



Installation Guide for the

RoboSHOT 20 UHD and RoboSHOT 40 UHD

Professional PTZ Cameras

Document 411-0028-31 Rev. E
January 2019

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Overview

This guide covers the RoboSHOT® 20 UHD and RoboSHOT 40 UHD professional PTZ cameras:

- RoboSHOT 20 UHD, North America – 999-9950-000 (silver/black); 999-9950-000W (white)
- RoboSHOT 20 UHD, Europe/UK – 999-9950-001 (silver/black); 999-9950-001W (white)
- RoboSHOT 20 UHD, Australia/New Zealand – 999-9950-009 (silver/black); 999-9950-009W (white)
- RoboSHOT 40 UHD, North America – 999-9952-000 (black); 999-9952-000W (white)
- RoboSHOT 40 UHD, Europe/UK – 999-9952-001 (black); 999-9952-001W (white)
- RoboSHOT 40 UHD, Australia/New Zealand – 999-9952-009 (black); 999-9952-009W (white)



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 20 UHD Ultra-High Definition PTZ Cameras**.

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

Camera Features

- Back-illuminated, ultra high definition Exmor R™ sensor delivers native UHD (3840 x 2160) video
- Imaging and performance comparable to 3-chip cameras
- Professional performance and flexibility, with simultaneous 3G-SDI, HDMI, and H.264 IP streaming
- RoboSHOT 40 UHD is Vaddio's first camera with genlock
- RoboSHOT 20 UHD: 12x optical zoom; 20x combined optical and digital zoom; horizontal field of view 74° (wide) to 4.8° (tele) at 20x
- RoboSHOT 40 UHD: 20x optical zoom; 40x combined optical and digital zoom; horizontal field of view 70° (wide) to 4.1° (tele) at 20x
- 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.



Caution

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

RoboSHOT 20 UHD, silver/black, North America – 999-9950-000

RoboSHOT 20 UHD, white, North America – 999-9950-000W

RoboSHOT 20 UHD, silver/black, Europe and UK – 999-9950-001

RoboSHOT 20 UHD, white, Europe and UK – 999-9950-001W

RoboSHOT 20 UHD, silver/black, Australia and New Zealand – 999-9950-009

RoboSHOT 20 UHD, white, Australia and New Zealand – 999-9950-009W

- RoboSHOT 20 UHD camera, 998-9950-000
- 12 VDC, 3.0 A switching power supply with AC cord set(s)
- Thin Profile Wall Mount with mounting hardware, black (535-2000-240) or white (535-2000-240W), depending on camera color
- Vaddio IR Remote Commander (998-2100-000)
- EZCamera RS-232 Control Adapter (998-1001-232)
- Quick Start Guide



OR



A Quick Look at the Camera

This section covers the physical features of the camera.

Front of the Camera



- **Camera and Zoom Lens, RoboSHOT 20 UHD (image on the left):** 20x zoom range; 4.8° field of view at 20x. Horizontal field of view up to 74°. Optical zoom to 12x, combined optical and digital zoom from 12x to 20x.
- **Camera and Zoom Lens, RoboSHOT 40 UHD (image on the right):** 40x zoom range; 4.1° field of view at 40x. Horizontal field of view up to 70°. Optical zoom to 20x, combined optical and digital zoom from 20x to 40x at 1080p, or 20x to 30x at 2160p.
- **Dual-arm mount** provides superior stability.
- **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.

RoboSHOT 20 UHD: Back of the Camera



From left to right:

- **12 VDC, 3.0 A power connector** – For local power. Not used when connecting the camera to a OneLINK device or a PoE++ power injector. Use only the 12 VDC, 3A power supply.
- **OneLINK HDBaseT connector** – Network connectivity for streaming and control; also for power if a PoE++ injector or OneLINK device is used.
- **HDMI connector** – HDMI video output.
- **HD-SDI connector** – HD-SDI video output.
- **RS-232 port** – Allows an external device to control the camera using a modified VISCA protocol. See [RS-232 Serial Communication Settings and Port Pin-outs](#).
- **HD video select switch** – Sets the video output resolution.
- **Camera Settings DIP switches** – Sets camera behaviors such as IR remote frequency, image flip, and RS-232 baud rate. See [Camera Settings](#) for more information.

RoboSHOT 40 UHD: Back of the Camera



From left to right:

- **12 VDC, 3.0 A power connector** – For local power. Not used when connecting the camera to a OneLINK device or a PoE++ power injector. Use only the 12 VDC, 3A power supply.
- **OneLINK HDBaseT connector** – Network connectivity for streaming and control; also for power if a PoE++ injector or OneLINK device is used.
- **HDMI connector** – HDMI video output.
- **SDI connector** – 3G-SDI video output.
- **Sync connector** – For genlock signal.
- **RS-232 port** – Allows an external device to control the camera using a modified VISCA protocol. See [RS-232 Serial Communication Settings and Port Pin-outs](#).
- **Camera Settings rotary switch** – Sets the video output resolution.

Note

A label on the bottom of the camera lists the physical switch settings.

Camera Switch Settings

Both models use a rotary switch to set the video resolution. The RoboSHOT 20 UHD camera uses DIP switches to set some basic camera behaviors; the RoboSHOT 40 UHD camera uses "soft DIP switches" in the web interface to set these behaviors.

A label on the bottom of the camera provides a quick reference for setting the switch or switches on the back. After the camera is installed, you can read all switches from the camera's web interface.

Set the switch or switches on the back of the camera before mounting the camera.

Video Resolution Selector

Set the desired output resolution for the camera with the rotary switch.

Notes

The maximum resolution for the HD-SDI output and the IP stream is 1080p.

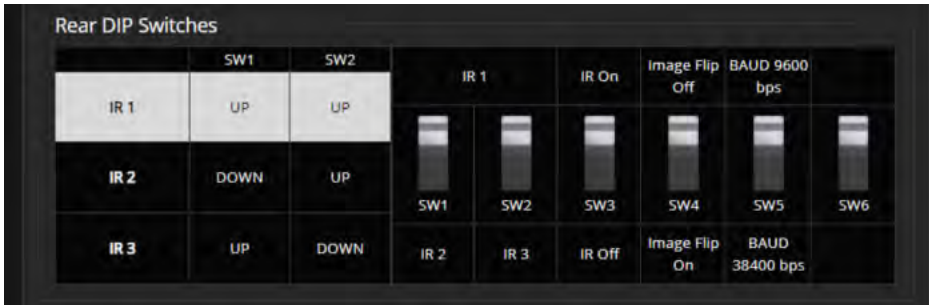
On the RoboSHOT 20 UHD, when the video output is set to 1080p/29.97 or 1080p/25 (rotary switch positions 4 and 5), the HDMI output is at double the specified frame rate, with each frame doubled. Other outputs deliver the specified frame rate. This is a limitation of the camera hardware.

On the RoboSHOT 40 UHD, zoom is limited to 30x at 2160p.

Rear Rotary Switch				
	0	1080p/59.94	8	2160p/29.97
	1	1080p/50	9	2160p/25
	2	1080i/59.94	A	
	3	1080i/50	B	
	4	1080p/29.97	C	
	5	1080p/25	D	
	6	720p/59.94	E	
	7	720p/50	F	

Camera Behavior Settings for RoboSHOT 20 UHD

DIP switches on the back of the RoboSHOT 20 UHD set its basic behaviors.



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: Leave **switch 3** UP if the IR remote will be used.

Image Flip: If mounting the camera upside-down, set **switch 4** DOWN: IMAGE FLIP ON.

Baud Rate: Set **switch 5** 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.

Switch 6 is not currently used.

Note

On the RoboSHOT 40 UHD, these settings are available using the corresponding soft DIP switches on the System page of the web interface. This information is available in the **Complete Manual for RoboSHOT 20 UHD and RoboSHOT 40 UHD Professional PTZ Cameras**.

Installing the Camera

This section covers:

- Selecting the location for the camera
- Installing the mount
- Connection diagrams
- RS-232 cable pin-out and communication settings
- Connecting and mounting the camera

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:

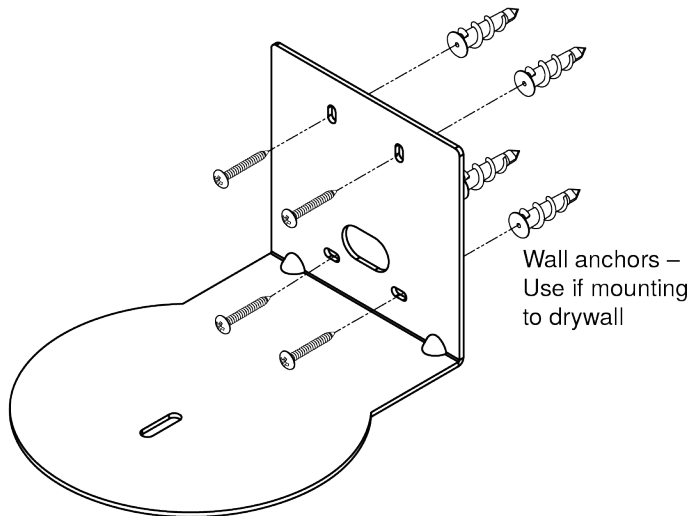
- Be sure you can identify all cables correctly.
- Check Cat-5 cables for continuity.
- Ensure that the DIP switches (if present) and the video resolution switch are set appropriately. See [Camera Switch Settings](#).

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. See [DIP Switches: Camera Behavior Settings](#) for more information.

Note

*On the RoboSHOT 40 UHD, this setting is available using the corresponding soft DIP switch on the System page of the web interface. This information is available in the **Complete Manual for RoboSHOT 20 UHD and RoboSHOT 40 UHD Professional PTZ Cameras**.*

Cabling Notes

Caution

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.

Basic Connection Diagrams

Here is a simple set-up for the RoboSHOT 20 UHD camera.



Here is a simple set-up for the RoboSHOT 40 UHD camera, using genlock.



Options for Power and Other Connections

Use the provided 12 VDC power supply – As shown in the Basic Connections section, this set-up requires separate connections for power, network, control, and video output.

Use a PoE++ power injector – Connect to the network and to power through a PoE++ power injector. Video output and RS-232 control (if used) require separate connections. In most cases, you do not need to use the camera's 12 VDC power supply in this configuration.

Connect the camera to a OneLINK® device – A single Cat-5e (or better) cable to the OneLINK/HDBaseT connector provides power, control, network, and video connectivity. Network, video output, and RS-232 control are connected at the OneLINK receiver. Do not use the camera's 12 VDC power supply in this configuration.

This example shows basic connections for a RoboSHOT 20 UHD camera using a OneLINK HDMI extension. Connection details vary depending on the equipment and functionality to be used in your installation.



RS-232 Serial Communication Settings and Port Pin-outs

The RS-232 serial port (color-coded blue) near the center of the camera's back panel provides another means of controlling the camera.

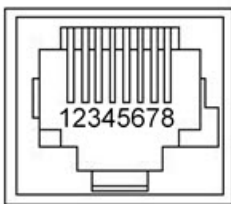
Speed and Encoding

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

9600 baud is default. The 38400 baud setting is optional if the connected device supports it.

Connector Pin-Out

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



Caution

Check 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.

Installing the Camera

Be sure you have already set the camera's DIP switches (if present) and video resolution switch.

Caution

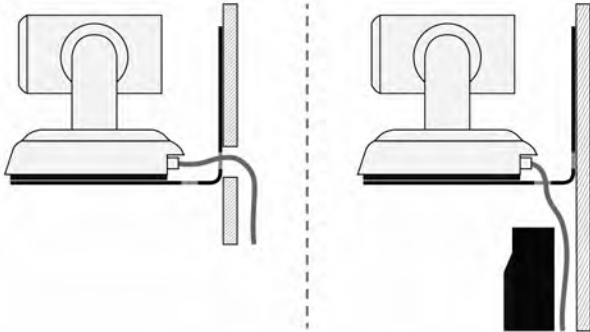
Check your cables. Connecting a cable to the wrong port or using the wrong pin-out can result in equipment damage and will void the warranty.

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.

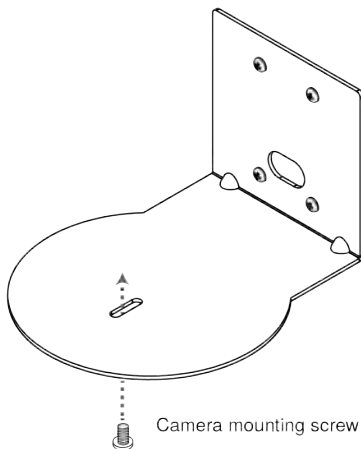
Caution:

If using local power rather than connecting to a OneLINK device or using PoE++, 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 (Pro A/V 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 20 UHD Ultra 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
- Inside the Large Hadron Collider or other particle accelerator
- 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 Statements and Declarations of Conformity

Compliance testing was performed to the following regulations:

FCC Part 15 (15.107, 15.109), Subpart B	Class A
ICES-003, Issue 54: 2012	Class A
EMC Directive 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

EN 55024: November 2010

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

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

EN 61000-4-4: 2004 + Corrigendum 2006

EN 61000-4-5: 2006

EN 61000-4-6: 2009

EN 61000-4-8: 2010

EN 61000-4-11: 2004

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

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN 61000-4-8

EN 61000-4-11

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

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

Conducted and Radiated Emissions

Immunity

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

IT Immunity Characteristics

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

Safety

Safety

Warranty 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 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.

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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/, 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

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,

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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.

By NASA - <http://www.spaceflight.nasa.gov/gallery/images/shuttle/sts-123/html/iss016e033684.html>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=3773505>

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