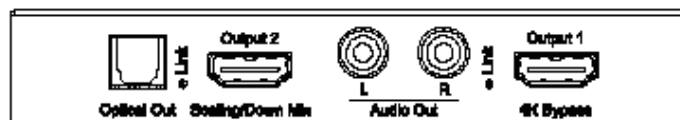


HD12DB

Quick Reference Guide



Introduction



The Blustream HD12DB has been designed to convert and downmix embedded 5.1ch Dolby Audio or DTS Audio within a HDMI signal into a stereo 2ch signal available on HDMI, optical and analogue audio outputs. The HD12DB features a HDMI loop out to pass the original video and multi-channel embedded audio signal to compatible equipment, with a second HDMI output featuring video scaling of up to 4K 60Hz 4:4:4 video to various lower resolution video formats. This provides the perfect cost effective solution for ensuring that 4K UHD video and multi-channel audio can be distributed around a multi-room system where there are a mixture of 2ch and 5.1ch zones with multiple output resolution requirements.

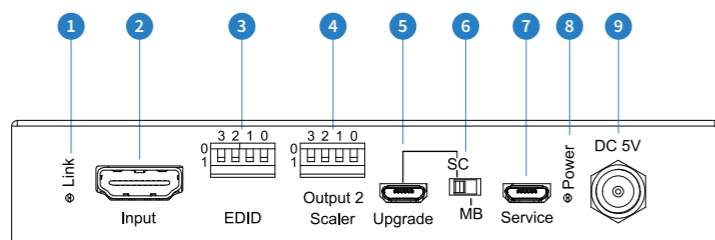
FEATURES:

- Features an in-built DAC (Digital to Analogue audio Converter) that converts 5.1ch Dolby Audio or DTS Audio to a stereo 2ch signal available on HDMI, optical and analogue audio outputs concurrently
- Supports the following audio input formats: Dolby 5.1, DTS-ES 6.1, DD+5.1, DD+2.0, PCM 5.1, PCM 2.0*
- 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 5.1ch Dolby Audio & DTS Audio
- HDMI output 2 features a video scaler allowing the resolution to be set to the following formats:

- 3840x2160@60Hz	- 4096x2160@60Hz
- 3840x2160@50Hz	- 4096x2160@50Hz
- 3840x2160@30Hz	- 4096x2160@30Hz
- 3840x2160@25Hz	- 4096x2160@25Hz
- 1920x1080@60Hz	- 1920x1200@60Hz
- 1920x1080@50Hz	- 1680x1050@60Hz
- 1280x720@60Hz	- 1024x768@60Hz
- 1280x720@50Hz	
- HDMI audio breakout to downmixed analogue L/R audio and downmixed optical digital outputs concurrently
- HDCP 2.2 compliant with advanced EDID management

*Note: This product does not support decoding of DTS CD bitstreams. Playback of this format may produce undesirable noise.

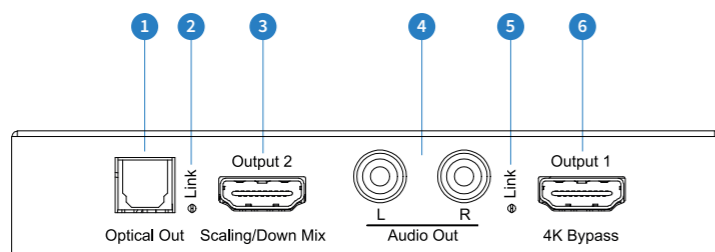
Front Panel



Connections:

- 1 HDMI LED Link Indicator - Lit when there is an active HDMI connection to a source device
- 2 HDMI Input - Connect to a HDMI source device
- 3 EDID DIP Switches - Adjust the EDID setting for the source input - see following page for further details
- 4 Output 2 Scaler DIP Switches - Adjust the HDMI 2 output resolution - see following page for further details
- 5 USB Update Port - USB connector used for firmware upgrade
- 6 SC / MB DIP Switch - Used in conjunction with USB firmware update to select either Scaler or Main Board for updating
- 7 USB Service Port - USB connector used for servicing and diagnostics
- 8 Power LED Indicator - Lit when detecting unit is powered
- 9 Power Port - Use supplied 5V/3A DC adaptor

Rear Panel



Connections:

- 1 Optical Output - S/PDIF connection outputs 2 channel down-mixed audio*
- 2 HDMI Output 2 LED Indicator - Lit when detecting an active HDMI connection to a display / end point
- 3 HDMI Output 2 - Scaled / down-mixed output. Connect to a HDMI display / end point**
- 4 L/R Analogue Audio Output - RCA L/R outputs 2 channel down-mixed audio*
- 5 HDMI Output 1 LED Indicator - Lit when detecting an active HDMI connection to a display / end point
- 6 HDMI Output 1 - Bypass video output maintains native video resolution and audio format. Connect to a HDMI display / end point

*Down-mixed audio outputs only support the following audio input formats: Dolby 5.1, DTS-ES 6.1, DD+5.1, DD+2.0, PCM 5.1, PCM 2.0

** Scaled HDMI output 2 does not support Dolby Vision or 4K 4:2:2 input signals

EDID Management Dip-switches

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 HD12DB 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 HD12DB scales to.

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

Note: You must power-cycle the HD12DB after changes have been made in order for the EDID settings to update.

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	1080i 60Hz 2.0ch
0	0	1	1	1080i 60Hz 5.1ch
0	1	0	0	DVI 1920x1080 No Audio
0	1	0	1	HDMI 1920x1200 2.0ch
0	1	1	0	HDMI 1920x1200 5.1ch
0	1	1	1	4K 30Hz 4:4:4 2.0ch
1	0	0	0	4K 30Hz 4:4:4 5.1ch
1	0	0	1	4K 60Hz 4:2:0 2.0ch
1	0	1	0	4K 60Hz 4:2:0 5.1ch
1	0	1	1	4K 60Hz 4:2:2 2.0ch
1	1	0	0	4K 60Hz 4:2:2 5.1ch
1	1	0	1	4K 60Hz 4:4:4 2.0ch
1	1	1	0	4K 60Hz 4:4:4 5.1ch
1	1	1	1	Copy EDID from output*

* Copy EDID prioritises Output 1 first, and then Output 2

Output 2 'Scaler' Dip-switches

The HD12DB is ideal for installations that have two displays capable of supporting different video formats. Installing the HD12DB will allow those displays only capable of supporting lower video resolutions to receive scaled 4K video (via HDMI output 2) while still showing maximum original 4K resolution on the higher-definition displays (via HDMI output 1).

Using the EDID settings (as above) the source can be instructed to output a 4K 60Hz signal (or lower format if required). The HD12DB will scale the HDMI input signal to a selected output resolution on HDMI output 2 using the Scaler dip-switches on the rear panel. The HD12DB will continue to pass-through the original 4K 60Hz video signal onto HDMI output 1 without any scaling. Please see adjacent table for settings.

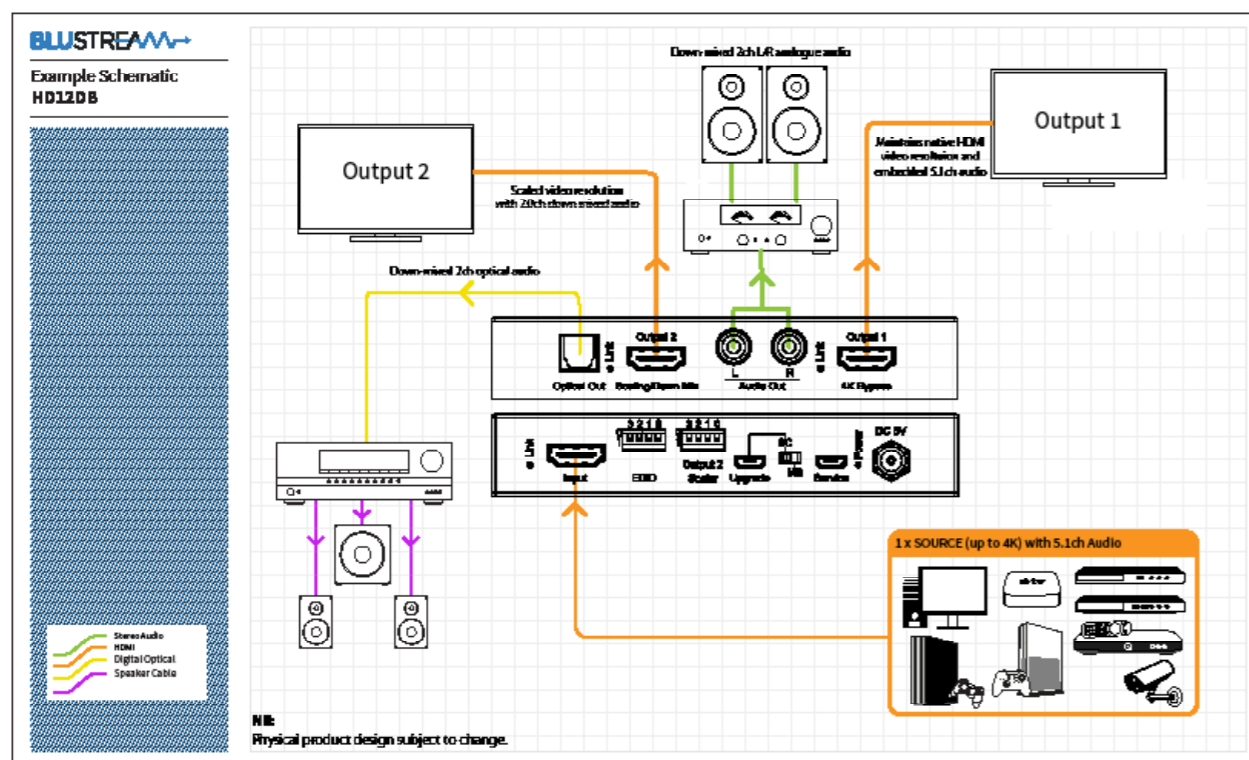
The HD12DB is capable of automatically managing HDCP of the scaled output to ensure HDCP compatibility where required.

Note: You must power-cycle the HD12DB after changes have been made in order for the Scaler settings to update.

* Smart Output (Scaler DIP 0000) mode looks at the EDID of the display connected to HDMI output 2 and scales the picture to the most suitable resolution based on this EDID information.

3	2	1	0	Scaler Mode
Combination of DIP positions				
0	0	0	0	Smart Output*
0	0	0	1	1080p@60Hz
0	0	1	0	1080p@50Hz
0	0	1	1	720p@60Hz
0	1	0	0	720p@50Hz
0	1	0	1	1024x768@60Hz
0	1	1	0	1680x1050@60Hz
0	1	1	1	1920x1200@60Hz
1	0	0	0	4K DCI@25Hz 4:4:4
1	0	0	1	4K DCI@30Hz 4:4:4
1	0	1	0	4K DCI@50Hz 4:4:4
1	0	1	1	4K DCI@60Hz 4:4:4
1	1	0	0	4K@25Hz 4:4:4
1	1	0	1	4K@30Hz 4:4:4
1	1	1	0	4K@50Hz 4:4:4
1	1	1	1	4K@60Hz 4:4:4

Note: All scaled output resolutions are 4:4:4 8 bit.



Specifications

Video Input Connectors: 1 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), 2 x RCA analogue left/right

EDID Selection: 4-PIN DIP Switch

Scaled Output Selection: 4-PIN DIP Switch

Product upgrade: 2 x Micro USB female

Dimensions (W x H x D): 127mm x 23mm x 104mm, without feet

Shipping Weight: 1.0 Kg

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: 5V/3A DC

Package Contents

- 1 x HD12DB
- 1 x 5V/3A DC Power Supply
- 1 x Mounting Kit
- 4 x Rubber Feet
- 1 x Quick Reference Guide

Acknowledgements

Manufactured under license from Dolby Laboratories. Dolby, Dolby Audio, and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. Copyright 1992-2015 Dolby Laboratories. All rights reserved.

For DTS patents, see <http://patents.dts.com>. Manufactured under license from DTS Licensing Limited. DTS, the Symbol, DTS and the Symbol together, Digital Surround, and the DTS 2.0+Digital Out logo, are registered trademarks and/or trademarks of DTS, Inc. in the United States and/or other countries. © DTS, Inc. All Rights Reserved.

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.



www.blustream-us.com
www.blustream.com.au
www.blustream.co.uk