



Configuration and Administration Guide for  
**RoboSHOT 20 UHD**  
**High Performance, Ultra High Definition**  
**PTZ Camera**

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## What's in this Guide

This guide covers

- The camera's physical features
- Controlling the camera using the remote
- Using the camera's web interface
- Troubleshooting and maintenance

It does not include installation and connection instructions; these are available in the **Installation Guide for RoboSHOT 20 UHD PTZ Cameras**.

For complete product information, see the **Integrator's Complete Guide for RoboSHOT 20 UHD PTZ Cameras**. It includes unpacking and installation as well as specifications and reference sections on Telnet and RS-232 commands.

## Overview

This guide covers the RoboSHOT™ 20 UHD high performance PTZ camera:

- RoboSHOT 20 UHD (silver and black), North America – 999-9950-000
- RoboSHOT 20 UHD (white), North America – 999-9950-000W
- RoboSHOT 20 UHD (silver and black), International – 999-9950-001
- RoboSHOT 20 UHD (white), International – 999-9950-001W

## Camera Features

- Back-illuminated 9.03 Megapixel, ultra high definition 1/2.3-type sensor delivers native 2160p/30 (3840 x 2160) video
- 12X optical zoom and 1.67X digital zoom; effective 20X zoom range; horizontal field of view 74° (wide) to 4.8° (tele) at 20X
- Imaging and performance comparable to 3-chip cameras
- Precise pan and tilt movements from 120°/s down to 0.35°/s
- Tri-Synchronous Motion™ simultaneous 3-axis pan/tilt/zoom movement between presets
- Simultaneous HDMI®, HDBaseT™, 3Gb/s HD-SDI and IP streaming outputs
- Presenter-friendly IR remote control
- Full administrative control from your browser via web interface
- Integration-ready Telnet or serial RS-232 control
- Smooth, silent direct-drive motors



## A Quick Look at the Camera

This section covers the physical features of the RoboSHOT 20 UHD.

### Front of the Camera



- **Camera and Zoom Lens:** Horizontal field of view up to 74°. 12X optical zoom combines with 1.67X digital zoom to deliver an effective 20X zoom range; 4.8° field of view at 20X.
- **Dual-arm mount** provides superior stability.
- **IR Sensors:** Sensors in the front of the camera base receive signals from the IR Remote Commander. Make sure there are no obstructions directly in front of the camera base.
- **Status indicator:** The multi-colored LED indicates the camera's current state.
  - Purple – Boot-up and Standby modes.
  - Blue – Normal operation and is a power on, ready condition.
  - Blinking blue – The camera has received IR from the remote or other IR source.
  - Red – Tally function; shows that the camera is on-air.
  - Blinking red – Fault condition.
  - Yellow – Firmware update is 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.*

## Configuring and Controlling the Camera

You can control the camera using the IR remote, web interface, Telnet session, or RS-232 command line – preferably not at the same time, as this can produce unexpected results. Choose the method that best meets the requirements.

### Vaddio IR Remote Commander

The IR remote provides basic camera control for end users.

#### IR Remote Cheat Sheet

What do you need to do?	Button(s)
Power on or standby	<b>Power</b> (green button at top right)
Select the camera to control (if this remote controls more than one)	<b>Camera Select</b> buttons 1 through 3 (second row on the remote)
Discover the camera's IP address	<b>Data Screen</b> button (top left) – press and hold for 3 seconds.
Move the camera	Arrow buttons and <b>Home</b> button (dark red)
Move the camera to a preset position	<b>Position Preset</b> buttons 1 through 6 (bottom two rows) <i>You can access additional presets from the camera's web interface.</i>
Focus the camera	<b>Auto Focus</b> button (near arrow buttons) <b>Manual Focus</b> buttons <b>Near</b> and <b>Far</b> (below Zoom Speed buttons)
Control zoom speed	<b>Zoom Speed</b> buttons - Slow <b>T</b> and <b>W</b> , Fast <b>T</b> and <b>W</b> for telephoto and wide-angle modes (light gray)
Adjust for excess light behind the camera's subject	<b>Back Light</b> button (top center)

## IR Remote Details

The Vaddio remote provides the following functions:

**Power** – Switch the selected camera on or off.

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

**Back Light** – Use or turn off back light compensation.

**Data Screen** – Display the camera's IP address and MAC address. Press this button again to dismiss the display.

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

**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.

**Pan/Tilt Reset** – Not used.

**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 (such as setting the speed for Tri-Synchronous Motion), 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. (Refer to the list of [compatible web browsers](#).) 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.

- Administrative access – The default password is `password`. The admin has access to all pages of the web interface.
- User access – The default password is `password`. Only the camera control page is available with user-level access.

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 255.255.255.0.

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.

## Compatible Web Browsers

We have tested this product with these web browsers:

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

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

If the admin sets up automatic guest access, no login is needed – the system starts at the Camera Control page, rather than the login page. The administrative login dialog is accessible from the Camera Control page, to allow access to administrative tasks.



## 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 on at all. Use the Admin button to open the login screen.

When you log in as Admin, all the admin menu 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 – Set up IP (H.264) streaming.
- Room Labels – Add helpful information the web interface screens, such as conference room name and the in-house number for AV assistance.
- Networking – Ethernet configuration.
- Security – Set passwords and manage guest access.
- Diagnostics – Access to logs for troubleshooting.
- System – Reboot, restore defaults, view switch settings, and run updates.
- Help – Tech support contact information.
- Logout – End your web interface session.



## Web Interface Cheat Sheet

Where to find the camera controls you need right now.

What do you need?	Go to this screen
Camera operation <ul style="list-style-type: none"> <li>■ Move or zoom the camera</li> <li>■ Set the speed for pan, tilt, or zoom motions</li> <li>■ Focus the camera (Focus button reveals the focus control)</li> <li>■ Move to a camera preset</li> <li>■ Put the camera into or bring it out of standby mode</li> </ul>	Camera Controls
Camera behavior <ul style="list-style-type: none"> <li>■ Set motors for inverted operation (Settings button reveals the control)</li> <li>■ Set or clear camera presets, with or without Tri-Synchronous Motion</li> <li>■ Select the appropriate lighting adjustments (CCU Scenes section)</li> </ul>	Camera Controls
Camera behavior <ul style="list-style-type: none"> <li>■ What happens on power-up or coming out of standby mode - move to a specified preset, apply specified lighting adjustments</li> <li>■ Specify whether to use automated adjustments (auto-iris, auto white balance, backlight compensation)</li> </ul>	Camera Settings
Camera adjustments <ul style="list-style-type: none"> <li>■ Color settings (Iris, iris gain, red gain, blue gain, detail, chroma, gamma)</li> <li>■ Store and label custom color settings as CCU scenes</li> <li>■ Specify global speed settings for camera movements that do not use Tri-Synchronous Motion</li> </ul>	Camera Settings
Advanced camera settings <ul style="list-style-type: none"> <li>■ Color space (YCbCr or sRGB; default is YCbCr)</li> <li>■ 3G HD-SDI level (A or B; default is A)</li> </ul>	System
IP streaming settings <ul style="list-style-type: none"> <li>■ Quality</li> <li>■ Resolution</li> <li>■ Frame rate</li> <li>■ Streaming URL and path</li> </ul>	Streaming
IP settings <ul style="list-style-type: none"> <li>■ Hostname</li> <li>■ DHCP or static addressing</li> <li>■ Static: IP address, subnet mask, gateway</li> </ul>	Networking
Information about the camera's current switch settings	System
Access management <ul style="list-style-type: none"> <li>■ Guest access</li> <li>■ Account passwords</li> </ul>	Security

What do you need?	Go to this screen
Time zone and NTP server (source for system time/date)	Networking
Diagnostic logs	Diagnostics
Information about the camera location	Room Labels
Helpdesk phone number for end users	Room Labels
Vaddio Technical Support contact information	Help

## Web Tasks for All Users: Controlling the Camera

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:

- Put the camera in standby or bring it back to the ready state
- Pan, tilt, zoom, or return to "home" position
- Set speeds for camera movements
- Focus manually or set auto-focus
- Set or move to camera presets
- Select one of the stored lighting adjustments
- Set the way the camera responds to the arrow buttons on the remote

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



### 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 moves to its standby position.

### 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.

## 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.

## Change the Focus

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



## 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

Save Preset 1 first. Other presets will inherit its Tri-Sync settings if they have not yet been defined.

1. Set up the camera shot, then use the Store button to open the Store Preset box.
2. Click one of the numbered preset buttons.
3. Check Save with Tri-Sync to allow the pan, tilt, and zoom motors to move simultaneously.
4. If necessary, use the speed slider to set Tri-Sync speed. For tight shots, slower is better.
5. To save the current color settings along with the camera position, check Save with current color settings.
6. Save the preset.

### **Note:**

*The Tri-Synchronous Motion algorithm works best for on-air shots requiring significant movement in more than one axis. It is not useful when moving the camera less than 10° or when the camera is not on the air. You may need to experiment with the Tri-Sync setting.*

## Select the Appropriate Color Settings

Adjust the camera for the lighting in use by selecting the CCU scene that best fits your environment. The technical folks at Vaddio (Scott, to be specific) have already set up presets for common lighting scenarios – Incandescent Hi, Incandescent Lo, Fluorescent Hi, Fluorescent Lo and Outdoor. The Auto setting allows the camera to determine the appropriate adjustments.

The first three settings in this area of the web interface (initially labeled Custom A through Custom C) can be set and renamed from the Camera Settings page, accessible to admin users.



## 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.



## Set Tilt Direction

Tilt direction can also be normal or inverted. Set it according to what will be the most intuitive for the people most likely to be controlling the camera.

## Web Tasks for Administrators: Configuring Network Settings

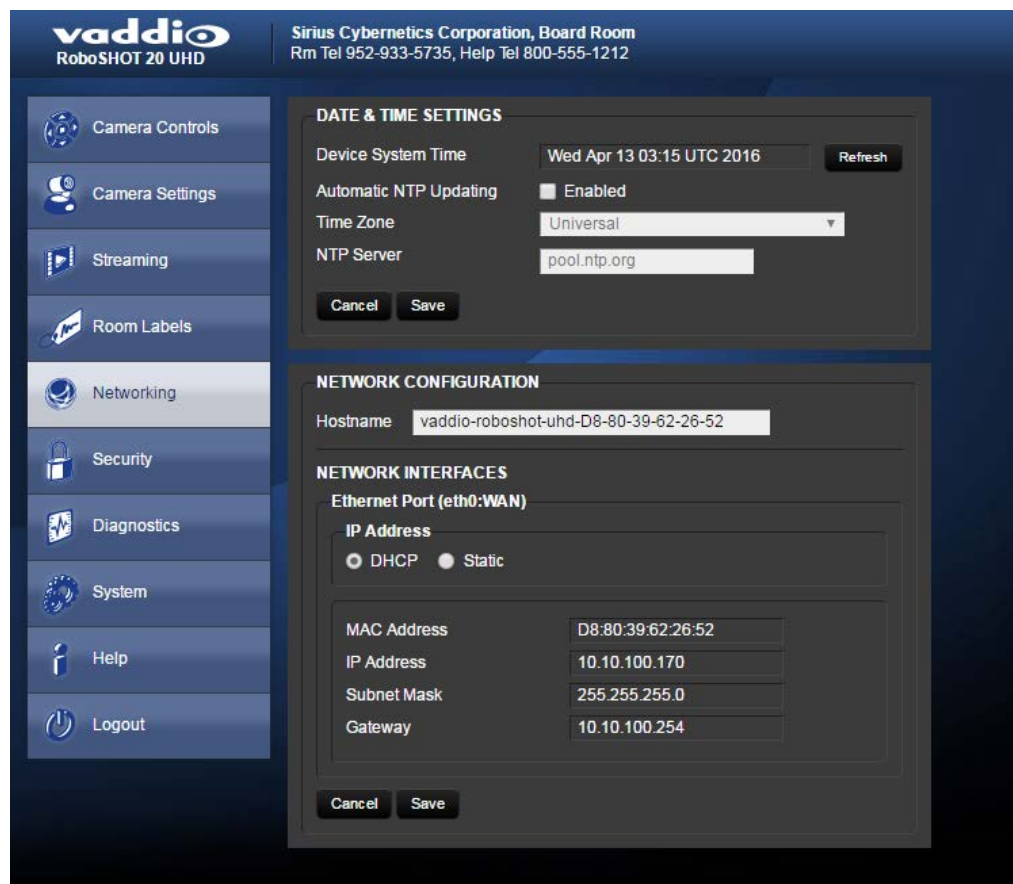
Things you can do on this screen:

- Specify time zone and NTP server
- Assign the camera's hostname
- Specify DHCP or static IP address
- Set up other networking information

You will only be able to enter the IP address, subnet mask, and gateway 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.*



### 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. Otherwise, use the default.



## Web Tasks for Administrators: Adding Room Information to the Screen

To display your company name, conference room name and phone number, and the number for meeting hosts to call for in-house A/V support, enter this information on the Room Labels screen.



## Web Tasks for Administrators: Managing Access and Passwords

Things you can do on this screen:

- Allow people to access the Camera Control screen without logging on (Allow Guest Access)
- Set whether inactive sessions log off automatically or not
- Change the password for the admin account (default is password)
- Change the password for the user account (default is password)

For security, Vaddio recommends changing the account passwords.



## Web Tasks for Administrators: Setting Camera Behaviors and Adjustments

Things you can do on this screen:

- Set up the color settings the camera uses on power-up.
- Set up and name custom color/lighting settings.
- Set the pan, tilt, and zoom speeds that will be used when not using Tri-Synchronous Motion



### Set Up what the Camera Does on Power-Up

**To use a preset position** instead of the default home position when the camera wakes up, check Load Preset at Startup. Then select the preset to use.

**To specify the color and lighting settings**, check Load CCU Scene at Startup, and select the CCU scene to use.

## Set Up Custom Color and Lighting Settings

1. Click any of the CCU scene buttons to load one of the CCU scenes into the camera, then fine-tune it as needed using the Color Settings controls.
2. Auto Iris – check this box to allow the camera to automatically compensate for the light level, or leave it unchecked and use the Iris and Gain sliders to make the desired adjustments.
3. Auto White Balance – check this box to allow the camera to adjust the white balance automatically, or leave it unchecked and use the Red Gain and Blue Gain sliders to make the desired color adjustments.
4. Back Light Compensation (only available in Auto White Balance mode) – check this box if the scene will have bright lighting behind the main subject of the shot.
5. Detail – adjust the slider as required for amount of detail (Aperture) desired.

**Note:**

*If the video looks grainy or “noisy,” try a lower Detail setting. As in conversation, too much detail is bad.*

6. Chroma – adjust the slider as needed for the right level of color intensity.
7. Gamma – adjust the slider as needed for the desired range between bright areas and shadows.
8. When the scene looks the way you want it to, click Store CCU Scene.
9. In the Store CCU Scene dialog box, select which custom scene to store (Custom A, B, or C) and optionally give it a descriptive name. You can rename it later if necessary.
10. Name and save your custom scene.

**Note:**

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

## Rename a Custom CCU Scene

In the Custom CCU Scene Labels section, edit the text for the desired CCU scene label.

## Set Pan, Tilt, and Zoom Speeds

In the Global Preset Non-Tri-Sync Speeds section, set the speeds for movements to presets that do not use Tri-Synchronous Motion.

## Web Tasks for Administrators: Configuring Streaming Settings

Things you can do on this screen:

- Enable or disable IP streaming
- Set the resolution, video quality, and frame rate for IP streaming
- Specify the IP streaming port and path/URL

The camera uses the RTSP protocol for H.264 streaming.

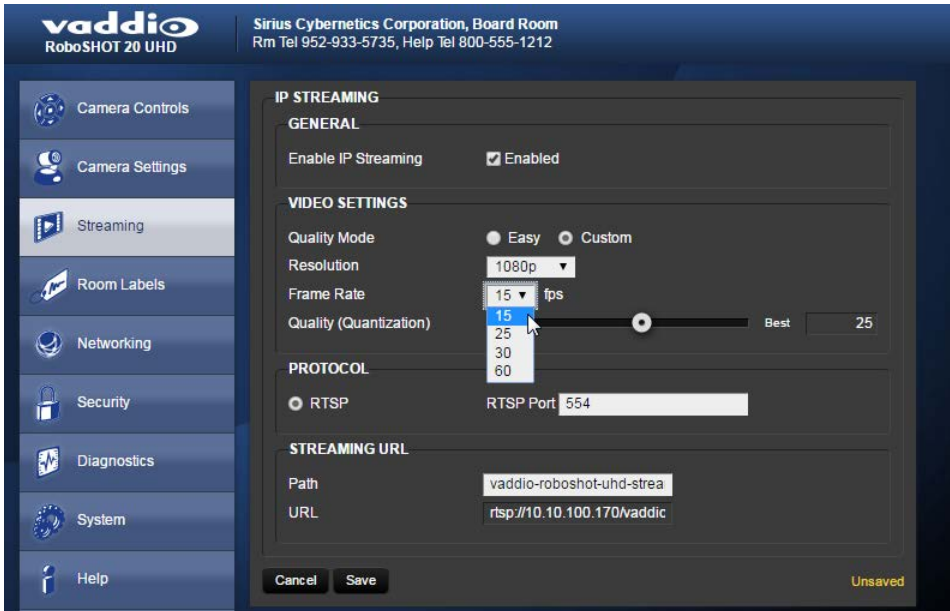


## Set IP Streaming Quality, Resolution, and Frame Rate

Select the video Quality Mode: Easy or Custom. Easy automatically sets the recommended frame rate; Custom provides additional control. You will only be able to specify the frame rate or Quality/Quantization if you select Custom Quality Mode.

### Note

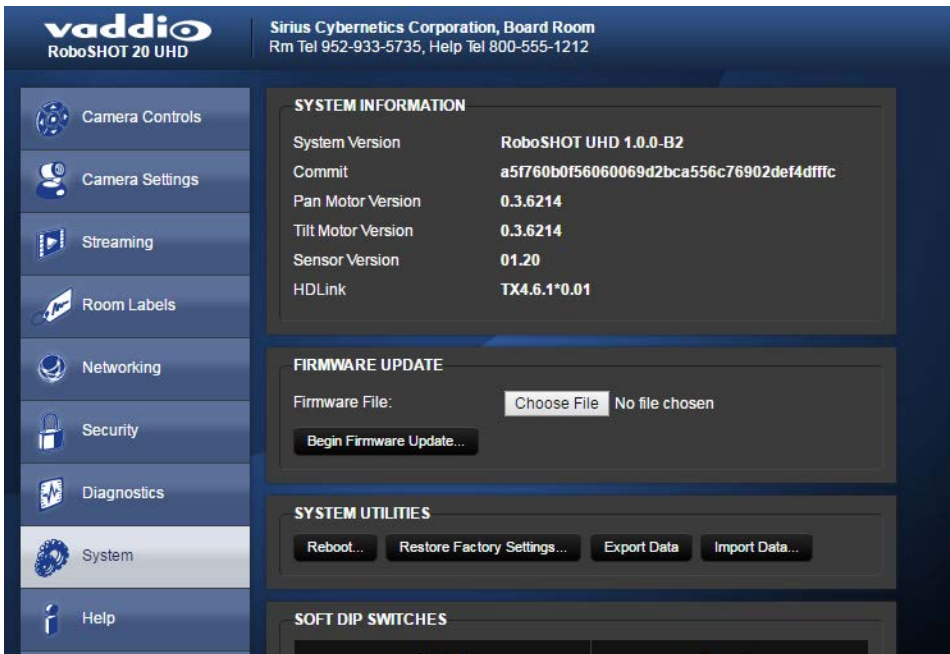
The web interface presents all the possible streaming resolutions values, but the IP stream cannot be higher than the value set with the video resolution switch on the back of the camera. (See [Video Resolution](#) for information on setting the switch.) If the selected value is out of range, the camera will automatically adjust the streaming resolution.



## Web Tasks for Administrators: System Reboots, Resets, and Soft DIP Switch Configuration

Things you can do on this screen:

- Reboot the camera
- Set the camera back to its original factory settings
- Read (but not change) the current settings of the switches on the back of the camera
- Set the camera's soft DIP switches
- Run a firmware update

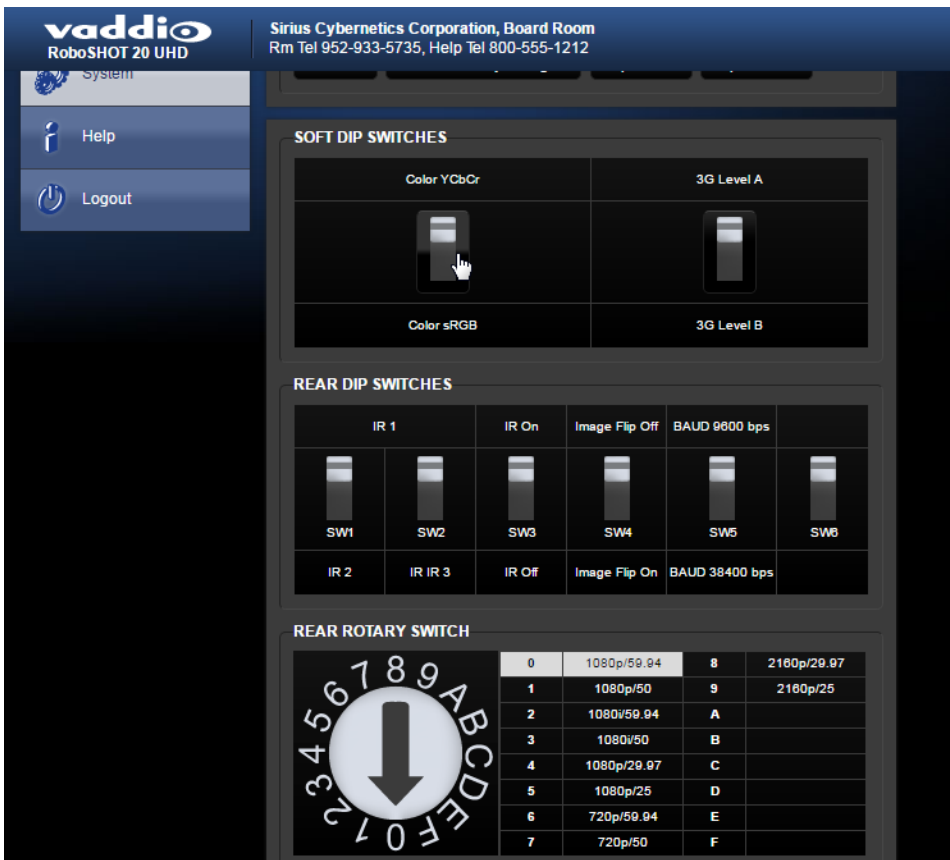


### Reboot the Camera

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

### Restore Factory Settings

Sometimes it's easiest to just start over. To restore the original factory settings...click Restore Factory Settings. This will overwrite anything you have customized, such as custom camera presets.



## Set Color Space or HD-SDI 3G Level

Click and drag the appropriate soft DIP switch.

### Note

*Vaddio recommends leaving the soft DIP switches in their default positions unless you have verified that you need to change them.*

*Below the soft DIP switches, the screen shows the current state of the hardware switches on the camera's back panel. If you need to change any of the rear DIP switches or the rear rotary switch, you must physically move it. You cannot change the settings of the rear DIP switches or the rear rotary switch from the web interface.*

## Updating the Firmware

If you prefer more detail than this procedure, please refer to the Release Notes for step-by-step instructions with screen shots.

1. Locate and download the firmware and its release notes.
2. Select Choose File, then browse to the firmware that you downloaded and select it. The filename ends with .p7m.
3. Click Begin Firmware Update. The process may take a few minutes.

### Caution

Ensure that the camera stays powered on and connected to the network during the update. Interrupting the update could make the camera unusable.

The camera reboots when the update is complete.

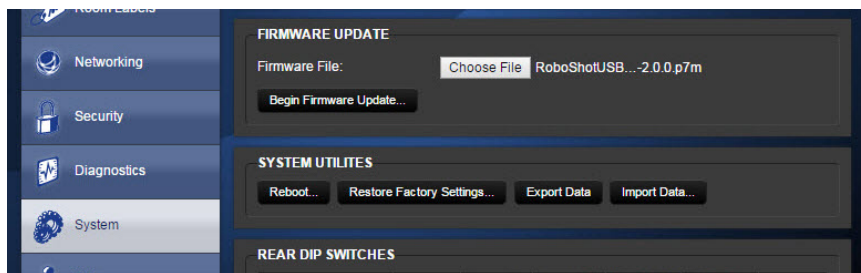
## Update the Firmware

### Note

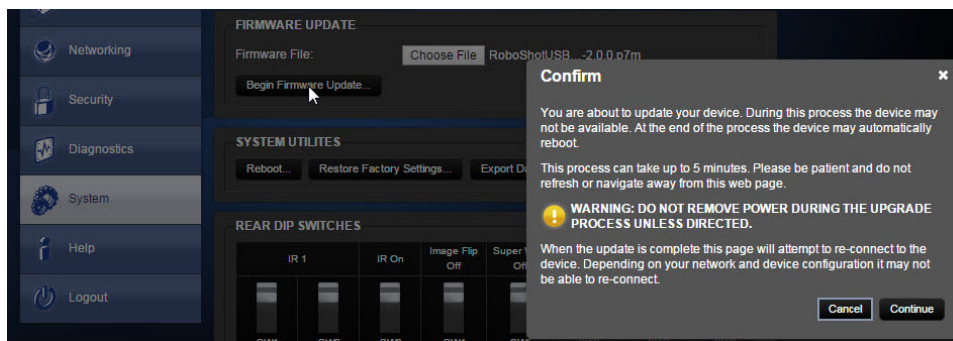
Your camera's web interface will probably look slightly different.

1. Click Choose File, browse to the firmware update file that you downloaded, and select it. The filename ends with .p7m.

The screen then displays the filename beside the Choose File button.



2. OPTIONAL: Click Export Data to save a copy of the camera's current configuration. You probably won't need it, but it could save time if you need to roll back the update.
3. Click Begin Firmware Update. A confirmation dialog box opens.
4. Please READ the information in the dialog box and be sure you understand it. It's boring, but it could save you a lot of 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. The process may take a few minutes.
6. If the update process presents warnings or error messages, read them carefully.



When the update is complete, the camera restarts. This logs you out of the web interface.

Contact Vaddio technical support if you encounter any problems with the update.

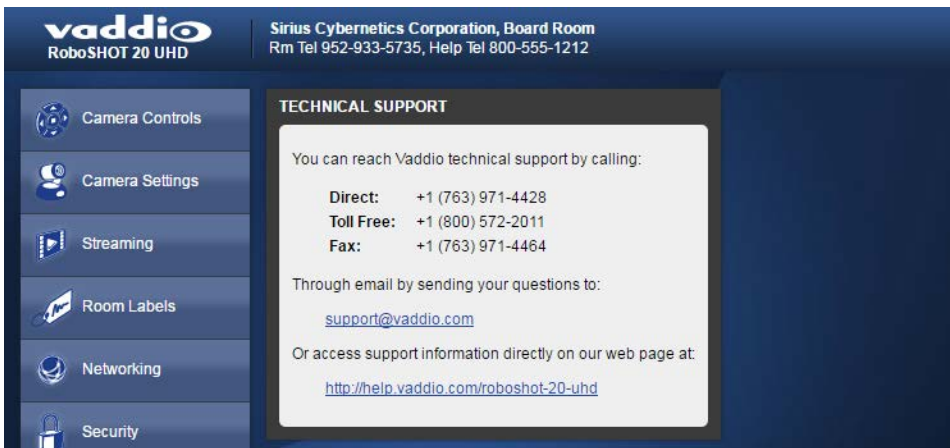
### Caution

*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.*

## Web Tasks for Administrators: Contacting Vaddio Technical Support

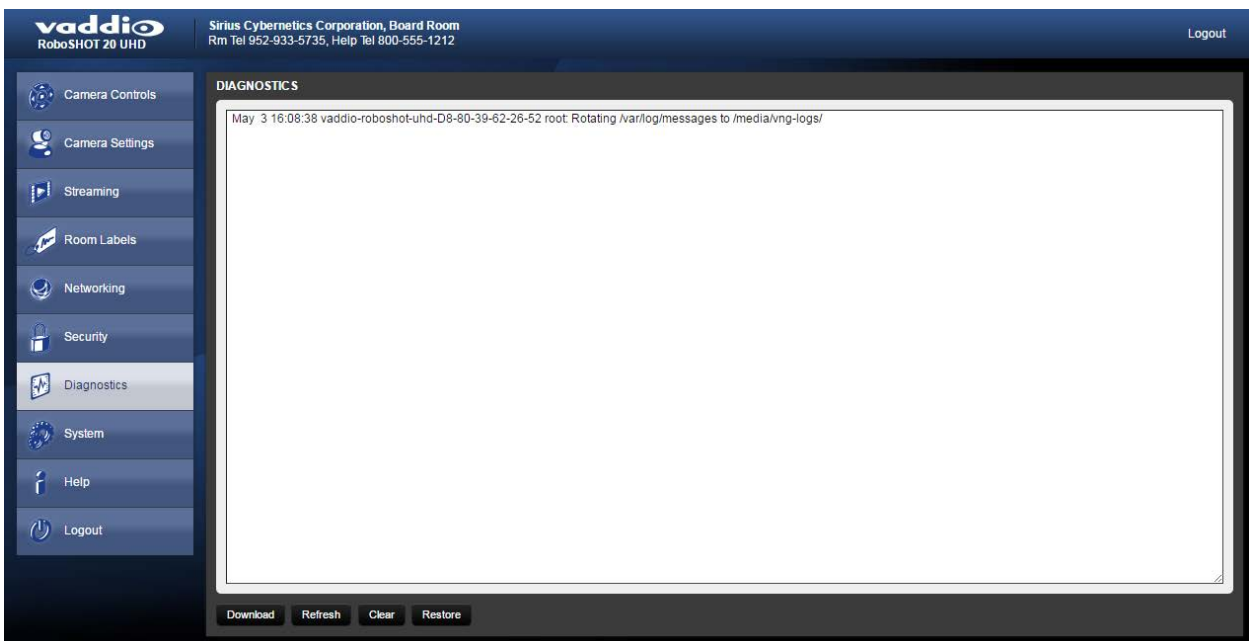
If you can't resolve an issue using your troubleshooting skills (or the [Troubleshooting](#) table in this manual), we are here to help.

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.



## Troubleshooting and Care

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

- Purple – booting or in standby (low power) mode.
- Blue – normal operation.
- Blinking blue – the camera has received a valid IR command.
- Red – Tally function; the camera is on-air.
- Blinking red – fault condition.
- Yellow – firmware update in progress.
- Off – no power to the camera.

Stuff happens – we get it. 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.
	If a OneLINK extension system is used: The camera is not connected to the OneLINK.	Plug the OneLINK into the camera.
	If a OneLINK extension system is used: The OneLINK system is not working properly.	Disconnect the OneLINK and connect the camera directly to the 12V power pack that was shipped with it to determine where the problem is. If the camera works without the OneLINK system, the OneLINK is bad. Contact your reseller or Vaddio Technical Support.
	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. Try the other Camera Select buttons if necessary.
	IR is switched off (DIP switch 3 down)	Turn IR on (DIP switch 3 up) - see <a href="#">Camera Settings</a> for more information.
	The batteries in the remote are dead.	Put new batteries in the remote.
The camera responds to the remote but the web interface is	The camera is not using the IP address you browsed to.	Press the Data Screen button on the remote to see camera information.

What is it doing?	Possible causes	Check and correct
not available.	The web interface has stopped responding.	Reboot the camera.
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 current settings can be viewed on the System page in the web UI. Correct the settings where it's more convenient to do so.
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 <a href="#">Switch Settings</a> for more information.
No H.264 video stream.	Streaming is not enabled.	Enable streaming: Streaming page in the web interface.
The video stream displays poorly - for example, there is a jagged band where the image is not displayed	The stream requires more bandwidth than is available to the viewer.	Reduce the streaming resolution.

## 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.

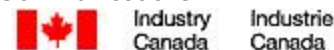
Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.



### 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.



## 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](http://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, customers 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](mailto:support@vaddio.com) or by phone at one of the phone numbers listed on [support.vaddio.com](http://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 product 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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Vaddio

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The logo for Vaddio, featuring the word "vaddio" in a bold, blue, lowercase sans-serif font. The letter "o" is stylized as a circle with a smaller circle inside it, resembling an eye or a lens.