



Installation Guide for the

# ConferenceSHOT AV

Enterprise-Class Conferencing System

Document 411-0001-31 Rev G  
November 2020

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## Overview

This guide covers the ConferenceSHOT AV system – a camera and detachable speaker available in black or white, available individually or in conference room bundles.

### ConferenceSHOT AV Camera

- North America – 999-9995-000B (black), 999-9995-000W (white)
- Europe and UK – 999-9995-001B (black), 999-9995-001W (white)
- Australia and New Zealand – 999-9995-009B (black), 999-9995-009W (white)

*This camera is no longer available in silver/black.*



### ConferenceSHOT AV Speaker

- Worldwide – 999-9995-003 (black)
- Worldwide – 999-9995-003W (white)

The ConferenceSHOT AV camera and speaker are also available in bundles that include other audio accessories.

Refer to [legrandav.com](http://legrandav.com) for the latest information on ConferenceSHOT AV product bundles.

## What's in this Guide

This guide covers:

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

Complete product information is available in the **Complete Manual for the ConferenceSHOT AV Enterprise-Class Conferencing System**.

### Note

*If you are responsible for configuring the equipment after installing it, please use the Complete Manual instead of this guide. The product's Complete Manual includes all the information in this guide, plus information on system administration, operation, and troubleshooting.*

## Features

- Integrated HD camera and audio system ideal for small to medium conference rooms
- 10x optical zoom, horizontal field of view of 74° in super-wide mode
- 2.14 Megapixel effective, native 1080p/60 full HD image sensor
- Audio inputs for two Vaddio microphones
- Audio output for optional matching speaker – or integrate into existing audio infrastructure
- Simultaneous uncompressed USB 3.0 and IP (H.264) video with full-duplex audio streaming
- Selectable IP stream resolution; USB stream resolution auto-negotiated with conferencing client
- Precise pan and tilt movements at up to 90° per second
- Universal Video Class (UVC) and Universal Audio Class (UAC) drivers supported in Windows®, macOS®, and Linux operating systems, compatible with most UC conferencing applications
- Integration-ready Telnet control
- Enterprise-class IT administrative capabilities with full web controls for remote management
- Presenter-friendly IR remote control

## Unpacking the Conferencing System

Make sure you received all the items you expected. Here are the packing lists for the ConferenceSHOT AV system.

### **Caution**

*Always support the camera's body when lifting or moving it. Lifting the camera by its head or mounting arm will damage it.*



### **ConferenceSHOT AV camera**

North America: 999-9995-000 (black/silver) or 999-9995-000W (white)

Europe and UK: 999-9995-001 (black/silver) or 999-9995-001W (white)

Australia and New Zealand: 999-9995-009 (black/silver) or 999-9995-009W (white)

- ConferenceSHOT AV camera (silver/black or white)
- Vaddio IR Remote Commander
- PoE+ mid-span power injector with AC cord set(s)
- Cat-5e cable, 10 ft (3 m)
- USB 3.0 cable, 6 ft (1.8 m)
- 4-contact Phoenix-style connector
- Thin Profile Wall Mount with mounting hardware

### **ConferenceSHOT AV speaker**

All locales: 998-9995-003 (black) or 998-9995-003W (white)

- ConferenceSHOT AV speaker
- Rail mount kit (mounts to the camera or the camera mount)
- Power/audio cable, 6 in. (15 cm)

For bundle contents, refer to the ConferenceSHOT AV product pages on [legrandav.com](http://legrandav.com).

## A Quick Look at the System

This section covers the physical features of the system.

### Front of the Camera and Speaker



**Camera and zoom lens** – The ConferenceSHOT AV camera features a 10X optical zoom lens (11X in Super-Wide mode).

**IR sensor** – Receives signals from the IR remote. Make sure there's nothing directly in front of the camera base, and point the remote at the camera.

**Status light** – The multi-colored LED indicates the camera's current state. This light can be turned off in the administrative web interface.

**Note**

*By default, the camera's status indicator 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 light is off.*

**Speaker** – Far-end conference audio for small rooms. Available in some ConferenceSHOT AV bundles or separately.

## Back of the Camera



- **Network PoE+** – RJ-45 connector. Connect to the network and to power via the Power and Data Out port of the mid-span PoE+ power injector. Provides power and network access for IP streaming and camera control via web interface or Telnet.
- **USB 3.0** – USB type B connector. Connect to a computer for use with soft conferencing applications. Provides uncompressed USB 3.0 stream.
- **EasyMic ports** – RJ-45 connectors. Connect Vaddio CeilingMIC, TableMIC, or other EasyMic-compatible microphones.
- **Audio output** – Line level differential audio and 12 VDC power output to the optional amplified speaker or other audio infrastructure.

## Back of the Speaker



Use the provided speaker cable to connect the speaker to the camera's audio output.

## Installation

This section covers:

- Selecting the location for the camera
- Verifying that the camera is ready to install
- Installing the mount
- 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 body when lifting or moving it. Lifting the camera by its head or mounting arm will damage it.*

### **Caution**

*This product is for indoor use. Do not install it outdoors or in a humid environment without the appropriate protective enclosure. Do not allow it to come into contact with any liquid.*

### **Caution**

*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.*

## Before You Install the Camera

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 where the camera is to be mounted.
- Ensure that the camera body can move freely and will normally point away from the ceiling and lights. The camera will not perform well if it is pointed toward a light source such as a light fixture or window.
- If the remote will be used, ensure that nothing blocks the IR lens in the camera's base.

Prepare for a successful installation:

- Be sure you can identify all cables correctly.
- Check Cat-5 cables for continuity.
- Talk to the network administrator. If installing the camera in a non-DHCP network (one that does not automatically assign IP addresses), you will need to configure the camera with a static IP address as directed by the network administrator.

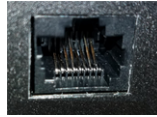
## Cabling Notes

### Caution

When building cables for Vaddio products, do not use pass-through RJ-45 connectors. If they are crimped incorrectly, they can cause intermittent connections and degrade signal quality. Incorrectly crimped pass-through connectors can also damage the connectors on the product, which will 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 routed near sources of electromagnetic interference such as power lines or fluorescent light fixtures.

### 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

Label all cables at both ends.



## Pre-Installation Functional Check

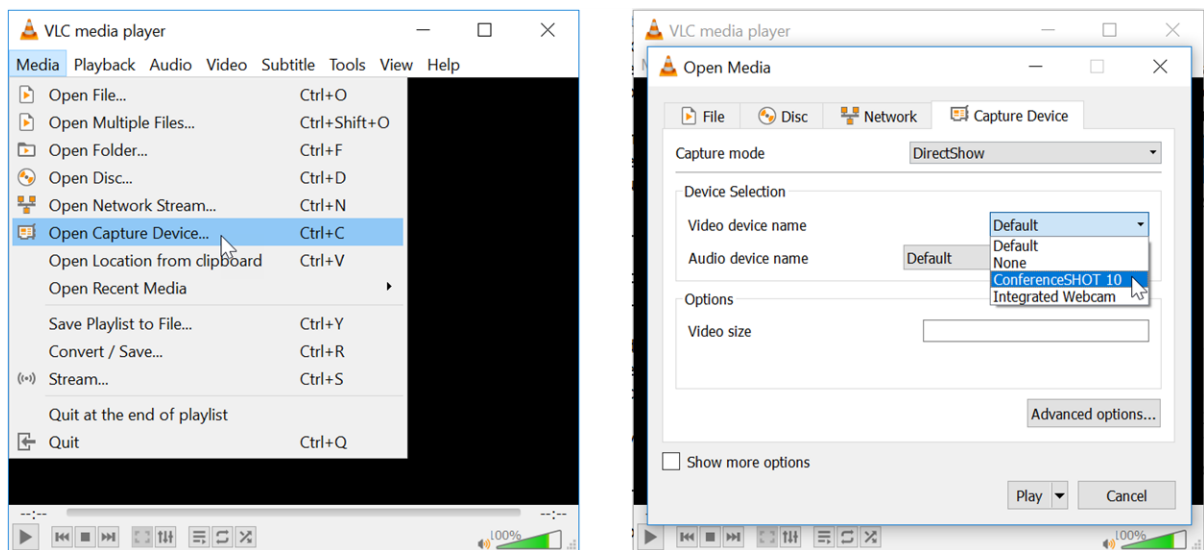
If you're installing the camera where it's hard to reach, you may want to verify functionality before you install it.

1. Connect the camera in its minimum functional configuration.



2. Connect power. The camera moves and the indicator light turns blue.
3. Open a media player such as VLC Media Player and view the USB stream (If you use VLC Media Player, this is the "Open Capture Device" option under Media.). The camera is available as a video capture device; the device name is ConferenceSHOT AV.

The screen shots below show how you would access the USB stream using VLC Media Player. In this example, the capture device is a ConferenceSHOT 10 camera. The steps are the same for the ConferenceSHOT AV camera; only the video device name differs.



If the camera turns on and sends video, continue with the installation.

## Status Indicator Light

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

- Blue – Camera is active
- Purple – Standby mode or booting
- Yellow – Firmware update is in progress
- Blinking blue – USB cable is disconnected (UC color scheme)
- Blinking red – Video mute is on (UC color scheme)
- Blinking yellow – Motor out of calibration

### 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 indicator 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 light is off.*

## About Ceiling-Mounted Cameras

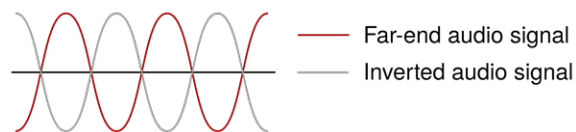
If you use an inverted mount, set the camera's Image Flip mode ON for inverted operation. This orients the video image correctly and sets the tilt motors to respond appropriately to tilt up and down commands from the remote, web interface, and connected control devices. This control is available to the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

## About Echo Cancellation

When a microphone picks up the audio from a speaker (far-end audio) during a conference, it sends the far-end audio back to the participants at the far end, creating an echo. Acoustic echo cancellation prevents this.

Here's how it works:

1. The speaker feeds the far-end audio into the room. This signal also goes to the audio processor as the reference that needs to be canceled.
2. The audio processor inverts the signal and sends it to the microphone.
3. The sum of the audio that the microphone picks up from the speaker and the inverted signal is 0: The echo is canceled.



With the audio from the speaker canceled out, the audio from the microphone includes only the sounds originating at your end of the conference.

For the ConferenceSHOT AV system's acoustic echo cancellation to work,

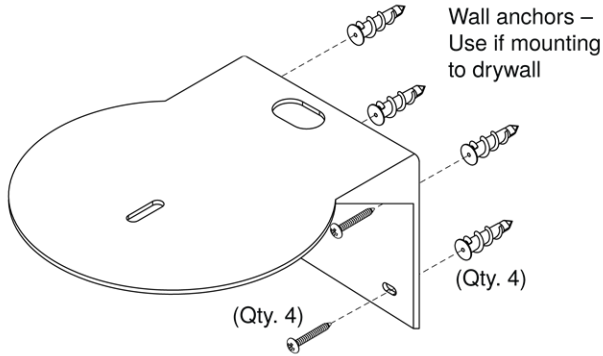
- The line outputs or the powered speaker must be connected to provide the audio to be canceled, and
- The microphone(s) must be connected, to route the audio from the speakers to the audio processor.
- In the soft conferencing client, you must select the speakers and microphone connected to the camera as the conference audio devices.

## Installing the Wall Mount

The camera is shipped with a 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.

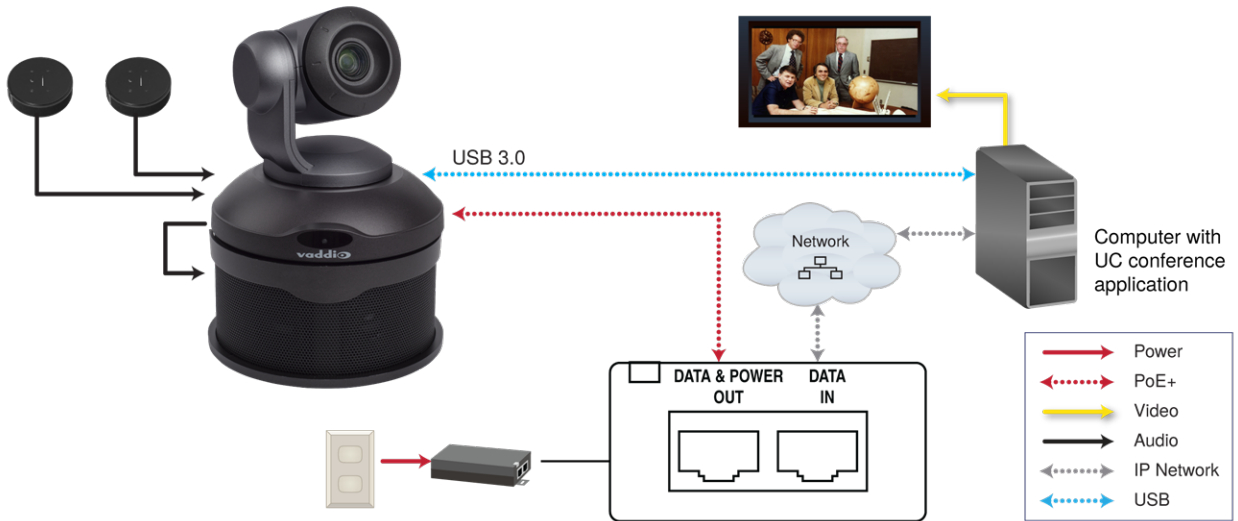
- If you mount it to drywall, use the wall anchors provided with the wall mount.
- If you mount it to a wall box, use the cover plate screws supplied with the wall box.



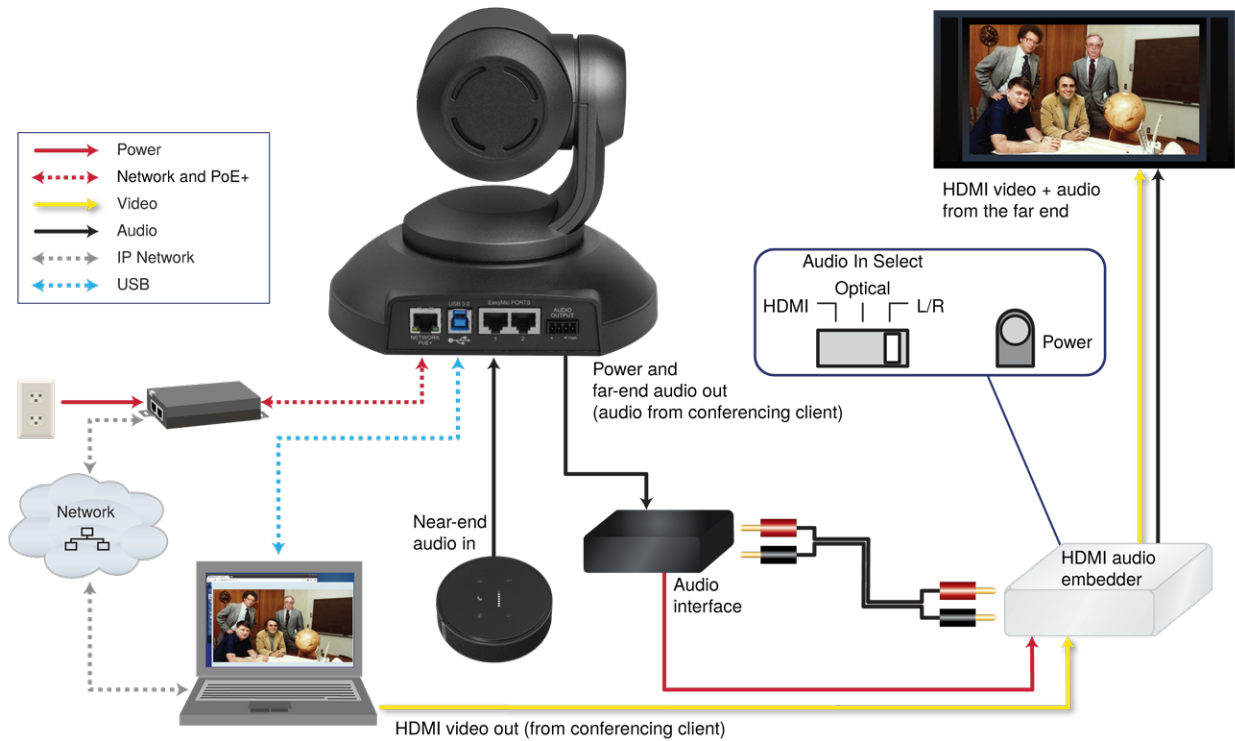
This mount may be installed as shown, or flipped 180° so that the wall attachment is directly behind the camera.

## Basic Connections

Here is an example of how the camera might be set up in a medium-size conference room. (Shown: ConferenceSHOT AV bundle – TableMIC 2.) In this setup, a PC uses a unified communications conferencing application to manage the camera and connected microphones and speaker. When connected in this way, the system provides echo cancellation.



The camera can also be connected without the speaker, using an HDMI audio embedder to include the far-end audio in the HDMI output. (Shown: ConferenceSHOT AV bundle – TableMIC 1 without speaker.) This allows you to use a display with integrated speakers. When connected this way, the system provides echo cancellation.



*This product is intended for installation and use only in environments where all PoE/PoE+ connections originate within the building. It is not to be connected to lines that run outside the building where it is installed.*

## Installing the Camera without the Speaker

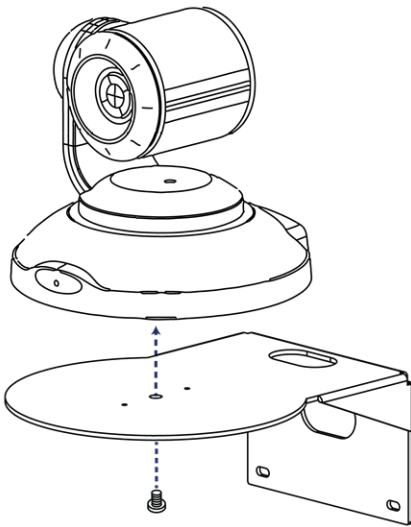
### **Caution**

*Before you start, be sure you can identify all cables correctly. Connecting a cable to the wrong port can result in equipment damage.*

### **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 through the opening in the mounting shelf.
2. Connect all required cables to the camera.
3. Secure the camera to the mounting shelf using the mounting screw ( $\frac{1}{4}$ -20 x .375 in.) supplied with the camera.

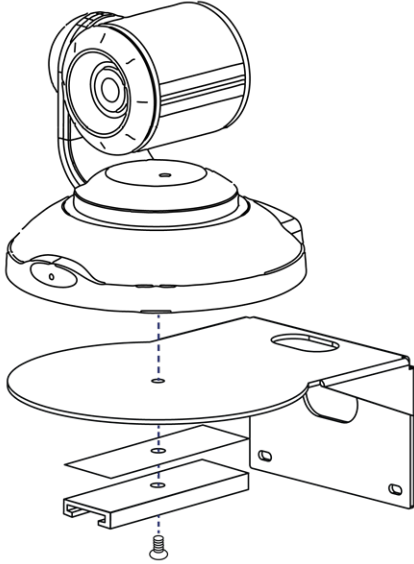


### **Note**

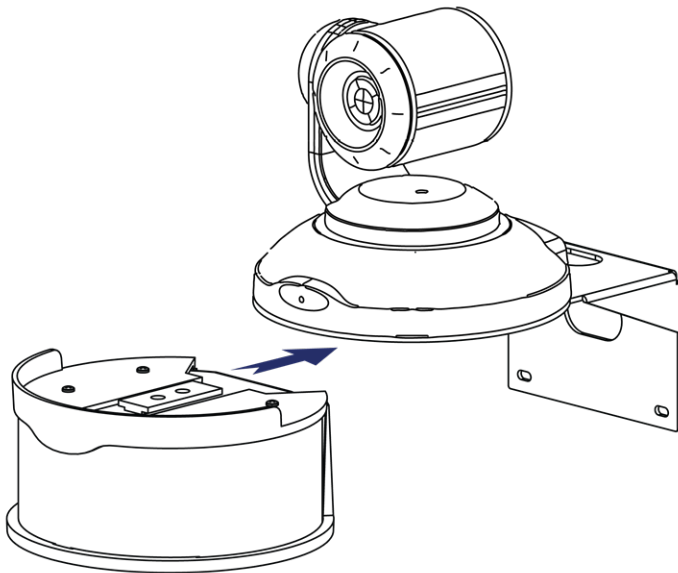
*If the camera is jostled or bumped while it is connected to power, it may require a pan-tilt reset.*

## Installing the Camera and Speaker

1. If you are adding a speaker to a previously-installed ConferenceSHOT AV camera, remove its mounting screw.
2. Place the camera on the mounting shelf if you have not already done so.
3. Secure the speaker rail, gasket, and camera to the mounting shelf with the 0.5 in. 1/4-20 flathead screw.



4. Connect the speaker cable (power and line level signal) to the speaker.
5. Slide the speaker into place.



**Note**

*If the camera is jostled or bumped while it is connected to power, it may require a pan-tilt reset.*

## Powering Up the System

Connect camera power. The camera will initialize and move. This will take a few seconds. When an image is available, the camera is ready to accept control information.

## 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
- In a wind tunnel
- Dry environments with an excess of static discharge

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

## Next Steps

The camera is now ready to configure and use. This information is available in the **Complete Manual for the ConferenceSHOT AV Enterprise-Class Conferencing System**.

## 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
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

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

IEC 62368-1: 2014 (2nd Edition) – Safety

## Photo Credits

This guide 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

Nicolas Altobelli, Rosetta Scientist at ESA's European Space Astronomy Centre, Villanueva de la Cañada, Madrid, Spain

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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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<https://commons.wikimedia.org/w/index.php?curid=945698>

Photo AS11-40-5948, Aldrin assembles seismic experiment, by National Aeronautics and Space Administration, courtesy of the NASA History Office and the NASA JSC Media Services Center

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