HALL RESEARCH

VHD-HD2CV
HDMI or DVI to Composite Video & Audio Scan Converter

Users Manual

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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 in strict accordance with the manufacturer's instructions, may cause interference to radio communication. This equipment is 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.

Contents

1. Introduction

The VHD-HD2CV is a compact HDMI to composite video & audio converter. It accepts HDMI or DVI video input up to 1080p and converts it to composite video. If the input HDMI signal has embedded audio, it is extracted and output as line level stereo L/R on RCA connectors.

Underscan presets allow easy capture of the full input video frame. The converter's output can be set as either NTSC or PAL, and features aspect ratio adjustments. The Scan converter features motion adaptive 3D de-interlacing with noise reduction and motion adaptive interpolation.

1.1   Features

- Converts and scales digital HDMI or DVI to composite video
- Extracts HDMI audio to analog stereo output
- Output interlaced NTSC or PAL video with overscan and two underscan output options
- Multiple aspect ratio adjustment options
- Motion adaptive 3D de-interlacing and adaptive interpolation
- Quick and simple to install
- Compact size

2. Setup

2.1   Package Contents

Your package should contain the Scan Converter box, 5v power supply, and this User's manual

2.2   Connections

1. Connect input to HDMI or DVI source (cable not included)
2. Connect Composite and Audio RCA outputs to your display
3. Connect 5V power supply to box

⚠️ **Use only regulated 5v DC supply (center positive) as supplied with the unit. Connecting wrong power supply will damage the unit and void warranty**

PAL/NTSC   **To quickly Switch between NTSC or PAL output formats, press the OSD/SELECT button Twice (see Operation Section 3, for further details**
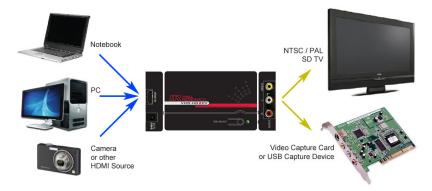
Figure 1 – Block Diagram showing typical input/output device types

3. Operation

Figure 2 – Top, Input, and Output views

3.1   OSD Display of Input and output Status

At any time click (tap) the OSD/SELECT button on the top of the unit to see the status of the input and output as shown below, the OSD will disappear after a few seconds:

Figure 3 – Status Indication

3.2   To Quickly Switch output format between NTSC and PAL

While the Status OSD is being displayed, if you click on the OSD/SELECT button (a second time), the converter's output will toggle between NTSC and PAL.

3.3   Advanced Settings

While the Status OSD is being displayed, press and hold the OSD/SELECT button for 3 seconds to bring up the advanced settings Manu as shown below.

Figure 4 – Advanced Settings Menu

In the above diagram the dots next to each item indicates current setting. To change the setting tap the button to cycle through and highlight the setting you want and wait for OSD to disappear. This automatically selects the last highlighted position the menu.

- Since many aspect ratio output options are available, to change the setting, first use the button to highlight the Aspect Ratio line of the OSD, then tap again to cycle through the following options.
    - Full Screen
    - Letterbox
    - Pan & Scan
    - Auto TV 4:3
    - Auto TV 16:9

Aspect Adjustment Explained:

Full Screen: Stretches the image to fill the screen entirely.

Letterbox: Stretches source having16:9 aspect ratio, on top and bottom, to fit on 4:3 display.

Pan & Scan: Crops source having 16:9 aspect ratio, on left and right, to fit to fit on 4:3 display.

Auto TV 4:3: Automatically detects the aspect ratio (4:3 or 16:9) of input signal, and adjusts the image to fit on 4:3 output display.

Auto TV 16:9: Automatically detects the aspect ratio (4:3 or 16:9) of input signal, and adjusts the image to fit with 16:9 output display.

4. Specifications

4.1 Supported Video Input Formats

The converter can support the resolutions and refresh rates below. This data is reported to the source via the converter's EDID table.

Resolution	RefRate (Hz)	Notes – Location in EDID
480i	60	HDTV (Video Data Block: 132-142)
480p	60	HDTV (Video Data Block: 132-142) - Native
576i	50	HDTV (Video Data Block: 132-142)
576p	50	HDTV (Video Data Block: 132-142)
720p	50,60	HDTV (Video Data Block: 132-142)
1080i	50,60	HDTV (Video Data Block: 132-142)
1080p	50,60	HDTV (Video Data Block: 132-142)
1280x768	60	HDTV (Detailed Descriptor #1 175-192) – Native†
1366x768	60	HDTV (Detailed Descriptor #2 175-192) - Native†
1152x864	70,85	HDTV (Detailed Descriptor #3 & #4) - Native†
640x480	60,72,75,85	PC (Established Timings #1 byte 35)
720x400	70	PC (Established Timings #1 byte 35)
800x600	56,60,72,75,85	PC (Established Timings #2 byte 36)
1024x768	60,70,75,85	PC (Established Timings #2 byte 36)
1152x864	70,75,85	PC (Standard Timings: 38-53)
1280x720	60	PC (Standard Timings: 38-53)
1280x800	60	PC (Standard Timings: 38-53)
1280x960	60	PC (Standard Timings: 38-53)
1280x1024	60	PC (Standard Timings: 38-53)
1440x900	60	PC (Detailed Descriptor #1 54-71) - Native†
1600x1200	60	PC (Standard Timings: 38-53)
1680x1050	60	PC (Standard Timings: 38-53)
1920x1080	60	PC (Standard Timings: 38-53)
1920x1200	60	PC (Detailed Descriptor #2 72-89) - Native†

† Ideally, when connected to a PC, the user should be able to see all of the above as choices for setting the output resolutions. Most sources initially attempt to set the output resolution to one of the Natives (480p or any of the video formats with detailed descriptors).

4.2   General

Video

Input Port	HDMI
Output Port	Composite (RCA)
Output Format	NTSC/PAL

Audio

Input Port	Via HDMI
Input Formats	LPCM, 2-Channel, 24-Bit, 20-Bit, 16-Bit
Input Sampling Frequencies	192 kHz, 176.4 kHz, 96 kHz, 88.2 kHz, 48 kHz, 44.1 kHz, 32 kHz
Output Port	RCA
Output Format	Stereo L/R

Misc

Power Supply	5 VDC, regulated; 2.1mm
Power Consumption	600 ma max @ 5v (3 watts)
Storage Temp	-40 to +158 °F (-40 to +70 °C)
Operating Temp	+32 to +104 °F (0 to +40 °C)
Humidity	10% to 90%, non-condensing
Enclosure	Plastic
Dimensions	114 mm x 65 mm x 26 mm
Weight	120 g
MTBF	90,000 hours
Warranty	2 years parts and labor

Specifications are subject to change without notice

5. Troubleshooting

There are no field serviceable parts or circuits in the device. Opening the device will void the warranty. If you think the device is malfunctioning, please contact Hall Research.

5.1   Contacting Hall Research

There are no user serviceable parts in the device. Opening the device will void the warranty.

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

5.2   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.