

# VADDIO™ CLEARVIEW™ HD-19

## High Definition Integrated Robotic PTZ Camera



Arctic White Version  
Part Number 999-6940-000AW (North America)  
Part Number 999-6940-001AW (International)



Black Version  
Part Number 999-6940-000 (North America)  
Part Number 999-6940-001 (International)

*Inside Front Cover - Blank*

### Overview:

The Vaddio™ ClearVIEW HD-19 high definition integrated robotic PTZ camera features a 19X optical zoom lens and is built around a 1/3-Type progressive scan, high-speed, low noise CMOS image sensor with a total of 1.3 Megapixels for precise and vibrant HD color video images.

The HD-19 uses an increased pixel aperture size, high signal to noise and column-parallel A/D conversion method to create images containing more detail than ever before. It combines the speed of the CMOS sensor with advanced-quality image sensor technologies amassed through the development of CCDs.

The HD-19 achieves improved picture quality even in low light environments requiring a minimum illumination rated at an astonishing 0.7 LUX (F1.6 - 50IRE).

The HD-19 is available in Black and in Arctic White and is equipped with a slip-clutch mechanism for smooth pan/tilt operation and control. The HD-Zoom lens allows HD-19 to capture a wide angle of view (58.1°) to view everyone at a conference room table, as well as capture an individual from a long distance (3.2°) in a larger room. The zoom range provides great flexibility for a wide variety of applications.

The HD-19 outputs HD video (YPbPr at 1080p/60/59.94/50/30/25, 1080i/59.94/50, 720p/59.94/50, 480i/30fps and 576i/25fps) and SD video (CVBS at NTSC and PAL) simultaneously. Overall, the HD-19 is an exceptional camera for a wide range of HD video applications such as houses of worship, videoconferencing, corporate boardrooms, live events and distance-learning.



### Intended Use:

Before operating the device, please read the entire manual thoroughly. The system was designed, built and tested for use indoors, and with the provided power supply and cabling. 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™ 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](http://www.vaddio.com) free of charge.

## Unpacking:

Carefully remove the device and all of the parts from the packaging.  
Unpack and identify the following parts in 999-6940-000:

- One (1) ClearVIEW HD-19 HD Camera
- One (1) Vaddio IR Remote Commander
- One (1) EZCamera™ Control Adapter (RJ-45 to DB-9)
- One (1) Vaddio PowerRite™ 12 VDC, 3.0 Amp Power Supply
- One (1) AC Cord Set for North America
- Documentation

(Note: The 999-6940-001 Int'l Version includes the Euro and UK power cables)

## ClearVIEW HD-19 PTZ Camera, Front View with Feature Call-outs:



### 1) Zoom Lens on Image Sensor:

The 19X optical zoom lens is built around a 1/3-Type, high-speed, progressive scan CMOS image sensor with a total of 1.3 Megapixels for precise HD video image acquisition.

### 2) Red Tally Light:

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

### 3) IR Sensors:

IR sensors are built into the front of the ClearVIEW HD-19 to receive IR signals from the IR remote control supplied with the camera as well as other 3<sup>rd</sup> party remotes for the IR forwarding feature.

### 4) Blue Power Light:

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

## Compatible Switchers and Joystick Controllers:



**ProductionVIEW™ HD MV**  
(999-5625-000)



**AutoPresenter**  
(999-5675-000)



**Precision Camera Controller**  
(999-5700-000)

### ClearVIEW HD-19 PTZ Camera, Rear View with Feature Call-outs:



#### 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, SD output format, and image flip can be configured on these switches. See page 5 for additional information on switch settings.

#### 7) HD Video Select:

A rotary switch allows the user to choose the component HD output video resolution and format. See page 6 for additional information on switch settings.

#### 8) 12 VDC Input:

Power input for the standard, ClearVIEW HD-19 camera power supply.

#### 9) YPbPr Output:

Component HD video is fed through the DB-15 connector. YPbPr and Composite signals are simultaneous. This is an HD camera and the SD signals are down converted and are really not the sweet spot of this camera.

#### 9) Composite Video (CVBS) Output:

The CVBS output feeds out SD video signals and is configurable with the dip switches to choose between 480i/NTSC or 576i/PAL in 4:3 formats. Squeeze and letterbox modes are also available (see dipperswitches 6&7).

#### 11) EZ Power/Video Port:

This RJ-45 connector is only used with the Quick-Connect SR Interface and the Quick-Connect DVI-D/HDMI SR Interface to supply power and return HS-DS video from the camera.

#### 12) Slot for Optional Cards:

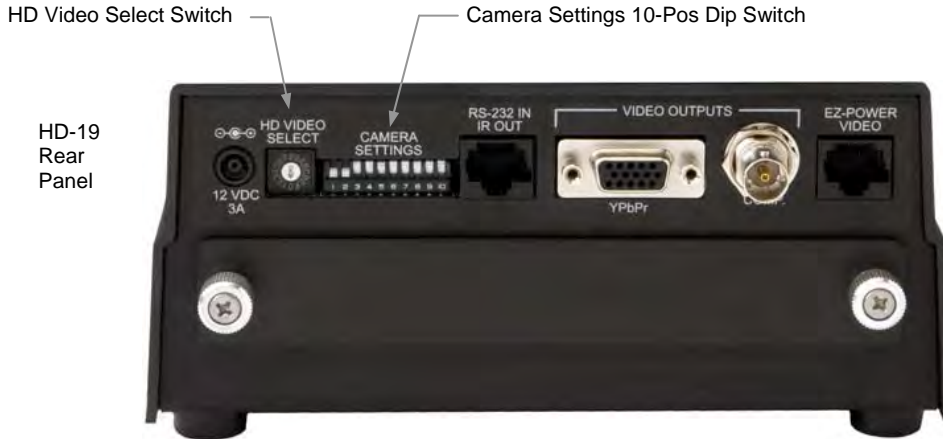
Optional slot cards can be plugged into the ClearVIEW HD-19 camera (the HD-SDI and the EZIM CCU Slot Cards are available).

### First Time Set-up with the ClearVIEW HD-19:

The ClearVIEW HD-19 was designed to be exceptionally easy to use and operate. There is documentation at the back of the manual for pin-outs for all of the connectors on the ClearVIEW HD-19 camera.

### Getting Started

**Step 1:** Using the HD Video Select Rotary Switch and Camera Settings Dip Switch 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.



Label on Bottom of the HD-19

| DIP SWITCH SETTINGS                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     | HD VIDEO SELECT |             |            |          |         |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-----------------|-------------|------------|----------|---------|
| IR 1<br>1 & 2 UP                    | IR<br>OUT<br>OFF                    | 9600<br>bps                         | SD<br>NTSC                          | SD 4:3<br>6 & 7 UP                  |                                     |                                     | IMAGE<br>FLIP<br>OFF                | TEST<br>BARS<br>OFF                 | 10<br>OFF                           |                 | 0           | 720p/59.94 | 8        | 576i/25 |
| <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"/> | <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"/> | <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"/> | <input checked="" type="checkbox"/> | 3               | 1080p/60    | 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"/> | <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"/> | <input checked="" type="checkbox"/> | 5               | 1080i/50    | D          | ---      |         |
| IR 2<br>ON                          | IR 3<br>ON                          | 38400<br>bps                        | SD<br>PAL                           | SD<br>SQ                            | SD<br>LB                            | ON                                  | ON                                  | ON                                  | ON                                  | 6               | 1080p/50    | E          | 1080p/30 |         |
| <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"/> | <input checked="" type="checkbox"/> | 7               | 480i/29.97  | F          | 1080p/25 |         |
| 1                                   | 2                                   | 3                                   | 4                                   | 5                                   | 6                                   | 7                                   | 8                                   | 9                                   | 10                                  |                 |             |            |          |         |

- Set the 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 RS-232 for control, leave the IR OUT OFF (SW3) and choose 9600bps for most applications.
- If using the IR forwarding feature, turn the IR OUT ON (SW3).
- 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.

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

**SD Format 5:** Choose between NTSC or PAL formats

**SD Configurations 6 & 7:** SD video can be set to standard 4:3, squeeze mode or letterbox mode.

**Image Flip 8:** To invert the HD-19, turn the IMAGE FLIP ON (switch down).

**Test Bars 9:** Turning on the non-standard test bars will override the camera video output. These non-standard test bars are 75% IRE.

**Switch 10:** Leave up - or in the OFF position

## Basic Connectivity Example of the HD-19 PTZ camera to a Vaddio Joystick 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-5e 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.

### Videoconferencing Codecs and RS-232:

Depending on the codec that is used, and which RS-232 port is used with a codec, special DB-9 to RJ-45 adapters may sometimes be required. Refer to Vaddio's website, price list or on the ClearVIEW HD-19 web page on specific diagrams for wiring the camera to videoconferencing codecs.



**Compliance and CE Declaration of Conformity - ClearVIEW HD-19**

Compliance testing was performed to the following regulations:

- **FCC Part 15, Subpart B** Class A
- **ICES-003, Issue 4: 2004** Class A
- **EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)** Class A
- **AS/NZS CISPR 22: 2009 + A1: 2010** Class A
- **VCCI V-3/2010.04** Class A
- **EMC Directive 2004/108/EC** 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 55024: 1998 + Amendments A1: 2001 + A2: 2003       | Immunity                                  |
| • EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001 | Electrostatic Discharge                   |
| • EN 61000-4-3: 2006 + A1: 2008                       | Radiated Immunity                         |
| • EN 61000-4-4: 2004 + Corrigendum 2006               | Electrical Fast Transients                |
| • EN 61000-4-5: 2006                                  | Surge Immunity                            |
| • EN 61000-4-6: 2009                                  | Conducted Immunity                        |
| • EN 61000-4-8: 2010                                  | Power Frequency Magnetic Field            |
| • EN 61000-4-11: Second Edition: 2004                 | Voltage Dips, Interrupts and Fluctuations |



## Warranty Information:

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

**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. Please see Vaddio's Service Terms and Conditions at [vaddio.com](http://vaddio.com) for specific details and policies.

**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.

**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](mailto:support@vaddio.com) or online at [www.vaddio.com](http://www.vaddio.com).

**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 outside 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, 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.

## 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
- Do not use any abrasive chemicals.

### Operating and Storage Conditions:

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

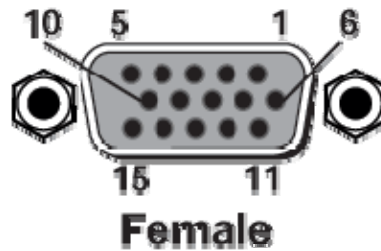
- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In inclement weather
- In swimming pools, bear caves or Panama Canal
- Dry environments with an excess of static discharge
- In outer space (re-entry not recommended)
- Under severe vibration

### General Specifications:

| ClearVIEW HD-19 High Definition PTZ Camera |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part Numbers                               | ClearVIEW HD-19 North America 999-6940-000 (Black), 999-6940-000AW (Arctic White)<br>ClearVIEW HD-19 International 999-6940-001(Black), 999-6940-001AW (Arctic White)                                                                                                                                                                                                                                                                                                                                                                          |
| Image Sensor                               | 1/3-Type Exmor High-speed, Progressive Scan CMOS Sensor with 1.3 Megapixels                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Video Output Resolutions                   | HD: 1080p/60/59.94/50/30/25, 1080i/59.94/50, 720p/59.94/50<br>SD: 480i/NTSC & 576i/PAL (Crop, Squeeze or Letterbox mode)                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Lens/ Focal Length                         | 19X Optical Zoom, F=4.5mm wide to 85mm tele (F1.6-F2.9), Min. Focus Distance 1.0m                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Horizontal Viewing Angle                   | 58.1° Wide End to 3.2° Tele End - 16:9 Format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Video S/N Ratio                            | >52 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Minimum Illumination                       | 0.7 LUX (F1.6, 50IRE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Serial Control Protocol                    | RS-232 (Modified VISCA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Pan Range                                  | Pan: +170 degrees to -170 degrees, Tilt: +90 degrees to -30 degrees, Invertible for Ceiling Mount                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Preset Positions                           | 16 (internal), 6 recalled via IR Remote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Tally Light                                | Available through RS-232 Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Connectors                                 | <ul style="list-style-type: none"> <li>12 VDC Power Input: EIAJ-04 Coaxial Power Connector</li> <li>HD Video Outputs: YPbPr on DE-15 (D-Sub 15-pin HD)</li> <li>SD Video Output: BNC Connector</li> <li>RS-232/IR Out: RJ-45 Jack (RS-232 Communication and IR Out (with Quick-Connect -SR Interfaces)</li> <li>EZ Power HD Video: RJ-45 Jack, for use with Quick-Connect SR Interface or Quick-Connect DVI/HDMI SR Interface. Supplies power to the camera and returns HD video from the camera to the Quick-Connect - SR Systems.</li> </ul> |
| 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, SD LB and SQ, Test Bars<br>OSD (On Screen Display) for fine tuning                                                                                                                                                                                                                                                                                                                                                                                                 |
| Accessories                                | Thin Profile Wall Mount 535-2000-230 (Black), 535-2000-230W (White)<br>EZIM HD-SDI Slot Card PN# 998-6900-007<br>EZIM CCU Slot Card PN# 999-6900-006 - For Use with Quick-Connect CCU Only                                                                                                                                                                                                                                                                                                                                                     |
| General Information                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Operating Temperature                      | 32° to 104° F (0° to 40° C) / 20% to 80% Relative Humidity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Dimensions (H x W x D)                     | 8.5" (215.9mm) H x 6.75" (171.45mm) W x 7.7" (195.58mm) D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Weight                                     | 5.79 lbs. (2.625635463kg.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### Appendix 1: YPbPr Video Pin-Out for the HD-19 Camera

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



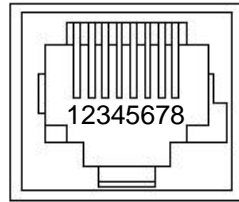


### EZCamera Power & HD Video RJ-45 Connector Pin-outs

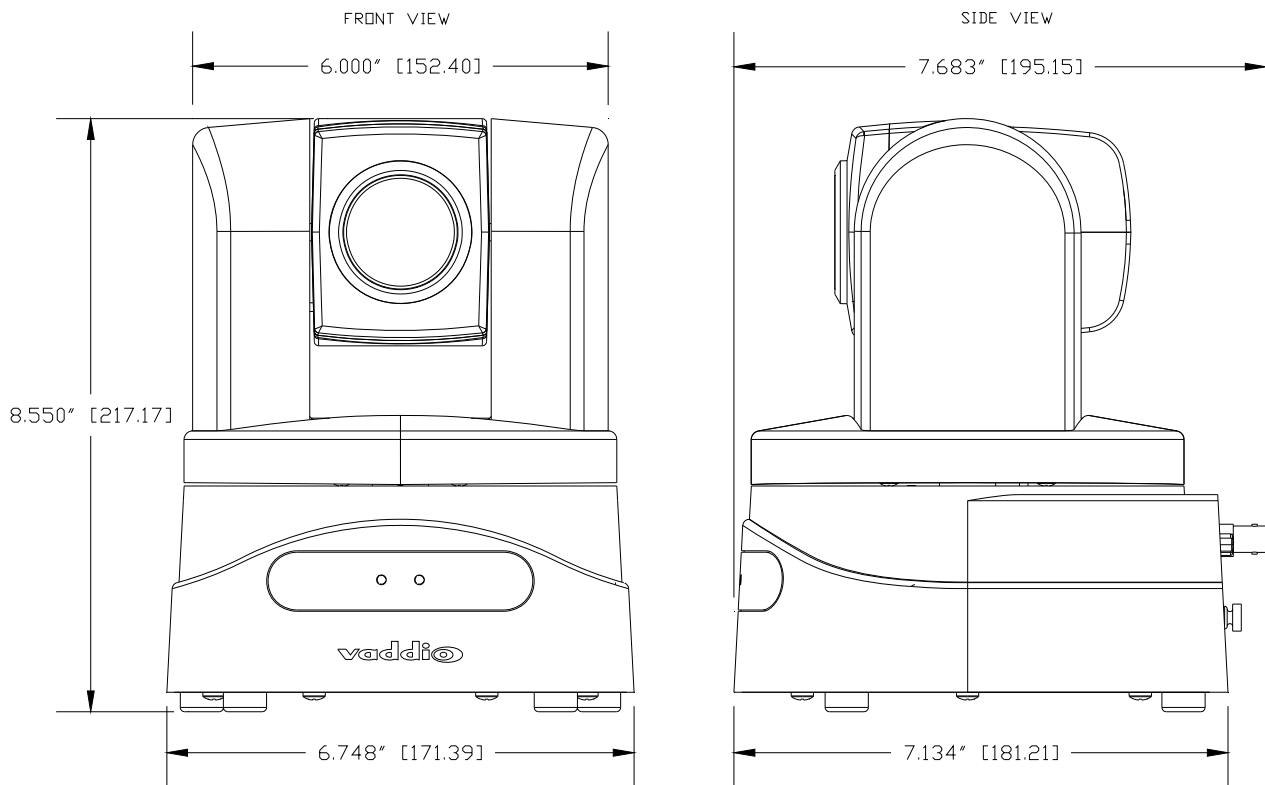
**Important Note:**

The EZCamera Power and HD Video RJ-45 Connector is for use with either the **Quick-Connect SR Interface** or the **Quick-Connect DVI/HDMI SR Interface 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 GND |
| 6   | Y GND  |
| 7   | PR+    |
| 8   | PR-    |



### Appendix 2: ClearVIEW HD-19 Dimensions



### Optional Accessories:



- TANDBERG RS-232 Adapter**  
998-1002-232
- Polycom RS-232 Adapter**  
998-1003-232
- Polycom HDX 8000 Series Adapter**  
998-1006-232



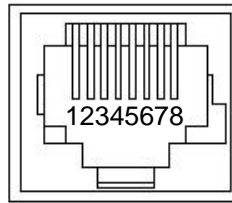
**Wall Mount Bracket**  
535-2000-230



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

### Appendix 3: 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 ClearVIEW HD-19 Control 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-19 specific commands in the following Command and Inquiry Lists.

#### HD-19 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                | pqrs: Zoom Position*<br>v:(Speed) 0-7                                                                  |
|                | 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 0p 0q 0r 0s FF       |                                                                                                        |
| CAM_Focus      | Direct(Variable) | 8x 01 7E 01 4A 0v 0p 0q 0r 0s FF | pqrs: Focus position*                                                                                  |
|                | Stop             | 8x 01 04 08 00 FF                |                                                                                                        |
| CAM_WB         | Far(Standard)    | 8x 01 04 08 02 FF                | pqrs: Focus position*                                                                                  |
|                | 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                |                                                                                                        |
|                | Manual           | 8x 01 04 35 05 FF                |                                                                                                        |
|                | One Push WB      | 8x 01 04 35 03 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<br>Manual Control Mode<br>Shutter Priority Mode<br>Exposure Priority Mode (default) |
|                | Manual           | 8x 01 04 39 03 FF                |                                                                                                        |
|                | Shutter Priority | 8x 01 04 39 0A FF                |                                                                                                        |
|                | Iris Priority    | 8x 01 04 39 0B FF                |                                                                                                        |
| CAM_Iris       | Reset            | 8x 01 04 0B 00 FF                | pq(0x00-0x11)                                                                                          |
|                | 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(0x00-0x24)                                                                                          |
|                | 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_Bright     | Reset            | 8x 01 04 0D 00 FF                | pq(0x01-0x64)                                                                                          |
|                | Up               | 8x 01 04 0D 02 FF                |                                                                                                        |
|                | Down             | 8x 01 04 0D 03 FF                |                                                                                                        |
|                | Direct           | 8x 01 04 4D 00 00 0p 0q FF       |                                                                                                        |

## HD-19 Command List (2/2)

| Command Set           | Command                  | Command Packet                                                                | Comments                                                                     |
|-----------------------|--------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 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                                                             |                                                                              |
|                       | Up                       | 8x 01 04 02 02 FF                                                             |                                                                              |
|                       | Down                     | 8x 01 04 02 03 FF                                                             |                                                                              |
|                       | Direct                   | 8x 01 04 42 00 00 0p 0q FF                                                    | pq(0x00-0x1F)                                                                |
| CAM_Memory            | Reset                    | 8x 01 04 3F 00 0p FF                                                          |                                                                              |
|                       | Set                      | 8x 01 04 3F 01 0p FF                                                          |                                                                              |
|                       | Recall                   | 8x01 04 3F 02 0p FF                                                           | p:Memory No(=0-0xe)                                                          |
| CAM_IDWrite           |                          | 8x 01 04 22 0p 0q 0r 0s FF                                                    | pqrs:0x0000 – 0xFFFF                                                         |
| IR_Receive            | On                       | 8x 01 06 08 02 FF                                                             |                                                                              |
|                       | Off                      | 8x 01 06 08 03 FF                                                             |                                                                              |
|                       | On/Off                   | 8x 01 06 08 10 FF                                                             | IR forwarding/Local IR                                                       |
| Pan-tiltDrive         | Up                       | 8x 01 06 01 VV WW 03 01 FF                                                    | WW: Pan Speed (0x01-0x18)                                                    |
|                       | Down                     | 8x 01 06 01 VV WW 03 02 FF                                                    | VV:Tilt Speed(0x01-0x14)                                                     |
|                       | 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        | 81 01 06 02 VV WW<br>0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF<br>0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF | YYYY: Pan Position**<br>ZZZZ: Tilt Position**                                |
|                       | Home                     | 8x 01 06 04 FF                                                                |                                                                              |
|                       | Reset                    | 81 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      | 81 01 7E 01 0B WW SS ZZ FF                                                    | WW: Pan Speed (0x01-0x18)<br>SS:Tilt Speed(0x01-0x14)<br>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                 | No Support                                                                    | No Support                                                                   |
| GMA.Enhance           | Gamma                    | 8x 01 7E 54 00 00 0p 0q FF                                                    | pq: Gamma (0x00-0x10)                                                        |
| CRM.Enhance           | Chroma                   | 8x 01 7E 55 00 00 0p 0q FF                                                    | pq: Chroma (0x00-0x64)                                                       |
| KNE.Enhance           | Knee                     | No Support                                                                    | No Support                                                                   |
| DIS.Enhance           | Digital Image Stabilizer | 8x 01 7E 57 02 FF<br>8x 01 7E 57 03 FF                                        | On<br>Off                                                                    |
|                       | SNR.Enhance              | Super Noise Reduction                                                         | 8x 01 7E 58 02 FF<br>8x 01 7E 58 03 FF                                       |
| AGC.Enhance           | AGC Mode                 | 8x 01 7E 59 00 FF                                                             | Off                                                                          |
|                       |                          | 8x 01 7E 59 01 FF                                                             | Low                                                                          |
|                       |                          | 8x 01 7E 59 02 FF                                                             | Medium                                                                       |
|                       |                          | 8x 01 7E 59 03 FF                                                             | High                                                                         |
| CAM_Shutter           | Reset                    | 8x 01 04 0A 00 FF                                                             |                                                                              |
|                       | Up                       | 8x 01 04 0A 02 FF                                                             |                                                                              |
|                       | Down                     | 8x 01 04 0A 03 FF                                                             |                                                                              |
|                       | Direct                   | 8x 01 04 4A 00 00 0p 0q FF                                                    | pq(0x00-0x23)                                                                |
| CAM_ExpComp           | On                       | 8x 01 04 3E 02 FF                                                             | AutoExposure Off                                                             |
|                       | Off                      | 8x 01 04 3E 03 FF                                                             | AutoExposure On                                                              |
|                       | Reset                    | 8x 01 04 0E 00 FF                                                             |                                                                              |
|                       | Up                       | 8x 01 04 0E 02 FF                                                             |                                                                              |
|                       | Down                     | 8x 01 04 0E 03 FF                                                             |                                                                              |
|                       | Direct                   | 8x 01 04 4E 00 00 0p 0q FF                                                    | Pq: 0x00-0x24                                                                |
| CAM_ICR<br>Cut Filter | ICR On                   | 8x 01 04 01 02 FF                                                             | ICR On - Cut Filter Out                                                      |
|                       | ICR Off                  | 8x 01 04 01 03 FF                                                             | ICR Off - Cut Filter In                                                      |

### \*Zoom and Focus Data:

CAM\_Zoom: Range(0x000–0x6B3)

CAM\_Focus: Range (0x000-0xC000) dependent on Zoom Position

### \*\*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-19 Inquiry List (1/1)

| Inquiry Command       | Command           | Response Packet                                                         | Comments                                                                                     |
|-----------------------|-------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| CAM_PowerInq          | 8x 09 04 00 FF    | y0 50 02 FF<br>y0 50 03 FF                                              | On<br>Off(Standby)                                                                           |
| 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_WBModelInq        | 81 09 04 35 FF    | y0 50 00 FF<br>y0 50 05 FF<br>y0 50 03 FF                               | Auto<br>Manual<br>One Push WB                                                                |
| 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_Iris              | 8x 09 04 4B FF    | y0 50 00 00 0p 0q FF                                                    | pq(0x00-0x11)                                                                                |
| CAM_Gain              | 8x 09 04 4C FF    | y0 50 00 00 0p 0q FF                                                    | pq(0x00-0x24)                                                                                |
| CAM_Bright            | 8x 01 04 4D FF    | y0 50 00 00 0p 0q FF                                                    | pq(0x01-0x64)                                                                                |
| CAM_BacklightModelInq | 8x 09 04 33 FF    | y0 50 02 FF<br>y0 50 03 FF                                              | On<br>Off                                                                                    |
| CAM_ApertureInq       | 8x 09 04 42 FF    | y0 50 00 00 0p 0q FF                                                    | Pq:x00-0x1F                                                                                  |
| CAM_MemoryInq         | 8x 09 04 3F FF    | y0 50 0p FF                                                             | p:Preset 0-0xf                                                                               |
| CAM_IDInq             | 8x 09 04 3F FF    | y0 50 0p 0q 0r 0s FF                                                    | pqrs:0x0000 – 0xFFFF                                                                         |
| CAM_ReceiveInq        | 8x 09 06 08 FF    | y0 50 02 FF<br>y0 50 03 FF                                              | On<br>Off                                                                                    |
| Pan-TiltMaxSpeedInq   | 8x 09 06 11 FF    | y0 50 pp qq FF                                                          | pp:Pan 0x01-0x18<br>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<br>qqqq: Tilt 0xE890-0x4C2C                                          |
| TallyInq              | 8x 09 7E 01 0A FF | y0 50 02 FF<br>y0 50 03 FF                                              | On<br>Off                                                                                    |
| PresetSpeedInq        | 8x 09 7E 01 0B FF | y0 50 pp qq rr FF                                                       | pp:Pan 0x01-0x18<br>qq:Tilt 0x01-0x14<br>rr:Zoom 0x00-0x07                                   |
| Motor Config          | 8x 09 7E 01 70 FF | y0 50 00 FF<br>y0 50 01 FF                                              | Hard Motor Stops<br>Soft Motor Stops                                                         |
| BLK.Enhance           | No support        | No Support                                                              | Pedestal                                                                                     |
| GMA.Enhance           | 8x 09 7E 54 FF    | y0 50 00 00 0p 0q FF                                                    | pq: Gamma (0x00-0x10)                                                                        |
| CRM.Enhance           | 8x 09 7E 55 FF    | y0 50 00 00 0p 0q FF                                                    | pq: Chroma (0x00-0x64)                                                                       |
| KNE.Enhance           | No support        | No Support                                                              | Knee                                                                                         |
| DIS.Enhance           | 8x 09 7E 57 FF    | y0 50 02 FF<br>y0 50 03 FF                                              | On<br>Off                                                                                    |
| SNR.Enhance           | 8x 09 7E 58 FF    | y0 50 02 FF<br>y0 50 03 FF                                              | On<br>Off                                                                                    |
| AGC.Enhance           | 8x 09 7e 59 FF    | y0 50 00 FF<br>y0 50 01 FF<br>y0 50 02 FF<br>y0 50 03 FF<br>y0 50 04 FF | Off<br>Low<br>Medium<br>High<br>Manual AGC                                                   |
| CAM_AEModeInq         | 8x 09 04 39 FF    | y0 50 00 FF<br>y0 50 03 FF<br>y0 50 0A FF<br>y0 50 0B FF                | Auto Exposure Mode<br>Manual Control Mode<br>Shutter Priority Mode<br>Exposure Priority Mode |
| CAM_ShutterPosInq     | 8x 09 04 4A FF    | y0 50 00 00 0p 0q FF                                                    | pq: 0x0-0x23                                                                                 |
| CAM_ExpCompModelInq   | 8x 09 04 3E FF    | y0 50 02 FF<br>y0 50 03 FF                                              | On - AE Mode Off<br>Off – AE Mode On                                                         |
| CAM_ExpCompPosInq     | 8x 09 04 4E FF    | y0 50 00 00 0p 0q FF                                                    | pq: ExpComp Pos                                                                              |
| CAM_ICRModelInq       | 8x 09 04 01 FF    | y0 50 02 FF<br>y0 50 03 FF                                              | On - ICR filter Out<br>Off – ICR filter In                                                   |

### Appendix 3 (continued):

#### Iris Position:

| Index | F-Stop (Iris Position) |
|-------|------------------------|
| 0x11  | F1.6                   |
| 0x10  | F2.0                   |
| 0x0F  | F2.4                   |
| 0x0E  | F2.8                   |
| 0x0D  | F3.4                   |
| 0x0C  | F4.0                   |
| 0x0B  | F4.8                   |
| 0x0A  | F5.6                   |
| 0x09  | F6.8                   |
| 0x08  | F8.0                   |
| 0x07  | F9.6                   |
| 0x06  | F11.0                  |
| 0x05  | F14.0                  |
| 0x04  | F16.0                  |
| 0x03  | F19.0                  |
| 0x02  | F22.0                  |
| 0x01  | F28.0                  |
| 0x00  | Close                  |

#### Gamma Position:

| Index | Gamma value    |
|-------|----------------|
| 0x10  | 1.00           |
| 0xF   | 0.95           |
| 0xE   | 0.90           |
| 0xD   | 0.85           |
| 0xC   | 0.80           |
| 0xB   | 0.75           |
| 0xA   | 0.70           |
| 0x9   | 0.65           |
| 0x8   | 0.60           |
| 0x7   | 0.55           |
| 0x6   | 0.50           |
| 0x5   | 0.45           |
| 0x4   | 0.40           |
| 0x3   | 0.35 (Default) |
| 0x2   | 0.30           |
| 0x1   | 0.25           |
| 0x0   | 0.20           |

#### Shutter Position( Speed):

| Index | Shutter (Speed) |
|-------|-----------------|
| 0x23  | 1/30000         |
| 0x22  | 1/10000         |
| 0x21  | 1/5000          |
| 0x20  | 1/2500          |
| 0x1F  | 1/1500          |
| 0x1E  | 1/1000          |
| 0x1D  | 1/700           |
| 0x1C  | 1/600           |
| 0x1B  | 1/500           |
| 0x1A  | 1/480           |
| 0x19  | 1/360           |
| 0x18  | 1/300           |
| 0x17  | 1/250           |
| 0x16  | 1/240           |
| 0x15  | 1/200           |
| 0x14  | 1/180           |
| 0x13  | 1/150           |
| 0x12  | 1/120           |
| 0x11  | 1/100           |
| 0x10  | 1/60            |
| 0x0F  | 1/50            |
| 0x0E  | 1/30            |
| 0x0D  | x2              |
| 0x0C  | x4              |
| 0x0B  | x6              |
| 0x0A  | x8              |
| 0x09  | x10             |
| 0x08  | x12             |
| 0x07  | x14             |
| 0x06  | x16             |
| 0x05  | x20             |
| 0x04  | x24             |
| 0x03  | x32             |
| 0x02  | x40             |
| 0x01  | x48             |
| 0x00  | x60             |



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