![Vaddio logo]
Vaddio
Camera and Electronic Products for Integrators

VADDIO™ CONTROLVIEW™ XHD

HD/SD Seamless Video Switching, Video Transitions, Up/Down Converting of Inputs and Outputs, Preset PTZ Camera Control Functionality

Model Number 999-5672-000 (NTSC)
Model Number 999-5672-001 (PAL)

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Inside Front Cover - Blank

ControlVIEW XHD Overview

The ControlVIEW XHD (Figure 1) incorporates seamless video switching and 72 camera preset trigger inputs to automate switching of inputs and PTZ camera positions. ControlVIEW XHD is an ideal solution for classroom and videoconference system automation, and can be used with or without the use an external control system.

In addition, ControlVIEW XHD delivers user selectable HD or SD inputs, and will up convert or down convert the output signals to a variety of screen resolutions, all with only one frame of delay.

Figure 1: Front and Back views of ControlVIEW XHD.

The ControlVIEW XHD, with 6 inputs, turns a low-cost, single input videoconference or video streaming codec into a full-featured system for variety of presentation and education applications. See Figures 2 – 5 for sample configurations on how ControlVIEW can bet set up to automate your next project.

Key Technical Features:

- Seamless Video Switcher – When one of the six (6) input buttons is pressed, the seamless video switcher transitions from the current input to the new input.
- 72 Internal Trigger Presets -- The console is equipped with automatic preset recall and camera switching when combined with Vaddio's StepVIEW Mats, MicVIEW and other trigger devices, allowing ControlVIEW XHD to be set up for use without an operator present.
- Additional Presets: Additional presets can also be stored from our Precision Camera Controller (14 presets per camera) making ControlVIEW XHD extremely flexible in a variety of installation options.
- Anything In / Anything Out – The inputs and output have discrete video resolution settings. See the specifications at the end of the manual for additional information on all of the resolutions supported.
- Dual Outputs – Dual outputs (same resolution) can be run to separate devices that will accept an analog video signal, often avoiding the need for a distribution amplifier.
- Tally Ports -- The ControlVIEW XHD also has six Tally ports for controlling tally lights on external sources, such as Vaddio's WallVIEW CCUs and PreVIEW HD monitors.
- Camera Auto-Sensing - The ControlVIEW XHD is capable of auto-sensing each PTZ camera attached. Control codes for the following cameras are built-in:
  - Vaddio ClearVIEW HD-18, HD-19,HD- 20 PTZ Cameras
  - Vaddio WallVIEW, CCU and PRO Series Cameras
  - Vaddio CeilingVIEW Series Cameras
  - Vaddio HideAway Series Cameras
  - Vaddio Model Series and PTZCam Series Cameras
  - Sony EVI-HD1, EVI-HD-3& HD7V, EVI-100V, EVI-100S, EVI-D100, EVI-D70, BRC-300, BRC-Z330,
  - BRC-Z700 & BRC-H700
  - Panasonic AW-HE100, AW-HE120
  - Canon VC-C50i & VC-C50iR, XU-80, BU-45,BU-46, BU-47H, BU-50, BU-51
- Video Transitions - Video transitions are seamless with exceptional video quality. Transition time is adjustable from zero (0) to four (4) seconds and include:
  - Mix
  - Cut
  - Wipe (11 different patterns)

Intended Use:
Before operating the Vaddio ControlVIEW XHD, 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.

Save These Instructions:
The information contained in this manual will help you install and operate your Vaddio ControlVIEW XHD. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio 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 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 device. Use of any unauthorized power supply will void any and all warranties.**

	Do not use "pass-thru" or "EZ" type connectors. These connectors do not work well for professional installations and can be the cause of intermittent connection which causes most every control line (RS-232 or RS-422) in the integration world to fail. Please use standard RJ-45 connectors for best results, and test all cables for proper pin-out prior to termination. And finally, always read the manuals.

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 ControlVIEW XHD
- 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 ControlVIEW XHD 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
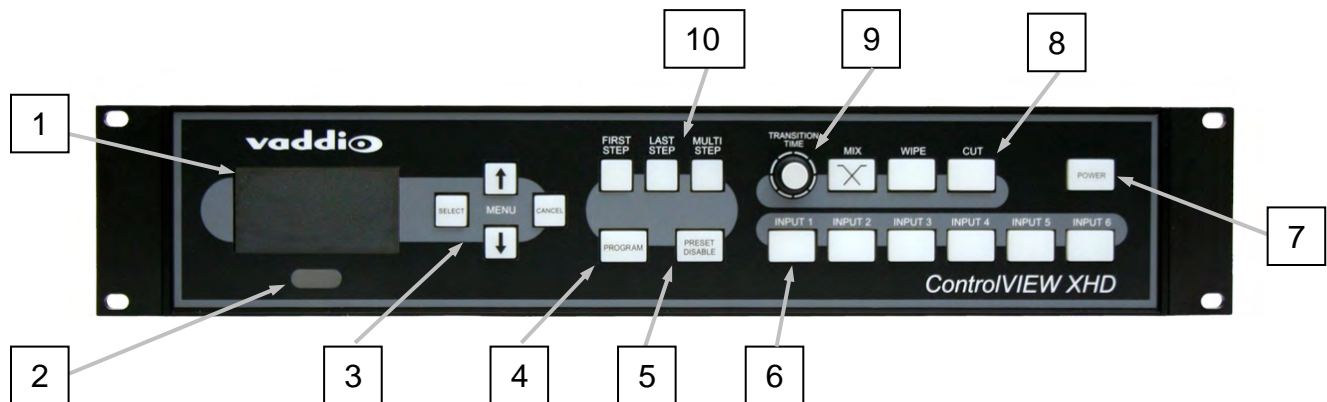- Dusty environments
- Under severe vibration

UNPACKING:
Carefully remove the device and all of the parts from the packaging.
Unpack and identify the following parts:
- One (1) ControlVIEW XHD
- One (1) Vaddio PowerRite 12 VDC, 3A Power Supply
- One (1) AC Cord Set (US or UK and Europe)
- Documentation and Manuals

ControlVIEW XHD (Figure 2):

1. **8-Line LCD Screen (for Menus and Status):** The internal menu allows the user to configure the resolution on the inputs/outputs, as well as other parameters built into the console. The LCD screen will also provide status to current settings.
2. **IR Window**: Pointing the supplied IR remote control at the front of the ControlVIEW XHD allows the user to control the functions from a distance.
3. **Menu Navigation Buttons:** The Select, Cancel, ↑, ↓ buttons allow the user to navigate through the menus to modify input/output resolutions, wipe pattern, and other menu functions. See the ControlVIEW XHD Menu Structure at the back of the manual for the entire menu tree and additional information on menu options.
4. **Program:** Pressing the Program button initiates the programming of the camera selection and preset PTZ camera positions.
5. **Preset Disable:** Pressing the Preset Disable button disables all preset triggers and camera positions programmed into ControlVIEW XHD.
6. **Inputs 1 - 6:** Selecting an input will transition the output from the current input to the one selected. All inputs can be configured as either SD, HD or a variety of analog RGBHV resolutions. See the specifications at the end of the manual for all input and output resolutions supported.
7. **Power:** Pressing the Power button turns ControlVIEW XHD on or off. If the system is on, press and hold the Power button for three seconds to power the unit off. All compatible PTZ cameras connected to the system will go into stand by mode when ControlVIEW XHD is powered off.
8. **Transition Selection:** Choose from Cut, Fade or Wipe transition when switching cameras. The selected transition button will illuminate. 11 different wipe patterns can be selected from the internal menu, or by holding down the Wipe button and turning the Transition Time knob to scroll through the wipe options (wipe pattern options will be displayed on the LCD screen). Transitions (Mix, Wipe or Cut) can also be changed through either the IR remote, or through a third-party control system.
9. **Transition Time:** The rotary encoder will select the speed of the transition – from 0.1 to 4.0 seconds for both the Fade and Wipe transitions. Transition speed can also be adjusted from either the IR remote or through a third-party control system.
10. **First, Last and Multi Step:** When ControlVIEW XHD is used with trigger devices (such as StepVIEW Mats), First Step mode keeps a camera fixed on the "first" triggered preset camera position. In Last Step mode, with multiple trigger devices, the "last" triggered preset camera position is recalled and switched as the output from ControlVIEW XHD. Multi Step allows any two of the first 12 triggers to be set up for preset camera shots that will allow both trigger positions to be visible on-camera.

    NOTE: Only one MicVIEW microphone can be triggered at one time, therefore two microphones connected to a MicVIEW cannot trigger a Multi Step trigger.

**ControlVIEW XHD Back Panel I/O (Figure 3):**
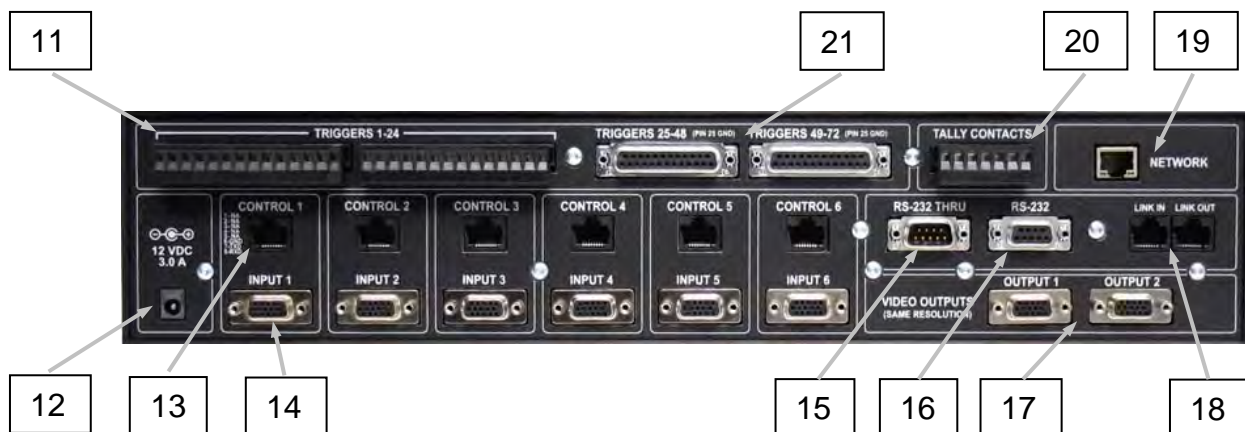
11. **Trigger Inputs 1 – 24:** The first 24 trigger inputs are on Phoenix-type connectors. Trigger inputs 1 – 12 can be programmed in First Step, Last Step and Multi Step operation, which allows the live camera to zoom in or out to multiple trigger positions. Supports Vaddio AutoVIEW IR, StepVIEW, TouchVIEW and MicVIEW trigger inputs.
12. **Power Input:** ControlVIEW XHD operates on an 12 VDC, 3 Amp PowerRite power supply.
13. **Control Inputs:** For each PTZ camera connected, a homerun CAT-5 cable is run to the RS-232 input of the camera. This allows the pan, tilt and zoom position to be sent to the camera for preset camera positions. If the input is not a PTZ camera (DVD player, computer, etc.), then this port is not used.
14. **Video Inputs:**   The video inputs can accept the SD (composite or Y-C), HD (Y, Pb, Pr) or RGBHV signals (each input is independent and selectable via internal menu). See the Video Resolutions table at the back of the manual for all supported input/output video signals.
15. **RS-232 Thru*:** The RS-232 Thru connection allows the user to send RS-232 signaling through ControlVIEW XHD to other control equipment, such as third-party control systems (available on a future release of firmware).
16. **RS-232:** The RS-232 input allows the ControlVIEW XHD to receive commands from third-party hardware. This port is also used as a connection for updating firmware on the system.
17. **Program Outputs:** Delivers the same SD (composite or Y-C), HD (Y, Pb, Pr) or RGBHV signal (selectable via internal menu) on both connectors. See the Video Resolutions table at the back of the manual for all supported input/output video signals.
18. **Link In / Link Out:** The Link In / Link Out connectors allow ControlVIEW XHD to seamlessly integrate with Vaddio's Precision Camera Controller, when used as an operator controlled seamless switcher.
19. **Network*:** The Network port is a 10/100 mbps Ethernet port to allow remote access of the system for troubleshooting and status (available on a future release of firmware).
20. **Tally Outputs –** Allows for connecting ControlVIEW XHD to external Tally inputs such as Vaddio's PreVIEW HD monitors, Quick-Connect CCU and other third-party tally sources.
21. **Trigger Inputs 25 – 72:** Trigger inputs 25 - 72 are on two 25-pin connectors. Trigger inputs support Vaddio AutoVIEW IR, StepVIEW, TouchVIEW and MicVIEW trigger inputs, as well as third-party trigger devices.

   * The RS-232 Thru and Network ports will be active on a future software release.

Vaddio accessory cables for SD (composite) and HD/SD component (YPbPr) are sold separately.
Within the Menu System there is a selection of formats for SD video including Letterbox, Cropped and Squeezed. These selections were added to better blend SD signals with HD signals.

Note: Strain relief for the 15-pin connectors is recommended on the back of the ControlVIEW XHD.

Figure 4: ControlVIEW XHD IR Remote Control
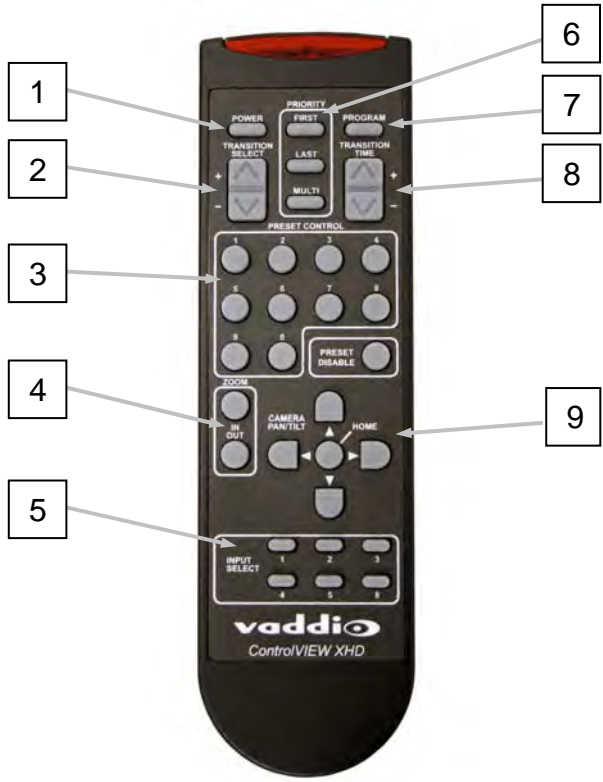
1. **Power:** Pressing the Power button will turn the system on. Press and hold the Power button for 3 seconds to turn on or off the system.
2. **Transition Select:** Pressing the up or down button will switch the type of transition from wipe, fade or cut. The wipe that is currently selected via the internal menu will be the wipe transition that occurs.
3. **Preset Control:** Use the 0-9 buttons to program and recall preset camera positions. Preset Disable turns off all presets camera positions that are programmed into the system.
4. **Zoom:** Press the in and out buttons for zoom control of the selected PTZ camera.
5. **Input Select:** Pressing the 1-6 buttons selects which input will be sent to the outputs.
6. **Priority:** Pressing First, Last or Multi buttons will choose the Step function for the input triggers on the system. Inputs 1-12 are multi-step triggers. All other triggers in Multi-Sep mode will act as Last Step.
7. **Program:** Pressing the Program button initiates the program feature of the system, allowing the PTZ camera positions and inputs to be selected.
8. **Transition Time:** Pressing the up and down will increase or decrease the transition time from 0.1 to 4 seconds for wipe or fade transitions.
9. **PTZ Camera:** These buttons move the pan and tilt of the selected camera. Pressing the Home button moves the PTZ camera to the home position.

Vaddio Accessories for ControlVIEW XHD

	Vaddio Accessory Cable Part Numbers **440-5600-000 –** 15-pin to SD (CVBS & Y-C) breakout cable (female BNCs – 1 foot) **440-5600-001 –** 15-pin to HD/SD Component (YPbPr/RGBHV) cable (male BNCs – 3 foot) **440-5600-002 –** 15-pin to HD/SD Component (YPbPr/RGBHV) cable (male BNCs – 6 foot) **440-5600-003 –** 15-pin to HD/SD Component (YPbPr/RGBHV) cable (female BNCs – 7 inch)
	Vaddio Presence Sensing Trigger Devices **999-1511-000 –** StepVIEW Mat 44" x 27.5" with 75' attached cable **999-1512-000 –** StepVIEW Mat 57" x 27.5" with 75' attached cable **999-1701-100 –** AutoVIEW IR Sensor, interface controller, cable and power supply
	Vaddio MicVIEW Trigger Devices **999-0001-000 –** MicVIEW 12 input Mic Switcher/Mixer **701-0001-891 –** Unidirectional Boundary Microphone
	Vaddio TouchVIEW Trigger Device **999-1201-000 –** TouchVIEW System with 4 RF buttons & 1 Receiver

Setting Up and Programming

First Time Set-up with the ControlVIEW XHD:
ControlVIEW XHD was designed to be exceptionally easy to program and use. All of the Vaddio standards for transmitting RS-232 control over Cat. 5 cabling are in this manual and available free of charge from the Vaddio website.

Getting Started:
1. Connect all of the cameras, monitors and peripheral devices to ControlVIEW XHD. The back panel has standard VGA connectors, and Vaddio offers four different break out cables for the inputs/outputs; one for SD video (composite on inputs & outputs, Y-C also on inputs) and three cables (7 in., 3 ft. or 6 ft.) for component HD/SD video (YPbPr).
2. When applicable, connect the RS-232 port on the ControlVIEW XHD to an available serial port on a control system (i.e. Crestron®, AMX®, etc.).
3. Trigger Devices: Connect wires from the trigger devices (i.e. StepVIEW mat, AutoVIEW IR, MicVIEW, etc.) to each designated port – one wire will go to the trigger input, the other will go to one of the "G" (Ground) ports. See the specific trigger devices for additional information on installation. Make note as to what trigger device is connected to which specific trigger port on the back of ControlVIEW XHD.

NOTE: The dual outputs of the ControlVIEW XHD will deliver the same resolution.

Once all of the inputs, outputs, trigger devices and the PowerRite power supply are connected, plug the AC cord into an outlet. ControlVIEW XHD will boot up and scan for cameras. After boot up, a menu will appear on the blue LCD screen.

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. 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 to the previous menu.

NOTE: For additional information on the menu tree structure, see pages 13 to 15.

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.

After all inputs/outputs have been set, touch the arrow up to RESCAN VIDEO. Press SELECT. At START press SELECT again. All video resolutions will now be configured. Any time an input or output source is changed you will need to perform the RESCAN VIDEO function for the new settings to take effect.

Configuring PTZ Cameras:
After configuring the input and output resolutions, arrow down to, and select CAM SEARCH MENU on the LCD screen. Arrow down to PORT 1, and press select. Next, select the type of camera that is connected to Port 1 (i.e. if a Canon PTZ camera is connected, then select CANON ONLY). Repeat the process for each port, based on the type of camera that is connected. For Vaddio PTZ cameras, select AUTO SEARCH.

NOTE: If no PTZ camera is connected to specific Control Ports, select "No Camera" in the "Cam Search Menu" to speed up the boot-up process.

Figure 5: ControlVIEW XHD with three WallVIEW HD-18 camera systems and a laptop connected as video inputs. Preset trigger devices connected include three AutoVIEW IR sensors, two StepVIEW mats and a MicVIEW with four push-to-talk microphones. The output of ControlVIEW XHD is connected to a streaming media encoder.
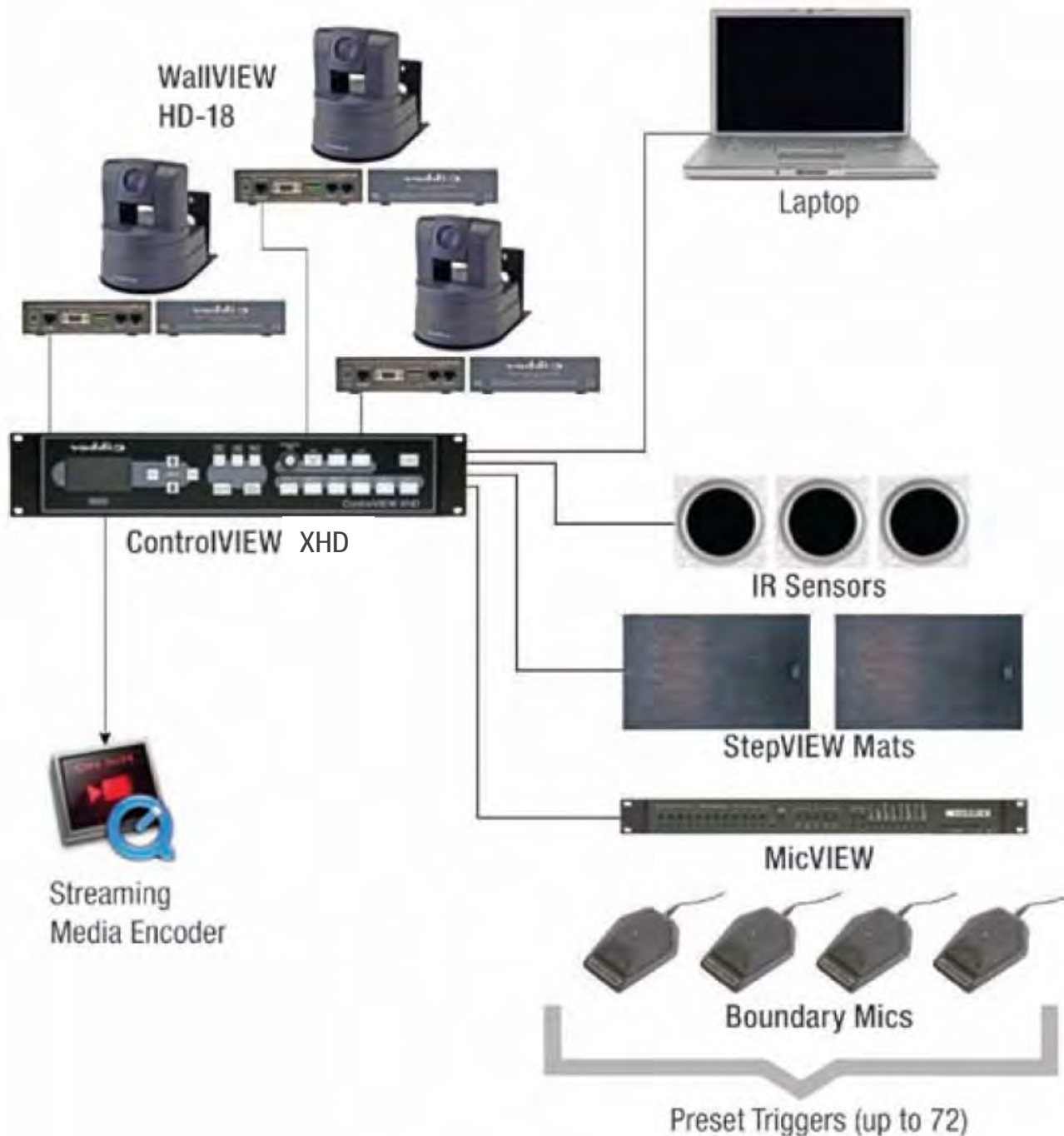
**Figure 6: (below):** ControlVIEW XHD connected to a videoconference codec, trigger devices and a third-party control system.
Figure 7: (right): ControlVIEW XHD connected to Vaddio's Precision Camera Controller, used as an operator controlled system.
Figure 8: (bottom): ControlVIEW XHD connected to TrackVIEW and trigger devices for a completely automated tracking and switching presenter controlled system.
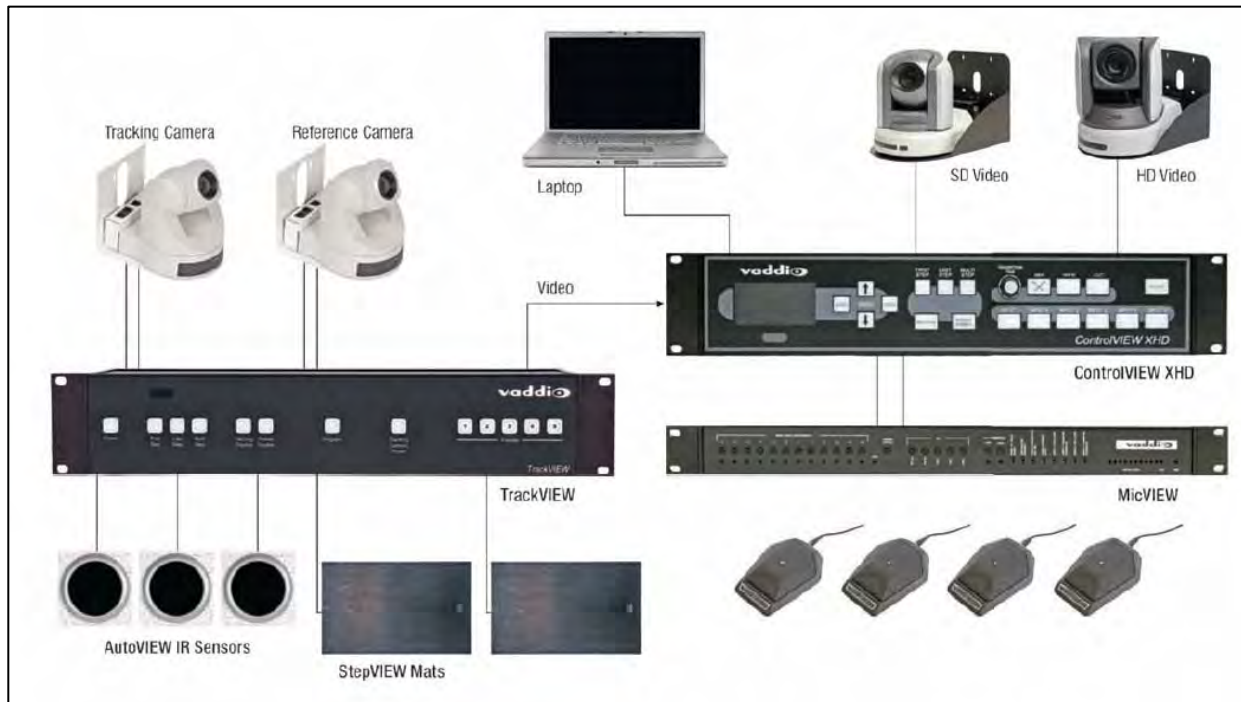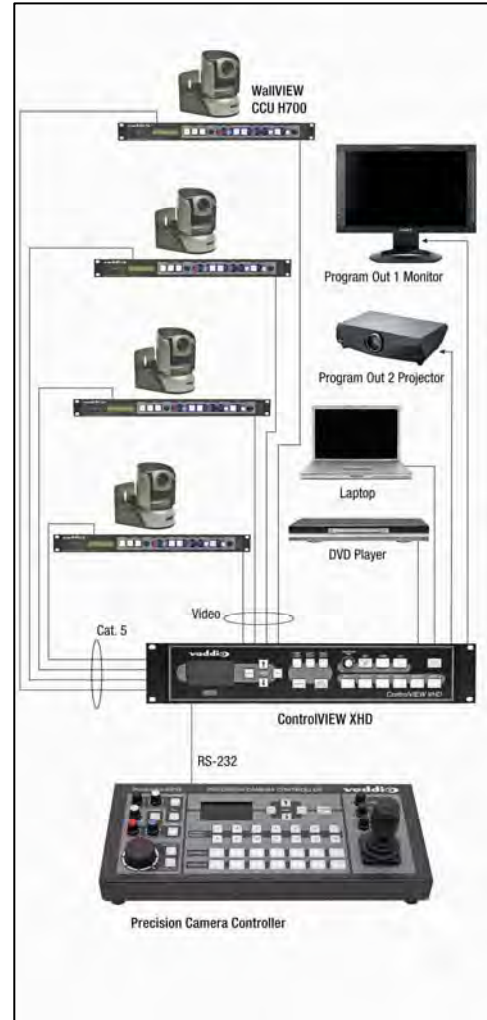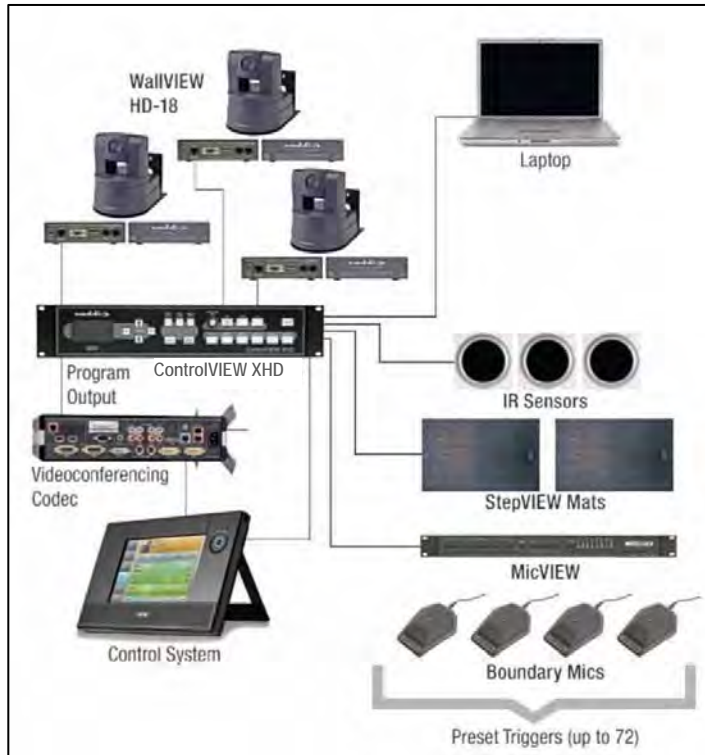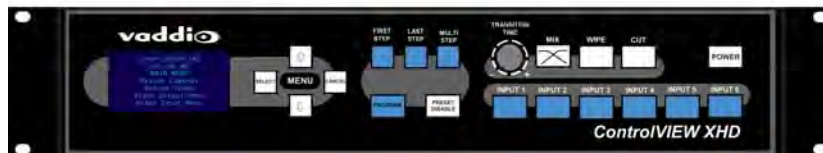
Operating the ControlVIEW XHD:

Controlling the XHD
Functions and controls on the front panel are easy and intuitive. Over the next few pages there are details on how the different functions operate, as well as how to program the inputs, outputs and trigger devices connected to ControlVIEW XHD.

PTZ Camera Controls
The controls that can be used to program presets, switch inputs, adjust a PTZ camera can be found on the Vaddio ControlVIEW XHD IR remote control supplied with the product (see remote on p.6).

Preset Location Storage Options: This feature allows the user to store 72 First Step/Last Step camera presets in the ControlVIEW XHD on up to six PTZ cameras. Any number of presets can be stored on any number of cameras (i.e. 72 presets can be stored on one camera, 24 presets on three cameras, etc.). Please see the ControlVIEW XHD Menu Structure, System Menu for access to the Preset location parameter.

Before Programming Preset Camera Positions
Make note of all preset trigger devices connected to ControlVIEW XHD, and which presets will trigger which devices. For instance, if there are four StepVIEW mats at the front of a lecture hall – two at whiteboards, one at a podium and one at a document camera – note which presets each mat will trigger. If there are additional trigger devices, such as microphones connected to Vaddio's MicVIEW product, then make a note of which presets these devices are connected to.

There are two ways to program presets into the ControlVIEW XHD; either by activating each trigger installed in the system, or through the ControlVIEW XHD IR remote control. Knowing the preset associated with each trigger will allow all programming to happen through the remote control. For this manual, all preset programming described, will be handled through the IR remote control.

Setting First Step/Last Step Presets
1. Press the Program button on the front of ControlVIEW XHD
2. Confirm that either the First Step or Last Step button above Program is illuminated
3. Select the camera to program (Inputs 1 to 6) on the front panel of ControlVIEW XHD
4. Using the ControlVIEW XHD IR remote, pan, tilt and zoom the camera to the desired location for the specific preset camera position. Example: If there is a StepVIEW mat (connected to Trigger position 1 on the back of ControlVIEW XHD) at a whiteboard, frame the camera to capture the area of the whiteboard visible above the StepVIEW mat.
5. Press 001 on the IR remote control. The LCD screen on the front of ControlVIEW XHD will display "Preset 1 Stored". The other way for storing the preset camera position would be to manually trigger the device that will move the camera to that position. See note below about numbering scheme for trigger presets.
6. Repeat the Steps 2 – 4 for each additional preset trigger device connected to the system.

NOTE: Please note that each preset trigger is three digits. Therefore, trigger 1 should be programmed and recalled on the IR remote by pressing 001. Trigger 23 would be recalled by pressing 023 on the remote.

Configuring Multi-Step Presets

Notes Regarding Multistep:

- Multi-Step is available only on the first 12 preset trigger inputs on ControlVIEW XHD and allows a camera preset to be programmed into the system to display two trigger devices.
- If there are multiple cameras in a room and the triggers that activate Multi Step are linked to different cameras, either camera, or a different camera can be programmed as the Multi Step camera preset position to allow the camera with the best angle of view of both positions to be configured for the multi-step preset camera position.
- Two MicVIEW triggers cannot trigger a multi-step trigger, however, a single MicVIEW trigger and another trigger device (i.e. StepVIEW mat, AutoVIEW IR, etc.) can perform a Multi-Step preset.
- Multi-Step with a trigger outside the first 12: with one preset within the first 12, and one preset that is 13 or higher, Last Step will be initiated.

1. Press the Program button on the front of ControlVIEW XHD
2. Press the Multi Step button above Program
3. Using the ControlVIEW XHD IR remote, pan, tilt and zoom a camera to the desired location that will capture both trigger positions for the multi-step trigger. Example: If there is a StepVIEW mat (connected to Trigger position 1 on the back of ControlVIEW XHD) at a whiteboard, and an AutoVIEW IR sensor (connected to Trigger position 12) above a podium, move a camera to capture both the whiteboard and podium. Any camera in the room may be used for the multi-step preset position, not necessarily the camera(s) that are used for the First/Last Step preset. Use the best camera that will provide the ideal camera angle for the multi-step preset.
4. Using the IR remote, enter the two preset trigger devices. From the example above – preset triggers 1 and 12, enter 001 and 012 using the remote control. The LCD screen on the front of ControlVIEW XHD will display "Preset XX Stored", with XX being the designated stored preset. The other option for storing the preset camera position would be to manually trigger the devices that will move the camera to that position. See note below about numbering scheme for trigger presets.
5. Repeat the Steps 2 – 4 for each additional preset trigger device connected to the system.

NOTE: Please note that each preset trigger is three digits. Therefore, trigger 1 should be programmed and recalled on the IR remote by pressing 001. Trigger 23 would be recalled by pressing 023 on the remote.

Wipe, Dissolve or Cut

ControlVIEW XHD allows camera transitions to be either a cut, fade or wipe when switching between video inputs.

Select the type of effect (wipe, cut or mix) that ControlVIEW XHD will use to transition from one input to the other. Pressing a different input, other than the current input that is selected (current input is indicated by the button being lit) will allow ControlVIEW XHD to transition from the current signal to the one selected. The transition between inputs will be determined by which transition is selected (Mix, Wipe or Cut), and the speed of the transition will be dictated by the Transition Time knob on the front of the switcher.

Changing Effect: To change the type of transition -- Wipe, Cut or Mix -- select that effect above the Input buttons. Wipes: Press and hold the Wipe button and turn the Transition Speed knob to change wipe effects, which will be displayed at the bottom of the LCD screen.

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 next to the Mix button.

Power & Preset Disable
If ControlVIEW XHD is configured to be used as an automated, presenter-controlled system, with the help of trigger devices, such as StepVIEW mats, AutoVIEW IR sensors and other devices that will trigger preset PTZ camera positions., the mats, sensors and third-party trigger devices can be placed at locations, such as podiums, white boards, etc. which allows ControlVIEW XHD to be run as an automated system. Camera switching and PTZ movements are handled by ControlVIEW XHD automatically.

Pressing the Preset Disable button on the front panel, or via the IR remote control will disable all trigger devices (StepVIEW mats, AutoVIEW IR sensors, etc.).

Power Switch
- When the Power switch is pressed and held for three seconds, all of the attached cameras will be placed in standby.
- When the system is in stand-by, pressing the Power switch will activate and select default camera and preset information as defined in the menu. The ControlVIEW XHD will scan the inputs for camera type and video signal type and configure the system based on how it was programmed. This can take up to one minute and is normal operation.
- *Notes: 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.*
- *Notes: If new triggers are added or not connected at initial power up you must perform an INIT TRIGGERS in the system menu.*

Using ControlVIEW XHD with Precision Camera Controller
ControlVIEW XHD can also be used as a stand-alone switcher (with or without triggers) connected to Precision Camera Controller as a low-cost, 6x1 seamless video switcher for installations that require an operator for some events, but automated operation for other events. Figure 4 shows 6 inputs (four cameras, a computer and a DVD player) and two outputs (a computer monitor and an LCD projector).

Simply connect the Link Out port of Precision Camera Controller to the Link In port on ControlVIEW XHD to establish communication between the two products (see the diagram below).

CAT-5 Cable
LINK OUT   LINK IN
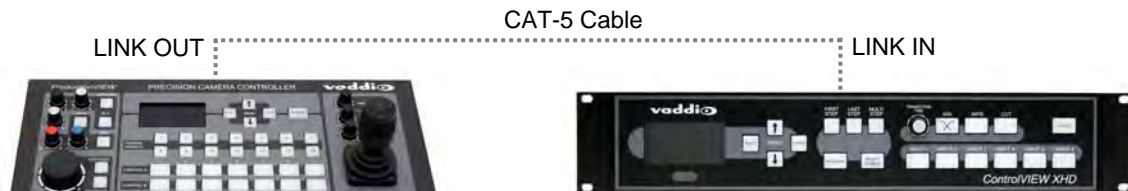
Note: See Figure 4 for a more detailed wiring diagram

Configuring PTZ Presets for Precision Camera Controller
NOTE: Presets for Precision Camera Controller are stored in memory beyond the presets for the trigger devices connected to ControlVIEW XHD, and have to be programmed separately. All RS-232 Control cables for PTZ cameras should be connected to ControlVIEW XHD. When using Precision Camera Controller, the PRESET DISABLE button should be turned on. Otherwise, trigger devices connected to ControlVIEW XHD will initiate PTZ cameras and video switching.

ControlVIEW XHD Menu Structure
The ControlVIEW XHD has an 8-line LCD that displays the system menus. The menus are navigated with the up/down arrows, select and cancel buttons. The menu structure is as follows:

1st Screen ControlVIEW XHD
V01.00.00 (software version)
Rescan Cameras
Rescan Video
Video Output
Video Input Menu

Menu Section

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 (Note: Both video outputs will deliver the same output resolution)
>Select
>Video Output
>Program Output
HD 1080p 59.94 Hz
HD 1080p 50 Hz
HD 1080i 59.94 Hz
HD 1080i 50 Hz
HD 720p 59.94 Hz
HD 720p 50 Hz
HV 640 x 480 - 60 Hz
HV 800 x 600 - 60 Hz
HV 1024 x 768 - 60 Hz
HV 1280 x 768 – 60 Hz
HV 1280 x 1024 - 60 Hz
HV 1366 x 768 – 60 Hz
HV 1400 x 1050 – 60 Hz
HV 1600 x 1200 – 60 Hz
HV 1920 x 1200 – 60 Hz *
SD NTSC Composite
SD PAL Composite
SD NTSC Y Pb Pr *
SD PAL Y Pb Pr *

Video Input Menu
>Select
>All Ports   (NOTE: Selecting ALL PORTS will configure all inputs to the same resolution)
* Ports 1 - 6 (NOTE: Same resolution options as Program Output menu, with the exceptions of 1920 x 1200 output resolution is not available, and SD S-Video replaces Y Pb Pr)

SD Video Format
>Select
>Squeeze
>Letter Box
>Crop
Enables the use of some SD signals to be mixed with HD video signals while avoiding aspect ratio problems

Default Preset No Default Preset Number
>Select
> 01 – 72
Assigns camera preset 1 through 72 as Default Preset on the default camera (default is 01)

Default Timer
>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)

Preset Pan Speed
>Select
>01 – 24 (default is 18)
Sets the Pan Speed on all cameras between camera presets (24 is fastest)

ControlVIEW XHD Menu Structure (continued)

Preset Tilt Speed
>Select
>01 – 20 (default is 15)
Sets Tilt Speed on all cameras between camera presets (20 is fastest)

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

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

Notes: When using Panasonic cameras, you must select Panasonic. If there is no camera connected to the control port of an input, selecting No Camera Input will lower the time of the boot-up process by not scanning for a camera on those selected inputs.

System Menu
>Select
>Serial Input
>Select
>On or Off
Turns on or off serial input (default is is On)
>Serial Echo
>Select
>On or Off
Turns Serial Echo on or off (default is On)

>Serial Info
>Select
>On or Off
Reports button pushes on front panel to the serial port (default is Off)

>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 Camera Presets Only

>Transition Time
>Select
>0.1 to 4.0 Seconds
Allows user to adjust transition time from menu or through RS-232 (i.e. control systems)
Transition Time is also adjustable from front panel and can be stored in the presets if the
Transition Mode (below) is set to "By Preset".

>Transition Mode
>Select
>Global
>By Preset
The currently selected transition will switch cameras in Global mode.
In By Preset mode, the selected transition when a preset is stored will by the transition.

System Menu (continued)

>Wipe Selection
>Select
Left to Right
Right to Left
Top to Bottom
Bottom to Top
Down Right to Upper Left
Down Left to Upper Right
Upper Right to Down Left
Upper Left to Down Right
All Sides to Center
Left>Center<Right
Top>Center<Bottom

>Settle Time
>Select
>0.10 to 0.90 seconds (Default is 0.30)

NOTE: Settle time allows the user to set up the time delay between switching from one input to another. With a lower settle time, there is a greater chance that video will glitch on the Preview outputs when the video is switched very quickly, and repeatedly in such a way and speed that is not really practical. In most applications this is not an issue.

TIP: To avoid the dastardly video glitch or transient hiccup, use the same resolution video feeds (all 1080i or all 720p on the inputs) and the settle time (the time it takes to acquire the signal, stabilize the video, route the signal and scale the signal, process it and send it to the program output) can be reduced for a very quick, glitch free production which is ideal for a 3-camera interview shoot using quick cuts.

>Tally Level   (Default is Active Low)
>Active High
>Active Low

>Init Triggers
>Start
Note: Init Triggers must be performed when new trigger devices have been added after initial startup)

>Preset 67-72
>Cam Presets On
 Cam Presets Off
 Selects only input port without moving camera

>-Cancel
Returns to Main Menu

Figure 9: ControlVIEW XHD Back Panel with I/O Information

Power:	12 VDC, 3A (5.5mm OD x 2.5mm ID)
Video In 1-6:	HD Component (YPbPr), RGBHV or Y/C or Composite (DE-15 female x 6)
Control In 1-6:	RS-232C (RJ-45 F x 6)
Video Out:	HD Component (YPbPr), RGBHV or Y/C Composite (DE-15 female x 2)
RS-232:	DB-9F
RS-232 THRU:	DB-9 M
Triggers (1-24):	14-pin Phoenix type connector (x2)
Triggers (25-72):	DB-25 F (x2)
Tally Outputs:	7-pin Phoenix type connector
Network:	RJ-45 F (available in a future software release)
Link In/Out:	RJ-45 F (x2)

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, Subpart B 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 B 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 - Emissions

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

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

EN 61000-3-3: 1995 + Amendment A1: 2001 + A2: 2005 - Limitation of Voltage Changes & Fluctuations

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 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 ControlVIEW XHD
- 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 ControlVIEW XHD 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

Video Resolutions Supported*:

Input Signal Formats	Supported Resolutions	Aspect Ratio
YPbPr	720p 59.94/50 1080i 59.94/50 1080p 59.94/50	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 1024 @ 60Hz - SXGA 1366 x 768 @ 60Hz - WXGA 1400 x 1050 @ 60Hz - SXGA+ 1600 x 1200 @ 60Hz - UXGA	4:3 4:3 4:3 15:9 5:4 16:9 4:3 4:3
Std Definition - w/Adapter Cable (Y/C or CVBS)	480i/29.97 576i/25	4:3 4:3
Output Signal Formats	**Supported Resolutions**	**Aspect Ratio**
YPbPr	720p 59.94/50 1080i 59.94/50 1080p 59.94/50 480i/29.97 576i/25	16:9 16:9 16:9 4:3 4:3
RGBHV	640 x 480 @ 60Hz - VGA 800 x 600 @ 60Hz - SVGA 1024 x 768 @ 60Hz - XGA 1280 x 768 @ 60Hz - WXGA 1280 x 1024 @ 60Hz - SXGA 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 5:4 16:9 4:3 4:3 16:10
Std Definition - w/Adapter Cable (Y/C and CVBS)	480i/29.97 576i/25	4:3 4:3

- Support of 1080p component video (YPbPr) required on third-party equipment

NOTE: Certain equipment may not be capable of all the resolutions listed and therefore may not function properly. If a certain resolution does not seem to work appropriately, please make sure that the displaying device is properly configured, is capable of the resolution that is chosen and is cabled correctly. Furthermore, just because a resolution is listed on the table in this manual and in the AutoPresenter menu, does not mean the display device can reproduce it accurately. There are a ton of variables and not all scalers are created equal. Vaddio video switchers/mixers use the best video processors and scalers available today. Other companies do not. If you can not get a certain resolution to display correctly, simply choose a different resolution.

NOTE: When converting a RGBHV resolution to a HD video resolution, please expect some over-scanning. This is a normal condition since TV's (HD video monitors) and data (RGBHV) monitors are different and range widely in price, performance, quality and signal compatibility. The old adage, "You get what you pay for", when considering display devices can not be truer in this case. An inexpensive TV or miniature LCD panel will never look like a broadcast quality monitor.
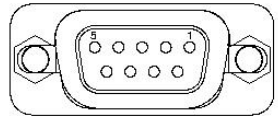
General Specifications:

ControlVIEW XHD	
Part Numbers:	999-5672-000 (North America) 999-5672-001 (International)
Compatible Cameras:	Vaddio, Panasonic, Sony & Canon (see page 2 for specific models)
Video Formats Supported:	NTSC and PAL
Video Switcher:	6 x 1
Video Transitions:	Cross Fade, 11 Wipe options and Straight Cuts, Fade to Black
Video Inputs:	Six (6) RGBHV, HD/SD Component (YPbPr) or Composite (DE-15F)
Program Output:	Two (2) Program outputs * (DE-15F) -- SD or HD Component (YPbPr), RGBHV or Composite SD video using breakout cables * same format and resolution on both outputs
Camera Control Ports:	Six (6) RS-232 on RJ-45F
Control Interface:	One (1) RS-232 on DB-9F
LCD Display:	8 - Line Backlit LCD Display
Power Supply:	PowerRite 12 VDC, 3Amp
Tally Output:	Tally outputs for each of the six video inputs
Trigger Inputs:	72 plus multistep combinations
Weight:	5.5 lbs. (2.5kg) – approximate weight
Dimensions (H x W x D):	16" (40.64cm) x 10" (25.4cm) x 3.5" (8.89cm)

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Appendix 1: RS-232 Control

The ControlVIEW XHD has six (6) discrete camera control ports which eliminates the need for daisy-chaining control cabling. With ControlVIEW XHD, 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 ControlVIEW XHD. 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 ControlVIEW XHD                         |
+-----------------------------------------------------------------------+
| ?          - This Menu                                                |
+----------------------- System Access ---------------------------------+
|Power      x- Power(On/Off)         |Mix          - Mix/FTB Button     |
|Input      x- Switch to Input(1-6)  |Cut          - Cut Button         |
|Store      x- Store Preset(1-138)   |Wipe         - Wipe Button        |
|Preset     x- Enable/Disable/Go to Preset(1-138)                       |
|Camera     x- Switch to Camera(1-6) Video Input not changed            |
+-----------------------------------------------------------------------+
|WipeSel    x- Effect select:(0-10)      0:Wipe R>L,1:Wipe L>R,         |
|     2:Wipe Top>Bot,3:Wipe Bot>Top,4:Wipe LR>UL,5:Wipe LL>UR,6:Wipe UR>LL,|
|     7:Wipe UL>LR,8:Wipe Out>Cnt,9:Wipe L>Cnt<R,10:Wipe T>Cnt<B        |
+-------------------- Preset Pan, Tilt, Zoom----------------------------+
|PanSpeed   x- Preset Pan Speed (1-24) |TiltSpeed   x-Preset Tilt Spd(1-20)|
|ZoomSpeed  x- Preset Zoom Spd (1-7)   |Home          - Home Camera     |
+--------------- Camera ---------------+--------------------------------+
|Move    x,x- (Up/Down/Stop/Left/Right),Value                           |
|Zoom    x,x- (In/Out/Stop),Value                                       |
+-------------------- System Setup and Utilties------------------------+
|SetDefault x- Set Default Preset(1-72) |Tally       - Idle(High/Low)    |
|DspCams    - List connected cameras    |IdleRtn    x- Default Timer(0-60) |
|Reset      - 'CPU'Reset                |SerialEcho x- Echo Serial (On/Off)|
|ClearAll   - Clear all presets         |SerialInfo x- Status (On/Off)     |
|SaveConfig - Manual Config Save        |Version     - Firmware Version   |
|Rescan     - Rescan cameras            |Config      - List Config Settings|
|InitTrig   - Init Idle Trig State      |ResetVideo  - Re-Load Video config|
|Triggers   x- Enable/Disable           |JSD70      x- On/Off/Timer(0-255) |
+-----------------------------------------------------------------------+
```

Appendix 1: Command Structure Definitions

Command	Parameters	Description
Camera	Camera [9](cr)	Select indicated camera (1-6)
ClearAll	ClearAll(cr)	Clear all presets
Config	Config(cr)	Display system configuration
Cut	Cut(cr)	Select Cut Transition
DspCams	DspCams(cr)	Display cameras connected(and Port)
Home	Home(cr)	Home Camera
IdleRtn	IdleRtn [9](cr)	Idle Return 0-60 seconds
InitTrig	InitTrig(cr)	Initialize Idle Trigger State
JSD70	JSD70 On/Off/[9]	Special Joystick processing for Sony D70 Camera
Mix	Mix(cr)	Select Mix/FTB mode
Move	Move(Up/Down/Left/Right/Stop)[,9](cr)	Move camera, optional speed (1-24 pan, 1-20 tilt)
PanSpeed	PanSpeed [9](cr)	Set Preset Pan Speed
Power	Power On/Off(cr)	Power system On/Off
Preset	Preset [9](cr)	Select indicated preset (1-138)
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 (1-72)
Store	Store [9](cr)	Store indicated preset on the current input source(1-138)
Tally	Tally High/Low(cr)	Non-selected(Idle) tally level
TiltSpeed	TiltSpeed [9](cr)	Set Preset Tilt Speed
Triggers	Triggers Enable/Disable(cr)	Enable/Disable External Trigger processing
Version	Version(cr)	Display System Version information
Wipe	Wipe(cr)	Select Wipe Transition
WipeSel	WipeSel [9](cr)	Select Wipe (0-10)
Zoom	Zoom (in/Out/Stop)[,9](cr)	Zoom Camera, optional speed (1-7)
ZoomSpeed	ZoomSpeed [9](cr)	Set Preset Zoom Speed

Appendix 2:
Pin-outs for Connectors on ControlVIEW XHD
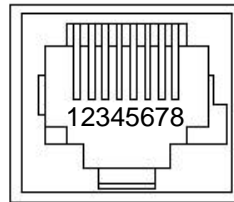
Video Pin-out (both input and output connectors)

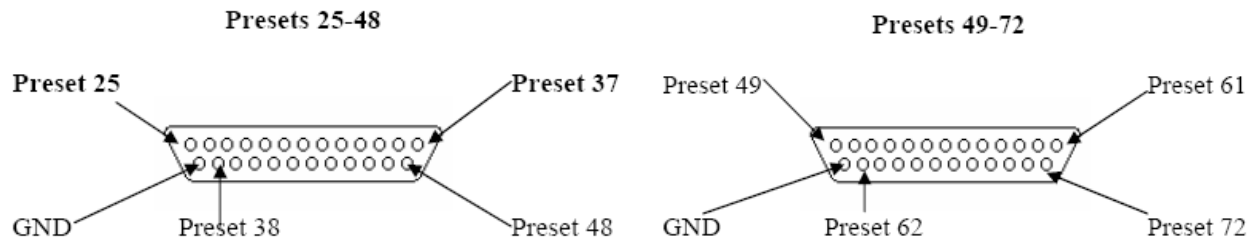| Pin	RGBHV	YPbPr	Y/C & Composite Adapter Cable
1	Red	Pr	
2	Green	Y	
3	Blue	Pb	
4	ID	-	
5	N/C	-	
6	Red GND	Pr GND	
7	Green GND	Y GND	
8	Blue GND	Pb GND	
9	No Pin	-	
10	GND	-	GND
11	ID	-	Y - Luminance
12	ID	-	C - Chrominance
13	H-Sync	-	
14	V-Sync	-	
15	N/C	-	Composite
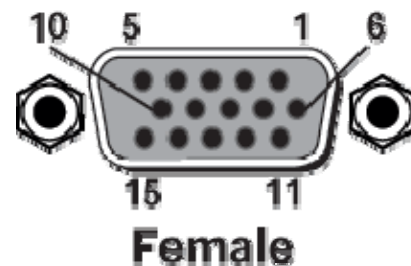
Appendix 2 (continued):

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)

Control Ports 25 – 48 and 49 – 72 on DB-25 Connectors:

Presets 25-48

Preset 25   Preset 37

GND   Preset 38   Preset 48

Presets 49-72

Preset 49   Preset 61

GND   Preset 62   Preset 72

Inside Rear Cover - Blank

Touchboards

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