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SC-HD-2B

4K UHD HDMI 2.0 Scaler & Audio Embedded/Extractor

USER MANUAL

August 10, 2023



Important Safety Instructions



1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



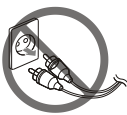
4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



5. Do not place sources of naked flames, such as lighted candles, on the unit.



6. Clean this apparatus only with dry cloth.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



8. Protect the power cord from being walked on or pinched particularly at plugs.



9. Only use attachments / accessories specified by the manufacturer.

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Introduction

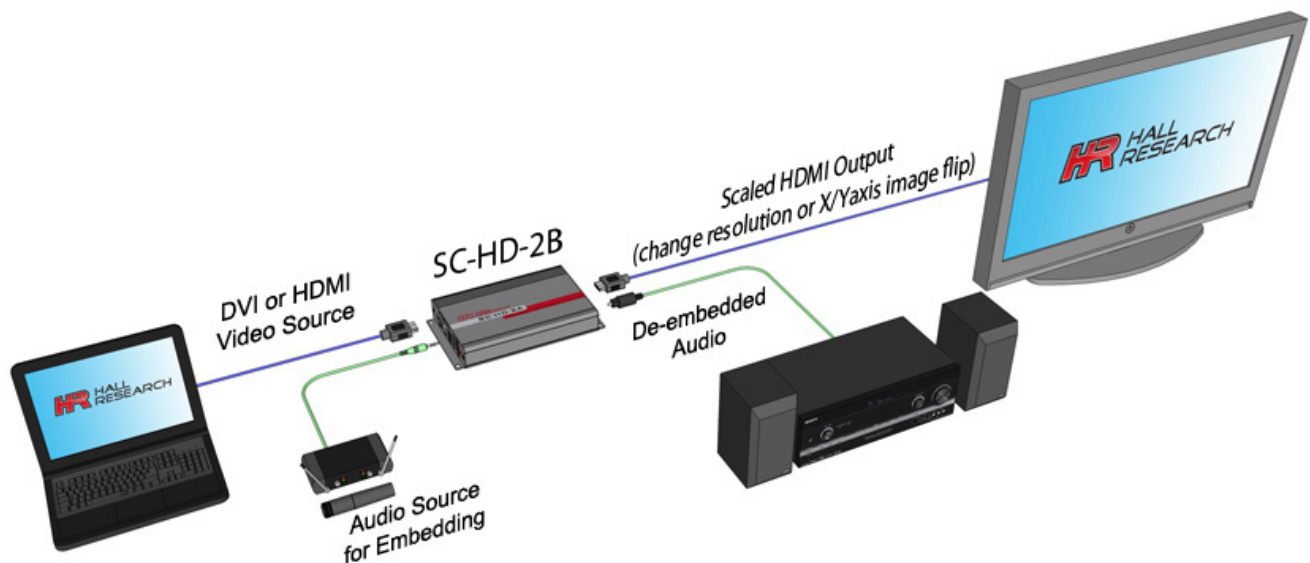
OVERVIEW

Thank you for purchasing the SC-HD-2B. The unit is a video scaler/processor that can convert any HDMI resolution into a user specifiable output resolution. It accepts virtually all PC and HDTV resolutions including 4Kx2K @ 60 Hz with 4:4:4 color. It is a world class scaling engine works in real time with no delay and is capable of flipping the video horizontally or vertically making it ideal for teleprompting, rear projection or semi 3-D holographic applications. Contrast, hue, saturation, and other parameters of video can be manipulated.

Both stereo analog and optical digital audio inputs and outputs are available. The audio from the HDMI input signal can be extracted (de-embedded) and output on both digital as well as stereo analog signal. The audio embedded into the HDMI output is selectable from one of three sources: HDMI input, analog L/R input, or digital optical input.

The SC-HD-2B has the ability to output a wide range of resolutions regardless of the input timing and resolution. The output resolution can automatically match the native resolution of the display connected to its output (based on the EDID setting of the display), or it can be specified by the user.

The SC-HD-2B features an OSD menu for configuration, picture setup, system information and other advanced options. The compact and sturdy enclosure features integrated mounting brackets.



FEATURES

- Any video resolution can be scaled up or down to any other resolution
- Supports UHD / 4K @ 60 Hz with 4:4:4 Color on input and output
- Horizontal and Vertical mirroring (x or y-axis flip)
- Analog and digital audio inputs and outputs
- Advanced scaling for real-time frame rate capture & conversion
- By default scales the output to the native resolution of any connected display
- Quick Select button combinations for setting output resolution
- Supports audio extraction without attached display
- Embeds audio to HDMI from analog or digital audio source
- Selectable audio delay up to 150 ms (for lip sync)
- HDMI, HDCP, and DVI Compliant



Package Contents

- 1x SC-HD-2B
- 1x 5V DC 2.6 Universal Power Supply (Do not Substitute)
- 1x 3.5mm to (2) RCA Audio Cable
- 1x Product Information Card

Installation

- Connect the HDMI source to the SC-HD-2B HDMI Input.
- Optionally, connect the Analog or Digital audio source to the 3.5mm or optical TOSLink Input connector.
- Connect the HDMI display to the SC-HD-2B HDMI Output.
- Optionally, connect the Analog or Digital audio output to an audio receiver or amplifier.
- Connect power to DC 5V using the included power supply.

ODS Menu

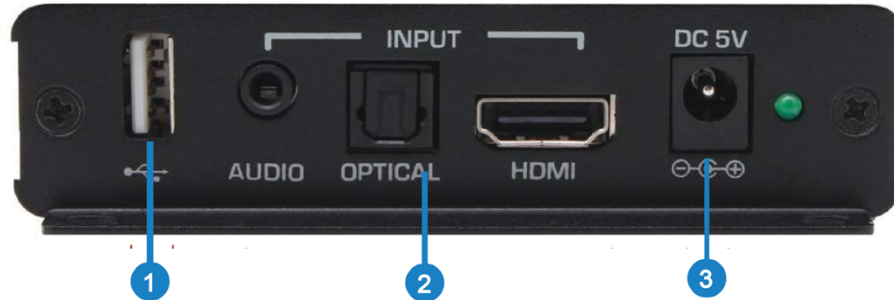
Press the MENU button to bring up the OSD menu controls on the attached display. Use the up  and down  arrows to navigate to the desired menu item, or to change values on a selected sub-menu. Press MENU to select sub- menus, and press MENU again to apply new values. Select EXIT to return to the main menu or exit the OSD. Values in **BOLD*** are factory default settings.

Top Menu	Sub-Menu	Value
VIDEO	OUTPUT	NATIVE* , 640x480 @60, 800x600 @60, 1024x768 @60, 1280x768 @60, 1280x800 @60, 1280x1024 @60, 1360x768 @60, 1400x1050 @60, 1440x900 @60, 1600x1200 @60, 1680x1050 @60, 1920x1200 @60 RB, 2560x1600 @60 RB, 1920x1080 @60, 1280x720 @60, 2048x1080 @[50, 60], 2560x1440 @60 RB, 480p @60, 720p @60, 1080p @60, 576p @50, 720p @50, 1080p @[50, 24, 25, 30], 2560x1080p @[50, 60], 3840x2160p @[24, 25, 30, 50, 60], 4096x2160p @[24, 25, 30, 50, 60]
	ASPECT	FULL* , BEST FIT, PAN SCAN, LETTER BOX, UNDER 2, UNDER 1, FOLLOW IN, ZOOM MODE, OVER SCAN
	ZOOM MODE RATIO	(AVAILABLE IN ASPECT ZOOM MODE ONLY) 60-180 (100*)
	HDCP	SUPPORT OFF, REFER TO SOURCE, REFER TO DISPLAY*
	NO SIGNAL COLOR	BLACK* , WHITE, BLUE, RED, GREEN
	BLANK	OFF* , ON
	FREEZE	OFF* , ON
	MIRROR	OFF* , H, V, HV
	AUTO SYNC OFF	OFF* , 30s, 60s, 3MIN, 5MIN, 10MIN
	OUTPUT SETTINGS	BYPASS ENABLE [OFF* , ON] OUTPUT 4K(6G) YUV420 [OFF* , ON] EXIT
	EXIT	
PICTURE	COLOR GAIN R	0-1023 (512*)
	COLOR GAIN G	0-1023 (512*)
	COLOR GAIN B	0-1023 (512*)
	COLOR OFFSET R	0-1023 (512*)
	COLOR OFFSET G	0-1023 (512*)

PICTURE	COLOR OFFSET B	0-1023 (512*)
	BRIGHTNESS	0-60 (30*)
	CONTRAST	0-60 (30*)
	HUE	0-60 (30*)
	SATURATION	0-60 (30*)
	SHARPNESS	0-60 (0*)
	NR	OFF* , LOW, MIDDLE, HIGH, AUTO
	RESET PICTURE	
	EXIT	
AUDIO	SOURCE	AUTO* , TOSLINK, ANALOG
	VOLUME	0-100 (80*)
	HDMI MUTE	OFF* , ON
	TOSLINK MUTE	OFF* , ON
	ANALOG MUTE	OFF* , ON
	RESET AUDIO	
	EXIT	
OSD	H POSITION	0-60 (30*)
	V POSITION	0-60 (30*)
	TIMER	OFF* , 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s
	TRANSPARENT	0-50 (50*)
	DISPLAY	OFF, ON, 5s* , 10s
	RESET OSD	
	EXIT	
EDID	HDMI EDID	FHD 2CH* , FHD MCH, UHD 2CH, UHD MCH, UHD+ 2CH, UHD+ MCH, OUTPUT, AUTO OUTPUT
	EXIT	
RESET	RESET ALL	
	EXIT	
FW UPDATE	UPDATE FROM USB	
	EXIT	
INFORMATION	IN FORMAT	[CURRENT STATUS DETAILS]
	IN COLOR	
	IN RESOLUTION	
	IN HDCP	
	OUT FORMAT	
	OUT COLOR	
	OUT RESOLUTION	
	OUT HDCP	
	SINK HDCP	
	MODEL NUMBER	
VERSION		
EXIT		

Connectors & Indicators

SC-HD-2B Front



No.	Name	Description
1	USB	USB-A connector is provided for firmware upgrade.
2	INPUT	INPUT: Video and audio inputs. HDMI accepts resolutions up to 4K UHD. Audio input is user-selectable via OSD menu: HDMI, Optical TOSLink, or Analog Audio.
3	DC 5V	Power input. Do not substitute.

SC-HD-2B Back



No.	Name	Description
1	OUTPUT	Video and audio outputs. HDMI is output at user-selectable resolution up to 4K UHD. Audio output is available on all connections: HDMI, Optical TOSLink, and Analog Audio.
2	OSD MENU	OSD MENU: With a display connected to HDMI OUTPUT, use MENU button to bring up the OSD menu. Use arrows to navigate, and MENU button to make selections. <ol style="list-style-type: none"> 1080P: Press \uparrow + MENU to set HDMI OUTPUT to 1080p. NATIVE: Press \downarrow + MENU to set HDMI OUTPUT to Native.

Troubleshooting

If you are experiencing problems getting the SC-HD-2B to work properly, please use the following troubleshooting suggestions.

- Ensure the correct power supply is used. Never plug in a power supply with a voltage higher than 5V DC, as this will damage the unit.
- Try restoring factory defaults by pressing and holding the UP ARROW [↑] and DOWN ARROW [↓] buttons simultaneously for 3 seconds.
- As shipped, the SC-HD-2B output resolution is defaulted to NATIVE. This means it will read the EDID of the attached display, and set the scaled output to match the preferred timing found in the EDID. If the scaler has been set to a different output, use the Quick Select buttons to reset the output (see Section 3).
- If the OSD is available, but no video source is displayed, ensure that the source resolution is set to one of the formats supported by the SC-HD- 2B (see Section 7).
- If you are having trouble with your display device not going into a power saving state, change the AUTO SYNC OFF menu setting from OFF to the desired time to stop outputting a video signal.

Specifications

Video	
Bandwidth	600 MHz/18 Gps
Input Port	1x HDMI 1x 3.5 mm analog audio 1x Digital Audio (TOSLink) 1x USB (service only)
Output Port	1x HDMI 1x 3.5 mm analog audio 1x digital audio (TOSLink)
Resolutions	DVI Signal: VGA (640x480) thru WUXGA (1920x1200) HDTV Signal: 480p through UHD+ (4096x2160@60Hz)

Analog Audio Input	
Audio Level	2 Vrms Max
Impedance	49.9 Kohm
Type	Unbalanced

Analog Audio Output	
Audio Level	2 Vrms Max
THD+N	< -80 dB @ dBfs 1kHz (A-wt)
SNR	>70 dB @ 0 dBFS
Freq. Response	< +/- 3 dB @ 20 Hz- 20 kHz
Crosstalk	< -70 dB @ 10 kHz
Type	Unbalanced

Optical Audio Input	
Audio Level	32, 44.1, 48, 82, 88.2, 96, 176.4, 192

Optical Audio Output	
Audio Level	48

HDMI Cable Length	
Input	1080p 8-bit: 15 m, 1080p 12-bit: 10 m, 4K 8-bit: 3 m
Output	1080p 8-bit: 15 m, 1080p 12-bit: 10 m, 4K 8-bit: 3 m

General	
Power Supply	100 VAC to 240 VAC, 50-60 Hz, 0.6 A, External; 5 VDC, 2.6 A (US/EU Standard, CE/FCC/UL Certified)
Temp/Humidity	Storage: -4 to +140 °F (-20 to +60 °C) 20% to 90%, non-condensing Operating: +32 to +104 °F (0 to +40 °C) 20% to 90%, non-condensing
Typical DC	5 VDC, 2.6 A Power Supply
Current Draw	-2.2 A Max
Cooling	Convection
Enclosure Type	Metal (aluminum)
Dimensions	4.02" x 0.98" x 6.5" W x H x D (102 mm x 25 mm x 165 mm) Depth includes mounting flanges
Product Weight	Model Only 0.77 lbs (0.35kg) Shipping 2.85 lbs (1.29 kg)
Safety	CE
EMI/EMC	CE, FCC, Class A
MTBF	90,000 hours (estimate)
Warranty	3 years parts and labor

Supported Input and Output Resolutions

Input Resolutions Supported		Output Resolutions	
640x480 (VGA)	60/72/75/85 Hz	640x480 (VGA)	60 Hz
800x600 (SVGA)	56/60/72/75/85 Hz	800x600 (SVGA)	60 Hz
1024x768 (XGA)	60/70/75/85 Hz	1024x768 (XGA)	60 Hz
1280x720	50/60 Hz	1280x720	60 Hz
1280x768	50/60 Hz	1280x768	60 Hz
1280x800(WXGA)	60/60RB Hz	1280x800 (WXGA)	60 Hz
1280x1024 (SXGA)	60 Hz	1280x1024 (SXGA)	60 Hz
1360x768	60 Hz	1360x768	60 Hz
1400x1050	60/60 RB Hz	1400x1050	60 Hz
1440x900 (WXGA+)	60/60 RB Hz	1440x900 (WXGA+)	60 Hz
1600x1200 (UXGA)	60 Hz	1600x1200 (UXGA)	60 Hz
1680x1050 (WSXGA)	60/60 RB Hz	1680x1050 (WSXGA)	60 Hz
1920x1080	60 Hz	1920x1080	60 Hz
1920x1200 (WUXGA)	60 Hz	1920x1200 (WUXGA)	60 Hz
2560x1600	60 Hz	2560x1600	60 Hz
2048x1080	50/60 Hz	2048x1080	60 Hz
2560x1440	60 RB Hz	2560x1440	60 Hz
720x480I	60 Hz	720x480I	NONE
720x480P	60 Hz	720x480P	60 Hz
720x576I	50 Hz	720x576I	NONE
720x576P	50 HZ	720x576P	50 HZ
1280x720p	50/60 Hz	1280x720p	50/60 Hz
1920x1080i	50/60 Hz	1920x1080i	NONE
1920x1080p	24/25/30/50/60 Hz	1920x1080p	24/25/30/50/60 Hz
2560x1080p	50/60 Hz	2560x1080p	50/60 Hz
3840x2160p	24/25/30/50/60 Hz	3840x2160p	24/25/30/50/60 Hz
4096x2160p	24/25/30/50/60 Hz	4096x2160p	24/25/30/50



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