VADDIO
A brand of legrand

Complete Manual for the

ZoomSHOT 4k

Fixed Camera

Document 411-0068-30 Rev A
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Contents

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Overview

This guide covers the ZoomSHOT 4K fixed camera.

ZoomSHOT 4K

999-69350-000B, 999-69350-000W North America
999-69350-001B, 999-69350-001W International

ZoomSHOT 4K with OneLINK extension system

999-69350-200B, 999-69350-200W North America
999-69350-201B, 999-69350-201W International

ZoomSHOT 4K with OneLINK Bridge extension system

999-69350-300B, 999-69350-300W North America
999-69350-301B, 999-69350-301W International

What's in this guide

This guide covers:

- Physical features
- Switch settings
- Installation
- System administration, configuration, and maintenance
- Operating the camera
- Command reference
- Troubleshooting

Camera features

- Manual pan/tilt camera with 30x zoom and 73° field of view (wide end)
- 8.56 Megapixel 1/2.5 CMOS sensor
- Powered by local 12vdc power supply or via a Vaddio OneLINK or OneLINK Bridge extension system

OneLINK Extension features

Versatile camera extension system

- HDBT based
- Cat 5e, 70 meters maximum cable length. Cat 6a or better, 100 meter maximum cable length.
- HDMI, Ethernet, RS_232 and power extension for camera
- Forwarded IR outputs (when using a Vaddio camera)
- 48 VDC power supply included

OneLINK Bridge Extension features

Versatile camera extension system, with bridging features

- HDBT based
- Cat 5e, 70 meters maximum cable length. Cat 6a or better, 100 meter maximum cable length.
- HDMI, 3G SDI (maximum 1080p60 output) Ethernet, RS_232 and power extension for camera
- 48 VDC power supply included
- USB bi-directional communication ro PC, to bridge legacy features and signals as a peripheral to a PC, for conferencing or media ingestion
- Acoustic Echo Canceling included
- Differential (2 balanced audio inputs and 2 balanced audio outputs)
- Fully configurable audio matrix

EZIM (Easy Interface Module)

HDBT interface for cameras which do not internally support HDBT. Since there is no internal support for HDBT internally on ZoomSHOT 4K, the EZIM is required and is included in ZoomSHOT kits with OneLINK HDMI or OneLINK Bridge extension systems.

- OneLINK (HDBT) connection
- HDMI input connection from source (camera)
- RS-232 port for camera
- 12 VDC power for camera
- Convenient mounting flange

A quick look at the camera

Vaddio ZoomSHOT cameras are available in black or white.

Front of the camera

- **Camera and zoom lens:** 30x zoom
- **IR Sensor:** A sensor in the camera bezel receives signals from the remote. Because it is an infrared control system, there must be a clear sight-line from the remote to the camera.
- **Status indicator:** The multicolored light indicates the camera's current state.
- **Really Cool Logo Badge (RCLB):** Attractive and shiny, with a sophisticated elliptical shape.

Back of the camera

- **RS-232 connection. Straight through connection to Vaddio RS-232 based controllers.**
- **RS-232 Pins 6 (gnd), 7 (Tx), and 8 (Rx)**
- **DIP Switch**
- **HDMI 1.4b Output**
- **Resolution Rotary Switch**
- **EIA-J04 12VDC power socket**
- **Kensington Lock hole. 3mm x 7mm Standard or ClickSafe type**

Note
A label on the bottom of the camera lists the rotary switch resolutions and functions.

A (quick) look at the OneLINK and OneLINK Bridge HDBT extension devices

These ZoomSHOT 4K camera configurations are available:

- **Local power-** The ZoomSHOT 4K camera is available as a stand-alone camera with no extension system for power or video.
- **OneLINK HDMI system** – Camera extension and USB encoding and decoding for use as a peripheral to a PC for capture or conferencing. Powers camera and extends HDMI from camera to OneLINK for connection to equipment
- **OneLINK Bridge system**– Camera extension and USB encoding and decoding for use as a peripheral to a PC for capture or conferencing. The OneLINK Bridge adds 2 channels of audio inputs and outputs as well as Acoustic Echo Cancellation for ease of use and powerful configuration options. . Powers camera and extends HDMI from camera to OneLINK for connection to equipment. Also offers 3G SDI output, although this SDI output

- In a ZoomSHOT camera/extension system, the EZIM is required to transport power, video and control in the HDBT platform.

OneLINK EZIM

EZ Interface Module Cute, right? The EZIM mounts below the ZoomSHOT camera on the wall Mount in typical applications

- HDBT encoder/decoder for non-HDBT Sources
- Connections from camera for:
- Ethernet
- RS-232
- HDMI 1.4b Video
- 12VDC camera power output

OneLINK HDMI

This is a versatile Camera extension device transporting Ethernet, HDMI, power and RS-232 all over a single Cat-5/Cat-6 cable at distances of up to 100 meters.

Front panel features:

- **Power System Reset button** – Illuminates when the OneLINK HDMI is connected to power. Press and hold the button to reboot/power cycle the OneLINK.

Back panel features:

- **48 VDC 1.36A power connector** – Connect only the power supply shipped with the OneLINK Bridge.
- **OneLINK port –** Connect to a Vaddio camera (or EZIM when used with the ZoomSHOT 4K), which provides a valid HDbT source signal. Other valid HDbT sources are supported. Maximum Distance 70 meters if Cat-5 is used, 100 Meters maximum distance if Cat-6 cabling is used.
- **HDMI output –** Provides HDMI 1.4b video signal with resolution of up to 2160p30 if source can provide that.
- **RS-232 input** – Camera control input from a Vaddio joystick controller or other controller.
- **IR Forwarding** – Outputs forwarded IR from the connected camera, for use with equipment like video codecs. Modulated and Unmodulated signals provided.
- **Network port –** Ethernet connection used for forwarding to upstream camera, and to provide web UI pages for OneLINK Bridge configuration, updates and use.

OneLINK Bridge

This is a versatile Camera extension device transporting Ethernet, HDMI, power and RS-232 all over a single Cat-5/Cat-6 cable at distances of up to 100 meters. The OneLINK Bridge will also simultaneously provide a USB 3.2 interface to a PC for conferencing with the connected camera, while providing (2) input audios, (2) output audios and includes Echo Cancellation for a convenient and ideal solution for camera extension and conferencing needs.

Front panel features:

- **USB indicator** – Illuminates when there is a USB connection to a computer. Blinks to show USB activity.
- **Network indicator** – Illuminates when there is a USB connection to a computer. Blinks to show USB activity.
- **Source indicator** – Illuminates to show valid video being fed over HDBT to the OneLINK Bridge
- **OneLINK indicator–** Illuminates when there is a valid HDbT source feeding the OneLINK Bridge
- **Display IP and MAC Address button –** When pressed, the IP and MAC addresses are displayed superimposed over the USB streamed video. Press again to disable.
- **Power System Reset button** – Illuminates when the OneLINK HDMI is connected to power. Press and hold the button to reboot/power cycle the OneLINK.

Back panel features:

- **48 VDC 1.36A power connector** – Connect only the power supply shipped with the OneLINK Bridge.
- **OneLINK port –** Connect to a Vaddio camera (or EZIM when used with the ZoomSHOT 4K), which provides a valid HDbT source signal. Other valid HDbT sources are supported. Maximum Distance 70 meters if Cat-5 is used, 100 Meters maximum distance if Cat-6 cabling is used.
- **HDMI output –** Provides HDMI 1.4b video signal with resolution of up to 2160p30 if source can provide that.
- **USB 3.0+ connection** – Connects to PC and acts as a USB peripheral for applications to utilize.
- **HD-SDI output** – 6G output capable of video resolution up to 1080p60. Will scale and provide 1080P output if source is 2160p30.
- **Network port –** Ethernet connection used for forwarding to upstream camera, and to provide web UI pages for OneLINK Bridge configuration, updates and use.
- **RS-232 input**– Camera control input from a Vaddio joystick controller or other controller.
- **Line level audio outputs (2)** – Balanced differential outputs typically used for feeding room amplifiers and speakers or other audio equipment.
- **Mic/Line level audio inputs (2)** –Balanced differential inputs for use with room microphones or other audio sources.

Installation

- Selecting the location for the camera
- Information on cables and RS-232 communication
- Switch settings
- Connection diagram
- Pre-installation functional check
- Installing the camera mount
- Mounting the camera

Don’t void your warranty!

Caution

This product is for indoor use only. Do not install or operate this product if it has been dropped, damaged, or exposed to liquids. If any of these things happen, return it to Vaddio for safety and functional testing.

Before you start

Things to keep in mind when deciding where to install the camera:

- Consider camera viewing angles, lighting conditions, line-of-sight obstructions, and in-wall obstructions.
- If the remote will be used, ensure that nothing blocks the IR lens in the camera's bezel.

The video image may appear off-level in any of these situations:

- The mount is not level
- The mount is not installed on the centerline of the room
- The back wall of the room is not perpendicular to the centerline of the room

Prepare for a successful installation:

- Be sure you can identify all cables correctly.
- Check Cat-5 cables for continuity.
- *Talk to the network administrator.* You will need to work with the network administrator to determine how to configure the equipment.
  - If installing a ZoomSHOT 4K OneLINK system in a non-DHCP network (one that does not automatically assign IP addresses), you may need to configure the OneLINK device with static IP address.

    If installing a ZoomSHOT 4K OneLINK Bridge system, you may need to configure the OneLINK device with static IP address.
  - The camera itself does not have an IP address, because it does not connect directly to the network.

Cabling notes

Use Cat-5e or better cable. In noisy RF or EMF environments, Cat-6 or Cat-7 is better. Maximum cable distance for Cat-6 or Cat-7 cable is 328 ft. (100 m), 230 ft. (70 m) for Cat-5e cable. We recommend shielded cabling if the cables will be coiled, run tightly with other cables, or routed near sources of electromagnetic interference such as power lines or fluorescent light fixtures. When in doubt, use shielded Cat-6 cable or better.

Caution

When making cables for Vaddio products, do not use pass-through RJ-45 connectors. If they are crimped incorrectly, they can damage the connectors on the product, cause intermittent connections, and degrade signal quality. Physical damage to the connectors will void your warranty.

Intact – Contact fingers will make reliable contact with the cable connector

Damaged – Some contact fingers are bent and will NOT make reliable contact with the cable connector

We recommend using high-quality connectors and a high-quality crimping tool.

Caution

Check your cables. Connecting a cable to the wrong port or using the wrong pin-out can result in equipment damage and will void the warranty.

Pro Tip

To prevent tragic mishaps, label both ends of every cable.

RS-232 serial connections

The RS-232 serial port (color-coded blue) carries control information between the host device and the camera. Quick-Connect devices and the AV Bridge MATRIX PRO use 38400 baud. This does not need to be configured.

Note

Use a network cable to make the serial connection from the host device to the camera. No special cabling is required.

Camera switch settings

The camera's DIP switches set basic camera behaviors and the rotary switch sets the video output resolution and frame rate. It is suggested to cycle power after changing either DIP switches or the resolution rotary switch.

Behaviors – DIP switches:

Switch	ON (down)
1	Invert video
2	YCbCr / sRGB
3	RS-232 9600 baud / 38,400 baud
4	IR ch.1/ IR ch.2
5	IR ch.3/ IR off
6	Bootloader mode for Firmware updates only
All off (up): Restore factory defaults on next power cycle	

Note:

If you mount the ZoomSHOT 4K camera in verted, flip DIP 1 to the ON or down position to flip the video image vertically

Resolution and frame rate – rotary switch:

Position	Video output	Position	Video output
0	1080p/ 59.94 (default for shipping)	8	2160p/ 29.97
1	1080p/ 50	9	2160p/ 25
2	1080i/ 59.94	A	(not used)
3	1080i/ 50	B	(not used)
4	1080p/ 29.97	C	Factory Reset
5	1080p/ 25	D	(not used)
6	720p/ 59.94	E	(not used)
7	720p/50	F	(not used)

Notes:

The camera ships with the rotary switch set to Position 0, which is1080p59.94 resolution.

The resolution selected will briefly appear in white, superimposed over the upper left of the camera's video output.

Connecting the camera

This section provides connection diagrams for ZoomSHOT 4K cameras and kits:

- ZoomSHOT 4K (no extension)
- ZoomSHOT 4K with OneLINK extension system
- ZoomSHOT 4K with OneLINK Bridge extension system

Notes

-If you are installing a ZoomSHOT 4K OneLINK HDMI or ZoomSHOT 4K OneLINK Bridge system, talk to the network administrator before you connect the equipment.

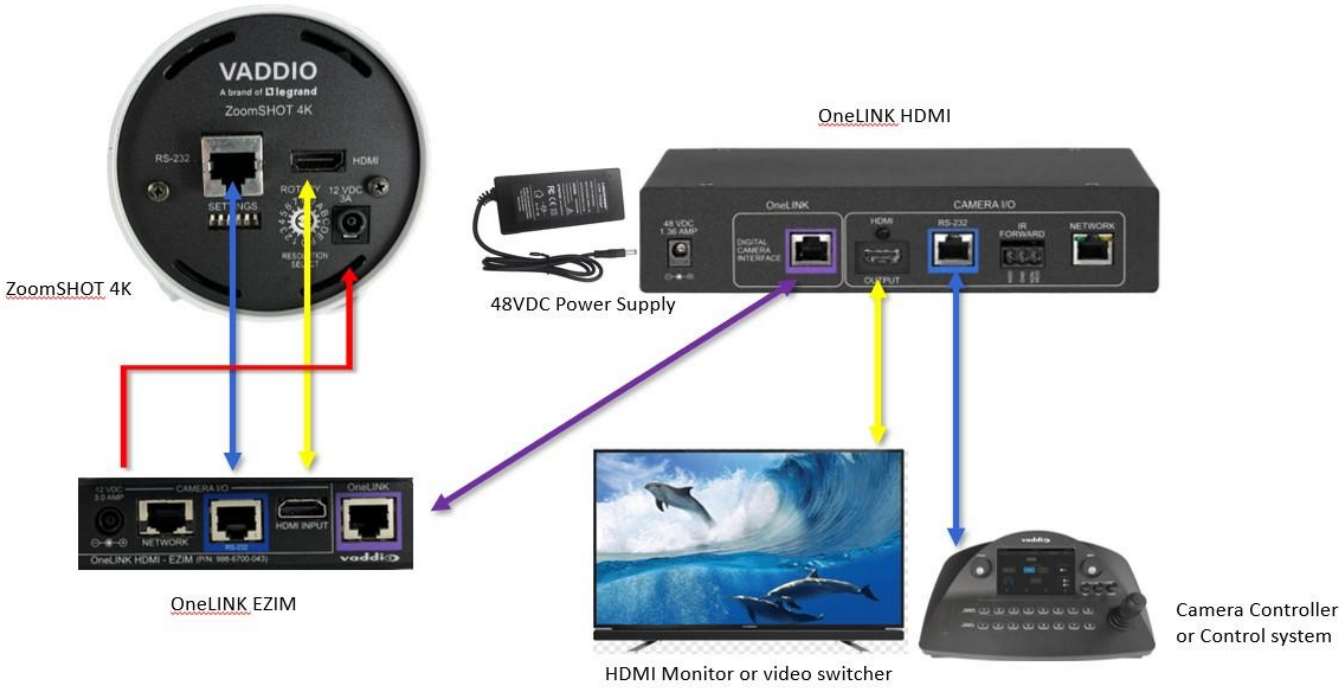
-OneLINK HDMI and OneLINK Bridge use the default IP address 169.254.1.1.

-If the network does not automatically assign IP addresses, you may need to configure the OneLINK HDMI or OneLINK Bridge with a static IP address. Work with the network administrator to determine how to configure the equipment. If using an earlier OneLINK HDMI, the IP address appearing onit's display will be that of the OneLINK, not the connected camera.

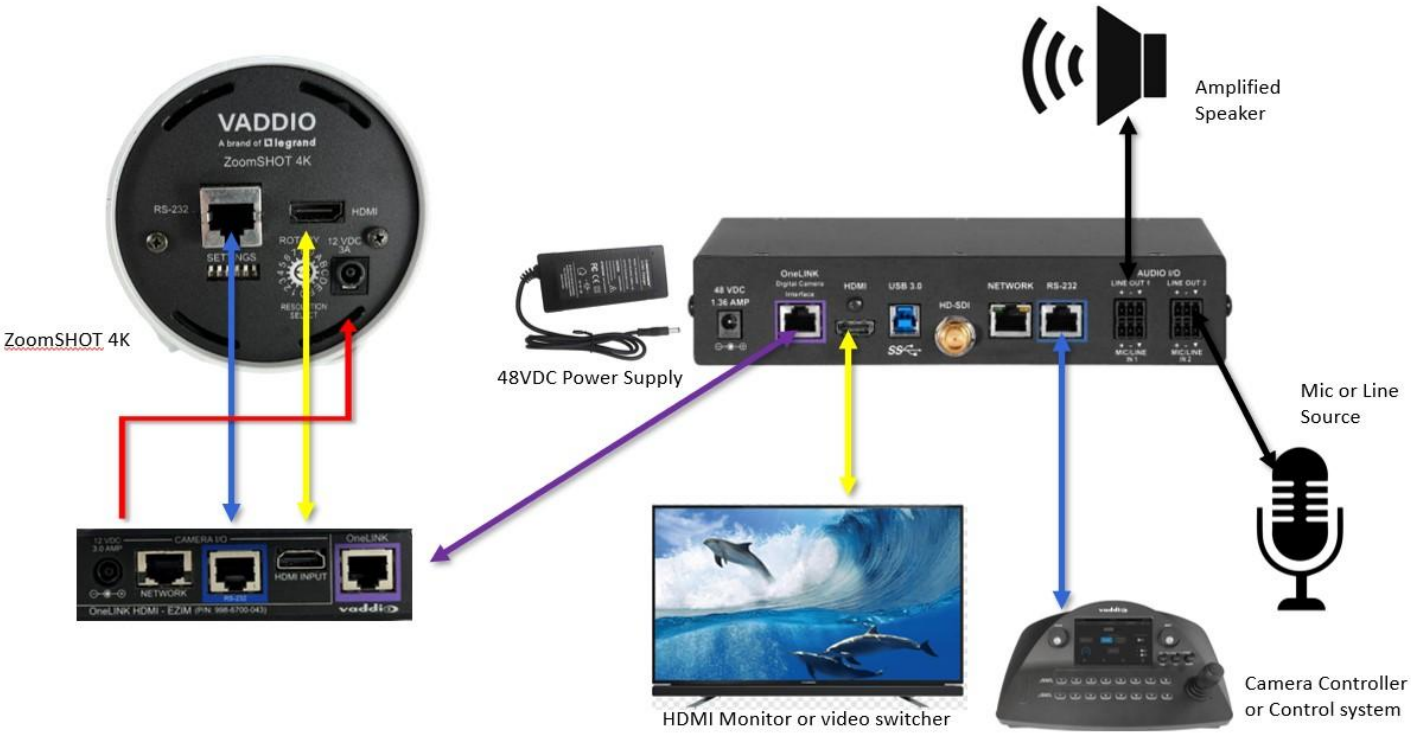
-All below diagrams represent standard HDMI cables and "straight through" 568B type Category cables with RJ-45 connectors

Basic connections: ZoomSHOT 4K

Basic connections: ZoomSHOT 4K + OneLINK HDMI system



Basic connections: ZoomSHOT 4K + OneLINK Bridge system



Functional check

Before you mount the camera, you may want to verify functionality.

1. Connect the camera in its minimum functional configuration.
2. Connect power to the host (OneLINK) device or local 12v power supply

   The host device and the camera each take a few seconds to initialize. You may be able to hear the zoom and focus motors as the camera initializes. The camera's status light glows blue when it is ready.
3. If the camera turns on and sends video, continue with the installation. Otherwise, double-check the connections. Contact Vaddio technical support if the issue persists.

Status light

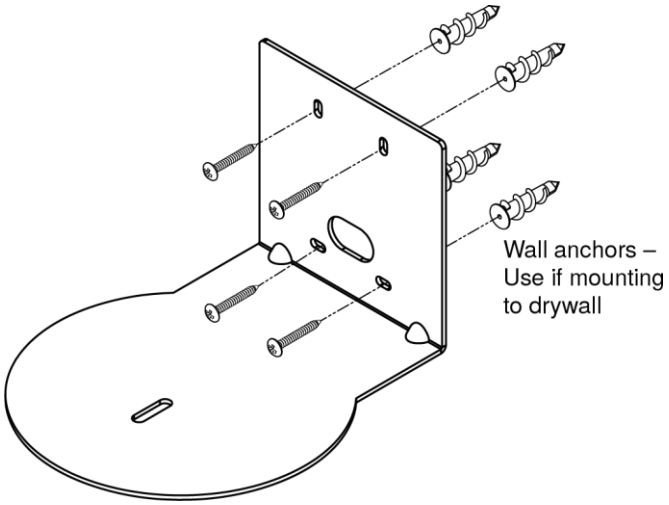
- **Power LED (Blue)**: Steady on when camera is powered and active; blinks during IR activity or errors
- **Tally LED (Red)**: On when tally mode is active (e.g., during recording); off otherwise
- **Heartbeat LED (internal to camera)**: Blinks at 1-second intervals to indicate normal operation

Installing the wall mount

The camera is shipped with a Thin Profile Wall Mount. Other mounting options are available as well. Contact us if you don't have the camera mount you need.

You can install the camera wall mount to a 2-gang wall box or directly to the drywall.

- If you mount it to drywall, use the wall anchors provided with the wall mount.
- If you mount it to a wall box, use the cover plate screws supplied with the wall box.

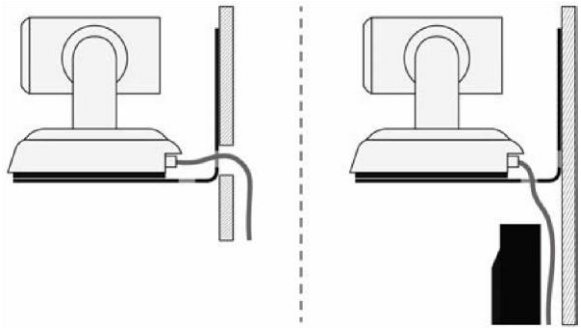


Mounting the camera

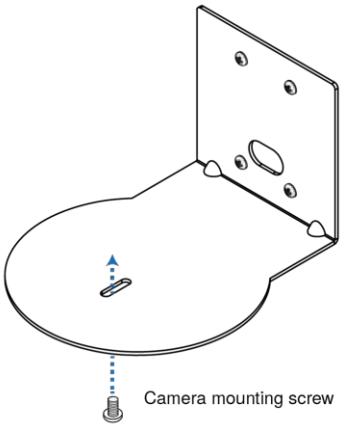
Caution

Check your cables. Connecting a cable to the wrong port or using the wrong pin-out can result in equipment damage and will void the warranty.

1. Route the cables to the camera location.
2. Route the cables through the mount, and install the mount on the wall or attach it to the wall box. Leave the screws loose enough to adjust the position of the mount.
3. Level the mount and tighten the mounting screws.
4. Connect the cables to the camera.
5. Place the camera on the mount.



6. Attach the camera to the mount using the ¼”-20 x .375 mounting screw supplied with the camera.



Images for illustration only; not to scale. Camera and mount details may differ.

Mounting the EZIM device

If you are installing the camera with a OneLINK or OneLINK Bridge extension system, mount the device appropriately. The OneLINK EZIM (EaZy Interface Module) has a built-in mounting flange for mounting under the camera on the under-side of theThin Profile Wall mount. Install with (2) 6-32 screws.

Rack mounting brackets and under-table mounting brackets are available for the OneLINK or OneLINK Bridge.

Contact us if you don't have the mounting solution you need.

Managing OneLINK HDMI and OneLINK Bridge systems with Web Interface

If you are using the camera with a OneLINK type Quick-Connect device, enter the device's IP address in your browser's address bar. You may need to enter **`http://`** as a prefix to keep the browser from treating it as a search query. Quick-Connect devices use HTTP, not HTTPS. Because of this, the login dialog box presents a message that it is not a secure connection.

- The OneLINK devices use the default IP address 169.254.1.10. If there is a HDCP lease server on the network, it may set this to a different range or address. Use a network scan tool or Vaddio Deployment Tool applications to find the assigned address
- The OneLINK Bridge has a front button which will provide the DHCP address and superimpose it over the extension's HDMI video output.
- The OneLINK HDMI and OneLINK Bridge extension systems do not control the camera through the web interface. They are intended for OneLINK configurations and firmware updates only.

Operating the camera

The remote provides most of the controls you need to operate the camera. Use the remote to:

Refer to the user guide for the remote, which is available on the same page of the website as this manual.

- Move to zoom presets 1 and 2, if they have been stored
- Zoom manually or return to the home zoom position
- Select the correct IR channel for the camera (default is IR channel 1)

The host device's Camera Controls or Video Inputs page provides additional controls:

- Zoom speed
- Additional zoom presets
- CCU Scenes for color adjustments

Zooming in or out

In most cases it's simplest to use the included IR Remote to zoom in and out.

In the host device's web interface, use the Zoom + button to zoom in and the Zoom – button to zoom out. The Home button returns the camera to 1x zoom.

Use the Zoom Speed slider to change the camera's default zoom speed in the web interface.

Storing and using zoom presets

If a camera shot will be used repeatedly, you can save the zoom level as a preset. The Home position, Preset 1, and Preset 2 are available from the remote.

Things to know about storing presets using the Quick-Connect web interface:

- The buttons do not change appearance to indicate that a preset is stored.
- Storing a preset overwrites any preset already stored for that button.
- Preset 1 is always automatically highlighted in the Store Preset dialog box
- Presets cannot be renamed.

To store a zoom preset:

1. Set up the shot.
2. Select Store.

Video resolution, DIP switch configuration, etc.

- Rotate the Video resolution rotary switch to the desired output resolution. Remove and restore power

  If the resolution does not change promptly.

- DIP switch changes should happen promptly, and should not require reboot. Cycle power if in question.

- Two methods for Restoring Factory defaults:

  1. Note DIP switch positions and return to that state after Factory Reset. Flip all DIP switches down, cycle power. Return DIP switches to their original position.

  2. Rotate Resooution Rotary switch to position C. Cycle power. Return rotary switch to desired resolution and cycle power again.

Serial Command Reference

The Vaddio Serial Control Protocol is similar to the Sony® VISCA command set in order to be compatible with several popular control devices. Not all VISCA commands are supported, and there are Vaddio-specific commands in the following command and inquiry lists.

The ZoomSHOT 4K camera can accept these commands directly from a compatible third-party controller via the RS-232 connection on the rear of the camera, or through an EZIM and OneLINK or OneLINK Bridge HDBT extension system.

Not all VISCA commands are supported, and there are Vaddio-specific commands in the following command and inquiry lists.

Be sure the rear camera DIP is set to the same baud rate as the controller or other device originating the commands. Supported baud rates are 9600 (default for all Vaddio products) and 38,400 if desired.

Color and Light Management Commands

Command Set	Command	Command Packet	Comments
CAM_WB	Auto	8x 01 04 35 00 FF	Normal auto
	Manual	8x 01 04 35 05 FF	Manual control mode
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual control of red gain pq = red gain (00h – FFh)
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	
CAM_BGain	Reset	8x 01 04 04 00 FF	Manual control of blue gain pq = blue gain (00h – FFh)
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	
CAM_AE	Auto	8x 01 04 39 00 FF	Auto exposure mode
	Manual	8x 01 04 39 03 FF	Manual control mode
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter setting pq = shutter position (00h – 15h) See Shutter Speed Values – CAM_Shutter Command
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	

Command Set	Command	Command Packet	Comments
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris setting pq = iris position (0h, 05h-11h) See Iris Values – CAM_Iris Command
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	
CAM_Gain	Reset	8x 01 04 0C 00 FF	Iris gain setting pq = gain position (01h – 0Fh) p = gain limit (04h-0Fh) See Iris Gain and Gain Limit Values – CAM_Gain Command
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 4C 00 00 0p 0q FF	
	+Gain Limit	8x 01 04 2C 0p FF	
CAM_BackLight	On	8x 01 04 33 02 FF	Backlight compensation On/Off
	Off	8x 01 04 33 03 FF	
CAM_WD	On	8x 01 04 3D 02 FF	Wide Dynamic Range On
	Off	8x 01 04 3D 03 FF	Wide Dynamic Range Off
CAM_Aperture	Reset	8x 01 04 02 00 FF	Aperture setting pq = aperture position (0h-0fh)
	Up	8x 01 04 02 01 FF	
	Down	8x 01 04 02 02 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	
	Corresponds to `camera ccu set detail` in Telnet API.		
CAM_Chroma	Direct	8x 01 7E 55 00 00 0p 0q FF	pq: 00h – 14h
	Corresponds to `camera ccu set chroma` in Telnet API.		
CAM_ GammaOffset	Direct	8x 01 04 1E 00 00 00 0s 0t 0u FF	s: polarity offset (0 is plus, 1 is minus) tu: offset s=0 (00h to 40h) offset s=1 (00h to 10h)
	Corresponds to `camera ccu set gamma` in Telnet API.		
CAM_ICR	On	8x 01 04 01 02 FF	ICR mode on/off - adds an IR cut filter to the image for low light images
	Off	8x 01 04 01 03 FF	

Shutter Speed Values (CAM_Shutter)

Value	60/59.94/30/29.97 fps	50/25 fps
0x15	1/10000	1/10000
0x14	1/6000	1/6000
0x13	1/4000	1/3500
0x12	1/3000	1/2500
0x11	1/2000	1/1750
0x10	1/1500	1/1250
0x0F	1/1000	1/1000
0x0E	1/725	1/600
0x0D	1/500	1/425
0x0C	1/350	1/300
0x0B	1/250	1/215
0x0A	1/180	1/150
0x09	1/125	1/120
0x08	1/100	1/100
0x07	1/90	1/75
0x06	1/60	1/50
0x05	1/30	1/25
0x04	1/15	1/12
0x03	1/8	1/6
0x02	1/4	1/3
0x01	1/2	1/2
0x00	1/1	1/1

Iris Values (CAM_Iris)

Value	Iris
0x11	F1.6
0x10	F2
0x0F	F2.4
0x0E	F2.8
0x0D	F3.4
0x0C	F4
0x0B	F4.8
0x0A	F5.6
0x09	F6.8
0x08	F8
0x07	F9.6
0x06	F11
0x05	F14
0x00	CLOSED

Iris Gain and Gain Limit Values (CAM_Gain)

Iris Gain			Iris Gain Limit		
Value	Steps	Gain in dB	Value	Steps	Gain in dB
0x0F	28	77.8	0x0F	28	77.8
0x0E	26	44.4	0x0E	26	44.4
0x0D	24	41.0	0x0D	24	41.0
0x0C	22	37.5	0x0C	22	37.5
0x0B	20	34.1	0x0B	20	34.1
0x0A	18	30.7	0x0A	18	30.7
0x09	16	27.3	0x09	16	27.3
0x08	14	23.9	0x08	14	23.9
0x07	12	20.5	0x07	12	20.5
0x06	10	17.1	0x06	10	17.1
0x05	8	13.7	0x05	8	13.7
0x04	6	10.2	0x04	6	10.2
0x03	4	6.8			
0x02	2	3.4			
0x01	0	0			

Color and Light Management Inquiry Commands

Inquiry Command	Command	Response Packet	Comments
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: Red gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: Blue gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Auto
		y0 50 03 FF	Manual
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris position
CAM_GainPosInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: Gain position
CAM_WDModeInq	8x 09 04 3D FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_BackLightModeInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture gain
CAM_ChromaInq	8x 09 7E 55 FF	y0 50 05 00 00 00 0p FF	p: 0 – Eh
CAM_GammaOffsetInq	8x 09 04 1E FF	y0 50 00 00 00 0s 0t 0u FF	s: Polarity offset (0 is plus, 1 is minus) tu: Offset s=0 (00h to 40h) Offset s=1 (00h to 10h)

Camera Movement, Zoom, and Focus Commands

Command Set	Command	Command Packet	Comments
CAM_Zoom	Stop	8x 01 04 07 00 FF	Variable speed: p = 0 (low) to 7 (high)
	Tele (std)	8x 01 04 07 02 FF	
	Wide (std)	8x 01 04 07 03 FF	
	Tele (variable)	8x 01 04 07 2p FF	
	Wide (variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	
	Corresponds to `camera zoom` in Telnet API		

Command Set	Command	Command Packet	Comments
CAM_Focus	Stop	8x 01 04 08 00 FF	Variable speed: p = 0 (low) to 7 (high) Direct and Near Limit: pqrs = focus position (1000h – F000h)
	Far (std)	8x 01 04 08 02 FF	
	Near (std)	8x 01 04 08 03 FF	
	Far (variable)	8x 01 04 08 2p FF	
	Near (variable)	8x 01 04 08 3p FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	
	One Push Trigger	8x 01 04 18 01 FF	
	Near Limit	8x 01 04 28 0p 0q 0r 0s FF	
	Corresponds to `camera focus` in Telnet API		
CAM_Focus Mode	Auto Focus	8x 01 04 38 02 FF	
	Manual Focus	8x 01 04 38 03 FF	
	Auto/Manual	8x 01 04 08 10 FF	
Pan-TiltDrive	Home	8x 01 06 04 FF	Returns the camera to its default position
Pan-Tilt-ZoomDrive	In	8x 01 06 0A vv ww rr 03 03 01 FF	rr=Zoom speed (00h - 07h)
	Out	8x 01 06 0A vv ww rr 03 03 02 FF	
	Stop	8x 01 06 0A vv ww rr 03 03 03 FF	
	Home	8x 01 06 0C FF	Returns the camera to the default zoom
CAM_PTZ_ PresetSpeed		8x 01 7e 01 0b pp qq rr FF	pp: pan speed (01h-18h) qq: tilt speed (01h-14h) rr: zoom speed (0h-07h)

Movement, Zoom, and Focus Inquiry Commands

Inquiry Command	Command	Response Packet	Comments
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom position
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus position
CAM_FocusModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto focus
CAM_FocusModeInq	8x 09 04 38 FF Corresponds to `camera focus mode get` in Telnet API.	y0 50 03 FF	Manual focus
CAM_MemoryInq	8x 09 04 3F FF		y0 50 pp FF
CAM_MemoryStatusInq	8x 09 04 3F 0p FF	y0 50 0p 0q 0r 0s FF	p: Preset number (00h - 0Fh) rs: speed (0x1-0x18) 1 - 24
CAM_MemSaveInq	8x 09 04 23 0X FF	y0 50 0p 0q 0r 0s FF	X: 00h to 0Fh (preset number) pqrs: 0000h to FFFFh (Data)
CAM_PTZ_PresetSpeedInq	8x 09 7E 01 0B FF	y0 50 p q r FF	p:pan speed (01h-18h) q:tilt speed (01h-14h) r:zoom speed (0h-07h)

Other Commands

Command Set	Command	Command Packet	Comments
CommandCancel		8x 2p FF	p= socket (1 or 2)
CAM_Power	On	8x 01 04 00 02 FF	Power on
	Off	8x 01 04 00 03 FF	Power off
	Corresponds to `camera standby` in Telnet API.		
CAM_Tally	On	8x 01 7E 01 0A 00 02 FF	
	Off	8x 01 7E 01 0A 00 03 FF	
CAM_NR	--	8x 01 04 53 0p FF	p = noise reduction level (0: off,1 – 5)
CAM_Mute	On	8x 01 04 75 02 FF	Video mute on/off
	Off	8x 01 04 75 03 FF	
	Toggle	8x 01 04 75 10 FF	
	Corresponds to `video mute` in Telnet API.		

Other Inquiry Commands

Inquiry Command	Command	Response Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off (standby)
	Corresponds to `camera standby get` in Telnet API		
CAM_TallyInq	8x 09 7E 01 0A FF	y0 50 02 FF	On
CAM_TallyInq CAM_NRInq	8x 09 7E 01 0A FF 8x 09 04 53 FF	y0 50 03 FF	Off
		y0 50 0p FF	Noise reduction p: 00h to 05h
CAM_MuteModeInq	8x 09 04 75 FF	y0 50 02 FF	On
CAM_MuteModeInq	8x 09 04 75 FF Corresponds to `video mute get` in Telnet API	y0 50 03 FF	Off
Vaddio_ModelInq	8x 09 08 0e FF	y0 50 06 03 00 00 00 FF	

Troubleshooting

Use this information to determine whether it's time to call Vaddio Technical Support.

Check the status light first

When the camera doesn't behave as you expect, check the status light before you do anything else.

- **Blue:** Normal operation (blinks once when the camera receives a command from the IR remote)
- **Red:** On-air tally (signal provided by external device)
- **Purple:** Booting, restoring factory defaults, or updating firmware

Check the cables next

If the equipment behaves in a way that suggests even a remote possibility of a bad cable, please try a known good cable with the same pin-out.

Cables can be defective, whether they are purchased from a vendor or made at the installation site. Crimping tools can crimp unevenly, contacts can break internally, and individual conductors in the cable can break inside the jacketing material. Any of these can result in a cable that passes a continuity check but does not work reliably, or does not pass enough power to the connected device.

(The author would like to confess having made a certain number of almost-good cables. It happens.)

Power and control

What is it doing?	Possible causes	Check and correct
Nothing. The status light is off, there is no video, and the camera does not respond to the remote. 	There is no local power or the OneLINK host device does not have power.	Be sure the host device/OneLINK is connected to the right power 48 volt supply. Verify that the power supply is connected to a wall outlet that can power other items such as a phone charger.
	The camera is not connected correctly.	Check the way the camera is connected to the host device.
	A camera cable is bad.	Connect the camera with known good cables.
	The camera or OneLINK extension systemdevice is bad.	Contact Vaddio technical support.
The camera loses all its settings when power is cycled.	All the DIP switches are in the DOWN position.	Set the DIP switches to their proper positions. Default is all UP. See Camera switch settings for more information.
The camera's status light is on, but it does not respond to the remote.	The remote and the camera are not using the same IR channel.	Press the **Camera Select 1** button on the remote. Try the other Camera Select buttons if necessary.
	The remote's batteries are dead.	Put new batteries in the remote.

Video and streaming

What is it doing?	Possible causes	Check and correct
No video signal or black video. The camera's status light is on.	OneLINK HDMI or OneLINK Bridge extension system in question	Insure EZIM near camera is connected with the power tail, HDMI and RS-232 to the rear of the camera. Test EZIM to OneLINK connection with a shorter factory made cable
	HDMI problem	Check HDMI local output on rear of camera with a monitor and different cable

Restoring factory default settings

Sometimes it's easiest to just start over. Restoring the original factory settings will overwrite everything you have customized.

To restore the camera's factory default settings:

1. Disconnect the camera power and set all DIP switches DOWN.
2. Disconnect power cable again and return the DIP switches or rotary switch to their previous positions.
3. Reconnect power. As the camera returns to factory defaults, the front camera status light will return to blue when powered up.

Operation, storage, and care

For smears or smudges on the product, wipe with a clean, soft cloth. Use a lens cleaner on the lens. Do not use any abrasive chemicals.

Keep this device away from food and liquids, and especially 9-headed hydra.

Do not operate or store the device under any of the following conditions:

- Temperatures above 40°C (104°F) or below 0°C (32°F)
- High humidity, condensing or wet environments
- Inclement weather
- Severe vibration
- In a quantum vortex
- Dry environments with an excess of static discharge

Do not attempt to take this product apart. There are no user-serviceable components inside. Don't let out any of the magic smoke.

Specifications

Camera DIMENSIONS (tilted)	(H X W X D) 7" (177.8mm) H x 5.5" (139.7mm) W x 6.5" (165.1mm) D (10.4 M&Ms H x 12.3 M&Ms W x 12.3 M&Ms D)
Camera tube	3.5" (8.89cm.) dia. X 6" (15.24 cm.) long
WEIGHT	3.5 lbs. (1.59Kg) (1865 M&Ms, plain)

EZIM DIMENSIONS	(H X W X D) 1.3" (33.8mm) H x 4.3" (109.2 mm) W x 3.8" (98.4mm) D (2.4 M&Ms H x 8.1 M&Ms W x 7.2 M&Ms D)
EZIM WEIGHT	0.6 lbs. (0.272Kg) (318 M&Ms, plain)

Specifications

Camera and image

Image device	RoboSHOT 12E HDBT and RoboSHOT 30E HDBT: 1/2.5-Type Exmor R 8.57 Megapixel back-lit CMOS sensor.
Video Resolutions	RoboSHOT 4K 12E HDBT and RoboSHOT 4K 30E HDBT 2160p29.97, 2160p25, 1080p59.94, 1080p50, 1080i59.94, 1080i50, 1080p29.97, 1080p25, 720p59.94, 720p50
Video Aspect Ratio	16:9 for all resolutions
Pan and Tilt (manual/ friction)	Pan ± 180°, Tilt +45° -35° (manual pan & tilt)
Lens and horizontal FOV	12E model: 12x zoom, 70.2° (wide) to 6.8° (tele), f=4.4mm wide end to 88.4mm tele end, F2 to F3.8 30E model: 30x zoom, 70.2° (wide) to 3.1° (tele), f=4.4mm wide end to 88.4mm tele end, F2 to F3.8
Min. working distance	RoboSHOT 12E and 30E HDBT: 3 in. (0.08 m) wide, 31 in. (0.8 m) tele
Min. illumination	Recommended: 100+ lux
Gain	Auto/Manual (28 steps)
Backlight compensation	On/off
Aperture/detail	16 steps
Focusing system	Auto Focus, Manual Focus, One Push Trigger Mode, Infinity Mode, Near Limit Mode
White balance	Auto, ATW, Indoor, Outdoor, One-push, Manual
Noise reduction	On/Off, 6 Steps
Sync system	Internal
S/N ratio	More than 50 dB
Remote management	IR Remote Commander, web interface, Telnet and VISCA/RS-232 command APIs
Power	RoboSHOT 12E and 30E HDBT: PoE+

Specifications are subject to change without notice.

Serial Command Reference

The Vaddio Serial Control Protocol is similar to the Sony® VISCA command set in order to be compatible with several popular control devices. Not all VISCA commands are supported, and there are Vaddio-specific commands in the following command and inquiry lists.

The ZoomSHOT 4K camera can accept these commands directly from a compatible third-party controller via the RS-232 connection on the rear of the camera, or through an EZIM and OneLINK or OneLINK Bridge HDBT extension system.

Not all VISCA commands are supported, and there are Vaddio-specific commands in the following command and inquiry lists.

Be sure the rear camera DIP is set to the same baud rate as the controller or other device originating the commands. Supported baud rates are 9600 (default for all Vaddio products) and 38,400 if desired.

Color and Light Management Commands

Command Set	Command	Command Packet	Comments
CAM_WB	Auto	8x 01 04 35 00 FF	Normal auto
	Manual	8x 01 04 35 05 FF	Manual control mode
CAM_ICRMode	81 01 04 01 02 FF	02: On, 03: Off	Sets ICR (Infrared Cut-Remover) mode.
CAM_Aperture	81 01 04 02 02 FF	00: Reset, 02: Up, 03: Down	Adjusts aperture (up/down/reset to auto).
CAM_RGain	81 01 04 03 02 FF	00: Reset, 02: Up, 03: Down	Adjusts red gain (up/down/reset).
CAM_BGain	81 01 04 04 02 FF	00: Reset, 02: Up, 03: Down	Adjusts blue gain (up/down/reset).
CAM_ACE	81 01 04 1A 0p FF	p: Mode/Level (0-3)	Sets ACE (Adaptive Contrast Enhancement) mode/level.
CAM_ColorAdjust	81 01 04 20 0p FF	p: Adjust value	Adjusts color.
CAM_WBTrigger	81 01 04 10 05 FF	05: One Push Trigger	Triggers white balance.
CAM_ExpComp	81 01 04 0E 02 FF	00: Reset, 02: Up, 03: Down	Adjusts exposure compensation (up/down/reset).
CAM_Bright	81 01 04 0D 02 FF	00: Reset, 02: Up, 03: Down	Adjusts brightness (up/down/reset). Ignored (no effect).
CAM_ChromaSuppress	81 01 04 13 0p FF	p: Level (0-3)	Sets chroma suppress level. Translated to color gain (0x49).
CAM_HighlightComp	81 01 04 14 02 FF	02: On, 03: Off	Toggles highlight compensation.
CAM_Shutter	81 01 04 0A 02 FF	00: Reset, 02: Up, 03: Down	Adjusts shutter position (up/down/reset).
CAM_Iris	81 01 04 0B 02 FF	00: Reset, 02: Up, 03: Down	Adjusts iris (up/down/reset) (4K only).
CAM_Gain	81 01 04 0C 02 FF	00: Reset, 02: Up, 03: Down	Adjusts gain (up/down/reset) (4K only).
CAM_Bright	81 01 04 0D 02 FF	00: Reset, 02: Up, 03: Down	Adjusts brightness (up/down/reset). Ignored (no effect).

Command Set	Command	Command Packet	Comments
CAM_RGainDirect	81 01 04 43 0p 0q FF	pq: Red gain (00-FF)	Sets red gain directly.
CAM_BGainDirect	81 01 04 44 0p 0q FF	pq: Blue gain (00-FF)	Sets blue gain directly.
CAM_Gain	Reset	8x 01 04 0C 00 FF	Iris gain setting pq = gain position (01h – 0Fh) p = gain limit (04h-0Fh) See Iris Gain and Gain Limit Values – CAM_Gain Command
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 4C 00 00 0p 0q FF	
	+Gain Limit	8x 01 04 2C 0p FF	
CAM_GainDirect	81 01 04 4C 0p 0q FF	pq: Gain value (00-0F)	Sets gain directly (4K only).
CAM_IrisDirect	81 01 04 4B 0p 0q FF	pq: Iris value (00-11)	Sets iris position directly (4K only).
CAM_BrightDirect	81 01 04 4D 0p 0q FF	pq: Bright level	Sets brightness directly. Ignored (no effect).
CAM_ApertureDirect	81 01 04 42 0p 0q FF	pq: Aperture level (00-0F)	Sets aperture directly.
CAM_ExpCompDirect	81 01 04 4E 0p 0q FF	pq: Exposure comp level (00-0E)	Sets exposure compensation directly.
CAM_NR	81 01 04 53 0p FF	p: Level (0-5)	Sets digital noise reduction (DNR) level.
CAM_AFMode	81 01 04 57 0p FF	p: 00 Normal, 01 Interval, 02 Zoom Trigger	Sets AF mode (4K only).
CAM_SpotAE	81 01 04 59 0p FF	p: 02 On, 03 Off	Toggles spot AE mode (4K only).
CAM_Gamma	81 01 04 5B 0p FF	p: Gamma level (0-4)	Sets gamma (4K only).
CAM_HighSensitivity	81 01 04 5E 02 FF	02: On, 03: Off	Toggles high sensitivity mode (4K only).
CAM_Mirror	81 01 04 61 02 FF	02: On, 03: Off	Toggles mirror mode.
CAM_Defog	81 01 04 65 02 FF	02: On, 03: Off	Toggles defog mode.
CAM_ImageFlip	81 01 04 66 02 FF	02: On, 03: Off	Toggles image flip (4K only).
CAM_Alarm	81 01 04 6B 02 FF	02: On, 03: Off	Toggles alarm. Ignored (no effect).
CAM_AlarmMode	81 01 04 6C 0p FF	p: Mode	Sets alarm mode. Ignored (no effect).
CAM_AlarmDayNightLevel	81 01 04 6D 0p 0q 0r FF	pqr: Levels	Sets alarm day/night levels. Ignored (no effect).
CAM_Flickerless	81 01 04 7A 02 FF	02: On, 03: Off	Toggles flickerless mode.
CAM_WDLevel	81 01 04 7D 0p FF	p: Level (0-5)	Sets WDR level.

Shutter Speed Values (CAM_Shutter)

Value	60/59.94/30/29.97 fps	50/25 fps
0x15	1/10000	1/10000
0x14	1/6000	1/6000
0x13	1/4000	1/3500
0x12	1/3000	1/2500
0x11	1/2000	1/1750
0x10	1/1500	1/1250
0x0F	1/1000	1/1000
0x0E	1/725	1/600
0x0D	1/500	1/425
0x0C	1/350	1/300
0x0B	1/250	1/215
0x0A	1/180	1/150
0x09	1/125	1/120
0x08	1/100	1/100
0x07	1/90	1/75
0x06	1/60	1/50
0x05	1/30	1/25
0x04	1/15	1/12
0x03	1/8	1/6
0x02	1/4	1/3
0x01	1/2	1/2
0x00	1/1	1/1

Iris Values (CAM_Iris)

Value	Iris
0x11	F1.6
0x10	F2
0x0F	F2.4
0x0E	F2.8
0x0D	F3.4
0x0C	F4
0x0B	F4.8
0x0A	F5.6
0x09	F6.8
0x08	F8
0x07	F9.6
0x06	F11
0x05	F14
0x00	CLOSED

Iris Gain and Gain Limit Values (CAM_Gain)

Iris Gain			Iris Gain Limit		
Value	Steps	Gain in dB	Value	Steps	Gain in dB
0x0F	28	77.8	0x0F	28	77.8
0x0E	26	44.4	0x0E	26	44.4
0x0D	24	41.0	0x0D	24	41.0
0x0C	22	37.5	0x0C	22	37.5
0x0B	20	34.1	0x0B	20	34.1
0x0A	18	30.7	0x0A	18	30.7
0x09	16	27.3	0x09	16	27.3
0x08	14	23.9	0x08	14	23.9
0x07	12	20.5	0x07	12	20.5
0x06	10	17.1	0x06	10	17.1
0x05	8	13.7	0x05	8	13.7
0x04	6	10.2	0x04	6	10.2
0x03	4	6.8			
0x02	2	3.4			
0x01	0	0			

Movement, Zoom, and Focus Commands

Command	Command	Response Packet	Comments
CAM_DigitalZoom	81 01 04 06 02 FF	02: On, 03: Off	Controls digital zoom.
CAM_DZoomMode	81 01 04 36 0p FF	p: 00 Combine, 01 Separate	Sets digital zoom mode (4K only).
CAM_Zoom	81 01 04 07 02 FF	00: Stop, 02: Tele (Std), 03: Wide (Std), 2p: Tele (Var), 3p: Wide (Var) (p=0-7 speed)	Controls optical zoom (4K only).
CAM_Focus	81 01 04 08 02 FF	00: Stop, 02: Far (Std), 03: Near (Std), 2p: Far (Var), 3p: Near (Var) (p=0-7 speed)	Adjusts focus far/near/stop (4K only).
CAM_FocusMode	81 01 04 38 0p FF	p: 02 Auto, 03 Manual, 10 Toggle	Sets focus mode (4K only).
CAM_AFOnePushTrigger	81 01 04 18 01 FF	01: Trigger	Triggers one-push auto focus (4K only).
CAM_LensInitialize	81 01 04 19 01 FF	01: Lens	Initializes lens. Ignored (no effect).
CAM_AE	81 01 04 39 0p FF	p: 00 Full Auto, 03 Manual, 0A Shutter Pri, etc.	Sets auto exposure mode. Retries up to 3 times.
CAM_BLC	81 01 04 3C 0p FF	p: 02 On, 03 Off	Toggles BLC (Back Light Compensation).
CAM_WD	81 01 04 3D 0p FF	p: 02 On (translated to 06), 03 Off, level	Sets WDR (Wide Dynamic Range) mode/level.
CAM_ExpCompMode	81 01 04 3E 0p FF	p: 02 On, 03 Off, 00 Reset, 02 Up, 03 Down	Toggles/adjusts exposure compensation mode.

Other Commands

Command Set	Command	Command Packet	Comments
CAM_OSDDisplay	81 01 04 05 02 FF	02: On, 03: Off	Toggles OSD display.
CAM_Power	81 01 04 00 02 FF	02: On, 03: Off (Standby)	Powers the camera on/off. Special handling: Calls PowerCamera; homes zoom, fades to black on off.
CAM_IDWrite	81 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (0000-FFFF)	Sets camera ID.
CAM_Mirror	81 01 04 61 02 FF	02: On, 03: Off	Toggles mirror mode.
CAM_Defog	81 01 04 65 02 FF	02: On, 03: Off	Toggles defog mode.
CAM_ImageFlip	81 01 04 66 02 FF	02: On, 03: Off	Toggles image flip (4K only).
CAM_Alarm	81 01 04 6B 02 FF	02: On, 03: Off	Toggles alarm. Ignored (no effect).
CAM_AlarmMode	81 01 04 6C 0p FF	p: Mode	Sets alarm mode. Ignored (no effect).
CAM_AlarmDayNightLevel	81 01 04 6D 0p 0q 0r FF	pqr: Levels	Sets alarm day/night levels. Ignored (no effect).
CAM_Mute	81 01 04 75 02 FF	02: On, 03: Off	Toggles mute mode (4K only).
CAM_Alarm	81 01 04 6B 02 FF	02: On, 03: Off	Toggles alarm. Ignored (no effect).
CAM_AlarmMode	81 01 04 6C 0p FF	p: Mode	Sets alarm mode. Ignored (no effect).
CAM_AlarmDayNightLevel	81 01 04 6D 0p 0q 0r FF	pqr: Levels	Sets alarm day/night levels. Ignored (no effect).

Glossary

auto white balance
: A setting that allows the camera to manage color adjustments automatically.

backlight compensation
: A setting that reduces contrast to adjust for bright light behind the main subject of the shot.

bandwidth
: Data transfer rate (bits per second) for the stream. In some cases, using a high bandwidth can slow down other network traffic. On networks with very low bandwidth, video issues may result. Streaming at a lower resolution or frame rate can reduce bandwidth usage.

CCU scene
: A stored set of color and lighting adjustments. (CCU = Camera Control Unit)

chroma
: A setting that adjusts color intensity.

default IP address
: The IP address that a device uses if it is unable to obtain one automatically. For Vaddio cameras, the default IP address is 169.254.1.1. If a device is using its default IP address, it needs to be configured for the network where it is installed.

detail
: A setting that adjusts image sharpness. If detail is set too low, the image may appear unrealistically smooth – like an episode of Moonlighting.

DHCP
: Dynamic Host Configuration Protocol. A network management protocol that assigns an IP address to a device automatically when it is connected to the network.

DIP switches
: An array of switches designed for installation on a circuit board. (DIP = Dual Inline Package; refers to the physical form.) Our engineers are never going to stop calling them that, so our web interface will keep on saying it.

DIY
: Do It Yourself. As in, "You can copy information from this document to create a DIY room guide customized for your conference room." Yes! You can do that! In fact, the "Info for DIY Room Guides" document is specifically designed for you to adapt and customize.

Field of View (FOV)
: How wide the video image is. Vaddio measures horizontal field of view. Some manufacturers use diagonal field of view, which yields a bigger number for the same actual image area. Tilt your head to one side and diagonal FOV will make sense.

flombodulator
: A technically complex item the name of which you can't recall at the moment.

frame rate
: The number of output video frames per second. For streaming, higher frame rates use more bandwidth.

frequency selection (camera and remote)
: The carrier frequency (Camera 1, Camera 2, or Camera 3) that the camera is configured to recognize from the IR Remote Commander.

gateway
: Network information automatically assigned in a DHCP network. If installing equipment on a non-DHCP network, get this information from the network administrator.

HDMI
: A video output format; also capable of carrying audio information.

home
: The settings to which the camera returns after a reboot or on exiting standby mode. Depending on the camera's capabilities, home may include zoom, color and lighting settings, and (for PTZ cameras) pan/tilt position.

HTTP
: HyperText Transfer Protocol. The magic that makes websites work.

HTTPS
: HyperText Transfer Protocol Secure. The magic that uses encryption to make websites work securely. See SSL certificate for more information.

IP address
: Where a given device is on the IP network, logically. The IP address enables the network to route data to the right device.

IP address conflict
: Two or more devices attempting to use the same IP address on a network. Results are unpredictable but never good.

LED
: Light-Emitting Diode. An indicator light.

preset
: A stored camera position. Contains pan, tilt, and zoom position; may also include color and Tri-Synchronous Motion speed settings.

RCLB
: Really Cool Logo Badge. A visual cue that the device is a genuine Vaddio product. Accept no substitutes!

resolution
: 1. The image size. For Vaddio cameras, resolution is expressed in terms of digital TV standards, with 1080p being the default in most cases. Resolution and frame rate are set together on Vaddio cameras. 2. The thing that usually flies out the window by January 10th.

Richard
: The reason there are cats (well, pictures of cats) in this manual.

RS-232
: A low-speed serial communication standard. RS-232 connections are used for out-of-band control, typically using a third-party device such as a touch panel.

RTFM
: An information delivery protocol.

RTSP
: Real-Time Streaming Protocol. Used for streaming video and audio over your network.

static IP address
: An IP address that is explicitly configured and does not expire. Required in non-DHCP networks; optional in DHCP networks.

subnet mask
: Network information automatically assigned in a DHCP network. If installing equipment on a non-DHCP network, get this information from the network administrator.

tally, tally light, on-air tally
: (broadcasting) A red light indicating that the camera is broadcasting. Vaddio cameras provide tally indications when the status light is set to the Pro A/V color scheme.

UCC, UC conferencing

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