

HR HALL RESEARCH



SC-VHD-HDMI

VGA / YPbPr to HDMI™ Converter with Audio

Convert VGA video from PC or YPbPr from DVD to HDMI for display on any digital HDTV with HDMI or DVI input

UMA1170 Rev. A

CUSTOMER
SUPPORT
INFORMATION

Order toll-free in the U.S. 800-959-6439
FREE technical support, Call **714-641-6607** or fax **714-641-6698**
Mail order: **Hall Research**, 1163 Warner Ave. Tustin, CA 92780
Web site: www.hallresearch.com E-mail: info@hallresearch.com

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FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been designed to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are intended to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

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



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1. Introduction

1.1 General

Thank you for purchasing Hall Research's Model SC-VHD-HDMI™. This unit can convert and scale either Component (YPbPr) or PC Analog video with audio into an HDMI™ or DVI compatible signal. The unit takes advantage of the HDMI™ cable's ability to embed the digital audio in the same cable with video. For convenience, both line level analog and optical digital audio outputs are also provided.

The SC-VHD-HDMI has the ability to output a wide range of resolutions and refresh rates regardless of the input timing and resolution. The output resolution setting can automatically match the native resolution of display the unit is connected to or be specified by the user.

The video processor combines the functions of a video scaler, scan-converter, and format transformer. The SC-VHD-HDMI also includes a horizontal mirroring feature, which is useful for Teleprompters and rear projection systems. The unit encodes the audio input signal from TOSLink (Optical) or Analog (L/R) to both digital and analog formats and outputs it on HDMI™ along with video. For convenience, the unit features mounting brackets.

The SC-VHD-HDMI features an OSD menu for configuration, picture setup, system information and many other advanced options.

1.2 Features

- HDMI™, HDCP, and DVI Compliant
- Any PC or HDTV video signal can be scaled up or scaled down to any other PC or HDTV resolution
- State-of-the-art video scaling for real-time frame rate capture & conversion
- Signal format conversion between RGBHV and YPbPr.
- Automatically detects input mode and timing parameters.
- OSD adjustment of contrast, brightness, color, size, sampling clock, phase, position, audio source and delay
- Horizontal mirroring (X-axis flip)
- Supports stereo LPCM analog/digital audio input and stereo LPCM analog/digital audio output

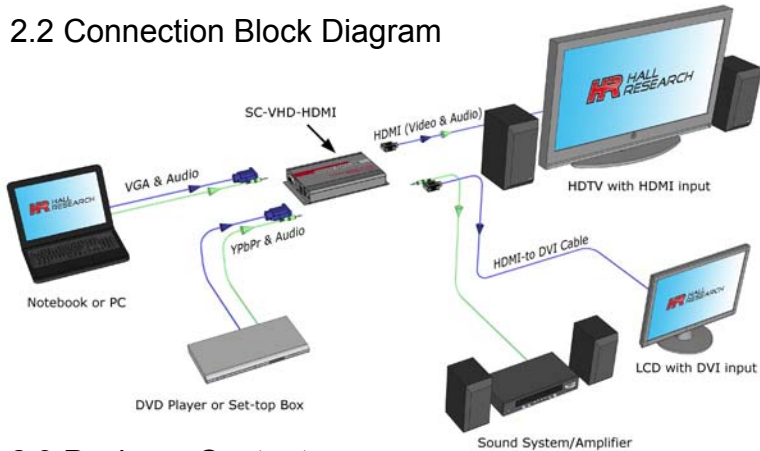
2. Installation

2.1 Connections

The SC-VHD-HDMI™ accepts either analog PC or component YPbPr inputs. The output is HDMI™, but can also connect to DVI LCD's using a HDMI-to-DVI Cable (HR part number CHDMI-DVI-xM).

For YPbPr sources, use a 3-RCA to DB15 cable (included).

2.2 Connection Block Diagram



2.3 Package Contents

- (1) Model SC-VHD-HDMI
- (1) 5 vDC Universal Power Supply
- (1) HD15 to 3-RCA Component video input cable
- (1) Operations Manual

3. Configuration & Operation

3.1 Input and Output



Figure 1 – Input View



Figure 2 – Output View

3.2 OSD Menu

Pressing the Menu button will bring up the OSD menu controls on the screen. Use the up and down arrows to your desired item, then press MENU to select and enter into sub menu. Select EXIT from a submenu to go back to the main menu or from the main menu to exit the OSD.

Top Menu	Sub-Menu	Value
CONTRAST		0 to 100% (DEFAULT=50)
BRIGHTNESS		0 to 100% (DEFAULT=43)
FINETUNE	PHASE	0 to 100% (DEFAULT=0)
	CLOCK	0 to 100% (DEFAULT=50)
	H-POSITION	0 to 100% (DEFAULT=50)
	V-POSITION	0 to 100% (DEFAULT=50)
COLOR	RED	0 to 100% (DEFAULT=47)
	GREEN	0 to 100% (DEFAULT=47)
	BLUE	0 to 100% (DEFAULT=47)
	EXIT	
SIZE		FULL, OVERSCAN, UNDERSCAN, LETTERBOX, PANSCAN (DEFAULT=FULL)
OUTPUT		NATIVE* , 640x480, 800x600, 1024x768, 1280x800, 1440x900, 1280x1024, 1400x1050, 1600x1200, 1680x1050, 1920x1200, 480i, 480p, 576i, 576p, 720p50, 720p60, 1080i50, 1080i60, 1080p50, 1080p60 (DEFAULT=NATIVE)
AUDIO	SOURCE	L/R or OPTICAL
	DELAY	OFF, 40 MS, 110MS or 150MS
	SOUND	ON or MUTE
	EXIT	
OSD	H-POSITION	0 to 100% (DEFAULT=10)
	V-POSITION	0 to 100% (DEFAULT=90)
	TIMER	0 to 100% (DEFAULT=10)
	BACKGROUND	0 to 100% (DEFAULT=63)
INFORMATION		SOURCE (Input Interface) INPUT (Input Resolution) OUTPUT (Output Resolution) VERSION (Firmware Version)
FACTORY RESET		Reset unit parameters to default state
MIRROR		OFF or ON (DEFAULT = OFF)
EXIT		EXIT OSD

* The NATIVE output setting causes the scaler output to be the best matched to the native resolution of the connected display.

3.3 Setting the Output Resolution

3.3.1 Obtaining an image on the screen

As shipped from the factory, or after a factory default reset, the unit output resolution setting should be “NATIVE”. This means that upon power up the device will read the EDID of your display and output a compatible resolution resulting in a picture. However, if the output setting is not at “NATIVE”, or if the unit cannot ascertain the EDID of the display, then you may not get a picture and since most settings are done by means of an on-screen display (OSD), it is necessary to get an image on the display first.

For this purpose, you can use one of two preset button combinations to set a resolution that your display supports. Two options are available (depending on the display device):

1. If the display is HDTV compatible (with an HDMI connection); then a resolution of 480p should result in an image.
2. If the display is PC compatible (DVI), then XGA (1024x768) should result an image.

Once you have an image, you can call up the OSD menu to make further changes if necessary.

At any time, pressing the **UP ARROW** ↑ and **MENU** button together will change the output resolution to 1024x768 @ 60 Hz.

Pressing the **MENU** and **DOWN ARROW** ↓ together will change the output resolution to 480P @ 60 Hz.

3.3.2 Recalling Factory Defaults

Factory defaults may be recalled via (2) methods:

1. Press the MENU button to display the OSD. Using the ↓↑ arrows buttons, move to highlight the ‘FACTORY RESET’ option and press the **MENU** button. The unit will reset all parameters to the factory defaults. The output resolution will be set at ‘NATIVE’, which should result in a picture being displayed. The actual resolution of the display monitor in this mode is dependant on the monitor and not the SC-VHD-HDMI.
2. Unplug the DC jack from the unit. Press and hold the menu button and simultaneously plug the DC jack. This causes all parameters to revert to factory defaults.

3.3.3 Setting the output resolution

Press the **MENU** button to open the OSD and use the arrow buttons (↑↓) to select the OUTPUT option. Press the **MENU** button.

Use arrows to scroll thru the available resolutions listed. See Section 6 below for a list of all available resolutions.

The default output resolution after a factory reset of the SC-VHD-HDMI is “Native”.

If connected to an HDTV via HDMI input, then use the highest resolution your display supports from among 480i/p, 720p50/60 or 1080i/p. If a DVI LCD is used, you have a wide range of PC resolutions available (see section 6 for a complete listing).

4. Troubleshooting

There are no field serviceable parts or circuits in the device. If you think the device is malfunctioning (or you have no picture output), please try to use the methods described in Section 3.3 to obtain a picture first.

4.1 Contacting Hall Research

If you determine that your SC-VHD-HDMI is malfunctioning, do not attempt to repair the unit instead, contact Hall Research Technical Support at 714-641-6607.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description.

4.2 Shipping and Packaging

If you need to transport or ship your unit:

- Package it carefully. We recommend that you use the original container.
- Before you ship the units back to Hall Research for repair or return, contact us to get a Return Authorization (RMA) number.

5. Specifications

Input ports	(1) HD15 (supports both VGA or YPbPr) (1) 3.5mm AUDIO, (1) OPTICAL AUDIO
Output ports	(1) HDMI™ (1) 3.5mm AUDIO, (1) OPTICAL AUDIO
Power Supply	5V/2.6A DC (CE/FCC/UL certified)
Dimensions	4" (W) x 6.5" (D) x 1" (H) (101.6mm) x (165mm) x (25.4mm)
Weight	0.75 Lbs (340g)
Chassis	Aluminum
Operating Temp	32 to 122 DegF (0 to 50 DegC)

6. 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
1280x800 (WXGA)	60 Hz	1280x800 (WXGA)	60 Hz
1440x900 (WXGA+)	60 Hz	1440x900 (WXGA+)	60 Hz
1280x1024 (SXGA)	60/75/85 Hz	1280x1024 (SXGA)	60 Hz
1400x1050 (SXGA+)	60 Hz	1400x1050 (SXGA+)	60 Hz
1600x1200 (UXGA)	60 Hz	1600x1200 (UXGA)	60 Hz
1680x1050 (WSXGA)	60 Hz	1680x1050 (WSXGA)	60 Hz
1920x1200 (WUXGA)	60 Hz	1920x1200 (WUXGA)	60 Hz
480i	60 Hz	480i	60 Hz
480P	60 Hz	480P	60 Hz
576i	50 Hz	576i	50 Hz
576P	50 Hz	576P	50 Hz
720p	50/60 Hz	720p	50/60 Hz
1080i	50/60 Hz	1080i	50/60 Hz
1080p	50/60 Hz	1080p	50/60 Hz



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