**Camera and Electronic Products for Integrators**

# WALLVIEW™ PRO 300 WITH HSDS™

**Vaddio™ Pro Series Cable System with High Speed Differential Signaling for the Sony® BRC-300 PTZ Camera**

## OVERVIEW

The Vaddio WallVIEW PRO 300 (Figure 1) is built around the Sony BRC-300 standard definition PTZ Camera. The WallVIEW PRO 300 uses high speed differential signaling (HSDS), an active transmission system that delivers low-loss, high-quality video over Cat. 5 cabling distances up to 500 feet. The WallVIEW PRO 300 system is capable of standard definition (SD) resolutions in a variety of screen configurations to fit most monitors. The BRC-300 is offered in either NTSC or PAL formats.

**Figure 1:**
WallVIEW PRO 300 System with Camera, Wall Mount and EZIM (behind camera)

The WallVIEW PRO system also has many new features, including a unique IR forwarding system which allows the user to forward IR commands from Sony® or Polycom® IR remote controls, through the WallVIEW system to a third party device, such as a videoconference codec (see Figure 2). Other new features include analog Y-C (S-Video) and composite outputs on BNC connectors, four position distance adjustment for Cat. 5 cabling, Y-Gain adjustment, and the EZ Interface Module (EZIM). Like all Vaddio WallVIEW systems, the Thin Profile Wall Mount and mounting hardware is included.

## INTENDED USE

Before installing the Vaddio WallVIEW PRO Camera System, please read the entire manual thoroughly. All Vaddio camera systems are designed for use indoors. Outdoor operation is not recommended, has not been tested, and could damage the camera and/or create a potentially unsafe operating condition. Use only the Vaddio PowerRite power supply provided.

## IMPORTANT SAFEGUARDS

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

⚠️ **Use only the power supply provided with the Vaddio WallVIEW products. Use of any unauthorized power supply will void any and all warranties.**

## INFORMATION

For RS-232 control information, please see the full-length Technical Manual for the Sony BRC-300. This manual can be found either on the Vaddio or Sony website. Vaddio has also prepared a number of TechNotes, specifications and drawings designed to inform and educate integrators on the value and the specific uses of Vaddio products.

## UNPACKING

Carefully remove all of the parts from the packaging and identify the following parts for the WallVIEW PRO 300 system:

- One (1) - Sony BRC-300 Standard Definition PTZ Camera
- One (1) - Vaddio EZ Interface Module (EZIM)
- One (1) - Vaddio EZIM to SD Break Out Cable
- One (1) - Vaddio Quick-Connect PRO (1-RU Rack Mountable)
- One (1) - Vaddio Thin Profile PRO Wall Mount
- One (1) - Sony IR Remote Control
- One (1) - EZCamera Control Adapter (RJ-45 to DB-9)
- One (1) - 36V PowerRite Power Supply with AC Cord Set
- One (1) - 2-position Phoenix Connector for IR
- Mounting Hardware
- Documentation
    - Vaddio Manual
    - Sony BRC-300 Manual

## INSTALLATION

All WallVIEW products are specifically designed for installation on a vertical wall surface with Cat. 5 cable connectivity for Power, Video and Control signaling. Installation is simplified in that no custom 8-Pin mini-din cables or expensive S-Video plenum cables are needed and no power outlets are required near the camera bracket. All cabling is routed to the head-end using Cat. 5 cables.

### Before Installing

- Locate the camera mounting location paying close attention to camera viewing angles, lighting conditions, possible line of site obstructions, and checking for in-wall obstructions where the camera is to be mounted. Pick a mounting location to optimize the performance of the camera.
- Pre-wire all cabling as required (see wiring diagram examples).
- The Thin Profile Wall Mount for the WallVIEW 300 can be mounted directly to a 3-gang wall box or can be mounted to the drywall using four dry wall anchors.

### Wiring Diagram Example



RS-232 Cat. 5

Video (Y-C and Composite)
to VC codec or other device

IR Output

Video Cat. 5

Power Cat. 5

Quick-Connect Pro Rack
Mount Interface

WallVIEW 300 with Camera,
Wall Mount and EZIM
(behind camera)

Up to 500' (152.4m) of Cat. 5
for Power, Video and Control

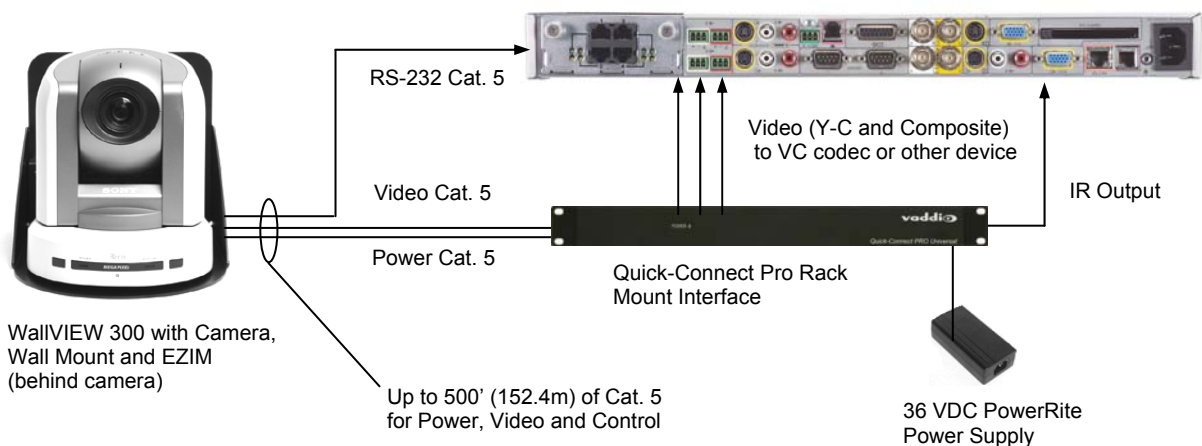36 VDC PowerRite
Power Supply

**Figure 2:** Basic connectivity of the WallVIEW 300 System.
The WallVIEW PRO uses a Cat. 5 (all 4-pairs) for power to ensure the motors receive the required current to operate properly. The Video Cat. 5 uses 3-pairs of the Cat. 5 for Video and 1-pair for IR forwarding. The RS-232 Cat. 5 uses 5 conductors for RS-232 with provision for daisy chain controllers. These Cat. 5 cables can be run up to 500' (152.4m). See Appendix 1 for wiring and pin-out information.

**Daisy Chain Control Configuration:**

The WallVIEW PRO 300 has provisions for daisy chaining control signals when using an RS-232 controller with only one (1) RS-232 output. Each WallVIEW 300 EZIM has an RS-232 input and an RS-232 output (Figure 3).
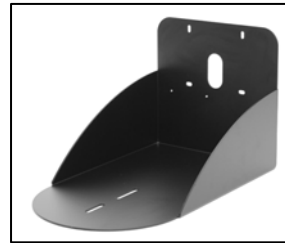


**Figure 3:**
Daisy chain control configuration using two (2) WallVIEW PRO 300 systems and a single RS-232 output control device. See Appendix 1 for wiring and pin-out information.

## MOUNTING INSTRUCTIONS
**Step 1:**
After determining the optimum location of the camera system, mark locations for the four screw holes and cable pass-thru (vertical oval). Install the drywall mounts and cut the hole for the cable pass-thru. At this point, do not install the Wall Mount.



**Figure 4:**
Thin Profile Wall Mount with oval cable feed-through hole. The wall mount may be mounted directly to a 3-gang wall box or to drywall with the appropriate wall anchors.

**Step 2:**
Connect the 25-pin cable to the EZIM. Next, mount the EZIM and break out cable on the back of the wall mount, using the two tapped screw holes (see Figure 5).

**Figure 5:**
25-pin connector mounted to EZIM (left) and EZIM mounted to the Wall Mount (right)



**Step 4:**
Take the Wall Mount, with the EZIM and break out cable installed, and place it against the drywall anchors or 3-gang wall box, making sure to pull the Cat. 5 cables through the oval pass-through hole. Finger-tighten the screws down to the mount and confirm that the base is level. Tighten the screws down firmly. If the bracket is to be mounted on a 3-gang wall box, use the screws supplied with the electrical box.

**Step 5:**
Confirm that the Cat. 5 cables are terminated correctly, by testing them with a continuity tester. Next, connect the break out cables to the appropriate ports on the BRC-300 (VISCA IN cable is labeled). Secure the camera to the mount and using the ¼"-20 screw.

**Step 6:**
Connecting the Quick-Connect PRO. The Quick-Connect PRO is a 1-RU rack mount interface that breaks out the signals from the Cat. 5 cables back to the standard connectors. The basic system connectivity is illustrated below (Figure 6).
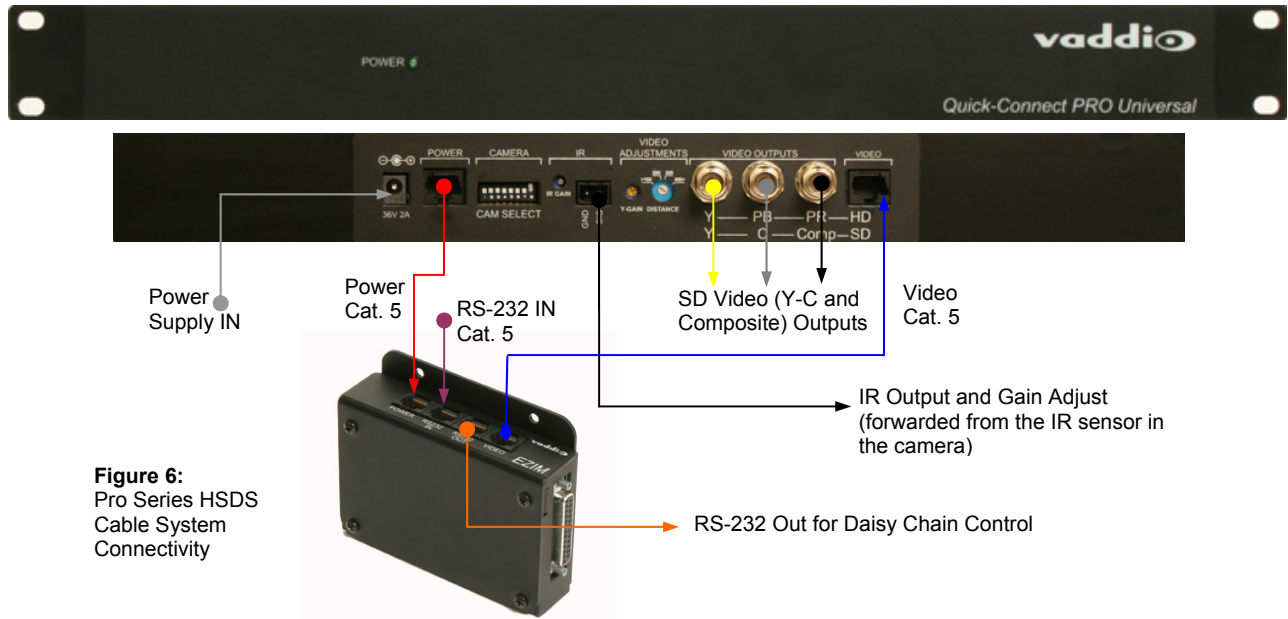


Power
Supply IN

Power
Cat. 5

RS-232 IN
Cat. 5

SD Video (Y-C and
Composite) Outputs

Video
Cat. 5

IR Output and Gain Adjust
(forwarded from the IR sensor in
the camera)

RS-232 Out for Daisy Chain Control

**Figure 6:**
Pro Series HSDS
Cable System
Connectivity

**Step 6 (continued):**
Attach the Cat. 5 cables for Power, Video and Control to the Quick-Connect PRO rack mount interface. Connect the SD video outputs from the Quick-Connect Pro to your videoconference codec or other equipment. Connect the PowerRite 36 VDC power supply to the Quick-Connect PRO power input.
**Note: Plugging the POWER Cat. 5 Cable into the wrong RJ-45 may cause damage to the camera system and void the warranty.**

**COMPLETING THE INSTALLATION:**
Connect the Vaddio 36 VDC power supply to an AC outlet. Power will travel down the Power Cat. 5 cable to the cable shoe, powering the camera. The camera will "Home" to a centered position ready for control information from the provided IR Remote Commander or RS-232 Camera controller of the integrators' choice. To insure proper continuity of control and operation of the cameras, the RS-232 controller (control system or joystick) should be powered on after the camera.

**Setting the IR Pass-Through Adjustment (optional)**
The PRO system is capable of transmitting IR signal frequencies between 25 to 45 kHz. Connect the IR output from the Quick-Connect PRO to either the IR input on a third party device or a Xantech™ IR probe (compatible models: 282MRP or 283M). See Figure 7 for terminating cable termination of the Xantech probe. NOTE: Vaddio has tested compatibility of the IR forwarding with Sony, Vaddio, Polycom and TANDBERG remote controls.

NOTE: The IR Gain adjustment is factory set for distances below 300 feet (91.4 meters), and should not have to be adjusted unless the Cat. 5 cabling distance is over this length. For cable runs above 300 feet, slowly adjust the gain level up while pressing functions on the remote control, pointed at the 300 camera using the WallVIEW PRO system. Once all remote control functions are operating from the remote, through the camera's IR sensor, the IR gain is adjusted properly.
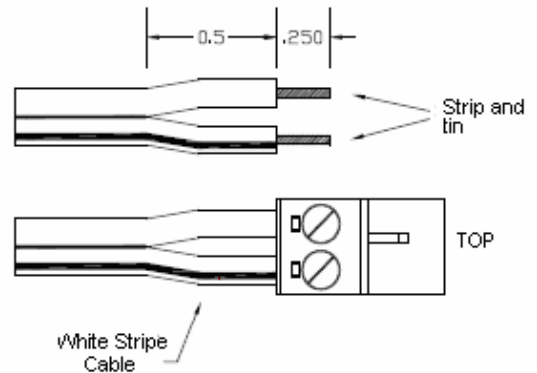


**Figure 7:**
Terminating Xantech Probe cable to 2-conductor Phoenix connector

## CARE AND CLEANING
- Do not attempt to take the products in the system apart.  There are no user-serviceable components.
- Keep the devices away from food and liquid, and do not spill liquids on the products.
- For smears or smudges on the lens, wipe with a clean, soft cloth.  Do not use any abrasive chemicals on the camera body at any time.

## OPERATING AND STORAGE CONDITIONS
Do not store or operate the WallVIEW PRO System under the following conditions:
- Temperatures above 40°C (104°F) or below 0°C (32°F), for Indoor Use Only
- High humidity, condensing or wet environments
- Dusty environments
- In inclement weather
- Under severe vibration

## GENERAL SPECIFICATIONS

| WallVIEW 300 System | |
|---|---|
| System Part Numbers | 999-6205-000 NTSC<br>999-6205-001 PAL |
| **Quick-Connect Interface** | |
| **Connectors** | Power Connector:  5.5mm OD x 2.5mm ID<br>Power RJ-45:  Supplies 36V to EZCamera Interface Module Regulator<br>IR:  2-Pin Phoenix type spring cage connector<br>Video Outputs:  BNC Connectors for HD Analog Component (Y,PB,PR) or SD<br>Video RJ-45:  Transports HD or SD video from camera depending on camera selection switch position |
| **Camera Select Switch** | 8-Position DIP switch loads camera profiles and IR Forwarding for Polycom and TANDBERG Codecs |
| **Video Adjustments** | Y-Gain (luminance gain) for fine tuning over longer cable distances<br>Distance Compensation:  100', 200', 300', 400'+ |
| **Compatible Cameras** | Sony BRC-H700, BRC-Z700, EVI-HD1, BRC-300, (EVI-D70, EVI-D100 also in SD Mode)<br>Polycom EagleEye |
| **Max. Cat. 5 Cable Distance** | Up to 500' (152.4m) for Video Power and Control |
| **Power Supply** | 36 VDC, 2.78 Amp |
| **Dimensions** | 1-RU Rack Mount (1.75" H x 19" W x 6" D) |
| **EZCamera Interface Module** | |
| **Connectors** | Four (4) RJ-45 Connectors<br>One DB-25 for Power, Video, Control & IR |
| **Cable Assemblies** | For Sony SD Cameras:  DB-25M to RCA-M/4-Pin Mini Din/8-Pin Mini Din x 2/EIAJ4 Power Connector |
| **Power Regulator** | Supplies 12VDC to Cameras |
| **Dimensions** | Approx.  (3.035" H x 4.46" W x 1.242" D) |

| Sony BRC-300 Camera | |
|---|---|
| Camera Part Number | BRC-300 |
| Image Sensor | 1/4.7-type CCD |
| Effective Pixels | Approx 1-Mill Pixels (x 3) |
| Signal Systems | NTSC or PAL |
| Video Resolutions | 480i |
| Lens | 12X Optical, 4X Digital, 48X total |
| Horiz. Viewing Angle | 3.3 to 37.8 degrees (4:3); 4.0 to 45.4 degrees (16:9) |
| Weight | Approx. 5 lbs 8 oz (2.5 kg) |
| Dimensions | Approx 7-1/8" W x 8-3/8" H x 8-1/8" D<br>(180mm x 210.1mm 205mm) |

# Appendix 1: Cable Pin-outs for the WallVIEW PRO System
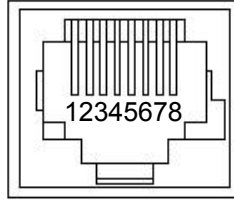
## EZCamera Interface Module Pin-outs
**Power Connector**

| Pin | Signal |
|-----|--------|
| 1 | Power + |
| 2 | Power - |
| 3 | Power + |
| 4 | Power - |
| 5 | Power + |
| 6 | Power - |
| 7 | Power + |
| 8 | Power - |
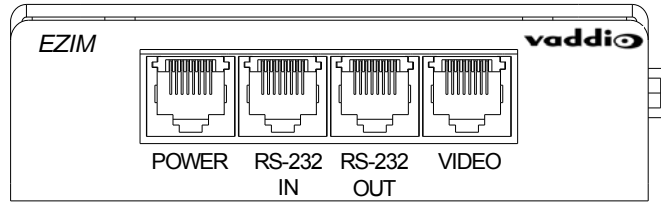
**RS-232 IN Connector**

| Pin | Signal |
|-----|--------|
| 1) | DTR (Sony® Daisy chain to DSR) |
| 2) | DSR (Sony Daisy chain from DTR) |
| 3) | Unused |
| 4) | Unused |
| 5) | Unused |
| 6) | Digital GND |
| 7) | RXD (from TXD of control source) |
| 8) | TXD (to RXD of control source) |

**RS-232 OUT Connector**

| Pin | Signal |
|-----|--------|
| 1) | DSR (Sony Daisy chain from DTR) |
| 2) | DTR (Sony Daisy chain to DSR) |
| 3) | Unused |
| 4) | Unused |
| 5) | Unused |
| 6) | Digital GND |
| 7) | TXD (to RXD of control source) |
| 8) | RXD (from TXD of control source) |
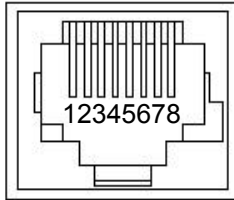
**Video Connector**

| Pin | Signal SD | HD |
|-----|-----------|-----|
| 1) | IR+ | IR+ |
| 2) | IR GND | IR GND |
| 3) | Y+ | Y+ |
| 4) | C+ | PB+ |
| 5) | C- | PB- |
| 6) | Y- | Y- |
| 7) | Comp. Video + | PR+ |
| 8) | Comp. Video - | PR- |
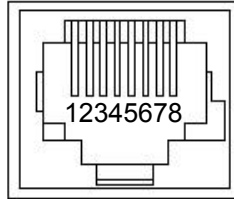
**DB-25 Connector**

| Pins | Signal |
|------|--------|
| 1 | GND Out |
| 14 | RXD Out |
| 2 | TXD Out |
| 15 | DTR Out |
| 3 | DSR Out |
| 16 | GND IN |
| 4 | TXD IN |
| 17 | RXD IN |
| 5 | DTR IN |
| 18 | DSR IN |
| 6 | IR |
| 19 | GND |
| 7 | GND |
| 20 | CVBS/PR |
| 8 | GND |
| 21 | C/PB |
| 9 | GND |
| 22 | Y/Y |
| 10 | GND |
| 23 | GND |
| 11 | GND |
| 24 | 12V |
| 12 | 12V |
| 25 | 12V |
| 13 | 12V |
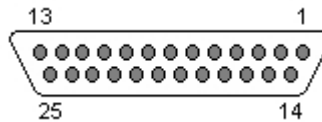
## Quick-Connect Pin-outs
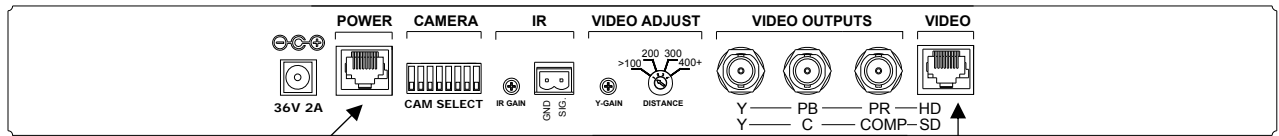


### Power Connector

| Pin | Signal |
|-----|--------|
| 1 | Power + |
| 2 | Power - |
| 3 | Power + |
| 4 | Power - |
| 5 | Power + |
| 6 | Power - |
| 7 | Power + |
| 8 | Power - |

### Video Connector

| Pin | Signal SD | HD |
|-----|-----------|-----|
| 1) | IR+ | IR+ |
| 2) | IR GND | IR GND |
| 3) | Y+ | Y+ |
| 4) | C+ | PB+ |
| 5) | C- | PB- |
| 6) | Y- | Y- |
| 7) | Comp. Video + | PR+ |
| 8) | Comp. Video - | PR- |

## Sony HD & SD Camera Control Pin-outs

### RS-232 IN Connector (8-Pin Mini Din)

| Pin | Signal |
|-----|--------|
| 1 | DTR |
| 2 | DSR |
| 3 | TXD |
| 4 | GND |
| 5 | RXD |
| 6 | GND |
| 7 | IR OUT |
| 8 | Unused |
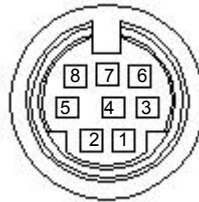


### RS-232 IN Connector (8-Pin Mini Din)

| Pin | Signal |
|-----|--------|
| 1 | DTR |
| 2 | DSR |
| 3 | TXD |
| 4 | GND |
| 5 | RXD |
| 6 | GND |
| 7 | Unused |
| 8 | Unused |
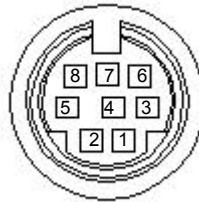
# FCC, ICES-003 Compliance and CE Declaration of Conformity

**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 of the FCC Rules.  These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

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

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

**ICES-003 Compliance**

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

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

**European Compliance**

This product has been evaluated for Electromagnetic Compatibility under the standards for Emissions and Immunity and meets the requirements for E4 environment.  This product complies with Class A (E4 environment). 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** 89/336/EEC

| | |
|---|---|
| **EN 55022A** | Conducted and Radiated Emissions |
| **EN 55024** | Electromagnetic Compatibility - Immunity |
| **EN 61000-4-2** | Electrostatic Discharge Requirements |
| **EN 61000-4-3** | Radiated Electromagnetic Field Requirement |
| **EN 61000-4-4** | Electrical Fast Transients / Burst Requirements |
| **EN 61000-4-5** | Surge Requirements |
| **EN 61000-4-6** | Conducted Immunity Requirements |
| **EN 61000-4-8** | Power Frequency Magnetic Field Requirements |
| **EN 61000-4-11** | Voltage Dips, Interrupts and Fluctuations Requirements |

## WARRANTY INFORMATION

**Hardware\* Warranty -** One year limited warranty on all parts. Vaddio warrants this product against defects in materials and workmanship for a period of one year from the day of purchase from Vaddio.  If Vaddio receives notice of such defects during the warranty period, they will, at their option, repair or replace products that prove to be defective.

**Exclusions** - The above warranty shall not apply to defects resulting from: improper or inadequate maintenance by the customer, customer applied software or interfacing, unauthorized modifications or misuse, operation outside the normal environmental specifications for the product, use of the incorrect power supply, improper extension of the power supply cable or improper site operation and maintenance.

**Vaddio Customer service** – Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty and is found to be defective. 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.

**Return Material Authorization (RMA) number  -** Before returning a product for repair or replacement, request an RMA from Vaddio's technical support. Provide a technician with a return phone number, e-mail address, shipping address, and product serial numbers and describe the reason for repairs or returns as well as the date of purchase and proof of purchase.  Include your assigned RMA number in all correspondence with Vaddio.  Write your assigned RMA number on the shipping label of the box when returning the product. Please see Vaddio's website for current RMA policies and procedures.

**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, or unauthorized repair. Cutting the power supply cable on the secondary side (low voltage side) to extend the power to the device (camera or controller) voids the warranty for that device.

**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.

*\*Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.*