UXHD CROSSPOINT™

Dual Input, Dual Output Analog and Digital Video Format Converter and Scaler
Part Numbers: 999-5690-000 North America, 999-5690-001 International

Figure 1: Vaddio UXHD CrossPoint

OVERVIEW
The Vaddio™ UXHD CrossPoint is a dual input, dual output video format converter & scaler, designed to change an HD/SD/RGBHV analog input signal to HD-SDI/SDI digital output, as well as change an HD-SDI/SDI digital input to an analog HD/SD/RGBHV video output. The UXHD CrossPoint allows users to easily convert analog video and HD-SDI/SDI signals for use with Vaddio's ProductionVIEW HD-SDI camera controller and switcher or can be used as a stand-alone video converter for a wide variety of applications.

The INS and OUTS of the UXHD CrossPoint
- **Input 1:** The analog video input can be HD component (YPbPr) up to 1080p/60Hz (with monitor support for analog 1080p/60), SD video (Y/C and CVBS with adapter cable) or a variety of RGBHV signals. When converted, the output can be configured as either HD-SDI with video resolutions of up to 1080p/60Hz or standard definition SDI. See the tables on the following pages for all supported resolutions. In addition, a reference input for Gen Lock is available for synchronizing the HD-SDI/SDI output to an external switcher.
- **Input 2:** The HD-SDI/SDI input can support 3Gb/s HD-SDI resolutions up to 1080p/60Hz or SDI. When converted from HD-SDI or SDI to analog video, the output can be (YPbPr) up to 1080p/60Hz (with monitor support for analog 1080p/60), SD video (Y/C and CVBS with adapter cable) or RGBHV signals.
- **One Input, Dual Output:** UXHD CrossPoint can also be used as a signal converter with a loop-thru output. In this scenario, an HD-SDI or analog signal can be converted and/or scaled to an analog, as well as an HD-SDI output - one input, two outputs and formats. In addition, both outputs can be converted to resolutions different from the input signal's native resolution.

INTENDED USE
Before installing the UXHD CrossPoint, please read the entire manual thoroughly. All Vaddio equipment is designed for use indoors. Outdoor operation is not recommended, has not been tested, and could damage the equipment and/or create a potentially unsafe operating condition. Use only the Vaddio PowerRite power supply provided.

SAVE THESE INSTRUCTIONS
The information contained in this manual will help you install the UXHD CrossPoint. For reference, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on our website. These documents can be downloaded from www.vaddio.com free of charge.

IMPORTANT SAFEGUARDS
Read and understand all instructions before using. Do not operate any electrical device if it has been dropped or damaged. In this case, a Vaddio factory technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in any liquids and avoid extremely humid conditions.

⚠️ Use only the power supply provided with the UXHD CrossPoint system.   Use of any unauthorized power supply will void any and all warranties.

TOUCHBOARDS
205 Westwood Ave, Long Branch, NJ 07740
Phone: 866-94 BOARDS (26273) / (732)-222-1511
Fax: (732)-222-7088 | E-mail: sales@touchboards.com

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INFORMATION
For RS-232 control information, please see the index at the back of this manual. Vaddio has also prepared a number of TechNotes, specifications and drawings designed to inform and educate integrators on the value and the specific uses of Vaddio products.

UNPACKING
Carefully remove and identify the following parts for the UXHD CrossPoint system:

- One (1) - Vaddio UXHD CrossPoint (1-RU Enclosure)
- One (1) - EZCamera™ Control Adapter (RJ-45 to DB-9)
- One (1) - 12VDC, 3A PowerRite™ Power Supply with AC Cord Set
- Install Guide

TECHNICAL HIGHLIGHTS
Vaddio uses only the most advanced electronics available today to provide flexible, functional and high quality products and the UXHD CrossPoint is no exception. The UXHD uses a 3Gb/s capable HD-SDI/SDI receiver and transmitter on Input 2 and Output 2 which generates SMPTE 424M, SMPTE 292M, SMPTE 259M-C compliant serial digital output signals. The 3Gb/s receiver and transmitter ensure the ability to use a single link (with a single coax cable) connection at HD-SDI resolutions up to and including 1080p/60Hz which is 100% compatible with Vaddio's other 3Gb/s HD-SDI products available today. In order to achieve the 1080p/60 resolution, circuit board edge mount (3Gb/s compliant) carrier class BNCs with gold finish body and contacts are also used for the HD-SDI I/O and the external reference input for the HD-SDI as well.

Quick-Connect CCU Front Panel Controls (left to right) Figure 2:
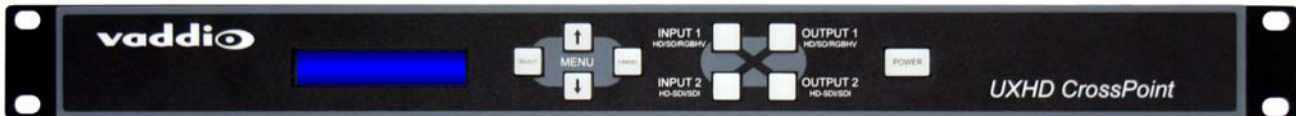
Menu: The Select, Cancel, Up and Down Arrows allow the user to navigate through the menu to select the input and output signals and other parameters that are displayed on the LCD screen. These keys are not back lit.

Input/Output Buttons: After the UXHD is programmed, selecting an input button illuminates which output(s) are active for that input.

Power Button: Pressing the button will start the system. To turn off the UXHD, push and hold the Power button for approximately 2.0 seconds.

Rear Panel Connections and Controls (Left to Right) Figure 3:

Power Supply Input: 12VDC, 3.0 Amp power supply on a 5.5mm OD x 2.5mm ID connector.

Input 1: DE-15 (D-sub HD-15) Connector for analog component YPbPr or Y/C and CVBS* or RGBHV
Input 2: BNC connector for HD-SDI/SDI video.

Output 1: DE-15 (D-sub HD-15) Connector for analog YPbPr or Y/C and CVBS* or RGBHV
Output 2: BNC connector for HD-SDI/SDI video

External Reference: BNC connector for synchronizing Output 2 to a third-party device that requires a synchronized source

RS-232: DB-9 connector for allowing UXHD CrossPoint to be controlled from a third-party device

*Standard Definition Y/C and CVBS requires the SD Adapter Cable, Part Number 440-5600-000 (DE-15M to 3-BNC-F)

SET-UP INSTRUCTIONS

The UXHD CrossPoint can be set up in several useful modes to scale resolutions, convert formats, act as a distribution amp, a crosspoint and other mix and match signal processing solutions. It is very easy to understand and operate. The menus are simple and our recommendation is to jump in and start pushing buttons, then, read the instructions, just like normal.

Initial Set-up:

Install the UXHD into a rack, connect the I/O video signals and plug in the supplied 12 VDC Power adapter. The system will boot up upon the first power up and is ready to assign inputs and outputs. To put the system into Stand-by Mode, touch and hold the Power Button for approximately 2.0 seconds. All I/O assignments will be remembered by UXHD when the Power button is touched and the power switch is backlit again.

1) Digital Video In (HD-SDI) to Digital Video Out (D/A) and Analog Video Out (RGBHV)

Scenario: HD-SDI cameras and HD-SDI console in a House of Worship with an RGBHV projector for IMAG.

- When the UXHD is turned on, the Firmware version will be displayed.
- Press the down arrow key on the front panel and the first Chevron (>) will engage…well, the only chevron will appear next to Input 1 Menu.
- Press the down arrow key again to get to the Input 2 Menu and press select.
- The HD-SDI/SDI In menu will appear, select this menu and scroll through the list of resolutions and pick the resolution of the device connected to Input 2 (i.e. PTZ camera, ProductionVIEW HD-SDI, etc…), for example select 720p/59.94 and touch select button.
- Arrow down to the HD/HV/SD Out menu (this abbreviation, while not standard, covers YPbPr HD & SD, RGBHV from 640x480@60Hz up to 1920x1200@60Hz, and SD resolutions in Y/C and CVBS in NTSC and PAL formats…hence the abbreviation) and touch the Select button.
- Scroll through the options of RGBHV and select a resolution fairly close to the original in resolution 1280x720 and aspect ratio 16:9 (picking 1024x768@60Hz is not a real good choice since XGA is a 4:3 aspect ratio and the image will distort), so choosing a wide XGA resolution like 1280x768@60Hz which is a 15:9, or 1280x800@60HZ which is 16:10, or even 1360x768@60Hz which is also 16:9, would be the best choices providing your display device can handle it. Touch select to make your resolution choice.
- Touch the down arrow to HD-SDI/SDI Out Menu and touch select and scroll through the HD-SDI output options, in this case, we are using this output as a D/A and the output resolution will be the same as the input, so select 720p/59.94


Figure 4: After this set-up, by touching the INPUT 2 button on the front panel, the UXHD will display the outputs assigned and the format of each output. By touching the OUTPUT 1 or OUTPUT 2 buttons, the backlit blue LED will turn off and the output will be toggled to black screen, allowing on the fly changes or on/off switching as needed.

2) CrossPoint Solution (see Figure 6, Configuration Example)

Scenario: HD-SDI Console and Cameras setup requires a PC input to the console and a RGBHV output to a projector.

- Set the Input 1 menu to the proper input resolution of the PC (1280x800@60Hz) and the Output 2 HD-SDI resolution to something close going to the input of the ProductionVIEW HD-SDI, say 720p/60. Please note that when you convert PC RGBHV to VIDEO, the Video will be somewhat over-scanned, this is how the world works, so please accept it (more on this later).
- In this case, the Vaddio ProductionVIEW HD-SDI console will be set at 1080i/60 outputs, so in order to get the HD-SDI signal out to the monitors and to the projector, Set up Input 2 HD-SDI resolution at 1080i/60 (16:9) and set up the Output 1 resolution to 1920x1200@60Hz (16:10) for the projector. This application allows the broadcast quality HD-SDI gear to operate seamlessly with analog equipment.

Figure 5:
Analog In 1 to Digital Out 2, Digital Input 2 to Analog Out 1. A/D & D/A CrossPoint (Same Unit)
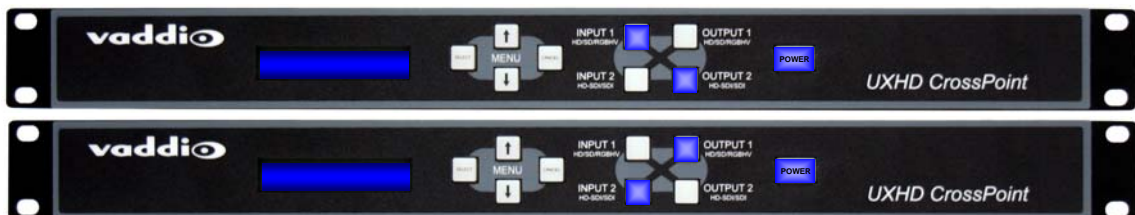
UXHD and RGBHV Positioning Controls:
The UXHD has been equipped with horizontal and vertical positioning controls. This is a fine tuning adjustment and allows the user to adjust the positioning of RGBHV signals ± 255 fine steps. As the image is shifted in the menu, the picture may exhibit some flashing and rolling, this is normal due to the operation of the DACs and will stabilize immediately after the adjustment is made. Adjustments are made in one (1) step increments.

SYSTEM CONNECTIVITY EXAMPLES

Figure 6: Example Configuration (Output Conversion Crosspoint I/O and Scaling - concurrent operation):
Input 1 routed to Output 2 - Computer RGBHV to HD-SDI Input on ProductionVIEW HD-SDI
Input 2 routed to Output 1 - ProductionVIEW HD-SDI to RGBHV Projector
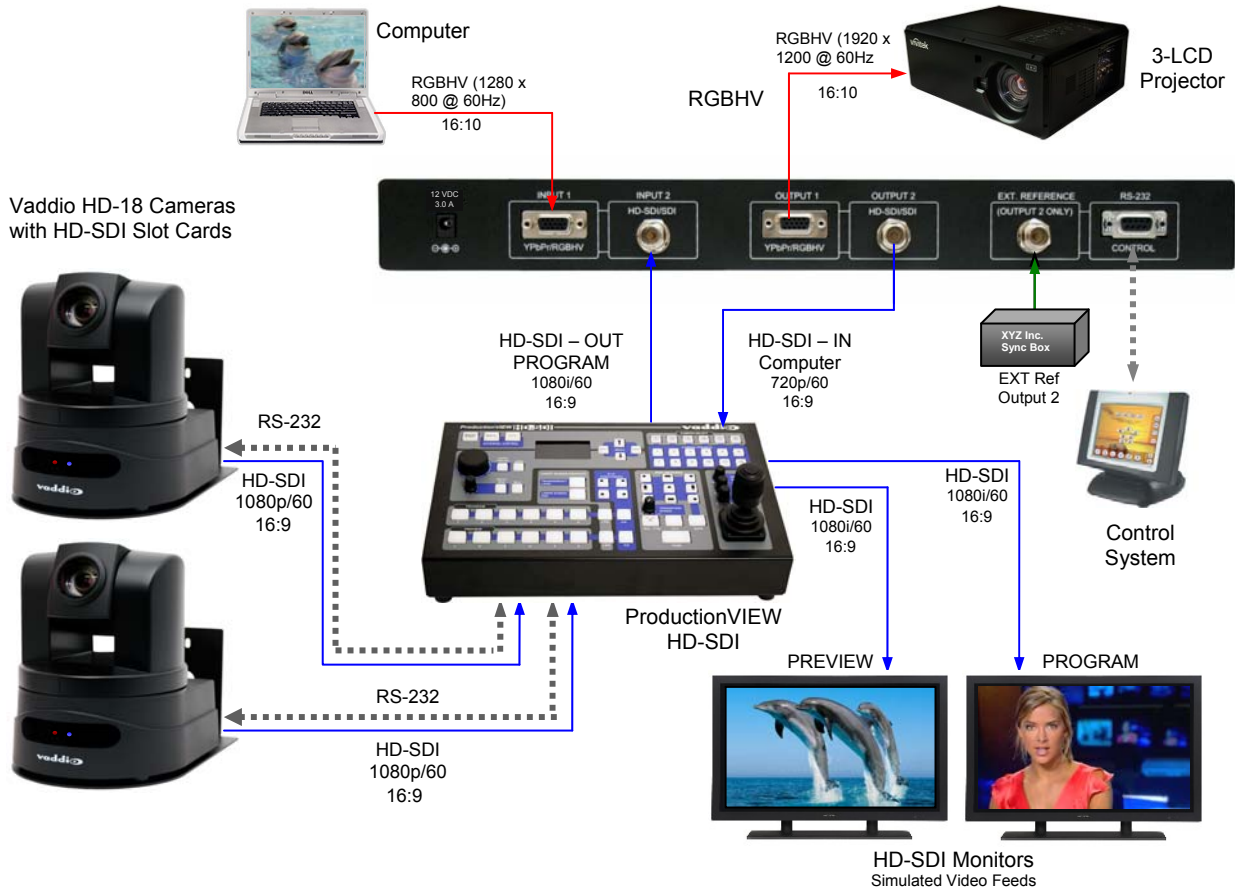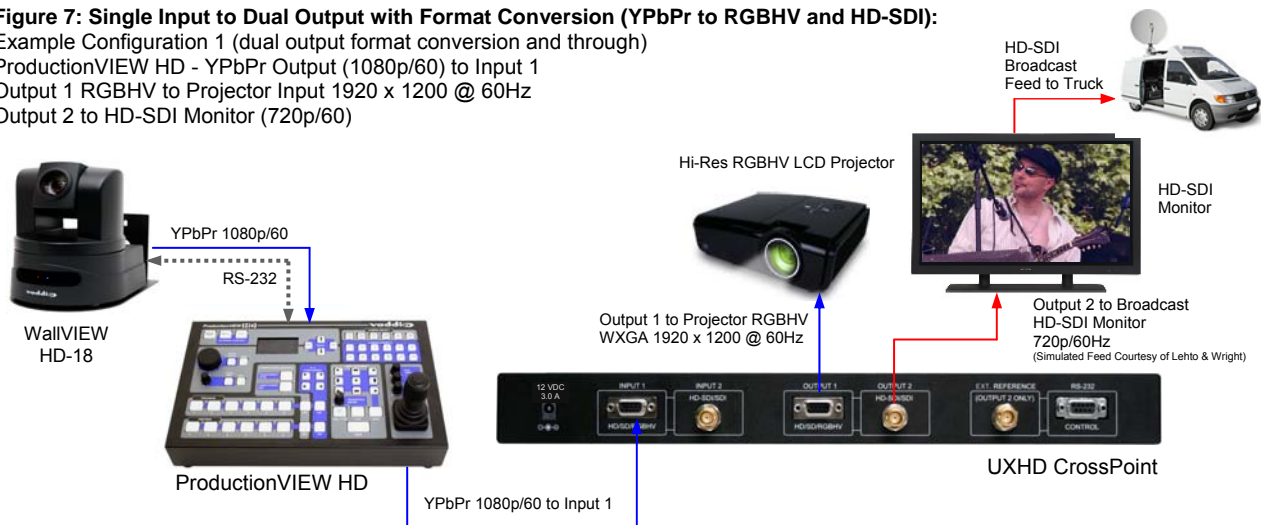

Figure 7: Single Input to Dual Output with Format Conversion (YPbPr to RGBHV and HD-SDI):
Example Configuration 1 (dual output format conversion and through)
ProductionVIEW HD - YPbPr Output (1080p/60) to Input 1
Output 1 RGBHV to Projector Input 1920 x 1200 @ 60Hz
Output 2 to HD-SDI Monitor (720p/60)

An Important Note about Video vs. RGBHV:

Even in the analog realm, YPbPr video is quite a bit different than analog RGBHV and they were created or evolved for different purposes. RGBHV monitors have to work with all the computers on the market and the vast majority of RGBHV monitors have picture sizing and positioning controls. On the other hand, TVs, or pure HD video monitors do not have these same controls, and since every TV has to catch and present several modes of broadcast (cable, satellite, on-air) TV, these monitors will overscan all images so the sync or blanking pulses (the data part of the video frame, but not the picture) are not seen on the TV. So, when you are converting a PC's RGBHV to HD video and part of the start bar and some icons get partially cut off…this is ***very, very <u>normal.</u>*** The display, at least the more modern models, should be equipped with a "Full Pixel" mode of some kind that will display all the PC's pixels and not cut off any part of the start bar and icons, but there may be a bit of underscan to appreciate depending on manufacturer.

Technical Specifications

UXHD CrossPoint	
Part Numbers:	999-5690-000 (North America), 999-5690-001 (International)
Video Formats Supported:	3Gb/s HD-SDI/SDI Components Support SMPTE 424M, SMPTE 292M, SMPTE 259M-C, YPbPr up to 1080p/60, RGBHV (see tables below), Y/C & CVBS (NTSC & PAL)
Analog/Digital Video Inputs:	One (1) RGBHV, HD (YPbPr) or SD (Y/C or CVBS) / One (1) HD-SDI/SDI on BNC
Analog/Digital Video Output:	One (1) RGBHV, HD (YPbPr) or SD (Y/C or CVBS) / One (1) HD-SDI/SDI on BNC
Control Port:	One (1) RS-232 on DB-9
LCD Display:	2-line Blue Backlit LCD Display
Power Requirements:	PowerRite 12 VDC, 3.0 Amp
Reference Input:	BNC-Female
BNC Connector Type:	Circuit Board Edge Mount (3Gb/s compliant) Carrier Class BNCs with Gold Finish Body and Contacts
Weight:	3.2 lbs. (1.45329107kg) – approximate weight
Dimensions (H x W x D):	1.72" (4.4cm) H x 19" (48.3cm) W x 6" (15.2cm) D
Accessory Option	Standard Definition (Y/C & CVBS) Adapter Cable 440-5600-000 (DE-15M to 3-BNC-F)

UXHD CrossPoint Resolution Tables

INPUT 1 - Signal Formats	Supported Resolutions	Aspect Ratio
YPbPr	720p 59.94/50 1080i 59.94/50 1080p 60/50	ALL 16:9
RGBHV	640 x 480 @ 60Hz - VGA 800 x 600 @ 60Hz - SVGA 1024 x 768 @ 60Hz - XGA 1280 x 768 @ 60Hz - WXGA 1280 x 800 @ 60HZ - WXGA 1280 x 1024 @ 60Hz - SXGA 1360 x 768 @ 60 Hz - WXGA 1366 x 768 @ 60Hz - WXGA 1400 x 1050 @ 60Hz - SXGA+ 1600 x 1200 @ 60Hz - UXGA	4:3 4:3 4:3 15:9 16:10 (8:5) 5:4 16:9 16:9 4:3 4:3
Std Definition - w/Adapter Cable	480i 29.97, 576i 25	4:3
INPUT 2 - Signal Formats	Supported Resolutions	Aspect Ratio
SDI	480i 29.97, 576i 25	4:3
HD-SDI	720p 59.94/50 1080i 59.94/50 1080p 60/50/30/25	16:9
OUTPUT 1 - Signal Formats	Supported Resolutions	Aspect Ratio
YPbPr	720p 50/59.94, 1080i 50/59.94 1080p 50/60	ALL 16:9
RGBHV	640 x 480 @ 60Hz - VGA 800 x 600 @ 60Hz - SVGA 1024 x 768 @ 60Hz - XGA 1280 x 768 @ 60Hz - WXGA 1280 x 800 @ 60HZ - WXGA 1280 x 1024 @ 60Hz - SXGA 1360 x 768 @ 60 Hz - WXGA 1366 x 768 @ 60Hz - WXGA 1400 x 1050 @ 60Hz - SXGA+ 1600 x 1200 @ 60Hz - UXGA 1920 x 1200 @60 HZ - WUXGA* *With reduced blanking	4:3 4:3 4:3 15:9 16:10 (8:5) 5:4 16:9 16:9 4:3 4:3 16:10
Std Definition - w/Adapter Cable	480i 29.97, 576i 25	4:3
OUTPUT 2 - Signal Formats	Supported Resolutions	Aspect Ratio
SDI	480i 29.97, 576i 25	4:3
HD-SDI	720p 59.94/50 1080i 59.94/50 1080p 60/50/30/25	16:9

Really Important Stuff:

- **Finding the "Sweet Spots":**

In any video signal chain, there can be many scalers. For example, in a standard PTZ camera system, pretty much every product (camera, mixer/switcher, format converter, monitor, projector and PC) have scalers and they all have "certain" capabilities. Try to stay as close to native resolutions as possible, minimize the amount of your scaling and keep the in and out aspect ratios fairly close (See Figure 6) throughout the signal chain and design. It will not only look better, it will be better. The UXHD CrossPoint is a great tool, but it can't fix a flawed or antiquated design.

- **Good Example HD-SDI to RGBHV - The French Anchor:**

If you would be connecting an HD-SDI signal at 720p/60 (16:9 aspect ratio) to Input 2, and wish to take a RGBHV out of Output 1, pick a similar resolution with a similar aspect ratio. At least for now, wide screen computer resolutions using RGBHV are at a 16:10 - not a big jump. So, logical outputs for wide screen computer is 1280 x 768@60 Hz/15:9, 1280 x 800@60 Hz/16:10 or 1360 x 768@60 Hz 16:9. The example below shows a 720p to 1280x768 format conversion without severe image distortion. Granted the RGBHV image is about 6% taller than the HD-SDI, but still very useable.

Figure 8: Simulated Video Feeds Good Example, Slight Scaling (one axis) and Conversion

HD-SDI Digital Video 720p/59.94
1280x720@59.94Hz, 16:9 ratio

RGBHV Analog Video
1280x768@60Hz, 15:9 ratio

RGBHV
Same width at 1280 pixels, but a bit taller by 48 pixels to 768 in height - if the height of both images were adjusted to be equal then the 15:9 picture would appear to be squeezed by 6% or so.

- **Bad Example HD-SDI to RGBHV - The Zebra Accordion:**

If you are connecting an HD-SDI signal at 720p/60 (16:9 aspect ratio) to INPUT 2, and wish to take a RGBHV out of OUTPUT 1, an illogical choice for an RGBHV output is (1024 x 768@60Hz with 4:3 ratio). There are other ways to ruin the image too; we just can't recommend this one. We could have used circles in different quadrants, but we chose this more rather interesting approach.

Figure 9: Simulated Video Feeds Bad Example Scaling (both axes and Conversion)

HD-SDI Digital Video 720p/59.94
1280x720@59.94Hz - 16:9 ratio

Converted to RGBHV
1024x768 - 4:3 ratio

RGBHV:
16:9 HD format incorrectly configured to 1024x768 @60Hz with a 4:3 aspect ratio. Stretching 720 to 768 and squeezing 1280 to 1024, this image is the result.

- **In the above example:**

Converting an HD format into any other than 16:9 or close is a tricky proposition. Your display device may take the above 1024 x 768 conversion and stretch the picture back out with its own scaler to fill the screen so the image looks mostly normal. However, that scaler would be the 4th in the chain (Camera → Mixer → Crosspoint → Displays) and the more scalers you use, the further away from the original image quality and image clarity you get. A conversion like Figure 9 may be unavoidable and it is done every day with mixed format displays (i.e. 16:9 TV and a XGA Projector having to display the same signal). The trick, the secret sauce, of all scalers is knowing how to use them, knowing how the scalers in a chain may interact and knowing how not to use scalers in a radical way. And remember, HD video information can only be retained or lost in each successive conversion or scaling step, but it is not created.

- **In General:** For HD-SDI or YPbPr (16:9 HD formats) to RGBHV Scaling/Conversion, using the old 4:3 or 5:4 aspect ratios of the RGBHV just isn't a great idea (sound familiar yet). There are many WXGA formats to pick from and recommend that you do. The UXHD CrossPoint was really not intended to patch up an existing system using really old equipment. When used as intended, the UXHD CrossPoint is one of the most flexible digital to analog and back, format converters and scalers available today, and did we mention that it is 3Gb/s HD-SDI Single link capable?

- **Silver Lining:** With all that said, please look into the reference material provided by InfoComm and NAB regarding the future and direction of the A/V and Broadcast industries and the digital formats that will be prominent in the next few years (i.e. HD-SDI, HDMI, DVI, etc). There will be ample opportunity for refreshing the technology used in today's presentation environments and videoconferencing applications worldwide, which is an exciting proposition. The UXHD CrossPoint will be part of that excitement.

UXHD CrossPoint Menu Structure
The UXHD CrossPoint has a 2-line LCD that displays the system menu. To navigate through the menu, use the up/down arrows, select and cancel buttons. The menu structure is as follows:

1st Screen   UXHD Crosspoint
                 V01.00.00 (firmware version)

Input 1 Menu
>HD/HV/SD In
>No Input
>HD 1080p/60
>HD 1080p/50
>HD 1080i/59.94
>HD 1080i/50
>HD 720p/59.94
>HD 720p/50
>HV 1600 x 1200/60
>HV 1400 x 1050/60
>HV 1366 x 768/60
>HV 1360 x 768/60
>HV 1280 x 1024/60
>HV 1280 x 800/60
>HV 1280 x 768/60
>HV 1024 x 768/60
>HV 800 x 600/60
>HV 640 x 480/60Hz
>NTSC S-Video
>PAL S-Video
>NTSC Composite
>PAL Composite

>HD/HV/SD Out
>No Output
>HD 1080p/60
>HD 1080p/50
>HD 1080i/59.94
>HD 1080i/50
>HD 720p/59.94
>HD 720p/50
>HV 1920 x 1200/60 (with reduced blanking)
>HV 1600 x 1200/60
>HV 1400 x 1050/60
>HV 1366 x 768/60
>HV 1360 x 768/60
>HV 1280 x 1024/60
>HV 1280 x 800/60
>HV 1280 x 768/60
>HV 1024 x 768/60
>HV 800 x 600/60
>HV 640 x 480/60Hz
>NTSC Composite (Outputs both Y/C and CVBS with adapter cable*)
>PAL Composite (Outputs both Y/C and CVBS with adapter cable*)
        (*Adapter Cable 440-5600-000 Required for SD)

>HD-SDI/SDI Out
>No Output
>HD 1080p/60
>HD 1080p/50
>HD 1080p/30
>HD 1080p/25
>HD 1080i/59.94
>HD 1080i/50
>HD 720p/59.94
>HD 720p/50
>SD 480i/29.97
>SD 576i/25

Menu Section

Input 2 Menu

Menu Section

>HD-SDI/SDI In
>No Input
>HD 1080p/60
>HD 1080p/50
>HD 1080p/30
>HD 1080p/25
>HD 1080i/59.94
>HD 1080i/50
>HD 720p/59.94
>HD 720p/50
>SD 480i/29.97
>SD 576i/25

>HD/HV/SD Out
>No Output
>HD 1080p/60
>HD 1080p/50
>HD 1080i/59.94
>HD 1080i/50
>HD 720p/59.94
>HD 720p/50
>HV 1920 x 1200/60 (with reduced blanking)
>HV 1600 x 1200/60
>HV 1400 x 1050/60
>HV 1366 x 768/60
>HV 1360 x 768/60
>HV 1280 x 1024/60
>HV 1280 x 800/60
>HV 1280 x 768/60
>HV 1024 x 768/60
>HV 800 x 600/60
>HV 640 x 480/60Hz
>NTSC Composite (Outputs both Y/C and CVBS with adapter cable*)
>PAL Composite (Outputs both Y/C and CVBS with adapter cable*)
(*Adapter Cable 440-5600-000 Required for SD)

>HD-SDI/SDI Out
>No Output
>HD 1080p/60
>HD 1080p/50
>HD 1080p/30
>HD 1080p/25
>HD 1080i/59.94
>HD 1080i/50
>HD 720p/59.94
>HD 720p/50
>SD 480i/29.97
>SD 576i/25

>RGBHV Out Pos. (Position)
>Horizontal: ±255
>Vertical: ±255

>System Menu
>Serial Input
>Yes
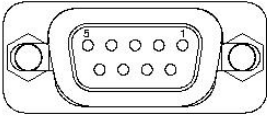>No

>Serial Echo
>Yes
>No

>Clear Memory
>Start or Cancel

>Genlock Mode
>On
>Off
(Genlock for output 2 Only)

Appendix 1: Communication Specification and Pin-outs for the UXHD CrossPoint
Vaddio uses simple control protocols to accomplish custom programming with the ProductionVIEW HD. The Communication Specification, API and Programming Language are listed below and definitions are listed on the next page. **Note: All commands must be followed by a carriage return.**

Communication Specification	Control Port - RS-232 on DB-9F Connector
Communication Speed: 9600 bps (default) Start bit: 1 Stop bit: 1 Data bits: 8 Parity: None No Flow control	**PIN# Signal** 2) TXD 3) RXD 5) GND All other pins - Unused

API and Programming Language

```
+-------------------------------------------------------------------+
|                     Vaddio UXHD CrossPoint                        |
+-------------------------------------------------------------------+
|?          - This menu                                             |
+--------------- System ---------------------------------------------+
|Power      x- Power(On/Off)          |ClearMem    - Clear Memory    |
|SerialEcho x- Echo Serial (Yes/No)   |Reset       - 'CPU'Reset      |
|Version     - Firmware Version       |Config      - List Config Settings|
|EEDump      - Display Config EEProm  | Input    x- Input (1/2)      |
|                                     | Output   x- Output (1/2)     |
+-------------------------------------------------------------------+
```

Command Structure Definitions

Command	Parameters	Description
ClearMem	ClearMem(cr)	Clear Memory
Config	Config(cr)	Display system configuration
EEDump	EEDump(cr)	Display Configuration EEProm
Input	Input 1/2(cr)	Select Input port
Output	Output 1/2(cr)	Select Output port
Power	Power On/Off(cr)	Power system On/Off
Reset	Reset(cr)	Soft System reset
SerialEcho	SerialEcho On/Off(cr)	Serial Echo On/Off
Version	Version(cr)	Display System Version information

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FCC, ICES-003 Compliance and CE Declaration of Conformity

FC

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.

Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

Industry Canada   Industrie Canada

ICES-003 Compliance

Issue 4: 2004, Class A

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

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

CE

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the standards for Emissions and Immunity and meets the requirements for E4 controlled EMC environment. This product complies with Class A (E4 environment). In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:

EMC Directive 2004/108/EC

EN 55103-1: 1996, Electromagnetic Compatibility - Emissions

EN 55103-2: 1996; E4-Controlled EMC Environment - Electromagnetic Compatibility - Immunity

EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001 - Electrostatic Discharge

EN 61000-4-3: 2002 - Radiated Immunity

EN 61000-4-4: 2004 - Electrical Fast Transients

EN 61000-4-5: 1995 + Amendment A1: 2001 - Surge Immunity

EN 61000-4-6: 1996 + Amendment A1: 2001 - Conducted Immunity

EN 61000-4-11 Second Edition: 2004 - Voltage Dips, Interrupts and Fluctuations

Annex A of EN 55103-2: 1996 - Magnetic Field Immunity

WARRANTY INFORMATION

Hardware* Warranty - One year limited warranty on all parts. Vaddio warrants this product against defects in materials and workmanship for a period of one year from the day of purchase from Vaddio. If Vaddio receives notice of such defects during the warranty period, they will, at their option, repair or replace products that prove to be defective.

Exclusions - The above warranty shall not apply to defects resulting from: improper or inadequate maintenance by the customer, customer applied software or interfacing, unauthorized modifications or misuse, operation outside the normal environmental specifications for the product, use of the incorrect power supply, improper extension of the power supply cable or improper site operation and maintenance.

Vaddio Customer Service – Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty and is found to be defective. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical Support - Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted through one of the following resources: e-mail support at support@vaddio.com or online at www.vaddio.com.

Return Material Authorization (RMA) Number - Before returning a product for repair or replacement, request an RMA from Vaddio's technical support. Provide a technician with a return phone number, e-mail address, shipping address, and product serial numbers and describe the reason for repairs or returns as well as the date of purchase and proof of purchase. Include your assigned RMA number in all correspondence with Vaddio. Write your assigned RMA number on the shipping label of the box when returning the product. Please see Vaddio's website for current RMA policies and procedures.

Voided Warranty – The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, or unauthorized repair. Cutting the power supply cable on the secondary side (low voltage side) to extend the power to the device (camera or controller) voids the warranty for that device.

Shipping and Handling - Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.

Products not under warranty - Payment arrangements are required before outbound shipment for all out of warranty products.

*Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

vaddio

9433 Science Center Drive, Minneapolis, MN 55428
Toll Free: 800-572-2011 ▪ Phone: 763-971-4400 ▪ FAX: 763-971-4464
www.vaddio.com