dCS Network Bridge
Network Audio Interface

User Manual
Software Release 1.0x

May 2018

---

[1]   *dCS* is Data Conversion Systems Ltd. Company registered in England No. 2072115.

Contents

USING THE *dCS* NETWORK BRIDGE FOR THE FIRST TIME

Congratulations on purchasing your *dCS* Network Bridge. This device is designed to stream digital audio data over a network from a NAS drive and present it in a format that is compatible with most DACs.

Before using your unit, please read this section and the Step by Step Guide. This will enable you to set the unit up quickly and safely with your hi-fi system.

From time to time, *dCS* will release updated software that you can install yourself using the Network Bridge app. Please use the app's **Check for Updates** feature occasionally to see if new Network Bridge software is available, or consult your dealer.

What's in the box?

Check that the box contains the following items:

- *dCS* Network Bridge
- Manual
- Power cable
- Network Cable
- 2 spare fuses

Notify your dealer as soon as possible if anything is missing or damaged. We suggest that you retain the original packaging for possible future use. If this is not possible, replacement packaging can be ordered from *dCS* or our distributors. Details can be found on our web site at www.dcsltd.co.uk.

Positioning the unit

Place the unit on a firm, vibration free base, allowing convenient connection to the other parts of your system. To prevent overheating, we recommend that you leave some free space around the unit to allow for ventilation.

The mains supply can be disconnected only from the power switch on the back panel. Make sure this switch is accessible in use.

Important safety instructions
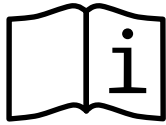
The following statements are required to comply with U.S. safety standard UL60065.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Safety notice

In the event of the unit developing a fault, please contact your dealer in the first instance.

If you decide to remove safety covers for any reason, disconnect the power cable first. Note that removing covers voids the warranty.

To maintain protection from electric shock, the unit MUST be connected to mains earth (ground) via the power cable. Also, unearthed systems do not give the best sonic performance.

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Protect the product from dripping or splashing liquids. Liquid-filled objects such as vases must not be placed on the product.

 This product is not suitable for operation at altitudes above 2000m.

 This product is lead-free and complies with the RoHS directive.

Before connecting the power cable to the unit for the first time, please check that it has been set to the correct operating voltage for your mains supply. The unit's voltage setting is shown on the serial number label. If this does not match your local supply voltage, DO NOT attempt to use the unit. Contact your dealer to have the unit reset. Using the unit 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 voltage yourself.

We do not recommend the use of mains regenerators. However, if you do wish to use a mains regenerator with variable voltage and frequency, we recommend that you set the voltage to match your local voltage and the frequency to either 50Hz or 60Hz ONLY.

 Damage caused to your Network Bridge by misuse of a mains regenerator or by a malfunctioning mains regenerator is not covered by the warranty.

 Disposal at end-of-life: the symbol indicates that this product should not be treated as normal household waste. It should be recycled, so please take it to an approved collection facility.

STEP-BY-STEP GUIDE

This section guides you through setting up the unit for basic operation.

Preliminaries

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-2 or Word Clock interfaces, use 75Ω coax cables fitted with BNC plugs.

> SDIF-2 and Word Clock interfaces require a simple DC-coupled connection. The interfaces may malfunction or not work at all if capacitor coupled cables or cables with built-in networks are used.

- for the SPDIF RCA interface, use 75Ω coax cables fitted with RCA Phono plugs.
- for the Network interface, use an RJ45 Ethernet cable, such as that provided with the unit.

Connect the power cable to the power inlet on the rear panel, plug the other end into a convenient power outlet.

> Please do not use excessively heavy or inflexible cables as they may damage the connectors.

> The cables supplied with the unit are "commercial grade", because most owners will have their own "audiophile grade" cables or will prefer to make their own cable choices.

Set the power switch beside the mains inlet on the rear panel to the **I** position, the blue LED in the centre of the front panel will illuminate and blink once. The LED stays on for 30 seconds, then starts flashing.

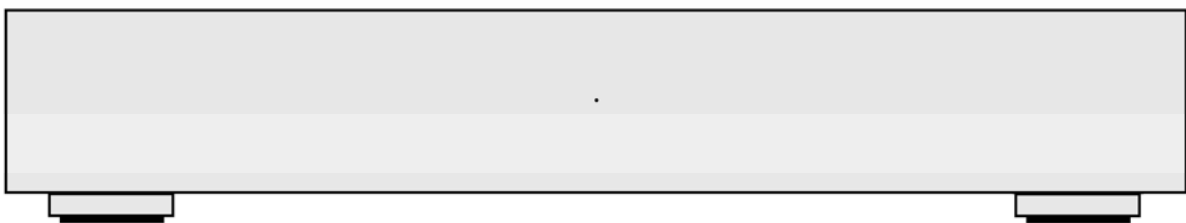> The rear panel power switch is the only mains disconnect device – make sure it is accessible in use.

Figure 1 – Network Bridge front panel

STEP 1 – Connecting an output

Choose one or more of the following sections:

Connecting the Dual AES Output

The Dual AES interface is most commonly used as it is the output with the highest sample rate capability.

- Check that your DAC is capable of Dual AES operation and is set up correctly.
- Connect the Network Bridge's **AES1** output to the DAC's AES1 input and the Network Bridge's **AES2** output to the DAC's AES2 input, using two XLR cables. Ensure the cables are not swapped.
- Check that the DAC's Dual AES setting is Auto (or On).
- Select the DAC's Dual AES input.
- Note that the Network Bridge app's **AES Downsampling**, **DSD Downsampling** and **Dual AES Sample Rate** settings must be set to suit the DAC's capabilities – see **Step 3**.

Connecting a Single AES or SPDIF output

- Connect the Network Bridge's **AES1**, **AES2** or **SPDIF** output to the matching input on the DAC rear panel using a suitable cable.
- Set the DAC to the input you connected.
- Note that the Network Bridge app's **AES Downsampling**, **SPDIF Downsampling** and **DSD Downsampling** features must be set to suit your DAC – see **Step 3**.

Connecting the SDIF-2 interface

Check that your DAC is capable of SDIF-2 PCM or DSD operation. This interface can output up to 96kS/s or DSD/64.

SDIF (**S**ony **D**igital **I**nter**F**ace) is not the same as SPDIF (**S**ony/**P**hilips **D**igital **I**nter**F**ace) and the two are not compatible.
Please ensure that you connect to the correct BNC sockets.

- Connect the Network Bridge's **SDIF-2 CH1** output to the DAC's CH1 input and the Network Bridge's **CH2** output to the DAC's CH2 input, using two BNC cables.
- Connect the Network Bridge's **SDIF-2 Out** (actually Word Clock out) to the DAC's Word Clock Input.
- Ensure the cables are not swapped.
- Set the DAC to the SDIF-2 input.
- If necessary, set the DAC's Sync Mode to lock to its Word Clock Input.
- Note that the Network Bridge app's **DSD Downsampling** feature must be set to **On** if your DAC cannot process SDIF-DSD/64 – see **Step 3**.
  .

STEP 2 – Network setup

UPnP (Universal Plug and Play) is a set of protocols designed to allow consumer devices to interact over a network. The Network Bridge complies with the UPnP AV protocol, enabling it to communicate with other non-*dCS* devices, provided they also comply with this protocol.

A network streaming system is made up of three standard UPnP components: UPnP **Control Point**, UPnP **Media Renderer** and UPnP **Media Server**. A system may consist of one or more of each of these components. In such a system, all of the media (songs, tracks, videos, etc.) is stored on the server. This storage device can be a NAS or a Computer. The control point (e.g. a tablet or smart phone) requests the address of a particular item of media from the server (e.g. a NAS drive). It then passes this address to the renderer (e.g. a Network Bridge) to play. The renderer directly retrieves the item from the specified address on the server, decodes and plays the media as it arrives over the network from the server.

Enabling network streaming of audio using a Network Bridge via Ethernet relies on the presence of standard network infrastructure in your system. A description of the network will not be discussed in this manual but at a minimum the following components are required for system setup: Router, Computer, Network Bridge, NAS, Wireless access point (WAP), Wireless control point.

Please note that Ethernet cables are required to connect the devices and the NAS must have UPnP media server software (e.g. Twonky, Asset, MinimServer) installed. If the UPnP control point is having problems seeing the UPnP media server or the UPnP media renderer, you might need to disable IGMP snooping in the router or enable UPnP discovery mode in the router or the NAS drive.

The *dCS* Network Bridge app is a control point application that will allow users to view / select available renderers, view / select available media servers and browse / select / playback music via the Network Bridge. The *dCS* Network Bridge app is currently available for iOS.

Compatibility

The Network Bridge and the app are compatible with:

- iPad 2 or later.
- iPhone 5 or later.
- iPod Touch 5th & 6th generations.

Network Bridge App version 1.4.8 has been tested with iOS 11.3.

Basic set-up

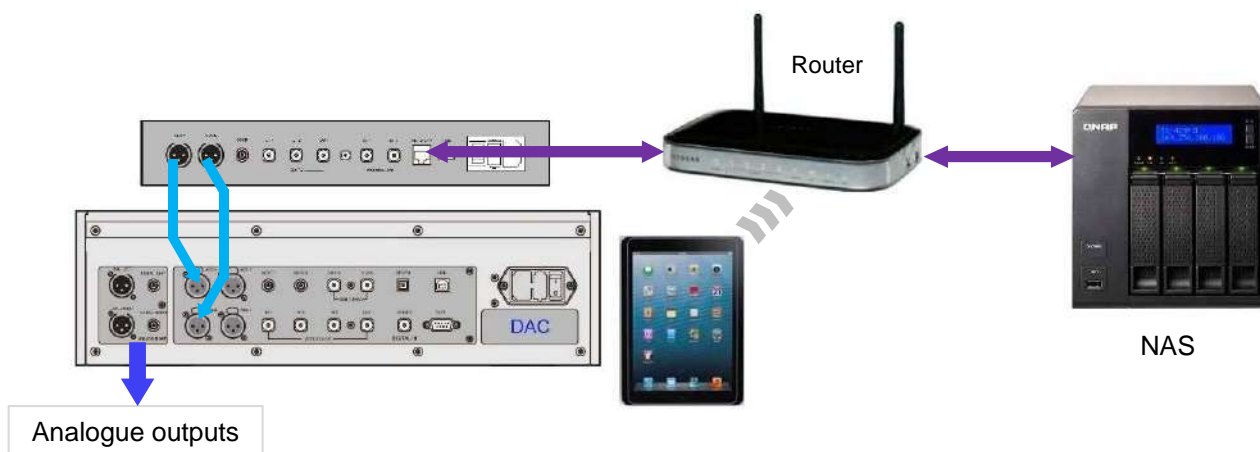- Connect the system as shown below (the Dual AES output connection is shown).

Figure 2 – Basic setup with a Vivaldi DAC

- For iPad or iPhone/iPod, download the *dCS* Network Bridge app from the App Store and install it.
- Connect the Network Bridge's **Network** interface to the Ethernet network. After a few seconds, the front panel LED will stop flashing and stay on.
- Connect the control device (e.g. iPhone) to the network.
- Launch the *dCS* Network Bridge app.
- The system will search for Network Bridge units and display those it finds.

- The first one will be automatically selected after a delay and the **Home** page for that unit will appear.
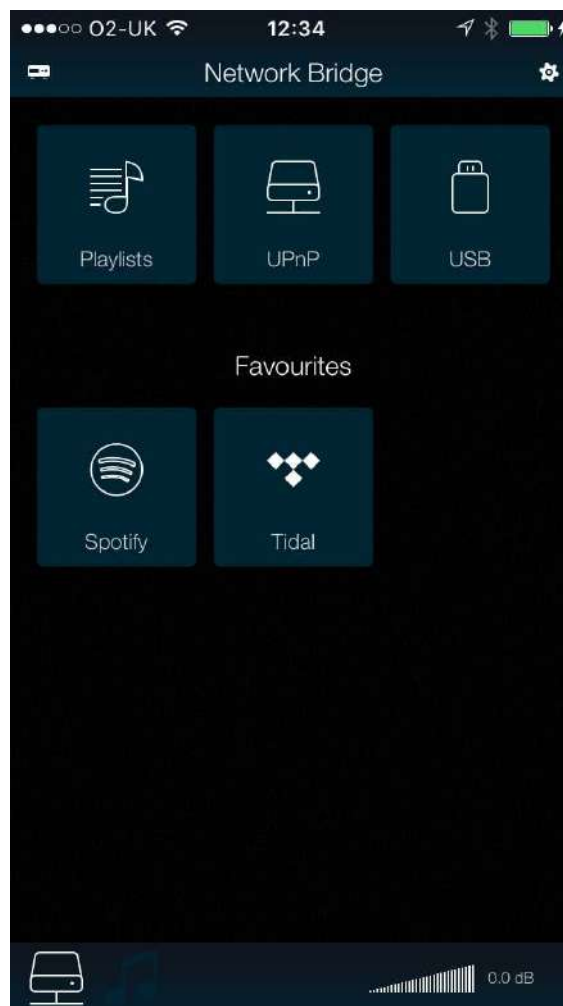
- Tap [icon] to go back to the **Devices** page.

STEP 3 - Unit setup
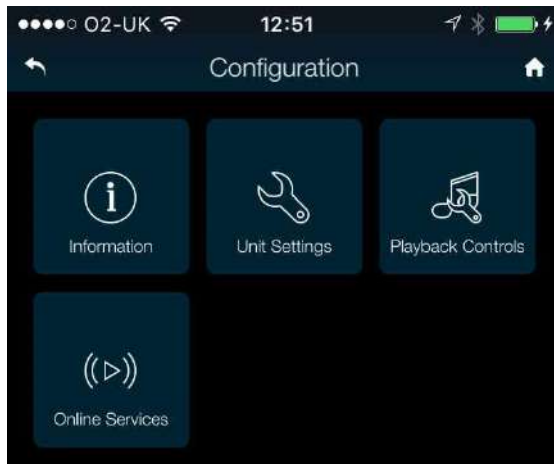
On the **Devices** page, tap **Configure** to get information about the unit or change the Network Bridge's settings.

Tap **Information** …
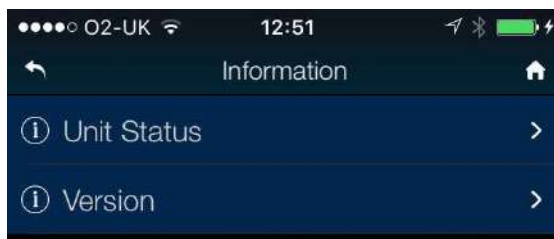
Tap **Unit Status** to see some useful information about your unit.

If you are having setup problems, we may ask you to tap **Copy status to email**. This gathers information about your unit and sends it to *dCS* via the email account set on your control device.

Tap   to go back one level, in this case to to **Information** …

Tap **Version** to see the software versions loaded in your unit. You will need this information if you contact your dealer for advice.

(See the **Software Update** section at the end of the manual for information on updating.)

Go back 2 levels and tap **Unit Settings**…

Tap each setting to see the options.

The first 4 settings customise your Network Bridge to match the capabilities of your DAC.

AES Downsampling sets the maximum rate on the (single) AES outputs to 96kS/s, 192kS/s or unlimited. Downsampling is performed by factors of 2 or 4.

(For example, 352.8kS/s data can be downsampled to 176.4kS/s or 88.2kS/s.)

SPDIF Downsampling sets the maximum rate on the SPDIF output to either 96kS/s or 192kS/s. Downsampling is performed by factors of 2 or 4.

Dual AES Sample Rate sets the minimum rate at which the 2 AES Outputs change to Dual AES mode, the choices are 88.2kS/s, 176.4kS/s or 352.8kS/s.

(For example, set to **176.4k**, Dual AES mode is selected if the file data rate is 176.4, 192, 352.8, 384, DSD or DSDx2.)

DSD Downsampling set to **On** enables conversion to PCM in line with the rates set by the **AES** & **SPDIF Downsampling** settings. This allows DSD files to be played on DACs with no DSD capability.

Indexing a large number of tracks or albums to allow the A-Z selection takes time. If this is too long, set the **Indexing Threshold** to a reasonable number (perhaps 1500) above which the A-Z bar is replaced by a scroll bar.

New units are shipped set for maximum compatibility with a legacy DAC: **DSD Downsampling On**, **AES** & **SPDIF Downsampling 96k**, **Dual AES Sample Rate 176.4k**. Set this way, the system will not give its best performance with a more capable DAC.

This table will help you to set the down-sampling options to suit your DAC.

Example DAC	DAC capability			Network Bridge settings			
	Single AES / SPDIF	Dual AES	DoP	AES Down-sampling	SPDIF Down-sampling	Dual AES Sample Rate	DSD Down-sampling
(Basic 24/96)	96	No	No	96k	96k	352.8k	On
Elgar Plus / Delius	96	192	No	192k	96k	88.2k	On
(Basic 24/192)	192	No	No	192k	192k	352.8k	On
Puccini Player	192	No	DoP/64	192k	192k	352.8k	Off
	192	192	No	192k	192k	88.2k	On
	192	192	DoP/64	192k	192k	88.2k	Off
	192	384	No	Disabled	192k	88.2k	On
Scarlatti / Paganini DAC	192	384	DoP/64	Disabled	192k	88.2k	Off
Vivaldi DAC, Rossini	192	384	DoP/128	Disabled	192k	88.2k	Off

Here are some examples of the down-sampling behaviour:

- The Network Bridge settings for the Basic 24/96 DAC would down-sample PCM data at over 96kS/s to either 24/88.2 or 24/96, and down-sample all DSD data to PCM at 24/88.2.

- The Network Bridge settings for the Puccini Player would down-sample PCM data at 24/384 to 24/192, output DSD/64 data as DoP/64 and down-sample DSD/128 data as PCM at 24/176.4.

- The Network Bridge settings for the Vivaldi DAC would not down-sample any data output in Dual AES format. The SPDIF (or single AES) output with DSD/64 data would carry DoP/64 and with DSD/128 data would output down-sampled PCM at 24/176.4.
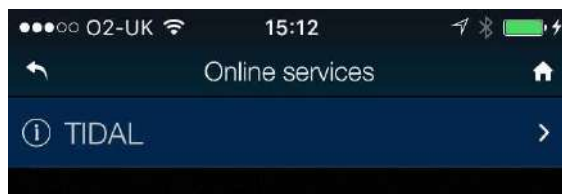
Go back 1 level and tap **Playback Controls** …

Setting **Phase** to **Inverted** changes the absolute phase of both channels to correct a phase error in the track.

Tap the **Channel Swap** toggle to temporarily correct for a connection error.

If you have a Tidal account, go back 1 level and tap **Online Services** …

Tap **Tidal …**

Enter your **Username** and **Password.**

Set **Sound Quality** to **Lossless.**

Tap **Add** to save your account details.

Go back to the **Devices** page and tap **Preferences**…

Tap each setting to see the options.

Favourite Inputs allows you to select which internet services appear on the **Home** page.

Favourite Servers allows you to select which servers on the network appear on the **Home** page.
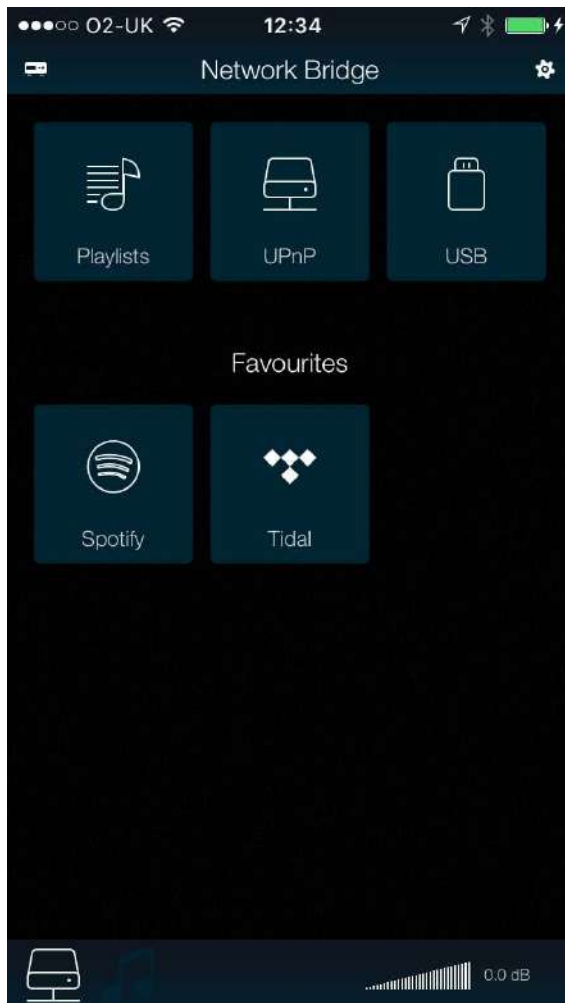
Default View lets you choose whether to view your tracks / albums as a **List** or a **Grid**.

When you have finished setting up, tap to go to the **Home** page.

STEP 4 – Playing music

Selecting music

The **Home** page.

(If you need to change the settings from here,
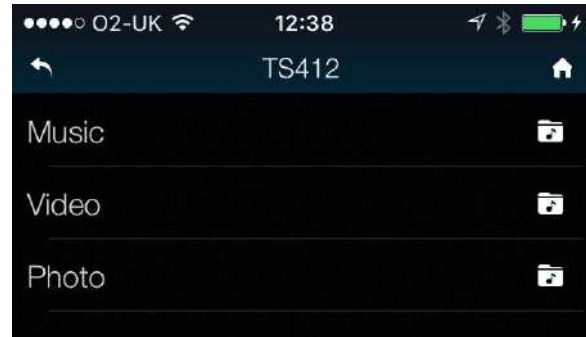
tapping the icon takes you to the **Configuration** page.)

- Tap **UPnP** to select a NAS on the same network. (Alternatively, tap **USB** to select a flash drive connected to the **USB** port.)

- Tap on a server to select it.
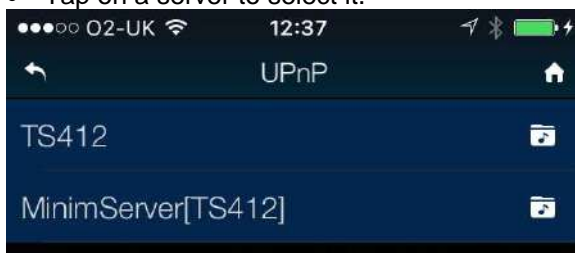
- Tap on **Music** – note that different server software reports different information.

- Select the browsing method (Artist, Album, etc.).
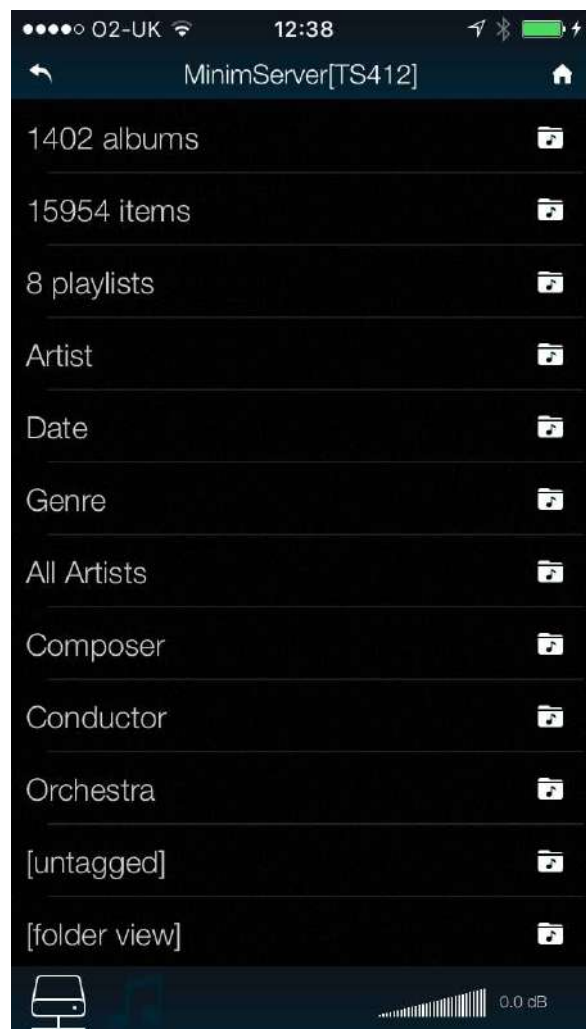
- If you selected browse by Album, navigate down to the track list.
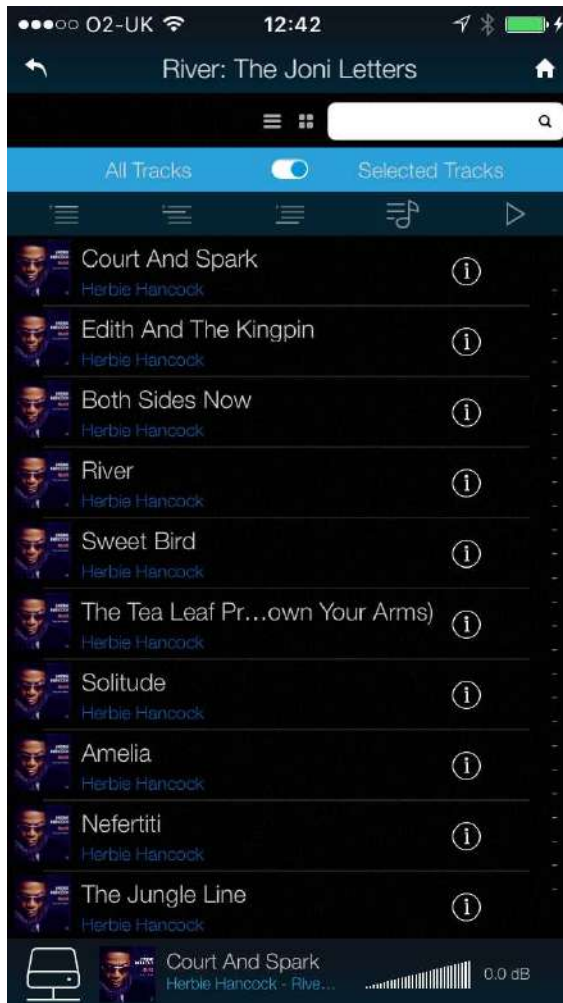
- Choose either **All Tracks** to play the whole album or **Selected Tracks** and then tap on the tracks you want to play.
- Tap one of the action buttons:

 Cancel the Queue and play now.

 Add to the start of the Queue.

 Add to the Queue after the current track.

 Add to the end of the Queue.

 Add to a Playlist.

- Tap the back icon if you want to return to the previous page.

- Tap the Home icon if you want to return to the Home page.

- Tap the Network icon at the bottom of the screen to see the track that is currently playing.

Current track

 Shuffle tracks.

 Repeat track.

 Change phase.

 Adjust volume.

- Set the volume slider as required, then tap the white **x** to close the volume panel.
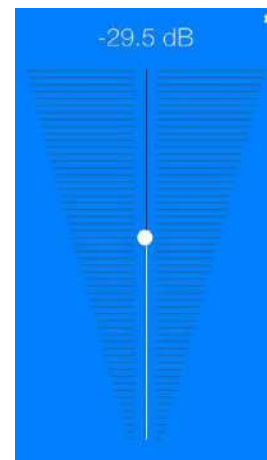
 Note that the Network Bridge volume control is not linked to the DAC's volume control. We recommend setting the Network Bridge volume to maximum and controlling the volume from the DAC or preamplifier where possible.

 Tap here to go to the **Playlists** page.

 Alternatively, go to the **Home** page and tap **Playlists**.

Playlists

Tap on a list or the **Play Queue** to open it.
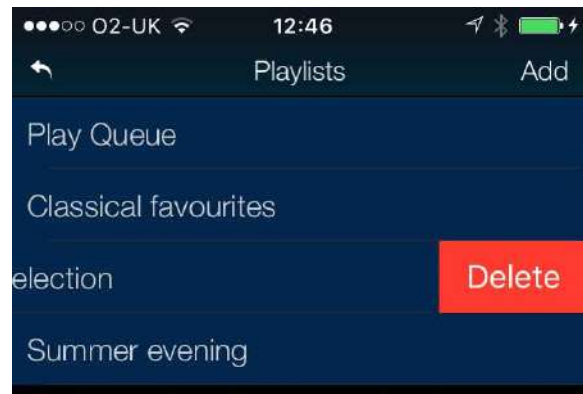
To delete a Playlist, swipe it to the left and tap **Delete**.

| | Select a track and tap the **Play** icon to start playing it. |

| | Tap here to save the Play Queue as a new Playlist, type a name and tap **OK**. |

| | Tap this icon to start editing the open Play Queue or a Playlist. |

To change the track order, drag tracks to the new position.

| | To delete tracks from a list, select them and then tap this icon. |

| | When you have finished editing the list, tap the highlighted edit icon again to de-select it. |

Search
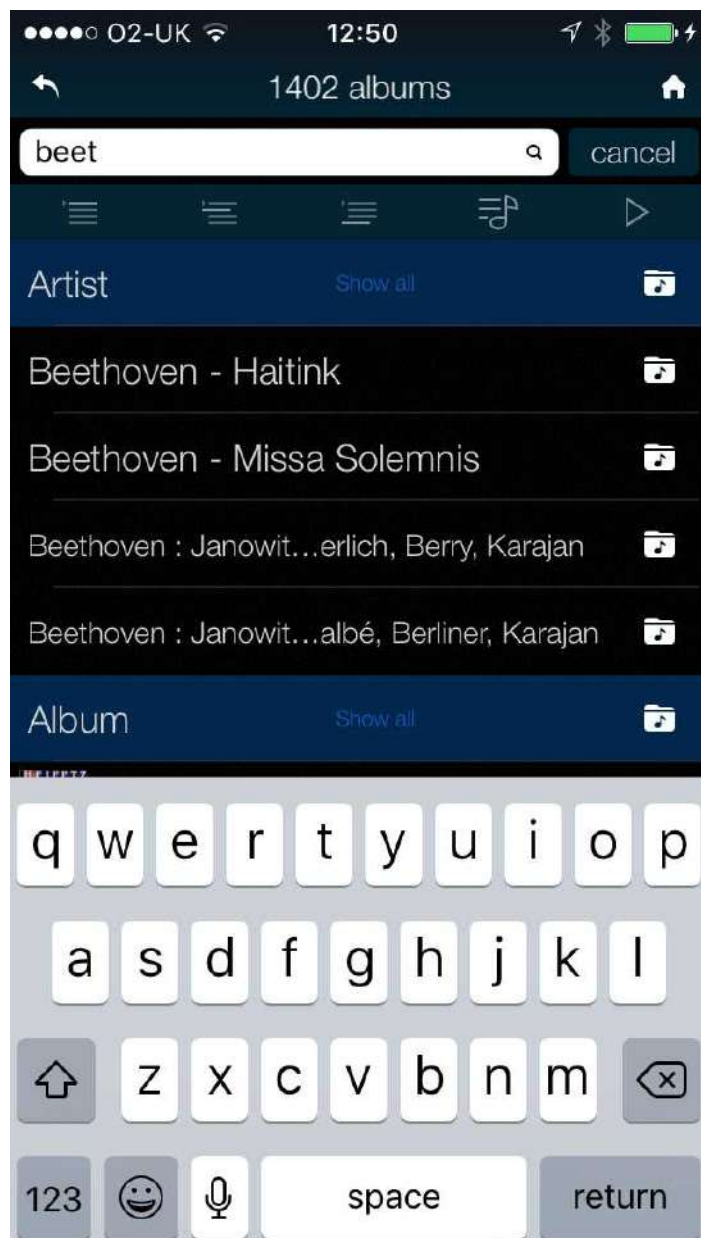
While browsing albums, artists or tracks, you can search for some text in the list.

Tap on the Search icon – the keyboard will appear.

Type the text you want to search for (or just part of it).

If you have a large music library, the search may take some time. Please be patient and take care not to type a letter twice.

When the matching entries are displayed, drag downwards in the list to close the keyboard. Select the track you want and either play it or add it to a playlist.

Playing files from a USB flash drive

You can stream music from a flash drive attached to the **USB** port by selecting the USB icon on the app's home page. Tracks can be selected individually by the app and played in the same way as from a NAS drive. Unlike a NAS drive, the flash drive does not have a computer to manage the content, so there is no search feature and metadata may be limited.

The drive must be formatted as FAT16 or FAT32. Drives formatted as NTFS or other formats are not compatible.

Low power USB hard drives in a suitable format can be accessed also.

Playing music with AirPlay

When the Network Bridge is connected to a network, music can be streamed from an Apple device via AirPlay to the Network Bridge.

Take care when using AirPlay, as the volume set by the sending device can be very high.

Using the Network Bridge with Spotify Connect

Spotify lets you listen to millions of songs – the artists you love, the latest hits and discoveries just for you.

If you are a Spotify user, you can control the Network Bridge using your Spotify App.

1. Connect the unit to the same Wi-Fi network as your phone, tablet or PC running the Spotify app.

2. Open the Spotify app and play any song.

3. Tap the song image at the bottom of the screen.

4. Tap the Connect icon.

5. Pick the Network Bridge from the list.

For further information on how to set up and use Spotify Connect, please visit www.spotify.com/connect

Licenses

The Spotify Software is subject to third-party licenses found here: www.spotify.com/connect/third-party-licenses.

Make sure you have checked **Spotify** in the **Preferences > Favourite Inputs** page.

Using the Network Bridge with Tidal
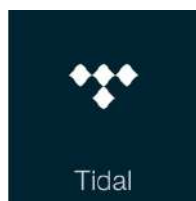
If you have a Tidal account, make sure you have checked **Tidal** in the **Preferences > Favourite Inputs** page. Go to the **Home** page and tap the **Tidal** icon to access music over the internet through Tidal.

To create and store Tidal playlists, please use the Tidal app directly.

www.tidal.com

Using the Network Bridge with Roon

The Network Bridge is Roon Ready. If you have a Roon account, you need to install Roon server on your NAS drive or in a networked PC. You can then use Roon remote to control playback. Roon requires a fairly powerful processor, so please check the Roon website when choosing a NAS drive.

https://roonlabs.com/

Playing MQA files

MQA (Master Quality Authenticated) is an award-winning British technology that delivers the sound of the original master recording. The master MQA file is fully authenticated and is small enough to stream or download.

Visit www.mqa.co.uk for more information.

The MQA logo is a trademark of MQA Limited and is used under licence.

Network Bridge with network firmware 373 onwards performs the first unfold of MQA data, to either 24/88.2 or 24/96. This can be played directly by any suitable DAC. Rendering to the original sample rate (if higher than 96kS/s) requires a DAC with MQA rendering capability.

When performing MQA playback, the type of MQA stream is indicated on the control app's Now Playing screen:

This green-dot icon appears when standard MQA files are being played.

This blue-dot icon appears when MQA studio files are being played.

MQA decoding is not possible if the original MQA data has been changed so that the MQA authentication is missing.
If the MQA logo does not appear when expected, please disable any DSP features in the streaming program.

STEP 5 – Using a Master Clock

So far, the system has been set up with the Network Bridge in Master Mode. If you are using the SDIF-2 interface, the DAC will lock to a word clock generated by the Network Bridge. The basic Sync Mode for the Network interface is Master Mode because it has an asynchronous Network interface. This is the simplest arrangement, but you can improve the sonic performance by adding a Master Clock to reduce clock jitter.

For best results, use a DAC with two Word Clock inputs, such as the Vivaldi or Rossini DAC, and a Vivaldi Master Clock as shown below. This allows both the Network Bridge and the DAC to remain locked to the Master Clock with files at any sample rate.

- Connect the equipment as shown.
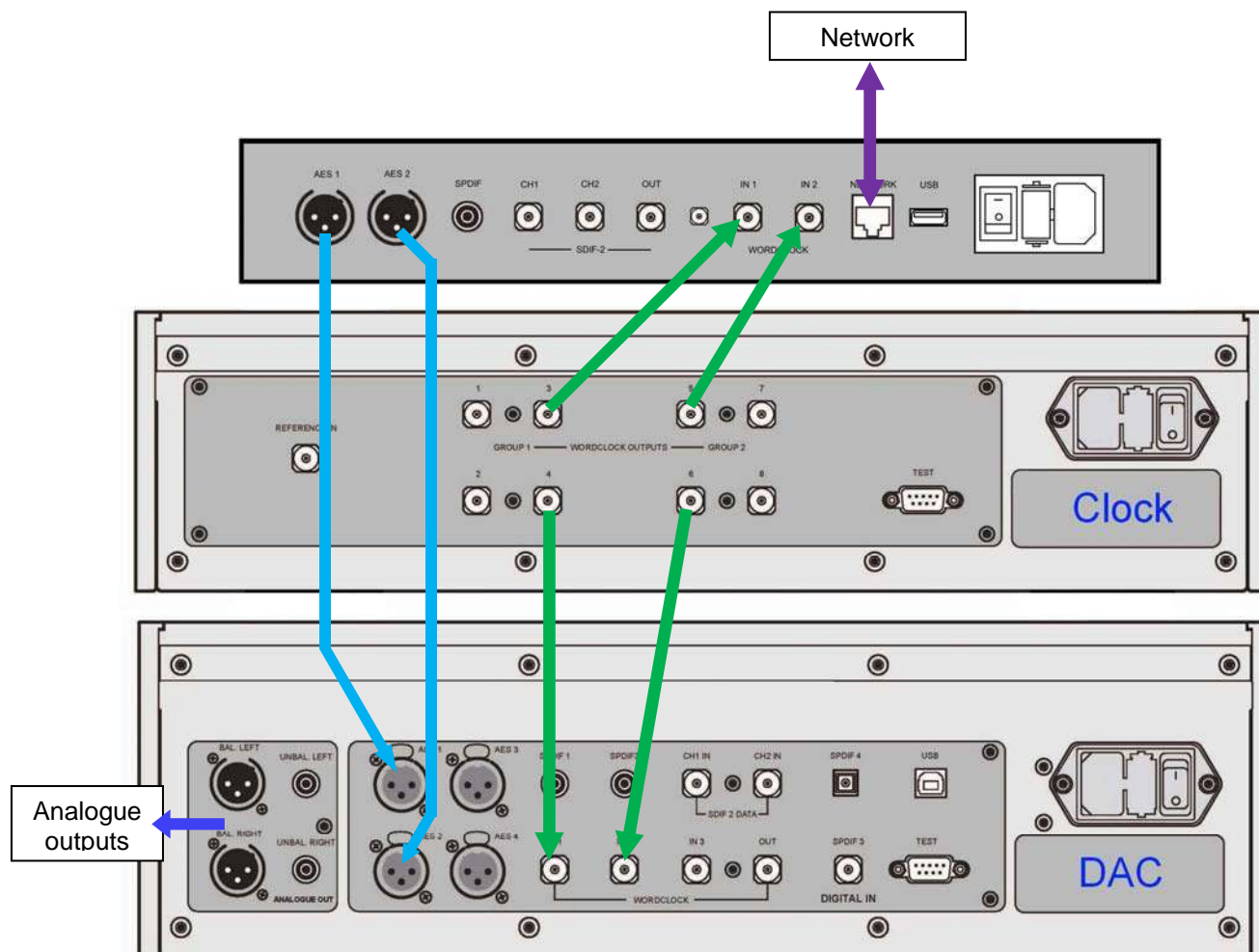
Figure 3 – Using the Network Bridge with a Vivaldi DAC and Master Clock

- Set the Master Clock Freq1 to 44.1kHz and Freq2 to 48kHz.
- Connect one of the **Clock Group 1** outputs (44.1kHz) to the Network Bridge's **Word Clock In1** input and one of the **Clock Group 2** outputs (48kHz) to the Network Bridge's **Word Clock In2** input. The Bridge will automatically select the Clock input that suits the file and lock to it.
- Connect one of the **Clock Group 1** outputs (44.1kHz) to the DAC's **Word Clock In1** input and one of the **Clock Group 2** outputs (48kHz) to the DAC's **Word Clock In2** input.
- Connect the Network Bridge's **AES1+2** output to the DAC's **AES1+2** input.
- Select the DAC's input to **AES1+2**.
- Set the DAC Sync Mode menu page to Auto (the "W" icon).
- Set the Clock's Settings > Dither menu pages On or Off as you prefer.
- Use the app to set the AES Downsampling to Disabled and the Dual AES Sample Rate to 88.2k.

STEP 6 - Using the web client interface

You can access the web client interface from a web browser running on any device connected to the same network. First, run ipconfig (or a similar utility) and note the IP address of the Network Bridge (10.20.30.183 in this example). Open the web browser and point it to the Network Bridge's IP address. The **Main Page** reports some information about the network. Tap **Device Settings**.

Here you can:

- Change the **Device Name** so that you can identify different Network Bridges on the network.
- Enter the **AirPlay Password** if necessary.
- Load a Network **Firmware Update** from a file (this is rarely necessary).
- Check if an **Internet Update** is available from the update server on the internet and load it. (This is mainly for owners who are not using the Network Bridge app – see page **31**.)
- **Download system logs** to help us support you if the Network Bridge malfunctions.

You can change the dynamic IP address to a fixed address on the **Network Settings** page.
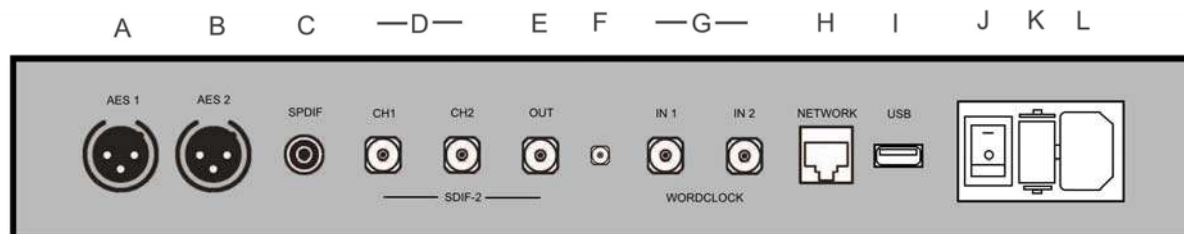
REAR PANEL

Figure 4 – Rear panel

AES digital outputs

The **AES1** and **AES2** outputs (A & B) can be used individually at 44.1, 48, 88.2, 96, 176.4 or 192kS/s or DSD/64 in DoP format, or as a Dual AES pair at 88.2, 96, 176.4, 192, 352.8 or 384kS/s or DSD/64 or DSD/128 in DoP format.

Dual AES mode is automatically selected if the file rate is equal to or higher than the rate set in the app's Configuration > Dual AES Sample Rate section. At lower rates, both AES outputs will carry the same single AES data.

SPDIF digital output

The **SPDIF** output on an RCA connector (C) carries SPDIF data for output rates at 44.1, 48, 88.2, 96, 176.4 or 192kS/s or DSD/64 in DoP format, even if Dual AES mode is On. The output rate is controlled by the app's Configuration > SPDIF Downsampling section.

SDIF-2 digital interface

The **SDIF-2** interface carries either SDIF-2 PCM data at sample rates up to 96kS/s, or SDIF-2 DSD/64 data. The interface consists of two data inputs labelled **CH1** and **CH2** (D). The Word Clock **Out**put (E) must be connected to the DAC to provide clocking for this interface, unless a Master Clock is in use. High sample rate data is automatically downsampled to either 24/88.2 or 24/96.

WiFi antenna connector

Antenna socket (F) for the internal WiFi feature – this is for future development.

Word Clock inputs and output

Either of the two **Word Clock In** connectors (G) will accept standard word clock from a master clock at 44.1, 48, 88.2, 96, 176.4 or 192kHz. The clock frequency **MUST** be an exact multiple of the file data rate, otherwise the system will not lock.

Each of the **Word Clock In**puts may be used individually. To make operation easier, you can connect a 44.1, 88.2 or 176.4kHz word clock to **Word Clock In1** and a 48, 96 or 192kHz word clock to **Word Clock In2**. The unit can then select the clock frequency that is an exact multiple of the file data rate.

The (SDIF-2) word clock **Out** connector (E) carries a word clock at the same frequency as the file data rate, up to 96kHz. You can connect this to the DAC to improve data transmission. This connection is required if the SDIF-2 output is in use.

Word clock is used for synchronisation only, it does not carry digital data.

Network interface

The **Network** connection on an RJ45 socket (H) allows the Network Bridge to act as a UPnP™ renderer, streaming music data from a NAS drive or a local computer over a standard 10/100/1000 Ethernet network. The Network Bridge can stream music files at up to 24 bits / 384kS/s or DSD/64 or DSD/128 under the control of a *dCS* Network Bridge App running on a suitable iPad or iPhone, (see page **9**) or other UPnP control point. The Network interface runs in asynchronous mode.

> ⚠ The RJ45 socket's contacts can be damaged by accidentally inserting the wrong connector (e.g. a USB type B or type A). To avoid this, we suggest leaving the dust cover fitted when not in use and connecting the RJ45 cable immediately after removal.

USB interface

The **USB** 2.0 host interface (I) on an 'A' type connector can stream music files in most popular formats at up to 24 bits / 384kS/s or DSD/128 from a USB Flash Drive. Playback is controlled by the app.
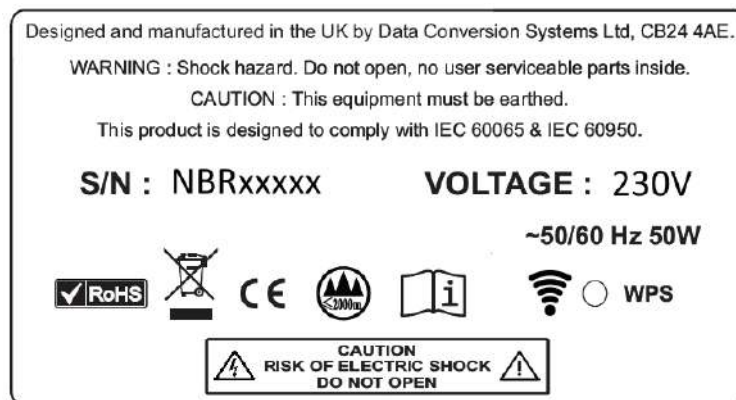
Low-powered USB hard disk drives in FAT16 or FAT32 format may be used in the same way. The interface will not read drives in NTFS format or other formats.

Mains inlet

Power is connected via a standard IEC320 connector (L), protected by a fuse (K) and isolated by a 2-pole power switch (J).

Label

The label on the underside of the unit states the unit's serial number (S/N) and the nominal voltage to which the unit is set. It is important to quote the serial number if you need assistance.

Designed and manufactured in the UK by Data Conversion Systems Ltd, CB24 4AE.

WARNING : Shock hazard. Do not open, no user serviceable parts inside.

CAUTION : This equipment must be earthed.

This product is designed to comply with IEC 60065 & IEC 60950.

S/N : NBRxxxxx   VOLTAGE : 230V

~50/60 Hz 50W

RoHS   CE   WPS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

WPS

The small hole beside "WPS" on the label gives access to a switch for pairing the router to the Network Bridge via WiFi for when a wired Ethernet connection is not available. This is for future development.

SPECIFICATION

Type	Network streaming bridge
Colour	Silver or Black.
Dimensions	360mm (14.2") wide x 245mm (9.65") deep x 67mm (2.65") high. Allow extra depth for cable connectors.
Weight	4.6kg (10.2lbs).
Digital Inputs	Network interface on an RJ45 connector – Acts as a UPnP™ renderer operating in Asynchronous mode, streaming digital music from a NAS or local computer over a standard Ethernet network, decoding all major formats. The Network interface accepts data streamed from an iPad, iPhone or iPod Touch via Apple AirPlay™, or Android devices running UPnP software. Music can be streamed from the internet via Spotify Connect™ or Tidal™. The Network Bridge is Roon™ ready. USB host interface on type A connector operating in Asynchronous mode, streams data from a USB flash drive.
Digital Outputs	2x AES/EBU on 3-pin female XLR connectors, each outputs PCM at up to 24 bit 192kS/s or DSD/64 in DoP format. Used as a Dual AES pair, the interface outputs PCM at up to 384kS/s, DSD/64 & DSD/128 in DoP format. 1x SPDIF on 1x RCA Phono connector, outputs PCM at up to 24 bit 192kS/s or DSD/64 in DoP format. 1x SDIF-2 interface on 2x BNC connectors, outputs PCM at up to 24 bit 96kS/s or SDIF-2 DSD/64.
Word clock I/O	2x Word clock Inputs on 2x BNC connectors, accept standard word clock at 44.1, 48, 88.2, 96, 176.4 or 192kHz. The data rate can be the same as the clock rate or an exact multiple of the clock rate. Sensitive to TTL levels. (SDIF-2) Word clock Output on 1x BNC connector, carries Word clock at the same frequency as the file rate up to 96kHz.
Data Formats	• FLAC, AIFF & WAV – up to 24 bit PCM at 44.1, 48, 88.2, 96, 176.4, 192, 352.8 or 384kS/s. • ALAC – up to 24 bit PCM at 44.1, 48, 88.2, 96, 176.4 & 192kS/s. • AAC, MP3, WMA & OGG - up to 24 bit PCM at 44.1 or 48kS/s. • DFF, DSF & DoP – DSD/64 & DSD/128. • Apple AirPlay – 44.1 or 48kS/s.
MQA	Performs the first unfold of MQA data from the Network and USB inputs.
Conversions	User-selectable down-sampling to match legacy DACs, set by the App: • 176.4 & 352.8 > 24/176.4 or 24/88.2. • 192 & 384 > 24/192 or 24/88. • DSD/64 & DSD/128 > 24/176.4 or 24/88.2.
Software Updates	Download and update functionality available via the Network Bridge App.
Local Control	*dCS* Network Bridge App for Unit Configuration and Music Playback, or a UPnP-compatible control app.

Power Supply	Factory set to either 115/120V (100-120V) or 230/240V (220-240V) AC, 50/60Hz.
Power Consumption	6.5W typical, 50W maximum.

These specifications are subject to change without notice.

Power Supply	Factory set to either 115/120V (100-120V) or 230/240V (220-240V) AC, 50/60Hz.

MAINTENANCE AND SUPPORT

Service and maintenance

dCS audio products are designed not to need regular maintenance, and contain no user serviceable parts apart from the mains fuse. If your unit is damaged in any way, please contact your dealer.

Replacing a blown 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 T 1 amp L fuse

If the fuse should fail, it is essential that it is 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 warranty. Fuse failure is rare!

Referring to the diagram below, remove the power cable, use your fingernails to catch the two tabs of the fuse holder (A), push them together to release the clips and pull the fuse holder out. Pull out the blown fuse from the lower position (B) and discard it. Either move the Spare Fuse (C) to the lower position or fit one of the fuses from the manual pack. Orient the fuse holder as shown (D) and push the holder back into the power inlet so that it clicks home.

A   B   D
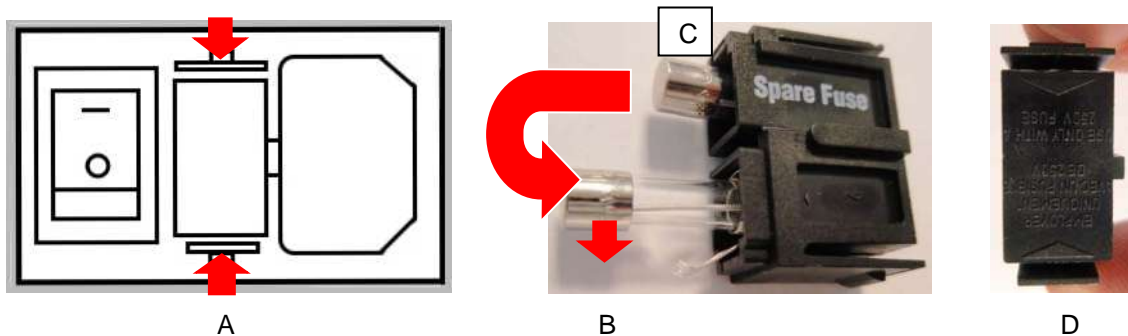
Cleaning the case

The front and back panels of your *dCS* equipment are machined from very high grade aluminium. Great care has been taken to create the finish of the aluminium throughout the engineering process from the raw solid material to the finished piece.

To remove loose dust or finger marks from the case, we recommend that you use a clean, dry, lint-free cloth.

To restore the finish, we recommend applying small quantities of a lanolin based cleaner, using a clean, dry, lint-free cloth and then wiping off.

Small amounts of glass cleaner containing ammonia may be used to clean other surfaces, but avoid spraying onto the connector contacts.

Limited warranty

General

dCS warrants this product against defects in materials and workmanship for a period of 3 years from the date the unit was originally shipped from *dCS*. If the product is purchased and registered with *dCS* within 6 months of the date the unit was originally shipped from *dCS*, we will start the warranty on the purchase date. For units registered later than 6 months from the ship date, we will start the warranty from the ship date unless the registration is supported by the original sales invoice. During the warranty period, *dCS* will repair or, at our absolute discretion, replace a faulty product. Warranty repairs must only be carried out by *dCS* or our authorised service agents. Please contact your dealer if your unit requires service.

To register this product, either register online at www.dcsltd.co.uk or complete the **Product Registration** form within 30 days of the sale and return it to *dCS*. On receipt of the registration, *dCS* will add your contact details to our customer database. *dCS* will use this information for warranty purposes only, we will not contact you directly for reasons relating to sales and marketing.

This warranty applies to the original owner, it is not transferable.

Warranty exclusions

The Warranty does not cover wear and tear.

The Warranty on this product will be void if:
- the product is misused in any way.
- any unauthorised modifications or repairs are carried out.
- the product is not used in accordance with the Operating Conditions stated in this manual.
- the product is serviced or repaired other than by *dCS* or our authorised service agents.
- the product is operated without a mains earth (or ground) connection.
- the unit is returned inadequately packed.

dCS reserve the right to apply a service charge if a product returned for warranty repair is found to be operating correctly, or if a product is returned without a returns number being issued.

This warranty covers parts and labour only, it does not cover shipping charges or tax/duty.

Our dealers or distributors are NOT authorised to extend the terms of this warranty, *dCS* cannot accept responsibility for any attempt to do so.

Products re-sold by *dCS* on a "used" basis may be subject to reduced warranty terms.

Obtaining service

Should you encounter a problem, contact your authorised *dCS* dealer for advice, quoting the model, the full serial number, software version number, and giving a detailed description of the fault. Your dealer will advise you fully on actions that need to be taken and give you a returns number. When returning a unit, the original packaging should be used to avoid transit damage. Replacement packaging sets may be purchased from *dCS*.

During the Warranty period, there will normally be no charge for parts or labour.

Operating conditions

- The supply voltage must remain within +/-10% of the A.C. voltage specified on the back panel.
- The supply frequency must be 50Hz or 60Hz.
- Ambient temperature range: 0°C (32°F) to 45°C (113°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 – the unit is happy to work anywhere a human is.

If you need more help

In the first instance, you should contact your dealer. If they cannot resolve the issue, contact your national distributor.

Manufactured by:

> Data Conversion Systems Ltd.
> Unit 1, Buckingway Business Park,
> Anderson Road,
> Swavesey,
> Cambridgeshire. CB24 4AE
> UK
>
> www.dcsltd.co.uk

This user manual may be downloaded free of charge from our web-site.

A bound copy of this manual may be ordered from *dCS*.

Software history

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 upgrade may be necessary also to increase the "capacity" of the electronics, add extra connectors or extra front panel controls.

Please note that not all software updates produce an audible improvement. We recommend that you keep your software up to date. Check the *dCS* web-site occasionally for news of the latest software updates.

This manual is for **Network Bridge** software version 1.0x.

| Issue 1.00 | The first issue, with Network Board v315 for app v1.0.0. |
| Issue 1.00 | Update for MQA, with Network Board v373 for app v1.4.8 |

Software update

The Network Bridge v1.00 onwards can be updated from the internet over the network using the Network Bridge app. Tap **Configuration > Information > Version > Check for Updates**. If an update is available, please follow the prompts and then wait about 10 minutes – do not switch off or disconnect the unit during an update. When the front panel LED flashes continually, the update is complete. Switch off at the back panel, wait 5 seconds, then switch on again. Re-start the app and check the versions again. You may need to install the latest version of the app.
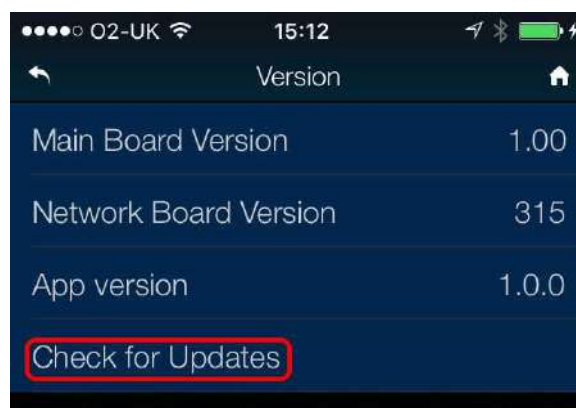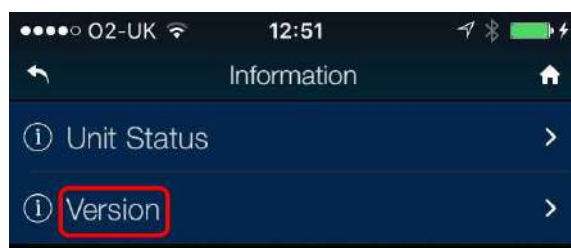
If you are using a different control app, you can update the software using the web client (page **24**).

INDEX