VADDIO™ PRODUCTIONVIEW™ HD-SDI

Camera Control Console with HD/SD-SDI Video Switching, Video Transitions, Up/Down Converting of Inputs and Outputs, Lower Screen Graphics and Automated Control Functionality

Model Number 999-5650-000 (NTSC)
Model Number 999-5650-001 (PAL)

ProductionVIEW HD-SDI-SDI Overview

The ProductionVIEW HD-SDI-SDI (Figure 1) incorporates seamless video switching, camera preset control and joystick camera control functionality into one of the most fully featured video consoles on the market today. In addition, ProductionVIEW HD-SDI delivers user selectable HD-SDI or SD-SDI inputs, and will up or down scale the output signal to a variety of resolutions in either HD-SDI or SD-SDI with only one frame of delay.

Figure 1: ProductionVIEW HD-SDI Camera Control Console

Video graphics insertion (i.e. "lower third") is available through our unique Lower Screen Graphics (LSG) feature. LSG allows users to insert graphics from a variety of graphics programs, including Microsoft® PowerPoint®, Apple® Keynote®, MediaShout® or virtually any presentation software application. LSG provides graphics insertion without the added latency or complexity of luminance or chroma keying.

The ProductionVIEW HD-SDI-SDI control surface is laid out to allow even a novice to operate the system with minimal training.

- <u>Video Switcher</u> -- The internal video switcher can be configured as a traditional video switcher, using the Take button, or Dual Bus mode.
- <u>Dual Bus Mode</u> – Dual Bus allows users to switch two separate programs (i.e. IMAG for live presentations on the Program output, and a secondary program for a recording of the live event on the Preview output). The Program output can be a discrete resolution setting from the Preview outputs. Either set of outputs can be configured for SD-SDI or HD-SDI.
- <u>Graphic Insertion</u> -- Graphics may be inserted as "lower-thirds" using the Lower Screen Graphics (LSG) feature. LSG can be set up to cover the bottom ¼,⅓, ½ or full screen, with 10 adjustable steps of transparency levels between the graphic and the video image behind it.
- <u>Anything In / Anything Out</u> – The inputs and outputs have discrete SDI video resolution settings. See the specifications on page 19 for additional information on all of the resolutions supported.
- <u>PTZ Camera Joystick</u> -- The ProductionVIEW HD-SDI includes a joystick controller to operate up to six (6) PTZ cameras directly (without daisy chaining) and the six discrete camera control ports auto-sense the PTZ camera attached. Vaddio, Panasonic®, Sony® and Canon® PTZ cameras are compatible with ProductionVIEW HD-SDI (see the list of specific models). Each input has a camera selector to allow 12 preset PTZ positions to be stored.
- <u>Transitions</u> -- On the control surface, buttons for the type of effect (dissolve, wipe or cut) as well as wipe patterns are selectable. The transition time is adjustable through a knob on the console, from zero (0) to four (4) seconds.
- <u>Automatic Mode</u> -- The console is equipped with an Automatic Camera Switching Mode (for compatible PTZ cameras on inputs 1 & 2), and when combined with Vaddio's StepVIEW Mats, MicVIEW or other trigger devices, allows ProductionVIEW HD-SDI to be set up for use without an operator present. Preset triggers or Tally Outputs can be used, but not simultaneously.
- <u>Tally Outputs</u> -- The ProductionVIEW HD-SDI also has six Tally outputs for controlling tally lights on external sources, such as Vaddio's WallVIEW CCUs and PreVIEW HD monitors.
- <u>Graphic Templates</u> -- A variety of graphic templates are included on a DVD supplied with ProductionVIEW HD-SDI in both Keynote and PowerPoint, to help guide users to create professional graphics quickly and easily.
- <u>Additional Features</u> – Other features include auto/manual focus, auto/manual iris, backlight compensation and automatic white balance for compatible PTZ cameras.

- **Camera Auto-Sensing** - The ProductionVIEW HD-SDI is capable of auto-sensing each PTZ camera attached. Control codes for the following cameras are built-in:
    - Vaddio WallVIEW CCU and PRO Series Cameras *
    - Sony EVI-HD1, & Sony BRC-300, BRC-Z700 & BRC-H700 *
    - Panasonic AW-HE100 *
    - Canon BU-45H & BU-50H

    * Most cameras require an optional SDI card

- **Video Transitions**
    Video transitions are seamless with exceptional video quality. Transition time is adjustable from zero (0) to four (4) seconds and include:
    - Cross Fades (one image fades into another)
    - Wipes (9 different patterns)
    - Straight Cuts
    - Fade To Black (by pressing, and holding the MIX/FTB button)

Intended Use:
Before operating the Vaddio ProductionVIEW HD-SDI, please read the entire manual thoroughly. The system was designed, built and tested for use indoors, and with the provided power supply and cabling. The use of a power supply other than the one provided or outdoor operation has not been tested and could damage the camera and/or create a potentially unsafe operating condition.

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

> **Use only the power supply provided with the ProductionVIEW HD-SDI system. Use of any unauthorized power supply will void any and all**

> **Do not use "pass-thru" RJ-45 connectors.   Use standard RJ-45 connectors for best results.**

UNPACKING:
Carefully remove the device and all of the parts from the packaging.
Unpack and identify the following parts:
- One (1) ProductionVIEW HD-SDI Camera Control Console
- One (1) Vaddio PowerRite 18 VDC, 2.78A Power Supply
- One (1) Vaddio AC Cord Set (US or Euro/UK)
- DVD ROM with templates and sample graphics for Lower Screen Graphics*
- Documentation and Manuals

    * User must supply their own compatible version of Keynote or PowerPoint to display and modify templates on the DVD ROM.

**ProductionVIEW HD-SDI
Figure 2):**
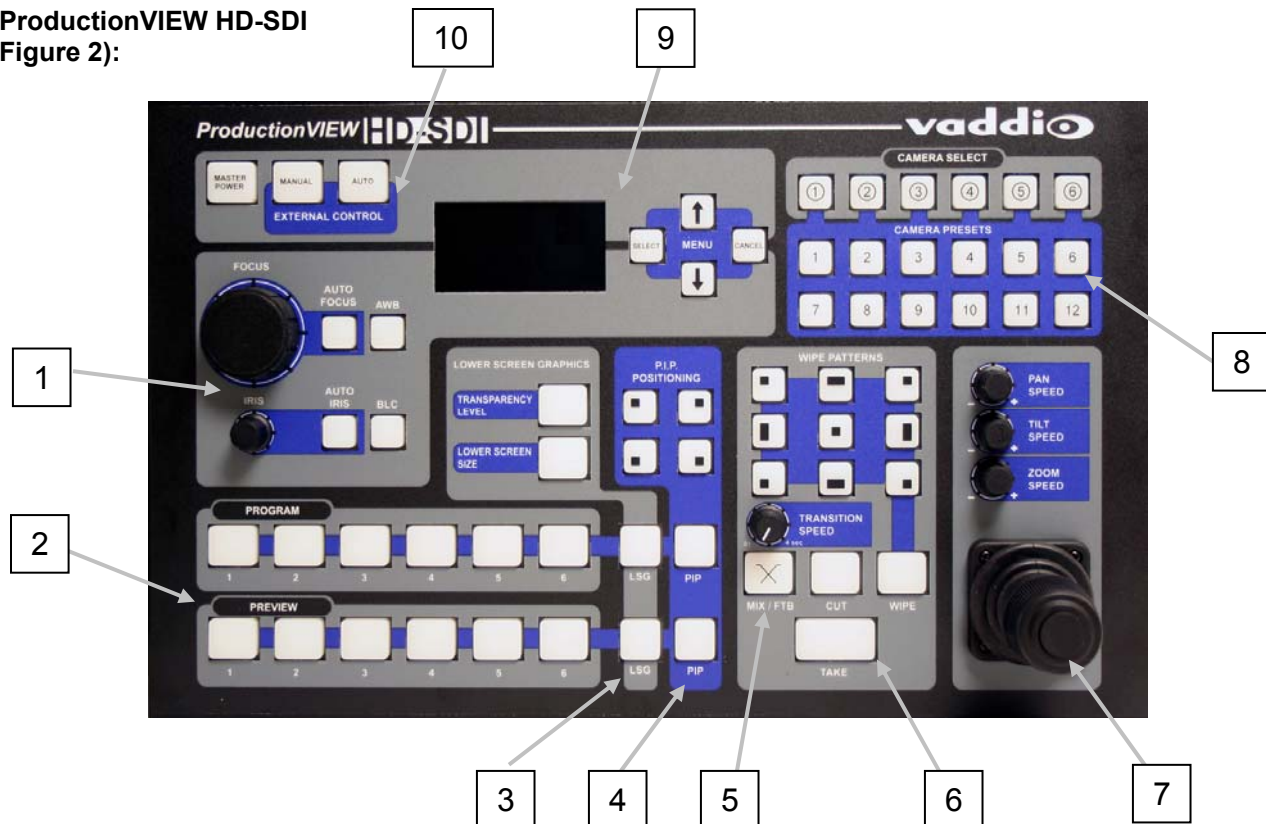
1. **Focus and Iris Controls**: Focus and Iris can be adjusted from knobs on the console for real-time control of these critical functions, when their respective Auto buttons are turned off. Auto White Balance (AWB) and Backlight Compensation (BLC) functions are also available for compatible PTZ cameras.
2. **Single Bus or Dual Bus Switching:** ProductionVIEW HD-SDI can be configured as Program and Preview buses or as discrete video outputs (i.e. one for high resolution IMAG and the other for delivery to a recording or streaming device).
3. **Lower Screen Graphics:** Insert "lower third" and other graphics, through our unique LSG function. A variety of sizes and transparency levels are available through buttons on the console. Note: An analog RGBHV to SDI converter box is required if using a computer for graphics.
4. **Picture -In-Picture:** Insert video in any quadrant of the program video output to add impact to your live production. The PIP can be adjusted to three different sizes.
5. **Wipe, Fade, Cut, Transition Speed and Fade to Black:** Select a variety of wipe patterns, mix or cut from buttons on the control console. The Fade to Black (FTB) feature allows the Program output to fade to black. Transition Speed allows a wipe or fade transition to be adjusted up to 4 seconds.
6. **Take Button:** Pressing the Take button switches the input selected from Preview to Program in Single Bus mode. In Dual Bus mode, it switches the input to the input that is flashing.
7. **Joystick PTZ Camera and Speed Controls:** Sony, Canon and Vaddio PTZ cameras can be controlled via the 3-axis Hall-Effect joystick built into ProductionVIEW HD-SDI. Adjustable knobs for Pan, Tilt and Zoom speeds. When the button on top of the joystick is pressed, it will reposition the selected camera to its home position.
8. **Camera Selector and Presets:** Select a camera from the top row of buttons, and program (or recall) up to 12 preset shots per camera, using the camera preset control buttons.
9. **Menu and LCD Screen:** The internal menu allows the user to configure the resolution on the outputs, as well as other parameters built into the console. See pages 13 to 16 for the menu structures and programmable functions.
10. **Manual and Automatic Modes:** In addition to a manual or "operator" mode there is an Automatic Camera Switching mode for PTZ camera presets assigned to Vaddio input triggers like the StepVIEW™ mats, AutoVIEW™ IR or TouchVIEW™ buttons.

ProductionVIEW HD-SDI Back Panel I/O and Controls (Figure 3):

11. **Power Input -** Note: Use only the 18 VDC, 2.75A power supply provided with the ProductionVIEW HD-SDI.
12. **Camera Control Ports on RJ-45 connectors:** One camera control port per camera (no daisy-chaining required). Compatible with Sony, Canon and Vaddio PTZ cameras. See page 3 for details on cameras and camera systems compatible with ProductionVIEW HD-SDI.
13. **HD/SD-SDI Inputs:** Each input will accept either an SD-SDI or HD-SDI video signals (selectable via internal menu) on the BNC connectors. See the Video Resolutions table on page 20 for all signals and resolutions supported.
14. **Preview HD/SD-SDI Outputs –** Delivers the same SD-SDI or HD-SDI signals (selectable via internal menu) on both BNC connectors. See the Video Resolutions table on page 20 for all signals and resolutions supported.
15. **Program HD/SD-SDI Outputs –** Delivers the same SD-SDI or HD-SDI signals (selectable via internal menu) on both VGA connectors. See the Video Resolutions table on page 20 for all signals and resolutions supported.
16. **External Reference –** For connecting "house sync" to Preview and Program outputs when connecting ProductionVIEW HD-SDI to another switcher/mixer. Because ProductionVIEW HD-SDI is a seamless switcher, none of the inputs have to be sync'd, only the outputs. Note: If the External Sync option is used, the Preview and Program outputs must be configured for the same resolution (i.e. 1080i/59.94, 720p/59.94, etc.).
17. **Tally Outputs/Trigger Inputs** – Select either to use the connectors as Tally Outputs to external tally-enabled products, such as Vaddio's Quick-Connect CCUs. Input Triggers allow Vaddio's trigger devices to be used in automating camera presets for inputs 1 and 2. Configurable in two modes (6 triggers for Input 1 and 6 triggers for Input 2, or 12 triggers for input 1 only). Supports Vaddio AutoVIEW IR, StepVIEW, TouchVIEW and MicVIEW trigger devices, which are sold separately.
18. **Control Port Input -** DB-9 for RS-232 control of internal functions (Pin 2 = TX, Pin 3 = RX, Pin 5 = GND).

First Time Set-up with the ProductionVIEW HD-SDI:
ProductionVIEW HD-SDI was designed to be exceptionally easy to use and operate right out of the box. All of the Vaddio standards for using video (analog), power and control over Cat. 5 cabling are well documented and are in the manual and available free of charge from the Vaddio website. HD-SDI and SD-SDI video signals need to be transmitted over coax cabling that is capable of handling SDI signals.

Getting Started:
Connect all of the cameras, monitors and peripheral devices to ProductionVIEW HD-SDI. The back panel has BNC connectors. On the next page is a diagram showing how to connect a Vaddio WallVIEW H700 CCU to ProductionVIEW HD-SDI. See Figures 4 & 5 for additional information.

NOTE: When connecting Panasonic HE100 PTZ cameras to the system, you must select Panasonic in the Cam Search Menu (see page 15 for additional detail on this menu).

Once you have connected all of your inputs, outputs and the PowerRite power supply, plug the AC cord into an outlet. ProductionVIEW HD-SDI will boot up and scan for cameras. As ProductionVIEW HD-SDI boots up, it will automatically scan each input to confirm which ports have compatible PTZ cameras or Add-A-Cam systems connected. After boot up, a menu will appear on the blue LCD screen. At this point, some cameras may not be detected by ProductionVIEW HD. This situation will be resolved by following the instructions below for configuring the system for the appropriate input/output resolutions, cameras that are connected to the system, etc.

Configuring Output Resolutions
On the LCD screen, a chevron (>) will be displayed next to the menu item that is currently selected. Press the Arrow Down Button (↓) adjacent to the LCD screen, until the chevron is next to "VIDEO OUTPUT MENU" and then press the SELECT button. Select PROGRAM OUTPUT, which will display your options for video output resolution for the PROGRAM OUTPUT. Arrow down to the appropriate resolution that is compatible with your video monitor, then press the SELECT button. Then, press the CANCEL button to exit out to the previous menu.
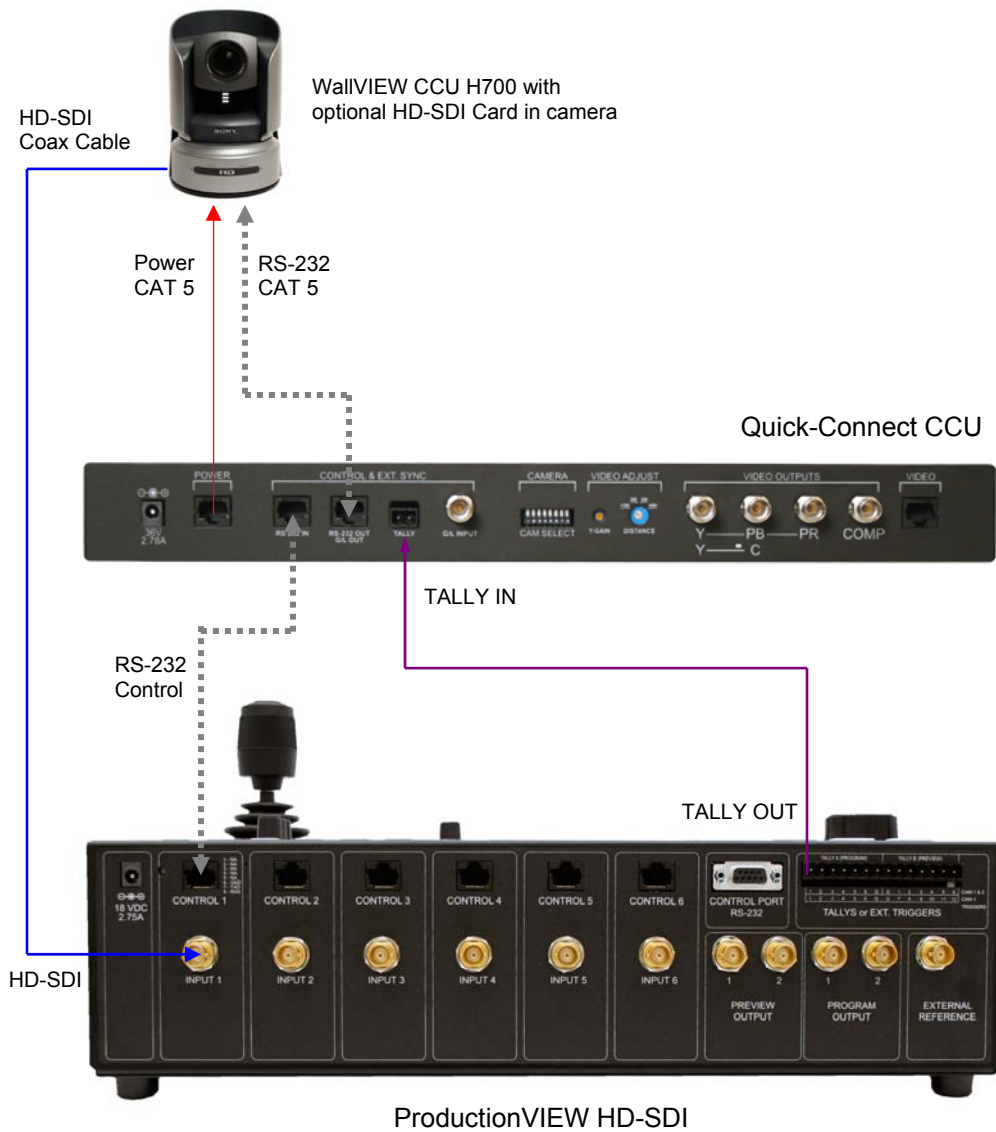

Repeat the process for your Preview Output. Once you have selected the Program and Preview output resolutions, press the CANCEL button to get back to the Main Menu. For additional information on the menu tree structure, see pages 13 to 16 for additional information.

Configuring Input Resolutions
From the Main Menu, press the down arrow button, to move the chevron to VIDEO INPUT MENU, and then press the SELECT button. If all input devices have the same resolution (i.e. 1080i / 59.94), then select ALL PORTS. If not all inputs have the same resolution, then press the down arrow button to the first input with a video device attached, and press SELECT. Choose the appropriate video resolution for the video device connected to the input, and then press SELECT. Press the CANCEL button to exit the resolution setting for the input. Repeat the process for all video inputs.

NOTE: Whether an input is a PTZ camera, or another video source, the input signal will need to be configured to the proper video resolution of the device connected.

Figure 4:
Sample configuration of a WallVIEW CCU connected to ProductionVIEW HD-SDI, with video, control and tally cabling.


WallVIEW CCU H700 with
optional HD-SDI Card in camera

HD-SDI
Coax Cable

Power
CAT 5

RS-232
CAT 5

Quick-Connect CCU

TALLY IN

RS-232
Control

TALLY OUT

HD-SDI

ProductionVIEW HD-SDI

Optional Accessory – UXHD CrossPoint (999-5690-000)

UXHD CrossPoint is a dual input (SD/HD-SDI & analog video), dual output (analog video & SD/HD-SDI) converter. The CrossPoint allows signal conversion for delivering video into and out of ProductionVIEW HD-SDI. See the next page for a line drawing with UXHD CrossPoint.

Figure 5:
Multiple WallVIEW CCU camera systems and laptop connected to ProductionVIEW HD-SDI, with SDI monitors. A laptop and the program output of ProductionVIEW HD-SDI are connected to the optional UXHD CrossPoint converter for conversion to and from SDI. NOTE: PTZ Cameras below either have SDI accessory cards, or native SDI outputs.
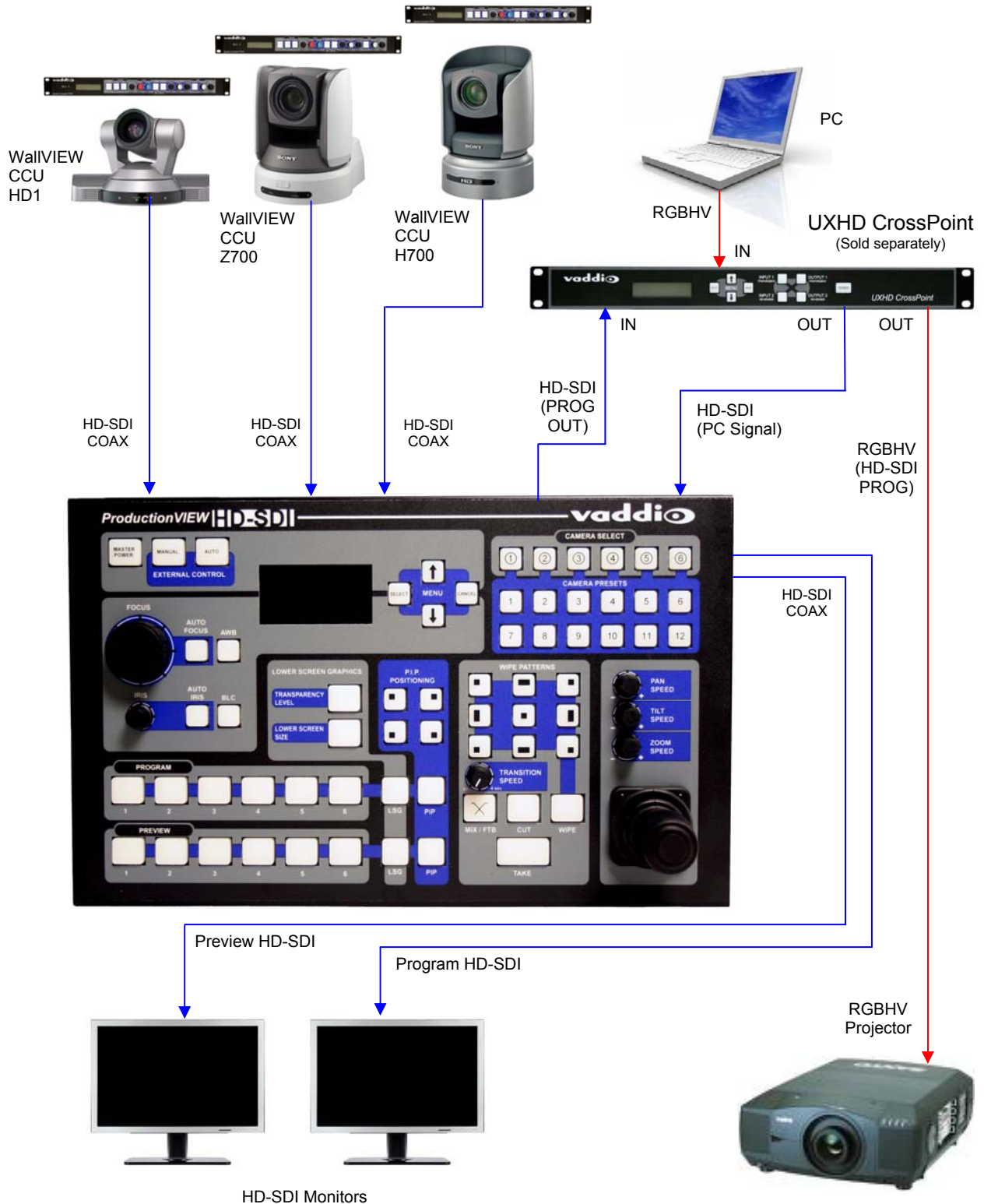
Operating the ProductionVIEW HD-SDI:
Most of the console functions and controls are easy and intuitive. Over the next few pages there are details on how the different functions operate.

Camera Controls

The controls that can be used to adjust a PTZ camera are highlighted in the diagram to the right (mechanical functions are in gray, and electronic in blue).

ProductionVIEW HD-SDI is shipped with "Select Follow Preview" as the default setting. In this configuration, the camera that is selected on the Preview bus will automatically choose the appropriate Camera Select button in the upper right corner. In this example, Input 1 is a PTZ camera on the Preview bus and the Camera Select is illuminated on Input 1 ("1" with a circle around the number). The Camera Presets below, are available for storing camera preset positions and recalling the stored presets.
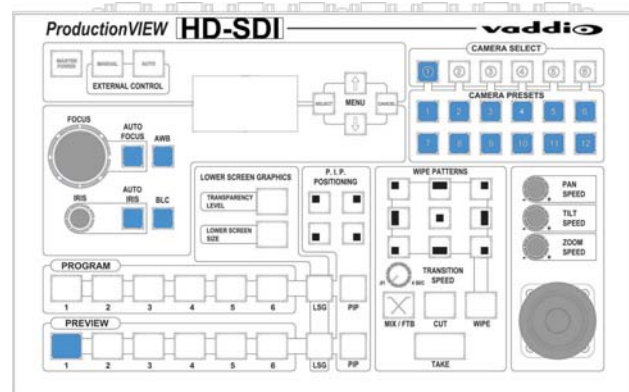
3-Axis Joystick: Within the menus, the 3-axis joystick is programmable for pan, tilt and zoom direction control. The zoom-in/zoom-out, tilt-up/tilt-down and pan-left/pan-right commands can be inverted on all 3-axis to customize control of the PTZ cameras attached to ProductionVIEW HD-SDI. Pan, Tilt and Zoom speed can be adjusted on controls above the joystick. NOTE: The speed settings are discrete on a per-camera basis.

Preset Location Storage Options: This feature allows the user to store 12 camera presets in the ProductionVIEW HD-SDI or have the option of storing 6 camera presets (1 through 6) in the camera and 6 presets (7 through 12) in the ProductionVIEW HD-SDI. When storing the presets in the camera, the user is allowed to speed switch camera presets. Please see the ProductionVIEW HD-SDI Menu Structure, System Menu for access to the Preset location parameter.

Setting Camera Presets: To program PTZ camera presets, press and hold the Camera Select button for five seconds. The Camera Presets buttons (1 thru 12) will begin to flash. Move the camera to the desired PTZ position, and select one of the Camera Presets buttons to store the position. Repeat the process for each preset position that is required to be stored, up to 12 total positions per PTZ camera. A non-flashing preset button has a location stored, but can be overwritten.

Select Follows Preview: When "Select Follows Preview" is activated, the camera selected for control is the camera selected by the Preview bus selection. The operator selects the camera to be previewed, and control (joystick and camera control) is transferred to that camera. NOTE: The default position for this feature from the factory is 'on'.

Focus, Iris, Auto White Balance and Backlight Compensation: When the Auto Focus or Auto Iris buttons are turned off, the manual focus and iris knobs can be used to adjust these functions on compatible PTZ cameras that are connected to the system. Auto White Balance (AWB) automatically adjusts the camera's color settings based on lighting and other factors. Backlight Compensation (BLC) opens the iris to allow objects in front of windows and other bright backgrounds to be more visible.

NOTE: Backlight Compensation can only be used when the Auto White Balance is turned on.

Dual Bus Mode: Select Follow Preview is disabled when the system is set for Dual Bus mode.

Note: Camera presets contain all the camera information besides the Pan/Tilt/Zoom position including brightness, focus, backlight, zoom-speed and others as well. The particular control saved under each camera preset is a function of the parameters available on a per camera basis. Note: camera presets will not save specific settings of a Quick-Connect CCU, if it is connected to ProductionVIEW HD-SDI.

Wipe, Dissolve or Cut

To set up the switcher to transition from the current input selected as the Program output to another input, select a different video signal on the Preview bus. In the example to the right, Program is on Input 1 and Preview is on Input 3.

Select the type of effect (wipe, cut or mix) that the switcher will use to transition from one input to the other. Pressing the Take button will execute the transition from one input to the other, using the selected transition (mix, cut or wipe).
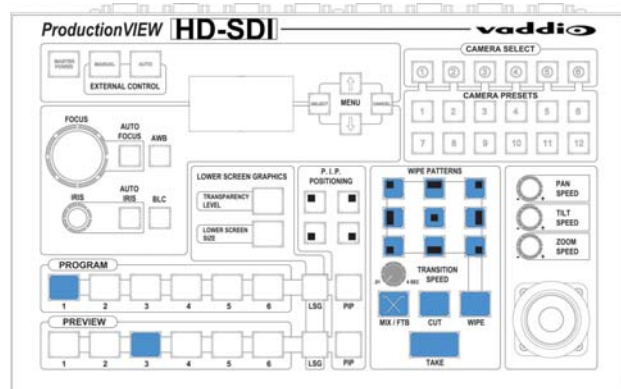
Changing Effect: To change the type of transition -- Wipe, Cut or Mix -- select that effect above the Take button.

Changing Transition Speed: Both the Mix and Wipe effects can be adjusted from .01 to 4 seconds, by adjusting the Transition Speed knob, which is located above the Mix button.

Transitions in Dual Bus Mode: Both Program and Preview will allow for transitions (the same type of transition will occur on both outputs). To select the input that will replace the current output on each bus, press the input that will become the next signal sent to the output for either both buses, or one bus. The input signal that each bus will switch to will flash. Press the Take button, and the transition will occur from the current output to the next one on each bus, one after the other. The other option for making a transition is to press the flashing button a second time, which will execute the switch from the current (solid lit button) video signal, to the next video signal (flashing button).

Fade To Black

The Fade To Black feature allows a user to fade the Program outputs to black, and then fade the outputs up from black. To have the outputs fade to black, press and hold the MIX/FTB button for more than one second. The outputs will start fading to black.

At the point where it is appropriate to fade up from black, press and hold the MIX/FTB button again, and the Preview and Program outputs will return to their selected video inputs that were selected prior to pressing FTB.
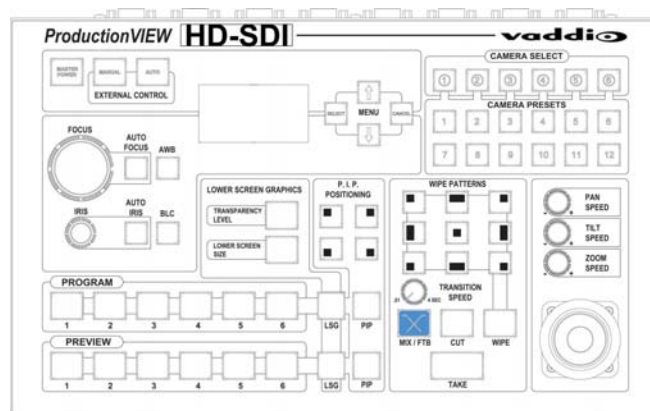
FTB Speed: The speed at which the signal fades in and out can be adjusted through the internal menu of ProductionVIEW HD-SDI. Speed ranges from 01 to 40 (.01 to 4.0 seconds). See the ProductionVIEW HD-SDI Menu Structure section of this manual for the location of the internal menu that adjusts FTB timing.

Dual Mode FTB: Pressing and holding FTB in Dual Mode allows both the Preview and Program outputs to fade to black.

Note: FTB transition time is adjusted via the internal menu of ProductionVIEW HD-SDI, not from the Transition Speed knob.

Lower Screen Graphics

Preparing to display Lower Screen Graphics on ProductionVIEW HD-SDI, first select your "background" video input (typically a live camera) on the Program bus, and then select the input that has the computer graphics that are to be displayed, on the Preview bus. In the example to the right, the background is Input 1 on Program, and the computer is on Input 6. To initiate the Lower Screen Graphic, press one of the LSG buttons on either bus, and the graphic will appear.
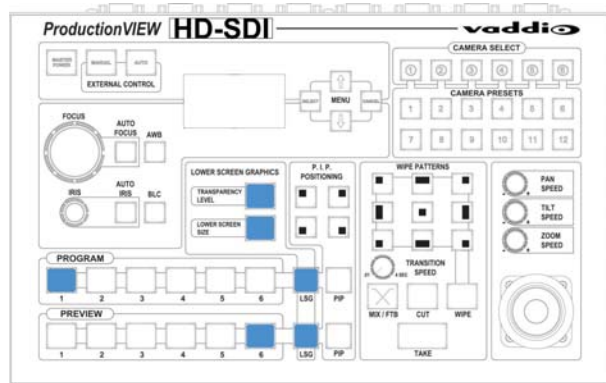
Transparency Level: To increase or decrease the transparency of the graphic overlay, press and hold the Transparency Level button down. The system will toggle through the levels to allow the user to select the level that is appropriate for the graphics.

Lower Screen Size: To increase or decrease the size of the graphic overlay, press and hold the Lower Screen Size button. The system will toggle through the sizes (bottom ¼, ⅓, ½ or full screen), to allow the user to select the level that is appropriate for the graphics that have been created.

Increasing/Decreasing Transparency Level and Lower Screen Size: When LSG is activated, pressing the PIP Upper Left Button will allow both Transparency Level and Lower Screen Size to increase when either button is pressed. Pressing the Lower Left PIP button will allow the LSG controls to decrease to decrease when either button is pressed. Note: This feature does not work in Dual Bus mode.

LSG In Dual Bus Mode: In Dual Bus Mode, where seamless switched outputs with effects and transitions can be delivered out of both the Preview and Program outputs, select the Input on each bus that will be the "background" image. Next, select the input that has the computer graphics that will be displayed (the second button that is pressed on each bus will flash). Press the LSG buttons on the Program and Preview buses. The graphics will placed on each output seamlessly.

LSG Presets: Preset configurations for LSG can be set up utilizing the Camera Preset buttons in the upper right of the console. Up to 12 preset configurations of lower screen size and transparency level can be programmed. To do this, with LSG mode turned on, simply set a Lower Screen Size and Transparency Level. Next, press and hold one of the 12 Camera Preset buttons for approximately 4 seconds. The Lower Screen Size and Transparency Level will be stored in that preset position, much like a camera preset can be stored in the system. Change the Transparency Level and/or Size and store the new preset in one of the other 12 Camera Preset selector buttons. A total of 12 LSG presets can be stored in the system. The last LSG preset position displayed will be the one recalled when LSG is turned back on. Currently, the preset positions for the LSG can only be changed when LSG is turned on.

Note: A DVD containing sample graphics in both Keynote and PowerPoint is supplied with ProductionVIEW HD. The sample graphics provide users with an easy way of getting started creating graphics for their own live productions.

PIP Display

To set up and display a Picture-In-Picture on the Program output, select the input that will be the "background" on the Program bus. Select the video input that will be the picture-in-picture, or in the "window" on the screen. In the example to the right, the background is Input 1 on the Program bus and Input 3 is the window on the Preview bus.

Next, select the corner that the PIP window will show up in, using the P.I.P. Positioning buttons (upper left, upper right, lower left and lower right). In the illustration to the right, the lower left is selected.

PIP Display (continued)

To display the PIP, press either of the PIP buttons, and the PIP will appear on the screen. Input 3 will now be displayed in a window in the lower left corner of the screen.

Changing PIP Size: To change the size of the PIP (small, medium or large), press and hold the PIP Positioning button and ProductionVIEW HD-SDI will toggle through the sizes.

PIP In Dual Mode: If ProductionVIEW HD-SDI is set up for Dual Mode (independently switched live feeds on Preview and Program buses), select the background source. Next, select the PIP source, which will flash. Press the PIP button for that specific bus, and the window will be displayed. Press the PIP button to remove the window from the screen. PIP is discrete for the Program and Preview buses when the system is in Dual Mode.
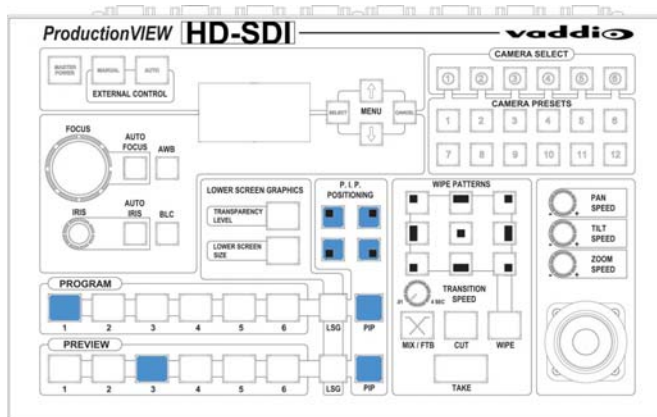
Master Power, Manual and Auto Modes

If ProductionVIEW HD-SDI is to be used with an operator at the console, the Manual mode button will need to be illuminated.

Pressing the Auto button will activate the Auto mode, which is a configuration when ProductionVIEW HD-SDI is used in conjunction with Vaddio's StepVIEW mats, MicVIEW system and AutoVIEW IR sensors or other trigger devices. These triggers allow ProductionVIEW HD-SDI to automatically switch between camera inputs and preset camera positions. In this mode, no operator is required.
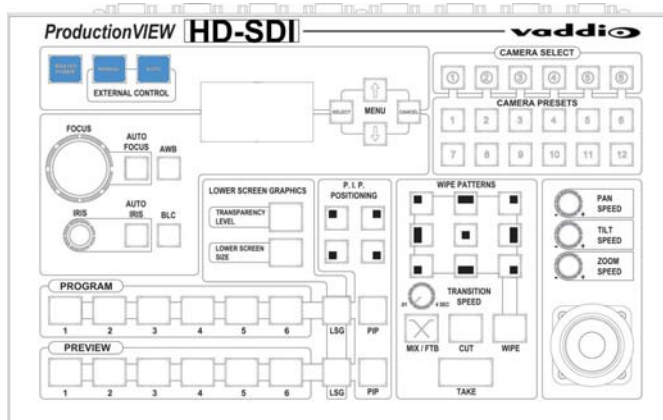
The mats and sensors can be placed in locations, such as podiums, white boards, etc. to allow the system to be run in "Presenter" or Auto mode. No operator needs to be present when the system is set up in Auto mode. Camera switching and PTZ movements are handled by ProductionVIEW automatically.

> Master Power Switch
> - When the Master Power Switch is powered down, all of the attached cameras will be placed in standby. Press and hold the power switch for 3 seconds to initiate power down sequence. This is a safeguard to prevent accidental shutdown.
> - When the Master Power Switch is powered up, all attached cameras will activate and select default camera and preset information as defined in the menu. The ProductionVIEW HD-SDI will scan the inputs for camera type and video signal type and auto-configure accordingly. This can take up to one minute and is normal operation.
> - *Note: When the camera control ports are changed or reconfigured, the "Rescan Cameras" option in the menu must be selected and started to rescan the cameras and reload the proper control codes. If only the video inputs are changed, then activate the Rescan Video function in the Main Menu to reset the video input priorities.*

ProductionVIEW HD-SDI Menu Structure

The ProductionVIEW HD-SDI has an 8-line LCD that displays the system menus. The menus are traversed with the up/down arrows, select and cancel buttons. The menu structure is as follows:

1st Screen   ProductionVIEW HD-SDI
                              V01.00.00 (software version)

Menu Section

                              Rescan Cameras
Video   **Output**
Video   **Input**

Rescan Cameras
        >Select   (Note: Rescans all RS-232 ports for camera inputs)
        >Start

Rescan Video
        >Select   (Note: Resets all inputs, outputs and video processor)
        >Start
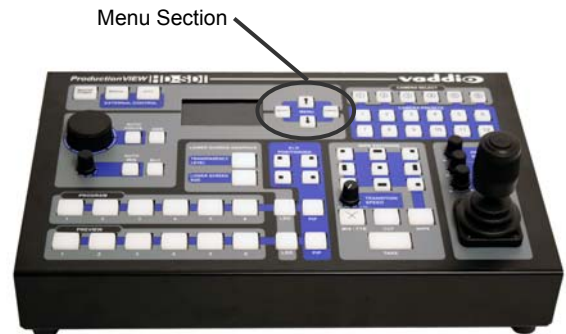
Video Output Menu
        >Select
                >Video Output
                      >Program Output
                                HD 1080p 30 Hz
                                HD 1080p 25 Hz
                                HD 1080i 59.94 Hz
                                HD 1080i 50 Hz
                                HD 720p 60 Hz
                                HD 720p 59.94 Hz
                                HD 720p 50 Hz
                                SD 480i 29.97 Hz
                                SD 576i 25 Hz

                    >Preview Output (NOTE: Same resolution options as Program Output menu)

Video Input Menu
        >Select
                >All Ports   (NOTE: Selecting ALL PORTS will configure all inputs to the same resolution)
                 Port 1   (NOTE: Same resolution options as Program Output menu)
                 Port 2
                 Port 3
                 Port 4
                 Port 5
                 Port 6

Default Camera (Automatic and Start-up Modes – the default input selected on the Program bus when the system is turned on)
        >Select
                > 01 – 06
                Selects inputs 1 through 6 as the default camera (default is 01)

Default Preset (Automatic Mode – the default preset that the camera is sent to when the system is in Auto Mode. Only reverts to the configured default position after a trigger has been activated in Auto Mode)
        >Select
                > 01 – 12
                Assigns camera preset 1 through 12 as Default Preset on the default camera (default is 01)

Default Idle Rtn (Automatic Mode only using an external trigger such as a StepVIEW Mat)
        >Select
                >00 – 60
                Default Camera Idle Return Timer - with no other trigger input, the system returns to the Default Camera and Default Preset after this time elapses (default is 10, 00 disables function)

Pan Dir Menu (Pan Direction Menu)
>Select
>All Ports: Normal or Invert (default is Normal) Inverts the Joystick Pan Direction (Inverted - left = right)
>Port 01: Normal or Invert
>Port 02: Normal or Invert
>Port 03: Normal or Invert
>Port 04: Normal or Invert
>Port 05: Normal or Invert
>Port 06: Normal or Invert
>Return to Main
>Select   Returns to Main Menu

Tilt Dir Menu (Tilt Direction Menu)
>Select
>All Ports: Normal or Invert (default is Normal) Inverts the Joystick Tilt Direction (Inverted - up = down)
>Port 01: Normal or Invert
>Port 02: Normal or Invert
>Port 03: Normal or Invert
>Port 04: Normal or Invert
>Port 05: Normal or Invert
>Port 06: Normal or Invert
>Return to Main
>Select   Returns to Main Menu

Zoom Direction
>Select
>Normal or Invert (default is Normal)
Inverts the Joystick Zoom Direction (Inverted - Clockwise twist = zoom out)

Preset Pan Speed
>Select
>01 – 24 (default is 18)
Sets the Pan Speed on all cameras between camera presets (24 is fastest)
(This parameter does not affect the Pan Speed or sensitivity of the Joystick)

Preset Tilt Speed
>Select
>01 – 20 (default is 15)
Sets Tilt Speed on all cameras between camera presets (20 is fastest)
(This parameter does not affect the Tilt Speed on the Joystick)

Preset Zoom Speed
>Select
>00 – 07 (default is 04)
Sets Zoom Speed on all cameras between camera presets (06 is fastest

Triggers/Tally
>Select
>Trigs 6 Cam/Cam 2
>Trigs All 12 Cam 1
(External Trigger Assignment - 6 triggers each for cameras 1 and 2, or all 12 triggers for camera 1 presets
Triggers work in Automatic Mode Only)
>Tally A=PGM B=PRE
>Tally A+B=PGM

Select Follow Preview
>Select
>On or Off

When activated, camera selection switching follows the Preview bus selection, immediately transferring joystick
and camera control directly to the camera selected on the Preview bus (On is default). NOTE: This function
only works in Single Bus Mode – and not in Dual Bus Mode.

Cam Search Menu
>Select
>All Ports: (select search method – Auto, Sony, Canon, Panasonic*, No Camera**)
>Port 01: (select search method – Auto, Sony, Canon, Panasonic, No Camera)
>Port 02: (select search method – Auto, Sony, Canon, Panasonic, No Camera)
>Port 03: (select search method – Auto, Sony, Canon, Panasonic, No Camera)
>Port 04: (select search method – Auto, Sony, Canon, Panasonic, No Camera)
>Port 05: (select search method – Auto, Sony, Canon, Panasonic, No Camera)
>Port 06: (select search method – Auto, Sony, Canon, Panasonic, No Camera)

***NOTE 1**: It is highly recommended that when using Panasonic cameras, to select Panasonic to speed up the recognition of the cameras when ProductionVIEW HD-SDI is turned on.

**NOTE 2: By setting a port to "No Camera", the ProductionVIEW will not scan that port for a camera type. This allows for a faster boot up when a 3 or 4 camera system is used.

CCU Mode
>Select
>All Ports: (Select method – Direct Cam Ctrl or CCU)
>Port 01: (Select method – Direct Cam Ctrl or CCU)
>Port 02: (Select method – Direct Cam Ctrl or CCU)
>Port 03: (Select method – Direct Cam Ctrl or CCU)
>Port 04: (Select method – Direct Cam Ctrl or CCU)
>Port 05: (Select method – Direct Cam Ctrl or CCU)
>Port 06: (Select method – Direct Cam Ctrl or CCU)

NOTE: When Vaddio Quick-Connect CCUs are used with ProductionVIEW HD-SDI, CCU mode disables Iris functions, AWB and BLC on the ProductionVIEW HD-SDI console, allowing the user to control these functions from the Quick-Connect CCU)

System Menu
>Select
>Serial Input
>Select
>Yes or No
Turns on or off serial input (default is Yes)

>Serial Echo
>Select
>Yes or No
Turns Serial Echo on or off (default is Yes)

>Serial Info
>Select
>On or Off
Reports button pushes on front panel out the serial port (default is Off)
(Does not report joy stick position)

>Panel Lights
>Select
>00 through 50
Panel Light Brightness (all lights - 50 is the brightest) (default is 25, off is 00)

>Clear Memory
>Select
>Start
Clears the camera preset memories and sets all parameters to default settings

>Clear Presets
>Select
>Start
Clears the camera preset memory only

>Power Up Preset
>Select
>Home Camera
>Select - Upon power up, all cameras will go to their home position
>Preset 12
> Select - Upon power up, all cameras will go to Preset 12

>Preset Location
>Local
>6 InCam 6 Local
In "Local" mode, the ProductionVIEW stores all 12 presets internally
In "6 InCam 6 Local" mode, the presets 1 through 6 will be stored in the cameras.
Presets 7 through 12 will be stored in the ProductionVIEW.

Note: The "6 InCam 6 Local" mode allows for switching video sources when cameras are moving to preset locations. Since Presets are stored in Camera, the system does not have to wait for position feedback before allowing another command to be entered.

>Switching Mode
>Select
>Single Mode (Default)   NOTE: See page 2 for additional information on Dual Bus mode, as well as descriptions on pages 9 – 12.
>Dual Mode

>Transition Swap   (Default is On)
>On
>Off

>Settle Time (Default is 20)
>Select
>01 to 90
Note: Settle time allows the user to set up the time delay between pressing the Take button and when the next button can be selected on the console. With a lower settle time, there is a greater chance that a blue screen will appear on the Program output, when the video is switched quickly, and repeatedly. In most applications this will not be an issue. In Single Bus Mode, a faster Settle Time will also create a video roll on the Preview output, which again in most situations will not be an issue.

>FTB Time (Default is 10)
>Select
>10 to 40
Note: FTB Time allows the user to set up a length of time that a fade to black on the Program Output will occur. 10 is equal to 1.0 seconds, 11 is equal to 1.1 seconds, etc. FTB is executed on ProductionVIEW HD by pressing and holding the Mix/FTB button for more than 2 seconds.

>Program Lockout (Default is On)
>Select
>On
>Off
Note: Program Lockout prevents a user from selecting a different source on the Program bus of the switcher. All switching of inputs must be accomplished by selecting an input on the Preview bus, and then pressing the Take button.

>Gen Lock (Default is Off)
>Off
>HD 1080i 59.94 Hz
>HD 1080i 50 Hz
>HD 720p 59.94 Hz
>HD 720p 50 Hz
>SD 480i NTSC
>SD 576i PAL
Note: Gen Lock allows the user to send the preview and program outputs to a master control switcher or routing matrix that requires a synchronized signal. NOTE: The Gen Lock input, preview and program outputs must all be at the same resolutions.

>Home (Default is On)
>Off
>On
Note: Turning off the Home feature prevents the camera from going to the home position when the button on top of the joystick is pressed.

>Init Triggers
>Start
Note: When any trigger devices (i.e. StepVIEW Mats, etc.) are added or removed, the user must initiate the Start command to recognize what input triggers are currently connected to the system.

Compliance and CE Declaration of Conformity

FCC Part 15 Compliance
This equipment has been tested and found to comply with the limits for a Class B 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.

ICES-003 Compliance
ICES-003, Issue 4: 2004
This digital apparatus does not exceed the Class B 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.

European Compliance
This product has been evaluated for Electromagnetic Compatibility under the standards for Emissions and Immunity and meets the requirements set forth by EMC Directive 2004/108/EC for an 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

EN 55103-2: 1996 - Immunity Requirements, Electromagnetic Environments

EN 61000-3-2:2006 - Limits for Harmonic Current Emmissions

EN 6100-3-3: 1995 + A1: 2001 + A2: 2005 - Limitation of Voltage Changes and Fluctuations

EN 61000-4-2: 1995 + 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 + A1: 2001 - Surge Immunity

EN 61000-4-6: 1996 + 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.

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 outside of the box when returning the product.

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.

Other General Information:
Care and Cleaning
Do not attempt to take this product apart at any time. There are no user-serviceable components inside.
- Do not spill liquids in the ProductionVIEW HD-SDI
- Keep this device away from food and liquid
- For smears or smudges on the console, wipe with a clean, soft cloth with a light duty household cleaner that leaves no residue. Repeated use of a "Windex®" type product with vigorous pressure may remove some of the silk screening and this will void the warranty.
- Do not use any abrasive chemicals.

Operating and Storage Conditions:
Do not store or operate the ProductionVIEW HD-SDI under the following conditions:
- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments or In inclement weather
- Dusty environments
- Under severe vibration

General Specifications:

Video Resolutions & Distances* - Inputs	Video Resolutions - Outputs
HD Resolutions: 1080p – SMPTE 424M – Max. Length: 459.3 ft. (140m) (3Gb/s compliant) 1080i – SMPTE 292M – Max. Length: 754.6 ft. (230m) 720p – SMPTE 292M – Max. Length: 754.6 ft. (230m)	HD Resolutions: 1080p – SMPTE 424M 1080i – SMPTE 292M 720p – SMPTE 292M
SD Resolutions: 480i – SMPTE 259M – Max. Length: 820.2 ft. (250m) 576i – SMPTE 259M – Max. Length: 820.2 ft. (250m)	SD Resolutions: 480i – SMPTE 259M 576i – SMPTE 259M
* Note: All cable lengths noted above are based on using Belden 1694A cable	

ProductionVIEW HD-SDI	
Part Numbers:	999-5650-000 (North America) 999-5650-001 (International)
Compatible PTZ Cameras* : * most cameras require an optional SDI card	Sony EVI-HD1, BRC-300, BRC-Z330, BRC-H700 & BRC-Z700 Panasonic AW-HE100 Canon BU-45H, BU-50H
Video Switcher:	6 x 2
Video Transitions:	Cross Fade, 9 Wipe options and Straight Cuts, Fade to Black
Video Inputs:	Six (6) HD-SDI / SD-SDI inputs on BNC connectors
Preview Output:	Two (2) Preview outputs (BNC) – HD-SDI or SD-SDI
Program Output:	Two (2) Program outputs (BNC) – HD-SDI or SD-SDI
External Reference:	Input for sync from external device for Gen Lock of outputs
Camera Control Ports:	Six (6) RS-232 on RJ-45F
Control Interface:	One (1) RS-232 on DB-9
8-Line LCD Display (Menu):	8 – line backlit LCD display
Power Requirements:	PowerRite 18 VDC, 2.78 Amp
Control Inputs for Auto Mode (input 1 & 2):	Cameras 1 & 2 have 6 presets each or Camera 1 can have 12 (selectable – either Tally output function works, or Control Inputs)
Tally Output:	Tally outputs for each of the six video inputs (selectable – either Tally output function works, or Control Inputs)
Weight:	9.5 lbs. (4.32kg) – approximate weight
Dimensions (H x W x D):	16" (40.64cm) x 10" (25.4cm) x 4" (10.16cm)

Appendix 1: RS-232 Control

The ProductionVIEW HD-SDI has six (6) discrete camera control ports which eliminates the need for daisy-chaining control cabling. With ProductionVIEW HD-SDI, all cabling configurations are home-run wiring configurations. Each Channel will auto-configure the input channel for control of the camera attached.

Vaddio uses simple control protocols to accomplish custom programming with the ProductionVIEW HD-SDI. 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

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Control Pin-out Table for ProductionVIEW HD-SDI
Camera Control Ports 1 through 6 - RS-232 on RJ-45 Connectors:

PIN# Signal
1) Unused
2) Unused
3) Unused
4) Unused
5) Unused
6) GND
7) TXD (to RXD of camera)
8) RXD (from TXD of camera)

```
12345678
```
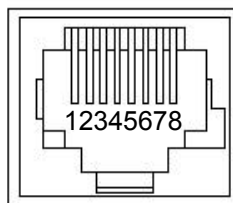
API and Programming Language

```
+-----------------------------------------------------------------------------+
|      Vaddio ProductionVIEW HD-SDI                                           |
+-----------------------------------------------------------------------------+
| ? - This Menu                                                               |
+---------------------- System Access ---------------------------------------+
|Power        x- Power(On/Off)         |SysMode     x- (Manual/Auto)           |
|ProgIn       x- Program (1-6,7-LSG,8-PIP)|Mix         - Mix/FTB Button        |
|PrevIn       x- Preview (1-6,7-LSG,8-PIP)|Cut         - Cut Button            |
|Camera       x- Switch to Camera(1-6) |Take         - Take Button            |
|Preset       x- Go to Preset(1-12)    |Wipe         - Wipe Button            |
|Store        x- Store Preset(1-12)    |lsgSize     x- Lsg Size(0-3)          |
|WipeSel      x- Effect select:(0-8)   |lsgDen      x- Lsg Density(0-9)       |
|0:Wipe UL>LR,1:Wipe Top>Bot,          |BLCx-BacklightComp(On,Off)            |
|2:Wipe UR>LL,3:Wipe L>R,4:Wipe Cnt>Out,|AWBx- AutoWhiteBal(On,Off)           |
|5:Wipe R>L,6:Wipe LL>UR,7:Wipe Bot>Top,|PipLoc   x,x- Location,size(0-2)     |
|8:Wipe LR>UL                          |         0:UL,1:UR,2:LL,3:LR          |
+-------------------- Joystick Pan, Tilt, Zoom------------------------------+
|JPanDir     x,x-Port(0-6)Invert/Normal |JPanSpd    x,x-Port(0-6),Spd(1-24)|
|JTiltDir    x,x-Port(0-6)Invert/Normal |JTiltSpd   x,x-Port(0-6),Spd(1-20)|
|JZoomDir    x,x-Port(0-6)Invert/Normal |JZoomSpd   x,x-Port(0-6),Spd(0-7) |
+------------------ Preset Pan, Tilt, Zoom---------------------------------+
|PanSpeed   x- Preset Pan Speed (1-24) |TiltSpeed  x-Preset Tilt Spd(1-20)|
|ZoomSpeed  x- Preset Zoom Spd (0-7)   |Home        - Home Camera         |
|PresetLoc  x- Store Preset (InCam/Lcl)|OnCamInit  x- (Home/Preset12)     |
+-------------- Camera ----------------+------------------------------+
|Move       x- (Up/Down/Stop/Left/Right)|Zoom      x- (In/Out/Stop)     |
|Iris    x,x- (Up/Down/Auto/Manual),Value|                             |
|Focus   x,x- (Up/Down/Auto/Manual),Value|                            |
+-------------------- System Setup and Utilties-------------------------+
|SetDefault x- Set Default Preset(1-12)|Tally      - Idle Tally(High/Low)|
|DefaultCam x- Set Default Camera(1-6) |IdleRtn    x- Default Timer(0-60) |
|ExtTrigger x- Combine (AllCam1/Cam1&2)|SerialEcho x- Echo Serial (On/Off)|
|FTB        x- Fade U/D/(10-40)        |SerialInfo x- Status (On/Off)    |
|Reset       - 'CPU'Reset              |SwMode     x- Switch(Single/Dual) |
|DspCams     - List connected cameras  |Version     - Firmware Version    |
|ClearAll    - Clear all presets       |Config      - List Config Settings|
|SaveConfig  - Manual Config Save      |ResetVideo  - Re-Load Video config|
+-----------------------------------------------------------------------------+
```

Appendix 1: Command Structure Definitions

Command Parameters		Description
AWB	AWB On/Off(cr)	Auto White Balance On/Off
BLC	BLC On/Off(cr)	Backlight Compensation On/Off
Camera	Camera [9](cr)	Select indicated camera (1-6)
CamFolPrv	CamFolPrv On/Off(cr)	Set Select follows Review selection On/Off
ClearAll	ClearAll(cr)	Clear all presets
Config	Config(cr)	Display system configuration
Cut	Cut(cr)	Select Cut Transition
DefaultCam	DefaultCam [9](cr)	Set default camera (1-6)
DspCams	DspCams(cr)	Display cameras connected(and Port)
ExtTrigger	ExtTrigger AllCam1/Cam1_2(cr)	Set trigger mode all on cam 1 for 6 on each
Focus	Focus Up/Dn/Auto/Manual,[9] (cr)	Focus Up/Dn/Auto/Manual, Value
FTB	Fade U/D/(10-40)	Fade To Black
Home	Home(cr)	Home Camera
IdleRtn	IdleRtn [9](cr)	Idle Return 0-60 seconds
Iris	Iris Up/Dn/Auto/Manual,[9] (cr)	Iris change Up/Dn/Auto/Manual, Value
JPanDir	JPanDir [9],[9](cr)	Set Pan Direction by Port(0,1-6), Dir(Normal/Invert)
JPanSpd	JPanSpeed [9],[9](cr)	Set Pan Speed by Port (0,1-6), Speed(1-24)
JTiltDir	JTiltDir [9],[9](cr)	Set Tilt Direction by Port(0,1-6), Dir(Normal/Invert)
JTiltSpd	JTiltSpeed [9],[9](cr)	Set Tilt Speed by Port(0,1-6), Speed(1-20)
JZoomDir	JZoomDir [9],[9](cr)	Set Zoom Direction by Port(0,1-6), Dir(Normal/Invert)
JZoomSpd	JZoomSpeed [9],[9](cr)	Set Zoom Speed by Port(0,1-6), Speed(0-7)
lsgDen	lsgDen [9](cr)	Set LSG density (0-9)
LSgSize	LsgSize [9](cr)	LSG Size (0-3)
Mix	Mix(cr)	Select Mix/FTB mode
Move	Move(Up/Down/Left/Right/Stop)(cr)	Move camera
OnCamInit	OnCamInit Home/Preset12(cr)	Set initialization preset Home camera or content of preset12
PanSpeed	PanSpeed [9](cr)	Set Preset Pan Speed
PipLoc	PipLoc [9], [9](cr)	Select Pip location (0-3), Size (0-2)
Power	Power On/Off(cr)	Power system On/Off
Preset	Preset [9](cr)	Select indicated preset (1-12)
PresetLoc	PresetLoc Local/InCam (cr)	Set Preset location 6 in cam 6 in system, All in system
PrevIn	PrevIn [9](cr)	Select Preview input(1-6)
ProgIn	ProgIn [9](cr)	Select Program input(1-6)
Rescan	Rescan(cr)	Initiate Camera scan
Reset	Reset(cr)	Soft System reset
ResetVideo	ResetVideo(cr)	Re-Load Video Configuration
Save Config	SaveConfig(cr)	Saves configuration of all console settings
SerialEcho	SerialEcho On/Off(cr)	Serial Echo On/Off
SerialInfo	SerialInfo(On/Off)(cr)	Serial Information mode on/off
SetDefault	SetDefault [9](cr)	Set default Preset (1-12)
Store	Store [9](cr)	Store indicated preset on the current camera(1-12)
SwMode	SwMode Single/Dual(cr)	Select operating mode Single/Dual switcher(s)
SysMode	SysMode Auto/Manual(cr)	System Access automatic/Manual
Take	Take(cr)	Initiate Transition
Tally	Tally High/Low(cr)	Non-selected(Idle) tally level
TiltSpeed	TiltSpeed [9](cr)	Set Preset Tilt Speed
Version	Version(cr)	Display System Version information
Wipe	Wipe(cr)	Select Wipe Transition
WipeSel	WipeSel [9](cr)	Select Wipe (0-11)
Zoom	Zoom (in/Out/Stop)(cr)	Zoom Camera
ZoomSpeed	ZoomSpeed [9](cr)	Set Preset Zoom Speed