

HR HALL RESEARCH



SC-VGA-2B VGA/HDTV Video Processor

UMA1169 Rev. B

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.

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.



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1. Introduction

1.1 General

SC-VGA-2B is a high-performance universal VGA / HDTV to VGA / HDTV Scan Rate converter with a local loop out.

The SC-VGA-2B has the ability to output a specified resolution and refresh rate regardless of the input. Output timing to the display is constant regardless of the input so when switched from one input to another, the display device does not see any interruption in the signal coming to it.

The video processor combines the functions of a video scaler, scan-converter, and format transformer. The SC-VGA-2B also includes a horizontal mirroring feature which is useful for teleprompter's and rear projection systems.

The SC-VGA-2B features an OSD menu for configuration, picture setup, system information and many other advanced options.

1.2 Features

- Any PC or HDTV video signal can be scaled up or scaled down to any other PC or HDTV resolution.
- Adjustable output frame rate.
- Additional loop-out to bypass signal processing.
- Large Video memory for real-time frame rate capture & conversion.
- Signal format conversion between RGBHV and YPbPr.
- Automatically detects input mode and timing parameters.
- Allows adjustment of sampling clock, phase, and position on screen.
- Easy- to- use push buttons and OSD menu control.
- Horizontal mirroring (X-Axis Flip)

2. Installation

2.1 Connections

The SC-VGA-2B accepts both PC and HDTV input and output.

Use the 15-pin D-sub to YPbPr/3 RCA cable to convert YPbPr for HDTV devices.

The SC-VGA-2B includes a display local loop out connection labeled "Bypass Output". Use this connection to send a **non-processed signal** to a secondary display.

2.2 Connection Block Diagram

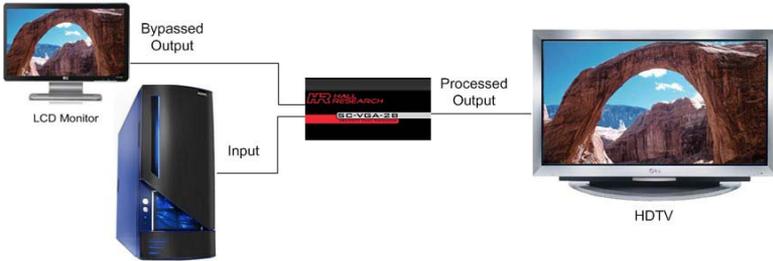


Figure 1 - PC Connection

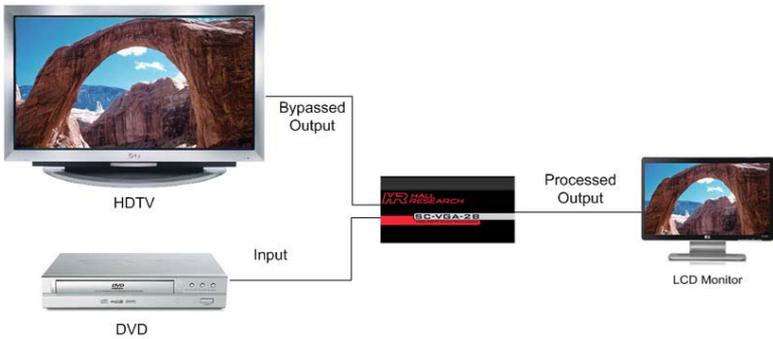


Figure 2 - DVD Connection

3. Configuration & Operation

3.1 Input and Output



Figure 3 – Input

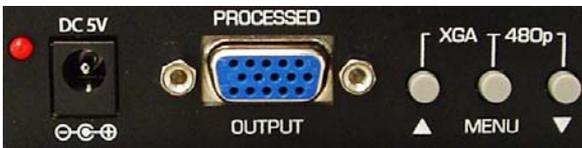


Figure 4 - Output

3.2 Menus and Adjustments

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.

CONTRAST

Adjusts image contrast. Range is 0-100%, default=50 (RGB) or 43 (YPbPr)

BRIGHTNESS

Adjusts image brightness. Range is 0-100%, default=47 (RGB) or 54 (YPbPr)

FINETUNE

For RGB Video Input

PHASE - refers to nanosecond timing position of each sample taken. This adjustment can be used to align the pixels grabbed by the SC-VGA-2B to those created by the video source. Range is 0-100%, default=73

CLOCK - changes the number of samples per display line. The unit samples the video at the nominal pixel rate. For example a 1024x768 resolution signal is sampled 1024 times during the active video time. Changing the clock has the effect of adjusting horizontal size of the displayed output. When you change this setting; the right edge of the video moves to the left (shrinking the width) or to the right (expanding the width). Range is 0-100%, default=50

H-POSITION – Shifts image right and left. Range is 0-100%, default=50

V-POSITION – Shifts image up and down. Range is 0-100%, default=50

EXIT – Exit FINETUNE Submenu

For YPbPr Input

PHASE Range is 0-100%, default=60

HUE – Adjusts Picture HUE. Range is 0-100%, default=55

SATURATION – Adjusts Picture SATURATION. Range is 0-100%, default=37

SHARPNESS – Adjusts Picture Sharpness Range is 0-100%, default=18

NOISE REDUCTION – When turned on, reduces the amount of noise in the video. Range is ON or OFF, default=OFF

EXIT – Exit FINETUNE Submenu

COLOR

RED – Adjust RED RGB value. Range is 0-100%, default=47 (RGB) or 48 (YPbPr)

GREEN – Adjust GREEN RGB value. Range is 0-100%, default=47 (RGB) or 48 (YPbPr)

BLUE – Adjust BLUE RGB value. Range is 0-100%, default=47 (RGB) or 48 (YPbPr)

EXIT – Exit COLOR Submenu

SIZE

Select this option to toggle between FULL, PANSCAN, LETTERBOX, UNDERSCAN or OVERSCAN display modes. The change occurs as each option is selected. Default=FULL

SOURCE

AUTO – Automatically detects the type of input video source based on the selected resolution. Default

PC – Forces the input video source to be RGBHV

YPbPr – Forces the input video source to be YPbPr

OUTPUT

Use arrows to adjust output mode. Refer to Section 5.2 below for a list of all available modes.

The default output resolution of the SC-VGA-2B is XGA @ 60Hz.

The unit has non-volatile memory and memorizes all your settings before power off and recalls those settings on the next power on.

At any time, pressing the **UP ARROW ▲** and **MENU** button together will change the output resolution to XGA@60Hz. Pressing the **MENU** and **DOWN ARROW ▼** together will change the output resolution to 480P@60 Hz.

OSD

H-POSITION – Adjust horizontal position of the OSD on the screen. Range = 0-100%, default=10

V-POSITION – Adjust vertical position of the OSD on the screen. Range = 0-100%, default=90

TIMER – Select the approximate number of seconds for the OSD to be displayed on the screen before turning off. Range = 0-100, default=10

BACKGROUND – Changes opacity of the OSD background on the screen. “0” is a black background, “100” is a transparent background. Range = 0-100%, default=10

EXIT – Exit OSD Submenu

Factory Reset

Select this option to reset all values to the factory defaults.

Information

Displays source type, Input resolution, output resolution and firmware version.

Mirror

If enabled; this function will flip the image horizontally on the screen. Range = ON or OFF, default=OFF

Exit

This selection will exit the OSD Menu.

4. Troubleshooting

There are no field serviceable parts or circuits in the device. If you think that the device is malfunctioning (or you have no picture output), please first try to reset to factory default settings. Select FACTORY RESET from OSD menu or Press and HOLD the MENU button while plugging in the power supply

Some display devices may become confused and display the output video shifted or with odd colors if the display device receives **BOTH** the RGBHV Sync signals as well as the YPbPr Sync signals at the same time. This can be caused by using the HD15-HD15 cable on the SC-VGA-2B output but setting the unit to output YPbPr resolutions (480p for example). Use supplied HD15 to 3 RCA to ensure that only the desired YPbPr sync signals are sent to the display device.

4.1 Contacting Hall Research

If you determine that your SC-VGA-2B is malfunctioning, do not attempt to repair the unit. Contact the Hall Research Technical Support department 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

5.1 General

Input ports	(1) HD15
Output ports	(2) HD15 (processed and bypassed)
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)

5.2 Input and Output Resolutions

Input Resolution		Output Resolution	
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
1920x1080	60 Hz	1920x1080	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
720P50	50 Hz	720P50	50 Hz
720P60	60 Hz	720P60	60 Hz
1080i50	50 Hz	1080i50	50 Hz
1080i60	60 Hz	1080i60	60 Hz
1080P50	50 Hz	1080P50	50 Hz
1080P60	60 Hz	1080P60	60 Hz

Notes

Notes



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