HD12DB
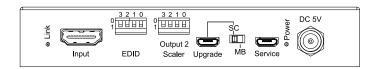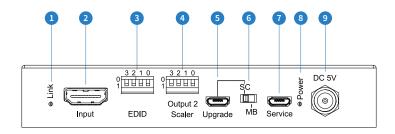
Quick Reference Guide

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.
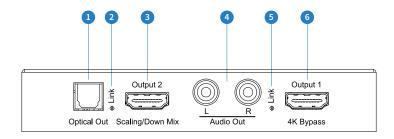
Front Panel

Connections:

❶ HDMI LED Link Indicator - Lit when there is an active HDMI connection to a source device

❷ HDMI Input - Connect to a HDMI source device

❸ EDID DIP Switches - Adjust the EDID setting for the source input - see following page for further details

❹ Output 2 Scaler DIP Switches - Adjust the HDMI 2 output resolution - see following page for further details

❺ USB Update Port - USB connector used for firmware upgrade

❻ SC / MB DIP Switch - Used in conjunction with USB firmware update to select either Scaler or Main Board for updating

❼ USB Service Port - USB connector used for servicing and diagnostics

❽ Power LED Indicator - Lit when detecting unit is powered

❾ Power Port – Use supplied 5V/3A DC adaptor

Rear Panel

Connections:

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

❷ HDMI Output 2 LED Indicator - Lit when detecting an active HDMI connection to a display / end point

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

❹ L/R Analogue Audio Output – RCA L/R outputs 2 channel down-mixed audio*

❺ HDMI Output 1 LED Indicator - Lit when detecting an active HDMI connection to a display / end point

❻ 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.

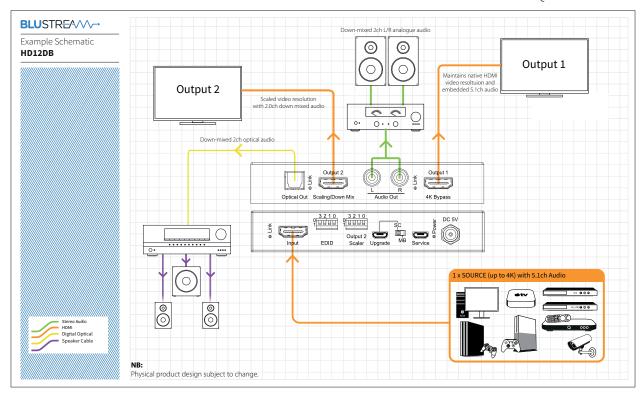The HD12DB is capable of automatically managing HDCP of the scaled output to ensure HDCP compatibity where required.

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.

BLUSTREAM→
Example Schematic
HD12DB

Down-mixed 2ch L/R analogue audio

Output 1

Maintains native HDMI video resolution and embedded 5.1ch audio

Output 2

Scaled video resolution with 2.0ch down mixed audio

Down-mixed 2ch optical audio

Optical Out   Scaling/Down Mix   L   R   Audio Out   Output 1   4K Bypass

Link   Link

Input   EDID   Output 2 Scaler   Upgrade   SC MB   Service   Power   DC 5V

1 x SOURCE (up to 4K) with 5.1ch Audio

Stereo Audio
HDMI
Digital Optical
Speaker Cable

NB:
Physical product design subject to change.

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