



VADDIO™ ROBOSHOT™ SERIES CAMERAS

RoboSHOT 12 and RoboSHOT 30, HD Robotic PTZ Camera Systems featuring the Quick-Connect™ DVI/HDMI SR Interface

**RoboSHOT 12**

High-definition Robotic PTZ Conferencing Camera Featuring a 12X, 73° Wide Angle Optical Zoom Lens and Tri-Synchronous Motion

**RoboSHOT 30**

High-definition Robotic PTZ Camera for Medium to Large Venues Featuring 30X Optical Zoom Lens and Tri-Synchronous Motion

**Quick-Connect DVI/HDMI-SR System Interface**

System Model and Part Numbers

RoboSHOT 12 QDVI System, 999-9906-000 (North America), 999-9906-001 (Int'l)

RoboSHOT 30 QDVI System, 999-9916-000 (North America), 999-9916-001 (Int'l)

RoboSHOT 30 QDVI System, 999-9916-000W (North America), 999-9916-001W (Int'l)

(Note: The W suffix on the part number indicates white version of the RoboSHOT 30 available Jan 2015)



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OVERVIEW

The astonishing RoboSHOT HD PTZ cameras are a professional quality with very high quality imaging, fine detail and exceptional color reproduction. This camera offers integrators, dealers and end users an incredible improvement over other conferencing and large venue cameras available today. The RoboSHOT Platform consists of two models; the RoboSHOT 12 and the RoboSHOT 30.

The RoboSHOT 12 is perfect for small to medium sized conference rooms. This model features a 12X optical zoom and a 73° wide angle horizontal field of view, which provides incomparable support for applications including UC conferencing, videoconferencing, distance learning, lecture capture, telepresence and more!

The RoboSHOT 30 camera performs brilliantly in medium to large rooms. It features a 30X optical zoom with an impressive 2.3° tele end to 65° wide end horizontal field of view and provides exceptional support for applications including House of Worship productions, large auditorium A/V systems, large distance learning classrooms, live event theatres with IMAG systems, large lecture theatres with lecture capture and more!

The key features of both RoboSHOT cameras are Tri-Synchronous Multi-Axis Motion and the Advanced Image Sensor, lens and ISP (image signal processor) combination. The Tri-Synchronous Motion algorithm in the RoboSHOT cameras is capable of moving all three (pan, tilt and zoom) axes simultaneously. The algorithm calculates the position and velocity of the smooth, direct-drive motor movements between the presets so pan, tilt and zoom arrive at the preset subject simultaneously, which finally allows for smooth and manageable on-air camera movements. Yep, there's no more pan/tilt, then zoom like other PTZ cameras available today.

The lens, image sensor and ISP are the real magic behind the RoboSHOT's remarkable video performance characteristics. Both cameras use the latest generation Exmor® 1/2.8", 2.34 Megapixel, Full HD (1080p/60) high-speed, low noise CMOS image sensor combined with a new ISP, produces vivid, realistic and accurate color with extremely fast, razor sharp automatic focus and auto iris routines.

The RoboSHOT platform uses the Vaddio EZCamera™ Cat-5 Cable System to transport HSDS™ (differential video), power and control to and from the camera over Cat-5 cables. The market proven Quick-Connect™ Interfaces immediately provide integrators with the ultimate in camera configuration flexibility.

All RoboSHOT's are equipped with an Ethernet port and a built-in web server, which allows the user to control the camera functions on an internal web page with a browser from anywhere in the world, or in the same room, over the IP network. Telnet, IR Remote and RS-232 control for the camera are available to satisfy almost any system control requirements.

The RoboSHOT cameras were designed for the times and represent a new era in specifying and integrating professional quality cameras into A/V and conferencing system configurations. In short, it has never been easier to integrate cameras into any environment than with the RoboSHOT HD Cameras.



RoboSHOT 12
HD PTZ Camera on Mount



RoboSHOT 30
HD PTZ Camera on Mount

Intended Use:

Before operating the device, please read the entire manual thoroughly. The system was designed, built and tested for use indoors with the power supply provided. The use of a power supply other than the one provided or outdoor operation hasn't been tested and may damage the device and/or create an unsafe operating condition.

Save These Instructions:

The information contained in this manual will help you install and operate your product. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings (DWG and PDF) for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.

Important Safeguards:

Read and understand all instructions before using. Do not operate any device if it has been dropped or damaged. In this case, a Vaddio technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in water or other liquids and avoid extremely humid conditions.



Use only the power supply provided with the system. Use of any unauthorized or extended DC power supplies will void any and all warranties.



Please do not use "pass-thru" type RJ-45 connectors. These pass-thru type connectors do not work well for professional installations and can be the cause of intermittent connections which can result in the RS-232 control line failing and locking up, and/or compromising the HSDS (high speed differential signals). For best results please use standard RJ-45 connectors and test all cables for proper pin-outs prior to use and connection to Vaddio Cat-5e products.

The RoboSHOT HD PTZ camera connectivity for all signals (video, power and control) is over Cat-5 cable (ubiquitously referred to as Cat-5 or Cat-5e). For best results, please use quality Cat-5e cable and *real* RJ-45 crimpers. Unlike phone and data lines that use the four center conductors (pairs 3 & 6 and pairs 4 & 5), the Vaddio EZCamera systems use all of the pins in most configurations. When terminated correctly The Vaddio Cat-5e solution provides for the utmost in flexibility for HD video system design, integration and ease of installation.

UNPACKING THE CAMERA SYSTEMS

Carefully remove the product and all of the included parts from the packaging. Identify the following parts for each camera:

RoboSHOT 12 QDVI System

Part Number 999-9906-000 (North America)

- One (1) RoboSHOT 12 HD PTZ Camera (998-9900-000)
- One (1) Thin Profile Wall Mount (535-2000-240) with Mounting Hardware
- One (1) IR Remote Commander (998-2100-000)
- One (1) EZCamera Control Adapter (998-1001-232)
- One (1) Quick-Connect DVI/HDMI SR Interface (998-1105-018)
- One (1) 24 VDC, 2.08 Amp Switching Power Supply with North American AC Cord Set
- One (1) 806-819 Gray RJ-45 Dust Cap (for 36VDC RJ-45 Port on camera)
- One (1) 3-pin Molex 5.0mm Euro style Connector
- One (1) Quick Setup Guide



RoboSHOT 30 QDVI System

Part Number 999-9906-001 (International)

- One (1) RoboSHOT 12 HD PTZ Camera (998-9900-000)
- One (1) Thin Profile Wall Mount (535-2000-240) with Mounting Hardware
- One (1) IR Remote Commander (998-2100-000)
- One (1) EZCamera Control Adapter (998-1001-232)
- One (1) Quick-Connect DVI/HDMI SR Interface (998-1105-018)
- One (1) 24 VDC, 2.08 Amp Switching Power Supply
- One (1) 802-2435 Euro Power Cord
- One (1) 802-2436 UK Power Cord
- One (1) 806-819 Gray RJ-45 Dust Cap (for 36VDC RJ-45 Port on camera)
- One (1) 3-pin Molex 5.0mm Euro style Connector
- One (1) Quick Setup Guide



RoboSHOT 30 QSR System

Part Number 999-9916-000 (North America)

- One (1) RoboSHOT 30 HD PTZ Camera (998-9910-000)
- One (1) Thin Profile Wall Mount (535-2000-240) with Mounting Hardware
- One (1) IR Remote Commander (998-2100-000)
- One (1) EZCamera Control Adapter (998-1001-232)
- One (1) Quick-Connect DVI/HDMI SR Interface (998-1105-018)
- One (1) 24 VDC, 2.08 Amp Switching Power Supply with North American AC Cord Set
- One (1) 3-pin Molex 5.0mm Euro style Connector
- One (1) 806-819 Gray RJ-45 Dust Cap (for 36VDC RJ-45 Port on camera)
- One (1) Quick Setup Guide



RoboSHOT 30 QSR System

Part Number 999-9916-001 (International)

- One (1) RoboSHOT 30 HD PTZ Camera (998-9910-000)
- One (1) Thin Profile Wall Mount (535-2000-240) with Mounting Hardware
- One (1) IR Remote Commander (998-2100-000)
- One (1) EZCamera Control Adapter (998-1001-232)
- One (1) Quick-Connect DVI/HDMI SR Interface (998-1105-018)
- One (1) 24 VDC, 2.08 Amp Switching Power Supply
- One (1) 802-2435 Euro Power Cord
- One (1) 802-2436 UK Power Cord
- One (1) 3-pin Molex 5.0mm Euro style Connector
- One (1) 806-819 Gray RJ-45 Dust Cap (for 36VDC RJ-45 Port on camera)
- One (1) Quick Setup Guide



Image: RoboSHOT 12 HD PTZ Camera
Camera Front View with Feature Call-outs



1) Camera and Zoom Lens: This RoboSHOT model features a 12X optical zoom lens (12X in Super-Wide mode and 10X in normal mode) that is built around an Exmor 1/2.8-Type, high-speed, low noise image sensor with a total of 2.34 megapixels for exceptionally precise HD video image acquisition in a small to medium sized conference room.

2) Camera Support Arm: The RoboSHOT cameras use a single control arm for pan and tilt movements. Both ends of the cast control arm are anchored with silent and smooth BLDC (brushless DC) direct drive motors. These motors provide ultra-accurate and fast camera positioning and are capable of the slowest of crawls, which are suitable for on-air use.

3) IR Sensors: IR sensors are built into the front of the RoboSHOT to receive IR signals from the IR Remote Commander supplied with the camera. The IR sensors sit behind the Makrolon IR Window on the front of the base.

4) Multi-Color LED:

The multi-colored LED indicates the use states of the camera:

- Purple LED is for Boot-up and Standby modes.
- Blue LED is for normal operation and is a power on, ready condition.
- The blue LED will blink when the camera receives a valid IR command.
- Solid red LED is to indicate a tally function illuminating when the camera is on-air.
- Blinking red LED indicates a fault condition.
- Yellow LED illuminates during a firmware update.

5) Logo: Really Cool Logo Badge (RCLB) is located on the IR Window.

6) Camera Base: Cast zinc alloy base for strength and stability, powder coated for toughness with fine texture.

Image: RoboSHOT 30 HD PTZ Camera

The differences between the 12X model and the 30C models center around the power of the optical zoom lens and overall color of the camera models. The 30X is available in both black and white.



1) Camera and Zoom Lens: This RoboSHOT model has a powerful 30X optical zoom lens that is built around an Exmor 1/2.8-Typ, high-speed, low noise image sensor with a total of 2.34 megapixels for vibrant, detailed HD video image acquisition in a large to medium sized room.

2) Camera Support Arm: The RoboSHOT cameras use a single control arm for pan and tilt movements. Both ends of the cast control arm are anchored with silent and smooth BLDC (brushless DC) direct drive motors. These motors provide ultra-accurate and fast camera positioning and are capable of the slowest of crawls, which are suitable for on-air use.

3) IR Sensors: IR sensors are built into the front of the RoboSHOT to receive IR signals from the IR Remote Commander supplied with the camera. The IR sensors sit behind the Makrolon IR Window on the front of the base.

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- The blue LED will blink when the camera receives a valid IR command.
- Solid red LED is to indicate a tally function illuminating when the camera is on-air.
- Blinking red LED indicates a fault condition.
- Yellow LED illuminates during a firmware update.

5) Logo: Really Cool Logo Badge (RCLB) is located on the IR Window.

6) Camera Base: Cast zinc alloy base for strength and stability, powder coated for toughness with fine texture.

Image: RoboSHOT 12 and 30 Rear Panel Connections

Rear panel connections are identical for both models (RoboSHOT 12 shown).



1) CAMERA SETTINGS: Dip switch settings for IR remote frequency, baud rate and image flip can be configured on these switches. See the Switch Settings page for additional information.

2) HD VIDEO SELECT: A rotary switch allows the user to choose the HD video output resolution. See the Switch Settings page for additional information.

3) NETWORK CONTROL Port: The Ethernet 10/100 port allows the camera to be controlled from embedded web server with a web browser or through Telnet session.

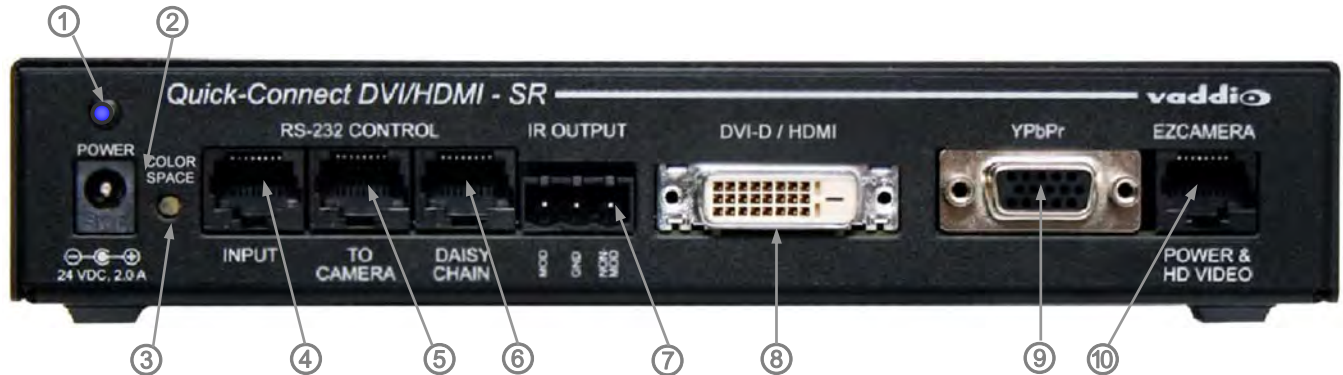
4) RS-232 Port
The RS-232 port accepts modified VISCA protocol for camera control over a Cat-5e cable. This port also acts as an IR Forwarding port with the Quick-Connect SR or Quick-Connect DVI/HDMI interfaces, which allows the user to transmit 3rd party IR signals through camera to the head-end.

5) EZ-POWER VIDEO Port: The EZ-Power Video port supplies 24 VDC power to the camera and delivers HD video back to the Quick-Connect interface using high speed differential signaling over Cat-5e cable.

6) 36 VDC FOR CCU ONLY: The CCU power port is only used with Quick-Connect Universal CCU and is shipped with a dust cap inserted in the connector. The RoboSHOT QDVI systems do not use this connector.

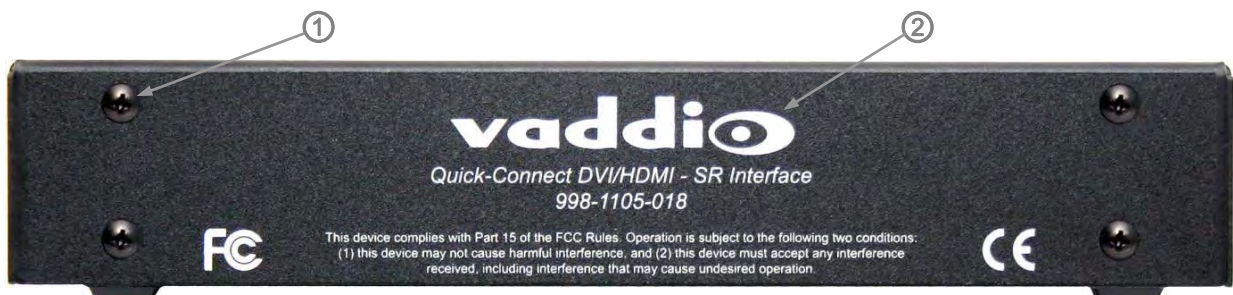
QUICK-CONNECT DVI/HDMI SR INTERFACE

Image: Rear Panel Connectors and Features



- 1) **Power Light:** Blue LED Power Indicator
- 2) **24 VDC 2.0 Amp Power Port:** Coax Power Connector, 5.5mm OD x 2.5mm ID, Positive Center.
- 3) **Recessed Color Space Conversion Switch:** Toggles between HDMI YCbCr and sRGB (RGBHV) color space. Change the color space to accommodate either HDMI or DVI-D monitors.
- 4) **RS-232 Control Input** (from joystick controller, codec or control system).
- 5) **To Camera:** RS-232 Control to & from Camera and IR signals returned from the camera.
- 6) **Daisy Chain Control Port:** Daisy Chain Control Emulation (DCCE) output to next Quick-Connect DVI/HDMI SR Interface (does not function with the AutoTrak System).
- 7) **IR Output Port:** Non-modulated (for hard connections) and Modulated for use with IR emitters.
- 8) **DVI-D Output:** High Definition Multimedia Interface (HDMI) Transmitter, HDMI (v 1.3 with deep color) and DVI v 1.0 Compliant - use Recessed Color Space Conversion Switch ③ to toggle between HDMI YCbCr and sRGB (RGBHV) color spaces to suit your monitors
- 9) **YPbPr Output:** Analog Component Video Output on DE-15F (HD-15F) Connector, Resolutions up to 1080p/60 with monitor support.
- 10) **EZCamera Power & HD Video Port:** Supplies power to camera and returns HD video from the camera via Cat-5e. Maximum distance on the CAT-5e cable is 100' (30.5 m).

Image: Quick-Connect DVI/HDMI SR Interface Front Panel



- 1) **Front Panel Screws (x 4):**
Remove and reuse these screws when mounting to the 998-6000-003 Optional 1-RU Rack Panel for Two (2) ½-Rack sized enclosures. Optional panel holds two (2) interfaces side-by-side in 1-RU space.
- 2) **Product Info:**
Logo, Name, Part Number FCC and CE Marks and standard FCC disclaimer language (the exciting stuff)...

SYSTEM CONFIGURATION EXAMPLE

The Quick-Connect DVI-HDMI-SR interface uses two (2) Cat-5e cables to supply power to the camera, return differential video from the camera while providing bi-directional control (RS-232) for the camera over a distance of up to 100' (30.48m).

Diagram: Basic Connectivity Example of the RoboSHOT and the Quick Connect SR

RoboSHOT Camera Connected to Quick-Connect DVI/HDMI-SR Interface, ProductionVIEW™ Precision Camera Controller and HD Monitor.




PRE-INSTALLATION

- Choose a camera mounting location while paying close attention to camera viewing angles, lighting conditions, possible line of site obstructions, and checking for in-wall obstructions where the camera is to be mounted. Always pick a mounting location that will *optimize* the performance of the camera.
- The included RoboSHOT wall mount can be mounted directly to a 2-gang wall box or can be mounted to a wall using dry wall anchors.

RS-232 Cabling Notes:

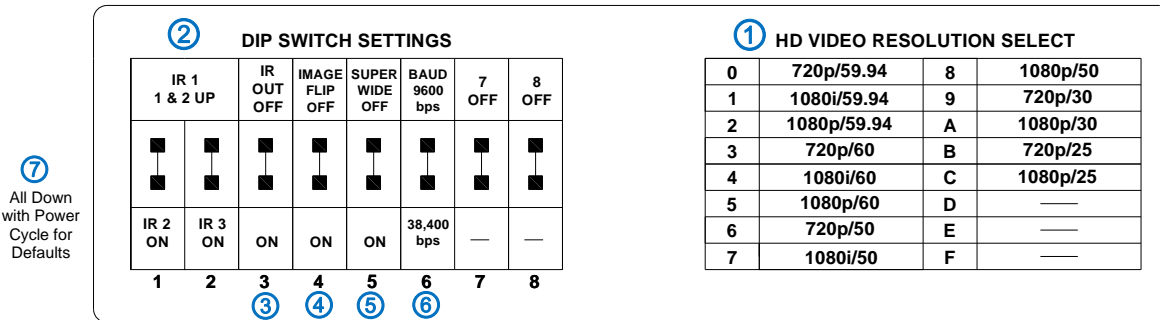
For RS-232 cabling, use a standard Cat-5 (if you can still find Cat-5) or Cat-5e/6 cable with real RJ-45 connectors (568B termination) from the RS-232 port on the back of the Quick-Connect interface to the camera's RS-232 Port. If the camera is connected to a third-party control system (such as AMX or Crestron), a DE-9F (also called a DB-9F in some circles) to RJ-45F control adapter is supplied.

 **More Notes:** Use of pass-thru type RJ-45 connectors is *highly discouraged*. The Vaddio Cat-5 wiring standard uses pins 1, 2, 7 and 8 on both the power/video and the control Cat-5e cables. The pass-through connectors have proven to provide insufficient connectivity for these important signals. They are OK for voice and data that use the center pins only, but not for cabling systems that use all the pins.

Setting the RoboSHOT Camera HD Resolution

The RoboSHOT cameras control the resolution of the video signal sent back to the Quick-Connect interface. There is, as explained on the page 9, a rotary switch to set the HD video resolution and a set of eight (8) dip switches that determine certain camera functions. See the drawing and description on how to setup the camera.

Drawing: Dip Switch and Resolution Label on the Bottom of the RoboSHOT



Setting the RoboSHOT Switch Gear:

- 1) Set the desired and available HD output resolution for the camera with the Rotary Switch.
- 2) Set the IR control frequency of the camera if it is to respond to the IR remote control.
- 3) If using the IR forwarding features with a 3rd party codec remote, set the IR OUT switch to ON (SW3).
- 4) If inverting the camera, turn the IMAGE FLIP ON (SW4).
- 5) For the RoboSHOT 12X model only, set the Super-wide mode to ON for a 12X, 73° horizontal super-wide angle of view. Normal mode will produce 67.2° horizontal field of view (HFOV). The RoboSHOT 30 does not have a Super Wide mode.
- 6) Set the Baud Rate dip switch (SW6) to 9600bps for most applications. Default is 9600 bps systems.
- 7) Setting all dip switches DOWN with a power cycle loads the default camera settings. Return dips to desired operating position after power cycle.

Note: Switches 7 & 8 are reserved for future use.

Dip Switch Settings Further Explained (DSSFE):

- **IR 1, 2 and 3 (SW 1 & 2):** A single IR remote has the capability of operating up to three different PTZ cameras in a room. Use these selector dip switches and the selector buttons at the top of the IR remote to select the frequency.
- **IR OUT on/off (SW3):** The IR output is sent out on the RS-232 RJ-45 jack on the back of the camera. Turning on the IR output will allow IR signals to be transmitted over the Cat-5 cable to the head end. When using RS-232 control or Vaddio CCU controllers (also via RS-232), turn the IR OUT to OFF (up).
- **Image Flip (SW4):** To invert the camera, turn the IMAGE FLIP ON (switch down).
- **Super-Wide Mode:** Super-wide works only with the RoboSHOT 12 model and allows the camera to switch from 67.3° wide end HFOV to a Super Wide 73° wide end HFOV.
- **Baud Rate (SW6):** The options for baud rate are either 9600 or 38,400 bps. The 9600 bps works best with Cat-5e over distance. Use 38,400 bps for short control lines only.
- **Dip Switches (SW7 & 8):** Not used for operation, please leave these dip switches up or in the OFF position.



Installation Basics:

The RoboSHOT cameras include a Thin Profile Wall Mount for...wall mounting the camera. There are options for IN-Wall™ mounts and IN-Ceiling™ Half-Recessed as well. The Cat-5 cabling ideology is especially convenient for camera mounting when the camera location is not anywhere near an AC outlet. Installation is simplified in that no custom 8-Pin mini-din cables or expensive plenum coax cables or multi-pin cables or power outlets are required near the camera location. All Cat-5 cabling is routed to the head-end using with standard straight through RJ-45 connectors (568B termination). *“Pass-thru” type RJ-45 connectors should be avoided, like using a ladder for a pommel horse, which should be avoided too.*

Determine Camera Mount Location and Mount

After determining the optimum location of the camera system, route the required Cat-5e cables from the camera to the head-end Quick-Connect. Test and mark the Cat-5e cables: EZ-POWER VIDEO and RS-232.

The Cat-5e cables should feed-through the cable management slots provided by all Vaddio mounting options. If the wall mount is to be mounted on a 2-gang wall box, use the screws supplied with the wall box cover plate to attach the Thin Profile Wall Mount Bracket. If mounting to drywall with wall anchors, use the four (4) quality wall anchors and screws provided.

The mounting holes are slotted and are 90° opposing to provide easy leveling. Level the mount and place the camera on the mount. Connect the marked and tested Cat-5e cables to the appropriate RJ-45 jacks. Check the level again to avoid any of those *weird Batman camera angles*. Use the provided ¼”-20 x .375 mounting screw to attach the Camera to the mount.



System Wiring

Follow the sample wiring diagram (page 11) for connecting the Cat-5e cables to the camera and Quick-Connect Interface. Additional diagrams are available on the Vaddio website.

Connect the camera side as follows:

- Connect the EZ-POWER VIDEO Cat-5e to the EZ-POWER VIDEO RJ-45 connector on the RoboSHOT.
- Connect the RS-232 control Cat-5e to the RS-232 RJ-45 on the RoboSHOT camera.

Connect the Quick-Connect side (at the head end) as follows:

With the Quick Connect DVI/HDMI not powered-up.

- Connect the RS-232 Cat-5e cable to the RS-232.
- Connect the EZ-POWER VIDEO Cat-5e to the EZ-POWER VIDEO RJ-45 connector on the Quick-Connect.

Step 4: Connect the supplied 24 VDC, 2.08 Amp power supply to a power outlet and to the Quick-Connect USB Interface. The Quick-Connect USB will initialize, power will travel down the EZ-POWER VIDEO Cat-5e cable to the camera. The camera will boot up and in a few seconds, differential HD video will travel back down the Cat-5e cable to the Quick-Connect USB. When an image is available, the camera is ready to accept control information from the IR remote control or RS-232 camera controller, however it is always best to choose either IR or RS-232 and not both concurrently. If connected to the Network, the Quick-Connect USB will display the Hardware (HW) MAC Address and the IP address.



Note: Please check all Cat-5 cables for continuity in advance of final connection (568B). Plugging the EZ-POWER/VIDEO Cat-5 cable into the wrong RJ-45 or using the wrong pin-out may cause damage to the camera system and void the warranty!

CONTROLLING THE CAMERA

IR Remote Commander

The following functions are accessible with the Vaddio IR remote:

- Camera Power On/Off (Toggle on/off same button)
- Back Light Compensation (Toggle on/off same button)
- Data Screen: Toggle on/off the OSD for the RoboSHOT's IP/MAC Address
- Camera Select (the remote can operate 3 cameras (with 3-IR Freq.))
- Pan/Tilt and Home controls with Reverse and Std. Pan direction
- Pan/Tilt Reset
- Auto Focus (Toggle on/off same button)
- Zoom In/Out controls Wide & Telephoto
 - Fast speed controls (W & T)
 - Slow speed controls (W & T)
- Manual Focus On/Off control (Toggle on/off same button)
 - Near (-) adjustment
 - Far (+) adjustment
- Six (6) pan/tilt/zoom positioning presets (1 through 6)
- Preset Set (store)
- Preset Reset (clear)
- Red LED that indicates IR Transmission and battery level

Vaddio
IR Remote
Commander



The IR Remote operational characteristics are as follows:

- **Preset Activation:** IR Remote is limited to executing Presets 1 through 6
- **Tri-Sync Speed on Preset:** If a global Tri-Sync speed is stored in the preset by the user/admin, then that speed is used. If no Tri-Sync speed is assigned, then a default (medium) speed will be used.
- **Preset Store:** IR Remote is limited to positional (PTZ) type presets. To set a preset, position the camera, hold down the Preset Button and touch the one of the preset numbered buttons 1 through 6.

Telnet Control

The following *Telnet commands are available through the Ethernet Port.

- Camera Home
- Camera Pan (left, right and speed - real-time operation)
- Camera Tilt (up, down and speed - real-time operation)
- Camera Zoom (zoom in/out/stop and speed - real-time operation)
- Camera Store Preset (Gets or Sets 12 presets with global relative PTZ [Tri-Sync] speed control to destination)
- Camera Image (Gets or sets current image control values, sets in 1 of 3 CCU presets)
(AWB or manual w/Red and Blue gain, BLC on/off, Auto Iris or manual with Iris value and Gain, Detail and Chroma)
- Camera Sleep (Gets or sets standby power mode - camera has to us less power in this mode)
- Exit (ends Telnet session)
- Help (displays CLISH syntax)
- History (command history)
- Network Ping (send ICMP ECHO_REQUEST to network hosts)
- Network Settings (Gets MAC address, IP address, Subnet Mask, Gateway and NTP server address)
- Network (Gets the current network settings or pings an IP address)
- Streaming Mode - *USB or IP needs to be changed to USB and IP* (get and set streaming modes, on/off)
- Streaming Quality (gets/sets high/standard/low for IP)
- Streaming Resolution (gets/sets streaming resolution)
- Streaming (gets/sets current streaming settings)
- System Factory Reset
- System Reboot
- Version (system version information)



*Please see the full Telnet command list at the end of this manual

THE SCREEN SHOT TOUR

The RoboSHOT camera platform uses a Linux OS and has a built-in web server. The internal web pages will allow control of the attached camera via an Ethernet network connection. These web pages will allow the user or administrator to control the camera, set PTZ presets, set security passwords, change the IP address, view diagnostics, access the firmware upgrade page and more!

Compatible Web Browsers

You may ask, "What are the approved web browsers that work with the RoboSHOT's embedded web server?" The answer is: Chrome® (latest version), Firefox® (latest version), Internet Explorer® (versions 8 through 11) and Safari® (versions 6 and 7) have been tested thoroughly with RoboSHOT and are compatible.

DHCP IP Set-up (Dynamic Host Configuration Protocol)

DHCP Set-up (skip this section if Static IP). If the LAN has a DHCP (dynamic host configuration protocol) server, then the IP address, gateway and routing information will automatically be assigned. The software is defaulted to DHCP and will attempt to dynamically obtain an IP address using DHCP, but it will fall back to the default address of (169.254.1.1) if no DHCP server can be found.

Static IP Set-up:

The static IP can be assigned either through the network or directly to a computer using a cross-over cable. Depending on the age of the computer, you may not need a cross-over cable. Either way the steps are the same for network or direct connection to a computer. The default address of the camera is 169.254.1.1 and the Subnet mask is 255.255.0.0. Different computer OS types all have their own way of doing things (without question), but they are essentially doing the same stuff, changing the IP address so the web pages of the RoboSHOT are accessible.

Screen Shot: Login

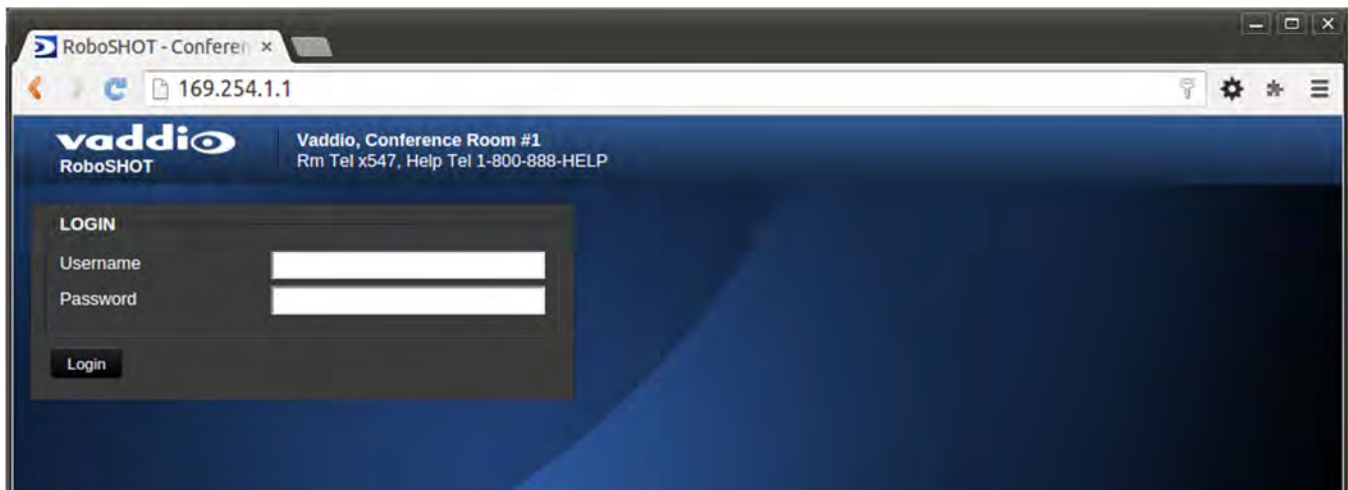
The RoboSHOT webserver is intended as a user's camera control page at one level, and an administrator's management tool at another level, which requires password authentication for access.

The Login Page will appear if there is a user name assigned by the administrator. Assigning a user name can limit access to the admin menus by a general user.

By default, the User name is: [user](#), and the password for the User account is: [password](#).

The Administrator can set the name and password for the User account.

By default, the Admin user name is: [admin](#), and the password for the admin account is: [password](#)



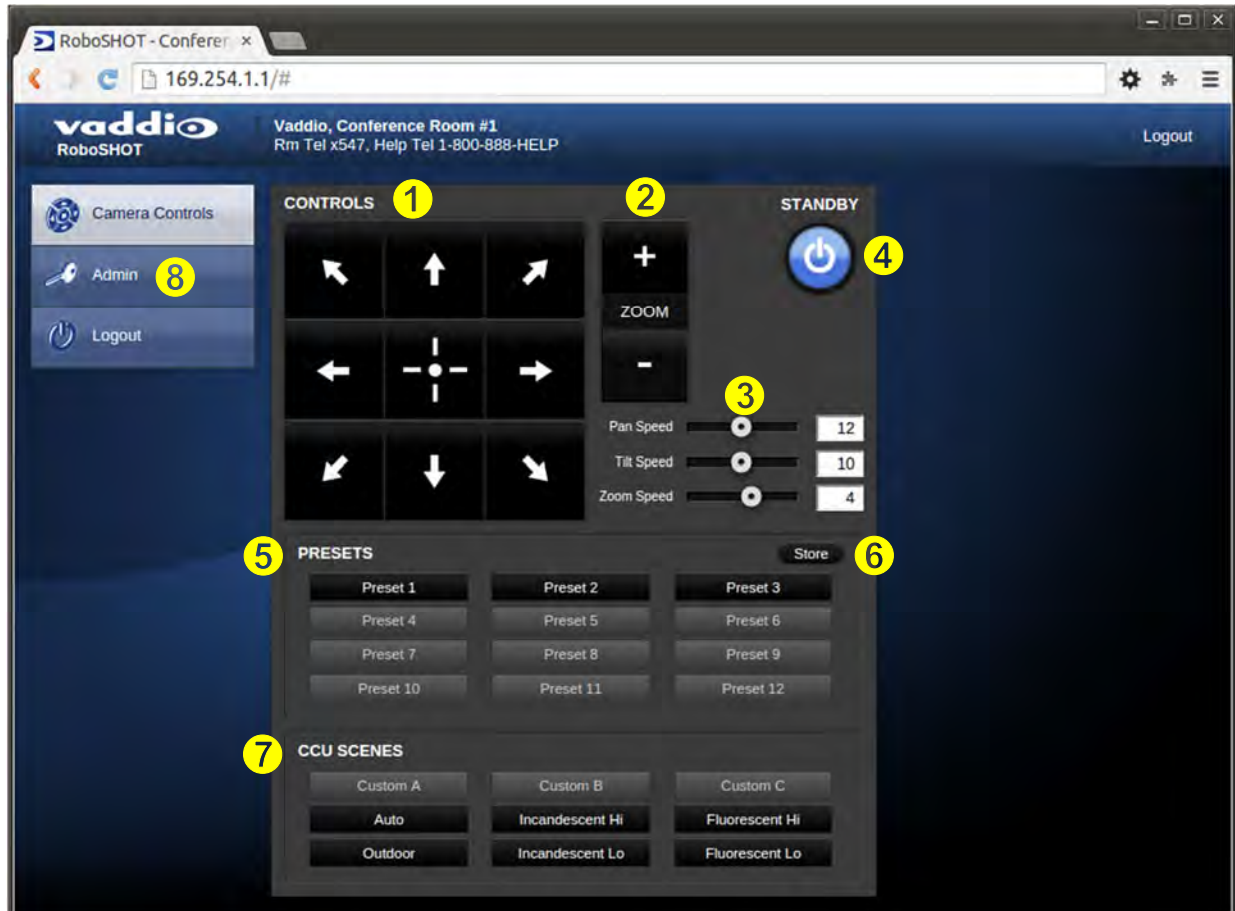
If a user or an admin logs in through this screen, then the next page shown will be the camera control page.

The user will only have access to the camera control page.

The Admin will have complete access to all web pages.

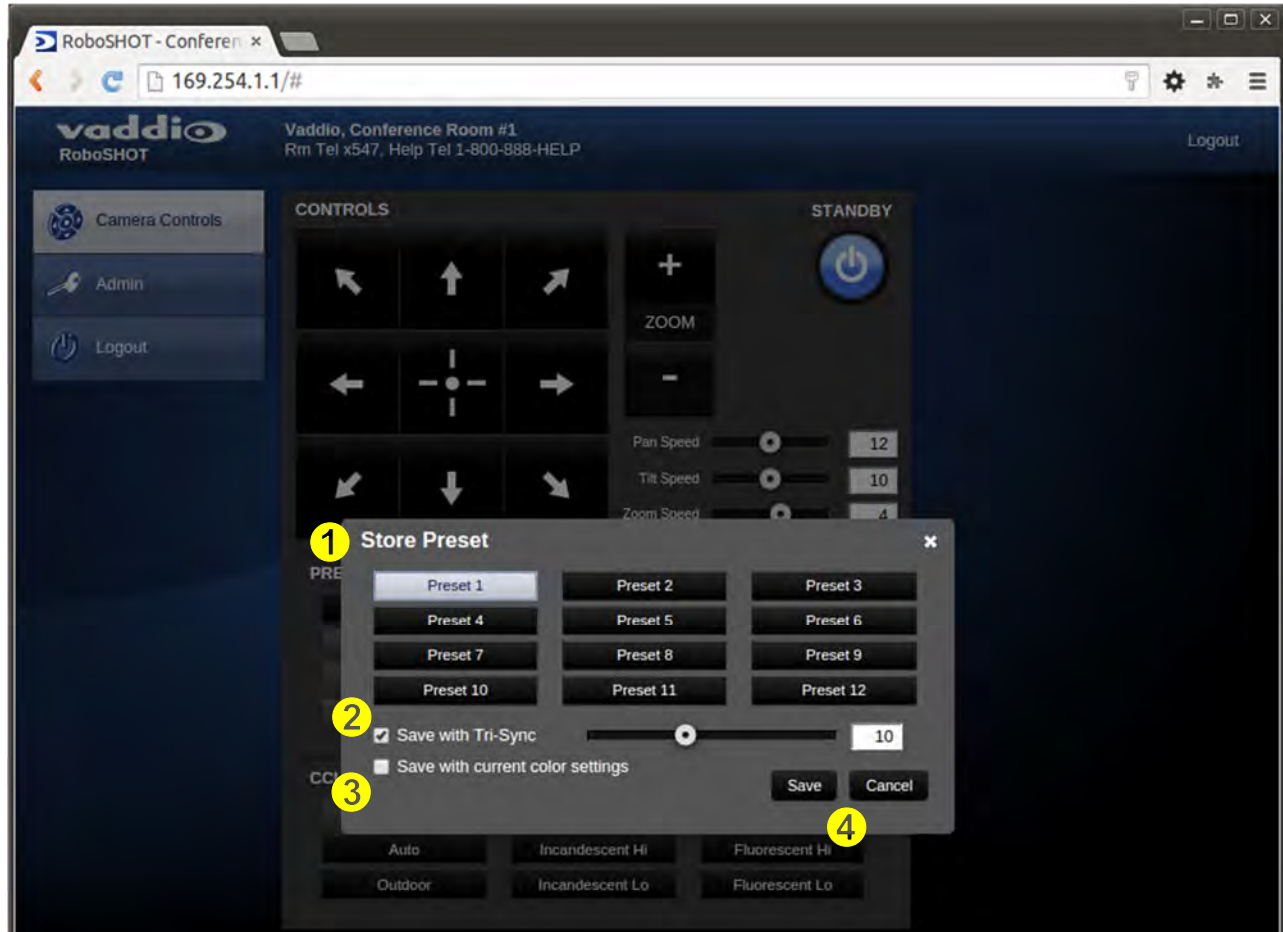
Screen Shot: Camera Control Page

This web page provides access to the camera controls for the User and the Admin.



- 1) **Pan, Tilt and Home Controls:** These intuitive controls use the up/down and diagonal arrows for camera pan and tilt. The center button will move the camera to the home position.
- 2) **Zoom Control:** The camera's zoom lens can be controlled with the "+" to zoom-in and the "-" to zoom out.
- 3) **Pan/Tilt and Zoom Speed Controls:** The speed for both the Pan/Tilt and Zoom controls can be adjusted with the three (3) sliders in this section. For tighter shots, it is recommended that the slower speed is used. These controls are for real-time camera movements only.
- 4) **Standby:** The Standby control puts the camera in low power mode and effectively puts the RoboSHOT to sleep. The camera will pan 90° from center and 30° downward (to not collect dust on the lens). When the camera is inverted (ceiling mounted) the camera will pan 90° from center and 30° downward. If the system is on, then the button will be blue and controls will be visible. If the button is red, no controls are accessible and the screen states: Device is in standby. Click to power-up, then you'll know what to do.
- 5) **Camera Presets:** Twelve (12) camera position presets can be recalled simply by clicking a preset number.
- 6) **Store Preset Button:** Clicking the Store button opens up a Store Preset pop-up dialog box. To set presets, set up the camera shot, click on choice of preset number (1 through 12). The preset is stored and the dialog box closes. The Store Preset dialog box will prompt the operator to enter the Tri-Sync speed to the stored camera preset and if the current color settings are to be stored with the preset too (see the next page).
- 7) **CCU Scenes:** The user has access to the CCU scenes set and stored on the Admin pages. There are three (3) user definable presets and six (6) presets preconfigured by the technical folks at Vaddio (really Scott set them all) that are meant to be used in certain lighting scenarios. These lighting presets included: Automatic, Incandescent Hi, Incandescent Lo, Fluorescent Hi, Fluorescent Lo and Outdoor.
- 8) **Administration Menu:** By clicking on the Administration menu bar, the Admin Login screen will appear.

Screen Shot: Storing Presets



- 1) **Store Preset:** When the Store Preset button is clicked (point 6 on previous page), the Store Preset dialog pops into existence. To save the current camera shot, click one of the Preset buttons (1 through 12), the button will be highlighted and the dialog box will present the Tri-Sync controls and if the CCU setting are to be kept with the preset.
- 2) **Save with Tri-Sync and Setting the Tri-Sync Speed:** The Tri-Synchronous Motion algorithm in the RoboSHOT cameras is capable of moving all three (pan, tilt and zoom) axes simultaneously. The algorithm calculates the PTZ position so pan, tilt and zoom arrive at the preset subject simultaneously. Tri-Sync speed is speed at which all other presets will use to get to the preset being stored. All axes will launch at the same time and if the next preset position is not too close or too far, axes should simultaneously arrive at the preset location. Storing the preset with Tri-Sync is fairly straight forward. Here's a quick method to set Tri-Sync:
 - a) Position the first preset, click on Store Preset and click on Preset 1. Check the Save with Tri-Sync box. Move the tri-Sync speed slider to about the approximate position above (about 1/3 up the speed scale). This is the speed that all the other presets will use to get to this Preset 1. The speed is stored with the destination preset. Click on Save to store the camera location and Tri-Sync speed.
 - b) Set another camera position, and try a different pan, tilt and zoom position and click on Store Preset. Click on Preset 2 through 12, click on the Save with Tri-Sync box and set the slider to about 1/2 way this time and click on Save. These two presets are stored with different preset destination speeds.
 - c) Click between these two recently stored presets and note the different speeds applied to the 2 presets.



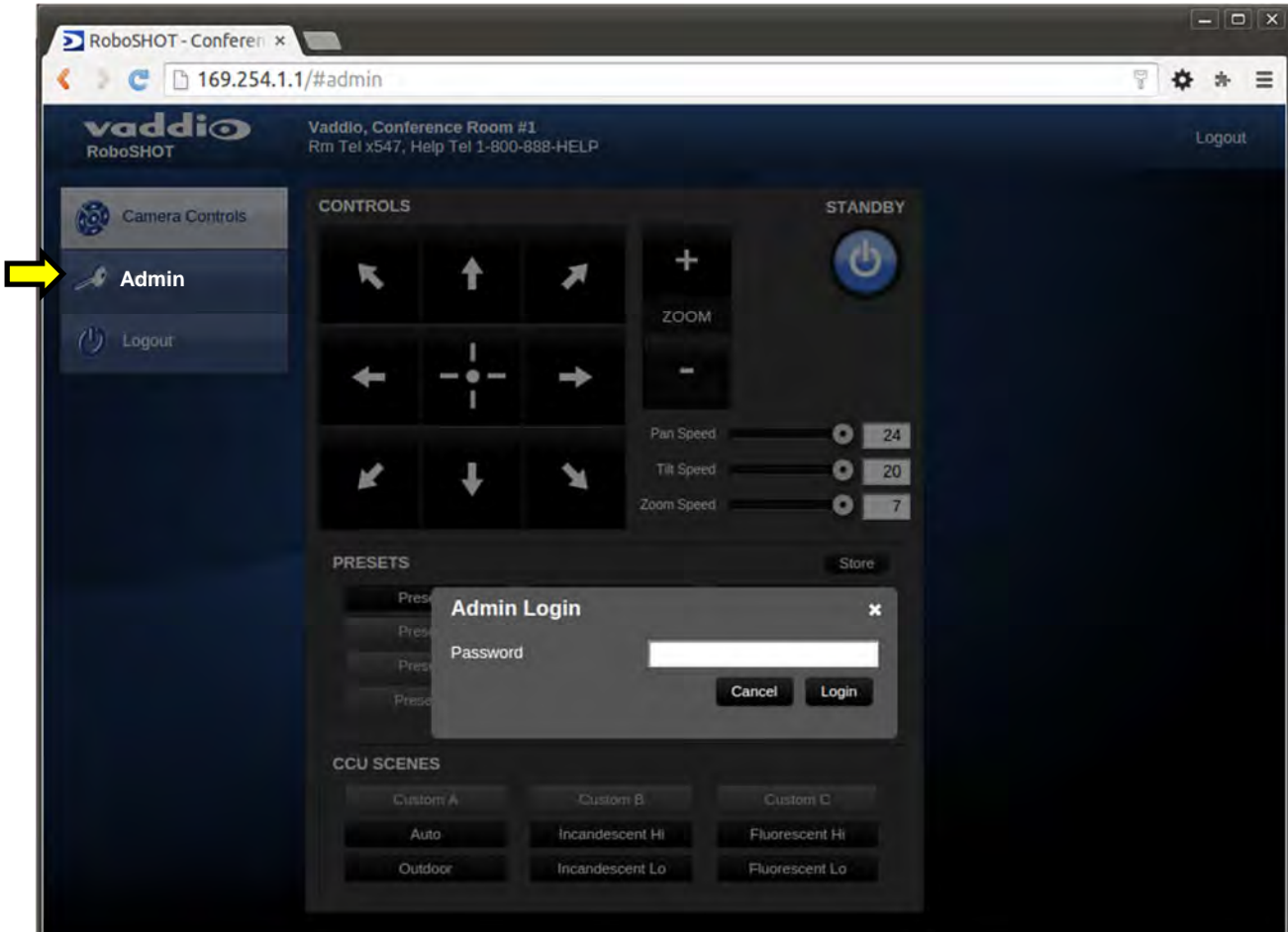
Tri-Sync Notes: If a preset is very close to the previous preset, like within 10° with no change in zoom, it certainly doesn't need to be Tri-Sync'd. If a preset is super-fast and off-air, Tri-Sync won't be of much use either. Tri-Sync is a cool tool to set for on-air shots, but the process of setting the speeds will need some practice.

- 3) **Store with Current Color Settings:** To save the currently assigned CCU scenes settings, check this box.
- 4) Click Save or Cancel to exit this pop-up dialog box.

Screen Shot: Admin login from the Camera Control Page

On the security page, which will be reviewed at a bit later in the tour, allows the Admin to set the system to allow automatic guest access to the main camera control page. If guest access is turned on by the Admin, then system will open to the camera control page and an additional Admin Login is provided.

The default Admin password is: [password](#).



Screen Shot: Admin Menu - Camera Settings

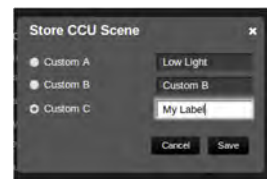
Once the Admin logs in, then all the admin menu buttons appear on the left side of the screen. The first menu after Camera Controls is Camera Settings.



- 1) **Load Preset at Startup:** Check this box to move the camera to a predefined preset location when the camera powers up. Use the pull down menu to select the Preset 1 through 12 to be loaded when this box is checked.
- 2) **Load CCU Scene at Startup:** Check this box to load a CCU Scene into the camera when the camera powers up. The pull down menu will allow the selection of one of the 6-factory scenes, or one of the 3 custom scenes.
- 3) **CCU Scenes:** Click on any of these 9 buttons to load one of the CCU scenes into the camera. These Scenes can be fine-tuned if changes are needed, and stored into any of the three User defined scenes.
- 4) **Color Settings:** When painting or shading camera scenes for specific lighting situations or environments, these parameters can be adjusted for matching cameras in the same area. The parameters within the Color Settings section are defined below (top to bottom):
 - **Auto Iris Check Box:** When checked, the camera will operate in Auto Iris mode, when unchecked, the camera will be in Manual Iris mode and allow adjustment of Iris and Iris Gain levels.

- **Iris:** Move adjustment slider as required to adjust the iris opening. A numeric value will be displayed in the box to the right of the slider.
- **Gain:** Move adjustment slider as required for amount of iris gain desired. Numeric value will be displayed in the box to the right of the slider.
- **Auto White Balance check box:** When checked, camera will operate in Auto White Balance mode, when unchecked camera will be in Manual White Balance Mode and allow for adjustment of Red and Blue Gain.
 - **Red Gain:** Move the adjustment slider as required for amount of Red Gain desired. A numeric value will be displayed in the box to the right of the slider.
 - **Blue Gain:** Move the adjustment slider as required for amount of Blue Gain desired. Numeric value will be displayed in the box to the right of the slider.
- **Back Light Compensation:** When checked, Back Light Compensation will be applied to the camera if camera is in Auto White Balance mode.
- **Detail:** Move the adjustment slider as required for amount of detail (Aperture) desired. A numeric value will be displayed in the box to the right of the slider. **Note:** If the detail is too high, the video can look grainy and appear noisy too.
- **Chroma:** Move the adjustment slider as required for the amount of Chroma (Color Vibrancy) desired. A numeric value will be displayed in the box to the right of the slider.

5) **Store CCU Scene button:** Once the desired scene adjustments have been made, this button will activate a pop-up menu that can be used to store this scene into one of the three User Defined Scene locations. These User Defined Scenes can be named as required for clarity. These User Defined CCU Scenes can be adjusted and re-saved at any time.

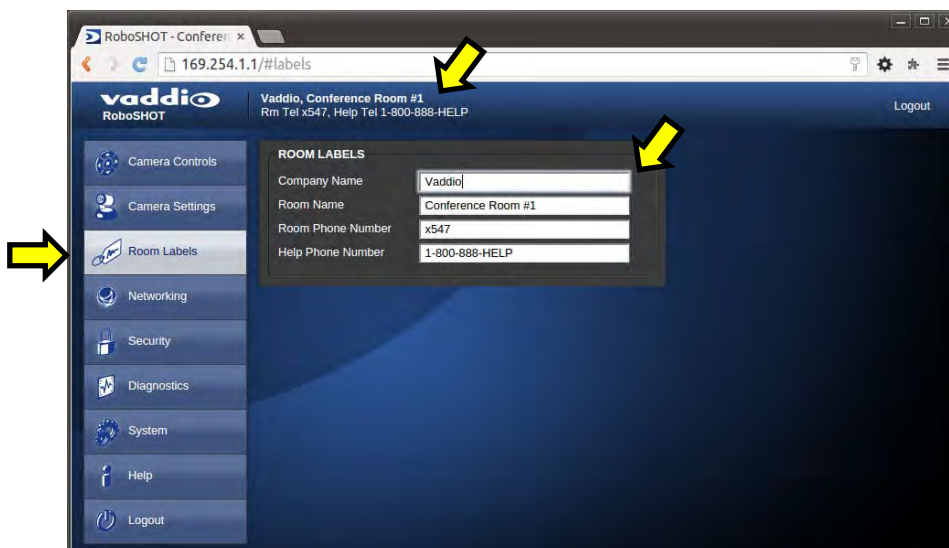


6) **Custom CCU Scene Labels:** The labels for the (3) User Defined customizable Scenes can be changed as needed. Mouse the cursor into the appropriate window and edit the text. Press Save to store these changes or press Cancel to exit this window.

7) **Global Preset Non-Tri-Sync Speeds:** When Tri-Sync Presets are not being used, then this section governs the pan, tilt and zoom speeds between the camera presets. These will be defaulted to a nominal level, but can be tailored to most any application.

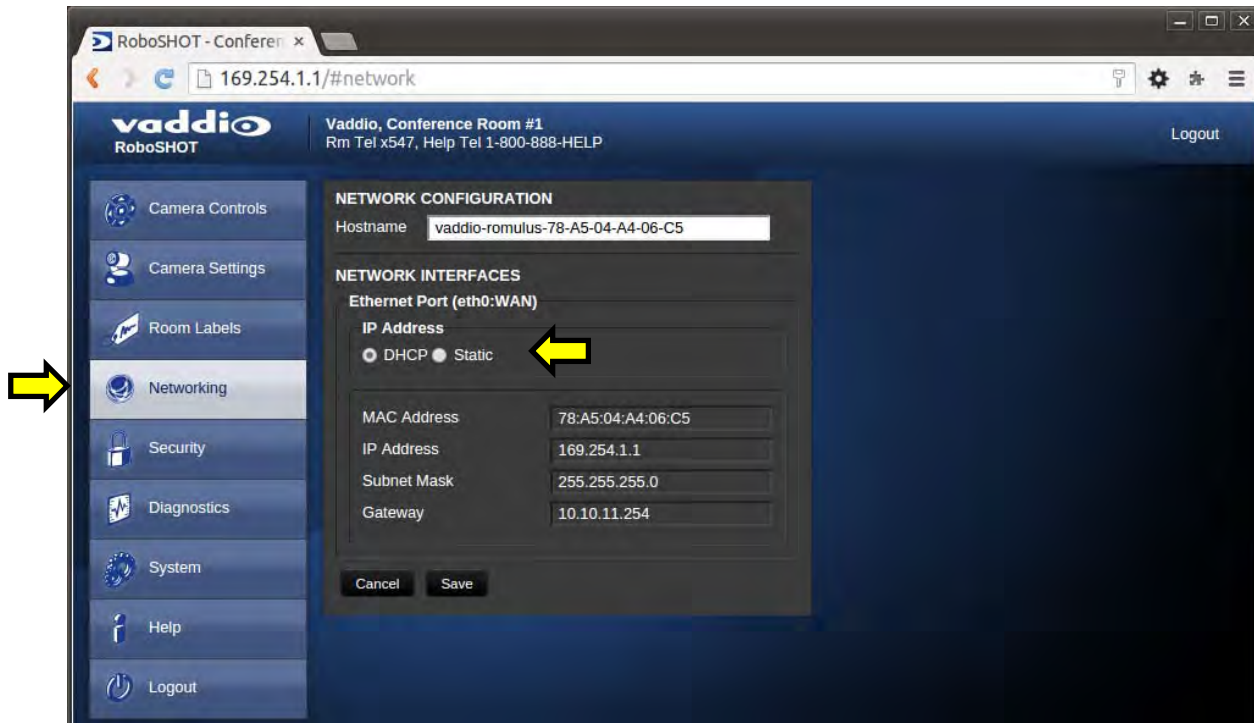
Screen Shot: Admin Menu - Room Labels

The Room Labels menu allows the Admin to label the company name, room name, room phone and help phone on a per RoboSHOT basis. The labels appear on every page at the top/middle of the page. Simply enter the room information and click Save.



Screen Shot: Admin Menu - DHCP Network Configuration

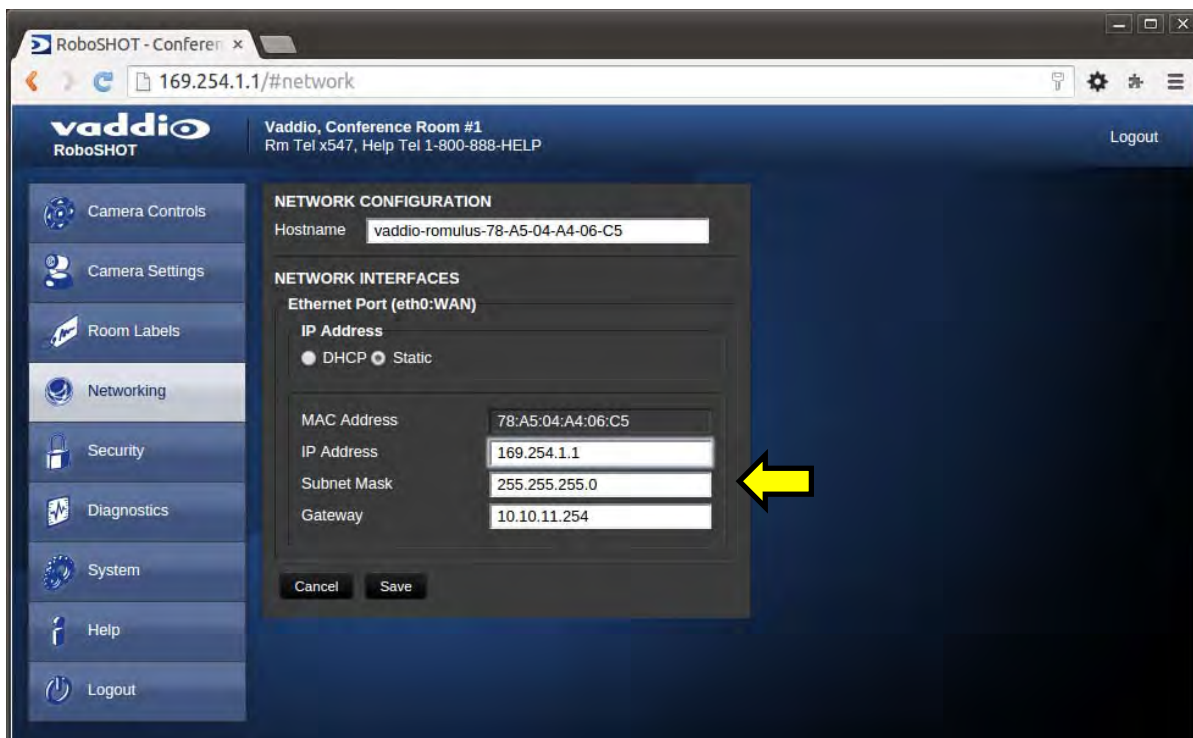
Under the Networking menu, The Network Configuration and Network Interfaces are displayed. This is where the Network administrator assigns either DHCP or a Static address and the associated parameters.



Notes: If the LAN has a DHCP (dynamic host configuration protocol) server, then the IP address, gateway and routing information will automatically be assigned. The software is defaulted to DHCP and will attempt to dynamically obtain an IP address using DHCP, but it will fall back to the default address of (169.254.1.1) if no DHCP server can be found.

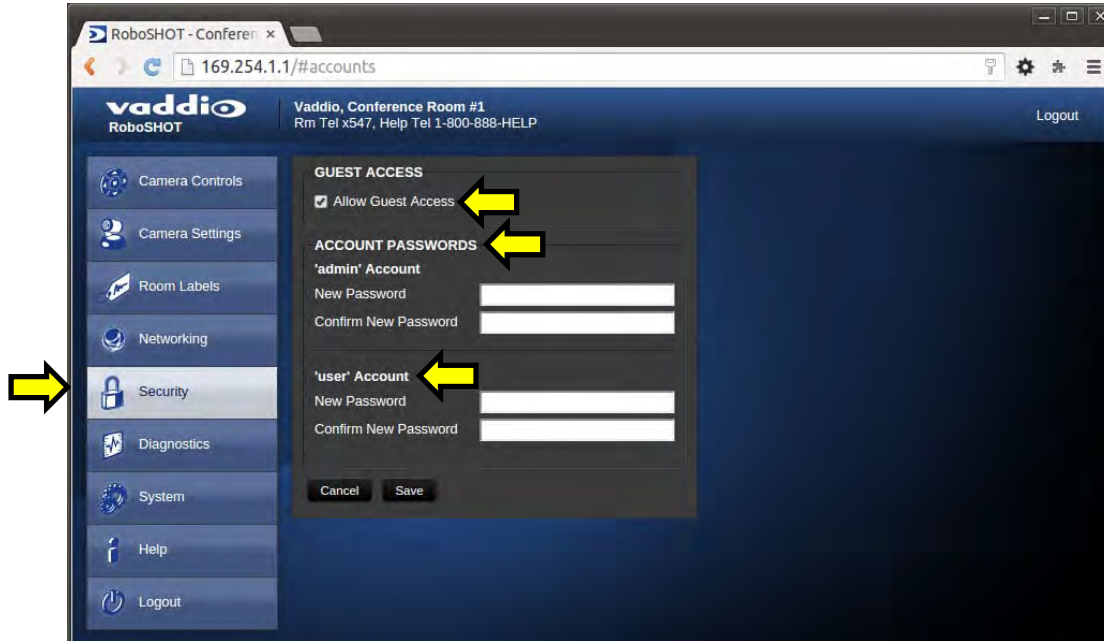
Screen SHOT: Admin Menu - Static IP Configuration

If Static IP is used, the IP Address, Subnet Mask and Gateway are manually entered. Click on Save to keep the Static IP information.



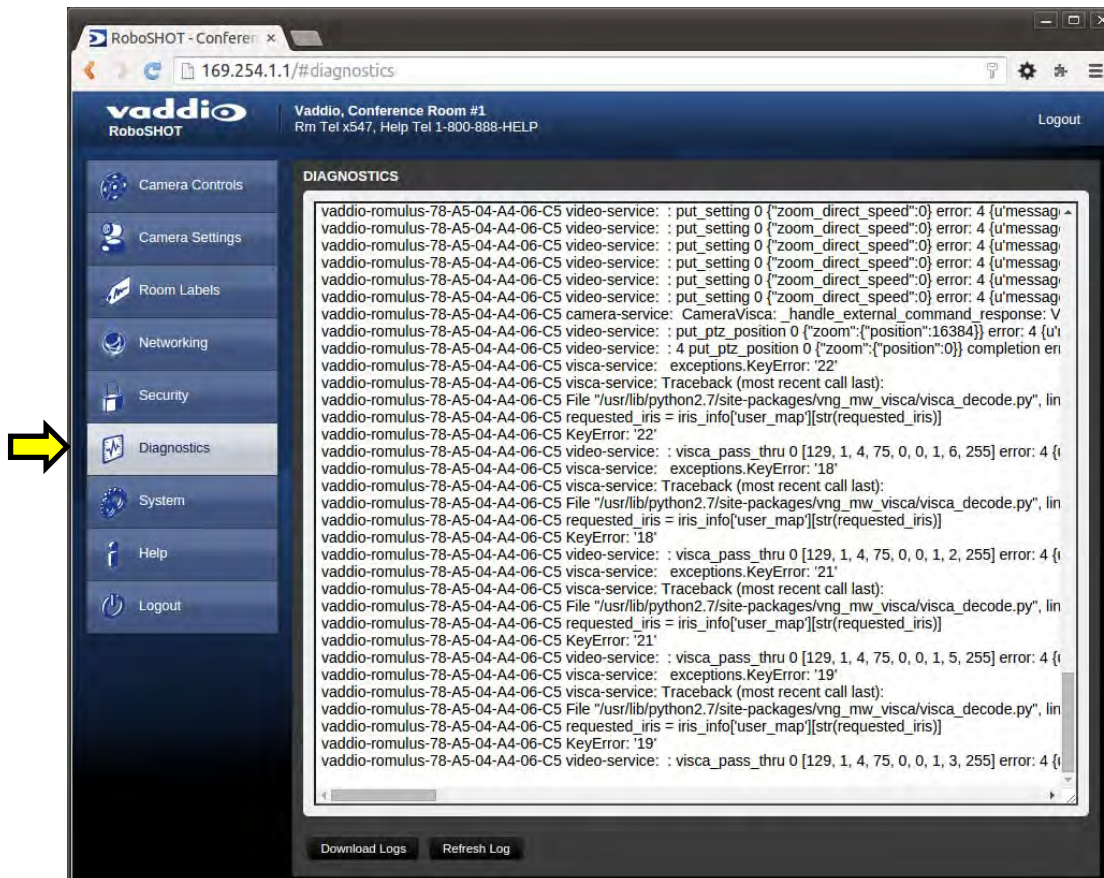
Screen SHOT: Admin Menu - Security

The Security menu allows the Admin to set the Admin and User account names and passwords. There is only one “user” password and only one “admin” password at any given time. If changes are made, click on Save to store the change (it’s best to write down the new names and passwords). A Guest Access check box is provided to let any user access the camera control page without logging in. An Admin Login is provided on the camera control page if the “Allow Guest Access” box is checked.



Screen Shot: Admin Menu - Diagnostics

Diagnostics menu button will display a set of self-diagnostics. These diagnostics may help the Vaddio technical support team diagnose a problem with the RoboSHOT camera.



Screen Shot: Admin Menu - System

The System Menu is where the System Info is displayed and Firmware Updates are performed. There will be firmware updates and upgrades over the life of the camera. The file for the firmware update is chosen in this menu and the update is started here too. A remote system Reboot and Restore to Factory Presets is also available.



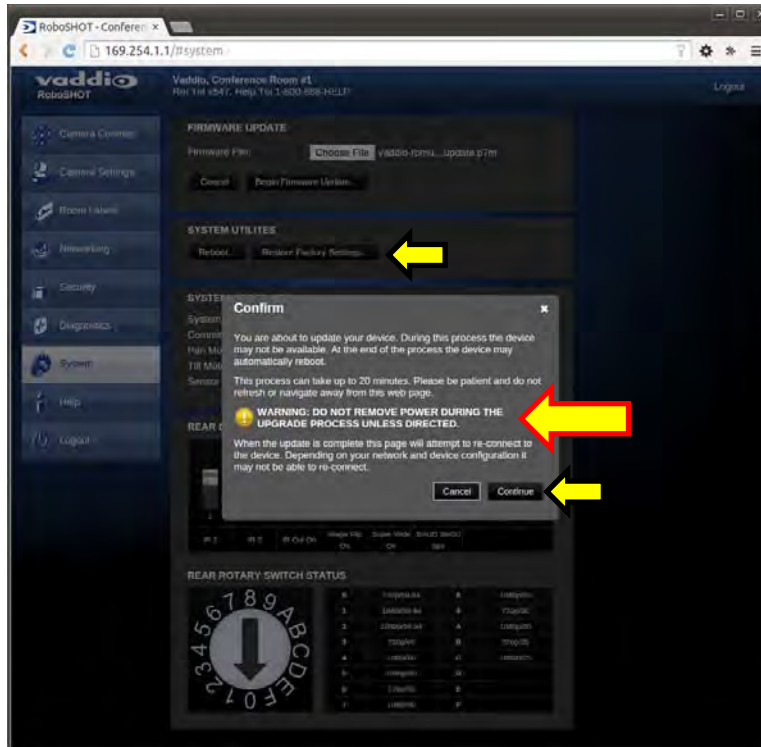
- 1) **Firmware Update:** The file for the firmware update is chosen in this menu and the update is started here.
- 2) **System Utilities:** A remote system Reboot and Restore to Factory Presets is also available.
- 3) **System Information:** The System version, Pan & Tilt Motor Versions and Sensor version are displayed in this section.
- 4) **Rear DIP Switch Status:** The DIP Switches on the camera are read and displayed for the Admin's reference. This information is read only. These switches determine the IR remote frequency, image flip, and baud rate of the camera and more!
- 5) **Rear Rotary Switch Status:** The rotary switch on the back of the RoboSHOT camera determines the video output resolution of the camera. The status is read from the camera (read only) and displayed for the Admin's reference.



Important Note: Anytime a **Firmware Update**, a **System Reboot** or a **Restore to Factory Settings** button is clicked, then a pop-up dialog box will spring up and ask if the intent is to continue or cancel. Please read and understand all the information in the presented in the dialog box prior to proceeding with any unknown procedure.

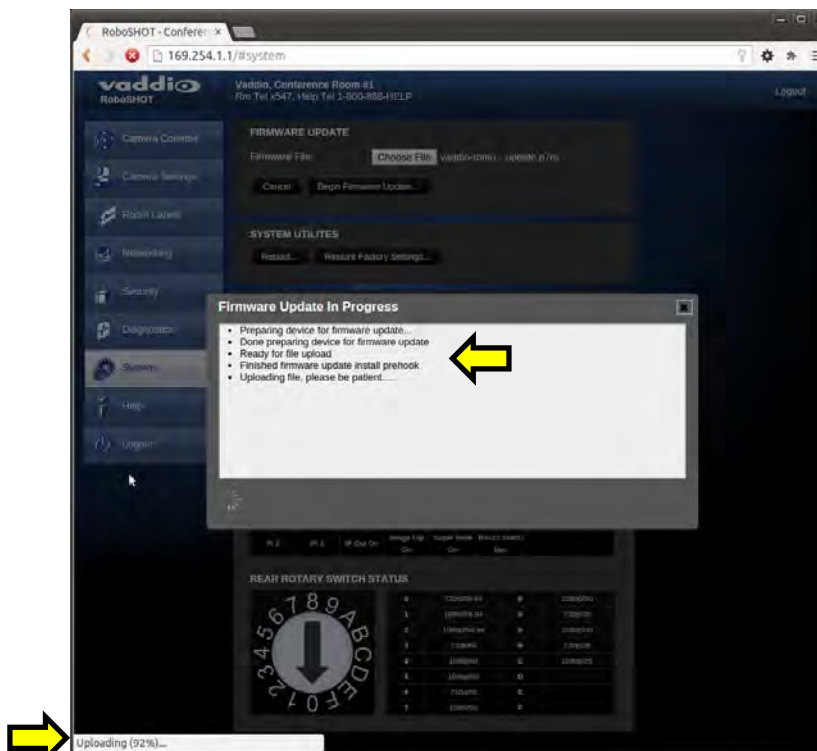
Screen Shot: Admin Menu - Update Confirmation

After choosing an update file and clicking on “Begin Firmware Update...” a confirmation pop-up and warning will be displayed. Please contact Vaddio Tech support for assistance with updates. Please read and completely understand the pop-up warnings as it is easy to lose patience waiting for updates. Click on continue to start the update.



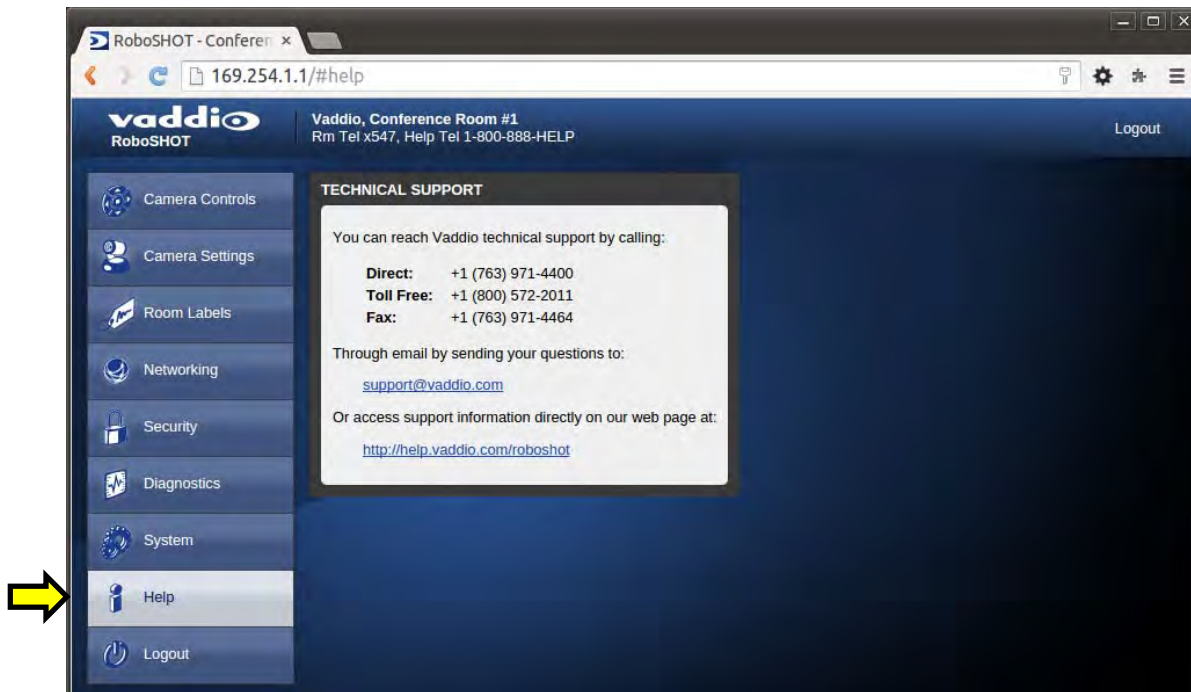
Screen Shot: Admin Menu - Update in Progress

After the firmware load has been started, a pop-up screen will advise patience and notify, in terms of percentage completed, the progress of the firmware update load. Again, please don't interrupt the firmware load.



Screen Shot - Admin Menu - Help

Service/Help information can be found under the Help menu. Support phone numbers and e-mail, manuals, FAQ's and System information is listed on support@vaddio.com.



TECHNICAL SUPPORT NOTE:
Please work with your Network Administrator prior to calling Vaddio for technical support. Please have on-site network personnel initiate tech support calls with Vaddio only.

This concludes the RoboSHOT Screen Shot Tour. Please enjoy yourself while reading the rest of this RoboSHOT Camera Manual.

The Next Sections:

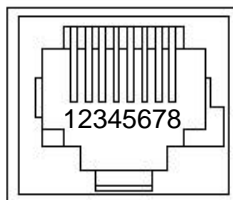
The General Specifications, Communication Specifications, API, Telnet Command List, Warranty Information and Declaration of Compliance are breathtaking, stimulating and provocative as one would expect.

GENERAL SPECIFICATIONS

| Function | Description |
|--|---|
| Part Numbers | RoboSHOT 12 QDVI System, 999-9906-000 (North America), 999-9906-001 (Int'l) RoboSHOT 30 QDVI System, 999-9916-000 (North America), 999-9916-001 (Int'l) |
| Image Device | 1/2.8-Type Exmor CMOS Sensor |
| Video Resolution/Frequencies | 1080p60/59.94/50/30/25, 1080i/60/59.94i/50, 720p/60/59.94/50/30/25 |
| Vaddio Special Features | <ul style="list-style-type: none"> • Tri-Synchronous Motion: Concurrent PTZ motor movement and simultaneous PTZ arrival at a stored preset • Advanced ISP: Vivid and accurate color reproduction with extremely fast, razor sharp automatic focus and iris routines |
| Video Aspect Ratio | 16:9 Aspect Ratio for all resolutions |
| Effective Pixels | 2.14 Million Effective pixels 2.38 Million Total Pixels |
| RoboSHOT 12 Lens and Horizontal FOV | 12X Optical Zoom, Super Wide Mode: 73.0° (wide) to 6.6° (tele), f=3.91mm to 47.0mm, F1.8 to F3.4 10X Optical Zoom, Normal Mode: 67.3° (wide) to 7.6° (tele), f=3.8mm to 38.0mm, F1.8 to F3.4 NOTE: Default is Normal Mode |
| RoboSHOT 30 Lens and Horizontal FOV | 30X Optical Zoom 65° (wide end) to 2.3° (tele end), F1.6 to F4.7 |
| Minimum illumination RoboSHOT 12 | 1.0 lx (F1.8, 50IRE), recommended illumination >100 lux and <100,000 lux |
| Minimum illumination RoboSHOT 30 | 1.4 lx (F1.6, 50IRE), recommended illumination >100 lux and <100,000 lux |
| Minimum working distance RoboSHOT 12 | 10mm (wide), 800mm (tele) |
| Minimum working distance RoboSHOT 30 | 10mm (wide), 1.2m (tele) |
| S/N ratio | More than 50 dB |
| Sync system | Internal |
| White balance | Auto, ATW, Indoor, Outdoor, One-push, Manual (accessible through external control) |
| Gain | Auto / Manual (0 to 28 steps - accessible through external control) |
| Back-light compensation | On/Off (IR Remote) |
| Focusing system | Auto Focus / Manual Focus Mode / One Push Trigger Mode / Infinity Mode / Near Limit Mode |
| Noise Reduction | On/Off, 6 Steps, Off through 5 (accessible through external control) |
| Aperture/Detail | 16 Steps (accessible through external control) |
| Control Interface(s) | <ul style="list-style-type: none"> • RS-232 API: Modified VISCA Emulation (TTL signal level), Baud rate: 9600 bps and 38,400 bps, 1-Stop bit. Default to 9.6 Kb/s for Cat-5e Distance • Telnet Serial Command API • Internal Web page for Network Set-up, firmware updates and network management • Vaddio IR Remote Commander |
| Pan & Tilt Angle/Speed | Pan/Tilt Angles: ±160°, Tilt: +90°, -30°, Pan/Tilt Speeds: Both Axes 0.35°/sec to 120°/sec |
| Rear Panel Connectors | <ul style="list-style-type: none"> • Network: RJ-45 with Green & Yellow LED to show connection and usage • RS-232: RJ-45, Carries bidirectional control to and from the camera • EZ Power Video: RJ-45 Shielded, carries power and differential video signals for the Quick-Connect Cat-5 systems |
| Rear Panel Controls | <ul style="list-style-type: none"> • 16-Position Rotary Switch for Resolution selection • 8-Position Dip Switch for IR Frequency, Image Flip, wide mode and Reset to Default Settings |
| Power Supply | Powered by Quick-Connect interfaces |
| Compatible Joystick and Video Control Consoles | ProductionVIEW Precision Camera Controller ProductionVIEW HD ProductionVIEW HD MV with Integrated Multi-viewer, ProductionVIEW HD-SDI MV with Integrated Multi-viewer AV Bridge MATRIX PRO |
| Operating/Storage Temperature/Humidity | 0°C (32°F) to 40°C (104°F), 20% to 80% |
| Mass | 4.85 lbs.(2.199923 kg - Roughly 900 peanut M&Ms) |
| Dimensions | Small (3 dimensions not counting space/time) 6.942" (176.3mm) H x 7.056" (179.2 mm) W x 6.757" (171.6mm) D, |
| Quick-Connect DVI/HDMI SR | |
| Quick-Connect System | Quick-Connect DVI/HDMI (two Cat-5e) for distances up to 100' (30.84m) HDMI or DVI-D and Analog Component YPbPr output with IR forwarding |
| Connectors | <ul style="list-style-type: none"> • Power Connector: 5.5mm OD, 2.5mm ID coaxial connector • RJ-45: Four (4) Control IN, Control OUT, Daisy Chain OUT, EZCamera Power Video Port • Video Output: DE-15 connector for HD Analog Component (Y,PB,PR) video only (No SD Support) • IR Output: Transmits modulated or non-modulated IR signals received from the HD-19 IR receiver • Video Outputs: DVI-D (Female - Single Link) or HDMI with adapter cable (using the Recessed Color Space Conversion Switch) , DE-15F (High Density D-Sub 15-Pin F) for HD YPbPr |
| Cat-5 Cable Distance | Up to 100' (30.5m) |
| Power Supply | 24 VDC, 2.0 Amp Switching Power Supply |
| Dimensions / Weight | 1.6" (40.64mm) H x 8" (203.2mm) W x 6.751" (171.45mm) D, ½-Rack Size / 1.21 lbs. (0.548846804 kg) |
| Accessory Options | 1-RU Rack Mount Panel for two (2) units (side by side): P/N: 998-6000-003 1m (3.3') DVI-D Male to HDMI Male P/N: 440-5643-001 3m (10') DVI-D Male to HDMI Male P/N: 440-5643-003 |

COMMUNICATION SPECIFICATION

Communication Speed: 9600 bps (default)
 Start bit: 1
 Stop bit: 1
 Data bits: 8
 Parity: None
 No Flow control



Pin # RJ-45 RS-232 and IR Out Pins

- 1) Unused
- 2) Unused
- 3) Unused
- 4) IR Output (Diff Signal to Quick-Connect SR)
- 5) IR Ground (Diff Signal to Quick-Connect SR)
- 6) GND (GND of IR Short Range - Pin 3)
- 7) RXD (from TXD of control source)
- 8) TXD (to RXD of control source)

NOTE: The Vaddio RoboSHOT Control Protocol is similar, but not identical 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 many Vaddio specific commands in the following Command and Inquiry Lists.

RoboSHOT Command List (1/3)

| Command Set | Command | Command Packet | Comments |
|--------------------------|------------------------|---|---|
| AddressSet | Broadcast | 88 30 01 FF | Address setting |
| IF_Clear | Broadcast | 88 01 00 01 FF | I/F Clear |
| CommandCancel | | 8x 2p FF | p= Socket No.(1-2) |
| 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 | p= speed 0:low to 7:high p= speed 0:low to 7:high pqrs=Zoom Position (0h-4000h) |
| | Tele(std) | 8x 01 04 07 02 FF | |
| | Wide(std) | 8x 01 04 07 03 FF | |
| | Tele(variable) | 8x 01 04 07 2p FF | |
| | Wide(variable) | 8x 01 04 07 3p FF | |
| | Direct | 8x 01 04 47 0p 0q 0r 0s FF | |
| CAM_DZoom | | Not supported | |
| CAM_Focus | Stop | 8x 01 04 08 00 FF | p= speed 0:low to 7:high p= speed 0:low to 7:high pqrs=Focus Position (1000h – F000h) |
| | Far(std) | 8x 01 04 08 02 FF | |
| | Near(std) | 8x 01 04 08 03 FF | |
| | Far(variable) | 8x 01 04 08 2p FF | |
| | Near(variable) | 8x 01 04 08 3p FF | |
| | Direct | 8x 01 04 48 0p 0q 0r 0s FF | |
| | Auto Focus | 8x 01 04 38 02 FF | |
| | Manual Focus | 8x 01 04 38 03 FF | |
| | Auto/Manual | 8x 01 04 08 10 FF | |
| One Push Trigger | 8x 01 04 18 01 FF | One push AF Trigger | |
| | Near Limit | 8x 01 04 28 0p 0q 0r 0s FF | pqrs=Near focus Limit |
| CAM_AFSensitivity | Normal | 8x 01 04 58 02 FF | AF Sensitivity High / Low |
| | Low | 8x 01 04 58 03 FF | |
| CAM_AFMode | Normal AF | 8x 01 04 57 00 FF | AF movement mode |
| | Internal AF | 8x 01 04 57 01 FF | |
| | Zoom Trigger AF | 8x 01 04 57 02 FF | |
| | Activate/Internal Time | 8x 01 04 27 0p 0q 0r 0s FF | |
| CAM_IRCorrection | Standard | 8x 01 04 11 00 FF | Focus IR compensation data switching |
| | IR light | 8x 01 04 11 01 FF | |
| CAM_ZoomFocus | Direct | 8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF | pqrs=Zoom Position (0h – 4000h) tuvw=Focus Position (1000h – F000h) |
| CAM_WB | Auto | 8x 01 04 35 00 FF | Normal Auto |
| | Indoor | 8x 01 04 35 01 FF | Indoor mode |
| | Outdoor | 8x 01 04 35 02 FF | Outdoor mode |
| | One Push WB | 8x 01 04 35 03 FF | One Push WB mode |
| | ATW | 8x 01 04 35 04 FF | Auto Tracing White Balance |
| | Manual | 8x 01 04 35 05 FF | Manual Control mode |
| | One Push Trigger | 8x 01 04 10 05 FF | One Push WB Trigger |
| | Outdoor Auto | 8x 01 04 35 06 FF | Outdoor auto |
| | Sodium Lamp Auto | 8x 01 04 35 07 FF | Auto including sodium lamp source |
| | Sodium Lamp | 8x 01 04 35 08 FF | Sodium lamp source fixed mode |
| Sodium Lamp Outdoor Auto | 8x 01 04 35 09 FF | Outdoor auto including sodium lamp source | |
| CAM_RGain | Reset | 8x 01 04 03 00 FF | Manual control of red gain |
| | Up | 8x 01 04 03 01 FF | |
| | Down | 8x 01 04 03 02 FF | |
| | Direct | 8x 01 04 43 00 00 0p 0q FF | |
| CAM_BGain | Reset | 8x 01 04 04 00 FF | Manual control of blue gain |
| | Up | 8x 01 04 04 01 FF | |
| | Down | 8x 01 04 04 02 FF | |
| | Direct | 8x 01 04 44 00 00 0p 0q FF | |
| CAM_AE | Full Auto | 8x 01 04 39 00 FF | Auto Exposure mode |
| | Manual | 8x 01 04 39 03 FF | Manual Control mode |
| | Shutter Priority | 8x 01 04 39 0A FF | Shutter Priority Auto Exposure mode |
| | Iris Priority | 8x 01 04 39 0B FF | Iris Priority Auto Exposure Mode |
| | Bright | 8x 01 04 39 0D FF | Bright Mode (modified AE mode) |

RoboSHOT Command List (2/3)

| Command Set | Command | Command Packet | Comments |
|-------------------|---------------------------|----------------------------|---|
| CAM_Shutter | Reset | 8x 01 04 0A 00 FF | Shutter Setting pq=Shutter Position (00h – 15h) |
| | Up | 8x 01 04 0A 01 FF | |
| | Down | 8x 01 04 0A 02 FF | |
| | Direct | 8x 01 04 4A 00 00 0p 0q FF | |
| CAM_Iris | Reset | 8x 01 04 0B 00 FF | Shutter Setting pq=Iris Position ** |
| | Up | 8x 01 04 0B 01 FF | |
| | Down | 8x 01 04 0B 02 FF | |
| | Direct | 8x 01 04 4B 00 00 0p 0q FF | |
| CAM_Gain | Reset | 8x 01 04 0C 00 FF | Shutter Setting pq=Gain Position (01h – 0Fh) p= Gain limit |
| | Up | 8x 01 04 0C 01 FF | |
| | Down | 8x 01 04 0C 02 FF | |
| | Direct | 8x 01 04 4C 00 00 0p 0q FF | |
| | +Gain Limit | 8x 01 04 2C 0p FF | |
| CAM_ExpComp | On | 8x 01 04 3E 02 FF | Exposure Compensation On Exposure Compensation Off pq=ExpComp Position |
| | Off | 8x 01 04 3E 03 FF | |
| | Reset | 8x 01 04 3E 00 FF | |
| | Up | 8x 01 04 3E 01 FF | |
| | Down | 8x 01 04 3E 02 FF | |
| | Direct | 8x 01 04 4E 00 00 0p 0q FF | |
| CAM_BackLight | On | 8x 01 04 33 02 FF | Backlight Compensation On/Off |
| | Off | 8x 01 04 33 03 FF | |
| CAM_Tally | On | 8x 01 7E 01 0A 00 02 FF | |
| | Off | 8x 01 7E 01 0A 00 03 FF | |
| CAM_SpotAE | On | 8x 01 04 59 02 FF | Spot Auto Exposure Setting pq=X-(0h-fh), rs=Y-(0h-fh) |
| | Off | 8x 01 04 59 03 FF | |
| | Position | 8x 01 04 29 0p 0q 0r 0s FF | |
| CAM_WD | On | 8x 01 04 3D 02 FF | WD On WD Off VE On p=Display brightness level (0Dark – 6Bright) r=Brightness compensation selection (0:Very dark, 1:Dark,2:std,3:bright) s=Compensation level (0:Low,1:Mid,2:High) |
| | Off | 8x 01 04 3D 03 FF | |
| | VE On | 8x 01 04 3D 06 FF | |
| | Set Parameter | 8x 01 04 2D 00 0q 0r 0s | |
| | | 00 00 00 00 FF | |
| CAM_Aperture | Reset | 8x 01 04 02 00 FF | Aperture Setting pq=Aperture Position |
| | Up | 8x 01 04 02 01 FF | |
| | Down | 8x 01 04 02 02 FF | |
| | Direct | 8x 01 04 42 00 00 0p 0q FF | |
| CAM_HR | On | 8x 01 04 52 02 FF | High Resolution Mode On/Off |
| | Off | 8x 01 04 52 03 FF | |
| CAM_NR | -- | 8x 01 04 53 0p FF | p= Noise Reduction level(0:Off,1-5) |
| CAM_Gamma | -- | 8x 01 04 5B 0p FF | p= Gamma setting(0:std,1:Straight) |
| CAM_LR_Reverse | On | 8x 01 04 61 02 FF | LR Reverse On/Off (mirror) |
| | Off | 8x 01 04 61 03 FF | |
| CAM_Freeze | On | 8x 01 04 62 02 FF | Freeze On/Off |
| | Off | 8x 01 04 62 03 FF | |
| CAM_PictureEffect | Off | 8x 01 04 63 00 FF | Picture Effect Setting |
| | Neg.Art | 8x 01 04 63 02 FF | |
| | Black & White | 8x 01 04 63 04 FF | |
| CAM_PictueFlip | On | 8x 01 04 66 02 FF | Image-Flip On/Off |
| | Off | 8x 01 04 66 03 FF | |
| CAM_ICR | On | 8x 01 04 01 02 FF | ICR Mode On/Off |
| | Off | 8x 01 04 01 03 FF | |
| CAM_IDWrite | | 8x 01 04 22 0p 0q 0r 0s FF | pqrs=Camer ID (0h-ffffh) |
| CAM_Memory | Reset | 8x 01 04 3F 00 0p FF | p= preset number(0-0x0f) qr= Speed(0x01-0xff) |
| | Set standard | 8x 01 04 3F 01 0p FF | |
| | Set standard with 'scene' | 8x 01 04 3F 21 0p FF | |
| | Set Tri-sync | 8x 01 04 3F 11 0p 0q 0r FF | |
| | Set Tri-Sync with 'scene' | 8x 01 04 3F 31 0p 0q 0r FF | |
| | Recall standard | 8x 01 04 3F 02 0p FF | |
| | Recall Tri-sync | 8x 01 04 3F 12 0p 0q 0r FF | |



RoboSHOT Command List (3/3)

| Command Set | Command | Command Packet | Comments | |
|--------------------|---------------------|---|---|--|
| Cam_Display | On | 8x 01 04 15 02 FF | Display On/Off | |
| | On(alternate) | 8x 01 06 06 02 FF | | |
| | Off | 8x 01 04 15 03 FF | | |
| | Off(alternate) | 8x 01 06 06 03 FF | | |
| | On/Off | 8x 01 04 15 10 FF | | |
| | On/Off(alternate) | 8x 01 06 06 10 FF | | |
| Cam_Mute | On | 8x 01 04 75 02 FF | Mute On/Off | |
| | Off | 8x 01 04 75 03 FF | | |
| | On/Off | 8x 01 04 75 10 FF | | |
| CAM_ColorEnhance | Parameter Set | 8x 01 04 20 mm 00 pp qq rr ss tt uu FF | mm: Threshold level pp: Y fixed color for high-intensity qq: Cr fixed color for high-intensity rr: Cb fixed color for high-intensity ss: Y fixed color for low-intensity tt: Cr fixed color for low-intensity uu: Cb fixed color for low-intensity Each parameter setting 00h to 7Fh Color Enhancement On/Off | |
| | On | 8x 01 04 50 02 FF | | |
| | Off | 8x 01 04 50 03 FF | | |
| CAM_ChromaSuppress | | 8x 01 04 5F pp FF | pp: Chroma Suppress setting level 00: Off 01h to 03h: On (3 levels). Effect increases as the level number increases. | |
| CAM_ColorGain | Direct | 8x 01 04 49 00 00 00 0p FF | p: Color Gain Setting 0h to 4h | |
| CAM_ColorHue | Direct | 8x 01 04 4F 00 00 00 0p FF | p: Color Hue Setting 0h (-14 degrees) to Eh (+14 degrees) | |
| CAM_GammaOffset | Direct | 8x 01 04 1E 00 00 00 0s 0t 0u FF | s: Polarity offset (0 is plus, 1 is minus) tu: Offset s=0 (00h to 40h) RoboSHOT 12 (00h to 10h), RoboSHOT 30 (00 to 40h) | |
| Pan-TiltDrive | Up | 8x 01 06 01 vv ww 03 01 FF | vv= Pan speed ww=Tilt speed | |
| | Down | 8x 01 06 01 vv ww 03 02 FF | | |
| | Left | 8x 01 06 01 vv ww 01 03 FF | | |
| | Right | 8x 01 06 01 vv ww 02 03 FF | | |
| | UpLeft | 8x 01 06 01 vv ww 01 01 FF | | |
| | UpRight | 8x 01 06 01 vv ww 02 01 FF | | |
| | DownLeft | 8x 01 06 01 vv ww 01 02 FF | | |
| | DownRight | 8x 01 06 01 vv ww 02 02 FF | | |
| | Stop | 8x 01 06 01 vv ww 03 03 FF | | |
| | Absolute Position | 8x 01 06 02 vv ww 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF | | vv= Pan speed ww=Tilt speed 0Y0Y0Y0Y = Pan position 0Z0Z0Z0Z = Tilt position |
| Home | 8x 01 06 04 FF | | | |
| Pan-Tilt-ZoomDrive | Up | 8x 01 06 0A vv ww rr 03 01 03 FF | vv= Pan speed ww=Tilt speed rr=Zoom speed | |
| | Down | 8x 01 06 0A vv ww rr 03 02 03 FF | | |
| | Left | 8x 01 06 0A vv ww rr 01 03 03 FF | | |
| | Right | 8x 01 06 0A vv ww rr 02 03 03 FF | | |
| | In | 8x 01 06 0A vv ww rr 03 03 01 FF | | |
| | Out | 8x 01 06 0A vv ww rr 03 03 02 FF | | |
| | Stop | 8x 01 06 0A vv ww rr 03 03 03 FF | | |
| | Absolute Position | 8x 01 06 0B vv ww 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z 0R 0R 0R 0R FF | | vv: Pan speed (0x01-0x18) ww: Tilt speed (0x01-0x14) 0Y0Y0Y0Y = Pan position 0Z0Z0Z0Z = Tilt position 0R0R0R0R = Zoom position |
| | Home | 8x 01 06 0C FF | | |
| | CAM_PTZ_PresetSpeed | | | 8x 01 7e 01 0b pp qq rr FF |

RoboSHOT Inquiry List (1/2)

| Inquiry Command | Command | Response Packet | Comments |
|-----------------------|-------------------|--|---|
| CAM_PowerInq | 8x 09 04 00 FF | y0 50 02 FF y0 50 03 FF | On 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 y0 50 03 FF | Auto Focus Manual Focus |
| CAM_FocusPosInq | 8x 09 04 48 FF | y0 50 0p 0q 0r 0s FF | pqrs: Focus Position |
| CAM_FocusNearLimitInq | 8x 09 04 28 FF | y0 50 0p 0q 0r 0s FF | pqrs: Focus Near Limit Position |
| CAM_AFSensitivityInq | 8x 09 04 58 FF | y0 50 02 FF y0 50 03 FF | AF Sensitivity Normal AF Sensitivity Low |
| CAM_AFModelInq | 8x 09 04 57 FF | y0 50 00 FF y0 50 01 FF y0 50 02 FF | Normal AF Interval AF Zoom Trigger AF |
| CAM_AFTimeSettingInq | 8x 09 04 27 FF | y0 50 0p 0q 0r 0s FF | pq: Movement Time, rs: Interval |
| CAM_IRCorrectionInq | 8x 09 04 11 FF | y0 50 00 FF y0 50 01 FF | Standard IR Light |
| CAM_WBModelInq | 8x 09 04 35 FF | y0 50 00 FF y0 50 01 FF y0 50 02 FF y0 50 03 FF y0 50 04 FF y0 50 05 FF y0 50 06 FF y0 50 07 FF y0 50 08 FF y0 50 09 FF | Auto Indoor Outdoor One Push WB ATW Manual Outdoor Auto Sodium Lamp Auto Sodium Lamp Sodium Lamp Outdoor Auto |
| CAM_RGainInq | 8x 09 04 43 FF | y0 50 00 00 0p 0q FF | pq: R Gain |
| CAM_BGainInq | 8x 09 04 44 FF | y0 50 00 00 0p 0q FF | pq: B Gain |
| CAM_AEModelInq | 8x 09 04 39 FF | y0 50 00 FF y0 50 03 FF y0 50 0A FF y0 50 0B FF y0 50 0D FF | Full Auto Manual Shutter Priority Iris Priority Bright |
| CAM_ShutterPosInq | 8x 09 04 4A FF | y0 50 00 00 0p 0q FF | pq: Shutter Position |
| CAM_IrisPosInq | 8x 09 04 4B FF | y0 50 00 00 0p 0q FF | pq: Iris Position |
| CAM_GainPosInq | 8x 09 04 4C FF | y0 50 00 00 0p 0q FF | pq: Gain Position |
| CAM_GainLimitInq | 8x 09 04 2C FF | y0 50 0q FF | p: Gain Limit |
| CAM_ExpCompModelInq | 8x 09 04 3E FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_ExpCompPosInq | 8x 09 04 4E FF | y0 50 00 00 0p 0q FF | pq: ExpComp Position |
| CAM_BackLightModelInq | 8x 09 04 33 FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_TallyInq | 8x 01 7E 01 0A FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_ResolutionInq | 8x 09 06 23 FF | y0 50 0p 0q FF | Pq=Video Resolution |
| CAM_SpotAEModelInq | 8x 09 04 59 FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_SpotAEPosInq | 8x 09 04 29 FF | y0 50 0p 0q 0r 0s FF | pq: X Position, rs: Y Position |
| CAM_WDModelInq | 8x 09 04 3D FF | y0 50 02 FF y0 50 03 FF y0 50 06 FF | On Off VE On |
| CAM_WDParameterInq | 8x 09 04 2D FF | y0 50 00 0q 0r 0s 0t 0u 00 00 FF | q: Display brightness level (0: Dark to 6: Bright) r: Brightness compensation selection (0: Very dark, 1: Dark, 2: Standard, 3: Bright) s: Compensation level (00h: Low, 01h: Mid, 02h: High) tu: Always 0 |
| CAM_ApertureInq | 8x 09 04 42 FF | y0 50 00 00 0p 0q FF | pq: Aperture Gain |
| CAM_HRModelInq | 8x 09 04 52 FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_NRInq | 8x 09 04 53 FF | y0 50 0p FF | Noise Reduction p: 00h to 05h |
| CAM_GammaInq | 8x 09 04 5B FF | y0 50 0p FF | Gamma p: 00h , 01h |



RoboSHOT Inquiry List (2/2)

| Inquiry Command | Command | Response Packet | Comments |
|--------------------------|--------------------------------------|--|---|
| CAM_LR_ReverseModelnq | 8x 09 04 61 FF | y0 50 02 FF y0 50 03 FF | On (mirror) Off |
| CAM_FreezeModelnq | 8x 09 04 62 FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_PictureEffectModelnq | 8x 09 04 63 FF | y0 50 00 FF y0 50 02 FF y0 50 04 FF | Off Neg. Art Black & White |
| CAM_PictureFlipModelnq | 8x 09 04 66 FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_ICRModelnq | 8x 09 04 01 FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_MemoryInq | 8x 09 04 3F FF | y0 50 pp FF | pp: Memory number recalled last |
| CAM_MemoryStatusInq | 8x 09 04 3F 0p FF | y0 50 0p 0q 0r 0s FF | p: Memory number q: mode (00-std, 10-std /w ccu, 01-trisync,11-trisync /w ccu) rs: speed (0x1-0x18) 1 - 24 |
| CAM_MemSaveInq | 8x 09 04 23 0X FF | y0 50 0p 0q 0r 0s FF | X: 00h to 07h (Address) pqr: 0000h to FFFFh (Data) |
| CAM_DisplayModelnq | 8x 09 04 15 FF (8x 09 06 06 FF) | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_MuteModelnq | 8x 09 04 75 FF | y0 50 02 FF y0 50 03 FF | On Off |
| CAM_IDInq | 8x 09 04 22 FF | y0 50 0p 0q 0r 0s FF | pqr: Camera ID |
| CAM_VersionInq | 8x 09 00 02 FF | y0 50 00 10 mn pq 0E 0E 02 FF | mnpq: Model Code |
| Vaddio_ModelInq | 8x 09 08 0e FF | y0 50 05 00 00 00 00 FF y0 50 05 01 00 00 00 FF | RoboSHOT-12 RoboSHOT-30 |
| CAM_RegisterValueInq | 8x 09 04 24 mm FF | y0 50 0p 0p FF | mm: Register No. (=00h to 7Fh) pp: Register Value (=00h to FFh) |
| CAM_ColorEnhanceInq | 8x 09 04 20 FF 8x 09 04 50 FF | y0 50 mm 00 pp qq rr ss tt uu FF y0 50 02 FF y0 50 03 FF | mm: Threshold level pp: Y fixed color for high-intensity qq: Cr fixed color for high-intensity rr: Cb fixed color for high-intensity ss: Y fixed color for low-intensity tt: Cr fixed color for low-intensity uu: Cb fixed color for low-intensity On Off |
| CAM_ChromaSuppressInq | 8x 09 04 5F FF | y0 50 pp FF | pp: Chroma Suppress setting level |
| CAM_ColorGainInq | 8x 09 04 49 FF | y0 50 00 00 00 0p FF | p: Color Gain Setting 0h to 4h |
| CAM_ColorHueInq | 8x 09 04 4F FF | y0 50 00 00 00 0p FF | p: Color Hue Setting 0h (- 14 degrees) to Eh (+ 14degrees) |
| CAM_TempInq | 8x 09 04 68 FF | Y0 50 00 00 0p 0q FF | pq: Lens Temperature |
| CAM_GammaOffsetInq | 8x 09 04 1E FF | y0 50 00 00 00 0s 0t 0u FF | s: Polarity offset (0 is plus, 1 is minus) tu: Offset s=0 (00h to 40h) Offset s=1 (00h to 10h) |
| Pan-tiltPosInq | 8x 09 06 12 FF | y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF | www= Pan position zzzz=Tilt Position |

TELNET SERIAL COMMAND API

The Vaddio Serial Command protocol is a high level text based command line interface supported via telnet session on the RoboSHOT. The command application protocol interface is intended to allow external device such as AMX or Crestron to control the camera. The protocol is based upon ASCII format following the VT100 terminal emulation standard and uses an intuitive text command nomenclature for ease of use. The API is accessed by a telnet client on the Ethernet port. All ASCII characters will be **echoed** to terminal program and appended with VT100 string - **ESC[J** (HEX- 1B 5B 4A). Vaddio Command lines are terminated on carriage return. After the carriage return, the VT100 appends with **-ESC[J**. (**Note:** Most terminal programs automatically strip the VT100 string.) General format usage follows a **get/set** structure. Usage examples for each type are:

Set Example

COMMAND: > camera pan right
RESPONSE: > OK

Get Example

COMMAND: > camera home get
RESPONSE: > OK

Syntax Error Example

COMMAND: > camera right pan
RESPONSE: > ERROR

Additional programming controls associated with the terminal protocol includes:

- **CTRL 5** - Clears the current serial buffer on the device.

Telnet sessions will require access verification and uses the same username and password associated with the Administrator account on the embedded web server. The default Telnet Port is 23. Command lines are terminated with a carriage return.

Telnet Command List

Camera Home

- **NAME**
camera home - Move the camera to the home position
- **SYNOPSIS**
camera home
- **DESCRIPTION**
Method used to move the **camera** to the *home* position
- **EXAMPLES**
camera home
Move the **camera** back to the *home* position

Camera Pan

- **NAME**
camera pan - Pans the camera left or right
- **SYNOPSIS**
camera pan {left|right|stop} [1-24]
- **DESCRIPTION**
Method used to *pan* the **camera**
- **OPTIONS**
left Move the **camera** left
right Move the **camera** right
stop Stop the **camera** movement
speed Optional integer from 1-24 that represents the speed (Default: 12)
- **EXAMPLES**
camera pan left
Pans the **camera** left at the default speed
camera pan right 20
Pans the **camera** right using a speed of 20
camera pan stop

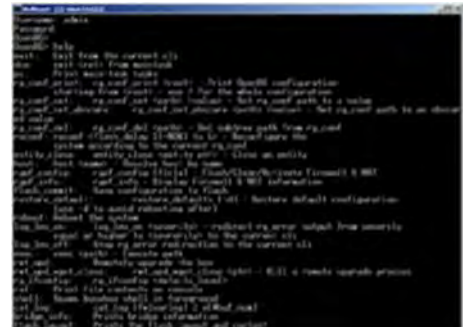


Image: Invigorating simulated Telnet session.



Camera Preset

- **NAME**

camera preset - Recall and storing of camera presets

- **SYNOPSIS**

camera preset {recall|store} [1-6]

- **DESCRIPTION**

Method used to recall and store **camera** presets

- **OPTIONS**

recall

Recall *preset*

store

Store *preset*

preset

Required value from 1-6 used to indicate the *preset* number

- **EXAMPLES**

camera recall 3

Move **camera** to *preset* position 3

camera store 1

Store current **camera** position as *preset* 1

camera preset store 2 *tri-sync* 10 *save-ccu*

Store current **camera** position and CCU settings as *preset* 2, will recall using *tri-sync* at speed 10

camera preset store 4 *tri-sync* 15

Store current **camera** position as *preset* 4, will recall using *tri-sync* at speed 15

Camera Tilt

- **NAME**

camera tilt - Tilts the camera up or down

- **SYNOPSIS**

camera tilt {up|down|stop} [1-20]

- **DESCRIPTION**

Method used to *tilt* the **camera**

- **OPTIONS**

up Move the **camera** up

down Move the **camera** down

stop Stop the **camera** movement

speed Optional integer from 1-20 that represents the speed (Default: 10)

- **EXAMPLES**

camera tilt up

Tilts the **camera** up at the default speed

camera tilt down 20

Tilts the **camera** up using a speed of 20

camera tilt stop

Stops the *tilt* movement of the **camera**

Camera Zoom

- **NAME**

camera zoom - Zoom the camera in or out

- **SYNOPSIS**

camera zoom {in|out|stop} [1-7]

- **DESCRIPTION**

Method used to *zoom* the **camera**

- **OPTIONS**

in Zoom in

out Zoom out

stop Stop the **camera** movement

speed Optional integer from 1-7 that represents the speed (Default: 3)

- **EXAMPLES**

camera zoom in

Zooms the **camera** in at the default speed

camera zoom out 7

Zooms the **camera** out using a speed of 7

camera zoom stop

Stops the *zoom* movement of the **camera**

Camera

- **NAME**

camera - Base command for camera control command.
Used in conjunction with control arguments to include home, pan, tilt, zoom, preset etc...

- **SYNOPSIS**

camera {ccu|home|pan|preset|standby|tilt|zoom}

- **DESCRIPTION**

The **camera** command is the base command used to control the **camera** movement

- **OPTIONS**

ccu Various commands for getting/setting CCU values and scenes

home Return **camera** to home position

pan Pans the **camera** left or right

preset Recall or set **camera** presets

standby Turn standby mode on/off

tilt Tilt the **camera** up or down

zoom Zoom the **camera** in or out

- **EXAMPLES**

camera pan left 5

Pans the **camera** left at a speed of 5

camera tilt up 10

Tilts the **camera** up at a speed of 10

camera pan stop

Stops the **camera** from panning

camera home

Move **camera** to home position

camera standby toggle

Toggle standby modes

camera preset store 1

Store current **camera** position as preset 1

Camera CCU

- **NAME**

camera ccu get - Gets the ccu settings

- **SYNOPSIS**

camera ccu get {auto_white_balance|red_gain|blue_gain|backlight_compensation|auto

- **DESCRIPTION**

Method used to get the ccu values

- **OPTIONS**

auto_white_balance

Gets auto_white_balance

red gain

Gets red gain value

blue gain

Gets blue gain value

backlight_compensation

Gets backlight compensation

auto iris

Gets auto-iris mode

iris

Gets iris value gain

gain

Gets gain value detail

detail

Gets detail value chroma

chroma

Gets chroma value

- **EXAMPLES**

camera ccu get iris Gets the iris value

camera ccu get red_gain Gets the red_gain



CCU Camera Scene

- **NAME**

camera ccu scene - Stores or recalls the ccu scene

- **SYNOPSIS**

camera ccu scene {recall {factory [1-6][custom [1-3]] | store [1-3]}

- **DESCRIPTION**

Method used to get or set the *ccu scene*

- **OPTIONS**

recall

Recalls a *ccu scene*

store

Stores a custom *ccu scene*

custom

A custom *scene* (can be stored or recalled)

factory

A factory *scene* (can be recalled)

index

Integer from 1-6 (factory) or 1-3 (custom) that represents the *scene* index

- **EXAMPLES**

camera ccu scene recall factory 2

Recalls the factory *scene* stored at index 2

Camera CCU Set

- **NAME**

camera ccu set - Sets and gets the CCU Settings

- **SYNOPSIS**

camera ccu set {auto_white_balance {on/off} | red_gain [0-255] | blue_gain [0-255]}

- **DESCRIPTION**

Method used to sets the *ccu* values

- **OPTIONS**

auto_white_balance

Sets auto white balance to auto/manual

red_gain

Sets red gain value

blue_gain

Sets blue gain value

Backlight_compensation

Sets backlight compensation on or off

auto_iris

Sets auto iris on or off

iris

Sets iris value

gain

Sets gain value

detail

Sets detail value

chroma

Sets chroma value

- **EXAMPLES**

camera ccu set auto_iris off

Sets the *auto_iris* off

camera ccu set red_gain 10

Sets the red *gain* to be 10



Camera CCU

- **NAME**

camera ccu - Stores and recalls scenes and gets and sets CCU settings

- **SYNOPSIS**

camera ccu

- **DESCRIPTION**

Method used to get or set the *ccu* scene or *ccu* setting

- **OPTIONS**

scene

Used for storing/recalling scenes

get

Used for getting CCU settings

set

Used for setting CCU settings

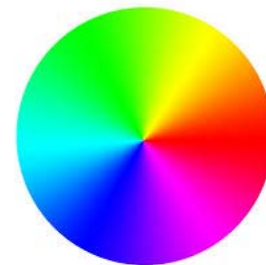
- **EXAMPLES**

camera ccu scene recall factory 2

Recalls the factory scene stored at index 2

camera ccu get all

Gets all current CCU settings



Camera Focus

- **NAME**

camera focus - Moves the focus near or far

- **SYNOPSIS**

camera focus {{near|far|stop} [1-8] | mode {auto|manual}}

- **DESCRIPTION**

Method used to focus the camera

- **OPTIONS**

near

Move the camera focus near (with optional speed)

far

Move the camera focus far (with optional speed)

stop

Stop the camera focus

mode

Set the focus mode to auto or manual

speed

Optional integer from 1-8 that represents the speed

- **EXAMPLES**

camera focus near

Focuses the camera near at the default speed

camera focus far 8

Focuses the camera far using a speed of 8

camera focus stop

Stops the focus movement of the camera

Exit

- **NAME**

exit - ends the current API command session

- **SYNOPSIS**

exit

- **DESCRIPTION**

Exit ends the current API command session. If the session is over telnet, the session is ended and the socket is closed. If the session is over serial, a new session is started.

Help

- **NAME**

help - display an overview of the CLI syntax

- **SYNOPSIS**

help

- **DESCRIPTION**

Display an overview of the command line syntax

History

- **NAME**

history - command history

- **SYNOPSIS**

history [*limit*]

- **DESCRIPTION**

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 also recall historic information

- **HISTORY NAVIGATION**

The command **history** can be navigated using the up and down arrow keys. The up arrow will move up a single entry in the command **history** while the down arrow moves down in the command **history**.

- **HISTORY EXPANSION**

The command **history** 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.

Listed below are examples of **history** expansion:

* **!** Substitute the last command line.

* **!N** Substitute the Nth command line (absolute as per '**history**' command)

* **!-N** Substitute the command line entered N lines before (relative)

- **EXAMPLES**

history

Displays the current command buffer

history 5

Sets the **history** command buffer to remember the last 5 unique entries

Network Ping

- **NAME**

network ping - send ICMP ECHO_REQUEST to network hosts

- **SYNOPSIS**

network ping [*count* <*count*>] [*size* <*size*>] <destination-ip>

- **DESCRIPTION**

Use the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway. ECHO_REQUEST datagrams have an IP and ICMP header, followed by a struct timeval and then an arbitrary number of pad bytes used to fill out the packet.

- **OPTIONS**

count Stop after sending *count* ECHO_REQUEST packets. With deadline option, *ping* waits for *count* ECHO_REPLY packets, until the timeout expires. The default is 5.

destination

The destination IP address where the ECHO_REQUESTS are sent

size The data *size* of the ICMP packet to send. The default is 56 bytes

- **EXAMPLES**

network ping 192.168.1.1

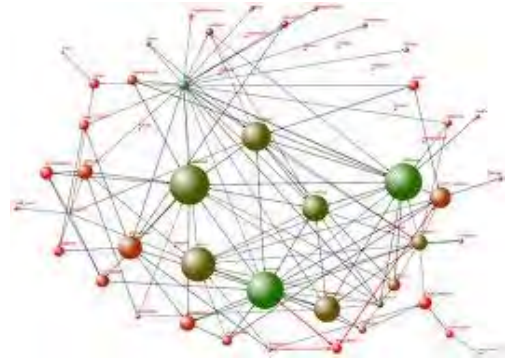
Attempt to send 5 ICMP ECHO_REQUESTs with data *size* 56 to the host at 192.168.1.1

network ping count 10 *size* 100 192.168.1.1

Attempt to send 10 ICMP ECHO_REQUESTs with data *size* of 100 to the host at 192.168.1.1

Network Settings

- **NAME**
network settings - get current network settings
- **SYNOPSIS**
network settings {get}
- **DESCRIPTION**
 Method used to get the current **network settings** of the device
- **OPTIONS**
get Get the current **network settings** for the machine
- **EXAMPLES**
network settings get
MAC Address:
 00:04:a3:85:0a:ee
IP Address:
 10.10.8.116
Netmask:
 255.255.255.0
Gateway:
 10.10.8.100
 Returns the current **network settings** for mac address, ip address, netmask, and gateway



Network

- **NAME**
network - Gets the current network settings or pings an IP address
- **SYNOPSIS**
network {settings get | ping [count <count>] [size <size>] <destination-ip>}
- **DESCRIPTION**
 Method used to *get* the current **network** settings or check **network**
- **OPTIONS**
settings
 Get the current **network** settings
ping Send ICMP ECHO_REQUEST to **network** host
- **EXAMPLES**
network settings get
 Gets the current **network** settings

network ping count 1 10.10.10.100
 Pings 10.10.10.100 once and displays results

System Factory-Reset

- **NAME**

system factory-reset - Gets or sets factory reset status

- **SYNOPSIS**

system factory-reset {get|on|off}

- **DESCRIPTION**

Method used to get or set the factory reset status

- **OPTIONS**

get

Get the current factory reset status

on

Enable factory reset on reboot

off

Disable factory reset on reboot

- **EXAMPLES**

system factory-reset get

factory-reset (software):

off

factory-reset (hardware): [Hardware reset is designated by rear panel dip switches in down position]

off

Returns the factory reset status

system factory-reset on

factory-reset (software): on

factory-reset (hardware): off

Enables factory reset upon reboot



System Reboot

- **NAME**

system reboot - Reboots system

- **SYNOPSIS**

system reboot [<seconds>]

- **DESCRIPTION**

Method used to reboot system

- **OPTIONS**

seconds

The number of seconds to delay the reboot

- **EXAMPLES**

reboot

Reboot system immediately

reboot 30

Reboot the system in 30 seconds

System

- **NAME**

system - gets or Sets the Current System Settings

- **SYNOPSIS**

system {factory-reset {get|on|off} | *reboot* [<seconds>]}

- **DESCRIPTION**

Method used to get/set the current **system** settings or execute **system** commands

- **OPTIONS**

factory-reset

Get or set the factory reset status

reboot Reboot the **system**

- **EXAMPLES**

system factory-reset get

factory-reset (software):

off

factory-reset (hardware):

off

system factory-reset on

factory-reset (software):

on

factory-reset (hardware):

off

system *reboot*

Broadcast message from root (Thu Jan

1 03:27:40 2266):

The **system** is going down for a *reboot* NOW!

system *reboot* 30

OK

> The **system** is going down for a *reboot* NOW!

System Update

- **NAME**

system update - Updates the system given a url to the update file

- **SYNOPSIS**

system update [<url>]

- **DESCRIPTION**

Method used to update the system via a url

- **OPTIONS**

url - The url of the file to be fetched

- **EXAMPLES**

system update <file name>

Update the system using the update file

Version

- **NAME**

version - display the system version information

- **SYNOPSIS**

version

- **DESCRIPTION**

Display an overview of the command line syntax

- **EXAMPLES**

Version

Returns the current software **version**

COMPLIANCE AND CE DECLARATION OF CONFORMITY - ROBOSHOT HD PTZ CAMERAS



Compliance testing was performed to the following regulations:

- **FCC Part 15** (15.107, 15.109), **Subpart B**
- **ICES-003, Issue 4: 2004**
- **EN 55022 A: 2006 + A1: 2007**
- **KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)**
- **KN22 2008 (CISPR 22: 2006)**
- **EMC Directive 2004/108/EC**
- **EN 55024: A2: 2003**
- **IEC 60950-1:2005 (2nd Edition); Am 1:2009**
- **EN 60950-1:2006+A11:2009+A1:2010+A12:2011**

- Class A
- Class A
- Class A
- Class A
- Class A
- Class A
- Class A
- Class A
- Safety
- 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 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005) Conducted and Radiated Emissions

EN 55024: 1998 + Amendments A1: 2001 + A2: 2003 Immunity

- 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

- Electrostatic Discharge
- Radiated Immunity
- Electrical Fast Transients
- Surge Immunity
- Conducted Immunity
- Power Frequency Magnetic Field
- Voltage Dips, Interrupts and Fluctuations

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

- IT Immunity Characteristics
- Electrostatic Discharge
- Radiated Immunity
- Electrical Fast Transients
- Surge Immunity
- Conducted Immunity
- Power Frequency Magnetic Field
- Voltage Dips, Interrupts and Fluctuations

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

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

- Safety
- Safety

COMPLIANCE AND CE DECLARATION OF CONFORMITY - QUICK-CONNECT DVI/HDMI SR INTERFACE

Compliance testing was performed to the following regulations:

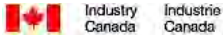
- **FCC Part 15, Subpart B**
- **ICES-003, Issue 4: 2004**
- **European Standard EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)**
- **EMC Directive 2004/108/EC**

Class A
Class A
Class A
Class A



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.

Ferrite cylinders are included in order to the Quick-Connect DVI/HDMI SR Interface to strictly comply with the European Community EMC Directives compliance. Use these ferrites to ensure the elimination of possible EMI interference from cell phones and AC motors.

Standard(s) To Which Conformity Is Declared:

EMC Directive 2004/108/EC

EN 55022 A: 2006 + A1 2007 (CISPR 22:2005/A1:2005) Conducted and Radiated Emissions

EN 55024: 1998 + Amendments A1: 2001 + A2: 2003 - Electromagnetic Compatibility - Immunity

- EN 61000-4-2** Electrostatic Discharge
- EN 61000-4-3** Radiated Immunity
- EN 61000-4-4** Electrical Fast Transients
- EN 61000-4-5** Surge Immunity
- EN 61000-4-6** Conducted Immunity
- EN 61000-4-8** Power Frequency Magnetic Field
- EN 61000-4-11** Voltage Dips, Interrupts and Fluctuations

WARRANTY INFORMATION

(See Vaddio Warranty, Service and Return Policies posted on 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 through one of the following resources: e-mail support at support@vaddio.com or online at 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. RMA's 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.

Other General Information:

Care and Cleaning

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

- Do not spill liquids in the product
- Keep this device away from food and liquid
- 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.

Operating and Storage Conditions:

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

- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In inclement weather
- In swimming pools or drainage culverts
- Dry environments with an excess of static discharge
- Inside a particle accelerator
- Under severe vibration

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