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SP-HD-2B

2-Channel HDMI 2.0 Splitter with Analog and Optical Audio Output

USER MANUAL

August 7, 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.



10. Refer all servicing to qualified service personnel.

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Introduction

OVERVIEW

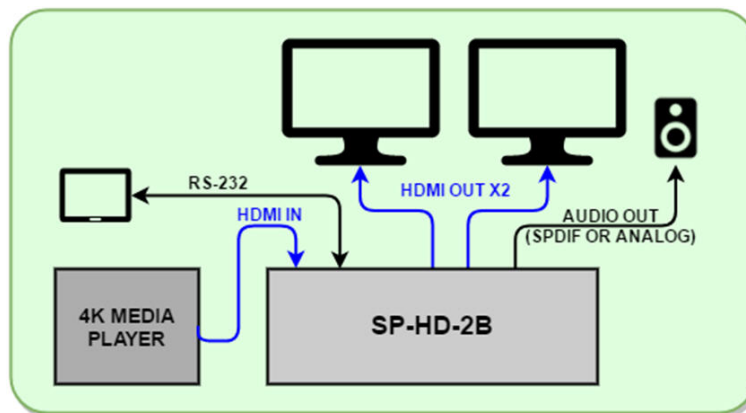
The SP-HD-2B is a compact 2-port HDMI 2.0 splitter that can produce two identical outputs from a single HDMI or DVI source for display on two displays. It supports PC and HD resolutions from 480p up to UHD - 4K @ 60 Hz 4:4:4. It is HDCP 2.2 compliant, and supports deep color, 3D, and HDMI audio formats including LPCM 7.1, Dolby TrueHD, and DTS-HD Master Audio. Each HDMI output can be independently downscaled from 4K to 1080p if needed.

The SP-HD-2B also extracts audio from the HDMI source and outputs it as analog (L/R) stereo and digital optical TOSLINK for connection to an audio amplifier or other device. If no display is connected, the SP-HD-2B will emulate a display using an internal EDID, so the source will still output HDMI video, and the splitter will still be able to extract the audio signal.

RS-232 is available for basic configuration and control, if needed. For convenience, a pair of mounting brackets and hardware is included for installation either under-desk or surface-mount.



Mounting Brackets



Typical Connection Diagram

FEATURES

- 1 x 2 HDMI 2.0 Splitter supports PC and HDTV resolutions from VGA to WQXGA and 480p to UHD 4K @ 60 Hz 4:4:4
- 18 Gbps bandwidth for a sharp digital image up to 4Kx2K
- HDCP 2.2 compliant
- Optional Downscaling of 4K to 1080p for each Output
- Extracts HDMI Audio to both L/R analog and TOSLINK (optical)
- Supports LPCM 7.1 CH, Dolby TrueHD, and DTS-HD Master Audio
- Audio extraction does not require connected displays
- Plug and play installation with smart EDID management
- Unplugging one output will not cause interruption of the other
- LED indication for power, source, and output connections
- RS-232 configuration and control
- Mounting brackets included
- Universal power adapter

Package Contents

- 1x SP-HD-2B
- 1x 3-position Phoenix connector for RS-232
- 1x 5 V DC Universal locking power adapter
- 2x Mounting brackets with screws
- 4x Anti-skid Mounting feet
- 1x Manual Card

Installation

- Connect the HDMI source to the “INPUT” port.
- Connect each HDMI display to the “VIDEO OUT” ports.
- Connect and securely attach the included power supply to the power jack.
- **Optionally**, connect the “AUDIO OUT” to an amplifier or audio device.

NOTE If the video source sends multi-channel audio, the 3.5 mm analog audio output is muted and the extracted audio output will only be available as digital on the TOSLINK output.

- When no display devices are detected on the “VIDEO OUT” ports, the default internal EDID will be seen by the HDMI source.

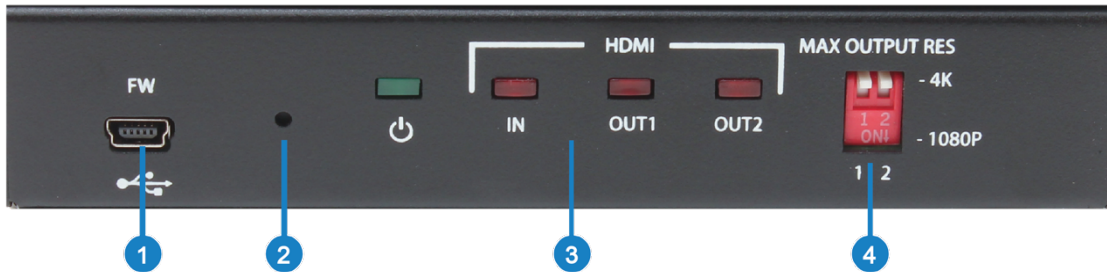
o The external display EDID is read only on power-up. By default, the EDID from Output 1 is used. If Output 1 is not available, Output 2 is used. If neither is available, the internal EDID is used.

- • **Optionally**, connect the RS-232 to a PC or serial control device.
- • **Optionally**, use the “MAX OUTPUT RES” dipswitches to downscale a 4K

image to 1080p for one or both of the displays, if needed.

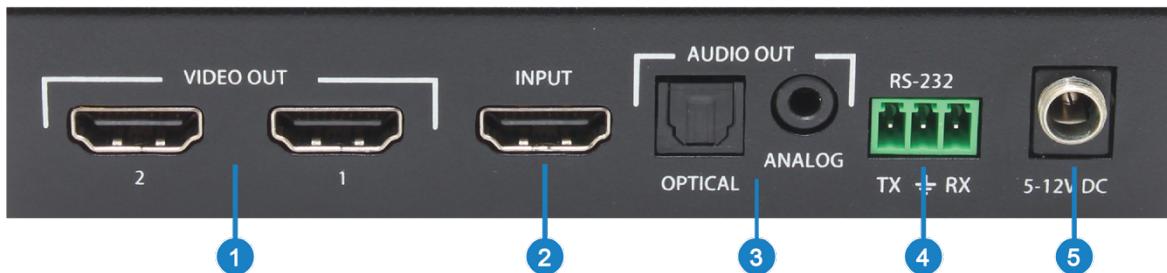
Connectors & Indicators

SP-HD-2B Front



No.	Name	Description
1	FW	<ul style="list-style-type: none"> Used for firmware update port
2	SW Switch	<ul style="list-style-type: none"> Used for firmware update
3	LED Indicators	<ul style="list-style-type: none"> a. Power status Indicator b. HDMI IN/OUT1/OUT2: HDMI input/output detection
4	MAC OUTPUT RES	<ul style="list-style-type: none"> Use DIP switches to force 1080p output when source is 4K.

SP-HD-2B Back



No.	Name	Description
1	Video Out	<ul style="list-style-type: none"> Connect to HDMI displays
2	Input	<ul style="list-style-type: none"> Connect to HDMI source
3	Audio Out	<ul style="list-style-type: none"> Extracted audio from HDMI source. <ul style="list-style-type: none"> A. Optical: TOSLINK digital audio output. Supports multi-channel audio. B. Analog: 3.5, stereo analog audio output. EDID must be 2-channel to use.
4	RS-232	<ul style="list-style-type: none"> RS-232 serial control for configuration and control
5	5-12V DC	<ul style="list-style-type: none"> DC power input. Use supplied locking power adapter.

Serial RS-232 Control

The SP-HD-2B is controllable via RS-232 to change EDID and audio settings, and to query the unit's status.

Serial Communication Parameters

Baud rate: 115200, Bits: 8, Parity: None, Stop bits: 1, Flow Control: None

Serial Commands

- Each Command and Response must be terminated with a Carriage Return <CR>
- Unknown or Invalid commands will return INVALID COMMAND<CR>

Command	Description	Response
EMn Where: n = 0 for Audio (default) n = 1 for Output 1 n = 2 for Output 2	Set the EDID mode	OK
EM?	Query the EDID mode	EMn Where: n = 0 for auto n = 1 or output 1 m = 2 for output 2
AUn,m Where: n = output (1,2) m = 0 for Mute OFF m = 1 for Mute ON	Set the HDMI Output Audio state	OK
SCn,m Where: n = output (1,2) m = 0 for Scaler OFF m = 1 for Scaler ON	Sets the HDMI Down scaler state	OK
SCn,? Where: Output (1,2)	Query the HDMI down scaler state	SCn,m Where: n = Output (1,2) m = 0 for scaler OFF m = 1 for scaler ON
FD	Reset unit to factory defaults	[after reset] HR [System Info]
HR	Show System Info	Model: SP-HD-2B FW: VX.X [ED, AU, SC Statuses]

Troubleshooting

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

- Make sure that all of the connections are solid. Loose connections are the number one cause of issues.
- Check the LEDs on the front panel. The three red LEDs indicate if the device is receiving video, if it is detecting a display (that is turned on), and if it is sending video output to them.
- Check the Max Output Res switches. If a connected display does not support 4K UHD video, ensure the dipswitch is set to 1080P.
- If the 3.5 mm L/R analog audio output is not working, make sure your source is not sending multi-channel (Dolby, DTS, etc.) audio. In that case use the TOSLINK output or change the setting on your source device to output 2-channel PCM audio instead of multi-channel.

Specifications

Video	
Standards	HDMI 2.0 video specifications including 12-bit color depth, 3D video, and 4K/60 DVI (single link) HDCP 2.2
Connectors	HDMI (1x INPUT, 2x OUTPUT)
Bandwidth	18 Gbps total
Resolutions	HDTV signal 480i through 4K/60 4:4:4 DVI signal VGA (640x480) thru WUXGA (1920x1200)

Audio	
Formats	All HDMI Embedded audio including: LPCM 7.1, Dolby TrueHD, and DTS-HD Master Audio (32-192 kHz sample rate)
Connectors	3.5 mm Stereo Analog Optical SPDIF Digital (TOSLINK)

Audio	
RS-232	1x RX, TX and GND on Terminal Strip RS-232 Baud Rate: 115200, N, 8, 1
FW Update	USB-Mini

General	
Power Supply	100 VAC to 240 VAC, 47-63 Hz, External; 5 VDC with universal blades
Temperature/Humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, non-condensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, non-condensing
Typical DC	5 VDC, 1.0 A Power Supply
Current Draw	2.2 watts
Cooling	Convection
Enclosure Type	Metal (steel)
Dimensions	1.10" H x 5.35" W x 2.85" D (27.9 mm H x 135.9 mm W x 72.4 mm D)
Product Weight	Splitter alone: 10.4 oz. (0.65 lb. or 295 g) Package (shipping): 32 oz. (2 lb. or 920 g)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Safety	CE
EMI/EMC	CE, FCC Class A
MYBF	90,000 hours (estimate)
Warranty	3 years parts and labor



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