



Installation Guide for

# **RoboSHOT HDMI High-Definition PTZ Cameras**

Including RoboSHOT 12 HDMI, RoboSHOT 30 HDMI,  
RoboSHOT 12E HDMI, and RoboSHOT 30E HDMI

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## Overview



This guide covers RoboSHOT® HDMI cameras:

- RoboSHOT 12 HDMI, North America – 999-9940-000 (silver/black)
- RoboSHOT 12 HDMI, Europe/UK – 999-9940-001 (silver/black)
- RoboSHOT 12 HDMI, Australia/New Zealand – 999-9940-001 (silver/black)
- RoboSHOT 12E HDMI, North America – 999-99400-000 (black); 999-99400-000W (white)
- RoboSHOT 12E HDMI, Europe/UK – 999-99400-001 (black); 999-99400-001W (white)
- RoboSHOT 12E HDMI, Australia/New Zealand – 999-99400-009 (black); 999-99400-009W (white)
- RoboSHOT 30 HDMI, North America – 999-9943-000 (black); 999-9943-000W (white)
- RoboSHOT 30 HDMI, Europe/UK – 999-9943-001 (black); 999-9943-001W (white)
- RoboSHOT 30 HDMI, Australia/New Zealand – 999-9943-009 (black); 999-9943-009W (white)
- RoboSHOT 30E HDMI, North America – 999-99430-000 (black); 999-99430-000W (white)
- RoboSHOT 30E HDMI, Europe/UK – 999-99430-001 (black); 999-99430-001W (white)
- RoboSHOT 30E HDMI, Australia/New Zealand – 999-99430-009 (black); 999-99430-009W (white)

It is also applicable to RoboSHOT HDMI bundles for codecs:

- RoboSHOT 12 HDMI for Cisco Codecs, North America – 999-9940-400 (silver/black)
- RoboSHOT 12 HDMI for Cisco Codecs, Europe/UK – 999-9940-401 (silver/black)
- RoboSHOT 12E HDMI for Cisco Codecs, North America – 999-99400-400 (black), 999-99400-400W (white)
- RoboSHOT 12E HDMI for Cisco Codecs, Europe/UK – 999-99400-401 (black), 999-99400-401W (white)
- RoboSHOT 12 HDMI for Polycom Codecs, North America – 999-9940-500 (silver/black)
- RoboSHOT 12 HDMI for Polycom Codecs, Europe/UK – 999-9940-501 (silver/black)
- RoboSHOT 12E HDMI for Polycom Codecs, North America – 999-99400-500 (black), 999-99400-500W (white)
- RoboSHOT 12E HDMI for Polycom Codecs, Europe/UK – 999-99400-501 (black), 999-99400-501W (white)

For information on using the camera with a codec, refer to the Application Notes **Using RoboSHOT Series Cameras with Cisco Codecs** or **Using RoboSHOT Series Cameras with Polycom Codecs**.

## What's in this Guide

This guide covers:

- Unpacking the camera
- Tips for a successful installation
- Instructions for installing the camera mount
- Information on connecting and mounting the camera
- Camera power-on

Complete product information is available in the **Complete Manual for RoboSHOT HDMI High-Definition PTZ Cameras**.

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

## Camera Features

- Cost-effective professional HDMI camera
- Full HD (native 1080p/60) resolution
- RoboSHOT 12E and 30E HDMI only: simultaneous HDMI and H.264 IP streaming (RTSP or RTMP)
- RoboSHOT 12 HDMI and RoboSHOT 30 HDMI: Exmor<sup>®</sup> 1/2.8 type image sensor
- RoboSHOT 12E HDMI and RoboSHOT 30E HDMI: Exmor R<sup>™</sup> back-lit 1/2.5 type, high-speed, low-noise image sensor
- RoboSHOT 12 HDMI and RoboSHOT 12E HDMI: 12x optical zoom – perfect for small to medium rooms
- RoboSHOT 30 HDMI and RoboSHOT 30E HDMI: 30x optical zoom – for medium to large venues such as houses of worship, lecture theaters, IMAG systems
- Tri-Synchronous Motion<sup>™</sup> 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

## Unpacking the Camera

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

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.*

**RoboSHOT 12E HDMI, North America – 999-99400-000 (black); 999-99400-000W (white)**

**RoboSHOT 12E HDMI, Europe/UK – 999-99400-001 (black); 999-99400-001W (white)**

**RoboSHOT 12E HDMI, Australia/New Zealand – 999-99400-009 (black); 999-99400-009W (white)**

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

### 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 HDMI, North America – 999-9940-000 (silver/black)**

**RoboSHOT 12 HDMI, Europe/UK – 999-9940-001 (silver/black)**

**RoboSHOT 12 HDMI, Australia/New Zealand – 999-9940-009 (silver/black)**

- RoboSHOT 12 HDMI camera
- 12 VDC, 3.0 A switching power supply with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- EZCamera RS-232 Control Adapter (998-1001-232)
- Quick-start guide



**RoboSHOT 30E HDMI, North America – 999-99430-000 (black); 999-9943-000W (white)**

**RoboSHOT 30E HDMI, Europe/UK – 999-99430-001 (black); 999-9943-001W (white)**

**RoboSHOT 30E HDMI, Australia/New Zealand – 999-99430-009 (black); 999-9943-009W (white)**

- RoboSHOT 30E HDMI Camera
- PoE+ mid-span power injector with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- Quick-Start Guide

**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 HDMI, North America – 999-9943-000 (black); 999-9943-000W (white)**

**RoboSHOT 30 HDMI, Europe/UK – 999-9943-001 (black); 999-9943-001W (white)**

**RoboSHOT 30 HDMI, Australia/New Zealand – 999-9943-009 (black); 999-9943-009W (white)**

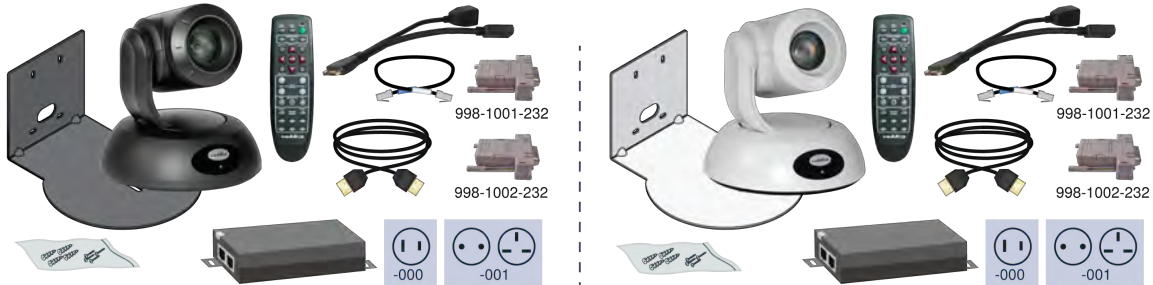
- RoboSHOT 30 HDMI Camera
- 12 VDC, 3.0 A switching power supply with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- EZCamera RS-232 Control Adapter (998-1001-232)
- Quick-Start Guide



**RoboSHOT 12E HDMI for Cisco Codecs, North America – 999-99400-400 (black), 999-99400-400W (white)**

**RoboSHOT 12E HDMI for Cisco Codecs, Europe/UK – 999-99400-401 (black), 999-99400-401W (white)**

- RoboSHOT 12E HDMI camera, black or white
- PoE+ mid-span power injector with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- EZCamera RS-232 Control Adapter (998-1001-232)
- EZCamera RS-232 Control Adapter for Cisco Codec (998-1002-232)
- 10.25 in. (26 cm) Cisco CAB-PHD4XS2-SPLIT cable
- 1 ft. (0.3 m) directional Cat-5 cable for Cisco SX20
- 3 ft. (0.9 m) HDMI cable
- Quick-start guide
- Application note



**RoboSHOT 12 HDMI for Cisco Codecs, North America – 999-9940-400 (silver/black)**

**RoboSHOT 12 HDMI for Cisco Codecs, Europe/UK – 999-9940-401 (silver/black)**

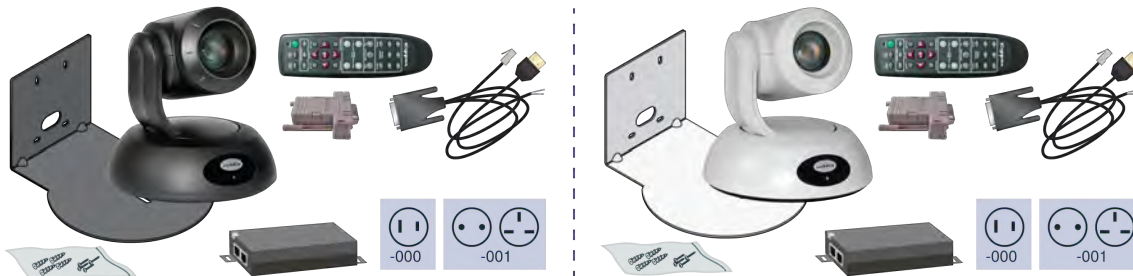
- RoboSHOT 12 HDMI camera, black
- 12 VDC, 3.0 A switching power supply with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- EZCamera RS-232 Control Adapter (998-1001-232)
- EZCamera RS-232 Control Adapter for Cisco Codec (998-1002-232)
- 10.25 in. (26 cm) Cisco CAB-PHD4XS2-SPLIT cable
- 1 ft. (0.3 m) directional Cat-5 cable for Cisco SX20
- 3 ft. (0.9 m) HDMI cable
- Quick-start guide
- Application note



**RoboSHOT 12E HDMI for Polycom Codecs, North America – 999-99400-500**

**RoboSHOT 12E HDMI for Polycom Codecs, Europe/UK – 999-99400-501**

- RoboSHOT 12E HDMI camera, black or white
- PoE+ mid-span power injector with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black or white, depending on camera color
- Vaddio IR Remote Commander
- EZCamera RS-232 Control Adapter (998-1001-232)
- 2 ft. (0.6 m) Fan-out Cable for Polycom, Codec Side
- Quick-start guide
- Application note





**RoboSHOT 12 HDMI for Polycom Codecs, North America – 999-9940-500**

**RoboSHOT 12 HDMI for Polycom Codecs, Europe/UK – 999-9940-501**

- RoboSHOT 12 HDMI camera, black
- 12 VDC, 3.0 A switching power supply with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black
- Vaddio IR Remote Commander
- EZCamera RS-232 Control Adapter (998-1001-232)
- 2 ft. (0.6 m) Fan-out Cable for Polycom, Codec Side
- Quick-start guide
- Application note



## A Quick Look at the Camera

The cameras in the RoboSHOT line are similar in appearance.

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

The image below shows a RoboSHOT 30 HDMI camera.

### Front of the Camera



#### Camera and Zoom Lens

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

Rear panel connectors are identical for the older RoboSHOT 12E HDMI and RoboSHOT 30E HDMI cameras.



From left to right:

- **Network PoE+:** RJ-45 connector. Connect to the network via PoE+ injector or OneLINK device for power and control via the web interface or Telnet session.
- **HD Video Select switch:** Rotary switch to select the video output resolution. See [Video Resolution Setting](#).
- **HDMI:** HDMI video output connector.
- **RS-232:** RJ-45 connector. Allows an external device to manage the camera using a modified VISCA protocol. See [RS-232 Serial Communication Settings](#).

**Note**

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

## Back of the Camera – RoboSHOT 12 HDMI and RoboSHOT 30 HDMI

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



From left to right:

- **Network:** 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 frequency, image flip (camera is invertible), and baud rate. See [Camera Behavior Settings – RoboSHOT 12 HDMI and RoboSHOT 30 HDMI](#) for more information.
- **RS-232:** RJ-45 connector. Allows an external device to manage the camera using a modified VISCA protocol. See [RS-232 Serial Communication Settings](#).
- **HDMI:** HDMI video output connector.
- **12 VDC, 3.0 A:** EIAJ-04 jack for local power. Connect only the power supply shipped with the camera or approved replacement 12 VDC, 3A power supply. This connection is not needed if you use a OneLINK device.

### **Note**

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

## Installing the Camera

This section covers:

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

And a required safety note here:

### **Note**

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

## Don't Void Your Warranty!



### **Caution**

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

### **Caution**

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

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

### **Caution**

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

## Before You Start

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

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

Prepare for a successful installation:

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

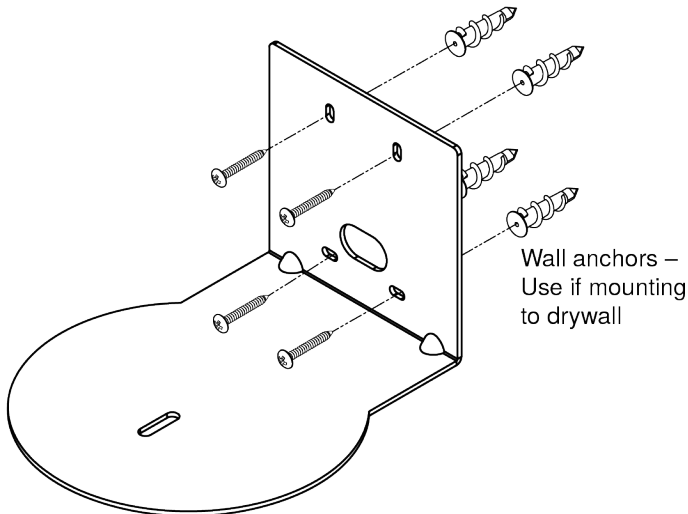
## Installing the Wall Mount

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

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

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

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



## About Ceiling-Mounted Cameras

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

### **Note**

*If mounting this camera using the Half-Recessed Ceiling Mount, you will need to power the mount's IR receiver separately to use the IR remote with the camera. Use Power Extension Module 999-1005-021. This camera does not supply power to the mount's IR receiver.*

## Video Resolution Setting

Non-architectural RoboSHOT cameras use a rotary switch to set output resolution.

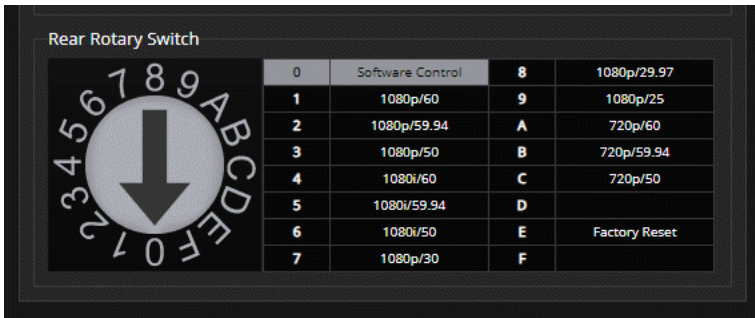
Set the desired video output resolution with the rotary switch before installing the camera. Note that the video resolutions are mapped differently on the rotary switch for the newer Elite-series cameras.

**RoboSHOT 12E HDMI and RoboSHOT 30E HDMI 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 1080p/59.94. This capability is not available in earlier firmware versions or on the older RoboSHOT 12 HDMI and RoboSHOT 30 HDMI cameras.

### RoboSHOT 12 HDMI and RoboSHOT 30 HDMI cameras



### RoboSHOT 12E HDMI and RoboSHOT 30E HDMI cameras



## Camera Behavior Settings – RoboSHOT 12 HDMI and RoboSHOT 30 HDMI

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

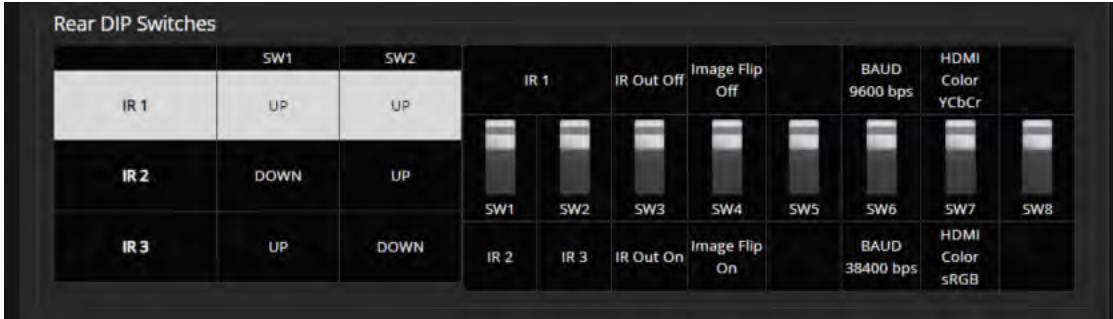
A label on the bottom of the camera provides a quick reference for setting the switches.

**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.*



(RoboSHOT 30 HDMI shown; Switch 5 is Super Wide Mode if the camera is a RoboSHOT 12 HDMI.)

**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:** Leave **switch 3** UP if the IR remote will be used. Set the switch in the DOWN position to forward IR signaling to a separate codec.

**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 HDMI 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.

Leave **Switch 7** UP unless sRGB color output is needed.

For RoboSHOT 30 HDMI, **Switch 5** is not used. **Switch 8** is not currently used on either RoboSHOT 12 HDMI or RoboSHOT 30 HDMI.



## RS-232 Serial Communication Settings

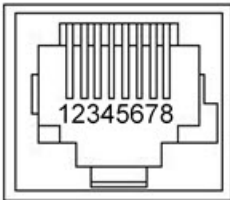
The RS-232 serial port (color-coded blue) provides a means of controlling the camera from a third-party device. Be sure the camera is set to the same baud rate as the external control device.

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

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

## RS-232 Connector Pin-Out

- Pin 1: Not used
- Pin 2: Not used
- Pin 3: Not used
- Pin 4: Not used
- Pin 5: Not used
- Pin 6: GND (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

### Note

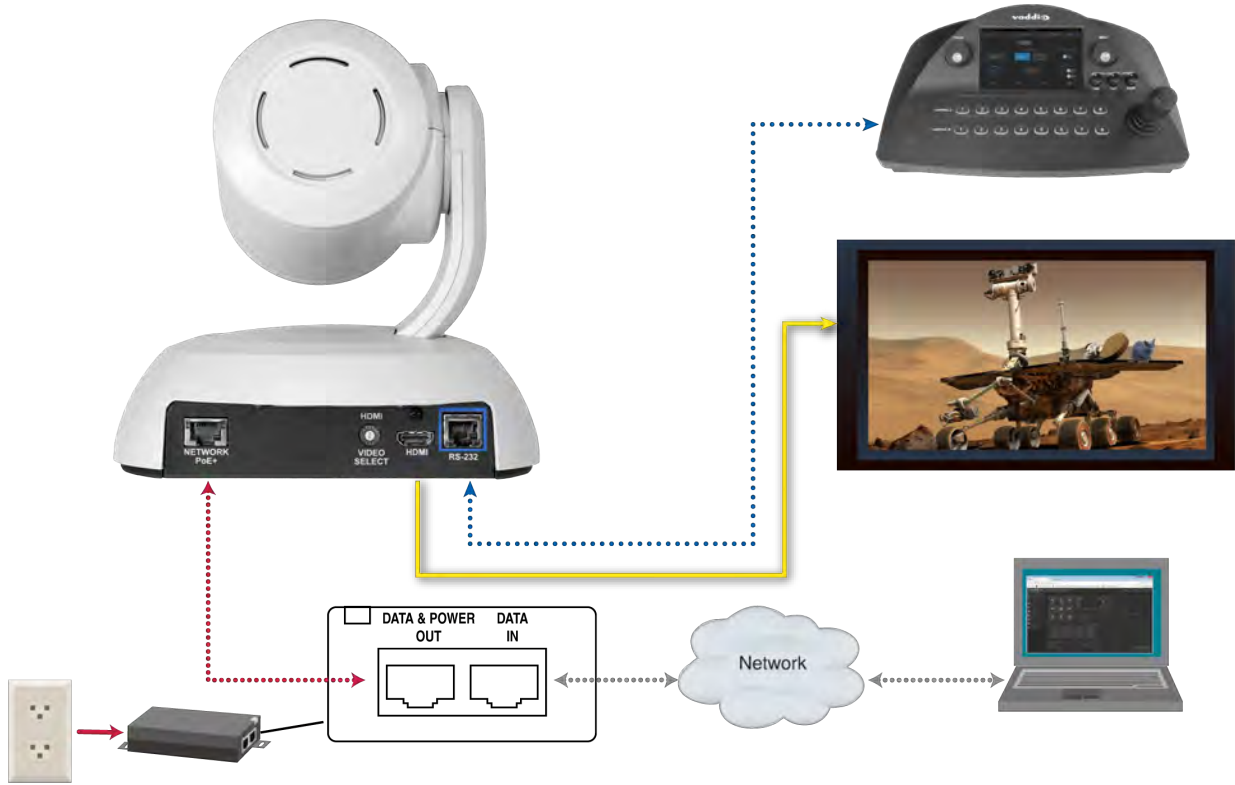
**Talk to the network administrator before you connect the equipment.**

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.

Refer to the **Complete Manual for RoboSHOT HDMI High-Definition PTZ Cameras** (System Administration section) for information on configuring static IP addresses.

### Basic Connections – RoboSHOT 12E HDMI and RoboSHOT 30E HDMI

This diagram shows a simple installation for a RoboSHOT 12E HDMI or RoboSHOT 30E HDMI camera.



The RoboSHOT HDMI Elite cameras are not compatible with OneLINK devices.

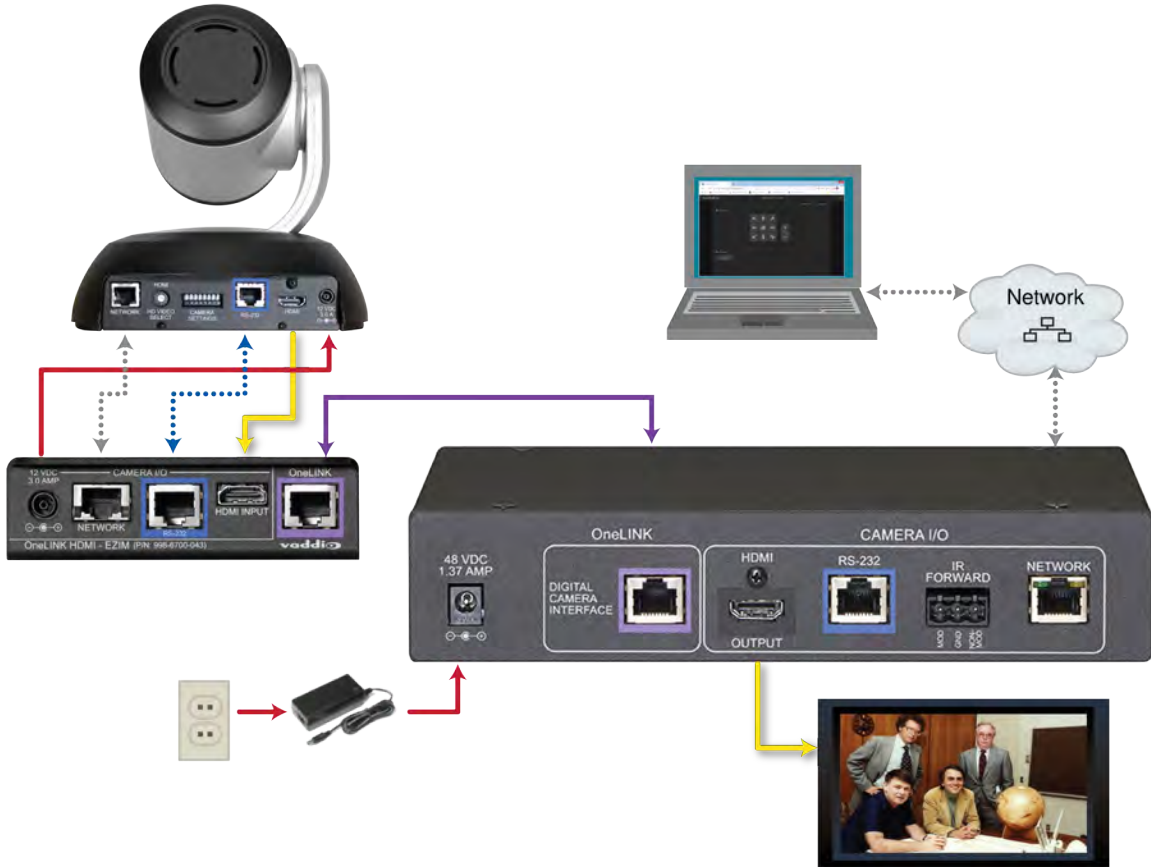
### Basic Connections – RoboSHOT 12 HDMI and RoboSHOT 30 HDMI

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



## Basic Connections – RoboSHOT 12 HDMI with Camera Extension

This diagram shows a RoboSHOT 12 HDMI camera connected to a OneLINK HDMI interface to extend power, video, and control over a single cable. The EZCamera Interface Module (EZIM) is designed to be mounted to the underside of the camera's Thin Profile Wall Mount. The RoboSHOT 30 HDMI camera can be connected in the same way.



## Installing the Camera

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

### **Caution**

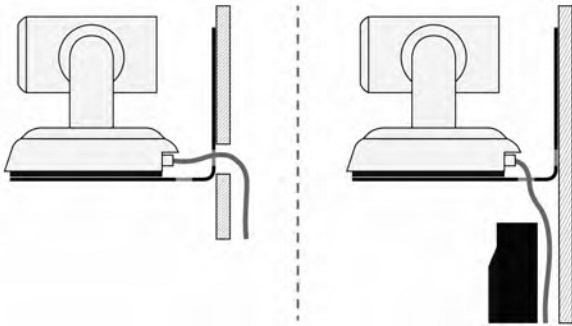
*Check your cables. Connecting a cable to the wrong port or using the wrong pin-out can result in equipment damage and will void the warranty.*

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

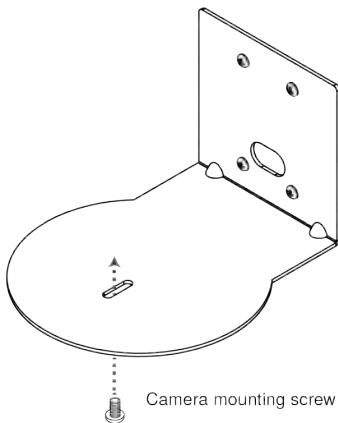
### **Caution:**

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

5. Place the camera on the mount.



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



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

## Powering Up the Camera

Connect camera power.

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

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

### **Note**

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

## Status Light

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

- **Blue:** Normal operation (blinks once when the camera receives a command from the remote)
- **Red:** On-air tally (signal provided by external device via serial connection)
- **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.*

## Next Steps

The camera is now ready to configure and use. This information is available in the **Complete Manual for RoboSHOT HDMI High-Definition PTZ Cameras**.

## 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
- On a rocket sled or other vehicle capable of high-G acceleration
- 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

Compliance testing was performed to the following regulations:

FCC Part 15 (15.107, 15.109), Subpart B	Class A
ICES-003, Issue 54: 2012	Class A
EMC Directive 2014/30/EU	Class A
EN 55032: 2015	Class A
EN 55024: November 2010	Class A
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	Class A
IEC 60950-1:2005 (2nd Edition); Am 1: 2009 + Am 2: 2013	Safety
EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013	Safety

### FCC Part 15 Compliance

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

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

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



### ICES-003 Compliance

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

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





## European Compliance

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

Standard(s) To Which Conformity Is Declared:



**EMC Directive 2014/30/EU**

**EN 55032: 2015**

Conducted and Radiated Emissions

**EN 55024: November 2010**

Immunity

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

Electrostatic Discharge

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

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

IT Immunity Characteristics

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**

Safety

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

Safety

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

**Return Material Authorization (RMA) number:** Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMAs are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge without exception. Special order 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 or 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

By NASA - [https://blogs.nasa.gov/ISS\\_Science\\_Blog/2015/03/06/women-in-space-part-two-whats-gender-got-to-do-with-it/](https://blogs.nasa.gov/ISS_Science_Blog/2015/03/06/women-in-space-part-two-whats-gender-got-to-do-with-it/), Public Domain, <https://commons.wikimedia.org/w/index.php?curid=38834990>

Carl Sagan, Bruce Murray, Louis Friedman (founders) and Harry Ashmore (advisor), on the occasion of signing the papers formally incorporating The Planetary Society

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Main Control Room / Mission Control Room of ESA at the European Space Operations Centre (ESOC) in Darmstadt, Germany

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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 Samokutyaev and Anton Shkaplerov.

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European Space Agency astronaut Luca Parmitano, Expedition 36 flight engineer, outside the International Space Station

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Chris Cassidy, Luca Parmitano, and Karen Nyberg, ISS, 2013. Photo Credit: NASA

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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.

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Sleeping goose

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STS-123 and Expedition 16 crews on the STS-123 crew's last full day onboard the International Space Station.

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