connectors	28
Front Panel	28
Key to Front Panel	28
Power Button	28
Play / Pause Button	29
Stop / Eject Button	29
Status Indicator	29
Display Mode Indicator	29

Remote Control Sensor	29
Main Display	29
Mode Indicator	30
Menu Button	(Select) 30
Previous Track Button	(Step Back) 30
Next Track Button	(Step) 30
CD Tray	30
Rotary Control	30
Rear Panel	31
Key to Rear Panel	31
AES/EBU Digital Output	31
SPDIF Digital Outputs	31
SPDIF Optical Output	32
SDIF Interface	32
Wordclock Digital Input	32
1394 Interface	32
Power Link	32
SUC	33
Power switch	33
IEC Power Inlet	33
Mains Fuse	33
Additional Information	33
Remote Control	34
Blue LED	34
Standby button	35
SACD/CD button	35
Transport controls	35
Program and Clear buttons	35
Mode control buttons	35
Input and Filter buttons	36
0 – 9 buttons	36
White LED	36
Keypad button	36
Up/Down buttons	36
Vol/Bal button	36
Mute button	36
Display button	36
La Scala Technical Information	38
Mechanism	38
Digital Interface Specifications	38
Sample Rates	39
Clocking	39
Synchronising to Wordclock In	39
Power requirements	40
Size and Weight	40
Operating Conditions	40
General Technical Information	42
IEEE 1394 Overview	42
Synchronising IEEE 1394 interfaces	42
Automatic Input Selection	42
dCS IR Remote Control Codes	44
Upsampler	44
DACs	45
Transports	46
Using your dCS La Scala for the First Time	48
What's in the Box?	48
Safety Notice	48
Mains Voltage Setting	49
Positioning the Unit	49
Options	50
Mains Supply Voltage	50
Having Your Options Changed	50

Maintenance and Support.....	52
Service & Maintenance	52
Obtaining Service	52
Mains Fuse	52
Replacing a Blown Fuse	52
Removing the Transit Screws	53
Fitting the Top Glass Plate	53
Fitting or Replacing the Batteries in the Remote Control	55
Opening the battery compartment and removing batteries	55
Fitting new batteries and closing the case	55
Updating your <i>La Scala</i>	56
Software Updates	56
Hardware Updates	56
Safety and Electrical Safety	57
Cleaning the Case	57
Troubleshooting	58
Fault Indication	58
Power interruption	58
Power up test errors	58
Troubleshooting Guide	59
The unit fails to power up	59
The DAC/DDC suddenly mutes, <i>La Scala</i> repeats its' power-up sequence	59
The DAC/DDC fails to lock to <i>La Scala</i> or displays "No Input"	59
The DAC/DDC locks but no signal is received	59
Playing a CD, the DAC output is monophonic	59
Channel Check, Phase Check and Burn-In do not work	59
The Remote Control fails to control the unit	60
Menu Timeout does not work	60
The Display turns on briefly when a control is operated, then turns off	60
CD-R does not play correctly	60
A disc is trapped in the unit	60
Troubleshooting the IEEE 1394 Interface	61
Upsampler or Transport displays "Inactive"	61
The Unit keeps displaying "No Comms"	61
The Unit keeps displaying "Search.."	61
The DAC displays "Verdi Wordclock Missing"	61
The DAC displays "Missing Wordclock between Clk Out & Verdi Clk In"	61
The DAC displays "Please check source slaved to DAC Wordclock Out"	61
The DAC displays "Wrong Wordclock @ Verdi Clk In"	61
The DAC remains muted	62
The DAC takes a long time to unmute	62
If You Need More Help	63
Other Information	63
Indexes and Software Version Numbers.....	64
Software History	64
Definitions and Abbreviations	64
Key to Cable Identification	65
List of Tables	66
List of Figures	66
Keywords and Phrases	67

About this Manual

If you have not used a *La Scala* before, please read the section "Using your *dCS La Scala* for the first time" on page **48**.

This manual has been arranged with the most commonly used sections placed first:

- table of contents (page **6**)
- step-by-step (page **10**) and applications guides (page **16**)
- detailed software and hardware information (page **18**)
- technical information (page **38**)
- information for first time users (page **48**)
- options, maintenance and troubleshooting (page **50**)
- index section (page **64**)

What does the coloured text mean?

If you are reading a colour print or a soft copy of this manual, you will notice that some types of text are in colour:

- **Brown text in bold** is a reference to another section or page. Sometimes, if you are reading a soft copy of the manual, page numbers are hyperlinks – click on them and you will go there.
- **Blue text** is used for controls and connectors, described in the hardware section.
- **White text in bold on black** is used for alternative control functions, such as menu operation.
- **Pink text** is a menu page or setting.
- **Green text in bold** shows what appears on the display.
- **Purple text in bold** is used for indicators.

IMPORTANT!

Important information is presented like this - ignoring this may cause you to damage the unit, or invalidate the warranty.

The manual is designed to be helpful. If there are points you feel we could cover better, or that we have missed out - please tell us.

About Sample Rates

All references to sample rates in this manual use the unit kS/s (kilo Samples per second) rather than the technically incorrect kHz.

STEP-BY-STEP GUIDE

This section guides you through setting up the unit for basic operation. You may find this useful if you have not used the *La Scala* for a while.

Preliminaries

The **Control Summary** sheet details the menu structure and outlines the use of the front panel controls. For more information, see the Menu section on page **18**.

For digital interfaces, use with cables designed for digital audio:

- for AES/EBU interfaces use 110Ω screened, twisted pair cables fitted with one male XLR connector and one female XLR connector.
- for SDIF, Wordclock or SPDIF BNC interfaces, use 75Ω coax cables fitted with BNC plugs.
- for SPDIF RCA interfaces, use 75Ω coax cables fitted with RCA Phono plugs.
- for TOSLINK optical interfaces, use Toslink fibre-optic cables.
- for IEEE 1394 interfaces, use the IEEE 1394 cable provided with the unit.

do this: Connect the power cable supplied to the Power inlet on the *La Scala* rear panel, plug the other end into a convenient power outlet. Set the power switch beside the power inlet to the on position (I).

IMPORTANT!

Please do not use an excessively thick power cable as this may damage the power inlet connector. Such damage is not covered by the warranty.

do this: Press the **Power** button and wait about 5 seconds while *La Scala* configures itself.

The display will show in sequence: **La Scala, 0** and **No Disc**.

If the unit is likely to be set in an unfamiliar state, you can reset it as follows:

do this: Press the **Menu** button once, then press the **Step Back** button so the display shows **Factory**. Press the **Select** button and wait a second.

The **PWR** indicator will be lit, the others should be off.

Step 1 – Connecting the System

There are only two connections needed between the *La Scala* and the DAC. The *La Scala* is compatible with the *dCS Elgar Plus* DAC or the *dCS Delius* DAC equipped with the 1394 option.

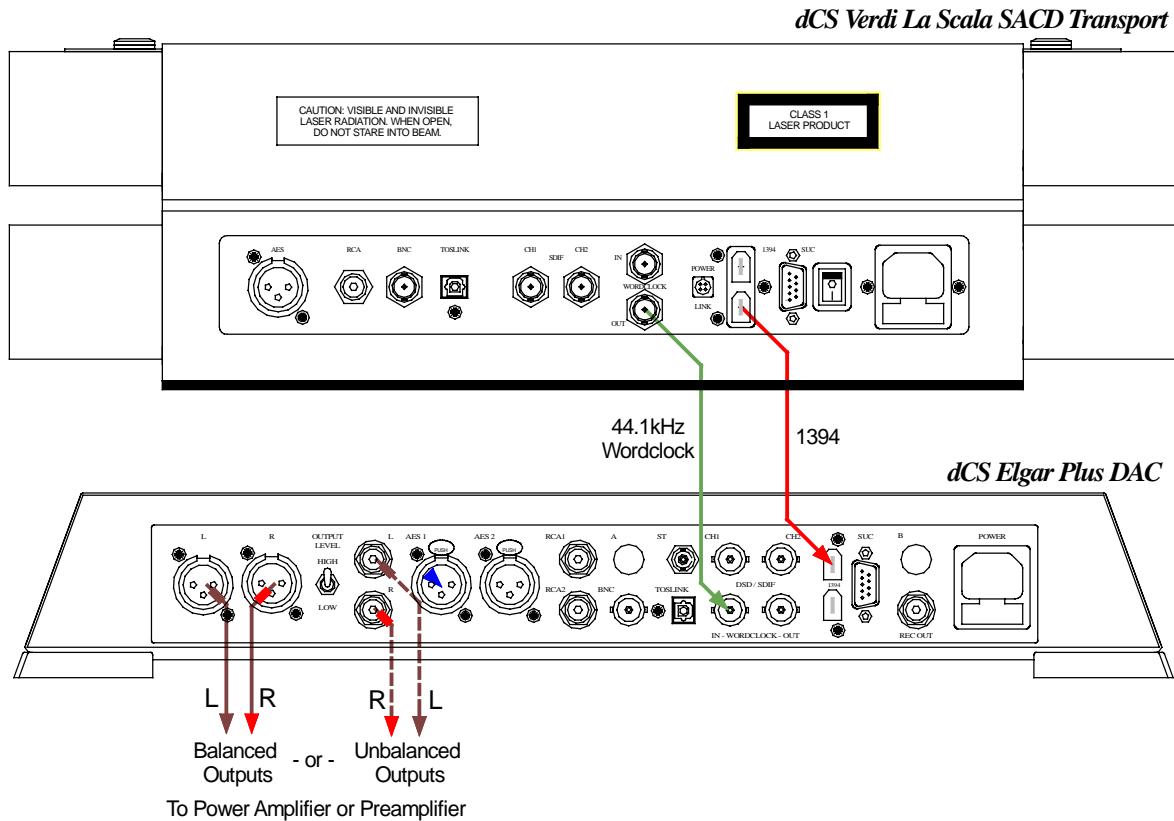


Figure 1 – Connecting *La Scala* to *Elgar Plus*

Connecting the 1394 Interface

While playing an SACD, Hybrid disc or CD, DSD data is available from either of the 1394 connectors. This can be decoded by a 1394-equipped *dCS Elgar Plus* or *Delius* DAC.

- do this: Set the DAC to **1394** mode first.
- do this: Connect ONE of the **1394** connectors on *La Scala's* rear panel to the DAC using the IEEE 1394 cable supplied.
- do this: Also connect *La Scala's* **Wordclock Out** to Wordclock In on the DAC.

IMPORTANT!

Do not connect both of La Scala's 1394 connectors to the DAC – this prevents the IEEE 1394 interfaces synchronising.

Connecting the DAC Outputs

do this: Connect the DAC analogue outputs to matching inputs on your preamplifier / power amplifier. Connect the power amplifier outputs to your loudspeakers.

do this: Set the preamplifier or DAC Volume control to a low level.

do this: Ensure all system components are switched on.

This set-up is shown in **Figure 1**.

Connecting a PCM Output

For the best sound quality, use the 1394 interface. Standard CD data is available from all of the PCM outputs, if you want to use them.

do this: Connect any of the **AES, RCA, BNC** or **Toslink** outputs on the *La Scala* rear panel to the matching inputs on the DAC using suitable cables.

do this: If you want to use **SDIF-2** instead, connect the **CH1** and **CH2** outputs on the *La Scala* rear panel to the matching inputs on the DAC using suitable cables. Also connect the **Wordclock Out** output on the *La Scala* rear panel to the Wordclock In connector on the DAC.

Step 2 – Playing a Disc

do this: Press the **Stop/Eject** button.

The display will show **Opening** then **Open**.

do this: Load a disc into the tray and either push the tray in gently or press the **Eject** button again.

The display will show **Loading**, then **Read TOC** (reading the table of contents from the disc). The disc will be identified as a CD, SACD or hybrid. Either the **CD** or the **SACD** indicator will light, along with the **CONT** indicator (play all tracks in a continuous sequence).

If the disc is a hybrid, the **HYBD** indicator and either the **SACD** or the **CD** indicator will light. You can select the other layer by pressing the **SACD/CD** button on the Remote Control – the indicator will change to match this.

If the disc has disc text, the **TEXT** indicator will light, the disc title and artist's name will scroll across the display. For all discs, the number of tracks / total playing time will be displayed, followed by **0** (stopped).

do this: Select the 1394 input on the DAC.

do this: Allow the DAC to lock and un-mute.

do this: Press the **Play** button. Turn up the Volume to a comfortable level.

You should have audio.

If the disc has disc text, the track name will scroll across the display. For all discs, the track number and elapsed time will be displayed.

do this: Press the **Play/Pause** button to pause playing, press again to resume playing.

do this: Press the **Next Track** or **Previous Track** buttons to skip to another track.

do this: Hold down the **Next Track** or **Previous Track** buttons to fast forward or fast reverse through the track. Alternatively, turn the **Rotary Control**.

do this: Press the **Stop/Eject** button to stop the disc. Press it again to open the tray.

Step 3 – Track Selection

To change to a particular track:

- do this:** Press the **Keypad** button on the Remote Control.
- do this:** While the white LED is lit, press the track number on the **0–9** buttons.
- do this:** For example, for track number 15, press **1**, then press **5** within the next three seconds.

Programming a Track Sequence

If you wish, you can program a sequence of up to 31 tracks in any order. If not, go to Step 4.

- do this:** Load a disc, ensure it is not playing and wait for any disc text to scroll across the display.
- do this:** Press the **Program** button on the Remote Control. While the white LED is lit, enter the first track number on the **0-9** buttons (e.g. **05**).

The **PROG** indicator will light and the display will change to **Prog 05**, then **Pg 1: 5**.

- do this:** You can also use the **Previous Track** / **Next Track** buttons to choose a track number.
- do this:** Press the **Program** button again and select the second track (e.g. **12**). The display will show: **Prog 12**, then **Pg 2: 12**. Continue programming as many tracks as you like, up to a maximum of 31.

If you try to program a track number that is not on the disc, the display shows: **No Trk!**

- do this:** To delete the last track in the sequence, press the **Clear** button.
The display will change back to the previous entry and that will become the last track in the sequence.
- do this:** Press the **Play** button to play the programmed sequence of tracks.
- do this:** Press the **Play Mode** button if you want to stop playing your programmed sequence and change to Random or Continuous play modes.

The programmed sequence is cleared when the CD tray is opened.

Playing all Tracks in a Random Order

If you wish, *La Scala* can play all the tracks on the disc in a random order, then stop.

- do this:** Press the **Play** button.
- do this:** Press the **Play Mode** button on the Remote Control once or twice until the display shows **Shuffle** and the **RAND** indicator lights.

Step 4 – Setting a Repeat Sequence

If you wish, *La Scala* can repeat the whole disc, one track or part of a track. Otherwise, proceed to “Other settings”.

Repeating the Whole Disc

do this: While playing a disc in Continuous mode (**CONT** indicator lit), press the **Repeat** button on the Remote Control to repeat the whole disc.

The display will show **Rept All** and the **REPT** indicator will light.

Repeating a Track

do this: While playing a track disc in Continuous mode (**CONT** indicator lit), press the **Repeat** button on the Remote Control twice to repeat the track.

The display will show **Rept Trk** and the **REP1** indicator will light.

Repeating Part of a Track

do this: To select part of a track to repeat, play the track through until you reach the start point. Press the **A-B** button on the Remote Control, the display will show (for example) **AB 0:20** with the **B** flashing. When you reach the end point (for example, 10 seconds later), press the **A-B** button again. The **B** will stop flashing, the unit will skip back to the start point (A) then continuously repeat the section up to stop point (B). You can select new start and stop points by pressing the **A-B** button at the new start point and again at the new stop point.

Cancelling Repeat Mode

do this: To stop repeating, press the **Repeat** button on the Remote Control once or twice until the display shows **Rept Off**.

Other Settings

More features are available through the Menu. See the Menu section starting on page **18** for more information.

TYPICAL APPLICATIONS

Using a DAC in Master Mode

You can reduce the jitter in your system by using a dCS DAC in Master mode to clock the Transport.

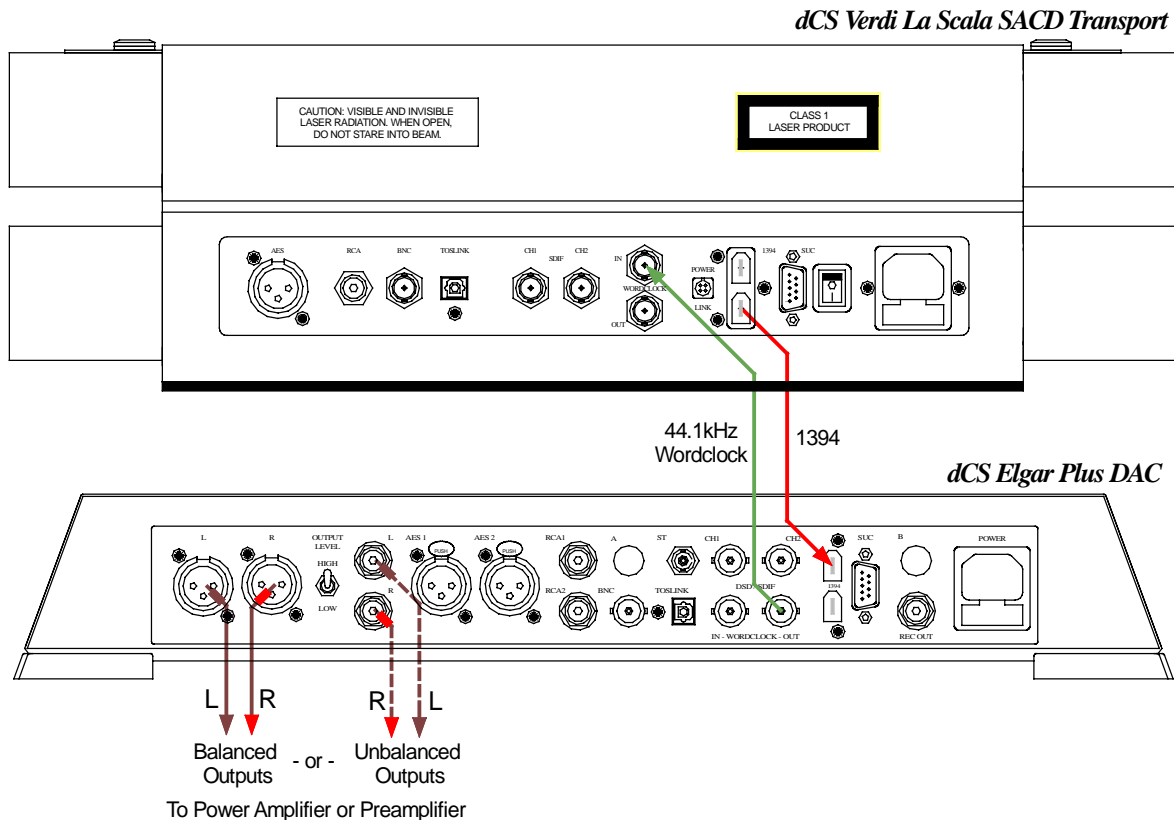


Figure 2 – Using a DAC in Master mode

do this: Connect up as shown in **Figure 2**.

IMPORTANT!

*Note that the Wordclock connections are different to those in **Figure 1**.*

Elgar Plus setup for software version 4.2x or later:

- do this:** The first time you use this arrangement, open the menu and run the **Factory** routine.
- do this:** While playing an SACD, use the **Input** button to select the **1394** input and allow the unit to settle. Open the menu again, choose a **Filter** if you wish, then set the **MS** page to **MS:Mastr**.
- do this:** When the system has re-locked, use the **Volume** control to set a comfortable listening level.

THE SOFTWARE – THE MENU

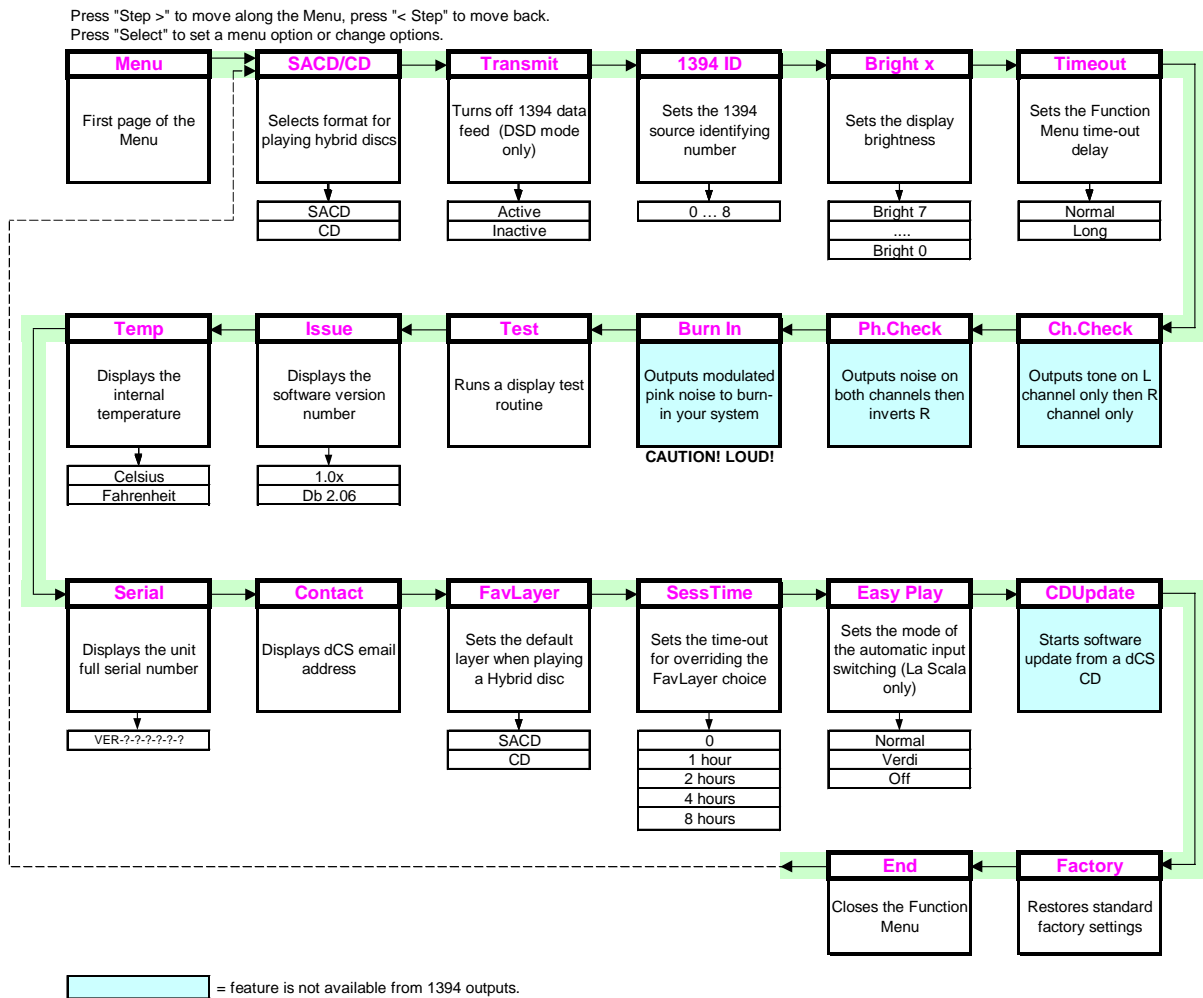


Figure 3 – Menu flow chart

Using the Menu

The Menu gives the user access to a wide range of additional features. It also allows new features and performance enhancements to be added at a later date by software upgrades.

Opening the Menu

The Menu is controlled by three buttons:

- the **Menu** button opens the menu and doubles as the **Select** button.
- the **Step →** button pages forward through the Menu – the **Step** button.
- the **← Step** button pages backward through the Menu – the **Step Back** button.

When you first open the Menu, the display will show **Menu**.

Successive presses of the **Step** button page through the Menu. You cannot go directly to any particular page, but must enter at the top of the Menu and then page through until you reach the page you want.

Types of Menu Page

There are three types of page in the Menu - Parameter Pages, Information Pages and Test Pages.

Parameter pages allow the user to check and also change the current settings of the operating parameters, for example **Bright**. When a parameter page is displayed, the first press of the **Select** button shows the current setting. Subsequent presses of the **Select** button change the page setting.

Information pages display information about the unit, for example **Software Issue**. When an information page is displayed, pressing the **Select** button displays the information held on that page.

Test pages allow the user to initiate a number of useful routines, for example **Test**. When a Test page is displayed, pressing the **Select** button starts the test routine.

Closing the Menu

There are two ways to close the menu and return to normal operation. The easiest way is to wait 5 seconds for the unit to time-out and revert to the standard display. Alternatively, use the **Step** button to page forward until the display shows **End** and then press the **Select** button once.

If the unit times out before the operation in hand has been completed, simply re-enter the menu, page forward (or backward) and continue where you left off. If you find the 5 second time-out difficult to use, you can extend it by changing the **TimeOut** setting.

Menu Sequence

Use the flow chart (**Figure 3**) or the **Control Summary** sheet to guide you through the Menu more quickly.

The following explanation deals with the Menu pages in the sequence they occur in the Menu³. The use of each page is shown on an individual basis, with the last operation being closing the Menu. After you have become more familiar with the Menu, you will find it more convenient to perform all the Menu operations in one go before finally closing the Menu.

SACD/CD – Selecting the layer on a hybrid disc

With a hybrid disc loaded or playing (the **HYBD** indicator will be lit), you can select either the SACD or the CD layer using this menu. This duplicates the **SACD/CD** button on the Remote Control.

- do this:** Open the Menu and step through until the display shows **SACD/CD**.
- do this:** Press the **Select** button to flip between **SACD** or **CD**.
- do this:** When you have the option you want, wait for the Menu to time-out and the display to revert to its normal mode.

If the disc is not a hybrid, the menu will display the disc type but you will not be able to change the setting.

Transmit – Activating the 1394 Outputs

At present, the IEEE 1394 interface supports up to eight active DSD sources at any time. If more are connected to the bus, no more than eight may be active. This situation will improve as industry standards stabilise. The **Transmit** page allows *La Scala* to be left in **DSD/SACD** output mode but with the **1394** interface inactive. With most set-ups, you will not have to worry about this setting.

- do this:** Set up the unit in **DSD/SACD** mode, with the **1394** interface connected to at least one other unit.
- do this:** Open the Menu and step through until the display shows **Transmit**.
- do this:** Press the **Select** button to flip between **Active** and **Inactive**.
- do this:** When you have the option you want, wait for the Menu to time-out and the display to revert to its normal mode.

1394 ID – 1394 Source Identification

This page sets a number between 1 and 8 to identify each *La Scala* you have connected to the 1394 system.

- do this:** Open the Menu and step through until the display shows **1394ID:x**, where x is a number between 0 and 8.
- do this:** Press the **Select** button repeatedly, allowing the unit to settle for a few seconds each time. The display cycles through **1394ID:0**, **1394ID:1**,, **1394ID:7**, **1394ID:8**, and back to **1394ID:0**.

If you set **1394ID:2** for example, when the DAC is selected to this *La Scala*, it will display **La Scala 2**. You can set any other *La Scalas* connected to the 1394 system to a different number. If you set **1394ID:0**, the DAC displays **La Scala**, without a number.

³ A minor software update may change the order of the menu items or add an option. If this happens, the Control Summary sheet may be updated before the manual.

Bright x - Display Brightness

This adjusts the brightness of the main display, with settings between 7 (brightest) and 0 (off, unless something is touched).

do this: Open the Menu and step through until the display shows **Bright x**, where x is a number between 7 and 0.

do this: Press the **Select** button repeatedly and the display cycles through **Bright 7**, **Bright 6**,, **Bright 1**, **Bright 0** and back to **Bright 7**.

After time-out, a setting of **Bright 0** blanks the display unless the unit is not locked. Operating any control or locking to a source while in this mode turns the display back on momentarily.

TimeOut – Menu Time Out Setting

If you find the 5 second time out period for the menu is too short, use this option to change the time out period to 30 seconds.

do this: Open the Menu and step through until the display shows **Timeout**.

do this: Press the **Select** button once and the display will show **Normal**.

do this: Press the **Select** button again and the display will change to **Long**.

do this: Repeat this if you want to change back.

Ch.Check - Channel Check Test

Use this feature to check if the stereo outputs on your system are swapped. It is disabled when in DSD/SACD mode.

do this: Set up your system to play music at a comfortable level.

do this: Open the Menu and step through until the display shows:

Ch.Check

do this: Press the **Select** button once to start the test. After briefly displaying **Wait**, the following sequence occurs:

Left

A modulated tone should appear on the left channel only for several seconds.

None

Both outputs are muted for a second.

Right

A modulated tone should appear on the right channel only for several seconds.

Done

This is displayed briefly at the end of the test.

If the channels are swapped, check for wiring errors from the unit output onwards. If you correct this temporarily using the **Swap** function on a dCS DAC, note that the **Swap** setting is **NOT** remembered at power down.

Ph.Check - Phase Check Test

Use this feature to check if one channel in your system is phase inverted⁴. It is disabled when in DSD/SACD mode.

do this: Set up your system to play music at a comfortable level.

do this: Open the Menu and step through until the display shows:

Ph.Check

do this: Press the **Select** button once to start the test.

After briefly displaying **Wait**, the following sequence occurs:

Normal

In-phase noise appears on both channels for several seconds.

None

Both outputs are muted for a second.

Inverted

A second burst of noise appears on both channels with the right channel inverted for several seconds.

Done

This is displayed briefly at the end of the test.

If both channels are in-phase the first burst of noise will produce a stable central image but the second burst will not. If one channel is out of phase, the second burst will produce a stable stereo image but the first will not.

If there is a phasing error, check for wiring errors from the unit output onwards. You cannot correct this error on a dCS DAC using the **Phase** feature as this inverts both channels.

Burn In - Burn-In Signal Generation

IMPORTANT!

Read all the steps in this section before starting the System Burn-in routine. The Burn-in routine outputs a signal at maximum volume.

IMPORTANT!

This routine is NOT suitable for burning-in loudspeakers. Ensure your loudspeakers are disconnected, or your power amplifier is switched off before starting this routine.

Use this feature to burn-in your system components with modulated pink noise. It is disabled when in DSD/SACD mode.

do this: Set up your system volume control to the usual setting.

do this: Open the Menu and step through until the display shows:

Burn In

do this: Press the **Select** button once to start the burn-in routine.

⁴ The ear responds to positive pressure substantially more than it does to negative pressure for low frequencies, so it is worth getting the phasing correct.

La Scala will show the warning messages **Caution** and **Loud** in the main display for 20 seconds and then the burn-in signal will ramp-up from zero to maximum level over a period of about 10 seconds.

The display cycles through **Burn in**, **Caution** and **Loud** while the **Burn In** routine is running.

do this: To stop the Burn-in signal, press either a **Step** or **Select** button once. The display will briefly show:

Done

Test - Display Test

This runs a test routine to ensure the display is working correctly.

do this: Open the Menu and step through until the display shows **Test**.

do this: Press the **Select** button once to start the test.

- The main display lights up then fades from bottom to top.
- The indicator LEDs light up briefly in sequence.
- All indicators light up, along with small squares on the main display. This flashes off and on once.
- The display shows **Done**.

Issue – Software Issue State

This displays the issue number of the software fitted to your unit. You will need to check this if you are considering a software upgrade or if your unit malfunctions.

do this: Open the Menu and step through until the display shows **Issue**.

do this: Press the **Select** button once to display the software issue.

do this: For units fitted with a **1394** interface, press the **Select** button again to display the 1394 interface software issue.

Temp – Unit Internal Temperature

This displays the temperature inside the unit, close to the crystal oscillators.

do this: Open the Menu and page through until the display shows **Temp**.

do this: Press the **Select** button once to display the temperature in degrees Fahrenheit. Press **Select** again to change to degrees Celsius.

Serial – Unit Serial Number

This displays the full serial number, including the hardware configuration code. We will need this information to assemble upgraded software to suit your unit.

do this: Have a pen and paper handy to note down the number. Open the Menu and step through until the display shows **Serial**.

do this: Press the **Select** button once and the serial number will scroll across the display.

Contact - Contact information

This displays *dCS*' email address and web-site URL.

do this: Open the Menu and step through until the display shows **Contact**.

do this: Press the **Select** button once and the contact information will scroll across the display.

FavLayer – Favourite Layer on a Hybrid Disc

Hybrid discs have two layers – an SACD layer and a CD layer. If you are playing a hybrid disc, this menu setting allows you to choose which layer is played automatically.

- do this: Open the Menu and step through until the display shows **FavLayer**.
- do this: Press the **Select** button once and the display will show **SACD**.
- do this: Press the **Select** button again and the display will change to **CD**.
- do this: Repeat this if you want to change back.

Most users will set this to **SACD**.

SessTime – Session Time Out Setting

When playing a hybrid disc, you can over-ride the FavLayer setting temporarily by pressing the **SACD/CD** button on the Remote Control. The FavLayer setting is restored next time you power up the unit, or at the end of the session time set by this menu.

- do this: Open the Menu and step through until the display shows **SessTime**.
- do this: Press the **Select** button repeatedly and the display will cycle through **0, 1 hour, 2 hours, 4 hours, 8 hours, 30 mins**, etc.
- do this: Choose the setting you want and wait for the Menu to timeout.

Easy Play – Automatic Source Selection

The Easy Play system automatically selects the active source in your system. There are 3 options:

- Normal** *La Scala* selects the 1394 input on the DAC. This is the usual setting.
- Verdi** *La Scala* operates in the same way as a standard *Verdi*. The DAC will select the 1394 input if *La Scala* is playing an SACD, and select the active PCM input if *La Scala* is playing a CD.
- Off** All source selection must be done manually. Choose this setting if you have several digital sources connected to your DAC.

- do this: Open the Menu and step through until the display shows **EasyPlay**.
- do this: Press the **Select** button repeatedly and the display cycles through the three options. Stop when you reach the option you want.

CDUpdate – Software Update By CD

Current software for *dCS Elgar Plus*, *Elgar*, *Delius* or *Purcell* and all *Verdi*, *La Scala* or *Verona* software features a **CD Update** menu page. You can update the software inside any of these products loaded with **CD Update** software quickly and easily from a CD supplied by *dCS*.

IMPORTANT!

Please follow the latest update instructions supplied with the CD. The following is for guidance only.

You will need a standard CD Transport, a CD player or a *dCS Verdi* to play the CD. A few CD players are not suitable because they upsample to 48kS/s or change some of the data bits in other ways (one example is the ML37). Don't worry - the CD Update routine detects these and stops, preventing any changes to the internal software.

If you are updating a *dCS* Upsampler or DAC:

do this: Connect an AES or RCA digital output from the Transport to the Upsampler or DAC and select the input you have just connected. Disconnect any **1394** interface cables.

If you are updating a *dCS* DAC connected to the Transport through another device:

do this: Connect an AES or RCA digital output from the other device to the DAC and select the input you have just connected. Set the other device to bit-for-bit mode (**Cloning** on a *dCS* Upsampler). Disconnect any **1394** interface cables. If in doubt, connect the DAC directly to the transport.

If you are updating a *dCS Verona*:

do this: Disconnect ALL cables from the unit, except the power cable. Open the Menu on the unit to be updated and step through until the display shows **CDUpdate**.

do this: Make sure the transport is in **STOP** mode.

do this: Press the **Select** button to start the routine.

do this: When the unit displays **Green**, connect a BNC cable from the **Ext Ref In** input to a BNC SPDIF digital output on the transport. The unit will lock to the transport, then display **Wait**.

If you are updating a *dCS* Transport, the Transport plays the CD and updates itself, missing out some of the early steps. Disconnect any **1394** interface cables.

For all *dCS* units:

do this: **RELAX!** The update procedure is easy.

do this: Mute your power amplifier.

do this: Insert a *dCS* CD (containing software for the unit you want to update) into the transport, making sure it is in **STOP** mode.

do this: Open the Menu on the unit to be updated and step through until the display shows **CDUpdate**.

do this: Press the **Select** button to start the routine.

The unit will display **Wait** while it prepares the flash memory for the update. After 3-4 minutes, the unit will scroll **Please Start CD**.

do this: Press **PLAY**.

IMPORTANT!

*Do not press **PLAY** before the unit to be updated is ready. This can cause the download to fail. Use only *dCS* CDs.*

The unit will now inspect the CD, and will display **Scanning**, while it reads administrative data.

If there is anything wrong with the dCS CD that has been loaded or it does not match the product, the unit will display **Wrong!** or **Wrong CD** or **No Index** and revert to normal operation. Don't worry – the internal software is unchanged. Check the CD for dust or scratches.

If it is not a dCS CD at all, the unit will keep repeating **Please Start CD**, for about 30 seconds or display **Wrong CD** and then revert to normal operation.

If the data is correct, the unit will display **Track n**, where n is a number.

do this: You can move the Transport on to track n, or wait for it to get there of its own accord.

If the unit has to wait for the right track, it will display **Found Track 1**, then **Found Track 2**, etc, until it finds the right one. **Vx.xx** will appear on the display (this is the new software issue number). If the unit displays **No Track**, repeat the procedure but manually advance the transport to track n.

Next, the update progress is displayed in one of the following formats:

- The display counts up from **0% 0/7** to **99% 0/7**, displays **Copying**, counts up from **0% 1/7** to **99% 1/7**, displays **Copying** and so on until the last section is loaded and copied. Some models may use less than 8 sections.
- A moving dot counts down slowly from about **3** to **0**.

After about 15 minutes, the update is complete and the unit will reboot itself.

do this: If the CD is still playing, you can stop it now.

do this: If the unit being updated has a 1394 interface, wait until the unit has settled (about 30 seconds), switch it off for 10 seconds, then on again.

If the unit detects no change in the 1394 interface code, it will boot up as usual and be ready for use.

If the 1394 interface code has been updated, the unit will load the new code into the flash memory on the 1394 interface board – **this takes about 10 minutes**. While this is taking place, the unit will display a progress bar. Next the unit will display in sequence: **Done 5**, **Done 4**, ..., **Done 1** then reboot itself again.

The unit is ready for use.

OOPS!

If the CD transport stops or becomes disconnected during an update, don't worry! The original software is backed up inside the unit. Proceed as follows:

The checking routine will find a sequencing error and **Non Seq** or **Bad CD!** will appear on the display.

do this: Turn the power off and on to reboot. This message will scroll across the display:
Bad CheckSum – Press Function button to attempt recovery
or **Bad CheckSum – Press Mute button to attempt recovery**
or **Bad CheckSum – Press Menu button to attempt recovery,**

depending on the model.

do this: Press the appropriate button once.

The original software is retrieved from the internal backup while displaying **Wait...** . This may take a few minutes. When recovery is complete, the unit re-boots.

do this: Run the **CD Update** routine again to load the new software.

Factory – Restoring Factory Defaults

This feature sets most of the parameters back to the factory default settings. This can be useful if the settings are accidentally changed and you need to reset the unit to a standard configuration, or your children play with it.

do this: Open the Menu and step through until the display shows **Factory**.
do this: Press the **Select** button and leave the menu to time out.

After re-booting, the unit will return to normal operation set up as follows:

- **Transmit** to **Active**
- **Brightness** to **Bright 4**
- **1394ID** to **0**
- **Timeout** to **Normal**
- **FavLayer** to **SACD**
- **SessTime** to **0**

THE HARDWARE – CONTROLS AND CONNECTORS

Front Panel

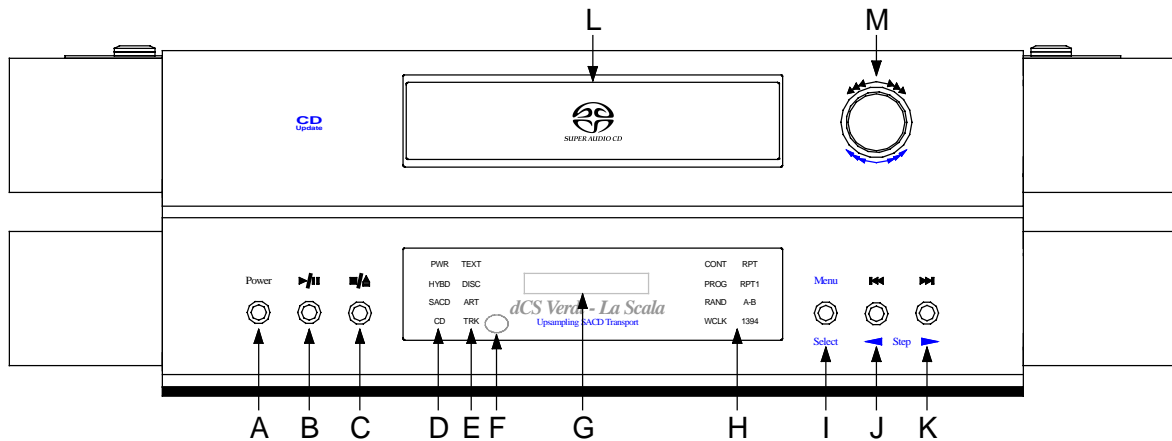


Figure 4 – dCS La Scala Front Panel

Key to Front Panel

A	Power / Standby button
B	Play / Pause button
C	Stop / Eject button
D	Status indicator
E	Display mode indicator
F	Remote Control sensor
G	Main Display
H	Mode indicator
I	Menu or Select button
J	Previous Track / Fast Reverse or Menu Step Back button
K	Next Track / Fast Forward or Menu Step button
L	SACD/CD tray
M	Rotary control

Power Button

This button doubles as a power on / off switch and a standby mode switch.

do this: To switch on, press the **Power** button briefly. If power is available, the **PWR** indicator will light and *La Scala* will run through the power up routine.

Note that the **Power** button will not click when turning power on – this is normal.

do this: When you have finished listening, press the **Power** button briefly to set the unit to standby mode.

The outputs will mute, all displays will turn off except the **PWR** indicator. In this mode, *La Scala* uses little power. If power is switched off or fails, Standby mode is cancelled.

do this: To restore normal operation, press the **Power** button briefly again.

La Scala will power up ready for use.

do this: To switch off completely, press the **Power** button and hold it for a few seconds until the **Main Display** shows **Power Dn**, then release it.

Play / Pause Button

do this: With a disc loaded, press this button to start it playing. Press it to pause and press again to resume playing.

Stop / Eject Button

do this: With a disc playing, press this button to stop playing. Press again to open or close the CD tray and change the disc.

Status Indicator

This consists of 4 indicators:

- **PWR** is lit when power is connected and the unit is turned on or is in standby mode.
- **HYBD** is lit when the unit detects that a hybrid SACD / CD is loaded.
- **SACD** is lit when the unit detects that a SACD is loaded, or that a hybrid disc is loaded and the unit is set to SACD mode.
- **CD** is lit when the unit detects that an ordinary CD is loaded, or that a hybrid disc is loaded and the unit is set to CD mode.

Display Mode Indicator

This consists of 4 indicators:

- **TEXT** is lit while text from the disc is displayed.
- **DISC** is lit while the disc title is displayed.
- **ART** is lit while the artist's name is displayed.
- **TRK** is lit while the track title is displayed.

Remote Control Sensor

Point the end of the **Remote Control** unit towards the sensor for best control range.

Main Display

The main display tells you what *La Scala* is doing.

After pressing **Eject**, the display will show **Opening**, then **Open**. While the tray is closing the display will show **Loading**.

While playing a disc, use the **Display** button on the Remote Control to display either:

- the track number and the elapsed time of the current track.
- the track name, if you are playing an SACD with Text Data.
- the track number and the remaining time for the current track.
- the remaining time on the disc.

While a disc is loaded but not playing, you can choose to display either:

- the total tracks and run time for the disc.
- the disc title, if you are playing an SACD with Text Data.
- the artist's name, if you are playing an SACD with Text Data.

When accessing the Menu (see page **18**), menu options are displayed here.

If an error occurs during power up or normal use, the details of the fault will be displayed. See "Fault Indication" on page **58**.

Mode Indicator

The upper block of 6 indicators shows which play mode has been selected from the Remote Control:

- **CONT** - In Continuous mode, the unit plays the disc from the beginning to the end.
- **PROG** – In Program mode, the unit is being set up with a program or is playing a programmed sequence of tracks.
- **RAND** – The unit plays all the tracks on the disc in a Random order, then stops.
- **REPT** – The unit is repeating the whole disc or the programmed sequence.
- **RPT1** – The unit is repeating the current track.
- **A-B** – The unit is repeating the specified part of the current track or disc.

When a 44.1kHz Wordclock is connected to **Wordclock In**, *La Scala* automatically slaves to it. The **WCLK** indicator flashes while the unit is locking then remains on while locked. It will ignore wordclocks at frequencies other than 44.1kHz.

When playing an SACD, the IEEE **1394** interface is active and the **1394** indicator lights up.

Menu Button

(Select)

Press the **Menu** button to open the Menu (see page **18**) and change or **Select** settings in the menu.

Previous Track Button



(Step Back)

Next Track Button



(Step)

Press the **Previous Track** button briefly to skip to the previous track. Hold down the **Previous Track** button to fast reverse through the current track.

Press the **Next Track** button briefly to skip to the next track. Hold down the **Next Track** button to fast forward through the current track.

When the Menu is open, these two buttons are used for paging backwards and forwards through the Menu (see page **18**).

CD Tray

When the tray is open, a gentle push will close it.

If the tray is open when the unit is on and you press the **Power** button, the tray will close automatically before the unit enters standby mode or powers down.

Rotary Control

While the disc is stopped, turn the **Rotary Control** clockwise to skip to a later track or anti-clockwise to skip to an earlier track.

While the disc is playing, turn the **Rotary Control** clockwise to fast forward through the track or anti-clockwise to fast reverse.

While the Menu is open, use the **Rotary Control** to page forwards and backwards through the menu.

Rear Panel

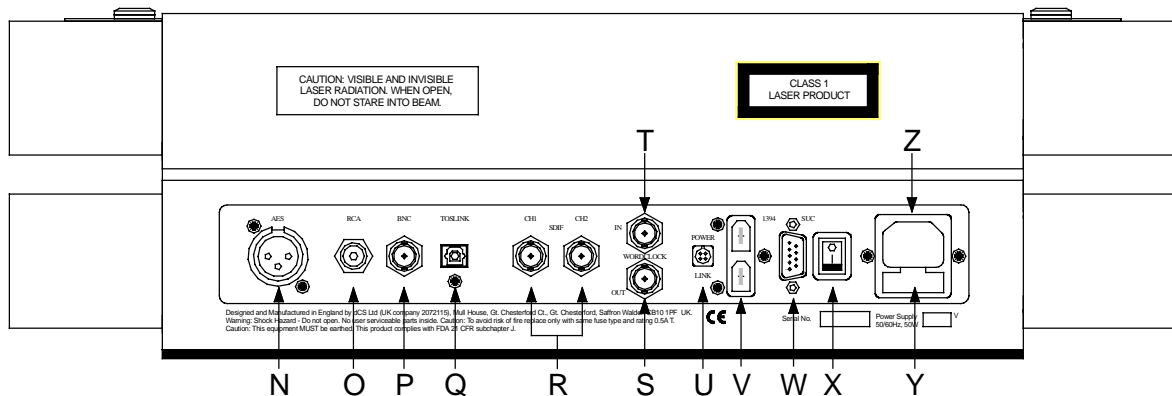


Figure 5 – dCS La Scala Rear Panel

Key to Rear Panel

N	AES/EBU digital output on XLR male connector
O & P	SPDIF digital inputs on RCA & BNC connectors
Q	SPDIF optical output on TOSLINK connector
R	SDIF interface on 2 BNC connectors
S	Wordclock digital Output
T	Wordclock digital Input
U	Power Link connector
V	IEEE 1394 interface on two 6-way connectors
W	Software Upgrade Connector , 9-way 'D' type
X	Power switch
Y	Mains fuse holder
Z	IEC Power inlet

AES/EBU Digital Output

The **AES 1** output carries AES/EBU digital signals, sampled at 44.1kS/s. The data format is AES3. Data from SACDs is also available, down-sampled to 16 bit / 44.1kS/s.

Use with 110 ohm screened, twisted pair cable designed for digital audio or RF. Unscreened cables must not be used as they may pick up interference from other appliances.

SPDIF Digital Outputs

The SPDIF outputs (**RCA** or **BNC**) carry identical digital signals, sampled at 44.1kS/s. The data format is IEC60958, otherwise known as SPDIF. Data from SACDs is also available, down-sampled to 16 bit / 44.1kS/s. RCA connectors are the type commonly found on consumer equipment.

Use with 75 ohm co-axial cables designed for digital audio or RF use. Some types of audio cable are not suitable and may cause crackling noises or other malfunctions.

IMPORTANT!

If the Copy Prohibit flag in the source data on the disc is set, you will not be able to record the data from the SPDIF outputs.

SPDIF Optical Output

The optical output carries optically transmitted digital signals, sampled at 44.1kS/s. The data format is IEC60958, otherwise known as SPDIF. Data from SACDs is also available, down-sampled to 16 bit / 44.1kS/s.

Use the **Toslink** output with Toslink fibre optic cables designed for digital audio use. Pull off the plastic cover before use.

SDIF Interface

This consists of two data outputs, **CH1** & **CH2** and the **Wordclock Out**, all on BNC sockets. The interface carries digital signals, sampled at 44.1kS/s. The data format is SDIF-2. Data from SACDs is also available, down-sampled to 16 bit / 44.1kS/s.

Connect up the three BNC sockets with 75Ω co-axial cables designed for digital audio or RF use. A.C. coupled cables are not suitable.

IMPORTANT!

Please ensure the 3 cables are correctly connected to the DAC (or other destination equipment), otherwise the interface may malfunction or the channels may be swapped.

When playing a disc, **Wordclock Out** carries a 44.1kHz Wordclock.

Wordclock Digital Input

Wordclock In accepts a 44.1kHz Wordclock. It allows *La Scala* and the rest of your system to be synchronised to a master clock. This arrangement helps reduce jitter, which can degrade the audio output. When a 44.1kHz Wordclock is connected, *La Scala* will automatically slave to it. The **WCik** indicator will flash while locking and stay on while *La Scala* is locked.

There is no data on the wordclock interface. Use with 75 ohm co-axial cables designed for digital audio or RF use. A.C. coupled cables are not suitable.

1394 Interface

All units feature an IEEE **1394** multi-channel interface, available on two 6-way 1394 connectors. If there are more than eight 1394 sources in the chain, *La Scala* can be made inactive using the **Transmit** menu item, see page **20**.

In this release, the unit generates DSD data at 2.822MS/s from either **1394** connector. For correct operation, the DAC must be locked to the 44.1kHz signal on *La Scala's* **Wordclock Out** connector (or the system must be locked to a master clock running at 44.1kHz). We recommend using the 1.8 metre long, 6-way IEEE 1394 cable assembly and the BNC cable assembly provided. The **1394** indicator lights when the interface is active. See "IEEE 1394 Overview" on page **42** for more information.

IMPORTANT!

*Do not connect both **1394** outputs to the same DAC or other destination equipment - the interface system will be stuck in an endless loop and will not work.*

Power Link

This can be linked to similar connectors on other *dCS* units using a link cable. All units linked in this way may be turned on or off or set to standby by pressing a single **Power** button or sending one Remote Control command. Link cables are available from *dCS*.

SUC

The Software Upgrade Connector is intended to be used by *dCS* service agents to load new software into *La Scala*.

IMPORTANT!

*Do not connect any other equipment to the SUC connector as this may damage both **La Scala** and the equipment so connected. Do not operate **La Scala** with a PC connected. Failure to observe this warning will void the unit's warranty, and may cause unpleasant effects in your system.*

Power switch

The Power switch completely isolates the unit from the power supply. In normal use, set it to the On position (**I**). Set it to Off (**0**) during electrical storms, or while you are away for a long period.

IEC Power Inlet

Use with a 3 - pin IEC type power cable.

Mains Fuse

Replace only with a 20 x 5mm 500mA T HRC fuse. Please see page **52** for replacement details.

Additional Information

The rear panel displays the following information about the unit:

- The manufacturer's name and address.
- Supply voltage setting, frequency range and rated power.
- Model: *dCS La Scala*
- The short form of the unit serial number.

We will need the serial number (preferably the full serial number from the menu) to give you support over the phone, or to ship you software updates.

Remote Control

The Remote Control unit supplied with *dCS Verdi* and *La Scala* also allows control of some features on *dCS Elgar Plus* or *Delius* DACs and the *Purcell* Upsampler. These buttons are identified by blue text or symbols on the Remote Control unit.

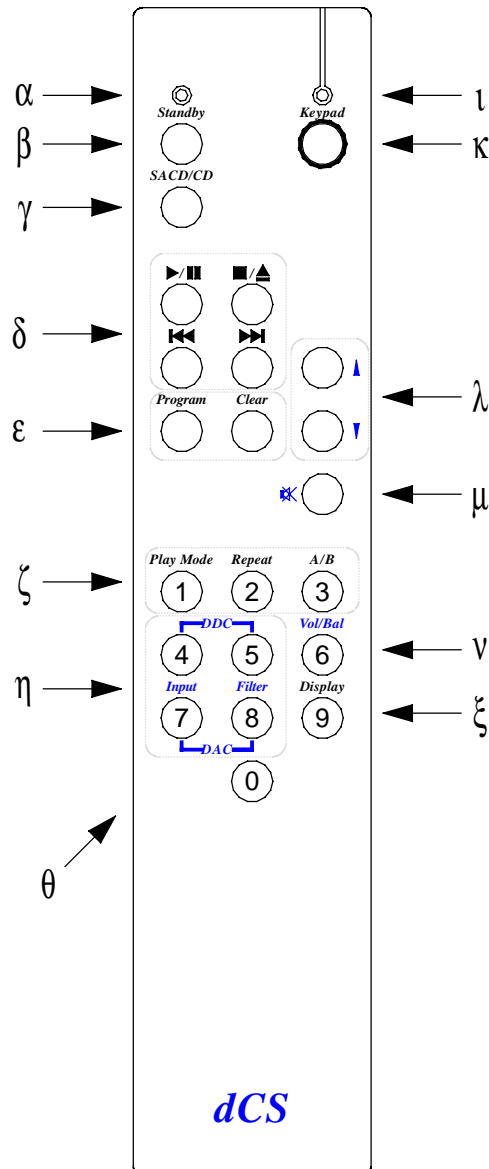


Figure 6 – Transport Remote Control

Blue LED

(α) The blue LED flashes briefly when the remote control sends a DAC or DDC command.

Standby button

(β) Pressing the **Standby** button normally sets *La Scala* to standby mode. Press again to restore normal operation.

If you press the **Standby** button while the white LED (1) is lit, all *dCS* units in range of the remote control will be toggled in or out of standby mode.

SACD/CD button

(γ) While playing a hybrid disc, press this button to select either the **SACD** layer or the standard **CD** layer. The layer selected will be displayed on the **Status** indicator. If the disc is not a hybrid disc, this button has no effect.

Transport controls

(δ) The **Play/Pause**, **Stop/Eject**, **Previous Track** and **Next Track** buttons control the transport in the same way as the buttons on the front panel.

While the white LED (1) is lit, the **Previous Track** and **Next Track** buttons skip to the previous or next track index, if the disc being played has indexing.

Program and Clear buttons

(ε) These two buttons are used to set up or change a sequence of tracks.

do this: Press the **Program** button to enter **PROG** mode, then enter the first track number on the **0-9** buttons (e.g. **05**) while the white LED (1) is lit. Repeat this to program more tracks, up to a maximum of 31.

do this: To delete the last track in the sequence, press the **Clear** button.

For more details, see "Track Selection" on page 14.

Mode control buttons

do this: (ζ) Press the **Play Mode** button repeatedly to cycle through the 3 modes:

- **Continue** – plays the whole disc in a continuous sequence then stops. The **CONT** indicator is lit.
- **Program** – plays the programmed sequence of tracks then stops. The **PROG** indicator is lit.
- **Shuffle** – plays all the tracks on the disc in a random sequence then stops. The **RAND** indicator is lit.

do this: Press the **Repeat** button repeatedly to cycle through the 3 modes:

- **Rept All** - repeats the whole disc, depending on the **Play Mode**. In **Continuous** mode, the whole disc is repeated from start to finish. In **Program mode**, the programmed sequence is repeated. In **Shuffle** mode, the whole disc is replayed in a different random sequence.
- **Rept Trk** – repeats the current track, even if it is already playing.
- **Rept Off** – returns to normal playing mode.

do this: To select part of a track to repeat, play the track through until you reach the start point. Press the **A-B** button, the display will show (for example) **AB 0:20** with the **B** flashing. When you reach the end point (for example, 10 seconds later), press the **A-B** button again. The **B** will stop flashing, the unit will skip back to the start point then continuously repeat the section up to stop point. You can select new start and stop points by pressing the **A-B** button at the new start point and again at the new stop point.

Input and Filter buttons

(ŋ) This group of buttons change the selected **Input** and **Filter** settings for *dCS* DDCs (buttons **4** and **5**) or *dCS* DACs (buttons **7 & 8**), if either of these are used in your system. They do not affect *La Scala*. Press the button repeatedly to cycle through the options.

0 – 9 buttons

(θ) The ten numbered buttons form the numeric keypad, used to enter track numbers while the white LED is lit. Most of these buttons have other functions. To set the Remote Control in keypad mode, either:

- press the **Keypad** button,
- press the **0** button or
- hold down one of the **1-9** buttons until the white LED lights.

The white LED goes out after 5 seconds, returning the Remote Control to normal operation. Pressing a number button while the white LED is lit keeps the white LED on for another 5 seconds.

White LED

(ι) The white LED lights to indicate that the numeric keypad and some alternative functions are active.

Keypad button

(κ) The **Keypad** button toggles the Remote Control in and out of keypad mode.

Up/Down buttons

Vol/Bal button

(λ) Use the **Up/Down** buttons to alter the Volume setting of a *dCS* DAC.

(ν) Pressing the **Vol/Bal** button puts a *dCS* DAC in Balance mode – use the **Up/Down** buttons to adjust the Balance. Balance mode times out after 5 seconds if no adjustment is made.

These buttons do not affect *La Scala*.

Mute button

(μ) Press the **Mute** button to mute or un-mute a *dCS* DAC. This button does not affect *La Scala*.

Display button

(ξ) Press the **Display** button to cycle through the display options:

- disc title (discs with disc text only),
- artist's name (discs with disc text only),
- track number and elapsed time.

The display mode indicators show what is being displayed.

LA SCALA TECHNICAL INFORMATION

Mechanism

Dual laser, 2 channel, SACD/CD compatible
Vibration absorbing elastomer suspension
Drawer type loader

Digital Interface Specifications

IEEE 1394		I/O
Type		200Mbit
Data format		<i>dCS</i> Encrypted DSD
Connectors		6-way x 2

Table 1 – IEEE 1394 Interface Electrical Characteristics

AES/EBU (AES3)		Output
Type		Balanced, differential
Impedance		110 Ω
Level (unloaded)		7 V pk-pk
Connector		XLR3 male x 3
Connections	Pin 1	Ground or shield
	Pin 2	+Signal
	Pin 3	-Signal

Table 2 – AES/EBU Interface Electrical Characteristics

SPDIF (electrical)		Output
Type		Single ended, ground referred
Impedance		75 Ω
Level (unloaded)		1.0 V pk-pk
Connector		RCA Phono or BNC

Table 3 – SPDIF Interface Electrical Characteristics

SPDIF (optical)		Toslink Output
Type		Optical
Wavelength		660 nm
Connector		Toslink EIAJ CP-340

Table 4 – Optical Interfaces Electrical Characteristics

SDIF-2 / Wordclock	WCk Input	Outputs	
Type	Single ended, ground referred		
Impedance	100	25	Ω
Level (unloaded)	TTL	TTL	
Connector	BNC	BNC x 3	

Table 5 – SDIF / Wordclock Interface Electrical Characteristics

Sample Rates

2.822MS/s DSD on the IEEE **1394** interface, upsampled when playing a standard CD. Use with a 44.1kHz wordclock.
16 bit / 44.1kS/s on **AES, RCA, BNC, Toslink** and **SDIF-2** interfaces, downsampled when playing an SACD.
The Wordclock interface generates / accepts a 44.1kHz wordclock.

Clocking

The sample clock quality significantly determines the output performance of the unit. The highest quality clocks that are available are crystals, so we use these. *La Scala* uses on-board voltage controlled crystal oscillators (VCXO's) as clock sources. In master mode, this clocks the outputs and controls the mechanism.

When slaving to **Wordclock In**, the VCXO is synchronised to the clock signal extracted from the input by a phase locked loop (PLL). This PLL is of a special narrow bandwidth type, that provides a significant degree of "clock cleaning". The PLL is also very robust, and will lock to very poor signals if necessary.

Accuracy Typically ± 3 parts per million at time of shipping

Synchronising to **Wordclock In**

The unit will slave to a 44.1kHz Wordclock on the **Wordclock In** connector.

Pull-in range ± 300 parts per million about nominal frequency
Lock-in time < 6 seconds for most situations

Power requirements

Units may be set for 100, 115/120, 200, 215/220 or 230/240V (+/-10%), 50/60Hz AC operation.

	Typical power consumption	Maximum power consumption
<i>Purcell & Verona</i>	16W	20W
<i>Delius</i>	21W	25W
<i>Elgar Plus</i>	34W	40W
<i>Verdi & La Scala</i>	25W	50W

Table 6 – Power consumption for consumer products

Size and Weight

	Length	Depth	Height	Weight
<i>Purcell & Verona</i>	461mm (18.15")	413mm (16.18")	69mm (2.70")	8.5kg (18.7lbs)
<i>Delius</i>	461mm (18.15")	413mm (16.18")*	69mm (2.70")	8.8kg (19.4lbs)
<i>Elgar Plus</i>	461mm (18.15")	406mm (16.0")	75mm (2.94")	12.0kg (26.4lbs)
<i>Verdi & La Scala</i>	461mm (18.15")	415mm (16.34")**	137mm (5.39")	17kg (37.4lbs)

Table 7 – Size and weight for consumer products

- **Delius* only: the control knob protrudes out of the front by 20mm (0.79").
- ***Verdi & La Scala* only: the control knob protrudes out of the front by 13mm (0.51").
- Allow extra depth for cable connectors.

Operating Conditions

- Ambient temperature range: 0°C (32°F) to 50°C (122°F), non-condensing.
- Do not install the unit near heat sources such as radiators, air ducts, power amplifiers or direct strong sunlight.
- If in doubt, the easy test is - *La Scala* is happy to work anywhere a human is.

GENERAL TECHNICAL INFORMATION

IEEE 1394 Overview

The IEEE 1394 interface is a high speed multi-channel system. It has the capacity to carry over 50 channels of DSD (Direct Stream Digital) or over 30 channels of 24 bit / 192kS/s audio data through a single cable.

From October 2001 onwards, a pair of 6-way electrical IEEE 1394 interfaces running at 200Mbit/s are available on the following dCS products:

- dCS *Elgar Plus* DAC, standard fit with software version 4.10 or later.
- dCS *Delius* DAC, optional fit with software version 2.10 or later.
- dCS *Purcell* Upsampler, optional fit with software version 2.11 or later.
- dCS *Verdi* SACD/CD Transport, standard fit.
- dCS *Verdi La Scala* Upsampling SACD/CD Transport, standard fit.

In the current implementation, *Purcell* can upsample standard digital formats (such as CD at 44.1kS/s 16 bits) to DSD at 2.822MS/s and output a stereo pair of DSD data onto its 1394 interface. *Verdi* can read DSD data from an SACD and output a stereo pair of DSD data onto its 1394 interface. The data is encrypted to conform to the conditions of the DSD licensing arrangements. Either *Elgar Plus* or *Delius* will accept DSD data from the 1394 interface and convert it to high quality analogue.

The hardware interface is very flexible and software configurable. We will add other features and data formats at a later date, adopting industry standard formats as they stabilise.

Synchronising IEEE 1394 interfaces

The IEEE 1394 system is great for carrying large amounts of digital audio data – but is inherently very jittery. To ensure low-jitter conversion to analogue, each unit linked by the 1394 system must be synchronised to the others by another connection.

- A DAC in slave mode should be sync'ed to *Verdi* by connecting *Verdi*'s **WCik Out** to the DAC's **WCik In**.
- A DAC in master mode should sync *Verdi* by connecting the DAC's **WCik Out** to *Verdi*'s **WCik In**.
- An Upsampler should be slaved to *Verdi*, usually by the selected PCM input (**AES** or **RCA**).

Automatic Input Selection

From October 2002 onwards, the software on the following products has been enhanced to automatically select the interface carrying data from *Verdi*:

- dCS *Elgar Plus* DAC, standard fit with software version 4.20 or later.
- dCS *Delius* DAC, optional fit with software version 2.20 or later.
- dCS *Verdi* SACD/CD Transport, standard fit with software version 1.20 or later.
- dCS *Verdi La Scala* Upsampling SACD/CD Transport, standard fit, with the **Easy Play** menu set to **Verdi**.

The system relies on a 1394 link between *Verdi* and the DAC. The DAC will automatically change inputs whenever *Verdi* changes layer or starts playing.

If the *Verdi* starts playing an SACD, the DAC selects that 1394 channel.

If the *Verdi* starts playing a CD and:

- there is a second source on the 1394 bus (such as a *Purcell*), the DAC will select the other source.
- there are more than two other sources on the 1394 bus (such as a *Purcell* or another *Verdi*), the DAC will select one of the other sources. You may have to manually select the source you want.
- *Verdi* is the only source on the 1394 bus, the DAC will scan the PCM inputs and select the first active one it finds. The priority order is: **AES1** (and **Dual AES**) first, **AES2**, **RCA1**, **RCA2**, **TOS**, **ST**, **BNC**. If the active input is not derived from *Verdi*, you may have to manually select the source you want. If none of the PCM inputs are active, the DAC will remain selected to the original 1394 channel.

This arrangement works best with only two inputs connected to the DAC – *Verdi*'s 1394 feed for SACD's and either a PCM feed from *Verdi* or an upsampled feed from *Verdi*. The DAC can be in master or slave mode – we recommend master mode.

If you are using a *Purcell* in Dual AES mode (rather than DSD mode), you should set the DAC's **Dual AES** menu page to either **Lock** or **Auto**.

The DAC has enough information about the system set-up to report connection and setting errors. These are:

- **Verdi Wordclock Missing**
- **Please Check Source Slaved to Delius / Elgar Plus Wordclock Out**
- **Missing Wordclock between ClkOut and Verdi Clk In**
- **Wrong Fs @ Verdi Clk In**

dCS IR Remote Control Codes

This section gives details of the Remote Control codes generated by *dCS* IR Remote Control units, for use with programmable remote controls. All *dCS* Remote Control units use the RC5 system and a carrier frequency of 37.9kHz. For more information on the use of *dCS* Remote Control units, please refer to the manual for that unit.

IMPORTANT!

Please note that dCS cannot accept responsibility for any difficulties experienced with other manufacturer's remote control units.

Upsampler

For *Purcell*, the category code is **29** (decimal).

These Upsampler codes are in use on the *Elgar Plus / Delius* Remote v2.0 and Transport Remote v2.0.

Button Code		<i>Purcell</i>
Decimal	Hexadecimal	RC button
1	01	RCA1 / RCA2
3	03	AES1 / AES2
6	06	BNC
7	07	Display
12	0C	Standby
14	0E	Filter
16	10	(up)
17	11	(down)
26	1A	Function
27	1B	Input
32	20	32kS/s out
33	21	44.1kS/s out
34	22	48kS/s out
35	23	88.2kS/s out
36	24	96kS/s out
37	25	176.4kS/s out
38	26	192kS/s out
39	27	DSD/1394 out
41	29	Standby ON
42	2A	Standby OFF
43	2B	Power OFF
44	2C	Filter 1
45	2D	Filter 2
46	2E	Filter 3
47	2F	Filter 4

DACs

For all DACs, the category code is **13** (decimal).

These DAC codes up to decimal 27 are in use on the *Elgar Plus / Delius* Remote v2.0, Transport Remote v2.0 and *Elgar* Remote v1.0. *Elgar Plus* v4.20 or later and *Delius* v2.20 or later will respond to codes over decimal 27.

Button or Function Code		<i>Elgar Plus / Delius</i>	<i>Elgar</i>
Decimal	Hexadecimal	RC function	RC button
1	01	RCA1	Coax1
2	02	-	Opt2
3	03	AES1	AES1
4	04	AES2	AES2
5	05	-	Opt1
6	06	BNC	Coax2
7	07	Display	Display
8	08	Vol/Bal	Vol/Bal
9	09	Phase	Phase
12	0C	Standby	Standby
13	0D	Mute	Mute
14	0E	Filter	Filter
15	0F	RCA2	-
16	10	(up)	(up)
17	11	(down)	(down)
26	1A	Function	-
27	1B	Input	Input
32	20	Dual AES	-
33	21	SDIF	-
34	22	1394 CH 0	-
35	23	1394 CH 1	-
36	24	1394 CH 2	-
37	25	1394 CH 3	-
38	26	1394 CH 4	-
39	27	Mute On	-
40	28	Mute Off	-
41	29	Standby On	-
42	2A	Standby Off	-
43	2B	Power Off	-
44	2C	Filter 1	-
45	2D	Filter 2	-
46	2E	Filter 3	-
47	2F	Filter 4	-
48	30	Filter 5	-
49	31	Filter 6	-
50	32	Master	-
51	33	Slave	-

Transports

For *Verdi & La Scala*, the category code is **20** (decimal).

These Transport codes are in use on the Transport Remote v2.0.

Button Code		<i>Verdi</i>
Decimal	Hexadecimal	RC button
0	00	Keypad 0/10
1	01	Keypad 1
2	02	Keypad 2
3	03	Keypad 3
4	04	Keypad 4
5	05	Keypad 5
6	06	Keypad 6
7	07	Keypad 7
8	08	Keypad 8
9	09	Keypad 9
10	0A	Standby ON
11	0B	Standby OFF
12	0C	Standby (toggle)
15	0F	Display
25	19	Stop Rewind
26	1A	Stop Fast Forward
29	1D	Repeat
32	20	Next Track
33	21	Previous Track
34	22	Next Index
35	23	Previous Index
36	24	Play Mode
41	29	Program
43	2B	Fast Forward
50	32	Rewind
53	35	Play
54	36	Stop/Eject
55	37	Power OFF ⁵
58	3A	Clear
59	3B	A/B
60	3C	SACD/CD
61	3D	Select CD layer
62	3E	Select SACD layer

⁵ The Power Off code was 63 decimal in *Verdi* v1.20 – 1.25. Some Pronto units were found to send code 20-63 for no apparent reason, so we changed the code to 55 decimal.

USING YOUR *dCS LA SCALA* FOR THE FIRST TIME

Thank you for purchasing this *dCS La Scala*. Before attempting to use your *La Scala*, please read at least the rest of this section and the “Step-by-Step Guide” on page **10**. This will enable you to set the unit up quickly with your hi-fi system.

What’s in the Box?

The box should contain the following:

- *dCS La Scala*
- User Manual
- Control Summary
- Power Cable
- Spare Fuses (2)
- Remote Control unit
- Remote Control guide
- 3 x AAA batteries
- 1 pt Pozidriv screwdriver (for fitting the Remote Control unit batteries)
- IEEE 1394 cable assembly
- BNC cable
- 2.5mm hex key (for removing the transit screws)
- Top glass plate
- 4 x bolts and plastic washers (for fitting the top glass plate)
- 4mm hex key (for fitting the top glass plate)

IMPORTANT!

*To reduce the risk of transit damage, the mechanism is clamped with 4 transit screws before shipping. These MUST be removed before use. See page **53** or the “**Read This Before Using Your dCS Verdi!**” sheet for details. Also, the top glass plate should be fitted before use. (Your dealer may have done this for you.)*

IMPORTANT!

*For safety reasons, the Remote Control is shipped with the batteries packed separately. For fitting details, see page **55**.*

Check the contents of the inner carton very carefully against the list above. Notify your dealer as soon as possible if anything is missing or damaged. *dCS* suggest that all of the original packaging is retained for use when transporting any units. Replacement packaging can be ordered from *dCS* or our distributors.

Safety Notice

La Scala contains no user serviceable parts. Do not attempt to open the case as there are potentially dangerous voltages present inside. In the event of the unit developing a fault, please consult your dealer.

IMPORTANT!

This equipment MUST be connected to a safety earth (or ground) via the power cable.

Mains Voltage Setting

Before connecting the power cable to your *La Scala* for the first time, please check that it has been set to the correct operating voltage for your local mains supply. 50Hz or 60Hz operation is not important – the unit can use either. The unit's present voltage setting is shown on the label beneath the mains inlet on the rear panel. If this does not match your local supply voltage, DO NOT attempt to use the unit. Contact your dealer to arrange to have the unit reset. Using the *La Scala* with the wrong mains setting for your local supply may result in serious damage to the unit and will invalidate the warranty. DO NOT attempt to reset the unit yourself.

IMPORTANT!

Please use a sensible power cable, such as the one supplied with the unit. Some audiophile power cables presently available are excessively heavy, their weight can damage the power inlet connector. Such damage is not covered by the warranty.

Positioning the Unit

Place *La Scala* on a firm, vibration free base so as to allow convenient connection to the other parts of your other system. We suggest that you avoid siting *La Scala* either directly above or below preamplifiers or tuners, if either of these will be used in your system at the same time as *La Scala*.

OPTIONS

The following options may be fitted to new units or retrofitted at a later date.

Option code	Option
V5	Mains voltage set to 230/240V
V4	Mains voltage set to 215/220V
V3	Mains voltage set to 200V
V2	Mains voltage set to 115/120V
V1	Mains voltage set to 100V

Table 8 – Options available

Mains Supply Voltage

Any unit may be set for operation from 230/240V, 215/220V, 200V, 115/120V or 100V A.C. Units are shipped set for the mains supply voltage according to the destination. The voltage setting can be updated later by your dealer, if necessary. Specify the new country of use or the new voltage setting.

Having Your Options Changed

dCS support modifications, updates and option changes to supplied units. Major changes are normally carried out at dCS, as we have extensive test facilities and can verify the changes. Please contact your dealer for details.

IMPORTANT!

Please do not attempt the changes yourself. The unit's performance or reliability may be impaired and the warranty will be invalidated.

MAINTENANCE AND SUPPORT

Service & Maintenance

dCS audio products are designed not to need regular maintenance, and contain no user serviceable parts apart from the mains fuse.

Obtaining Service

If you experience problems with your *La Scala*, you should check the “Troubleshooting” section on page 58. You may be able to resolve the situation yourself (for example, by changing a menu setting).

If this does not resolve the problem, contact your authorised dCS dealer for advice, quoting the model, the full serial number (see [Serial](#) on page 23), the software version number (see [Issue](#) on page 23) and giving a detailed description of the fault. If further action is necessary, your dealer will advise you fully.

Mains Fuse

There is a mains fuse below the power inlet, accessible from the outside of the unit. If the fuse blows, it may be changed by the user. The current consumption of the unit is very low, so it only blows if power surges occur, or there is a fault in the unit. Usually, power surges cause no other damage, but if the fuse blows repeatedly on replacement, some other damage will have been done and the unit must be returned to dCS for repair.

Fuse Type: 20 x 5mm 0.5 amp T HRC fuse

IMPORTANT!

If the fuse should fail, it is essential that it be replaced with one of the same type and rating. Failure to do so could result in damage to the unit, risk of fire or electric shock and will invalidate the guarantee.

Replacing a Blown Fuse

Referring to [Figure 7](#), remove the power cable, use a small flat bladed screwdriver to pry up the tab on the fuse carrier (A) and pull it out. Push the blown fuse out of the clip in the carrier (B) and dispose of it. Fit a new fuse in the clip (C) and push the carrier back into the unit so that it clicks home.

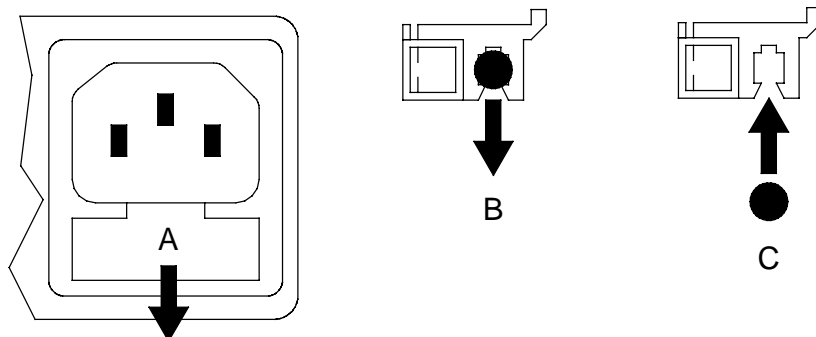


Figure 7 – Changing the Mains Fuse

IMPORTANT!

Disconnect the power cable before changing the fuse.

Removing the Transit Screws

The transit screws clamp the mechanism to reduce the risk of shipping damage. They must be removed before the unit is used.

do this: Lift the unit out of the packaging and place it on a table top. Remove the rubber mat from the top of the unit. Identify the four transit screws from the drawing below – they are coloured red for easy identification.

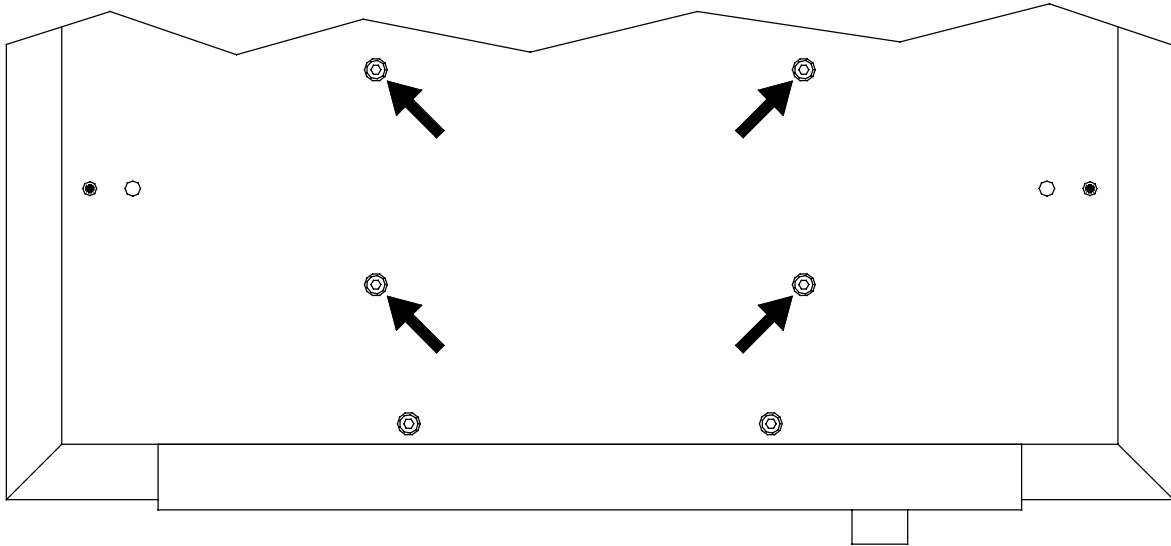


Figure 8 – View of the top of the unit showing the transit screws

do this: Using the 3mm hex key, unscrew the red transit screws and put them in a safe place.

IMPORTANT! *If you intend to transport the unit over large distances, replace the transit screws – they need to be secure **BUT NOT OVER-TIGHT**.*

Fitting the Top Glass Plate

- do this:** Lay the black rubber mat flat in the top of the unit so that the 4 screw holes are visible through the holes in the mat.
- do this:** Remove the glass plate from its plastic bag. The plastic sheet attached to the underside of the glass is a safety feature and must not be removed.
- do this:** Find the *dCS* logo on the top face of the glass. Fit the glass with the logo in the front left corner of the unit as shown in **Figure 9**.
- do this:** Carefully locate the right hand edge of the glass in the well in the top of the unit (step 1 in **Figure 9**).
- do this:** Lower the glass down on the left hand side until it can be safely dropped into place (step 2 in **Figure 9**). Centralise the glass plate.

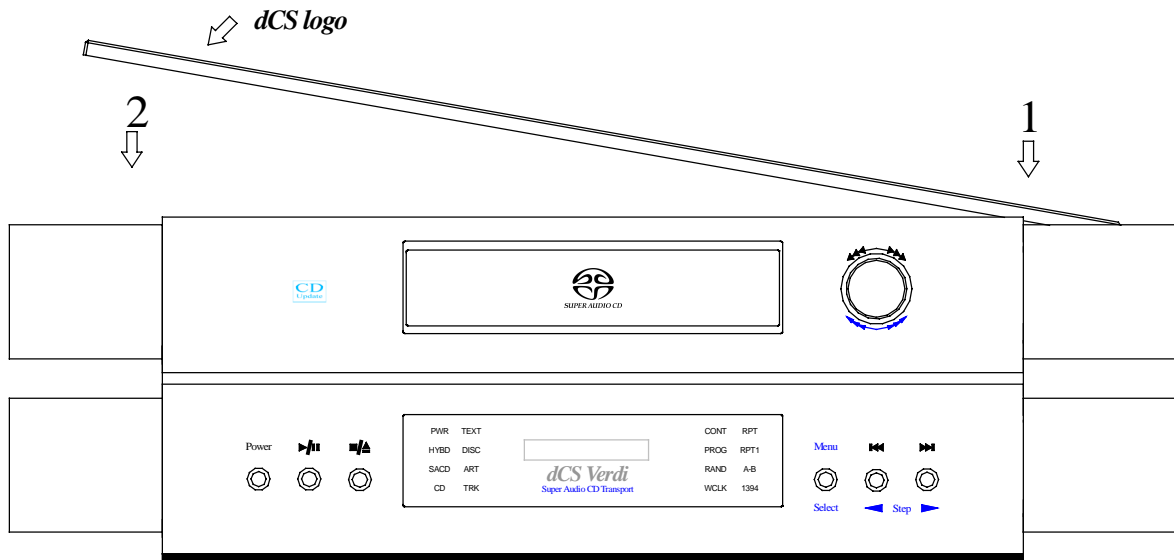


Figure 9 – Locating the Top Glass Plate

do this: Fit a black top-hat washer onto each screw, fit the 4 screws through the holes in the glass (step 3 in **Figure 10**).



Figure 10 – Securing the Top Glass Plate

do this: Locate the top-hat washers into the holes and at first tighten up the screws **FINGER TIGHT ONLY**. Use the 4mm hex key provided to tighten up the screws at most **ONE QUARTER OF A TURN ONLY**.

IMPORTANT!

DO NOT OVER-TIGHTEN THE SCREWS – this can compress the rubber mat and spoil its' sound dampening performance.

Fitting or Replacing the Batteries in the Remote Control

For safety reasons, the Remote Control is supplied with the 3 batteries packed separately. Any replacement batteries must be type AAA, MN2400 or equivalent alkaline leak-proof batteries.

Opening the battery compartment and removing batteries

do this: Turn the Remote Control unit over and remove the 2 screws shown in **Figure 11** using the 1-point Pozidriv screwdriver supplied. Please do not use a Philips head screwdriver as this will damage the screw heads. Lift off the battery cover.

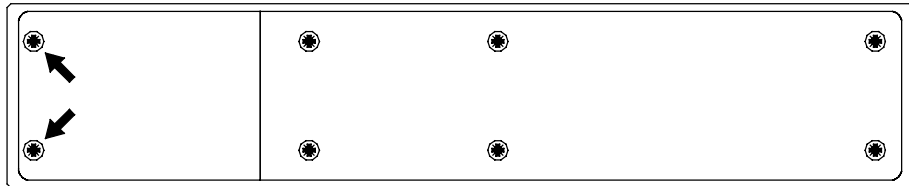


Figure 11 – Removing the Remote Control battery cover

do this: To remove discharged batteries, press the + end back against the spring and pull that end out of the unit. A small key or screwdriver may be used if the battery is a tight fit. Dispose of the discharged batteries safely.

Fitting new batteries and closing the case

do this: To fit a new battery, press the - end (the flat end) against one of the spring contacts in the battery holder then press the battery into its slot. Battery polarity is indicated on the battery holder and on the diagram below. Always fit a complete set of 3 new batteries.

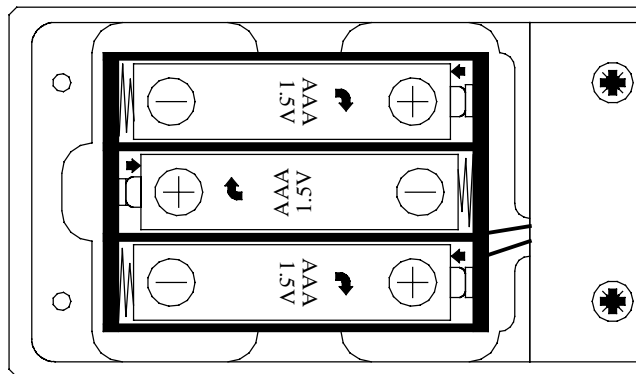


Figure 12 – Changing the Remote Control unit batteries

IMPORTANT!

Please ensure the batteries are fitted the right way around – failure to do so may damage the Remote Control and invalidate the warranty. Damage caused by leaking batteries is not covered by the warranty.

do this: To re-assemble the case, fit the battery cover, ensuring the side with the recessed holes is outward. Replace the 2 screws, taking care not to over-tighten them. The Remote Control is ready for use.

Updating your *La Scala*

dCS products make extensive use of software configurable chips – FPGAs and DSPs. This gives us the ability to update our products to add extra features, update digital interface standards or make performance improvements by loading new software. Occasionally, a hardware update may be necessary also to increase the “capacity” of the electronics, add extra connectors or extra front panel controls.

Software Updates

Please note that not all software updates make an earth-shattering change. You should have a clear idea of what you expect to gain before updating to the latest issue.

If the software loaded in your unit is (for example) version 3.45:

- A change to version 3.46 indicates a minor update for internal dCS use – to make testing easier, or more thorough, or to cater for some minor hardware change. Do not update your unit.
- A change to version 3.50 is a more serious update, offering extra functionality. If you want to use the extra features, update your unit. The manual will be updated for this (check the web-site).
- A change to version 4.00 is a major update. It will require updated hardware and the manual will be updated

If you have older hardware, some of the features added by new software may not be available due to (for example) a missing connector. For **recent** hardware, this is mentioned in the “Upgrader’s notes” in this manual. If you need the missing feature, contact your dealer or dCS to arrange a hardware update.

- If the software currently loaded includes a **CD Update** page, you can update the software yourself. Contact dCS for a CD and follow the instructions in the **CD Update** section on page **25**, or the instructions supplied with the CD. The update program will check your hardware configuration and install the latest software compatible with it.
- If you do not have the **CD Update** feature loaded or have difficulty with it, a dCS distributor can download files from a PC into any unit fitted with a **SUC** connector. Contact your dealer for details.
- For older units without a **SUC** connector, your distributor can install new firmware in your unit. Firmware updates are low-cost from dCS. Contact your dealer for details.

Hardware Updates

You may wish to have your hardware updated from time to time to take advantage of new features in the latest software. dCS offer this service - we will retest, reset any adjustable items to current shipping standards, and install any modifications or updates that have occurred since your unit was first shipped.

The price will depend on the hardware changes necessary – please contact your dealer or dCS for details and pricing. In order to ensure speedy turn around, please contact us prior to returning the unit to get a **Service Return** number.

Safety and Electrical Safety

There are no user serviceable parts inside *La Scala* and so there is no need to remove the covers. If for some reason you do:

IMPORTANT! *Disconnect the power cable before removing any covers or changing the fuse.*

There are no substances hazardous to health inside *La Scala*.

Cleaning the Case

Do not apply any of the following cleaning products to the case as they will damage or alter the finish:

- Corrosive or abrasive agents
- Spirit or alcohol based cleaners
- Wax polish

do this: To remove dust, wipe with a moist, soft cloth.

do this: To remove deposits from the case, first disconnect the power cable then spray very lightly with a proprietary glass cleaner containing ammonia and wipe off gently with a soft cloth, taking care to avoid scratches. Do not spray the cleaner onto the connectors or the rear panel.

TROUBLESHOOTING

Fault Indication

La Scala detects the following fault conditions:

Power interruption

If the AC supply is momentarily interrupted or is more than 20% below its rated voltage, the unit displays **PowerDn** and mutes the audio outputs to protect your loudspeakers from damage. This may be caused by loose AC power wiring, local power-line overloads or heavy-duty appliances like air conditioners. If this message appears frequently (other than when switching the unit off), please consult your dealer.

Power up test errors

If *La Scala* detects a fault during its power up test routine, it will remain muted and display one of these messages:

- **DSPs Not Loaded (#01)**
- **FPGAs Not loaded (#02)**
- **Bad Checksum. Press any key to attempt recovery (#03)**
- **DSP-Err1 (#04)**

This can be caused by power line transients occurring during system configuration. For **Bad Checksum**, press any button to try to clear the fault. Otherwise, try switching off, waiting 20 seconds, then switching on again. If the fault persists, please consult your dealer.

Troubleshooting Guide

If you experience difficulties when using your *La Scala*, the following suggestions may help resolve the problem.

The unit fails to power up

- Ensure there is power available on the mains cable. Connect the power cable, ensure it is pushed all the way in and press the **Power** button. If there is a Power switch on the back panel, ensure this is set to the On (I) position.
- Check the rated supply voltage shown on the rear of the unit matches the local supply voltage.
- Check that the fuse has not blown - if so, correct any obvious cause then replace the fuse as described on page **52**.

The DAC/DDC suddenly mutes, *La Scala* repeats its' power-up sequence

- This may be caused by short drop-outs or brown-outs on the AC supply. When the disturbance has passed, normal operation should be restored.
- Check for loose mains wiring.

The DAC/DDC fails to lock to *La Scala* or displays “No Input”

- Ensure the correct DAC/DDC input is selected.
- Check that the digital audio cable is of the correct type, correctly connected and not damaged. Damaged cables are a VERY common cause of malfunctions!
- Check that *La Scala* is switched on.
- If you are using a Master Clock, check it is set to 44.1kHz and try disconnecting the Wordclock cable. If the DAC/DDC locks, check the Wordclock connections.
- When using the **1394** interface, you must also connect a 44.1kHz Wordclock feed to the DAC (or from the DAC if the DAC is in Master mode).
- If using the **SDIF-2** interface, ensure all 3 cables are connected correctly.
- If using a BNC SPDIF interface, ensure it is connected to the **BNC** output, not the **SDIF** interface.

The DAC/DDC locks but no signal is received

- *Verdi* only: When playing an ordinary CD or the CD layer of a hybrid disc, *Verdi* generates digital silence from the **1394** interface and signal on all other interfaces.
- If playing an SACD, open the Menu and check the **Transmit** page is set to **Active**. Ensure the DAC is selected to the *Verdi* or *La Scala* channel.

Playing a CD, the DAC output is monophonic

- The source disk / tape may actually be monophonic.

Channel Check, Phase Check and Burn-In do not work

- *Verdi* only: Check that the unit is set to **CD** mode and the DAC is NOT set to 1394 mode. These features are disabled in **SACD** mode.

The Remote Control fails to control the unit

- The Remote Control is normally shipped with the batteries packed separately for safety reasons. If you are using the Remote Control for the first time, you must fit the batteries first - see page **55**.
- If the Remote Control has not been used for a long time or has gradually lost range, the batteries should be replaced - see page **55**.
- If you have just replaced the batteries but the unit still does not work, check that the batteries are fitted the right way around - see page **55**. If two or more batteries were fitted the wrong way around, the Remote Control may be permanently damaged. If this occurs, contact your dealer for advice.
- For correct operation, there must be a clear line of sight between the infrared transmitter at the end of the Remote Control and the remote control sensor in the main unit, located on the left hand side of the display. If the line of sight is blocked (for example by a coffee table) the Remote Control may operate erratically or not at all.

Menu Timeout does not work

- Someone has turned the menu timeout off, using remote software running on a PC. Open the Menu and run the **Factory** routine to reset everything to ex-factory settings.

The Display turns on briefly when a control is operated, then turns off

- This happens when the display brightness is set to **Bright 0**. Open the Menu and change **Bright** to a different setting.

CD-R does not play correctly

- *Verdi* and *La Scala* are CD-R compatible but some brands of disks are more reliable than others due to differences in design. dCS recommend Traxdata TXS-1680 disks – we have used these without difficulty for some years.
- The CD-R must be formatted as a music CD, rather than a data CD.
- You can burn and update an incomplete music CD on a CD Re-Writer, but the disk must be finalised before it can be played on an audio CD transport. Finalising creates a Table Of Contents (TOC) at the start of the disk. If the TOC is missing, the transport will keep trying to find it for about 2 minutes, displaying **Read TOC**. During this time, you will not be able to stop or eject the disk. Wait until the unit displays **TOC Error**, then open the tray and remove the disk.

A disc is trapped in the unit

- If the unit has problems reading the disc and the tray does not open after 2 minutes, power down the unit (completely off, not just standby), hold down the **Stop / Eject** button then switch on. If the front panel is frozen, pull out the power cord for 10 seconds, hold down the **Stop / Eject** button, then replace the cable. When the unit has booted up, the tray should open and you can release the button.
- In normal use, wait for the transport to finish displaying **Read TOC** before trying to eject the disc.

Troubleshooting the IEEE 1394 Interface

This section covers difficulties that may be encountered using a *dCS Verdi* SACD Transport (v1.20 or later), a *dCS Verdi La Scala* Upsampling SACD Transport or a *dCS Purcell* Upsampler to drive a *dCS Elgar Plus* DAC (v4.20 or later) or *Delius* DAC (v2.20 or later) with DSD data over an IEEE 1394 interface.

Upsampler or Transport displays “Inactive”

- This can happen momentarily during locking. If it does not change to **Active**, open the Transport or Upsampler’s menu and ensure the **Transmit** page is set to **Active**.

The Unit keeps displaying “No Comms”

- This will appear briefly while the 1394 system is checking for connections.
- If the **No Comms** message does not clear, ensure that all units in the 1394 chain are switched on and securely connected by 1394 cables.

The Unit keeps displaying “Search..”

- This will appear briefly after the 1394 system has established communications.
- If the **Search** message does not clear, ensure that you have not connected both 1394 connectors from one unit to both 1394 connectors on another unit or set up a loop. This prevents the 1394 bus settling.
- Check that the 1394 cables are correctly fitted.

The DAC displays “Verdi Wordclock Missing”

- With the DAC in slave mode, check there is an undamaged BNC cable connecting *Verdi*’s **WCik Out** to the DAC’s **WCik In**.
- Ensure the cable is D.C. coupled. A.C. coupled cables are not suitable for use with Wordclock or SDIF.

The DAC displays “Missing Wordclock between Clk Out & Verdi Clk In”

- With the DAC in master mode, check there is an undamaged BNC cable connecting the DAC’s **WCik Out** to *Verdi*’s **WCik In**.
- Ensure the cable is D.C. coupled. A.C. coupled cables are not suitable for use with Wordclock or SDIF.

The DAC displays “Please check source slaved to DAC Wordclock Out”

- With the DAC in master mode, check there is an undamaged BNC cable connecting the DAC’s **WCik Out** to the source’s **WCik In**.
- Ensure the cable is D.C. coupled. A.C. coupled cables are not suitable for use with Wordclock or SDIF.

The DAC displays “Wrong Wordclock @ Verdi Clk In”

- *Verdi / La Scala* has detected a clock frequency other than 44.1kHz on its **WCik In** connector. Ensure the clock source is set to 44.1kHz.
- With the DAC in master mode, check there is an undamaged BNC cable connecting *Verdi / La Scala*’s **WCik Out** to the DAC’s **WCik In**.
- Ensure the cable is D.C. coupled. A.C. coupled cables are not suitable for use with Wordclock or SDIF.

The DAC remains muted

- If the DAC is displaying the **Volume** setting, change the **Disp** menu page setting to **Disp:Fs** and check for error messages.
- If all else is in order, switch off the Transport, the Upsampler and the DAC then switch them on again. If this situation keeps recurring, please consult your dealer.

The DAC takes a long time to unmute

- The **1394** interface can take around 30 seconds to settle and unmute.
- Try setting the DAC to **1394** mode before setting the Upsampler to **DSD** mode.
- If your system is in standby mode or switched off, try turning the DAC on before the Upsampler or Transport.

If this information does not resolve the problem, please contact your dealer for advice.

IF YOU NEED MORE HELP

In the first instance, you should contact your dealer. If they cannot resolve the issue, contact *dCS*. Our office hours are 8:30 a.m. to 5:00 p.m. Monday to Friday, UK time (GMT in Winter or GMT + 1hr in Summer). Contact us by phone or fax on:

	Inside the UK	Outside the UK
Telephone	01799 531 999	+44 1799 531 999
Fax	01799 531 681	+44 1799 531 681

Table 9 – *dCS* Contact Information

You can write to us at:

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Great Chesterford
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Our email address: more@dcsLtd.co.uk

Our web-site is: www.dcsLtd.co.uk

The web-site is regularly updated. You will find full details of all *dCS* products here, plus the latest *dCS* news.

Other Information

dCS produce technical notes from time to time, on issues related to ADCs, DACs and DDCs. If you are interested in these, please check our web-site.

INDEXES AND SOFTWARE VERSION NUMBERS

Software History

This manual is for *Verdi La Scala* software version 1.0x.

Definitions and Abbreviations

ADC	Analogue to Digital Converter, sometimes referred to as an A/D Converter.
AES3	A standard professional stereo digital audio format consisting of one serial PCM data line. It uses a balanced cable to extend transmission distance and includes a comprehensive messaging system.
DAC	Digital to Analogue Converter, sometimes referred to as a D/A Converter.
dB	A relative signal level or ratio in decibels. The context may indicate the reference level.
dB0	Level in decibels, referred to a full scale sine wave in a sampled system. So, 0dB0 is full scale.
dBu	A signal level relative to 0.775V rms, making no allowance for external loading.
DDC	Digital to Digital Converter, sometimes referred to as a D/D Converter.
DSD	Direct Stream Digital - a single bit digital audio format, sampled at 2.822MS/s.
kS/s	Sample rate in kilo-samples per second. This replaces kHz, which is technically incorrect when referring to sample rates.
SDIF-2	Sony Digital InterFace – a stereo digital audio format consisting of 2 serial PCM or DSD data lines. Usually used with a Word Clock.
SPDIF	Sony / Philips Digital InterFace – a stereo digital audio format for consumer equipment, consisting of one serial PCM data line. Similar to AES3, but unbalanced and with different messaging.
Word Clock	A synchronisation signal consisting of a square-wave, the frequency of which is the sample rate. Usually transmitted through co-axial cable and BNC connectors.

Key to Cable Identification

If you are reading a colour print or a soft copy of this manual, cable types shown in figures can be identified from **Table 10**.













Cable Type	Colour / Style
XLR Analogue	Brown, solid 
RCA Phono Analogue	Brown, long dash 
XLR Digital (AES3)	Blue, solid 
BNC Digital	Pale blue, solid 
RCA Phono Digital (SPDIF)	Pale blue, short dash 
Optical (SPDIF)	Dark magenta, solid 
IEEE 1394	Red, solid 
Sync Link	Green, solid 
Wordclock	Dark green, solid 
AES Reference	Dark green, long dash 
GPS Reference	Dark green, short dash 
RS-232	Purple, solid 

Table 10 – Cable colours and styles

Where more than one cable of any type is used in a drawing, they can be identified by a coloured sleeve at the source and a coloured arrow head at the destination.

List of Tables

Table 1 – IEEE 1394 Interface Electrical Characteristics.....	38
Table 2 – AES/EBU Interface Electrical Characteristics	38
Table 3 – SPDIF Interface Electrical Characteristics	38
Table 4 – Optical Interfaces Electrical Characteristics	38
Table 5 – SDIF / Wordclock Interface Electrical Characteristics.....	39
Table 6 – Power consumption for consumer products	40
Table 7 – Size and weight for consumer products	40
Table 8 – Options available	50
Table 9 – dCS Contact Information	63
Table 10 – Cable colours and styles	65

List of Figures

Figure 1 – Connecting <i>La Scala</i> to <i>Elgar Plus</i>	11
Figure 2 – Using a DAC in Master mode.....	16
Figure 3 – Menu flow chart.....	18
Figure 4 – dCS <i>La Scala</i> Front Panel.....	28
Figure 5 – dCS <i>La Scala</i> Rear Panel	31
Figure 6 – Transport Remote Control.....	34
Figure 7 – Changing the Mains Fuse	52
Figure 8 – View of the top of the unit showing the transit screws	53
Figure 9 – Locating the Top Glass Plate	54
Figure 10 – Securing the Top Glass Plate	54
Figure 11 – Removing the Remote Control battery cover	55
Figure 12 – Changing the Remote Control unit batteries.....	55

Keywords and Phrases

0		C	
0-9 buttons, remote	36	cable identification	65
1		cables	10, 31, 32, 59
1394 ID menu	20	cannot lock to 1394	59
1394 indicator	30, 32	cannot lock to BNC	59
1394 interface	32, 42	cannot lock to SDIF-2	59
1394 interface, disabling	20	cannot record from SPDIF output	31
1394 interface, synchronising	42	Caution message	23
1394 interface, troubleshooting	61	CD indicator	29
1394 output, connecting	11	CD tray	30
1394 source identification	20	<i>CD Update is interrupted</i>	26
1394, cannot lock to	59	CD Update menu	25
A		CD, upsampling	3
A-B button, remote	35	CD-R not finalised	60
A-B indicator	30	CD-R problems	60
Active message	61	Ch.Check menu	21
ADC	64	changing options	50
AES output	31	channel check fails	59
AES output, connecting	12	channel check routine	21
AES3	64	cleaning the case	57
applications	16	Clear button, remote	35
ART indicator	29	clock accuracy	39
automatic input selection	42	clock cleaning	39
automatic source selection	24	clocking	39
B		closing the Menu	19
Bad CD! message	26	connecting the outputs	11
Bad Checksum message	26, 58	connector, Power Link	32
basic operation	13	CONT indicator	30
batteries for remote control	55	contact information	23, 63
batteries, polarity	55	Contact menu	23
biography, Giuseppe Verdi	4	contents of box	48
blank display	21, 60	crystal oscillator	39
blue LED, remote	34	D	
BNC output	31	DAC	64
BNC, cannot lock to	59	DAC mutes	59
Bright x menu	21	DAC remains muted, 1394 input	62
<i>Burn In</i> menu	22	DAC takes time to unmute, 1394 input	62
burn-in fails	59	dB	64
burn-in routine	22	dBu	64
button, Fast Forward	30	DDC	64
button, Fast Reverse	30	definitions	64
button, Menu	19, 30	digital interface specifications	38
button, Menu Select	19, 30	DISC indicator	29
button, Menu Step	19, 30	display blanking	21
button, Menu Step Back	19, 30	display brightness	21
button, Next Track	30	Display button, remote	36
button, Play / Pause	29	Display Mode indicator	29
button, Power	28	display test routine	23
button, Previous Track	30	display, main	29
button, Stop / Eject	29	do not swap SDIF-2 cables	32
		down-sampling	31, 32, 39
		DSD	32, 39, 42, 64
		DSD output, connecting	11
		DSP-Err1 message	58

DSPs Not Loaded message	58	indicator, WCLK	30, 32
E		Input buttons, remote	36
earthing	48	input selection, automatic	42
Easy Play menu	24	input, Wordclock	32
extended warranty certificate	48	Issue menu	23
F		issue, software	23
factory default settings	27	J	
Factory menu	27	jitter	32
Fast Forward button	30	jitter, low frequency	39
Fast Reverse button	30	K	
fault indication	58	Keypad button, remote	36
FavLayer menu	24	L	
FavLayer setting, overriding	24	learning remotes	44
favourite layer on hybrid disc	24	lock-in time	39
Filter buttons, remote	36	locking problems	59
first-time use	48	Loud message	23
fitting the glass plate	53	M	
Found Track message	26	main display	21, 29
FPGAs Not Loaded message	58	maintenance	52
front panel	28	master clock	32
full scale	64	master clock, locking problems	59
fuse, mains	52	master mode, DAC, using	16
fuse, replacing	52	Menu	19
fuse, spare	48	Menu button	19, 30
G		Menu Select button	19
Giuseppe Verdi, biography	4	Menu Step Back button	19, 30
glass plate, fitting	53	Menu Step button	19, 30
grounding	48	menu time out	19, 21
guide to basic setup	10	menu times out too soon	21
H		Menu, closing	19
hardware updates	56	menu, Easy Play	24
HYBD indicator	29	Menu, opening	19
hybrid disc, favourite layer	24	menu, SACD/CD	20
hybrid disc, select layer	20	Menu, using	19
I		message, Active	61
IEEE 1394 interface	32, 42	message, Inactive	61
Inactive message	61	message, Missing Wordclock between Clk Out	61
indicator, 1394	30, 32	message, No Comms	61
indicator, A-B	30	message, Please check source slaved to DAC Wordclock Out	61
indicator, ART	29	message, Search	61
indicator, CD	29	message, TOC Erro	60
indicator, CONT	30	message, Verdi Wordclock Missing	61
indicator, DISC	29	message, Wrong Wordclock @ Verdi Clk In	61
indicator, Display Mode	29	Missing Wordclock between Clk Out ... message from DAC	61
indicator, HYBD	29	mode control buttons, remote	35
indicator, PROG	30	mode, standby	28
indicator, PWR	29	music by Verdi	5
indicator, RAND	30	Mute button, remote	36
indicator, REPT	30	N	
indicator, RPT1	30	Next Track button	30
indicator, SACD	29	No Comms message	61
indicator, status	29		
indicator, TEXT	29		
indicator, TRK	29		

no output.....	59
No Track message	26
Non Seq message	26

O

opening the Menu	19
operating conditions	40
optical output	32
option, mains supply voltage	50
options	50
options, changing	50
output, AES.....	31
output, BNC	31
output, optical	32
output, RCA	31
output, SDIF-2	32
output, Toslink optical.....	32
output, Wordclock.....	32
outputs, connecting to	11
outputs, SPDIF	31, 32
overriding FavLayer setting	24

P

packaging	52
packaging, replacement	48
Ph.Check menu	22
phase check fails	59
phase check routine	22
phase locked loop.....	39
Play / Pause button	29
Play Mode button, remote	35
playing a disc.....	13
playing tracks in random order	14
Please check source slaved to DAC Wordclock Out message from DAC.....	61
Please Start CD message	26
positioning the unit.....	49
Power button.....	28
power inlet	33
power interruption	58
Power Link connector	32
power off	28
power on	28
power requirements.....	40
power switch.....	33
power up failure	59
PowerDn message	28, 58
powering up	10
Previous Track button.....	30
problems playing a CD-R	60
PROG indicator	30
PROG mode	14
Program button, remote.....	35
programming a track sequence	14, 35
pull-in range	39
PWR indicator.....	29

R

RAND indicator.....	30
---------------------	----

RAND mode	14
RC5 codes	44
RCA output	31
rear panel.....	31
recommended recordings by Verdi.....	5
remote control	34, 55, 60
remote control codes	44
remote control sensor	29, 60
remote control, batteries	60
remote control, replacing batteries	55
remote control, using	34
remote, 0-9 buttons.....	36
remote, A-B button.....	35
remote, blue LED	34
remote, Clear button	35
remote, Display button.....	36
remote, Filter buttons	36
remote, Input buttons	36
remote, Keypad button.....	36
remote, mode control buttons	35
remote, Mute button.....	36
remote, Play Mode button.....	35
remote, Program button	35
remote, Repeat button	35
remote, SACD/CD button.....	35
remote, Standby button.....	35
remote, transport controls	35
remote, Up/Down buttons	36
remote, Vol/Bal button	36
remote, white LED	36
removing the transit screws	53
Repeat button, remote	35
repeat mode, cancelling.....	15
repeating a disc.....	15
repeating one track	15
repeating part of a track.....	15
REPT indicator.....	30
REPT mode	15
resetting to factory state.....	27
Rotary control.....	30
RPT1 indicator	30

S

SACD	3
SACD indicator	29
SACD/CD button, remote.....	35
SACD/CD menu.....	20
safety.....	48
safety, electrical	57
sample clock	39
sample rate	9, 31, 32, 39, 64
sample rate, output	31
SDIF-2.....	64
SDIF-2 cables, do not swap.....	32
SDIF-2 output.....	32
SDIF-2 output, connecting	12
SDIF-2, cannot lock to	59
Search message	61
Select button	19, 30

select layer, hybrid disc	20
Serial menu.....	23
serial number, full	23
serial number, short.....	33
service	52
session time out.....	24
SessTime menu.....	24
setting a repeat sequence	15
setting, supply voltage	49
settings after Factory reset.....	27
Shuffle mode	14
size	40
software issue.....	23
software update by CD	25
software updates	56
software upgrade connector	33
software version	64
source name, 1394.....	20
source selection, automatic.....	24
SPDIF	64
SPDIF output	31, 32
SPDIF output, cannot record from.....	31
SPDIF output, connecting.....	12
specification	38
specification, AES3 output.....	38
specification, IEEE 1394 interface.....	38
specification, mechanism	38
specification, optical output	38
specification, SDIF-2 output	39
specification, SPDIF outputs	38
specification, Wordclock I/O	39
Standby button, remote	35
standby mode	28
status indicator	29
Step button	19
step-by-step guide	10
Stop / Eject button	29
SUC connector	33
supply voltage option.....	50
supply voltage setting	33, 49
swap channels	21
switch, power	33
synchronising 1394 interface.....	42
system burn-in	22

T

technical notes.....	63
Temp menu	23
temperature scale.....	23
temperature, internal	23
temperature, operating	40

Test menu	23
TEXT indicator	29
time-out	60
time-out fails.....	60
Timeout menu	21
TOC Erro message	60
Toslink optical output	32
Track n message	26
track sequence, programming	14
transit screws, removing	53
Transmit menu	20
transport controls, remote.....	35
TRK indicator	29
troubleshooting	58, 59
troubleshooting 1394 interface	61

U

unfinalised CD-R.....	60
Up/Down buttons, remote	36
updates	33, 56
updates, hardware	56
updates, software.....	56
updating software by CD.....	25
updating your La Scala	56
upsampling.....	39
using DAC master mode.....	16
using for the first time.....	48
using the remote control	34

V

VCXO.....	39
Verdi Wordclock Missing message from DAC	61
Verdi, biography.....	4
Verdi, music by	5
Vol/Bal button, remote	36
Vx.xx message.....	26

W

WCLK indicator	30, 32
weight.....	40
white LED, remote	36
Word Clock	64
Wordclock input	32
Wordclock output	32
wordclock, synchronising to.....	39
Wrong CD message.....	26
Wrong Wordclock @ Verdi Clk In message	61
Wrong! message.....	26