



Integrator's Complete Guide to

ConferenceSHOT 10

Enterprise-Class PTZ Conferencing Camera

Document 411-0002-30 Rev B

January 2017

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Overview

This guide covers the ConferenceSHOT 10 enterprise-class PTZ conferencing camera:

- ConferenceSHOT 10 camera (silver), North America – part number 999-9990-000
- ConferenceSHOT 10 camera (silver), Europe and UK – part number 999-9990-001
- ConferenceSHOT 10 camera (white), North America – part number 999-9990-000W
- ConferenceSHOT 10 camera (white), Europe and UK – part number 999-9990-001W



What's in this Guide

This guide covers

- Unpacking and installation
- The camera's physical features and switch settings
- Controlling the camera using the IR remote or web interface
- Controlling the camera using Telnet or RS-232 commands
- Specifications
- Troubleshooting and maintenance
- Warranty and compliance/conformity information

For your convenience, this information is also available in smaller, limited-purpose manuals:

- **Installation Guide for ConferenceSHOT 10 Enterprise-Class PTZ Conferencing Camera** (unpacking, physical features, switch settings, installation, initial power-up)
- **Configuration and Administration Guide for ConferenceSHOT 10 Enterprise-Class PTZ Conferencing Camera** (physical features, controlling the camera, and troubleshooting)

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

Features

- PTZ camera for huddle rooms and small to medium conference rooms
- 2.14 Megapixel (effective), full HD (native 1080p/60) image sensor
- 10x optical zoom, horizontal field of view of 74° in super-wide mode
- Smooth, silent direct-drive motors for precise pan and tilt movements at up to 90° per second
- Simultaneous uncompressed USB 3.0 and IP (H.264) streaming outputs at resolutions up to 1080p/60
- Precise pan and tilt movements at up to 90° per second with smooth, silent direct-drive motors
- Universal Video Class (UVC) drivers supported in Windows®, Mac® OS, and Linux operating systems, compatible with most UC conferencing applications
- Presenter-friendly IR remote control
- Integration-ready Telnet or serial RS-232 control
- Full administrative control via web interface; manage remotely while monitoring the stream separately.

Unpacking the Camera

Make sure you received all the items you expected. Here are the packing lists for the ConferenceSHOT 10 cameras.

Caution:

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

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



North America

ConferenceSHOT 10 camera, silver/black, part number 999-9990-000

ConferenceSHOT 10 camera, white, part number 999-9990-000W

The box should contain one of each item listed here:

- Camera, part number 998-9990-000 (silver/black) or 998-9990-000W (white)
- Vaddio IR Remote Commander
- 12 VDC, 3.0 Amp switching power supply
- AC cord set, North America
- Thin Profile Wall Mount with mounting hardware, black or white depending on camera color
- RS-232 control adapter
- USB 3.0 Type A to Type B cable, 6 ft. (1.8m)
- Quick Start Guide, part number 342-1117



Europe and UK

ConferenceSHOT 10 camera, silver/black, part number 999-9990-001

ConferenceSHOT 10 camera, white, part number 999-9990-001W

The box should contain one of each item listed here:

- Camera, part number 998-9990-000 (silver/black) or 998-9990-000W (white)
- Vaddio IR Remote Commander
- 12 VDC, 3.0 Amp switching power supply
- AC cord set, Europe
- AC cord set, UK
- Thin Profile Wall Mount with mounting hardware, black or white depending on camera color
- RS-232 control adapter
- USB 3.0 Type A to Type B cable, 6 ft. (1.8m)
- Quick Start Guide, part number 342-1117



Australia and New Zealand

ConferenceSHOT 10 camera, silver/black, part number 999-9990-009

ConferenceSHOT 10 camera, white, part number 999-9990-009W

The box should contain one of each item listed here:

- Camera, part number 998-9990-000 (silver/black) or 998-9990-000W (white)
- VaddioIR Remote Commander
- 12 VDC, 3.0 Amp switching power supply
- AC cord set, Australia/New Zealand
- Thin Profile Wall Mount with mounting hardware, black or white depending on camera color
- RS-232 control adapter
- USB 3.0 Type A to Type B cable, 6 ft. (1.8m)
- Quick Start Guide, part number 342-1117



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

A Quick Look at the Camera



- **Camera and zoom lens:** The ConferenceSHOT 10 camera features a 10X optical zoom lens (11X in Super-Wide mode).
- **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 light:** The multi-colored LED indicates the camera's current state.

Back of the Camera



- **12 VDC, 3.0 Amp power connector** – Connect only the power supply shipped with the camera.
- **USB 3.0 type B video device connector** – Streams uncompressed UVC standard video
- **Ethernet RJ-45** – Connect to the network for IP streaming and camera control via web interface or Telnet
- **DIP switches** – Set IR frequency, IR on/off, and image flip (camera is invertible)
- **RS-232 port** – Connect to a controller to manage the camera using a modified VISCA protocol.

Switch Settings

The camera uses DIP switches to determine certain camera functions.

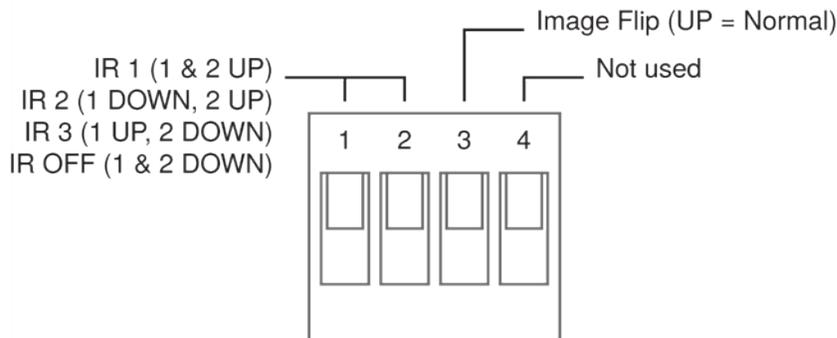
A label on the bottom of the camera provides a quick reference for setting the switches.

When the camera is right side up, switches are in their default positions when they are up.

IR Frequency Selection: The IR Remote Commander can control up to three cameras in the same room with different IR frequencies. Use **switches 1 and 2** to select the frequency to identify the camera as camera 1, 2, or 3; then use the Camera Select buttons at the top of the remote to select the camera you want to control.

Inverted operation: If mounting the camera upside-down, set **switch 3** to the DOWN position: IMAGE FLIP ON.

Switch 4 is not currently used.



All UP = Default

All DOWN = Restore Factory Settings on Power-Up

Note

The web interface provides baud rate and super-wide mode settings. See [Web Tasks for Administrators: Soft Switch Settings, Reboots, Resets, and Updates](#).

Installation

This section covers siting the camera, installing the mount, and installing the camera.

Before You Install the Camera

All ConferenceSHOT cameras include a wall mount.

- Choose a camera mounting location that will optimize camera performance. Consider camera viewing angles, lighting conditions, line-of-sight obstructions, and in-wall obstructions where the camera is to be mounted.
- Ensure that the camera body can move freely and point away from the ceiling and lights. The camera will not perform well if it is pointed toward a light source such as a light fixture or window.
- Follow the installation instructions included with the camera mount.

Note

Dome enclosures are not recommended for ConferenceSHOT 10 cameras.

Don't Void Your Warranty!

Caution

This product is for indoor use. Do not install it outdoors or in a humid environment without the appropriate protective enclosure. Do not allow it to come into contact with any liquid.

Use only the power supply included with this product. Using a different one will void the warranty, and could create unsafe operating conditions or damage the product.

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.

Learn more at www.vaddio.com/products.

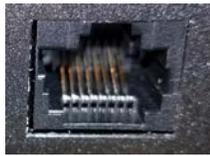
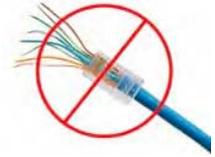
Cabling Notes

For RJ-45 terminated cables, use Cat-5e or better cable and standard RJ-45 connectors (568B termination). We recommend using high-quality connectors and crimping tools.

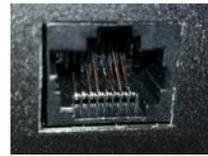
A DE-9F (DB-9F) adapter is supplied with the camera for making RS-232 connections to a third-party control system such as AMX or Crestron.

Note

Use standard RJ-45 connectors and a good crimping tool. Do not use pass-through RJ-45 connectors. Poorly crimped connectors can damage the connectors on the product, cause intermittent connections, and degrade signal quality. Test cable pin-outs and continuity before connecting them.



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



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

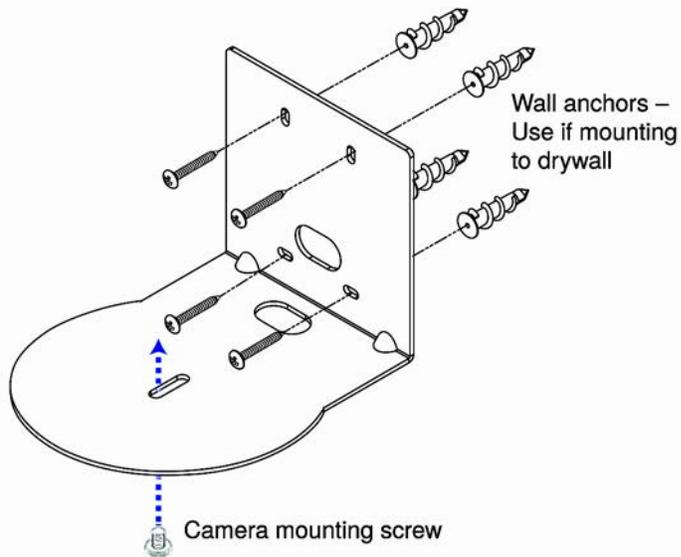
Pro Tip

Label all cables at both ends.

Installing the Wall 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.



Note

Dome installation is not recommended.

About Ceiling-Mounted Cameras

If you use an inverted mount, set the camera's Image Flip DIP switch ON for inverted operation. See [Switch Settings](#) for more information.

Installing the Camera

Caution

Before you start, be sure you can identify all cables correctly. Connecting a cable to the wrong port can result in equipment damage.

Caution:

Check Cat-5 cables for continuity before using them. Using the wrong pin-out may damage the camera system and void the warranty. Pro tip: Label your cables.

1. Route the cables through the opening in the mounting shelf.
2. Connect the cables to the camera.

Caution:

Use the power supply shipped with the camera. Using a different power supply will damage the camera and void the warranty, and may create an unsafe operating condition.

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

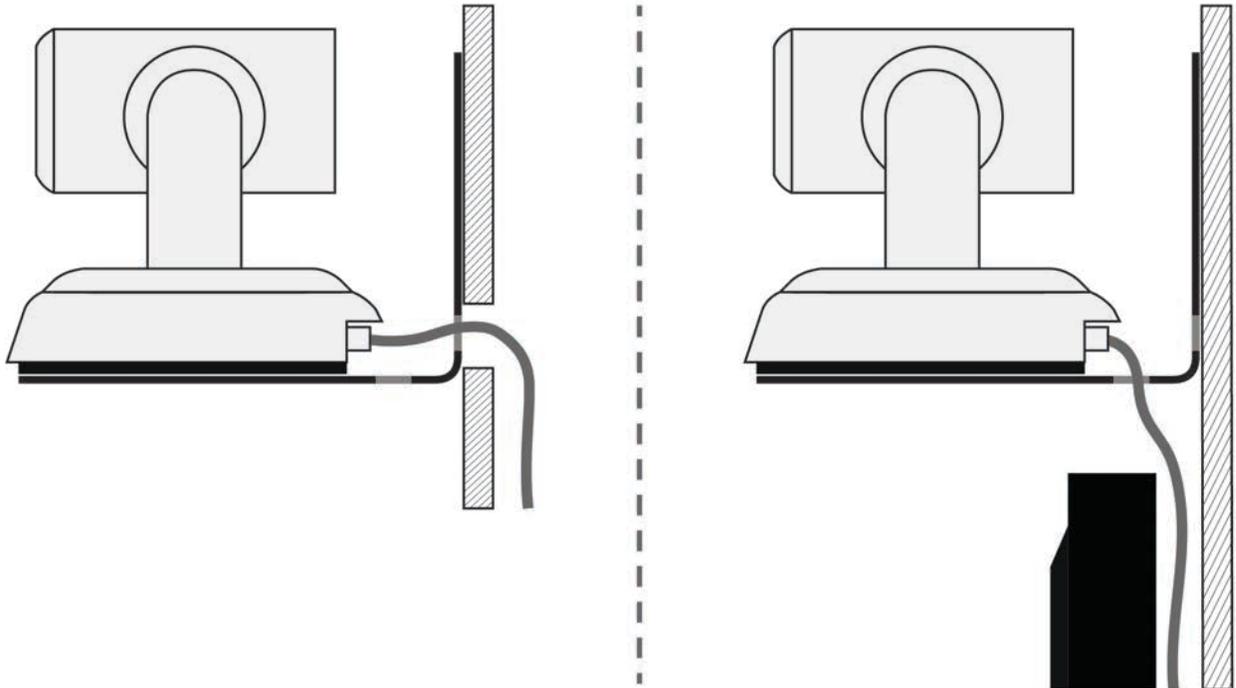


Image for illustration only; not to scale. Camera and mount details may differ.

Note

If the camera is jostled or bumped, it may require a pan-tilt reset.

Connecting the Camera

Here is an example of how the camera might be set up in a medium-size conference room. In this setup, a PC uses a unified communications conferencing application to manage the camera and an EasyUSB Mixer/Amp with attached microphones and speakers.



Note

ConferenceSHOT 10 camera output is USB 3.0; EasyUSB Mixer/Amp is USB 2.0.

Powering Up the Camera

Connect camera power.

The camera will initialize and move. This will take a few seconds. When an image is available, the camera is ready to accept control information.

Status Light

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

- Blue – Camera is active
- Purple – Standby mode or booting
- Yellow – Firmware update is in progress
- Blinking blue – USB cable is disconnected
- Blinking yellow – Motor out of calibration
- Blinking purple – Error

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.

Using the Vaddio IR Remote Commander

The remote provides basic camera control.

Quick Reference

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 on the remote)
Discover the camera's IP address	Data Screen button (top left) – press and hold for 3 seconds
Move the camera	Arrow buttons and Home button (dark red)
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)
Change zoom speed	Zoom speed buttons – Slow T and W or Fast T and W for telephoto (zoom in) and wide-angle (zoom out) modes (center)
Adjust for excess light behind the camera's subject	Back Light button (top center)
Correct a motor calibration fault condition (blinking yellow light)	Pan-Tilt Reset button (center right, beside arrow buttons)

Details

The Vaddio remote provides the following functions:

Data Screen – Press and hold for 3 seconds to display the camera's IP address and MAC address on the near-end display. Press momentarily to dismiss the information.

Back Light – Use or turn off back light compensation.

Power – Switch the selected camera on or off.

Power indicator – Shows power on, IR transmission, and battery level.

Camera Select – In multi-camera installations, selects the camera to be controlled. See [Switch Settings](#) for information on configuring the camera as camera 1, 2, or 3.

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

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

Pan/Tilt Reset – Recalibrate the pan and tilt motors. If the camera gets jostled, you may need to push this button to ensure that the camera moves accurately to its home and preset positions.

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

Zoom Speed – Select Slow or Fast movements for telephoto and wide-angle shots.

- **T** (slow and fast) – Telephoto
- **W** (slow and fast) – Wide-angle

Manual Focus – Switch the camera to Manual Focus mode.

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

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

Position Presets 1 through 6 – Move the camera to a predefined position.

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

Reset – Clear the saved position presets.

The web interface offers greater control over camera movements to presets, and provides additional presets.

Storing a Preset Using the IR Remote Commander

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

Clearing a Preset Using the IR Remote Commander

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



Web Interface

The camera provides a web interface to allow control via an Ethernet network connection, using a browser. The web interface gives the user more control over the camera than the IR remote offers.

The web interface allows user-level camera control and password-protected administrative access to tasks such as setting passwords, changing the IP address, viewing diagnostics, and installing firmware updates.

If the LAN 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. In the absence of a DHCP server, the camera's default IP address is 169.254.1.1 and its subnet mask is 255.255.0.0.

You can configure the camera's static IP address either through the network or from a computer connected directly to its Ethernet port. You may need a crossover cable.

To display the camera's IP address:

Press and hold the Data Screen button on the remote. After 3 seconds, the room display presents the information.

Compatible Web Browsers

Supported web browsers:

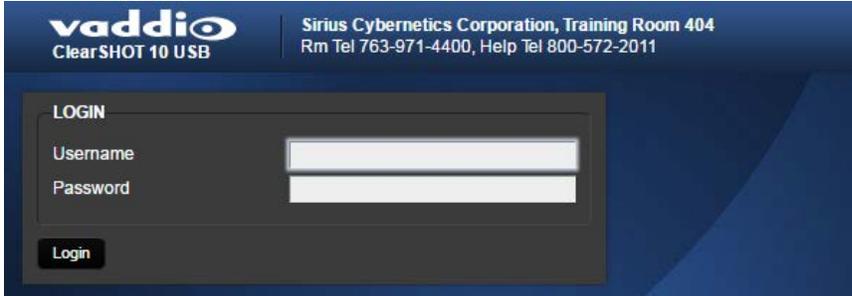
- Chrome® (latest version),
- Firefox® (latest version),
- Microsoft® Internet Explorer® (versions 8 through 11)
- Safari® (versions 6 and 7)
- Microsoft® Edge

Other browsers may also work.

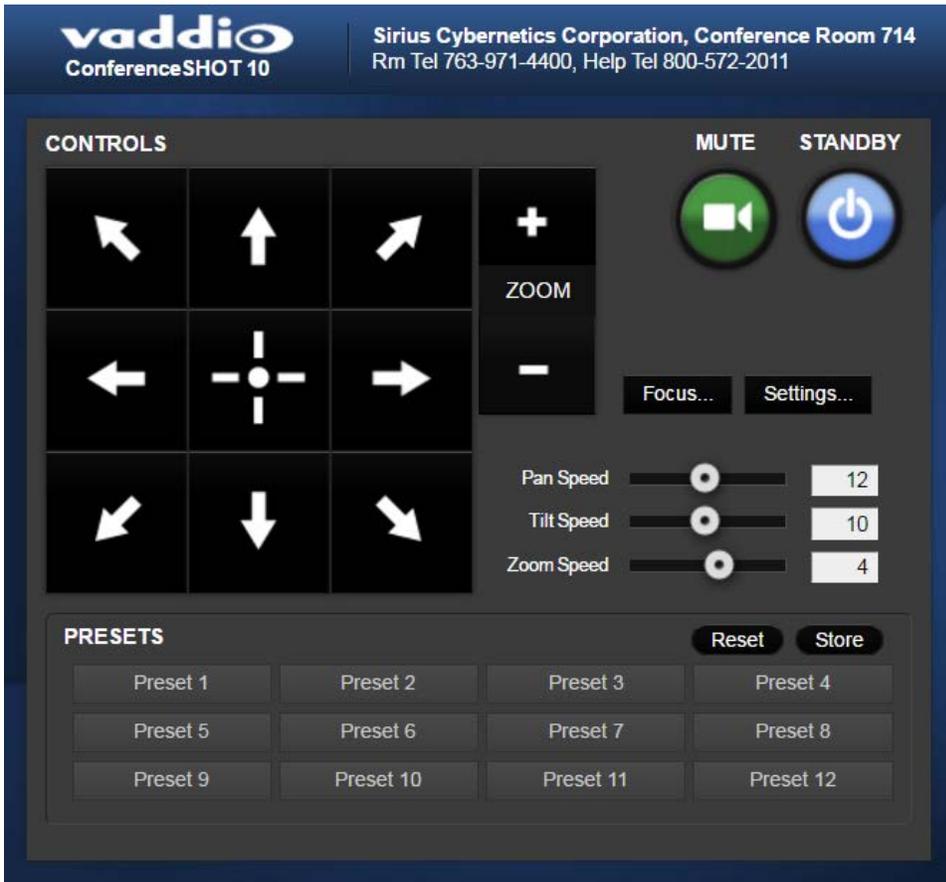
User Access

By default, the web interface opens to the Camera Controls page without requiring a login. If the administrator has changed the guest access setting, you will need to log in.

The default user password is `password`. Only the camera control page is available with user-level access.



If you are not logged in using the admin account, the Admin button on the Camera Controls page opens the admin login dialog. The default admin password is `password`. The admin has access to all pages of the web interface.



Administrative Access

If you are on the Camera Control screen and no other screens are available, you're logged in at the user level, or guest access is enabled and you're not logged in at all. Use the Admin button to open the login dialog.

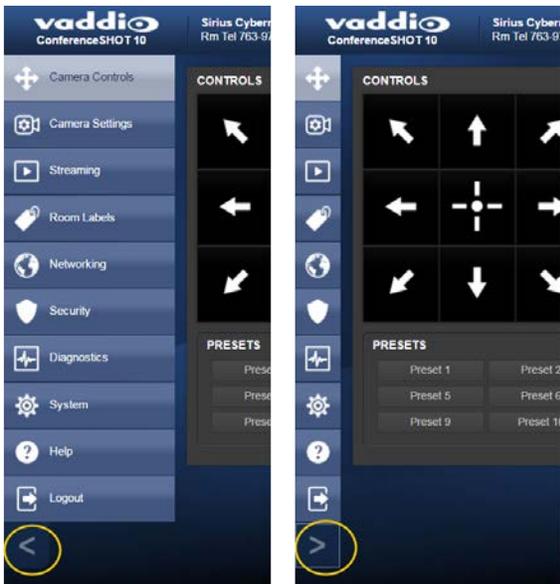
When you log in as Admin, all the admin navigation buttons appear on the left side of the screen. In addition to Camera Controls, you also have access to:

- Camera Settings – Additional control over camera behavior related to camera movement and color management.
- Streaming – USB device settings and IP (H.264) streaming.
- Room Labels – 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 – Ethernet configuration.
- Security – Set passwords and manage guest access.
- Diagnostics – View or download logs when troubleshooting issues.
- System – View firmware version and switch settings, reboot, restore factory defaults, and run firmware updates.
- Help – Tech support contact information and a link to the product information library on the Vaddio website.
- Logout – Leave the web interface in a password-protected state. If guest access is on, this returns the web interface to the Camera Controls page at guest access level.

Compact Menu View

By default, the navigation buttons display an icon and a text label.

For ConferenceSHOT 10 cameras using version 2.1.0 or newer firmware, the web interface provides a compact view of the menu buttons along with the standard view. The button at the bottom of the menu toggles between the two views.



Web Interface Quick Reference

Where to find the controls you need right now.

What do you need?	Go to this page
Camera operation <ul style="list-style-type: none"> ■ Move or zoom the camera ■ Set the speed for pan, tilt, or zoom motions ■ Focus the camera (Focus button reveals the focus control) ■ Move to a camera preset ■ Put the camera into or bring it out of standby mode 	Camera Controls (guest access page)
Camera behavior <ul style="list-style-type: none"> ■ Set motors for inverted operation (Settings button reveals the control) ■ Set or clear camera presets 	Camera Controls (guest access page)
Camera behavior <ul style="list-style-type: none"> ■ Specify whether to use automated adjustments (auto-iris, auto white balance, backlight compensation) 	Camera Settings
Camera behavior <ul style="list-style-type: none"> ■ Normal or super-wide mode ■ Status light color scheme (Pro A/V or UC) ■ UVC-Compliant or Client Custom USB streaming 	System: DIP Switches
Camera adjustments <ul style="list-style-type: none"> ■ Color settings (Iris, iris gain, red gain, blue gain, detail, chroma, gamma) ■ Specify global speed settings for camera movements 	Camera Settings
Access management <ul style="list-style-type: none"> ■ Guest access ■ Account passwords ■ Automatic logout for idle sessions 	Security
USB and IP streaming settings	Streaming
Other IP settings <ul style="list-style-type: none"> ■ Hostname ■ DHCP or static addressing ■ Static: IP address, subnet mask, gateway 	Networking
Date and time, time zone, and NTP server	Networking
RS-232 baud rate	System: DIP Switches

What do you need?	Go to this page
Information about the camera <ul style="list-style-type: none">■ Room location and phone number■ Help desk phone number	Room Labels
Reboot or reset to factory defaults	System: Firmware
Firmware <ul style="list-style-type: none">■ Current version information■ Save (export) and restore (import) configuration■ Firmware update	System: Firmware
Vaddio Technical Support contact information	Help
Diagnostic logs	Diagnostics

Web Tasks for All Users: Camera Controls

CAMERA CONTROLS PAGE

The Camera Controls page provides most of the same controls as the IR Remote Commander, along with some that are not available from the remote:

- [Pan, tilt, zoom, or return to "home" position](#)
- [Stop or resume transmitting live camera video](#) (video mute)
- [Put the camera in standby](#) or bring it back to the ready state
- [Focus manually](#) or set auto-focus
- [Set speeds for camera movements](#)
- [Set or move to](#) camera presets
- [Set the way the camera responds](#) to the arrow buttons on the remote

Note

Administrators can also customize the camera's home position from this page. See [Store a Camera Preset](#).



Stop or Resume Sending Video

Use the Mute button to temporarily stop video from the camera without placing it in standby - for example, when you need to confer privately with another person in the room. Remember that the mute button does not mute the room's microphones. In video mute mode, the camera transmits blue or black video, with a message that the video is muted.



Manage the Camera Ready State

Use the Standby button to switch between low-power (standby) and ready states.

In standby mode, the button is red and the screen presents the message "Device is in standby." On entering standby mode, the camera pans 90° from center and 30° downward. Ceiling-mounted cameras also point downward in standby mode; this keeps dust from collecting on the lens.



Move the Camera

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

Zoom In or Out

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

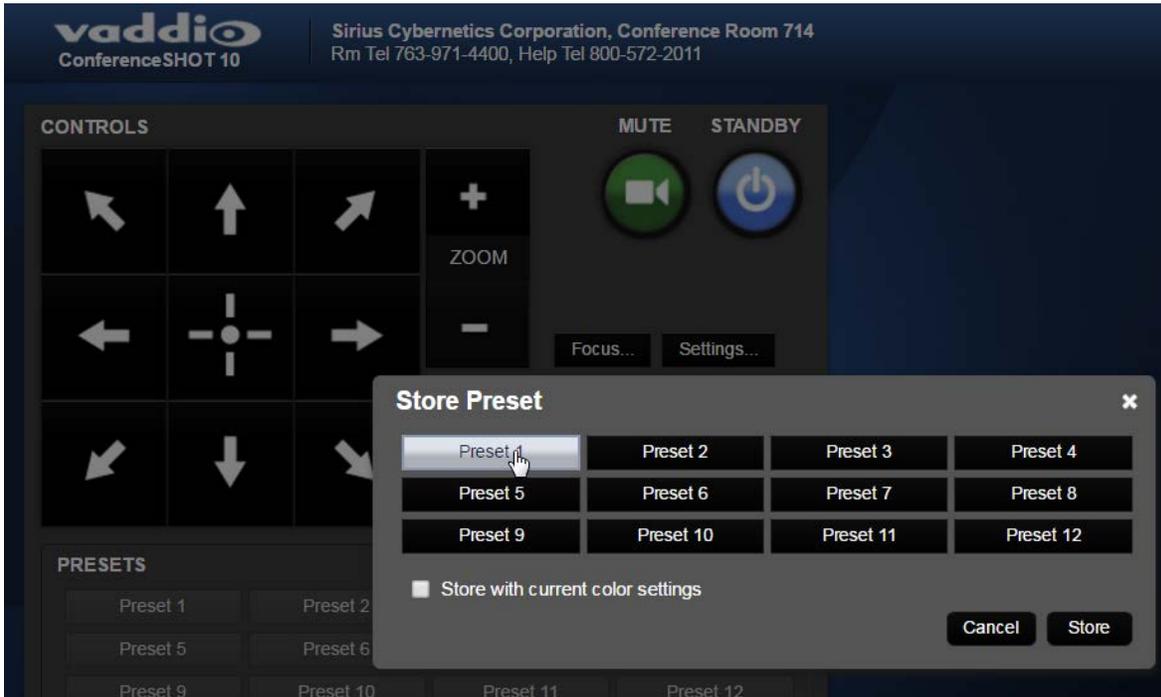


Move the Camera to a Preset Position

Use the numbered Preset buttons to move the camera to any of its programmed positions. If you select a preset that has not yet been programmed, nothing happens.

Store a Camera Preset

1. Set up the camera shot, then use the Store button to open the Store Preset box.
2. Click one of the preset buttons. If you are logged in as admin, this box provides the option to store the shot as a numbered preset or as the Home position.
3. To save the current CCU settings along with the camera position, check Store with Current Color Settings.
4. Store the preset.



Change the Focus

Open the Focus control to select Auto-focus, or set manual focus with the + (near) and – (far) buttons. These buttons are not recognized when the Auto Focus box is checked.



Change the Speed of Camera Movements

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.

Set Pan Direction

By default, the arrow buttons move the camera in the direction that viewers at the far end would see. If you face the camera and use the left arrow button, the camera pans to your right.

To switch the camera pan direction to the near end point of view, use the Settings button to open the pan and tilt direction box. Then set Pan Direction to Inverted.



Web Tasks for Administrators: Managing Access and Passwords

SECURITY PAGE

Things you can do on this page:

- Change the password for the admin account (default is `password`)
- Change the password for the user account (default is `password`)
- Allow people to access the Camera Control screen without logging on (Allow Guest Access) – by default, guest access is permitted
- Set whether inactive sessions log off automatically or not – by default, inactive sessions expire after 30 minutes

Note

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



Web Tasks for Administrators: Adding Room Information to the Screen

ROOM LABELS PAGE

Enter your organization's name, the conference room name and phone number, and the number for people to call for in-house A/V support. This information is displayed on every page of the web interface.



Web Tasks for Administrators: Configuring Network and Time/Date Settings

NETWORKING PAGE

Things you can do on this page:

- [Specify time zone and NTP server](#)
- Assign the camera's hostname
- Specify DHCP or static IP address
- Set up other networking information (if using static IP addressing)

Network Configuration

You will be able to enter the IP address, subnet mask, and gateway only if you set IP Address to Static.

Note

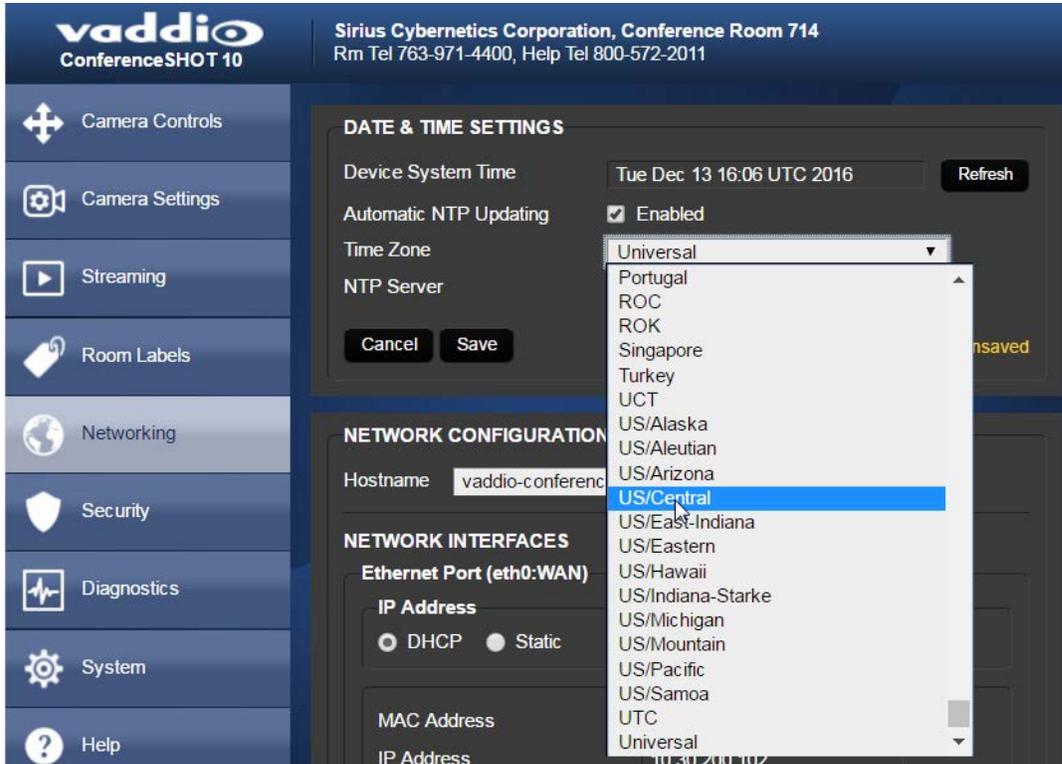
DHCP is the default setting, but the camera will use the default address of 169.254.1.1 if no DHCP server is available.

The screenshot displays the vaddio ConferenceSHOT 10 web interface. The top header shows the vaddio logo and the device name 'Sirius Cybernetics Corporation, Conference Room 714' with contact information. A left sidebar contains navigation icons for Camera Controls, Camera Settings, Streaming, Room Labels, Networking (selected), Security, Diagnostics, System, Help, and Logout. The main content area is divided into two panels:

- DATE & TIME SETTINGS:** Includes fields for Device System Time (Tue Dec 13 16:03 UTC 2016), Automatic NTP Updating (Enabled), Time Zone (Universal), and NTP Server (pool.ntp.org). Buttons for Refresh, Cancel, and Save are present.
- NETWORK CONFIGURATION:** Includes a Hostname field (vaddio-conferenceshot-00-1E-C0-8D-3F-71) and a section for NETWORK INTERFACES (Ethernet Port eth0:WAN). Under NETWORK INTERFACES, there is an IP Address section with radio buttons for DHCP (selected) and Static. Below this are fields for MAC Address (00:1E:C0:8D:3F:71), IP Address (10.30.200.102), Subnet Mask (255.255.255.0), and Gateway (10.30.200.254). Buttons for Cancel and Save are at the bottom.

Specifying Time Zone and NTP Server

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. If you are not sure about this, use the default.



Web Tasks for Administrators: Configuring Streaming Settings

STREAMING PAGE

Things you can do on this page:

- Edit the [USB device name](#)
- Allow [soft client control](#) of the camera
- [Enable/disable IP streaming and USB streaming](#) separately
- Set the [resolution, video quality, and frame rate](#) for IP streaming
- Specify the [IP streaming port and path/URL](#)

The screenshot shows the vaddio ConferenceSHOT 10 web interface. The top header includes the vaddio logo and contact information for Sirius Cybernetics Corporation. A left sidebar contains navigation options: Camera Controls, Camera Settings, Streaming (selected), Room Labels, Networking, Security, Diagnostics, System, Help, and Logout. The main content area is titled 'USB STREAMING' and contains several sections:

- USB DEVICE SETTINGS:** USB Device Name (text input: ConferenceSHOT 10), Enable UVC Extensions (checkbox: Enabled).
- IP STREAMING GENERAL:** Enable IP Streaming (checkbox: Enabled).
- VIDEO SETTINGS:** Quality Mode (radio buttons: Easy selected, Custom), Resolution (dropdown: 720p), Video Quality (dropdown: Standard (Better)).
- PROTOCOL:** RTSP Port (text input: 554).
- STREAMING URL:** Path (text input: vaddio-conferenceshot-stream), URL (text input: rtsp://10.30.200.102/vaddio-conferenceshot-stream).

At the bottom of the settings area are 'Cancel' and 'Save' buttons.

After making changes on this page, save them.

Edit the USB Device Name

To change the way the camera shows up in your soft client's camera selection list, edit the USB Device Name.

Allow Soft Client Control of the Camera

To allow conferencing applications to control the camera, check the box marked Enable UVC Extensions.

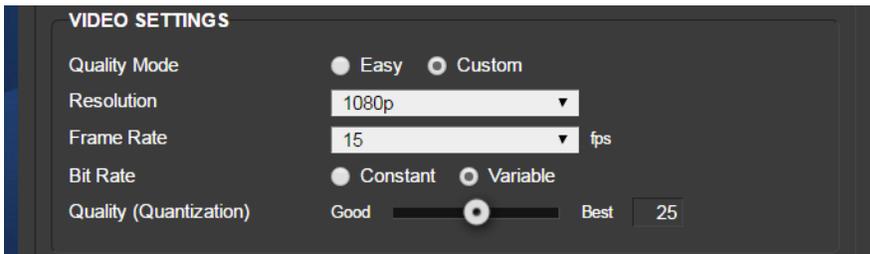
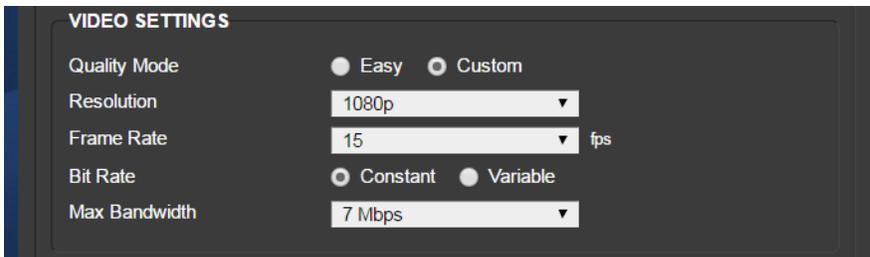
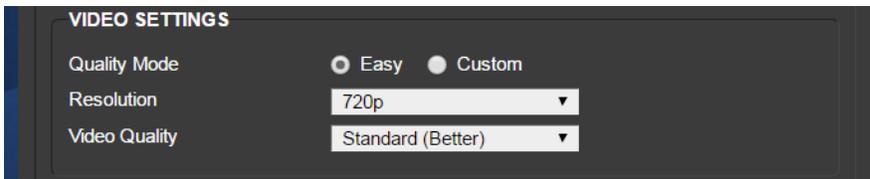
Enable or Disable Streaming

IP and USB streaming are enabled by default. Use the Enable USB Streaming and Enable IP Streaming checkboxes to change this.

Set IP Streaming Settings

If you are not sure about these settings, start with the defaults.

1. Select the video Quality Mode: Easy or Custom. Easy automatically sets the recommended frame rate; Custom provides additional control.
2. Select the desired IP streaming resolution.
3. Easy quality mode only: Select Video Quality.
4. Custom quality mode only: Select the desired IP streaming frame rate.
5. Custom quality mode only: Select Constant or Variable bit rate.
6. Custom quality mode, Variable bit rate only: Set the Quality (Quantization) slider.



Note

USB streaming resolution and frame rate are automatically negotiated between the camera and the conferencing application.

Advanced IP Streaming Settings

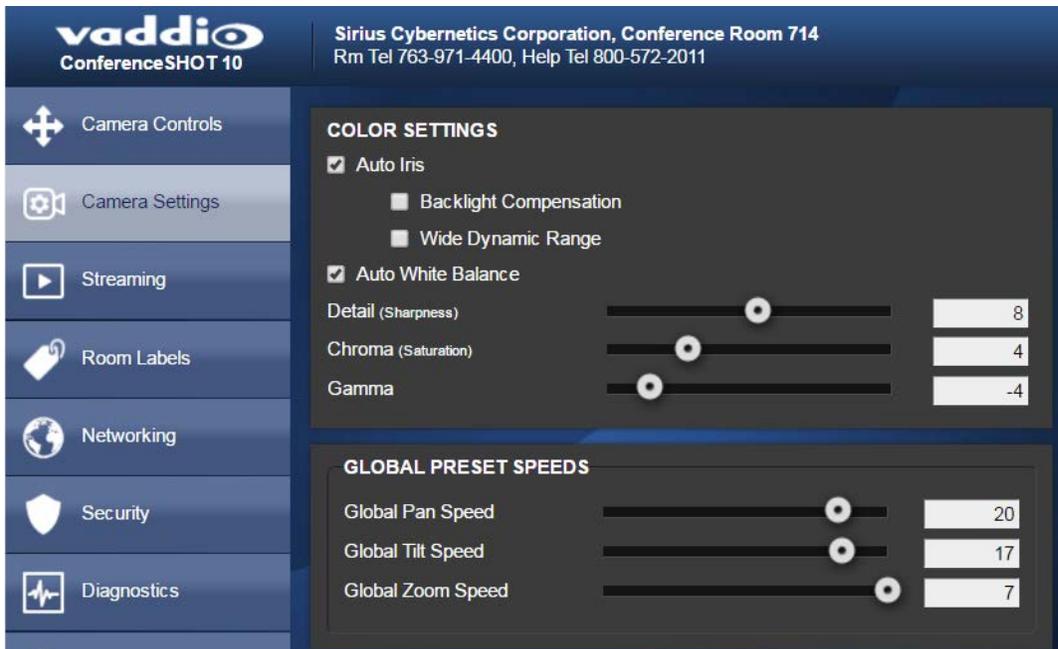
RTSP port: Vaddio strongly recommends using the default RTSP port number unless you need to change it.

Streaming URL: Edit the path to change the portion of the streaming URL that appears after the IP address.

Web Tasks for Administrators: Color, Lighting, and Speed Adjustments

The Camera Settings page lets you do these things:

- [Set up the color settings](#) the camera uses.
- Set the [pan, tilt, and zoom speeds](#) that will be used.



Adjust the Color Settings

1. To allow the camera to compensate automatically for the light level, check the Auto Iris box. Leave it unchecked to adjust iris and gain manually.
2. Auto Iris adjustments – these adjust contrast between the brightest and darkest areas of the image.
 - If there is bright light behind the main subject of the shot, check the box for Back Light Compensation.
 - To increase contrast between the brightest and darkest areas, check the box for Wide Dynamic Range.

Because Backlight Compensation reduces the contrast between extremes and Wide Dynamic Range increases it, they cannot be used together.

3. To allow the camera to adjust the white balance automatically, check the Auto White Balance box. Leave it unchecked to adjust red gain and blue gain manually.
4. Detail – adjust the slider as required for the right image sharpness.

Note

If the video looks grainy or “noisy,” try a lower Detail setting.

5. Chroma – adjust the slider as needed for the right level of color intensity.
6. Gamma – adjust the slider as needed for the desired range between bright areas and shadows.

If you make a change that you don't like, start over by selecting and then deselecting Auto White Balance.

Set Pan, Tilt, and Zoom Speeds

In the Global Preset Speeds section, set the speeds for movements to presets.

Web Tasks for Administrators: Reboots and Updates

The System page opens to the Firmware tab, where you can:

- Run a [firmware update](#)
- [Reboot](#) the camera
- Set the camera back to its [original factory settings](#)
- [Save the current configuration \(Export Data\)](#) or [restore a configuration \(Import Data\)](#)

The DIP Switches tab provides access to the soft DIP switches, and shows the current positions of the switches on the back of the camera.

The screenshot displays the vaddio ConferenceSHOT 10 web interface. At the top, the logo and company information are visible: "vaddio ConferenceSHOT 10" and "Sirius Cybernetics Corporation, Conference Room 714, Rm Tel 763-971-4400, Help Tel 800-572-2011". The left sidebar lists navigation options: Camera Controls, Camera Settings, Streaming, Room Labels, Networking, Security, Diagnostics, and System. The main content area is divided into two tabs: "Firmware" (selected) and "Dip Switches". Under the "Firmware" tab, there are three sections: "SYSTEM INFORMATION" showing System Version (ConferenceSHOT 10 2.1.0), Commit (463ffe1f26ecbe7f7e672b7aa09feb54d9730466), and Sensor Version (04.00); "FIRMWARE UPDATE" with a "Choose File" button and "No file chosen" text, and a "Begin Firmware Update..." button; "SYSTEM UTILITIES" with buttons for "Reboot...", "Restore Factory Settings...", "Export Data", and "Import Data..."; and "CAMERA UTILITIES" with a "Pan-Tilt Reset" button.

Reboot the Camera

This can help if the camera stops responding as you expect. In the System Utilities section, click Reboot.

Save and Import or Restore a Configuration

If you need to configure several cameras the same way, you can configure the first one, export its configuration, and then import the configuration to the other cameras. The export downloads to your computer as a `.dat` file. The filename is the camera's hostname.

Note

The camera cannot import a `.dat` file that was exported from a camera using a different version of software.

Start a Firmware Update

1. Be sure you have downloaded the appropriate update file to your computer.
2. Click Choose File and select the update file.
3. Click Begin Firmware Update.
4. READ the information in the Confirm dialog box and be sure you understand it. It may seem boring, but it could save you some time and aggravation.
5. When you are ready to start the update, click Continue. A progress message box opens and the indicator light on the front of the camera turns yellow to show the firmware update is in progress. If the update process presents warnings or error messages, read them carefully.
The camera reboots when the update is complete.
6. Contact Vaddio technical support if you encounter any problems with the update.

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.

Camera Switch Settings

The DIP Switches tab of the System page provides access to these features:

Baud Rate (9600 bps or 38400 bps) – RS-232 serial communication rate.

Super Wide mode – Provides a wider horizontal field of view and greater zoom. Some distortion may be present.

Status light color scheme (Pro AV or UCC) – Select the status light color scheme that meets your needs. The Pro AV color scheme matches the color scheme used in Vaddio's non-USB cameras.

USB stream format (UVC Compliant or Client Custom) – Client Custom enables far-end camera control when used with the Zoom soft client.

The Rear DIP Switches section shows the current positions of the switches on the back of the camera. If you need to change any of these settings, you will need to physically change the position of the switch.

vaddio
ConferenceSHOT 10

Sirius Cybernetics Corporation, Conference Room 714
Rm Tel 763-971-4400, Help Tel 800-572-2011

Firmware | Dip Switches

SOFT DIP SWITCHES

BAUD 9600 bps	Super Wide Off	UC LED Color Scheme	UVC Compliant
BAUD 38400 bps	Super Wide On	Pro AV LED Color Scheme	Client Custom

REAR DIP SWITCHES

	SW1	SW2	IR Settings		Image Flip Off	
IR 1	UP	UP				
IR 2	DOWN	UP	SW1	SW2	SW3	SW4
IR 3	UP	DOWN				
IR Off	DOWN	DOWN	IR Settings		Image Flip On	

Web Tasks for Administrators: Contacting Vaddio Technical Support

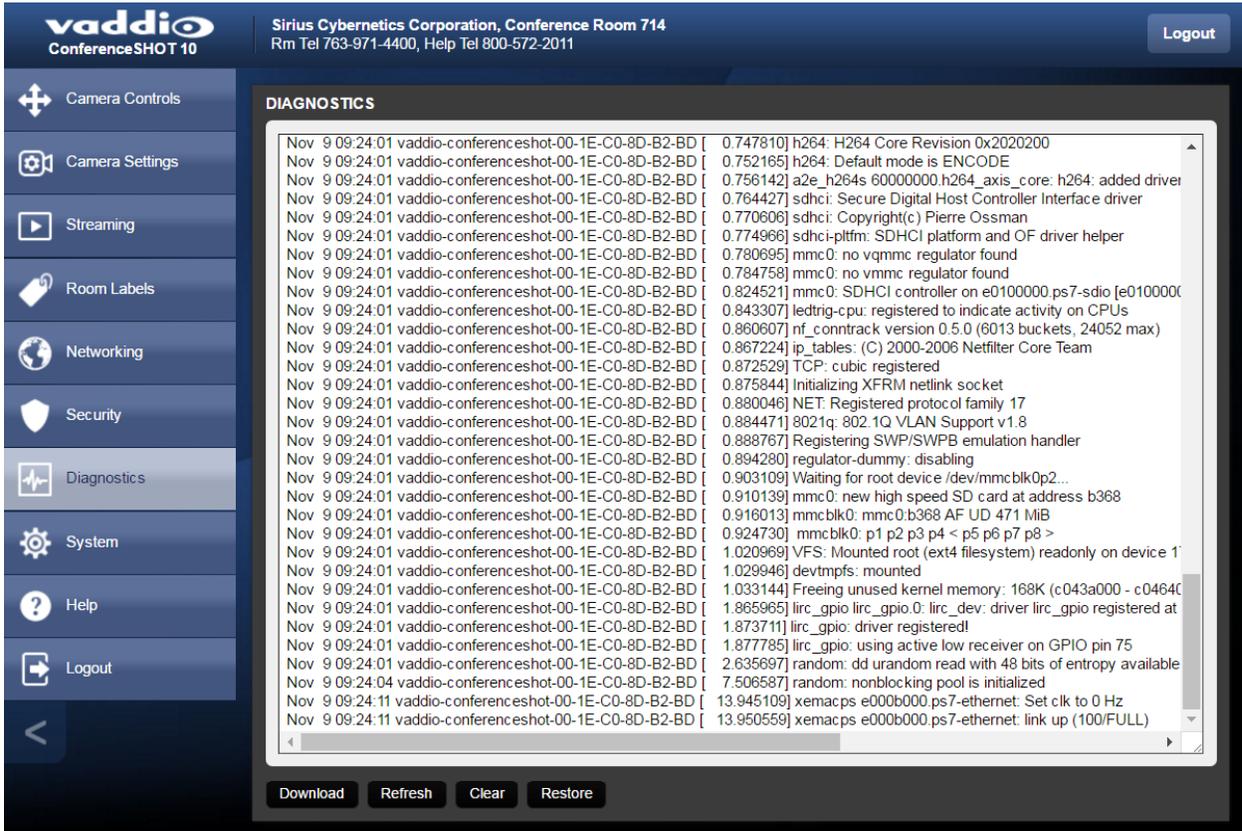
If you can't resolve an issue using your troubleshooting skills (or the [Troubleshooting](#) table in this manual), we are here to help.

You'll find information for contacting Vaddio Technical Support on the Help screen.



Web Tasks for Administrators: Viewing Diagnostic Logs

If you encounter a problem that you can't solve, your Vaddio technical support representative may ask you to download and email the log file available from the Diagnostics screen.



Telnet Serial Command API

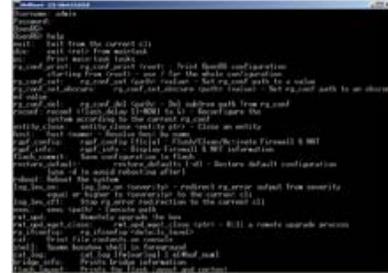
The Vaddio Telnet command API allows an external device such as an AMX or Crestron presentation system to control the camera.

Note

When you connect via Telnet, you must log in using the admin account.

The command format follows a get/set structure. Here are some examples:

Command	<code>camera pan right</code>
Response	OK >
Command	<code>camera focus mode auto</code>
Response	OK >
Command	<code>camera ccu get iris</code>
Response	iris 6 OK >



Use a question mark as a command parameter to bring up a list of commands, subcommands, or command parameters. For example:

> camera focus ?

```
near    Focus the camera near
far     Focus the camera far
stop    Stop the camera focus
mode    Camera focus mode
```

Things you might need to know about control via Telnet session:

- Command lines are terminated with a carriage return.
- All ASCII characters (including carriage returns) are echoed to the terminal program and appended with the VT100 string ESC[J (hex 1B 5B 4A), which most terminal programs automatically strip.
- CTRL-5 Clears the current serial buffer on the device.

The ConferenceSHOT 10 camera supports the Telnet commands in the following sections.

camera home

Moves the camera to its home position.

Synopsis	camera home
Example	<pre>>camera home OK ></pre>

camera pan

Moves the camera horizontally

Synopsis	camera pan { left [<speed>] right [<speed>] stop }	
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.
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 }	
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.
Examples	<pre>>camera tilt up OK ></pre> <p>Tilts the camera up at the default speed.</p> <pre>>camera tilt down 20 OK ></pre> <p>Tilts the camera down using a speed of 20.</p> <pre>>camera tilt stop OK ></pre> <p>Stops the camera's vertical motion,</p>	

camera zoom

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

Synopsis	camera zoom { in [<speed>] out [<speed>] stop }	
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.
Examples	<pre>>camera zoom in OK ></pre> <p>Zooms the camera in at the default speed.</p> <pre>>camera zoom out 7 OK ></pre> <p>Zooms the camera out using a speed of 7.</p> <pre>>camera zoom stop OK ></pre> <p>Stops the camera's zoom motion.</p>	

camera focus

Changes the camera focus.

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

camera preset

Moves the camera to the specified preset, or stores the current camera position and optionally CCU information.

Synopsis	camera preset { recall store} [1 - 16] [save-ccu]	
Options	recall [1 - 16]	Moves the camera to the specified preset.
	store [1 - 16]	Stores the current camera position as the specified preset.
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. </pre>	

camera ccu get

Returns or sets CCU (lighting) information.

Synopsis	camera ccu get [param]	
	auto_white_balance	Returns the current state of the auto white balance setting (on or off).
	red_gain	Returns the red gain value as an integer (0 to 255).
	blue_gain	Returns the blue gain value as an integer (0 to 255).
	backlight_compensation	Returns the current state of the backlight compensation setting (on or off).
	iris	Returns the iris value as an integer (0 to 11).
	auto_iris	Returns the current auto-iris state (on or off).
	gain	Returns the gain value as an integer (0 to 11).
	detail	Returns the detail value as an integer (0 to 15).
	chroma	Returns the chroma value as an integer (0 to 14).
	wide_dynamic_range	Returns the current setting for Wide Dynamic Range (on or off).
all	Returns all current CCU settings.	
Examples	<pre data-bbox="431 947 675 1052">>camera ccu get iris iris 6 OK ></pre> <p data-bbox="431 1073 764 1094">Returns the current iris value.</p> <pre data-bbox="431 1119 724 1224">>camera ccu get red_gain red_gain 201 OK ></pre> <p data-bbox="431 1245 821 1266">Returns the current red gain value.</p> <pre data-bbox="431 1291 756 1644">>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 data-bbox="431 1665 813 1686">Returns all current CCU settings.</p>	

camera ccu set

Sets the specified CCU (lighting) information.

Synopsis	camera ccu set [param] [value]	
Options 	auto_white_balance {on off}	Sets the current state of the auto white balance setting (on or off). Auto white balance overrides red gain and blue gain manual settings.
	red_gain [0 - 255]	Sets the red gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	blue_gain [0 - 255]	Sets the blue gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	backlight_compensation {on off}	Sets the current state of the backlight compensation setting (on or off). Can only be used when wide dynamic range mode is off.
	iris [0 - 11]	Sets the iris value as an integer (0 to 11). Can only be used when auto-iris is off.
	auto_iris {on off}	Sets the auto-iris state (on or off). Auto-iris disables manual iris and gain when it is on.
	gain [0 - 11]	Sets gain value as an integer (0 to 11). Can only be used when auto-iris is off.
	detail [0 - 15]	Sets the detail value as an integer (0 to 15).
	chroma [0 - 14]	Sets the chroma value as an integer (0 to 14).
	wide_dynamic_range {on off}	Sets Wide Dynamic Range mode on or off. Can only be used when backlight compensation is off.
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 recalibrate

Recalibrates the pan and tilt motors. This is typically done in response to a motor fault indication or error message.

Synopsis	camera recalibrate
Example	<pre>>camera recalibrate OK ></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 (sleep) 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>	

video mute

Gets or sets the camera's video mute status. When video is muted, the camera sends blue or black video with an on-screen message stating that video mute is on. This can be desirable when preparing the room or when privacy is needed.

Synopsis	video mute { get off on toggle }	
Options	get	Returns the current video mute status.
	off	Unmutes the video. (Normal video resumes.)
	on	Mutes the video. (Blue or black screen with message)
	toggle	Changes the camera's video mute status.
Examples	<pre>>video mute get mute: off OK ></pre> <p>Returns video mute status.</p> <pre>>video mute on OK ></pre> <p>Transmits blue or black video.</p>	

streaming settings get

Returns current IP and USB streaming settings.

Synopsis	<code>streaming settings get</code>	
Parameters	IP Custom_Frame_Rate	Frame rate selected in Custom quality mode.
	IP Custom_Resolution	Resolution selected in Custom quality mode.
	IP Enabled	Specifies whether IP streaming is enabled.
	IP Port	The RTSP port number used for IP streaming. Default is 554.
	IP Preset_Quality	Video quality selected in Easy video quality mode.
	IP Preset_Resolution	Resolution selected in Easy video quality mode.
	IP Protocol	The IP streaming protocol in use.
	IP URL	The URL where the stream is available.
	IP Video_Mode	Video quality mode selected (Easy or Custom).
	USB Active	True when a USB stream is present; false otherwise.
	USB Device	The USB Device Name currently assigned.
	USB Frame_Rate	Frame rate in use for USB streaming (negotiated with conferencing client). 0 when no USB stream is present.
	USB Resolution	Resolution of the USB stream (negotiated with conferencing client). 0x0 when no USB stream is present.
	USB Version	2 or 3, as negotiated with the conferencing client. 0 if no USB stream is present.
UVC Extensions_Enabled	Allow or disable soft client USB control of the camera.	
Example	<pre>>streaming settings get IP Custom_Frame_Rate 30 IP Custom_Resolution 1080p IP Enabled true IP Port 554 IP Preset_Quality High Quality (Best) IP Preset_Resolution 720p IP Protocol RTSP IP URL vaddio-conferenceshot-stream IP Video_Mode preset USB Active true USB Device ConferenceSHOT 10 USB Frame_Rate 30 USB Resolution 360p USB Version 2 UVC Extensions_Enabled false OK ></pre>	

network settings get

Returns the camera's current network settings and MAC address.

Synopsis	<code>network settings get</code>
Example	<pre>network settings get Name eth0:WAN MAC Address 00:1E:C0:F6:CA:7B 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.

Synopsis	<code>network ping [count <count>] [size <size>] <destination-ip></code>	
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.
	<destination-ip>	The 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>	

sleep

Pauses command execution for the specified number of milliseconds.

Synopsis	<code>sleep <milliseconds></code>	
Options	<code><milliseconds></code>	The number of milliseconds (1 to 10000) to pause.
Example	<pre>>sleep 7000 OK ></pre> <p>Pause for 7 seconds (7000 milliseconds) before returning.</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	<code>system reboot [<seconds>]</code>	
Options	<code><seconds></code>	The number of seconds to delay the reboot.
Examples	<pre>>system reboot OK ></pre> <p>The system is going down for reboot NOW!conferenceshot-av-D8-80-39-62-A7-C5</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, and 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	<code>history <limit></code>	
Options	<code><limit></code>	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) 	

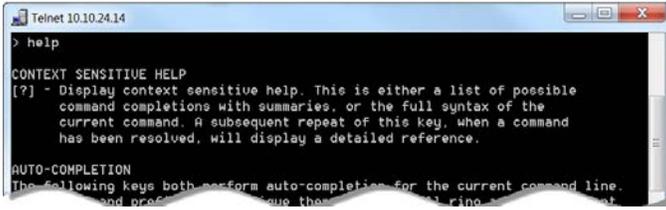
version

Returns the current firmware version.

Synopsis	<code>version</code>
Example	<pre>>version Commit d033ddb2378357a871011eb820706dcaa64ec0e2 Sensor Version 04.00 System Version ConferenceSHOT 10 2.1.0 OK ></pre>

help

Displays an overview of the CLI syntax.

Synopsis	<code>help</code>
Example	 

exit

Ends the command session and then does one of these two things:

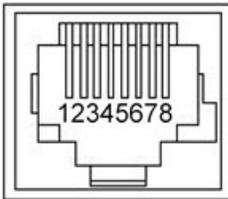
- Telnet: Closes the socket.
- RS-232 serial: Automatically starts a new session.

Synopsis	<code>exit</code>
Example	<code>exit</code>

RS-232 Serial Communication

The RS-232 serial port (RJ-45, color-coded blue) on the camera's back panel provides another means of controlling the camera.

Parameter	Value
Communication Speed	9600 bps (default)
Number of start bits	1
Number of stop bits	1
Number of data bits	8
Parity	None
Flow control	None



Connector pin-out:

- Pin 1: Not used
- Pin 2: Not used
- Pin 3: Not used
- Pin 4: Not used
- Pin 5: Not used
- Pin 6: GND
- Pin 7: RXD (from TXD of control source)
- Pin 8: TXD (to RXD of control source)

Caution:

Check Cat-5 cables for continuity before using them. Using the wrong pin-out may damage the camera system and void the warranty. Pro tip: Label your cables.

The Vaddio ConferenceSHOT 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.

RS-232 Command List

To use the RS-232 serial API, you must log in using the admin credentials.

Command Set	Command	Command Packet	Comments
AddressSet	Broadcast	88 30 01 FF	Sets address for all daisy-chained cameras
IF_Clear	Broadcast	88 01 00 01 FF	I/F clear
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
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele (std)	8x 01 04 07 02 FF	
	Wide (std)	8x 01 04 07 03 FF	
	Tele (variable)	8x 01 04 07 2p FF	p = speed 0 (low) to 7 (high)
	Wide (variable)	8x 01 04 07 3p FF	p = speed 0 (low) to 7 (high)
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs = zoom position (0h-4000h)
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far (std)	8x 01 04 08 02 FF	
	Near (std)	8x 01 04 08 03 FF	
	Far (variable)	8x 01 04 08 2p FF	p = speed 0 (low) to 7 (high)
	Near (variable)	8x 01 04 08 3p FF	p = speed 0 (low) to 7 (high)
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs = focus position (1000h – F000h)
	Auto Focus	8x 01 04 38 02 FF	
	Manual Focus	8x 01 04 38 03 FF	
Auto/Manual	8x 01 04 08 10 FF		
CAM_ZoomFocus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs = zoom position (0h - 7AC0h) tuvw = focus position (1000h – F000h)
CAM_WB	Auto	8x 01 04 35 00 FF	Normal auto
	Manual	8x 01 04 35 05 FF	Manual control mode
CAM_RGain	Direct	8x 01 04 43 00 00 0p 0q FF	pq = red gain (00h – FFh)
CAM_BGain	Direct	8x 01 04 44 00 00 0p 0q FF	pq = blue gain (00h – FFh)
CAM_AE	Full Auto	8x 01 04 39 00 FF	Auto exposure mode
	Manual	8x 01 04 39 03 FF	Manual control mode
CAM_Iris	Direct	8x 01 04 4B 00 00 0p 0q FF	pq = iris position (0h, 07h-11h) See Iris Values

Command Set	Command	Command Packet	Comments
CAM_Gain	Direct	8x 01 04 4C 00 00 0p 0q FF	Iris gain setting pq = gain position (01h – 0Fh) See Iris Gain Values
CAM_BackLight	On	8x 01 04 33 02 FF	Backlight compensation On/Off
	Off	8x 01 04 33 03 FF	
CAM_Aperture	Direct	8x 01 04 42 00 00 0p 0q FF	pq = aperture position (0h – 0fh)
CAM_Gamma	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)
CAM_Chroma	Direct	8x 01 7E 55 00 00 00 0p FF	p: 0 – 0eh
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	p = preset number(0h-0fh)
	Set standard	8x 01 04 3F 01 0p FF	
	Set standard with 'scene'	8x 01 04 3F 21 0p FF	
	Recall standard	8x 01 04 3F 02 0p FF	
Pan-TiltDrive	Up	8x 01 06 01 v w 03 01 FF	v = pan speed (01h-18h) w = tilt speed (01h-14h)
	Down	8x 01 06 01 v w 03 02 FF	
	Left	8x 01 06 01 v w 01 03 FF	
	Right	8x 01 06 01 v w 02 03 FF	
	UpLeft	8x 01 06 01 v w 01 01 FF	
	UpRight	8x 01 06 01 v w 02 01 FF	
	DownLeft	8x 01 06 01 v w 01 02 FF	
	DownRight	8x 01 06 01 v w 02 02 FF	
	Stop	8x 01 06 01 v w 03 03 FF	
	Absolute Position	8x 01 06 02 v w 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	0Y0Y0Y0Y = pan position (A654h-5A80h) 0Z0Z0Z0Z = tilt position (DEE3h-64E6h)
Home	8x 01 06 04 FF	Returns the camera to its default position	

Command Set	Command	Command Packet	Comments
Pan-Tilt-ZoomDrive	Up	8x 01 06 0A v w r 03 01 03 FF	v = pan speed (01h-18h) w = tilt speed (01h-14h) r = zoom speed (00h-07h)
	Down	8x 01 06 0A v w r 03 02 03 FF	
	Left	8x 01 06 0A v w r 01 03 03 FF	
	Right	8x 01 06 0A v w r 02 03 03 FF	
	In	8x 01 06 0A v w r 03 03 01 FF	
	Out	8x 01 06 0A v w r 03 03 02 FF	
	Stop	8x 01 06 0A vv ww rr 03 03 03 FF	
	Absolute Position	8x 01 06 0B v w 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z 0R 0R 0R 0R FF	v: pan speed (01h-18h) w: tilt speed (01h-14h) 0Y0Y0Y0Y = pan position (A654h-5A80h) 0Z0Z0Z0Z = tilt position (DEE3h-64E6h) 0R0R0R0R = zoom position (0000h-7AC0h)
Home	8x 01 06 0C FF	Returns the camera to the default position and zoom	
CAM_PTZ_PresetSpeed		8x 01 7e 01 0b p q r FF	p: pan speed (01h-18h) q: tilt speed (01h-14h) r: zoom speed (0h-07h)

Command Setting Values – Exposure Control

Iris Values

Value	Iris
0x11	F1.8
0x10	F2
0x0F	F2.4
0x0E	F2.8
0x0D	F3.3
0x0C	F4
0x0B	F4.8
0x0A	F5.6
0x09	F6.8
0x08	F8
0x07	F9.6
0x06	N/A
0x05	N/A
0x00	CLOSE

Iris Gain Values

Value	Steps
0x0F	28
0x0E	26
0x0D	24
0x0C	22
0x0B	20
0x0A	18
0x09	16
0x08	14
0x07	12
0x06	10
0x05	8
0x04	6
0x03	4
0x02	2
0x01	0

RS-232 Inquiry Command List

Inquiry Command	Command	Response Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off (standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom position
CAM_FocusModelInq	8x 09 04 38 FF	y0 50 02 FF	Auto focus
		y0 50 03 FF	Manual focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus position
CAM_WBModelInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 03 FF	One-push WB
		y0 50 04 FF	ATW
		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	Full auto
		y0 50 03 FF	Manual
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_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_Gamma	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)
CAM_MemoryStatusInq	8x 09 04 3F 0p FF	y0 50 0p 0q 00 00 FF	p: Memory number q: mode (00-std, 10-std /w ccu)
Vaddio_ModelInq	8x 09 08 0e FF	y0 50 05 08 00 00 00 FF	ConferenceSHOT 10
CAM_Chroma	8x 09 7E 55 FF	y0 50 05 00 00 00 0p FF	p: 0 – 0eh
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z FF	www= Pan position zzzz=Tilt Position
CAM_PTZ_PresetSpeed	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)

Specifications

Camera and Image

Image device	1/2.8-type Exmor CMOS sensor	Pixels	2.14 million (effective)
IP (H.264) RTSP Video Resolutions	1080p down to 180p 1080p at 30/25/15; others 60/30/25/15	USB 3.0 (UVC) Video Resolutions	1080p down to 180p at 60/30/15
<i>IP and USB streams are simultaneous and can be at differing resolutions.</i>			
Pan angle and speed	± 165°, up to 90°/sec	Tilt angle and speed	+90° -30°, up to 90°/sec
Lens and horizontal FOV	10X optical zoom, 67.0° wide to 7.6° tele, f=3.8mm to 38mm, F1.8 to F3.4 Super-wide: 11X optical zoom, 74° wide to 7.6° tele, f=3.8mm to 41.8mm, F1.8 to F3.4		
Min. working distance	10mm (wide), 1.0m (tele)	Min. illumination	100+ lux recommended
Aperture/detail	16 steps	Gain	Auto or manual
Backlight compensation	On or off	White balance	Auto, manual, One-Push
Focusing system	Auto or manual	Noise reduction	On or off
Sync system	Internal	S/N ratio	Over 50 dB
Remote management	Web interface, Telnet, RS-232	Power	12 VDC, 3.0 A

Physical and Environmental

Height	6.3" (163 mm)	Operating temperature	0°C to +40°C (32°F to 104°F)
Width	6.1" (155 mm)	Operating humidity (relative)	20% to 80% non-condensing
Depth	5.5" (145 mm)	Storage temperature	-5°C to +60° C (23°F to 140°F)
Weight	3.0 lbs.(1.36 kg)	Storage humidity (relative)	20% to 80% non-condensing

Specifications are subject to change without notice.

Troubleshooting and Care

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

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

What is it doing?	Possible causes	Check and correct
Nothing. The light on the front is off.	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 supply is bad.	Contact your reseller or Vaddio Technical Support.
The camera is not responding 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.
The camera does not respond to the remote, but the web interface is available	The remote is not using the same IR channel as the camera.	Push the Camera Select 1 button on the remote.
	The batteries in the remote are dead.	Put new batteries in the remote.
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's web UI is available but the camera does not respond to commands via RS-232 connection.	The RS-232 cable is not connected, or is bad.	Connect a known good cable.
	The camera's RS-232 settings don't match the settings on the controlling device.	Check the settings at both ends to be sure they match. The camera's baud rate can be viewed or changed on the System page in the web UI.
The camera loses all its settings when power is cycled.	All the DIP switches are in the ON (down) position. (Verify on the DIP Switches tab of the System page.)	Set the DIP switches to their proper positions. Default is all OFF (up). See Switch Settings for more information.
No H.264 video stream.	IP streaming is not enabled.	Enable IP streaming: Streaming page in the web interface.
No USB video stream.	USB streaming is not enabled.	Enable USB streaming: Streaming page in the web interface.
Status light continues to blink blue.	The USB cable is not connected.	Connect the USB cable.
Status light blinks yellow	Pan or tilt motor is out of calibration	Reset the pan and tilt motors. See Correct a Motor Calibration Error .

Correct a Motor Calibration Error

If the web interface presents an error message about the motors, or if the camera's status light is blinking yellow, you will need to reset the pan and tilt motors.

1. On the Camera Controls page, select Settings to open the pan and tilt settings box;
OR
On the System page, go to the Firmware tab if you are on a different tab.
2. Select Pan-Tilt Reset. The motors recalibrate. This takes a few seconds.

Status Light

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

- Blue – Camera is active
- Purple – Standby mode or booting
- Yellow – Firmware update is in progress
- Blinking blue – USB cable is disconnected
- Blinking yellow – Motor out of calibration
- Blinking purple – Error

Caution

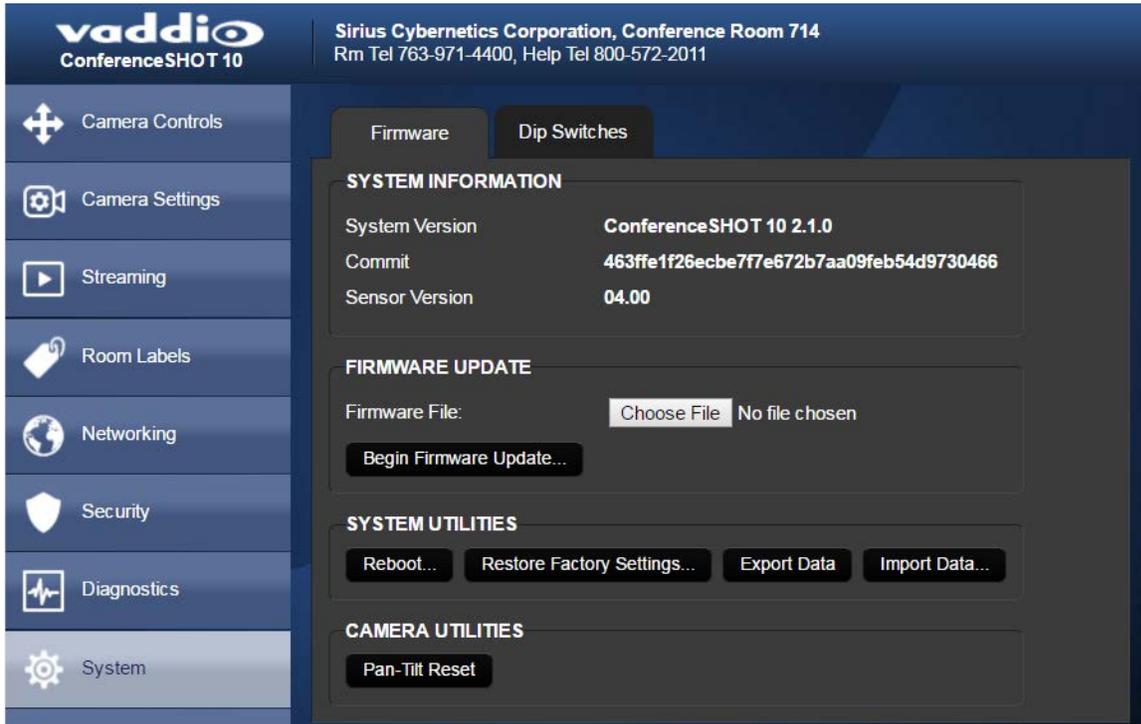
Do not remove power or reset the camera while the indicator is yellow, showing a firmware update in progress. Interrupting a firmware update can make the camera unusable.

Restoring Default Camera Settings

Factory reset clears most settings and returns soft DIP switches (on the DIP Switches tab of the System page) to their default positions.

Using the switches on the back of the camera: Set all DIP switches DOWN and cycle the power to reload the default camera settings. Then return all DIP switches to the desired settings.

From the web interface: Log on using the admin account, go to the System page's Firmware tab, and click Restore Factory Settings.



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
- Between converging tectonic plates
- Dry environments with an excess of static discharge

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

Compliance Statements and Declarations of Conformity

Compliance testing was performed to the following regulations:

FCC Part 15 (15.107, 15.109), Subpart B	Class A
ICES-003, Issue 54: 2012	Class A
EMC Directive 2004/108/EC	Class A
EN 55022: December 2010	Class A
EN 55024: November 2010	Class A
KN22 2008 (CISPR 22: 2006)	Class A
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	Class A
IEC 60950-1:2005 (2nd Edition); Am 1: 2009 + Am 2: 2013	Safety
EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013	Safety

FCC Part 15 Compliance

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



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

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

ICES-003 Compliance

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

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



Industry
Canada

Industrie
Canada

European Compliance

This product has been evaluated for electromagnetic compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:



EMC Directive 2004/108/EC

EN 55022: December 2010

EN 55024: November 2010

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

EN 61000-4-3: 2006 + A1: 2008

EN 61000-4-4: 2004 + Corrigendum 2006

EN 61000-4-5: 2006

EN 61000-4-6: 2009

EN 61000-4-8: 2010

EN 61000-4-11: 2004

KN22 2008 (CISPR 22: 2006)

KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN 61000-4-8

EN 61000-4-11

IEC 60950-1: 2005 (2nd Edition); Am 1: 2009 + Am 2: 2013

EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013

Conducted and Radiated Emissions

Immunity

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

Conducted and Radiated Emissions

IT Immunity Characteristics

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

Safety

Safety

Warranty Information

See Vaddio Warranty, Service and Return Policies posted on support.vaddio.com for complete details.

Hardware* warranty: Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Exclusions: The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customer's applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM and special order products manufactured by other companies are excluded and are covered by the manufacturer's warranty.

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

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted by email at support@vaddio.com or by phone at one of the phone numbers listed on support.vaddio.com.

Return Material Authorization (RMA) number: Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMAs are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge without exception. Special order products are not returnable.

Voided warranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

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

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

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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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