BLUSTREAM⌐

4-Way HDMI™ Switcher With
Multi-Channel Dante Audio Breakout

1   2   3   4   ☰   ⏻

<   /⊲-   >   /⊲+   ∧   /◁   ∨   ✓   ✕

L   R   Sub   C   Ls   Rs   Lrs   Rrs   Ltm/DL   Rtm/DR
+   -   +   -   +   -   +   -   +   -
MULTI CHANNEL OUT   2 CHANNEL OUT   OPT OUT   DANTE

3 2 1 0
EDID   NETWORK   MODE 1 | MODE 2   SW42DA

INPUT 1   INPUT 2   INPUT 3   INPUT 4   OUTPUT 1   OUTPUT 2
                                         4K BYPASS   SCALING /   TCP/IP   RS-232   IR EXT.
HDMI INPUT   ARC/EARC   DOWNMIX

TX ⇄ RX

100-240V AC 50/60HZ

▶ SW42DA

User Manual

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge Protection Device Recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Contents

Introduction

The Blustream SW42DA is a 4-Way HDMI switch that has been designed to convert and downmix embedded Dolby Audio or DTS Audio within a HDMI switching environment, HDMI audio capabilities include the selection and manipulation of formats across both a multichannel and 2ch downmixed Dante® digital signal, optical, multichannel and 2ch downmixed balanced/unbalanced analogue audio and HDMI outputs.

The SW42DA will pass native video and multi-channel audio to compatible equipment, with a second HDMI output featuring selectable video down-conversion of 4K 60Hz 4:4:4 video down to 1080p, with embedded native or down-mixed 2ch audio.

The SW42DA provides an advanced, but cost effective solution for ensuring that 4K UHD video and multi-channel audio can be distributed around a Dante® multi-room system where there are a mixture of 2ch + 7.1ch zones or 7.1.2/5.1.4 (9.1ch) audio with multiple output resolution requirements.

Dolby Atmos

dts X

FEATURES:

- Features 4x HDMI inputs which can be switched to dual HDMI output
- Features an in-built DAC (Digital to Analogue audio converter) that converts 7.1ch Dolby Audio or DTS Audio to a stereo 2ch signal available on HDMI, Dante®, optical, and analogue audio outputs concurrently
- Features 1 x HDMI input supporting 4K UHD video (4K 60Hz 4:4:4) that is replicated to 2x HDMI outputs
- HDMI loop out will replicate the HDMI input signal up to 4K 60Hz 4:4:4 and 7.1ch Dolby Audio & DTS Audio
- HDMI output 2 features a video down-conversion from 4K down to 1080p
- HDMI audio breakout to downmixed analogue L/R audio and downmixed optical digital outputs concurrently
- HDMI audio breakout of Dolby Atmos and DTS-HD to up to 8 channels of Dante® audio (7.1ch) + independent 2 down-mixed channels of Dante® audio
- HDMI audio breakout of Dolby Atmos and DTS-HD to up to 10 channels of Dante® audio (7.1.2/5.1.4ch)*
- HDMI audio breakout to 7.1ch balanced and unbalanced analogue audio outputs
- HDMI Dolby Atmos and DTS-HD 7.1 down-mixing to 2ch balanced and unbalanced audio ouputs
- Supports ARC/eARC including breakout to 7.1ch and 2ch downmixed analogue and Dante® audio
- Supports: 44.1, 48, 88.2 & 96kHz sample rates @ 24-bit & configurable Dante® device latency
- Control via front panel, TCP/IP, web-GUI, RS-232 and IR
- HDCP 2.3 compliant with advanced EDID management

*Dante 2ch down-mix channels are re-allocated to additional 7.1.2/5.1.4 use

Front Panel
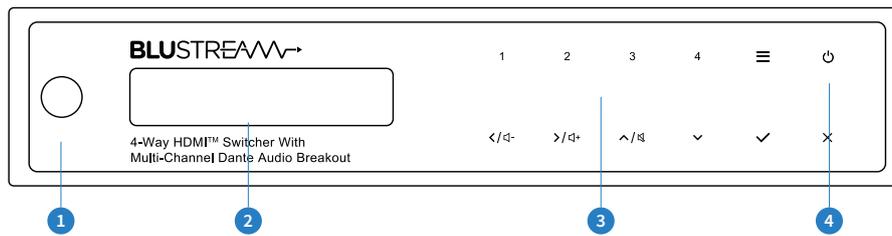
Connections:

❶ IR Receiver Window - For control of SW42DA via remote control

❷ LCD Display – Shows the status of input /output selection, EDID etc...

❸ Selection Buttons - Multi-use buttons

❹ Power Button – Press and hold for 3 seconds to power ON / OFF the SW42DA

Rear Panel
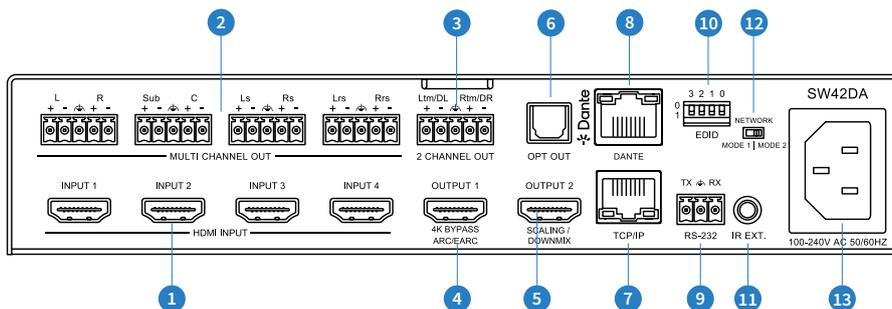
Connections:

❶ HDMI Input 1-4 - Connect to HDMI source device

❷ L/R Analogue Audio Outputs – 8 x Balanced/unbalanced L/R outputs

❸ L/R Analogue Audio Outputs – 2ch Downmixed balanced/unbalanced L/R outputs. **Please note**: 2ch downmixed outputs can be assigned as height speakers in 7.1.2ch and 5.1.4ch configurations

❹ HDMI Output 1 - Bypass video output maintains native video resolution and audio format. Connect to a HDMI display / end point

❺ HDMI Output 2 - Scaled / down-mixed output. Connect to a HDMI display / end point

❻ Optical Output - S/PDIF connection outputs 2 channel down-mixed audio

❼ TCP/IP - RJ45 connector for TCP/IP and web-GUI control of the SW42DA

❽ Dante® Audio Output - RJ45 socket connects Dante® Network. Dante® audio supports up to 10ch of Dante® audio (7.1 + 2ch downmixed or 7.1.2ch/5.1.4ch)

❾ RS-232 - Phoenix connector for RS-232 control of the SW42DA (cable included)

❿ EDID DIP Switches - Adjust the EDID setting for the source input

⓫ 3.5mm stereo connector to connect to Blustream IR receiver for IR control of the device

⓬ Network Mode Switch - Mode 1 - allows Dante audio and TCP/IP and web-GUI control via the Dante® port

        - Mode 2 - allows Dante audio via the Dante® port & TCP/IP and web-GUI control via the TCP/IP port

⓭ IEC Power Socket - Use supplied IEC power cable

EDID Management

EDID (Extended Display Identification Data) is a data structure that is used between a display and a source. This data is used by the source to find out what audio and video resolutions are supported by the display, then from this information the source will determine what the best resolution is to output.

While the objective of EDID is to make connecting a digital display to a source a simple plug and play procedure, issues do arise when multiple displays or video matrix switching is introduced because of the increased number of variables.

The SW42DA will act as an 'end point' in the HDMI signal path. Using the EDID dip-switches predetermines the video resolution and audio format of the source, regardless of the video output resolution that the SW42DA scales to.

To change the EDID settings move the EDID dip-switches as required on the front panel of the unit. Please see below table for settings:

3	2	1	0	EDID Type
Combination of DIP positions				
0	0	0	0	1080p 60Hz 2.0ch
0	0	0	1	1080p 60Hz 5.1ch
0	0	1	0	1080p 60Hz 7.1ch
0	0	1	1	4K 60Hz 4:2:0 2.0ch
0	1	0	0	4K 60Hz 4:2:0 5.1ch
0	1	0	1	4K 60Hz 4:2:0 7.1ch
0	1	1	0	4K 60Hz 4:4:4 8bit 2.0ch
0	1	1	1	4K 60Hz 4:4:4 8bit 5.1ch
1	0	0	0	4K 60Hz 4:4:4 8bit 7.1ch
1	0	0	1	4K 60Hz 4:4:4 10bit 2.0ch
1	0	1	0	4K 60Hz 4:4:4 10bit 5.1ch
1	0	1	1	4K 60Hz 4:4:4 10bit 7.1ch
1	1	0	0	DVI 1920x1080 No Audio
1	1	0	1	DVI 1920x1200 No Audio
1	1	1	0	Copy from Output 1
1	1	1	1	Software Control

Note: You must power-cycle the SW42DA after changes have been made in order for the EDID settings to update.

2 Channel Line Outputs

The 2 channel line output can be assigned as a 2ch downmixed audio signal, or re-allocated as additional height speakers when decoding 7.1.2ch or 5.1.4ch signals. The analogue output can be wired with balanced or unbalanced audio devices with the pin out as adjacent.

Balanced - XLR   **Unbalanced - RCA**
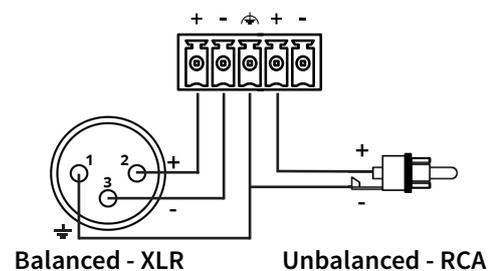
Configuration and Web-GUI Control

The SW42DA features an in-built web-GUI which is required for control and configuration of the device. This configuration includes features such as audio management, channel allocation, source EDID management, output scaler resolution, network configuration, and user control.

You can connect to the SW42DA via hardwired LAN connection.

Connecting via LAN:

By default this device is set to DHCP, however if a DHCP server (eg: network router) is not installed, or a connection is made directly from a PC to the SW42DA, the IP address will revert to the below details:

Default **Username** is: blustream   Default **Password** is: @Bls1234   Default **IP Address** is: 192.168.0.200

If the SW42DA is connected to a pre-existing network then it will be provided an IP Address via DHCP. There are several ways in which you can find the IP address of the device as follows:

- Use a 3rd party IP scanning tool on a PC to find the IP address of the SW42DA
- Using RS-232 connection and sending 'STATUS' command - this will return all settings of the SW42DA
- Use the default domain address: SW42DA.local

Login Page

The Login Page allows the Guest, or Admin to login and access additional functionality.
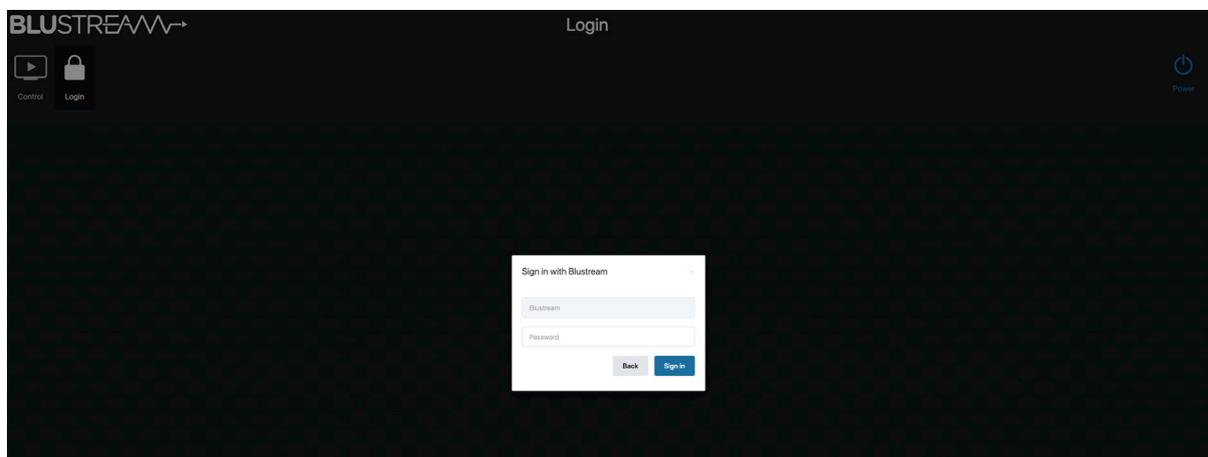
Please note: the first time the Administrator logs into the web-GUI of the SW42DA, the default password (@Bls1234) must be changed to a unique password. Please retain this password for future use. Forgetting the password will mean having to factory reset the unit, losing all prior network and configuration settings.

Passwords can be changed as required within the web-GUI of the unit once logged in. The Guest password will remain as @Bls1234 until such time as the password is updated from within the web-GUI.

Any password set on the SW42DA must feature any combination of the following:

- Minimum 8 x digits in length
- Minimum 1 x uppercase letter, and 1x lower case letter
- Minimum 1 x number
- Minimum 1 x symbol

Control Page

This tab allows master control of the SW42DA
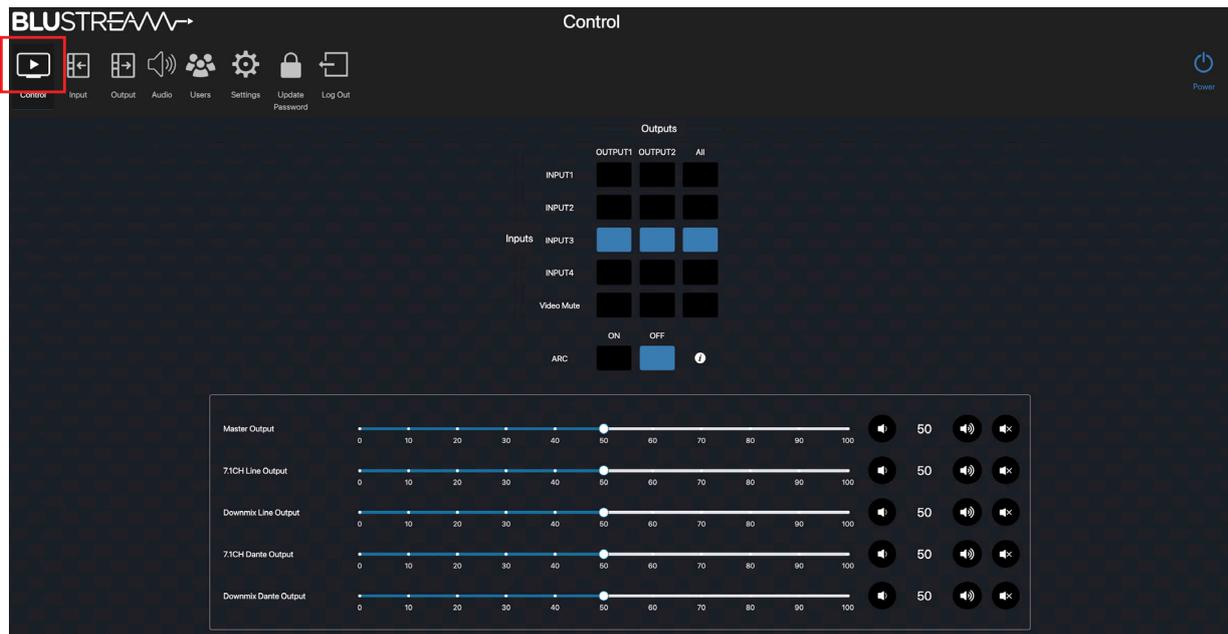
From within this page it is possible to:

1. Navigate to new pages via the menu
2. Change source selection on both HDMI Output 1 and Output 2 (mirrored)
3. Adjust the levels of the Analogue and Dante® audio outputs
4. Turn On/Off ARC audio from the display connected directly to Output 1

Input Page

This tab is for Source Input configuration
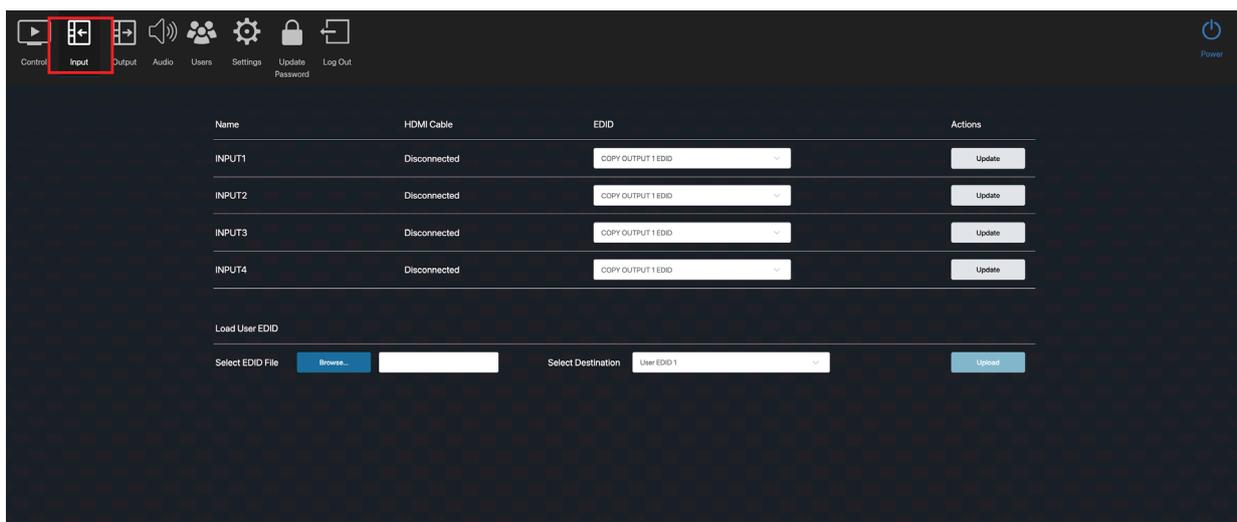
From within this page it is possible to:

1. Amend EDID management - Used to manage video and audio output of connected HDMI source devices
2. Rename input device (press UPDATE to access the configuration pop-up)

Output Page

This tab is for HDMI Output configuration

Name	HDMI Cable	Output	Audio Signal	Video	Output Scaling	Actions
OUTPUT1	Disconnected	ON	Bypass	None	Bypass	Update
OUTPUT2	Disconnected	ON	Downmix 2CH	None	Auto	Update
OPT OUT		ON	Downmix 2CH			Update
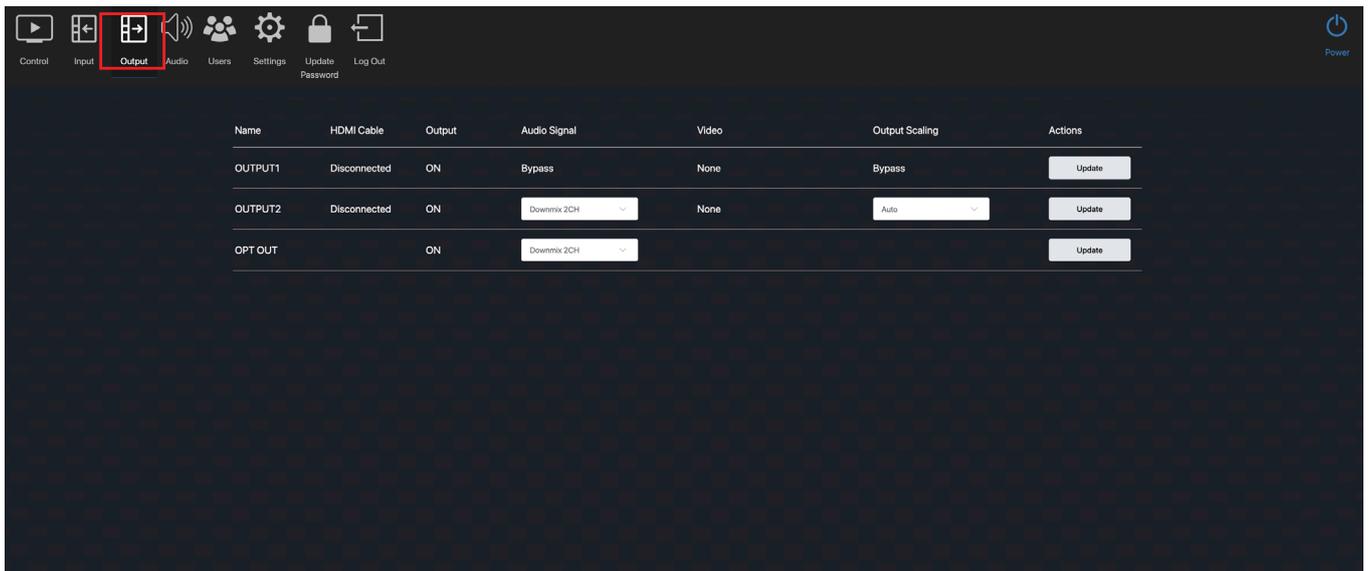
From within this page it is possible to:

1. Review the current status of the output, including if the output is turned On/Off, HDMI cable connected, and video source

2. Rename the output device (press UPDATE to access the configuration pop-up)

3. Change the audio format on the HDMI outputs between Bypass and Downmix (for displays that only support 2ch audio)

4. Change the HDMI output scaling. Options are:

    Bypass - video signal in = video signal out

    Auto - video support of display will be used for the SW42DA to output the best possible video format

    Force 1080p - video will be downscaled to 1080p format, with HDCP 1.x compliance

The Actions button allows for adjustment of the following output settings:

- Output Name - Change the name that will be displayed for Output 1 and 2
- Output On/Off - Toggle for turning the output On and Off

Please note: when making any changes, click Update for settings to be applied
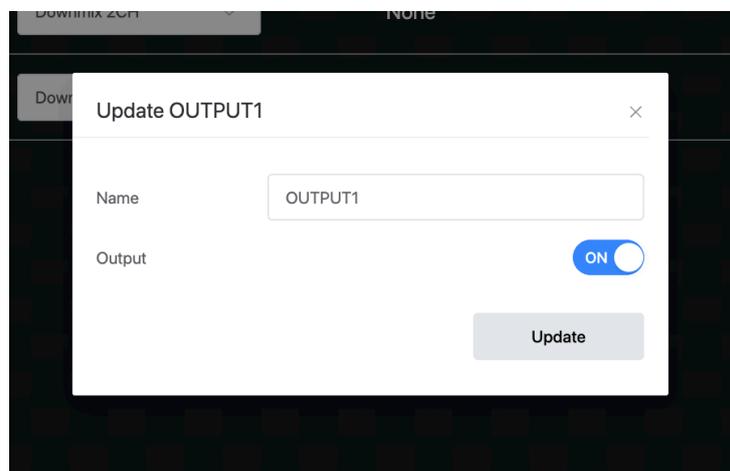
Audio Output Page

This tab is for Audio Output configuration of Analogue audio and Dante® audio

The first main setting is to decide how the SW42DA will decode audio subject to the installations requirements. The Output Mode displays the current format selected. To change the audio output mode, simply select the desired format from within the drop-down box. These are:
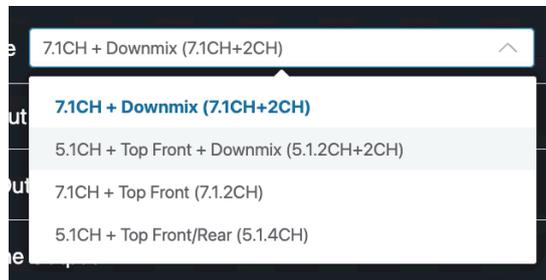
- Master Output - The Master Output allows adjustment of ALL audio outputs of the SW42DA at the same time. To adjust the master output, open the drop down box and from here you can turn On/Off each group of Analogue or Dante® outputs and adjust the master volume:
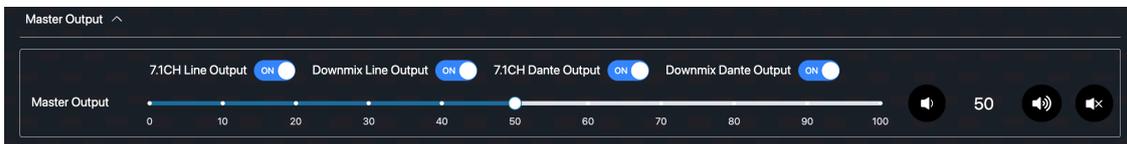
- The next 4 x dropdown boxes are for independent control of the following audio outputs:

  7.1ch Analogue line output

  2ch Analogue line output (Downmixed audio)

  7.1ch Dante® output

  2ch Dante® output (Downmixed audio)
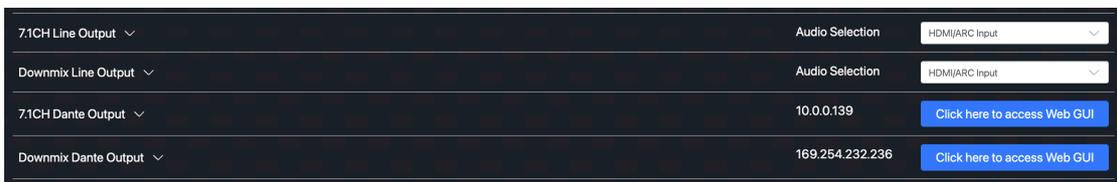
For the 7.1ch and 2ch Analogue outputs, select the audio source from the drop down box. Options are:

  - HDMI/ARC Input

  - Dante® 7.1ch Input

For the Dante® audio outputs, press 'Click here to access Web GUI' which will open an additional web browser window to the SW42DA Dante® modules (x2) for direct configuration, or firmware update.

Please note: the default IP of the Dante® modules may differ to the main IP address of the SW42DA. Please check the network settings of the SW42DA within the Settings page.

For each of the audio outputs, expand the window to show further advanced control options:
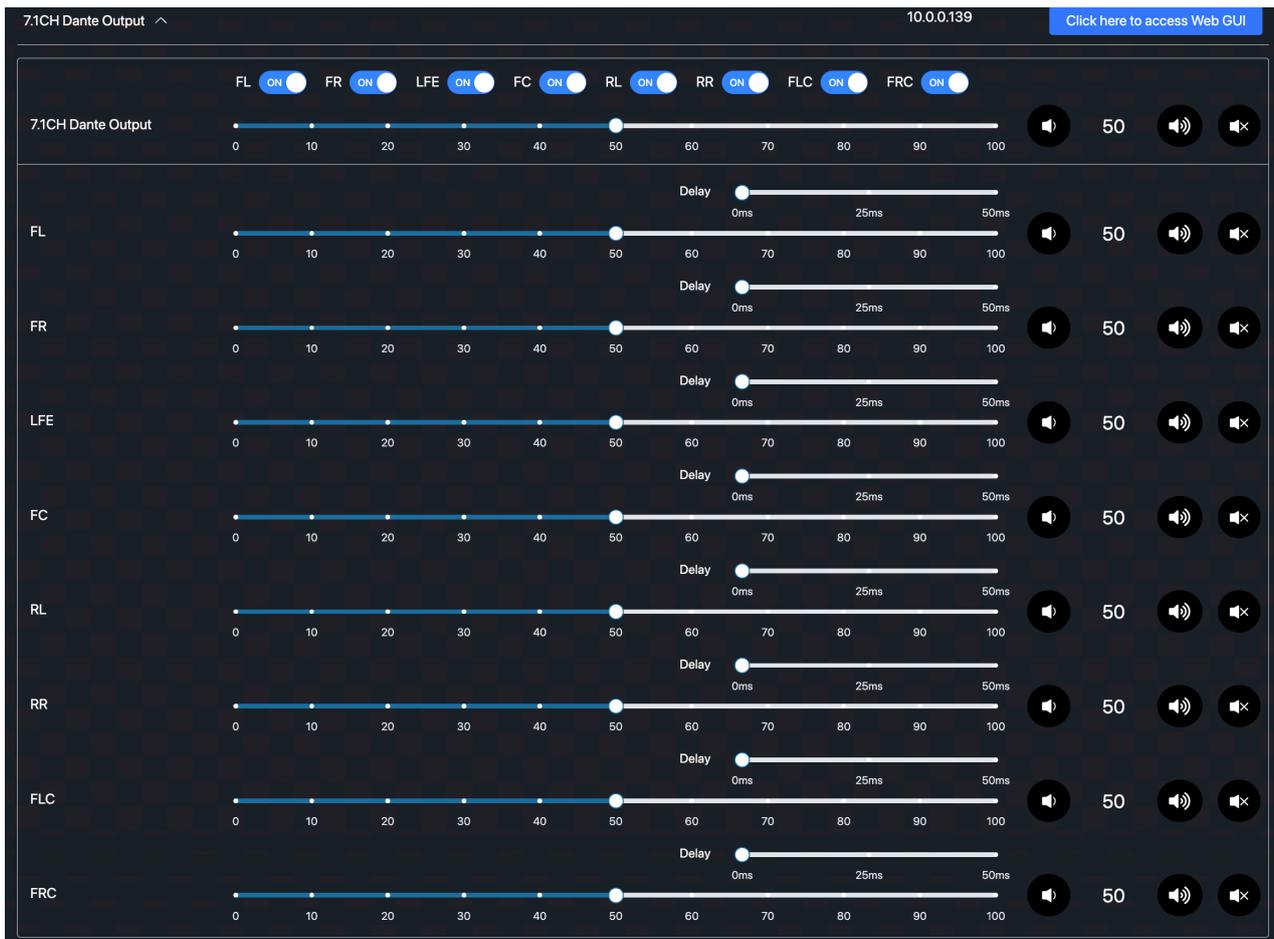
For each of the 7.1ch outputs (Analogue audio and Dante® audio) you can turn On/Off each of the 7.1ch outputs and independently control the audio level for each channel. With both Analogue and Dante® outputs there is a master control to alter the output volume of both channels, but also independent volume control allow fine tuning of volume levels per channel

Please note: only Dante® audio outputs include audio delay between 0-50ms

For both of the 2ch outputs (Analogue audio and Dante® audio) you can turn On/Off each of the 2ch outputs and independently control the audio level for each channel. With both Analogue and Dante® outputs there is a master control to alter the output volume of both channels but also independent volume control allow fine tuning of volume levels per channel

Please note: only Dante® audio outputs include audio delay between 0-50ms

Users Page

This tab allows for configuration of user/s access to the SW42DA
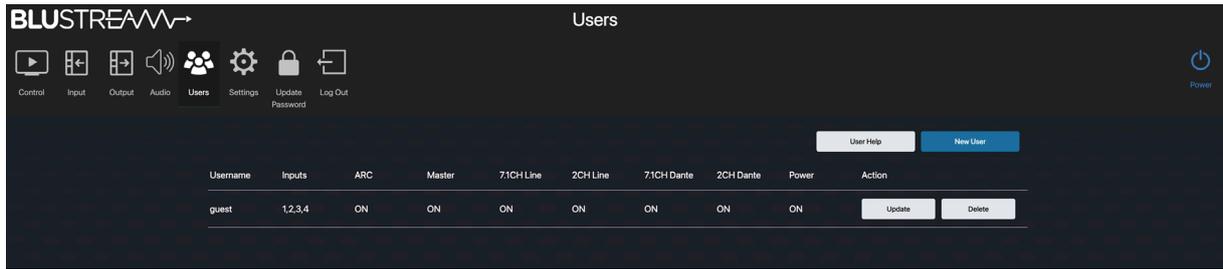
From within the Users page it is possible to enable/disable the features that each user will have control of when they login to the web GUI of the SW42DA.

User privilages - To change individual user privilages, click the Update button next to the User you wish to modify. The following pop-up window will appear, allowing configuration for each control option. Click Update when complete to apply the settings.
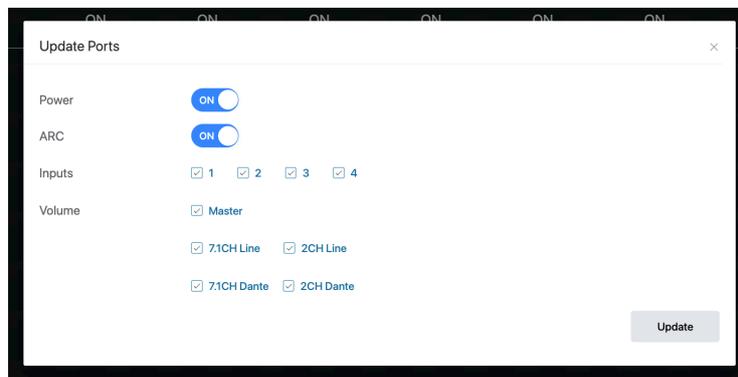
Create new user - To add a new user login to the SW42DA, press the 'NEW USER' button and the following pop-up will appear:
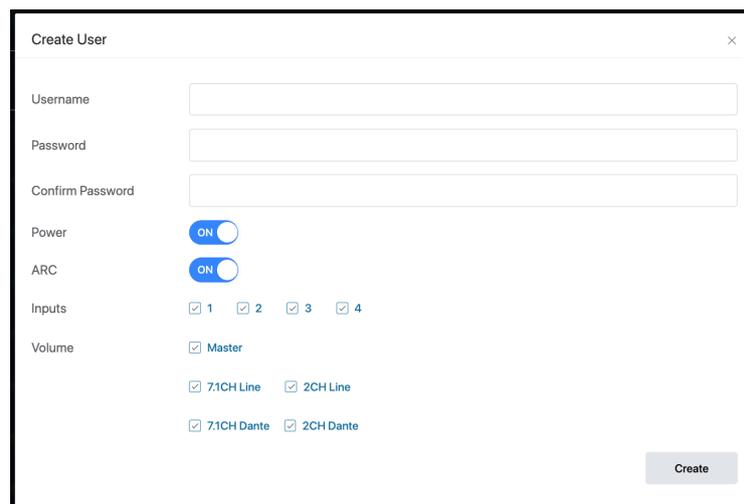
With each new user created, add an individual username and password (and confirm password), then configure the privilages for that user. Once complete click Create to finalise new user creation

Settings Page

The Settings page allows for the configuration of the settings within the SW42DA. It also provides the ability to reboot / factory reset the system, and update the firmware:
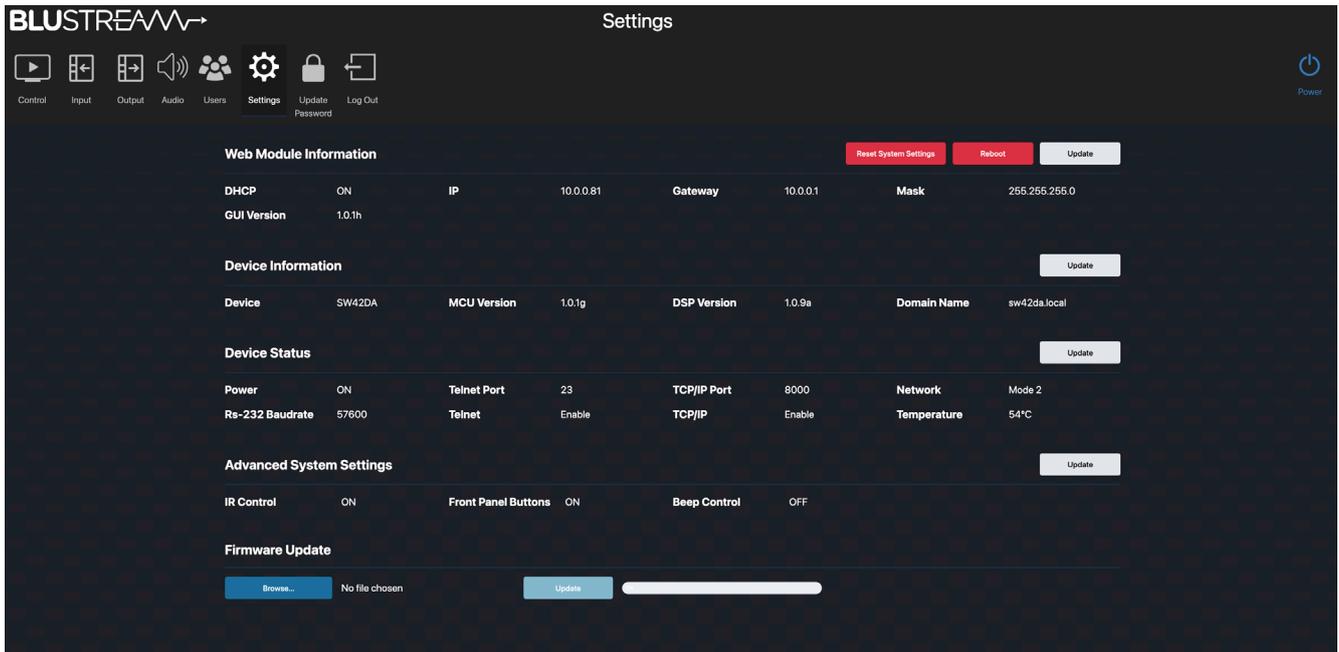
The Settings section shows the following information, where applicable the Update button will allow for the configuration of variable functions:

Web Module Information - This section allows configuration of the SW42DA network. Default network config is DHCP but pressing UPDATE will allow manual network configuration.

The web GUI firmware version of the SW42DA is shown here.

Device Information - This section shows the following information:

• Name: the device name is SW42DA

• MCU Version: displays the MCU firmware version of the SW42DA

• DSP Version: displays the DSP firmware version of the SW42DA

• Domain Name: displays the domain name of the SW42DA that can be used to access the SW42DA via web-GUI without knowing the IP details of the product. To change this press Update and enter a new domain name as required.

Device Status - This section shows the following status of the SW42DA:

- Power - Reports the current power status of the SW42DA

- Telnet port - Main communication port for TCP/IP. This can be changed and turned On/Off by pressing the Update button

- TCP-IP port - This is a secondary port for communication, mainly used by 3rd party control solutions. This can be changed and turned On/Off by pressing the Update button

- RS-232 Baud rate - For the RS-232 communcation port on the SW42DA. This can be changed by pressing the Update button

- Telnet - Displays if Telnet is turned On/Off

- TCP/IP - Displays if TCP/IP is turned On/Off

- Temperature - Displays the current temperature of the SW42DA

- Network - The SW42DA features 2 x RJ45 sockets for combined or independent Dante® network and Control network connectivity. The Network Mode switch, located next to the RJ45 socket, determines the mode of operation for the RJ45 sockets as follows:

    - Mode 1: allows combined Dante® audio, TCP/IP, and web-GUI control via the Dante® PoE port

    - Mode 2: allows Dante audio via the Dante® PoE Port, then TCP/IP and web-GUI control via the TCP/IP port
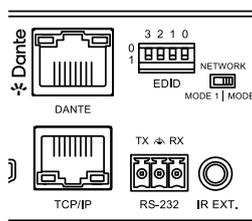
Advanced System Settings - This section enables/disables IR control, Front panel buttons and Beep control. To change these settings press Update.

Firmware Update - The Update Firmware page provides the ability to upload new firmware directly to the SW42DA by pressing the Browse button, and selecting the firmware file from your PC.

From this section you can update both the Web GUI module and MCU so you will need to select either of these files.

Once the required file has been selected press Update. The upgrade process will start and the progress will be shown on screen:
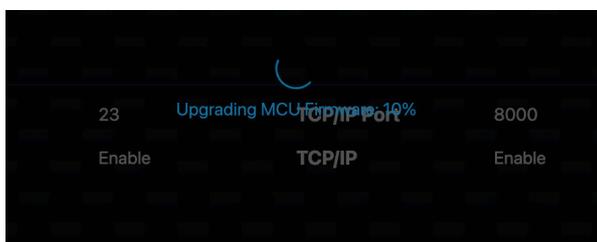
Once complete a message of 'Upgrade Successful' will be displayed

Please note: Dante® firmware update must be completed within the 'Audio Page' of the SW42DA, or via Dante® Controller.

Dante® Audio

The SW42DA is seen as 2x Dante® audio products - both an 8ch (7.1) and 2ch Dante® device, each with their own settings that can be updated and managed / routed independently.

Dante® Controller

Dante® Controller software is required in order to configure the SW42DA as well as control your Dante® network. Audinate provide extensive training videos and documentation on their website. This can be found here: http://www.audinate.com/products/software/dante-controller

Upon connecting the SW42DA to a compatible network, the Dante® Controller software should automatically discover the device. The SW42DA will appear in the Dante® Controller with the name "SW42DA-MULTI" and "SW42DA-DOWNMIX"

It is possible to route all audio channels independently, but these are intended for 7.1ch + 2ch downmix use, or (if configured) as 7.1.2ch or 5.1.4ch speaker configuration.

Dante® Controller

By default, the SW42DA is shipped with the network settings set to obtain an IP Address automatically on the Dante® port. This means that if a DHCP server is present on the network, the SW42DA will be provided with an IP Address. If no DHCP server is present, then the SW42DA will receive a default IP Address in the 169.254.xxx.xxx range. To change the IP Address of the SW42DA, enter the "Audio" page and access the web-GUI for the Dante® module that you wish to udpate.

Advanced Dante® Settings

It is possible to change various Dante® related settings of the SW42DA under the "Device Info" screen in the Dante® Controller software. To do so, select the "Device Config" menu.

Here it is possible to adjust the sample rate of the SW42DA. **Please note:** Dante® products can only transmit or receive audio from other Dante® products that are set up with the same sample rate. A mismatch in sample rate may stop audio from transmitting.

Under the "Device Config" screen the latency of the NPA100DA can be configured with 1, 2 or 5 milliseconds delay.
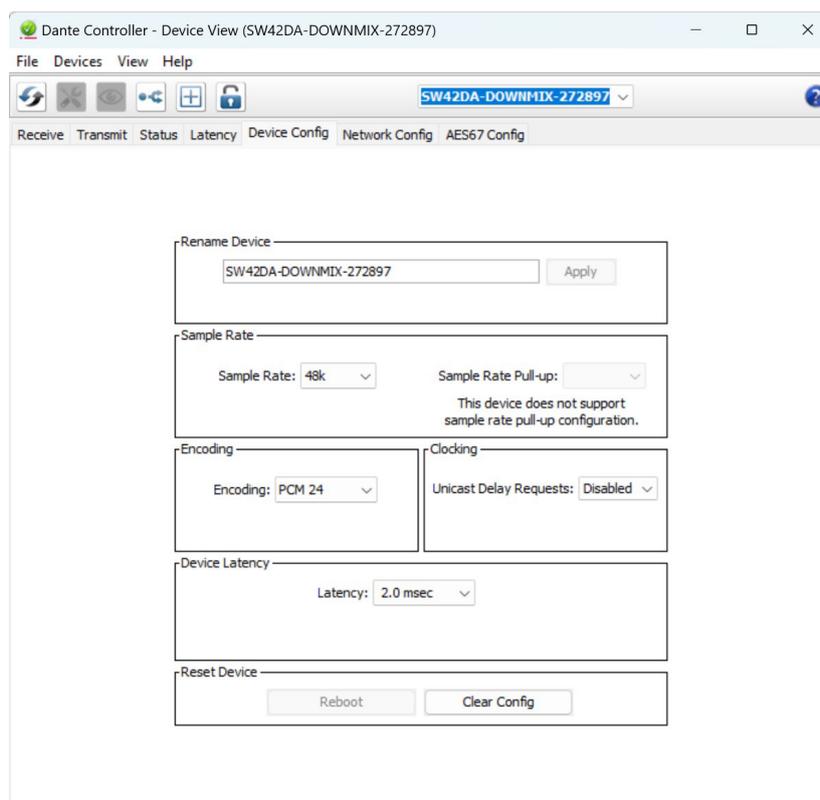
Certifications

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

CAUTION - changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CANADA, INDUSTRY CANADA (IC) NOTICES

This Class B digital apparatus complies with Canadian ICES-003. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CORRECT DISPOSAL OF THIS PRODUCT

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.

Specifications

Video Input Connectors: 4 x HDMI Type A, 19-pin, female

Video Output Connectors: 2 x HDMI Type A, 19-pin, female

Audio Output Connectors: 1 x Optical (Toslink), 5 x 5-Pin Phoenix (8ch + 2ch balanced/unbalanced analogue audio), 1 x RJ45, female (100Mbps Dante® network)

EDID Selection: 4-pin DIP switch

TCP/IP Control: 1 x RJ45, female

RS-232 Port: 1 x 3-pin Phoenix

IR Input Port: 1 x 3.5mm stereo jack

Product upgrade: 1 x Micro USB female

Dimensions (W x H x D): 220mm x 45mm x 214mm

Shipping Weight: 2.0kg

Operating Temperature: 32°F to 104°F (0°C to 40°C)

Storage Temperature: - 4°F to 140°F (- 20°C to 60°C)

Power Supply: Internal 100-240V AC

Package Contents

- 1 x SW42DA
- 1 x IEC Mains Cable
- 1 x Mounting Kit
- 4 x Rubber Feet
- 1 x Quick Reference Card

Acknowledgements

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Installer Notes

Installer Notes

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www.blustream.co.uk