



Complete Manual for

RoboSHOT 4K HDBT High- Performance PTZ Cameras

Including RoboSHOT 4K 12E HDBT, RoboSHOT 4K 30E HDBT

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Overview

This guide covers the RoboSHOT® 4K HDBT cameras:

- RoboSHOT 4K 12E HDBT, North America – 999-99605-000B (black); 999-99605-000W (white)
- RoboSHOT 4K 12E HDBT, Europe/UK – 999-99605-001B (black) ; 999-99605-001W (white)
- RoboSHOT 4K 30E HDBT, North America – 999-99635-000B (black); 999-99635-000W (white)
- RoboSHOT 4K 30E HDBT, Europe/UK – 999-99635-001B (black); 999-99635-001W (white)



It is also applicable to OneLINK® systems featuring RoboSHOT 4K HDBT cameras:

- RoboSHOT 4K 12E OneLINK HDMI System, North America – 999-99605-200B (black); 999-99605-200W (white)
- RoboSHOT 4K 12E OneLINK HDMI System, Europe/UK – 999-99605-201B (black); 999-99605-201W (white)
- RoboSHOT 4K 30E OneLINK HDMI System, North America – 999-99635-200B (black); 999-99635-200W (white)
- RoboSHOT 4K 30E OneLINK HDMI System, Europe/UK – 999-99635-201B (black); 999-99635-201W (white)



- RoboSHOT 4K 12E OneLINK Bridge System, North America – 999-99605-300B (black); 999-99605-300W (white)
- RoboSHOT 4K 12E OneLINK Bridge System, Europe/UK – 999-99605-301B (black); 999-99605-301W (white)
- RoboSHOT 4K 30E OneLINK Bridge System, North America – 999-99635-300B (black); 999-999-99635-300W (white)
- RoboSHOT 4K 30E OneLINK Bridge System, Europe/UK – 999-99635-301B (black); 999-99635-301W (white)



What's in this Guide

This guide covers:

- Unpacking
- Physical features
- Switch settings
- Installation
- Controlling the camera using the IR remote
- Web interface: system administration and performance/behavior configuration
- Telnet and RS-232 API references
- Specifications
- Troubleshooting
- Warranty and compliance/conformity information

Download manuals, dimensional drawings, and other information from www.vaddio.com/support.

Camera Features

- RoboSHOT 4K 12E HDBT and RoboSHOT 4K 30E HDBT: Exmor R back-lit 1/2.5 type, high-speed, low-noise image sensor
- RoboSHOT 4K 12E HDBT: 12x optical zoom – perfect for small to medium rooms
- RoboSHOT 30E HDBT: 30x optical zoom – for medium to large venues such as houses of worship, lecture theaters, IMAG systems
- Tri-Synchronous Motion™ simultaneous 3-axis pan/tilt/zoom movement between presets
- Smooth, silent direct-drive motors – ultra-accurate positioning, from 120° per second down to 0.35° per second
- Designed for use with Vaddio OneLINK® camera extension devices
- Web interface for remote administration and operation, integration-ready Telnet or serial RS-232 control, presenter-friendly IR remote control

Unpacking the Camera

Make sure you received all the items you expected. Here are the packing lists for the RoboSHOT 4K HDBT cameras.

Download manuals, dimensional drawings, and other information from www.vaddio.com/support.



Caution

Always support the camera's base when picking it up. Lifting the camera by its head or mounting arm will damage it.

RoboSHOT 4K 12E HDBT, North America – 999-99605-000B (black), 999-99605-000W

RoboSHOT 4K 12E HDBT, Europe Uk – 999-99605-001B (black), 999-99605-001W

RoboSHOT 4K 30E HDBT, North America, – 999-99635-000B (black), 999-99635-000W

RoboSHOT 4K 30E HDBT, Europe Uk – 999-99635-001B (black), 999-99635-001W

- RoboSHOT 4K 12E or 30E HDBT camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Master
- PoE+ mid-span power injector with AC cord set(s)
- Quick-start guide





Caution

Always support the camera's base when picking it up. Lifting the camera by its head or mounting arm will damage it.

RoboSHOT 4K 12E HDBT OneLINK HDMI System, North America – 999-99605-200B (black),

999-99605-200W (white)

RoboSHOT 4K 12E HDBT OneLINK HDMI System, Europe/UK – 999-99605-201B (black),

999-99605-201W (white)

RoboSHOT 4K 30E HDBT OneLINK HDMI System, North America – 999-99635-200B (black),

999-99605-200W (white)

RoboSHOT 4K 30E HDBT OneLINK HDMI System, Europe/UK – 999-99635-201B (black),

999-99605-201W (white)

- RoboSHOT 4K 12E or 30E HDBT camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Master
- OneLINK HDMI interface
- 48V power supply with AC cord set(s)



Caution

Always support the camera's base when picking it up. Lifting the camera by its head or mounting arm will damage it.

RoboSHOT 4K 12E HDBT OneLINK Bridge System, North America – 999-99605-300B (black), 999-99605-300W (white)

RoboSHOT 4K 12E HDBT OneLINK Bridge System, Europe/UK – 999-96750-301B (black), 999-99605-301W (white)

RoboSHOT 4K 30E HDBT OneLINK Bridge System, North America – 999-99635-300B (black), 999-99635-300W (white)

RoboSHOT 4K 30E HDBT OneLINK Bridge System, Europe/UK – 999-99635-301B (black), 999-99635-301W (white)

- RoboSHOT 4K 12E or 30E HDBT camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- OneLINK Bridge interface
- 48V power supply with AC cord set(s)
- Phoenix-style connectors, qty. 4
- 6 ft. (1.8 m) USB 3.0 cable, type A to type B

A Quick Look at the Camera

The cameras in the RoboSHOT Elite camera line are similar in appearance.

- RoboSHOT 4K 12E HDBT and RoboSHOT 4K 30E HDBT are available in black or white

Front of the Camera



Camera and Zoom Lens

- **RoboSHOT 4K 12E HDBT:** 12x optical zoom in Super-Wide mode, 10x optical zoom in normal mode. Recommended for small to medium sized conference rooms.
- **RoboSHOT 4K 30E HDBT:** 30x optical zoom; best suited to larger rooms. **IR Sensors:** Sensors in the front of the camera base receive signals from the remote. Make sure there's nothing directly in front of the camera base, and point the remote at the camera.

Status indicator: The multicolored LED indicates the camera's current state.


Really Cool Logo Badge (RCLB): Attractive and shiny, with a sophisticated brushed-metal finish.

Back of the Camera – RoboSHOT 4K 12E HDBT and RoboSHOT 4K 30E HDBT

Rear panel connections are identical for the RoboSHOT 4K 12E HDBT and RoboSHOT 4K 30E HDBT cameras.



From left to right:

- **OneLINK HDBaseT:** RJ-45 connector. Connect to the network via PoE+ injector or OneLINK device for power, video, streaming, and control via the web interface or Telnet session.
- **HDMI:** HDMI video output connector.
- **HD Video Resolution Select:** Rotary switch to select the video output resolution. See [Video Resolution Setting](#).
- **Kensington lock:** 3mm x 7mm 

Note

A label on the bottom of the camera lists the rotary switch settings.

Installing the Camera

This section covers:

- Selecting the location for the camera
- Installing the camera mount
- Information on cables and RS-232 communication
- Settings for the physical switch(es) on the camera
- Connection diagrams
- Mounting the camera

And a required safety note here:

Note

PoE type networks connected to this equipment are for intra-building use only and should not be connected to lines that run outside of the building in which this product is located.

Don't Void Your Warranty!



Caution

Always support the camera's base when picking it up. Lifting the camera by its head or mounting arm will damage it.

Caution

This product is for indoor use. Use an appropriate protective enclosure if installing it outdoors or in a humid environment.

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.

Caution

If using a DC power supply with this product, use the power supply included with it or recommended for use with it. Always check the output voltage listed on the power supply label, as power supplies for different products may look nearly identical. Using the wrong power supply will void the warranty, possibly causing unsafe operating conditions and damage to the product.

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 IR Remote Commander will be used, ensure that nothing blocks the IR lens in the camera's base.
- Ensure that the camera body can move freely and point away from the ceiling and lights.

Prepare for a successful installation:

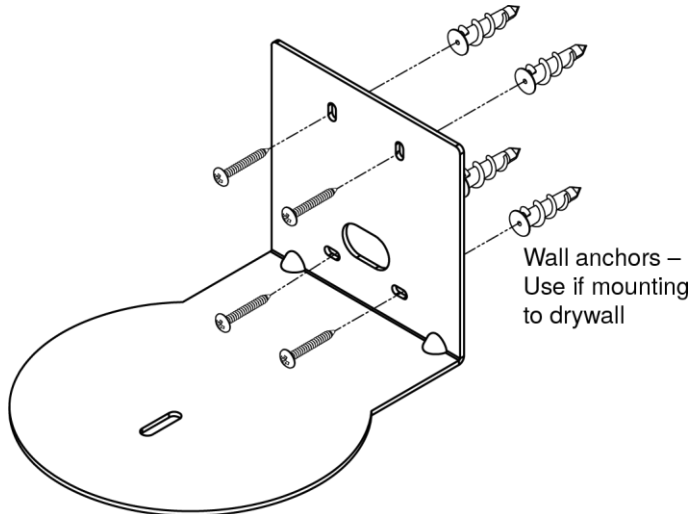
- Be sure you can identify all cables correctly.
- Check Cat-5 cables for continuity.
- Ensure that the video resolution rotary switch and the DIP switches (if any) are set appropriately.
- *Talk to the network administrator.* If installing the camera in a non-DHCP network (one that does not automatically assign IP addresses), you may need to configure the camera with a static IP address as directed by the network administrator before connecting it to the network. Work with the network administrator to determine how to configure the equipment.

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.

If you are installing a OneLINK camera extension system with the camera, attach the EZIM (the smaller unit) to the camera mount and route the camera cables through the opening before you install the mount. 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.



About Ceiling-Mounted Cameras

If you use an inverted mount, set the camera's Image Flip DIP switch ON for inverted operation. This orients the video image correctly and sets the tilt motors to respond appropriately to tilt up and down commands from the remote, web interface, and connected control devices. For RoboSHOT Elite series cameras, this switch is available to the administrator on the System page of the web interface.

Video Resolution Setting

Non-architectural RoboSHOT cameras may have a rotary switch to set output resolution. Streaming resolution is set separately in the web interface.

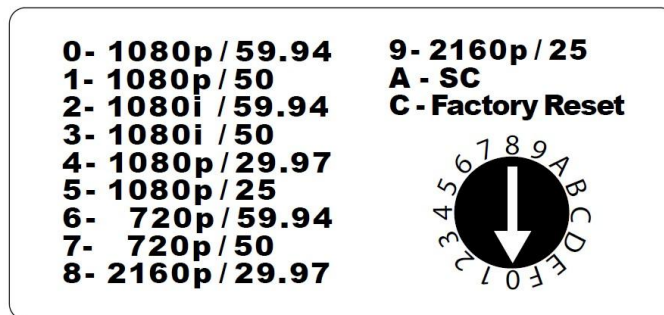
Set the desired video output resolution with the rotary switch before installing the camera. Note that video resolutions are mapped differently for some older cameras, consult web page User Interface

RoboSHOT 12E HDBT and RoboSHOT 30E HDBT only: If the camera has been updated to version 3.1.0 firmware or later, Position A selects software control. Set video output resolution in the web interface. The default resolution is 1080p/59.94. This capability is not available in earlier firmware versions or on the older RoboSHOT 12 HDBT and RoboSHOT 30 HDBT cameras.

See [Software-Controlled Video Output Resolution Setting](#).

RoboSHOT 4K 12E HDBT and RoboSHOT 4K 30E HDBT cameras

(label from bottom of RoboSHOT 4K 12E and 30E HDBT camera)



Note: Position A, SC is Software Control (from the web UI)

Camera Behavior Settings – RoboSHOT 4K 12E & 30E HDBT

Older RoboSHOT cameras use DIP switches to set camera behaviors; the RoboSHOT Elite series cameras set all camera behaviors in the web interface.

A label on the bottom of the camera provides a quick reference for setting the resolution rotary switches.

Set the resolution rotary switches appropriately before mounting the camera.

After the camera is installed, you can read the rotary switch status from the camera's web interface.

RS-232 Serial Communication Settings

If the camera is powered by a OneLINK HDMI or OneLINK Bridge extension system, an RS-232 port is available on the OneLINK for an external control device. Be sure the camera is set to the same baud rate as the external control device.

Specification	Value
Communication Speed	9600 or 38400 baud, selectable
Number of start bits	1
Number of stop bits	1
Number of data bits	8
Parity	None
Flow control	None

The camera's default baud rate is 9600. The 38400 baud setting is optional if the connected device supports it.

Cabling Notes

Caution

When making cables, 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 may void your warranty.



Intact – will make reliable contact with cable connector



Damaged – Bent contact fingers will NOT make reliable contact with cable connector

Use Cat-5e or better cable. We recommend using high-quality connectors and a high-quality crimping tool. We recommend shielded cabling if the cables will be coiled, run tightly with other cables, or placed close sources of electromagnetic interference such as power lines.

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.

Connecting the Camera

Note

Talk to the network administrator before you connect the equipment.

If you install this equipment on a non-DHCP network (one that uses only static IP addresses), you may need to configure the camera with a static IP address before you connect it to the network. Work with the network administrator to determine how to configure the equipment.

See [Configuring the Camera with a Static IP Address](#) for step-by-step instructions to configure a static IP address.

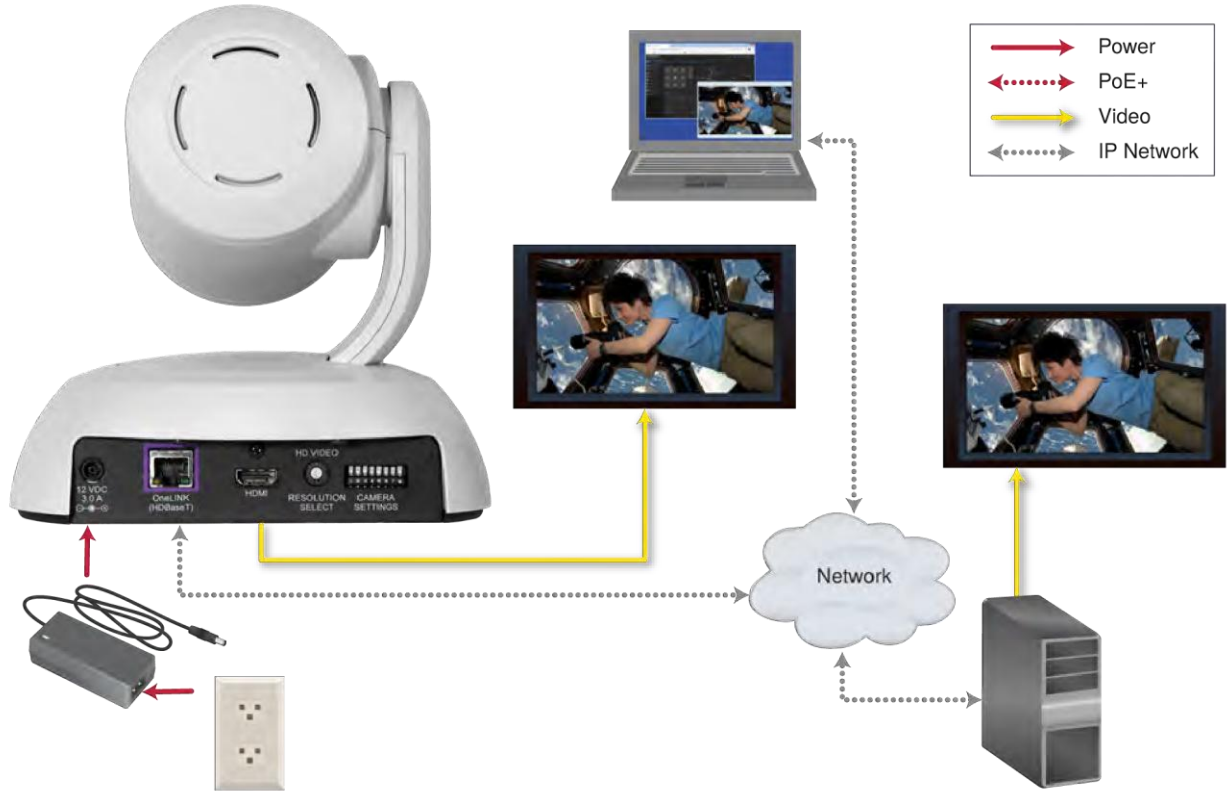
Basic Connections – RoboSHOT 4K 12E HDBT or RoboSHOT 4K 30E HDBT

This diagram shows a basic installation for a RoboSHOT 4K 12E HDBT or RoboSHOT 4K 30E HDBT. The older RoboSHOT HDBT cameras can be connected in the same way, using a PoE+ mid-span power injector.



Basic Connections – earlier RoboSHOT 12 HDBT or RoboSHOT 30 HDBT

This diagram shows a basic installation for a RoboSHOT 12 HDBT or RoboSHOT 30 HDBT camera.



Basic Connections – RoboSHOT 4K 12E or 30E HDBT with Camera Extension

This diagram shows a RoboSHOT 4K 12E HDBT camera connected to a OneLINK HDMI interface to extend power, video, and control over a single cable. The RoboSHOT 4K 12E HDBT, and RoboSHOT 4K 30E HDBT can be connected in the same way.



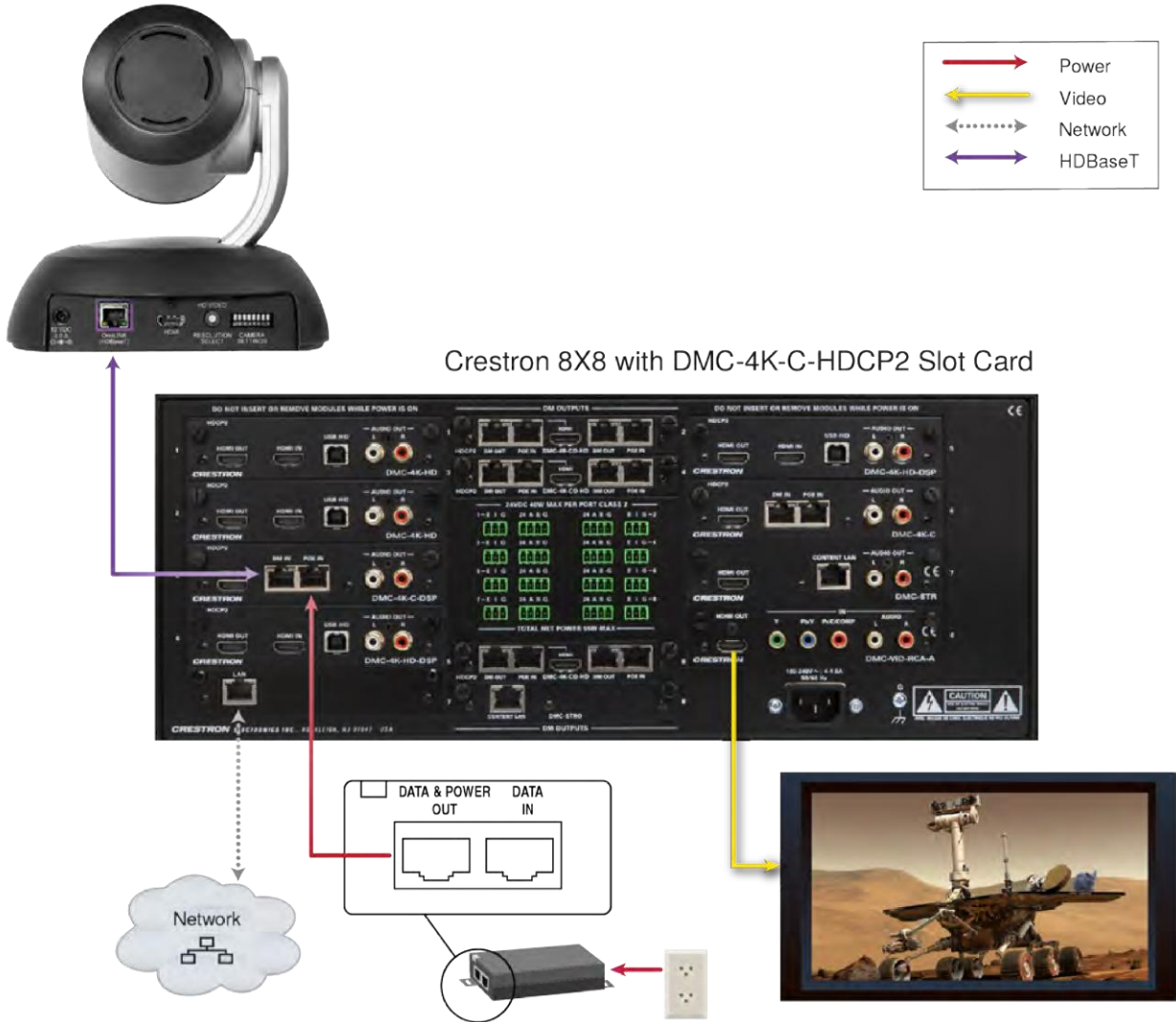
Basic Connections – RoboSHOT 4K 12E and 30E HDBT Basic Conference Setup

This diagram shows a RoboSHOT 4K 12E HDBT camera with a OneLINK Bridge interface in a basic conference room installation. The RoboSHOT 4K 12E HDBT, and RoboSHOT 4K 30E HDBT can be connected in the same way. Note that the speakers must be connected to an amplifier.



Basic Connections – RoboSHOT 4K HDBT Camera with Third-Party Control and Power

This example shows basic connections using a Crestron device. This diagram shows a RoboSHOT 12 HDBT camera. The RoboSHOT 4K 12E HDBT, and RoboSHOT 4K 30E HDBT can be connected in the same way. Connection details vary depending on the equipment and functionality to be used in your installation.



Installing the Camera

Be sure you have already set the camera's switches.

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.

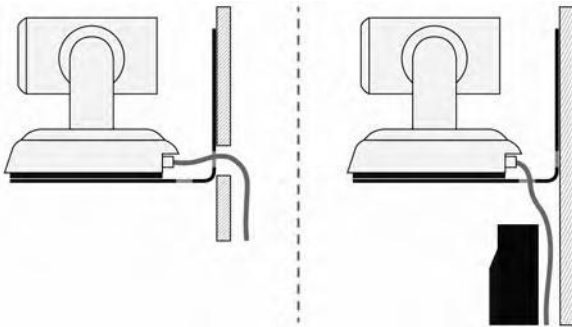
1. Route the cables to the camera location.
2. Route the cables through the mount, and install the mount on the wall or attach it to the wall box. Leave the screws loose enough to adjust the position of the mount.
3. Level the mount and tighten the mounting screws.
4. Connect the cables to the camera.

Caution

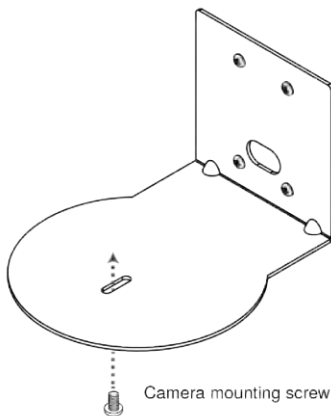
If using local power rather than connecting to a OneLINK extension module or using PoE+, use the power supply shipped with the camera. Using a different power supply may create an unsafe operating condition or damage the camera, and will void the warranty.

Caution

5. Place the camera on the mount.



6. Attach the camera to the mount using the 1/4"-20 x .375 mounting screw supplied with the camera.



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

Powering Up the Camera

Connect camera power.

The camera will run a self-test routine and move to its home position. This will take a few seconds.

When the camera is initialized and ready, video is available and the status light is blue. At this point, the camera is ready to accept control information.

Note

Wait until the camera finishes initializing before trying to operate or control it.

Status Light

The light in the camera's base indicates its current state.

- **Blue:** Normal operation (blinks once when the camera receives a command from the remote)
- **Red:** On-air tally (signal provided by external device via serial connection, to show which camera in a production is being used for Program)
- **Blinking red:** Video is muted (UC color scheme only)
- **Purple:** In standby mode or booting
- **Blinking Purple:** Indicates non-complete booting process. Could be obstruction of Pan or Tilt movement during initialization
- **Yellow:** Firmware update in progress

Caution

Do not remove power or reset the camera while the indicator is yellow, showing a firmware update in progress. Interrupting a firmware update can make the camera unusable.


Note

By default, the camera's status light is active during normal operation; however, it can be configured to remain off when the camera is powered up. The camera may be sending video even if the indicator light is off.

Using the IR Remote

The IR remote provides basic camera control.

IR Remote Cheat Sheet

What do you need to do?	Button(s)	
Power on or standby	Power (green button at top right)	
Select the camera to control (if this remote controls more than one)	Camera Select buttons 1 through 3 (second row of buttons)	
Discover the camera's IP address	(top left in arrow key group) – press and hold. IP will superimpose over camera's video output	
Move the camera	Arrow buttons and Home button (center)	
Move the camera to a preset position	Position Preset buttons 1 through 6 (bottom two rows)	
Focus the camera	Auto Focus button (near arrow buttons) Manual Focus buttons Near and Far (below Zoom Speed buttons)	
Control zoom speed	Zoom Speed buttons (light gray) - Slow T and W , Fast T and W for telephoto (zoom in) and wide-angle (zoom out) modes	
Adjust for excess light behind the camera's subject	Back Light button (top center)	

IR Remote Details

The Vaddio remote provides the following functions:



Power – Switch the selected camera on or off.

Power indicator – Lights momentarily when you press a button.



Function Buttons- Future use, or for special functions like enable laser on a Vaddio DocCAM



Back Light – Use or turn off Back Light Compensation.



Data Screen – Display the camera's IP address superimposed over output video. Press this button again to dismiss the display.



Camera Select – In multi-camera installations, selects the camera to be controlled.



Pan/Tilt (arrow button) controls and Home button – Control the camera's position.



Rev. Pan and Std. Pan– Control how the camera responds to the arrow buttons. Helpful for ceiling-mounted cameras and for presenters who are controlling the camera.



Mic Mute – Only used on camera products with audio/microphones.



Auto Focus/Manual Focus – Switch the camera to Auto-Focus mode.
Manual Focus – Switch the camera to Manual Focus mode.



Focus Near (-) adjustment – Moves the focus nearer when in manual focus mode.

Focus Far (+) adjustment – Moves the focus farther when in manual focus mode.



Preset Set – Save the camera's current position as one of the numbered presets.

Preset Clr – Clear a saved preset.

Position Presets 1 through 6 – Move the camera to a predefined position, or specify the preset to save or clear.



note: The web interface offers greater control over camera movements to presets (such as setting the speed for Tri-Synchronous Motion), and provides additional presets. The camera's web UI and Vaddio camera controllers offer more available presets than the 8 available with the IR remote.

Storing a Preset Using the Remote

Position the camera. Then hold down the Set button and press one of the numbered preset buttons.

Clearing a Preset Using the Remote

Press and hold the Clear button while pressing the preset number you want to clear.



Web Interface

The camera's web interface allows control via a network connection, using a browser. Password-protected pages provide administrative access to tasks such as setting passwords, changing the IP address, viewing diagnostics, and installing firmware updates. The user login (or guest access, if it is enabled) provides access to camera controls similar to those available from the IR remote.

Getting the Camera's IP Address

You will need to be able to view the camera's video output.

1. Press the Data Screen button on the remote. The display presents the camera's IP address and MAC address.
2. Press the Data Screen button again to dismiss the information.

If the address is 169.254.1.1, the camera is using its default IP address. This usually means one of these things:

- The network automatically assigns IP addresses, but the camera is not connected to the network.
- The network does not automatically assign IP addresses, and you need to configure the camera for the network. See [Configuring the Camera with a Static IP Address](#).

You will need to know the camera's IP address to use its web interface. If the network has a DHCP server, the camera will get its IP address, gateway and routing information automatically and you will be able to browse to it. If not, you will need to configure the camera to use a static IP address.

The camera's IP can be found using the IR remote and viewing the IP address superimposed over the output video of the camera.

The Vaddio Deployment Tool is a fantastic software application available for free on the Vaddio website under the Tools area. It can find, identify, and provide software versions and/or perform firmware updates for most Vaddio products. In other words, The Vaddio Deployment Tool can perform a number of popular remote management functions for Vaddio products.

The camera's IP address can also be found using a readily available IP scanning tool.

For cameras powered by a OneLINK HDMI or OneLINK Bridge: The OneLINK device has its own web interface. Refer to the appropriate OneLINK manual for information on its web interface.

Accessing the Web Interface

Enter the IP address or hostname in your browser's address bar. You may need to enter `http://` or `https://` as a prefix to keep the browser from treating it as a search query.

(Example: `http://10.30.200.125`)

Note

The cameras in the RoboSHOT product line all have very similar web interfaces. Although some of the screen shots in this manual may be from different models of camera than the one you have, your camera's web interface should present the same controls, organized in the same way.

Browser Support

We have tested this product with these web browsers:

- Chrome®
- Microsoft® Internet Explorer®
- Safari®
- Firefox®

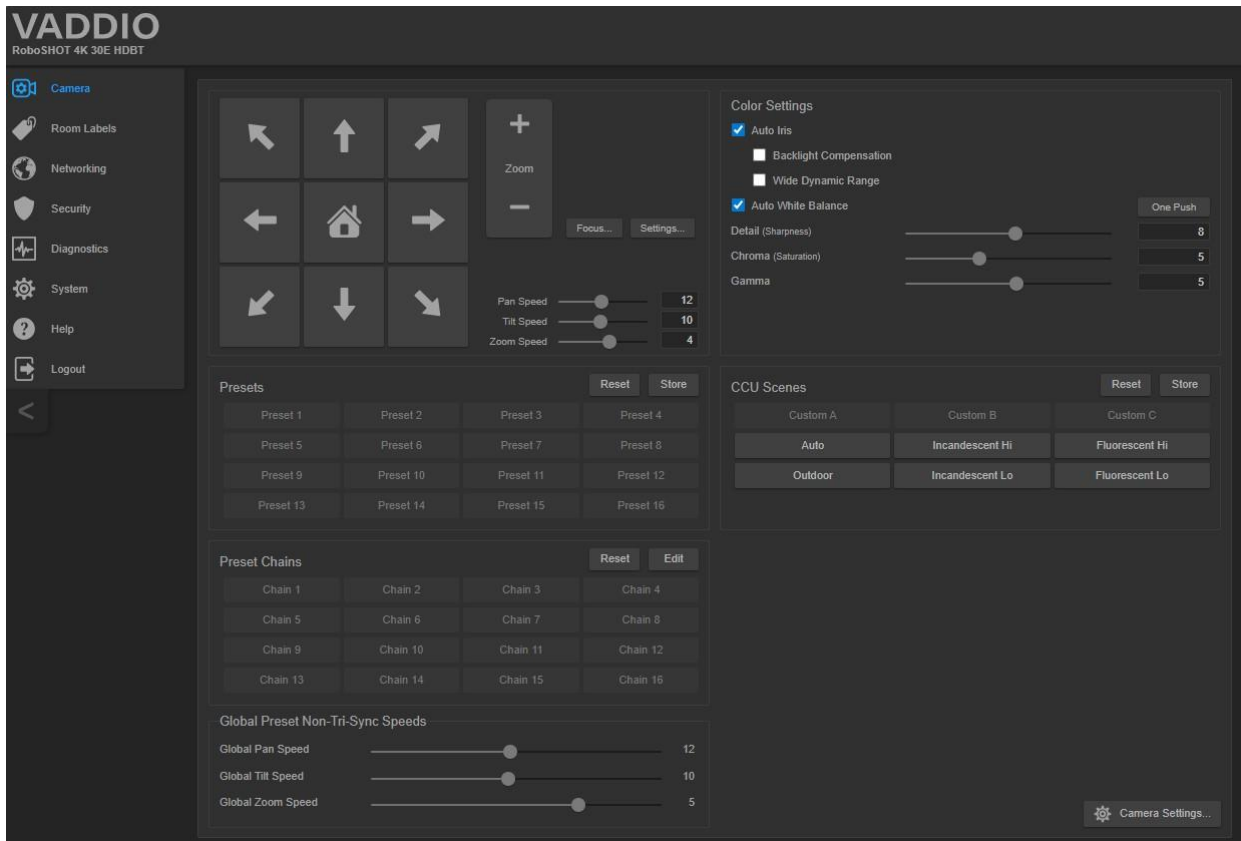
We test using the browser version available from the vendor at that time. Older versions of these browsers are likely to work, and other browsers may also work.

User Access

By default, the web interface opens to the Controls page, but the camera can be configured to require a user login. The default user password is **password**, but this can be changed. Check with the system administrator if the camera's web interface requires you to log in.

Only the Controls page is available with user-level access.

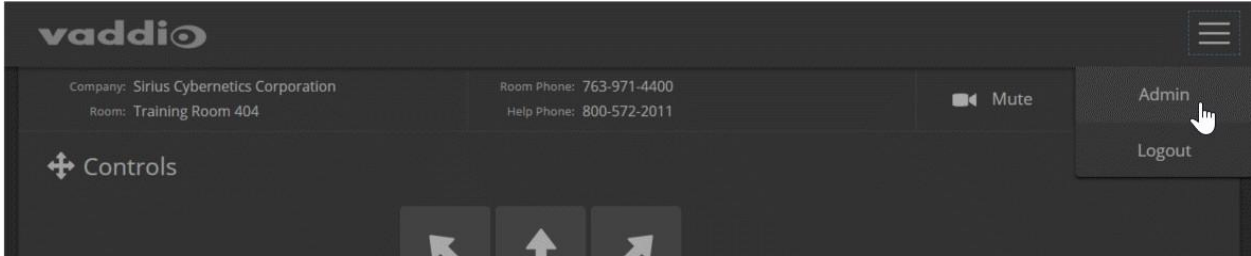
Your camera's Controls page may look somewhat different.



Administrative Access

If you are on the Controls screen, you're logged in at the user level, or guest access is enabled and you're not logged in at all.

Your camera's web interface will look somewhat different from this image.



Open the menu to log on as Admin. The default admin password is **password**, but this can be changed.

Note

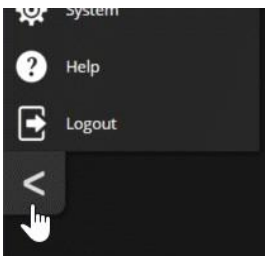
For best security, Vaddio requires user and admin passwords to be commissioned when new, or after any Factory Resets to the device. There is no security criteria required such as alternate characters, upper or lower case, or minimum number of characters.

The admin account has access to system administration tasks and performance/behavior configuration tasks. System administration tasks are on the following pages, listed in the lower portion of the left navigation panel:

- Camera page – Control the camera, make adjustments, create and manage presets and CCU scenes.
- Room Labels page – Information to display on the web interface screens, including the conference room name and phone number and the in-house number for AV assistance.
- Networking page – Configure date and time settings, hostname, and IP addressing.
- Security page – Set passwords, manage guest access, and enable/disable Telnet access
- Diagnostics page – View or download the diagnostic log when troubleshooting issues. This can be helpful if working with Tech Support
- Help page – Tech support contact information and a link to the product information library on the Vaddio website.
- System page – View firmware version and switch settings, reboot, restore factory defaults, and update firmware.

Compact Menu View

By default, the navigation buttons in the camera's administrative interface display an icon and a text label. You can also select the compact view of the menu buttons along with the standard view. The button at the bottom of the menu toggles between the two views.



System Administration

This chapter covers settings for managing the camera as an element of your network.

- Camera page – Control the camera, make adjustments, create and manage presets and CCU scenes.
- Room Labels page – Information to display on the web interface screens, including the conference room name and phone number and the in-house number for AV assistance.
- Networking page – Configure date and time settings, hostname, and IP addressing.
- Security page – Set passwords, manage guest access, and enable/disable Telnet access
- Diagnostics page – View or download the diagnostic log when troubleshooting issues. This can be helpful if working with Tech Support
- Help page – Tech support contact information and a link to the product information library on the Vaddio website.
- System page – View firmware version and switch settings, reboot, restore factory defaults, and update firmware.

See [Configuring Camera Behavior](#) for information on image adjustments, streaming configuration, and other items related to camera behavior.

Note

Vaddio's RoboSHOT series cameras all have very similar web interfaces. Some of the screen shots in this manual may be from other models in the RoboSHOT series.

For Non-DHCP Environments: Configuring the Device with a Static IP Address for Initial Installation

NETWORKING PAGE

Caution

Consult your IT department before editing network settings. Errors in network configuration can make the camera inaccessible from the network. Do not change DHCP/Static addressing, IP address, subnet mask, or gateway unless you are very familiar with the characteristics and configuration of the network where you install the camera.

By default, the camera is set to DHCP and you do not need to configure it with a static IP address. However, if no DHCP server is available to automatically assign an address, the camera will use the default IP address of 169.254.1.1. If this is the case, you may need to follow this procedure.

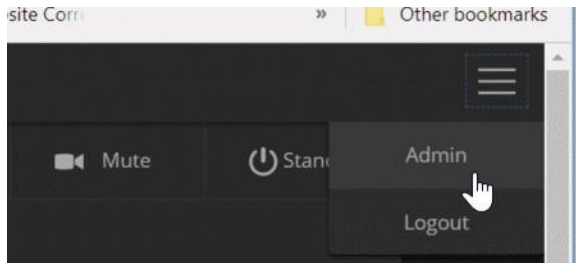
If you install more than one camera on a network that does not automatically assign IP addresses (a non-DHCP network), follow this procedure to prevent IP address conflicts.

Note

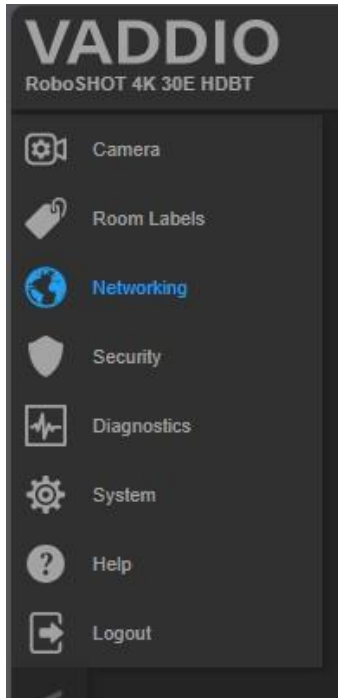
If the camera is currently at an IP address other than 169.254.1.1, skip this section unless you are instructed to configure the camera with a static IP address.

To access the camera's Networking page during installation (skip this procedure if the camera has already been in service on this network):

1. Connect the camera according to the connection diagram, but *do not connect the camera to the network*.
2. Directly connect the network port on the camera to the network port on a computer. Depending on the computer, you may need a crossover cable.
3. On the computer, open a browser and access the camera's web interface at **http://169.254.1.1**.
4. Log in as admin. The default password is **password**.

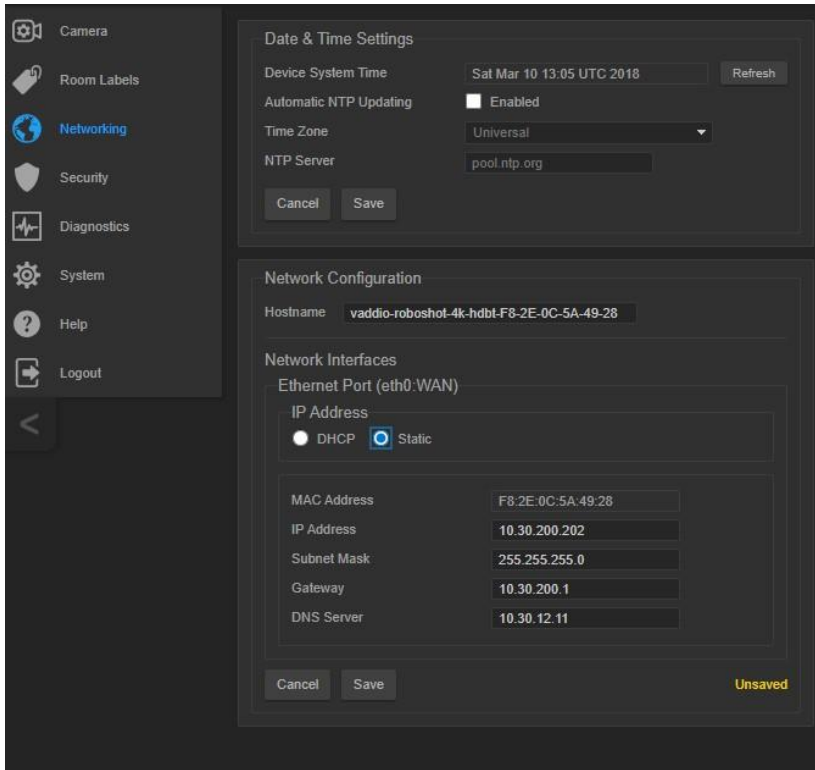


5. Navigate to the Networking page.



To configure the camera with a static IP address:

1. Work with your IT department to determine the correct IP address, subnet mask, and gateway to assign.
2. On the Networking page, set IP Address to Static.
3. Enter the IP address, subnet mask, and gateway as directed by the IT staffer; then save your work.



The camera is now ready to be connected to the network.

Changing the Camera's Hostname

NETWORKING PAGE

If your network supports hostname resolution, you may find it convenient to change the camera's Hostname to something easy to remember, such as **camera-center-boardroom**. You may not like “vaddio-Fish-Tank-Scraper”. Ok, it doesn't really say that, but it seemed amusing at the time.

Work with your IT department to ensure that the new hostname conforms to the organization's naming conventions.

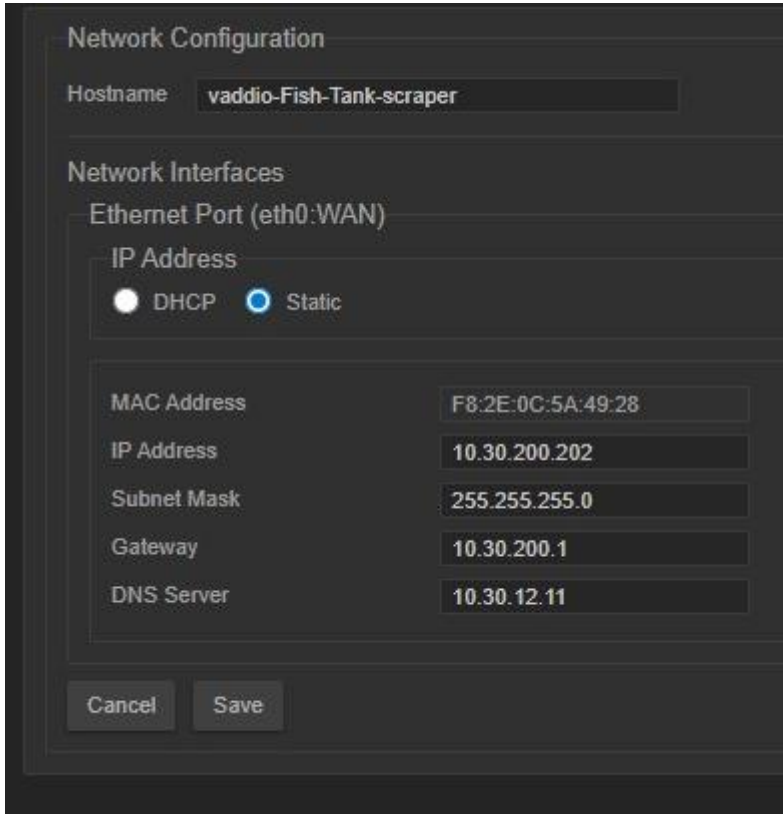
The screenshot displays two configuration panels. The top panel, titled "Date & Time Settings", includes fields for "Device System Time" (Sat Mar 10 13:08 UTC 2018), "Automatic NTP Updating" (Enabled), "Time Zone" (Universal), and "NTP Server" (pool.ntp.org). The bottom panel, titled "Network Configuration", shows the "Hostname" as "vaddio-Fish-Tank-scraper". Under "Network Interfaces", the "Ethernet Port (eth0:WAN)" is configured with "Static" IP addressing. The IP address is 10.30.200.202, with a subnet mask of 255.255.255.0, gateway of 10.30.200.1, and DNS server of 10.30.12.11. The interface also shows the MAC address as F8:2E:0C:5A:49:28. "Cancel" and "Save" buttons are present at the bottom of both panels, and an "Unsaved" indicator is visible in the bottom right corner of the Network Configuration panel.

Field	Value
Device System Time	Sat Mar 10 13:08 UTC 2018
Automatic NTP Updating	Enabled
Time Zone	Universal
NTP Server	pool.ntp.org
Hostname	vaddio-Fish-Tank-scraper
MAC Address	F8:2E:0C:5A:49:28
IP Address	10.30.200.202
Subnet Mask	255.255.255.0
Gateway	10.30.200.1
DNS Server	10.30.12.11

Optional For DHCP Environments: Changing from a DHCP Address to a Static IP Address

NETWORKING PAGE

In a network that assigns IP addresses automatically, the camera's IP address may change from time to time. To keep this from happening, set the IP address to Static. *Do not change the IP address, subnet mask, or gateway unless the network administrator instructs you to do so.*



The screenshot shows the 'Network Configuration' interface. At the top, the 'Hostname' is 'vaddio-Fish-Tank-scraper'. Below this is the 'Network Interfaces' section for 'Ethernet Port (eth0:WAN)'. Under 'IP Address', the 'Static' radio button is selected. Below the radio buttons, a table lists the network parameters:

MAC Address	F8:2E:0C:5A:49:28
IP Address	10.30.200.202
Subnet Mask	255.255.255.0
Gateway	10.30.200.1
DNS Server	10.30.12.11

At the bottom of the configuration window are 'Cancel' and 'Save' buttons.

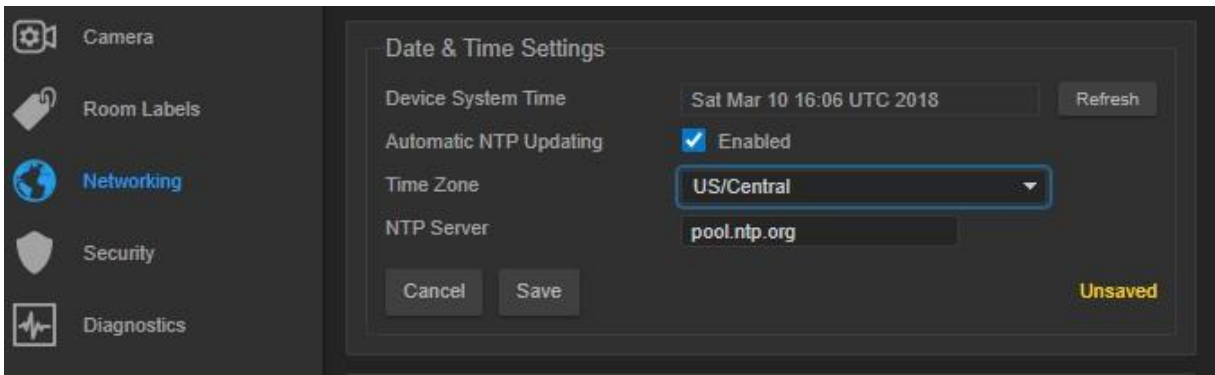
Specifying Time Zone and NTP Server

NETWORKING PAGE

Using automatic NTP updating ensures that the timestamps in the camera's diagnostic log are accurate. Specifying your time zone may make it easier to match logged events with other actions and external events.

1. To make the time zone and NTP server editable, enable Automatic NTP Updating.
2. Select the desired time zone from the list.
3. If desired, specify the NTP server to use. Otherwise, use the default.

You may need to refresh the system time display.



Managing Access and Passwords

SECURITY PAGE

Set the camera according to your organization's security policies:

- Allow or deny access to the Camera screen without logging on (Allow Guest Access) – this is enabled by default
- Set whether inactive sessions log off automatically or not (Automatically Expire Idle Sessions) – by default, inactive sessions expire after 30 minutes
- Change the password for the `admin` account
- Change the password for the `user` account
- Allow or disable access via Telnet (by default, access via Telnet is enabled)
- Require HTTPS for web access (by default, HTTP is also permitted)
- Allow or deny device discovery (allowed by default)

Note

Consult your network security specialist before changing any of these settings.

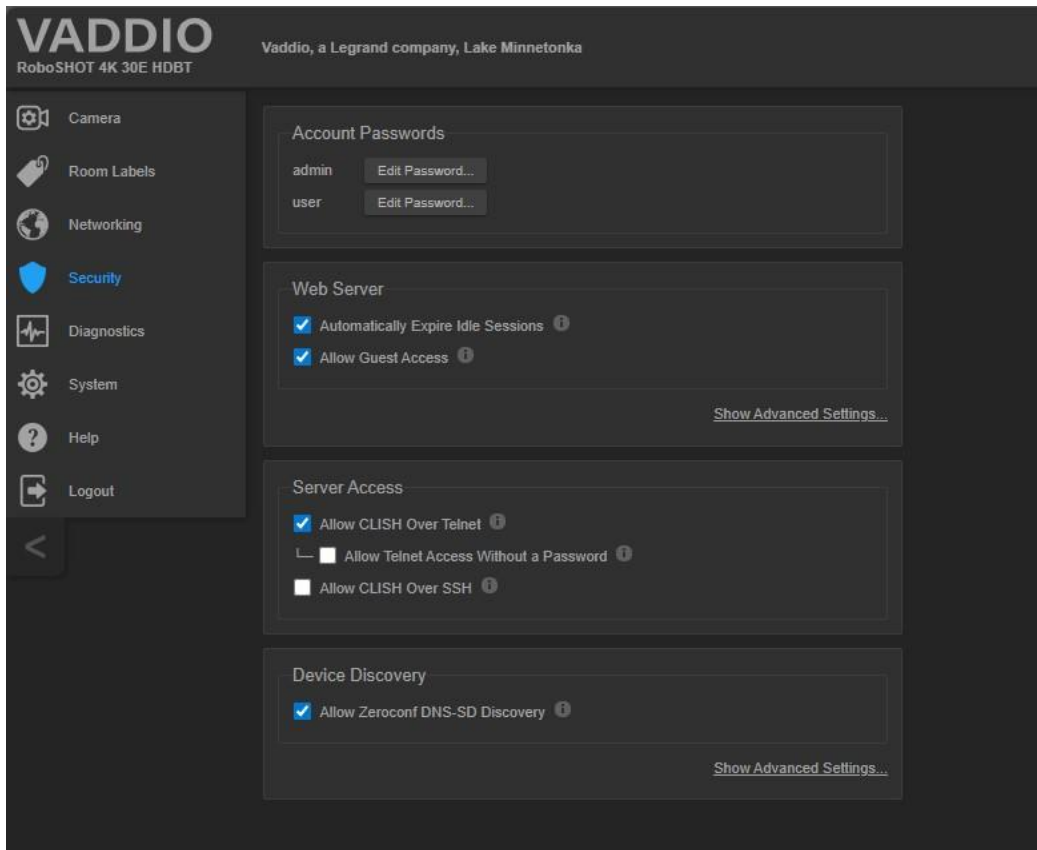
Note

For best security, Vaddio strongly recommends changing the user and admin passwords from the default. Using the default passwords leaves the product vulnerable to tampering.

Disabling Telnet Access

SECURITY PAGE

If your installation does not require camera access via Telnet, you may choose to disable the camera's internal Telnet server.



HTTPS

SECURITY PAGE

By default, the web interface uses the HTTPS protocol.

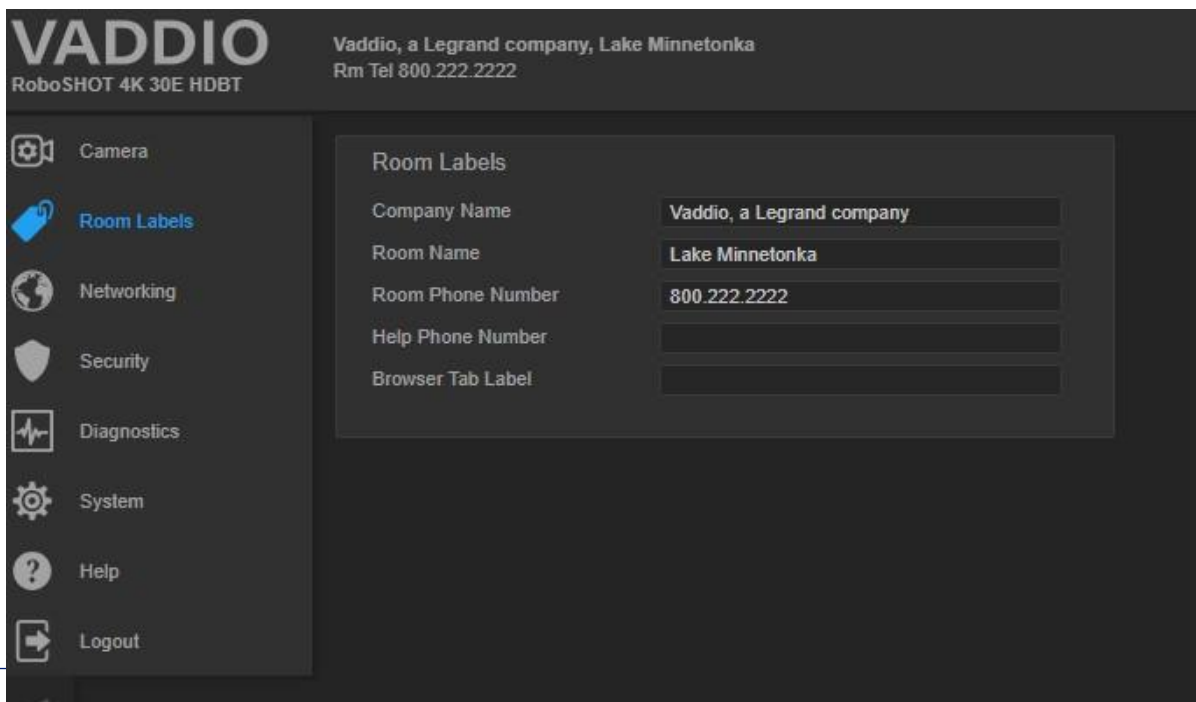
Caution

Consult your network security professional to manage the camera's SSL certificate. Do not make any changes in the Certificate or Private Key text boxes without guidance from your organization's network security professional.

Adding Room Information to the Camera's Web Interface

ROOM LABELS PAGE

The information you enter on this page is displayed on every page of the web interface.

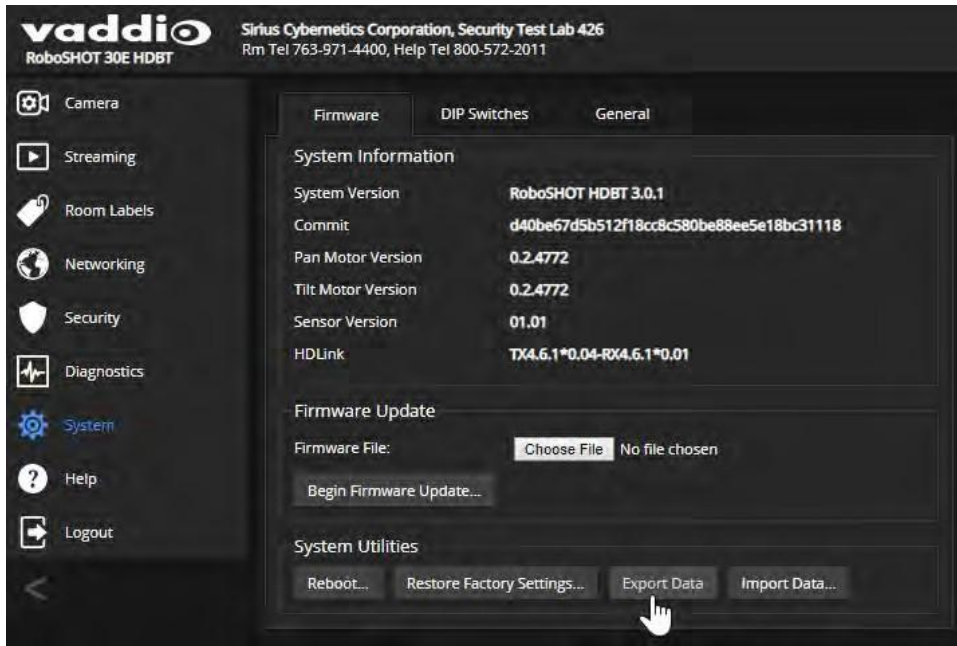


Saving (Exporting) or Restoring (Importing) a Camera Configuration

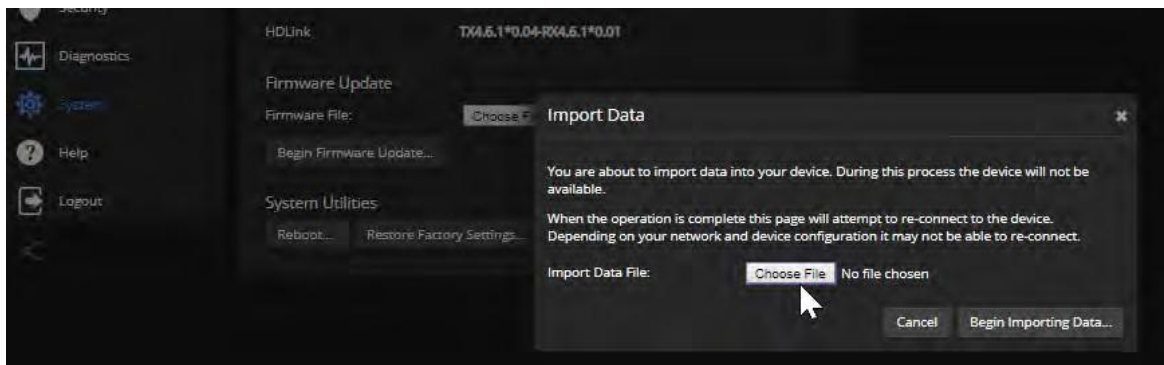
SYSTEM PAGE, FIRMWARE TAB

You can import a configuration to several cameras if you need to configure them the same way. Cameras must be of the same model, and must have a compatible firmware version installed. Configuration data does not include passwords or unique information such as hostname.

1. Configure the first camera.
2. Export its configuration (Export Data button). The export downloads to your computer as a .dat file. The filename is the camera's hostname.



3. Import the configuration to the other cameras (Import Data button in each camera's web interface). The web interface prompts you to browse to the .dat file that will be imported.



Note

If the camera is using an older firmware version, it may be unable import a configuration that was exported from a camera using a different version of firmware.

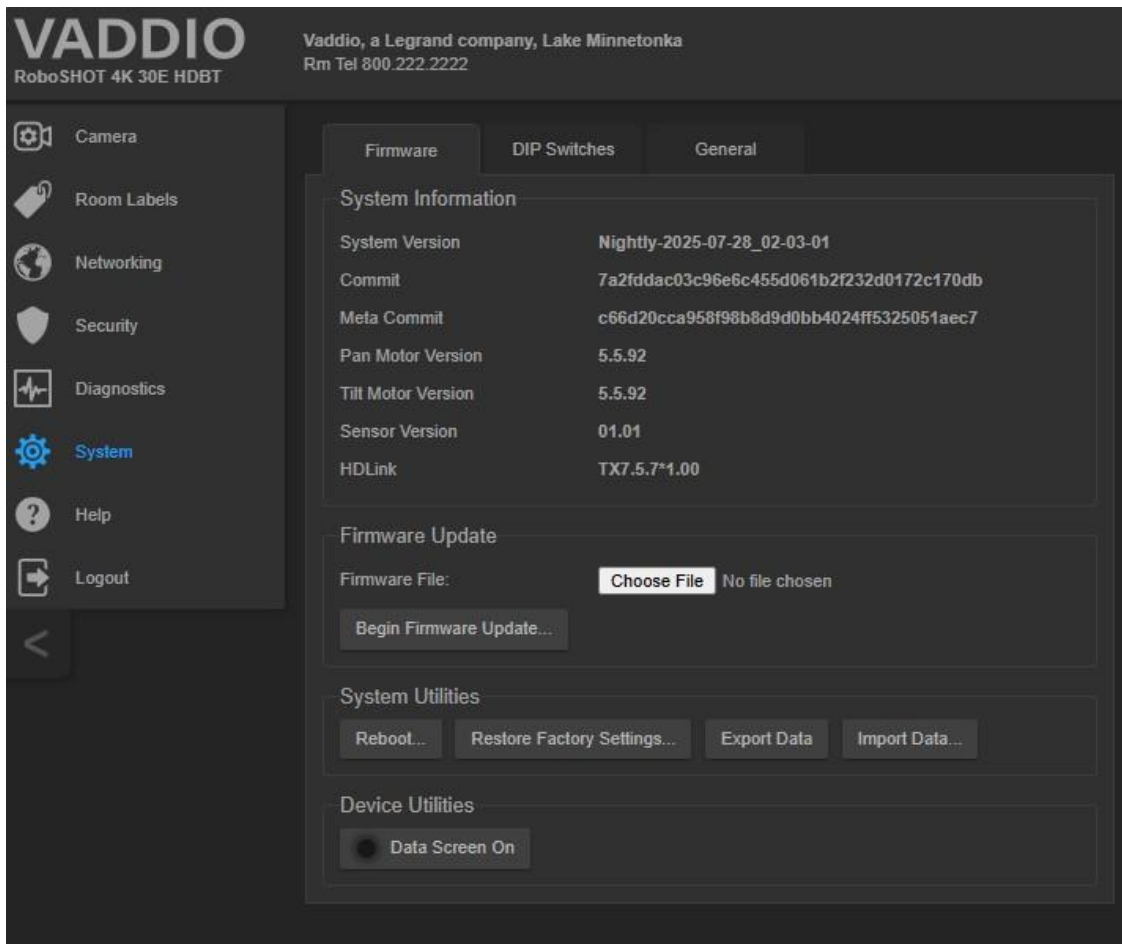
Installing a Camera Firmware Update

SYSTEM PAGE, FIRMWARE TAB

Caution

The camera must remain connected to power and to the network during the update. Interrupting the update could make the camera unusable.

1. Download the firmware and its release notes.
2. Select Choose File, then browse to the downloaded firmware and select it. The filename ends with .p7m.
3. Select Begin Firmware Update.
4. Read and understand the information in the Confirm dialog box. It's dull, but it could save you some time and aggravation.
5. Select Continue. A progress message box opens and the indicator light on the front of the camera turns yellow. If the update process presents warnings or error messages, read them carefully.
The camera reboots when the update is complete.



Note

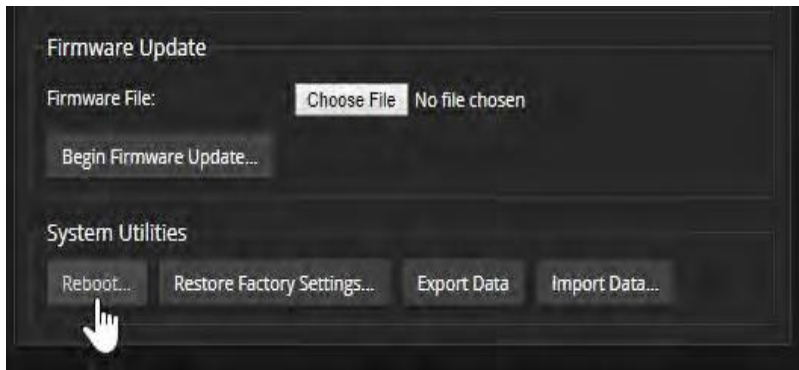
The Vaddio Deployment Tool can manage Vaddio devices and can update firmware, in addition to identifying network information. Vaddio Deployment Tool is a free tool available on the Vaddio website under Tools.

Rebooting the Camera

SYSTEM PAGE, FIRMWARE TAB

This can help if the camera stops responding as you expect.

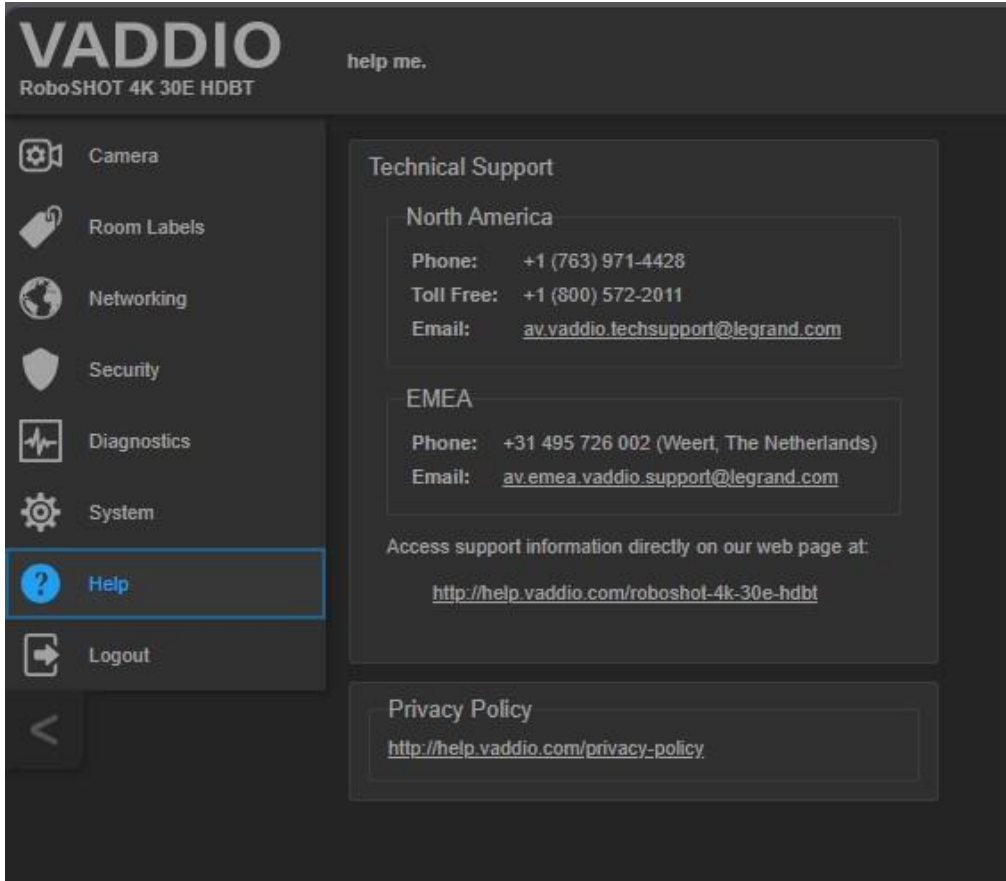
In the System Utilities section, select Reboot.



Contacting Vaddio Technical Support

HELP PAGE

If you can't resolve an issue using your troubleshooting skills (or the [Troubleshooting](#) table in this manual), we are here to help.

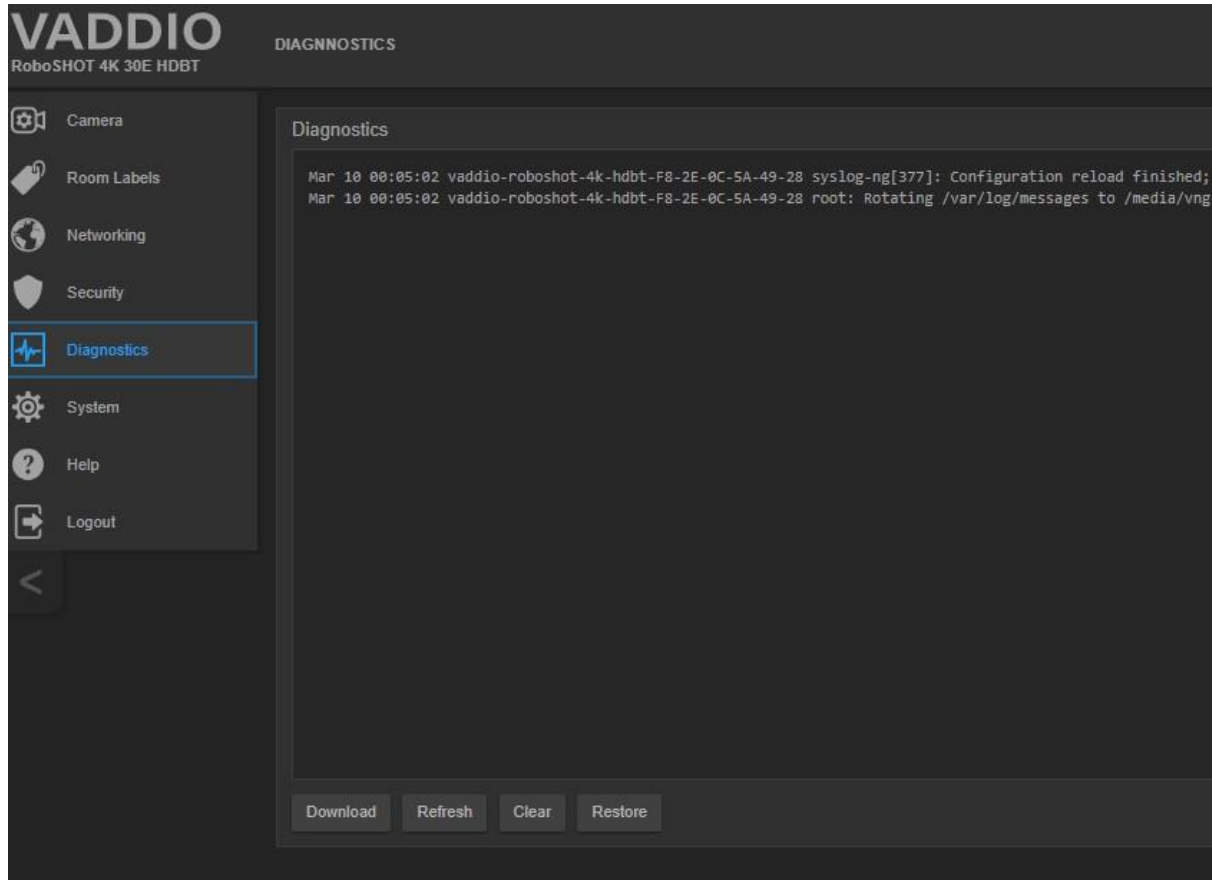


You'll find information for contacting Vaddio Technical Support on the Help page. The model identifier and the link for support information vary depending on the camera model.

Accessing the Diagnostic Logs

DIAGNOSTICS PAGE

When you contact Vaddio technical support, your support representative may ask you to download and mail the log file available from the Diagnostics page. Information listed does not necessarily indicate a problem, but could be useful for Support or engineering discussions.



Configuring Camera Behavior

This chapter covers managing the camera as a part of the room's AV environment.

Camera configuration tasks are available on these pages:

- Camera – Color and lighting adjustments, presets (including custom Home), and real-time camera control
- Streaming – Resolution, quality, bandwidth, and more
- System (DIP Switches/General tab) – Camera identification (Camera 1, 2, or 3 on the remote), status light behavior, codec control mode, and more

Note

Vaddio's RoboSHOT series cameras all have very similar web interfaces. Some of the screen shots in this manual may be from other models in the RoboSHOT series.

Setting the Custom Home Position and Other Preset Shots

CAMERA PAGE

The camera's default home position is 0° pan and 0° tilt; you can set a different home position.

You can also define other presets, for shots that you will want to use repeatedly.

Note

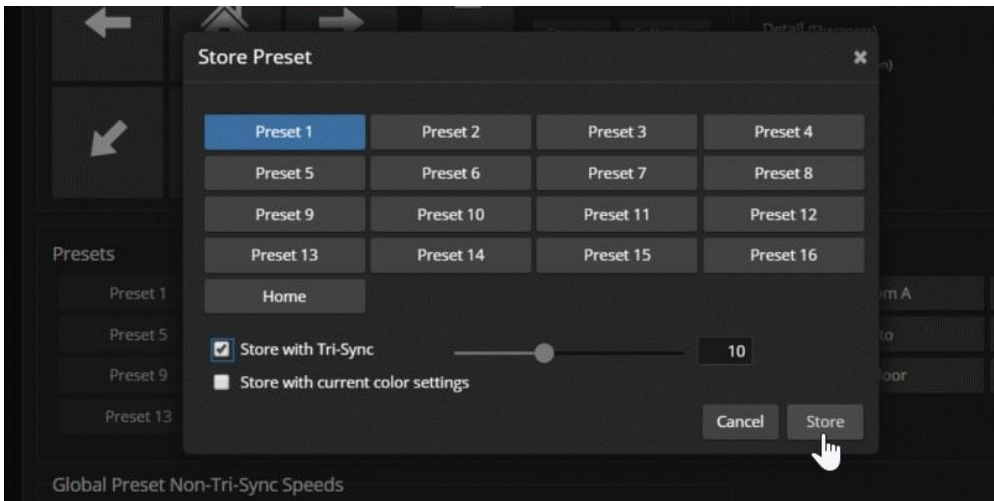
Storing a preset overwrites any information that was previously associated with that preset. The Store Preset dialog does not show which presets have already been defined. Vaddio recommends renaming presets when you store them.

To store a preset or custom home position:

1. Set up the shot.
2. Select Store to open the Store Preset dialog.
3. Select the preset to define.
4. Select Store with Current Color Settings to save the current CCU settings along with the camera position.
5. Select Save with Tri-Sync to allow the pan, tilt, and zoom motors to move simultaneously from other presets to this position.
6. Store the preset.

Note

Tri-Synchronous Motion works best for on-air shots requiring significant movement. It is not useful when moving the camera less than 10° or when the camera is not on the air.



Renaming Presets and Custom CCU Scenes

You can rename presets and custom scenes. The process is the same for both. Right-click the button for the custom scene or preset, and edit the label.



Initial Lighting and Color Settings

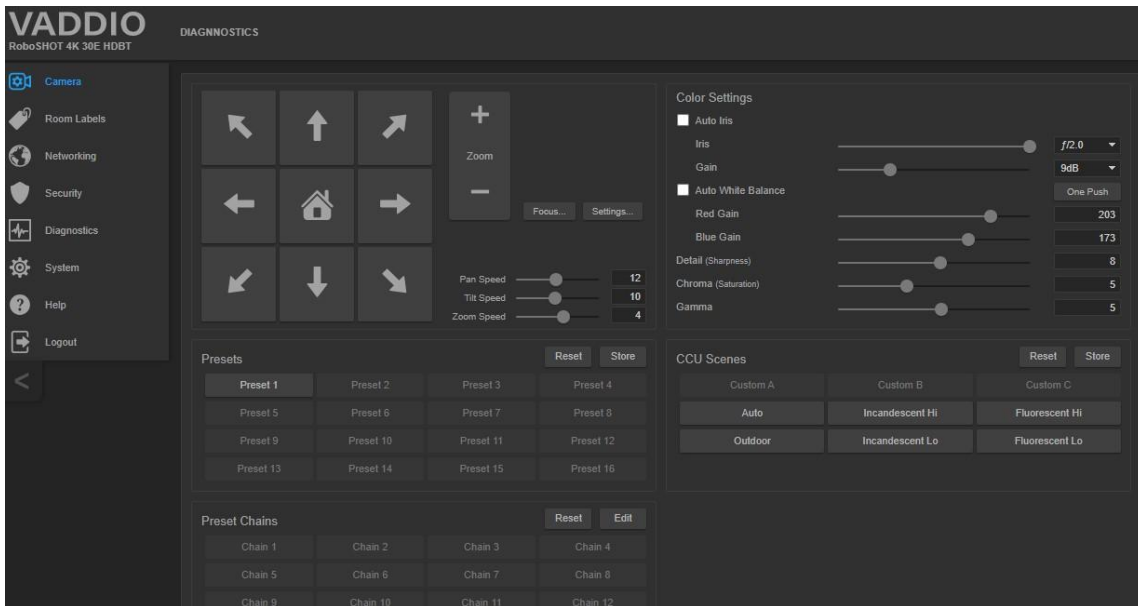
CAMERA PAGE

No two rooms are exactly alike – but a lot of rooms are a lot alike. The technical folks at Vaddio (Scott, to be specific) have already set up presets for common lighting scenarios (CCU scenes) – Incandescent Hi, Incandescent Lo, Fluorescent Hi, Fluorescent Lo, and Outdoor. The Auto setting allows the camera to determine the appropriate adjustments.

Adjust the camera for the lighting in use by selecting the CCU scene that best fits your environment. Some adjustments to lighting and color may be necessary.

Note

Color adjustments are not available when the Auto CCU scene is selected.



- Backlight Compensation** reduces contrast to adjust for bright light behind the main subject of the shot. Use this if the subject is in front of a window, projector screen, or other bright area and appears as a silhouette. This setting can't be used with Wide Dynamic Range.

Lighting Adjustments

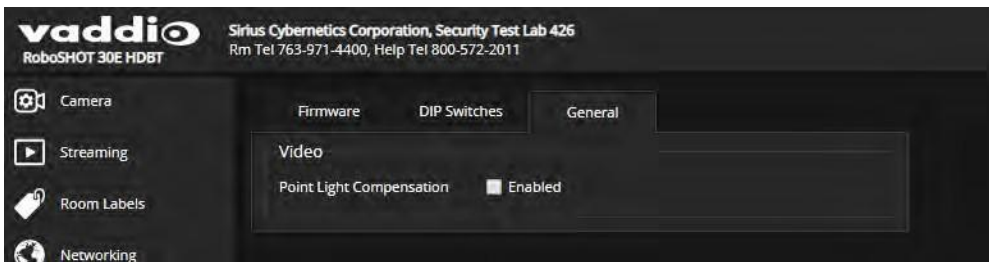
CAMERA PAGE AND SYSTEM PAGE (GENERAL TAB)

The camera provides settings to compensate for common lighting problems.

- **When exiting Standby behavior** set to Recall Home Position or Restore Last Position
- **Front camera LED behavior**
- **Auto Iris** allows the camera to compensate automatically for the light level.
- **Point Light Compensation** reduces the intensity of small, extremely bright areas (point light sources) that would otherwise swamp the camera with light and make it difficult to see details in areas with less intense lighting. *Point Light Compensation is only available on the RoboSHOT 12E HDBT and RoboSHOT 30E HDBT cameras. It is on the General tab of the System page.*

Note

Wide Dynamic Range is not available on RoboSHOT 30 HDBT cameras, but it is available on the other RoboSHOT 4K HDBT and RoboSHOT Elite Series cameras.



Depending on the camera's firmware version, additional settings may also be available on this tab.

The [Lighting and Image Quality Cheat Sheet](#) may be helpful.

Fine-Tuning Image Quality and Color

CAMERA PAGE

Fine-tune the color and lighting as needed using the Color Settings controls.

- **Auto White Balance** adjusts color automatically. Red gain and blue gain controls are not available when Auto White Balance is selected.
- **Red Gain** and **Blue Gain** provide manual color adjustment.
- **Detail** adjusts the image sharpness. If the video looks grainy or “noisy,” try a lower Detail setting. (As in conversation, too much detail is bad.)
- **Chroma** adjusts the color intensity.
- **Gamma** adjusts the range (grey density) between bright areas and shadows.

If you change Red Gain or Blue Gain and you don't like the results, start over by selecting and then deselecting Auto White Balance.

The [Color Adjustment Cheat Sheet](#) may be helpful.






Lighting and Image Quality Cheat Sheet

Here are some tips for using the CCU settings for lighting and image quality. For more detailed information on each setting, see [Lighting Adjustments](#) and [Fine-Tuning Image Quality and Color](#).

What do you need to correct?	Make this adjustment:
The image is too dark	Increase Iris (lower F-stop value)
	Increase Iris Gain
The image looks washed out or faded	Decrease Iris (higher F-stop value)
	Decrease Iris Gain
	Increase Chroma
	Decrease Gamma
The subject is silhouetted against a bright background	Enable Backlight Compensation
Small sources of bright light (point sources) make it hard to see details in areas with less intense lighting.	Enable Point Light Compensation (RoboSHOT 12E and 30E HDBT only)
Highlights and shadows look right, but mid-tones are too dark.	Increase Gamma
Shadows are too dark	Enable Wide Dynamic Range (WDR)
	Decrease Gamma
The image looks grainy	Decrease Detail
	Decrease Iris Gain
"Soft focus" effect; the image looks unrealistically smooth	Increase Detail

Color Adjustment Cheat Sheet

Here are some tips for using the color-related CCU settings. For more detailed information on each setting, see [Fine-Tuning Image Quality and Color](#).

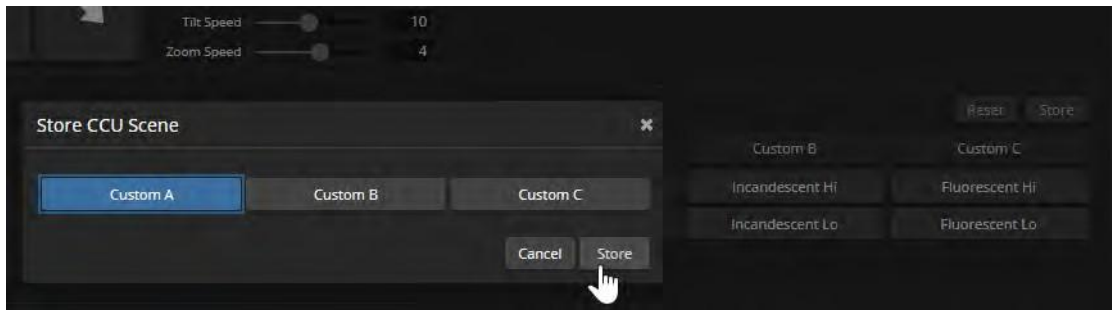
What do you need to correct?	Make this adjustment:
Colors look less vivid than they should	Increase Chroma
Colors look too vivid	Decrease Chroma
Colors look wrong; white objects do not appear white	Enable Auto White Balance
	One Push White Balance
	Disable Auto White Balance and <ul style="list-style-type: none"> ■ adjust Red Gain (decrease for less red, increase for less green) ■ adjust Blue Gain (decrease for less blue, increase for less yellow)
<div style="display: flex; justify-content: space-around; text-align: center;"> <div> <p>Too much red</p>  </div> <div> <p>Not enough red</p>  </div> <div> <p>Too much blue</p>  </div> <div> <p>Not enough blue</p>  </div> <div> <p>Balanced</p>  </div> </div>	

Saving Color and Lighting Settings

CAMERA PAGE

If you are adjusting for lighting conditions that are likely to recur, you can save your adjustments as a custom scene.

1. Adjust lighting, image quality, and color.
2. When the scene looks the way you want it to, click Store CCU Scene.
3. In the Store CCU Scene dialog box, select which custom scene to store (Custom A, B, or C) and select Save.



4. Optional: Name the new scene by right-clicking its button. A dialog box opens. Enter the name and save it.

Adjusting the Focus

CAMERA PAGE

Open the Focus control to select Auto-focus, or set manual focus with the + (near) and – (far) buttons. I know you already understand this, but I'm going to say it anyway: The + and – buttons don't work when Auto Focus is selected.



For users who are not logged in as admin, focus control is available via the IR Remote Master or IR Remote Commander

Speed Adjustments

CAMERA PAGE

The following speed adjustments are available:

- Manual pan, tilt, and zoom speeds – Used when you control camera movements with the IR Remote Commander or the arrow buttons in the web interface
- Global Preset Non-Tri-Sync Speeds – Separate pan, tilt, and zoom speeds used for movements between presets that do not use Tri-Synchronous Motion.
- Tri-Synchronous Motion speed – Only available when storing a preset with the Store with Tri-Sync option selected.

About Tri-Synchronous Motion

The Tri-Synchronous Motion algorithm calculates the pan, tilt and zoom speeds needed for the camera to move to a preset position, so that all three movements begin together and arrive at the same time. It ensures smooth on-air movements when making large changes in position, particularly when the zoom also changes. Tri-Synchronous Motion is only available as an option for moving to specific preset position.

Tri-Synchronous Motion is not helpful in movements of less than 10°, and is typically used only for on-air operation.

Setting the Speed for Manual Movements

CAMERA PAGE

The Pan Speed, Tilt Speed, and Zoom Speed sliders control how fast the camera moves in response to the direction and zoom controls on the IR remote and in the web interface.

To set speeds for movements using the arrow buttons:

Use the speed sliders to adjust the speed of movements that you control with the buttons for pan, tilt, and zoom. For tight shots, slower is usually better.

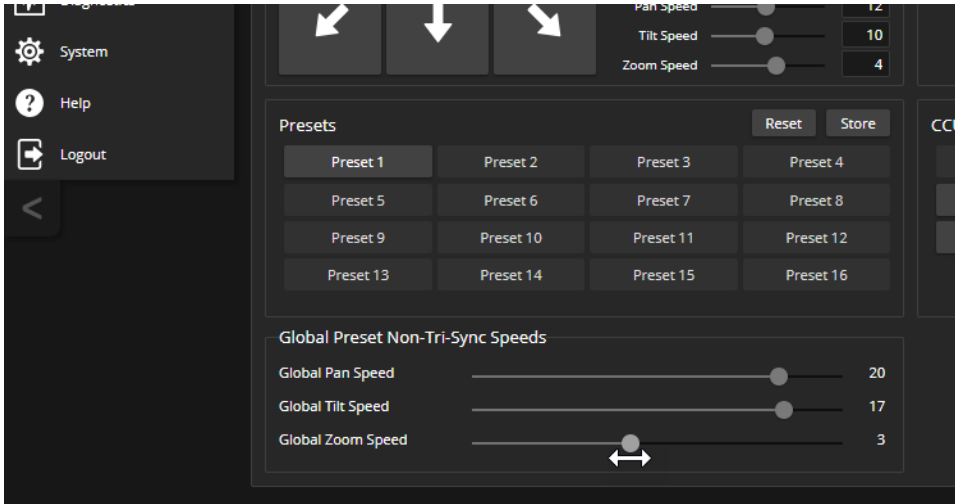


Setting the Speed of Movements to Presets

CAMERA PAGE

To set speeds for movements to presets:

1. Store presets at several points in the room, at different zoom levels, saving them without selecting the Tri-Sync option.
2. Move among the presets using the preset buttons.
3. Use the Global Preset Non-Tri-Sync Speed sliders to adjust as needed.



Adjusting Tri-Synchronous Motion Speed

CAMERA PAGE

The Tri-Synchronous Motion algorithm calculates the pan, tilt and zoom speeds needed for the camera to move from one preset to the next so that all three movements begin together and arrive at the same time. You may need to experiment to find the best Tri-Sync speed setting. Here is a simple method:

1. Store a preset, checking Save with Tri-Sync and setting the speed slider about a third of the way along the scale.
2. Move the camera to a different pan, tilt, and zoom position, and save this position as another preset. Again, check Save with Tri-Sync; but set the speed slider to about the halfway point.
3. Move the camera from one preset to the other to evaluate which movement is closer to the speed you want. Use the Tri-Sync speed associated with that preset, or adjust it as needed.
4. Store all the presets you will need.
5. Switch among the presets to determine whether any of them should use different Tri-Sync speeds.
6. Adjust the speeds as needed.

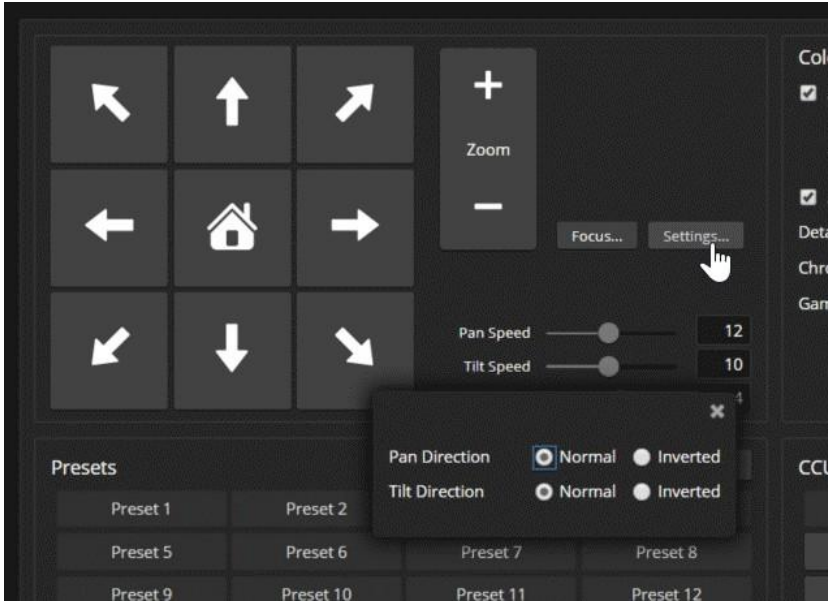


Setting the Direction for Camera Movements

CAMERA PAGE

By default, the arrow buttons on the remote and in the web interface show the direction you would see the camera move if you were looking the same direction as the camera. If a person facing the camera is controlling it with the remote, using the right arrow pans the camera to the person's left.

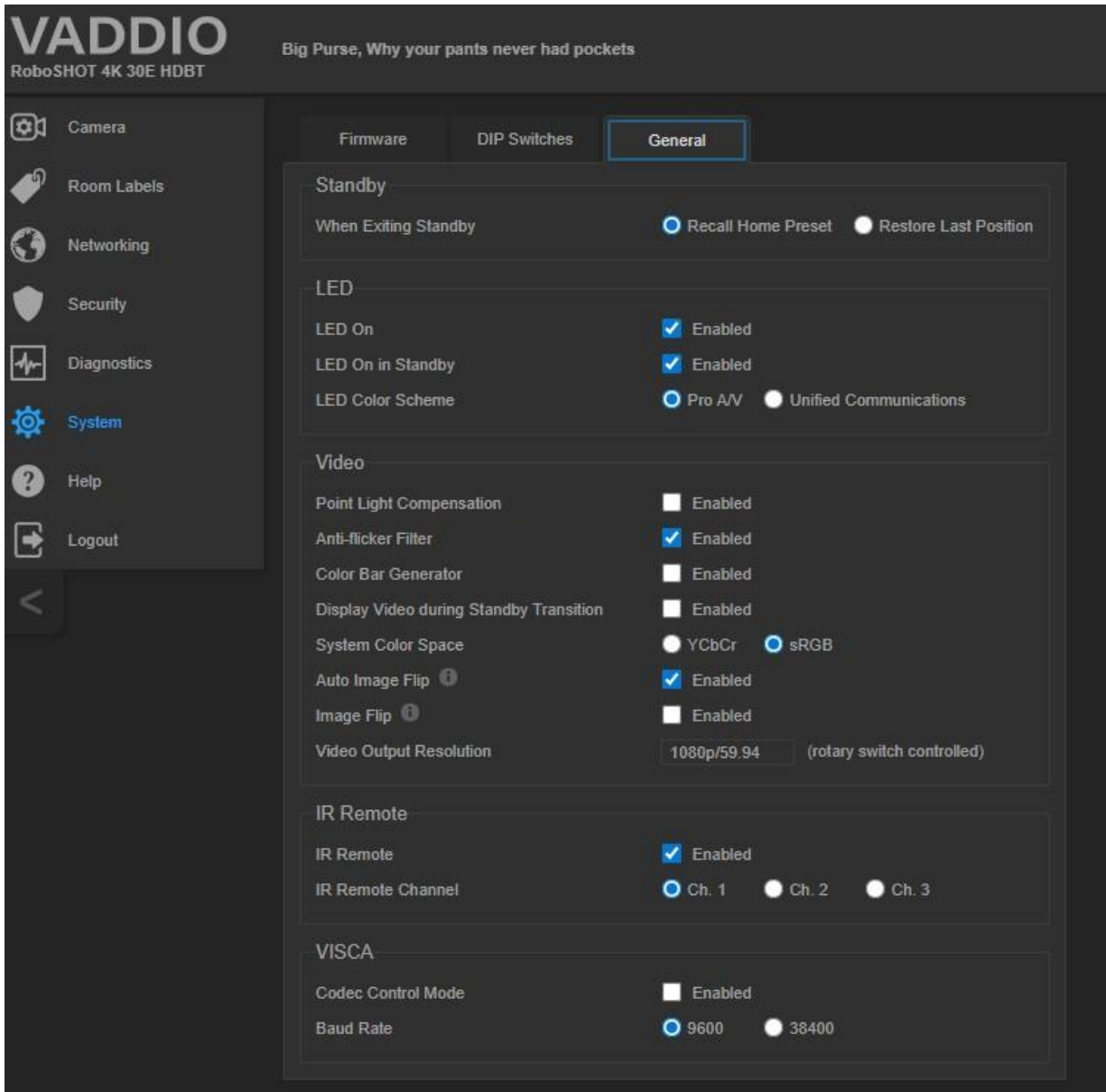
To make the arrow buttons indicate camera movement from the perspective of a person facing the camera, open the Settings control and invert the pan direction.



Reading the Camera's Switches

SYSTEM PAGE, GENERAL TAB

Open the General tab to see the camera's current switch settings and configure certain camera behaviors.



This screen shot shows the System/General Configuration tab for the RoboSHOT 4K 30E HDBT camera.

Standby behavior Pretty self-explanatory.

LED behavior Settings for behavior of front facing LED on camera.

Video behavior

- Auto Image Flip checkbox allows cameras to automatically invert the video image when the camera is inverted. (new feature not available on older RoboSHOT and RoboSHOT E-Series cameras)

- Manual Image Flip, for when Auto Image Flip is disabled

IR Remote settings

- Enable/disable IR remote control functions
- IR Channel choice 1, 2, 3. Must match channel of remote control desired to be used with.

VISCA

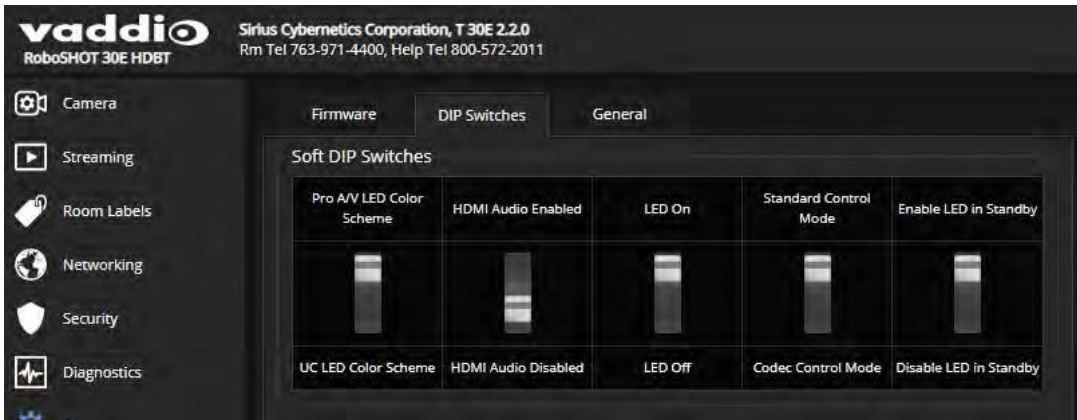
- RS-232 (Serial) control only available when used with a OneLINK or OneLINK Bridge HDBT extension device. Select appropriate baud rate. Vaddio devices default to 9600 baud.

Note:

On the older RoboSHOT 12 HDBT and RoboSHOT 30 HDBT cameras, the lower array of DIP switches is a read-out of the physical DIP switches on the back of the camera.

If your camera has been updated to firmware version 3.1.0 or later, most of the soft DIP switch settings are now on the General tab.

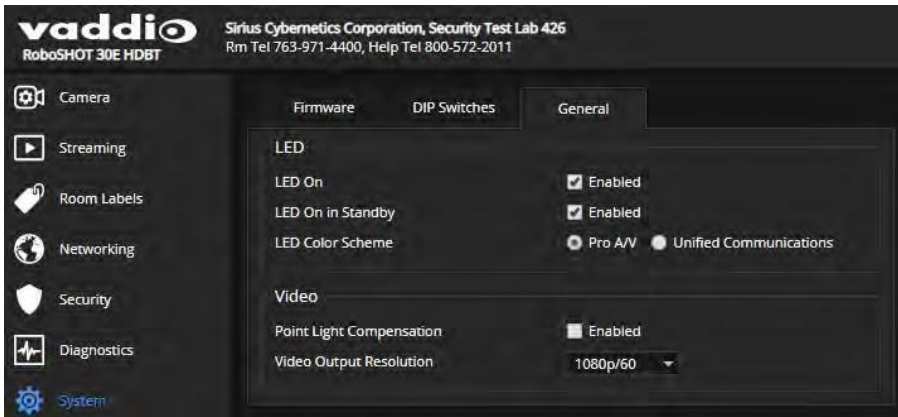
Pre-3.1.0 firmware:



Version 3.1.0 and later firmware:

Note

When the camera's rotary switch is at position 0, you can set video output resolution from this page. This capability is not available when the switch is in any other position.



Operating the Camera from the Web Interface

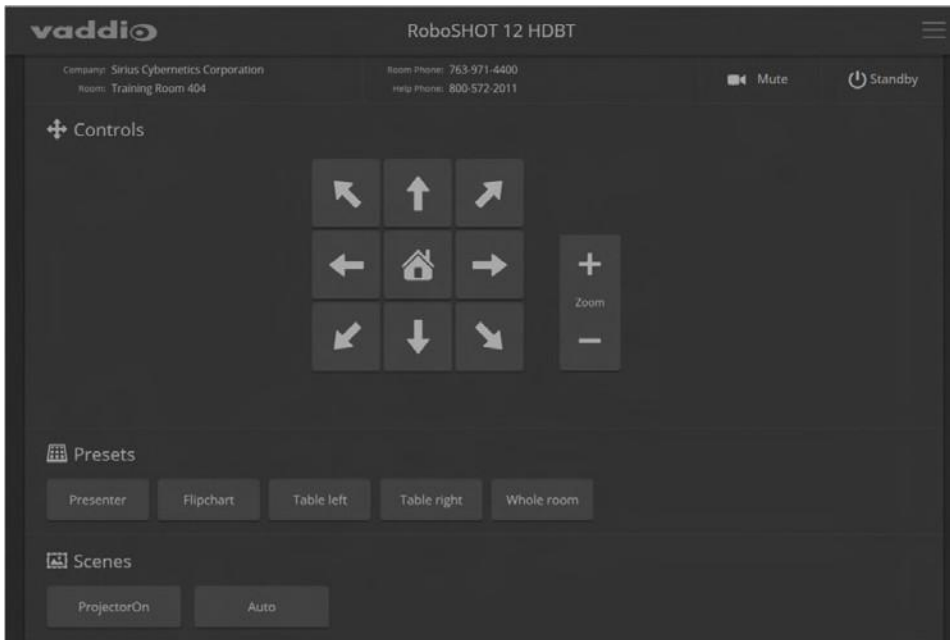
CONTROLS PAGE

The Controls page does not require administrative access. If guest access is enabled, you do not need to log in to access this page. If guest access is disabled, you will need to log in as **user**.

The Controls page provides most of the same controls as the IR Remote Commander. See [Using the IR Remote](#).

- Move to camera presets, if any have been stored
- Pan, tilt, zoom, or return it to its home position
- Put the camera in standby or bring it back to the ready state
- Select a custom lighting adjustment, if any have been stored

Since the web interface is specific to the camera you are working with, it does not offer camera selection.



Switching the Camera Off or On (Standby)

Use the Standby button to switch between low-power (standby) and ready states. On entering standby mode, the camera moves to its standby position and stops sending video.

Stop or Resume Sending Video (Mute)

Use the Mute button to stop sending live video without putting the camera in standby mode. When the video is muted, the camera sends a blue or black screen. If the camera is part of a conferencing system, this does not mute the audio.

Moving the Camera

Use the arrow buttons for camera pan and tilt. The center button moves the camera to the home position.

Zooming In or Out

Use the Zoom + button to zoom in and the Zoom - button to zoom out.



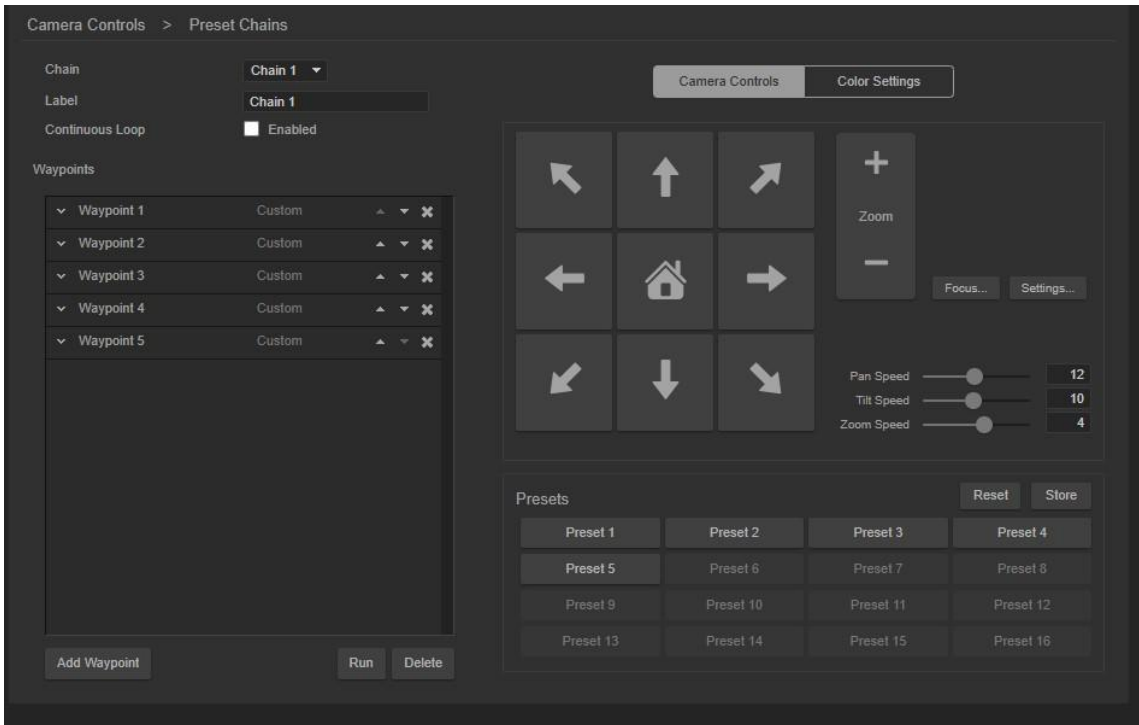
Moving the Camera to a Preset Position

Presets are camera shots that have been stored. They include pan, tilt, and zoom information, and may include color and speed information as well. If no presets are defined, the Controls page does not present the Presets section.

Use the Preset buttons to move the camera to any of its preset positions.

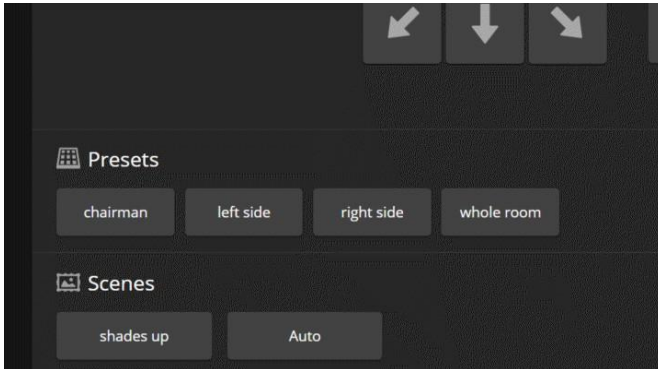
Moving the Camera with Preset Chains

Presets can be configured to be stored and recalled in “chains”. Build and store Preset Chains by entering Preset Chains/Store, steer camera to a location or recall Preset, hit Add Waypoint for as many waypoints as required. Check box for Continuous Loop if repeating the Preset Chain is desired. After storing, Preset Chains are available for use.



Adjusting the Color and Lighting

If any color and lighting adjustments (CCU scenes) have been saved, they are available in the Scenes area, along with the Auto setting. In most cases, the Auto setting is appropriate. This setting allows the camera to adjust to current conditions automatically.



camera home

Moves the camera to its home position.

Synopsis	camera home
Example	>camera home OK >

camera pan

Moves the camera horizontally.

Synopsis	camera pan { left [<speed>] right [<speed>] stop get set }	
Options	left	Moves the camera left.
	right	Moves the camera right.
	speed <1 – 24>	Optional: Specifies the pan speed as an integer (1 to 24). Default speed is 12.
	stop	Stops the camera's horizontal movement.
	get	Returns the camera's absolute pan position in degrees, as a floating point value between approximately -150.00 (left) and 150.00 (right).
	set <position>	Sets the camera's absolute pan position in degrees, as a floating point value between approximately -150.00 and 150.00. This is the minimum range. Individual cameras may have an additional degree or two of travel before they reach their physical limits. If the value is out of range, the camera returns an error message and no motion occurs.
Examples	<pre>>camera pan left OK ></pre> <p>Pans the camera left at the default speed.</p> <pre>>camera pan right 20 OK ></pre> <p>Pans the camera right using a speed of 20.</p> <pre>>camera pan stop OK ></pre> <p>Stops the camera's horizontal motion.</p>	

camera tilt

Moves the camera vertically.

Synopsis	camera tilt{ up [<speed>] down [<speed>] stop get set}	
Options	up	Moves the camera up.
	down	Moves the camera down.
	speed <1 – 20>	Optional: Specifies the tilt speed as an integer (1 to 20). Default speed is 10.
	stop	Stops the camera's vertical movement.
	get	Returns the camera's absolute tilt position in degrees, as a floating point value between approximately -30.00 (down) and 90.00 (up). Note that the range is roughly 30.00 to -90.00 if Image Flip is selected.
	set <position>	Sets the camera's absolute tilt position in degrees, as a floating point value between approximately -30.00 and 90.00 (-90 to 30 if the camera is configured for inverted operation). This is the minimum range; individual cameras may have an additional degree or two of travel before they reach their physical limits. If the value is out of range, the camera returns an error message and no motion occurs.
Examples	<pre>>camera tilt up OK > Tilts the camera up at the default speed. >camera tilt down 20 OK > Tilts the camera down using a speed of 20. >camera tilt stop OK > Stops the camera's vertical motion.</pre>	

camera zoom

Zooms the camera in toward the subject or out away from the subject.

Synopsis	camera zoom { in [<speed>] out [<speed>] stop get set}	
Options	in	Moves the camera in.
	out	Moves the camera out.
	speed [1 – 7]	Optional: Specifies the zoom speed as an integer (1 to 7). Default speed is 3.
	stop	Stops the camera's zoom movement.
	get	Returns the camera's current zoom level as a floating point value.
	set <1 – n>	Sets the zoom level as a floating point value. The value of n (maximum zoom) depends on the camera's capabilities. For example, the range is 1.00 to 12.00 for a 12x camera. If the value is out of range, the camera returns an error message and no zoom change occurs.
Examples	<pre>>camera zoom in OK > Zooms the camera in at the default speed. >camera zoom out 7 OK > Zooms the camera out using a speed of 7. >camera zoom stop OK > Stops the camera's zoom motion. >camera zoom set 14 OK > Sets the camera's zoom level to 14x. >camera zoom get 14 OK > Returns the camera's current zoom level.</pre>	

camera focus

Changes the camera focus.

Synopsis	<code>camera focus { near [<speed>] far [<speed> stop mode {get auto manual}}</code>	
Options	<code>near</code>	Brings the focus nearer to the camera. Can only be used when camera is in manual mode.
	<code>far</code>	Moves the focus farther from the camera. Can only be used when camera is in manual mode.
	<code>speed <1 – 8></code>	Optional: integer (1 to 8) specifies the focus speed.
	<code>stop</code>	Stops the camera's focus movement.
	<code>mode {get auto manual}</code>	Returns the current focus mode, or specifies automatic or manual focus.
Examples	<pre> camera focus near OK > </pre> <p>Brings the focus near at the default speed.</p> <pre> camera focus far 7 OK > </pre> <p>Moves the focus farther from the camera at a speed of 7.</p> <pre> camera focus mode get auto_focus: on OK > </pre> <p>Returns the current focus mode.</p>	



camera preset

Moves the camera to the specified preset, or stores the current camera position and optionally CCU information, either with or without specifying that Tri-Synchronous Motion is to be used when moving to this position.


Note

This command corresponds to the CAM_Memory commands in the RS-232 command set.

Synopsis	camera preset { recall store} <1 – 16> [tri-sync <1 – 24>] [save-ccu]	
Options	recall <1 – 16>	Moves the camera to the specified preset, using Tri-Synchronous Motion if this was saved with the preset. If CCU information was saved with the preset, the camera switches to the CCU setting associated with the preset.
	store <1 – 16>	Stores the current camera position as the specified preset.
	tri-sync <1 – 24>	Optional: Specifies that the camera uses Tri-Synchronous Motion to move to this position, using the specified speed.
	save-ccu	Optional: Saves the current CCU settings as part of the preset. If not specified, the last color settings are used when recalled.
Examples	<pre>>camera preset recall 3 OK > Moves the camera to preset 3. >camera preset store 1 OK > Saves the camera's current position as preset 1. >camera preset store 4 tri-sync 15 OK > Stores the camera's current position as preset 4. The camera will use Tri-Synchronous Motion at speed 15 when it is recalled to this preset. >camera preset store 2 save-ccu OK > Stores the camera's current position as preset 2. The camera applies the current CCU settings when it is recalled to this preset.</pre>	

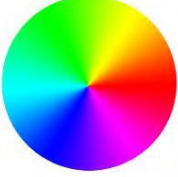
camera ccu get

Returns CCU (lighting and color) information.

Synopsis	<code>camera ccu get <param></code>	
Options 	<code>all</code>	Returns all current CCU settings.
	<code>auto_white_balance</code>	Returns the current state of the auto white balance setting (on or off).
	<code>red_gain</code>	Returns red gain as an integer (0 to 255).
	<code>blue_gain</code>	Returns blue gain as an integer (0 to 255).
	<code>backlight_compensation</code>	Returns the current state for backlight compensation (on or off).
	<code>auto_iris</code>	Returns the current auto-iris state (on or off).
	<code>iris</code>	Returns the iris value as an integer (0 to 11).
	<code>gain</code>	Returns gain as an integer (0 to 11).
	<code>detail</code>	Returns detail as an integer (0 to 15).
	<code>chroma</code>	Returns chroma as an integer (0 to 14).
	<code>gamma</code>	Returns gamma as an integer (-64 to 64)
	<code>wide_dynamic_range</code>	Returns the current state for Wide Dynamic Range (on or off).
Examples	<pre>>camera ccu get iris iris 6 OK ></pre> <p>Returns the current iris value.</p> <pre>>camera ccu get red_gain red_gain 201 OK ></pre> <p>Returns the current red gain value.</p> <pre>>camera ccu get all auto_iris on auto_white_balance on backlight_compensation off blue_gain 193 chroma 2 detail 8 gain 3 iris 11 red_gain 201 wide_dynamic_range off OK ></pre> <p>Returns all current CCU settings.</p>	

camera ccu set

Sets the specified CCU (lighting and color) information.

Synopsis	<code>camera ccu set <param> <value></code>	
Options 	<code>auto_white_balance {on off}</code>	Sets the current state of the auto white balance setting (on or off). Auto white balance overrides red gain and blue gain manual settings.
	<code>red_gain <0 – 255></code>	Sets the red gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	<code>blue_gain <0 – 255></code>	Sets the blue gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	<code>backlight_compensation {on off}</code>	Sets the current state of the backlight compensation setting (on or off). Can only be used when wide dynamic range mode is off.
	<code>iris <0 – 11></code>	Sets the iris value as an integer (0 to 11). Can only be used when auto-iris is off.
	<code>auto_iris {on off}</code>	Sets the auto-iris state (on or off). Auto-iris disables manual iris and gain when it is on.
	<code>gain <0 – 11></code>	Sets gain value as an integer (0 to 11). Can only be used when auto-iris is off.
	<code>detail <0 – 15></code>	Sets the detail value as an integer (0 to 15).
	<code>chroma <0 – 14></code>	Sets the chroma value as an integer (0 to 14).
	<code>gamma <-64 – 64></code>	Sets the gamma value as an integer (-64 to 64).
	<code>wide_dynamic_range {on off}</code>	Sets Wide Dynamic Range mode on or off. Can only be used when backlight compensation is off. This parameter is not valid for RoboSHOT 30 HDBT.
Examples	<pre>>camera ccu set auto_iris off OK > Turns off auto-iris mode, returning the camera to manual iris control. >camera ccu set red_gain 10 OK > Sets the red gain value to 10.</pre>	

camera ccu scene

Stores the current CCU scene or recalls the specified ccu scene.

Synopsis	camera ccu scene {recall {factory <1–6> custom <1–3>} store custom <1–3>}	
Options	recall factory <1–6> recall custom <1–3>	Recalls the camera to the specified scene (factory 1 to 6 or custom 1 to 3) .
	store custom <1–3>	Saves the current scene as the specified custom scene.
Examples	<pre>>camera ccu scene recall factory 2 OK > Sets the camera to use factory CCU scene 2. >camera ccu scene store custom 1 OK > Saves the current CCU scene as custom CCU scene 1.</pre>	

camera led

Set or change the behavior of the indicator light.

Synopsis	camera led { get off on }	
Options	get	Returns the indicator light's current state (on or off).
	off	Disables the indicator light.
	on	Enables the indicator light.
Examples	<pre>>camera led off OK > Disables the indicator light. You cannot tell by looking at the camera whether it is sending video. >camera led get led: on OK > Returns the current state of the indicator light.</pre>	

camera standby

Set or change camera standby status.

Synopsis	camera standby { get off on toggle }	
Options	get	Returns the camera's current standby state.
	off	Brings the camera out of standby (low power) mode.
	on	Stops video and puts the camera in standby mode.
	toggle	Changes the camera's standby state – if it was not in standby mode, it enters standby; if it was in standby mode, it "wakes up."
Examples	<pre>>camera standby off OK ></pre> <p>Brings the camera out of standby mode.</p> <pre>>camera standby get standby: on OK ></pre> <p>Returns the current standby state.</p>	

streaming ip enable

Set or change the state of IP streaming.

Synopsis	streaming ip enable { get on off toggle }	
Parameters	get	Returns the current state of IP streaming
	on	Enables IP streaming.
	off	Disables IP streaming.
	toggle	Changes the state of IP streaming (on if it was off, or off if it was on). streaming ip enable toggle has the same effect as selecting the Enable IP Streaming checkbox in the web interface.
Example	<pre>>streaming ip enable on > OK</pre> <p>Enables IP streaming.</p> <pre>>streaming ip enable get enabled: true > OK</pre> <p>Returns the current state of IP streaming.</p>	

streaming settings get

Retrieves IP streaming settings. These are configured in the web interface.

Synopsis	<code>streaming settings get</code>	
Parameters	IP Custom_Frame_Rate	Frame rate (Custom mode).
	IP Custom_Resolution	Resolution (Custom mode).
	IP Enabled	True if IP streaming is enabled, False if it is not.
	IP MTU	Maximum packet size.
	IP Port	Port number used for IP streaming. Default for RTSP streaming is 554; default for RTMP streaming is 1935.
	IP Preset_Quality	Video quality (Easy mode).
	IP Preset_Resolution	Resolution (Easy mode).
	IP Protocol	IP streaming protocol in use (RTSP or RTMP).
	IP URL	URL where the RTSP stream is available.
	IP Video_Mode	Video quality mode selected (preset or custom)
Example	<pre>>streaming settings get IP Custom_Frame_Rate 30 IP Custom_Resolution 1080p IP Enabled true IP MTU 1400 IP Port 554 IP Preset_Quality Standard (Better) IP Preset_Resolution 720p IP Protocol RTSP IP URL vaddio-roboshot-hdbt-stream IP Video_Mode preset OK ></pre> <p>Returns the current streaming settings.</p>	

network settings get

Returns the current network settings for MAC address, IP address, subnet mask, and gateway.

Synopsis	<code>network settings get</code>	
Example	<pre>> network settings get Name eth0:WAN MAC Address 48:6F:77:64:79:21 IP Address 192.168.1.67 Netmask 255.255.255.0 VLAN Disabled Gateway 192.168.1.254 OK ></pre>	

network ping

Sends an ICMP ECHO_REQUEST to the specified IP address or hostname.

Synopsis	network ping [count <count>] [size <size>] <string>	
Options	<count>	The number of ECHO_REQUEST packets to send. Default is five packets.
	<size>	The size of each ECHO_REQUEST packet. Default is 56 bytes.
	<string>	The hostname or IP address where the ECHO_REQUEST packets will be sent.
Examples	<pre>>network ping 192.168.1.66 PING 192.168.1.66 (192.168.1.66): 56 data bytes 64 bytes from 192.168.1.66: seq=0 ttl=64 time=0.476 ms 64 bytes from 192.168.1.66: seq=1 ttl=64 time=0.416 ms 64 bytes from 192.168.1.66: seq=2 ttl=64 time=0.410 ms 64 bytes from 192.168.1.66: seq=3 ttl=64 time=0.410 ms 64 bytes from 192.168.1.66: seq=4 ttl=64 time=3.112 ms --- 192.168.1.66 ping statistics --- 5 packets transmitted, 5 packets received, 0% packet loss round-trip min/avg/max = 0.410/0.964/3.112 ms ></pre> <p>Sends five ECHO_REQUEST packets of 56 bytes each to the host at 192.168.1.66.</p>	
	<pre>>network ping count 10 size 100 192.168.1.1</pre> <p>Sends 10 ECHO_REQUEST packets of 100 bytes each to the host at 192.168.1.1. The command returns data in the same form as above.</p>	

system reboot

Reboots the system either immediately or after the specified delay. Note that a reboot is required when resetting the system to factory defaults (system factory-reset).

Synopsis	system reboot [<seconds>]	
Options	<seconds>	The number of seconds to delay the reboot.
Examples	<pre>>system reboot OK ></pre> <p>The system is going down for reboot NOW! roboshot-hdbt-48-6F-77-64-79-21</p> <p>Reboots the system immediately.</p>	
	<pre>>system reboot 30</pre> <p>Reboots the system in 30 seconds. The response is in the same form; the system message appears at the end of the delay.</p>	

system factory-reset

Gets or sets the factory reset status. When the factory reset status is on, the system resets to factory defaults on reboot.

Synopsis	<code>system factory-reset { get on off }</code>	
Options	<code>get</code>	Returns the camera's current factory reset status.
	<code>on</code>	Enables factory reset on reboot.
	<code>off</code>	Disables factory reset on reboot.
Examples	<pre>>system factory-reset get factory-reset (software): off factory-reset (hardware): off OK ></pre> <p>Returns the factory reset status.</p> <p>This evaluates the most recent <code>system factory-reset on</code> or <code>off</code> command, if one has been received, then reads the rear panel DIP switches and returns the status <code>on</code> if they are all in the down position.</p> <pre>>system factory-reset on factory-reset (software): on factory-reset (hardware): off OK ></pre> <p>Enables factory reset upon reboot.</p> <p>Note <i>This command does not initiate a factory reset. The factory reset takes place on the next reboot.</i></p>	

history

Returns the most recently issued commands from the current Telnet session. Since many of the programs read user input a line at a time, the command history is used to keep track of these lines and recall historic information.

Synopsis	history <limit>	
Options	<limit>	Integer value specifying the maximum number of commands to return.
Examples	<p>history Displays the current command buffer.</p> <p>history 5 Sets the history command buffer to remember the last 5 unique entries.</p>	
Additional information	<p>You can navigate the command history using the up and down arrow keys.</p> <p>This command supports the expansion functionality from which previous commands can be recalled from within a single session. History expansion is performed immediately after a complete line is read.</p> <p>Examples of history expansion:</p> <ul style="list-style-type: none"> * !! Substitute the last command line. * !4 Substitute the 4th command line (absolute as per 'history' command) * !-3 Substitute the command line entered 3 lines before (relative) 	



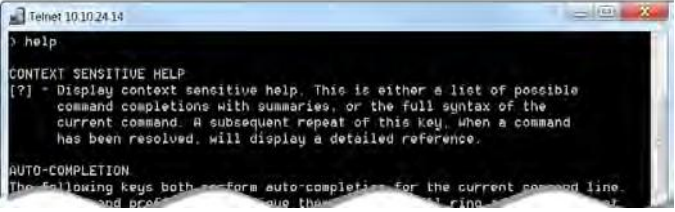
version

Returns the current firmware version.

Synopsis	version
Example	<pre>> version Commit d033ddb2378357a871011eb820706dcaa64ec0e2 HDLink TX4.6.1x0.03 Pan Motor Version 0.2.4772 Sensor Version 06.00 System Version RoboSHOT HDBT 3.0.1 Tilt Motor Version 0.2.4772 OK</pre> <p>Returns current firmware version information. Your camera may return slightly different information.</p>

help

Displays an overview of the CLI syntax.

Synopsis	help
Example	<p>help</p> 

exit

Ends the command session and then closes the socket.

Synopsis	exit
Example	exit

RS-232 Serial Command Reference

The Vaddio RS-232 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.

Although the RoboSHOT HDBT cameras do not have an RS-232 port, they can accept these commands via the HDBaseT connection when used with a OneLINK device or compatible third-party controller.

Be sure the camera is set to the same baud rate as the controller or other device originating the commands. For the older RoboSHOT HDBT cameras, see [DIP Switches: Camera Behavior Settings](#). For the newer RoboSHOT 4K 12E HDBT and RoboSHOT 4K 30E HDBT cameras, see [Basic Camera Settings for RoboSHOT 12E HDBT and RoboSHOT 30E HDBT](#).

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) Direct: pqrs = zoom position (0h-4000h for 12x, 0h-7AC0h for 30x)
	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 <code>camera zoom</code> in Telnet API			
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 <code>camera focus</code> 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	

Command Set	Command	Command Packet	Comments
Pan-TiltDrive	Up	8x 01 06 01 vv ww 03 01 FF	vv= Pan speed (01h-18h)
	Down	8x 01 06 01 vv ww 03 02 FF	ww=Tilt speed (01h-14h)
	Left	8x 01 06 01 vv ww 01 03 FF	
	Right	8x 01 06 01 vv ww 02 03 FF	
	UpLeft	8x 01 06 01 vv ww 01 01 FF	
	UpRight	8x 01 06 01 vv ww 02 01 FF	
	DownLeft	8x 01 06 01 vv ww 01 02 FF	
	DownRight	8x 01 06 01 vv ww 02 02 FF	
	Stop	8x 01 06 01 vv ww 03 03 FF	
	Home	8x 01 06 04 FF	Returns the camera to its default position
Pan-TiltDrive	Absolute Position	8x 01 06 02 vv ww 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	0Y0Y0Y0Y = Pan position (90E2h-6BD8h) 0Z0Z0Z0Z = Tilt position (EB99h-3D59h)
Pan-Tilt-ZoomDrive	Up	8x 01 06 0A vv ww rr 03 01 03 FF	vv= Pan speed (01h-18h) ww=Tilt speed (01h-14h)
	Down	8x 01 06 0A vv ww rr 03 02 03 FF	rr=Zoom speed (00h - 07h)
	Left	8x 01 06 0A vv ww rr 01 03 03 FF	
	Right	8x 01 06 0A vv ww rr 02 03 03 FF	
	In	8x 01 06 0A vv ww rr 03 03 01 FF	
	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 position and zoom
Pan-Tilt-ZoomDrive	Absolute Position	8x 01 06 0B vv ww 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z 0R 0R 0R 0R FF	0Y0Y0Y0Y = Pan position (90E2h-6BD8h) 0Z0Z0Z0Z = Tilt position (EB99h-3D59h) 0R0R0R0R = Zoom position (0h-4000h for 12x, 0h-7AC0h for 30x)

Command Set	Command	Command Packet	Comments
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	Corresponds to camera preset in Telnet API. p= preset number(0h-0Fh) qr= Speed(01h-18h)
	Set standard	8x 01 04 3F 01 0p FF	
	Set standard with 'scene'	8x 01 04 3F 21 0p FF	
	Set Tri-sync	8x 01 04 3F 11 0p 0q 0r FF	
	Set Tri-Sync with 'scene'	8x 01 04 3F 31 0p 0q 0r FF	
	Recall	8x 01 04 3F 02 0p FF	
			Corresponds to camera preset in Telnet API.
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
Pan-TiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	www= Pan position zzzz=Tilt Position
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
		y0 50 03 FF	Manual focus
			Corresponds to camera focus mode get in Telnet API.
CAM_MemoryInq	8x 09 04 3F FF	y0 50 pp FF	pp: Preset number recalled last (00h - 0Fh)
CAM_MemoryStatusInq	8x 09 04 3F 0p FF	y0 50 0p 0q 0r 0s FF	p: Preset number (00h - 0Fh) q: mode (00-std, 10-std /w ccu, 01-trisync, 11-trisync /w ccu) 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)

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
Corresponds to <code>camera ccu set auto_white_balance</code> in Telnet API.			
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	
Corresponds to <code>camera ccu set red_gain</code> in Telnet API.			
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	
Corresponds to <code>camera ccu set blue_gain</code> in Telnet API.			
CAM_AE	Auto	8x 01 04 39 00 FF	Auto exposure mode
	Manual	8x 01 04 39 03 FF	Manual control mode
Corresponds to <code>camera ccu set auto_iris</code> in Telnet API.			
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 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	
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	
Corresponds to <code>camera ccu set iris</code> in Telnet API.			
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	
Corresponds to <code>camera ccu set gain</code> in Telnet API.			
CAM_BackLight	On	8x 01 04 33 02 FF	Backlight compensation On/Off
	Off	8x 01 04 33 03 FF	
Corresponds to <code>camera ccu set backlight_compensation</code> in Telnet API.			

Command Set	Command	Command Packet	Comments
CAM_WD	On	8x 01 04 3D 02 FF	Wide Dynamic Range On
	Off	8x 01 04 3D 03 FF	Wide Dynamic Range Off
Corresponds to <code>camera ccu set wide_dynamic_range</code> in Telnet API. May be unavailable on some cameras.			
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 <code>camera ccu set detail</code> in Telnet API.			
CAM_Chroma	Direct	8x 01 7E 55 00 00 0p 0q FF	pq: 00h – 14h
Corresponds to <code>camera ccu set chroma</code> 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 <code>camera ccu set gamma</code> in Telnet API.			

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_WBModelInq	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_AEModelInq	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_WDModelInq	8x 09 04 3D FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_BackLightModelInq	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)

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 <code>camera standby</code> 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 <code>video mute</code> 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 <code>camera standby get</code> in Telnet API			
CAM_IPAddress	8x 09 08 4E 00 00 FF	y0 50 49 50 00 00 00 0p 0p 0p 0q 0q 0q 0r 0r 0s 0s 0s FF	IP address = ppp.qqq.rrr.sss
CAM_TallyInq	8x 09 7E 01 0A FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_NRInq	8x 09 04 53 FF	y0 50 0p FF	Noise reduction p: 00h to 05h
CAM_MuteModelInq	8x 09 04 75 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
Corresponds to <code>video mute get</code> in Telnet API			
Vaddio_ModelInq	8x 09 08 0e FF	y0 50 05 0A 00 00 00 FF	RoboSHOT 12 HDBT
		y0 50 05 0B 00 00 00 FF	RoboSHOT 30 HDBT

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	Pan $\pm 150^\circ$, tilt $+90^\circ -30^\circ$; speed 0.35°/sec to 120°/sec
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+

Physical and Environmental

Height	6.9 in. (17.6 cm) (13.02 plain M&Ms)	Weight	4.80 lbs (2.2 kg) (2558 plain M&Ms)
Width	7.1 in. (17.9 cm) (13.4 plain M&Ms)	Operating/storage temperature	0°C to +40°C (32°F to 104°F)
Depth	6.8 in. (17.2 cm) (12.3 plain M&Ms)	Operating/storage humidity	20% to 80% RH, non-condensing

Complete Manual for RoboSHOT 4K HDBT High-Performance PTZ
Specifications are subject to change without notice.

Troubleshooting and Care

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 indicator light before you do anything else.

- **Blue:** Normal operation (blinks once when the camera receives a command from the remote)
- **Red:** On-air tally (signal provided by external device via serial connection)
- **Blinking red:** Video is muted (UC color scheme only)
- **Purple:** In standby mode or booting
- **Yellow:** Firmware update in progress

If the status light is off, check whether you can access the camera via its web interface or Telnet. If so, the status light is disabled.


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/Responsiveness Issues

What is it doing?	Possible causes	Check and correct
<p>Nothing. The status light is off, there is no video, and the camera does not respond to the remote.</p> 	If a OneLINK extension module is used: The camera is not connected to the OneLINK module.	Plug the OneLINK module into the camera.
	If a OneLINK extension module is used: The OneLINK power supply is not connected.	Plug the OneLINK module's power supply into a wall outlet.
	If a OneLINK extension module is used: The OneLINK module is not working properly.	Test by connecting the camera directly to the PoE+ power injector or 12VDC power pack that was shipped with it. If the camera works when it is connected to a power source, but not when connected to the the OneLINK module, the OneLINK is bad. Contact your reseller or Vaddio Technical Support.
	Caution: Do not connect the camera to the 48 VDC OneLINK power pack. This will damage the camera and void its warranty.	
	Insufficient power using a PoE injector.	Use a PoE+ power injector – PoE does not deliver enough power.
	At least one of the cables is bad.	Check using known good cables.
	The wall outlet is not active. (Check by finding out if it powers something else, such as a laptop or phone charger.)	Use a different outlet.
The camera or its power source is bad.	Contact your reseller or Vaddio Technical Support.	
The camera never finishes initializing and the light is purple. The web interface is not available.	The camera is not receiving enough power. Is a PoE power injector connected?	Use PoE+ instead. PoE does not deliver enough power for a PTZ camera.
	The PoE+ power injector is bad.	Contact your reseller or Vaddio Technical Support.
The camera does not respond to the remote and the light is yellow.	A firmware update is in progress.	Wait a few minutes, and try again when the light turns blue.

Video and Streaming Issues

What is it doing?	Possible causes	Check and correct
Blue or black video. The camera's web interface is available and the camera responds to the directional controls on the remote.	Video is muted.	Select the Mute button in the web interface. This button is available on every page of the web interface.
No IP stream.	Streaming is not enabled.	Enable streaming: Streaming page in the web interface.

Camera Control and Other Issues

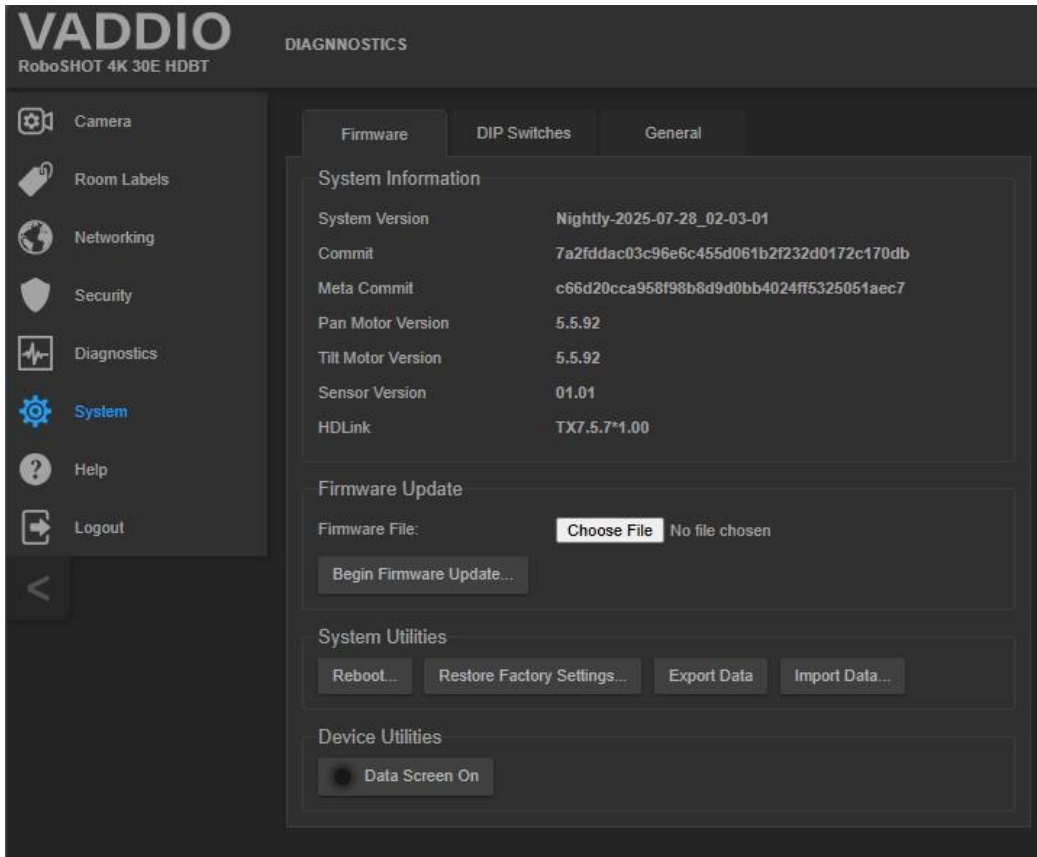
What is it doing?	Possible causes	Check and correct
The camera does not respond to the remote, but the web interface is available.	The remote and the camera are not using the same IR channel.	Press the Camera Select 1 button on the remote. Try the other Camera Select buttons if necessary.
	IR is switched off	Turn IR on using the appropriate DIP switch or soft DIP switch. More information: DIP Switches: Camera Behavior Settings (older RoboSHOT cameras) or Basic Camera Settings for RoboSHOT 12E HDBT and RoboSHOT 30E HDBT .
	The remote's batteries are dead.	Put new batteries in the remote.
The camera responds to the remote but not to the web interface.	The web interface is controlling a different camera. (Check by removing power from the camera; the web interface should become unavailable.)	Check the camera's IP address. See Getting the camera's IP address .
	More than one device is using this IP address.	
The camera responds to the remote but the web interface is not available.	The camera is not using the IP address you browsed to.	Press the Data Screen button on the remote to see camera information.
	The camera is not connected to the network.	Connect the network cable.
The camera loses all its settings when power is cycled.	All the DIP switches are in the ON (down) position.	Set the DIP switches to their proper positions. Default is all OFF (up). See DIP Switches: Camera Behavior Settings for more information.



Restoring Factory Settings from the Web Interface

SYSTEM PAGE, FIRMWARE TAB

Sometimes it's easiest to just start over. To restore the original factory settings...click Restore Factory Settings. This will overwrite everything you have customized – custom CCU scenes and presets, soft DIP switch settings, passwords, room labels, and more. For this reason, you may want to back up (export) the camera's configuration after you set up the customizations you want. See [Saving \(Exporting\) or Restoring \(Importing\) a Configuration](#).



Restoring Factory Default Settings Via Hardware

If the camera's administrative controls are not accessible, you can restore factory defaults using the switches on the back of the camera.

To restore factory default settings on an older RoboSHOT camera:

Set all DIP switches DOWN and cycle the power. Then return all DIP switches to the desired settings.

To restore factory default settings on a RoboSHOT 4K 12E HDBT or RoboSHOT 4K 30E HDBT camera: Set the rotary switch to the Factory Reset position (E) and cycle the power. Then return the rotary switch to its previous position.

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.

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
- Hovering around the periphery of a cement mixer
- Dry environments with an excess of static discharge

Do not attempt to take this product apart. There are no user-serviceable components inside.

And a friendly reminder from our Training department...

As much as you might love our gear, do not attempt to romance your camera



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Visit us at support.vaddio.com for firmware updates, specifications, drawings, manuals, technical support information, and more.

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