Complete Manual for

RoboSHOT CAT-5 Professional PTZ Camera Systems

Including
RoboSHOT QCCU, RoboSHOT QUSB, RoboSHOT QMini, RoboSHOT QDVI, RoboSHOT QSR, and RoboSHOT AVBMP

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Overview

This guide covers the RoboSHOT® CAT-5 cameras. These cameras must be used with a Quick-Connect device or with an AV Bridge MATRIX PRO.

RoboSHOT QCCU systems:
- RoboSHOT 12 QCCU, North America – 999-9907-000 (silver/black)
- RoboSHOT 12 QCCU, Europe/UK – 999-9907-001 (silver/black)
- RoboSHOT 12E QCCU, North America – 999-99070-000 (black), 999-99070-000 (white)
- RoboSHOT 12E QCCU, Europe/UK – 999-99070-001 (black), 999-99070-001 (white)
- RoboSHOT 30 QCCU, North America – 999-9917-000 (black), 999-9917-000W (white)
- RoboSHOT 30 QCCU, Europe/UK – 999-9917-001 (black), 999-9917-001W (white)
- RoboSHOT 30E QCCU, North America – 999-99170-000 (black), 999-99170-000W (white)
- RoboSHOT 30E QCCU, Europe/UK – 999-99170-001 (black), 999-99170-001W (white)
- RoboSHOT 30E QCCU, Australia/New Zealand – 999-99170-009 (black), 999-99170-009W (white)

RoboSHOT QUSB systems:
- RoboSHOT 12 QUSB, North America – 999-9909-000 (silver/black)
- RoboSHOT 12 QUSB, Europe/UK – 999-9909-001 (silver/black)
- RoboSHOT 12 QUSB, Australia/New Zealand – 999-99090-000 (black), 999-99090-000W (white)
- RoboSHOT 12E QUSB, North America – 999-99090-000 (black), 999-99090-000W (white)
- RoboSHOT 12E QUSB, Europe/UK – 999-99090-001 (black), 999-99090-001W (white)
- RoboSHOT 12E QUSB, Australia/New Zealand – 999-99090-009 (black), 999-99090-009W (white)
- RoboSHOT 30 QUSB, North America – 999-9919-000 (black); 999-9919-000W (white)
- RoboSHOT 30 QUSB, Europe/UK – 999-9919-001 (black); 999-9919-001W (white)
- RoboSHOT 30 QUSB, Australia/New Zealand – 999-99190-000 (black); 999-99190-000W (white)
- RoboSHOT 30E QUSB, North America – 999-99190-000 (black); 999-99190-000W (white)
- RoboSHOT 30E QUSB, Europe/UK – 999-99190-001 (black); 999-99190-001W (white)
- RoboSHOT 30E QUSB, Australia/New Zealand – 999-99190-009 (black); 999-99190-009W (white)

RoboSHOT QMini systems:
- RoboSHOT 12 QMini, North America – 999-9901-000 (silver/black)
- RoboSHOT 12 QMini, Europe/UK – 999-9901-001 (silver/black)
- RoboSHOT 12 QMini, Australia/New Zealand – 999-99010-000 (black), 999-99010-000W (white)
- RoboSHOT 12E QMini, North America – 999-99010-000 (black), 999-99010-000W (white)
- RoboSHOT 12E QMini, Europe/UK – 999-99010-001 (black), 999-99010-001W (white)
- RoboSHOT 12E QMini, Australia/New Zealand – 999-99010-009 (black), 999-99010-009W (white)
- RoboSHOT 30 QMini, North America – 999-9911-000 (black); 999-9911-000W (white)
- RoboSHOT 30 QMini, Europe/UK – 999-9911-001 (black); 999-9911-001W (white)
- RoboSHOT 30E QMini, North America – 999-99110-000 (black); 999-99110-000W (white)
- RoboSHOT 30E QMini, Europe/UK – 999-99110-001 (black); 999-99110-001W (white)

RoboSHOT QDVI systems:
- RoboSHOT 12 QDVI, North America – 999-9906-000 (silver/black)
- RoboSHOT 12 QDVI, Europe/UK – 999-9906-001 (silver/black)
- RoboSHOT 12 QDVI, North America – 999-99060-000 (black), 999-99060-000W (white)
- RoboSHOT 12E QDVI, North America – 999-99060-000 (black), 999-99060-000W (white)
- RoboSHOT 30 QDVI, North America – 999-9916-000 (black), 999-9916-000W (white)
- RoboSHOT 30 QDVI, Europe/UK – 999-9916-001 (black), 999-9916-001W (white)
- RoboSHOT 30E QDVI, North America – 999-99160-000 (black), 999-99160-000W (white)
- RoboSHOT 30E QDVI, Europe/UK – 999-99160-001 (black), 999-99160-001W (white)
RoboSHOT QSR systems:
- RoboSHOT 12 QSR, North America – 999-9905-000 (silver/black)
- RoboSHOT 12 QSR, Europe/UK – 999-9905-001 (silver/black)
- RoboSHOT 30 QSR, North America – 999-9915-000 (black), 999-9915-000W (white)
- RoboSHOT 30 QSR, Europe/UK – 999-9915-001 (black), 999-9915-001W (white)

RoboSHOT AVBMP:
- RoboSHOT 12 AVBMP, worldwide – 999-9900-500 (silver/black)
- RoboSHOT 12E AVBMP, worldwide – 999-99000-500 (black), 999-99000-500W (white)
- RoboSHOT 30 AVBMP, worldwide – 999-9910-500 (black), 999-9910-500W (white)
- RoboSHOT 30E AVBMP, worldwide – 999-99100-500 (black), 999-99100-500W (white)

What's in this Guide

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

For your convenience, the information you need to install this product is also available in the smaller, stand-alone Installation Guide for RoboSHOT CAT-5 Professional PTZ Camera Systems, which covers unpacking, physical features, switch settings, installation, and initial power-up.

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

Camera Features
- Powered by your choice of Quick-Connect device or by an AV Bridge MATRIX PRO for maximum flexibility in installation and output connectivity
- Full HD (native 1080p/60) resolution
- RoboSHOT 12 and RoboSHOT 30: Exmor® 1/2.8 type image sensor
- RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5: Exmor R™ back-lit 1/2.5 type, high-speed, low-noise image sensor
- RoboSHOT 12 and RoboSHOT 12E CAT-5: 12x optical zoom – perfect for small to medium rooms
- RoboSHOT 30 and RoboSHOT 30E CAT-5: 30x optical zoom – for medium to large venues such as houses of worship, lecture theaters, IMAG systems
- Tri-Synchronous Motion™ simultaneous 3-axis pan/tilt/zoom movement between presets
- Smooth, silent direct-drive motors – ultra-accurate positioning, from 120° per second down to 0.35° per second
- Web interface for remote administration and operation, integration-ready Telnet or serial RS-232 control, presenter-friendly IR remote control
Quick-Connect Features

Quick-Connect devices provide power and connectivity for the RoboSHOT 12 and RoboSHOT 30 cameras. Tailored to specific environments and situations, they give the RoboSHOT cameras unparalleled flexibility.

Quick-Connect Universal CCU (QCCU)

Best for environments where lighting and color management are priorities, and for installations requiring long cabling distances.

- Full camera control unit functionality – manage lighting and color; store and recall up to 3 CCU scenes
- Supports resolutions up to 1080p/60 from the camera
- Simultaneous HD-SDI, HDMI and HD analog component (YPbPr) outputs
- Up to 500 ft. (152 m) cabling distance
- Tally light shows when the camera is on-air
- Back-lit 8-line menu display
- 1RU form factor; ships with rack mounting brackets

Quick-Connect USB (QUSB)

Versatile USB 2.0 device for environments using soft conferencing applications. Extends HDMI up to 100 ft. (30 m).

- Choice of USB 2.0 MJPEG or IP (H.264) streaming
- Simultaneous HDMI and HD analog component (YPbPr) outputs
- Supports resolutions up to 1080p/60 from the camera
- Up to 100 ft. (30 m) cabling distance
- Standard UVC drivers
- Web interface for network and streaming configuration
- Half-rack form factor; mounting brackets available (not included)
Quick-Connect USB Mini (QMini)
Cost-effective USB 2.0 connectivity for soft conferencing applications, designed for environments where only one camera is needed.
- USB streaming/capture only
- Standard UVC drivers
- Up to 100 ft (30 m) cabling distance
- Compact form factor

Quick-Connect DVI/HDMI-SR (QDVI)
Connectivity solution for use with legacy equipment.
- Supports resolutions up to 1080p/60 from the camera
- DVI-D/HDMI and analog component (YPbPr) outputs
- Up to 100 ft. (30 m) cabling distance
- Push-button color space selection - sRGB for DVI-D or YCbCr for HDMI
- IR output for codecs
- Supports daisy-chaining
- Half-rack form factor; mounting brackets available (not included)

Quick-Connect SR (QSR)
Basic connectivity for use with legacy equipment.
- Supports resolutions up to 1080p/60 from the camera
- Analog component YPbPr output
- Up to 100 ft. (30 m) cabling distance
- IR output for codecs
Unpacking the Camera System

Make sure you received all the items you expected. Here are the packing lists for the RoboSHOT camera systems.

Download manuals, dimensional drawings, and other information from [www.vaddio.com/support](http://www.vaddio.com/support).

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

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**RoboSHOT 12E AVBMP, worldwide – 999-99000-500 (black), 999-99000-500W (white)**
- RoboSHOT 12E CAT-5 camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-start guide

**RoboSHOT 12 AVBMP, worldwide – 999-9900-500 (silver/black)**
- RoboSHOT 12 camera
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- Quick-start guide

**RoboSHOT 30E AVBMP, worldwide – 999-99100-500 (black), 999-99100-500W (white)**
- RoboSHOT 30E CAT-5 camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-start guide

**RoboSHOT 30 AVBMP, worldwide – 999-9910-500 (black), 999-9910-500W (white)**
- RoboSHOT 30 camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Start Guide
RoboSHOT 12E QCCU System, North America – 999-99070-000 (black), 999-99070-000W (white)
RoboSHOT 12E QCCU System, Europe/UK – 999-99070-001 (black), 999-99070-001W (white)
RoboSHOT 12E QCCU System, Australia/New Zealand – 999-99070-009 (black), 999-99070-009W (white)
- RoboSHOT 12E CAT-5 camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect Universal CCU Cat-5 Interface (QCCU)
- 36V power supply with AC cord set(s)
- Rack mounting brackets, qty. 2 (not shown)
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

RoboSHOT 12 QCCU System, North America – 999-9907-000 (silver/black)
RoboSHOT 12 QCCU System, Europe and UK – 999-9907-001 (silver/black)
RoboSHOT 12 QCCU System, Australia and New Zealand – 999-9907-009 (silver/black)
- RoboSHOT 12 camera
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- Quick-Connect Universal CCU Cat-5 Interface (QCCU)
- 36V power supply with AC cord set(s)
- EZCamera RS-232 Control Adapter (998-1001-232)
- Rack mounting brackets, qty. 2 (not shown)
- Quick-start guides
RoboSHOT 30E QCCU System, North America – 999-99170-000 (black), 999-99170-000W (white)
RoboSHOT 30E QCCU System, Europe/UK – 999-99170-001 (black), 999-99170-001W (white)
RoboSHOT 30E QCCU System, Australia/New Zealand – 999-99170-009 (black), 999-99170-009W (white)

- RoboSHOT 30E CAT-5 Camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect Universal CCU Cat-5 Interface (QCCU)
- 36V power supply with AC cord set(s)
- Rack mounting brackets, qty. 2 (not shown)
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

RoboSHOT 30 QCCU System, North America – 999-9917-000 (black), 999-9917-000W (white)
RoboSHOT 30 QCCU System, Europe/UK – 999-9917-001 (black), 999-9917-001W (white)
RoboSHOT 30 QCCU System, Australia/New Zealand – 999-9917-009 (black), 999-9917-009W (white)

- RoboSHOT 30 Camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect Universal CCU Cat-5 Interface (QCCU)
- 36V power supply with AC cord set(s)
- EZCamera RS-232 Control Adapter (998-1001-232)
- Rack mounting brackets, qty. 2 (not shown)
- Quick-start guides
RoboSHOT 12E QUSB System, North America – 999-99090-000 (black), 999-99090-000W (white)
RoboSHOT 12E QUSB System, Europe/UK – 999-99090-001 (black), 999-99090-001W (white)
RoboSHOT 12E QUSB System, Australia/New Zealand – 999-99090-009 (black), 99-99090-009W (white)
- RoboSHOT 12E CAT-5 camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect USB interface (QUSB)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- Rubber feet for QUSB unit, qty. 4 (not shown)
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

RoboSHOT 12 QUSB System, North America – 999-9909-000 (silver/black)
RoboSHOT 12 QUSB System, Europe/UK – 999-9909-001 (silver/black)
RoboSHOT 12 QUSB System, Australia/New Zealand – 999-9909-009 (silver/black)
- RoboSHOT 12 camera
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- Quick-Connect USB interface (QUSB)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- EZCamera RS-232 Control Adapter (998-1001-232)
- Rubber feet for QUSB unit, qty. 4 (not shown)
- Quick-start guides
RoboSHOT 30E QUSB System, North America – 999-99190-000 (black), 999-99190-000W (white)
RoboSHOT 30E QUSB System, Europe/UK – 999-99190-001 (black), 999-99190-001W (white)
RoboSHOT 30E QUSB System, Australia/New Zealand – 999-99190-009 (black), 999-99190-009W (white)
- RoboSHOT 30 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect USB Interface (QUSB)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- Rubber feet for QUSB unit, qty. 4 (not shown)
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

Complete Manual for RoboSHOT CAT-5 Professional PTZ Camera Systems

RoboSHOT 30 QUSB System, North America – 999-9919-000 (black), 999-9919-000W (white)
RoboSHOT 30 QUSB System, Europe/UK – 999-9919-001 (black), 999-9919-001W (white)
RoboSHOT 30 QUSB System, Australia/New Zealand – 999-9919-009 (black), 999-9919-009W (white)
- RoboSHOT 30 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect USB Interface (QUSB)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- EZCamera RS-232 Control Adapter (998-1001-232)
- Rubber feet for QUSB unit, qty. 4 (not shown)
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.
RoboSHOT 12E QMini, North America – 999-99010-000 (black), 999-99010-000W (white)
RoboSHOT 12E QMini, Europe/UK – 999-99010-001 (black), 999-99010-001W (white)
RoboSHOT 12E QMini, Australia/New Zealand – 999-99010-009 (black), 999-99010-009W (white)
- RoboSHOT 12E CAT-5 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect USB Mini interface (QMini)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

RoboSHOT 12 QMini System, North America – 999-9901-000 (silver/black)
RoboSHOT 12 QMini System, Europe/UK – 999-9901-001 (silver/black)
RoboSHOT 12 QMini System, Australia/New Zealand – 999-9901-009 (silver/black)
- RoboSHOT 12 camera
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- Quick-Connect USB Mini interface (QMini)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- EZCamera RS-232 Control Adapter (998-1001-232)
- Quick-start guides
RoboSHOT 30E QMini System, North America – 999-99110-000 (black), 999-99110-000W (white)
RoboSHOT 30E QMini System, Europe/UK – 999-99110-001 (black), 999-99110-001W (white)
RoboSHOT 30E QMini System, Australia/New Zealand – 999-99110-009 (black), 999-99110-009W (white)
- RoboSHOT 30 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect USB Mini interface (QMini)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

RoboSHOT 30 QMini System, North America – 999-9911-000 (black), 999-9911-000W (white)
RoboSHOT 30 QMini System, Europe/UK – 999-9911-001 (black), 999-9911-001W (white)
RoboSHOT 30 QMini System, Australia/New Zealand – 999-9911-009 (black), 999-9911-009W (white)
- RoboSHOT 30 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect USB Mini interface (QMini)
- 24V power supply with AC cord set(s)
- 6 ft. (1.8 m) USB 2.0 cable, type A to B
- EZCamera RS-232 Control Adapter (998-1001-232)
- Quick-start guides
RoboSHOT 12E QDVI System, North America – 999-99060-000 (black), 999-99060-000W (white)
RoboSHOT 12E QDVI System, Europe/UK – 999-99060-000 (black), 999-99060-000W (white)
- RoboSHOT 12E CAT-5 camera, black or white
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect DVI/HDMI SR interface (QDVI)
- 24V power supply with AC cord set(s)
- Phoenix-style connector, 3-position
- Rubber feet for QDVI unit, qty. 4 (not shown)
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

RoboSHOT 12 QDVI System, North America – 999-9906-000 (silver/black)
RoboSHOT 12 QDVI System, Europe/UK – 999-9906-001 (silver/black)
- RoboSHOT 12 camera
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- Quick-Connect DVI/HDMI SR interface (QDVI)
- 24V power supply with AC cord set(s)
- EZCamera RS-232 Control Adapter (998-1001-232)
- Phoenix-style connector, 3-position
- Rubber feet for QDVI unit, qty. 4 (not shown)
- Quick-start guides
RoboSHOT 30E QDVI System, North America – 999-9916-000 (black), 999-9916-000W (white)
RoboSHOT 30E QDVI System, Europe/UK – 999-9916-001 (black), 999-9916-001W (white)

- RoboSHOT 30E CAT-5 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect DVI/HDMI SR interface (QDVI)
- 24V power supply with AC cord set(s)
- Phoenix-style connector, 3-position
- Rubber feet for QDVI unit, qty. 4 (not shown)
- Quick-start guides

Note
If you need an EZCamera RS-232 Control Adapter for use with this camera, please contact Vaddio Technical Support to obtain one.

RoboSHOT 30 QDVI System, North America – 999-9916-000 (black), 999-9916-000W (white)
RoboSHOT 30 QDVI System, Europe/UK – 999-9916-001 (black), 999-9916-001W (white)

- RoboSHOT 30 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect DVI/HDMI SR interface (QDVI)
- 24V power supply with AC cord set(s)
- EZCamera RS-232 Control Adapter (998-1001-232)
- Phoenix-style connector, 3-position
- Rubber feet for QDVI unit, qty. 4 (not shown)
- Quick-start guides
RoboSHOT 12 QSR System, North America – 999-9905-000 (silver/black)
RoboSHOT 12 QSR System, Europe and UK – 999-9905-001 (silver/black)
- RoboSHOT 12 camera
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- Quick-Connect SR interface (QSR)
- 24V power supply with AC cord set(s)
- EZCamera RS-232 Control Adapter (998-1001-232)
- Phoenix-style connector, 3-position
- Rubber feet for QSR unit, qty. 4 (not shown)
- Quick-start guides

RoboSHOT 30 QSR System, North America – 999-9915-000 (black), 999-9915-000W (white)
RoboSHOT 30 QSR System, Europe/UK – 999-9915-001 (black), 999-9915-001W (white)
- RoboSHOT 30 camera
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Connect SR interface (QSR)
- 24V power supply with AC cord set(s)
- EZCamera RS-232 Control Adapter (998-1001-232)
- Phoenix-style connector, 3-position
- Rubber feet for QSR unit, qty. 4 (not shown)
- Quick-start guides
A Quick Look at the Camera

The cameras in the RoboSHOT line are similar in appearance.

- RoboSHOT 12 is silver, with a black base and stepped lens bezel
- RoboSHOT 30 is available in black or white, and has a fluted lens bezel
- RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 are available in black or white, and have smooth lens bezels

The image below shows a RoboSHOT 30 camera.

Front of the Camera

Camera and Zoom Lens

- RoboSHOT 12: 12x optical zoom in Super-Wide mode, 10x optical zoom in normal mode. Recommended for small to medium sized conference rooms.
- RoboSHOT 12E CAT-5: 12x optical zoom; recommended for small to medium sized conference rooms.
- RoboSHOT 30 and RoboSHOT 30E CAT-5: 30x optical zoom; best suited to larger rooms.

IR Sensors: Sensors in the front of the camera base receive signals from the remote. Make sure there’s nothing directly in front of the camera base, and point the remote at the camera.

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

Really Cool Logo Badge (RCLB): Attractive and shiny, with a sophisticated brushed-metal finish.
Back of the Camera – RoboSHOT 12 and RoboSHOT 30

Rear panel connections are identical for the older RoboSHOT 12 and RoboSHOT 30 cameras.

- **Network Control**: RJ-45 connector. Connect to the network for control via the web interface or Telnet session.
- **HD Video Select**: Rotary switch to select the video output resolution. See Video Resolution Setting.
- **Camera Settings**: DIP switches to set camera behaviors such as IR remote frequency, baud rate and image flip. See Camera Behavior Settings – RoboSHOT 12 and 30 for more information.
- **RS-232**: RJ-45 connector. Connect to the RS-232 port (if any) on the Quick-Connect device to allow an external device to manage the camera using a modified VISCA protocol. See RS-232 Serial Communication Settings for RS-232 settings.
- **EZPower Video**: RJ-45 connector. Supplies power to the camera and delivers HD video back to the Quick-Connect interface using high speed differential signaling over Cat-5e cable. Connect to the EZPower Video port on the Quick-Connect device. (Color-coded orange or yellow, depending on the device.)
- **36 VDC FOR CCU ONLY**: RJ-45 connector. Power from the Quick-Connect Universal CCU, in RoboSHOT QCCU systems only. Do not use this port except when connecting to a Quick-Connect Universal CCU.

*Note*
A label on the bottom of the camera lists the rotary and DIP switch settings.
Back of the Camera – RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5
Rear panel connections are identical for the RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 cameras.

- **Network Control**: RJ-45 connector. Connect to the network for control via the web interface or Telnet session.
- **HD Video Select**: Rotary switch to select the video output resolution. See [Video Resolution Setting](#).
- **RS-232**: RJ-45 connector. Connect to the RS-232 port (if any) on the Quick-Connect device to allow an external device to manage the camera using a modified VISCA protocol. See [RS-232 Serial Communication Settings](#) for RS-232 settings.
- **EZPower Video**: RJ-45 connector. Supplies power to the camera and delivers HD video back to the Quick-Connect interface using high speed differential signaling over Cat-5e cable. Connect to the EZPower Video port on the Quick-Connect device. (Color-coded orange or yellow, depending on the device.)
- **36 VDC FOR CCU ONLY**: RJ-45 connector. Power from the Quick-ConnectUniversal CCU. *Do not use this port* except when connecting to a Quick-ConnectUniversal CCU.

*Note*
A label on the bottom of the camera lists the rotary switch settings.
A (Quick) Look at the Quick-Connect Devices

RoboSHOT 12, RoboSHOT 12E CAT-5, RoboSHOT 30, and RoboSHOT 30E CAT-5 cameras are not designed for stand-alone operation. These configurations are available:

- **QCCU system** – A camera with a Quick-Connect Universal CCU, a broadcast-quality CCU (camera control unit) for managing color and lighting adjustments. This system is typically used with a joystick camera controller.
- **QUSB system** – A camera with a Quick-Connect USB, a versatile solution with multiple connectivity options and choice of USB or IP streaming. This system is typically used in rooms that need conferencing capability, and may be used with a joystick camera controller.
- **QMini system** – A camera with a Quick-Connect USB Mini, a basic USB connectivity solution with a small, unobtrusive form factor. This system is typically used for soft conferencing applications.
- **QDVI system** – A camera with a Quick-Connect DVI/HDMI-SR, a connectivity solution for legacy equipment; provides DVI and analog component video outputs. Use with a DVI-to-HDMI adapter for HDMI output. Like the RoboSHOT QSR system, this system is typically used with older equipment; however, it provides more connectivity options. This system may be used with a joystick camera controller.
- **QSR system** – A RoboSHOT 12 or RoboSHOT 30 camera with a Quick-Connect SR, a short-range connectivity device for legacy equipment; provides analog component video output. This system is typically used with older displays, and may be used with a joystick camera controller. The Quick-Connect SR device has been discontinued and is not available for RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 cameras, though it will work with them.

The RoboSHOT 12, RoboSHOT 12E CAT-5, RoboSHOT 30, and RoboSHOT 30E CAT-5 cameras are also sold as RoboSHOT AVBMP cameras. These do not use Quick-Connect devices, but connect directly to a Vaddio AV Bridge MATRIX PRO, which provides connectivity for up to three cameras.
Quick-Connect Universal CCU Interface

This interface combines a versatile connectivity solution with a broadcast-quality camera control unit (CCU). It is the best choice for environments where lighting and color management are priorities and installations requiring long cabling distances.

*Note*

The Universal CCU supports resolutions with frame rates of 60, 59.94 and 50 frames per second, but not lower.

Front panel features:

- **5-line display** – Shows the current value for the parameter you are changing. The display shows up to 8 parameters at a time, so you can see how the controls and settings interact.
- **Tally light** – In a multi-camera/CCU installation, this indicator shows when this CCU and camera are the live program. When this light illuminates, the CCU also sends a tally command to the camera to light its tally indicator.
- **Menu selector knob** – Dial the desired setting or value for the selected function.

The buttons:

- **Scene A, Scene B and Scene C** – Store and use three different sets of color and lighting adjustments (CCU scenes).
- **W Bal OPWB (One Push White Balance)** – Calibrate the color balance (Auto White Balance must be off). After the calibration is complete, you may want to activate Auto White Balance.
- **W Bal Auto (Auto White Balance)** – Manage color levels automatically. Use the OPWB button to calibrate the white balance before activating Auto White Balance.
- **Red Gain and Blue Gain controls** – Adjust the color balance. These controls are only active when Auto White Balance is off.
- **Chroma** – Controls the color intensity of the image.
- **Bright** – Luminance control for the image.
- **Gamma** – Adjusts the mid-tones to change the grey density of the image.
- **Detail** – Sharpens or softens the objects in the image.
- **Iris Auto and Iris Manual** – Automatic and manual control, respectively, of the amount of light entering the camera.
- **Gain** – Boosts the signal level when the iris is open all the way and there is not enough light available.
- **Select and Cancel buttons** – Save the change you make with the menu selector knob, or cancel it to retain the existing setting or value. These buttons are also used for menu navigation.
Back panel features:

- **Power input** – Connect only the 36 VDC, 2.78 Amp power supply provided with the Universal CCU.
- **Recessed white button** – Press to execute a factory reset; press and hold to enter boot loader mode.
- **36 VDC to Camera (red)** – Power to the RoboSHOT camera. Connect to the camera’s port marked **36 VDC for CCU Only** (color coded red). See [Back of the Camera](#).

**Caution**

Connect this port ONLY to the camera port marked **36 VDC for CCU Only** and color-coded red. Connecting this port to any other port on the camera will result in equipment damage, and will void the warranty.

- **RS-232 In (grey)** – Control from an external device. If the camera and CCU will be controlled using a ProductionVIEW console or other camera control system, connect it to this port. Daisy-chain topology is not supported.
- **RS-232 to Camera (blue)** – Camera control. Connect to the camera’s RS-232 port.
- **Local** – Install the 2-pin 5.0 mm Euro-style connector to use the tally function. In a multi-camera CCU installation, this lights the blue indicator on the front panel when this camera and Universal CCU combination is the live program. A tally command is also sent to the RoboSHOT camera via RS-232, illuminating its front indicator.
- **8-position DIP switch** – The DIP switch lets you configure the way the camera and Universal CCU behave. The default position for all switches is DOWN. (Note that the default position for the DIP switch on the camera is all UP.)
  - Switch 1: UP to load Scene A on power-up or reboot.
  - Switch 5: UP to access adjustments for the display on the front panel.
- **Video from Camera (yellow and orange)** – Receives the camera’s differential video signals from the camera’s EZ-POWER VIDEO connection.
- **HD Video Outputs** – The Universal CCU provides simultaneous video output in three formats, at the same resolution as the video input:
  - **HD YPbPr** – Resolution/frame rate up to 1080p/60
  - **HDMI** – Resolution/frame rate up to 1080p/60
  - **HD-SDI** – 3Gb/s Single Link 1080p/60 HD-SDI
Quick-Connect USB Interface

This is a versatile USB 2.0 device for environments using soft conferencing applications. With simultaneous HDMI and HD analog component (YPbPr) video outputs and your choice of either USB or IP streaming, plus a web interface for ease of configuration, the Quick-Connect USB is an ideal connectivity solution for many environments.

Front panel features:
- **Back-lit LCD display** – During normal operation, the display shows the MAC address and IP address for the Quick-Connect. When the Quick-Connect is booting, the display shows an initialization message.
- **Power System Reset button** – Illuminates when the Quick-Connect is connected to power. Press and hold the button to reboot the Quick-Connect.
- **USB indicator** – Illuminates when there is a USB connection to a computer. Blinks to show USB activity.
- **Network indicator** – Illuminates when there is a network connection. Blinks to shown network activity.

Back panel features:
- **24 VDC 2.0 A power connector** – Connect only the power supply shipped with the Quick-Connect.
- **5-position DIP switch** – Setting for HDMI color space; firmware update configuration; factory reset.
- **RS-232 In** – Camera control input from a Vaddio joystick controller or other controller.
- **EZ-Power Video** – Power to the camera and video from the camera.
- **RS-232 Out to Camera** – Control signals to the camera; may originate from the connected camera controller or the web interface.
- **YPbPr** – Analog component video output from the camera.
- **HDMI** – HDMI video output from the camera.
- **Network** – Connect to the network for IP streaming and camera control via web interface or Telnet, and for access to the Quick-Connect’s web interface.
- **USB** – Connect to a USB 2.0 port on the computer running the soft conferencing or video capture application.
Quick-Connect USB Mini Interface

This interface provides basic USB 2.0 connectivity for environments using soft conferencing applications. Available input/camera resolutions are 720p/60, 720p/59.94, and 720p/50.

The Quick-Connect USB Mini is typically mounted with the connector panel facing up.

Front panel features:
- **USB** – Connect to a USB 2.0 port on the computer running the soft conferencing or video capture application.
- **Power** – Illuminates when power is connected.

Back panel features:
- **24 VDC 2.08 A power connector** – Connect only the power supply shipped with the Quick-Connect.
- **Mode** – Press to switch between USB streaming mode and web control mode. Press and hold to reset the Quick-Connect to its factory defaults.
- **EZ-Power Video** – Power to the camera and video from the camera.
- **RS-232 to Camera** – Control signals to the camera.
Quick-Connect DVI/HDMI-SR Interface

This interface provides connectivity to older equipment.

Back panel features:

- **Power** – Illuminates when power is connected.
- **24 VDC 2.0 A power connector** – Connect only the power supply shipped with the Quick-Connect.
- **Color Space** – Toggles between HDMI YCbCr and sRGB (RGBHV) color space to accommodate either HDMI or DVI-D monitors.
- **RS-232 Control Input** – Camera control input from a Vaddio joystick controller or other controller.
- **RS-232 Control Out to Camera** – Control signals to the camera.
- **Daisy Chain** – Daisy Chain Control Emulation (DCCE) output to the next Quick-Connect DVI/HDMI-SR interface.
- **IR Output** – Forwards IR signals from the camera to third party equipment such as videoconferencing codecs. Use the MOD signal if the IR is from a remote or other IR emitter; use the NON-MOD signal for wired connections.
- **DVI-D/HDMI** – HDMI 1.3 and DVI v 1.0 compliant. With a DVI to HDMI adapter, extends HDMI to an output device up to 100 ft. (30 m) away.
- **YPbPr** – Analog component video output from the camera. Resolutions up to 1080p/60.
- **EZ-Power Video** – Power to the camera and video from the camera. Maximum cable distance 100 ft. (30 m).
Quick-Connect SR Interface

This interface provides basic connectivity to older equipment. The Quick-Connect SR interface has been discontinued and is not available for the RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 cameras, though it will work with them.

Back panel features:
- **24 VDC 2.0 A power connector** — Connect only the power supply shipped with the Quick-Connect.
- **EZ-Camera Power & HD Video** — Power to the camera and video from the camera. On some units, this port is color-coded orange.
- **HD Video Output YPbPr** — Analog component video output from the camera. SD video resolutions (Y/C and CVBS formats) are not supported by the Quick-Connect SR Interface; however, analog component SD (high fps format - 480p/59.94 and 576p/50) video is supported.
- **IR Output** — Forwards IR signals from the camera to third party equipment such as videoconferencing codecs. Use the MOD signal if the IR is from a remote or other IR emitter; use the NON-MOD signal for wired connections.
- **RS-232 Input and RS-232 Out to Camera** — Route RS-232 control through the Quick-Connect device for ease of cabling. Connect RS-232 Input to an optional camera controller, and connect RS-232 Out to Camera to (you guessed it) the camera.
Installing the Camera and Quick-Connect Device

This section covers:
- Selecting the location for the camera and Quick-Connect device
- Installing the camera mount
- Mounting the Quick-Connect device
- Information on cables and RS-232 communication
- Settings for the physical switches on the camera and the Quick-Connect devices
- Connection diagrams
- Mounting the camera

And a required safety note here:

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

Don't Void Your Warranty!

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

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

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

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

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

- Consider camera viewing angles, lighting conditions, line-of-sight obstructions, and in-wall obstructions.
- If the IR Remote Commander will be used, ensure that nothing blocks the IR lens in the camera’s base.
- Ensure that the camera body can move freely and point away from the ceiling and lights.

Prepare for a successful installation:

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

Installing the Wall Mount

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

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

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

About Ceiling-Mounted Cameras

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

Non-architectural RoboSHOT cameras use a rotary switch to set output resolution. Set the desired video output resolution with the rotary switch before installing the camera. Note that the video resolutions are mapped differently on the rotary switch for the newer Elite-series cameras.

**RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 only**: If the camera has been updated to version 3.1.0 firmware or later, Position 0 selects software control. Set video output resolution in the web interface. The default resolution is 720p/59.94. This capability is not available in earlier firmware versions or on the older RoboSHOT 12 and RoboSHOT 30 cameras.

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

**RoboSHOT 12 and RoboSHOT 30 cameras**

![Rotary Switch](image)

**RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 cameras**

![Rotary Switch](image)

**Note**
The Quick-Connect Universal CCU supports frame rates of 50 fps and above. Switch selections 9 through C are valid for the camera but not supported on the QCCU.

**Note**
The Quick-Connect USB Mini supports only 720p/60, 720p/59.94, and 720p/50. Other resolution settings are valid for the camera but not supported on the QMini.
Camera Behavior Settings – RoboSHOT 12 and RoboSHOT 30

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

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

Set the switches appropriately before mounting the camera.

After the camera is installed, you can read the switches from the camera's web interface.

Note

When the camera is not inverted, DIP switches are in their default positions when they are up.

IR1, IR2, IR3 (Frequency Selection): If there are multiple cameras in the room, use switches 1 and 2 to configure each with a different IR frequency to allow the IR Remote Commander to control them independently. Then use the Camera Select buttons at the top of the remote to select the camera you want to control.

- SW1 and SW2 up: IR frequency 1
- SW1 down, SW2 up: IR frequency 2
- SW1 up, SW2 down: IR frequency 3

IR Out: Leave switch 3 UP if the IR remote will be used. If the system will be controlled from another device, set the switch DOWN. This turns off the IR sensors in the front of the camera, so that all control is via the RS-232 connection.

Image Flip: If mounting the camera upside-down, set switch 4 DOWN: IMAGE FLIP ON. This orients the video image correctly and sets the tilt motors to respond appropriately to tilt up and down commands from the remote, web interface, and connected control devices.

Super Wide Mode (RoboSHOT 12 only): To use Super-wide mode, set switch 5 DOWN. This gives 12X zoom with a 73° horizontal field of view. Normal mode provides 10X zoom with a 67.2° horizontal field of view (HFOV).

Baud Rate: Set switch 6 to the baud rate of the device connected to the RS-232 port. The default is 9600 bps. The 38400 baud setting is optional if the connected control device supports it.

For RoboSHOT 30, Switch 5 is not used. Switches 7 and 8 are not currently used on either RoboSHOT 12 or RoboSHOT 30.
Switch Settings for the Universal CCU

The default position for DIP switches on the Universal CCU is down. On RoboSHOT cameras, the default position is up. Please double-check switch positions on both units if the camera does not perform as expected.

Switch 1:
- UP to load CCU Scene A on power-up (Custom Scene 1 must be defined on the camera)
- DOWN to use the color and lighting settings associated with the camera's Home preset

Switch 5:
- UP to include the front panel display controls on the menu
- DOWN to hide the display controls (all other menu items remain available)

The other switches are not used.

Switch Settings for the Quick-Connect USB

The default position for DIP switches on the Quick-Connect USB is up, as it is on RoboSHOT cameras.

Switch 3:
- UP for HDMI (YCbCr) color space
- DOWN for DVI (sRGB) color space

Switch 4:
- UP for normal operation
- DOWN to enable firmware update

The other switches are not used.
RS-232 Serial Communication Settings

The RS-232 serial port (color-coded blue) provides a means of controlling the camera from a third-party device. Be sure the camera is set to the same baud rate as the external control device.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Speed</td>
<td>9600 or 38400 baud, selectable</td>
</tr>
<tr>
<td>Number of start bits</td>
<td>1</td>
</tr>
<tr>
<td>Number of stop bits</td>
<td>1</td>
</tr>
<tr>
<td>Number of data bits</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Flow control</td>
<td>None</td>
</tr>
</tbody>
</table>

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

RS-232 Connector Pin-Out

- Pin 1: Not used
- Pin 2: Not used
- Pin 3: Not used
- Pin 4: IR Output (Diff Signal to Quick-Connect SR)
- Pin 5: IR Ground (Diff Signal to Quick-Connect SR)
- Pin 6: GND (GND of IR Short Range - Pin 3)
- Pin 7: RXD (from TXD of control source)
- Pin 8: TXD (to RXD of control source)

Caution

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

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

Intact – will make reliable contact with cable connector

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

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

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

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

Connecting the Camera

This section provides connection diagrams for each RoboSHOT system:
- RoboSHOT QCCU (includes systems with RoboSHOT Elite cameras)
- RoboSHOT QUSB (includes systems with RoboSHOT Elite cameras)
- RoboSHOT QMini (includes systems with RoboSHOT Elite cameras)
- RoboSHOT QDVI (includes systems with RoboSHOT Elite cameras)
- RoboSHOT QSR (RoboSHOT 12 and RoboSHOT 30 only)
- RoboSHOT AVBMP (includes RoboSHOT Elite cameras)

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

- Installing cameras with Quick-Connect USB devices on a non-DHCP network: *configure each camera and each Quick-Connect USB device* with static IP addresses before connecting them to the network.
- Installing cameras with other Quick-Connect devices on a non-DHCP network: *configure each camera* with a static IP address before connecting it to the network.
- Installing cameras with an AV Bridge MATRIX PRO on a non-DHCP network: *configure each camera* with a static IP address before connecting it to the network. The AV Bridge MATRIX PRO will also need a static IP address.

If you need to do any of these things, work with the network administrator to determine the appropriate network configuration.

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

**Basic Connections: RoboSHOT QCCU System**

RoboSHOT QCCU systems ship with the camera and a Quick-Connect Universal CCU (QCCU). The QCCU powers the camera and provides fine control over color and lighting (CCU) adjustments. This system is designed for a live production environment and is typically installed with a camera controller and multi-view preview monitor.

**Caution**

Connect the power cable from the QCCU to the camera’s power port marked **36 VDC For QCCU Only**. DO NOT connect it to the camera’s EZ-Power Video port. Connecting the power cable from the QCCU to the wrong port on the camera will damage the camera and void your warranty.

**Pro Tip**

*Use the color coding on the camera and the QCCU – blue goes to blue, yellow/orange goes to yellow/orange, red goes to red.*

This diagram shows a RoboSHOT 12 camera. The RoboSHOT 30, RoboSHOT 12E CAT-5, and RoboSHOT 30E CAT-5 connect in the same way.
Basic Connections: RoboSHOT QUSB System

RoboSHOT QUSB systems ship with a USB 2.0 cable to connect the Quick-Connect USB to a computer running a soft conferencing application. The Quick-Connect USB provides connections for a camera controller or other control device, and HDMI and YPbPr (analog component video) outputs to display video from the camera (near-end video).

This diagram shows a RoboSHOT 12 camera. The RoboSHOT 30, RoboSHOT 12E CAT-5, and RoboSHOT 30E CAT-5 connect in the same way.
Basic Connections: RoboSHOT QMini System

RoboSHOT QMini systems ship with a USB 2.0 cable to connect the Quick-Connect USB Mini to a computer running a soft conferencing application. The Quick-Connect USB Mini provides power and connectivity to the camera, and brings the camera's video to the computer via USB connection.

This diagram shows a RoboSHOT 12 camera. The RoboSHOT 30, RoboSHOT 12E CAT-5, and RoboSHOT 30E CAT-5 connect in the same way.
Basic Connections: RoboSHOT QDVI System

The Quick-Connect DVI/HDMI-SR provides power and control to the camera, brings camera video to the connected display, and offers daisy-chaining capability for legacy equipment. DVI/HDMI and YPbPr (analog component video) outputs accommodate older displays.

If using the IR FORWARD connector:
- Use the MOD and GND pins (1 and 2) for balanced (differential) IR. Because it is a differential signal, you can swap the two wires.
- Use the GND and NON-MOD pins (2 and 3) for unbalanced (single-ended) IR, for example if connecting to Polycom equipment. Because it is not a differential signal, pin 2 must go to the GND connection at the other end of the cable.

This diagram shows a RoboSHOT 12 camera. The RoboSHOT 30, RoboSHOT 12E CAT-5, and RoboSHOT 30E CAT-5 connect in the same way.
Basic Connections: RoboSHOT QSR System

The Quick-Connect SR interface provides power and control to the camera, and a YPbPr (analog component video) output. External control is via an RS-232 connected device.

If using the IR FORWARD connector:
- Use the MOD and GND pins (1 and 2) for balanced (differential) IR. Because it is a differential signal, you can swap the two wires.
- Use the GND and NON-MOD pins (2 and 3) for unbalanced (single-ended) IR, for example if connecting to Polycom equipment. Because it is not a differential signal, pin 2 must go to the GND connection at the other end of the cable.

This diagram shows a RoboSHOT 12 camera. The RoboSHOT 30 camera connects in the same way. The Quick-Connect SR has been discontinued and is not available for the RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 cameras.

Basic Connections: RoboSHOT AVBMP

RoboSHOT AVBMP cameras ship with a remote and a wall mount. Connect the camera to an AV Bridge MATRIX PRO for power, control, and connectivity. Up to three cameras can be connected at once.

This diagram shows a RoboSHOT 12 camera. The RoboSHOT 30, RoboSHOT 12E CAT-5, and RoboSHOT 30E CAT-5 connect in the same way.
Installing the Camera

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

If you are installing the camera with a Quick-Connect USB or Quick-Connect USB Mini on a network that uses static IP addressing (a non-DHCP network), be sure you have already configured the camera appropriately for the network.

**Caution**

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

1. Route the cables to the camera location.
2. Route the cables through the mount, and install the mount on the wall or attach it to the wall box. Leave the screws loose enough to adjust the position of the mount.
3. Level the mount and tighten the mounting screws.
4. Connect the cables to the camera.
   - If using a Quick-Connect Universal CCU, connect the 36 VDC To Camera output to the camera's 36 VDC From QCCU Only port.
   - If connecting the camera to any other Quick-Connect device or to an AV Bridge Matrix Pro, connect power to the EZ Power Video port.

   Be sure to connect the cables correctly. Connecting a cable to the wrong port could damage the camera and void the warranty.

5. Place the camera on the mount.

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

Images for illustration only; not to scale. Camera and mount details may differ.
Installing the Quick-Connect Device

If you are installing the camera with a Universal CCU or other Quick-Connect device, mount the Quick-Connect device appropriately. Follow the instructions provided with the mounting solution.

- The Universal CCU may be mounted in a rack using the rack mounting brackets provided.
- The Quick-Connect SR may be mounted directly to the camera wall mount.
- Rack mounting brackets and under-table mounting brackets are available for the Quick-Connect USB.
- Rack mounting brackets are available for the other Quick-Connect devices.

Contact us if you don’t have the mount you need.

Powering Up the Camera

Connect power to the device that powers the camera—Universal CCU, Quick-Connect device, or AV Bridge MATRIX PRO. The device and the camera will initialize. This will take a few seconds. When the camera is initialized and ready, its front indicator is blue. At this point, it is ready to accept control information.

Note
Wait until the camera finishes initializing before trying to control it using the IR remote or other command input.

Status Light

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

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

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

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

The IR remote provides basic camera control.

**IR Remote Cheat Sheet**

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

The Vaddio remote provides the following functions:

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

**Power indicator** – Lights momentarily when you press a button.

**Back Light** – Use or turn off Back Light Compensation.

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

**Camera Select** – In multi-camera installations, selects the camera to be controlled. For older cameras with DIP switches on the back, see DIP Switches: Camera Behavior Settings for information on configuring the camera as camera 1, 2, or 3. For the newer Elite series cameras, see Basic Camera Settings for RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5.

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

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

**Pan/Tilt Reset** – Not used.

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

**Zoom Speed** – Select Slow or Fast movements for telephoto and wide-angle shots.
- T slow and T fast – Telephoto (zoom in)
- W slow and W fast – Wide-angle (zoom out)

**Manual Focus** – Switch the camera to Manual Focus mode.

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

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

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

**Reset** – Clear a saved preset.

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

The web interface offers greater control over camera movements to presets (such as setting the speed for Tri-Synchronous Motion), and provides additional presets.

### Storing a Preset Using the Remote

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

### Clearing a Preset Using the Remote

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

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

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

For cameras powered by a Quick-Connect USB or Quick-Connect USB Mini: These devices have network connectivity and web interfaces. In an network that does not automatically assign IP addresses, you will need to configure the camera with a different IP address to prevent IP address conflicts.

Getting the Camera’s IP Address

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

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

If the address is 169.254.1.1, the camera is using its default IP address. This usually means one of these things:
- The network automatically assigns IP addresses, but the camera is not connected to the network.
- The network does not automatically assign IP addresses, and you need to configure the camera for the network. See Configuring the Camera with a Static IP Address.

Accessing the Web Interface

Enter the IP address or hostname in your browser's address bar. You may need to enter http:// or https:// as a prefix to keep the browser from treating it as a search query.
(Example: http://10.30.200.125)

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

Browser Support

We have tested this product with these web browsers:
- Chrome®
- Microsoft® Internet Explorer®
- Safari®
- Firefox®

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

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

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

Your camera’s Controls page will look somewhat different.
Administrative Access

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

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

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

*Note*

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

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

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

Performance and behavior configuration tasks are on the following pages, listed in the upper portion of the left navigation panel:

- Camera page – Control the camera, make adjustments, create and manage presets and CCU scenes.

Compact Menu View

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

Quick-Connect USB and Quick-Connect USB Mini devices have their own web interfaces. Other Quick-Connect devices have no network connectivity, so they do not have web interfaces and do not need to be configured for your environment.

In addition to the administrative control pages, the Quick-Connect USB and Quick-Connect USB Mini web interfaces provide minimal camera controls, which are normally used with older cameras. For full camera functionality, use the IR Remote Commander or the camera's web interface.

Because the web interfaces for the Quick-Connect USB and Quick-Connect USB Mini are very similar, in many cases only the Quick-Connect USB web interface is shown in this manual.

During initial set-up and configuration, you may find it convenient to access the web interfaces for the camera and the Quick-Connect USB or Quick-Connect USB Mini on separate browser tabs.

Getting the Quick-Connect Device's IP Address

To access the web interface of the Quick-Connect USB or Quick-Connect USB Mini device, you will need to know its IP address.

- The Quick-Connect USB device displays its IP address on its front panel.
- The Quick-Connect USB Mini device's IP address is 169.254.1.1, and is not configurable.

Note

If a RoboSHOT camera is used with a Quick-Connect USB or Quick-Connect USB Mini device in a non-DHCP environment, the camera and the Quick-Connect device will default to the same IP address. You will need to configure the camera with a different IP address before connecting it to the network.

Quick-Connect USB Mini: Video Mode vs. Control Mode

When you try to access the web interface for the Quick-Connect USB Mini, your browser may present an error message.

The Quick-Connect USB Mini has two operating modes:

- **Video mode** – The Quick-Connect USB Mini passes camera control and video signals. The web interface is not available.
- **Control mode** – The web interface for the Quick-Connect USB Mini is available. The device does not pass control or video signals.

Press the Mode button to switch between video mode and control mode.
Accessing the Web Interface for the Quick-Connect USB or Quick-Connect USB Mini

1. **Quick-Connect USB Mini only**: If video is currently available on the connected display, press the Mode button on the Quick-Connect USB Mini.
2. Access the Quick-Connect device’s web interface the same way you access the camera’s web interface: Enter the IP address or hostname in your browser’s address bar.
3. Select Admin to log in. The default admin password is **password**.
4. **Quick-Connect USB Mini only**: After you have finished working with the web interface, press the Mode button again to return to video mode.

The Quick-Connect USB and Quick-Connect USB Mini web interfaces open to the Camera Controls page. From this page, you can log in as admin to manage the device.

As admin, you have access to administrative and configuration pages similar to those available in the camera’s web interface, plus a few controls for the camera. The camera controls were designed to be used with older cameras that lacked web interfaces. When using a Quick-Connect device with a RoboSHOT camera, Vaddio recommends using the Quick-Connect device’s web interface only for managing the Quick-Connect device itself.
**Web Interface Cheat Sheet**

Where to find the camera controls you need right now.

<table>
<thead>
<tr>
<th>What controls do you need?</th>
<th>Go to this screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera operation</td>
<td>(any page)</td>
</tr>
<tr>
<td>- Stop sending video (video mute)</td>
<td></td>
</tr>
<tr>
<td>- Enter or exit standby mode</td>
<td></td>
</tr>
<tr>
<td>Camera operation</td>
<td>Controls (user or guest access) or Camera (admin access)</td>
</tr>
<tr>
<td>- Move or zoom the camera manually</td>
<td></td>
</tr>
<tr>
<td>- Move to a camera preset (Presets section, if available)</td>
<td></td>
</tr>
<tr>
<td>- Select the appropriate lighting adjustments (CCU Scenes section, if available)</td>
<td></td>
</tr>
<tr>
<td>Camera behavior and adjustments</td>
<td>Camera</td>
</tr>
<tr>
<td>- Set or clear presets</td>
<td></td>
</tr>
<tr>
<td>- Set the speed for pan, tilt, or zoom motions</td>
<td></td>
</tr>
<tr>
<td>- Focus the camera</td>
<td></td>
</tr>
<tr>
<td>- Work with color and lighting adjustments (CCU scenes)</td>
<td></td>
</tr>
<tr>
<td>- Set motors for inverted operation (Settings button reveals the control)</td>
<td></td>
</tr>
<tr>
<td>Camera behavior settings – RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5</td>
<td>System (DIP Switches tab)</td>
</tr>
<tr>
<td>On older RoboSHOT cameras, these settings are on the rear panel DIP switches.</td>
<td></td>
</tr>
<tr>
<td>- IR1, IR2, IR3 (Frequency Selection) for controlling up to 3 cameras independently with the remote</td>
<td></td>
</tr>
<tr>
<td>- IR on/off for enabling/disabling control via the remote</td>
<td></td>
</tr>
<tr>
<td>- Image Flip for inverted camera installation</td>
<td></td>
</tr>
<tr>
<td>- Baud rate for RS-232 serial communication</td>
<td></td>
</tr>
<tr>
<td>Advanced camera settings</td>
<td>System (DIP switches tab, General tab)</td>
</tr>
<tr>
<td>- HDMI color space (YCbCr or sRGB; default is YCbCr)</td>
<td></td>
</tr>
<tr>
<td>- Super-wide field of view (not available on 12E and 30E models)</td>
<td></td>
</tr>
<tr>
<td>- Indicator light – select color scheme, enable/disable, set behavior in standby mode</td>
<td></td>
</tr>
<tr>
<td>- Codec control mode</td>
<td></td>
</tr>
<tr>
<td>Read-outs of the camera's hardware switch settings</td>
<td>System (DIP switches tab)</td>
</tr>
<tr>
<td>Access management</td>
<td>Security</td>
</tr>
<tr>
<td>- Guest access</td>
<td></td>
</tr>
<tr>
<td>- Account passwords</td>
<td></td>
</tr>
<tr>
<td>- Idle session time-out</td>
<td></td>
</tr>
<tr>
<td>- Telnet access enabled/disabled</td>
<td></td>
</tr>
<tr>
<td>What controls do you need?</td>
<td>Go to this screen</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Network settings</td>
<td></td>
</tr>
<tr>
<td>- Hostname</td>
<td>Networking</td>
</tr>
<tr>
<td>- DHCP or static addressing</td>
<td></td>
</tr>
<tr>
<td>- Static: IP address, subnet mask, gateway</td>
<td></td>
</tr>
<tr>
<td>Time zone and NTP server (source for system time/date)</td>
<td>Networking</td>
</tr>
<tr>
<td>Information about the camera location</td>
<td>Room Labels</td>
</tr>
<tr>
<td>Help desk phone number for end users</td>
<td></td>
</tr>
<tr>
<td>Vaddio Technical Support contact information</td>
<td>Help</td>
</tr>
<tr>
<td>Diagnostic logs</td>
<td>Diagnostics</td>
</tr>
</tbody>
</table>

The structure of the Quick-Connect USB and Quick-Connect USB Mini web interfaces is nearly identical to the structure of the camera's web interface.
System Administration

This chapter covers settings for managing the camera as an element of your network. Administrative tasks are on these pages of the web interface:

- Networking – Time settings, hostname, and other network configuration
- Security – Passwords, guest access, other IT security-related settings
- Room Labels – Helpful information to display in the web interface
- System – Controls to reboot, reset to factory defaults, and run firmware updates, read the rear panel switches, and access the soft DIP switches
- Help – Contact information for Vaddio Technical Support and a link to the documentation for this product
- Diagnostics – Logs to help Vaddio Technical Support troubleshoot issues

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

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

Note
Quick-Connect USB and Quick-Connect USB Mini devices provide a web interface that allows them to be configured and managed separately. The Quick-Connect web interfaces follow the same structure as the camera's web interface, and present similar system administration pages. This chapter includes information about the camera and the Quick-Connect device.
For Non-DHCP Environments: Configuring the Device with a Static IP Address for Initial Installation

**Caution**

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

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

The Quick-Connect USB is also set to DHCP by default. If no DHCP server is available to automatically assign an address, the Quick-Connect USB uses the same default IP address as the camera: 169.254.1.1.

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

If you are installing in any of these environments, you will need to follow this procedure.

- Installing cameras with Quick-Connect USB devices on a non-DHCP network: configure each camera and each Quick-Connect USB device with static IP addresses before connecting them to the network.
- Installing cameras with other Quick-Connect devices on a non-DHCP network: configure each camera with a static IP address before connecting it to the network.
- Installing cameras with an AV Bridge MATRIX PRO on a non-DHCP network: configure each camera with a static IP address before connecting it to the network. The AV Bridge MATRIX PRO will also need a static IP address.

**Note**

*If the camera is currently at an IP address other than 169.254.1.1, skip this section unless you are instructed to configure the camera with a static IP address.*
To access the camera’s Networking page during installation (skip this procedure if the camera has already been in service on this network):

1. Connect the camera to the Quick-Connect device according to the appropriate connection diagram, but *do not connect the camera to the network*.

2. Connect the network port on the camera to the network port on a computer. Depending on the computer, you may need a crossover cable.


4. Log in as admin. The default password is `password`.

5. Navigate to the Networking page.
To configure the camera with a static IP address:

1. Work with your IT department to determine the correct IP address, subnet mask, and gateway to assign.
   
   *If you are connecting a camera with a Quick-Connect USB device, get the same information for both. The camera and the Quick-Connect device must have different IP addresses.*

2. On the Networking page, set IP Address to Static.

3. Enter the IP address, subnet mask, and gateway as directed by the IT staffer; then save your work.

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

**Configuring the Quick-Connect USB Device with a Static IP Address**

**NETWORKING PAGE, QUICK-CONNECT USB WEB INTERFACE**

*Caution*

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

Like the camera, the Quick-Connect USB defaults to DHCP. If no DHCP server is available, the Quick-Connect USB uses the same default static IP address as the camera: 169.254.1.1.
1. Work with your IT department to determine the correct IP address, subnet mask, and gateway to assign, if you have not done so already.

2. Connect the network port on the Quick-Connect USB to the network port on a computer. Depending on the computer, you may need a crossover cable.

3. On the computer, open a browser and access the Quick-Connect USB device’s web interface.

4. Log in as admin. The default password is `password`.

5. Select Networking from the navigation pane.

6. Set IP Address to Static.

7. Enter the IP address, subnet mask, and gateway as directed by the IT staffer; then save your work.

The Quick-Connect USB device is now ready to be connected to the network.
Changing the Camera’s Hostname

**NETWORKING PAGE**

If your network supports hostname resolution, you may find it convenient to change the camera’s hostname to something easy to remember, such as `camera-center-boardroom`. Work with your IT department to ensure that the new hostname conforms to the organization’s naming conventions.

![Hostname Configuration](image1)

Changing the Quick-Connect Device’s Hostname

**NETWORKING PAGE, QUICK-CONNECT WEB INTERFACE**

If the camera is connected to a Quick-Connect USB or Quick-Connect USB Mini, you can also assign a hostname to Quick-Connect device.

The Networking page in the web interface for the Quick-Connect USB Mini is similar to the one for the Quick-Connect USB shown here.

![Quick-Connect USB Configuration](image2)
Optional For DHCP Environments: Changing from a DHCP Address to a Static IP Address

**NETWORKING PAGE**

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

If you install the camera with a Quick-Connect USB device, you can make its IP address static also. This setting is on the Networking page of the Quick-Connect USB web interface.
Specifying Time Zone and NTP Server

NETWORKING PAGE

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

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

You may need to refresh the system time display.
Managing Access and Passwords

**SECURITY PAGE**

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

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

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

Disabling Telnet Access

**SECURITY PAGE**

If your installation does not require camera access via Telnet, you may choose to disable the camera’s internal Telnet server.
Enabling or Requiring HTTPS

SECURITY PAGE

By default, the web interface uses the HTTP protocol. You can configure the camera’s web interface to require a secure HTTPS connection instead.

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

1. Select Show Advanced Settings. The advanced options open.
2. To switch to a secure HTTPS connection, select Switch to HTTPS.
   
   Note
   Your browser may present messages warning you that your connection is not secure, because the site’s certificate is not valid. This happens when HTTPS is used but no SSL certificate is installed.

3. To require HTTPS connections, clear the box labeled HTTP Access Enabled. The camera’s web interface will only be available via an HTTPS connection.
Changing the Admin Password on the Quick-Connect Device

SECURITY PAGE, QUICK-CONNECT WEB INTERFACE

Default passwords for both User and Admin are `password`. At this time, the User password is not required.

Note

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

Be sure you have a way to remember the Admin password if you change it.
Adding Room Information to the Camera's Web Interface

**ROOM LABELS PAGE**

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

Adding Room Information to the Quick-Connect Device's Web Interface

**ROOM LABELS PAGE, QUICK-CONNECT WEB INTERFACE**

Use the Room Labels information to help you identify the Quick-Connect USB or Quick-Connect USB Mini connected to a specific camera.

The Room Labels page in the web interface for the Quick-Connect USB Mini is similar to the one for the Quick-Connect USB shown here.
Saving (Exporting) or Restoring (Importing) a Camera Configuration

SYSTEM PAGE, Firmware Tab

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

1. Configure the first camera.

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

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

Note

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

**SYSTEM PAGE, FIRMWARE TAB**

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

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

**SYSTEM PAGE, QUICK-CONNECT WEB INTERFACE**

The procedure for updating the firmware on a Quick-Connect USB or Quick-Connect USB Mini device is similar to the procedure for updating the camera's firmware.

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

**Caution**
The Quick-Connect device must remain connected to power and to the network during the update. Interrupting the update could make the camera unusable.

**Note**
For instructions on updating the Universal CCU, see [Installing a Firmware Update on the Universal CCU](#).
Installing a Firmware Update on the Universal CCU

1. Download the firmware and its release notes. The release notes include detailed instructions on installing the firmware.

2. If you have Vaddio Loader installed on your computer, check the version (Help::About). If you have a version earlier than what is specified in the Universal CCU release notes, uninstall it.

3. If you do not already have the latest version of Vaddio Loader, download it from support.vaddio.com and install it on your computer.

4. Disconnect power from the Universal CCU.

5. Connect the Universal CCU’s RS-232 IN port to your computer’s serial port. Be sure you know which COM port it is. (For Windows operating systems, this information is available in the Device Manager.)

6. On the Universal CCU, press and hold the recessed button near the power socket while reconnecting power. The Tally light will blink once, and the LCD screen will be black with no text.

   Note

   If the LCD screen displays information, the Universal CCU is NOT in boot-loader mode. Disconnect power and repeat this step.

7. Follow the instructions in the release notes to install the firmware on the Universal CCU.
Rebooting the Camera

SYSTEM PAGE, FIRMWARE TAB

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

Rebooting the Quick-Connect Device

SYSTEM PAGE, QUICK-CONNECT WEB INTERFACE

You can reboot the Quick-Connect USB or Quick-Connect USB Mini device the same way you reboot the camera. Select Reboot from the System page.
Contacting Vaddio Technical Support

HELP PAGE

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

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

Accessing the Diagnostic Logs

DIAGNOSTICS PAGE

When you contact Vaddio technical support, your support representative may ask you to download and email the log file available from the Diagnostics page.

If the camera is connected to a Quick-Connect USB or Quick-Connect USB Mini device, you can access the device's diagnostic logs on the Diagnostics page of its web interface.
Configuring Camera Behavior

This chapter covers managing the camera as a part of the room’s AV environment. Camera configuration tasks are available on these pages:

- **Camera** – Color and lighting adjustments, presets (including custom Home), and real-time camera control
- **System (DIP Switches tab)** – Camera identification (Camera 1, 2, or 3 on the remote), status light behavior, codec control mode, and more
- **Streaming** (available with Quick-Connect USB and Quick-Connect USB Mini only) –
  - Quick-Connect USB Mini: USB device name and color space only; both are optional
  - Quick-Connect USB: Streaming mode (USB or IP); USB device name and color space; IP video quality, bandwidth, and more

*Note*

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

Setting the Custom Home Position and Other Preset Shots

**CAMERA PAGE**

The camera’s default home position is 0° pan and 0° tilt; you can set a different home position. You can also define other presets, for shots that you will want to use repeatedly.

*Note*

Storing a preset overwrites any information that was previously associated with that preset. The Store Preset dialog does not show which presets have already been defined. Vaddio recommends renaming presets when you store them.
To store a preset or custom home position:
1. Set up the shot.
2. Select Store to open the Store Preset dialog.
3. Select the preset to define.
4. Select Store with Current Color Settings to save the current CCU settings along with the camera position.
5. Select Save with Tri-Sync to allow the pan, tilt, and zoom motors to move simultaneously from other presets to this position.
6. Store the preset.

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

Renaming Presets and Custom CCU Scenes
You can rename presets and custom scenes. The process is the same for both. Right-click the button for the custom scene or preset, and edit the label.
Initial Lighting and Color Settings

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

Adjust the camera for the lighting in use by selecting the CCU scene that best fits your environment.

Note

If the camera is connected to a Universal CCU, use the Universal CCU to manage lighting and color adjustments when you are in the same room as the equipment. See Managing Lighting and Color Adjustments with the Universal CCU.

You can still manage lighting and color adjustments from the camera’s web interface, if you are not in the same room with the equipment.

Some adjustments to lighting and color may be necessary.

Note

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

**CAMERA PAGE**
The camera provides settings to compensate for common lighting problems.
- **Auto Iris** allows the camera to compensate automatically for the light level.
- **Backlight Compensation** reduces contrast to adjust for bright light behind the main subject of the shot. Use this if the subject is in front of a window, projector screen, or other bright area and appears as a silhouette. This setting can't be used with Wide Dynamic Range.
- **Wide Dynamic Range** automatically darkens bright areas and brightens dark areas to provide a more properly exposed image in challenging lighting conditions. This setting can't be used with Backlight Compensation.
- **Point Light Compensation** reduces the intensity of small, extremely bright areas (point light sources) that would otherwise swamp the camera with light and make it difficult to see details in areas with less intense lighting. *This setting is only available on the RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 cameras. It is on the General tab of the System page.*

Depending on the camera's firmware version, additional settings may also be available on this tab. The [Lighting and Image Quality Cheat Sheet](#) may be helpful.

Fine-Tuning Image Quality and Color

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

If you change Red Gain or Blue Gain and you don’t like the results, start over by selecting and then deselecting Auto White Balance. The [Color Adjustment Cheat Sheet](#) may be helpful.
## Lighting and Image Quality Cheat Sheet

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

<table>
<thead>
<tr>
<th>What do you need to correct?</th>
<th>Make this adjustment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The image is too dark</td>
<td>Increase Iris (lower F-stop value)</td>
</tr>
<tr>
<td></td>
<td>Increase Iris Gain</td>
</tr>
<tr>
<td>The image looks washed out or faded</td>
<td>Decrease Iris (higher F-stop value)</td>
</tr>
<tr>
<td></td>
<td>Decrease Iris Gain</td>
</tr>
<tr>
<td></td>
<td>Increase Chroma</td>
</tr>
<tr>
<td></td>
<td>Decrease Gamma</td>
</tr>
<tr>
<td>The subject is silhouetted against a bright background</td>
<td>Enable Backlight Compensation</td>
</tr>
<tr>
<td>Small sources of bright light (point sources) make it hard to see details in areas with less intense lighting.</td>
<td>Enable Point Light Compensation (RoboSHOT 12E and 30E CAT-5 only)</td>
</tr>
<tr>
<td>Highlights and shadows look right, but mid-tones are too dark.</td>
<td>Increase Gamma</td>
</tr>
<tr>
<td>Shadows are too dark</td>
<td>Enable Wide Dynamic Range (WDR)</td>
</tr>
<tr>
<td></td>
<td>Decrease Gamma</td>
</tr>
<tr>
<td>The image looks grainy</td>
<td>Decrease Detail</td>
</tr>
<tr>
<td></td>
<td>Decrease Iris Gain</td>
</tr>
<tr>
<td>&quot;Soft focus&quot; effect; the image looks unrealistically smooth</td>
<td>Increase Detail</td>
</tr>
</tbody>
</table>
Color Adjustment Cheat Sheet

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

<table>
<thead>
<tr>
<th>What do you need to correct?</th>
<th>Make this adjustment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colors look less vivid than they should</td>
<td>Increase Chroma</td>
</tr>
<tr>
<td>Colors look too vivid</td>
<td>Decrease Chroma</td>
</tr>
<tr>
<td>Colors look wrong; white objects do not appear</td>
<td>Enable Auto White Balance</td>
</tr>
<tr>
<td>white</td>
<td>One Push White Balance</td>
</tr>
<tr>
<td></td>
<td>Disable Auto White Balance and</td>
</tr>
<tr>
<td></td>
<td>▪ adjust Red Gain (decrease for less red, increase</td>
</tr>
<tr>
<td></td>
<td>for less green)</td>
</tr>
<tr>
<td></td>
<td>▪ adjust Blue Gain (decrease for less blue, increase</td>
</tr>
<tr>
<td></td>
<td>for less yellow)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Too much red</th>
<th>Not enough red</th>
<th>Too much blue</th>
<th>Not enough blue</th>
<th>Balanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Color Wheel" /></td>
<td><img src="image2.png" alt="Color Wheel" /></td>
<td><img src="image3.png" alt="Color Wheel" /></td>
<td><img src="image4.png" alt="Color Wheel" /></td>
<td><img src="image5.png" alt="Color Wheel" /></td>
</tr>
</tbody>
</table>

Saving Color and Lighting Settings

**CAMERA PAGE**

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

1. Adjust lighting, image quality, and color.
2. When the scene looks the way you want it to, click Store CCU Scene.
3. In the Store CCU Scene dialog box, select which custom scene to store (Custom A, B, or C) and select Save.
4. Optional: Name the new scene by right-clicking its button. A dialog box opens. Enter the name and save it.
Adjusting the Focus

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

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

Speed Adjustments

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

About Tri-Synchronous Motion

The Tri-Synchronous Motion algorithm calculates the pan, tilt and zoom speeds needed for the camera to move to a preset position, so that all three movements begin together and arrive at the same time. It ensures smooth on-air movements when making large changes in position, particularly when the zoom also changes. Tri-Synchronous Motion is only available as an option for moving to specific preset position. Tri-Synchronous Motion is not helpful in movements of less than 10°, and is typically used only for on-air operation.
Setting the Speed for Manual Movements

CAMERA PAGE

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

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

Setting the Speed of Movements to Presets

CAMERA PAGE

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

CAMERA PAGE

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

1. Store a preset, checking Save with Tri-Sync and setting the speed slider about a third of the way along the scale.

2. Move the camera to a different pan, tilt, and zoom position, and save this position as another preset. Again, check Save with Tri-Sync; but set the speed slider to about the halfway point.

3. Move the camera from one preset to the other to evaluate which movement is closer to the speed you want. Use the Tri-Sync speed associated with that preset, or adjust it as needed.

4. Store all the presets you will need.

5. Switch among the presets to determine whether any of them should use different Tri-Sync speeds.

6. Adjust the speeds as needed.
Setting the Direction for Camera Movements

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

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

**SYSTEM PAGE, DIP SWITCHES TAB**

Open the DIP Switches tab to see the camera’s current switch settings and configure certain camera behaviors.

*Note*

*Sorry, this tab only controls the soft DIP switches. If your camera has physical switches, you have to physically move them to change the settings.*

This screenshot shows the DIP Switches tab for the older RoboSHOT 30 camera. The lower array of DIP switches is a read-out of the physical DIP switches on the back of the camera.

*Note*

*If your camera has been updated to firmware version 3.1.0 or later, most of the soft DIP switch settings are now on the General tab.*
Basic Camera Settings for RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5

SYSTEM PAGE, DIP SWITCHES TAB

Basic settings for the RoboSHOT E-series cameras are on the lower row of soft DIP switches. These correspond to the physical switches on the older RoboSHOT cameras.

**IR1, IR2, IR3 (Frequency Selection):** If there are multiple cameras in the room, use these two switches to configure each camera with a different IR frequency. Then use the Camera Select buttons at the top of the remote to select the camera you want to control. This allows the IR Remote Commander to control them independently.
- Left and right IR switches up: IR frequency 1
- Left IR switch down, right IR switch up: IR frequency 2
- Left IR switch up, right IR switch down: IR frequency 3

**IR On/Off:** Leave this switch UP if the IR remote will be used.

**Image Flip:** If mounting the camera upside-down, set the Image Flip switch ON. This orientsthe video image correctly and sets the tilt motors to respond appropriately to tilt up and down commands from the remote, web interface, and connected control devices.

**Baud Rate:** Set this switch to match the baud rate of the device connected to the RS-232 port.

---

![Soft DIP Switches](image.png)
Software-Controlled Video Output Resolution Setting

RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 only: If the camera has been updated to version 3.1.0 firmware or later, Position 0 selects software control. The default resolution is 720p/59.94. This capability is not available in earlier firmware versions or on the older RoboSHOT 12 and RoboSHOT 30 cameras.

Set the video output resolution on the System page, General tab.

Additional Camera Behavior Settings

**SYSTEM PAGE, DIP SWITCHES TAB AND GENERAL TAB**

If your camera has not been updated to version 3.1.x, additional features are available on the upper row of soft DIP switches. In firmware version 3.1.0 and later, most of these settings are on the General tab.

These settings are the same for all cameras in the RoboSHOT CAT-5 family.

- **LED color scheme** – Status light color codes for Pro AV (broadcast, the default setting) or UC (unified conferencing).
- **LED on/off** – When the LED is set to OFF, it remains off even when the camera is sending video.
- **Standard Control Mode/Codec Control Mode** – Select Codec Control Mode if using the camera with a third-party codec.
- **Enable LED in Standby** – When the LED is enabled in standby mode, it illuminates purple to show that the camera is in standby but connected to power. When the LED is disabled in standby mode, it is only on when the camera is active (sending video or updating firmware).
Pre-3.1.0 firmware:

Version 3.1.0 and later firmware:

Note
When the camera's rotary switch is at position 0, you can set video output resolution from this page. This capability is not available when the switch is in any other position.
Configuring Streaming (Quick-Connect USB or Quick-Connect USB Mini)

STREAMING PAGE, QUICK-CONNECT WEB INTERFACE

The Quick-Connect USB and Quick-Connect USB Mini devices provide streaming capability for RoboSHOT cameras.

- Quick-Connect USB Mini: USB 2.0 streaming only
- Quick-Connect USB: USB 2.0 or IP (H.264) streaming; configurable

The Quick-Connect USB defaults to USB 2.0 streaming.

Most aspects of USB streaming are negotiated automatically between the Quick-Connect device and the conferencing application, and in many cases no configuration is needed for either USB or IP streaming.

To select the streaming mode (Quick-Connect USB only):

Select the desired streaming mode if necessary. USB streaming is the default. The settings for the selected streaming mode are highlighted.

To configure USB streaming (Quick-Connect USB or Quick-Connect USB Mini):

If desired, give the Quick-Connect device a device name that helps people to identify and select it when setting up their laptops for conferencing.

In most cases you do not need to set the color space; this is automatically negotiated with the conferencing application.
To configure IP streaming (Quick-Connect USB only):

1. Select the desired video resolution. This cannot be higher than the video resolution set on the camera. Video resolution determines the size of the media player window displaying the stream on people’s computers.

2. Select the video quality. This determines how much bandwidth the stream uses.
   
   Pro tip
   A higher bandwidth setting provides better video if the network can support it, but can result in poor-quality video if the network has bandwidth limitations. A high video resolution setting combined with a high quality (bandwidth) setting requires the most network bandwidth. If the network cannot easily support this, video errors will be more likely and more obvious than at lower quality and/or resolution settings.

3. Select the streaming protocol if necessary. RTSP on port 554 is the default; the port number can be changed. Do not change the port number unless your IT staff directs you to do so. HLS is available for streaming to Apple iOS devices. HLS streaming is always on port 80.

4. Optional: Change the streaming URL path to help people identify the URL in their media player’s list of recent streams.

5. Save the changes you make on this page.
Managing Lighting and Color Adjustments with the Universal CCU

RoboSHOT cameras offer lighting and color adjustments through the web interface; the Universal CCU provides direct access to these adjustments at any time.

A Quick Look at the Menu Controls

- **Scenes buttons** – Press to select one of the camera’s three custom scenes when Scene Config is selected.
- **Function buttons** – Press to select an item to change while you are on the home menu.
- **Menu knob** – Navigation and adjustment modes. Not used for navigating to items on the home menu.
- **Select button** – Press to change the menu knob from adjustment to navigation.
- **Cancel button** – Press to change the menu knob from adjustment to navigation. This does not cancel or undo the current adjustment.

The items on the home menu correspond to the function buttons to the left of the menu knob.

**To work with an item on the home menu:**

1. Press the front panel button corresponding to the menu item. (On some older units, the Bright button is labeled Pedestal or Ped.)
2. Turn the menu knob to adjust the selected item.
   - **Exceptions:**
     - When the W Bal Auto button is illuminated, automatic white balance is selected and the Red and Blue settings cannot be adjusted. Press the W Bal Auto button to deselect automatic white balance.
     - When the Iris Auto button is illuminated, Auto Iris is selected and the Iris and Gain settings cannot be adjusted. Press the Iris Manual button to deselect Auto Iris.
3. When the item is adjusted properly, do one of these things:
   - Press another button to select a different menu item.
   - Press the Cancel button to put the menu knob back into navigation mode. This will not set the menu item back to its previous value.
   - Do nothing. After a few seconds, the display blinks once to indicate that the Menu knob has returned to navigation mode.
To work with items on other menus:

1. Turn the knob to navigate from the home menu to the item you need to change. The @ symbol indicates the menu item to which you have navigated.
2. Press the Select button to change the menu knob to adjustment mode. The @ symbol changes to a > symbol.
3. Turn the menu knob to adjust the selected item.
4. When the item is adjusted properly, do one of these things:
   - Press the Cancel button to put the menu knob back into navigation mode. This will not set the menu item back to its previous value.
   - Do nothing. After a few seconds, the display blinks once to indicate that the Menu knob has returned to navigation mode.

Available adjustments include:
- **Shutter** – Set the shutter speed. Range is 1 to 10000. This cannot be adjusted when Iris is in auto mode.
- **NR (Noise Reduction)** – Range is 0 through 5.
- **Wide Dynamic Range (WDR)** – On or Off. This cannot be enabled when Iris is in manual mode, nor can it be enabled when Backlight Compensation is enabled. The next three items are WDR adjustments.
  - **Display Brightness Level** – Range is 0 (dark) through 6 (bright).
  - **Brightness Compensation** – Range is 0 (dark) through 3 (bright).
  - **Compensation Level** – Range is 0 (low) through 2 (high).
- **Skew** – If the cables from the Universal CCU to the camera are not all the same length, video quality may be reduced. Change the skew setting to compensate for the difference in cable length. The optimum setting is usually in the middle of the range of skew values which pass acceptable video. Range is 1 through 16.
- **HDMI** – Set the HDMI color space. Default is YCrCb; sRGB is also available.
- **Y-Gain** – Adjust the video ±10 IRE at all outputs as needed for associated video equipment.
- **Scene Config** – Navigate through the six factory-defined CCU scenes, or press one of the three Scenes buttons to select a custom scene. If the selected custom scene has not been defined on the camera, the Universal CCU presents a message saying there is no such scene, and reverts to the default scene (Auto).
**Adjusting Color**

The [Color Adjustment Cheat Sheet](#) provides information on correcting specific issues.

**To calibrate the camera and use the automated capabilities:**
1. Ensure that Auto White Balance (the AUTO button under W BAL) is off.
2. Zoom in on a white object, such as a sheet of paper. At least 60% of the image area must be white for the calibration to work properly.
3. Press OPWB. When the Universal CCU completes the calibration and color balance adjustment, the reference object appears white in the image.
4. After the calibration and adjustment is complete, press the Auto White Balance button.

**To adjust color manually:**
1. Adjust the Chroma level to taste, so the colors are neither too intense nor too gray.
2. Adjust the red and blue levels. Adjusting for skin tones or using a color chart is an easy way to find a good baseline setup.

**Setting the Default Lighting Adjustments**

The [Lighting and Image Quality Cheat Sheet](#) provides information on correcting specific issues.

The Universal CCU includes six predefined lighting scenes to use as starting-points for fine-tuning:

- AUTO – automatic lighting management
- Incand Lo – incandescent, low intensity
- Incand Hi – incandescent, bright
- Fluor Lo – fluorescent, low intensity
- Fluor Hi – fluorescent, bright
- Outdoor – daylight

**To specify a stored scene to use on power-up:**
1. Open the Cat-5 Adjustments menu on the display panel.
2. Select the scene that best fits the lighting needs:
3. Press the SELECT button to save your change.

**Adjusting Light Level and Detail**

1. Press the MANUAL button under IRIS to disable Auto Iris.
2. Dial the Iris to the largest aperture (lowest ‘f’ number).
3. Press GAIN and dial it down until the image is too dark. Then bring it back up until it is properly exposed.
4. Exposures that require high gain settings will have a grainy video image. Press DETAIL and adjust the detail setting for a smoother image.
Working with Custom Scenes
You can store up to three customized sets of lighting and color adjustments (CCU scenes) so you can use them whenever you need them.

To store a scene:
1. Adjust color, lighting, and detail as needed.
2. Decide which scene to assign as the current set of adjustments - A, B, or C.
3. Press and hold the appropriate scene button until it blinks.

To select a stored scene:
Press the appropriate SCENES button – A, B, or C. The button illuminates to show that the scene is in use.

To delete a stored scene:
Press and hold the appropriate scene button (A, B, or C) while pressing the Cancel button.

Adjusting for Cable Length
Long runs of cable from the Universal CCU to the camera can result in poor signal quality. If the video quality is higher when you connect the camera to the Universal CCU with short cables, the skew adjustment may help.

1. Open the Cat-5 Adjustments menu.
2. Select Skew.
3. Change the value as needed to produce the best video output from the Universal CCU. Available values range from 1 to 16; higher values correct for longer cable lengths.
4. Press the SELECT button to save the change.

Pro Tip
For the best adjustment, start at the lowest skew value and increase to the first value that produces a visible improvement. Note the value, and increase the skew until the video begins to look worse. Choose a value about halfway between those two values.

If the skew value is too high, the video may drop.
Adjusting the Front Panel Display

Depending on the lighting conditions where the Universal CCU is installed, you may choose to adjust the front panel display.

The display menu is only available when DIP switch 5 is up.

*Note*

*Disconnect power before changing the position of the DIP switch.*

To adjust the display:

1. Navigate to the display menu, which is after the version information.
2. Work with the settings in the same way you work with the other items that are not on the home menu.

Available settings are:

- **Display** – Normal (light text on dark background) or Invert (dark text on light background).
- **Bias** – Changes the overall brightness. Range is 1/9 (bright) to 1/11 (dim).
- **Contrast** – Changes the brightness of the background; settings below about 195 also dim the text. Range is 180 to 230.

*Note*

*The display menu does not time out and return you to the home menu.*
Operating the Camera from the Web Interface

**CONTROLS PAGE**

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

The Controls page provides most of the same controls as the IR Remote Commander. See Using the IR Remote.

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

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

![Image of controls page]

Switching the Camera Off or On (Standby)

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

Stop or Resume Sending Video (Mute)

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

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

Zooming In or Out

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

Moving the Camera to a Preset Position

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

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

Adjusting the Color and Lighting

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

Vaddio’s Telnet command protocol allows external devices to control the camera. Network connectivity and a Telnet client are required; Telnet port 23 is used. Telnet sessions require the administrator account login.

In addition to the camera control commands, Telnet session management commands are available – help, history, and exit.

*Note*
If an AV Bridge MATRIX PRO is used, the Telnet session is with the AV Bridge MATRIX PRO, not the camera. The camera commands specify camera 1, camera 2, or camera 3, but are otherwise identical to the camera commands in this manual. Refer to the Telnet command information in the AV Bridge MATRIX PRO manual for more detailed information.

Things to know about Telnet:
- The > character is the command prompt.
- Using a question mark as a command parameter will bring up a list of available subcommands or parameters. Example:

  ```
  camera focus ?
  camera focus
  near Focus the camera near
  far Focus the camera far
  stop Stop the camera focus
  mode Camera focus mode
  ```
- CTRL-5 clears the current serial buffer on the device.

Typographical conventions used in this manual:
- `{ x | y | z}` – Choose x, y, or z. Example: camera led `{ on | off | toggle }
- `<variable>` – Substitute the desired value here. Example: camera ccu get `<param>`
- `< x - y >` – Valid range of values is from x through y. Example: camera ccu set detail `<0 -15>`
- `[parameter]` – Parameter is not required. Example: camera pan left `[<speed>]`
camera home
Moves the camera to its home position.
RoboSHOT AVBMP only: Specify camera1, camera2, or camera3.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>camera home</th>
</tr>
</thead>
</table>
| Example      | >camera home
OK > |

camera pan
Moves the camera horizontally.
RoboSHOT AVBMP only: Specify camera1, camera2, or camera3.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>camera pan (left [&lt;speed&gt;]</th>
<th>right [&lt;speed&gt;]</th>
<th>stop</th>
<th>get</th>
<th>set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td>left</td>
<td>right</td>
<td>stop</td>
<td>get</td>
<td>set</td>
</tr>
<tr>
<td></td>
<td>Moves the camera left.</td>
<td>Moves the camera right.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>speed &lt;1 – 24&gt;</td>
<td>Optional: Specifies the pan speed as an integer (1 to 24). Default speed is 12.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stop</td>
<td>Stops the camera's horizontal movement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>get</td>
<td>Returns the camera's absolute pan position in degrees, as a floating point value between approximately -150.00 (left) and 150.00 (right).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>set &lt;position&gt;</td>
<td>Sets the camera’s absolute pan position in degrees, as a floating point value between approximately -150.00 and 150.00. This is the minimum range. Individual cameras may have an additional degree or two of travel before they reach their physical limits. If the value is out of range, the camera returns an error message and no motion occurs.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Examples     | >camera pan left
OK >                     |
|              | Pans the camera left at the default speed. |
|              | >camera pan right 20
OK >                     |
|              | Pans the camera right using a speed of 20. |
|              | >camera pan stop
OK >                     |
|              | Stops the camera's horizontal motion. |
**camera tilt**
Moves the camera vertically.
*RoboSHOT AVBMP only: Specify* __camera1, camera2, or camera3.__

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

**Examples**

```shell
> camera tilt up
OK
>
Tilts the camera up at the default speed.

> camera tilt down 20
OK
>
Tilts the camera down using a speed of 20.

> camera tilt stop
OK
>
Stops the camera's vertical motion.
```
camera zoom

Zooms the camera in toward the subject or out away from the subject.
RoboSHOT AVBMP only: Specify camera1, camera2, or camera3.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>camera zoom { in [&lt;speed&gt;]</th>
<th>out [&lt;speed&gt;]</th>
<th>stop</th>
<th>get</th>
<th>set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td>in</td>
<td>out</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moves the camera in.</td>
<td>Moves the camera out.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>speed [1–7]</td>
<td>Optional: Specifies the zoom speed as an integer (1 to 7). Default speed is 3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stop</td>
<td>Stops the camera's zoom movement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>get</td>
<td>Returns the camera's current zoom level as a floating point value.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>set &lt;1–n&gt;</td>
<td>Sets the zoom level as a floating point value. The value of n (maximum zoom) depends on the camera's capabilities. For example, the range is 1.00 to 12.00 for a 12x camera. If the value is out of range, the camera returns an error message and no zoom change occurs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examples

> camera zoom in
  OK
>
  Zooms the camera in at the default speed.

> camera zoom out 7
  OK
>
  Zooms the camera out using a speed of 7.

> camera zoom stop
  OK
>
  Stops the camera's zoom motion.

> camera zoom set 14
  OK
>
  Sets the camera's zoom level to 14x.

> camera zoom get
  14
  OK
>
  Returns the camera's current zoom level.
**camera focus**

Changes the camera focus.

RoboSHOT AVBMP only: Specify `camera1`, `camera2`, or `camera3`.

| Synopsis | camera focus { near [<speed>] | far [<speed>] | stop | mode {get | auto | manual} } |
|----------|----------------------------------------------------------------------------------------------------------------------------------|
| Options  | **near** | Brings the focus nearer to the camera. Can only be used when camera is in manual mode. |
|          | **far** | Moves the focus farther from the camera. Can only be used when camera is in manual mode. |
|          | **speed <1–8>** | Optional: integer (1 to 8) specifies the focus speed. |
|          | **stop** | Stops the camera's focus movement. |
|          | **mode {get | auto | manual}** | Returns the current focus mode, or specifies automatic or manual focus. |

**Examples**

```
camera focus near
OK >
```

Brings the focus near at the default speed.

```
camera focus far 7
OK >
```

Moves the focus farther from the camera at a speed of 7.

```
camera focus mode get
auto_focus: on
OK >
```

Returns the current focus mode.
camera preset

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

RoboSHOT AVBMP only: Specify camera1, camera2, or camera3.

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

| Synopsis          | camerapreset { recall | store } <1–16> [tri-sync <1–24>] [save-ccu] |
|-------------------|-------------------------------------------------|
| Options           | recall <1–16>                                   |
|                   | Moves the camera to the specified preset, using Tri-Synchronous Motion if this was saved with the preset. If CCU information was saved with the preset, the camera switches to the CCU setting associated with the preset. |
|                   | store <1–16>                                    |
|                   | Stores the current camera position as the specified preset. |
|                   | tri-sync <1–24>                                 |
|                   | Optional: Specifies that the camera uses Tri-Synchronous Motion to move to this position, using the specified speed. |
|                   | save-ccu                                        |
|                   | Optional: Saves the current CCU settings as part of the preset. If not specified, the last color settings are used when recalled. |

Examples

```plaintext
> camera preset recall 3
OK
>
Moves the camera to preset 3.

> camera preset store 1
OK
>
Saves the camera's current position as preset 1.

> camera preset store 4 tri-sync 15
OK
>
Stores the camera's current position as preset 4. The camera will use Tri-Synchronous Motion at speed 15 when it is recalled to this preset.

> camera preset store 2 save-ccu
OK
>
Stores the camera's current position as preset 2. The camera applies the current CCU settings when it is recalled to this preset.
```
**camera ccu get**

Returns CCU (lighting and color) information.

RoboSHOT AVBMP only: Specify `camera1, camera2, or camera3`.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>camera ccu get</td>
<td>all</td>
</tr>
<tr>
<td></td>
<td>Returns all current CCU settings.</td>
</tr>
<tr>
<td></td>
<td>auto_white_balance</td>
</tr>
<tr>
<td></td>
<td>Returns the current state of the auto white balance setting (on or off).</td>
</tr>
<tr>
<td></td>
<td>red_gain</td>
</tr>
<tr>
<td></td>
<td>Returns red gain as an integer (0 to 255).</td>
</tr>
<tr>
<td></td>
<td>blue_gain</td>
</tr>
<tr>
<td></td>
<td>Returns blue gain as an integer (0 to 255).</td>
</tr>
<tr>
<td></td>
<td>backlight_compensation</td>
</tr>
<tr>
<td></td>
<td>Returns the current state for backlight compensation (on or off).</td>
</tr>
<tr>
<td></td>
<td>auto_iris</td>
</tr>
<tr>
<td></td>
<td>Returns the current auto-iris state (on or off).</td>
</tr>
<tr>
<td></td>
<td>iris</td>
</tr>
<tr>
<td></td>
<td>Returns the iris value as an integer (0 to 11).</td>
</tr>
<tr>
<td></td>
<td>gain</td>
</tr>
<tr>
<td></td>
<td>Returns gain as an integer (0 to 11).</td>
</tr>
<tr>
<td></td>
<td>detail</td>
</tr>
<tr>
<td></td>
<td>Returns detail as an integer (0 to 15).</td>
</tr>
<tr>
<td></td>
<td>chroma</td>
</tr>
<tr>
<td></td>
<td>Returns chroma as an integer (0 to 14).</td>
</tr>
<tr>
<td></td>
<td>wide_dynamic_range</td>
</tr>
<tr>
<td></td>
<td>Returns the current state for Wide Dynamic Range (on or off).</td>
</tr>
</tbody>
</table>

**Examples**

```plaintext
> camera ccu get iris
iris 6
OK

Returns the current iris value.
```

```plaintext
> camera ccu get red_gain
red_gain 201
OK

Returns the current red gain value.
```

```plaintext
> camera ccu get all
auto_iris on
auto_white_balance on
backlight_compensation off
blue_gain 193
chroma 2
detail 8
gain 3
iris 11
red_gain 201
wide_dynamic_range off
OK

Returns all current CCU settings.
```
**camera ccu set**

Sets the specified CCU (lighting and color) information.

**RoboSHOT AVBMP only:** Specify `camera1`, `camera2`, or `camera3`.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>camera ccu set &lt;param&gt; &lt;value&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Options</strong></td>
<td>auto_white_balance {on</td>
</tr>
<tr>
<td></td>
<td>red_gain &lt;0 – 255&gt;</td>
</tr>
<tr>
<td></td>
<td>blue_gain &lt;0 – 255&gt;</td>
</tr>
<tr>
<td></td>
<td>backlight_compensation {on</td>
</tr>
<tr>
<td></td>
<td>iris &lt;0 – 11&gt;</td>
</tr>
<tr>
<td></td>
<td>auto_iris {on</td>
</tr>
<tr>
<td></td>
<td>gain &lt;0 – 11&gt;</td>
</tr>
<tr>
<td></td>
<td>detail &lt;0 – 15&gt;</td>
</tr>
<tr>
<td></td>
<td>chroma &lt;0 – 14&gt;</td>
</tr>
<tr>
<td></td>
<td>wide_dynamic_range {on</td>
</tr>
</tbody>
</table>

**Examples**

```
> camera ccu set auto_iris off
OK
>
Tums off auto-iris mode, returning the camera to manual iris control.
```

```
> camera ccu set red_gain 10
OK
>
Sets the red gain value to 10.
```
**camera ccu scene**

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

RoboSHOT AVBMP only: Specify camera1, camera2, or camera3.

| Synopsis | camera ccu scene {recall {factory <1–6> | custom <1–3>} | store custom <1–3>} |
|----------|---------------------------------------------------------------|

**Options**

<table>
<thead>
<tr>
<th></th>
<th>recall factory &lt;1–6&gt;</th>
<th>Recalls the camera to the specified scene (factory 1 to 6 or custom 1 to 3).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>recall custom &lt;1–3&gt;</td>
<td>Saves the current scene as the specified custom scene.</td>
</tr>
<tr>
<td></td>
<td>store custom &lt;1–3&gt;</td>
<td></td>
</tr>
</tbody>
</table>

**Examples**

```plaintext
>camera ccu scene recall factory 2
OK
>
Sets the camera to use factory CCU scene 2.

>camera ccu scene store custom 1
OK
>
Saves the current CCU scene as custom CCU scene 1.
```

**camera led**

Set or change the behavior of the indicator light.

RoboSHOT AVBMP only: Specify camera1, camera2, or camera3.

| Synopsis | camera led { get | off | on } |
|----------|---------------------------------|

**Options**

<table>
<thead>
<tr>
<th></th>
<th>get</th>
<th>Returns the indicator light's current state (on or off).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>off</td>
<td>Disables the indicator light.</td>
</tr>
<tr>
<td></td>
<td>on</td>
<td>Enables the indicator light.</td>
</tr>
</tbody>
</table>

**Examples**

```plaintext
>camera led off
OK
>
Disables the indicator light. You cannot tell by looking at the camera whether it is sending video.

>camera led get
led:  on
OK
>
Returns the current state of the indicator light.
```
**camera standby**

Set or change camera standby status.

RoboSHOT AVBMP only: Specify `camera1`, `camera2`, or `camera3`.

### Synopsis

```
camera standby { get | off | on | toggle}
```

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>get</td>
<td>Returns the camera’s current standby state.</td>
</tr>
<tr>
<td>off</td>
<td>Brings the camera out of standby (low power) mode.</td>
</tr>
<tr>
<td>on</td>
<td>Stops video and puts the camera in standby mode.</td>
</tr>
<tr>
<td>toggle</td>
<td>Changes the camera’s standby state – if it was not in standby mode, it enters standby; if it was in standby mode, it “wakes up.”</td>
</tr>
</tbody>
</table>

### Examples

```bash
> camera standby off
OK
> camera standby get
standby: on
OK
> camera standby toggle
Changes the camera’s standby state – if it was not in standby mode, it enters standby; if it was in standby mode, it “wakes up.”
```

**network settings get**

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

### Synopsis

```
> network settings get
```

### Example

```bash
> network settings get
Name   eth0:WAN
MAC Address  48:6F:77:64:79:21
IP Address  192.168.1.67
Netmask   255.255.255.0
VLAN      Disabled
Gateway   192.168.1.254
OK
> 
```
### network ping

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

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>network ping [count &lt;count&gt;] [size &lt;size&gt;] &lt;string&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>&lt;count&gt;</td>
<td>The number of ECHO_REQUEST packets to send. Default is five packets.</td>
</tr>
<tr>
<td>&lt;size&gt;</td>
<td>The size of each ECHO_REQUEST packet. Default is 56 bytes.</td>
</tr>
<tr>
<td>&lt;string&gt;</td>
<td>The hostname or IP address where the ECHO_REQUEST packets will be sent.</td>
</tr>
</tbody>
</table>

#### Examples

- **network ping 192.168.1.66**
  
  PING 192.168.1.66 (192.168.1.66): 56 data bytes
  64 bytes from 192.168.1.66: seq=0 ttl=64 time=0.476 ms
  64 bytes from 192.168.1.66: seq=1 ttl=64 time=0.416 ms
  64 bytes from 192.168.1.66: seq=2 ttl=64 time=0.410 ms
  64 bytes from 192.168.1.66: seq=3 ttl=64 time=0.410 ms
  64 bytes from 192.168.1.66: seq=4 ttl=64 time=3.112 ms
  --- 192.168.1.66 ping statistics ---
  5 packets transmitted, 5 packets received, 0% packet loss
  round-trip min/avg/max = 0.410/0.964/3.112 ms
  >

  Sends five ECHO_REQUEST packets of 56 bytes each to the host at 192.168.1.66.

- **network ping count 10 size 100 192.168.1.1**

  Sends 10 ECHO_REQUEST packets of 100 bytes each to the host at 192.168.1.1.
  The command returns data in the same form as above.

### system reboot

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

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>system reboot [&lt;seconds&gt;]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>&lt;seconds&gt;</td>
<td>The number of seconds to delay the reboot.</td>
</tr>
</tbody>
</table>

#### Examples

- **system reboot**
  
  OK
  >

  The system is going down for reboot NOW! roboshot-48-6f-77-64-79-21

  Reboots the system immediately.

- **system reboot 30**

  Reboots the system in 30 seconds. The response is in the same form; the system message appears at the end of the delay.
**system factory-reset**

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

| Synopsis | system factory-reset { get | on | off} |
|----------|-----------------------------------|
| Options  |                                   |
| get      | Returns the camera's current factory reset status. |
| on       | Enables factory reset on reboot. |
| off      | Disables factory reset on reboot. |

**Examples**

```
> system factory-reset get
factory-reset (software): off
factory-reset (hardware): off
OK
>
```

Returns the factory reset status.

This evaluates the most recent `system factory-reset on` or `off` command, if one has been received, then reads the rear panel DIP switches and returns the status on if they are all in the down position.

```
> system factory-reset on
factory-reset (software): on
factory-reset (hardware): off
OK
>
```

Enables factory reset upon reboot.

**Note**

*This command does not initiate a factory reset. The factory reset takes place on the next reboot.*

---

**version**

Returns the current firmware version.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>&gt; version</td>
</tr>
</tbody>
</table>

```
Commit d033ddb2378357a871011eb820706dca64ec0e2
Pan Motor Version 0.2.4772
Sensor Version 02.00
System Version RoboSHOT 2.3.0
Tilt Motor Version 0.2.4772
OK
```

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

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>history &lt;limit&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td>&lt;limit&gt;</td>
</tr>
</tbody>
</table>

| Examples  | history         | Displays the current command buffer. |
|          | history 5       | Sets the history command buffer to remember the last 5 unique entries. |

| Additional information | You can navigate the command history using the up and down arrow keys. |
|                       | This command supports the expansion functionality from which previous commands can be recalled from within a single session. History expansion is performed immediately after a complete line is read. |
|                       | Examples of history expansion: |
|                       | * !! Substitute the last command line. |
|                       | * !4 Substitute the 4th command line (absolute as per 'history' command) |
|                       | * !-3 Substitute the command line entered 3 lines before (relative) |

help
Displays an overview of the CLI syntax.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td><img src="image" alt="help" /></td>
</tr>
</tbody>
</table>

exit
Ends the command session and then closes the socket.

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td><img src="image" alt="exit" /></td>
</tr>
</tbody>
</table>
### RS-232 Serial Command Reference

The Vaddio RS-232 Serial Control Protocol is similar to the Sony® VISCA command set in order to be compatible with several popular control devices. Not all VISCA commands are supported, and there are Vaddio-specific commands in the following command and inquiry lists.

Be sure the camera is set to the same baud rate as the controller or other device originating the commands. For the older RoboSHOT cameras, see [DIP Switches: Camera Behavior Settings](#). For the newer RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5 cameras, see [Basic Camera Settings for RoboSHOT 12E CAT-5 and RoboSHOT 30E CAT-5](#).

#### Camera Movement, Zoom, and Focus Commands

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<th>Command</th>
<th>Command Packet</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM_Zoom</td>
<td>Stop</td>
<td>8x 01 04 07 00 FF</td>
<td>Variable speed: p = 0 (low) to 7 (high)</td>
</tr>
<tr>
<td></td>
<td>Tele (std)</td>
<td>8x 01 04 07 02 FF</td>
<td>Direct: pqrst = zoom position (0h-4000h for 12x, 0h-7AC0h for 30x)</td>
</tr>
<tr>
<td></td>
<td>Wide (std)</td>
<td>8x 01 04 07 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tele (variable)</td>
<td>8x 01 04 07 2p FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wide (variable)</td>
<td>8x 01 04 07 3p FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>8x 01 04 47 0p 0q 0r 0s FF</td>
<td>Corresponds to camera zoom in Telnet API</td>
</tr>
<tr>
<td>CAM_Focus</td>
<td>Stop</td>
<td>8x 01 04 08 00 FF</td>
<td>Variable speed: p = 0 (low) to 7 (high)</td>
</tr>
<tr>
<td></td>
<td>Far (std)</td>
<td>8x 01 04 08 02 FF</td>
<td>Direct and Near Limit: pqrst = focus position (1000h – F000h)</td>
</tr>
<tr>
<td></td>
<td>Near (std)</td>
<td>8x 01 04 08 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Far (variable)</td>
<td>8x 01 04 08 2p FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Near (variable)</td>
<td>8x 01 04 08 3p FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>8x 01 04 48 0p 0q 0r 0s FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One Push Trigger</td>
<td>8x 01 04 18 01 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Near Limit</td>
<td>8x 01 04 28 0p 0q 0r 0s FF</td>
<td></td>
</tr>
<tr>
<td>CAM_Focus Mode</td>
<td>Auto Focus</td>
<td>8x 01 04 38 02 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual Focus</td>
<td>8x 01 04 38 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Auto/Manual</td>
<td>8x 01 04 08 10 FF</td>
<td></td>
</tr>
<tr>
<td>Command Set</td>
<td>Command</td>
<td>Command Packet</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
<td>----------------</td>
<td>----------</td>
</tr>
<tr>
<td>Pan-TiltDrive</td>
<td>Up</td>
<td>8x 01 06 01 vv ww 03 01 FF</td>
<td>vv= Pan speed (01h-18h) ww=Tilt speed (01h-14h)</td>
</tr>
<tr>
<td></td>
<td>Down</td>
<td>8x 01 06 01 vv ww 03 02 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>8x 01 06 01 vv ww 01 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>8x 01 06 01 vv ww 02 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UpLeft</td>
<td>8x 01 06 01 vv ww 01 01 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UpRight</td>
<td>8x 01 06 01 vv ww 02 01 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DownLeft</td>
<td>8x 01 06 01 vv ww 01 02 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DownRight</td>
<td>8x 01 06 01 vv ww 02 02 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stop</td>
<td>8x 01 06 01 vv ww 03 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home</td>
<td>8x 01 06 04 FF</td>
<td>Returns the camera to its default position</td>
</tr>
<tr>
<td>Pan-TiltDrive</td>
<td>Absolute Position</td>
<td>8x 01 06 02 vv ww 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF</td>
<td>0Y0Y0Y0Y = Pan position (90E2h-6BD8h) 0Z0Z0Z0Z = Tilt position (EB99h-3D59h)</td>
</tr>
<tr>
<td>Pan-Tilt-ZoomDrive</td>
<td>Up</td>
<td>8x 01 06 0A vv ww π 03 01 03 FF</td>
<td>vv= Pan speed (01h-18h) π=Zoom speed (00h-07h)</td>
</tr>
<tr>
<td></td>
<td>Down</td>
<td>8x 01 06 0A vv ww π 03 02 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>8x 01 06 0A vv ww π 01 03 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>8x 01 06 0A vv ww π 02 03 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In</td>
<td>8x 01 06 0A vv ww π 03 03 01 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Out</td>
<td>8x 01 06 0A vv ww π 03 03 02 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stop</td>
<td>8x 01 06 0A vv ww π 03 03 03 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home</td>
<td>8x 01 06 0C FF</td>
<td>Returns the camera to the default position and zoom</td>
</tr>
<tr>
<td>Pan-Tilt-ZoomDrive</td>
<td>Absolute Position</td>
<td>8x 01 06 0B vv ww 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0R 0R 0R 0R FF</td>
<td>0Y0Y0Y0Y = Pan position (90E2h-6BD8h) 0Z0Z0Z0Z = Tilt position (EB99h-3D59h) 0R0R0R0R = Zoom position (0h-4000h for 12x, 0h-7AC0h for 30x)</td>
</tr>
<tr>
<td>Command Set</td>
<td>Command</td>
<td>Command Packet</td>
<td>Comments</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------</td>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CAM_Memory</td>
<td>Reset</td>
<td>8x 01 04 3F 00 00 FF</td>
<td>Corresponds to camera preset in Telnet API.</td>
</tr>
<tr>
<td></td>
<td>Set standard</td>
<td>8x 01 04 3F 01 00 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set standard</td>
<td>8x 01 04 3F 21 00 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set Tri-sync</td>
<td>8x 01 04 3F 11 00 00 00 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set Tri-Sync</td>
<td>8x 01 04 3F 31 00 00 00 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recall</td>
<td>8x 01 04 3F 02 00 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corrresponds to camera preset in Telnet API.</td>
</tr>
<tr>
<td>CAM_PTZ_PresetSpeed</td>
<td>8x 01 7E 01 00 pp qq rr FF</td>
<td></td>
<td>pp: pan speed (01h-18h)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>qq: tilt speed (01h-14h)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rr: zoom speed (0h-07h)</td>
</tr>
</tbody>
</table>

**Movement, Zoom, and Focus Inquiry Commands**

<table>
<thead>
<tr>
<th>Inquiry Command</th>
<th>Command</th>
<th>Response Packet</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pan-TiltPosInq</td>
<td>8x 09 06 12 FF</td>
<td>y0 50 00 00 00 00 FF</td>
<td>Pan position: wwww; Tilt position: zzzz</td>
</tr>
<tr>
<td>CAM_ZoomPosInq</td>
<td>8x 09 04 47 FF</td>
<td>y0 50 00 00 00 FF</td>
<td>pqrs: Zoom position</td>
</tr>
<tr>
<td>CAM_FocusPosInq</td>
<td>8x 09 04 48 FF</td>
<td>y0 50 00 00 00 FF</td>
<td>pqrs: Focus position</td>
</tr>
<tr>
<td>CAM_FocusModelInq</td>
<td>8x 09 04 38 FF</td>
<td>y0 50 00 00 FF</td>
<td>Auto focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y0 50 03 FF</td>
<td>Manual focus</td>
</tr>
</tbody>
</table>

**CAM_MemoryInq** 8x 09 04 3F FF  y0 50 00 pp FF  pp: Preset number recalled last (00h - 0Fh)

**CAM_MemoryStatusInq** 8x 09 04 3F 00 FF  y0 50 00 00 00 FF  p: Preset number (00h - 0Fh)  q: mode (00-std, 10-std /w ccu, 01-trisync, 11-trisyc /w ccu)  rs: speed (0X1-0x18) 1 - 24

**CAM_MemSaveInq** 8x 09 04 23 0X FF  y0 50 00 00 00 FF  X: 00h to 0Fh (preset number)  pqrs: 0000h to FFFFh (Data)

**CAM_PTZ_PresetSpeedInq** 8x 09 07 01 0B FF  y0 50 00 00 00 FF  p: pan speed (01h-18h)  q: tilt speed (01h-14h)  r: zoom speed (0h-07h)
## Color and Light Management Commands

<table>
<thead>
<tr>
<th>Command Set</th>
<th>Command</th>
<th>Command Packet</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM_WB</td>
<td>Auto</td>
<td>8x 01 04 35 00 FF</td>
<td>Normal auto mode</td>
</tr>
<tr>
<td></td>
<td>Manual</td>
<td>8x 01 04 35 05 FF</td>
<td>Manual control mode</td>
</tr>
</tbody>
</table>

Corresponds to `camera ccu set auto_white_balance` in Telnet API.

| CAM_RGain   | Reset   | 8x 01 04 03 00 FF | Manual control of red gain |
|             | Up      | 8x 01 04 03 02 FF | pq = red gain (00h – FFh) |
|             | Down    | 8x 01 04 03 03 FF |
|             | Direct  | 8x 01 04 43 00 00 0p 0q FF |

Corresponds to `camera ccu set red_gain` in Telnet API.

| CAM_BGain   | Reset   | 8x 01 04 04 00 FF | Manual control of blue gain |
|             | Up      | 8x 01 04 04 02 FF | pq = blue gain (00h – FFh) |
|             | Down    | 8x 01 04 04 03 FF |
|             | Direct  | 8x 01 04 44 00 00 0p 0q FF |

Corresponds to `camera ccu set blue_gain` in Telnet API.

| CAM_AE      | Auto    | 8x 01 04 39 00 FF | Auto exposure mode |
|             | Manual  | 8x 01 04 39 03 FF | Manual control mode |

Corresponds to `camera ccu set auto_iris` in Telnet API.

| CAM_Shutter | Reset   | 8x 01 04 0A 00 FF | Shutter setting |
|             | Up      | 8x 01 04 0A 02 FF | pq = shutter position (00h – 15h) |
|             | Down    | 8x 01 04 0A 03FF |
|             | Direct  | 8x 01 04 4A 00 00 0p 0q FF |

See Shutter Speed Values – CAM_Shutter Command

| CAM_Iris    | Reset   | 8x 01 04 0B 00 FF | Iris setting |
|             | Up      | 8x 01 04 0B 02 FF | pq = iris position (0h, 05h-11h) |
|             | Down    | 8x 01 04 0B 03 FF |
|             | Direct  | 8x 01 04 4B 00 00 0p 0q FF |

See Iris Values – CAM_Iris Command

| CAM_Gain    | Reset   | 8x 01 04 0C 00 FF | Iris gain setting |
|             | Up      | 8x 01 04 0C 02 FF | pq = gain position (01h – 0Fh) |
|             | Down    | 8x 01 04 0C 03 FF | p = gain limit (04h-0Fh) |
|             | Direct  | 8x 01 04 4C 00 00 0p 0q FF |
|             | +Gain Limit | 8x 01 04 2C 0p FF |

See Iris Gain and Gain Limit Values – CAM_Gain Command

| CAM_BackLight | On     | 8x 01 04 33 02 FF | Backlight compensation On/Off |
|              | Off    | 8x 01 04 33 03 FF |

Corresponds to `camera ccu set backlight_compensation` in Telnet API.
<table>
<thead>
<tr>
<th>Command Set</th>
<th>Command</th>
<th>Command Packet</th>
<th>Comments</th>
</tr>
</thead>
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<tr>
<td>CAM_WD</td>
<td>On</td>
<td>8x 01 04 3D 02 FF</td>
<td>Wide Dynamic Range On</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>8x 01 04 3D 03 FF</td>
<td>Wide Dynamic Range Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corresponds to camera ccu set wide_dynamic_range in Telnet API. May be unavailable on some cameras.</td>
</tr>
<tr>
<td>CAM_Aperture</td>
<td>Reset</td>
<td>8x 01 04 02 00 FF</td>
<td>Aperture setting pq = aperture position (0h-0fh)</td>
</tr>
<tr>
<td></td>
<td>Up</td>
<td>8x 01 04 02 01 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Down</td>
<td>8x 01 04 02 02 FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>8x 01 04 42 00 00 0p 0q FF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corresponds to camera ccu set detail in Telnet API.</td>
</tr>
<tr>
<td>CAM_Chroma</td>
<td>Direct</td>
<td>8x 01 7E 55 00 00 0p 0q FF</td>
<td>pq: 00h – 14h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corresponds to camera ccu set chroma in Telnet API.</td>
</tr>
<tr>
<td>CAM_GammaOffset</td>
<td>Direct</td>
<td>8x 01 04 1E 00 00 00 0s 0t 0u FF</td>
<td>s: polarity offset (0 is plus, 1 is minus) tu: offset s=0 (00h to 40h) offset s=1 (00h to 10h)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corresponds to camera ccu set gamma in Telnet API.</td>
</tr>
</tbody>
</table>
### Shutter Speed Values (CAM_Shutter)

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Iris</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x11</td>
<td>F1.6</td>
</tr>
<tr>
<td>0x10</td>
<td>F2</td>
</tr>
<tr>
<td>0x0F</td>
<td>F2.4</td>
</tr>
<tr>
<td>0x0E</td>
<td>F2.8</td>
</tr>
<tr>
<td>0x0D</td>
<td>F3.4</td>
</tr>
<tr>
<td>0x0C</td>
<td>F4</td>
</tr>
<tr>
<td>0x0B</td>
<td>F4.8</td>
</tr>
<tr>
<td>0x0A</td>
<td>F5.6</td>
</tr>
<tr>
<td>0x09</td>
<td>F6.8</td>
</tr>
<tr>
<td>0x08</td>
<td>F8</td>
</tr>
<tr>
<td>0x07</td>
<td>F9.6</td>
</tr>
<tr>
<td>0x06</td>
<td>F11</td>
</tr>
<tr>
<td>0x05</td>
<td>F14</td>
</tr>
<tr>
<td>0x00</td>
<td>CLOSED</td>
</tr>
</tbody>
</table>

### Iris Gain and Gain Limit Values (CAM_Gain)

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

<table>
<thead>
<tr>
<th>Iris Gain Limit</th>
<th>Value</th>
<th>Steps</th>
<th>Gain in dB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0x0F</td>
<td>28</td>
<td>77.8</td>
</tr>
<tr>
<td></td>
<td>0x0E</td>
<td>26</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td>0x0D</td>
<td>24</td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td>0x0C</td>
<td>22</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>0x0B</td>
<td>20</td>
<td>34.1</td>
</tr>
<tr>
<td></td>
<td>0x0A</td>
<td>18</td>
<td>30.7</td>
</tr>
<tr>
<td></td>
<td>0x09</td>
<td>16</td>
<td>27.3</td>
</tr>
<tr>
<td></td>
<td>0x08</td>
<td>14</td>
<td>23.9</td>
</tr>
<tr>
<td></td>
<td>0x07</td>
<td>12</td>
<td>20.5</td>
</tr>
<tr>
<td></td>
<td>0x06</td>
<td>10</td>
<td>17.1</td>
</tr>
<tr>
<td></td>
<td>0x05</td>
<td>8</td>
<td>13.7</td>
</tr>
<tr>
<td></td>
<td>0x04</td>
<td>6</td>
<td>10.2</td>
</tr>
</tbody>
</table>
### Color and Light Management Inquiry Commands

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

### CCU Scene Commands for the Universal CCU

This command is sent to the Universal CCU, not the camera.

<table>
<thead>
<tr>
<th>Command Set</th>
<th>Command</th>
<th>Command Packet</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCU Scene</td>
<td>Reset</td>
<td>81 01 04 3F 00 7p FF</td>
<td>p: Scene number</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scene A = 1</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>81 01 04 3F 01 7p FF</td>
<td>Scene B = 2</td>
</tr>
<tr>
<td></td>
<td>Recall</td>
<td>81 01 04 3F 02 7p FF</td>
<td>Scene C = 3</td>
</tr>
</tbody>
</table>
**Other Commands**

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

**Other Inquiry Commands**

<table>
<thead>
<tr>
<th>Inquiry Command</th>
<th>Command</th>
<th>Response Packet</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM_PowerInq</td>
<td>8x 09 04 00 FF</td>
<td>y0 50 02 FF</td>
<td>On</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y0 50 03 FF</td>
<td>Off (standby)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corresponds to camera standby get in Telnet API</td>
</tr>
<tr>
<td>CAM_TallyInq</td>
<td>8x 09 7E 01 0A FF</td>
<td>y0 50 02 FF</td>
<td>On</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y0 50 03 FF</td>
<td>Off</td>
</tr>
<tr>
<td>CAM_NRInq</td>
<td>8x 09 04 53 FF</td>
<td>y0 50 p0 FF</td>
<td>Noise reduction p: 00h to 05h</td>
</tr>
<tr>
<td>CAM_MuteModeInq</td>
<td>8x 09 04 75 FF</td>
<td>y0 50 02 FF</td>
<td>On</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y0 50 03 FF</td>
<td>Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corresponds to video mute get in Telnet API</td>
</tr>
<tr>
<td>Vaddio_ModelInq</td>
<td>8x 09 08 0e FF</td>
<td>y0 50 05 00 00 00 00 FF</td>
<td>RoboSHOT 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y0 50 05 01 00 00 00 FF</td>
<td>RoboSHOT 30</td>
</tr>
</tbody>
</table>
## Specifications

### Cameras

#### Camera and image

<table>
<thead>
<tr>
<th>Image device</th>
<th>1/2.8-Type Exmor® CMOS sensor</th>
</tr>
</thead>
</table>

#### Video Resolutions

<table>
<thead>
<tr>
<th>Resolution</th>
<th>1080p/60, 59.94, 50, 30, 25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1080i/60, 59.94, 50</td>
</tr>
<tr>
<td></td>
<td>720p/60, 59.94, 50, 30, 25</td>
</tr>
</tbody>
</table>

#### Video Aspect Ratio

16:9 for all resolutions

#### Pan and tilt

Pan ± 150°, tilt +90° -30°; speed 0.35°/sec to 120°/sec

#### Lens and horizontal FOV

- **12 model:**
  - Normal mode: 10x zoom, 67.3° (wide) to 7.6° (tele), f=3.8mm to 38.0mm, F1.8 to F3.4
  - Super Wide mode: 12x zoom, 73.0° (wide) to 6.6° (tele), f=3.91mm to 47.0mm, F1.8 to F3.4
- **12E model:** 12x zoom, 70.2° (wide) to 6.8° (tele), f=4.4mm wide end to 88.4mm tele end, F2 to F3.8
- **30 model:** 30x zoom, 65° (wide) to 2.3° (tele), F1.6 to F4.7
- **30E model:** 30x zoom, 70.2° (wide) to 3.1° (tele), f=4.4mm wide end to 88.4mm tele end, F2 to F3.8

#### Min. working distance

- RoboSHOT 12: 8 in. (0.2 m) wide, 30 in. (0.8 m) tele
- RoboSHOT 30: 10 in. (0.25 m) wide, 48 in. (1.2 m) tele RoboSHOT 12E and 30E CAT-5: 3 in. (0.08 m) wide, 31 in. (0.8 m) tele

#### Min. illumination

Recommended: 100+ lux

#### Gain

Auto/Manual (28 steps)

#### Backlight compensation

On/off

#### Aperture/detail

16 steps

#### Focusing system

Auto Focus, Manual Focus, One Push Trigger Mode, Infinity Mode, Near Limit Mode

#### White balance

Auto, ATW, Indoor, Outdoor, One-push, Manual

#### Noise reduction

On/Off, 6 Steps

#### Sync system

Internal

#### S/N ratio

More than 50 dB

#### Remote management

IR Remote Commander, web interface, Telnet and VISCA/RS-232 command APIs

#### Power

12 VDC from Quick-Connect or AV Bridge MATRIX PRO, or 36 VDC from Universal CCU

### Physical and Environmental

<table>
<thead>
<tr>
<th>Height</th>
<th>6.9 in. (17.6 cm)</th>
<th>Weight</th>
<th>4.85 lbs (2.2 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>7.1 in. (17.9 cm)</td>
<td>Operating/storage temperature</td>
<td>0°C to +40°C (32°F to 104°F)</td>
</tr>
<tr>
<td>Depth</td>
<td>6.8 in. (17.2 cm)</td>
<td>Operating/storage humidity</td>
<td>20% to 80% RH, non-condensing</td>
</tr>
</tbody>
</table>
## Quick-Connect Devices

### Universal CCU

| Video Outputs                  | HD-YPbPr on DE-15-F connector  
|                               | HDMI on HDMI-F connector  
|                               | HD-SDI on Edge Mount Carrier Class, Gold BNC-F (3Gb/s Single Link 1080p/60 HD-SDI)  
| Compatible with               | RoboSHOT 12, RoboSHOT 30, PowerVIEW series, and ClearView series cameras.  
| Maximum Cable Length          | 500 ft (152.4 m)  
| Power                         | 36 VDC, 2.78 A  
| Height                        | 1 RU / 1.72 in. (4.4 cm)  
| Weight                        | 18.93 in. (48.1 cm) without rack mounting brackets  
| Depth                         | 7 in. (17.8 cm)  
| Operating/storage temperature | 0°C to +40°C (32°F to 104°F)  
| Operating/storage humidity    | 20% to 80% RH, non-condensing  

### Quick-Connect USB

| Video Outputs |  
| Maximum Cable Length | 100 ft (30 m)  
| Power | 24 VDC, 2.08 A  
| Height | 1 RU / 1.72 in. (4.4 cm)  
| Weight | 8.38 in. (21.3 cm)  
| Depth | 6 in. (15.2 cm)  
| Operating/storage temperature | 0°C to +40°C (32°F to 104°F)  
| Operating/storage humidity | 20% to 80% RH, non-condensing  

### Quick-Connect USB Mini

| Video Outputs |  
| Maximum Cable Length | 100 ft (30 m)  
| Power | 24 VDC, 2.08 A  
| Height | 1.24 in. (3.1 cm)  
| Width | 4.46 in. (11.3 cm)  
| Depth | 3.58 in. (9.1 cm)  
| Weight | 1.1 lb (0.5 kg)  
| Operating/storage temperature | 0°C to +40°C (32°F to 104°F)  
| Operating/storage humidity | 20% to 80% RH, non-condensing  

### Quick-Connect DVI/HDMI-SR

<table>
<thead>
<tr>
<th>Video Outputs</th>
<th>Compatible with</th>
<th>Maximum Cable Length</th>
<th>Power</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Weight</th>
<th>Operating/storage temperature</th>
<th>Operating/storage humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RoboSHOT 12, RoboSHOT 30, ZoomSHOT, PowerVIEW series, and ClearView series cameras.</td>
<td>100 ft (30 m)</td>
<td>24 VDC, 2.08 A</td>
<td>1.47 in. (3.7 cm)</td>
<td>8.0 in. (20.3 cm)</td>
<td>6.66 in. (16.9 cm)</td>
<td>1.2 lb. (0.55 kg)</td>
<td>0°C to +40°C (32°F to 104°F)</td>
<td>20% to 80% RH, non-condensing</td>
</tr>
</tbody>
</table>

### Quick-Connect SR

<table>
<thead>
<tr>
<th>Video Outputs</th>
<th>Compatible with</th>
<th>Maximum Cable Length</th>
<th>Power</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Weight</th>
<th>Operating/storage temperature</th>
<th>Operating/storage humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RoboSHOT 12, RoboSHOT 30, PowerVIEW series, and ClearView series cameras.</td>
<td>100 ft. (30 m)</td>
<td>24 VDC, 2.08 A</td>
<td>1.6 in. (4.1 cm)</td>
<td>5.5 in (14 cm)</td>
<td>3.25 in. (8.3 cm)</td>
<td>0.45 lb. (0.2 kg)</td>
<td>0°C to +40°C (32°F to 104°F)</td>
<td>20% to 80% RH, non-condensing</td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
Troubleshooting and Care

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

Check the Status Light First

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

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

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

Check the Cables Next

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

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

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

<table>
<thead>
<tr>
<th>What is it doing?</th>
<th>Possible causes</th>
<th>Check and correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing. The status light is off, there is no video, and the camera does not respond to the remote.</td>
<td>Camera is not connected to a power source.</td>
<td>Verify that the camera is connected to the Universal CCU, Quick-Connect device, or AV Bridge MATRIX PRO installed with it.</td>
</tr>
<tr>
<td></td>
<td>No power to the device providing power to the camera.</td>
<td>Verify that the Universal CCU, Quick-Connect device, or AV Bridge MATRIX PRO is connected to power.</td>
</tr>
<tr>
<td></td>
<td>At least one of the cables is bad.</td>
<td>Check using known good cables.</td>
</tr>
<tr>
<td></td>
<td>The wall outlet is not active. (Check by finding out if it powers something else, such as a laptop or phone charger.)</td>
<td>Use a different outlet.</td>
</tr>
<tr>
<td></td>
<td>The device providing power is bad.</td>
<td>Contact your reseller or Vaddio Technical Support for help troubleshooting this issue if the camera is connected to a Quick-Connect SR or if it is connected to a device that appears to be bad.</td>
</tr>
<tr>
<td></td>
<td>Universal CCU, Quick-Connect USB, or AV Bridge MATRIX PRO: Buttons and display do not illuminate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quick-Connect USB Mini or Quick-Connect DVI/HDMI-SR: Power light does not illuminate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The camera is bad.</td>
<td>Contact your reseller or Vaddio Technical Support.</td>
</tr>
<tr>
<td></td>
<td>The camera does not respond to the remote and the light is yellow.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A firmware update is in progress.</td>
<td>Wait a few minutes, and try again when the light turns blue.</td>
</tr>
</tbody>
</table>
## Video Issues

<table>
<thead>
<tr>
<th>What is it doing?</th>
<th>Possible causes</th>
<th>Check and correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>No video signal or black video. The camera's web interface is available and the camera responds to the directional controls on the remote.</td>
<td>The camera is set to a resolution not supported on the Quick-Connect device (for example, 1080p/60 on a camera with a Quick-Connect USB Mini).</td>
<td>Disconnect power, change the resolution to one that is supported on the Quick-Connect device, and reconnect power.</td>
</tr>
<tr>
<td></td>
<td>Camera connected to a Quick-Connect USB Mini: The Quick-Connect device is in control mode.</td>
<td>Press the white button on the QMini to switch from control mode to video mode. Video is not available when the device is in control mode.</td>
</tr>
<tr>
<td>Blue or black video. The camera's web interface is available and the camera responds to the directional controls on the remote.</td>
<td>Video is muted.</td>
<td>Select the Mute button in the web interface. This button is available on every page of the web interface.</td>
</tr>
<tr>
<td>No H.264 video stream from the Quick-Connect USB.</td>
<td>The Quick-Connect USB is set for USB streaming.</td>
<td>In the Quick-Connect USB device’s web interface, select IP streaming mode on the Streaming page.</td>
</tr>
</tbody>
</table>
## Camera Control and Other Issues

<table>
<thead>
<tr>
<th>What is it doing?</th>
<th>Possible causes</th>
<th>Check and correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>The camera does not respond to the remote, but the web interface is available.</td>
<td>The remote and the camera are not using the same IR channel.</td>
<td>Press the Camera Select 1 button on the remote. Try the other Camera Select buttons if necessary.</td>
</tr>
<tr>
<td></td>
<td>The remote’s batteries are dead.</td>
<td>Put new batteries in the remote.</td>
</tr>
<tr>
<td>The camera responds to the remote but not to the web interface.</td>
<td>The web interface is controlling a different camera. (Check by removing power from the camera; the web interface should become unavailable.)</td>
<td>Check the camera’s IP address. See <a href="#">Getting the camera’s IP address</a>.</td>
</tr>
<tr>
<td></td>
<td>More than one device is using this IP address.</td>
<td></td>
</tr>
<tr>
<td>The camera responds to the remote but the web interface is not available.</td>
<td>The camera is not using the IP address you browsed to.</td>
<td>Press the Data Screen button on the remote to see camera information.</td>
</tr>
<tr>
<td></td>
<td>The camera is not connected to the network.</td>
<td>Connect the network cable.</td>
</tr>
<tr>
<td>The camera responds to the remote but the web interface is not available.</td>
<td>The camera is not using the IP address you browsed to.</td>
<td>Press the Data Screen button on the remote to see camera information.</td>
</tr>
<tr>
<td></td>
<td>Camera connected to a Quick-Connect USB Mini: The Quick-Connect device is in video mode.</td>
<td>Press the white button on the QMini to switch from video mode to control mode. Web control is not available when the device is in video mode.</td>
</tr>
<tr>
<td>The camera loses all its settings when power is cycled.</td>
<td>All the DIP switches are in the ON (down) position.</td>
<td>Set the DIP switches to their proper positions. Default is all OFF (up). See <a href="#">DIP Switches: Camera Behavior Settings</a> for more information.</td>
</tr>
</tbody>
</table>

### Status Light

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

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

**Caution**

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

**Note**

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

**SYSTEM PAGE, FIRMWARE TAB**

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

Restoring Factory Default Settings Via Hardware

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

This procedure is also available for the Quick-Connect USB device. It is not available for the Universal CCU, which stores very little information other than CCU scenes A, B, and C.

**To restore factory default settings on an older RoboSHOT camera:**

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

**To restore factory default settings on a RoboSHOT 12E CAT-5 or RoboSHOT 30E CAT-5 camera:**

Set the rotary switch to the Factory Reset position (E) and cycle the power. Then return the rotary switch to its previous position.
Operation, Storage, and Care

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

Keep this device away from food and liquids.

Do not operate or store the device under any of the following conditions:
- Temperatures above 40°C (104°F) or below 0°C (32°F)
- High humidity, condensing or wet environments
- Inclement weather
- Severe vibration
- Lunar environments not pressurized and climate-controlled to Earth-normal
- Dry environments with an excess of static discharge

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

And a friendly reminder from our Training department…

As much as you might love our gear, do not attempt to romance your camera. As a robot it cannot return your love.
Compliance and Conformity Statements

Applicable to RoboSHOT cameras and Quick-Connect USB extensions

Compliance testing was performed to the following regulations:

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC Part 15 (15.107, 15.109), Subpart B</td>
<td>Class A</td>
</tr>
<tr>
<td>ICES-003, Issue 54: 2012</td>
<td>Class A</td>
</tr>
<tr>
<td>EMC Directive 2014/30/EU</td>
<td>Class A</td>
</tr>
<tr>
<td>EN 55032: 2015</td>
<td>Class A</td>
</tr>
<tr>
<td>EN 55024: November 2010</td>
<td>Class A</td>
</tr>
</tbody>
</table>

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’emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A préscrites 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 2014/30/EU**
- EN 55032: 2015 Conducted and Radiated Emissions
- EN 55024: November 2010 Immunity
  - EN 61000-4-3: 2006 + A1: 2008 Radiated Immunity
  - EN 61000-4-4: 2004 + Corrigendum 2006 Electrical Fast Transients
  - EN 61000-4-5: 2006 Surge Immunity
  - EN 61000-4-6: 2009 Conducted Immunity
  - EN 61000-4-8: 2010 Power Frequency Magnetic Field
  - EN 61000-4-11: 2004 Voltage Dips, Interrupts and Fluctuations

- 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

**IEC 60950-1: 2005 (2nd Edition); Am 1: 2009 + Am 2: 2013**
Compliance and Conformity Statements for Quick-Connect Devices

Applicable to Universal CCU, Quick-Connect USB Mini, Quick-Connect DVI/HDMI-SR, and Quick-Connect SR power/connectivity solutions.

Compliance testing was performed to the following regulations:

<table>
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<tr>
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</tr>
<tr>
<td>EMC Directive 2004/108/EC</td>
<td>Class A</td>
</tr>
<tr>
<td>EN 55022: December 2010</td>
<td>Class A</td>
</tr>
<tr>
<td>EN 55024: November 2010</td>
<td>Class A</td>
</tr>
<tr>
<td>KN22 2008 (CISPR 22: 2006)</td>
<td>Class A</td>
</tr>
</tbody>
</table>

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’emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A préscrites 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: 2010 Conducted and Radiated Emissions
- EN 55024: November 2010 Immunity
- EN 61000-4-3: 2006 + A1: 2008 Radiated Immunity
- EN 61000-4-4: 2004 + Corrigendum 2006 Electrical Fast Transients
- EN 61000-4-5: 2006 Surge Immunity
- EN 61000-4-6: 2009 Conducted Immunity
- EN 61000-4-8: 2010 Power Frequency Magnetic Field
- EN 61000-4-11: 2004 Voltage Dips, Interrupts and Fluctuations

**KN22 2008 (CISPR 22: 2006)**
- EN 61000-4-2 IT Immunity Characteristics
- EN 61000-4-3 Electrostatic Discharge
- EN 61000-4-4 Radiated Immunity
- EN 61000-4-5 Electrical Fast Transients
- EN 61000-4-6 Surge Immunity
- EN 61000-4-7 Conducted Immunity
- EN 61000-4-8 Power Frequency Magnetic Field
- EN 61000-4-11 Voltage Dips, Interrupts and Fluctuations

**IEC 60950-1: 2005 (2nd Edition); Am 1: 2009 + Am 2: 2013**
Warranty and Return Policy

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

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

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

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

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

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

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

**Products not under warranty:** Payment arrangements are required before outbound shipment for all out of warranty products.
**General RMA Terms and Procedures:** RMA’s are valid for 30 days and will be issued to Vaddio dealers only.

- End users must return products through Vaddio dealers.
- Before a defective product can be authorized to send in for repair, it must first go through the troubleshooting process with a member of the Vaddio Technical Support team.
- Products authorized for repair must have a valid RMA (Return Material Authorization) number.
  - Vaddio RMA Team will issue the RMA number.
  - An RMA number is to be included in all correspondence with Vaddio.
  - The RMA number must appear clearly on the shipping label (not the box) when the product is returned.
  - A packing slip must be included on the inside of the box with the RMA number listed and reason for RMA return.
- Products received at Vaddio that do not have a valid RMA number clearly marked on the outside of the shipping container may be refused and returned to sender.
- Boxes showing external damage will be refused and sent back to the sender regardless of the clearly marked RMA number and will remain the responsibility of the sender.

**RMA Charges (Restocking):** All qualified returns must be made in unopened, original packaging with all original materials.

- Initial shipments of equipment that are refused upon attempted delivery, for any reason, are subject to restocking charges.
- The Dealer has up to 60 days from the date of purchase to return Vaddio product for credit for future purchases of Vaddio product only.
- The Dealer has 61 to 90 days from the date of purchase to return Vaddio product with a 15% restocking fee or $50.00 fee, whichever amount is greater.
- The Dealer has up to 30 days from the date of purchase to return OEM and other manufacturer’s products with a 15% restocking fee or $50.00 fee, whichever amount is greater.

**NOTE:** Special Order products from other manufacturers (identified in the Vaddio Price Guide as noncancelable, nonreturnable and not refundable) are not eligible for advance replacement from Vaddio.

**Advance Replacement Policies:** For Vaddio manufactured products, advance replacement will be provided for up to one (1) year after the initial shipment of products.

**NOTE:** OEM and other manufacturer’s products are excluded from the Vaddio advance replacement policy. Advance replacement will be provided for up to 30 days after initial shipment of OEM products. Thereafter, a return to Vaddio and factory repair is offered during the other manufacturer’s warranty period. Vaddio will determine if the returned product is qualified for the OEM warranty.

**NOTE:** Special Order products from other manufacturers (identified in the Vaddio Price Guide as noncancelable, nonreturnable and not refundable) are not eligible for advance replacement from Vaddio.
Advance Replacement Procedures: The Vaddio Dealer must submit a non-revocable purchase order for advance replacement equipment at normal dealer pricing. Credit shall be issued upon complete product return (including all accessories) for dealers with Net 30 terms. For credit card accounts, charges will be assessed to the credit card for the replacement and credited back upon complete product return.

- Returns must be made in the original Vaddio packaging with all original materials if at all possible. Vaddio products with missing original materials will be billed to the dealer at dealer price.
- NOTE: OEM products must be returned in the original packaging with all materials and the RMA number written on the shipping label only and not on the OEM box. If the return is incomplete and/or the OEM box is defaced, the product shall be returned to the dealer and the RMA will not be credited.
- Equipment returned with “No Trouble Found” after advanced replacement will be assessed a full 15% or $50.00 restocking fee (whichever is greater) for each item and may also be assessed for additional charges to compensate for wear, damages and reconditioning.
- All returns must be accompanied by RMA # as stated above.
- All Advanced Replacement products are sent via 2-day service in the continental USA. If the product is requested to be sent via priority or overnight shipping, the Dealer shall pay shipping costs. The dealer can elect to supply their preferred shipping account number.
- International customers are responsible for all freight charges for equipment returned to Vaddio, including international shipping, taxes, and duties, insurance and all other associated logistic charges.

Warranty Repair Terms and Procedures: Vaddio will repair any product free of charge, including parts and labor, within the terms outlined in the warranty agreement for that product.

- Customers must provide proof of the product’s purchase date.
- Product that is within the warranty period will be repaired under the non-warranty terms if:
  - The equipment has been damaged by negligence, accident, act of God, mishandling, used with the incorrect, modified or extended power supply or has not been operated in accordance with the procedures described in the operating and technical instructions.
  - The equipment has been altered or repaired by other than the Manufacturer or an authorized service representative.
  - Adaptations or accessories other than those manufactured or provided by the Manufacturer have been made or attached to the equipment, which in the determination of the Manufacturer, shall have affected the performance, safety of reliability of the equipment; or the equipment’s original serial number has been modified or removed.
- Customer is responsible for shipping charges to send defective product under warranty to Vaddio. Vaddio will pay ground service return shipping charges during the 2nd year of the warranty period.
- Standard return shipping method for products under warranty, but out of the advance replacement warranty period, is ground shipment. Extra charges associated with priority shipping, when requested, will be the responsibility of the customer.

Non-Warranty Repair Terms: Vaddio will repair any non-obsolete product that does not meet the terms of the warranty. Non-warranty repair terms are as follows:

- The customer is responsible for, and agrees to pay, all parts and labor costs associated with the repair. Standard non-warranty repair charges are outlined below.
- Customers must provide payment method and one of the following, prior to receiving an RMA:
  - Hard copy of a PO, for dealers with Net 30 terms and in good standing with Vaddio.
  - Valid credit card number - Credit card will be charged upon shipping repaired product back to customer.
- Request for COD: Customers will be notified of COD charges prior to shipping repaired unit.
- Customer is responsible for all shipping charges both to and from Vaddio, and may use their own carrier.
- Customers will receive a courtesy call notifying them of total repair charges prior to return shipping.
Non-Warranty Repair Charges: Total repair charges (per unit) for a non-warranty repair consist of the following:
- Cost of any replacement parts needed to repair the defect.
- Labor costs billed per hour after minimum charges/time.
- Labor charges include troubleshooting and repair time only.
- Burn-in time and final test time is not included in the labor charges.
- Labor time is rounded to the nearest quarter hour.
- Labor charges are billed at the prevailing rate for the category of equipment repaired, after minimum charges/time. For prevailing labor rates, please contact the Vaddio technical support.
- All shipping and handling costs are the responsibility of the customer for non-warranty repairs.

Minimum Labor Charges: All non-warranty repairs are subject to a minimum evaluation/repair labor charge even if there is no problem found. Please contact Vaddio technical support for the current applicable rate.

Repair Charge Estimates: Estimates on repair charges for a specific problem will not be given before an RMA is issued and the actual product has been evaluated by a Vaddio technician. Repair estimates will be given after the repair department receives and evaluates the unit.
- Customers requesting an estimate on repair charges must do so up front when they call in for an RMA. The RMA team will call or email with the estimate after evaluating the unit and before proceeding with the repair.
- Any product evaluated for a repair estimate is still subject to the minimum labor charges even if the customer decides not to proceed with the repair.
- Vaddio does not guarantee estimates given on repair charges. Actual repair costs may exceed the estimate.
- Customer is responsible for actual repair charges, regardless of estimate.

Repair Policy Notes:
- Duration of Repair: Products are repaired on a first come first serve basis. The turn-a-round time of a particular repair is dependent upon circumstances such as product type, the nature of the problem and current repair volumes. Requests for expedited repair service will be considered on a case-by-case basis.
- Repair Warranty: Vaddio guarantees all of its repair work, performed on non-warranty items, for 90 days from the day the repaired product is shipped back to the customer. If the original problem described was not resolved or reoccurs within the 90-day period, Vaddio will repair the unit free of labor charges. However additional material charges may apply unless the parts used to affect the repair are again deemed defective.
Photo Credits

This manual may include some or all of these photos.

European Space Agency (ESA) astronaut Samantha Cristoforetti, a Flight Engineer with Expedition 42, photographs the Earth through a window in the Cupola on the International Space Station
Carl Sagan, Bruce Murray, Louis Friedman (founders) and Harry Ashmore (advisor), on the occasion of signing the papers formally incorporating The Planetary Society
Main Control Room / Mission Control Room of ESA at the European Space Operations Centre (ESOC) in Darmstadt, Germany
Expedition 42 on orbit crew portrait, International Space Station, Mar. 7, 2015 – Barry Wilmore (Commander) Top, Upside down, to the right cosmonaut Elena Serova, & ESA European Space Agency Samantha Cristoforetti. Bottom center US astronaut Terry Virts, top left cosmonauts Alexander Samokutyayev and Anton Shkaplerov.
European Space Agency astronaut Luca Parmitano, Expedition 36 flight engineer, outside the International Space Station
Nicolas Altobelli, Rosetta Scientist at ESA's European Space Astronomy Centre, Villanueva de la Cañada, Madrid, Spain
By European Space Agency - Nicolas Altobelli talks to the media, CC BY-SA 3.0-igo, https://commons.wikimedia.org/w/index.php?curid=36743144
Andrea Accomazzo, ESA Rosetta Spacecraft Operations Manager, providing a live update from the Main Control Room at ESA's European Space Operations Centre, Darmstadt, Germany during the Rosetta wake-up day.
Sleeping goose
By ladypine - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=1695227
STS-123 and Expedition 16 crews on the STS-123 crew's last full day onboard the International Space Station.
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