



Model VHD-2

VGA to TV / HDTV Scan Converter

With


Composite, S-Video, and Component (YPbPr) Outputs

Linear Pan and Zoom



UMA1087
REV. 1.4

TRADEMARKS USED IN THIS MANUAL

Hall Research, HR, and  are trademarks of Hall Research, Inc. Apple and Macintosh are registered trademarks of Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corporation.

Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

FEDERAL COMMUNICATIONS COMMISSION AND CANADIAN DEPARTMENT OF COMMUNICATIONS RADIO FREQUENCY INTERFERENCE STATEMENTS

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 will be required to take whatever measures may be necessary to correct the interference at his/her own expense.

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

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada

Table of Contents

Package Contents.....	3
Introduction	4
General.....	4
Supported Systems	4
Features.....	5
VHD-2 Description.....	6
Installation and Setup	7
Accessories	8
Operation	8
Main Menu	8
Remote Control.....	11
Troubleshooting.....	13
Shipping and Packaging	14
Specifications.....	15

Package Contents

- VHD-2 Scan Converter
- Remote Control Unit
- HD15 Male to Male (VGA) Cable
- Composite Video Cable (Yellow RCA)
- S-Video Cable
- Y, Pb, Pr Cable
- Switching Power Supply

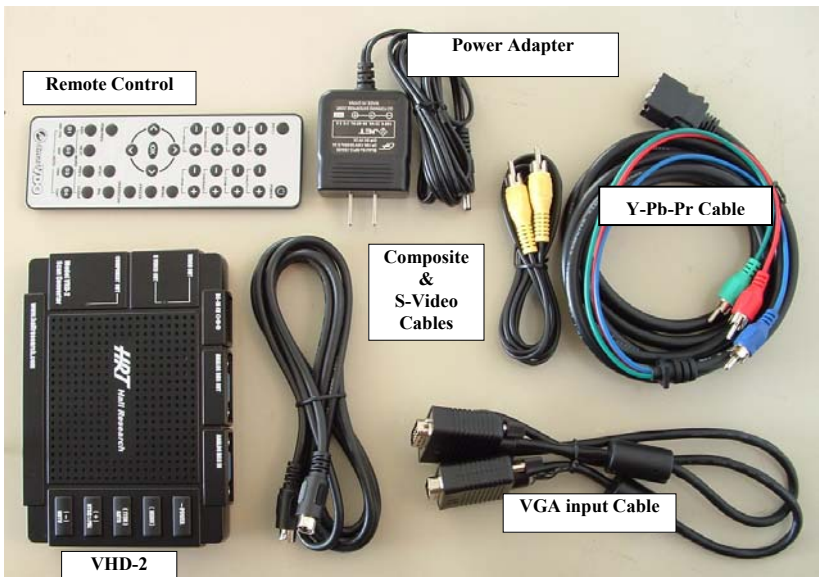


Figure 1 Package Contents

Introduction

General

The VHD-2 is a scan converter that converts computer VGA signals to TV (NTSC and PAL) as well as HDTV Component video. It can produce in real-time a clear and flicker-free TV image with 16.7 million-colors. It accepts all PC resolutions up to 1600 x 1200. No software driver is required. The pass-through VGA output allows the user to see the picture on a local computer monitor as well as the TV screen.

Composite Video, S-Video, and Component Video outputs are provided for achieving a sharp picture on any TV monitor.

The VHD-2 can output HDTV formats of 480i, 480p, 1080i, and 720p. It comes with an IR remote that can be used to zoom and pan linearly to any location on the screen. Furthermore, it can save up to 64 Zoom/Pan locations for immediate recall making it ideal for computer training video tape or DVD productions.

Incorporating the latest technologies in scan conversion, it samples the input the signal from the PC at full resolution and uses advanced DSP technology to produce the highest TV output format possible.

Supported Systems

- Supports IBM® compatible PCs and Laptop PCs (with VGA output port)

Features

- Real time **PC to TV/HDTV Scan Converter**
- Outputs **HDTV** resolutions to 1080i
- Supports Y Pb Pr (Component) video out to HDTV
- Converts computer image into NTSC and PAL TV
- Supports Composite (A/V) and S-Video out
- Accepts VGA input resolution from 640x480 up to 1920x1200 in 16.7 million-color depth
- Supports with IBM® compatible PCs and Laptop PCs (with VGA output port)
- Plug-n-play (No software required!)
- Simultaneous display on PC Monitor and HDTV/TV
- Full function infrared remote control
- Full screen Underscan / Overscan
- 9-level Adaptive Flicker Control adjustment
- Video Quality Enhancement
- Supports “Power-Off Pass-Through” function when system is off (Between PC and VGA Monitor)
- Supports OSD (On Screen Display) function
- TV/HDTV Brightness, Contrast, and Sharpness control
- Horizontal and Vertical frequencies detection to adjust picture position
- Linear Zoom and Pan functions
- Saves settings during power-off
- 64 Position Markers to save screen regions after Zooming and Panning for quick recall
- 1:1 A/D (Analog to Digital) frame rate Sampling

VHD-2 Description

- VGA IN**.....Video input from the PC video card
- VGA OUT**.....VGA pass through for a local PC monitor
- S-VIDEO OUT**.....S-Video output for TV's equipped with S-Video
- C.V. OUT**.....Composite-Video output
- DC IN**.....Adapter input connector
- POWER**.....This LED lights up when VHD-2 is powered up
- MENU**.....Pops up the on screen display menu
- NTSC/PAL**Used to toggle between NTSC and PAL output
- HD Mode**Toggle between 1080i, 720p, 480p, or 480i HD

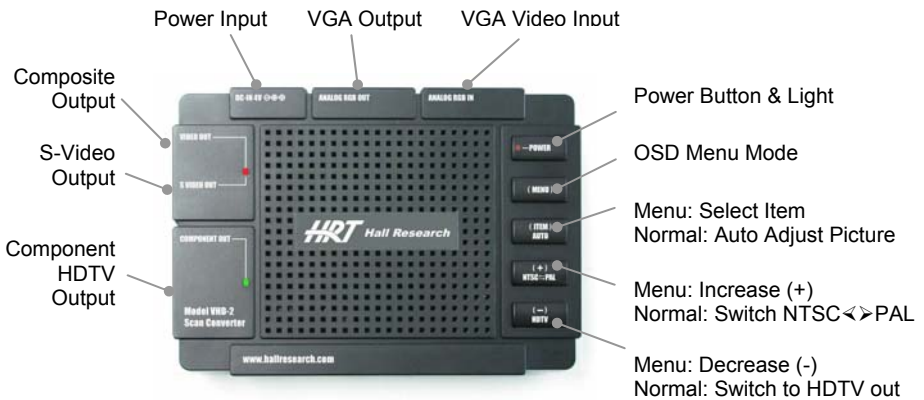
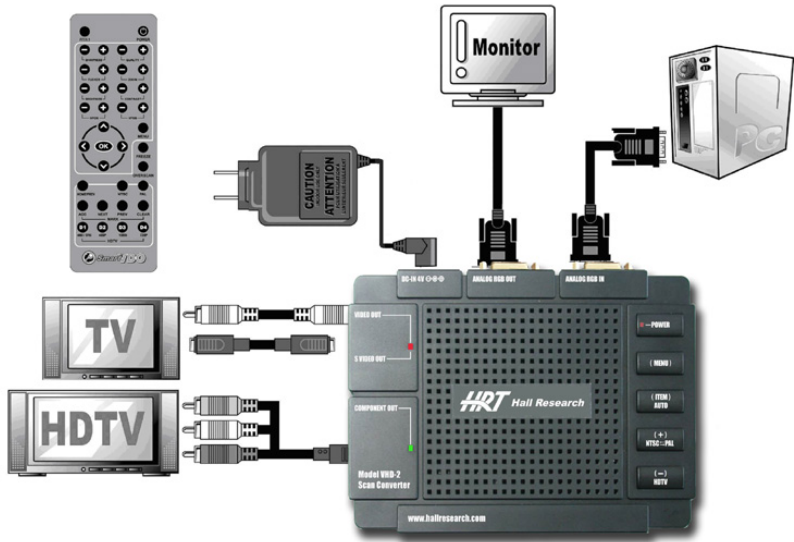


Figure 2 Description of VHD-2 parts

Installation and Setup



1. Plug the power supply to the AC (110 or 220 VAC) line. Plug output of the supply to the VHD-2.
2. Insert supplied button-type batteries in the remote control unit.
3. Using the supplied VGA input cable; tie the **VGA IN** connector of the VHD-2 to the PC video card.
4. Optionally, plug a local VGA monitor or LCD at the **VGA OUT** of the VHD-2.
5. If the TV has an S-Video input connector, connect the **S-VIDEO** connector on the VHD-2 to it, using the S-Video cable
6. If there is no S-Video connector on the TV monitor, connect the CV output of VHD-2 to the composite video input on the TV
7. Set the TV monitor to “video” mode.
8. For HDTV connection use the Component cable provided

Accessories

The following are available from Hall Research for this product. Please call 800-959-6439 or 714-641-6607 to order.



Gold-Plated S-Video Cable
Available in lengths of 6ft-100ft



Gold-Plated Composite Video Cable
Available in lengths of 6ft-100ft

Operation

After installation, you must power up the VHD-2 by pressing the power button on the front panel or on the remote control. The power LED on the VHD-2 should now be lit, indicating that the unit is on. Turn on the computer, its monitor (if being used), and the TV monitor. The TV should display the computer's display.

Main Menu

1. Press the **"MENU"** button on VHD-2 Front Panel to entry the OSD (On Screen Display) Menu Mode.
2. You will see the OSD Main Menu on the middle of your TV/HDTV screen. (Please refer to the page 14)
3. Press **"ITEM"** button to select the setting option on OSD Menu, the selected item will be high light as green bar.
4. Press the **"+"** and **"-"** buttons to adjust the setting option value.
5. Press the **"MENU OFF"** button to close the OSD Menu.

Note:

Using your Remote Control can also operate the OSD Menu.

OSD Main Menu:


Icon	Option	Value
	MAIN MENU	
↔	VIDEO QUALITY	21
☀	BRIGHTNESS	17
☾	CONTRAST	17
▣	SHARPNESS	17
▣	FLICKER	03
☐	H POS	53
☐	V POS	05
⊕	ZOOM	01
↔	DEFAULT	
		32

OSD Menu Setting Option Description:**Video Quality:**

Erase Horizontal Video jitter; enhance the video quality on TV.

Brightness:

Increase or decrease the brightness level on TV.

Contrast:

Adjust the contrast setting to accentuate the highlights and shadows in TV video.

Sharpness:

Adjust the Sharpness level will sharpen or soften the video edges.

Flicker: (9-level Flicker Control adjustment)

Adjust the flash intensity in horizontal line will offer optimal Computer Image to display on TV.

H POS (Horizontal Position):

Move the Computer Image on TV/HDTV screen horizontally.

V POS (Vertical Position):

Move the Computer Image on TV/HDTV screen vertically.

ZOOM:

Allows you zoom in and out of the Computer Image on TV/HDTV screen.

Default:

Return each OSD Menu setting option to the default value.



Remote Control

Remote Control button description:

Power: Switch the VHD-2 on/off.

Home: The home setting will bring your image back to the normal position.

Quality: Enhance video quality on TV.

Zoom: Zoom in and out of the Computer Image on TV/HDTV screen.

VPOS: Move the Computer Image on TV/HDTV screen vertically.

HPOS: Move the Computer Image on TV/HDTV screen horizontally.

ADD: Save the Zooming size and Panning position and memorized as one Position Mark.

NEXT: Jump to next Position Mark.

PREV: Go back to previous Position Mark.

CLEAR: Press button and hold for three seconds to clear all Position Mark.

MENU: Press button to enter the OSD Menu Mode.

Up/Down arrow: Press button to select the setting option on OSD Menu.

Left/Right arrow: Press button to adjust the setting option value on OSD Menu.

OK: Press button to close the OSD Menu.

PAL: Press button to convert the Computer Image to PAL TV system.

NTSC: Press button to convert the computer Image to NTSC TV system.

OVERSCAN: Toggle between Overscan and Underscan.

SHARPNESS: Adjust the Sharpness level on TV/HDTV image.

480P: Press this button to convert the Computer Image into HDTV system as D2 (720x480P) resolution.

1080i: Press this button to convert the Computer Image into HDTV system as D3 (1920x1080i) resolution.

FLICKER + / -: Increase and decrease the Flicker level on TV/HDTV image.

FIT/1:1: Normal Setting is FIT. (Only Accessible via Remote)



The VHD-2 samples the input video signal at full resolution coming in.

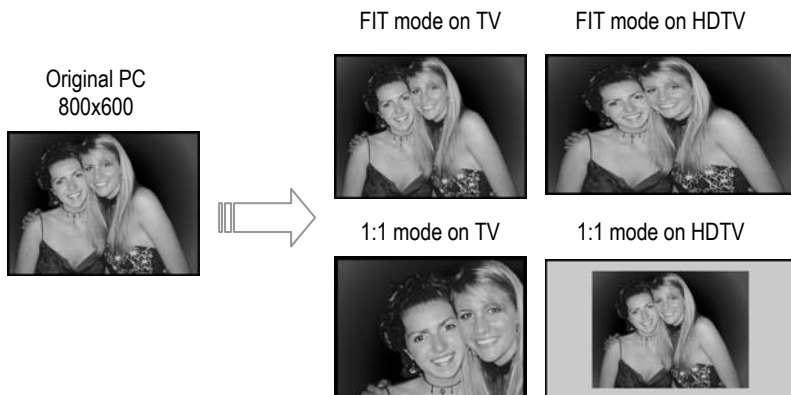
In FIT mode the unit either down-scales the input signal or up-scales it in order to “fit” it to the output.

Keep in mind that with S-Video or Composite Video the output resolution is either 480 lines, or 576 lines (NTSC/PAL), and for the HDTV component output the resolution could be as low as 480 or as high as 1080 depending on the HDTV mode that you set.

In 1:1 mode the VHD-2 does not perform any scaling of the input image signal and theoretically you will get the best image possible on the output, but if your input resolution does not match the output resolution the output image may appear either zoomed or will not fit the entire screen.

Let's assume that your input from the PC is at 800x600. If you set the 1:1 mode, then the S-Video and CV outputs will only show 640x480 pixels of the top left portion of the image, On the other hand if you are using the HDTV output set to say 720p (1280x720) then output will not fill the screen and you will have the 800x600 pixels displayed in the center of the HDTV output.

1:1 mode should be avoided and only used if you want to maintain the aspect ratio when using a widescreen HDTV mode. In 1:1 mode the Zoom function is disabled.



Troubleshooting

Symptom	Possible Cause(s)
No picture on TV Monitor	<ol style="list-style-type: none"> 1. VHD-2 is not ON; Ensure that the adapter is plugged into a working wall outlet and its DC connector is plugged into the VHD-2. 2. TV monitor is not ON. 3. The PC is not ON. 4. TV monitor not set to "video input" mode 5. No connection between VHD-2 and the TV. Ensure that either the composite video output (S-Video) or Y Pb Pr output is connected to the TV's video or Y Pb Pr input. 6. No connection between VHD-2 and PC video card. . Ensure VGA IN is connected to the PC video card and the local PC monitor to VGA OUT connector. Turn the screws simultaneously. 7. VGA cables are reversed while no PC monitor used. Ensure VGA IN is connected to the PC video card and the local PC monitor to VGA OUT connector. 8. Bad cables. Try other cables.
Poor Picture Quality	<ol style="list-style-type: none"> 1. VGA cables are reversed while a local PC monitor being used. . Ensure VGA IN is connected to the PC video card and the local PC monitor to VGA OUT connector. 2. Low Sharpness mode used. Press the Sharpness button on the remote control to select high sharpness mode. 3. Change the screen resolution on the PC.
Flickering Picture	<ol style="list-style-type: none"> 1. The PC screen resolution too high. VHD-2 can handle resolutions up to 1600X1200 at 60Hz vertical frequency. 2. The PC vertical frequency (scan rate) is too low or too high for the selected resolution. This frequency can be set to 50-120Hz.
Picture Frozen on the TV Monitor	Press the Freeze button on the remote control.
Remote Control Not Responding	<ol style="list-style-type: none"> 1. Remote control unit has no battery. Insert a new button style battery in the remote control unit. 2. The IR sensor on the remote is not facing the remote control unit while commands are being sent. Make sure the IR sensor on the VHD-2 is facing the remote control unit.

Technical Support

If you believe that the VHD-2 is malfunctioning, do not attempt to repair the unit. Contact Technical Support at 714-641-6607.

Before you call us, please 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, including:

- Nature and duration of the problem;
- Components involved in the problem—that is, what type of cable, makes and models of computers and monitors, etc.
- Results of any testing you've already done.

Shipping and Packaging

If you need to transport or ship the product:

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

Specifications

VGA Input:	Up to 1920 x 1200 on DB15 Female with 16.7 million colors
Horizontal freq:	31.5 KHz to 80 KHz
Vertical freq:	50Hz to 150Hz
Vertical Lines:	1200
VGA modes:	Auto Horizontal/Vertical frequency detection to adjust picture position
VGA Output:	Pass-Thru DB15 Female Connector (cable included) VGA pass through function when power off
Video Outputs:	(1) Composite Video (AV) – NTSC/PAL (adapter included) (2) S-Video - NTSC/PAL (3) Y Pb Pr (Component) / 480i (D1) (4) Y Pb Pr (Component) / 480P (D2) (5) Y Pb Pr (Component) / 1080i (D3) (6) Y Pb Pr (Component) / 720P (D4) (7) Computer Monitor
Output Format:	NTSC / PAL user settable
Controls:	Via 4 push-button Switches on the unit or the included IR remote
OSD:	On-Screen-Display for adjustments including: freeze, zoom, pan, etc.
Zoom Function:	Linear zoom
Max. Altitude:	10,000 ft. (3048 m)
Temperature:	Operating: 0 to 50°C; Storage: -40 to +85°C (humidity up to 95% non-condensing)
Enclosure:	ABS
MTBF:	200,000 hours (calculated estimate)
Power:	From utility-power (mains) outlet, through included power adapter (4 to 5 VDC center positive, 2A max.)
Size:	5.5" W x 4.0" D x 0.9" H
Weight:	2.0 lb. (3 lb. Shipping)



© Copyright 2009. Hall Research, Inc... All rights reserved.

1163 Warner Ave. Tustin, CA 92780
Ph: (714)641-6607, Fax -6698