

VADDIO™ POWERVIEW™ HD PTZ CAMERAS

PowerVIEW HD-22 High Definition PTZ Camera (22X Optical Zoom)

Model Number 999-6960-000 (North America)

Model Number 999-6960-001 (International)

PowerVIEW HD-30 High Definition PTZ Camera (30X Optical Zoom)

Model Number 999-6970-000 (North America)

Model Number 999-6970-001 (International)





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OVERVIEW:

The impressive Vaddio PowerVIEW HD-22 and HD-30 high definition PTZ cameras are available with 22X and 30X power zoom optics. This new camera the latest Maicovicon 1MOS, 1/2.8-Type, progressive scan image sensors, which allow for better light sensitivity, increased noise reduction and lower power consumption than either CCD or CMOS image sensors. This advanced MOS image sensor provides for delicate gradation, realistic textures and vivid colors that are comparable to 3-chip camera performance.

Both the HD-22 and the HD-30 provide matchless low-light capabilities with a minimum illumination rating of an amazing 0.4 lux (color) and 0.3 lux (B/W). With a 2.2 megapixel MOS sensor, the cameras deliver native 1080p/60 high definition video resolution and superior color reproduction for use in any professional A/V presentation, videoconferencing, House of Worship, education, live event and industrial applications.



Image: PowerVIEW HD-22 or HD-30 PTZ Camera

The HD-22 has a powerful 22X multi-element glass zoom lens ($f=4.3\text{mm}$ to 94.6mm) and works exceptionally in large rooms. However, the premium optics also provides a super-wide horizontal field of view of 65.2° , which works very well in small room video applications. The HD-30, as the name would suggest, has a robust 30X optical power zoom lens that enables the capture of brilliant and detailed video images even in the largest rooms.

The cameras output multi-format HD video in both analog component (YPbPr), HDMI and differential formats in HD resolutions of 1080p/59.94, 1080p/50 1080p/29.97 1080p/25, 1080i/59.94, 1080i/50, 720p/59.94, 720p/50 and SD resolutions of 480p/59.97 and 576p/50.

Both PowerVIEW cameras will be offered in WallVIEW™ packages with Quick-Connect™ Interfaces using HSDS for distribution of video, power and control over Cat-5 cable. The packages will include the Quick-Connect Universal CCU, Quick-Connect SR, Quick-Connect DVI/HDMI SR, Quick-Connect USB and USB Mini. The PowerVIEW HD-22 and the HD-30 cameras represent an exceptional value and are remarkable performers for even the most demanding HD video applications.

Intended Use:

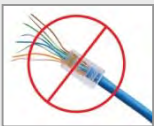
Before operating the device, please read the entire manual thoroughly. The system was designed, built and tested for use indoors with the power supply provided. The use of a power supply other than the one provided or outdoor operation has not been tested and could damage the device and/or create a potentially unsafe operating condition.

Important Safeguards:

Read and understand all instructions before using. Do not operate any 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 system. Use of any unauthorized power supply will void any and all warranties.



Please do not use "pass-thru" type RJ-45 connectors. These pass-thru type connectors do not work well for professional installations and can be the cause of intermittent connections which can result in the RS-232 control line failing and locking up, and/or compromising the HSDS (high speed differential) signals. For best results please use standard RJ-45 connectors and test all cables for proper pin-outs prior to use and connection to Vaddio product.

Save These Instructions:

The information contained in this manual will help you install and operate your product. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.



UNPACKING:

Carefully remove the product and all of the included parts from the packaging. Identify the following parts for each camera:

PowerVIEW HD-22 HD PTZ Camera (North America):

Part Number: 999-6960-000

- One (1) PowerVIEW HD-22 HD PTZ Camera (998-6960-000)
- One (1) Vaddio IR Remote Commander
- One (1) EZCamera™ Control Adapter (RJ-45 to DB-9)
- One (1) 12 VDC, 3.0 Amp Power Supply with Power Cord for North America
- Documentation

PowerVIEW HD-22 HD PTZ Camera (International):

Part Number: 999-6960-001

- One (1) PowerVIEW HD-22 HD PTZ Camera (998-6960-000)
- One (1) Vaddio IR Remote Commander
- One (1) EZCamera™ Control Adapter (RJ-45 to DB-9)
- One (1) 12 VDC, 3.0 Amp Power Supply
- One (1) Euro Power Cable
- One (1) UK Power Cable
- Documentation

PowerVIEW HD-30 HD PTZ Camera (North America):

Part Number 999-6970-000

- One (1) PowerVIEW HD-30HD PTZ Camera (998-6970-000)
- One (1) Vaddio IR Remote Commander
- One (1) EZCamera™ Control Adapter (RJ-45 to DB-9)
- One (1) 12 VDC, 3.0 Amp Power Supply with Power Cord for North America
- Documentation

PowerVIEW HD-30 HD PTZ Camera (International):

Part Number 999-6970-001

- One (1) PowerVIEW HD-22 HD PTZ Camera (998-6960-000)
- One (1) Vaddio IR Remote Commander
- One (1) EZCamera™ Control Adapter (RJ-45 to DB-9)
- One (1) 12 VDC, 3.0 Amp Power Supply
- One (1) Euro Power Cable
- One (1) UK Power Cable
- Documentation



Front View with Feature Call-outs

Image: PowerVIEW HD-22/30 HD PTZ Camera



1) Camera and Zoom Lens:

The 22X (HD-22) or 30X (HD-30) optical zoom lens is built around a (1/2.8 Type) high-speed MOS image sensor with a total of 2.2 megapixels for precise HD video image acquisition.

2) Red Tally Light:

A red tally light is illuminated when the camera receives a command from an external control system.

3) IR Sensors:

IR sensors are built into the front of the PowerVIEW HD-22/30 to receive IR signals from the IR remote control supplied with the camera.

4) Blue Power Light:

A Vaddio blue power light is illuminated when the camera is turned on.

Rear Panel Connections with Feature Call-outs

Image: PowerVIEW HD-22 or HD-30 HD PTZ Camera



5) RS-232 IN & IR Out:

The RS-232 accepts modified VISCA protocol for camera control, as well as transmits IR signaling received by the IR receivers, which can be transmitted to third party devices.

6) Dip Switch Settings:

Settings for IR remote, baud rate and image flip can be configured on these switches. See the Switch Settings page for additional information.

7) HD Video Select:

A rotary switch allows the user to choose the component HD output video resolution and format. See the Switch Settings page for additional information.

- ❖ **HD Resolution Note:** When changing the resolution of the camera, the camera should be power-cycled after the change.

8) 12 VDC Input:

Power input for the standard, PowerVIEW HD-22 and HD-30 camera power supply.

9) HDMI Output:

The HDMI output feeds out HD digital video only (no copy protect or device communication is included). The HDMI output is optimized for HD video signals (seems logical).

10) YPbPr Output:

Component HD video (YPbPr) is output through the DE-15 connector. YPbPr and HDMI signals are simultaneous. Limited SD resolutions are supported.

11) EZ Power/Video Port:

This RJ-45 connector is only used with the Quick-Connect SR Interface, Quick-Connect DVI-D/HDMI SR Interface and the Quick-Connect USB Interface to supply power and return HSDS (differential) video from the camera.

12) Slot for Optional Cards:

Optional slot cards can be plugged into the PowerVIEW HD-22 HD camera (the HD-SDI and the EZIM CCU Slot Cards are available).

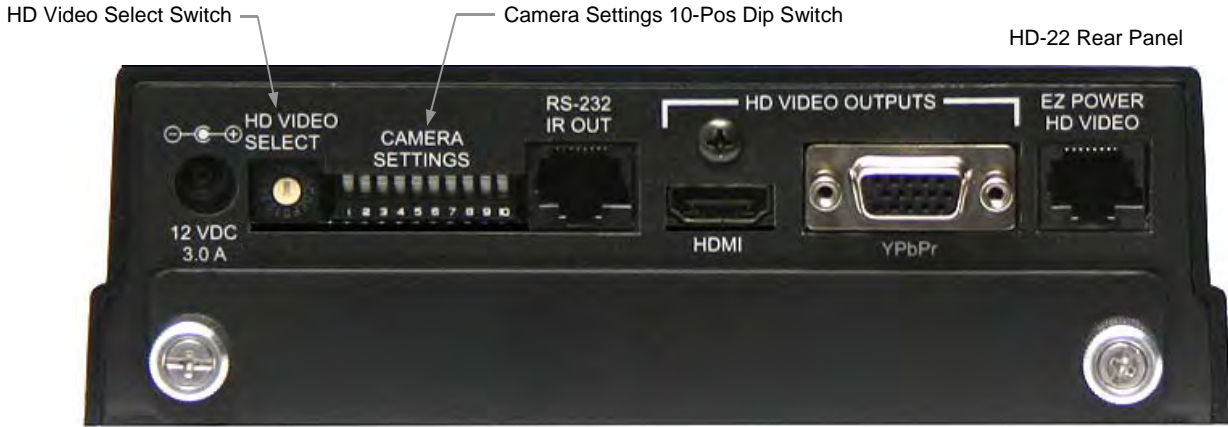
FIRST TIME SET-UP WITH THE POWERVIEW HD-22 OR HD-30:

The PowerVIEW HD-22 and HD-30 were designed to be very easy to use and operate. There is documentation at the back of this manual for pin-outs of the connectors on the PowerVIEW HD-22 camera.

Step 1: Using the HD VIDEO SELECT rotary switch and CAMERA SETTINGS dip switches on the back of the camera, set up the camera’s output resolution and functional preferences. There is a label on the bottom of the camera that identifies the choices.

Important Dip Switch Note: Setting all dip switches down and power cycling the camera will load the factory default camera settings. For the first time set-up, loading the defaults may be a good idea.

Image: PowerVIEW HD-22/30 Rear Panel Connections



Drawing: Dip Switch and Resolution Label on the Bottom of the HD-22/30

DIP SWITCH SETTINGS										VIDEO RESOLUTION SELECT			
IR 1 1 & 2 UP	IR OUT OFF	9600 bps	5 OFF	6 OFF	HDMI COLOR YCbCr	IMAGE FLIP OFF	9 OFF	10 OFF	0	720p/59.94	8	576p/50	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	1080i/59.94	9	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2	1080p/59.94	A	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	---	B	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4	720p/50	C	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	1080i/50	D	---	
IR 2 ON	IR 3 ON	38400 bps	---	---	sRGB	ON	---	---	6	1080p/50	E	1080p/29.97	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7	480p/59.94	F	1080p/25	
1	2	3	4	5	6	7	8	9	10				

- Set the desired and available HD output resolution for the camera with the Rotary Switch.
- Set the IR frequency of the camera if it is to respond to the IR remote control.
- If using the IR forwarding feature, set the IR OUT switch to ON (SW3).
- Set the Baud Rate dip switch (SW4) to 9600bps for most applications. Default for Vaddio EZCamera Cabling Systems is 9600bps.
- To set the HDMI or DVI color space, use dip switch 7 (SW7).
- If inverting the camera, turn the IMAGE FLIP ON (SW8).

Dip Switch Settings:

IR 1 & 2: The IR remote has the capability of operating up to three different PTZ cameras from one remote. Use the selector buttons at the top of the IR remote to select the frequency.

IR Out 3: The IR output is sent out on the RS-232 RJ-45 jack on the back of the camera. Turning on the IR output will allow IR signals to be transmitted over the Cat-5 cable to the head end. When using RS-232 control or Vaddio CCU controllers (also via RS-232), turn the IR OUT to OFF (up).

Baud Rate 4: The options for baud rate are either 9600 bps or 38,400 bps.

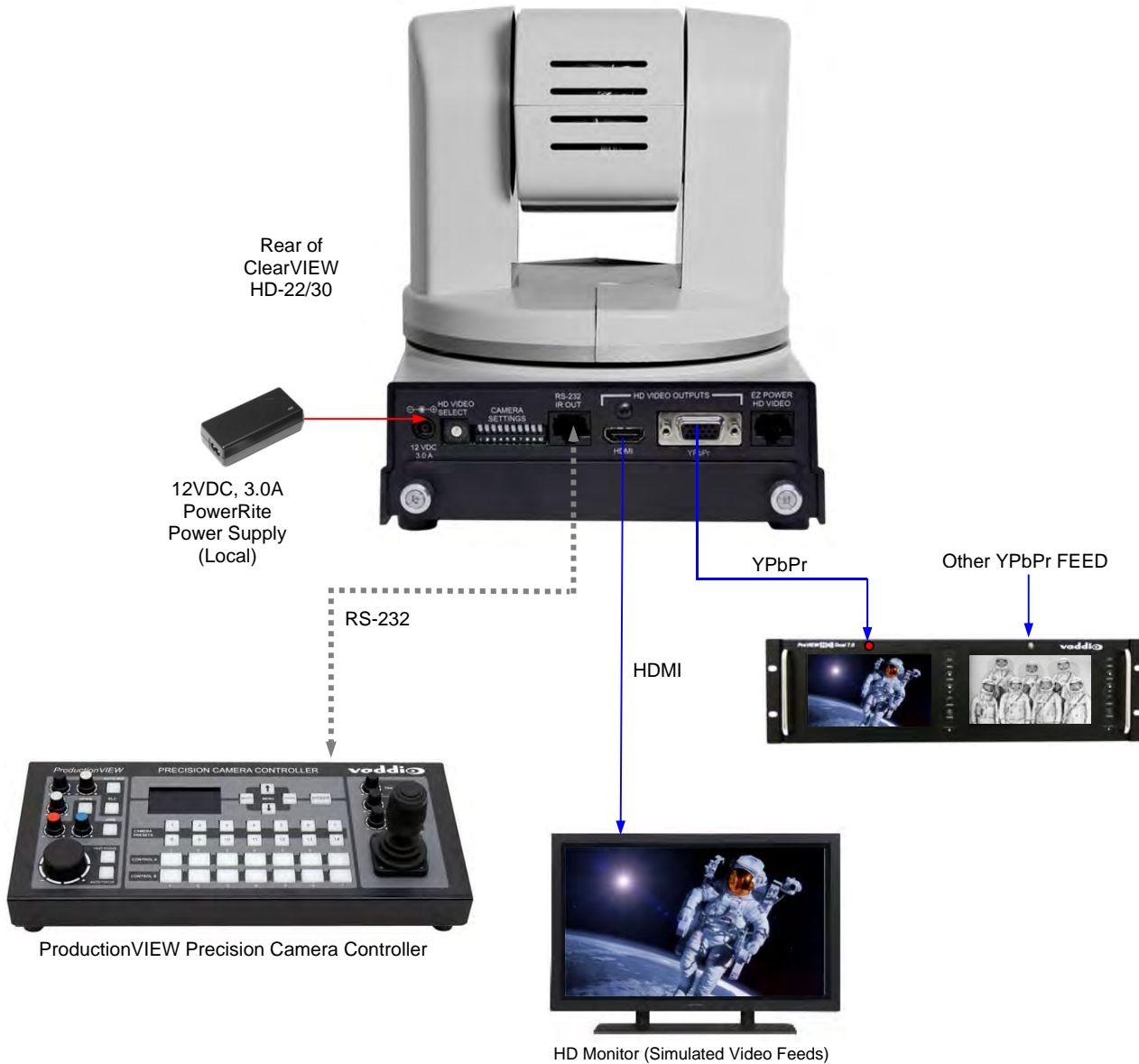
HDMI Color or sRGB Color space 7: Default is YCbCr. Use sRGB color space with older DVI-D 1.0 monitors only. The YCbCr color space is best for HDMI digital video.

Image Flip 8: To invert the HD-20, turn the IMAGE FLIP ON (switch down).

Switches 9 and 10: Leave up - or in the OFF position.

Image: Basic Connectivity Example of the HD-22 & HD-30

Camera Connected to ProductionVIEW™ Precision Camera Controller, Codec and Monitors



Installation Basics:

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 that will optimize the performance of the camera.

RS-232 Cabling:

For RS-232, use a standard Cat-5 cable (568B termination for RJ-45 connectors) from the RS-232 port on the back of a Vaddio ProductionVIEW camera controller or switcher. If the camera will be connected to a third-party control system (such as AMX or Crestron), a DB-9 to RJ-45 adapter is supplied with the camera for RS-232.

COMPLIANCE AND CE DECLARATION OF CONFORMITY - POWERVIEW HD-22 AND HD30



Compliance testing was performed to the following regulations:

- **FCC Part 15** (15.107, 15.109), **Subpart B**
- **ICES-003, Issue 4: 2004**
- **EN 55022 A: 2006 + A1: 2007**
- **KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)**
- **KN22 2008 (CISPR 22: 2006)**
- **EMC Directive 2004/108/EC**
- **EN 55024: A2: 2003**

Class A
Class A
Class A
Class A
Class A
Class A
Class A



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 2004/108/EC

EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)

EN 55024: 1998 + Amendments A1: 2001 + A2: 2003

- 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

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

Radiated and Conducted 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 INFORMATION

(See Vaddio Warranty, Service and Return Policies posted on vaddio.com for complete details):

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 products and 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 through one of the following resources: e-mail support at support@vaddio.com or online at 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. RMA's 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.

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.

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

Other General Information:

Care and Cleaning

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

- Do not spill liquids in the product
- Keep this device away from food and liquid
- For smears or smudges on the product, wipe with a clean, soft cloth
- Use a lens cleaner on the lens - not a hanky
- Do not use any abrasive chemicals.

Operating and Storage Conditions:

Do not store or operate the device under the following conditions:

- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In inclement weather
- In swimming pools or bird's nest
- Dry environments with an excess of static discharge
- In orbit (vacuum problem)
- Under severe vibration

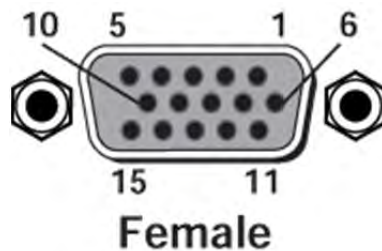
GENERAL SPECIFICATIONS:

Camera	PowerVIEW HD-22 PTZ	PowerVIEW HD-30 PTZ
Part Numbers	999-6960-000 (North America) 999-6960-001 (Int'l)	999-6970-000 (North America) 999-6970-001 (Int'l)
Zoom	22X Optical Zoom	30X Optical Zoom
Field of View	Horizontal: 65.2° Wide End to 3.1° Tele (16:9 Aspect Ratio)	Horizontal: 65° Wide End to 2.2° Tele (16:9 Aspect Ratio)
Lens Focal Length	f=4.3 mm to 94.6 mm / F1.6 - F4.7	f=4.3mm to 129.0 mm / F1.6- F4.7
Image Sensor	1/2.8-Type MOS, 2.2 Megapixel, Progressive Scan	
Minimum Illumination	Color: 0.4 lux (F1.6, 1/30 sec, 50 IRE, Gain: High), B/W: 0.04 lux (F1.6, 1/30 sec, 50 IRE, Gain: High)	
Video Resolutions	HD: 1080p/59.94, 1080p/50, 1080p/29.97/25, 1080i/59.94, 1080i/50, 720p/59.94, 720p/50 SD: 480p/59.97 and 576p/50	
Video Output Formats	HDMI (YCbCr for HDMI and sRGB for DVI), Analog Component (YPbPr) HSDS (Power, Differential HD Video & R\$S-232 Control)	
Signal to Noise Ratio	> 50 dB (AGC: Off)	
Compatible Quick-Connects	Quick-Connect SR, Quick-Connect DVI/HDMI SR, Quick-Connect Universal CCU and Quick-Connect USB (varying voltages), USB Mini	
Pan Range	Pan: +170 degrees to -170 degrees Tilt: +90 degrees to -30 degrees	
Preset Positions	16 (internal), 6 recalled via Vaddio IR Remote Commander	
Image Control	Red & Blue Gain, Detail, Chroma, Gamma, Pedestal, Iris, and Gain (Controls available through RS-232 control and Quick-Connect CCU and Slot Card)	
Tally Light	Available through RS-232 Control	
HD Video Select	16-Position Rotary Switch: Used to set HD Video Resolution Output	
Camera Settings	10-Position Dip Switch: Settings for IR Select, Baud Rate 9600, Image Flip, Unpublished Functions	
Accessory Slot Cards	EZIM HD-SDI Slot Card PN# 998-6900-007, EZIM CCU Slot Card PN# 999-6900-006 - For Use with Quick-Connect CCU Only	
Dimensions/Weight	7.81" (198.37mm) H x 6.67" (169.42mm) W x 7.057" (179.25. mm) D / 5.6 lbs. (2.630835643 kg.)	

Moon in Front Page Header: Miranda - Moon of the planet Uranus.

APPENDIX 1: YPBPR VIDEO PIN-OUT FOR THE HD-22/30 CAMERA

Pin	YPbPr
1	Pr
2	Y
3	Pb
4	-
5	-
6	Pr GND
7	Y GND
8	Pb GND
9	-
10	GND
11	-
12	-
13	-
14	-
15	-

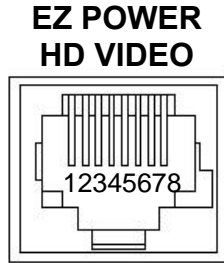


EZCamera Power & HD Video RJ-45 Connector Pin-outs

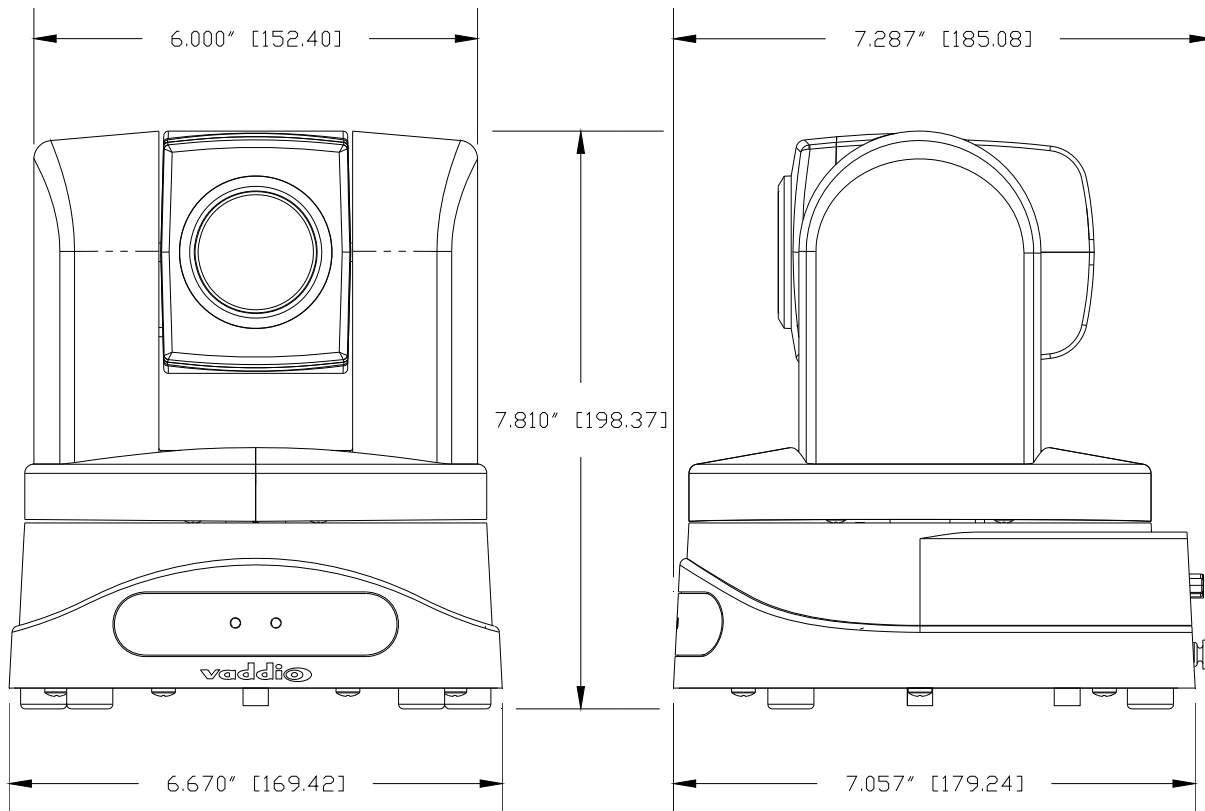


Important Note: The EZ Power and HD Video RJ-45 Connector is for use with the **Quick-Connect SR, Quick-Connect DVI/HDMI SR** and **Quick-Connect USB Interfaces ONLY** (568B Wiring Standard). The video signals are differential (HSDS™) and can only be received by the interfaces above.

Pin	YPbPr
1	Power+
2	Power-
3	Y+
4	PB+
5	PB -
6	Y -
7	PR+
8	PR-



Drawing: PowerVIEW HD-22/30 Dimensions



Optional Accessories:



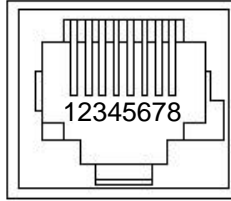
Wall Mount Bracket
535-2020-230



15-pin to Male BNC Output Cables
440-5600-001 (3 ft.)
440-5600-002 (6 ft.)
440-5600-003 (7 inch.)

COMMUNICATION SPECIFICATION

Communication Speed: 9600 bps (default)
 Start bit: 1
 Stop bit: 1
 Data bits: 8
 Parity: None
 No Flow control



Pin #	RJ-45 RS-232 and IR Out Pins
1)	Unused
2)	Unused
3)	Unused
4)	IR Output (Diff Signal to Quick-Connect SR)
5)	IR Ground (Diff Signal to Quick-Connect SR)
6)	GND (GND of IR Short Range - Pin 3)
7)	RXD (from TXD of control source)
8)	TXD (to RXD of control source)

NOTE: The Vaddio PowerVIEW HD-22 and 30Control Protocol is similar, but not identical to, the Sony® VISCA™ command set in order to be compatible with several popular control devices. Not all VISCA commands are supported and there are many HD-22/30 specific commands in the following Command and Inquiry Lists.

HD-22/30 Command List (1/2)

Command Set	Command	Command Packet	Comments
Address Set	Broadcast	88 30 01 FF	Address Set (Daisy chain)
IF_Clear	Broadcast	88 01 00 01 FF	IF Clear
Command Cancel		8x 2p FF	p:socket number(1,2)
CAM_Power	On	8x 01 04 00 02 FF	Power On/Off
	Off(Standby)	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	p:(1-Slow to 4-Fast) p:(1-Slow to 4-Fast) pqr: Zoom Position*
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	
	Wide(Variable)	8x 01 04 07 3p FF	
Direct	8x 01 04 47 00 0p 0q 0r FF		
CAM_Focus	Stop	8x 01 04 08 00 FF	p:(1-Slow to 4-Fast) p:(1-Slow to 4-Fast) pqrs: Focus position(0-0x438)*
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	8x 01 04 08 2p FF	
	Near(Variable)	8x 01 04 08 3p FF	
	AutoFocus	8x 01 04 38 02 FF	
	ManualFocus	8x 01 04 38 03 FF	
	Auto/Manual	8x 01 04 38 10 FF	
Direct	8x 01 04 48 0p 0q 0r 0s FF		
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto (Auto Tracing WB) Indoor Mode (Color Temp 3200K) Outdoor Mode (Color Temp 5600K) One Push White Balance Mode Manual White Balance Fluorescent(Color Temp 4200K) One Push WB Trigger
	Indoor	8x 01 04 35 01 FF	
	Outdoor	8x 01 04 35 02 FF	
	One Push WB	8x 01 04 35 03 FF	
	Manual	8x 01 04 35 05 FF	
	Fluorescent	8x 01 04 35 06 FF	
	One Push Trigger	8x 01 04 10 05 FF	
CAM_RGain	Reset	8x 01 04 03 00 FF	pq:00-ff
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	
CAM_BGain	Reset	8x 01 04 04 00 FF	pq:00-ff
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	
CAM_AE	Full Auto	8x 01 04 39 00 FF	Auto Exposure Mode Manual Control Mode
	Manual	8x 01 04 39 03 FF	
CAM_Iris	Reset	8x 01 04 0B 00 FF	pq(0x00-0xFF)
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	
CAM_Gain	Reset	8x 01 04 0C 00 FF	pq(0x00-0xFF)
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 4C 00 00 0p 0q FF	
CAM_Backlight	On	8x 01 04 33 02 FF	
	Off	8x 01 04 33 03 FF	
CAM_Aperture	Reset	8x 01 04 02 00 FF	pq(0x00-0x3F)
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	

***Zoom and Focus Data:**

CAM_Zoom: Range (0x000-0xA23/0xA73), HD22: 0xA23(22x Zoom), HD30: 0xA73(30x Zoom)
 CAM_Focus: Range (0x000-0x438) dependent on Zoom Position

HD-22/30 Command List (2/2)

Command Set	Command	Command Packet	Comments
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	p:Memory No(=0-0xF)
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs:0x0000 – 0xFFFF
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Mirror (Horizontal) on
	Off	8x 01 04 61 03 FF	
CAM_Freeze	On	8x 01 04 62 02 FF	Still image on
	Off	8x 01 04 62 03 FF	
CAM_PictureEffect	Color	8x 01 04 63 00 FF	
	B&W	8x 01 04 63 04 FF	
Pan-tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan Speed (0x01-0x18) WW: Tilt Speed(0x01-0x14) YYYY: Pan Position** ZZZZ: Tilt Position**
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	
	UpLeft	8x 01 06 01 VV WW 01 01 FF	
	UpRight	8x 01 06 01 VV WW 02 01 FF	
	DownLeft	8x 01 06 01 VV WW 01 02 FF	
	DownRight	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	Absolute Position	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
Reset	8x 01 06 05 FF		
Tally	On	8x 01 7E 01 0A 00 02 FF	
	Off	8x 01 7E 01 0A 00 03 FF	
Preset Pan Speed	Pan/Tilt/Zoom Speed	8x 01 7E 01 0B WW SS ZZ FF	WW: Pan Speed (0x01-0x18) SS:Tilt Speed(0x01-0x14) ZZ:Zoom Speed(0-7);
Motor Config	Hard Motor Stops	8x 01 7E 01 70 00 00 FF	
	Soft Motor Stops	8x 01 7E 01 70 00 01 FF	
BLK.Enhance	Pedestal	8x 01 7E 53 00 00 0p 0q FF	Pq: Pedestal(0x00-0xFF)
GMA.Enhance	Gamma	8x 01 7E 54 00 00 0p 0q FF	pq: Gamma (0x00-0x03)
CRM.Enhance	Chroma	8x 01 7E 55 00 00 0p 0q FF	pq: Chroma (0x00-0xFF)
KNE.Enhance	Knee	No Support	No Support
DIS.Enhance	Digital Image	8x 01 7E 57 02 FF	On
	Stabilizer	8x 01 7E 57 03 FF	Off
DNR.Enhance	Digital Noise	8x 01 7E 58 02 FF	On
	Reduction	8x 01 7E 58 03 FF	Off
AGC.Enhance	AGC Mode	8x 01 7E 59 00 FF	Off Manual AGC Gain (0dB)
		8x 01 7E 59 01 FF	Low
		8x 01 7E 59 02 FF	Medium
		8x 01 7E 59 03 FF	High
		8x 01 7E 59 04 FF	Low1
		8x 01 7E 59 05 FF	Low2
		8x 01 7E 59 06 FF	Med1
		8x 01 7E 59 07 FF	High1
		8x 01 7E 59 00 0p FF	Off p: Manual AGC Gain(1-0x0e)***
CAM_Shutter	No Support	No Support	No Support
CAM_ICR	ICR Off	8x 01 04 01 02 FF	ICR Off Color
	ICR On	8x 01 04 01 03 FF	ICR On Black and White

**Additional Information:

Pan Range: 8044 – 7FBC (-32,700 to +32,700)

Tilt Range: E891 – 4C2B (-5,999 to +19,499)

Actual Pan/Tilt ranges defined in Inquiry list

HD-22/30 Inquiry List (1/1)

Inquiry Command	Command	Response Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF y0 50 03 FF	On Off(Standby)
CAM_ICRModelInq	8x 09 04 01 FF	y0 50 02 FF y0 50 03 FF	On - ICR filter Out Off – ICR filter In
CAM_BacklightModelInq	8x 09 04 33 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_WBModelInq	81 09 04 35 FF	y0 50 00 FF y0 50 01 FF y0 50 02 FF y0 50 03 FF y0 50 05 FF y0 50 06 FF	Auto Indoor Outdoor One Push WB Manual Fluorescent
CAM_AEModelInq	8x 09 04 39 FF	y0 50 00 FF y0 50 03 FF	Auto Exposure Mode Manual Control Mode
CAM_LR_Reverse	8x 09 04 61 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_Freeze	8x 09 04 62 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_PictureEffect	8x 01 04 63 FF	y0 50 00 FF y0 50 04 FF	Off B&W
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Preset 0-0xf
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: 0x0000 – 0xFFFF
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	Pq: x00-0x3F
CAM_RGain	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: 000-0ff
CAM_BGain	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: 000-0ff
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqr: 0-0x6B3
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_FocusModelInq	8x 09 04 38 FF	y0 50 02 FF y0 50 03 FF	Auto Manual
CAM_Gain	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq(0x00-0x24)
CAM_IRReceivelInq	8x 09 06 08 FF	y0 50 02 FF y0 50 03 FF	On Off
Pan-TiltMaxSpeedInq	8x 09 06 11 FF	y0 50 pp qq FF	pp: Pan 0x01-0x18 qq: Tilt 0x01-0x14
Pan-tiltPositionInq	8x 09 06 12 FF	FF y0 50 0p 0p 0p 0p 0q 0q 0q 0q FF	pppp: Pan 0x8044-0x7FB2 qqqq: Tilt 0xE890-0x4C2C
CAM_ShutterPosInq	No support	No support	Shutter Position
TallyInq	8x 09 7E 01 0A FF	y0 50 02 FF y0 50 03 FF	On Off
PresetSpeedInq	8x 09 7E 01 0B FF	y0 50 pp qq rr FF	pp: Pan 0x01-0x18 qq: Tilt 0x01-0x14 rr: Zoom 0x00-0x07
Motor Config	8x 09 7E 01 70 FF	y0 50 00 FF y0 50 01 FF	Hard Motor Stops Soft Motor Stops
BLK.Enhance	8x 09 7E 53 FF	y0 50 00 00 0p 0q FF	pq: Pedestal(0x00-0xFF)
GMA.Enhance	8x 09 7E 54 FF	y0 50 00 00 00 0p FF	p: Gamma (0x00-0x03)
CRM.Enhance	8x 09 7E 55 FF	y0 50 00 00 0p 0q FF	p: Chroma (0x00-0xFF)
KNE.Enhance	No support	No Support	Knee
DIS.Enhance	8x 09 7E 57 FF	y0 50 02 FF y0 50 03 FF	On Off
DNR.Enhance	8x 09 7E 58 FF	y0 50 02 FF y0 50 03 FF	On Off
AGC.Enhance	8x 09 7E 59 FF	y0 50 00 FF y0 50 01 FF y0 50 02 FF y0 50 03 FF y0 50 04 FF y0 50 05 FF y0 50 06 FF y0 50 07 FF y0 50 0p FF	Off Manual AGC Gain(0dB) Low Medium High Low1 Low2 Med1 High1 Off p: Manual AGC Gain(0-0x0e)***

***Manual AGC Gain: 0:0dB, 1:3dB, 2:6dB, 3:9dB, 4:12dB, 5:15dB, 6:18dB, 7:21dB, 8:24dB, 9:27dB, 10:30dB, 11:33dB, 12:36dB, 13:39dB & 14:42dB



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